

# BID ENVELOPE COVER

NAME OF PROJECT:

FY 2022 CITY OF FRIENDSVILLE  
DOWNTOWN SIDEWALK IMPROVEMENTS  
BLOUNT COUNTY  
HUD PROJECT NUMBER B-22-CP-TN-0853

SEALED BIDS WILL BE RECEIVED BY:

THE CITY OF FRIENDSVILLE  
213 WEST COLLEGE AVENUE  
FRIENDSVILLE, TN 37737

UNTIL: 3:00 PM  
TIME

June 5, 2025  
DATE

COMPLETE ALL BLANKS!

BIDDER: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
TELEPHONE NUMBER: \_\_\_\_\_  
TENNESSEE CONTRACTORS LICENSE NUMBER: \_\_\_\_\_  
LICENSE CLASSIFICATION: \_\_\_\_\_

\_\_\_\_\_ DOLLAR LIMIT  
LICENSE EXPIRATION DATE: \_\_\_\_\_

SUBCONTRACTOR TO BE USED ON THIS PROJECT:  
(If no subcontract work is required, write "none required")

PLUMBING: \_\_\_\_\_ LICENSE NO.: \_\_\_\_\_  
Classification: \_\_\_\_\_ Expiration Date: \_\_\_\_\_  
HVAC: \_\_\_\_\_ LICENSE NO.: \_\_\_\_\_  
Classification: \_\_\_\_\_ Expiration Date: \_\_\_\_\_  
ELECTRICAL: \_\_\_\_\_ LICENSE NO.: \_\_\_\_\_  
Classification: \_\_\_\_\_ Expiration Date: \_\_\_\_\_  
GAS LINE: \_\_\_\_\_ LICENSE NO.: \_\_\_\_\_  
Classification: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

**City of Friendsville**  
**Downtown Sidewalk Improvements**  
**2022 HUD Project Number B-22-CP-TN-0853**  
**2022 Special Appropriation Funds for City of Friendsville**  
**Second Congressional District – US Representative Tim Burchett**

**Project Manual Including Contract,  
General Conditions, & Technical Specifications**

Prepared for

**The City of Friendsville**

W. College Ave

Friendsville, TN, 37737

Contact: The Honorable Steven Cardwell, Mayor

Office: 865.995.2831

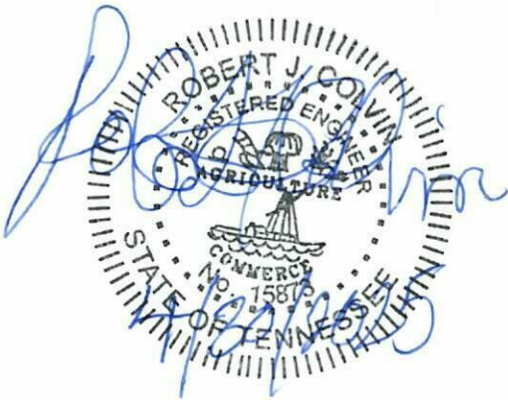
Date

October 11, 2024

Submitted By:



**ARDURRA**





**SECTION 000110**  
**TABLE OF CONTENTS**

The Contractor is advised that this Project Manual, the drawings, and any and all addenda related thereto are hereby defined in whole as the “Contract Documents” and no separation of same will be considered.

Recipients of Contract Documents must consult the Table of Contents to determine the full scope of the work involved and to ensure that all pages of the Project Manual and Drawings have been included. Neither the Owner nor the Design Engineer will be responsible for bids submitted that are based on incomplete Bidding Documents.

Non-applicable division and section references have been omitted. Conflicts between any parts of the Contract Documents shall be brought to the Owner’s attention prior to the receiving of bids. The Contractor is responsible for verifying that all documents have been received.

<b>PROCUREMENT AND CONTRACTING REQUIREMENTS</b>		<u>No. of Pages</u>
000101	Project Title Page .....	01
000110	Table of Contents .....	02
000119	Request for Bidder Information .....	01
001113	Advertisement for Bids .....	01
002113	Information for Bidders .....	05
003000	Bid for Unit Price Contracts .....	05
004114	Bid Bond .....	02
004519	Non-Collusion Affidavit .....	01
004533	Certification of Bidder Regarding Section 3 and Segregated Facilities ....	01
004533	Certification of Subcontractor - Section 3 and Segregated Facilities .....	01
004536	Bidder Certification Regarding Equal Employment Opportunity .....	01
004536.10	Subcontractor’s Equal Employment Opportunity Affidavit .....	01
004539	Female/Minority Business Enterprise Affidavit .....	01
004547	Certificate of Owner’s Attorney .....	01
004548	Illegal Immigrants Compliance Certification .....	01
004549	Iran Divestment Act .....	03
004550	SAM Registration .....	01
004551	Subcontractor Debarment, Suspension, Ineligibility & Exclusion .....	01
004552	Affidavit Regarding Non-Boycott of Israel .....	01
004600	Drug-Free Workplace Affidavit .....	01
005100	Notice of Award .....	01
005213	Agreement Form .....	02
005500	Notice to Proceed .....	01
006100	Bonding and Insurance .....	01
006113.13	Performance Bond .....	03
006113.16	Payment Bond .....	03
006276	Application for Payment Form .....	04
006363	Change Order Form .....	02
006516	Certificate of Substantial Completion .....	01
007213	Standard General Conditions of the Construction Contract .....	27
007300	Supplementary Conditions .....	06
007500	State and Local Fiscal Recovery Funds (SLRF) .....	08
007600	Byrd Anti-Lobbying Amendment Certification .....	05

## GENERAL REQUIREMENTS

010100	Summary of work.....	03
010310	Special Project Procedures.....	05
010350	Weather Delays .....	02
010500	Field Engineering.....	01
010900	Standards.....	01
011500	Measurement and Payment .....	04
013020	Submittals and Substitutions .....	03
013100	Progress Schedules.....	02
014000	Quality Control .....	02
015000	Construction Facilities.....	04
015600	Erosion & Pollution Control .....	02
016000	Material and Equipment .....	04
017000	Contract Closeout .....	03
017100	Cleaning .....	02

## EARTHWORK

311100	Site Clearing.....	03
312000	Earthwork.....	11
312333	Trenching and Backfilling.....	11
312500	Erosion and Sedimentation Controls .....	04

## EXTERIOR IMPROVEMENTS

321216	Asphalt Paving.....	08
321313	Concrete Paving .....	05
321600	Curbs and Gutters .....	04
329219	Seeding .....	04

## UTILITIES

334000	Storm Drainage Utilities.....	09
--------	-------------------------------	----

END OF SECTION 000110

**DOCUMENT 00 01 19**  
**REQUEST FOR BIDDER INFORMATION**

Questions regarding the project or the Bid Documents must be in writing as required by the Instruction to Bidders. Questions must be written on this form and sent by email or mail to the addresses listed below. Upon timely receipt, if appropriate, an Addendum will then be issued to all persons who have received Bid Documents from the Owner.

Colvin Properties, Inc.  
P.O. Box 1056  
Jacksboro, Tennessee 37757  
Attn: Robert Colvin, P.E.  
Email: [bobcolvin32@yahoo.com](mailto:bobcolvin32@yahoo.com)

CITY OF FRIENDSVILLE  
DOWNTOWN SIDEWALK IMPROVEMENTS  
HUD PROJECT NUMBER B-22-CP-TN-0853

BID DATE: \_\_\_\_\_

From: \_\_\_\_\_

Company: \_\_\_\_\_

Date: \_\_\_\_\_

CLARIFICATION IS NEEDED FOR THE FOLLOWING ITEMS:

(List Specification Section, Paragraph, Drawing Number and/or Detail Number)

---

---

---

---

---

---

---

---

End of Document

## ADVERTISEMENT FOR BIDS

Project No. B-22-CP-TN-0853

City of Friendsville, Owner

Separate sealed bids for Construction for the Downtown Sidewalk Improvements will be received by The City of Friendsville at the office of 213 West College Ave., P.O. Box 56, Friendsville, TN 37737 until 3:00 P.M., E.S.T. on June 6, 2025, and then at said office publicly opened and read aloud.

The information for Bidders, Form of Bid, Form of Contract, Plans, Specifications, and Forms of Bid Bond, Performance and Payment Bond, and other contract documents may be examined at the following: The City of Friendsville

213 W. College Avenue  
Friendsville, TN 37737

Copies may be obtained at the office of Colvin Properties, Inc., Robert Colvin, P.E.  
Located at bobcolvin32@yahoo.com upon payment of \$0 for each set.

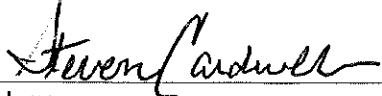
The owner reserves the right to waive any informalities or to reject any or all bids.

Each bidder must deposit with their bid security the amount and form provided in the information for bidders, subject to the conditions provided.

All bidders must be licensed General Contractors as required by the Contractor's Licensing Act of 1994, the General Assembly of the State of Tennessee, and qualified for the type of construction being bid upon.

The attention of bidders is particularly called to the requirements regarding the conditions of employment to be observed and minimum wage rates to be paid under the contract, Sections 3, Segregated Facility, Section 109, and E.O. 11246.

No bidder may withdraw their bid within 60 days after the actual date of the opening thereof.

  
Name

5-1-25  
Date

## INFORMATION FOR BIDDERS

1. Receipt and Opening of Bids: The ( herein called the "Owner") invites bids on the attached form, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the office of The City of Friendsville until 3:00 P.M. E.S.T. on June 6, 2025, and then at said office publicly opened and read aloud. The envelopes containing the bids must be sealed,

Addressed to The City of Friendsville at 213 W. College Ave., P.O. Box 56, Friendsville, TN 37737, and designated as bid for the Downtown Sidewalk Improvements

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof.

2. Preparation of Bid: Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.
  - Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his/her address, the name of the project for which the bid is submitted, and all other information required by State law. If forwarded by mail, the sealed bid envelope must be enclosed in another envelope addressed as specified in the bid form.
3. Subcontracts: The bidder is specifically advised that any person, for, or other party to whom it is proposed to award a subcontract under this contract must be acceptable to the owner after verification by the State of the current eligibility status.
4. Telegraphic Modification: Any bidder may modify his/her bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids provided such telegraphic communication is received by the Owner prior to the closing time, and, provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. The telegraphic communication should not reveal the bid price but should provide the addition or subtraction or other modification so that the final pieces or terms will not be known by the Owner until the sealed bid is opened. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modification.

5. Method of Bidding: The Owner invites bids for the following:

**Downtown Sidewalk Improvements**

6. Qualification of Bidder: The Owner may make such investigations as s/he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.
7. Bid Security: Each bid must be accompanied by cash, certified check of the bidder, or a bid bond prepared on the form of bid bond attached thereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of 5% of the bid. Such cash, checks or bid bonds will be returned to all except the three lowest bidders within three days after the opening of bids, and the remaining cash, checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contract, or, if no award has been made within 60 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as s/he has not been notified of the acceptance of his/her bid.
8. Liquidated Damages for Failure to Enter into Contract: The successful bidder, upon his/her failure or refusal to execute and deliver the contract and bonds required within 10 days after s/he has received notice of the acceptance of his/her bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his/her bid.
9. Time of Completion and Liquidated Damages: Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project within 180 consecutive calendar days thereafter. Bidder must agree also to pay as liquidated damages, the sum of \$ 500 for each consecutive calendar day thereafter.
10. Condition of Work: Each bidder must inform him/herself fully of the conditions relating to the construction of the project and the employment of labor thereof. Failure to do so will not relieve a successful bidder of his/her obligation to furnish all material and labor necessary to carry out the provisions of his/her contract. Insofar as possible, the contractor, in carrying out the work, must employ such methods as will not cause any interruption of or interference with the work of any other contractor.
11. Addenda and Interpretations: No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to



Robert Colvin, P.E. at bobcolvin32@yahoo.com and to be given consideration must be received at least five days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be mailed by certified mail with return receipt requested to all prospective bidders (at the respective addresses furnished for such purposes), not later than three days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his/her bid as submitted. All addenda so issued shall become part of the contract documents.

12. Security for Faithful Performance: Simultaneously with his/her delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this contract and for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract, as specified in the General Conditions included herein. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the Owner.
13. Power of Attorney: Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.
14. Notice of Special Conditions: Attention is particularly called to those parts of the contract documents and specifications which deal with the following:
  - a. Inspection and testing of materials.
  - b. Insurance requirements.
  - c. Wage rates, if applicable.
  - d. States allowances.
15. Laws and Regulations: The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.
16. Method of Award – Lowest Responsible Bidder: If at the time this contract is to be awarded, the lowest base bid submitted by a responsible bidder does not exceed the amount of funds then estimated by the Owner as available to finance the contract, the contract will be awarded on the base bid only. If such bid exceeds such amount, the Owner may reject all bids or may award the contract on the base bid combined with such deductible alternates applied in numerical order in which they are listed in the Form of Bid, as produces a net amount which is within the available funds.

17. Obligation of Bidder: At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his/her bid.
18. Safety Standards and Accident Prevention: With respect to all work performed under this contract, the contractor shall:
  - a. Comply with the safety standards provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of Title 29 of the Code of Federal regulations, Section 1518 as published in the "Federal Register", Volume 36, No. 75, Saturday, April 17, 1971.
  - b. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.
  - c. Maintain at his/her office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site. In no case shall employees be permitted to work at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

19. Drug-Free Workplace

Under the provisions of Tennessee Code Annotate §50-9-113 enacted by the General Assembly effective 2001, a) employers with five (5) or more employees who contract with either the state or a local government to provide construction services are required to submit an affidavit stating that they have a drug free workplace program that complies with Title 50, Chapter 9, in effect at the time of submission of a bid at least to the extent required of governmental entities. The statute imposes other requirements on the contractor, but the grantee's responsibility is specifically limited in section (b) of the state as follows:

(b) A written affidavit by the principal officer of a covered employer provided to a local government at the time such bid or contract is submitted stating that the employer is in compliance with this section shall absolve the local government of all further responsibility under this section and any liability arising from the employer's compliance or failure of compliance with the provisions of this section.

# BID FOR UNIT PRICE CONTRACTS

Place \_\_\_\_\_

Date \_\_\_\_\_

Project No. \_\_\_\_\_

Proposal of \_\_\_\_\_ (hereinafter called "Bidder")<sup>1</sup>  
a corporation, organized and existing under the laws of the State of \_\_\_\_\_,  
partnership, or an individual doing business as \_\_\_\_\_.

To the **City of Friendsville** \_\_\_\_\_ (hereinafter called "Owner")

Gentlemen:

The Bidder, in compliance with your invitation for bids for the construction of a

## **Downtown Sidewalk Improvements**

having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in written "Notice to Proceed" of the Owner and to fully complete the project within **180** consecutive calendar days thereafter as stipulated in the specifications. Bidder further agrees to pay as liquidated damages the sum of \$ **500** for each consecutive calendar day thereafter as hereinafter provided in Paragraph 3.c. of the Supplemental General Conditions.

<sup>1</sup> \_\_\_\_\_  
Insert corporation, partnership or individual as applicable.

Bidder acknowledges receipt of the following addendum:

---

---

---

Bidder agrees to perform all the \_\_\_\_\_ work described in the specifications and shown on the plans, for the following unit prices:

(See attached Bid Form)

The unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 days after the scheduled closing time for receiving bids.

BASE BID					
ITEM NO.	EST. QTY.	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
1	1	LS	Mobilization		
2	1	LS	Demolition		
3	1825	LF	4" Concrete Sidewalk		
4	413	LF	6" Concrete Driveway		
5	2322	LF	Post Curb		
6	110	SY	TDOT Asphalt Pavement		
7	540	SY	Asphalt Pavement		
8	50	SY	Gravel Pavement		
9	72	SF	Detectable Warning Surface		
10	150	LF	Painted Pavement Marking (Crosswalk)		
11	236	SF	Retaining Wall		
12	1	EA	Area Drain		
13	3	EA	Catch Basin		
14	12	LF	24" RCP Storm Pipe		
15	18	LF	15" RCP Storm Pipe		
16	5	LF	12" CMP Storm Pipe		
17	1	EA	Precast Headwall		
18	1	LS	Reconnection at 109 W College Ave.		
19	1	LS	Restoration		
20	1	LS	Erosion Controls and Maintenance		

<b>ADD ALTERNATE 1: W. HILL AVENUE</b>					
ITEM NO.	EST. QTY.	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
2	1	LS	Demolition		
3	489	LF	4" Concrete Sidewalk		
4	62	LF	6" Concrete Driveway		
5	561	LF	Post Curb		
7	127	SY	Asphalt Pavement		
8	92	SY	Gravel Pavement		
9	24	SF	Detectable Warning Surface		
10	48	LF	Painted Pavement Marking (Crosswalk)		
11	46	SF	Retaining Wall		
19	1	LS	Restoration		
20	1	LS	Erosion Controls and Maintenance		

<b>ADD ALTERNATE 2: N. YOUNG ST. AND 2<sup>ND</sup> AVE.</b>					
ITEM NO.	EST. QTY.	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
2	1	LS	Demolition		
3	726	LF	4" Concrete Sidewalk		
4	100	LF	6" Concrete Driveway		
5	719	LF	Post Curb		
7	340	SY	Asphalt Pavement		
8	22	SY	Gravel Pavement		
9	24	SF	Detectable Warning Surface		
10	18	LF	Painted Pavement Marking (Crosswalk)		
19	1	LS	Restoration		
20	1	LS	Erosion Controls and Maintenance		



Upon receipt of written notice of the acceptance of this bid, bidder will execute the formal contract attached within 10 days and deliver a Surety Bond or Bonds as required by Article 5 of the General Conditions. The bid security attached in the sum of

---

(\$\_\_\_\_\_) is to become the property of the Owner in the event the contract and bond are not executed within the time above set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

Respectfully submitted:

By: \_\_\_\_\_  
(Title)

(SEAL - if bid is by a corporation)

## BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned, \_\_\_\_\_

\_\_\_\_\_ as Principal, and \_\_\_\_\_

as Surety, are hereby held and firmly bound unto The City of Friendsville

as owner in the penal sum of \_\_\_\_\_ for the  
payment of which, well and truly to be made, we hereby jointly and severally bind  
ourselves, our heirs, executors, administrators, successors and assigns.

Signed, this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

The condition of the above obligation is such that whereas the Principal has submitted to  
\_\_\_\_\_ a certain Bid, attached hereto  
and hereby made a part hereof to enter into a contract in writing for the  
Downtown Sidewalk Improvements  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOW, THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate.
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said Bid, then this obligation shall be void, otherwise the same shall remain in force and effect, it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The surety for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by an extension of the time within which the Owner may accept such Bid; and said Surety does hereby waive notice of any such extension.

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

\_\_\_\_\_(L.S.)  
Principal

\_\_\_\_\_  
Surety  
By: \_\_\_\_\_

SEAL

SECTION 00 45 19 – NON-COLLUSION AFFIDAVIT

I certify that I have not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise take any action in restraint of free competitive bidding in connection with this proposal or contract.

Signature by the bidder in that space provided below shall in addition be considered, and shall have the same legal effect, as the bidder's signature on the certifications set forth on Proposal Sheet 2. The signature below must be sworn to before a person authorized by the laws of a State to administer oaths.

\_\_\_\_\_  
Company

By: \_\_\_\_\_  
Title

\_\_\_\_\_  
Address

\_\_\_\_\_  
Address

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

On this the \_\_\_\_\_ day of \_\_\_\_\_, personally appeared before me \_\_\_\_\_ (name), to me personally known, who being duly sworn, did depose and say that he/she resides in \_\_\_\_\_ state of \_\_\_\_\_ and that he/she is the \_\_\_\_\_ of \_\_\_\_\_ described herein and which executed the above agreement and that he/she signed pursuant to proper authority and authorization.

END OF SECTION 00 45 19

<p style="text-align: center;"><b>CERTIFICATION OF BIDDER REGARDING SECTION 3 AND SEGREGATED FACILITIES</b></p>
---

NAME OF PRIME CONTRACTOR: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

The undersigned hereby certifies that

- Section 3 provisions are included in the Contract.
- This grant project exceeds \$200,000 of EDI assistance, and the contractor will comply with all Section 3 requirements detailed in the EDI Manual, including:
  - reporting total labor hours worked,
  - reporting total labor hours worked by Section 3 workers,
  - reporting total labor hours worked by Targeted Section 3 workers,
  - Providing documentation of Section 3 worker status as required for all workers for the project under the covered contract.
- No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.

\_\_\_\_\_  
Name & Title of Signer (Print or Type)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

# **CERTIFICATION OF PROPOSED SUBCONTRACTOR REGARDING SECTION 3 AND SEGREGATED FACILITIES**

NAME OF SUBCONTRACTOR: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

The undersigned hereby certifies that

- Section 3 provisions are included in the Contract.
- If contract equals or exceeds \$200,000, the contractor will comply with all Section 3 requirements, including:
  - reporting total labor hours worked,
  - reporting total labor hours worked by Section 3 workers,
  - reporting total labor hours worked by Targeted Section 3 workers,
  - Providing documentation of Section 3 worker status as required for all workers for the project under the covered contract.
- No segregated facilities will be maintained as required by Title VI of the Civil Rights Act of 1964.
- 

\_\_\_\_\_  
Name & Title of Signer (Print or Type)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date



## CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY

This certification is required pursuant to Executive Order 11246 (30 F. R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the bidder has not filed a compliance report due under applicable instructions, such bidder shall be required to submit a compliance report within seven calendar days after bid opening. No contract shall be awarded unless such report is submitted.

### **Certification by Bidder**

Bidder/Firm: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. ☐ Yes ☐ No
2. Compliance reports were required to be filed in connection with such contract or subcontract. ☐ Yes ☐ No
3. Bidder has filed all compliance reports due under applicable instructions, including SF-100. ☐ Yes ☐ No ☐ None Req.
4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended? ☐ Yes ☐ No

Bidder Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **CERTIFICATION BY PROPOSED SUBCONTRACTOR REGARDING EQUAL EMPLOYMENT OPPORTUNITY**

NAME OF PRIME CONTRACTOR: \_\_\_\_\_

PROJECT NUMBER: \_\_\_\_\_

This certification is required pursuant to Executive Order 11246 (30 F. R. 12319-25). The implementing rules and regulations provide that any bidder or prospective contractor, or any of their proposed subcontractors, shall state as an initial part of the bid or negotiations of the contract whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable instructions.

Where the certification indicates that the subcontractor has not filed a compliance report due under applicable instructions, such subcontractor shall be required to submit a compliance report before the owner approves the subcontract or permits work to begin under the subcontract.

### **SUBCONTRACTOR'S CERTIFICATION**

Subcontractor Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

1. Bidder has participated in a previous contract or subcontract subject to the Equal Opportunity Clause. ☐ Yes ☐ No
2. Compliance reports were required to be filed in connection with such contract or subcontract. ☐ Yes ☐ No
3. Bidder has filed all compliance reports due under applicable instructions, including SF-100. ☐ Yes ☐ No ☐ None Req.
4. Have you ever been or are you being considered for sanction due to violation of Executive Order 11246, as amended? ☐ Yes ☐ No

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **CERTIFICATION OF BIDDER REGARDING USE OF FEMALE/MINORITY SUBCONTRACTORS**

This certification is required for the contractor to demonstrate that when subcontractors are to be used on this project, an attempt will be made to utilize female/minority owned firms.

Documentation must be on file to show who has been contacted.

### **Certification by Bidder**

Bidder/Firm: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

I, \_\_\_\_\_, certify that every attempt was made to utilize female/minority contractors on this project.

Bidder Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## **CERTIFICATE OF OWNER'S ATTORNEY**

I, the undersigned, \_\_\_\_\_, the duly authorized  
and acting legal representative of \_\_\_\_\_  
do hereby certify as follows:

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

Date: \_\_\_\_\_

## STATEMENT OF COMPLIANCE CERTIFICATE ILLEGAL IMMIGRANT

EACH CONTRACTOR BIDDING SHALL FILL IN AND SIGN THE FOLLOWING

Bidder Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

This is to certify that \_\_\_\_\_ have fully complied with all the requirements of T.C.A. § 12-3-309, stating:

- (1) No state governmental entity shall contract to acquire goods or services from any person who knowingly utilizes the services of illegal immigrants in the performance of a contract for goods or services entered into with a state governmental entity;
- (2) No person may contract to supply goods or services to a state governmental entity if that person knowingly utilizes the services of illegal immigrants in the performance of a contract to supply goods or services entered into with the state or a state entity.

*All Bidders for construction services on this project shall be required to submit an affidavit (by executing this compliance document) as part of their bid, that attests that such Bidder shall comply with requirements of T.C.A. § 12-3-309.*

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**IRAN DIVESTMENT  
ACT**

In compliance with the Iran Divestment Act (State of Tennessee 2016, Public Chapter No. 817), which became effective on July 1, 2016, certification is required of all bidders on contracts over \$1,000.

*By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party hereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to T.C.A. § 12-12-106.*

*I affirm, under the penalties of perjury, this statement to be true and correct.*

---

Date

---

Signature of Bidder

---

Company

A bid shall not be considered for award nor shall award be made where the foregoing certification has been complied with; provided, however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefor. The **City/County of** \_\_\_\_\_ may award a bid to a bidder who cannot make the certification, on case-by-case basis, if:

1. The investment activities in Iran were made before July 1, 2016, the investment activities in Iran have not been expanded or reviewed on or after July 1, 2016, and the person has adopted, publicized, and is implementing a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran; or
2. The **City/County of** \_\_\_\_\_ makes a determination that the goods or services are necessary for the **City/County of** \_\_\_\_\_ to perform its functions and that, absent such an exemption, the political subdivision will be unable to obtain the goods or services for which the contract is offered. Such determination shall be made in writing and shall be a public document.





## NOTICE

Tenn. Code Ann. § 12-12-106 requires the chief procurement officer to publish, using credible information freely available to the public, a list of persons it determines engage in investment activities in Iran, as described in § 12-12-105.

For these purposes, the State intends to use the attached list of "Entities determined to be non-responsive bidders/offers pursuant to the New York State Iran Divestment Act of 2012."

While inclusion on this list would make a person ineligible to contract with the state of Tennessee, if a person ceases its engagement in investment activities in Iran, it may be removed from the list.

If you feel as though you have been erroneously included on this list please contact the Central Procurement Office at [CPO.Website@tn.gov](mailto:CPO.Website@tn.gov).

List Date: May 4, 2022

Source: <https://www.ogs.ny.gov/iran-divestment-act-2012>

1. Ak Makina, Ltd.
2. Amona
3. Bank Markazi Iran (Central Bank of Iran)
4. Bank Mellat
5. Bank Melli Iran
6. Bank Saderat Iran
7. Bank Sepah
8. Bank Tejarat
9. China Precision Machinery Import- Export Corporation (CPMIEC)
10. ChinaOil (China National United Oil Corporation)
11. China National Offshore Oil Corporation (CNOOC)
12. China National Petroleum Corporation (CNPC)
13. Indian Oil Corporation
14. Kingdream PLC
15. Naftiran Intertrade Co. (NICO)
16. National Iranian Tanker Co. (NITC)
17. Oil and Natural Gas Corporation (ONGC)
18. Oil India, Ltd.
19. Persia International Bank
20. Petroleos de Venezuela (PDVSA Petróleo, SA)
21. PetroChina Co., Ltd.
22. Petronet LNG, Ltd.
23. Sameh Afzar Tajak Co. (SATCO)
24. Shandong FIN CNC Machine Co., Ltd.
25. Sinohydro Co., Ltd.
26. Sinopec Corp. (China Petroleum & Chemical Corporation)
27. SKS Ventures
28. SK Energy Co., Ltd.
29. Som Petrol AS
30. Unipec (China International United Petroleum & Chemicals Co., Ltd.)
31. Zhuhai Zhenrong Co.

## ACKNOWLEDGEMENT REGARDING BIDDER SAM REGISTRATION

Pursuant to 2 CFR Parts 183 and 215 and the requirement of the U.S. Department of Housing and Urban Development (HUD), contractors procured directly by grantees, sub-grantees, and/or sub-recipients of HUD funds, are required to have an active registration in the System of Award Management (SAM). This document shall be completed and submitted as part of the bid proposal.

1. By submitting this proposal, the prospective bidder acknowledges that it must have an active SAM UEI (Unique Entity ID) to be awarded this contract and that without an active SAM UEI the bidder's proposal may be disallowed.
2. By submitting this proposal, the prospective bidder certifies neither it, its principals nor affiliates, is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
3. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that an erroneous certification was rendered, in addition to other remedies available to the Federal Government, the Department or agency with which this transaction originated may pursue available remedies.
4. Further, the prospective bidder shall provide immediate written notice to the person to which this proposal is submitted if at any time the Participant learns that this certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. By submitting this proposal, it is agreed that should the proposed covered transaction be entered into, the prospective bidder will not knowingly enter into any lower-tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the agency with which this transaction originated.
6. It is further agreed that by submitting this proposal, the prospective bidder will include Certification of Subcontractor Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion without modification, in all lower-tier covered transactions and in all solicitations for lower-tier covered transactions.

Provide the following information as detailed in the prospective bidder's SAM registration:

Entity Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

SAM Entity ID: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

Active Exclusions: ☐ Yes ☐ No

# CERTIFICATION OF SUBCONTRACTOR REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND EXCLUSION

Pursuant to 2 CFR Parts 183, 215, and 2424, and the requirement of the U.S. Department of Housing and Urban Development (HUD), subcontractors for projects that are funded in whole or in part by HUD funds must provide information concerning the entity's debarment, suspension, ineligibility or exclusion status. This document shall be completed and provided to the prime contractor.

1. By signing and submitting this proposal, the prospective lower-tier participant certifies that neither it, its principals nor affiliates, is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. Further, the Participant provides the certification set out below:
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that an erroneous certification was rendered, in addition to other remedies available to the Federal Government, the Department or agency with which this transaction originated may pursue available remedies.
3. Further, the Participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the Participant learns that this certification was erroneous when submitted or has become erroneously reason of changed circumstances.
4. By submitting this document, it is agreed that should the proposed covered transaction be entered into, the Participant will not knowingly enter into any lower-tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the agency with which this transaction originated.

The subcontracting entity may satisfy the requirement of this document via one of the two options below:

## Option 1: SAM.gov Active Registration

Entity Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
SAM Entity ID: \_\_\_\_\_ Expiration Date: \_\_\_\_\_  
Active Exclusions: ☐ Yes ☐ No

---

## Option 2: Signed Certification

Entity Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Entity Representative: \_\_\_\_\_ Title: \_\_\_\_\_  
Signature: \_\_\_\_\_

## CERTIFICATION OF NON-BOYCOTT OF ISRAEL

The Bidder certifies that it is not currently engaged in and will not for the duration of the contract engage in, a boycott of Israel as defined by Tenn. Code Ann. § 12-4-119. This provision shall not apply to contracts with a total value of less than two hundred fifty thousand dollars (\$250,000) or to contractors with less than ten (10) employees.

According to the law, a boycott of Israel means engaging in refusals to deal, terminating business activities, or other commercial actions that are intended to limit commercial relations with Israel, or companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel to do business, or persons or entities doing business in Israel, when such actions are taken:

- 1) In compliance with, or adherence to, calls for a boycott of Israel, or
- 2) In a manner that discriminates on the basis of nationality, national origin, religion, or other unreasonable basis, and is not based on a valid business reason. Tenn. Code Ann. § 12-4-119.

I certify this statement to be true and correct.

\_\_\_\_\_  
Bidder Name Printed

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Bidder

\_\_\_\_\_  
Company

## DRUG-FREE WORKPLACE AFFIDAVIT

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

The undersigned, principal officer of \_\_\_\_\_, an employer of five (5) or more employees contracting with \_\_\_\_\_ government to provide construction services, hereby states under oath as follows:

1. The undersigned is a principal officer of \_\_\_\_\_ (hereinafter referred to as the "Company"), and is duly authorized to execute this Affidavit on behalf of the Company.
2. The Company submits this Affidavit pursuant to T.C.A. § 50-9-113, which requires each employer with no less than five (5) employees receiving pay who contracts with the state or any local government to provide construction services to submit an affidavit stating that such employer has a drug-free workplace program that complies with Title 50, Chapter 9, of the Tennessee Code Annotated.
3. The Company is in compliance with T.C.A. § 50-9-113.

Further affiant saith not.

\_\_\_\_\_  
Principal Officer

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

Before me personally appeared \_\_\_\_\_, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that such person executed the foregoing affidavit for the purposes therein contained.

Witness my hand and seal at office this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Notary Public

My commission expires: \_\_\_\_\_

**Notice of Award**

Dated \_\_\_\_\_

Project: City of Friendsville Downtown Sidewalk Improvements	Owner: City of Friendsville 213 W. College Ave, Friendsville, TN 37737	Owner's Contract No.:
Contract:		Engineer's Project No.:
Bidder:		
Bidder's Address: (send Certified Mail, Return Receipt Requested)		

You are notified that your Bid dated \_\_\_\_\_ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

(Indicate total Work, alternates or sections or Work awarded.)

The Contract Price of your Contract is \_\_\_\_\_  
\_\_\_\_\_ Dollars (\$\_\_\_\_\_).

*(Insert appropriate data if Unit Prices are used. Change language for Cost-Plus contracts.)*

\_\_\_\_\_ copies of each of the proposed Contract Documents (except Drawings) accompany this Notice of Award.  
\_\_\_\_\_ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [\_\_\_\_\_] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), [and] General Conditions (Paragraph 5.01) [and Supplementary Conditions (Paragraph SC-5.01).]
3. Other conditions precedent:

\_\_\_\_\_

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

\_\_\_\_\_  
Owner  
By: \_\_\_\_\_  
Authorized Signature  
\_\_\_\_\_  
Title

Copy to Engineer



# AGREEMENT

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between \_\_\_\_\_, herein called "Owner", acting herein through its \_\_\_\_\_, and \_\_\_\_\_,

STRIKE OUT (a corporation) (a partnership)  
INAPPLICABLE (an individual doing business as \_\_\_\_\_)  
TERMS  
of \_\_\_\_\_, County of \_\_\_\_\_, and State of \_\_\_\_\_, hereinafter called "Contractor".

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the OWNER, the CONTRACTOR hereby agrees with the OWNER to commence and complete the construction described as follows: hereinafter called "the project", for the sum of \_\_\_\_\_

\_\_\_\_\_ Dollars (\$ \_\_\_\_\_) and all extra work in connection therewith, under the terms as stated in the General and Special Conditions of the Contract; and at this (its or their) own property cost and expense to furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the Proposal, the General Conditions, Supplemental General Conditions and Special Conditions of the Contract, the plans, which include all maps, plats, blue prints, and other drawings and printed or written explanatory matter thereof, the specifications and contract documents therefore as prepared by \_\_\_\_\_, herein entitled "the Architect/Engineer", and as enumerated in Paragraph 1 of the Supplemental General Conditions, all of which are made a part hereof and collectively evidence and constitute the contract.

The Contractor hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and to fully complete the project within \_\_\_\_\_ consecutive calendar days thereafter. The Contractor further agrees to pay, as liquidated damages, the sum of \$ \_\_\_\_\_ for each consecutive calendar day thereafter as hereinafter provided in Paragraph 3 of the Supplemental General Conditions.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the contract, subject to additions and deductions, as provided in the General Conditions of the Contract, and to make payments on account thereof as provided in Paragraph 3, "Payments to Contractor", of the Supplemental General Conditions.

IN WITNESS WHEREOF, the parties to these presents have executed this contract in six (6) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

(Seal)  
ATTEST:

\_\_\_\_\_  
(Owner)



\_\_\_\_\_  
(Secretary)

By: \_\_\_\_\_

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Title)

(Seal)

\_\_\_\_\_  
(Contractor)

\_\_\_\_\_  
(Secretary)

By: \_\_\_\_\_

\_\_\_\_\_  
(Witness)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Address, City, State, and Zip Code)

**Notice to Proceed**

Dated \_\_\_\_\_

Project: City of Friendsville Downtown Sidewalk Improvements	Owner: City of Friendsville 213 W. College Ave, Friendsville, TN 37737	Owner's Contract No.:
Contract:		Engineer's Project No.:
Contractor:		
Contractor's Address: [send Certified Mail, Return Receipt Requested]		

You are notified that the Contract Times under the above contract will commence to run on \_\_\_\_\_. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is \_\_\_\_\_, and the date of readiness for final payment is \_\_\_\_\_ [(or) the number of days to achieve Substantial Completion is \_\_\_\_\_, and the number of days to achieve readiness for final payment is \_\_\_\_\_].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must [add other requirements]:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Owner

Given by:

Authorized Signature

Title

Date

Copy to Engineer

## **BONDING AND INSURANCE**

1. This Attachment sets forth bonding and insurance requirements for grants. No other bonding and insurance requirements shall be imposed other than those normally required by the grantee.
2. Except as otherwise required by law, a grant that requires the contracting (or subcontracting) for construction or facility improvements shall provide for the grantee to follow its own requirements relating to bid guarantees, performance bonds, and payment bonds unless the construction contract or subcontract exceeds \$150,000 (See 2 CFR 200.88). For those contracts or subcontracts exceeding \$150,000, the Federal agency may accept the bonding policy and requirements of the grantee provided the Federal agency has made a determination that the Government's interest is adequately protected. If such a determination has not been made, the minimum requirements shall be as follows:
  - a. A bid guarantee from each bidder equivalent to five percent of the bid price. The "bid guarantee" shall consist of a firm commitment such as a bid bond, certified check, or other negotiable instrument accompanying a bid as assurance that the bidder will, upon acceptance of his bid, execute such contractual documents as may be required within the time specified.
  - b. A performance bond on the part of the contractor for 100 percent of the contract price. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.
  - c. A payment bond on the part of the contractor for 100 percent of the contract price. A "payment bond" is one executed in connection with a contract to assure payment as required by law of all persons supplying labor and material in the execution of the work provided for in the contract.
3. Where the Federal Government guarantees or insures the repayment of money borrowed by the grantee, the Federal agency, at its discretion, may require adequate bonding and insurance if the bonding and insurance requirements of the grantee are not deemed adequate to protect the interest of the Federal Government.
4. Where bonds are required in the situations described above, the bonds shall be obtained from companies holding certificates of authority as acceptable sureties (31 CFR 223).

NOTE: AIA Document A311 is acceptable for use as Performance and Payment Bonds.

## PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_, hereinafter called Contractor,  
(Corporation, Partnership, Individual or Joint Venture)

and \_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

The City of Friendsville

\_\_\_\_\_  
(Name of Owner)

213 W. College Avenue, P.O. Box 56, Friendsville, TN 37737

\_\_\_\_\_  
(Address of Owner)

hereinafter called OWNER, in the penal sum of \_\_\_\_\_

\_\_\_\_\_ Dollars, \$(\_\_\_\_\_) in  
lawful money of the United States, for the payment of which sum well and truly to be  
made, we bind ourselves, successors, and assigns, jointly and severally, firmed by  
these presents, this sum being in the amount of one hundred percent (100%) of the  
contract amount.

THE CONDITION OF THIS OBLIGATION is such that whereas, the contractor has  
entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_,  
20\_\_\_\_, a copy of which is hereto attached and made a part hereof for the construction  
of :

sidewalks in downtown Friendsville located along N. Young St., N. Morgan St. to Church St., College  
Ave., W. College Ave to W. Hill Ave, N. Morgan St., and Miser Station.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOW, THEREFORE, if the Contractor shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the one year guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall full indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alternation or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_\_ counterparts  
(number)

each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

ATTEST:

\_\_\_\_\_  
(Contractor) Corporate Official

(SEAL)

\_\_\_\_\_  
Contractor

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Witness to Contractor

\_\_\_\_\_  
Address

\_\_\_\_\_

ATTEST:

_____	_____
Witness to Surety	Surety
_____	By: _____
Address	Attorney-in-Fact
_____	_____
	Address
	_____

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

BOND is not valid unless accompanied by Power of Attorney.

**IMPORTANT:** Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

## PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS, that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_, hereinafter call Contractor,  
(Corporation, Partnership, Individual or Joint Venture)

and

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

The City of Friendsville

\_\_\_\_\_  
(Name of Owner)

213 W. College Avenue, P.O. Box 56 Friendsville, TN 37737

\_\_\_\_\_  
(Address of Owner)

hereinafter called OWNER, in the penal sum of \_\_\_\_\_

\_\_\_\_\_ Dollars, \$(\_\_\_\_\_) in  
lawful money of the United States, for the payment of which sum well and truly to be  
made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these  
presents, this sum being in the amount of one hundred percent (100%) of the contract  
amount.

THE CONDITION OF THIS OBLIGATION is such that whereas, the contractor has  
entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_,  
20\_\_\_\_\_, a copy of which is hereto attached and made a part hereto fore the  
construction of:

sidewalks in downtown Friendsville located along N. Young St., N. Morgan St. to Church St., College Ave.,  
W. College Ave to W. Hill Ave, N. Morgan St., and Miser Station.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOW, THEREFORE, if the Contractor shall promptly make payment to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extension or modification thereof, including all amounts due to materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such WORK, and all insurance premiums on said WORK, and for all labor, performed in such WORK whether by SUBCONTRACTOR or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any wise affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_\_ counterparts  
(number)

each one of which shall be deemed an original,

this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

ATTEST:

\_\_\_\_\_  
(Contractor) Corporate Official

(SEAL)

\_\_\_\_\_  
Contractor

By: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Witness to Contractor

\_\_\_\_\_  
Address

\_\_\_\_\_



ATTEST:

_____	_____
Witness to Surety	Surety
_____	By: _____
Address	Attorney-in-Fact
_____	_____
	Address
	_____

NOTE: Date of BOND must not be prior to date of Contract. If CONTRACTOR is Partnership, all partners should execute BOND.

BOND is not valid unless accompanied by Power of Attorney.

**IMPORTANT:** Surety companies executing Bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the Project is located.

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer)
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

- |                    |    |  |
|--------------------|----|--|
| Payment of:        | \$ | (Line 8 or other - attach explanation of other amount) |
| is recommended by: |    | (Engineer)   |
| Payment of:        | \$ | (Line 8 or other - attach explanation of other amount) |
| is approved by:    |    | (Owner)  |





## Change Order No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description:

Attachments: (List documents supporting change):

**CHANGE IN CONTRACT PRICE:**

Original Contract Price:

\$ \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

\$ \_\_\_\_\_

Contract Price prior to this Change Order:

\$ \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

\$ \_\_\_\_\_

Contract Price incorporating this Change Order:

\$ \_\_\_\_\_

**CHANGE IN CONTRACT TIMES:**Original Contract Times: ☐ Working days ☐ Calendar days

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

Substantial completion (days): \_\_\_\_\_

Ready for final payment (days): \_\_\_\_\_

Contract Times prior to this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

Contract Times with all approved Change Orders:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

**RECOMMENDED:**By: \_\_\_\_\_  
Engineer (Authorized Signature)

Date: \_\_\_\_\_

Approved by Funding Agency (if applicable): \_\_\_\_\_

**ACCEPTED:**By: \_\_\_\_\_  
Owner (Authorized Signature)

Date: \_\_\_\_\_

**ACCEPTED:**By: \_\_\_\_\_  
Contractor (Authorized Signature)

Date: \_\_\_\_\_

Date: \_\_\_\_\_

# Change Order

## Instructions

---

### **A. GENERAL INFORMATION**

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

### **B. COMPLETING THE CHANGE ORDER FORM**

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

# SECTION 00 65 16 – CERTIFICATE OF SUBSTANTIAL COMPLETION

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

This [tentative] [definitive] Certificate of Substantial Completion applies to:

- ☐ All Work under the Contract Documents: ☐ The following specified portions:

---



---



---

\_\_\_\_\_  
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [revised tentative] [definitive] list of items to be completed or corrected, is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

- ☐ Amended Responsibilities ☐ Not Amended

Owner's Amended Responsibilities:

---



---



---

Contractor's Amended Responsibilities:

---



---



---

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

---



---



---

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

\_\_\_\_\_  
Executed by Engineer

\_\_\_\_\_  
Date

\_\_\_\_\_  
Accepted by Contractor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Accepted by Owner

\_\_\_\_\_  
Date

## **GENERAL CONDITIONS**

### **CONTRACT AND CONTRACT DOCUMENTS**

The project to be constructed and pursuant to this contract will be financed with assistance from the U.S. Housing and Urban Development (HUD) Economic Development Initiative (EDI) and is subject to all applicable Federal laws and regulations.

The Plans, Specifications and Addenda, and the provisions thereof shall be as binding upon the parties hereto as if they were herein fully set forth. The table of contents, titles, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect, limit or cast light on the interpretation of the provisions to which they refer.



## INDEX TO GENERAL CONDITIONS

<i>Article or Paragraph Number</i>	<i>Article or Paragraph Number</i>
Acceptance of Insurance ..... 5.13	Copies of Documents ..... 2.2
Access to the Work ..... 13.2	Correction or Removal of Defective Work ..... 13.11
Addenda – definition of (see definition of Specifications) ..... 1	Correction Period, One Year ..... 13.12
Agreement – definition of ..... 1	Correction, Removal or Acceptance of Defective Work – in general ..... 13.11-13.14
All Risk Insurance ..... 5.6	Cost – net decrease ..... 11.6.2
Amendment, Written ..... 1, 3.1.1	Cost of Work ..... 11.4-11.5
Application for Payment – definition of ..... 1	Costs, Supplemental ..... 11.4.5
Application for Payment, Final ..... 14.12	
Application for Progress Payment ..... 14.2	Day – definition of ..... 1
Application for Progress Payment – review of ..... 14.4-14.7	Defective – definition of ..... 1
Arbitration ..... 16	Defective Work, Acceptance of ..... 13.13
Authorized Variation in Work ..... 9.5	Defective Work, Correction or Removal of ..... 13.11
Availability of Lands ..... 4.1	Defective Work – in general ..... 13, 14.7, 14.11
Award, Notice of – defined ..... 1	Defective Work, Rejecting ..... 9.6
	Definitions ..... 1
Before Starting Construction ..... 2.5-2.7	Delivery of Bonds ..... 2.1
Bid – definition of ..... 1	Determination for Unit Prices ..... 9.10
Bonds and Insurance – in general ..... 5	Disputes, Decisions by Engineer ..... 9.11-9.12
Bonds – definition of ..... 1	Documents, Copies of ..... 2.2
Bonds, Delivery of ..... 2.1, 5.1	Documents, Record ..... 6.19
Bonds, Performance and Other ..... 5.1-5.2	Documents, Reuse ..... 3.6
	Drawings – definition of ..... 1
Cash Allowances ..... 11.8	
Change Order – definition of ..... 1	Easements ..... 4.1
Change Orders – to be executed ..... 10.4	Effective date of Agreement – definition of ..... 1
Changes in the Work ..... 10	Emergencies ..... 6.22
Claims, Waiver of – on Final Payment ..... 14.16	Engineer – definition of ..... 1
Clarifications and Interpretations ..... 9.4	Engineer's Decisions ..... 9.10-9.12
Cleaning ..... 6.17	Engineer's – Notice Work is Acceptable ..... 14.13
Completion ..... 14	Engineer's Recommendation of Payment ..... 14.4, 14.13
Completion, Substantial ..... 14.8-14.9	Engineer's Responsibilities, Limitations on ..... 6.6, 9.11, 9-13-9.16
Conference, Preconstruction ..... 2.8	Engineer's Status During Construction – in general ..... 9
Conflict, Error, Discrepancy – Contractor to Report ..... 2.5, 3.3	Equipment, Labor, Materials and ..... 6.3-6.6
Construction Machinery, Equipment, etc. .... 6.4	Equivalent Materials and Equipment ..... 6.7
Continuing Work ..... 6.29	Explorations of physical conditions ..... 4.2
Contract Documents – amending and supplementing ..... 3.4-3.5	
Contract Documents – definition of ..... 1	Fee, Contractor's – Costs Plus ..... 11.6
Contract Documents – Intent ..... 3.1-3.3	Field Order – definition of ..... 1
Contract Documents – Reuse of ..... 3.6	Field Order – issued by Engineer ..... 3.5.1, 9.5
Contract Price, Change of ..... 11	Final Application for Payment ..... 14.12
Contract Price – definition ..... 1	Final Inspection ..... 14.11
Contract Time, Change of ..... 12	Final Payment and Acceptance ..... 14.13
Contract Time, Commencement of ..... 2.3	Final Payment, Recommendation of ..... 14.13-14.14
Contract Time – definition of ..... 1	
Contractor – definition of ..... 1	General Provisions ..... 17.3-17.4
Contractor May Stop Work or Terminate ..... 15.5	General Requirements – definition of ..... 1
Contractor's Continuing Obligation ..... 14.15	General Requirements – principal references to ..... 2.6, 4.4, 6.4, 6.6-6.7, 6.23
Contractor's Duty to Report Discrepancy in Documents ..... 2.5, 3.2	Giving Notice ..... 17.1
Contractor's Fee – Cost Plus ..... 11.4.5.6, 11.5.1, 11.6-11.7	Guarantee of Work – by Contractor ..... 13.1
Contractor's Liability Insurance ..... 5.3	
Contractor's Responsibilities – in general ..... 6	Indemnification ..... 6.30-6.32, 7.5
Contractor's Warranty of Title ..... 14.3	Inspection, Final ..... 14.11
Contractors – Other ..... 7	Inspection, Test and ..... 13.3
Contractual Liability Insurance ..... 5.4	Insurance, Bonds and – in general ..... 5
Coordinating Contractor – definition of ..... 7.4	Insurance, Certificates of ..... 2.7, 5
Coordination ..... 7.4	Insurance – completed operations ..... 5.3
	Insurance, Contractor's Liability ..... 5.3
	Insurance, Contractual Liability ..... 5.4
	Insurance, Owner's Liability ..... 5.5

Insurance, Property .....	5.6-5.13
Insurance – Waiver of Rights .....	5.11
Intent of Contract Documents .....	3.3, 9.14
Interpretations and Clarifications .....	9.4
Investigations of physical conditions .....	4.2
Labor, Materials and Equipment .....	6.3-6.5
Laws and Regulations – definition of .....	1
Laws and Regulations – general .....	6.14
Liability Insurance – Contractor's .....	5.3
Liability Insurance – Owner's .....	5.5
Liens – definitions of .....	14.2
Limitation on Engineer's Responsibilities .....	6.6, 9.11, 9-13-9.16
Materials and equipment – furnished by Contractor .....	6.3
Materials and equipment – not incorporated in Work .....	14.2
Materials or equipment – equivalent .....	6.7
Miscellaneous Provisions .....	17
Multi-prime contracts .....	7
Notice, Giving of .....	17.1
Notice of Acceptance of Project .....	14.13
Notice of Award – definition of .....	1
Notice to Proceed – definition of .....	1
Notice to Proceed – giving of .....	2.3
"Or-Equal" Items .....	6.7
Other contractors .....	7
Other work .....	7
Overtime Work – prohibition of .....	6.3
Owner – definition of .....	1
Owner May Correct <i>Defective Work</i> .....	13.14
Owner May Stop Work .....	13.10
Owner May Suspend Work, Terminate .....	15.1-15.4
Owner's Duty to Execute Change Orders .....	11.8
Owner's Liability Insurance .....	5.5
Owner's Representative – Engineer to serve as .....	9.1
Owner's Responsibilities – in general .....	8
Owner's Separate Representative at site .....	9.3
Partial Utilization .....	14.10
Partial Utilization – definition of .....	1
Partial Utilization – Property Insurance .....	5.15
Patent Fees and Royalties .....	6.12
Payments, Recommendation of .....	14.4-14.7, 14.13
Payments to Contractor – in general .....	14
Payments to Contractor – when due .....	14.4, 14.13
Payments to Contractor – withholding .....	14.7
Performance and other Bonds .....	5.1-5.2
Permits .....	6.13
Physical Conditions .....	4.2
Physical Conditions – Engineer's review .....	4.2.4
Physical Conditions – existing structures .....	4.2.2
Physical Conditions – explorations and reports .....	4.2.1
Physical Conditions – possible document change .....	4.2.5
Physical Conditions – price and time adjustments .....	4.2.5
Physical Conditions – report of differing .....	4.2.3
Physical Conditions – Underground Facilities .....	4.3
Preconstruction Conference .....	2.8
Preliminary Matters .....	2
Premises, Use of .....	6.16-6.18
Price, Change of Contract .....	11
Price-Contract – definition of .....	1
Progress Payment, Applications for .....	14.2
Progress Payment – retainage .....	14.2
Progress schedule .....	2.6, 2.9, 6.6, 6.29, 15.2.6

Project – definition of .....	1
Project Representation – provision for .....	9.3
Project Representative, Resident – definition of .....	1
Project, Starting the .....	2.4
Property Insurance .....	5.6-5.13
Property Insurance – Partial Utilization .....	5.15
Property Insurance – Receipt and Application of Proceeds .....	5.12-5.13
Protection, Safety and .....	6.20-6.21
Punch List .....	14.11
Recommendation of Payment .....	14.4, 14.13
Record Documents .....	6.19
Reference Points .....	4.4
Regulations, Laws and .....	6.14
Rejecting <i>Defective Work</i> .....	9.6
Related Work at Site .....	7.1-7.3
Remedies Not Exclusive .....	17.4
Removal or Correction of <i>Defective Work</i> .....	13.11
Resident Project Representative – definition of .....	1
Resident Project Representative – provision for .....	9.3
Responsibilities, Contractor's – in general .....	6
Responsibilities, Engineer's – in general .....	9
Responsibilities, Owner's – in general .....	8
Retainage .....	14.2
Reuse of Documents .....	3.5
Rights of Way .....	4.1
Royalties, Patent Fees and .....	6.12
Safety and Protection .....	6.20-6.21
Samples .....	6.23-6.28
Schedule of progress .....	2.6, 2.8-2.9, 6.6, 6.29, 15.2.6
Schedule of Shop Drawing submissions .....	2.6, 2.8-2.9, 6.23, 14.1
Schedule of values .....	2.6, 2.8-2.9, 14.1
Schedules, Finalizing .....	2.9
Shop Drawings and Samples .....	6.23-6.28
Shop Drawings – definition of .....	1
Shop Drawings, use to approve substitutions .....	6.7.3
Site, Visits to – by Engineer .....	9.2
Specifications – definition of .....	1
Starting Construction, Before .....	2.5-2.8
Starting the Project .....	2.4
Stopping Work – by Contractor .....	15.5
Stopping Work – by Owner .....	13.10
Subcontractor – definition of .....	1
Subcontractors – in general .....	6.8-6.11
Subcontracts – required provisions .....	5.11.1, 6.11, 11.4.3
Substantial Completion – certification of .....	14.8
Substantial Completion – definition of .....	1
Substitute or "Or-Equal" Items .....	6.7
Subsurface Conditions .....	4.2-4.3
Supplemental costs .....	11.4.5
Supplementary Conditions – definition of .....	1
Supplementary Conditions – principal references to .....	2.2, 4.2, 5.1, 5.3, 5.6-5.8, 6.3, 6.13, 6.23, 7.4, 9.3
Supplementing Contract Documents .....	3.4-3.5
Supplier – definition of .....	1
Supplier – principal reference to .....	3.6, 6.5, 6.7-6.9, 6.20, 6.24, 9.13, 9.16, 11.8, 13.4, 14.12
Surety – consent to payment .....	14.12, 14.14
Surety – Engineer has no duty to .....	9.13
Surety – notice to .....	10.1, 10.5, 15.2
Surety – qualification of .....	5.1-5.2
Suspending Work, by Owner .....	15.1
Suspension of Work and Termination – in general .....	15

Superintendent – Contractor's .....	6.2
Supervision and Superintendence .....	6.1-6.2
Taxes – Payment by Contractor .....	6.15
Termination – by Contractor .....	15.5
Termination – by Owner .....	15.2-15.4
Termination, Suspension of Work and – in general .....	15
Tests and Inspections .....	13.3-13.7
Time, Change of Contract .....	12
Time, Computation of .....	17.2
Time, Contract – definition of .....	1
Uncovering Work .....	13.8-13.9
Underground Facilities – definition of .....	1
Underground Facilities – not shown or indicated .....	4.3.2
Underground Facilities – protection of .....	4.3, 6.20
Underground Facilities – shown or indicated .....	4.3.1
Unit Price Work – definition of .....	1
Unit Price Work – general .....	11.9, 14.1, 14.5
Unit Prices .....	11.3.1
Unit Prices, Determinations for .....	9.10
Use of Premises .....	6.16-6.18
Utility owners .....	6.13, 6.20, 7.2-7.3

Values, Schedule of .....	2.6, 2.9, 14.1
Variations in Work – Authorized .....	6.25, 6.27, 9.5
Visits to Site – by Engineer .....	9.2
Waiver of Claims – on Final Payment .....	14.16
Waiver of Rights by insured parties .....	5.10, 6.11
Warranty and Guarantee – by Contractor .....	13.1
Warranty of Title, Contractor's .....	14.3
Work, Access to .....	13.2
Work – by others .....	7
Work Continuing During Disputes .....	6.29
Work, Cost of .....	11.4-11.5
Work – definition of .....	1
Work Directive Change – definition of .....	1
Work Directive Change – principal references to .....	3.4.3, 10.1-10.2
Work, Neglected by Contractor .....	13.14
Work, Stopping by Contractor .....	15.5
Work, Stopping by Owner .....	15.1-15.4
Written Amendment – definition of .....	1
Written Amendment – principal references to .....	3.4.1, 10.1, 11.2, 12.1

## GENERAL CONDITIONS

### ARTICLE 1--DEFINITIONS

---

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and plural thereof:

*Addenda* – Written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding documents or the Contract Documents.

*Agreement* – The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

*Application for Payment* – The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

*Bid* – The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

*Bonds* – Bid, performance and payment bonds and other instruments of security.

*Change Order* – A document recommended by ENGINEER, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

*Contract Documents* – The Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements issued pursuant to paragraphs 3.4 and 3.5 on or after the Effective Date of the Agreement.

*Contract Price* – The moneys payable by OWNER to CONTRACTOR under the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.9.1 in the case of Unit Price Work).

*Contract Time* – The number of days (computed as provided in paragraph 17.2) or the date stated in the Agreement for the completion of the Work.

*CONTRACTOR* – The person, firm or corporation with whom OWNER has entered into the Agreement.

*Defective* – An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER's recommendation of final payment (unless responsibility for the protection thereof has been assumed

by OWNER at Substantial Completion in accordance with paragraph 14.8 or 14.10).

*Drawings* – The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents.

*Effective Date of the Agreement* – The date indicated in the Agreement on which it becomes effective, but if no such date is indicated it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

*ENGINEER* – The person, firm or corporation named as such in the Agreement.

*Field Order* – A written order issued by ENGINEER which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Time.

*General Requirements* – Sections of Division 1 of the Specifications.

*Laws and Regulations; Laws or Regulations* – Laws, rules, regulations, ordinances, codes and/or orders.

*Notice of Award* – The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

*Notice to Proceed* – A written notice given by OWNER to CONTRACTOR (with a copy to ENGINEER) fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR's obligations under the Contract Documents.

*OWNER* – The public body or authority, corporation, association, firm or person with whom CONTRACTOR has entered into the Agreement and for whom the Work is to be provided.

*Partial Utilization* – Placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.

*Project* – The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

*Resident Project Representative* – The authorized representative of ENGINEER who is assigned to the site or any part thereof.

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

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



**Subcontractor** – An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

**Substantial Completion** – The Work (or a specified part thereof) has progressed to the point where, in the opinion of ENGINEER as evidenced by ENGINEER's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents so that the Work (or specified part) can be utilized for the purpose for which it is intended; or if there be no such certificate issued, when final payment is due in accordance with paragraph 14.13. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

**Supplementary Conditions** – The part of the Contract Documents which amends or supplements these General Conditions.

**Supplier** – A manufacturer, fabricator, supplier, distributor, materialman or vendor.

**Underground Facilities** – All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

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

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

**Work Directive Change** – A written directive to CONTRACTOR, issued on or after the Effective Date of the Agreement and signed by OWNER and recommended by ENGINEER, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.22. A Work Directive Change may not change the Contract Price or the Contract Time, but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Time as provided in paragraph 10.2.

**Written Amendment** – A written amendment of the Contract Documents, signed by OWNER and CONTRACTOR on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly Work-related aspects of the Contract Documents.

## ARTICLE 2 – PRELIMINARY MATTERS

---

### **Delivery of Bonds:**

2.1. When CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER

such Bonds as CONTRACTOR may be required to furnish in accordance with paragraph 5.1.

### **Copies of Documents:**

2.2. OWNER shall furnish to CONTRACTOR up to ten copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

### **Commencement of Contract Time; Notice to Proceed:**

2.3. The Contract Time will commence to run on the thirtieth day after the Effective Date of the Agreement, of, 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 thirty days after the Effective Date of the Agreement. In no event will the Contract Time commence to run later than the seventy-fifth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

### **Starting the Project:**

2.4. CONTRACTOR shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

### **Before Starting Construction:**

2.5. Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

2.6. Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), CONTRACTOR shall submit to ENGINEER for review:

2.6.1. an estimated progress schedule indicating the starting and completion dates of the various stages of the Work;

2.6.2. a preliminary schedule of Shop Drawing submissions; and

2.6.3. a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by CONTRACTOR at the time of submission.

2.7. Before any Work at the site is started, CONTRACTOR shall deliver to OWNER, with a copy to ENGINEER, certificates (and other evidence of insurance requested by OWNER) which

CONTRACTOR is required to purchase and maintain in accordance with paragraphs 5.3 and 5.4, and OWNER shall deliver to CONTRACTOR certificates (and other evidence of insurance requested by CONTRACTOR) which OWNER is required to purchase and maintain in accordance with paragraphs 5.6 and 5.7.

#### ***Preconstruction Conference:***

2.8. Within twenty days after the Effective Date of the Agreement, but before CONTRACTOR starts the Work at the site, a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to discuss the schedules referred to in paragraph 2.6, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

#### ***Finalizing Schedules:***

2.9. At least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to finalize the schedules submitted in accordance with paragraph 2.6. The finalized progress schedule will be acceptable to ENGINEER as providing an orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on ENGINEER responsibility for the progress or scheduling of the Work nor relieve CONTRACTOR from full responsibility thereof. The finalized schedule of Shop Drawing submissions will be acceptable to ENGINEER as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to ENGINEER as to form and substance.

### **ARTICLE 3—CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

---

#### ***Intent:***

3.1. The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.2. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment such word shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or Laws or Regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or

ENGINEER, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any of ENGINEER's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provision of paragraph 9.15 or 9.16. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in paragraph 9.4.

3.3. If, during the performance of the Work, CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from ENGINEER; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

#### ***Amending and Supplementing Contract Documents:***

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

3.4.1. a formal Written Amendment,

3.4.2. a Change Order (pursuant to paragraph 10.4), or

3.4.3. a Work Directive Change (pursuant to paragraph 10.1).

As indicated in paragraphs 11.2 and 12.1, Contract Price and Contract Time may only be changed by a Change Order or a Written Amendment.

3.5. In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways:

3.5.1. a Field Order (pursuant to paragraph 9.5),

3.5.2. ENGINEER's approval of a Shop Drawing or sample (pursuant to paragraphs 6.26 and 6.27), or

3.5.3. ENGINEER's written interpretation or clarification (pursuant to paragraph 9.4).

#### ***Reuse of Documents:***

3.6. Neither CONTRACTOR nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall 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; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

### **ARTICLE 4—AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS**

---

#### **Availability of Lands:**

4.1. OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER's furnishing these lands, rights-of-way or easements entitles CONTRACTOR to an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Article 12. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### **Physical Conditions:**

4.2.1. *Explorations and Reports:* Reference is made to the Supplementary Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, but not upon nontechnical data, interpretations or opinions contained therein or for the completeness thereof for CONTRACTOR's purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to subsurface conditions at the site.

4.2.2. *Existing Structures:* Reference is made to the Supplementary Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities referred to in paragraph 4.3) which are at or contiguous to the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for CONTRACTOR's purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to physical conditions in or relating to such structures.

4.2.3. *Report of Differing Conditions:* If CONTRACTOR believes that:

4.2.3.1. any technical data on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is inaccurate, or

4.2.3.2. any physical condition uncovered or revealed at the site differs materially from that indicated, reflected or referred to in the Contract Documents,

CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.22), notify OWNER and ENGINEER in writing about the inaccuracy or difference.

4.2.4. *ENGINEER's Review:* ENGINEER will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise OWNER in writing (with a copy to CONTRACTOR) of ENGINEER's findings and conclusions.

4.2.5. *Possible Document Change:* If ENGINEER concludes that there is a material error in the Contract Documents or that

because of newly discovered conditions a change in the Contract Documents is required, a Work Directive Change or a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the inaccuracy or difference.

4.2.6. *Possible Price and Time Adjustments:* In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy or difference. If OWNER and CONTRACTOR are unable to agree as to the amount or length thereof, a claim may be made therefor as provided in Articles 11 and 12.

#### **Physical Conditions – Underground Facilities:**

4.3.1. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

4.3.1.1. OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and,

4.3.1.2. CONTRACTOR shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Facilities shown or indicated in the Contract Documents, for coordination of the Work with the owners of such Underground Facilities during construction, for the safety and protection thereof as provided in paragraph 6.20 and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

4.3.2. *Not Shown or Indicated.* If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by paragraph 6.22), identify the owner of such Underground Facility and give written notice thereof to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, CONTRACTOR shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.20. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of. If the parties are unable to agree as to the amount or length thereof, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

#### **Reference Points:**

4.4. 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 (unless otherwise specified in the General Requirements),



shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point 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 by professionally qualified personnel.

## ARTICLE 5—BONDS AND INSURANCE

### ***Performance and Other Bonds:***

5.1. CONTRACTOR shall furnish performance and payment Bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all CONTRACTOR's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as otherwise provided by Law or Regulation or by the Contract Documents. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by Law or Regulation or by the Contract Documents and be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act.

5.2. If the surety on any Bond furnished by CONTRACTOR is declared a bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of paragraph 5.1, CONTRACTOR shall within five days thereafter substitute another Bond and Surety, both of which must be acceptable to OWNER.

### ***Contractor's Liability Insurance:***

5.3. CONTRACTOR shall purchase and maintain such comprehensive general liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from CONTRACTOR's performance and furnishing of the Work and CONTRACTOR's other obligations under the Contract Documents, whether it is to be performed or furnished by CONTRACTOR, by any Subcontractor, by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for those acts any of them may be liable:

5.3.1. Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts;

5.3.2. Claims for damages because of bodily injury, occupational sickness or disease, or death of CONTRACTOR's employees;

5.3.3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than CONTRACTOR's employees;

5.3.4. Claims for damages insured by personal injury liability coverage which are substituted (a) by any person as a result of an offense directly or indirectly related to

the employment of such person by CONTRACTOR, or (b) by any other person for any other reason;

5.3.5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom;

5.3.6. Claims arising out of operation of Laws or Regulations for damages because of bodily injury or death of any person or for damage to property; and

5.3.7. 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 insurance required by this paragraph 5.3 shall include the specific coverages and be written for not less than the limits of liability and coverages provided in the Supplementary Conditions, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty days' prior written notice has been given to OWNER and ENGINEER by certified mail. All such insurance shall remain in effect until final payment and at all times thereafter when CONTRACTOR may be correcting, removing or replacing defective Work in accordance with paragraph 13.12. In addition, CONTRACTOR shall maintain such completed operations insurance for at least two years after final payment and furnish OWNER with evidence of continuation of such insurance at final payment and one year thereafter.

### ***Contractual Liability Insurance:***

5.4. The comprehensive general liability insurance required by paragraph 5.3 will include contractual liability insurance applicable to CONTRACTOR's obligations under paragraphs 6.30 and 6.31.

### ***Owner's Liability Insurance:***

5.5. OWNER shall be responsible for purchasing and maintaining OWNER's own liability insurance and, at OWNER's option, may purchase and maintain such insurance as will protect OWNER against claims which may arise from operations under the Contract Documents.

### ***Property Insurance:***

5.6. Unless otherwise provided in the Supplementary Conditions, OWNER shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEER's consultants in the Work, all of whom shall be listed as insureds or additional insured parties, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in the Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other



professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions, CONTRACTOR shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment.

5.7. OWNER shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER and ENGINEER's consultants in the Work, all of whom shall be listed as insured or additional insured parties.

5.8. All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by OWNER in accordance with paragraphs 5.6 and 5.7 will contain a provision or endorsement that the coverage afforded will not be cancelled or materially changed or renewal refused until at least thirty days' prior written notice has been given to CONTRACTOR by certified mail and will contain waiver provisions in accordance with paragraph 5.11.2.

5.9. OWNER shall not be responsible for purchasing and maintaining any property insurance to protect the interests of CONTRACTOR, Subcontractors or others in the Work to the extent of any deductible amounts that are provided in the Supplementary Conditions. The risk of loss within the deductible amount, will be borne by CONTRACTOR, Subcontractor or others suffering any such loss and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.10. If CONTRACTOR requests in writing that other special insurance be included in the property insurance policy, OWNER shall, if possible, include such insurance, and the cost thereof will be charged to CONTRACTOR by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the site, OWNER shall in writing advise CONTRACTOR whether or not such other insurance has been procured by OWNER.

#### ***Waiver of Rights:***

5.11.1. OWNER and CONTRACTOR waive all rights against each other for all losses and damages caused by any of the perils covered by the policies of insurance provided in response to paragraphs 5.6 and 5.7 and any other property insurance applicable to the Work, and also waive all such rights against the Subcontractors, ENGINEER, ENGINEER's consultants and all other parties named as insureds in such policies for losses and damages so caused. As required in paragraph 6.11, each subcontract between CONTRACTOR and a Subcontractor will contain similar waiver provisions by the Subcontractor in favor of OWNER, CONTRACTOR, ENGINEER, ENGINEER's consultants and all other parties named as insureds. None of the above waivers shall extend to the rights that any of the insured parties may have to the proceeds of insurance held by OWNER as trustee or otherwise payable under any policy so issued.

5.11.2. OWNER and CONTRACTOR intend that any policies provided in response to paragraphs 5.6 and 5.7 shall protect all of the parties insured and provide primary coverage for all losses and damages caused by the perils covered thereby. Accordingly, all such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any of the parties named as insureds or additional insureds, and

if the insurers require separate waiver forms to be signed by ENGINEER or ENGINEER's consultant OWNER will obtain the same, and if such waiver forms are required of any Subcontractor, CONTRACTOR will obtain the same.

#### ***Receipt and Application of Proceeds:***

5.12. Any insured loss under the policies of insurance required by paragraphs 5.6 and 5.7 will be adjusted with OWNER and made payable to OWNER as trustee for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of paragraph 5.13. OWNER shall deposit in a separate account any money so received, and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

5.13. OWNER as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to OWNER's exercise of this power. If such objection is made, OWNER as trustee shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If required in writing by any party in interest, OWNER as trustee shall, upon the occurrence of an insured loss, give bond for the proper performance of such duties.

#### ***Acceptance of Insurance:***

5.14. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with paragraphs 5.3 and 5.4 on the basis of its not complying with the Contract Documents, OWNER shall notify CONTRACTOR in writing thereof within ten days of the date of delivery of such certificates to OWNER in accordance with paragraph 2.7. If CONTRACTOR has any objection to the coverage afforded by or other provisions of the policies of insurance required to be purchased and maintained by OWNER in accordance with paragraphs 5.6 and 5.7 on the basis of their not complying with the Contract Documents, CONTRACTOR shall notify OWNER in writing thereof within ten days of the date of delivery of such certificates to CONTRACTOR in accordance with paragraph 2.7. OWNER and CONTRACTOR shall each provide to the other such additional information in respect of insurance provided by each as the other may reasonably request. Failure by OWNER or CONTRACTOR to give any such notice of objection within the time provided shall constitute acceptance of such insurance purchased by the other as complying with the Contract Documents.

#### ***Partial Utilization – Property Insurance:***

5.15. If OWNER finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.10; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be cancelled or lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

### ***Supervision and Superintendence:***

6.1. CONTRACTOR shall supervise 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, but CONTRACTOR shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

6.2. CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR's representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

### ***Labor, Materials and Equipment:***

6.3. 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. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER's written consent given after prior written notice to ENGINEER.

6.4. Unless otherwise specified in the General Requirements, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

6.5. All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instruction of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective as assign to ENGINEER, or any of ENGINEER's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16.

### ***Adjusting Progress Schedule:***

6.6. CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.9) adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto.

### ***Substitutes or "Or-Equal" Items:***

6.7.1. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by ENGINEER if sufficient information is submitted by CONTRACTOR to allow ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named. The procedure for review by ENGINEER will include the following as supplemented in the General Requirements. Requests for review of substitute items of material and equipment will not be accepted by ENGINEER from anyone other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitution will not prejudice CONTRACTOR's achievement of Substantial Completion on time, whether or not acceptance of the substitute for use 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 work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by ENGINEER in evaluating the proposed substitute. ENGINEER may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute.

6.7.2. If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to ENGINEER, if CONTRACTOR submits sufficient information to allow ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by ENGINEER will be similar to that provided in paragraph 6.7.1 as applied by ENGINEER and as may be supplemented in the General Requirements.

6.7.3. ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. ENGINEER will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without ENGINEER's prior written acceptance which will be evidenced by either a Change Order or an approved Shop

Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute. ENGINEER will record time required by ENGINEER and ENGINEER's consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not ENGINEER accepts a proposed substitute, CONTRACTOR shall reimburse OWNER for the charges of ENGINEER and ENGINEER's consultants for evaluating each proposed substitute.

#### ***Concerning Subcontractors, Suppliers and Others:***

6.8.1. CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and ENGINEER as indicated in paragraph 6.8.2), whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

6.8.2. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement for acceptance by OWNER and ENGINEER and if CONTRACTOR has submitted a list thereof in accordance with the Supplementary Conditions, OWNER's or ENGINEER's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute, the Contract Price will be increased by the difference in the cost occasioned by such substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

6.9. CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or ENGINEER any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

6.10. 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.

6.11. All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER and contains waiver provisions as required by paragraph 5.11. CONTRACTOR shall pay each Subcontractor a just share of any insurance moneys received by CONTRACTOR on account of losses under policies issued pursuant to paragraphs 5.6 and 5.7.

#### ***Patent Fees and Royalties:***



6.12. 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. CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorney's fees and court and arbitration costs) arising out of 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 inventions, design, process, product or device not specified in the Contract Documents, and shall defend all such claims in connection with any alleged infringement of such rights.

#### **Permits:**

6.13. Unless otherwise provided in the Supplementary Conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids on the Effective Date of the Agreement, CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

#### **Laws and Regulations:**

6.14.1. CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and 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.

6.14.2. If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising therefrom; however, it shall not be CONTRACTOR's primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

#### **Taxes:**

6.15. 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.

#### **Use of Premises:**

6.16. CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of

workers to the Project site and land and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereto or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or ENGINEER to the extent based on a claim arising out of CONTRACTOR's performance of the Work.

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

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

#### **Record Documents:**

6.19. CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to ENGINEER for OWNER.

#### **Safety and Protection:**

6.20. CONTRACTOR shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. CONTRACTOR shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

6.20.1. all employees on the Work and other persons and organizations who may be affected thereby;

6.20.2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and

6.20.3. other property at the site or adjacent thereto, including trees, shrubs, laws, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.

CONTRACTOR shall comply with all applicable Laws and Regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of Underground Facilities and utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property referred to in paragraph 6.20.2 or 6.20.3 caused, directly or indirectly, in whole or in part, by CONTRACTOR, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by CONTRACTOR (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of OWNER or ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of CONTRACTOR). CONTRACTOR's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and ENGINEER has issued a notice to OWNER and CONTRACTOR in accordance with paragraph 14.13 that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.21. CONTRACTOR shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR's superintendent unless otherwise designated in writing by CONTRACTOR to OWNER.

#### **Emergencies:**

6.22. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, CONTRACTOR, without special instruction or authorization from ENGINEER or OWNER, is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER prompt written notice if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If ENGINEER determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

#### **Shop Drawings and Samples:**

6.23. After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, CONTRACTOR shall submit to ENGINEER for review and approval in accordance with the accepted schedule of Shop Drawing submissions (see paragraph 2.9), or for other appropriate action if so indicated in the Supplementary Conditions, five copies (unless otherwise specified in the General Requirements) of all Shop Drawings, which will bear a stamp or specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as ENGINEER may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable ENGINEER to review the information as required.

6.24. CONTRACTOR shall also submit to ENGINEER for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR's responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

6.25.1. Before submission of each Shop Drawing or sample CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

6.25.2. At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to ENGINEER for review and approval of each such variation.

6.26. ENGINEER will review and approve with reasonable promptness Shop Drawings and samples, but ENGINEER's review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of Shop Drawings and submit as required new samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

6.27. ENGINEER's review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER's attention to each such variation at the time of submission as required by paragraph 6.25.2 and ENGINEER has given written

approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 6.25.1.

6.28. Where a Shop Drawing or sample is required by the Specifications, any related Work performed prior to ENGINEER's review and approval of the pertinent submission will be the sole expense and responsibility of CONTRACTOR.

#### ***Continuing the Work:***

6.29. CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by paragraph 15.5 or as CONTRACTOR and OWNER may otherwise agree in writing.

#### ***Indemnification:***

6.30. To the fullest extent permitted by Laws and Regulations CONTRACTOR shall indemnify and hold harmless OWNER and ENGINEER and their consultants, agents and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

6.31. In any and all claims against OWNER or ENGINEER or any of their consultants, agents or employees by any employee of CONTRACTOR, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under paragraph 6.30 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for CONTRACTOR or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

6.32. The obligations of CONTRACTOR under paragraph 6.30 shall not extend to the liability of ENGINEER, ENGINEER's consultants, agents or employees arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications.

## **ARTICLE 7 – OTHER WORK**

---

#### ***Related Work at Site:***

7.1. OWNER may perform other work related to the Project at the site by OWNER's own forces, have other work performed by utility owners or let other direct contracts therefor which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work; and, if CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or requires additional time and the parties are unable to agree as to the extent thereof, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

7.2. CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER's employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

7.3. If any part of CONTRACTOR's Work depends for proper execution or results upon the work of any such other contractor or utility owner (or OWNER), CONTRACTOR shall inspect and promptly report to ENGINEER in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. CONTRACTOR's failure so to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR's Work except for latent or non-apparent defects and deficiencies in the other work.

#### ***Coordination:***

7.4. If OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided, in the Supplementary Conditions. Unless otherwise provided in the Supplementary Conditions, neither OWNER nor ENGINEER shall have any authority or responsibility in respect of such coordination.



## ARTICLE 8 – OWNER'S RESPONSIBILITIES

---

8.1. OWNER shall issue all communications to CONTRACTOR through ENGINEER.

8.2. In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer against whom CONTRACTOR makes no reasonable objection, whose status under the Contract Documents shall be that of the former ENGINEER. Any dispute in connection with such appointment shall be subject to arbitration.

8.3. OWNER shall furnish the data required of OWNER under the Contract Documents promptly and shall make payments to CONTRACTOR promptly after they are due as provided in paragraphs 14.4 and 14.13.

8.4. OWNER's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER's identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by ENGINEER in preparing the Drawings and Specifications.

8.5. OWNER's responsibilities in respect of purchasing and maintaining liability and property insurance are set forth in paragraph 5.5 through 5.8.

8.6. OWNER is obligated to execute Change Orders as indicated in paragraph 10.4.

8.7. OWNER's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.4.

8.8. In connection with OWNER's right to stop Work or suspend Work, see paragraphs 13.10 and 15.1. Paragraph 15.2 deals with OWNER's right to terminate services of CONTRACTOR under certain circumstances.

## ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

---

### ***Owner's Representative:***

9.1. ENGINEER will be OWNER's representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and ENGINEER.

### ***Visits to Site:***

9.2. ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous on-site inspections 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 to the Contract Documents. On the basis of such visits and on-site observations as an experienced and

qualified design professional, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defects and deficiencies in the Work.

### ***Project Representative:***

9.3. If OWNER and ENGINEER agree, ENGINEER will furnish a Resident Project Representative to assist ENGINEER in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions. If OWNER designates another agent to represent OWNER at the site who is not ENGINEER's agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Supplementary Conditions.

### ***Clarifications and Interpretations:***

9.4. ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If CONTRACTOR believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Article 11 or Article 12.

### ***Authorized Variations in Work:***

9.5. ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on OWNER, and also on CONTRACTOR who shall perform the Work involved promptly. If CONTRACTOR believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Article 11 or 12.

### ***Rejecting Defective Work:***

9.6. ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be *defective*, and will also have authority to require special inspection or testing of the Work as provided in paragraph 13.9, whether or not the Work is fabricated, installed or completed.

### ***Shop Drawings, Change Orders and Payments:***

9.7. In connection with ENGINEER's responsibility for Shop Drawings and samples, see paragraphs 6.23 through 6.29 inclusive.

9.8. In connection with ENGINEER's responsibilities as to Change Orders, see Articles 10, 11 and 12.

9.9. In connection with ENGINEER's responsibilities in respect of Applications for Payment, etc., see Article 14.

### ***Determination for Unit Price:***

9.10. ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR. ENGINEER will review with CONTRACTOR 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 decisions thereon will be final and binding upon OWNER and CONTRACTOR, unless, within ten days after the date of any such decision, either OWNER or CONTRACTOR delivers to the other party to the Agreement and to ENGINEER written notice of intention to appeal from such a decision.

#### ***Decisions on Disputes:***

9.11. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Time will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered by the claimant to ENGINEER and the other party to the Agreement promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within sixty days after such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

9.12. When functioning as interpreter and judge under paragraphs 9.10 and 9.11, ENGINEER will not show partiality to OWNER or CONTRACTOR and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by ENGINEER pursuant to paragraphs 9.10 and 9.11 with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment as provided in paragraph 14.16) will be a condition precedent to any exercise by OWNER or CONTRACTOR of such rights or remedies as either may otherwise have under the Contract Documents or by Laws or Regulations in respect of any such claim, dispute or other matter.

#### ***Limitations on ENGINEER's Responsibilities:***

9.13. Neither ENGINEER's authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

9.14. Wherever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved", or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.15 or 9.16.

9.15. ENGINEER will not be responsible for CONTRACTOR's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR's failure to perform or furnish the Work in accordance with the Contract Documents.

9.16. ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

#### **ARTICLE 10 – CHANGES IN THE WORK**

---

10.1. Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Written Amendment, a Change Order, or a Work Directive Change. Upon receipt of any such document, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

10.2. If OWNER and CONTRACTOR are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Work Directive Change, a claim may be made therefor as provided in Article 11 or Article 12.

10.3. CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraphs 3.4. and 3.5, except in the case of an emergency as provided in paragraph 6.22 and except in the case of uncovering Work as provided in paragraph 13.9.

10.4. OWNER and CONTRACTOR shall execute appropriate Change Orders (or Written Amendments) covering:

10.4.1. changes in the Work which are ordered by OWNER pursuant to paragraph 10.1, are required because of acceptance of *defective* Work under paragraph 13.13 or correcting *defective* Work under paragraph 13.14, or are agreed to by the parties;

10.4.2. changes in the Contract Price or Contract Time which are agreed to by the parties; and

10.4.3. changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 9.11;

provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal. CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 6.29.

10.5. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR's responsibility, and the amount of each applicable Bond will be adjusted accordingly.



## ARTICLE 11 – CHANGE OF CONTRACT PRICE

11.1. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

11.2. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Price shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

11.3. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

11.3.1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraphs 11.9.1 through 11.9.3, inclusive).

11.3.2. By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.6.2.1).

11.3.3. On the basis of the Cost of the Work (determined as provided in paragraphs 11.4 and 11.5) plus a CONTRACTOR's Fee for overhead and profit (determined as provided in paragraphs 11.6 and 11.7).

### **Cost of the Work:**

11.4. The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in paragraph 11.5:

11.4.1. 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. 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' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include

superintendents and foremen at the site. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.

11.4.2. 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 all returns from sale of surplus materials and equipment shall accrue to OWNER, and CONTRACTOR shall make provisions so that they may be obtained.

11.4.3. Payments made by CONTRACTOR to the Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of ENGINEER, which bids will be accepted. If a 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 shall be determined in the same manner as CONTRACTOR's Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

11.4.4. 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.

11.4.5. Supplemental costs including the following:

11.4.5.1. The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR's employees incurred in discharge of duties connected with the Work.

11.4.5.2. 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.

11.4.5.3. 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, installation, dismantling and removal thereof, all in accordance with 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.

11.4.5.4. Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.

11.4.5.5. 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.

11.4.5.6. Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER in accordance with paragraph 5.9), provided they 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. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid for services a fee proportionate to that stated in paragraph 11.6.2.

11.4.5.7. The cost of utilities, fuel and sanitary facilities at the site.

11.4.5.8. Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

11.4.5.9. Cost of premiums for additional Bonds and insurance required because of changes in the Work and premiums for property insurance coverage within the limits of the deductible amounts established by OWNER in accordance with paragraph 5.9.

11.5. The term Cost of the Work shall not include any of the following:

11.5.1. Payroll costs and other compensation of CONTRACTOR's officers, executives, principals (of partnership and sole proprietorships), general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by CONTRACTOR whether at the site or in CONTRACTOR's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in paragraph 11.4.1 or specifically covered by paragraph 11.4.4-all of which are to be considered administrative costs covered by the CONTRACTOR's Fee.

11.5.2. Expenses of CONTRACTOR's principal and branch offices other than CONTRACTOR's office at the site.

11.5.3. Any of CONTRACTOR's capital expenses, including interest on CONTRACTOR's capital employed for the Work and charges against CONTRACTOR for delinquent payments.

11.5.4. Cost of premiums for all Bonds and for all insurance whether or not CONTRACTOR is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by sub-paragraph 11.4.5.9 above).

11.5.5. 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.

11.5.6. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in paragraph 11.4.

#### **Contractor's Fee:**

11.6. The CONTRACTOR's Fee allowed to CONTRACTOR for overhead and profit shall be determined as follows:

11.6.1. a mutually acceptable fixed fee; or if none can be agreed upon.

(This space was left blank  
intentionally).

11.7. Whenever the cost of any Work is to be determined pursuant to paragraph 11.4 or 11.5, CONTRACTOR will submit in form acceptable to ENGINEER an itemized cost breakdown together with supporting data.

#### **Cash Allowances:**

11.8. 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 done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to ENGINEER, CONTRACTOR agrees that:

11.8.1. The 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

11.8.2. CONTRACTOR's costs for unloading and handling on the site, labor, installation costs, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any thereof will be valid.

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.

#### **Unit Price Work:**

11.9.1. 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 established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by CONTRACTOR will be made by ENGINEER in accordance with Paragraph 9.10.

11.9.2. 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.

11.9.3. Where the quantity of any item of Unit Price Work performed by CONTRACTOR differs materially and significantly from the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of Work and if CONTRACTOR believes that CONTRACTOR has incurred additional expense as a result thereof, CONTRACTOR may make a claim for an increase in the Contract Price in accordance with Article 11 if the parties are unable to agree as to the amount of any such increase.

## ARTICLE 12 – CHANGE OF CONTRACT TIME

---

12.1. The Contract Time may only be changed by a Change Order or a Written Amendment. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party and to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by ENGINEER in accordance with paragraph 9.11 if OWNER and CONTRACTOR cannot otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2. The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if a claim is made therefor as provided in paragraph 12.1. Such delays shall include, but not be limited to, acts or neglect by OWNER or others performing additional work as contemplated by Article 7, or to fires, floods, labor disputes, epidemics, abnormal weather conditions or acts of God.

12.3. All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article 12 shall not exclude recovery for damages (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) for delay by either party.

## ARTICLE 13 – WARRANTY AND GUARANTEE; TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

---

### **Warranty and Guarantee:**

13.1. CONTRACTOR warrants and guarantees to OWNER and ENGINEER that all Work will be in accordance with the Contract Documents and will not be *defective*. Prompt notice of all defects shall be given to CONTRACTOR. All *defective* Work, whether or not in place, may be rejected, corrected or accepted as provided in this Article 13.

### **Access to Work:**

13.2. ENGINEER and ENGINEER's representatives, other representatives of OWNER, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. CONTRACTOR shall provide proper and safe conditions for such access.

### **Tests and Inspections:**

13.3. CONTRACTOR shall give ENGINEER timely notice of readiness of the Work for all required inspections, tests or approvals.

13.4. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) to specifically be inspected, tested or approved. CONTRACTOR shall assume full responsibility therefor, pay all costs in connection therewith and furnish ENGINEER the required certificates of inspection, testing or approval. CONTRACTOR shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with OWNER's or ENGINEER's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of materials or equipment submitted for approval prior to CONTRACTOR's purchase thereof for incorporation in the Work. The cost of all inspections, tests and approvals in addition to the above which are required by the Contract Documents shall be paid by OWNER (unless otherwise specified).

13.5. All inspections, tests or approvals other than those required by Laws or Regulations of any public body having jurisdiction shall be performed by organizations acceptable to OWNER and CONTRACTOR (or by ENGINEER if so specified).

13.6. If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of ENGINEER, it must, if requested by ENGINEER, be uncovered for observation. Such uncovering shall be at CONTRACTOR's expense unless CONTRACTOR has given ENGINEER timely notice of CONTRACTOR's intention to cover the same and ENGINEER has not acted with reasonable promptness in response to such notice.

13.7. Neither observations by ENGINEER nor inspections, tests or approvals by other shall relieve CONTRACTOR from CONTRACTOR's obligations to perform the Work in accordance with the Contract Documents.

#### **Uncovering Work:**

13.8. If any Work is covered contrary to the written request of ENGINEER, it must, if requested by ENGINEER, be uncovered for ENGINEER's observation and replaced at CONTRACTOR's expense.

13.9. If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request, shall uncover, expose or otherwise make available for observation, inspection or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such Work is *defective*, CONTRACTOR shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, (including but not limited to fees and charges of engineers, architects, attorneys and other professionals), and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, may make a claim therefor as provided in Article 11. If, however, such Work is not found to be *defective*, CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction; and, if the parties are unable to agree as to the amount or extent thereof, CONTRACTOR may make a claim therefor as provided in Articles 11 and 12.

#### **Owner May Stop the Work:**

13.10. If the Work is *defective*, or CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, OWNER may order CONTRACTOR to stop the Work, or any portion thereof, 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 or any other party.

#### **Correction or Removal of Defective Work:**

13.11. If required by ENGINEER, CONTRACTOR shall promptly, as directed, either correct all *defective* Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by ENGINEER, remove it from the site and replace it with *nondefective* Work. CONTRACTOR shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

#### **One Year Correction Period:**

13.12. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be *defective*, CONTRACTOR shall promptly, without cost to OWNER and in accordance with OWNER's written instructions, either correct such *defective* Work, or, if it has been rejected by OWNER, remove it from the site and replace it with *nondefective* Work. If CONTRACTOR does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, OWNER may have the *defective* Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineer, architects, attorneys and other professionals) will be paid by CONTRACTOR. 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 or by Written Amendments.

#### **Acceptance of Defective Work:**

13.13. If, instead of requiring correction or removal and replacement of *defective* Work, OWNER (and, prior to ENGINEER's recommendation of final payment, also ENGINEER) prefers to accept it, OWNER may do so, CONTRACTOR shall bear all direct, indirect and consequential costs attributable to OWNER's evaluation of and determination to accept such *defective* Work (such costs to be approved by ENGINEER as to reasonableness and to include but not be limited to fees and charges of engineers, architects, attorneys and other professionals). If any such acceptance occurs prior to ENGINEER's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by CONTRACTOR to OWNER.

#### **OWNER May Correct Defective Work:**



13.14. If CONTRACTOR fails within a reasonable time after written notice of ENGINEER to proceed to correct and to correct defective Work or to remove and replace rejected Work as required by ENGINEER in accordance with paragraph 13.11, or if CONTRACTOR fails to perform the Work in accordance with the Contract Documents, or if CONTRACTOR fails to comply with any other provision of the Contract Documents, OWNER may, after seven days' written notice to CONTRACTOR, correct and remedy any such deficiency. In exercising the rights and remedies under this paragraph OWNER shall proceed expeditiously. To the extent necessary to complete corrective and remedial action, OWNER may include CONTRACTOR from all or part of the site, take possession of all or part of the Work, and suspend CONTRACTOR's services related thereto, take possession of CONTRACTOR's tools, appliances, construction equipment and machinery at the site and incorporate in the Work all materials and equipment stored at the site for which OWNER has paid CONTRACTOR but which are stored elsewhere. CONTRACTOR shall allow OWNER, OWNER's representatives, agents and employees such access to the site as may be necessary to enable OWNER to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of OWNER in exercising such rights and remedies will be charged against CONTRACTOR in an amount approved as to reasonableness by ENGINEER, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and OWNER shall be entitled to an appropriate decrease in the Contract Price, and, if the parties are unable to agree as to the amount thereof, OWNER may make a claim therefor as provided in Article 11. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court and arbitration costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of CONTRACTOR's defective Work, CONTRACTOR shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by OWNER of OWNER's rights and remedies hereunder.

#### ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

##### *Schedule of Values:*

14.1. The schedule of values established as provided in paragraph 2.9 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.

##### *Application for Progress Payment:*

14.2. At least twenty days before each progress payment is scheduled (but not 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, charges, security interests and encumbrances (which are hereinafter in these General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect OWNER's interest therein, all of which will be satisfactory to OWNER. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

##### *CONTRACTOR's Warranty of Title:*

14.3. CONTRACTOR warrants and guarantees that title to all Work, materials and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens.

##### *Review of Applications for Progress Payment:*

This space was left blank intentionally.

14.5. ENGINEER's recommendation of any payment requested in an Application for Payment will constitute a representation by ENGINEER to OWNER, based on ENGINEER's on-site observations of the Work in progress as an experienced and qualified design professional and on ENGINEER's review of the Application for Payment and the accompanying data and schedules that the Work has progressed to the point indicated; that, to the best of ENGINEER's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under paragraph 9.10, and to any other qualifications stated in the recommendation); and that CONTRACTOR is entitled to payment of the amount recommended. However, by recommending any such payment ENGINEER will not thereby be deemed to have represented that exhaustive or continuous on-site inspections have been made to

check the quality or the quantity of the Work beyond the responsibilities specifically assigned to ENGINEER in the Contract Documents or that there may not be other matters or issues between the parties that might entitle CONTRACTOR to be paid additionally by OWNER or OWNER to withhold payment to CONTRACTOR.

14.6. ENGINEER's recommendation of final payment will constitute an additional representation by ENGINEER to OWNER that the conditions precedent to CONTRACTOR's being entitled to final payment as set forth in paragraph 14.13 have been fulfilled.

14.7. ENGINEER may refuse to recommend the whole or any part of any payment if, in ENGINEER's opinion, it would be incorrect to make such representations to OWNER. ENGINEER may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in ENGINEER's opinion to protect OWNER from loss because:

14.7.1. the Work is *defective*, or completed Work has been damaged requiring correction or replacement,

14.7.2. the Contract Price has been reduced by Written Amendment or Change Order;

14.7.3. OWNER has been required to correct *defective* Work or complete Work in accordance with paragraph 13.14, or

14.7.4. of ENGINEER's actual knowledge of the occurrence of any of the events enumerated in paragraphs 15.2.1 through 15.2.9 inclusive.

OWNER may refuse to make payment of the full amount recommended by ENGINEER because claims have been made against OWNER on account of CONTRACTOR's performance or furnishing of the Work or Liens have been filed in connection with the Work or there are other items entitling OWNER to a set-off against the amount recommended, but OWNER must give CONTRACTOR immediate written notice (with a copy to ENGINEER) stating the reasons for such action.

#### **Substantial Completion:**

14.8. When CONTRACTOR considers the entire Work ready for its intended use CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, 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. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. OWNER shall have seven days after receipt of the tentative certificate during which to make written objection to ENGINEER as to any provisions of the certificate or attached list. If, after considering such objections, ENGINEER concludes that the Work is not substantially complete, ENGINEER will within fourteen days after submission of the tentative certificate to OWNER notify CONTRACTOR in writing, stating the reasons

therefor. If, after consideration of OWNER's objections, ENGINEER considers the Work substantially complete, ENGINEER will within said fourteen days execute and deliver to OWNER and CONTRACTOR a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as ENGINEER believes justified after consideration of any objections from OWNER. At the time of delivery of the tentative certificate of Substantial Completion ENGINEER will deliver to OWNER and CONTRACTOR a written recommendation as to division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties. Unless OWNER and CONTRACTOR agree otherwise in writing and so inform ENGINEER prior to ENGINEER's issuing the definitive certificate of Substantial Completion, ENGINEER's aforesaid recommendation will be binding on OWNER and CONTRACTOR until final payment.

14.9. OWNER shall have the right to exclude CONTRACTOR from the Work after the date of Substantial Completion, but OWNER shall allow CONTRACTOR reasonable access to complete or correct items on the tentative list.

#### **Partial Utilization:**

14.10. Use by OWNER of any finished 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 useable part of the Work that can be used by OWNER without significant interference with CONTRACTOR's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

14.10.1. OWNER at any time may request CONTRACTOR in writing to permit OWNER to use any such part of the Work which OWNER believes to be ready for its intended use and substantially complete. If CONTRACTOR agrees, CONTRACTOR will certify to OWNER and ENGINEER that said part of the Work is substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. CONTRACTOR at any time may notify OWNER and ENGINEER in writing that CONTRACTOR considers any such part of the Work ready for its intended use and substantially complete and request ENGINEER to issue a certificate of Substantial Completion for that part of the Work. 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 paragraphs 14.8 and 14.9 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.

14.10.2. OWNER may at any time request CONTRACTOR in writing to permit OWNER to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to ENGINEER and within a reasonable time thereafter OWNER, CONTRACTOR and ENGINEER shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If CONTRACTOR does not object in writing to OWNER and ENGINEER that

such part of the Work is not ready for separate operation by OWNER, ENGINEER will finalize the list of items to be completed or corrected and will deliver such list to OWNER and CONTRACTOR together with a written recommendation as to the division of responsibilities pending final payment between OWNER and CONTRACTOR with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work which will become binding upon OWNER and CONTRACTOR at the time when OWNER takes over such operation (unless they shall have otherwise agreed in writing and so informed ENGINEER). During such operation and prior to Substantial Completion of such part of the Work, OWNER shall allow CONTRACTOR reasonable access to complete or correct items on said list and to complete other related Work.

14.10.3. No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.15 in respect of property insurance.

#### ***Final Inspection:***

14.11. Upon written notice from CONTRACTOR that the entire Work or an agreed portion thereof is complete, ENGINEER will make a final inspection with OWNER and CONTRACTOR and will notify CONTRACTOR in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. CONTRACTOR shall immediately take sure measures as are necessary to remedy such deficiencies.

#### ***Final Application for Payment:***

14.12. After CONTRACTOR has completed all such corrections to the satisfaction of ENGINEER and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in paragraph 6.19) and other documents-all as required by the Contract Documents, and after ENGINEER has indicated that the Work is acceptable (subject to the provisions of paragraph 14.16), CONTRACTOR may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to OWNER) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full; an affidavit of CONTRACTOR that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment.

#### ***Final Payment and Acceptance:***

14.13. If, on the basis of ENGINEER's observation of the Work during construction and final inspection, and ENGINEER's review of the final Application for Payment and accompanying documentation - all as required by the Contract Documents, ENGINEER is satisfied that the Work has been completed and CONTRACTOR's other obligations under the Contract Documents have been fulfilled, ENGINEER will, within ten days after receipt of the final Application for Payment, indicate in writing ENGINEER's recommendation of payment and present the Application to OWNER for payment. Thereupon ENGINEER will give written notice to OWNER and CONTRACTOR that the Work

is acceptable subject to the provisions of paragraph 14.16. Otherwise, ENGINEER will return the Application 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. Thirty days after presentation to OWNER of the Application and accompanying documentation, in appropriate form and substance, and with ENGINEER's recommendation and notice of acceptability, the amount recommended by ENGINEER will become due and will be paid by OWNER to CONTRACTOR.

14.14. If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed and if ENGINEER so confirms, OWNER shall, upon receipt of CONTRACTOR's final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 5.1, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

#### ***Contractor's Continuing Obligation:***

14.15. CONTRACTOR's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Substantial Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by ENGINEER pursuant to paragraph 14.13, nor any correction of defective Work by OWNER will constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR's obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 14.16).

#### ***Waiver of Claims:***

14.16. The making and acceptance of final payment will constitute:

14.16.1. a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.11 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR's continuing obligations under the Contract Documents; and

14.16.2. a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

## **ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

---



### ***Owner May Suspend Work:***

15.1. OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 11 and 12.

### ***Owner May Terminate:***

15.2. Upon the occurrence of any one or more of the following events:

15.2.1. if CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

15.2.2. if a petition is filed against CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

15.2.3. if CONTRACTOR makes a general assignment for the benefit of creditors;

15.2.4. if a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge of property of CONTRACTOR is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of CONTRACTOR's creditors;

15.2.5. if CONTRACTOR admits in writing an inability to pay its debts generally as they become due;

15.2.6. if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.9 as revised from time to time);

15.2.7. if CONTRACTOR disregards Laws or Regulations of any public body having jurisdiction;

15.2.8. if CONTRACTOR disregards the authority of ENGINEER; or

15.2.9. if CONTRACTOR otherwise violates in any substantial way any provisions of the Contract Documents;

OWNER may, after giving CONTRACTOR (and the surety, if there be one) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of CONTRACTOR, exclude CONTRACTOR from the site and take possession of the Work and of all CONTRACTOR's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by CONTRACTOR (without liability to

CONTRACTOR for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient. In such case CONTRACTOR shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of completing the Work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs) such excess will be paid to CONTRACTOR. If such costs exceed such unpaid balance, CONTRACTOR shall pay the difference to OWNER. Such costs incurred by OWNER will be approved as to reasonableness by ENGINEER and incorporated in a Change Order, but when exercising any rights or remedies under this paragraph OWNER shall not be required to obtain the lowest price for the Work performed.

15.3. Where CONTRACTOR's services have been so terminated by OWNER, the termination will not affect any rights or remedies of OWNER against CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of moneys due CONTRACTOR by OWNER will not release CONTRACTOR from liability.

15.4. Upon seven days' written notice to CONTRACTOR and ENGINEER, OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, CONTRACTOR shall be paid for all Work executed and any expense sustained plus reasonable termination expenses, which will include, but not be limited to, direct indirect and consequential costs (including, but not limited to, fees and charges of engineers, architects, attorneys and other professionals and court and arbitration costs).

### ***Contractor May Stop Work or Terminate:***

15.5. If, through no act or fault of CONTRACTOR, the Work is suspended for a period of more than ninety days by OWNER or under an order of court or other public authority, or ENGINEER fails to act on any Application for Payment within thirty days after it is submitted, or OWNER fails for thirty days to pay CONTRACTOR any sum finally determined to be due, then CONTRACTOR may, upon seven days' written to OWNER and ENGINEER, terminate the Agreement and recover from OWNER payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if ENGINEER has failed to act on an Application for Payment or OWNER has failed to make any payment as aforesaid, CONTRACTOR may upon seven days' written notice to OWNER and ENGINEER stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve CONTRACTOR of the obligations under paragraph 6.29 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with OWNER.

## **ARTICLE 16 – ARBITRATION**

16.1. All claims, disputes and other matters in question between OWNER and CONTRACTOR arising out of, or relating to the Contract Documents or the breach thereof (except for claims which have been waived by the making or acceptance of final payment as provided by paragraph 14.16) will be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association then obtaining subject to the limitations of this Article 16. This agreement so to



arbitrate and any other agreement or consent to arbitrate entered into in accordance herewith as provided in this Article 16 will be specifically enforceable under the prevailing law of any court having jurisdiction.

16.2. No demand for arbitration of any claim, dispute or other matter that is required to be referred to ENGINEER initially for decision in accordance with paragraph 9.11 will be made until the earlier of (a) the date on which ENGINEER has rendered a decision or (b) the tenth day after the parties have presented their evidence to ENGINEER if a written decision has not been rendered by ENGINEER before that date. No demand for arbitration of any such claim, dispute or other matter will be made later than thirty days after the date on which ENGINEER has rendered a written decision in respect thereof in accordance with paragraph 9.11; and the failure to demand arbitration within said thirty days' period shall result in ENGINEER's decision being final and binding upon OWNER and CONTRACTOR. If ENGINEER renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but will not supersede the arbitration proceedings, except where the decision is acceptable to the parties concerned. No demand for arbitration of any written decision of ENGINEER rendered in accordance with paragraph 9.10 will be made later than ten days after the party making such demand has delivered written notice of intention to appeal as provided in paragraph 9.10.

16.3. Notice of the demand for arbitration will be filed in writing with the other party to the Agreement and with the American Arbitration Association, and a copy will be sent to ENGINEER for information. The demand for arbitration will be made within the thirty-day or ten-day period specified in paragraph 16.2 as applicable, and in all other cases within a reasonable time after the claim, dispute or other matter in question has arisen, and in no event shall any such demand be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations.

16.4. No arbitration arising out of or relating to the Contract Documents shall include by consolidation, joinder or in any other manner any other person or entity (including ENGINEER, ENGINEER's agents, employees or consultants) who is not a party to this contract unless:

16.4.1. the inclusion of such other person or entity is necessary if complete relief is to be afforded among those who are already parties to the arbitration,

16.4.2. such other person or entity is substantially involved in a question of law or fact which is common to those who are already parties to the arbitration and which will arise in such proceedings, and

16.4.3. the written consent of the other person or entity sought to be included and of OWNER and CONTRACTOR has been obtained for such inclusion, which consent shall make specific reference to this paragraph; but no such consent shall constitute consent to arbitration of any dispute not specifically described in such consent or to arbitration with any party not specifically identified in such consent.

16.5. The award rendered by the arbitrators will be final, judgment may be entered upon it in any court having jurisdiction thereof, and will not be subject to modification or appeal except to the extent permitted by Sections 10 and 11 of the Federal Arbitration Act (9 U.S.C. §§ 10,11).

## ARTICLE 17 – MISCELLANEOUS

---

### *Giving Notice:*

17.1. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### *Computation of Time:*

17.2.1. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.2.2. A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

### *General:*

17.3. Should OWNER or CONTRACTOR suffer injury or damage to person or property because of any error, omission or act of the other party or of any of the other party's employees or agents or others for whose acts the other party is legally liable, claim will be made in writing to the other party within a reasonable time of the first observance of such injury or damage. The provisions of this paragraph 17.3 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitations or repose.

17.4. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon CONTRACTOR by paragraphs 6.30, 13.1, 13.12, 13.14, 14.3 and 15.2 and all of the rights and remedies available to OWNER and

ENGINEER thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee or by other provisions of the Contract Documents, and 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. All representatives, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.

## SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

**\*Note:** The Supplementary Conditions are numbered to conform to the numbering system of the General Conditions. Where a numbered article is omitted from these Supplementary Conditions, that article of the General Conditions is taken as complete.

### **ARTICLE 1 - DEFINITIONS**

The Owner, the Contractor, and the Engineer are those mentioned as such in the Agreement. They are treated through the contract documents as if each were of the singular number and masculine gender.

Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

The term "Subcontractor", as employed herein, includes only those having a direct contract with the Contractor; and it includes one who furnishes material worked to a special design according to the drawings and specifications of this work, but does not include one who merely furnishes material not so worked.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, AND REUSE**

3.1 The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If there is a conflict between Plans and Specifications, the Contractor shall notify the Owner immediately for clarification.

3.3 No oral agreement or conversation with any officer, agent, or employee of the Owner, either before or after execution of this Contract, shall affect or modify any of the terms of obligations contained in any of the documents comprising said Contract.

### **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

4.5 The Owner will provide reference point information (if available) that was used as a part of the design. This information will be listed on the Plans. Additional field surveys needed to establish or re-establish reference points for construction is the responsibility of the Contractor and will be considered a part of laying out the Work.

### **ARTICLE 5 – BONDS AND INSURANCE**

5.3 Proof of Carriage of Insurance: The Contractor shall furnish the Owner with certificates showing the type, amount, class of operations covered, effective dates, and dates of expiration of policies. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled or materially altered except after thirty (30) days written notice has been received by the Owner."

#### 5.4 Contractor' Liability Insurance

*Contractor's General Liability and Automobile Liability Insurance:* The Contractor will furnish the Owner with proof of insurance coverage under a general liability insurance policy and an automobile liability insurance policy, both of which shall be of the comprehensive form. The insurance shall protect the insured from claims for damages because of bodily injury, including accidental death, and from claims for property damage, including loss of use resulting therefrom. This insurance shall include the specific coverages and be written for not less than the limits set out below. The Contractor shall furnish an Owner's protective policy similar to that specified herein.

##### General Liability:

▪ Each occurrence	\$1,000,000
▪ Damage to rented premises (Ea occurrence)	\$1,000,000
▪ Medical expenses (Any one person)	\$10,000
▪ Personal & adv injury	\$1,000,000
▪ General aggregate	\$2,000,000
▪ Products – Comp/OP Agg	\$2,000,000

Automobile Liability (including any auto, all owned autos, hired, and non-owned):

▪ Combined single limit (Ea accident)	\$1,000,000
---------------------------------------	-------------

##### Excess/Umbrella Liability

▪ Each occurrence	\$5,000,000
▪ Aggregate	\$5,000,000

##### Workers Compensation & Employers' Liability

▪ E.L. each accident	\$1,000,000
▪ E.L. Disease – ea employee	\$1,000,000
▪ E.L. disease – policy limit	\$1,000,000

##### Equipment Floater

▪ Lsd/Rntd	\$800,000
▪ Deductible	\$1,000

*Subcontractor's General Liability and Automobile Liability Insurance:* The Contractor shall either (1) require each of his Subcontractors to procure and maintain during the life of their subagreement, insurance as specified in Articles 5.03 and 5.04 of these Supplementary Conditions; or (2) insure the activities of his subcontractors in his own insurance policy.

*Contractor's and Subcontractor's Insurance:* The Contractor shall not commence work under this Contract until he has obtained all insurance required and such insurance has been approved by the Owner. Nor shall the Contractor allow any subcontractor to commence work on his subcontract until the insurance required of the subcontractor has been so obtained and approved.

5.6 Property Insurance: Insurance listed under Section 5.06 of the Standard Conditions of the Contract shall be purchased and maintained by the Contractor, not the Owner.

## **ARTICLE 6 –CONTRACTOR’S RESPONSIBILITIES**

6.13 Protection of Lives and Health: In accordance with generally accepted construction practices, the Contractor will be solely and completely responsible for conditions at the job site, including the safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.

## **ARTICLE 9 –RESIDENT PROJECT REPRESENTATIVE**

9.1 Project Representation/General: Resident Project Representative (RPR) is the Owner's employee or agent at the Site, who will act as directed by and under the supervision of the Owner and will confer with the Owner regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with the Owner and Contractor, keeping the Owner advised as necessary. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of the Contractor.

9.2 Duties and Responsibilities of RPR shall include:

- A. Schedules. Review the progress schedule, the schedule of Shop Drawings and sample submittals and schedule of values prepared by the Contractor; and consult with the Owner concerning acceptability.
- B. Conferences and Meetings. Attend meetings with the Contractor, such as preconstruction conferences, progress meetings, job conferences and other project related meetings and prepare and circulate copies of minutes thereof.
- C. Liaison.
  - 1. Serve as the Owner's liaison with the Contractor, working principally through the Contractor's superintendent; and assist in understanding the intent of the Contract Documents; and assist the Owner in serving as the Owner's liaison with the Contractor when the Contractor's operations affect the Owner's on-site operations.
  - 2. Assist in obtaining from the Owner additional details or information, when required for proper execution of the Work.
- D. Shop Drawings and Samples.
  - 1. Record date of receipt of Shop Drawings and samples.
  - 2. Receive samples that are furnished at the Site by the Contractor, and notify the Owner of availability of samples for examination.
  - 3. Advise the Owner and Contractor of the commencement of any work requiring a Shop Drawing or sample if the Owner has not approved the submittal.
- E. Review of Work, Rejection of Defective Work, Inspections, and Tests.
  - 1. Conduct on-site observations of the Work in progress to assist the Owner in determining if the Work is, in general, proceeding in accordance with the Contract Documents.
  - 2. Report to the Owner whenever the RPR believes that any work is unsatisfactory, faulty, or defective or does not conform to the Contract Documents or has been damaged or does not meet the requirements of any inspections, test, or approval

- required to be made; and advise the Owner of work that the RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
3. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate personnel, and that the Contractor maintains adequate records thereof; and observe, record, and report to the Owner appropriate details relative to the test procedures and start-ups.
  4. Accompany visiting inspectors representing public or other agencies having jurisdiction over the project; record the outcome of these inspections; and report to the Owner.
- F. Interpretation of Contract Documents. Report to the Owner when clarifications and interpretations of the Contract Documents are needed and transmit to the Contractor clarifications and interpretations as issued by the Owner.
- G. Modifications. Consider and evaluate the Contractor's suggestions for modifications in the drawings or specifications and report with the RPR's recommendations to the Owner. Transmit to the Contractor decisions as issued by the Owner.
- H. Records.
1. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Change Directives, Addenda, Change Orders, Field Orders, and additional Drawings issued subsequent to the execution of the Agreement, Owner's clarifications and interpretations of the Contract Documents, progress reports, and other project related documents.
  2. Keep a diary or log book recording Contractor hours on the job site, weather conditions, data relative to questions of Work Change Directives, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general and specific observations in more detail, as in the case of observing test procedures; and send copies to the Owner.
  3. Record names, addresses and telephone number of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
- I. Reports.
1. Furnish the Owner as required with periodic reports of the progress of the Work and of the Contractor's compliance with the approved progress schedule, schedule of Shop Drawings and sample submittals.
  2. Consult with the Owner in advance of scheduled major tests, inspections, or start of important phases of the work
  3. Draft proposed Change Orders and work directive changes, obtaining backup material from the Contractor and recommend to the Owner Change Orders, Work Change Directives, and Field Orders.
  4. Report immediately to the Owner's safety representative upon the occurrence of any accident.
- J. Payment Requests. Review Applications for Payment with the Contractor for compliance with the established procedure for their submission and forward with



recommendations to the Owner, 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.

- K. Certificates, Maintenance and Operation Manuals. During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by the Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to the Owner for review and forwarding to the Owner prior to final payment for the Work.
- L. Completion.
  - 1. Before the Owner issues a Certificate of Substantial Completion, submit to the Contractor a list of items requiring completion or correction.
  - 2. Conduct final inspection in the company of the Owner and Contractor, and prepare a final list of items to be completed or corrected.
  - 3. Observe that all items on final list have been completed or corrected and make recommendations to the Owner concerning acceptance.

9.3 Limitations of Authority. The RPR shall not:

- A. Authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by the Owner.
- B. Exceed limitations of the Owner's authority as set forth in the Contract Documents.
- C. Undertake any of the responsibilities of the Contractor, Subcontractors, or the Contractor's superintendent.
- D. Advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
- E. Advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
- F. Accept Shop Drawings or sample submittals from anyone other than the Owner or the Owner's appointed Representative.
- G. Authorize the Owner to occupy the project in whole or in part.
- H. Participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by the Owner.

## **ARTICLE 10 – CHANGES IN THE WORK**

10.5 The Contractor, in connection with any proposal he makes shall furnish a price breakdown, itemized as required by the Owner. Unless otherwise directed, the breakdown shall be in sufficient

detail to permit an analysis of all material, labor, equipment, subcontract, and overhead costs, as well as profit, and shall cover all work involved in the change order, whether such work was deleted, added or changed. Any amount claimed for subcontracts shall be supported by a similar price breakdown. Additionally, the proposal shall include justification for any time extension requests made.

#### **ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION**

14.2 After review by the Owner's representative of the Contractor's estimate, the Owner will make payment to the Contractor promptly and retain only such amounts as may be justified by specific circumstances. The amount due will be determined by the completed work and materials stored onsite less previous payments.

Retained amounts shall be limited to the following:

- The Owner shall retain five percent (5%) of the amount of each estimate until final completion and acceptance of all work covered by the contract. The Owner, at any time after ninety-five percent (50%) of the work has been completed, may reduce retainage to zero percent (0%) provided the Owner finds that satisfactory progress is being made.
- The Owner may accept securities negotiable without recourse, condition, or restrictions; a release or retainage bond; or an irrevocable letter of credit provided by the Contractor in lieu of all or part of the cash retainage.

#### **14.6 Final Completion**

The Owner will not issue final payment on this project until:

- The Owner has made a final inspection of the project site and accepted all Work, including those items on the punch list.
- The Contractor has submitted a letter certifying a one-year warranty on all Work from the date of acceptance by the Owner.
- The Contractor has submitted the necessary close out documents including the release of liens (evidence of payment), affidavit of payment of debts, and consent of surety to final payment.

END OF SECTION 00 73 00



**State and Local Fiscal Recovery Funds (SLRF)**  
**Supplemental Conditions for Contracts**

**Equal Employment Opportunity**

Any contract that uses federal funds to pay for construction work is a "federally assisted construction contract" and must include the equal opportunity clause found in 2 C.F.R. Part 200, unless otherwise stated in 41 C.F.R. Part 60. This contract provision is required for all procurements that meet the definition of a "federally assisted construction contract."

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, sexual orientation, gender identity, 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, sexual orientation, gender identity, 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 consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.
- (4) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

- (7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law. (8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through
- (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

#### **Davis-Bacon Act**

U.S. Treasury exercised its federal authority outlining the requirements for water infrastructure projects executed using ARP funds. Therefore, the requirements for prevailing wages and rates slightly differs from the standards of Davis-Bacon. Individual projects less than \$10 million dollars are not required to provide



certification that prevailing wages and rates were followed. Individual projects of \$10 million dollars or more require certification like Davis-Bacon and are outlined below. Please note that any project using other funding sources, like Community Development Block Grants or SRF loans, are subject to requirements for those programs. When combining funding sources on a single and complete project or phase, other funding program requirements may trump the requirements for the use of ARP funds. We recommend Grantees and Project Owners discuss project requirements with TDEC when leveraging ARP funds with other funding programs to ensure all applicable rules and regulations are followed.

#### **Individual Water Infrastructure Projects of \$10 million dollars or more**

- (1) A recipient may provide a certification that, for the relevant project, all laborers and mechanics employed by contractors and subcontractors in the performance of such project are paid wages at rates not less than those prevailing, as determined by the U.S. Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code (commonly known as the "Davis- Bacon Act"), for the corresponding classes of laborers and mechanics employed on projects of a character similar to the contract work in the civil subdivision of the State (or the District of Columbia) in which the work is to be performed, or by the appropriate State entity pursuant to a corollary State prevailing-wage-in-construction law (commonly known as "baby Davis-Bacon Acts"). If such certification is not provided, a recipient must provide a project employment and local impact report detailing:
  - a. The number of employees of contractors and sub-contractors working on the project;
  - b. The number of employees on the project hired directly and hired through a third party;
  - c. The wages and benefits of workers on the project by classification; and
  - d. Whether those wages are at rates less than those prevailing. 19 Recipients must maintain sufficient records to substantiate this information upon request.
- (2) A recipient may provide a certification that a project includes a project labor agreement, meaning a pre-hire collective bargaining agreement consistent with section 8(f) of the National Labor Relations Act (29 U.S.C. 158(f)). If the recipient does not provide such certification, the recipient must provide a project workforce continuity plan, detailing:
  - a. How the recipient will ensure the project has ready access to a sufficient supply of appropriately skilled and unskilled labor to ensure high-quality construction throughout the life of the project, including a description of any required professional certifications and/or in-house training;
  - b. How the recipient will minimize risks of labor disputes and disruptions that would jeopardize timeliness and cost-effectiveness of the project;
  - c. How the recipient will provide a safe and healthy workplace that avoids delays and costs associated with workplace illnesses, injuries, and fatalities, including descriptions of safety training, certification, and/or licensure requirements for all relevant workers (e.g., OSHA 10, OSHA 30);
  - d. Whether workers on the project will receive wages and benefits that will secure an appropriately skilled workforce in the context of the local or regional labor market; and
  - e. Whether the project has completed a project labor agreement.
- (3) Whether the project prioritizes local hires.
- (4) Whether the project has a Community Benefit Agreement, with a description of any such agreement.
  - a. All transactions regarding this contract shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29C.F.R. pt. 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and

3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable.

- b. b. Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor.
- c. c. Additionally, contractors are required to pay wages not less than once a week.

#### Copeland Anti-Kickback Act

The Copeland "Anti-Kickback" Act prohibits workers on construction contracts from giving up wages that they are owed. This requirement applies to all contracts for construction or repair work above \$2,000 in situations where the Davis-Bacon Act also applies.

- a. a. 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.
- b. b. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clause above and 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.
- c. c. 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."

#### Contract Work Hours and Safety Standards Act

Where applicable, all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. §§ 3702 and 3704, as supplemented by Department of Labor regulations at 29 C.F.R. Part 5. See 2 C.F.R. Part 200, Appendix II(E). 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.

#### **Compliance with the Contract Work Hours and Safety Standards Act.**

- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the t \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. The (write in the name of the Federal agency or the loan or grant recipient) shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other



federally- assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

- (4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

#### **Clean Air Act and Federal Water Pollution Control Act**

For contracts over \$150,000, contracts must contain a provision requiring contractors to comply with the Clean Air Act and the Federal Water Pollution Control Act. If applicable, contracts must contain a provision that requires the contractor to agree 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).

#### **Clean Air Act**

- (1) The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq
- (2) The contractor agrees to report each violation to the (name of subrecipient entering into the contract) and understands and agrees that the (name of the subrecipient entering into the contract) will, in turn, report each violation as required to assure notification to Treasury, and the appropriate Environmental Protection Agency Regional Office.
- (3) The contractor agrees to include these requirements in each subcontract exceeding \$150,000

#### **Federal Water Pollution Control Act**

- (1) The contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
- (2) The contractor agrees to report each violation to the (name of the subrecipient entering into the contract) and understands and agrees that the (name of the subrecipient entering into the contract) will, in turn, report each violation as required to assure notification to the Treasury, and the appropriate Environmental Protection Agency Regional Office.
- (3) The contractor agrees to include these requirements in each subcontract exceeding \$150,000

#### **Debarment and Suspension**

Non-federal entities, contractors and subcontractors are subject to debarment and suspension regulations. These regulations restrict awards, subawards, and contracts with certain parties that are debarred, suspended, or otherwise excluded from or ineligible for participation in Federal assistance programs and activities. In general, an "excluded" party cannot receive a Federal grant award or a contract within the meaning of a "covered transaction," to include subawards and subcontracts. The debarment and suspension clause is required for all contracts and subcontracts for \$25,000 or more, all contracts that require the consent of an official of a federal agency, and all contracts for federally required audit services.

#### **Suspension and Debarment**

- (1) 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's 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).
- (2) 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.
  - (3) This certification is a material representation of fact relied upon by (insert name of recipient/subrecipient/applicant). 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 (insert name of recipient/subrecipient/applicant), the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.
  - (4) 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.

#### Byrd Anti-Lobbying Amendment

Contractors that apply or bid for a contract of \$100,000 or more under a federal grant must file the required certification. This is also applicable to subcontractors of more than \$100,000, must include a contract provision prohibiting the use of federal appropriated funds to influence officers or employees of the federal government. Contractors that apply or bid for a contract for more than \$100,000 must also file the required certification regarding lobbying.

#### Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352

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 who in turn will forward the certification(s) to the awarding agency.

#### Procurement of Recovered Materials

A non-Federal entity that is a state agency or agency of a political subdivision of a state and its 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.

"In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired competitively within a timeframe providing for compliance with the contract



performance schedule; meeting contract performance requirements; or at a reasonable price. Information about this requirement, along with the list of EPA-designated items, is available at [EPA's Comprehensive Procurement Guidelines webpage](#).

The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act."

#### Domestic Preference for Procurement

As appropriate, and to the extent consistent with law, NFEs should, to the greatest extent practicable under a federal award, provide a preference for the purchase, acquisition, or use of goods, products or materials produced in the United States. This includes, but is not limited to, iron, aluminum, steel, cement, and other manufactured products.

#### "Domestic Preference for Procurements

As appropriate, and to the extent consistent with law, the contractor should, to the greatest extent practicable, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States. This includes, but is not limited to iron, aluminum, steel, cement, and other manufactured products.

For purposes of this clause:

Produced in the United States means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. Manufactured products mean items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber."

#### Access to Records

NFEs and their contractors and subcontractors must give the Department of Treasury and other authorized representatives access to records associated with their awards during the federally required record retention period and as long as the records are retained.

The following access to records requirements apply to this contract:

- (1) The Contractor agrees to provide (insert name of state agency or local or Indian tribal government), (insert name of recipient), Treasury, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions.
- (2) The Contractor agrees to permit any of the foregoing parties to reproduce by any means whatsoever or to copy excerpts and transcriptions as reasonably needed.
- (3) The Contractor agrees to provide the Treasury or authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.

#### Contract Changes or Modifications

## SECTION 00 75 00

To be eligible for ARP SLFRF assistance under the non-Federal entity's Treasury grant or cooperative agreement, the cost of the change, modification, change order, or constructive change must be allowable, allocable, within the scope of its grant or cooperative agreement, and reasonable for the completion of project scope.

### Compliance with Federal Law, Regulations and Executive Orders

The recipient and its contractors are required to comply with all Federal laws, regulations, and executive orders.

"This is an acknowledgement that Treasury ARP SLFRF financial assistance will be used to fund all or a portion of the contract. The contractor will comply with all applicable Federal law, regulations, executive orders, Treasury policies, procedures, and directives."

### Program Fraud and False or Fraudulent Statements or Related Acts

Recipients must comply with the requirements of The False Claims Act (31 U.S.C. §§ 3729-3733) which prohibits the submission of false or fraudulent claims for payment to the federal government. It is that the non-Federal entity include a provision in its contract that the contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to its actions pertaining to the contract.

"The Contractor acknowledges that 31 U.S.C. Chap. 38 (Administrative Remedies for False Claims and Statements) applies to the Contractor's actions pertaining to this contract."





**STATE OF TENNESSEE**  
**BYRD ANTI-LOBBYING AMENDMENT CERTIFICATION**

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 who in turn will forward the certification(s) to the awarding agency.

**APPENDIX A, 44 C.F.R. PART 18 – CERTIFICATION REGARDING LOBBYING – REQUIRED FOR CONTRACTS OVER \$100,000** *Certification for Contracts, Grants, Loans, and Cooperative Agreements*

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

- ☐ 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.
- ☐ If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence 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.
- ☐ The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients 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 section 1352, title 31, U.S. Code. 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.

The Contractor 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. Chap. 38, Administrative Remedies for False Claims and Statements, apply to this certification and disclosure, if any.

<b>Signature of Authorized Representative</b>	<b>Date</b>
<b>Printed Name and Title</b>	<b>Phone Number / Email Address</b>



**STATE OF TENNESSEE**  
**CERTIFICATION REGARDING DEBARMENT, SUSPENSION**  
**AND OTHER RESPONSIBILITY MATTERS**

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- ☐ Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- ☐ Have not within a three-year period preceding this proposal been convicted of or had a civil judgement rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- ☐ Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and
- ☐ Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

<b>Signature of Authorized Representative</b>	<b>Date</b>
<b>Printed Name</b>	<b>Phone Number / Email Address</b>

☐ I am unable to certify to the above statements. Explanation is attached.



**STATE OF TENNESSEE  
IRAN DIVESTMENT ACT CERTIFICATION**

<b>SUBJECT CONTRACT NUMBER(S):</b>	
<b>CONTRACTOR LEGAL ENTITY NAME:</b>	
<b>EDISON SUPPLIER IDENTIFICATION NUMBER:</b>	

The Iran Divestment Act, Tenn. Code Ann. § 12-12-101 et. seq. requires a person that attempts to contract with the state, including a contract renewal or assumption, to certify at the time the bid is submitted or the contract is entered into, renewed, or assigned, that the person or the assignee is not identified on a list created pursuant to § 12-12-106.

Currently, the list is available online at the following website: <https://www.tn.gov/generalservices/procurement/central-procurement-office--cpo-/library-/public-information-library.html>

The Contractor, identified above, certifies by signature below that it is not included on the list of persons created pursuant to Tenn. Code Ann. § 12-12-106 of the Iran Divestment Act.

---

**CONTRACTOR SIGNATURE**

NOTICE: This certification MUST be signed by an individual with legal capacity to contractually bind the Contractor.

---

**PRINTED NAME AND TITLE OF SIGNATORY**

---

**DATE**



## STATE OF TENNESSEE NON-BOYCOTT OF ISRAEL CERTIFICATION

The Bidder certifies that it is not currently engaged in, and will not for the duration of the contract engage in, a boycott of Israel as defined by Tenn. Code Ann. § 12-4-119. This provision shall not apply to contracts with a total value of less than two hundred fifty thousand dollars (\$250,000) or to contractors with less than ten (10) employees.

According to the law, a boycott of Israel means engaging in refusals to deal, terminating business activities, or other commercial actions that are intended to limit commercial relations with Israel, or companies doing business in or with Israel or authorized by, licensed by, or organized under the laws of the State of Israel to do business, or persons or entities doing business in Israel, when such actions are taken:

- 1) In compliance with, or adherence to, calls for a boycott of Israel, or
- 2) In a manner that discriminates on the basis of nationality, national origin, religion, or other unreasonable basis, and is not based on a valid business reason. Tenn. Code Ann. § 12-4-119.

<b>Signature of Authorized Representative</b>	<b>Date</b>
<b>Printed Name</b>	<b>Phone Number / Email Address</b>

**SECTION 010100  
SUMMARY OF WORK**

**PART 1      GENERAL**

1.01    TITLE OF WORK AND TYPE OF CONTRACT

- A.      Title of Work: City of Friendsville Downtown Sidewalk Improvements  
2022 HUD Project Number B-22CP-TN-0853
- B.      Type of Contract: Contract amount shall be based on lump sum and unit price bids.

1.02    RELATED REQUIREMENTS

- A.      Section 005213 - Agreement.
- B.      Section 007213 - General Conditions.
- C.      Section 007300 – Supplementary Conditions.
- D.      Section 015000 – Construction Facilities.

1.03    WORK COVERED BY CONTRACT DOCUMENTS

- A.      Work of this Contract includes the installation/execution of the following:  
  
Concrete curb, sidewalk, and driveway installation including sawcut and removal of existing asphalt, concrete, and gravel as required; clearing; grading; retaining walls; storm drainage improvements; crosswalk painting, and fire hydrant relocations.
- B.      The work shall include all related appurtenances as indicated in the design plans and specifications.

1.04    CONSTRUCTION SEQUENCE AND CONSTRAINTS

- A.      Perform work in a manner that is least disruptive to the City and property owners. Refer to Section 015000, Construction Facilities.
- B.      Standard working hours shall be from 8:00 AM to 5:00 PM Monday through Friday, and no work shall be performed without the OWNER or OWNER'S representative on site. Any work required outside of these standard hours shall be submitted in writing as a request to the Engineer documenting the work planned to be performed and the reason(s) for the overtime work.
- C.      Contractor's employees and subcontractors shall be limited to the Right-of-Way, where project work is to be performed. All other areas shall require permission of the property owner prior to entering the property.
- D.      The Owner or the Owner's construction representative shall be on-site when work is occurring.



1.05 CONTRACTOR USE OF PREMISES

- A. Coordinate use of premises under direct supervision of the designated representative to the Owner.
- B. Assume full responsibility for protection and safekeeping of products and materials stored on the site under this Contract.
- C. Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- D. All materials removed during construction (such as existing pipe, asphalt, spoil material, vegetation, etc.) shall be properly disposed by the Contractor.

**PART 2 PRODUCTS**

- A. Not Applicable

**PART 3 EXECUTION**

- A. Not Applicable

**END OF SECTION**

**SECTION 010310  
SPECIAL PROJECT PROCEDURES**

**PART 1      GENERAL**

**1.01    ACCESS TO PROJECT**

- A.    The project shall be accessible at all times to representatives of the Tennessee Department of Environment and Conservation; Tennessee Department of Transportation; City of Friendsville; and any other state, local, or federal regulatory agencies.

**1.02    SMOKING AND FIRE PRECAUTIONS**

- A.    No smoking, fire, or use of any fire- or explosion-producing tools or equipment will be permitted on the properties of oil companies or other concerns prohibiting same on their premises or at any locations where such may endanger said premises or the current operations thereon.

**1.03    MANUFACTURERS' QUALIFICATIONS**

- A.    The manufacturers of all materials and equipment used must be reputable and regularly engaged in the manufacture of the particular material or equipment for the use and service to which it will be subjected.

**1.04    CONTRACTOR SHALL PAY FOR ALL LABORATORY INSPECTION SERVICE**

- A.    All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Contractor and approved by the Owner. Pay for all laboratory inspection services as a part of the Contract. Submit all material test reports to the Owner electronically.

**1.05    COMPLIANCE WITH STATE AND LOCAL LAWS**

- A.    Comply with all applicable requirements of state and local laws and ordinances to the extent that such requirements do not conflict with federal laws or regulations.

**1.06    PROTECTION OF PUBLIC AND PRIVATE PROPERTY**

- A.    Take special care in working areas to protect public and private property. The Contractor shall replace or repair at his own expense any damaged water pipes, power and communication lines, or other public utilities, roads, curbs, gutters, sidewalks, drain pipes, sewer drainage ditches, and all plantings, including grass or sod on the site of the work. Leave the site in original or better condition after all cleanup work has been done.

**1.07    MARKERS**

- A.    Preserve all USGS, TVA, State of Tennessee, and private markers; do not remove or disturb any such markers without prior approval from the Owner. Any removal and replacement of such markers shall be at the expense of the Contractor.

#### 1.08 PAVEMENT REPAIR AND/OR REPLACEMENT

- A. The repair and/or replacement of all publicly or privately owned pavement shall be a part of this Contract and shall be repaired (pavements, driveways, walks, parking areas, shoulders, crushed stone or gravel streets and roads, etc.).

#### 1.09 APPROVED CHEMICALS

- A. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, must show approval of either EPA or USDA. The use of all such chemicals and the disposal of residues shall be in strict conformance with instructions.

#### 1.10 DRAWINGS OF RECORD

- A. The Contractor shall provide and keep up-to-date a complete record set of record drawing prints, which shall be corrected daily to show every change, and the approved shop drawings. Keep this set of prints at the job site, and use only as a record set. This shall not be construed as authorization for the Contractor to make changes in the approved layout without definite instructions in each case. The Contractor shall turn the set over to the Owner upon completion of the project.
- B. The drawings of record shall indicate the Contractor's name, address, phone number, the project manager's name, and the dates of the project.
- C. The final pay application will not be processed until sufficient drawings of record are provided by the Contractor.

#### 1.11 PRESERVATION OF EXISTING VEGETATION

- A. The Contractor shall take reasonable care during construction to avoid damage to vegetation. Where the area to be excavated is occupied by trees, brush, or other uncultivated vegetable growth, clear such growth from the area, and dispose of it in a satisfactory manner. Leave undisturbed any trees, cultivated shrubs, flowers, etc., situated within public rights-of-way and/or easements through private property but not located directly within excavation limits.
- B. The Contractor shall transplant small ornamental trees, cultivated shrubs, flowers, etc., located directly within excavation limits so they may be replaced during property restoration operations. Do not remove or disturb any tree larger than 6 inches in diameter without the permission of the Engineer. Take special precautions (including the provision of barricades and the temporary tying back of shrubbery and tree branches) for the protection and preservation of such objects throughout all stages of construction; the Contractor will be held liable for any damage that may result to said objects from excavation or construction operations. Trim any limbs or branches of trees broken during construction operations with a clean cut, and paint with an approved tree pruning compound. Treat tree trunks receiving damage from equipment with a tree dressing.

- C. Temporary soil deposits, concrete block or wash, solvents, or any supplies or materials shall not be placed within the drip line of trees. All such materials shall be removed from the area as soon as possible.

#### 1.12 UTILITIES

- A. The Contractor is to contact the Owner of all underground utilities before beginning construction in the area. Carefully protect from damage all utilities in the vicinity of the work at all times. If it is necessary to repair, remove, and/or replace any such utility in order to complete the work properly, do so in compliance with the rules and regulations of the particular utility involved. Any such work shall be considered incidental to the construction or repairs of utility lines, and no additional payment will be allowed.

#### 1.13 PRECONSTRUCTION SURVEY

- A. The Contractor shall video tape existing site prior to construction. Document existing damage to property, structures, vegetation, and slopes located along on project site. Preconstruction survey shall be considered incidental to the project, and no additional payment will be allowed.

#### 1.14 PROTECTION OF LIVES AND HEALTH

- A. In accordance with generally accepted construction practices, the Contractor will be solely and completely responsible for conditions at the job site, including the safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours.
- B. The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54). The duty of the Engineer to conduct construction review of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures in, on, or near the construction site, nor to relieve the Contractor of his obligation to conduct comprehensive inspection of the work sufficient to ensure conformance with the intent of the contract documents.
- C. During construction, the Contractor shall construct, and at all times maintain, satisfactory and substantial temporary fencing, safety fencing, chain link fencing, solid fencing railing, barricades and/or steel plates as applicable, at all excavations, obstructions, or other hazards in streets, sidewalks and walkways. All such barriers shall have adequate painted or flagged markings and warning lights as necessary or required for safety.

#### 1.15 CONTRACT WORKING HOURS

- D. All work at the site shall be performed during regular working hours (8:00 a.m. to 5:00 p.m.) and the Contractor, including all their subcontractors, will not be permitted to work overtime on Saturday, Sunday or any legal holiday without the Owner's written consent given after prior notice to the Engineer.

#### 1.16 FINAL GUARANTY/WARRANTY

- A. All work shall be and is guaranteed by the Contractor for a period of one (1) year from the date of final acceptance of all Work by the Owner. Within the warranty periods, the Contractor shall promptly, upon receipt of notice from the Owner, make repair or changes to materials, equipment, or workmanship that is inferior, defected, or not in accordance with the terms of the Contract. If the Contractor, after notice, fails within 10 days to proceed to comply with the terms of the warranty, the Owner may have the defects corrected and the Contractor and his surety shall be liable for all expenses incurred.

#### **PART 2 PRODUCTS**

- A. Not Applicable

#### **PART 3 EXECUTION**

- A. Not Applicable

**END OF SECTION**

**SECTION 010350  
WEATHER DELAYS**

**PART 1      GENERAL**

**1.01    REQUIREMENTS INCLUDED**

- A.     Standards set for weather delays.
- B.     Procedures for claim submittals.

**1.02    RELATED REQUIREMENTS**

- A.     Document 007213 – General Conditions, Article 12.

**1.03    EXTENSION OF CONTRACT TIME**

- A.     If the basis exists for an extension of time in accordance with Article 12 of the General Conditions, then an extension of time on the basis of weather may be granted only for the number of weather delay days in excess of the number of weather days listed as the Standard Baseline for that month.

**1.04    STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE**

- A.     The Standard Baseline shall be regarded as the normal and anticipated number of calendar days for each month during which construction activity shall be expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is to be included in the work and not eligible for an extension of the contract time.

- B.     The Standard Baseline is as follows:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
12	11	13	11	11	10	10	9	8	8	10	11

**1.05    ADVERSE WEATHER AND WEATHER DELAY DAYS**

- A.     Adverse weather is defined as the occurrence of one or more of the following conditions which prevents only exterior construction activity or access to the site within a 24-hour period:
  - 1.     Precipitation (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure.
  - 2.     Temperatures which do not rise above 32 degrees F by 10:00 AM.
  - 3.     Standing snow in excess of one inch (1.00").
- B.     Adverse weather may include, if appropriate, "dry-out" or "mud" days when all of the following conditions are met:



1. For rain above the Standard Baseline.
  2. Only if there is a hindrance to site access or site work, such as excavation, backfill, and footings.
  3. At a rate no greater than 1 make-up day for each day or consecutive days of rain beyond the Standard Baseline that total 1.0 inch or more, liquid measure, unless specifically recommended otherwise by the Engineer.
- C. A weather delay day may be counted only if adverse weather prevents work on the project for 50 percent or more of the Contractor's scheduled work day, including a weekend day or holiday if the Contractor has scheduled construction activity that day.

#### 1.06 DOCUMENTATION AND SUBMITTALS

- A. Maintain Daily Jobsite Work Log showing which and to what extent construction activities have been affected by weather on a monthly basis.
- B. Maintain a rain gauge, thermometer, and clock at the jobsite. Keep daily records of precipitation, temperature, and the time of each occurrence throughout the project.
- C. Use the Standard Baseline data provided in this section when documenting actual delays due to weather in excess of the average.
- D. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods, and submit in accordance with the procedures for claims established in Article 12 of the General Conditions.
- E. If an extension of the contract time is appropriate, it shall be implemented in accordance with the provisions of Article 12 of the General Conditions.
- F. No extra cost will be incurred by the Owner for any extra time increase to the Contract.

#### **PART 2 PRODUCTS**

- A. Not Applicable

#### **PART 3 EXECUTION**

- A. Not Applicable

**END OF SECTION**

**SECTION 010500  
FIELD ENGINEERING**

**PART 1      GENERAL**

1.01    REQUIREMENTS INCLUDED

- A.     Contractor shall provide field engineering services and establish grades, lines, and levels, by use of recognized survey practices.
- B.     Control datum for survey is established by Owner-provided survey.

**PART 2      PRODUCTS**

- A.     Not Applicable

**PART 3      EXECUTION**

3.01    INSPECTION

- A.     Verify locations of survey control points prior to starting work. Promptly notify Owner of any discrepancies discovered.

3.02    SURVEY REFERENCE POINTS

- A.     Protect survey control points prior to starting site work; preserve permanent reference points during construction. Make no changes without prior written notice to Owner.
- B.     Promptly report to Owner the loss or destruction of any reference point or relocation required because of changes in grades or other reasons. Replace dislocated survey control points based on original survey control.
- C.     The Contractor shall preserve all USGS, TVA, State of Tennessee, and private markers; do not remove or disturb any such markers without prior approval from the Owner. Any removal and replacement of such markers shall be at the expense of the Contractor. The re-establishment of these markers shall be performed by a surveyor licensed by the State of Tennessee, with a letter indicating the completion of work.

3.03    STAKING

- A.     The Contractor shall be responsible for staking the project and preparing cut sheets as needed.

3.04    TESTING

- B.     Testing services required during construction will be provided by Owner.

**END OF SECTION**

## SECTION 010900 STANDARDS

### PART 1      GENERAL

1.01 Meet the requirements and recommendations of all Standards, Institutes, Associations, etc., referred to throughout these documents and specifications as if they were fully reproduced herein. Unless otherwise noted, the latest editions shall apply.

#### 1.02 ABBREVIATIONS

AAMA	Architectural Aluminum Manufacturers' Association
AASHTO	American Association of State Highway and Transportation Officials
ABMA	American Boiler Manufacturers' Association
ACI	American Concrete Institute
AFBMA	Anti-Friction Bearing Manufacturers' Association
AGA	American Gas Association
AGC	Association of General Contractors
AGMA	American Gear Manufacturers' Association
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AIMA	Acoustical and Insulating Materials Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
ARI	Air Conditioning and Refrigeration Institute
ASA	American Standards Association
ASAE	American Society of Automotive Engineers
ASC	Association of Specialty Contractors
ASCII	American Standard Code for Information Interchange
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BIA	Brick Institute of America
CMAA	Crane Manufacturer's Association of America
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standards
CSI	Construction Specifications Institute
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration

FGMA	Flat Glass Marketing Association
FM	Associated Factory Mutual Laboratories
FS	Federal Specifications
IEEE	Institute of Electrical and Electronic Engineers
IRI	Industrial Risk Insurors
ISA	Instrument Society of America
JIC	Joint Industrial Council
MBMA	Metal Building Manufacturers' Association
MMA	Monorail Manufacturers' Association
NAAMM	National Association of Architectural Metal Manufacturers
NBS	National Bureau of Standards
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NFPA	National Fire Protection Association or National Forest Products Association
NKCA	National Kitchen Cabinet Association
NPT	National Pipe Thread
NRCA	National Roofing Contractors' Association
NSF	National Sanitation Foundation
NSWMA	National Solid Waste Manufacturers' Association
NWMA	National Woodwork Manufacturing Association
OSHA	Occupational Safety and Health Administration
PPI	Plastics Pipe Institute
RIS	Redwood Inspection Service
SAE	Society of Automotive Engineers
SBCC	Standard Building Code Congress
SDI	Steel Deck Institute
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SPII	Southern Pine Inspection Institute
SSBC	Southern Standard Building Code
SSPC	Steel Structures Painting Council
TCA	Tile Council of America
TDOT	Tennessee Department of Transportation
TIMA	Thermal Insulation Manufacturers' Association
UL	Underwriters' Laboratories
USG	United States Gypsum
WCLIB	West Coast Lumber Inspection Bureau
WWPA	Western Wood Products Association

**PART 2 PRODUCTS**

- A. Not Applicable

**PART 3 EXECUTION**

- A. Not Applicable

**END OF SECTION**

**SECTION 011500  
MEASUREMENT AND PAYMENT**

**PART 1      GENERAL**

**1.01      SUMMARY**

- A. The Unit Price Work shall include CONTRACTOR provided labor, materials, equipment, overhead, profit, insurance, incidentals, etc. to cover the finished work of several kinds called for. Cost of all applicable taxes, permits, etc. shall be included in the cost of construction of this project. Even though an item of the Work is included in the Contract Documents, if it is not both covered herein and specifically itemized on the Unit Price Schedule of Section 003000, Bid Form, payment for it shall not be separately made. Such work shall be considered a necessary part of or incidental to its related Work. The CONTRACTOR shall be paid only for quantities installed and approved by the OWNER.
- B. Applications for payment shall be submitted in accordance with the General Conditions, Supplementary Conditions, and the Agreement. Cost of all applicable taxes, permits, etc., shall be included in the cost of construction of the Project..

**1.02      MEASUREMENT**

- A. General: Measuring, and metering devices used to measure quantity of materials for the Work shall be suitable for purpose intended and conform to tolerances and specifications as specified in National Institute of Standards and Technology, Handbook 44.
- B. Where measurement of quantities depends on elevation of existing ground, elevations obtained during construction will be compared with those shown on Drawings. Variations of 1 foot or less will be ignored, and profiles shown on Drawings will be used for determining quantities.
- C. Units of measure shown on Unit Price Schedule included with Bid Form shall be as follows, unless specified otherwise.

<b>Item</b>	<b>Method of Measurement</b>
AC	Acre—Field Measure by OWNER
CY	Cubic Yard—Field Measure in-place by OWNER within limits specified or shown
EA	Each—Field Count by OWNER
LF	Linear Foot—Horizontal Field Measure by OWNER
LS	Lump Sum—by OWNER
SF	Square Foot – Field Measure by OWNER
SY	Square Yard—Field Measure by OWNER

<b>Item</b>	<b>Method of Measurement</b>
VF	Vertical Feet—Field Measure by OWNER
WK	Week—by OWNER

D. Definitions:

1. Cubic Yard (CY): Field measured and calculated by OWNER. In-place yards prior to excavation or after placement and compaction. Measured to the nearest 0.5 foot, calculated in cubic feet, converted to cubic yards, and rounded to the nearest cubic yard.
2. Each (EA): Field counted by the OWNER as installed and accepted.
3. Linear Foot (LF): Field measured horizontally by the OWNER. Measured centerline to centerline of manhole or fitting. Manhole diameter and fitting length shall be included in the linear measurement.
  - a. Depth for Linear Foot:
    - 1) If the calculated depth exactly equals a number in two consecutive depths, i.e. 6, 8, 10, it shall be assumed that the lower depth category shall be used for calculating payment.
    - 2) Manhole, Drop Manhole, Conflict Manhole, and Manhole Removal: Distance measured from manhole rim to lowest pipe invert.
    - 3) Gravity Sewers: Average distance between manholes measured from manhole rim to lowest pipe invert for the specific sewer reach under consideration.
    - 4) Force Mains: Average distance between surface grade and pipe invert measured at 100-foot intervals along the pipe route between pipe elbows 45 degrees or greater.
    - 5) Backfill, Native and Stone: Average distance between surface grade and the top of the pipe envelope (12-inch cover over the pipe) measured between manholes for gravity sewers and 100-foot increments for force mains.
4. Lump Sum (LS): Field verified by OWNER.
5. Square Foot (SF): Field measured and calculated by OWNER. Measurement shall be horizontal distances measured to the nearest 0.1 foot and calculated to the nearest square foot.
6. Square Yard (SY): Field measured and calculated by OWNER. Measurement shall be horizontal distances measured to the nearest 0.5 foot, calculated in square feet, converted to square yards, and rounded to the nearest square yard by the OWNER.
7. Vertical Foot (VF): Field measured by OWNER in accordance with Paragraph D.4.a.2, above.
8. Week (WK): Field determined by OWNER as seven consecutive 24-hour days, rounded to the nearest week. A 1-day allowance for equipment set up and relocation shall be allowed. Multiple location times shall be added together to determine total time in weeks.

### 1.03 STORED MATERIALS AND EQUIPMENT

- A. No applications shall be processed by Owner which includes amounts for stored



materials. Owner shall not pay Contractor for stored materials.

1. For unit price contracts or components Contractor's application for payment shall be based upon installed units identified on the bid form.
2. For lump sum price contracts or components Contractor's application for payment shall be based upon approved schedule of values.

#### 1.04 ITEMS NOT CONSIDERED AS PAY ITEMS

- A. Unless explicitly stated in this Contract Document, the following items are not considered as pay items:
1. **Unclassified Excavation for Utilities** (Section 022210)
  2. **Sanitary Sewers – Air Testing Guidelines** (Section 025320)
  3. **Concrete for Utility Lines** (Section 033030)
- B. **Unclassified excavation** for utilities for is not a pay item unless explicitly stated in this Contract Document. Unclassified excavation shall be considered and designated a necessary part of the construction for trench depths as defined by the individual unit price for the line installation and as required by the Project Drawings. Unit prices bid for utilities with which unclassified excavation is connected shall be full compensation for this item.
- C. **Rock Excavation** is not a pay item unless explicitly stated in this Contract Document. Rock excavation shall be considered and designated a necessary part of the construction, and unit prices bid for items which rock excavation is connected shall be full compensation for this item.
- D. Payment will not be made for rejected or unused products. Payment will not be made for the following:
1. Loading, hauling, and disposing of rejected material.
  2. Quantities of material wasted or disposed of in manner not called for under Contract Documents.
  3. Rejected loads of material, including material rejected after it has been placed by reason of failure of Contractor to conform to provisions of Contract Documents.
  4. Material not unloaded from transporting vehicle.
- E. **Site Cleanup** is not a separate pay item unless explicitly stated in this Contract Document. It includes the equipment, material, and labor to maintain the Site on a daily and weekly basis in a clean environment, removing debris, unused material, cleaning, raking, general restoration of disturbed areas to a condition equal to or better than prior to construction. All debris and material shall be removed from the Site and properly disposed of offsite in an approved permitted manner. Site Cleanup is **not** a pay item and shall be considered and designated a necessary part of the construction and unit prices bid for utilities which unclassified excavation is connected shall be full compensation for this item.

1.05 BID ITEM PAYMENT

- A. Payment for unit price items covers all the labor, materials, overhead, and services necessary to furnish and install the following items.
- B. Payment for the bid item will be as follows:

**Pay Item No. 1 – Mobilization** to the job site is a lump sum pay item. One time cost to include all contractor incurred mobilization costs associated with the site. Demobilization is not a pay item and shall be considered a necessary part of the work and the cost of such included herein.

**Pay Item No. 2 – Demolition** is a lump sum pay item. Cost to include all labor, materials, saw cut, removal, haul off, disposal, backfill, sub-surface compaction, and necessary equipment required to complete the item in accordance with the drawings and specifications.

**Pay Item No. 3 – 4" Concrete Sidewalk** is a linear foot unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, forming, material, placement, finishing, and curing. Payment shall be made based on the length of concrete sidewalk as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 4 – 6" Concrete Driveway** is a linear foot unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, forming, material, placement, finishing, and curing. Payment shall be made based on the length of concrete driveway as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 5 – Post Curb** is a linear foot unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, forming, material, placement, finishing, and curing. Payment shall be made based on the length of post curb as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 6 – TDOT Asphalt Pavement** is a square yard unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted mineral aggregate base, asphalt, tack coat, asphaltic concrete surface, and placement. Payment shall be made based on the area of asphalt pavement as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 7 – Asphalt Pavement** is a square yard unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted mineral aggregate base, bituminous plant mix base, tack coat, asphaltic concrete surface, and placement. Payment shall be made based on the area of asphalt pavement as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 8 – Gravel Pavement** is a square yard unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted mineral aggregate

base, and placement. Payment shall be made based on the area of gravel pavement as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 9 – Detectable Warning Surface** is a square foot unit price pay item. Unit price item includes material and installation. Payment shall be made based on the area of detectable warning surface as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 10 – Painted Pavement Marking (Crosswalk)** is a linear foot unit price pay item. Unit price item includes surface preparation, material, and placement. Payment shall be made based on the length of the road crossing as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 11 – Retaining Wall** is a square foot unit price pay item. Unit price item includes excavation/compacted fill as needed, materials, installation, and backfill. Payment shall be made based on the face of wall square footage as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 12 – Area Drain** is a per each unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, precast concrete structure complete with top, frame and grate, and backfill. Payment shall be made based on the number of area drains installed as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 13 – Catch Basin** is a per each unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, precast concrete structure complete with top, frame and grate, and backfill. Payment shall be made based on the number of catch basins installed as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 14 – 24" RCP Storm Pipe** is a per linear foot unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, Class III reinforced concrete pipe, and backfill. Payment shall be made based on the horizontal length of pipe installed complete and in place as measured along the centerline from end to end as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 15 – 15" RCP Storm Pipe** is a per linear foot unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, Class III reinforced concrete pipe, and backfill. Payment shall be made based on the horizontal length of pipe installed complete and in place as measured along the centerline from end to end as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 16 – 12" CMP Storm Pipe** is a per linear foot unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, corrugated metal pipe, and backfill. Payment shall be made based on the horizontal length of pipe installed complete and in place as measured along the centerline from end to end as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 17 – Precast Headwall** is a per each unit price pay item. Unit price item includes excavation/compacted fill as needed, compacted stone base, precast concrete structure, and backfill. Payment shall be made based on the number of headwalls installed as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 18 – Reconnection at 109 W. College Ave.** is a lump sum pay item. Unit price item includes removal of existing concrete ramp, patio and stairs as needed, compacted stone base, material, placement, finishing, and curing. Payment shall be made based on the complete connection installed as specified in the bid documents or as approved in writing by the Owner.

**Pay Item No. 19 – Restoration** is a lump sum pay item. Cost to include lawn repair, landscape repair, etc. and shall be full compensation for all labor, materials, water, and equipment required to complete the restoration to its original or better condition.

**Pay Item No. 20 – Erosion Controls and Maintenance** is a lump sum pay item. Cost to include all materials and labor involved with installation, maintenance, and removal of erosion controls as specified in the contract documents.

**PART 2            PRODUCTS (NOT USED)**

**PART 3            EXECUTION (NOT USED)**

END OF SECTION

**SECTION 013020**  
**SUBMITTALS AND SUBSTITUTIONS**

**PART 1      GENERAL**

1.01      SUMMARY

A.      Work Included

1.      Wherever possible throughout the contract documents, the minimum acceptable quality of workmanship and materials has been defined by a manufacturer's name and catalogue number, reference to recognized industry and government standards, or description of required attributes and performance.
2.      To ensure that the specified products are furnished and installed in accordance with the design intent, procedures have been established for advance submittal of design data and for their review by the Engineer.
3.      Make all submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

B.      Related Work Described Elsewhere

1.      Individual requirements for submittals are described in other pertinent sections of these specifications.

1.02      SUBMITTALS

A.      Identification of Submittals

1.      General: Consecutively number all submittals.
2.      Internal Identification: On at least the first page of each copy of each submittal, clearly indicate the submittal number in which the item was included.
3.      Resubmittals: When material is resubmitted for any reason, transmit under a new letter of transmittal utilizing the original submittal number followed by an A, B, C, etc., depending on the number of resubmittals of the original submittal required.

B.      Shop Drawings and Coordination of Drawings

1.      Mail or email all submittals to:

Colvin Properties, Inc.  
P.O. Box 1056  
Jacksboro, Tennessee 37757

Attention: Bob Colvin  
Email: [bobcolvin32@yahoo.com](mailto:bobcolvin32@yahoo.com)  
Telephone: (865) 559-2389

2. Before issuance of Certificate of Payment for Final Payment, deliver to the Engineer:
  - a. Waivers of Lien
  - b. Affidavit of payment of debts and claims
  - c. Consent of surety company to final payment
  - d. Written guarantees and warranties
  - e. Marked-up record set of drawings showing every alteration or change from the original drawings and specifications
  - f. All certificates of compliance, as a condition of acceptance of the work.
3. Make submittals in strict accordance with the provisions of this section.

#### 1.03 QUALITY ASSURANCE

##### A. Coordination of Submittals

1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted, and verify that each item and the submittal for it conforms in all respects with the requirements of the bidding instruments.
2. Shop drawings and submittals shall bear the stamp of approval of the Contractor as evidence that this coordination has been performed.

#### 1.04 SUBMITTAL SCHEDULE

##### A. Timing Of Submittals

1. General:
  - a. Make all submittals far enough in advance of scheduled dates for installation to provide all time required for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.
  - b. Submit shop drawings in accordance with the approved schedule of shop drawing submittals.
2. Engineer's Review Time: In scheduling, allow at least 20 calendar days for review by the Engineer following his receipt of the submittal.



3. Delays: Delays caused by tardiness in receipt of submittals will not be an acceptable basis for extension of the contract completion date.

#### 1.05 SUBSTITUTIONS

##### A. Approval Required

1. The contract is based on the standards of quality established in the contract documents.
2. All products proposed for use, including those specified by required attributes and performance shall require approval by the Engineer before being incorporated into the work.
3. Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by the Engineer.

##### B. "Or Equal"

1. Where the phrase "or equal", "or approved equal", or "approved substitute" occurs in the contract documents do not assume that materials, equipment, or methods will be approved as equal unless the item has been specifically approved for this work by the Engineer.
2. The decision of the Engineer shall be final.
3. See pertinent portions of the contract documents for additional information relating to substitutions.
4. Where equipment, materials, or methods do not specify "or equal", "or approved equal", or "approved substitute", substitutions may be submitted by the Contractor in accordance with this section.

#### **PART 2 PRODUCTS**

- A. Not Applicable

#### **PART 3 EXECUTION**

- A. Not Applicable

**END OF SECTION**

**SECTION 013100**  
**PROGRESS SCHEDULES**

**PART 1      GENERAL**

**1.01   SUBMITTALS**

**A.      Informational Submittals:**

1.      Preliminary Progress Schedule: Submit at least 7 days prior to preconstruction conference.
2.      Detailed Progress Schedule:
  - a.      Submit initial Detailed Progress Schedule within **60** days after Effective Date of the Agreement.
  - b.      Submit an Updated Progress Schedule at each update, in accordance with Section 1.03 Detailed Progress Schedule.
3.      Submit with Each Progress Schedule Submission:
  - a.      Contractor's certification that Progress Schedule submission is actual schedule being utilized for execution of the Work.
  - b.      Progress Schedule: One legible copy.
  - c.      Narrative Progress Report: Same number of copies as specified for Progress Schedule.
4.      Prior to final payment, submit a final Updated Progress Schedule.

**1.02   PRELIMINARY PROGRESS SCHEDULE**

- A.**      In addition to basic requirements outlined in General Conditions, show a detailed schedule, beginning with Notice to Proceed, for minimum duration of 90 days, and a summary of balance of Project through Final Completion.
- B.**      Show activities including, but not limited to, the following:
1.      Notice to Proceed.
  2.      Permits.
  3.      Submittals, with review time. Contractor may use Schedule of Submittals specified in Section 013000, Submittals.
  4.      Early procurement activities for long lead equipment and materials.
  5.      Initial Site work.
  6.      Specified Work sequences and construction constraints.
  7.      Contract Milestone and Completion Dates.
  8.      Site restoration summary.
  9.      Demobilization summary.

- C. Update Preliminary Progress Schedule monthly; as part of progress payment process. Failure to do so may result in the Owner withholding all or part of the monthly progress payment until the Preliminary Progress Schedule is updated in a manner acceptable to Engineer.
- D. Format: In accordance with Article 1.04, Progress Schedule—Bar Chart.

#### 1.03 DETAILED PROGRESS SCHEDULE

- A. In addition to requirements of General Conditions, submit Detailed Progress Schedule beginning with Notice to Proceed and continuing through Final Completion.
- B. Show the duration and sequences of activities required for complete performance of the Work reflecting means and methods chosen by Contractor.
- C. When accepted by Engineer, Detailed Progress Schedule will replace Preliminary Progress Schedule and become Baseline Schedule. Subsequent revisions will be considered as Updated Progress Schedules.
- D. Format: In accordance with Article 1.04, Progress Schedule—Bar Chart.
- E. Update monthly to reflect actual progress and occurrences to date, including weather delays.

#### 1.04 PROGRESS SCHEDULE—BAR CHART

- A. General: Comprehensive bar chart schedule, generally as outlined in Associated General Contractors of America (AGC) 580, "Construction Project Planning and Scheduling Guidelines." If a conflict occurs between the AGC publication and this Specification, this Specification shall govern.
- B. Format:
  - 1. Unless otherwise approved, white paper, 11-inch by 17-inch sheet size.
  - 2. Title Block: Show name of project and Owner, date submitted, revision or update number, and name of scheduler.
  - 3. Identify horizontally, across the top of the schedule, the time frame by year, month, and day.
  - 4. Identify each activity with a unique number and a brief description of the Work associated with that activity.
  - 5. Legend: Describe standard and special symbols used.
- C. Contents: Identify, in chronological order, those activities reasonably required to complete the Work, including as applicable, but not limited to:
  - 1. Obtaining permits, submittals for early product procurement, and long lead time items.
  - 2. Mobilization and other preliminary activities.
  - 3. Initial Site work.

4. Specified Work sequences, constraints, and Milestones, including Substantial Completion date(s).
5. Sitework.
6. Project closeout and cleanup.
7. Demobilization.

#### 1.05 PROGRESS OF THE WORK

- A. Updated Progress Schedule shall reflect:
  1. Progress of Work to within 5 working days prior to submission.
  2. Approved changes in Work scope and activities modified since submission.
  3. Delays in Submittals or resubmittals, deliveries, or Work.
  4. Adjusted or modified sequences of Work.
  5. Other identifiable changes.
  6. Revised projections of progress and completion.
  7. Report of changed logic.
- B. Produce detailed subschedules during Project, upon request of Owner or Engineer, to further define critical portions of the Work.
- C. If Contractor fails to complete activity by its latest scheduled completion date and this Failure is anticipated to extend Contract Times (or Milestones), Contractor shall, within 7 days of such failure, submit a written statement as to how Contractor intends to correct nonperformance and return to acceptable current Progress Schedule. Actions by Contractor to complete the Work within Contract Times (or Milestones) will not be justification for adjustment to Contract Price or Contract Times.
- D. Owner may order Contractor to increase equipment, labor force or working hours if Contractor fails to:
  1. Complete a Milestone activity by its completion date.
  2. Satisfactorily execute Work as necessary to prevent delay to overall completion of Project, at no additional cost to Owner.

#### 1.06 NARRATIVE PROGRESS REPORT

- A. Format:
  1. Organize same as Progress Schedule.
  2. Identify, on a cover letter, reporting period, date submitted, and name of author of report.
- B. Contents:
  1. Number of days worked over the period, work force on hand, construction equipment on hand (including utility vehicles such as pickup trucks, maintenance vehicles, stake trucks).

2. General progress of Work, including a listing of activities started and completed over the reporting period, mobilization/demobilization of subcontractors, and major milestones achieved.
3. Contractor's plan for management of Site (e.g., lay down and staging areas, construction traffic), utilization of construction equipment, buildup of trade labor, and identification of potential Contract changes.
4. Identification of new activities and sequences as a result of executed Contract changes.
5. Documentation of weather conditions over the reporting period, and any resulting impacts to the work.
6. Description of actual or potential delays, including related causes, and the steps taken or anticipated to mitigate their impact.
7. Changes to activity logic.
8. Changes to the critical path.
9. Identification of, and accompanying reason for, any activities added or deleted since the last report.
10. Steps taken to recover the schedule from Contractor-caused delays.

#### 1.07 SCHEDULE ACCEPTANCE

##### A. Engineer's acceptance will demonstrate agreement that:

1. Proposed schedule is accepted with respect to:
  - a. Contract Times, including Final Completion and all intermediate Milestones are within the specified times.
  - b. Specified Work sequences and constraints are shown as specified.
  - c. Specified Owner-furnished Equipment or Material arrival dates, or range of dates, are included.
  - d. Access restrictions are accurately reflected.
  - e. Startup and testing times are as specified.
  - f. Submittal review times are as specified.
  - g. Startup testing duration is as specified and timing is acceptable.
2. In all other respects, Engineer's acceptance of Contractor's schedule indicates that, in Engineer's judgement, schedule represents reasonable plan for constructing Project in accordance with the Contract Documents. Engineer's review will not make any change in Contract requirements. Lack of comment on any aspect of schedule that is not in accordance with the Contract Documents will not thereby indicate acceptance of that change, unless Contractor has explicitly called the nonconformance to Engineer's attention in submittal. Schedule remains Contractor's responsibility and Contractor retains responsibility for performing all activities, for activity durations, and for activity sequences required to construct Project in accordance with the Contract Documents.

##### B. Unacceptable Preliminary Progress Schedule:

1. Make requested corrections; resubmit within 10 days.

2. Until acceptable to Engineer as Baseline Progress Schedule, continue review and revision process, during which time Contractor shall update schedule on a monthly basis to reflect actual progress and occurrences to date.
- C. Unacceptable Detailed Progress Schedule:
1. Make requested corrections; resubmit within 10 days.
  2. Until acceptable to Engineer as Baseline Progress Schedule, continue review and revision process.
- D. Narrative Report: All changes to activity duration and sequences, including addition or deletion of activities subsequent to Engineer's acceptance of Baseline Progress Schedule, shall be delineated in Narrative Report current with proposed Updated Progress Schedule.

**PART 2        PRODUCTS**

- A. Not Applicable

**PART 3        EXECUTION**

- A. Not Applicable

**END OF SECTION**



**SECTION 014000**  
**QUALITY CONTROL**

**PART 1      GENERAL**

**1.01    REQUIREMENTS INCLUDED**

A.      General Quality Control.

1.      Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of specified quality.

B.      Workmanship.

1.      Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
2.      Perform work by persons qualified to produce workmanship of specified quality.
3.      Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

B.      Manufacturers' Instructions.

1.      Comply with instructions in full detail, including each step in sequence. Should instructions conflict with contract documents, request clarification from Engineer before proceeding.

C.      Manufacturers' Certificates.

1.      When required by individual specifications section, submit manufacturers' certificate, in duplicate, that products meet or exceed specified requirements.

D.      Manufacturers' Field Services.

1.      When specified in respective specification sections, require supplier or manufacturer to provide qualified personnel to observe field conditions; conditions of surfaces and installation; quality of workmanship; start-up of equipment; test, adjust, and balance of equipment; and as applicable, to make appropriate recommendations.
2.      A representative shall submit a written report to Owner listing observations and recommendations.

E.      Testing Laboratory Services.

1. Owner shall employ and pay for services of an Independent Testing Laboratory to perform inspections, tests, and other services required by individual specification sections.
2. Services will be performed in accordance with requirements of governing authorities and with specified standards.
3. Reports will be submitted to Owner in duplicate giving observations and results of tests, indicating compliance or non-compliance with specified standards and with contract documents.
4. Contractor shall cooperate with testing laboratory personnel, furnish tools, samples of materials, design mix, equipment, storage, and assistance as requested.
  - a. Notify Owner and testing laboratory 24 hours prior to expected time for operations requiring testing services.
  - b. Make arrangements with testing laboratory and pay for additional samples and tests for Contractors' convenience.

**PART 2        PRODUCTS**

A. Not Applicable

**PART 3        EXECUTION**

A. Not Applicable

**END OF SECTION**

**SECTION 015000**  
**CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

**PART 1        GENERAL**

1.01    REQUIREMENTS INCLUDED

- A.     Sanitary Facilities
- B.     Electricity, Lighting
- C.     Water
- D.     Barriers
- E.     Security
- F.     Temporary Controls
- G.     Protection of Installed Work
- H.     Water Control
- I.     Cleaning During Construction
- J.     Field Offices and Sheds
- K.     Removal of Construction Facilities and Temporary Controls

1.02    RELATED REQUIREMENTS

- A.     Section 010100 - Summary of Work: Abandoned materials, storage, and Contractor's use of premises.
- B.     Section 017100 - Cleaning.
- C.     Owner's facilities can not be used by any of the contractor's or subcontractor's employees.

1.03    SANITARY FACILITIES

- A.     Provide and maintain required temporary facilities and enclosures for job personnel that:
  - 1.     Are weather tight, clean, and sanitary.

2. Are provided with either natural light and ventilation or artificial light and mechanical ventilation.
  3. Are provided with toilet tissue in a suitable holder.
  4. Comply with applicable legal and health requirements.
- B. Remove temporary toilet facilities when work is complete.

#### 1.04 ELECTRICITY, LIGHTING

- A. Provide lighting as required for construction operations.
- B. Remove temporary electrical equipment when construction is completed.

#### 1.05 WATER

- A. Provide service required for construction operations. Coordinate temporary water service with City of Friendsville. Extend branch piping with outlets located so that water is available by use of hoses.
- B. Remove temporary water facilities when construction is completed. Water will be paid for by the Contractor.

#### 1.06 BARRIERS

- A. Provide as required to prevent public entry to construction areas, to provide for property owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide barriers around trees and plants designated to remain. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.
- C. Provide barriers adjacent to areas of excavation to protect against vehicular traffic.

#### 1.07 SECURITY

- A. Provide security and facilities to protect Work, materials, and existing facilities from unauthorized entry, vandalism, or theft.

#### 1.08 TEMPORARY CONTROLS

- A. Coordinate, schedule, and perform work to cause the least practical interference with the public, fire protection service, public utility service, and Owner's operations. Coordinate all connections, cut-ins, alterations, or other interruption with designated representative of the Owner or utility service. Notify the representative 48 hours in advance and cooperate with him in minimizing the interruptions.

- B. Comply with the local requirements of EPA, the health department, or other regulatory requirement for construction operations relating to noise, pest, rodent, dust, and pollution controls.

#### 1.09 PROTECTION OF INSTALLED WORK

- A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
- B. Prohibit traffic and storage on lawn and landscaped areas.

#### 1.10 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide and operate pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

#### 1.11 CLEANING DURING CONSTRUCTION

- A. Construction cleaning shall be as specified in Section 017100.

#### 1.12 FIELD OFFICES AND SHEDS

- A. Offices: If necessary, the Contractor shall provide offices for himself, which shall:
  - 1. Be located in an area approved by the Engineer and Owner.
  - 2. Consist of weather-tight buildings or trailers of adequate size.
  - 3. Be provided with lights, heat, cooling, and ventilation.
  - 4. Be provided with a means of being locked.
  - 5. Be maintained in a clean, neat and orderly manner.
- B. Storage Sheds for Tools, Materials, and Equipment: Weather-tight, with heat and ventilation for Products requiring controlled conditions, with adequate space for organized storage and access, and lighting for inspection of stored materials.

#### 1.13 REMOVAL OF CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

- A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities. Remove underground installations to a depth of 2 feet; grade site as indicated. Restore existing facilities used during construction to specified, or to original, condition.

#### 1.14 PAYMENT

- A. No separate payment will be made for the materials, work, equipment, labor, etc., required herein for Construction Facilities and Temporary Controls. Include the costs thereof in the lump sum price on the Bid Form.

**PART 2        PRODUCTS**

- A. Not Applicable

**PART 3        EXECUTION**

- A. Not Applicable

**END OF SECTION**



**SECTION 015600**  
**EROSION AND POLLUTION CONTROL**

**PART 1      GENERAL**

**1.01   SUMMARY**

- A.    This work shall consist of erosion control on all cut and fill operations, excavation, backfill, or other construction activities within the limits of the construction site, within any temporary or permanent easements, and within any borrow site used during the period of construction. The protection of these sites shall continue throughout the construction period regardless of weather conditions.
- B.    While formally identified as erosion control activities, this work encompasses that necessary to ensure that construction activities do not temporarily or permanently harm the waters of the State of Tennessee, nor properties of the Owner, nor adjoining owners.
- C.    These activities, over which neither the Owner nor the Engineer has control during the bidding process, are related to the means and methods the Contractor uses to pursue the work and as such cannot be predicted in advance. For this reason, the Contractor must be solely responsible for conforming to related local, State, and Federal requirements.

**PART 2   PRODUCTS**

**2.01   MATERIALS**

- A.    Materials, installation, and maintenance of erosion and pollution control structures shall be in accordance with the Drawings and the "Tennessee Erosion and Sediment Control Handbook" (Tennessee Department of Environment and Conservation, latest edition).

**PART 3   EXECUTION**

**3.01   GENERAL**

- A.    The temporary erosion and pollution control provisions shown on the drawings are considered the minimum necessary, with the final design, implementation, and maintenance being the responsibility of the Contractor.
- B.    The Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit or amend the project Notice of Intent (NOI) to include their project specific activities.

- C. Install temporary sediment traps where appropriate. Construct and maintain in accordance with the requirements of Tennessee Erosion and Sediment Control Handbook. Muddy water collected in sediment traps shall be held until it is at least as clear as the upstream water before it is discharged to surface waters. Discharge through a pipe or lined channel so that the discharge does not cause erosion and sedimentation.
- D. Install temporary diversion berms or diversion channels as necessary to divert storm water from running onto the disturbed areas and to divert runoff from disturbed areas to the temporary sediment traps.
- E. Apply temporary seeding whenever grading operations are temporarily halted for over 14 days and final grading of exposed surfaces is to be completed within one year. Apply temporary seeding to soil stockpiles.

**END OF SECTION**

**SECTION 016000**  
**MATERIAL AND EQUIPMENT**

**PART 1      GENERAL**

1.01    REQUIREMENTS INCLUDED

- A.     Products.
- B.     Transportation and Handling.
- C.     Storage and Protection.
- D.     Product Options.
- E.     Products List.
- F.     Substitutions.

1.02    QUALITY ASSURANCE

- A.     Approval Required
  - 1.     The contract is based on the standards of quality established in the contract documents.
  - 2.     All products proposed for use, including those specified by required attributes and performance, shall require approval by the Owner before being incorporated into the work.
  - 3.     Do not substitute materials, equipment, or methods unless such substitution has been specifically approved for this work by the Owner.

1.03    PRODUCTS

- A.     Products include material, equipment, and systems.
- B.     Comply with specifications and referenced standards as minimum requirements.
- C.     Components required to be supplied in quantity within a specification section shall be the same, and shall be interchangeable.

1.04    TRANSPORTATION AND HANDLING

- A.     Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

#### 1.05 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions. Store mechanical and electrical equipment in a controlled environment as recommended by the manufacturer.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- D. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged, and are maintained under required conditions.

#### 1.06 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards.
- B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not specifically named.

#### 1.07 PRODUCTS LIST

- A. Under provisions of Section 013020-Submittals and Substitutions, submit complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

## 1.08 SUBSTITUTIONS

- A. During bidding period, the Owner will govern times for submitting requests for substitutions under requirements specified in this section.
- B. Concurrent with submission of product list, the Owner will consider requests from Contractor for substitutions. Subsequently, substitutions will be considered only when a product becomes unavailable due to no fault of Contractor. Confirmation of unavailable products must be in writing and certified by the manufacturer that the product is no longer available.
- C. Submit separate request for each substitution. Document each request with complete data substantiating compliance of proposed substitution with contract documents.
- D. Request for substitution constitutes a representation that Contractor:
  - 1. Has investigated proposed product and determined that it meets or exceeds, in all respects, specified product.
  - 2. Will provide the same warranty for substitution as for specified product.
  - 3. Will coordinate installation and make other changes which may be required for work to be complete in all respects.
  - 4. Waives claims for additional costs which may subsequently become apparent.
- E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals. Separate written request, must be submitted for any proposed substitutions or deviation from the contract documents.
- F. Owner will determine acceptability of proposed substitution, and the Engineer will notify Contractor of acceptance or rejection in writing within a reasonable time.
- G. Substitute products shall not be ordered or installed without written acceptance.
- H. Only one request for substitution will be considered for each product. When substitution is not accepted, provide specified product.
- I. Engineer will determine acceptability of substitutions.

## 1.09 SUBMITTAL PROCEDURES

- A. Engineer will review Contractor's requests for substitutions with reasonable promptness.
- B. During the bidding period, Engineer will record acceptable substitutions in Addenda.
- C. Upon proper submission, Engineer will notify Contractor, in writing, of decision to accept or reject requested substitution within 15 days.
- D. For accepted products, submit shop drawings, product data, and samples under provisions of Section 013020 - Submittals and Substitutions.

**PART 2 PRODUCTS**

A. Not Applicable

**PART 3 EXECUTION**

A. Not Applicable

**END OF SECTION**



**SECTION 017000  
CONTRACT CLOSEOUT**

**PART 1        GENERAL**

**1.01    REQUIREMENTS INCLUDED**

- A.     Closeout Procedures
- B.     Final Cleaning
- C.     Project Record Documents
- D.     Operation and Maintenance Data
- E.     Warranties and Bonds

**1.02    RELATED REQUIREMENTS**

- A.     Document 007213 - General Conditions: Fiscal provisions, legal submittals, and other administrative requirements.

**1.03    CLOSEOUT PROCEDURES**

- A.     Comply with procedures stated in General Conditions of the contract and procedures specified in this section for issuance of Certificate of Final Completion.
- B.     Owner will occupy designated portion of Project for the purpose of installation of Owner furnished equipment, or conduct of business, under provision stated in Certificate of Substantial Completion.
- C.     When Contractor considers work has reached final completion, submit written certification that contract documents have been reviewed, work has been inspected, and that work is complete in accordance with contract documents and ready for Engineer observation.
- D.     In addition to submittals required by the conditions of the contract, provide submittals required by governing authorities and submit a final statement of accounting, giving total adjusted Contract Sum, previous payments, and sum remaining due.
- E.     Owner will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by Change Order.

**1.04    FINAL COMPLETION**

- A.     The final inspection at the job site will be done by the Engineer once the following items are received from the General Contractor:

1. A letter stating that a qualified person authorized by the General Contractor has fully reviewed the Contract Documents and inspected the work and that they both agree.
  2. A letter stating that the work is complete and in accordance with the Contract Documents and ready for final inspection.
  3. Work has been completed in accordance with Contract Documents and deficiencies listed with Certificate of Substantial Completion have been corrected.
  4. A letter stating that the Project Record Documents are complete and be provided to the Owner before final inspection.
  5. Work is complete and ready for final inspection.
- B. Should Engineer inspection find work incomplete, he will promptly notify Contractor in writing listing observed deficiencies.
- C. Contractor shall remedy deficiencies and send a second certification of final completion.
- D. When Engineer finds work is complete, he will consider closeout submittals.

#### 1.05 CLOSEOUT SUBMITTALS

- A. Before issuance of Certificate of Payment for Final Payment, deliver to the Owner the following:
1. Project Record Documents:
    - a. Store documents separate from those used for construction.
    - b. Keep documents current. Do not permanently conceal any work until required information has been recorded.
    - c. At contract closeout, submit documents with transmittal letter containing date, project title, Contractor's name and address, list of documents, and signature of Contractor.
  2. Closeout Documents
    - a. Submit the following:
      - 1) Directory listing names, addresses, and telephone numbers of the Owner and Contractor.
      - 2) Directory listing names, addresses, and telephone numbers of subcontractors and suppliers.
      - 3) Contractor's letter that is notarized providing 1-year warranty.
      - 4) Letter certifying that all materials used comply with the specifications.
      - 5) Evidence of Payment and Release of Liens and Waivers of Lien in accordance with conditions of the Contract.
      - 6) Consent of Surety to Final Payment.

3. Make submittals in strict accordance with the provisions of this section.

#### 1.06 STATEMENT OF ADJUSTMENT OF ACCOUNTS

- A. Submit final statement reflecting adjustments to Contract Sum indicating:
  1. Original Contract Sum
  2. Previous Change Orders
  3. Changes Under Unit Prices
  4. Deductions for Uncorrected Work
  5. Deductions for Liquidated Damages
  6. Other Adjustments to Contract Sum
  7. Total Contract Sum as Adjusted
  8. Previous Payments
  9. Sum Remaining Due
- B. Engineer will issue a final Change Order reflecting approved adjustments to Contract Sum not previously made by change orders.

#### 1.07 APPLICATION FOR FINAL PAYMENT

- A. Submit application for final payment in accordance with provisions of Conditions of the contract.

#### **PART 2 PRODUCTS**

- A. Not Applicable

#### **PART 3 EXECUTION**

- A. Not Applicable

**END OF SECTION**

## **SECTION 017100 CLEANING**

### **PART 1 GENERAL**

#### **1.01 DESCRIPTION**

- A. Work Included: Throughout the construction period, maintain the site in a standard of cleanliness as described in this section.
  - 1. Site generated garbage will be cleaned and removed daily.
- B. Related Work Described Elsewhere: In addition to standards described in this section, comply with all requirements for cleaning up as described in other sections of these specifications.

#### **1.02 QUALITY ASSURANCE**

- A. Inspection: Conduct inspection daily, and more often if necessary, to verify that requirements for cleanliness are being met.
- B. Codes and Standards: In addition to the standards described in this section, comply with all pertinent requirements of government agencies having jurisdiction.

### **PART 2 PRODUCTS**

#### **2.01 CLEANING MATERIALS AND EQUIPMENT**

- A. Provide all required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

### **PART 3 EXECUTION**

#### **3.01 PROGRESS CLEANING**

- A. General:
  - 1. Retain all stored items in an orderly arrangement allowing maximum access, not impeding drainage or traffic, and providing the required protection of materials.
  - 2. Do not allow the accumulation of scrap, debris, waste material, and other items not required for the construction of this work.
  - 3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the job site.
  - 4. Provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the ecology.

B. Site:

1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.
2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site. Restack, tidy, or otherwise service all arrangements to meet the requirements of paragraph 3.01.A.1, above.
3. Maintain the site in a neat and orderly condition at all times.

3.02 FINAL CLEANING

- A. Definition: Except as otherwise specifically provided, "clean" (for the purpose of all paragraphs under paragraph 3.02) shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.
- B. General: Prior to the completion of the work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described under paragraph 3.01, above.
- C. Site: Unless otherwise specifically directed by the Owner, broom clean all paved areas on the site and all public paved areas directly adjacent to the site. Completely remove all resultant debris.
- D. Timing: Schedule final cleaning as approved by the Owner to accept a completely clean project.

**END OF SECTION**

## SECTION 311000 - SITE CLEARING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes:

- 1. This work consists of clearing, grubbing, removing, and disposing of all debris and of all vegetation.
  - 2. Removal of buildings and foundations not removed by others that are within designated construction areas, except for such objects that the Owner or Owner's Representative designates to remain.
  - 3. The work shall also include preserving and protecting from injury or defacement all vegetation and objects designated to remain.
  - 4. Topsoil excavation is not included.

- B. Related Sections:

- 1. Section 312000 – Earthwork
  - 2. Section 312500 – Erosion Prevention and Sediment Control
  - 3. Section 329219 – Seeding

#### 1.3 DEFINITIONS

- A. Not Used.

#### 1.4 SUBMITTALS

- A. Submittals shall be in electronic form (via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.

#### 1.5 QUALITY ASSURANCE

- A. Perform work in compliance with applicable requirements of authorities having jurisdiction.

#### 1.6 PROJECT CONDITIONS

- A. Contractor shall obtain all necessary permits from regulatory agencies including signing



and resubmitting Notices of Intent (NOI) and Stormwater Pollution Prevention Plans (SWPPP).

- B. Obtain any other necessary permits required to perform this work.

## PART 2 - PRODUCTS

- B. Not Used.

## PART 3 - EXECUTION

### 3.1 PROTECTION

- A. The Owner or Owner's Representative will designate all trees, shrubs, plants, and other items within the project area that are to remain. Paint required for cut or scarred surfaces of trees or shrubs selected for retention shall be an asphaltum base paint prepared especially for tree surgery and approved by the Engineer.
- B. Preserve from injury all trees and other vegetation that are not within designated areas of clearing and grubbing, unless marked for removal by the Owner or Owner's Representative.

### 3.2 CLEARING

- A. The project area shall be cleared of all dead trees, stumps, brush, hedges, weeds, logs and other objectionable material and vegetation. Remove tree stumps, boulders, and obstructions to a depth of 2 feet below subgrade. Scarify rock to a depth of 1 foot below subgrade.
- B. In areas where excavation is to be made and 5 feet beyond the excavation limits, all trees, stumps, roots, brush, hedge, heavy growth of vegetation, etc., shall be cleared and grubbed.
- C. In areas where embankments are to be constructed, all trees, stumps, roots, brush, hedge, heavy growth of vegetation, etc., shall be cleared and grubbed to a point 5 feet beyond slope intercepts. All depressions made below the ground surface shall be refilled with suitable material and compacted before the embankment is started. Unsatisfactory material such as brush, hedge, roots, stump, branches and logs of trees, heavy vegetation, etc. shall not be embedded or buried within the embankment.
- D. All slopes of cuts, embankments, ditches, channels, waterways and all structures, both old and new, shall be cleared and cleaned of all brush, hedges, weeds, heavy vegetation, obstruction, rubbish and other objectionable material or growth; and shall be maintained in a neat, serviceable and satisfactory condition until the project is accepted.
- E. Borrow pits and other material pits shall be cleared and grubbed of all trees, stumps,

roots, brush, hedge, and other heavy growths of vegetation, and in addition shall be stripped of overburden laying above the material to be obtained. This work is to be completed before any excavation is made in the pit area.

- F. All clearing and grubbing shall be completed a satisfactory distance ahead of the construction operations before construction stakes are set.

### 3.3 CLEANUP AND PROTECTION

- A. Unless otherwise approved by the Owner or Owner's Representative, all materials and debris from the clearing and grubbing operation shall be burned, completely destroyed, or otherwise disposed of from the project limits by the Contractor in a satisfactory manner.
- B. The Contractor must obtain written permission from any property owner if private property is used for disposal, and furnish a copy to the Engineer. All Federal, State, local laws, regulations and ordinances related to burning or disposal shall be observed. If on-site disposal is approved by the Owner, coordinate the exact location of disposal with the Owner.

END OF SECTION 311000

## SECTION 312000 - EARTHWORK

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, and plants.
3. Excavating and backfilling for buildings and structures.
4. Excavation, placing, and spreading of topsoil.
5. Excavation and grading of roadways, borrow pits, waterways, ditches, and other specified items, within the project limits.
6. Excavation of unsuitable material beneath embankment areas.
7. Excavating select material for specific use in the construction; trimming, shaping and dressing of all slopes; preparation of the subgrade for building slabs, walks, and pavements.
8. Disposing of all excavated materials. Constructing of embankments and the placing and compacting of approved material in the project area, finish grading.

- B. Related Sections:

1. Section 311000 – Site Clearing
2. Section 312333 – Trenching and Backfilling
3. Section 312500 – Erosion Prevention and Sediment Control
4. Section 329219 - Seeding

#### 1.3 DEFINITIONS

- A. Backfill: Soil, aggregate, or controlled low-strength material used to fill an excavation.
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- C. Excavation: Removal of material encountered above subgrade elevations and to the lines, grades, elevations, and dimensions indicated on the Plans. Excavation shall also consist of the legal and appropriate disposal of unsatisfactory materials. THE CLASSIFICATION OF EXCAVATION WORK MUST BE DEFINED AND APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO BIDDING, PRICING, AND BEGINNING WORK.

- D. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions.
1. Borrow Excavation: Consists of material required for the construction of embankments or other portions of the work, and shall be obtained from the approved sources outside project limits, unless otherwise designated in the Plans. This item shall consist of the satisfactory removal and placement of the approved material, outside that required to complete the work contained in the Contract Documents.
  2. Common Excavation: Excavation as described above including slabs or fragments of rock of less than 1/2 cubic yard in volume and all other material not otherwise classified in these specifications. Common Excavation does not include the stripping, stockpiling and placing of topsoil.
  3. Mass Rock Excavation: Consists of the removal and satisfactory disposal of non-degradable rock which, in place, rings under the hammer or which cannot be economically excavated by the proper use of a power shovel or without the use of explosives; and any boulder, slab or fragment of rock having a volume of 1/2 cubic yard or more.
  4. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be at no additional cost to the Owner.
  5. Unclassified Excavation: Without regard to the materials encountered, all general excavation shall be unclassified. It shall be distinctly understood that any reference to rock, earth, or any other material on the Plans is not to be taken as an indication of classified excavation or the quantity of rock, earth, or any other material involved. Any material that is encountered within the limits of the required excavation that cannot be removed except by drilling and/or blasting, including rock, boulders, masonry, hard pan, chert, shale, street and sidewalk pavements and/or similar materials, shall be considered as unclassified excavation, and no separate payment will be made. No allowance or extra payments will be made by reason of variation in types of soil encountered or variations in moisture contents. Additional fill material required shall be furnished and included as a part of the work. The bidders must draw their own conclusions as to the conditions to be encountered.
- E. Fill: Satisfactory materials used to raise existing grades.
- F. Rock: Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 1/2 cu. yd. or more in volume that exceed a standard penetration resistance of 100 blows/2 inches when tested by a geotechnical testing agency, according to ASTM D 1586.
- G. Satisfactory Materials or Structural Soil Fill: ASTM D 2487 soil classification groups GW, GP, SW, SP, SM, ML, CL, CH, and SC or a combination of these group symbols and also include:

1. Soil materials that are clean, free of organics, debris, waste, frozen materials, vegetation and other deleterious material, containing no rock fragments or gravel larger than 4 inches in any dimension.
  2. Soil material with a standard Proctor maximum dry density of 90 pounds per cubic foot (pcf) or greater, a plasticity index (PI) of 35 percent or less, and a liquid limit (LL) of 55 percent or less. Soils having a PI greater can be used with prior approval from the geotechnical engineer.
  3. All material to be used as structural fill should be tested by the geotechnical engineer to confirm that it meets the project requirements before being placed.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- J. Undercutting: Removal and disposal of unsatisfactory material excavated below the subgrade in cut sections from areas which embankments are to be placed. The quantity of undercut material shall be quantified by the Geotechnical Engineer. Undercut areas shall be backfilled with satisfactory material.
- K. Unsatisfactory Materials: Materials which do not comply with the requirements for satisfactory materials are unsatisfactory and include:
1. Man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory materials which contains root and other organic matter or frozen material. The ITL shall be notified of any contaminated materials.
  2. Soils that are too soft, expansive soils having a plasticity index and a liquid limit not consistent with the requirements of satisfactory soils as defined herein.
  3. Soils classified as PT, OH, and OL.
- L. Topsoil: Natural, fertile, friable soil possessing characteristics of representative productive soils in the vicinity; obtained from naturally well-drained areas; shall not be excessively acid or alkaline nor contain toxic substances that may be harmful to plant growth. Topsoil shall be without admixture of subsoil and shall be cleaned and reasonably free from clay lumps, stones, stumps, roots, or similar substances 2 inches or more in diameter, debris, or other objects that are a hindrance to planting operations. Topsoil may include soils that have been stripped from the site and that have been stockpiled as specified elsewhere. If the quantity of topsoil on the job is inadequate, furnish enough additional topsoil to meet the requirements of the project specifications.
- M. Wet Soils: Soils that are too wet to use as backfill in their current state, but that meet the requirements of satisfactory soils. These soils are considered to be satisfactory soils. The Contractor shall be responsible to employ either mechanical or chemical methods to dry on-site soils so that the specified compaction can be achieved.

#### 1.4 SUBMITTALS

- A. Submittals shall be in pdf format electronic form (e.g, via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.
- B. Report the results of all density tests to the Owner or Owner's Representative. Include location of test, date of test, note of re-test, test location, depth below finished grade, wet density, moisture content, dry density, percent compaction of test sample, maximum dry density used for comparison, and any other information specified.
- C. Provide as-built elevations of building subgrades and top of stone prior to pouring foundations or pads.

#### 1.5 QUALITY ASSURANCE

- A. Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
- B. Testing shall be the responsibility of either the Contractor or the Owner. DO NOT BID, PRICE, OR BEGIN WORK on this project until the ownership of this responsibility has been adequately identified and agreed upon by both parties. Do not assume that the Contractor will provide these services. Notify the Engineer once an arrangement has been made.
- C. Testing shall be performed by a qualified independent geotechnical testing and inspection laboratory to perform soil testing and inspection services for quality control testing during earthwork operations.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, storage, and handling of materials shall be in accordance with the Contract Documents and the local, State, and Federal requirements.
- B. Transport off site materials to project using well-maintained and operating vehicles. Once on site, transporting vehicles shall stay on designated haul roads and shall at no time endanger improvements by rutting, overloading, or pumping.

#### 1.7 FIELD CONDITIONS

- A. If available, data in subsurface investigation reports used for the basis of the design and are available to Contractor for information only. Conditions are not intended as representations or warranties of accuracy or continuity between soil borings. Owner will not be responsible for interpretations or conclusions drawn from this data by Contractor.
- B. Additional test borings and other exploratory operations may be performed by Contractor, at Contractor's option. However, no change in the contract price will be authorized for such additional exploration.



- C. Locate existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shutoff of services if lines are active. Repair damaged utilities to satisfaction of utility owner.
- D. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.
- E. Contractor shall obtain all necessary permits from regulatory agencies including signing and resubmitting Notices of Intent (NOI) and Stormwater Pollution Prevention Plans (SWPPP).
- F. Do not bring explosives onto site or use in work without prior written permission from the Owner, Engineer, and authorities having jurisdiction. Contractor is solely responsible for handling, storage, and use of explosive materials when their use is permitted. Provide a pre-blast survey before beginning work.
- G. Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required by authorities having jurisdiction.
- H. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- I. Perform excavation by hand within drip-line of large trees to remain. Protect root systems from damage or dry-out to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with moistened burlap.
- J. Protect improvements on adjoining properties and on the Owner's property. Do not disturb any improvements outside the work area defined on the Plans. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.

## PART 2 - PRODUCTS

### 2.1 SOIL AND ROCK MATERIALS

- A. Fill and Backfill: Excavated and re-used material for subsoil fill as defined herein and as considered satisfactory soils.
- B. Imported or Borrow Fill Material: Satisfactory material that is provided from off-site borrow areas when sufficient satisfactory materials are not available from required excavations. Locations for imported or borrow material shall be approved by Owner.
- C. Dense Graded Aggregate Fill and Backfill: Dense graded aggregate used as fill below the building or pavement subgrade areas, particularly in areas where soft soil conditions are

encountered and undercut near subgrade level. Crushed stone fill should be Type A, Class A, and Grading E in accordance with Section 903.05 of the Tennessee Department of Transportation specifications.

- D. Topsoil as specified herein.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Identify required lines, levels, contours, datum, elevations, and grades necessary for construction as shown on the Plans.
- B. Complete all necessary clearing and grubbing, removal of structures and obstructions, and installation of erosion and sediment controls prior to beginning excavations.
- C. Notify utility companies to remove or relocate public utilities that are in conflict with proposed improvements. Pothole utilities to confirm that there will be no interferences or reduction in cover beyond the required minimum.
- D. Protect plant life, lawns, fences, existing structures, sidewalks, paving, and curbs, unless otherwise noted on the drawings from excavating equipment and vehicular traffic.
- E. Protect benchmarks, property corners, and other survey monuments from damage or displacement. If marker needs to be removed it shall be referenced by licensed land surveyor and replaced, as necessary, by same.
- F. Excavation within the limits of the project shall be performed to the lines and grades as indicated on the Plans. Excavations carried below the depths indicated, without specific directions, shall, except as otherwise specified, be refilled to the proper grade with satisfactory material as directed by the Engineer.

### 3.2 DEWATERING

- A. Provide dewatering systems as required for excavations, in general this includes:
  - 1. Design and provide dewatering system using accepted and professional methods consistent with current industry practice to eliminate water entering the excavation under hydrostatic head from the bottom or sides. Design system to prevent differential hydrostatic head, which would result in floating out soil particles in a manner, termed as a "quick" or "boiling" condition. System shall not be dependent solely upon sumps or pumping water from within the excavation where differential head would result in a quick condition, which would continue to worsen the integrity of the excavation's stability.
  - 2. Provide dewatering system of sufficient size and capacity to prevent ground and surface water flow into the excavation and to allow Work to be installed in a dry condition.

3. Control, by acceptable means, all water regardless of source. Contractor shall be responsible for disposal of the water.
  4. Control groundwater in a manner that preserves strength of foundation soils, does not cause instability or raveling of excavation slopes, and does not result in damage to existing structures. Where necessary, lower water level in advance of excavation utilizing wells, wellpoints, jet educators, or similar positive methods. The water level as measured by piezometers shall be maintained a minimum of 3 feet below prevailing excavation level.
  5. Commence dewatering prior to any appearance of water in excavation and continue until Work is complete to the extent that no damage results from hydrostatic pressure, flotation, or other causes.
  6. Open pumping with sumps and ditches will be allowed provided it does not result in boils, loss of fines, softening of the ground, or instability of slopes.
  7. Install wells or wellpoints, if required, with suitable screens and filters so that continuous pumping of fines does not occur. Arrange discharge to facilitate collection of samples by the Owner. During normal pumping and upon development of wells, levels of fine sand or silt in the discharge water shall not exceed 5 ppm. Install sand tester on discharge of each pump during testing to verify that levels are not exceeded.
  8. Control grading around excavations to prevent surface water from flowing into excavation areas.
  9. No additional payment will be made for any supplemental measures to control seepage, groundwater, or artesian head.
- B. Designate and obtain the services of a qualified dewatering specialist to provide dewatering plan as may be necessary to complete the Work. Contractor shall be responsible for the accuracy of the Plans, design data, and operational records required. Contractor shall be responsible for the design, installation, operation, maintenance, and failure of any component of the system.
- C. Contractor shall be responsible for and shall repair any damage to work in place, other contractor's equipment, utilities, residences, highways, roads, railroads, private and municipal well systems, adjacent structures, natural resources, habitat, existing wells, and the excavation. Contractor responsibility shall also include, damage to the bottom due to heave and including but not limited to, removal and pumping out of the excavated area that may result from Contractor's negligence, inadequate or improper design and operation of the dewatering system, and any mechanical or electrical failure of the dewatering system.
- D. Remove subgrade materials rendered unsatisfactory by excessive wetting and replace with approved backfill material at no additional cost to the Owner.
- E. Maintaining Excavation in Dewatering Condition:
1. Dewatering shall be a continuous operation. Interruptions due to power outages or any other reason will not be permitted.
  2. Continuously maintain excavation in a dry condition with positive dewatering methods during preparation of subgrade, installation of pipe, and construction of structures until the critical period of construction or backfill is completed to prevent

- damage of subgrade support, piping, structure, side slopes, or adjacent facilities from flotation or other hydrostatic pressure imbalance.
3. Provide standby equipment on site, installed, wired, and available for immediate operation if required to maintain dewatering on a continuous basis in the event any part of the system becomes inadequate or fails. If dewatering requirements are not satisfied due to inadequacy or failure of dewatering system, perform such work as may be required to restore damaged structures and foundation soils at no additional cost to Owner.
  4. System maintenance shall include but not be limited to 24-hour supervision by personnel skilled in the operation, maintenance, and replacement of system components and any other work required to maintain excavation in dewatered condition.
- F. Upon completion of the work, remove dewatering equipment from the site, including related temporary electrical service.
- G. Wells shall be removed or cut off a minimum of 3 feet below final ground surface, capped, and abandoned in accordance with regulations by agencies having jurisdiction. Prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area.
- 3.3 TOPSOIL EXCAVATION
- A. Strip topsoil within the limits of excavation to full depth or to a minimum depth of 6-inches. Stripping operations should extend a minimum of 5 feet beyond the limits of proposed pavement areas and 10 feet beyond building limits.
  - B. Temporarily stockpile topsoil in storage piles. Confirm the location of the storage areas with the Owner. Construct storage piles to freely drain surface water. Cover storage piles as required to prevent windblown dust. Dispose of unsuitable topsoil as specified for waste material, unless otherwise specified by Owner. Remove excess topsoil from site unless specifically noted otherwise on the Plans.
- 3.4 GENERAL EXCAVATION
- A. When performing grading operations during periods of wet weather, provide adequate dewatering, drainage and ground water management to control moisture of soils.
  - B. Excavate to the line and grade as shown on the Plans being careful not to over excavate beyond elevations needed for building subgrades.
  - C. Perform excavation using capable, well-maintained equipment and methods acceptable to Owner and local governing agencies.
  - D. Remove from site, material encountered in grading operations that, in opinion of the Engineer is unsatisfactory material or undesirable for backfilling, subgrade, or foundation purposes. Dispose of in manner satisfactory to the Owner and local governing agencies. Backfill areas with layers of satisfactory material and compact as specified herein.

- E. Unsatisfactory excavated material shall be disposed of in manner and location that is acceptable to Owner and local governing agencies.
- F. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction including OSHA (29 CFR Part 1926) excavation trench safety standards. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
- G. Shore and brace excavations where sloping is not possible either because of space restrictions or stability of material excavated. Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition. Shoring and bracing design, installation, maintenance, and removal are the sole responsibility of the Contractor. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend shoring and bracing as excavation progresses.
- H. A professional engineer that is licensed in the area where the work is being performed shall design the sheeting, shoring, and bracing system. However, the contractor is solely responsible for the safety of all employees, the effectiveness of the system, and any damages or injuries resulting from the lack or inadequacy of the system.
- I. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

### 3.5 SUBGRADE PREPARATION

- A. Areas exposed by excavation or stripping and on which subgrade preparations are to be performed shall be scarified to minimum depth of 8 inches and compacted as specified hereinafter. Extend proofrolling operations a minimum of 10 feet beyond proposed building lines.
- B. Subgrades shall be proofrolled to detect areas of insufficient compaction and soft pocket, or areas of excess yielding. Proof-rolling shall be accomplished by making minimum of 2 complete passes with fully loaded tandem axle dump truck with a minimum weight of 20 tons, or approved equal, in each of 2 perpendicular directions while under the supervision and direction of the Geotechnical Engineer. Limit vehicle speed to 3 mph. Areas of failure such as soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by the Geotechnical Engineer, shall be excavated and re-compacted as specified herein. Continual failure areas shall be stabilized in accordance with the requirements of the Geotechnical Engineer and at no additional cost to Owner. Authorized additional excavation and replacement material will be paid for according to Contract provisions.
- C. Subgrade exposed longer than 48 hours or on which precipitation has occurred shall be re-proofrolled. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities at no additional cost to the owner.

### 3.6 BACKFILLING

- A. Fill areas to contours and elevations shown on the Plans with satisfactory materials.
- B. Unless otherwise specified for rock fill, rock or stone less than 6-inches in largest dimension may be used in fill below structures, paving, and graded areas, up to 24 inches below surface of proposed subgrade or finish grade of graded areas when mixed with satisfactory material. Rock or stone less than 2 inches in largest dimension may be used in fill within the upper 24 inches of proposed subgrade or finish grade of graded areas when mixed with satisfactory material.
- C. Place backfill 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.
- D. Do not place backfill on surfaces that are muddy, frozen, or contain frost or ice.
- E. Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying the material uniformly around structure to approximately same elevation in each lift.

### 3.7 COMPACTION

- A. In excavated areas, scarify the upper 6 to 10 inches of the subgrade and compact.
- B. Compact each lift of structural soil fill or dense graded aggregate to at least 98 percent of the soil's maximum dry density per the standard Proctor method (ASTM D 698) and within the range of minus (-) 2 percent to plus (+) 2 percent of the optimum moisture content.
- C. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material, to prevent free water appearing on surface during or subsequent to compaction operations.
- D. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.
- E. Exercise proper caution when compacting immediately over top of pipes or conduits. Water jetting or flooding is not permitted as method of compaction.
- F. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing, or pulverizing, until moisture content is maintained to within the specified range of optimum.



### 3.8 MAINTENANCE OF SUBGRADE

- A. Verify finished subgrades to ensure proper elevation and conditions for construction above subgrade.
- B. Protect subgrade from excessive wheel loading during construction, including concrete trucks, dump trucks, and other construction equipment.
- C. Remove areas of finished subgrade found to have insufficient compaction density to depth necessary and replace in manner that will comply with compaction requirements by use of material equal to or better than that specified on the Plans. Surface of subgrade after compaction shall be firm, uniform, smooth, stable, and true to grade and cross section.
- D. Construct temporary ditches and perform such grading as necessary to maintain positive drainage away from subgrade at all times.
- E. Construction traffic patterns should be varied to prevent the degradation of previously stable subgrade.

### 3.9 FINISH GRADING

- A. Do not begin work until the earth is dry enough to be tillable. Inspect subgrades to see that they generally conform to the elevations, slopes, and standards as specified on the Plans and within these specifications, particularly with regard to the approximate depths required for the work. After work is completed, inspect it to ensure that the finish grading complies with the design requirements and Plans.
- B. Subgrades shall be graded to within not more than 0.10' above or below the required elevations.
- C. Grassed or finish areas to receive topsoil shall be graded to within not more than 0.10' above or below the required elevations.
- D. Shape surface of areas under pavement and sidewalks to line, grade, and cross-section, with finish surface not more than 0.04' above or below the required subgrade elevation.
- E. Grade surface of fill under building slab smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 0.04' above or below the required final elevation.

### 3.10 PLACING AND SPREADING TOPSOIL

- A. Place topsoil uniformly over disturbed areas that do not receive other work. Obtain approval of the finish grading from the Engineer before starting to place topsoil.
- B. Scarify subgrade to a depth of 3 inches and place the topsoil to a depth of 6 inches when lightly rolled or, on rock, to a depth of 12 inches.

- C. Level the topsoil so that it slopes uniformly and has no water pockets. Carefully rake the topsoil by hand to remove all clods, roots, sticks, stones over 1 inch in diameter, and other foreign materials from the surface. Dispose of excess excavated materials and debris away from the site.

### 3.11 FIELD QUALITY CONTROL

- A. The Geotechnical Engineer shall test each lift of backfill to confirm that the contractors' compaction method is capable of achieving the project requirements before placing any subsequent lifts. Field density tests will be made with a minimum of one test for every 10,000 sq. ft. per lift and for every 5,000 sq. ft. per lift in building areas.
- B. The Contractor shall furnish a portion of the job office building at the site for the field technician in charge of making field density determinations. Both electrical current and water shall be provided by the Contractor at or near this designated area for the technician's use.
- C. Insufficiently compacted areas shall be scarified and loosened to the full depth of fill or otherwise reworked as necessary to re-compact to the specified density.

### 3.12 DISPOSAL, PROTECTION, AND CLEANUP

- A. Protect newly graded areas from traffic and erosion, and keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. The Contractor is responsible for the stability of all embankments and cut slopes until final acceptance.
- C. Where subsequent construction operations or adverse weather disturbs completed compacted areas, scarify surface, re-shape, and compact to required density prior to further construction.
- D. Remove waste materials, including unacceptable excavated material, trash and debris, from the Owner's property and legally dispose of it.

END OF SECTION 312000

## SECTION 312333 – TRENCHING AND BACKFILLING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes:
  - 1. Excavation of trenches for installation of utilities.
  - 2. Backfilling trenches with bedding material as specified and filling trenches with suitable material to proposed subgrade.
  - 3. Compacting backfill materials in acceptable manner.
  - 4. Borings and casings under roads.
- B. Related Sections:
  - 1. Section 311000 – Site Clearing
  - 2. Section 312000 – Earthwork
  - 3. Section 312500 – Erosion Prevention and Sediment Control
  - 4. Section 329219 – Seeding
  - 5. Section 331100 – Water Lines
  - 6. Section 333100 – Sanitary Sewer (Gravity)
  - 7. Section 333400 – Sanitary Sewer (Force Mains)
  - 8. Section 334000 – Storm Sewer

#### 1.3 DEFINITIONS

- A. Backfill or Fill: Refer to Section 312000 – Earthwork for definitions of satisfactory soils, structural soil fill, and unsatisfactory soils.
- B. Base Rock: Granular material upon which manhole bases and other structures are placed.
- C. Bedding Material: Class B granular material upon which pipes, conduits, cables, or duct banks are placed.
- D. Borrow or Imported Material: Suitable structural backfill material obtained by Contractor from source(s) offsite. Refer to Section 312000 – Earthwork.
- E. Excavation Classifications: The classification of TRENCH excavation work IS CONSIDERED UNCLASSIFIED unless defined otherwise by the Owner prior to bidding, pricing, and beginning work. Refer to Section 312000 – Earthwork for excavation classifications.

- F. Lift: Loose (uncompacted) layer of material.
- G. Prepared Trench Bottom: Graded trench bottom after excavation and installation of stabilization material, if required, but before installation of bedding material.
- H. Trench: The word "trench" shall mean excavations having vertical sides whose depths exceed its width, made for storm water drainage, sanitary sewer, water, gas pipes, electric power or lighting, communications, steam conduits, and related uses.
- I. Trench Excavation (unclassified) shall consist of the removal of all materials necessary for the construction of storm sewers, culvert pipes, other pipe lines and all drainage structures such as manholes, catch basins, junction boxes, head walls, wing walls and concrete collars.

#### 1.4 SUBMITTALS

- A. Submittals shall be in pdf format electronic form (e.g, via email) and shall be stamped by the Contractor. Do not submit un-stamped shop drawings. Submit to the Owner or Owner's representative.
- B. Report the results of all density tests to the Owner or Owner's Representative. Include location of test, date of test, note of re-test, test location, depth below finished grade, wet density, moisture content, dry density, percent compaction of test sample, maximum dry density used for comparison, and any other information specified.

#### 1.5 QUALITY ASSURANCE

- A. Protect benchmarks, property corners, and other survey monuments from damage or displacement. If marker needs to be removed it shall be referenced by a Registered Land Surveyor and replaced, as necessary, by same.
- B. Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
- C. Trench design and safety for pipe and conduit construction is solely the responsibility of the contractor and shall conform to all applicable local, state, and OSHA regulations.
- D. Accurately record actual locations of subsurface utilities, structures, and obstructions installed or encountered.
- E. Testing shall be the responsibility of either the Contractor or the Owner. Do not bid, price, or begin work on this project until the ownership of this responsibility has been adequately identified and agreed upon by both parties.
- F. Testing shall be performed by a qualified independent geotechnical testing and inspection laboratory to perform soil testing and inspection services for quality control testing during earthwork operations.

- G. Do not bring explosives onto site or use in work without prior written permission from the Owner, Engineer, and authorities having jurisdiction. Contractor is solely responsible for handling, storage, and use of explosive materials when their use is permitted. Provide a pre-blast survey before beginning work.
- H. Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights during hours from dusk to dawn each day and as otherwise required by authorities having jurisdiction.
- I. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- J. Perform excavation by hand within drip-line of large trees to remain. Protect root systems from damage or dry-out to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with moistened burlap.
- K. Protect improvements on adjoining properties and on the Owner's property. Do not disturb any improvements outside the work area defined on the Plans. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, storage, and handling of materials shall be in accordance with the Contract Documents and the local, State, and Federal requirements.

#### 1.7 PROJECT CONDITIONS

- A. If available, data in subsurface investigation reports used for the basis of the design are available to Contractor for information only. Conditions are not intended as representations or warranties of accuracy or continuity between soil borings. Owner will not be responsible for interpretations or conclusions drawn from this data by Contractor.
- B. Additional test borings and other exploratory operations may be performed by Contractor, at Contractor's option. However, no change in the contract price will be authorized for such additional exploration.
- C. Locate existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during earthwork operations. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shutoff of services if lines are active. Repair damaged utilities to satisfaction of utility owner.
- D. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.

- E. Contractor shall obtain all necessary permits from regulatory agencies including signing and resubmitting Notices of Intent (NOI) and Stormwater Pollution Prevention Plans (SWPPP).

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Bedding Material (Class B): Bedding material shall be compacted granular material consisting of well-graded crushed stone or crushed gravel meeting the requirements of TDOT (latest edition), Section 903, Grading Size No. 57 or No. 67.
- B. Backfill Material (Open Areas): Material excavated from trenches or from other on-site sources or borrow (i.e., imported) material from off-site and as defined in Section 312000 – Earthwork as satisfactory soils. Backfill material shall not contain rock or stone with a maximum size greater than 2 inches.
- C. Backfill Material (Paved Areas): Backfill material for pipe under pavement or less than 5 feet from the outside edge of the pavement shall be as specified on the Plans. Based on the reviewing jurisdiction, backfill material shall be either:
  - 1. Mineral aggregate base crushed stone meeting the requirements of TDOT (latest edition), Subsection 903.05, Class A aggregate Grading D.
  - 2. Well-graded crushed stone or crushed gravel meeting the requirements of TDOT (latest edition), Section 903, Grading Size No. 57 or No. 67.
- D. Steel Casing Pipe: Comply with AWWA C200 minimum grade B, size, and wall thickness as indicated on Construction Plans.
- E. Topsoil: Topsoil as defined in Section 312000 – Earthwork.

### 2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored as follows:
  - 1. Red: Electric.
  - 2. Yellow: Gas, oil, steam, and dangerous materials.
  - 3. Orange: Telephone and other communications.
  - 4. Blue: Water systems.
  - 5. Green: Sewer systems.
- B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of



the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Prior to the beginning of grading, all necessary clearing and grubbing, removal of structures and obstructions, and placement of erosion and sediment controls in that area shall have been completed.
- B. Contact local utility companies before excavation begins.
- C. Maintain in operating condition existing utilities, previously installed utilities, and drainage systems encountered in trenching excavation.
- D. Verify location, size, elevation, depth (by potholing or other approved methods), and other pertinent data required to make connections or to avoid interfering with existing utilities and drainage systems.
- E. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during excavation support and protection system operations.
- F. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
- G. Perform all work so as to cause the least possible inconvenience to the public. Construct temporary bridges or crossings when and where the Engineer deems necessary to maintain vehicular or pedestrian traffic.
- H. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- I. Locate excavation support and protection systems clear of permanent construction so that construction and finishing of other work is not impeded.

### 3.2 EXCAVATION FOR TRENCHES

- A. Excavation within the limits of the project shall be performed to the lines and grades as indicated on the Plans. Excavations carried below the depths indicated, without specific directions, shall, except as otherwise specified, be refilled to the proper grade with satisfactory material as directed by the Engineer.
- B. Open cut excavation with trenching machine or backhoe. Where machines other than ladder or wheel type trenching machines are used, do not use clods for backfill.
- C. Trench design and safety is solely the responsibility of the contractor. Trench excavation sidewalls shall be sloped, shored, sheeted, braced, or otherwise supported by means of sufficient strength to protect workmen in accordance with applicable rules and regulations established for construction by the Department of Labor, Occupational Safety and Health Administration (OSHA), and by local ordinances. Unless regulated otherwise, lateral travel distance to exit ladder or steps shall not be greater than 25-feet in trenches 4-feet or deeper. Maintain sides and slopes of excavations in a safe condition until completion of backfilling.
- D. Unless the construction of lines by tunneling, jacking, or boring is called for by the Plans or specifically authorized by the Engineer, make excavation for pipelines in open cut and true to the lines and grades shown on the Plans or established by the Engineer on the ground. Any cut made in excess of the minimum trench width, formula outside diameter  $4/3 \text{ O.D.} + 15''$  or the typical trench dimensions as shown on the Plans shall be at the expense of the Contractor and may be cause for the Engineer to require that stronger pipe and/or a higher class of bedding be used at no cost to the Owner.
- E. Locate and retain soil materials away from edge of excavations. In all cases where materials are deposited along open trenches, place them so that in the event of rain or surcharge loading from such deposits, no damage will result to the work and/or to adjacent property. Do not store within drip line of trees indicated to remain.
- F. Pipe trenches shall not be excavated more than 400 feet in advance of pipe laying and all work shall be performed to cause the least possible inconvenience to the public. Adequate temporary bridges or crossings shall be constructed and maintained where required to permit uninterrupted vehicular and pedestrian traffic.
- G. For work within public right-of-ways and during working hours, the maximum amount of exposed pipe trench shall be 50 feet of pipe or two pipe joints, whichever is shorter. During nonworking hours, use one of the following methods of trench protection:
  - 1. Steel plate, minimum 5/8 inch thick, over entire trench or excavation overlapping each pavement edge by 1 foot minimum.
  - 2. Concrete barriers placed around entire trench or excavation.
  - 3. Backfill and compact entire trench or excavation.
  - 4. Cones, barrels, and illumination manned by flagmen.
- H. Trench Bottoms: Accurately excavate and shape trench bottoms to designated elevations,

to provide uniform bearing and support for each section of pipe once bedding material is installed at every point along entire length, except where necessary to excavate for bell holes, proper sealing of pipe joints, or other required connections.

1. For pipes 15 inches and smaller, excavate the bottom of the trench 4 inches below the bottom of pipe that is to be installed;
  2. For pipes 18 inches to 36 inches, excavate the bottom of the trench 6 inches below the bottom of pipe that is to be installed;
  3. For pipes 42 inches and larger, excavate the bottom of the trench 8 inches below the bottom of pipe that is to be installed;
  4. Where rock or other unyielding bearing material is encountered, excavate trenches 6 inches below required elevation and backfill with a 6-in. layer of TDOT no. 57 or No. 67 crushed stone prior to installation of pipe bedding;
  5. For bell and spigot pipe, excavate bell holes at proper intervals so that the barrel of the pipe will rest for its entire length upon the bottom of the trench. Bell holes shall be large enough to permit proper jointing of the pipe. Do not excavate bell holes more than 2 joints ahead of pipe laying;
  6. If wet or unstable soil is encountered, over excavate from trench bottom as necessary to provide suitable base for continuous and uniform bedding;
  7. Remove projecting stones and sharp objects along trench subgrade.
- I. Excavation for manholes, inlets, and other incidental structures may be performed with non-vertical banks except beneath pavements or adjoining existing improvements and shall not be greater in horizontal area than that required to allow a 2 foot clearance between the outer surface of the structure and the walls of the adjacent excavation or of the sheeting used to protect it. The bottom of the excavation shall be true to the required shape and elevation shown on the Plans. No earth backfilling will be permitted under manholes, inlets, headwalls, or similar structures. Should the Contractor excavate below the elevations shown or specified, he shall, at his own expense, fill the void with either concrete or granular material approved by the Engineer.
- J. Remove excavated materials not required or not suitable for backfill or embankments and legally waste off-site or on-site at Owner approved locations. Provide other suitable material at no additional cost to Owner.

### 3.3 SHEETING, SHORING, AND BRACING

- A. Where sloping is not possible either because of space restrictions or stability of material excavated, sufficiently sheet, shore, and brace the sides of excavations to prevent slides, cave-ins, settlement, or movement of the banks and to maintain the specified trench widths. Use solid sheets in wet, saturated, or flowing ground. All sheeting, shoring, and bracing shall have enough strength and rigidity to withstand the pressures exerted, to keep the walls of the excavation properly in place, and to protect all persons and property from injury or damage.
- B. A Professional Engineer shall design the sheeting, shoring, and bracing system. However, the contractor is solely responsible for the safety of all employees, the effectiveness of the

system, and any damages or injuries resulting from the lack or inadequacy of the system. Sheeting, shoring, and bracing shall conform to all applicable local, state, and OSHA regulations. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend shoring and bracing as excavation progresses.

- C. Where excavations are made adjacent to existing buildings or structures or in paved streets or alleys, take particular care to sheet, shore, and brace the sides of the excavation so as to prevent any undermining of or settlement beneath such structures or pavement. Underpin adjacent structures in substantial compliance with Plans sealed by a Professional Engineer wherever necessary. Notify adjacent property owner of the excavation.
- D. Sheeting, shoring, or bracing materials shall not be left in place unless this is called for by the Plans, ordered by the Engineer, or deemed necessary or advisable for the safety or protection of the new or existing work or features. Remove these materials in such a manner that the new structure or any existing structures or property, whether public or private, will not be endangered or damaged and that cave-ins and slides are avoided.
- E. All holes and voids that remain due to the removal of sheeting, shoring, or bracing shall be filled and compacted as specified herein.
- F. A trench box may be used, which is a prefabricated movable trench shield composed of steel plates welded to a heavy steel frame. The trench box shall be designed to provide protection equal to or greater than that of an appropriate shoring system.

#### 3.4 DEWATERING OF EXCAVATION

- A. Prevent surface water and subsurface or groundwater from flowing into excavations and re-route surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
- B. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other de-watering system components necessary to convey water away from excavations.
- C. Provide and keep in operation enough suitable pumping equipment whenever necessary. Give special attention to excavations for those structures that, prior to proper backfilling, are subject to flotation from hydrostatic uplift. Dewatering shall occur only in accordance with applicable Laws and Regulations, approved permits, and industry best management practices.

#### 3.5 PIPE BEDDING

- A. Bedding shall be installed by placing bedding material from the trench bottom, for the entire trench width, up to the bottom of the pipe. The middle of the bedding, under the pipe invert, equal to 1/3 of the pipe O.D. should be loosely placed and accurately shaped

to conform to the lower portion of the pipe barrel, with the remainder compacted to minimum standard proctor density. Backfill the haunches of the pipe in loose lifts not exceeding 6-inches and compact. Continue backfilling and compacting each lift vertically up to the spring line of the pipe.

- B. Do not place bedding material over porous, wet, frozen, or spongy subgrade surfaces.

### 3.6 BACKFILL AND FILL

- A. Do not backfill trenches until the pipe has been laid to line and grade and properly bedded, tests and inspections have been made, utility systems comply with and are accepted by applicable governing authorities, and backfilling is authorized by the Owner. Use care in backfilling to avoid damage or displacement of pipe or conduit systems.
- B. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces. Backfill evenly and simultaneously on both sides of the pipe up to the subgrade elevation.
- C. Under unpaved areas (i.e., open areas), backfill the trench as follows:
  - 1. For flexible pipe in unpaved areas, the initial backfill above the spring line shall be granular material as specified in Section 2.1 Materials. Place in loose lifts not exceeding 6-inches, compact, and extend to 12-inches above the top of the pipe. The final backfill shall be suitable excavated or borrow (i.e., imported) material as specified in Section 2.1 Materials. Place material in loose lifts not exceeding 6-inches, compact, and extend to the required subgrade elevation.
  - 2. For rigid (i.e., concrete) pipe in unpaved areas, backfill above the spring line with suitable excavated or borrow (i.e., imported) material as specified in Section 2.1 Materials. Place material in loose lifts not exceeding 6-inches, compact, and extend to the required subgrade elevation.
- D. Under paved areas, within 5 feet of pavement edge, and within 10 feet of a building pad backfill above the spring line with granular material as specified in Section 2.1 Materials. Place material in loose lifts not exceeding 6-inches, compact, and extend to the required subgrade elevation.
- E. Flowable Fill or Controlled Low Strength Material (CLSM): Where indicated on the Plans or as required to expedite trench backfill or to protect pipe, backfill with CLSM or flowable fill above pipe bedding. Do not allow dirt or foreign material to become mixed with concrete during placement. Allow sufficient time for concrete to reach initial set before additional backfill material is placed in the trench. Place in lifts as necessary to prevent uplift (flotation) of new and existing pipes.
- F. Concrete: Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below the bottom of such footings, or which pass under wall footings. Place concrete to the level of the bottom of adjacent footing.

- G. Do not allow backfill to free fall into the trench or allow heavy, sharp pieces of material to be placed as backfill until after at least 2 feet of backfill has been provided over the top of pipe.
- H. Before compaction, moisten or aerate each layer as necessary to provide the optimum moisture content. Compact each layer to required percentage of maximum density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice. Adjust moisture content as necessary to obtain specified compaction.
- I. Backfill to the subgrade elevations as determined from the Plans.

### 3.7 COMPACTION

- A. Exercise proper caution when compacting immediately over top of pipes or conduits. Water jetting or flooding is not permitted as method of compaction.
- B. Mechanically compact each lift (e.g., vibratory sleds, jumping jacks) prior to placing succeeding lifts. Compaction of the haunch layer may require a small tamping mechanism to obtain the specified compaction in a confined area.
- C. Do not use power driven impact type compactors for compaction until at least 4 feet of backfill is placed over top of pipe.
- D. Maintain moisture content within the specified range of optimum of fill materials as specified in Section 312000 – Earthwork to attain required compaction density.
- E. Compact each lift of aggregate backfill to at least 98% of the standard Proctor maximum density (ASTM D 698). In open areas, compact each lift of soil backfill to at least 95% of the standard Proctor maximum density (ASTM D 698).
- F. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing, or pulverizing, until moisture content is maintained within the specified range of optimum.

### 3.8 PLACING AND SPREADING TOPSOIL

- A. Place topsoil uniformly over disturbed areas that do not receive other work. Obtain approval of the finish grading from the Owner before starting to place topsoil.
- B. Level the topsoil so that it slopes uniformly and has no water pockets. Carefully rake the topsoil by hand to remove all clods, roots, sticks, stones over 1 inch in diameter, and other foreign materials from the surface. Dispose of excess excavated materials and debris away from the site.

### 3.9 FIELD QUALITY CONTROL



- A. Beginning at a depth of 2 feet above the top of the pipe, provide a density test for each lift of compacted fill, at a maximum horizontal spacing of 200 feet, and at all proposed or existing street or pavement crossings. If necessary, excavate to the depth and size as required by the Engineer to allow compaction tests.
- B. The Contractor shall furnish a portion of the job office building at the site for the field technician in charge of making field density determinations. Both electricity and water shall be provided by the Contractor at or near this designated area for the technician's use.
- C. Insufficiently backfilled or compacted areas shall be scarified and loosened to the full depth of fill or otherwise re-worked as necessary to re-compact to the specified density.

#### 3.10 PROTECTION AND CLEANUP

- A. Protect newly graded areas from traffic and erosion, and keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Where subsequent construction operations or adverse weather disturbs completed compacted areas, scarify surface, re-shape, and compact to required density prior to further construction.
- C. Remove waste materials, including unacceptable excavated material, trash and debris, from the Owner's property and legally dispose of it.

END OF SECTION 312333

## SECTION 312500 - EROSION PREVENTION AND SEDIMENT CONTROL

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Tennessee Erosion and Sediment Control Handbook (Tennessee Department of Environment and Conservation, latest edition) and the regulations, policies, etc. of the local jurisdiction regarding materials, installation, and maintenance of best management practices for erosion and sedimentation controls.
- C. The project Stormwater Pollution Prevention Plan (SWPPP).

#### 1.2 SUMMARY

- A. Section includes:
  - 1. Erosion and sediment control for excavation, backfill, and/or other construction activities within the limits of the construction site, within any temporary or permanent easements, and within any borrow site.
  - 2. Work necessary to ensure that construction activities do not temporarily or permanently harm the waters of the State of Tennessee, nor properties of the Owner, nor adjoining owners.
- B. Related Sections:
  - 1. Section 311000 – Site Clearing
  - 2. Section 312000 – Earthwork
  - 3. Section 329219 – Seeding

#### 1.3 DEFINITIONS

- A. Fines from Regulators: Any fines levied by the Federal, State, and/or local governments for non-conformance with their respective regulations related to erosion and pollution control shall be paid for by the Contractor.
- B. Duration of Maintenance: Protect the site throughout the construction period regardless of weather conditions until the time that permanent vegetation is established.
- C. Responsibility: These activities are related to the means and methods the Contractor uses to pursue the work and as such cannot be predicted in advance. For this reason, the Contractor is solely responsible for conforming to related local, State, and Federal requirements.

#### 1.4 SUBMITTALS

- A. Submittals shall be in electronic form (via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.
- B. Submit shop drawings for material substitutions. Do not submit shop drawings for materials that are consistent with the plans. These submittals will be marked "Not Requested for Review" and returned.

#### 1.5 QUALITY ASSURANCE

- A. Provide and maintain a quality control system that will provide reasonable assurance that materials and construction conform to the specified requirements.

#### 1.6 DELIVERY, STORAGE, & HANDLING

- A. Delivery, storage, and handling of materials shall be in accordance with these specifications and the manufacturer's requirements.

#### 1.7 PROJECT CONDITIONS

- A. Verify the locations of the existing underground utilities by contacting the utility owners and by potholing in the field.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Materials for erosion and pollution control shall be in accordance with the Plans and the "Tennessee Erosion and Sediment Control Handbook" (Tennessee Department of Environment and Conservation, latest edition) and the requirements. These include, but are not limited to:
  - 1. Silt Fencing
  - 2. Erosion Control Matting
  - 3. Storm Drain Inlet Protection
  - 4. Rip Rap
  - 5. Straw
  - 6. Temporary and Permanent Seeding

#### 2.2 PHYSICAL CONTROLS

- A. Physical controls for erosion and pollution control shall be in accordance with the Plans and the "Tennessee Erosion and Sediment Control Handbook" (Tennessee Department of

Environment and Conservation, latest edition) and the requirements. These include, but are not limited to:

1. Sediment Traps / Ponds
2. Diversion Ditches

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. The temporary erosion and pollution control provisions shown on the Plans are considered the minimum necessary, with the final design, implementation, and maintenance being the responsibility of the Contractor.
- B. The Contractor shall prepare a Stormwater Pollution Prevention Plan (SWPPP) and submit or amend the project Notice of Intent (NOI) to include their project specific activities.
- C. Install temporary sediment traps where appropriate. Muddy water collected in sediment traps shall be held until it is at least as clear as the upstream water before it is discharged to surface waters. Discharge through a pipe or lined channel so that the discharge does not cause erosion and sedimentation.
- D. Install temporary diversion berms or diversion channels as necessary to divert storm water from running onto the disturbed areas and to divert runoff from disturbed areas to the temporary sediment traps.
- E. Apply temporary seeding whenever grading operations are temporarily halted for over 14 days and final grading of exposed surfaces is to be completed within one year. Apply temporary seeding to soil stockpiles.

#### 3.2 FIELD QUALITY CONTROL

- A. Maintain erosion and sedimentation controls throughout the life of the project. Replace controls and/or add additional ones as needed to meet the requirements of the local, State, and Federal requirements.

#### 3.3 CLEANUP AND PROTECTION

- A. Remove erosion and sedimentation control structures once the site has been permanently stabilized. Properly dispose of these materials off-site.
- B. Backfill, topsoil, seed, and straw areas disturbed as a result of the cleanup efforts.

END OF SECTION 312500

## SECTION 321216 - ASPHALT PAVING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Standard specifications of the Tennessee Department of Transportation (TDOT). Even though the weather limitations, construction methods, and materials specifications contained in the TDOT Specifications may not be explicitly repeated in these specifications, they shall, wherever applicable to the work called for by this section, be considered as implied and therefore adhered to. However, the various subsections "Basis for Payment" contained in the TDOT specifications shall not be considered applicable.

#### 1.2 SUMMARY

- A. Section includes installation of asphalt paving as follows:
  - 1. Installation of aggregate base.
  - 2. Installation of asphalt pavement.
  - 3. Striping asphalt pavement.
- B. Related Sections:
  - 1. Section 312000 – Earthwork
  - 2. Section 321600 – Curbs and Gutters

#### 1.3 SUBMITTALS

- A. Submittals shall be in electronic form (via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.
- B. Within 14 working days prior to the scheduled start of asphalt construction, submit the actual design mix to the Owner or Owner's representative for review and approval. Design mix submittal shall follow a format in accordance with the Marshall Method of Mix Design (AASHTO T 245) and as modified by TDOT. This information shall include the information as specified by TDOT and as a minimum the following:
  - 1. Type/name of mix.
  - 2. Gradation analysis.
  - 3. Grade of asphalt cement used and optimum asphalt content in percent.
  - 4. RAP size and gradation.
  - 5. Location of the plant.
  - 6. Mixing and compaction temperatures
  - 7. Direct references to TDOT specifications sections for each material.

- C. Submit certification that mix design conforms to specification requirements. Materials certificate shall be signed by materials producer and Contractor, certifying that materials and mix design conform to requirements specified herein.
- D. Laboratory reports of compaction tests and proof rolling of soil sub-grade.
- E. The Contractor shall certify in writing that asphalt pavement (i.e., base and asphalt courses) was placed in accordance with specification requirements. This certification shall include:
  - 1. Verification of the subgrade, mineral aggregate base, and pavement slopes, elevations, and surface smoothness.
  - 2. Results of the mineral aggregate base density tests, laboratory air void, Marshall stability, and flow results, coring locations, compacted thicknesses, asphalt density, and asphalt extraction and aggregate gradation results.

#### 1.4 QUALITY ASSURANCE

- A. Provide and maintain a quality control system that will provide reasonable assurance that materials and construction conform to the specified requirements.
- B. An independent testing laboratory may be selected and paid by the Owner to perform construction testing of in-place asphalt courses for compliance with requirements of materials, thickness, compaction, and surface smoothness. This does not relieve the Contractor of any quality assurance responsibilities.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Asphalt delivery, storage, and handling shall be in accordance with the latest edition of the TDOT specifications.

#### 1.6 PROJECT CONDITIONS

- A. Weather limitations for pavement to be properly placed, compacted, and finished shall be in accordance with the latest edition of the TDOT specifications, generally these are:
  - 1. For a compacted thickness of 1.5 in. or less the minimum placement air temperature or surface temperature (whichever is less) shall be: 45° F for unmodified mixes and 55° F for modified mixes. For compacted thicknesses greater than 1.5 in., 40° F for unmodified mixes and 50° F for modified mixes.
  - 2. Do not apply when base is wet, contains excess moisture, during rain, or when frozen.
- B. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.



## 1.7 GUARANTEE

- A. Contractor shall guarantee in writing, the materials and workmanship for a period of two (2) years, beginning on the date of substantial completion or upon Owner's possession, whichever ever comes later.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Mineral Aggregate Base: Type A Base, Grading D crushed stone (TDOT Specification Section 303);
- B. Bituminous Prime Coats: Emulsified asphalt or Grade AE-P (TDOT Specification Section 402);
- C. Tack Coat: Emulsified asphalt, SS-1, SS-1h, CSS-1, CSS-1h, TST-1p, CQS 1h (TDOT Specification Section 403);
- D. Bituminous Plant Mix Base (Hot Mix): Grading B or BM as directed by the Engineer (TDOT Specification Section 307);
1. Asphalt Cement: Grading B and BM shall range between 4.2 to 6.2;
  2. Asphalt temperature: the mixing temperature for PG 64-22 is 290° F minimum and 350° F maximum. The compaction temperature for PG 64-22 is 280° F minimum and 310° F maximum.
  3. For Grading B (307B), the RAP maximum particle size is 1-½ in. For Grading BM (307BM) the RAP maximum particle size is ¾ in. The percent RAP (non-processed) is 0% and 25% (processed) for both mixes.
  4. The aggregate fractions shall be sized, graded, and combined in such proportions that the resulting composite blend will be met:

Sieve Size	Total % Passing by Weight	
	Grading B	Grading BM
2 in.	100	-
1-1/4 in.	95 – 100	-
1 in.	-	-
3/4 in.	70 – 85	85 - 100
5/8 in.	-	-
1/2 in.	-	-
3/8 in.	49 – 72	59 – 79
No. 4	34 – 51	42 – 61
No. 8	23 – 42	29 - 47
No. 30	11 – 22	13 – 27

No. 50	9 – 14	7 – 20
No. 100	4 – 10	4 – 10
No. 200	2.5 – 6.5	0 – 6.5

E. Asphaltic Concrete Surface (Hot Mix): Grading D or E as specified (TDOT Specification Section 411).

1. Asphalt cement content for both mixes shall range between 5.3 to 7.0;
2. Asphalt temperature: the mixing temperature for PG 64-22 is 290° F minimum and 350° F maximum. The compaction temperature for PG 64-22 is 280° F minimum and 310° F maximum.
3. RAP maximum particle size is ½ in. Percent of RAP (non-processed) is 0% for both mixes and percent RAP (processed) for Grade D is 15% (PG64-22, PG67-22) or 10% (PG 70-22, PG 76-22, PG 82-22) and for Grade E is 25%.
4. The aggregate fractions shall be sized, graded, and combined in such proportions that the resulting composite blend will be met:

Sieve Size	Total % Passing by Weight	
	Grading D	Grading E
3/4 in.	100	100
5/8 in.	100	100
1/2 in.	95 - 100	95 - 100
3/8 in.	80 - 93	80 - 93
No. 4	54 - 76	54 - 76
No. 8	35 - 57	35 - 57
No. 30	17 - 29	17 - 29
No. 50	10 - 18	10 - 18
No. 100	3 - 10	3 - 11
No. 200	0 - 6.5	0 - 8

F. Pavement Marking Paint: White and Yellow (TDOT Specification Section 716);

### PART 3 - EXECUTION

#### 3.1 SUBGRADE

- A. Before any base material is installed, prepare subgrade in accordance with the requirements of the Earthwork Section. The subgrade shall be constructed to the grades shown on the Plans, with an allowable working tolerance of plus or minus 0.1 ft.
- B. Protect and maintain subgrade until placement of the final surface is achieved.

- C. Establish grades and set grade stakes to the desired section. In establishing the grades, make due allowances for existing improvements, proper drainage, adjoining property rights, and good appearance.
- D. The joint between new and existing pavement shall be true and approximately at right angles to the centerline of the existing pavement. When a base course is compacted, cut back the surface course of the existing pavement a minimum of 1 foot beyond the limit of the joint between the old and new base course. Take special care to ensure good compaction of the new base course at the joint. Apply and compact the surface to conform to the existing pavement so that it will have no surface irregularity.

### 3.2 AGGREGATE BASE

- A. Install a mineral aggregate base of the type specified above in accordance with Section 303 of the TDOT Specifications. The maximum compacted thickness of any one layer shall not exceed 6 inches and the total thickness of the base shall be that indicated on the Plans.

### 3.3 PRIME COAT SURFACE PREPARATION

- A. Uniformly apply a bituminous prime coat of emulsified asphalt or Grade AE-P at a rate of 0.2 to 0.5 gal./s.y. Take care to prevent the bituminous material's splashing on exposed faces of curbs and gutters, walls, walks, trees, etc.; if such splashing does occur, remove it immediately. After the prime coat has been properly cured, apply an asphaltic concrete course to the thickness and width shown on the Plans.

### 3.4 ASPHALTIC CONCRETE PLACEMENT

- A. For all areas of more than 1,000 square yards, spread and strike off the asphalt binder course with a paver. Correct any irregularities in the surface of the pavement course directly behind the paver. Remove excess material forming high spots with a shovel or lute. Fill indented areas with hot mix, and smooth with a lute or the edge of a shovel being pulled over the surface. Casting of mix over such areas will not be permitted.
- B. If it is impractical to use a paver or spread box in areas of 1,000 square yards or less, the asphalt binder course may be spread and finished by hand. Carefully place by hand to avoid segregation of the mix. Broadcasting of the material will not be permitted. Remove any lumps that do not readily break down.
- C. Remove over-pavement of asphalt and stone from underneath landscape areas up to the limits that have been specified (refer to the curb detail) in order to provide a solid base for the concrete curb.
- D. If the asphaltic concrete surface course is to be placed directly on the mineral aggregate base, place a bituminous prime coat as described above. If, however, the surface course is to be placed on a binder course, then apply a bituminous tack coat of the sort specified

above under Materials at a rate of 0.05 to 0.10 gal./s.y. when directed by the Engineer. Take care to prevent the bituminous material's splashing on exposed faces of curbs, gutters, walls, walks, trees, etc.; if such splashing does occur, remove it immediately. After the prime or tack coat has been properly cured, apply the asphaltic concrete to the thickness and width shown on the Plans. Apply the surface course as described above for the binder course.

### 3.5 ROLLING AND COMPACTION

- A. After being spread, mixture shall be compacted by rolling as soon as it will bear the weight of rollers without undue displacement. Number, weight, types of rollers, and sequences of rolling operations shall be such that the required density and surface are consistently attained while the mixture is in workable condition.
- B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
- C. Breakdown Rolling: Perform breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas by loosening and filling with hot material.
- D. Second Rolling: Follow breakdown rolling as soon as possible while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.
- E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.
- F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot asphaltic concrete. Compact by rolling to maximum surface density and smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked. Any masked or marred finish surfaces shall be repaired or smoothed.

### 3.6 JOINTS

- A. Place each asphaltic paving layer as continuous as possible to keep the number of joints to a minimum. Create joints between old and new pavement, between successive days work, and where the mixture has become cold (less than 140 degrees F). Make these joints in such a manner as to create a continuous bond between the old and new pavement construction courses.
- B. Offset joint of successive courses by at least 6 inches.

- C. Transverse Joints: If placing of material is discontinued or if material in place becomes cold, make a joint running perpendicular to the direction traveled by the paver. Before placement continues, trim the edge of the previously placed pavement to a straight line perpendicular to the paver and cut back to expose an even vertical surface for the full thickness of the course. When placement continues, position the paver on the transverse joint so that sufficient hot mixture will be spread in order to create a joint after rolling that conforms to the required smoothness. If the temperature of the previously placed pavement material drops below 140 degrees F before paving is resumed, give the exposed vertical face a thin coat of liquid asphalt just before paving is continued.
- D. Longitudinal Joints: Coat longitudinal joints that are not completed before the previously laid mixture has cooled to a temperature below 140 degrees F, with liquid asphalt just before paving is continued.

### 3.7 TOLERANCES

- A. The finished surface of each asphalt course shall conform to the lines and grades shown on the Plans. No deviations, variations, or irregularities exceeding 1/4 inch in any direction when tested with a 12-foot straightedge will be permitted in the finished work, nor will any depressions that will not drain. Correct all such defects.
- B. The top surface of the base and binder courses shall be installed to the line, grade, and cross-section as shown on the Plans with a variance in elevation of no greater than plus or minus 0.10 ft.
- C. The top of the surface course shall be installed to the line, grade, and cross-section as shown on the Plans with a variance in elevation of no greater than plus or minus 0.04 ft.

### 3.8 FIELD QUALITY CONTROL

- A. The Contractor is responsible for the quality of construction and materials.
- B. Verify that the slope, elevations, and smoothness of the subgrade and mineral aggregate base conform to the requirements of the Plans and the specifications.
- C. Perform density tests on Type A mineral aggregate base at a minimum rate of 5 density tests per 90,000 sq. ft. The average density shall be not less than 100% of maximum density determined in accordance with AASHTO T 99, Method D with no individual test less than 97% of maximum density.
- D. Laboratory Air Void, Marshall Stability, and Flow: During production, mixture samples shall be taken at least four times for every 2000 tons or 8-hour day and compacted into specimens, using compactive blows (35, 50, or 75) equal to mix design per side with the Marshall hammer as described in AASHTO T 245. Temperature shall be equal to temperature at paving machine with reheating. After compaction, the laboratory air voids of each specimen shall be determined, as well as the Marshall stability and flow.

- E. Asphaltic pavement courses shall be randomly cored at minimum rate of 1 core per 20,000 sq. ft of paving, but not less than 3 cores. Asphaltic concrete pavement samples shall be tested for conformance with mix design. Cores shall be cut from areas representative of project. Coring holes shall be immediately filled by the Contractor with full-depth asphaltic concrete.
- F. Thickness Test: Measure thickness of each core sample taken. For each core, the thickness of the course (e.g., surface) or the combined courses (e.g., surface, binder, sub-base) shall meet or exceed the minimum indicated thickness.
- G. Density tests shall be conducted on each core sample taken in accordance with ASTM D1188 or D2726 as applicable. The average density shall not be less than 92% of the mixtures maximum theoretical specific gravity with no individual test less than 87%.
- H. Asphalt Extraction and Aggregate Gradation: Asphalt extraction and gradation of extracted aggregate testing shall be performed on a minimum of 2 cores in accordance with AASHTO TP 53 and ASTM D5444 respectively.
- I. Areas of deficient paving, including thickness, compaction, smoothness, ponding of water for longer more than 24 hours, and asphalt mixture shall be delineated, removed, and replaced in compliance with the specifications requirements unless corrected otherwise as directed and approved by the Owner or Owner's Representative.

### 3.9 CLEANING AND PROTECTION

- A. Remove any excess debris and trash.
- B. Prohibit access of vehicles onto any of the asphaltic courses for vehicles that exceed the design load for the current condition of the pavement.

END OF SECTION 321216



## SECTION 321313 - CONCRETE PAVING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Standard specifications of the Tennessee Department of Transportation (TDOT) sections 501, 604, 702, and 905. Even though the weather limitations, construction methods, and materials specifications contained in the TDOT Specifications may not be explicitly repeated in these specifications, they shall, wherever applicable to the work called for by this section, be considered as implied and therefore adhered to. However, the various subsections "Basis for Payment" contained in the TDOT specifications shall not be considered applicable.
- C. ACI 301, Specifications for Structural Concrete for Buildings.

#### 1.2 SUMMARY

- A. Section includes installation of curbs and gutters as follows:
  - 1. Furnishing all plant, labor, equipment, appliances, and materials and of performing all operations in connection with the construction of concrete pavements, sidewalks, concrete steps, and driveway ramps.
- B. Related Sections:
  - 1. Section 312000 – Earthwork
  - 2. Section 321600 – Curbs and Gutters
  - 3. Section 321616 – Asphalt Paving

#### 1.3 SUBMITTALS

- A. Submittals shall be in electronic form (via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.

#### 1.4 QUALITY ASSURANCE

- A. Provide and maintain a quality control system that will provide reasonable assurance that materials and construction conform to the specified requirements.
- B. An independent testing laboratory may be selected and paid by the Owner to perform construction testing of in-place asphalt courses for compliance with requirements of

materials, thickness, compaction, and surface smoothness. This does not relieve the Contractor of any quality assurance responsibilities.

- C. Materials, sampling, and testing shall meet the applicable requirements of the Concrete Sections, ACI, and the latest revision of TDOT Section 501, 604, 702, and 905.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Concrete delivery, storage, and handling shall be in accordance with the latest edition of TDOT specifications.

#### 1.6 PROJECT CONDITIONS

- A. Weather limitations for pavement to be properly placed, compacted, and finished shall be in accordance with the latest edition of the TDOT specifications, generally these are:
- B. Do not place concrete when the ambient temperature is below 35 degrees F, nor when the concrete is, without special protections, likely to be subject to freezing temperatures before final setting has occurred. The temperature of the concrete when placed shall be not less than 50 degrees F, nor more than 90 degrees F. Heating of the mixing water and/or aggregates will not be permitted until the temperature of the concrete has decreased to 55 degrees F. Heated materials shall be free from ice, snow, and frozen lumps before entering the mixer. Methods and equipment for heating shall be subject to the Owner or Owner's Representative's approval. Provide suitable means for maintaining the concrete at a temperature of at least 40 degrees F for not less than 72 hours after placement. Any concrete damaged by freezing shall be removed and replaced at the expense of the Contractor.
- C. Do not apply when base is wet, contains excess moisture, during rain, or when frozen.
- D. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Concrete: Concrete shall be  $f'c = 4,000$  psi (unless otherwise shown on the Plans), as defined by ACI standards, air entrained. The applicable provisions of ACI 301, Specifications for Structural Concrete for Buildings, form a part of this specification. Concrete slump shall range from 0 to 3-in.
- B. Joint Filler: Joint Fillers: Resilient premolded bituminous impregnated fiberboard units complying with ASTM D994, D1751, D2628; FS HH-F-341, Type I; or approved equal.

- C. Joint Sealants: Conforming to ASTM D1190, non-priming, pourable, self-leveling polyurethane. Acceptable sealants are Sonneborn "Sonolastic Paving Joint Sealant", Sonneborn "Sonomeric CT 1 Sealant", Sonneborn "Sonomeric CT 2 Sealant", Mameco "Vulkem 245", or Woodmont Products "Chem-Caulk" or approved equal.

## PART 3 EXECUTION

### 3.1 SUBGRADE AND FORMS

- A. Provide and operate a template for checking the contour of the subgrade. The template shall rest on the side forms and shall be provided with adjustable rods that project downward to the subgrade at 1 foot intervals. Adjust these rods to the required cross sections of the bottom of the slab when the template is supported at its sides.
- B. Forms shall be of metal or wood and subject to approval by the Engineer.
- C. Test the subgrade with respect to elevation and density prior to setting forms. Complete the subgrade to the plane of the typical sections shown on the drawings and to the lines and grades established by the drawings. Compact subgrades in accordance with the requirements in the Earthwork section.
- D. After preparing the subgrade as described above, set the forms. The subgrade under the forms shall be firm and cut true to grade so that each form section will, when placed, be firmly in contact for its entire length and base width. Stake the form into position so that the top, when tested by a 10 feet straightedge, conforms to the requirements specified for the surface of the concrete and so that the longitudinal axis of the upstanding leg does not vary more than 1/4 inch. Tightly lock form sections together.
- E. Finish the subgrade to the exact section of the bottom of the pavement shown on the drawings. Wet the subgrade down far enough in advance of the placing of the concrete to ensure that it is firm and moist. In cold weather, the subgrade shall be entirely free from frost when the concrete is deposited.
- F. Leave forms in place at least 24 hours after the concrete has been placed against them. Do not use crowbars or heavy tools against green concrete when removing the forms. Clean the forms well before re-oiling and reuse.

### 3.2 PLACING

- A. Concrete shall be in place within 45 minutes from the time all ingredients are charged in the mixing drum and before the concrete has obtained its initial set. Deposit concrete so that minimum handling will be necessary, and distribute it so that, when consolidated and finished, the slab thickness and surface grade required by the drawings will be obtained at all points. Place concrete rapidly and continuously between expansion joints. Use shovels for any necessary hand spreading. Consolidate the concrete adjacent to forms and joints with forks and spades.

- B. Do not place concrete when the ambient temperature is below 35 degrees F, nor when the concrete is, without special protections, likely to be subject to freezing temperatures before final setting has occurred. The temperature of the concrete when placed shall be not less than 50 degrees F, nor more than 90 degrees F. Heating of the mixing water and/or aggregates will not be permitted until the temperature of the concrete has decreased to 55 degrees F. Heated materials shall be free from ice, snow, and frozen lumps before entering the mixer. Methods and equipment for heating shall be subject to the A/E's approval. Provide suitable means for maintaining the concrete at a temperature of at least 40 degrees F for not less than 72 hours after placement. Any concrete damaged by freezing shall be removed and replaced at the expense of the Contractor.

### 3.3 FINISHING

- A. Immediately after placement, properly finish the concrete. The sequence of operations shall be as follows: hand finishing, longitudinal floating, straightedge finishing, and edging the joints.
- B. Provide an approved hand strike template, approved tamping template, and a longitudinal float for the hand finishing of pavement. The templates shall be at least 1.0 foot longer than the pavement width and at least 4 inches wide. The longitudinal float shall be 6 feet to 8 feet long. The float shall be rigid and substantially braced and provided with suitable handles to ensure smooth and effective manipulation. The bottom edges of the base of the float shall be rounded. Floats made of metal or a combination of wood and metal may be used.
- C. As soon as concrete is placed, strike off and screed to the appropriate cross section and to an elevation above grade which, when the concrete is consolidated and finished, will ensure that the surface of the pavement is at the exact elevation indicated on the drawings. Tamp the entire surface, and continue tamping until the required compaction and reduction of internal and surface voids are secured. Immediately after the final tamping of the surfaces, float the pavement longitudinally by hand. If contact with the pavement is not made at all points by the float, additional concrete shall be required and screeded, and the float operated until a satisfactory surface is obtained.
- D. After the longitudinal floating is complete, eliminate minor irregularities and score marks remaining in the pavement surface by removing surplus material or, if necessary, by adding and working in freshly mixed concrete with long handled floats and filling in open textured areas in the pavement surfaces. Make the final finish with straightedges 8 feet in length. A straightedge operated from the side of the pavement shall be equipped with a handle 3 feet longer than 1/2 of the pavement width. Place the straightedge at the centerline and pull uniformly to the edge. Do not advance the straightedge along the pavement in successive stages more than 1/2 its length. Immediately fill depressions with freshly mixed concrete, strike off, consolidate, and refinish. Remove projections above the required elevation while the concrete is still plastic and workable, doing so in a time sequence that will ensure the removal of all water and laitance from the surface. Continue the straightedge testing and refloating until the entire surface is free from observable departures from the straightedge, conforms to the required grade and contour, and will, when the concrete has hardened, conform with the surface requirements specified herein.

- E. After hand finishing has been completed but before the concrete has attained initial set, carefully finish the edges of slabs along forms and at joints with an edging tool of 1/2-inch radius to form a smooth, rounded surface. Clean corners or edges of slabs that have crumbled and any areas that lack enough mortar for proper finishing by removing loose fragments and soupy mortar, and then fill solidly and finish with a mixture of the correct proportions and appropriate consistency. Eliminate unnecessary tool marks, and leave edges smooth and true to line. After removing the forms, fill any damaged or honeycombed areas with mortar composed of one part cement and two parts sand.
- F. Form transverse and contraction joints in the finished pavement prior to initial set, spacing them as shown on the drawings. Contraction joints shall be 1/4-inch wide and 3/4-inch deep and shall be finished with an edging tool of 1/4-inch radius.
- G. Place transverse and premolded expansion joints 1/2-inch thick in such a way that the joint will be filled to within 1/2 inch of the surface of the walk. Place them to full depth and normal to the grade. Wherever concrete walks abut against transverse steps, other walks, or adjacent structures, provide expansion joints. Clean all concrete from the top of the premolded joints and edge the concrete as specified above.

#### 3.4 PROTECTION AND CURING

- A. Protect and cure concrete with an approved curing compound applied according to the manufacturer's directions.

#### 3.5 SURFACE TEST

- A. Remove any portion of the pavement that shows a variation or departure greater than 1/4-inch from the testing edge of a 10 feet straightedge, and replace or correct as directed by the Engineer.

END OF SECTION 321313

## SECTION 321600 - CURBS AND GUTTERS

### PART 1 GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Standard specifications of the Tennessee Department of Transportation (TDOT) sections 702. Even though the weather limitations, construction methods, and materials specifications contained in the TDOT Specifications may not be explicitly repeated in these specifications, they shall, wherever applicable to the work called for by this section, be considered as implied and therefore adhered to. However, the various subsections "Basis for Payment" contained in the TDOT specifications shall not be considered applicable.
- C. ACI 301, Specifications for Structural Concrete for Buildings.

#### 1.2 SUMMARY

- A. Section includes installation of curbs and gutters as follows:
  - 1. Installation of post curbs, extruded curbs, gutters, or combined curb and gutters.
- B. Related Sections:
  - 1. Section 312000 – Earthwork
  - 2. Section 321313 – Concrete Paving.
  - 3. Section 321616 – Asphalt Paving.

#### 1.3 SUBMITTALS

- A. Submittals shall be in electronic form (via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.
- B. Submit templates of the curb cross sections if alternates are proposed; these must be approved by the Owner or Owner's Representative prior to construction. Replace curbing that is installed without the Owner or Owner's Representative's approval.

#### 1.4 QUALITY ASSURANCE

- A. Provide and maintain a quality control system that will provide reasonable assurance that materials and construction conform to the specified requirements.



- B. An independent testing laboratory may be selected and paid by the Owner to perform construction testing. This does not relieve the Contractor of any quality assurance responsibilities.
- C. Materials, sampling, and testing shall meet the applicable requirements of the Concrete Sections, ACI, and the latest revision of TDOT Section 501, 604, 702, and 905.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Concrete delivery, storage, and handling shall be in accordance with the latest edition TDOT specifications.

#### 1.6 PROJECT CONDITIONS

- A. Weather limitations for pavement to be properly placed, compacted, and finished shall be in accordance with the latest edition of the TDOT specifications, generally these are:
- B. Do not place concrete when the ambient temperature is below 35 degrees F, nor when the concrete is, without special protections, likely to be subject to freezing temperatures before final setting has occurred. The temperature of the concrete when placed shall be not less than 50 degrees F, nor more than 90 degrees F. Heating of the mixing water and/or aggregates will not be permitted until the temperature of the concrete has decreased to 55 degrees F. Heated materials shall be free from ice, snow, and frozen lumps before entering the mixer. Methods and equipment for heating shall be subject to the Owner or Owner's Representative's approval. Provide suitable means for maintaining the concrete at a temperature of at least 40 degrees F for not less than 72 hours after placement. Any concrete damaged by freezing shall be removed and replaced at the expense of the Contractor.
- C. Do not apply when base is wet, contains excess moisture, during rain, or when frozen.
- D. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Concrete: Concrete shall be  $f'c = 4,000$  psi (unless otherwise shown on the Plans), as defined by ACI standards, air entrained. The applicable provisions of ACI 301, Specifications for Structural Concrete for Buildings, form a part of this specification. Concrete slump shall range from 0 to 3-in.

- B. Joint Filler: Joint Fillers: Resilient premolded bituminous impregnated fiberboard units complying with ASTM D994, D1751, D2628; FS HH-F-341, Type II, Class A or approved equal.
- C. Joint Sealants: Conforming to ASTM D1190, non-priming, pourable, self-leveling polyurethane. Acceptable sealants are Sonneborn "Sonolastic Paving Joint Sealant", Sonneborn "Sonomeric CT 1 Sealant", Sonneborn "Sonomeric CT 2 Sealant", Mameco "Vulken 245", or Woodmont Products "Chem-Caulk" or approved equal.

### PART 3 - EXECUTION

#### 3.1 SUBGRADE AND FORMS

- A. Provide and operate a template for checking the contour of the subgrade. The template shall rest on the side forms and shall be provided with adjustable rods that project downward to the subgrade at 1 foot intervals. Adjust these rods to the required cross sections of the bottom of the slab when the template is supported at its sides.
- B. Forms shall be of metal or wood and subject to approval by the Engineer.
- C. The Contractor may elect to use extruded machine curb or curb and gutter. The Owner reserves the right to approve the machine used, the contour and finish of the curb and gutter, and the design mix and the right to designate the spacings for expansion and contraction joints.
- D. Test the subgrade with respect to elevation and density prior to setting forms. Complete the subgrade to the plane of the typical sections shown on the drawings and to the lines and grades established by the drawings. Compact subgrades in accordance with the requirements in the Earthwork Section.
- E. After preparing the subgrade as described above, set the forms. The subgrade under the forms shall be firm and cut true to grade so that each form section will, when placed, be firmly in contact for its entire length and base width. Stake the form into position so that the top, when tested by a 10 feet straightedge, conforms to the requirements specified for the surface of the concrete and so that the longitudinal axis of the upstanding leg does not vary more than 1/4 inch. Tightly lock form sections together.
- F. Finish the subgrade to the exact section of the bottom of the pavement shown on the drawings. Wet the subgrade down far enough in advance of the placing of the concrete to ensure that it is firm and moist. In cold weather, the subgrade shall be entirely free from frost when the concrete is deposited.
- G. Leave forms in place at least 24 hours after the concrete has been placed against them. Do not use crowbars or heavy tools against green concrete when removing the forms. Clean the forms well before reoiling and reuse.

### 3.2 PLACING

- A. Concrete shall be in place within 45 minutes from the time all ingredients are charged in the mixing drum and before the concrete has obtained its initial set. Deposit concrete so that minimum handling will be necessary, and distribute it so that, when consolidated and finished, the slab thickness and surface grade required by the drawings will be obtained at all points. Place concrete rapidly and continuously between expansion joints. Use shovels for any necessary hand spreading. Consolidate the concrete adjacent to forms and joints with forks and spades.
- B. Construct concrete curb or combination concrete curb and gutter, where specified on the Plans, in uniform sections of length specified on the Plans.
- C. Form joints between sections either by steel templates, 1/8-inch in thickness, of length equal to width of curb and gutter, and with depth which will penetrate at least 2-inches below surface of curb and gutter; or with 3/4-inch thick performed expansion joint filler cut to exact cross section of curb and gutter; or by sawing to depth of at least 2-inches while concrete is between 4 and 24 hours old. If steel templates are used, they shall be left in place until concrete has set enough to hold it's shape, but shall be removed while forms are still in place.
- D. Longitudinal Construction Joints: Tie concrete curb or combination concrete curb and gutter, where specified on the Plans, to concrete pavement with 1/2-inch round deformed reinforcement bars of length and spacing shown on the Plans.
- E. Transverse Expansion Joints: Concrete curb, combination concrete curb and gutter, or concrete sidewalk shall have filler cut to exact cross section of curb, gutter, or sidewalk. Joints shall be similar to type of expansion joint used in adjacent pavement.
- F. Joint Fillers: Extend joint fillers full-width and depth of joint, and not less than 1/2-inch or more than 1-inch below finished surface where joint sealer is indicated. Furnish joint fillers in 1-piece lengths for full width being placed, wherever possible. Where more than 1 length is required, lace or clip joint filler sections together.
- G. Joint Sealants: Seal joints with approved exterior pavement joint sealants. Install in accordance with manufacturer's recommendations.

### 3.3 FINISHING

- A. Immediately after placement, properly finish the concrete. The sequence of operations shall be as follows: hand finishing, longitudinal floating, straightedge finishing, and edging the joints.
- B. Provide an approved hand strike template, approved tamping template, and a longitudinal float for the hand finishing of pavement. The templates shall be at least 1.0 foot longer than the pavement width and at least 4 inches wide. The longitudinal float shall be 6 feet to 8 feet long. The float shall be rigid and substantially braced and provided with suitable handles to ensure smooth and effective manipulation. The bottom edges of the base of

the float shall be rounded. Floats made of metal or a combination of wood and metal may be used.

- C. As soon as concrete is placed, strike off and screed to the appropriate cross section and to an elevation above grade which, when the concrete is consolidated and finished, will ensure that the surface of the pavement is at the exact elevation indicated on the drawings. Tamp the entire surface, and continue tamping until the required compaction and reduction of internal and surface voids are secured.
- D. Form contraction joints in the finished concrete prior to initial set, spacing them as shown on the Plans. Unless otherwise noted, contraction joints shall be 1/4-inch wide at 10-ft. intervals.
- E. Form expansion joints in the finished concrete prior to initial set, spacing them as shown on the Plans. Unless noted otherwise, premolded expansion joints shall be 3/4-inch thick at 100-ft. maximum spacing between joints. Provide expansion joints at tangent points of circular curbs, between curbs and rigid objects, at locations where stresses may develop, and wherever concrete abuts against transverse steps, walks, or adjacent structures.
- F. Finish the edges of joints on 1/4-in. radii. Clean all concrete from the top of the premolded joints.

#### 3.4 PROTECTION AND CURING

- A. Cure concrete with an approved curing compound applied according to the manufacturer's directions and as specified in "water-curing" section of ACI 308.
- B. Protect the curbing until final acceptance. Repair sections that are damaged during this period by removing and reconstructing each 10-ft. section that has been damaged.
- C. Backfill the curb immediately after the concrete has set sufficiently and after the forms have been removed. Place material in layers not exceeding 4-in. in loose thickness, and compact until firm and stable. Completely fill to the top of the back of curb and eliminate ponding behind the curbs.

END OF SECTION 321600

## SECTION 321723 – PAVEMENT MARKINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Standard specifications of the Tennessee Department of Transportation (TDOT). Even though the weather limitations, construction methods, and materials specifications contained in the TDOT Specifications may not be explicitly repeated in these specifications, they shall, wherever applicable to the work called for by this section, be considered as implied and therefore adhered to. However, the various subsections "Basis for Payment" contained in the TDOT specifications shall not be considered applicable.
- C. American Association of State Highway and Transportation (AASHTO)
  - 1. AASHTO M248 – Ready Mixed White and Yellow Traffic Paints
- D. American Society for Testing and Materials (ASTM)
  - 1. ASTM D4414 – Standard Practice for Measurement of Wet Film Thickness by Notched Gauges.
- E. Federal Specifications (FS)
  - 1. FS A-A-2886 – Paint, Traffic, Solvent Based
  - 2. FS TT-P-1952 – Paint, Traffic and Airfield Marking, Waterborne

#### 1.2 SUMMARY

- A. Section includes painting and marking of pavements, curbs, guard posts, and light pole bases.
- B. Related Sections:
  - 1. Section 321216 – Asphalt Paving
  - 2. Section 321212 – Concrete Paving
  - 3. Section 321600 – Curbs and Gutters

#### 1.3 SUBMITTALS

- A. Submittals shall be in electronic form (via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.

#### 1.4 QUALITY ASSURANCE

- A. Provide and maintain a quality control system that will provide reasonable assurance that materials and construction conform to the specified requirements.

- B. An independent testing laboratory may be selected and paid by the Owner to perform construction testing of in-place striping and markings for compliance with requirements of materials and thickness. This does not relieve the Contractor of any quality assurance responsibilities.
- C. Use trained and experienced personnel in applying the products and operating the equipment required for properly performed work.

## 1.5 PROJECT CONDITIONS

- A. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize flagmen, barricades, warning signs, and warning lights as required.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Paint shall be waterborne or solvent borne, colors as shown or specified herein. Pavement marking paints shall comply with applicable state and local laws enacted to ensure compliance with Federal Clean Air Standards. Paint materials shall conform to the restrictions of the local Air Pollution Control District.
- B. Waterborne Paint: Paints shall conform to FS TT-P-1952.
- C. Solvent Borne Paint: Paint shall conform to FS A-A-2883 or AASHTO M248. Paint shall be non-bleeding, quick-drying, and alkyd petroleum base paint suitable for traffic-bearing surface and be mixed in accordance with manufacturer's instructions before application for colors White, Yellow, Blue, and Red.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Before any pavement markings are applied, examine the work area and correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

### 3.2 PREPARATION

- A. Sweep and clean surface to eliminate loose material and dust.
- B. Where existing pavement markings are indicated on Construction Drawings to be removed or would interfere with adhesion of new paint, a motorized abrasive device shall be used to remove the markings. Equipment employed shall not damage existing paving



or create surfaces hazardous to vehicle or pedestrian traffic. Within public rights-of-way, appropriate governing authority shall approve method of marking removal.

- C. New pavement surfaces shall be allowed to cure for not less than 30 days before application of marking materials.

### 3.3 CLEANING EXISTING PAVEMENT MARKINGS

- A. In general, markings shall not be placed over existing pavement marking patterns. Existing pavement markings, which are in good condition but interfere or conflict with the newly applied marking patterns, shall be removed. Deteriorated or obscured markings that are not misleading or confusing or do not interfere with the adhesion of the new marking material do not require removal. Whenever grinding, scraping, sandblasting or other operations are performed, the work shall be conducted in such a manner that the finished pavement surface is not damaged or left in a pattern that is misleading or confusing. When these operations are completed the pavement surface shall be blown off with compressed air to remove residue and debris resulting from the cleaning work.

### 3.4 APPLICATION

- A. Apply two coats of paint at manufacturer's recommended rate, without addition of thinner, with maximum of 100 square feet per gallon or as required to provide a minimum wet film thickness of 15 mils and dry film thickness of 7 ½ mils per coat. Paint shall be applied for a total dry film thickness of 15 mils. Apply with mechanical equipment to produce uniform straight edges. At sidewalk curbs and crosswalks, use straightedge to ensure uniform, clean, and straight stripe.
- B. Install pavement markings according to manufacturer's recommended procedures for the specified material.
- C. Following items shall be painted with colors noted below:
  - 1. Pedestrian Crosswalks: White
  - 2. Exterior Sidewalk Curbs, Light Pole Bases, Guard Posts: Yellow
  - 3. Fire Lanes: Red (or per local code)
  - 4. Lane Striping where separating traffic moving in opposite directions: Yellow
  - 5. Lane Striping where separating traffic moving in same direction: White
  - 6. ADA Symbols: Blue (or per local code)
  - 7. ADA parking space markings: Yellow
  - 8. Parking stall striping: White (unless otherwise noted on Construction Drawings)

### 3.5 FIELD QUALITY CONTROL

- A. Inspection: After the paint has thoroughly dried, visually inspect the entire application and touch up as required to provide clean, straight lines and surfaces throughout. The Contractor is responsible for the quality of construction and materials.

- B. Testing: Testing of wet film thickness shall be performed a minimum of two times on each parking row (including striped islands) and pedestrian crosswalks, and a minimum of one test on each lane/alignment striping. In addition to the test mentioned above, at least one test shall be performed after refilling paint striping machine, changing operators of striping machine, and changing paint types, brands, etc. The tests mentioned above shall be performed on each coat applied and in accordance with ASTM D4414.

### 3.6 CLEANING AND PROTECTION

- A. Remove any excess debris and trash. Waste materials shall be removed at the end of each workday. Upon completion of the work, all containers and debris shall be removed from the site. Paint spots upon adjacent surfaces shall be carefully removed by approved procedures that will not damage the surfaces and the entire job left clean and acceptable.
- B. Prohibit access of vehicles onto any of the pavement markings until paint has had sufficient time to dry. Refer to product manufacturer's recommendations and adjust minimum drying time according to weather and temperature conditions.

END OF SECTION 321723

## SECTION 329219 - SEEDING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes:
  - 1. Supplying and placing soil additives, seed, and mulch as specified on prepared ground in accordance with the Plans and these Specifications.
  - 2. Sodding or seeding all non-construction areas that show signs of excessive erosion and all newly graded earthen areas that are not to be paved, stabilized unless otherwise indicated on the Plans or as directed by the Engineer.
- B. Related Sections:
  - 1. Section 312000 - Earthwork

#### 1.3 SUBMITTALS

- A. Submittals shall be in electronic form (via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.

#### 1.4 QUALITY ASSURANCE

- A. Perform excavation work in compliance with applicable requirements of authorities having jurisdiction.
- B. Do not disturb any areas outside the work area as defined on the Plans. Restore damaged improvements to their original condition, as acceptable to parties having jurisdiction.

#### 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery, storage, and handling of materials shall be in accordance with the Contract Documents and the local, State, and Federal requirements.

#### 1.6 PROJECT CONDITIONS

- A. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize temporary striping, flagmen, barricades, warning signs, and warning lights as required.

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Grass Seed: Seed mixture shall be fresh, clean, new crop seed. Grass shall be of the previous year's crop and in no case shall the weed seed content exceed 0.25% by weight. The seed shall be furnished and delivered in the proportion specified below in new, clean, sealed, and properly marked containers. Seed shall comply with State and Federal seed laws. Seed that has become wet, moldy, or otherwise damaged will not be accepted. All Fescues shall contain Acromonium endophytes. Seed containing endophyte must be kept cool and dry at all times; do not stockpile in the sun. Seed mixture for general lawn conditions shall be as follows:

<u>Common Name</u>	<u>Proportion By Weight</u>	<u>Germination Minimum</u>	<u>Purity Minimum</u>
Tall Fescue	50%	85%	95%
Chewings Fescue	25%	85%	95%
Creeping Red Fescue	25%	85%	95%

1. Tall fescue shall be improved turf-type blends. Kentucky 31 tall fescue shall not be used.
  2. Provide 3 varieties minimum for each Fescue species.
  3. Seed may be mixed by an approved method on the site or may be mixed by a dealer. If the seed is mixed on the site, each variety shall be delivered in the original containers that shall bear the dealer's guaranteed analysis. If the seed is mixed by a dealer, provide the dealer's guaranteed statement of the composition of the mix.
- B. Fertilizer: Use a slow-release starter fertilizer in standard containers that are clearly marked with name, weight, and guaranteed analysis of the contents and that ensure proper protection in transportation and handling; and in compliance with all local, state, and federal fertilizer laws.
  - C. Lime: Use lime containing a minimum of 85% calcium carbonate and magnesium carbonate and shall be ground to such fineness that 40% will pass the No. 100 mesh sieve and 95% of which will pass through the No. 20 mesh sieve. Contractor shall be aware of loam borrow pH and the amount of lime needed to adjust pH to specifications in accordance with testing lab recommendations.
  - D. Mulch: Stalks of rye, oats, wheat, or other approved grain crops properly cured prior to baling, air dried, and reasonably free of noxious weeds and weed seeds or other material detrimental to plant growth.

- E. Water: The Contractor shall be responsible to furnish their supply of water to the site at no additional cost. If possible, the Owner may furnish the Contractor upon request with an adequate source and supply of water at no charge. However, if the Owner's water supply is not available or not functioning, the Contractor shall be responsible to furnish adequate supplies at their cost. All work injured or damaged due to the lack of water or the use of too much water, shall be the Contractor's responsibility to correct. Water shall be free from impurities injurious to vegetation.
- F. Matting: provide matting as shown on the Plans for slopes steeper than 3:1 or as otherwise specified on the Plans.

### PART 3 - EXECUTION

#### 3.1 GENERAL

- A. Before starting seeding operations on any area, final dressing and placing of topsoil shall have been completed in accordance with the applicable Specifications. Seed, fertilize, lime, and mulch within 30 days of attainment of finish grade.
- B. Apply temporary seeding whenever grading operations are temporarily halted for over 14 days and final grading of exposed surfaces is to be completed within one year. Also apply temporary seeding to soil stockpiles.

#### 3.2 PREPARATION

- A. Each area to be seeded shall be scarified, disked, harrowed, raked or otherwise worked until it has been loosened and pulverized to a depth of not less than 2 inches and brought to the lines and grades indicated on the Plans or directed by the Engineer. This operation shall be performed only when the soil is in a tillable and workable condition.
- B. Apply fertilizer at the rate of 1 pound of nitrogen per 1,000 square feet, and lime at the rate of 50 pounds per 1,000 square feet, shall be uniformly incorporated in the soil for a depth of approximately 1 inch. Fertilizer need not be incorporated in the soil as specified above when mixed with seed in water and applied with power sprayer equipment. Do not apply lime without a soil test.

#### 3.3 SEEDING

- A. Seed shall be sown as soon as preparation of the seed bed has been completed. It shall be sown uniformly by means of a rotary seeder or other satisfactory means. Seed shall be sown at the rate of 8 pounds per 1,000 square feet.
- B. No seeding shall be done during windy weather or when the ground surface is frozen, wet or otherwise non-tillable.

- C. When seeding during February 1 through April 1 and October 1 through November 30, add an additional 3 pounds per 1000 square feet of annual rye grass. No seeding shall be performed during December and January unless otherwise permitted.

#### 3.4 MULCHING

- A. When the mulching material is hay or straw, it shall be spread evenly over the seeded area at an approximate rate of 2 bales (100 pounds minimum) per 1,000 square feet for straw and 150 pounds per 1,000 square feet for hay immediately following the seeding operations. The Engineer depending on the texture and condition of the mulch material and the characteristics of the area seeded may vary this rate.

#### 3.5 MAINTANENCE

- A. All seeded areas shall be cared for properly to the Owner or Owner's Representative's satisfaction until acceptance of the work. Areas, which have been previously seeded and mulched in accordance with this Section, but which, have been damaged or failed to successfully establish an acceptable stand of grasses shall be repaired as directed by the Owner or Owner's Representative. All material and labor required to repair seeded areas made necessary by negligence on a part of the Contractor will be furnished by the Contractor at no cost.
- B. If within 60 days of the planting less than 50% is successful, rework the ground, refertilize, reseed, and remulch.

#### 3.6 CLEANUP AND PROTECTION

- A. After the completion of seeding, the area shall be cleaned of all rubbish, excess material, and any other items that will mar the appearance of the projects as in accordance with the General Specifications.

END OF SECTION 329219



## SECTION 334000 - STORM DRAINAGE UTILITIES

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Plans and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section includes:
  - 1. Storm drainage pipe work including furnishing and installation of pipes, joint materials, and couplings.
  - 2. Storm drainage structures including furnishing and installation of manholes, catch basins, area drains, and other structures incidental to the construction of storm sewers.
- B. Related Sections:
  - 1. Section 310000 – Earthwork for excavation (defined as unclassified) for pipe trenches and structures and backfill.

#### 1.3 DEFINITIONS

- A. The diameter of pipe culverts and storm drains shown on the project drawings and bid schedule are based on Manning's n-value of 0.013, pipes flowing full, and the slopes shown on the Plans and profiles. If alternative materials and types of pipe culverts and storm drains are used, alter the diameter of the pipe shown to accommodate the required flow.
- B. The length of pipe as shown on the Plans is based on its in place length as measured along the centerline with no deductions for storm structures. Actual quantity of pipe may vary; supply and install the necessary quantity of pipe to construct the complete system.

#### 1.4 SUBMITTALS

- A. Submittals shall be in electronic form (via email) and shall be stamped by the Contractor. Submit to the Owner or Owner's representative.
- B. Submit shop drawings for material substitutions. Do not submit shop drawings for materials that are consistent with the plans. These submittals will be marked "Not Requested for Review" and returned.
- C. Results of the mandrel and deflection tests for each line of pipe.

## 1.5 QUALITY ASSURANCE

- A. Provide and maintain a quality control system that will provide reasonable assurance that materials and construction conform to the specified requirements.

## 1.6 DELIVERY, STORAGE, & HANDLING

- A. Delivery, storage, and handling shall be in accordance with these specifications and the manufacturer's requirements.
- B. All pipe, structures, and appurtenances shall be inspected and accepted by an approved commercial testing laboratory prior to delivery to the work site. Each joint and each structure shall be stenciled or otherwise marked with the laboratory's mark of acceptance. Furnish the Engineer with a certified copy (via email) of the laboratory's report of inspection, test, and acceptance on all pipe and appurtenances prior to its incorporation in the work.

## 1.7 PROJECT CONDITIONS

- A. Verify the locations of the existing underground utilities by contacting the utility owners and by potholing in the field.
- B. Notify the utility owners prior to beginning work.

# PART 2 - PRODUCTS

## 2.1 SEWER PIPE MATERIALS

- A. Reinforced Concrete Pipe (RCP): All concrete pipe shall be Class III reinforced concrete pipe conforming to ASTM C76. Horizontal elliptical shall conform to C-507 Class HE-II, HE-III, or HE-IV as specified on the drawings.
- B. Corrugated Metal Pipe (CMP): Shall conform to the requirements of AASHTO M36 specifications for corrugated metal culvert pipe or AASHTO M 196 for aluminum coated steel pipe. Pipe diameters of 18-inches or smaller shall be 14-gauge minimum. Pipe diameters from 24-inch to 48-inch shall be 12-gauge minimum. Pipe diameters of 54-inch or greater shall be 10-gauge minimum.
- C. High Density Polyethylene (HDPE) Pipe: Pipe and appurtenances shall be high density polyethylene (HDPE) conforming to the requirements of ASTM F2306/F2306M-05. The pipe shall have a smooth interior and annular-corrugated exterior.

## 2.2 STORM PIPE ACCESSORIES

# STORM DRAINAGE UTILITIES

A. Joint Materials:

1. Cement Mortar Joints: Joints shall consist of a mixture of 1 part standard portland cement, 2 parts sand, and enough water to produce a uniform mixture of proper consistency and workability that will adhere to the pipe. The cement, sand, and water shall be in conformity with the applicable provisions of Section 03301, Concrete Work. Do not use mortar that has been mixed longer than 30 minutes for making pipe joints.
2. Asphaltic Joints: Jointing compounds shall be equivalent in quality and type to GK asphaltic jointing compound. The selection by the Contractor of an asphaltic jointing compound shall be approved by the Engineer prior to the purchase or use of same. Furnish the Engineer with complete technical and construction data on the jointing compound to be approved.
3. Rubber Gasket Joints: The bell and spigot and the tongue and groove of the pipe shall be specially manufactured and prepared for the use of the type of joint selected. The rubber gaskets shall be watertight (WT) and meet the requirements of ASTM C443, ASTM F2306, AASHTO M252, or AASHTO 294.
4. O-Ring Rubber Gasket Joints: Joints shall consist of a bell and spigot type joint with an O-ring rubber gasket that is watertight (WT) meeting the requirements of ASTM F477.

- B. Couplings: Couplings shall be of the same material and as the pipe and corrugated to match the corrugations. Couplings shall provide sufficient longitudinal strength to preserve pipe alignment and prevent separation at the joints. Use bell and spigot, split collar, or screw-on collar couplings.

2.3 STRUCTURES AND APPURTENANCES

- A. Catch basins, manholes, and area drains shall be precast concrete as shown on the Plans or as otherwise directed by the Engineer. Precast concrete shall meet the applicable requirements of ASTM C478 with a minimum  $f'c = 4,000$  psi.
- B. Brick: Grade SM, ASTM C32, or concrete brick conforming to the requirements of ASTM C55, Grade N-I.
- C. Grates, Frames, And Curb Castings: Conforming to the requirements of ASTM A-48, Class 30. Machining of contact surfaces will be required so that covers and grates rest securely on the frames.
- D. Ladder Bars: Shall be made of aluminum alloy conforming to Federal Specification QQ-A-200/8.

- E. Mortar: Shall be composed of one part Portland cement and 2 parts sand (volumetric measure). Mortar that has been mixed for more than 30 minutes which has been retempered or which has "set" shall not be used in the work.
- F. Headwalls and End Sections: Shall be precast concrete as shown on the Plans or as otherwise directed by the Engineer.

### PART 3 - EXECUTION

#### 3.1 PIPELINE CONSTRUCTION

- A. Carefully protect all existing sewers, water lines, gas lines, sidewalks, curbs, gutters, pavements, electric lines, or other utilities or structures in the vicinity of the work from damage at all times. Wherever it is necessary for the proper accomplishment of the work to repair, remove, and/or replace any utility or structure, do so in accordance with the provisions set forth in the General and Supplementary Conditions.
- B. Before constructing or placing joints, demonstrate to the Engineer, by completing at least one sample joint, that the methods employed conform to the specifications and will provide a watertight joint, and further that the workmen intended for use on this phase of the work are thoroughly familiar and experienced with the type of joint proposed.
- C. Before placing sewer pipe in position in the trench, carefully prepare the bottom and sides of the trench, and install any necessary bracing and sheeting as provided in the Earthwork section.
- D. Wherever necessary to provide a satisfactory bearing surface, place concrete cradles as shown on the drawings or as directed by the Engineer. Cradles shall be of concrete with  $f'c = 4,000$  psi, as defined by ACI standards, and shall conform to the dimensions shown on the detailed Plans.
- E. Tightly stretch a mason's line or wire above the ground level, parallel to and directly above the axis of the pipe to be installed; this line is to be supported at intervals of no more than 50 feet on sewers being laid on a grade of 2% or more and not exceeding 25 feet for grades of less than 2%. Determine the exact line and grade for each section of pipe by measuring down from this line to the invert of the pipe in place. Accurately place each pipe to the exact line and grade called for on the drawings. Furnish all labor and materials necessary for erecting batter boards. The use of laser beams will be allowed.
- F. Do not allow water to run or stand in the trench while pipe laying is in progress, before the joint has completely set, or before the trench has been backfilled. Do not at any time open up more trench than the available pumping facilities are able to dewater.
- G. Correct trench bottoms found to be unsuitable for foundations after pipe laying operations have been started, and bring them to exact line and grade with compacted earth as necessary.

- H. Carefully inspect each piece of pipe and special fitting before it is placed, and lay no defective pipe in the trench. Pipe laying shall proceed upgrade, starting at the lower end of the grade and with the bells upgrade.
- I. Bell holes shall be large enough to allow ample room for the pipe joints to be properly made. Cut bell holes out not more than 10 joints ahead of the pipe laying. Carefully grade the bottom of the trench between bell holes so that each pipe barrel will rest on a solid foundation for its entire length. Lay each pipe joint so as to form a close concentric joint with adjoining pipe and to avoid sudden offsets or inequalities in the flow line.
- J. Jointing operations shall follow pipe laying very closely; failure to comply with this provision will result in the Engineer stopping all pipe laying operations until jointing operations catch up.
- K. After the joints have been completed, they shall be inspected, tested, and accepted by the Engineer before they can be covered. The pipe shall meet test requirements for watertightness; immediately repair any leaks or defects discovered at any time after completion of the work. Take up any pipe that has been disturbed after joints were formed; clean and remake the joints; and relay the pipe at the Contractor's expense. Carefully protect all pipe in place from damage until backfill operations are completed.
- L. Do not begin the backfilling of trenches until the pipe in place has been inspected and approved by the Engineer. Backfilling shall be performed in accordance with the requirements provided in the Earthwork section.
- M. As the work progresses, thoroughly clean the interior of all pipe in place. On small pipe, keep a swab or drag in the pipeline, and pull forward past each joint immediately after it has been made. After laying each line of pipe, carefully inspect it, and remove all earth, trash, rags, and other foreign matter from its interior.

### 3.2 JOINT CONSTRUCTION

- A. Cement Mortar Joints: Roll a gasket of jute or oakum thick enough to fill completely the annular space between the bell of one pipe and the spigot of another. This gasket shall be thoroughly saturated in a cement grout composed of neat portland cement and clean water mixed to the heaviest fluid consistency that will thoroughly impregnate gasket material to the Engineer's satisfaction. Then lay the gasket in the bell in the lower 1/3 of the circumference of the joint, and cover with mortar. Insert the spigot of the pipe, and carefully drive home; then insert a small amount of mortar into the annular space around the entire circumference of the pipe.
- B. Wrap the ends of the gasket around one pipe, and solidly ram into the joint with a caulking tool. The depth of caulking shall be such as will leave a space of approximately 1-1/2 inches in pipe 18 inches and less in diameter or of 2-1/4 inches in pipe 21 inches and larger in diameter, measured from the end of the bell. Drive the mortar previously placed ahead of the gasket. Then fill the joints with Portland cement mortar. This mortar must be placed by hand; take care to fill the joint completely entirely around the pipe by pushing the mortar in by hand, using a rubber glove with fingers and a wooden caulking

tool. Bevel the joints off at an angle of 45 degrees with the outside of the pipe, and protect with a wetted strip of muslin placed completely around the joint.

- C. Make joints in tongue and groove pipe with cement mortar in the manner specified above for bell and spigot pipe, except that the gasket material shall be omitted and both the outside and inside surfaces of the joints shall be wiped smooth. When modified tongue and groove pipe is used, bevel the joints off at an angle of 45 degrees with the outside of the pipe, and protect with muslin as specified above for bell and spigot pipe.
- D. Asphaltic Joints: Install asphaltic joints in accordance with the manufacturer's recommendations and specifications in respect to heating, pouring, and joint construction. When asphaltic jointing compound is used, alternate joints may be poured before the 2 sections are lowered into the trench. In such cases, the joint must be allowed to set before placing and the bottom of the trench carefully graded to provide uniform bearing after the pipes are placed in final position.
- E. Rubber Joints: Rubber gaskets and the method of joint construction shall form a flexible watertight seal and shall be in strict compliance with the manufacturer's directions and requirements. Adequately lubricate the gaskets with special cement provided for this purpose. Pipe joints shall be adequately and thoroughly driven home or seated.
- F. O-Ring Rubber Gasket Joints: O-ring rubber gasket joints shall be placed on the spigot end at least two corrugations of the spigot must insert into the bell end.
- G. Couplings: Install couplings in accordance with the manufacturer's specifications. Split collar couplings shall engage at least two full corrugations on each pipe section and screw-on collars shall be in width at least one-half the nominal diameter of the pipe.

### 3.3 WYES AND TEES

- A. Install wyes and tee branches in the sewer line as shown on the drawings and/or at such other locations as may be designated by the Engineer. If such branches are not to be used immediately, close them with manufacturer approved stoppers.

### 3.4 CONNECTIONS

- A. Make connections to all existing sewer lines as shown on the Plans or as directed by the Engineer. Make connections either by removing a section of the sewer from the existing line and inserting in the space a wye branch of the proper size or by constructing a manhole, junction box, regulator chamber, or other structure as shown on the Plans.
- B. Make connections to existing manholes or inlets by cutting a hole in the wall of the existing structure, inserting a length of pipe into the hole, filling around the pipe with concrete or mortar, and troweling the inside and outside surfaces of the joint to a neat finish. Shape or reshape the bottoms of manholes as necessary to fit the invert of the sewer pipe.



### 3.5 PIPE PROTECTION

- A. Construction loads may exceed design loads. These heavy loads can cause damage if construction equipment crosses over the installed pipe before adequate fill has been placed or moves too close to the trench walls, creating unbalanced loadings. Provide additional protective fill or other appropriate protection at equipment crossings.
- B. If pipe sewer has less than 1-1/2 feet of cover when completed, provide concrete protection as shown on the drawings or required by the Engineer. Place the protection in accordance with the Plans.

### 3.6 INSTALLATION OF STRUCTURES AND APPURTENANCES

- A. Construct inlets to the sizes, shapes, and dimensions shown on the drawings or as directed by the Engineer to meet special conditions. Excavate for structures in accordance with the applicable provisions of the Earthwork section.
- B. Where inlets are to be constructed in existing pavements and/or curbs and gutters, cut such pavements and/or curbs and gutters to a neat line with an air hammer or other suitable equipment, removing no more pavement and/or curb and gutter than is essential.
- C. Protect inlet foundations from damage by water and/or other causes. Place no concrete until the trench has been freed from water and/or mud, and maintain the trench in a reasonably dry condition during the progress of construction on structures.
- D. When the foundation has been prepared and is approved by the Engineer, construct the bottom to the required line and grade. After the bottom has been allowed to set for a period of no less than 24 hours, construct the inlet thereon, taking care to form the pipe or pipes into the walls at the required elevations.
- E. Lay brick in common bond with joints staggered from course to course. All joints at the face of wall shall be no more than 1/2 inch thick and shall be trowel struck joints to provide a clean, smooth wall surface. Wet each brick thoroughly by immersing it in water immediately before placement; lay each brick separately in a full and close joint of mortar on its bed, sides, and/or ends in one operation by shoving the brick into the mortar. Make no joints by working mortar into the joints, by grouting, or by "slushing" after the brick is in place. Brick work shall be plumb and in conformance with the drawing dimensions.
- F. Whenever work is discontinued for any purpose, rack the unfinished brick masonry back into courses, and remove all mortar from exposed surfaces. When work is resumed, clean and thoroughly wet the exposed surfaces before adding any new work.
- G. Carefully protect fresh brickwork against damage from freezing and against movement from any cause. Remove and properly rebuild any work that, in the opinion of the Engineer has been damaged by any cause either before or after backfilling.

- H. Set all castings accurately to line and grade in full cement mortar beds on the brick masonry. Unless otherwise shown on the Plans and/or directed by the Engineer, set all grate frames no less than 1 inch below the normal grade of surrounding pavement and no less than 3 inches below the normal surface of unpaved areas; then slope the surrounding area to the grates on an approximate slope of 12:1. Mount frame in grout, secured to the top cone section to the elevation as indicated on the Plans.
- I. After the masonry and frames have time to set, but in no case less than 24 hours, the space around the drainage structure shall be backfilled and compacted to the required grade and as specified in the Earthwork section.
- J. Install headwalls and/or end sections as shown on the Plans and in accordance with the manufacturer's specifications.

### 3.7 FIELD QUALITY CONTROL

- A. After backfilling and the embankment are complete and prior to placing the base, the contractor shall perform deflection and alignment tests on each line of pipe. For pipe diameters of less than 30-inches, deflection testing shall be performed using a 9-vane mandrel with a diameter that is 5% less than the nominal diameter of the pipe being tested. The mandrel vanes shall be equally spaced around the central core. At the Contractor's expense, replace any line of pipe through which the mandrel does not freely pass.
- B. For pipe diameters 30-inches or greater, deflection shall be tested as described above or may be checked by other means as approved by the Engineer. Pipe with a deflection of 5% or greater of the nominal pipe diameter or with undue misalignment shall be replaced at the contractor's expense.
- C. After backfill has been placed and compacted to a depth not less than one foot above top of pipe, a visual inspection shall be made by flashing a light between manholes. Any displacement or misalignment of invert shall be corrected.
- D. Install drainage structures and pipes to the line, grade, and cross-section as shown on the Plans and with finish elevation not more than 0.04' above or below the required elevation.

### 3.8 CLEANUP AND PROTECTION

- A. After completing each section of storm drainage line, remove all debris and construction materials and equipment from the site of the work, grade and smooth over the surface on both sides of the line, and leave the entire right-of-way in a clean, neat, and serviceable condition.
- B. The interior of catch basins, area drains, and manholes shall be cleaned of debris and excess material, the grating or cover placed, and all unused material, equipment, tools, and debris removed from the area.