



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

1 | Page

SPECIFICATIONS AND CONTRACT DOCUMENT

ISSUED BY

Engineering Services Department

ALABAMA STATE PORT AUTHORITY

John C. Driscoll, Director & CEO

Kay Ivey, Governor of Alabama

Issued for Bid



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

2 | Page

TABLE OF CONTENTS

DIVISION I..... BID DOCUMENTS

DIVISION II CONTRACT DOCUMENTS

DIVISION III SPECIAL PROVISIONS

DIVISION IV GENERAL PROVISIONS

DIVISION VCONSTRUCTION SPECIFICATIONS



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

3 | Page

BID DOCUMENTS

DIVISION I
INDEX

INVITATION FOR BIDS	I-1
INSTRUCTIONS TO BIDDERS	I-3
PROPOSAL.	I-4
BID BOND	I-7
AFFIDAVIT & CERTIFICATE OF COMPLIANCE.....	I-8



Alabama State Port Authority Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-1 | Page

INVITATION TO BID

Sealed bid proposals will be received via courier to the Alabama State Port Authority, 1400 Alabama State Docks Blvd, Room 216, Administration Building, Mobile, AL 36602 by 1:30 PM, on Thursday, March 24, 2022. Sealed bid proposals can also be hand delivered from 1:45 PM to 2:00 PM, on Thursday, March 24, 2022 to the Alabama State Port Authority in the International Trade Center Building, 250 North Water Street, 1st Floor Killian Room, Mobile AL. Faxed or electronic submitted bids will not be accepted.

Alabama State Port Authority PIER B SOUTH SHEET PILE WALL REPLACEMENT Mobile, Alabama

The work consists of providing bonds, labor, materials, equipment, and supervision necessary for the construction of a new sheet pile wall at Pier B South, inclusive of all demolition work, steel sheet pile installation, concrete work, utility work, miscellaneous rail, and fill work as indicated in the Contract Drawings and Specifications. The major components of the work include partial demolition and legal disposal of existing relieving platform concrete slab-on-grade, existing asphalt and railroad tracks, and existing timber wall. The disconnection of active existing utilities and reconnection after new wall is installed, the installation of new steel sheet pile wall and concrete cap the full length of the sheet pile wall, installation of flowable fill in voids underneath the relieving platform, backfill of excavation necessary for the installation of the new wall, and the reconstruction of the removed sections of relieving platform concrete slab, asphalt, and railroad tracks.

All Contractors submitting bids are to carefully examine the site of the proposed work and thoroughly review the contract requirements prior to submission of a bid proposal. Each Bidder shall satisfy oneself as to the character, quality, and quantities of work to be performed, and as to the requirements of the proposed Contract. The submission of a proposal shall be proof that the bidding Contractor has made such examination and is satisfied as to the conditions to be encountered in performing the work as and as to the requirements of the proposed Contract. All bidding Contractors must hold the proper license from the State Licensing Board of General Contractors, Montgomery, Alabama with the classification of (H/RR) – Heavy/Railroad.

Specifications, proposal forms, bond forms, and plans will be available on the Alabama Port Authority website under bid notices at the following address: <https://www.alports.com/procurement/#bids>. Any problems related to the retrieval of the contract documents from the website should be directed to the ASPA Project Manager, Marcus Coleman, PE at marcus.coleman@alports.com or 251-441-7260.

A **mandatory** Pre-Bid Meeting is scheduled for Thursday, March 10, 2022 at 9:00 A.M. at the Alabama State Port Authority in the International Trade Center Building, 250 North Water Street, 1st floor – Killian Room, Mobile, AL. At the conclusion of the Pre-Bid Meeting a site visit will be offered to allow prospective Contractor's to observe the existing conditions of the site. Access to the site will require a TWIC card (please refer to Division III, Item SP-15). All bidders not possessing proper access credentials must contact the ASPA PM at least 24 hours in advance to arrange an escort.



Alabama State Port Authority

Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-2 | Page

A Guarantee will be required with each bid as follows: At least five (5%) percent of the amount bid, but in no event more than Ten Thousand (\$10,000) Dollars, shall be furnished in the form of a certified check or bid bond payable to the Alabama State Port Authority.

Performance and Payment bonds will be required at the signing of the contract in an amount not less than One Hundred (100%) percent of the contract price.

No bid will be considered unless the bidder, whether resident or non-resident of Alabama, is properly qualified to submit a proposal for this work in accordance with all applicable laws of the State of Alabama. This shall include evidence of holding a current license from the State Licensing Board for General Contractors, Montgomery, Alabama with the classification of (H/RR) – Heavy/Railroad. Also, non-residents of the State must show evidence of having qualified with the Secretary of State to do business in Alabama.

Bids will be publicly opened at 2:00 P.M., Thursday, March 24, 2022 in the International Trade Center building, 250 North Water Street, 1st Floor – Killian Room, Mobile, AL. The right is reserved, as the interest of the Alabama State Port Authority may require, to reject any and all bids and to waive informalities in bids received.



Alabama State Port Authority

Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-3 | Page

INSTRUCTIONS TO BIDDERS

1.0 ADDENDA AND INTERPRETATIONS

All questions about the meaning or intent of the Contract Documents shall be submitted in writing to the Mott MacDonald Project Manager, Lowry Denty, at lowry.denty@mottmac.com. Replies will be issued by Addenda emailed to all parties recorded as having received the bidding documents. All addenda so issued shall become part of the Contract Documents. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. Deadline for submitting questions is 5:00 p.m. on Thursday, March 17, 2022.

2.0 PREQUALIFICATION OF BIDDERS

No proposal will be considered from any Contractor unless he is licensed to do work in the State of Alabama and has complied with the requirements of Paragraph SP-04 of the DIVISION III Special Provisions.

3.0 SUBMISSION OF PROPOSALS

Before submitting his proposal, the Contractor shall comply with the following:

- a) The Proposals, including the acknowledgement of addenda, shall be filled in ink on the form provided herein and all blank spaces in the form shall be fully filled. The signature shall be in long hand and the complete form shall be without interlineations, alteration or erasure.
- b) If the Bidder is a corporation organized in a state other than Alabama, attach to the Proposal a certificate from the Secretary of State showing that the Corporation is qualified to transact business in Alabama.
- c) Attach a certified check or Bid Bond in the amount of 5% of the Proposal, but not more than \$10,000 made payable to the Alabama State Port Authority.
- d) Non-resident (out of state) Contractors shall attach all items included by SP-6.
- e) Attach a copy of the State Contractor's License to Proposal.
- f) Certificate of Compliance with the Beason-Hammon Alabama Taxpayer and Citizen Protection Act (see page I-8)

One copy of Item (a) through (f) should be placed in a sealed envelope with the bidder's name, Contractor's license number, the project name and number, and the time and date of bid opening shown on the outside.

Proposal of:

Address:

Date:

To: STATE OF ALABAMA, Alabama State Port Authority, Mobile, Alabama

Gentlemen:



Alabama State Port Authority

Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-4 | Page

The undersigned, as Bidder, hereby declares that he has examined the site of the work and informed himself fully in regard to all conditions pertaining to the place where the work is to be done; that he has examined the plans and specifications for the work and contractual documents relative thereto, and has read all Special Provisions and Specifications furnished; and that he has satisfied himself relative to all aspects of the work to be performed and especially to those factors affecting cost, progress, or performance.

The Bidder proposes and agrees, if this bid is accepted, to contract with the Owner in the form of contract specified, to furnish all necessary materials, equipment, tools, apparatus, means of transportation, labor and incidentals to perform in a satisfactory manner, the work described in the Contract Specifications and Drawings for the Alabama State Port Authority, for the prices listed below to complete:

Pier B South Sheet Pile Wall Replacement

MOBILE, ALABAMA

In full and complete accordance with the shown, noted, described and reasonable intended requirements of the plans, specifications and contract documents to the full and entire satisfaction of the Owner with a definite understanding that no money will be allowed for extra work except as set forth in the attached contract documents.

It is agreed that the description under each item, being briefly stated, implies, although it does not mention, all incidentals and that the prices stated are intended to cover all such work materials and incidentals as constitute Bidder's obligation as described in the specifications and any details not specifically mentioned, but evidently included in the contract shall be compensated for the item which most logically includes it.

Bidder agrees that he will commence the work within the time allotted by the Contract Documents with an adequate force, plant, and equipment and that the work will be completed within time schedules outlined in Special Provisions Article SP-3.

Bidder accepts the provisions of the Contract Documents as to liquidated damages in the event of failure to complete the work on time.

The Bidder further agrees that, in case of failure on his part to execute the Contract and required bonds within ten (10) calendar days from the date written notice of award if mailed or otherwise delivered to the Bidder, the certified check or bid bond accompanying this bid and the monies payable thereon shall be paid into the funds of the Owner not as penalty, but as a liquidation of a reasonable portion of the damages incurred by the Owner due to the Bidder's failure to execute the Contract.

Each of the following items within the Schedule of Prices shall be completed in accordance with the Referenced Drawings and Specifications Booklet.



Alabama State Port Authority

Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-5 | Page

SCHEDULE OF PRICES

Description	Est. Quantity	UOM	Unit Price	Value
1. Project Bonds and Insurance	Lump Sum	1	\$	\$
2. Mobilization/Demobilization	Lump Sum	1	\$	\$
3. Environmental Protection Measures	Lump Sum	1	\$	\$
4. Testing and Monitoring	Lump Sum	1	\$	\$
5. Construction MOT/Barriers/Fencing	Lump Sum	1	\$	\$
6. Demolition and removal	Lump Sum	1	\$	\$
7. New sheet pile wall & Misc. Excavation & Fill	LF	1422	\$	\$
8. New sheet pile wall concrete cap	CY	302	\$	\$
9. New concrete slab	CY	140	\$	\$
10. New Geofoam 29	CF	730	\$	\$
11. New Premolded Joint Filler	CY	50	\$	\$
12. New Concrete Flowable fill for voids	CY	1540	\$	\$
13. Select Fill	CY	150	\$	\$
14. Miscellaneous rail	Lump Sum	1	\$	\$
15. Utility connections and modifications	Lump Sum	1	\$	\$
16. Allowance for additional flowable fill for unforeseen voids	CY	260	\$	\$
TOTAL BID				\$

Dollars

(In Words)



Alabama State Port Authority

Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-6 | Page

I, the undersigned bidder, hereby acknowledge receipt of the following addenda:

ADDENDUM NO. _____

ADDENDUM NO. _____

ADDENDUM NO. _____

ADDENDUM NO. _____

Contractor's Signature:

Contractor

Company _____

Name

Title

Date



Alabama State Port Authority
Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-7 | Page

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we, undersigned, _____

_____ as Principal, and _____ as Surety, are hereby held and bound unto The Alabama State Port Authority as **OWNER** in the Penal sum of _____ for the payment of which will and truly be made, we hereby jointly and severally bind ourselves, successors and assigns. Signed, the _____ day of _____, 20____.

The Condition of the above obligation is such that whereas the Principal has submitted to the Alabama State Port Authority a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing, for the ASPA Pier B South Sheet Pile Wall Replacement & Selective Pier Rehabilitation in Mobile, Alabama, Project No. : 10532 Task 03.

NOW, THEREFORE,

(a) If said BID shall be rejected, or

(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 panel 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 in no way be impaired or affected by any extension of 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 hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal	
By	
Surety	
By	



Alabama State Port Authority

Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-8 | Page

State of _____

County of _____

CERTIFICATE OF COMPLIANCE WITH THE BEASON-HAMMON ALABAMA TAXPAYER AND CITIZEN PROTECTION ACT (ACT 2011-535, as amended by Act 2012-491)

DATE: _____

RE Contract/Grant/Incentive (describe by number or subject):

_____ by and between
 _____ (Contractor/Grantee) and
 _____ (State Agency, Department or Public Entity)

The undersigned hereby certifies to the State of Alabama as follows:

1. The undersigned holds the position of _____ with the Contractor/Grantee named above, and is authorized to provide representations set out in this Certificate as the official and binding act of that entity, and has knowledge of the provisions of THE BEASON-HAMMON ALABAMA TAXPAYER AND CITIZEN PROTECTION ACT (ACT 2011-535 of the Alabama Legislature, as amended by Act 2012-491) which is described herein as "the Act".
2. Using the following definitions from Section 3 of the Act, select and initial either (a) or (b), below, to describe the Contractor/Grantee's business structure.

BUSINESS ENTITY. Any person or group of persons employing one or more persons performing or engaging in any activity, enterprise, profession, or occupation for gain, benefit, advantage, or livelihood, whether for profit or not for profit. "Business entity" shall include, but not be limited to the following:

- a. Self-employed individuals, business entities filing articles of incorporation, partnerships, limited partnerships, limited liability companies, foreign corporations, foreign limited partnerships, foreign limited liability companies authorized to transact business in this state, business trusts, and any business entity that registers with the Secretary of State.
- b. Any business entity that possesses a business license, permit, certificate, approval, registration, charter, or similar form of authorization issued by the state, any business entity that is exempt by law from obtaining such a business license and any business entity that is operating unlawfully without a business license.

EMPLOYER. Any person, firm, corporation, partnership, joint stock association, agent, manager, representative, foreman, or other person having control or custody of any employment, place of employment, or of any employee, including any person or entity employing any person for hire within the State of Alabama, including a public employer. This term shall not include the occupant of a household contracting with another person to perform casual domestic labor within the household.

_____ (a) The Contractor/Grantee is a business entity or employer as those terms are defined in Section 3 of the Act.

_____ (b) The Contractor/Grantee is not a business entity or employer as those terms are defined in Section 3 of the Act.



Alabama State Port Authority
Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

I-9 | Page

3. As of the date of this Certificate, Contractor/Grantee does not knowingly employ an unauthorized alien within the State of Alabama and hereafter it will not knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama;
4. Contractor/Grantee is enrolled in E-Verify unless it is not eligible to enroll because of the rules of that program or other factors beyond its control.

Certified this _____ day of _____ 20 _____

Name of Contractor/Grantee/Recipient

By: _____

Its _____

The above Certification was signed in my presence by the person whose name appears above, on

this _____ day of _____ 20 _____.

WITNESS:

Printed Name of Witness



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

1 | Page

CONTRACT DOCUMENTS

DIVISION II
INDEX

PERFORMANCE BOND	II-1
LABOR AND MATERIAL BOND	II-3
ACKNOWLEDGMENT FOR CHANGE ORDERS	II-5
CONTRACT	II-6



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

II-1 | Page

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That: _____
(Name of Contractor)

(Address of Contractor)

(City, State, Zip)

I, a(n) _____ corporation, hereinafter called Principal, and
(state of domicile)

(Name of Surety)

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto the Alabama State Port Authority hereinafter called OWNER, in the penal sum of _____ DOLLARS, (\$ _____) (100% of the Contract Amount) 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.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal 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:

**PIER B SOUTH SHEET PILE WALL REPLACEMENT
MOBILE, ALABAMA**

NOW, THEREFORE, if the Principal 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 guaranty period, and if he shall satisfy all claims and demands incurred under such contract, and shall fully 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, alteration, or addition to the terms of the contract of the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the WORK 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.



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

II-2 | Page

IN WITNESS WHEREOF, this instrument is executed this _____ day of _____, 20____.

ATTEST:

_____	_____
(Principal) Secretary	Principal
(SEAL)	_____ (s)
_____	_____
(Witness as to Principal)	(Address)
_____	_____
	Surety

ATTEST:

(Surety) Secretary	
(SEAL)	
_____	BY: _____
Witness as to Surety	Attorney-in-fact
_____	_____
(Address)	(Address)
_____	_____

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



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

II-3 | Page

LABOR AND MATERIAL BOND

KNOW ALL MEN BY THESE PRESENTS:

That: _____
(Name of Contractor)

(Address of Contractor)

(City, State, Zip)

I, a(n) _____ corporation, hereinafter called Principal, and
(state of domicile)

(Name of Surety)

(Address of Surety)

(City, State, Zip)

hereinafter called Surety, are held and firmly bound unto the Alabama State Port Authority hereinafter called OWNER, in the penal sum of _____ DOLLARS, (\$ _____) (100% of the Contract Amount) 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.

THE CONDITION OF THIS OBLIGATION is such that, the Principal 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:

PIER B SOUTH SHEET PILE WALL REPLACEMENT
MOBILE, ALABAMA

NOW, THEREFORE, if the Principal shall promptly make payments to all persons, firms, SUBCONTRACTORS, and corporations furnishing materials 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 for materials, lubricants, fuel, repairs on machinery, equipment and tools, consumer 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 of the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

II-4 | Page

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 this _____ day of _____, 20____.

ATTEST:

(Principal) Secretary

(SEAL)

Witness as to Surety Principal

(Address)

Principal

BY: _____(s)

(Address)

Surety

BY: _____

Attorney-In-Fact

(Address)

ATTEST:

Witness as to Surety

(Address)

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



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

II-5 | Page

ACKNOWLEDGEMENT FOR CHANGE ORDERS

TO: ALABAMA STATE PORT AUTHORITY

RE: Pier B South Sheet Pile Wall Replacement , Mobile, AL

Gentlemen:

In order to avoid the necessity of extensive amendment to the referenced Contract, the undersigned hereby acknowledges that the following conditions are those for which change orders are allowed under the Bid law:

1. Unusual and difficult circumstances which arise during the course of the execution of the Contract which could not have been reasonably foreseen.
2. Where competitive bidding for the new work will be to the serious detriment of the Owner.
3. Emergencies arising during the course of work.
4. Changes or alterations provided for in the original bid and original Contract.
5. The Contractor also acknowledges that he has read paragraph 50-04 (EXTRA WORK) and 60-17 of the (CLAIMS FOR ADJUSTMENT AND DISPUTES) of the General Provisions and agrees that "If for any reason the Contractor deems that additional compensation is due him for work or materials not clearly provided in the Contract, plans, or specifications or previously authorized as extra work, he shall notify the Engineer in writing of his intention to claim such additional compensation before he begins the work on which he bases his claim."

CONTRACTOR

BY: _____

DATE

TITLE



Alabama State Port Authority
Specification Booklet

Project Name Pier B South Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

II-6 | Page

CONTRACT

THIS AGREEMENT, made and executed on this _____ day of the month of _____, Two Thousand and _____ (20____), by and between The Alabama State Port Authority, and _____ (contractor name) Contractor, domiciled in the state of _____, Party of the Second Part, and hereinafter designated as "CONTRACTOR," WITNESSETH, that in consideration of the covenants and agreements herein contained, to be performed by the parties hereto and of the payments hereinafter agreed to be made, it is mutually agreed as follows:

The CONTRACTOR shall and will provide and furnish all equipment and labor, and perform the work required to build, construct, and complete in a thorough and workmanlike manner, to the satisfaction of the Alabama State Port Authority:

Project Name Pier B South Sheet Pile Wall Replacement

Project # 10996 **Task #** 02

Hereinafter called the project, for the base Contract price of _____ DOLLARS, (\$_____) and all extra work in connection therewith, and in accordance with plans, specifications, and Proposal, which are made a part thereof as fully as is set out herein, and hereby becomes a part of this Contract.

It is agreed and understood that the Alabama State Port Authority shall pay, and the Contractor shall receive, the full compensation for the work performed in accordance with the Specifications.

The project shall commence and will be completed in accordance with Paragraph SP-03 of the Special Provisions.

This contract shall become effective immediately upon, and as of the date all necessary parties hereto have approached and signed the same.

By signing this contract, the contracting parties affirm, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama. Furthermore, a contracting party found to be in violation of this provision shall be deemed in breach of the agreement and shall be responsible for all damages resulting therefrom.

IN WITNESS WHEREOF, the parties of these presents have executed this Agreement in the year and day first above written.

WITNESS:

WITNESS:

BY: _____

Alabama State Port Authority

BY: _____

Contractor Party of the Second Part



Alabama State Port Authority
Specification Booklet

Project Name

Pier B South: Sheet Pile Wall Replacement

Location

Mobile, AL

Project # 10996

Task # 02

January 2022

1 | Page

SPECIAL PROVISIONS

DIVISION III
INDEX

SP-01 – DESCRIPTION OF WORK.....	III-1
SP-02 – OWNER PURCHASE OF MATERIALS.....	III-1
SP-03 – COMMENCEMENT AND COMPLETION.....	III-1
SP-04 – QUALIFICATION OF BIDDERS.....	III-1
SP-05 – ACCEPTANCE OR REJECTION OF BIDS.....	III-1
SP-06 – NON-RESIDENT (OUT-OF-STATE) CONTRACTORS.....	III-1
SP-07– INDEMNIFICATION.....	III-2
SP-08 – SUPERVISION AND OFFICE TRAILER.....	III-2
SP-9 – CONTRACTOR'S REPRESENTATIVE.....	III-3
SP-10 – METHOD OF PAYMENT.....	III-3
SP-11 – INSURANCE	III-3
SP-12 – TAXPAYER AND CITIZEN PROTECTION ACT.....	III-3
SP-13 – GUARANTEE.....	III-3
SP-14 – CPM PROJECT SCHEDULE.....	III-3
SP-15 – ACCESS TO ASPA RESTRICTED FACILITIES.....	III-3
SP-16 – TEMPORARY WATER AND ELECTRICAL POWER	III-4
SP-17 – INTENT OF PLANS AND SPECIFICATIONS.....	III-4



Alabama State Port Authority Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10532 **Task #** 03

January 2022

III-1 | Page

SP-01 DESCRIPTION OF WORK

The work consists of providing bonds, labor, materials, equipment, and supervision necessary for the construction of a new sheet pile wall at Pier B South, inclusive of all demolition work, steel sheet pile installation, concrete work, utility work and fill work as indicated in the Contract Drawings and Specifications. The major components of the work include partial demolition and legal disposal of existing relieving platform concrete slab-on-grade, existing asphalt and railroad tracks, and existing timber wall. The disconnection of active existing utilities and reconnection after new wall is installed, the installation of new steel sheet pile wall and concrete cap the full length of the sheet pile wall, installation of flowable fill in voids underneath the relieving platform, backfill of excavation necessary for the installation of the new wall, and the reconstruction of the removed sections of relieving platform concrete slab, asphalt, and railroad tracks.

SP-02 OWNER PURCHASE OF MATERIALS

The Alabama State Port Authority will utilize its sales tax exemption status on this project.

SP-03 COMMENCEMENT AND COMPLETION

The Contractor will be required to commence work under this contract in accordance with DIVISION IV GENERAL PROVISIONS Article 90-02 (NOTICE TO PROCEED), to prosecute said work with faithfulness and energy, and to complete the entire project within 270 calendar days (let's make sure this contract duration is reasonable considering the time it will take to procure materials) after receipt of Notice to Proceed. The time stated for final completion shall include final clean-up of the premises. Failure to complete work on schedule shall initiate liquidated damages, which will be assessed in accordance with the provisions of Paragraph 20-13 (LIQUIDATED DAMAGES) of DIVISION IV, GENERAL PROVISIONS.

SP-04 QUALIFICATION OF BIDDERS

In addition to the requirements of Article 20-01 and 20-03 of Division IV, GENERAL PROVISIONS, the Owner may make such investigations as 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.

SP-05 ACCEPTANCE OR REJECTION OF BIDS

The Authority reserves the right to accept or reject any or all bids and to waive informalities. All bidders must be licensed to operate as contractors in the State of Alabama. Attention of bidders is directed to Chapter 8 of Title 23 of the Code of Alabama, 1975, and Amendments thereto, relating to the licensing of General Contractors. No bid will be accepted from anyone except a qualified Contractor, licensed by the State Licensing Board for General Contractors with the

classification of (H/RR) – Heavy/Railroad. In addition, non-residents of the State must show evidence of having qualified with the Secretary of State to do business in Alabama.

SP-06 NON-RESIDENT (OUT-OF-STATE) CONTRACTORS

Preference shall be given to resident contractors, and non-resident bidders domiciled in a state having laws granting preference to local contractors shall be awarded Alabama public contracts the same as Alabama contractors bidding under similar circumstances; and resident contractors in Alabama are to be granted preference over non-residents in awarding of contracts in the same manner and to the same extent as provided by the laws of the state of domicile of the non-resident. Non-resident bidders must accompany any written bid documents with a written opinion of any attorney at law licensed to practice law in such non-resident bidders' state of domicile, as to the preferences, if any or none, granted by the law of that state to its own business entities whose principal places of business are in that State in the letting of any or all public contracts.

SP-07 INDEMNIFICATION

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Engineer, and their agents and employees from and against all claims, damages, losses, and expenses, including, but not limited to, attorney's fees arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss, or expense (1) is attributed 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 (2) is caused in whole or in part by any negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them 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. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity that would otherwise exist as to any party or person described in this Paragraph SP-07.

In any and all claims against the Owner, the Engineer or any of their agents or employees by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification under this Paragraph SP-07, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's compensation acts, or other employee benefits acts.

SP-8 SUPERVISION

The Contractor shall place a competent superintendent on the Project who shall have experience in the type of work being performed under this Contract. A resume of the superintendent's experience shall be submitted for review prior to the placement of the named person on the project. The Contractor shall also submit an organizational chart, which shall clearly show the Contractor's personnel assigned to the Project and the position that they hold. The chart shall also define the persons of contact with the Owner and the Engineer.

The Owner reserves the right to request changes in supervision for incompetent actions or other reasons of due cause. Once the Contractor is notified in writing of a request to replace the superintendent, he shall do so within five (5) calendar days of such request.

The Contractor's assigned superintendent shall have responsibility for the day-to-day operations of the work and shall be the on-site safety officer responsible for implementation of the Contractor's safety program unless another named person is so assigned.

The assigned superintendent shall remain on the Project site while work under the Contract is being performed. In the superintendent's absence from the site, another named person shall be responsible for all aspects of the work. Notification of the name of the individual shall be filed with the Owner and Engineer. The Contractor shall not reassign a superintendent without the acknowledgement and approval of the Owner.

The Contractor shall maintain an on-site trailer for the duration of the project. The Contractor shall also provide office space for the Engineer's representative. This space shall be air conditioned and shall be provided with a suitable desk and chair for the purpose of reviewing project drawings.

SP-9 CONTRACTOR'S REPRESENTATIVE

A representative of the Contractor shall be on the site at all times work is being conducted as required by paragraph 90-01 (SUBLETTING OF CONTRACT) of DIVISION IV. A telephone number should be given to the Engineer where he might contact the Representative after working hours in case of an emergency.

SP-10 METHOD OF PAYMENT

Payment will be made in accordance with the provisions of Paragraph 100-06 (PARTIAL PAYMENT) of DIVISION IV except that there will be no payment for materials on hand. Paragraph 100-07 (PAYMENT FOR MATERIALS ON HAND) is to be deleted in its entirety.

SP-11 INSURANCE

Insurance requirements are provided in Section 40 (Indemnification and Insurance Requirements) of Division IV General Provisions. The following shall apply to Section 40 (Indemnification and Insurance Requirements) of Division IV General Provisions:

- 1) 40-04 Owner's and Contractor's Protective Liability – Delete in its entirety
- 2) 40-08 Railroad Protective Liability – Delete in its entirety
- 3) 40-09 Builder's Risk or Installation Floater – Delete in its entirety
- 4) 40-10 Professional Liability Coverage – Delete in its entirety

SP-12 TAXPAYER AND CITIZEN PROTECTION ACT

Effective October 1, 2011, the Beason-Hammon Alabama Taxpayer and Citizen Protection Act ("the Act") requires that any business entity contracting with or providing any grant or incentives to the state, including the Alabama State Port Authority, certify compliance with the Act. All Bidders must certify such compliance by executing the enclosed Certificate of Compliance (see Section I) and returning it to the Alabama State Port Authority along with proof of the bidding company's enrollment in the e-verify program with your bid package. The affidavit must be notarized. The following E-Verify website link is provided for convenience: <https://www.e-verify.gov/>

SP-13 GUARANTEE

The Contractor shall furnish to the Alabama State Port Authority a two (2) year written guarantee issued from the date of final acceptance. This guarantee shall cover any defective material or workmanship on the entire project.

SP-14 CPM PROJECT SCHEDULE

The Contractor shall prepare a CPM Project Schedule using Microsoft Project and the schedule shall show all items of work necessary to bring the project to completion. The Contractor shall

submit electronic copies of his Progress Schedule updated monthly to reflect the status of the work. These updates shall be submitted in conjunction with the monthly progress Payment Request and shall be a requisite for the payment request to be processed.

SP-15 ACCESS TO ASPA RESTRICTED FACILITIES

All individuals doing any work on this project, including operators, supervisors, maintenance personnel, truck drivers, etc. must have a valid Transportation Worker Identification Credential (TWIC) card, ASPA badge and an ASPA vehicle decal with no exceptions. Information regarding ASPA's access policy is provided on the ASPA website at the link below.

<https://www.alports.com/port-access/>

SP-16 TEMPORARY WATER AND ELECTRICAL POWER

The responsibility shall be upon the Contractor to provide and maintain at his own expense an adequate supply of water of a quality suitable for his use for construction and domestic consumption. At his own expense, he shall install and maintain any necessary water supply connections and piping. However, he shall do so only at locations and in such workmanship manner as may be authorized by the Owner. Before final acceptance, temporary connections and piping installations by the Contractor shall be removed in a workmanship manner to the satisfaction of the Owner.

All electrical current required by the Contractor shall be furnished by the Contractor at his own expense. All temporary connections for electricity shall be subject to the approval of the Engineer. The Contractor shall at his own expense, install a meter to determine the amount of current used by him/her and will pay for such electricity at prevailing rates.

SP-17 INTENT OF PLANS AND SPECIFICATIONS

The following is in addition to Article 60-03 of Division IV, General Provision:

Any detail which may be incomplete or lacking in the plans and specifications shall not constitute claim for extra compensation. Such detail shall be supplied by the Contractor and submitted to the Engineer in advance of its requirement on the job. The true intent of the plans and specifications is to produce a complete working facility and incomplete detail will not abrogate this intent.



Alabama State Port Authority
Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

1 | Page

**GENERAL PROVISIONS, CLAUSES, REQUIREMENTS
AND COVENANTS**

**DIVISION IV
INDEX**

SUBSECTION	PAGE
SECTION 10 DEFINITIONS OF TERMS.....	IV-1
SECTION 20 PROPOSAL REQUIREMENTS AND CONDITIONS	IV-5
20-01 PREQUALIFICATION OF BIDDERS	IV-5
20-02 CONTENTS OF PROPOSAL FORMS	IV-5
20-03 ISSUANCE OF PROPOSAL FORMS.....	IV-5
20-04 INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES.....	IV-5
20-05 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE	IV-5
20-06 PREPARATION OF PROPOSAL.....	IV-6
20-07 IRREGULAR PROPOSALS	IV-6
20-08 PROPOSAL GUARANTY	IV-6
20-09 DELIVERY OF PROPOSAL.....	IV-6
20-10 WITHDRAWAL OR REVISION OF PROPOSALS	IV-7
20-11 PUBLIC OPENING OF PROPOSALS.....	IV-7
20-12 DISQUALIFICATION OF BIDDERS	IV-7
20-13 LIQUIDATED DAMAGES	IV-7
20-14 OWNER PURCHASE OF MATERIALS	IV-8
SECTION 30 AWARD AND EXECUTION OF CONTRACT	IV-12
30-01 CONSIDERATION OF PROPOSALS	IV-12
30-02 AWARD OF CONTRACT	IV-12
30-03 CANCELLATION OF AWARD.....	IV-12
30-04 RETURN OF PROPOSAL GUARANTY	IV-12

30-05 REQUIREMENTS OF CONTRACT BONDS	IV-12
30-06 EXECUTION OF CONTRACT	IV-13
30-07 APPROVAL OF CONTRACT	IV-13
30-08 FAILURE TO EXECUTE CONTRACT	IV-13
SECTION 40 INDEMNIFICATION AND INSURANCE REQUIREMENTS	IV-14
40-01 INDEMNIFICATION	IV-14
40-02 CONTRACTOR COVERAGE	IV-14
40-03 COMMERCIAL GENERAL LIABILITY	IV-14
40-04 OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY	IV-14
40-05 BUSINESS AUTOMOBILE LIABILITY	IV-14
40-06 WORKERS COMPENSATION	IV-14
40-07 OCEAN MARINE COVERAGE	IV-15
40-08 RAILROAD PROTECTIVE LIABILITY	IV-15
40-09 BUILDER'S RISK or INSTALLATION FLOATER (to be determined per project)	IV-15
40-10 PROFESSIONAL LIABILITY INSURANCE	IV-15
40-11 PROOF OF CARRIAGE OF INSURANCE	IV-15
SECTION 50 SCOPE OF WORK	IV-16
50-01 INTENT OF CONTRACT	IV-16
50-02 ALTERATION OF WORK AND QUANTITIES	IV-16
50-03 OMITTED ITEMS	IV-16
50-04 EXTRA WORK	IV-16
50-05 MAINTENANCE OF COMMERCE	IV-17
50-06 REMOVAL OF EXISTING STRUCTURES	IV-17
50-07 RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK	IV-18
50-08 FINAL CLEANING UP	IV-18
SECTION 60 CONTROL OF WORK	IV-19
60-01 AUTHORITY OF THE ENGINEER	IV-19
60-02 CONFORMITY WITH PLANS AND SPECIFICATIONS	IV-19
60-03 COORDINATION OF CONTRACT, PLANS AND SPECIFICATIONS	IV-19
60-04 COOPERATION OF THE CONTRACTOR	IV-20
60-05 COOPERATION BETWEEN CONTRACTORS	IV-20
60-06 CONSTRUCTION LAYOUT AND STAKES	IV-20

60-07	AUTOMATICALLY CONTROLLED EQUIPMENT	IV-21
60-08	AUTHORITY AND DUTIES OF INSPECTORS	IV-21
60-09	INSPECTION OF THE WORK	IV-21
60-10	REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK.....	IV-21
60-11	LOAD RESTRICTIONS	IV-22
60-12	MAINTENANCE DURING CONSTRUCTION.....	IV-22
60-13	FAILURE TO MAINTAIN THE WORK.....	IV-22
60-14	PARTIAL ACCEPTANCE	IV-22
60-15	FINAL CONSTRUCTION INSPECTION.....	IV-23
60-16	FINAL ACCEPTANCE	IV-23
60-17	CLAIMS FOR ADJUSTMENT AND DISPUTES	IV-23
SECTION 70	CONTROL OF MATERIALS.....	IV-24
70-01	SOURCE OF SUPPLY AND QUALITY REQUIREMENTS.....	IV-24
70-02	SAMPLES, TESTS, AND CITED SPECIFICATIONS	IV-24
70-03	CERTIFICATION OF COMPLIANCE	IV-24
70-04	PLANT INSPECTION.....	IV-25
70-05	ENGINEER'S FIELD OFFICE AND LABORATORY	IV-25
70-06	STORAGE OF MATERIALS	IV-25
70-07	UNACCEPTABLE MATERIALS	IV-25
70-08	OWNER-FURNISHED MATERIAL	IV-26
70-09	RECEIVING MATERIALS AND EQUIPMENT	IV-26
SECTION 80	LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC	IV-27
80-01	LAWS TO BE OBSERVED.....	IV-27
80-02	PERMITS, LICENSES, AND TAXES.....	IV-27
80-03	PATENTED DEVICES, MATERIALS AND PROCESSES	IV-27
80-04	RESTORATION OF SURFACES DISTURBED BY OTHERS.....	IV-27
80-05	SANITARY, HEALTH, AND SAFETY PROVISIONS	IV-27
80-06	PUBLIC CONVENIENCE AND SAFETY	IV-28
80-07	BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS.....	IV-28
80-08	USE OF EXPLOSIVES	IV-28
80-09	PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE	IV-28
80-10	RESPONSIBILITY FOR DAMAGE CLAIMS	IV-29
80-11	THIRD PARTY BENEFICIARY CLAUSE	IV-29

80-12 OPENING SECTIONS OF THE WORK FOR OCCUPANCY	IV-29
80-13 CONTRACTOR'S RESPONSIBILITY FOR WORK.....	IV-30
80-14 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS.....	IV-30
80-15 FURNISHING RIGHTS-OF-WAY	IV-31
80-16 PERSONAL LIABILITY OF PUBLIC OFFICIALS	IV-31
80-17 NO WAIVER OF LEGAL RIGHTS	IV-31
80-18 ENVIRONMENTAL PROTECTION	IV-31
80-19 ARCHAEOLOGICAL AND HISTORICAL FINDINGS	IV-32
SECTION 90 PROSECUTION AND PROGRESS	IV-33
90-01 SUBLETTING OF CONTRACT	IV-33
90-02 NOTICE TO PROCEED	IV-33
90-03 PROSECUTION AND PROGRESS.....	IV-33
90-04 LIMITATION OF OPERATIONS.....	IV-33
90-05 CHARACTER OF WORKERS, METHODS AND EQUIPMENT	IV-33
90-06 TEMPORARY SUSPENSION OF THE WORK	IV-34
90-07 DETERMINATION AND EXTENSION OF CONTRACT TIME	IV-35
90-08 FAILURE TO COMPLETE ON TIME	IV-36
90-09 CONTRACT DEFAULT.....	IV-36
90-10 CONTRACT TERMINATION	IV-37
SECTION 100 MEASUREMENT AND PAYMENT.....	IV-38
100-01 MEASUREMENT OF QUANTITIES	IV-38
100-02 SCOPE OF PAYMENT	IV-40
100-03 COMPENSATION FOR ALTERED QUANTITIES	IV-40
100-04 PAYMENT FOR OMITTED ITEMS.....	IV-40
100-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK.....	IV-40
100-06 PARTIAL PAYMENT.....	IV-42
100-07 PAYMENT FOR MATERIALS ON HAND.....	IV-42
100-08 CONTRACT CLOSE-OUT	IV-43
100-09 WITHHOLDING FOR CLAIMS AND LITIGATION	IV-43
100-10 FINAL PAYMENT	IV-43
100-11 RIGHT OF AUDIT.....	IV-44



Alabama State Port Authority

Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

IV-1 | Page

SECTION 10

DEFINITIONS OF TERMS

Whenever the following terms are used in these specifications, in the Contract, in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be interpreted as follows:

10-01 AASHTO. The American Association of State Highway and Transportation Officials, the successor association of AASHO.

10-02 ACCESS ROAD. The right-of-way, the roadway and all improvements constructed thereon connecting the site of work to a public highway.

10-03 ADVERTISEMENT. A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.

10-04 ALDOT SPECS. The State of Alabama Department of Transportation Standard Specifications for Roads and Bridges, latest edition.

10-05 AISC. The American Institute of Steel Construction.

10-06 AREA. American Railway Engineering Association.

10-07 ASA. American Standards Association.

10-08 ASTM. The American Society for Testing and Materials.

10-09 AWARD. The acceptance, by the OWNER, of the successful bidder's proposal.

10-10 AWPI. American Wood Preservers Institute.

10-11 BIDDER. Any individual, partnership, firm or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-12 CALENDAR DAY. Every day shown on the calendar.

10-13 CHANGE ORDER. A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and Contract time adjustment, if any, for the work affected by such changes. The work, covered by a change order, shall be within the scope of the Contract.

10-14 COMMERCE. The prime business of the OWNER, consisting of the transshipping and storage of goods and materials by highway, rail, barge, and ship.

10-15 CONSTRUCTION MANAGER. The individual, partnership, firm or corporation duly authorized by the OWNER to be responsible for construction management supervision of the Contract work and acting directly or through an authorized representative.

10-16 CONTRACT. The written agreement covering the work to be performed. The awarded Contract shall include, but is not limited to: The Advertisement; The Contract Form; The Proposal; The Performance Bond; The Payment Bond; any required insurance certificates; The Specifications; The Plans; Change Orders and any addenda issued to bidders.

10-17 CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the Contract.

10-18 CONTRACT TIME. The number of calendar days or working days, stated in the special provisions, allowed for completion of the Contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the Contract shall be completed by that date.

10-19 CONTRACTOR. The individual, partnership, firm or corporation primarily liable for the acceptable performance of the work Contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the Contract work.

10-20 DEPARTMENT. The Alabama State Port Authority.

10-21 DIRECTOR. The Director of the Alabama State Port Authority, as constituted under the laws of Alabama.

10-22 ENGINEER. The individual, partnership, firm or corporation duly authorized by the OWNER to be responsible for Engineering supervision of the Contract work and acting directly or through an authorized representative.

10-23 EQUIPMENT. All machinery, together with the necessary supplies for upkeep and maintenance, and also all tools and apparatus necessary for the proper construction and acceptable completion of the work.

10-24 EXTRA WORK. An item of work not provided for in the awarded Contract is previously modified by change order or supplemental agreement, but which is found by the Engineer to be necessary to complete the work within the intended scope of the Contract as previously modified.

10-25 FEDERAL SPECIFICATIONS. The Federal Specifications and Standards, and supplements, amendments and indices thereto are prepared and issued by the General Services Administration of the Federal Government. They may be obtained from the Specifications Activity, Printed Materials Supply Division, Building 197, Naval Weapons Plant, Washington D.C. 20407.

10-26 FORCE ACCOUNT. The term used to describe a method of accounting which may be employed as a basis of payment to the Contractor for Extra Work.

10-27 INSPECTOR. An authorized representative of the Engineer assigned to make all necessary reviews of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.

10-28 INTENTION OF TERMS. Whenever, in these specifications or on the plans, the words "directed", "required", "permitted", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer is intended; and similarly, the words "approved", "acceptable" "satisfactory", or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer, subject to each case to the final determination of the OWNER.

Any reference to a specific requirement of a numbered paragraph of the Contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.

10-29 LABORATORY. The official testing laboratories of the OWNER or such other laboratories as may be designated by the Engineer.

10-30 MAJOR AND MINOR CONTRACT ITEMS. A major Contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 10 percent of the total amount of the awarded Contract. All other items shall be considered minor Contract items.

10-31 MATERIALS. Any substance specified for use in the construction of the Contract work.

10-32 NOTICE TO PROCEED. A written notice to the Contractor to begin the actual work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the Contract time begins.

10-33 OWNER. The term OWNER shall mean the State of Alabama acting by and through the Alabama State Port Authority.

10-34 PAYMENT BOND. The approved form of security furnished by the Contractor and his surety as a guaranty that he will pay in full all bills and accounts for materials and labor used in the construction of the work.

10-35 PERFORMANCE BOND. The approved form of security furnished by the Contractor and his surety as a guaranty that the Contractor will complete the work in accordance with the terms of the Contract.

10-36 PLANS. The official drawings or exact reproductions, approved by the Engineer, which show the location, character, dimensions and details of the work to be done and which are to be considered as a part of the Contract, supplementary to the specifications.

10-37 PROJECT. The agreed scope of work for accomplishing specific development.

10-38 PROPOSAL. The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.

10-39 PROPOSAL FORM. The approved, prepared form on which the OWNER requires that formal bids be submitted for the work contemplated.

10-40 PROPOSAL GUARANTY. The security furnished with a proposal to guarantee that the bidder will enter into a Contract if his proposal is accepted by the OWNER.

10-41 SPECIAL PROVISIONS. Specific directions and provisions additional to these GENERAL PROVISIONS and to any CONSTRUCTION SPECIFICATIONS setting forth conditions or requirements of construction which are not satisfactorily covered by these GENERAL PROVISIONS or the CONSTRUCTION SPECIFICATIONS. SPECIAL PROVISIONS shall prevail over the GENERAL PROVISIONS and CONSTRUCTION SPECIFICATIONS because they set forth the final Contractual intent as to the matter involved.

10-42 SPECIFICATIONS. A part of the Contract containing the written directions and requirements for completing the Contract work. Standards for specifying materials or testing which are cited in the Contract specifications by reference shall have the same force and effect as if included in the Contract physically.

10-43 STATE. The State of Alabama, the Party of the First Part to the Contract, acting by and through the Alabama State Port Authority.

10-44 STRUCTURES. Port facilities such as wharves, piers, dolphins, bridges, culverts, catch basins, inlets, retaining walls, cribbing, storm and sanitary sewer lines, water lines, under drains, electrical ducts, manholes, handholes, lighting fixtures and bases, transformers, flexible and rigid pavements, buildings, vaults, and other man-made features of the port that may be encountered in the work and not otherwise classified herein.

10-45 SUBCONTRACTOR. Any properly qualified individual undertaking the performance of any part of the work under the terms of the Contract, by virtue of an agreement between himself and the Contractor, with the approval of the OWNER.

10-46 SUBGRADE. The soil which forms the pavement foundation.

10-47 SUPERINTENDENT. The Contractor's executive representative who is present on the work site during progress, authorized to receive and fulfill instructions from the Engineer, and who shall supervise and direct the construction.

10-48 SUPPLEMENTAL AGREEMENT. A written agreement between the Contractor and the OWNER covering: (1) work that would increase or decrease the total amount of the awarded Contract by not more than 10 percent; or any major Contract item, by more than 25 percent, such increased or decreased work being within the scope of the originally awarded Contract, or (2) work that is not within the scope of the originally awarded Contract.

10-49 SURETY. The corporate body, licensed under the laws of Alabama, bound with and for the Contractor for the acceptable performance of the Contract and also for the payment of all claims recoverable under the Contract Bonds.

10-50 WORK. The furnishing of all labor, materials, tools, equipment and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the Contract, plans and specifications.

10-51 WORKING DAY. A working day shall be any day other than a national legal holiday, Saturday, or Sunday, on which the normal working forces of the Contractor may proceed with regular work for at least 6 hours toward completion of the Contract. Unless work is suspended for causes beyond the Contractor's control, Saturdays, Sundays and national holidays on which the Contractor's forces engage in regular work, requiring the presence of an inspector, will be considered as working days.

SECTION 20 PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 PREQUALIFICATION OF BIDDERS

Proposal forms will be issued only to prospective Bidders who are licensed under the terms of the existing State laws. If the applicant is a corporation organized in a state other than Alabama, it shall furnish a certificate from the Secretary of State showing that it is qualified to transact business in Alabama.

20-02 CONTENTS OF PROPOSAL FORMS

The OWNER shall furnish bidders with proposal forms. All papers bound with or attached to the proposal forms are necessary parts and must not be detached.

The plans, specifications, and other documents designated in the proposal form shall be considered a part of the proposal whether attached or not.

20-03 ISSUANCE OF PROPOSAL FORMS

The OWNER reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be in default for any of the following reasons:

- (a) Failure to pay, or satisfactorily settle, all bills due for labor and materials on former Contracts in force with the OWNER.
- (b) Contractor default under previous Contracts with the OWNER.
- (c) Proposal withdrawal or Bid Bond forfeiture on previous project with the OWNER.
- (d) Unsatisfactory work on previous Contract with the OWNER.
- (e) Performance failure of manufacturer's product or materials.

20-04 INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES

An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the Contract. The OWNER does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as hereinafter provided in the subsection titled 50-02 ALTERATION OF WORK AND QUANTITIES of Division IV, without in any way invalidating the unit bid prices.

20-05 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE

The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and Contract forms. He shall satisfy himself as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed Contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed Contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the OWNER's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely

responsible for all assumptions, deductions, or conclusions which he may make or obtain from his examination of the boring logs and other records of subsurface investigations and tests that are furnished by the OWNER.

20-06 PREPARATION OF PROPOSAL

The bidder shall submit his proposal on the forms furnished by the OWNER. All blank spaces in the proposal forms must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals for which he proposed to do each pay item furnished in the proposal. The Department will check the gross sum given in the proposal and in case of error or discrepancy, the gross sum obtained by adding the products of the unit prices and the various estimated quantities listed in the proposal shall prevail and this shall be the Contract Bid Price. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall sign his proposal correctly and in ink. If the proposal is made by an individual, his name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation the person signing the proposal shall give the name of the State under the laws of which the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of his authority to do so and that the signature is binding upon the firm or corporation.

20-07 IRREGULAR PROPOSALS

Proposals shall be considered irregular for the following reasons:

- (a) If the proposal is on a form other than that furnished by the OWNER, if the OWNER's form is altered, or if any part of the proposal form is detached.
- (b) If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind which make the proposal incomplete, indefinite, or otherwise ambiguous.
- (c) If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.
- (d) If the proposal contains unit prices that are obviously unbalanced.
- (e) If the proposal is not accompanied by the bid bond specified by the OWNER.

The OWNER reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the OWNER and conforms to laws and ordinances pertaining to the letting of construction Contracts.

20-08 PROPOSAL GUARANTY

Each separate proposal shall be accompanied by a certified check, or other specified acceptable collateral, in the amount of 5% of the bid price, but not more than \$10,000. Such check, or collateral, shall be made payable to the Alabama State Port Authority.

20-09 DELIVERY OF PROPOSAL

Each proposal submitted shall be placed in a sealed envelope plainly marked on the outside with the project description, Bidder's name and address, Contractor's License number, Contractor's Classification of License, and the time and date of bid opening. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement before the time specified for opening all bids.

Proposals received after the bid opening time shall be returned to the bidder unopened.

20-10 WITHDRAWAL OR REVISION OF PROPOSALS

A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the OWNER in writing or by telegram before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-11 PUBLIC OPENING OF PROPOSALS

Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend.

Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-12 DISQUALIFICATION OF BIDDERS

A bidder shall be considered disqualified for any of the following reasons:

- (a) Submitting more than one proposal from the same partnership, firm or corporation under the same or different name.
- (b) Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the OWNER.
- (c) If the bidder is considered to be in "default" for any reason specified in the paragraph titled ISSUANCE OF PROPOSAL FORMS of this subsection.
- (d) If the bidder has not complied with the provisions of the Laws of the State of Alabama concerning licensing of Contractors.
- (e) If an out-of-state bidder has not qualified with the Secretary of State to do business in Alabama.

20-13 LIQUIDATED DAMAGES

Time is an essential element in the Contract. As the prosecution of the Work will inconvenience the public, obstruct traffic, and interfere with business, it is important that the work be pressed vigorously to completion. Also, the cost to the Department of the administration of the Contract, supervision, inspection, engineering, and in some cases maintenance of detours around or over the work under construction will be increased or decreased as the time occupied in the Work is lengthened or shortened. Therefore, exclusive of Sundays, national holidays, and other exceptions and extensions as detailed elsewhere in these Specifications for each day that the Work remains incomplete after the time specified in the Contract, or additional time that may be allowed by the Engineer for the completion of the work when extra or additional work is ordered by the Engineer, the amount specified in the following schedule shall be paid by the Contractor to the Department as liquidated damages for the loss sustained by the State because of failure of the Contractor to complete the work within the specified time.

SCHEDULE OF LIQUIDATED DAMAGES

Contract Bid Price	Amount of Liquidated Damages per Day
\$100,000 and less	\$ 100.00
More than \$100,000 and less than \$250,000	150.00
\$250,000 and less than \$600,000	200.00
\$600,000 or more	0.033% of Contract amount

20-14 OWNER PURCHASE OF MATERIALS

20-14.1 In accordance with the State of Alabama Statutes for **Sales Tax exemptions for a State Agency**, it is the intent of this Contract for the Alabama State Port Authority (Owner) to reduce sales tax.

20-14.1.1 The Owner reserves the right to purchase all of the required materials or equipment to be used on this project which will become part of the realty.

20-14.1.2 The cost of the Materials and Equipment which will become part of the realty is to be included in the Bid Price. Sales taxes, which will become part of the realty in accordance with the Alabama Statutes, are not to be included.

20-14.1.3 In order to achieve sales tax exemption and avoid jeopardizing immunity from sales taxes it is essential that the following procedures be followed.

20-14.2 Purchase of Materials or Equipment

20-14.2.1 All purchase orders must be executed on the Owner's Purchase Order Letterhead/Form.

20-14.2.2 The purchase order form format is to be designed at the Owner's discretion with the Owner reserving approval rights concerning terms and conditions boilerplate.

20-14.2.3 The Contractor's organization will be designated as an agent of the Owner for Material and Equipment purchases and will provide the names of two individuals in the Organization who will be authorized to purchase on the behalf of the Owner.

20-14.2.4 Purchase Orders are to be numerically sequenced with two executed copies furnished to the Construction Manager, one copy of which will be forwarded to the Owner by the Construction Manager. If a Construction Manager is not assigned to the project, the copies should go directly to the Owner's Project Manager within the Engineering Services Division.

20-14.2.5 Owner Purchase Orders are invalid for gross amounts less than \$2,000.00. Any materials purchased directly by the Contractor for the project shall be subject to Sales Tax and paid by the Contractor.

20-14.3 Payment of Materials or Equipment

20-14.3.1 All payments in connection with the purchase orders generated by Owner's Contractor/Agent will be in the form of a check from the Alabama State Port Authority to the appropriate vendors or suppliers.

20-14.3.2 Check Request Form will be furnished to the Contractor by the Owner. The Check Request Form will be numerically sequenced and accounted for.

20-14.3.3 The Contractor is responsible for preparing the Check Request Form for the Owner's signature.

20-14.3.4 An Invoice Transmittal Form is to be designed by the Contractor with the Owner reserving the right of approval of the Invoice Transmittal Form design. It is a primary requirement that the Invoice Transmittal Form indicate that the Owner is the sole payer for materials or equipment. The Invoice Transmittal Form will be numerically sequenced and accounted for.

20-14.3.5 All Contractor requests for payment for materials and equipment purchased under the provisions of this Article will be forwarded to the Construction Manager under cover of the Invoice Transmittal Form, submitted in duplicate, with one copy retained by the Construction Manager and one copy retained by the Owner. The Invoice Transmittal shall be backed-up with signed receiving or delivery tickets, invoices and

prepared Check Request Form plus one (1) additional copy of the Check Request Form which will be kept by the Construction Manager.

20-14.3.6 Upon signature by the Owner of the Check Request Form, a check from the Alabama State Port Authority will be issued directly to the vendor or supplier.

20-14.4 Accounting Procedures

20-14.4.1 The Contractor's Schedule of Values shall be broken down into three categories, if requested by Owner, showing Material, Equipment and with the remaining category containing labor, fee, rentals, overhead and other costs on a line item basis.

20-14.4.2 Check Request Forms generated by the Contractor/Agent for the Owner shall be collated on a monthly basis and assembled into a credit amount showing amounts to be deducted from the current Payment Application and Contract Sum.

20-14.4.3 The Contractor's Payment Application will be adjusted on a monthly basis in accordance with the preceding monthly accumulated credit amounts for Owner purchases.

20-14.4.4 Discounts which accrue from Owner payments for prompt payment will accrue as 50% to the Owner and 50% to the Contractor.

20-14.4.5 Retainage will not be withheld on Owner purchased Materials or Equipment.

20-14.5 Procedures

The Contractor shall follow the procedures set forth below, but nothing herein shall be construed to reduce, limit or change the Contractor's overall responsibility for the quality, scheduling, coordination, warranty, overhead, profit or retainage, except as provided in subparagraph 20-14.4.5 of the complete Contract scope of work in accordance with all provisions of the Contract Documents.

20-14.5.1 Procurement of Material Selected by Contractor.

With respect to any materials, equipment or product to be purchased by the Owner, the following procedures shall be followed:

1. Immediately upon notice to proceed or award of Contract, the Contractor in conjunction with the Construction Manager shall develop a list of items to be purchased by the Owner for incorporation into the work.
2. When the type, quantity, and price of each lot of materials, equipment or product to be purchased on a single purchase order have been determined by the Contractor, Contractor shall complete the Owner Purchase Order Form and shall sign the form to certify that the material, equipment or product described on the form complies with the requirements of the Contract Documents. The Owner Purchase Order Form, signed by the Contractor shall be forwarded to the vendor by the Contractor. The total monetary value listed on the Purchase Order Form is the cost limitation established for the Purchase Order.
3. Simultaneously, with the Contractor/Agent's issuance of a purchase order form for major items the Contractor shall then incorporate into his expediting schedule his activities showing purchase time, shop drawing time, submittal approval time, integrated into the updated project schedule and then tied into the activity requiring the purchase material.
4. The supplier shall deliver the material, equipment or product to the Contractor in accordance with the provisions of the purchase order, and as required by the Contract Documents. Upon receipt of the materials

the Contractor shall inspect the materials, equipment or product as necessary to verify conformity of the material, equipment or product received with the Owner Purchase Order and with the shipping documents. The Contractor shall provide to the Vendor written certification of receipt, or signed delivery ticket, of Each delivery of material, equipment or product which certification shall fully describe any shortages, defects, damage or non-compliance to the supplier within five days or receipt of Each delivery and shall arrange for the return and replacement of defective, damaged or non-conforming material, equipment or product on behalf of the Owner, in accordance with the provisions of the Contract Documents.

5. The supplier shall submit each invoice along with aforementioned proof of delivery for material, equipment or product procured pursuant to the provisions hereof to the Owner in care of the Contractor/Consignee. The Contractor/Consignee shall verify and certify to the Owner the accuracy and completeness of each invoice submitted by the supplier. Each certified invoice shall be submitted with appropriate Check Request Form no later than the Contractor's next monthly Application for Payment to the Owner.
6. After the Contractor's Application for Payment, along with Check Request Forms including certified supplier invoices and delivery tickets, has been approved for payment in accordance with the provisions of the General Conditions, the Owner shall make direct payments to the supplier, and the amount of each such payment, shall be deducted from the then-unpaid balance of the Contractor's Contract Sum. The amount deducted shall be in accordance with subparagraph 20-14.4.2.

20-14.5.2 Owner-Purchased Materials

Materials used on the Project which are purchased by the Owner will be available at the location specified in the Purchase Order and in accordance with the periodically adjusted project schedule. The Contractor shall review the updated and adjusted project schedule and will be responsible for coordinating the deliveries with the progress of the work. The Contractor's costs for storing, transporting, handling, protecting and installing Owner purchased material shall be included in the Contract Sum and paid for **when such material is installed**. The Contractor shall be responsible for material furnished to it, and shall pay for storage charges incurred as a result of its failure to take delivery of Owner material on the assigned date.

The Contractor shall be liable to the Owner for the cost of replacing or repairing material lost or damaged from any cause whatsoever after receipt by the Contractor or after the Contractor has failed to take delivery after the assigned date. The costs will be deducted from any monies due or to become due to the Contractor, except those amounts covered under any claims payments made under insurance policies furnished by the Owner. In cases where lost or damaged material was not evident at the time such materials were received by the Contractor, the Contractor will be afforded the same protection by the Owner as the Owner has received from the original shipper and manufacturer. The Owner, in addition, agrees to provide the Contractor with all necessary assistance in communicating with the manufacturer of any materials which fail to function properly once installed.

The Contractor is responsible for providing and performance of warranty work in connection with the Owner purchased materials, for the time periods as required by the Contract Documents.

20-14.6 Materials and Equipment Responsibility

20-14.6.1 The General Contractor shall retain as part of his Bid and Fee the following responsibilities for care, custody and control of the Owner purchased Materials and Equipment.

1. Insure that all Materials and Equipment purchased by the Owner are in complete accordance with the plans and specifications.
2. Shop drawings and submittals.
3. Scheduling.
4. Shipment, receipt, unloading, inspection, storage and handling.
5. Return of damaged Materials and Equipment.
6. Filing of freight claims.
7. Installation as required.
8. Startup and testing as required per specifications.
9. Warranty and maintenance as required per specifications.
10. Training as required per specifications.
11. Spare parts. Special tools and additional stock as required by the specifications.
12. In the event the Contractor orders non-specified, wrong size or dimensioned Material or Equipment it will be his responsibility to replace such at no cost to the Owner.

20-14.7 Project Close-Out

The Contractor shall return to the Owner all blank Purchase Order Forms issued, but not used on the project.

SECTION 30**AWARD AND EXECUTION OF CONTRACT****30-01 CONSIDERATION OF PROPOSALS**

After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit price written in words shall govern.

Until the award of the Contract is made, the OWNER reserves the right to reject a bidder's proposal for any of the following reasons:

- a) If the proposal is irregular as specified in the subsection titled IRREGULAR PROPOSALS of Subsection 20.
- b) If the bidder is disqualified for any of the reasons specified in the subsection titled DISQUALIFICATION OF BIDDERS of Subsection 20.

In addition, until the award of a Contract is made, the OWNER reserves the right to reject any or all proposals; waive technicalities, if such waiver is in the best interest of the OWNER and is in conformance with applicable laws or regulations pertaining to the letting of construction Contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the OWNER's best interests.

30-02 AWARD OF CONTRACT

The award of a Contract, if it is to be awarded, shall be made within 60 calendar days of the date specified for publicly opening proposals.

Award of the Contract shall be made by the OWNER to the lowest qualified bidder whose proposal conforms to the cited requirements of the OWNER.

30-03 CANCELLATION OF AWARD

The OWNER reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a Contract has been fully executed by all parties and is approved by the OWNER in accordance with the paragraph titled APPROVAL OF CONTRACT of this subsection.

30-04 RETURN OF PROPOSAL GUARANTY

All proposal guaranties, except those of the three lowest bidders, will be returned immediately after the OWNER has made a comparison of bids as hereinbefore specified in the paragraph titled CONSIDERATION OF PROPOSALS of this subsection. Proposal guaranties of the two lowest bidders will be retained by the OWNER until such time as an award is made, at which time, the unsuccessful bidders' proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the OWNER receives the contract bonds as specified in the paragraph titled "REQUIREMENTS OF CONTRACT BONDS" of the subsection.

30-05 REQUIREMENTS OF CONTRACT BONDS

In order to insure the faithful performance of each and every condition, stipulation, and requirement of the Contract and to indemnify and save harmless the OWNER from any and all damages, either directly or indirectly, (arising out of any failure to perform same), the successful Bidder to whom the Contract is awarded shall, within ten (10) days from the date of award, furnish at his expense and file with the OWNER an acceptable Surety Bond in an amount equal to one hundred percent (100%) of the Contract Bid Price of the Contract as awarded. Said Bond shall be made on the approved bond form, shall be furnished by a reputable surety company authorized

to do business in the State of Alabama, shall be counter-signed by an authorized agent resident in the State who is qualified for the execution of such instruments, and shall be attached thereto power of attorney of the signing agent.

In case of default on the part of the Contractor, all expenses incident to ascertaining and collecting losses suffered by the OWNER under the Bond, including both Engineering and legal services, shall lie against the Contract Bond for Performance of the Work.

In addition thereto, the successful Bidder to whom the Contract is awarded shall, within ten (10) days, furnish at his expense and file with the OWNER an acceptable Surety Bond for Payment of Labor, Materials, and Supplies payable to the OWNER in an amount not less than one hundred percent (100%) of the Contract price with the obligation that the Contractor shall promptly make payment to all persons furnishing him or them with labor, materials, foodstuffs, or supplies for, or in, prosecution of the work including the payment of reasonable attorney's fees, incurred by successful claimants or plaintiffs in suits on said bond.

No surety bonds from any insurance company or bonding company which has a lower rating, in the Best Key Rating Guide, than A will be accepted.

30-06 EXECUTION OF CONTRACT

The successful bidder shall sign (execute) the necessary agreements for entering into the Contract and return such signed Contract to the OWNER, along with the fully executed surety bond or bonds specified in the paragraph titled REQUIREMENT OF CONTRACT BONDS of this subsection, within 10 calendar days from the date mailed or otherwise delivered to the successful bidder.

30-07 APPROVAL OF CONTRACT

Upon receipt of the Contract and Contract bond or bonds that have been executed by the successful bidder, the OWNER shall complete the execution of the Contract and return the fully executed Contract to the Contractor. Delivery of the fully executed Contract to the Contractor shall constitute the OWNER's approval to be bound by the successful bidder's proposal and the terms of the Contract.

30-08 FAILURE TO EXECUTE CONTRACT

Failure of the successful bidder to execute the Contract and furnish an acceptable surety bond or bonds within the 10 calendar day period specified in the paragraph titled "REQUIREMENTS OF CONTRACT BONDS" of this subsection shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the OWNER. Award may then be made to the next lowest qualified Bidder or the work may be re-advertised, or otherwise contracted as the Director may decide.

SECTION 40 INDEMNIFICATION AND INSURANCE REQUIREMENTS

40-01 INDEMNIFICATION

The Contractor shall assume all liability for and shall indemnify and save harmless the State of Alabama, the Alabama State Port Authority and its officers and employees, and Engineer from all damages and liability for injury to any person or persons, and injury to or destruction of property, including the loss of use thereof, by reason of an accident or occurrence arising from operations under the Contract, whether such operations are performed by himself or by any subcontractor or by anyone directly or indirectly employed by either of them, occurring on or about the premises, or the ways and means adjacent, during the term of the Contract, or any extension thereof, and shall also assume the liability for injury and/or damages to adjacent or neighboring property by reason of work done under the Contract.

40-02 CONTRACTOR COVERAGE

The Contractor shall not commence work under the Contract until he has obtained all insurance required under the following paragraphs and until such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar applicable insurance required of the subcontractor has been obtained and approved. If the subcontractor does not take out insurance in his own name, then the principal Contractor shall provide such insurance protection for subcontractor and his employees by endorsement to the Contractor's policies or by taking out separate policies in the name of the subcontractor.

40-03 COMMERCIAL GENERAL LIABILITY

The Contractor shall take out and maintain during the life of the Contract Commercial General Liability insurance, including Blanket Contractual and Completed Operations coverage, in an amount not less than \$5,000,000 for any one occurrence for bodily injury, including death, and property damage liability. Policy shall include endorsement identifying the Owner and Engineer as Primary and Non-contributory Additional Insureds as respects the Contractor's work for the Owner, to the extent required by written Contract, including a waiver of all rights of subrogation.

40-04 OWNER'S AND CONTRACTOR'S PROTECTIVE LIABILITY

The Contractor shall take out and maintain during the life of the Contract a separate Owner's and Contractor's Protective Liability policy in the names of the Owner and Engineer in an amount not less than \$2,000,000. Policy shall be delivered to the Owner.

40-05 BUSINESS AUTOMOBILE LIABILITY

The Contractor shall take out and maintain during the life of the Contract Business Automobile Liability insurance covering owned, non-owned and hired vehicles in an amount not less than \$1,000,000 for any one occurrence for bodily injury, including death, and property damage liability. The Owner and Engineer shall be identified as Additional Insureds, to the extent required by written Contract.

40-06 WORKERS COMPENSATION

The Contractor shall take out and maintain during the life of the Contract Workers Compensation and Employers Liability insurance providing coverage under the Alabama Workers Compensation Act in an amount not less than that required by Alabama Law.

Where applicable, Contractor shall take out and maintain during the life of the Contract insurance providing coverage as required by Federal statute, including but not limited to U.S. Longshoremen and Harbor Workers Act (USL&H), Jones Act, and Railroad Federal Employers Liability Act (FELA).

40-07 OCEAN MARINE COVERAGE

In the event work involves the use of watercraft in the completion of the Contract, the Contractor shall provide Protection and Indemnity coverage, including crew, in an amount not less than \$2,000,000 for each loss.

Only the Contractor and/or Subcontractor using watercraft in the completion of its work shall be required to provide evidence of this coverage. In the event the Contractor subcontracts for this portion of the work, the Contractor shall not allow the subcontractor to commence work until such coverage has first been obtained by the subcontractor and approved by the Owner.

40-08 RAILROAD PROTECTIVE LIABILITY

In any case where the Contract involves work within 50 feet of an operating railroad track, the Contractor shall provide a Railroad Protective Liability policy in the name of the railroad whose right of way is involved. The limits of the policy shall be not less than \$2,000,000 per occurrence with \$6,000,000 aggregate.

NOTE #1: With the written approval of the Owner, in lieu of the Railroad Protective Liability policy, the Contractor may cause to be attached to its Commercial General Liability policy standard ISO endorsement, "Contractual Liability – Railroads" (CG 24 17). The railroad must be identified as an Additional Insured.

NOTE #2: *Only the Contractor and/or Subcontractor performing the work within 50 feet of the railroad track shall be required to provide evidence of this coverage. In the event the Contractor subcontracts for this portion of the work, the Contractor shall not allow the subcontractor to commence work until such coverage has first been obtained by the subcontractor and approved by the Owner.*

40-09 BUILDER'S RISK or INSTALLATION FLOATER (to be determined per project)

The Contractor shall take out and maintain during the life of the Contract Builder's Risk insurance or Installation Floater, written on an "All Risk" basis, insuring the work included in the Contract against all physical loss. The amount of insurance shall at all times be at least equal to the amount of the Contract. The policy shall be in the names of the Owner, Engineer, Contractor, and "all Subcontractors," as their interests appear. Policy shall be provided to the Owner prior to commencement of work.

When changes in scope of work by written Change Order or aggregate Change Orders equal 15 percent of the total Contract, the amount of coverage provided in the Builder's Risk/Installation Floater policy shall be increased accordingly and evidence of increased coverage delivered to the Owner.

40-10 PROFESSIONAL LIABILITY INSURANCE

The Contractor shall take out and maintain during the life of the contract Professional Liability insurance including design with limits not less than \$2,000,000 per occurrence.

40-11 PROOF OF CARRIAGE OF INSURANCE

The Contractor shall furnish to the Owner, in triplicate, Certificates of Insurance, signed by the licensed agent, evidencing the required coverage, along with letter of transmittal giving date of delivery. A copy of this letter shall also be delivered to the Engineer. The Owner reserves the right to require certified copies of any and all policies.

All coverage and bonds shall be provided by companies acceptable to the Owner. Each policy of insurance shall provide, either in body of the policy or by endorsement, that such policy cannot be substantially altered or cancelled without thirty (30) days' written notice to the Owner and insured.

(Rev. 1/26/06)

SECTION 50

SCOPE OF WORK

50-01 INTENT OF CONTRACT

The intent of the Contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, drawings, specifications, and terms of the Contract.

50-02 ALTERATION OF WORK AND QUANTITIES

The OWNER reserves and shall have the right to make such alterations in the work as may be necessary or desirable to complete the work originally intended in an acceptable manner. Unless otherwise specified herein, the Engineer shall be and is hereby authorized to make such alterations in the work as may increase or decrease the originally awarded Contract quantities, provided that the aggregate of such alterations does not change the total Contract cost by more than 10% or the total cost of any major Contract item by more than 25 percent (total cost being based on the unit prices and estimated quantities in the awarded Contract). Alterations which do not exceed the 25 percent limitation shall not invalidate the Contract nor release the surety, and the Contractor agrees to accept payment for such alteration as if the altered work had been a part of the original Contract. These alterations, which are for work within the general scope of the Contract shall be covered by "Change Orders" issued by the Engineer. Change orders for altered work shall include extensions of Contract time where, in the Engineer's opinion, such extensions are commensurate with the amount and difficulty of added work.

Should the aggregate amount of altered work exceed the 25 percent limitation hereinbefore specified, such excess altered work shall be covered by supplemental agreement. If the OWNER and the Contractor are unable to agree on a unit adjustment for any Contract item that requires a supplemental agreement, the OWNER reserves the right to terminate the Contract with respect to the item and make other arrangement for its completion.

All supplemental agreements shall require consent of the Contractor's surety and separate performance and payment bonds.

50-03 OMITTED ITEMS

The Engineer may, in the OWNER's best interest, omit from the work any Contract item, except major Contract items. Major Contract items may be omitted by a supplemental agreement. Such omission of Contract items shall not invalidate any other Contract provision or requirement.

Should a Contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with the paragraph titled PAYMENT FOR OMITTED ITEMS of Subsection 100.

50-04 EXTRA WORK

Should acceptable completion of the Contract require the Contractor to perform an item of work for which no basis of payment has been provided in the original Contract or previously issued change orders or supplemental agreements, the same shall be called Extra Work. Extra work that is within the general scope of the Contract shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the Contract time that, in the Engineer's opinion, is necessary for completion of such extra work.

When determined by the Engineer to be in the OWNER's best interest, he may order the Contractor to proceed with extra work by force account as provided in the paragraph titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of Subsection 100.

Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original Contract shall be covered by a Supplemental Agreement as hereinbefore defined in the paragraph titled SUPPLEMENTAL AGREEMENT of Subsection 10.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the OWNER.

50-05 MAINTENANCE OF COMMERCE

It is the explicit intention of the Contract that the safety of workers and vessels, as well as the Contractor's equipment and personnel, is the most important consideration.

It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of vessels in the waterfront areas of the port with respect to his own operations and the operations of all his Subcontractors as specified in the paragraph titled LIMITATION OF OPERATIONS of Subsection 90.

With respect to his own operations and the operations of all his Subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying: personnel; equipment; vehicles; storage areas; and any work area or condition that may be hazardous to the operation of fire rescue equipment, or maintenance vehicles at the port.

When the Contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the Contract, plans, and specifications, the Contractor shall keep such road, street, or highway open to all traffic and shall provide such maintenance as may be required to accommodate traffic. The Contractor shall furnish, erect, and maintain barricades, warning signs, flagmen, and other traffic control devices in reasonable conformity with the manual of Uniform Traffic Control Devices for Streets and Highway (published by the United States Government Printing Office), unless otherwise specified herein. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways.

The Contractor shall make his own estimate of all labor, materials, equipment, and incidentals necessary for providing the maintenance of commerce and vehicular traffic as specified in this subsection.

The cost of maintaining the commerce and vehicular traffic specified in this subsection shall not be measured or paid for directly, but shall be included in the various Contract items.

50-06 REMOVAL OF EXISTING STRUCTURES

All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly but shall be included in the various Contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plan, the Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the Engineer in accordance with the provisions of the Contract.

Except as provided in the subsection titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this subsection, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be utilized in the work as otherwise provided for in the Contract and shall remain the property of the OWNER when so utilized in the work.

50-07 RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK

Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the Contract to be either embankment or waste, he may at his option either:

- (a) Use such material in another Contract item, providing such use is approved by the OWNER and Engineer and is in conformance with the Contract specifications applicable to such use; or
- (b) Remove such material from the site, upon written approval of the Engineer; or
- (c) Use such material for his own temporary construction on site; or
- (d) Use such material as intended by the terms of the Contract.

Should the Engineer approve the Contractor's wish to exercise option (a), (b), or (c), the Contractor shall be paid for the excavation or removal of such material at the applicable Contract price. The Contractor shall replace, at his own expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the Contract work. The Contractor shall not be charged for his use of such material so used in the work or removed from the site.

Should the Engineer approve the Contractor's exercise of option (a), the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the Contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of his exercise of option (a), (b), or (c).

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the Contract, plans, or specifications.

50-08 FINAL CLEANING UP

Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. He shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of such property OWNER.

SECTION 60

CONTROL OF WORK

60-01 AUTHORITY OF THE ENGINEER

The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, and as to the manner of performance and rate of progress of the work. He shall decide all questions which may arise as to the interpretation of the specifications or plans relating to the work, the fulfillment of the Contract on the part of the Contractor, and the rights of different Contractors on the project. The Engineer shall determine the amount and quality of the several kinds of work performed and materials furnished which are to be paid for under the Contract.

60-02 CONFORMITY WITH PLANS AND SPECIFICATIONS

All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the Contract, plans, or specifications.

If the Engineer finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications but that the portion of the work affected will, in his opinion, result in a finished product having a level of economy, durability, and workmanship acceptable to the OWNER, he will advise the OWNER of his determination that the affected work be accepted and remain in place.

In this event, the Engineer will document his determination and recommend to the OWNER a basis of acceptance which will provide for an adjustment in the Contract price for the affected portion of the work. The Engineer's determination and recommended Contract price adjustments will be based on good Engineering judgment and such tests or retests of the affected work as are, in his opinion, needed. Changes in the Contract price shall be covered by Contract modifications (change order or supplemental agreement) as applicable.

If the Engineer finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by any at the expense of the Contractor in accordance with the Engineer's written orders.

For the purpose of this subsection, the term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the Contract, plans and specifications. The term shall not be construed as waiving the Engineer's right to insist on strict compliance with the requirements of the Contract, plans, and specifications during the Contractor's prosecution of the work, when, in the Engineer's opinion, such compliance is essential to provide an acceptable finished portion of the work.

For the purpose of this subsection, the term "reasonably close conformity" is also intended to provide the Engineer with the authority to use good Engineering judgment in his determinations as to acceptance of work that is not in strict conformity but will provide a finished product equal to or better than that intended by the requirements of the Contract, plans and specifications.

60-03 COORDINATION OF CONTRACT, PLANS AND SPECIFICATIONS

The Contract, plans, specifications, and all referenced standards cited are essential parts of the Contract requirements. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; special provisions shall govern over plans, Contract construction specifications, Contract general provisions, cited specifications, and cited testing standards; plans shall govern over Contract construction

specifications, Contract general provisions, and cited testing standards; Contract construction specification shall govern over Contract general provisions, and cited testing standards; Contract general provisions shall govern over cited testing standards. The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, he shall immediately call upon the Engineer for his interpretation and decision, and such decision shall be final.

60-04 COOPERATION OF THE CONTRACTOR

The Contractor will be supplied with five (5) copies each of the plans and specifications. He shall have available on the work at all times, one copy each of the plans and specifications. Additional copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor will give constant attention to the work to facilitate the progress thereof, and he shall cooperate with the Engineer and his inspectors and with other Contractors in every way possible. The Engineer shall allocate the work and designate the sequence of construction in case of controversy between Contractors. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as his agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the Engineer or his authorized representative.

60-05 COOPERATION BETWEEN CONTRACTORS

The OWNER reserves the right to Contract for and perform other or additional work on or near the work covered by this Contract.

When separate Contracts are let within the limits of any one project, Each Contractor shall conduct his work so as not to interfere with or hinder the progress or completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with his Contract and shall protect and save harmless the OWNER from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by him because of the presence and operations or other Contractors working within the limits of the same project.

The Contractor shall arrange his work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. He shall join his work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

60-06 CONSTRUCTION LAYOUT AND STAKES

The Engineer will establish horizontal and vertical control only and the Contractor must furnish all additional stakes for the layout and construction of the work. The Engineer will also furnish any additional information, upon request of the Contractor, needed to layout and construct the work. The Contractor shall satisfy himself as to the accuracy of all measurements before constructing any permanent structure and shall not take advantage of any errors which may have been made in laying out the work. Such stakes and markings as the Engineer may set for either his own or the Contractor's guidance shall be scrupulously preserved by the Contractor. In case of negligence on the part of the Contractor, or his employees, resulting in the destruction of such stakes or markings, an amount equal to the cost of replacing the same may be deducted from subsequent estimates due to the Contractor at the discretion of the OWNER.

60-07 AUTOMATICALLY CONTROLLED EQUIPMENT

Whenever batching or mixing plant equipment is required to be operated automatically under the Contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods for a period of 48 hours following the breakdown or malfunction, provided this method of operations will produce results which conform to all other requirements of the Contract.

60-08 AUTHORITY AND DUTIES OF INSPECTORS

Inspectors employed by the OWNER shall be authorized to inspect work done and all materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. Inspectors are not authorized to revoke, alter, or waive any provision of the Contract. Inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

Inspectors employed by the OWNER are authorized to notify the Contractor or his representatives of any failure of the work or materials to conform to the requirements of the Contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the Engineer for his decision.

60-09 INSPECTION OF THE WORK

All materials and each part or detail of the work shall be subject to review by the Engineer. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Engineer requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed.

After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized representative of the OWNER may be ordered removed and replaced at the Contractor's expense unless the OWNER's representative failed to inspect after having been given reasonable notice in writing that the work was to be performed.

Should the Contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (Contract) OWNER, authorized representatives of the owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the Contract, and shall in no way interfere with the rights of the parties to this Contract.

60-10 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK

All work which does not conform to the requirements of the Contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the OWNER as provided in the paragraph titled CONFORMITY WITH PLANS AND SPECIFICATIONS of this subsection.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of the paragraph titled CONTRACTOR'S RESPONSIBILITY FOR WORK of Subsection 80.

No work shall be done without lines and grades having been established by the Contractor and subsequently approved by the Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans or as given, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the Contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply forthwith with any order of the Engineer made under the provisions of this subsection, the Engineer will have authority to cause unacceptable work to be remedied, or removed and replaced, and unauthorized work to be removed, and to deduct the costs (incurred by the OWNER) from any monies due or to become due the Contractor.

60-11 LOAD RESTRICTIONS

The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage which may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor shall be responsible for all damage done by his hauling equipment and shall correct such damage at his own expense.

60-12 MAINTENANCE DURING CONSTRUCTION

The Contractor shall maintain the work during construction and until the work is accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various Contract items, and the Contractor will not be paid an additional amount for such work.

60-13 FAILURE TO MAINTAIN THE WORK

Should the Contractor at any time fail to maintain the work as provided in the paragraph titled MAINTENANCE DURING CONSTRUCTION of this subsection, the Engineer shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the urgency that exists.

Should the Contractor fail to respond to the OWNER's notification, the OWNER may suspend any work necessary for the OWNER to correct such unsatisfactory maintenance condition, depending on the urgency that exists. Any maintenance cost incurred by the OWNER, shall be deducted from monies due or to become due the Contractor.

60-14 PARTIAL ACCEPTANCE

If at any time during the prosecution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the OWNER, he may request the

Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been satisfactorily completed in compliance with the Contract, he may accept it as being completed, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the OWNER shall not void or alter any provision of the Contract or warranty.

60-15 FINAL CONSTRUCTION INSPECTION

Whenever the Engineer considers the work provided and contemplated by the Contract is nearing completion, or within ten (10) days after being notified by the Contractor that the work is completed, the Engineer will inspect all the work included in the Contract. If the Engineer finds that the work has not been satisfactorily completed at the time of such inspection, he shall inform the Contractor in writing as to the work to be done or the particular defects to be remedied to place the work in condition satisfactory for Final Construction Inspection. After the work has been satisfactorily completed the Engineer shall make the Final Construction Inspection.

60-16 FINAL ACCEPTANCE

Upon due notice from the Contractor of presumptive completion of the entire project, the Engineer and OWNER will make an inspection. If all construction provided for and contemplated by the Contract is found to be completed in accordance with the Contract, plans and specifications, such inspection shall constitute the final inspection. The Engineer shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the Engineer will give the Contractor the necessary instructions for correction of same, and the Contractor shall immediately comply with and execute such instructions. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the OWNER will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

60-17 CLAIMS FOR ADJUSTMENT AND DISPUTES

If for any reason the Contractor deems that additional compensation is due him for work or materials not clearly provided for in the Contract, plans, or specifications or previously authorized as extra work, he shall notify the Engineer in writing of his intention to claim such additional compensation before he begins the work on which he bases the claim. If such notification is not given or the Engineer is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the OWNER has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit his written claim to the Engineer, who will present it to the OWNER for consideration.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute the final payment based on differences in measurements or computations.

SECTION 70 CONTROL OF MATERIALS

70-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS

The materials used on the work shall conform to the requirements of the Contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish complete statements to the OWNER as to the origin, composition, and manufacture of all materials to be used in the work. Such statements shall be furnished promptly after execution of the Contract, but, in all cases, prior to delivery of such materials.

At the OWNER's option, materials may be approved at the source of supply before delivery is started. If it is found after trial sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

70-02 SAMPLES, TESTS, AND CITED SPECIFICATIONS

All materials used in the work shall be inspected, tested, and approved by the Engineer before incorporation in the work. Any work in which untested materials are used without approval or written permission of the Engineer shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer, shall be removed at the Contractor's expense. Unless otherwise designated, tests in accordance with the cited standard methods of AASHTO or ASTM which are current on the date of advertisement for bids will be made by and at the expense of the OWNER. Samples will be taken by a qualified representative of the OWNER. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at his request.

70-03 CERTIFICATION OF COMPLIANCE

The Engineer may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's certificates of compliance stating that such materials or assemblies fully comply with the requirements of the Contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with Contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the Engineer.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "brand name", the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify Each lot delivered and shall certify as to:

- (a) Conformance to the specified performance, testing, quality or dimensional requirements; and
- (b) Suitability of the material or assembly for the use intended in the Contract work.

Should the Contractor propose to furnish an "or equal" material or assembly, he shall furnish the manufacturer's certificates of compliance as hereinbefore described for the specified brand name material or assembly. However, the Engineer shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

70-04 PLANT INSPECTION

The Engineer or his authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for his acceptance of the material or assembly.

Should the Engineer conduct plant inspections, the following conditions shall exist:

- (a) The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom he has contracted the materials.
- (b) The Engineer shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.
- (c) If required by the Engineer, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Office or working space should be conveniently located with respect to the plant.

It is understood and agreed that the OWNER shall have the right to retest any material which has been tested and approved at the source of supply after it has been delivered to the site. The Engineer shall have the right to reject only material which, when retested, does not meet the requirements of the Contract, plans, or specifications.

70-05 ENGINEER'S FIELD OFFICE AND LABORATORY

When specified and provided for as a Contract item, the Contractor shall furnish a building for the exclusive use of the Engineer as a field office and field testing laboratory. The building shall be furnished and maintained by the Contractor, as specified herein, and shall become property of the Contractor when the Contract work is completed.

70-06 STORAGE OF MATERIALS

Materials shall be stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be located so as to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the Engineer. Materials to be stored on OWNER's property shall not create an obstruction to commerce nor shall they interfere with the free and unobstructed movement of traffic. Unless otherwise shown on the plans, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the Engineer. Private property shall not be used for storage purposes without written permission of the owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the Engineer a copy of the property owner's permission.

All storage sites on private or owner's property shall be restored to their original condition by the Contractor at his entire expense, except as otherwise agreed to (in writing) by the owner or lessee of the property.

70-07 UNACCEPTABLE MATERIALS

Any material or assembly that does not conform to the requirements of the Contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the Engineer.

No rejected material or assembly, the defects of which have been corrected by the Contractor, shall be returned to the site of the work until such time as the Engineer has approved its use in the work.

70-08 OWNER-FURNISHED MATERIAL

The Contractor shall furnish all materials required to complete the work, except those specified herein (if any) to be furnished by the OWNER. OWNER-furnished materials shall be made available to the Contractor at the location specified herein.

All cost of handling, transportation from the specified location to the site of work, storage, and installing OWNER-furnished materials shall be included in the unit price bid for the Contract item in which such OWNER-furnished material is used.

After any OWNER-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies which may occur during the Contractor's handling, storage, or use of such OWNER-furnished material. The OWNER will deduct from any monies due or to become due the Contractor any cost incurred by the OWNER in making good such loss due to the Contractor's handling, storage, or use of OWNER-furnished materials.

70-09 RECEIVING MATERIALS AND EQUIPMENT

The Contractor shall be responsible for clerical salaries, office space and equipment rental, incidentals to receiving incoming shipments and deliveries of all materials and equipment. All material which must be protected from the elements will be properly and orderly stored in shelters provided by the Contractor. All goods and materials stored out of doors will be properly and orderly supported. The Contractor will be responsible for safeguarding all such goods and materials against loss due to damage and theft.

SECTION 80 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

80-01 LAWS TO BE OBSERVED

The Contractor shall keep fully informed of all Federal and State laws, and local ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. He shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the OWNER and all his officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself or his employees.

80-02 PERMITS, LICENSES, AND TAXES

The Contractor shall procure all permits and licenses, pay all charges, fees and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

80-03 PATENTED DEVICES, MATERIALS AND PROCESSES

If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner, or a third party, from any and all claims for infringement by reason of the use of any such patented design, device, materials or process, or any trademark or copyright, and shall indemnify the OWNER for such costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the work.

80-04 RESTORATION OF SURFACES DISTURBED BY OTHERS

The OWNER reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, or a utility service of another government agency at any time during the process of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the OWNER, such authorized work (by others) is noted in the plans.

Except as noted on the plans, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the Engineer.

Should the owner of public or private utility service, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the process of the work, the Contractor shall cooperate with such owners by arranging and performing the work in this Contract so as to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is noted on the plans. When ordered as extra work by the Engineer, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the Contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

80-05 SANITARY, HEALTH, AND SAFETY PROVISIONS

The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his employees as may be necessary to comply with the requirements of the State and Local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, State, and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions which are unsanitary, hazardous, or dangerous to his health or safety.

80-06 PUBLIC CONVENIENCE AND SAFETY

The Contractor shall control his operations and those of his Subcontractors and all suppliers, to assure the least inconvenience to the public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of commerce and vehicular traffic with respect to his own operations and those of his Subcontractors and all suppliers in accordance with the paragraph titled MAINTENANCE OF COMMERCE of subsection 50, hereinbefore specified and shall limit such operations for the convenience and safety of the public, as specified in the paragraph titled LIMITATION OF OPERATIONS of subsection 90, hereinafter.

80-07 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS

The Contractor shall furnish, erect, and maintain all barricades, warning signs, and markings for hazards necessary to protect the public and the work. When used during periods of darkness, such barricades, warning signs and hazard markings shall be suitably illuminated.

For vehicular and pedestrian traffic, the Contractor shall furnish, erect, and maintain barricades, warning signs, lights and other traffic control devices in reasonable conformity with the Manual of Uniform Traffic Control Devices for Streets and Highways (published by the United States Government Printing Office).

The Contractor shall furnish, erect, and maintain markings and associated lighting of open trenches, excavations, temporary stockpiles, and his parked construction equipment that may be hazardous to the operation of emergency fire rescue or maintenance vehicles.

The Contractor shall furnish and erect all barricades, warning signs, and markings for hazards prior to commencing work which requires such erection and shall maintain the barricades, warning signs, and markings for hazards until their dismantling is directed by the Engineer.

Open-flame type lights shall not be permitted.

80-08 USE OF EXPLOSIVES

When the use of explosives is necessary for the prosecution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.

All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the Engineer and, in general, not closer than 1,000 feet from the work or from any building, road, or other place of human occupancy.

The Contractor shall notify Each property owner and public utility company having structures or facilities in proximity to the site of the work of his intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury.

80-09 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE

The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property marks until

the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in his manner or method of executing the work, or at any time due to defective work or materials, and said responsibility will not be released until the project shall have been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work or in consequence of the nonexecution thereof by the Contractor, he shall restore, at his own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or he shall make good such damage or injury in any acceptable manner.

80-10 RESPONSIBILITY FOR DAMAGE CLAIMS

The Contractor shall indemnify and save harmless the Engineer and the OWNER and their officers, and employees from all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or because of any act or through use of unacceptable materials in constructing the work; or because of any claims or amount recovered from any infringements of patent, trademark, or copyright; or from any claims or amount arising or recovered under the "Workman's Compensation Act" or any other law, ordinance, order or decree.

Money due the Contractor under and by virtue of his Contract as may be considered necessary by the OWNER for such purpose may be retained for the use of the OWNER or, in case no money is due, his surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the OWNER, except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he is adequately protected by public liability and property damage insurance.

80-11 THIRD PARTY BENEFICIARY CLAUSE

It is specifically agreed between the parties executing the Contract that it is not intended by any of the provisions of any part of the Contract to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the Contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the Contract.

80-12 OPENING SECTIONS OF THE WORK FOR OCCUPANCY

Should it be necessary for the Contractor to complete portions of the Contract work for the beneficial occupancy of the OWNER prior to completion of the entire Contract, such "phasing" of the work shall be as specified herein, and indicated on the plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified. The Contractor shall make his own estimate of the difficulties involved in arranging his work to permit such beneficial occupancy by the OWNER as described elsewhere in these specifications.

Upon completion of any portion of the work so described, such portion shall be accepted by the OWNER in accordance with the paragraph titled PARTIAL ACCEPTANCE of Subsection 60.

No portion of the work may be opened by the Contractor for use until ordered by the Engineer in writing. Should it become necessary to open a portion of the work to Docks traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the Engineer, such

portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the Contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the OWNER shall be repaired by the Contractor at his expense.

The Contractor shall make his own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the Contract work.

80-13 CONTRACTOR'S RESPONSIBILITY FOR WORK

Until the Engineer's final written acceptance of the entire completed work excepting only those portions of the work accepted in accordance with the paragraph titled PARTIAL ACCEPTANCE of Subsection 60, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, store, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at his expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding, furnished under his Contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

80-14 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS

As provided in the paragraph titled RESTORATION OF SURFACES DISTURBED BY OTHERS of this subsection, the Contractor shall cooperate with the owner of any public or private utility service, or a utility service of another government agency that may be authorized by the OWNER to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control his operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, or utility services of another governmental agency are known to exist within the limits of the Contract work, the approximate locations have been indicated on the plans.

It is understood and agreed that the OWNER does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of his responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the Contract, notify the owners of all utility services or other facilities of his plan of operations. Such notification shall be in writing. In addition to the general written notifications hereinbefore provided, it shall be the responsibility of the Contractor to keep such individual owners advised of changes in his plan of operations that would affect such owners.

Prior to commencing the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify Each such owner of his plan or operation. If, in the Contractor's

opinion, the owner's assistance is needed to locate the utility service or facility or the presence of a representative of the owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the Engineer.

The Contractor's failure to give the two days' notice hereinabove provided shall be cause for the Engineer to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use excavation methods acceptable to the Engineer within three (3) feet of such outside limits at such points as may be required to insure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operations of a utility service or facility by accident or otherwise, he shall immediately notify the proper authority and the Engineer and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the Engineer continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to his operations whether or not due to negligence or accident. The OWNER reserves the right to deduct such costs from any monies due or which may become due the Contractor, or his surety.

80-15 FURNISHING RIGHTS-OF-WAY

The OWNER will be responsible for furnishing all rights-of-ways upon which the work is to be constructed in advance of the Contractor's operations.

80-16 PERSONAL LIABILITY OF PUBLIC OFFICIALS

In carrying out any of the Contract provisions or in exercising any power or authority granted to him by this Contract, there shall be no liability upon the Engineer, his authorized representatives, or any official of the OWNER either personally or as an official of the OWNER. It is understood that in such manner they act solely as agents and representatives of the OWNER.

80-17 NO WAIVER OF LEGAL RIGHTS

Upon completion of the work, the OWNER will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the OWNER from correcting any measurement, estimate or certificate made before or after completion of the work, nor shall the OWNER be precluded or stopped from recovering from the Contractor or his surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill his obligations under the Contract. A waiver on the part of the OWNER of any breach of any part of the Contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the Contract, shall be liable to the OWNER for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the OWNER's rights under any warranty or guaranty.

80-18 ENVIRONMENTAL PROTECTION

The Contractor shall comply with all Federal, State and local laws and regulations controlling pollution of the environment. He shall take necessary precautions to prevent pollution of streams,

lakes, ponds, and reservoirs with silt runoff, fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

80-19 ARCHAEOLOGICAL AND HISTORICAL FINDINGS

Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during his operations, any building, part of a building, structure, or object which is incongruous with its surroundings, he shall immediately cease operations in that location and notify the Engineer. The Engineer will immediately investigate the Contractor's finding and will direct the Contractor to either resume his operations or to suspend operations as directed.

Should the Engineer order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate Contract modification (change order or supplemental agreement) as provided in the paragraph titled EXTRA WORK AND FORCE ACCOUNT WORK of Subsection 100. If appropriate, the Contract modification shall include an extension of Contract time in accordance with the paragraph titled DETERMINATION AND EXTENSION OF CONTRACT TIME of Subsection 90.

SECTION 90**PROSECUTION AND PROGRESS****90-01 SUBLETTING OF CONTRACT**

The OWNER will not recognize any Subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Engineer.

Should the Contractor elect to assign his Contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the OWNER. In case of approval, the Contractor shall file copies of all Subcontractors with the Engineer.

90-02 NOTICE TO PROCEED

The notice to proceed shall state the date on which it is expected the Contractor will begin the construction and from which date Contract time will be charged. If no such date is stated in the notice to proceed, Contract time will start on the date the notice to proceed is issued. The Contractor shall begin the work to be performed under the Contract within ten (10) days of the date set by the Engineer in the written notice to proceed, but in any event the Contractor shall notify the Engineer at least 24 hours in advance of the time actual construction operations will begin.

90-03 PROSECUTION AND PROGRESS

Unless otherwise specified, the Contractor shall submit his progress schedule for the Engineer's approval within 10 days after the effective day of the notice to proceed. The Contractor's progress schedule, when approved by the Engineer, may be used to establish major construction operations and to check on the progress of the work. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the contract.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the Engineer's request, submit a revised schedule for completion of the work within the Contract time and modify his operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the prosecution of the work be discontinued for any reason, the Contractor shall notify the Engineer at least 24 hours in advance of resuming operations.

90-04 LIMITATION OF OPERATIONS

The Contractor shall control his operations and the operations of his Subcontractors and all suppliers so as to provide for the free and unobstructed movement of commerce in those areas adjacent to the work.

90-05 CHARACTER OF WORKERS, METHODS AND EQUIPMENT

The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the Contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any persons employed by the Contractor or by any Subcontractor who, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed forthwith by the Contractor or Subcontractor employing such person, and shall not be employed again in any portion of the work without the approval of the Engineer.

Should the Contractor fail to remove such person or persons or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may suspend the work by written notice until compliance with such orders is ascertained.

All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet the requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall be such that no injury to previously completed work, adjacent property, or existing facilities will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the Contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the Contract, plans and specifications.

When the Contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than specified in the Contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing the work in conformity with Contract requirements. If, after trial use on the substituted methods or equipment, the Engineer determines that the work produced does not meet Contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the Contract items involved or in Contract time as a result of authorizing a change in methods or equipment under this subsection.

90-06 TEMPORARY SUSPENSION OF THE WORK

The Engineer shall have the authority to suspend the work wholly, or in part, for such period or periods as he may deem necessary, due to unsuitable weather, or such other conditions as are considered unfavorable for the prosecution of the work, or for such time as is necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the Contract.

In the event that the Contractor is ordered by the Engineer, in writing, to suspend work for some unforeseen cause not otherwise provided for in the Contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the Engineer's order to suspend work to the effective date of the Engineer's order to resume the work. Claims for such compensation shall be filed with the Engineer within the time period stated in the Engineer's order to resume work. The Contractor shall submit with his claim information substantiating the amount shown on the claim. The Engineer will forward the Contractor's claim to the OWNER for consideration. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather, for suspensions made at the request of the Contractor, or for any other delay provided for in the Contract, plans, or specifications.

If it should become necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. He shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the site.

90-07 DETERMINATION AND EXTENSION OF CONTRACT TIME

The number of calendar or working days allowed for completion of the work shall be stated in the proposal and Contract and shall be known as the CONTRACT TIME.

Should the CONTRACT TIME require extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

- (a) CONTRACT TIME based on WORKING DAYS shall be calculated weekly by the Engineer. The Engineer will furnish the Contractor a copy of his weekly statement of the number of working days charged against the CONTRACT TIME during the week and the number of working days currently specified for completion of the Contract (the original CONTRACT TIME plus the number of working days, if any, that have been included in approved CHANGE ORDERS, or SUPPLEMENTAL AGREEMENTS covering EXTRA WORK).

The Engineer shall base his weekly statement of CONTRACT TIME charges on the following considerations:

- (1) No time shall be charged for days on which the Contractor is unable to proceed with the principal item of work under construction at the time for at least 6 hours with the normal work force employed on such principal item. Should the normal work force be on a triple shift, 18 hours shall apply. Conditions beyond the Contractor's control such as strikes, lockouts, unusual delays in transportation, temporary suspension of the principal item of work under construction or temporary suspension of the entire work which have been ordered by the Engineer for reasons not the fault of the Contractor, shall not be charged against the CONTRACT TIME.
 - (2) The Engineer will not make charges against the CONTRACT TIME prior to the effective date of the notice to proceed.
 - (3) The Engineer will begin charges against the CONTRACT TIME on the first working day after the effective date of the notice to proceed.
 - (4) The Engineer will not make charges against the CONTRACT TIME after the date of final acceptance as defined in the paragraph titled FINAL ACCEPTANCE of Subsection 60.
 - (5) The Contractor will be allowed one week in which to file a written protest setting forth his objections to the Engineer's weekly statement. If no objection is filed within such specified time, the weekly statement shall be considered as acceptable to the Contractor.
 - (6) The CONTRACT TIME (state in the proposal) is based on the originally estimated quantities as described in the paragraph titled INTERPRETATION OF ESTIMATED PROPOSAL QUANTITIES of Subsection 20. Should the satisfactory completion of the Contract require performance of work in greater quantities than those estimated in the proposal, the CONTRACT TIME shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in CONTRACT TIME shall not consider either the cost of work or the extension of CONTRACT TIME that has been covered by change order or supplemental agreement and shall be made at the time of final payment.
- (b) CONTRACT TIME based on CALENDAR DAYS shall consist of the number of calendar days stated in the Contract counting from the effective date of the notice to proceed and including all Saturdays, Sundays, holidays, and no work days. All calendar days elapsing between the effective dates of the Engineer's orders to suspend and resume all work, due to causes not the fault of the Contract, shall be excluded.

At the time of final payment, the CONTRACT TIME shall be increased in the same proportion as the cost that the actually completed quantities bear to the cost of the originally estimated quantities in the proposal. Such increase in the CONTRACT TIME shall not consider either

the cost of work of the extension of CONTRACT TIME that has been covered by a change order or supplemental agreement. Charges against the CONTRACT TIME will cease as of the date of final agreement.

- (c) When the CONTRACT TIME is a specified completion date, it shall be the date on which all Contract work shall be substantially completed.

If the Contractor finds it impossible for reasons beyond his control to complete the work within the Contract time as specified, or as extended in accordance with the provisions of this subsection, he may, at any time prior to the expiration of the CONTRACT TIME as extended, make a written request to the Engineer for an extension of time setting forth the reasons which he believes will justify the granting of his request. The Contractor's plea that insufficient time was specified is not a valid reason for extension of time. If the Engineer finds that the work was delayed because of conditions beyond the control and without the fault of the Contractor, he may extend the time for completion in such amount as the conditions justify. The extended time for completion shall then be in full force and effect, the same as though it were the original time for completion.

90-08 FAILURE TO COMPLETE ON TIME

For Each calendar day or working day, as specified in the Contract, that any work remains incomplete after the CONTRACT TIME (including all extensions and adjustments as provided in the paragraph titled DETERMINATION AND EXTENSION OF CONTRACT TIME of this Subsection) the sum specified in the Contract and proposal as liquidated damages will be deducted from any money due or to become due the Contractor or his surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages that will be incurred by the OWNER should the Contractor fail to complete the work in the time provided in his Contract.

The Contractor will not be charged with liquidated damages when delay in completion of the work is due to acts of the public enemy, acts of the OWNER, acts of another Contractor in the performance of a Contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, or freight embargoes.

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the OWNER of any rights under the Contract.

90-09 CONTRACT DEFAULT

The Contractor shall be considered in default of his Contract and such default will be considered as cause for the OWNER to terminate the Contract for any of the following reasons if the Contractor:

- (a) Fails to begin the work under the Contract within the time specified in the "Notice to Proceed"; or
- (b) Fails to perform the work or fails to provide sufficient workers, equipment or materials to assure completion of work in accordance with the terms of the Contract; or
- (c) Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable; or
- (d) Discontinues the prosecution of the work; or
- (e) Fails to resume work which has been discontinued within a reasonable time after notice to do so; or
- (f) Becomes insolvent or is declared bankrupt, or commits an act of bankruptcy or insolvency; or

- (g) Allows any final judgment to stand against him unsatisfied for a period of 10 days; or
- (h) Makes an assignment for the benefit of creditors; or
- (i) For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Engineer consider the Contractor in default of the Contract for any reason hereinbefore, he shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the construction in default and the OWNER's intentions to terminate the Contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the OWNER will, upon written notification from the Engineer of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the Contract, to take the prosecution of the work out of the hands of the Contractor. The OWNER may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said Contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of said Contract in an acceptable manner.

All costs and charges incurred by the OWNER, together with the cost of completing the work under Contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the Contract, then the Contractor and the surety shall be liable and shall pay to the OWNER the amount of such excess.

90-10 CONTRACT TERMINATION

The Owner may terminate the Contract, or any portion hereof, for just cause by written notice to the Contractor.

When the Contract, or any portion thereof, is terminated before completion of all items of work in the Contract, payment will be made for the actual number of units or items of work completed or started. No claims for loss of anticipated profits shall be considered.

Acceptable materials both in quantity and quality obtained or ordered by the Contractor that are not incorporated into the work shall, at the option of the Contractor, be purchased by the Owner at actual cost as shown by receipted bills and actual cost records. Delivery of the materials will be performed as designated by the Engineer.

Termination of the Contract, or a portion thereof, shall neither relieve the Contractor of his responsibilities for the completed work nor relieve his surety of its obligation for and concerning any just claim arising out of the work performed.

The costs incurred by the Contractor for mobilization, if applicable, shall be itemized and presented to the Owner. Rebates and refunds that are applicable shall be itemized, and the amount paid the Contractor shall be adjusted to reflect actual cost as shown by receipted bills and actual cost records.

The cost of demobilization of Contractor's equipment and other items pertaining to the expense of moving off the job site shall be itemized and supported by actual cost records and presented for payment. Demobilization as a percentage of the Contract amount, or portion thereof, shall not be paid.

Reimbursement for organization of the work and overhead expenses (when not otherwise included in the Contract) will be considered, the intent being that an equitable settlement will be made with the Contractor.

All of the above are subject to audit as specified by the Right to Audit, Paragraph 100-11.

SECTION 100

MEASUREMENT AND PAYMENT

100-01 MEASUREMENT OF QUANTITIES

All work completed under the Contract will be measured by the Engineer, or his authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the Contract will be those methods generally recognized as conforming to good Engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet or less. Unless otherwise specified, transverse measurements for area computations will be the near dimensions shown on the plans or ordered in writing by the Engineer.

Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.

Unless otherwise specified, all Contract items which are measured by the Linear Foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

In computing volumes of excavation, the average end area method or other acceptable methods will be used. Acceptability of another method will be decided by the Engineer.

The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fractions of inches.

The term "ton" will mean the short ton consisting of 2,000 pounds avoirdupois. All materials which are measured or proportioned by weights shall be weighed on accurate, approved scales by competent, qualified personnel at locations designated by the Engineer. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for materials to be passed through mixing plants. Trucks used to haul materials being paid for by weight shall be weighed empty daily at such times as the Engineer directs, and each truck shall bear the plainly legible identification mark.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity and all loads shall be leveled when the vehicles arrive at the point of delivery.

When requested by the Contractor and approved by the OWNER in writing, material specified to be measured by the Cubic Yard may be weighed and such weights will be converted to Cubic Yards for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the Engineer and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Bituminous materials will be measured by the gallon or ton. When measured by volume, such volumes will be measured at 60 degrees F, or will be corrected to the volume at 60 degrees F using ASTM D 1250 for asphalt or ASTM D 633 for tars.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, may be used for computing quantities.

Lumber will be measured by the thousand feet board measure (M.F.B.M.) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term "Lump Sum" when used as an item of payment will mean complete payment for the work described in the Contract.

When a complete structure or structural unit (in effect, "Lump Sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered by the Engineer in connection with force account work will be measured as agreed in the change order or supplemental agreement authorizing such force account work as provided in the paragraph titled PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK of this section.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or by certified permanently installed commercial scales.

Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the inspector before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one tenth of one percent of the nominal rated capacity of the scale, but not less than one pound. The use of spring balances will not be permitted.

Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and inspector can safely and conveniently view them.

Scale installation shall have available, ten standard fifty pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales must be tested for accuracy and serviced before use at a new site. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.

Scales "overweighing" (indicating more than correct weight) will not be permitted to operate, and all materials received subsequent to the last previous correct weighing-accuracy-test will be reduced by the percentage of error in excess of one-half of one percent.

In the event inspection reveals the scales have been "underweighing" (indicating less than correct weight) they shall be adjusted and no additional payment to the Contractor will be allowed for materials previously weighed and recorded.

All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning, or payment, shall be included in the unit Contract prices for the various items of the project.

When the estimated quantities for a specific portion of the work are designated as the pay quantities in the Contract, they shall be the final quantities for which payment for such specific

portion of the work will be made, unless the dimensions of said portion of the work shown on the plans are revised by the Engineer. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

100-02 SCOPE OF PAYMENT

The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing all materials, for performing all work under the Contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, subject to the provisions of the paragraph titled NO WAIVER OF LEGAL RIGHTS of Subsection 80.

When the "basis of payment" subsection of a technical specification requires that the Contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other Contract item which may appear elsewhere in the Contract, plans, or specifications.

100-03 COMPENSATION FOR ALTERED QUANTITIES

When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as Contract items are concerned, payment at the original Contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in the paragraph titled ALTERATION OF WORK AND QUANTITIES of Subsection 50 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from his unbalanced allocation of overhead and profit among the Contract items, or from any other cause.

100-04 PAYMENT FOR OMITTED ITEMS

As specified in the paragraph titled OMITTED ITEMS of Subsection 50, the Engineer shall have the right to omit from the work (order nonperformance) any Contract item, except major Contract items, in the best interest of the OWNER.

Should the Engineer omit or order nonperformance of a Contract item or portion of such item from the work, the Contractor shall accept payment in full at the Contract prices for any work actually completed and acceptable prior to the Engineer's order to omit or not perform such Contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the OWNER's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the OWNER.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted Contract item prior to the date of the Engineer's order. Such additional costs incurred by the Contractor must be directly related to the deleted Contract item and shall be supported by certified statements by the Contractor as to the nature and amount of such costs.

100-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK

Extra work, performed in accordance with the paragraph titled EXTRA WORK of Subsection 50, will be paid for at the Contract prices or agreed prices specified in the change order or supplemental agreement authorizing such extra work. When the change order or supplemental agreement authorizing the extra work requires that it be done by force account, such force account shall be measured and paid for as follows:

- (a) Labor: For all labor (skilled and unskilled) and foremen in direct charge of a specific force account item, the Contractor shall receive the rate of wage (or scale) for every hour that such laborer or foreman is actually engaged in the specified force account work. Such wage (or scale) shall be agreed upon in writing before beginning the work.

The Contractor shall receive the actual costs paid to, or in behalf of, workers by reason of subsistence and travel allowances, health and welfare benefits, pension funds benefits or other benefits, when such amounts are required by collective bargaining agreement or other employment Contract generally applicable to the classes of labor employed on the work.

An amount equal to fifteen percent (15%) of the sum of the above items will also be paid the Contractor.

- (b) Insurance and Taxes: For property damage, liability, and workmen's compensation insurance premiums, unemployment insurance contributions, and social security taxes on the force account work, the Contractor shall receive the actual cost, and to this cost (sum) 5 percent will be added. The Contractor shall furnish satisfactory evidence of the rate or rates paid for such insurance and taxes.
- (c) Materials: For materials accepted by the Engineer and used, the Contractor shall receive the actual cost of such materials delivered on the work, including transportation charges paid by him (exclusive of machinery rentals as hereinafter set forth), to which cost (sum) 10 percent will be added.
- (d) Equipment: For any machinery or special equipment (other than small tools) including fuel and lubricants, plus transportation costs, the use of which has been authorized by the Engineer, the Contractor shall receive the rental rates agreed upon in writing before such work is begun for the actual time that such equipment is committed to the work.
- (e) Miscellaneous: No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.
- (f) Comparison of Records: The Contractor and the Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and Engineer or their duly authorized representatives.
- (g) Statements: No payment will be made for work performing on a force account basis until the Contractor has furnished the Engineer with the duplicate itemized statements of the cost of such force account work detailed as follows:
- (1) Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.
 - (2) Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.
 - (3) Quantities of materials, prices, and extensions.
 - (4) Transportation of materials.
 - (5) Cost of property damage, liability and workmen's compensation insurance premiums, unemployment insurance contributions, and social security tax.

Statements shall be accompanied and supported by receipted invoice for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from his stock, that the quantity claimed, was actually used, and that the price and transportation claimed represent the actual cost provided above shall constitute full compensation for such work.

100-06 PARTIAL PAYMENT

Partial payments will be made once each month as the work progresses. Said payments will be based upon estimates prepared by the Engineer of the value of the work performed and materials complete in place in accordance with the Contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with the subsection titled PAYMENT FOR MATERIALS ON HAND of this subsection.

No partial payment will be made when the amount due the Contractor since the last estimate is less than five hundred dollars.

Retainage withheld by Owner shall not exceed 10% of an approved payment, and after 50% project completion, no further retainage shall be withheld.

When not less than 95% of the work has been completed the Engineer may, at his discretion and without the consent of the surety, prepare an estimate from which will be retained an amount not less than twice the Contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities or work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the Engineer to be a part of the final quantity for the item of work in question.

No partial payment shall bind the OWNER to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in the paragraph titled FINAL PAYMENT of this subsection.

100-07 PAYMENT FOR MATERIALS ON HAND

Partial payments, for projects which do not utilize the OWNER'S tax exempt status, may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the Contract, plans, and specifications and are delivered to acceptable sites on the OWNER's property or at other sites in the vicinity that are acceptable to the OWNER. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

- (a) The material has been stored or stockpiled in a manner acceptable to the Engineer at or on an approved site.
- (b) The Contractor has furnished the Engineer with acceptable evidence of the quantity and quality of such stored or stockpiled materials.
- (c) The Contractor has furnished the Engineer with satisfactory evidence that the material and transportation costs have been paid.
- (d) The Contractor has furnished the OWNER legal title (free of liens or encumbrances of any kind) to the material so stored or stockpiled.
- (e) The Contractor has furnished the OWNER evidence that the material so stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the OWNER's payment for such stored or stockpiled materials shall in no way relieve the Contractor of his responsibility for furnishing and placing such materials in accordance with the requirements of the Contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the Contract price for such materials or the Contract price for the Contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this subsection.

100-08 CONTRACT CLOSE-OUT

Subsequent to the final acceptance of this project by the Engineer, the following requirements must be satisfied by the Contractor before final payment can be made.

- (a) The Contractor must publicly advertise the NOTICE OF COMPLETION furnished by the Engineer in accordance with Title 39, Code of Alabama, 1975.
- (b) The Contractor must execute copies of CONTRACTOR'S AFFIDAVIT OF PAYMENT OF CLAIMS AND DEBTS on the form furnished by the Engineer.
- (c) The Contractor must have his surety execute copies of CONSENT OF SURETY TO FINAL PAYMENT on the form furnished by the Engineer.
- (d) The Contractor must furnish a letter on his letterhead acknowledging that acceptance of final payment by the Contractor constitutes a waiver of all claims, present or future, in connection with this project.
- (e) The Contractor must furnish a written guarantee on his letterhead covering all defects in material and workmanship for a period of one (1) year commencing on the date of final acceptance.
- (f) If any purchased items have been incorporated in the work, the Contractor must furnish a letter on his letterhead assigning those warranties to the OWNER. Copies of said warranties shall be bound in one binder and submitted along with the letter assignment.
- (g) The Contractor must keep track of "as built" information and at the contract closeout provide one complete set of reproducible "as built" covering all earthwork, utility routing, structural, mechanical, and electrical aspects of the work, including wiring schematics.

100-09 WITHHOLDING FOR CLAIMS AND LITIGATION

If at the time of Contract close-out, the project is subject to a claim or the Contractor is involved in litigation concerning the project, the OWNER reserves the right to:

- (a) Refuse to close out the Contract retaining all monies unpaid until such time as all claims are dropped and litigation is resolved, or
- (b) Refuse to close out the Contract, retaining enough money to cover the total of all outstanding claims and amounts claimed by litigation until such time as all claims are dropped and litigation is resolved, or
- (c) Require the Contractor to post a letter of credit to each individual claimant or litigant and satisfactory to the claimant or litigant. Once such letters of credit have been posted and the OWNER is in receipt of written agreement from each individual claimant or litigant, the OWNER will proceed with Contract close-out and release of retainage in the normal manner.

100-10 FINAL PAYMENT

When the Contract work has been accepted in accordance with the requirements of the paragraph titled FINAL ACCEPTANCE of Subsection 60, and the paragraph titled Contract CLOSE-OUT above, the Engineer will prepare the final estimate of the items of work actually performed. The

Contractor shall approve the Engineer's final estimate or advise the Engineer of his objections to the final estimate, which are based on disputes in measurements or computations of the final quantities to be paid under the Contract, as amended by change order or supplemental agreement. The Contractor and Engineer shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the Engineer's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the Engineer's estimate under protest of the quantities in dispute and such disputed quantities shall be considered by the OWNER as a claim in accordance with the paragraph titled CLAIMS FOR ADJUSTMENT AND DISPUTES of Subsection 60.

After the Contractor has approved, or approved under protest, the Engineer's final estimate, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the Contract.

If the Contractor has filed a claim for additional compensation under the provisions of the paragraph titled CLAIMS FOR ADJUSTMENTS AND DISPUTES of Subsection 60 or under the provisions of this subsection, such claims will be considered by the OWNER in accordance with State laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

100-11 RIGHT OF AUDIT

Contractor's records which shall include but not be limited to accounting records (hard copy, as well as computer readable data if it can be made available), written policies and procedures; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); back charge logs and supporting documentation; general ledger entries detailing cash and trade discounts earned, insurance policies, rebates and dividends; and any other supporting evidence deemed necessary by the Owner to substantiate charges related to this Contract (all foregoing hereinafter referred to as "records") shall be open to inspection and subject to audit and/or reproduction by Owner's agent or its authorized representative to the extent necessary to adequately permit evaluation and verification of (a) Contractor compliance with Contract requirements, (b) compliance with Owner's business ethics policies, and (c) compliance with provisions for pricing change orders, payment or claims submitted by the Contractor or any of their payees.

Such audits may require inspection and copying from time to time and at reasonable times and places of any and all information, materials and data of every kind and character, including without limitation, records, books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, Contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information and matters that may in Owner's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract Document. Such records subject to audit shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs, (including overhead allocations) as they may apply to costs associated with this Contract.

The Owner or its designee shall be afforded access to all of the Contractor's records, and shall be allowed to interview any of the Contractor's employees, pursuant to the provisions of this article throughout the term of this Contract and for a period of three (3) years after final payment or longer if required by law.

Contractor shall require all subcontractors, insurance agents, and material suppliers (payees) to comply with the provisions of this article by insertion of the requirements hereof in a written Contract agreement between Contractor and payee. Such requirements will also apply to

Subcontractors and Sub-Subcontractors, etc. Contractor will cooperate fully and will cause all Related Parties and all of Contractor's subcontractors (including those entering into Lump Sum subcontracts) to cooperate fully in furnishing or in making available to Owner from time to time, whenever requested, in an expeditious manner, any and all such information, materials and data.

Owner's agent or its authorized representative shall have access to the Contractor's facilities, shall have access to the Subcontractor's facilities, shall have access to all necessary records, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this article.

If an audit inspection or examination in accordance with this article, discloses overcharges (of any nature) by the Contractor to the Owner in excess of one percent (1%) of the total Contract billings, the actual cost of the Owner's audit shall be reimbursed to the Owner by the Contractor. Any adjustments and/or payments which must be made as a result of any such audit or inspection of the Contractor's invoices and/or records shall be made within a reasonable amount of time (not to exceed 90 days) from presentation of Owner's findings to Contractor.



Alabama State Port Authority
Specification Booklet

Project Name Pier B South: Sheet Pile Wall Replacement

Location Mobile, AL

Project # 10996

Task # 02

January 2022

1 | Page

BID DOCUMENTS

**DIVISION V
INDEX**

The below named Professional Engineer shall be responsible for the following specification sections (excluding appendices) in accordance with 333-X-11-.03 (3b).

01 00 00 – GENERAL PROVISIONS
01 31 13 – PROJECT COORDINATION
01 33 00 – SUBMITTALS
01 52 00 – CONSTRUCTION FACILITIES
01 55 00 – VEHICULAR ACCESS
01 57 20 – PROTECTION OF THE ENVIRONMENT
01 71 13 – MOBILIZATION AND DEMOBILIZATION
01 71 23.16 – CONSTRUCTION SURVEYING
02 30 00 – EXCAVATION AND FILL
02 41 00 – DEMOLITION
03 10 00 – CONCRETE FORMWORK
03 15 00 – CONCRETE ACCESSORIES
03 20 00 – CONCRETE REINFORCEMENT
03 30 00 – CAST-IN-PLACE CONCRETE
05 50 00 – METAL FABRICATIONS
09 96 26 – MARINE COATINGS
31 41 16 – STEEL SHEET PILE
35 20 20 – MISPLACED MATERIAL



This item has been digitally signed
and sealed by:

On the date below to the seal.

APPENDIX A – GEOTECHNICAL REPORT
APPENDIX B – SURVEY
APPENDIX C – TURBIDITY CURTAIN
APPENDIX D – USACE NATIONWIDE PERMIT
APPENDIX E – EXISTING DRAWINGS

(REFER TO SEPARATE PDF FOR APPENDICES)

PREPARED BY:

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Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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SECTION 01 00 00

GENERAL PROVISIONS

PART 1- GENERAL

A. The following detail Specifications, taken in conjunction with the Drawings and the General Provisions and applicable material specifications describe the work to be performed by the Contractor. They amplify and explain most items in connection with the work, but do not alter the scope of same as described in the General Conditions of the Specifications and Contract form.

B. All materials used in the work, which are not described specifically, shall be of the best quality that it is customary to employ in construction of the character involved. The following details are not necessarily complete in the description of all items entering into the work but are intended to furnish a basis for acceptance of the more important items. Other details shall be consistent with them.

C. Any detail which may be incomplete or lacking in the plans and specifications shall not constitute claim for extra compensation. Such detail shall be supplied by the CONTRACTOR and submitted to the ENGINEER in advance of its requirement on the job. The true intent of the plans and specifications is to produce a complete working facility and incomplete detail will not abrogate this intent.

D. It is the intent to follow the Drawings and Specifications closely in all details, elevations, dimensions, etc., but it is understood that alterations may be required to conform to local conditions and that such alterations must be of the same character of construction as that specified. Workmanship shall be of the best quality in each class of work.

E. Current (latest) editions of all codes and standards specified shall apply.

F. Permit and Fees: ASPA has obtained a Department of Army Nationwide Permit, File Number SAM-2018-01099-GAC for this project. Refer to Appendix D of this Project Manual for copy of permit. CONTRACTOR shall comply with all permit conditions included. CONTRACTOR shall also obtain all other necessary permits, licenses, meters, and inspections required for his work and pay all fees and charges required for execution of this contract. Provide certificates of approval to ENGINEER AND OWNER.

G. Verification of Owner's Data: Prior to commencing any excavation or removal of existing work, the CONTRACTOR shall satisfy itself as to the accuracy of all data indicated on the Drawings and/or provided by the OWNER. Should the CONTRACTOR discover any inaccuracies, errors, or omissions in the data, he shall immediately notify the ENGINEER. Commencement by the CONTRACTOR of any removal of existing work, excavation or upgrading shall be held as an acceptance of the data by it after which time the CONTRACTOR has no claim against the OWNER resulting from alleged errors, omissions or inaccuracies of the said data.

H. Delivery and Storage of Materials: Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. All material shall be stored to provide protection from the weather and accidental damage. Any damage to material shall be the responsibility of the CONTRACTOR to coordinate with the supplier for replacement and/or repair.

I. Extent of work is indicated in the Drawings, Schedules, and Specifications. Singular references shall not be construed as requiring only on device if multiple devices are shown on the Drawings or are required for proper system operation.

J. **This project is being performed at a working port facility at a production dock and as such the CONTRACTOR shall coordinate its activities with ASPA Operations so as not to interfere with them.**

K. Definitions:

- 1) Provide: Furnish install, and test, complete and ready for intended use.
- 2) Furnish: Supply and deliver to project site, ready for subsequent requirements.
- 3) Install: Operations at project site, including providing, unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar requirements.
- 4) Approved: Approved and accepted for construction by the ENGINEER. Any exceptions shall be noted in writing.
- 5) Approved Equal: Approved as equivalent in quality and workmanship and will perform satisfactorily according to their intended purpose. The ENGINEER shall approve in writing all such substitutions in materials or equipment.

L. Request for Substitution:

- 1) Where a particular system, product or material is specified by name, consider it as standard basis for bidding, and base proposal on the particular product or material specified. Other systems, products, equipment or materials may be accepted only if in the opinion of the ENGINEER, they are equivalent in quality and workmanship and will perform satisfactorily according to their intended purpose. The ENGINEER shall approve all such substitutions in materials or equipment in writing.
- 2) In making request for substitution, the CONTRACTOR shall list the particular product, equipment or material it wishes to substitute and at bid time the CONTRACTOR shall state the amount it will add or deduct from its base (or additive) bid if the substitution is approved by the ENGINEER. If the CONTRACTOR allows no deduction or addition to the base (or additive) bid for such substitution, it shall be so stated on the request.
- 3) Requests by CONTRACTOR for substitution will be considered only when reasonable, timely, fully documented, and qualifying under one or more of the following circumstances.
 - a) Required product cannot be supplied in time for compliance with Contract time requirements.
 - b) Required product is not acceptable to governing authority, or determined to be non-compatible, or cannot be properly coordinated, warranted or insured, or has other recognized disability as certified by CONTRACTOR.
 - c) Substantial cost advantage is offered Owner after deducting offsetting disadvantages including delays, additional compensation for redesign,

investigation, evaluation and other necessary services and similar considerations.

- 4) All request for substitution shall contain a "Comparison Schedule" and clearly and specifically indicate any and all differences or omissions between the product specified as the basis of design and the product proposed for substitution. Differences shall include but shall not be limited to data as follows for both the specified and substituted products:
 - a) Principle of operation.
 - b) Materials of construction or finishes.
 - c) Thickness of materials.
 - d) Weight of item.
 - e) Deleted features or items.
 - f) Added features or items.
 - g) Changes in other work caused by the substitution.
 - h) Performance and rating data.
- 5) If the approved substitution contains differences or omissions not specifically called to the attention of the ENGINEER, the OWNER reserves the right to require equal or similar features to be added to the substituted products at the CONTRACTOR'S expense.

M. Prior Approval: Where the terms "approved equal" is used in the Drawings or the Specifications, submit all requests for ENGINEER's written approval of the alternate manufacturer's products. Approval will be in the form of an Addendum to the Specifications and Drawings. Clearly indicate all differences between the specified and proposed product following the guidelines for substitution herein. This requirement may be waived if, by the opinion of the ENGINEER, it is for the best interest of the OWNER.

END OF SECTION

SECTION 01 31 13

PROJECT COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section specifies administrative and supervisory requirements necessary for project coordination including, but not necessarily limited to:
 - 1. Coordination.
 - 2. Administrative and supervisory personnel.
 - 3. General installation provisions.
- B. Mandatory bi-weekly Owner/Engineer/Contractor (OEC) meetings are required that will convene at the engineering offices of the ASPA. The purpose of the meeting is to discuss progress of construction. The Contractor shall provide an agenda for each meeting to include attendees, progress update, general business, new business, request for information, submittals, schedule, change orders, and payment status, The Contractor shall also submit monthly progress reports with each pay application.
- C. Requirements for construction schedules are included in Section 01 33 00, "Submittals."

1.02 COORDINATION

- A. Coordination: Coordinate construction activities (as defined in the various sections of the Contract Documents) to assure efficient and orderly installation of each part of the work. Coordinate construction operations (as defined in the different sections of the Contract Documents) that are dependent upon each other for proper installation, connection, and operation. Contractor shall ensure all personnel (including, but not limited to, contractor, truck/delivery drivers, etc.) requiring access to ASPA property must have an active TWIC card and have ASPA port access. No delays will be considered for the time to acquire TWIC cards and/or ASPA port access. At the contractor's expense, all field staff shall acquire a TWIC card and APSA port access.
 - 1. Where installation of one part of the work is dependent upon installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
 - 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service, and repair.

3. Make adequate provisions to accommodate items scheduled for later installation.
 4. Prepare memoranda for distribution to each involved party outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progression of the work. Such administrative activities include, but are not limited to, the following:
1. Preparation of schedules.
 2. Installation and removal of temporary facilities.
 3. Delivery and processing of submittals.
 4. Progress meetings.
 5. Project closeout activities.

1.03 SUBMITTAL

Within 10 days of the Notice to Proceed, the Contractor will submit a list of the Contractor's principal staff assignments including the superintendent and other personnel in attendance at the site; provide a proposed organizational chart that identifies individuals, their duties and responsibilities; and list the proposed staff's addresses and telephone numbers.

1.04 GENERAL INSTALLATION PROVISIONS

- A. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations if those instructions and recommendations are more explicit or stringent than requirements contained in the Contract Documents.
- B. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.
- C. Recheck measurements and dimensions before starting installation procedure.
- D. Install each component during weather conditions and at the point in the project sequence that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

- E. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.

1.05 CLEANING AND PROTECTION

- A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration until Final Acceptance.
- B. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading.
 - 2. Excessive internal or external pressures.
 - 3. Heavy traffic.
 - 4. Vibration from adjacent activity.
 - 5. Erosion.
 - 6. Prop wash.
 - 7. Damage by contact with construction equipment.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01 33 00

SUBMITTALS

PART 1 – GENERAL

1.01 DESCRIPTION

This Section specifies administrative and procedural requirements for submittals requisite to the performance of the work, including, but not limited to:

- A. Contractor's partial payment and construction schedule for the entire project.
- B. Submittal schedule.
- C. Shop drawings.
- D. Product data and mill certificates.

1.02 CONTRACTOR'S RESPONSIBILITIES

- A. The Contractor shall be responsible for the accuracy and completeness of the information contained in each submittal and shall assure that the material, equipment, or method of work shall be as described in the submittal.
- B. The Contractor shall verify that the material and equipment described in each submittal conform to the requirements of the specifications and Contract Drawings. If the information shows deviations from the specifications or Contract Drawings, the Contractor shall, by written statement accompanying the information, clearly identifying the deviations and state the reason, therefore.
- C. The Contractor shall ensure that there is no conflict with other submittals and notify the Owner in each case where the submittal may affect the work of others.
- D. The Contractor shall be responsible for the coordination of submittals by its Subcontractors.
- E. The Contractor cannot claim delays due to the Engineer's review of the Submittals if they require multiple revisions due to incompleteness as determined by the Owner. Failure to approve all or part of any such Plan shall not make the Owner liable to the Contractor for any Work delays.

1.03 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of Submittals with performance and construction activities. Transmit each Submittal in advance of performance of related construction activities to avoid delay (including time for resubmittals). Materials furnished by the Contractor shall not be incorporated into the construction before review except as specified herein.
- B. All submittals shall be in accordance with the following:
 - 1. All submittals shall be sent electronically to Engineer in (*.pdf) format. All

review comments and approvals shall be sent back to the Contactor electronically via (*.pdf) format.

2. Review of submittals by the Engineer is for general compliance with the contract documents. Responsibility for the correctness of dimensions, details, quantities, and safety during fabrication and construction shall remain with the contractor.
 3. Correctness and/or comments made on the shop drawings during review do not imply that all errors and omissions have been corrected, nor does it relieve the contractor from compliance with the contract documents.
 4. No detailed check of quantities or dimensions will be made. only those shop drawings required by the contract documents to be submitted will be reviewed. All others will be returned without comment.
 5. Shop drawings will not be reviewed unless they are stamped "approved" or "approved as noted" by the general contractor or construction manager, whichever is applicable.
 6. Do not reproduce the contract documents for use as shop drawings.
 7. Shop drawings not meeting the above criteria or submitted after fabrication will not be reviewed.
 8. Responsibilities of detailers and fabricators:
- C. Submit shop drawings and any other special information necessary for proper fabrication, erection, and placement. Include plans, elevations, and sections. Clearly show anchorages, connections, and accessory items. The detailer must interpret the contract documents and clearly convey this interpretation to the field in the form of placing or erection drawings. Materials shall be submitted for review in the manner specified herein and under the applicable technical specification sections. The methods of review may include submission of samples, shop drawings (including stock prints), catalogs (including cuts and descriptive literature), schedules, certificates, or field inspection. All materials for which no specific method of review is specified shall be subject to field inspection and review.
- D. Each Submittal shall be accompanied by a transmittal letter from the Contractor stating that the items of material submitted are the Contractor's selection for construction under the Contract and requesting review. The Contractor shall include one (1) transmittal letter per one (1) copy of the submittal data.
- E. The Contractor shall present all materials for each submittal at the same time as one (1) submittal. Incomplete submittals, multiple submittals submitted under the same transmittal letter, and submittals with inadequate data will be rejected.
- F. Review Time: All requests for material review shall be submitted in sufficient time so as not to delay the progress of the Work, allowing ten (10) working days after receipt by the Engineer for review. Work performed by the Contractor without accepted submittals related to such work shall be considered as having been

performed by the Contractor at his own risk. If related submittals are found not acceptable, the Contractor shall correct work related to such unacceptable submittals, to the satisfaction of the Owner.

- G. Address all correspondence to the Owner's Engineer and Alabama State Port Authority Project Management team. Specific contact details will be supplied at the Pre-Construction Conference.

1.04 SUBMITTAL PREPARATION

Contractor shall place a permanent label or title block on each submittal transmittal letter for identification. Indicate the name of the entity that prepared each submittal.

- A. Provide a space approximately 4" x 5" on the transmittal letter to record the Engineer's review and approval markings and action taken.
- B. Include the following information on the label for processing and recording action taken: Project name, date, name of Engineer, name of Contractor, name of applicable subcontractor, name of applicable supplier, name of applicable manufacturer, number and title of the reference technical specification section, drawing number and detail references as appropriate.

1.05 CONSTRUCTION SCHEDULE

- A. The Contractor shall prepare a Progress or Work Schedule for the entire Project, using CPM, showing the order in which, the Contractor proposes to carry on his work and salient features, including submissions of shop drawings, samples, review time, and procurement of materials to meet date of completion. The Baseline schedule shall be submitted at the scheduled Pre-Construction Meeting.
- B. The Contractor shall secure time commitments for performing critical elements of the work from parties involved. Coordinate each element on the schedule with other construction activities including minor elements involved in the sequence of the Work. Show each activity in proper sequence. Graphically indicate sequences necessary for completion of related portions of the Work.
- C. Prepare the Construction Schedule with the schedule of values, list of subcontractors, submittal schedule, progress reports, schedule of anticipated monthly partial payment requests, and all other schedules.
- D. The Construction Schedule shall include anticipated dates for Substantial and Final Completion inspections.
- E. In addition to the schedule described above, the Contractor shall submit a list of shop drawings he proposes to submit for review which shall include the following:
 - 1. Specification Section Number
 - a. Description of all items within section.
 - b. Approximate date of each submittal.
 - 2. Contract Drawing Number
 - a. Description of all items on each Contract Drawing, if not previously

- covered by the Specifications.
- b. Approximate date of each submittal.

1.06 SCHEDULE OF SUBMITTALS

The Contractor shall submit a Schedule of Submittals, in writing, to the Engineer, at the Pre-Construction Conference for review and approval. The Schedule of Submittals shall be reviewed by the Engineer prior to initiating any Work. This document shall include, but is not limited to, a schedule of required submittals listed in the Contract Documents (including required notifications), the reference technical specification section, the time requirements for Contractor's expected delivery, Engineer's review of the submittals, and the performance of related construction activities.

1.07 CONTRACTORS DAILY REPORTS.

On a weekly basis, the Contractor will submit to the Engineer daily reports that include, but is not limited to the following minimum information.

- A. Number of Contractor and subcontractor employees working on site (itemized by trade).
- B. Equipment on site.
- C. Ongoing construction activities.
- D. Progress made (i.e., quantity of material installed, or work completed).
- E. Delays or problems encountered.
- F. Direction received from the Engineer.
- G. Visitors on site.
- H. General comments.
- I. Field superintendent's signature

1.08 PROPOSED PRODUCT LIST

- A. In those instances where the specified technical specification sections cite a brand name product, the Contractor shall advise the Engineer in writing that the specified brand name product will be used.
- B. Materials which are specified by reference to an industry standard or specification which is also stamped or otherwise shown on the material itself and is readily identified in the field, do not require submittal of the material for review; however, the Contractor shall advise the Engineer in writing that the product will be used.

1.09 SHOP DRAWINGS

- A. Submit newly prepared information, drawn to accurate scale. Highlight, encircles, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis for shop drawings.

Standard information prepared without specific reference to the Project will not be considered shop drawings. Reproductions of the Contract Documents will be rejected and require resubmittal.

- B. Shop drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings. All shop drawings shall include the following information:
 - 1. Dimensions.
 - 2. Identification of products and materials included.
 - 3. Compliance with specified standards.
 - 4. Notation of coordination requirements.
 - 5. Notation of dimensions established by field measurements.
- C. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit shop drawings on sheets at least 8 ½" x 11", but no larger than 24" x 36".
- D. Final Submittal: Submit one (1) digital copy of AutoCAD drawings and (1) copy where required for maintenance manuals.

1.10 PRODUCT DATA

- A. Brand names: The Contractor may propose an "or equal" item or material and shall include a submittal with sufficient technical documentation to readily demonstrate the material proposed is, in fact, equal to the brand name(s) specified. Submittals will be rejected if the Contractor fails to submit such documentation or such documentation fails to demonstrate the equality of the item.
- B. Collect product data into each specified submittal. Product data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves. Where product data must be specifically prepared because standard printed data is not suitable for use, submit as shop drawings (Paragraph 1.09).

1.11 MANUFACTURER INSTALLATION INSTRUCTIONS

- A. When specified by a specific technical specification section, submit printed instructions for delivery, storage, assembly, installation, adjusting, and finishing to the Engineer.
- B. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.12 MANUFACTURER CERTIFICATES

- A. Submit certificates covering conformity to requirements of referenced technical specification sections or standard test results as follows:
- B. Certificates of conformity to referenced technical specification sections shall consist of a statement on the manufacturer's letterhead that the materials listed

conform to the requirements of the referenced technical specification section referred to by number.

- C. Certificates of standard test results shall consist of statements on the test laboratory's letterhead of the tests made and the tests results. The tests shall have been performed within one (1) year of submittal of the report for approval. Test reports shall be accompanied by certificates from the manufacturer certifying that the material and equipment proposed to be supplied is of the same, type, quality, manufacture, and make as that tested.

1.13 PRE-CONSTRUCTION PHOTOGRAPHS

- A. Submit pre-construction photographs of areas which may be accessed by the Contractor to complete the Work, including but not limited, to the Project Site, staging area(s), and adjacent areas.
- B. Photographs should provide documentation of pre-construction site conditions, including conditions for public and private property including but not limited to roadways, sidewalks, bulkheads and breakwaters, utilities, landscaping, etc.

1.14 ENGINEER'S ACTION

- A. Except for Submittals for record, information of similar purposes where action and return is required or requested, the Engineer will review each submittal, mark to indicate action taken, and return promptly to the Contractor.
- B. Compliance with specified characteristics is the Contractor's responsibility. Submittal will be rejected for non-compliance of required characteristics.
- C. Action Stamp: The Engineer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked to indicate the action taken. Submittal review will be made by returning one (1) copy appropriately stamped "Reviewed" or "Reviewed as Noted" shall be considered adequate to incorporate into the construction. If the submittal is stamped "Revise and Resubmit", the submittal is considered incomplete and shall require resubmission. Work performed by the Contractor without reviewed submittals related to such work shall be considered as having been performed by the Contractor at their own risk

1.15 EFFECT OF REVIEW OF CONTRACTOR'S SUBMITTALS

Review of any Submittal including drawings, methods of work, or information regarding materials or equipment the Contractor proposes to provide shall not relieve Contractor of his responsibility for errors therein and for failure to comply with the Contract Documents, and shall not be regarded as an assumption of risks or liability by the Owner, or by any officer, employee or consultant of the Owner. The Contractor shall have no claim under the Contract because of the failure, or partial failure, of the method of work, material, or equipment so reviewed.

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

(Not Used)

END OF SECTION

SECTION 01 52 00

CONSTRUCTION FACILITIES

PART 1 – GENERAL

1.01 DESCRIPTION

This Section covers the following:

1. Construction Facilities
2. Construction Aids and Safety Precautions
3. Special Controls
4. Sanitary Facilities and Domestic Water Supply
5. Traffic Control at Project Site
6. Telephone Services and Communications Systems
7. Navigation
8. Signal Lights
9. Temporary Power
10. Temporary Buildings
11. Use of Project Site
12. Protection of Property

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

3.01 CONSTRUCTION FACILITIES

- A. Temporary Facilities Supplied by Contractor: Contractor shall supply temporary services and facilities required for the execution of the Work, such as electrical power distribution as may be required, compressed air, fuel, temporary lighting, sanitary facilities, field office, fencing, barricades, Maintenance Of Traffic (MOT) and other facilities required.
- B. Contractor Use Areas required outside the Project Site shown on the Contract Drawings are not provided by the Owner. The Contractor will be responsible for obtaining any additional approvals, agreements, or easements for additional construction facilities and Contractor Use Areas and must provide documentation of approvals, agreements, or easements to the Owner/Engineer prior to mobilization of facilities and equipment.
- C. The Contractor shall coordinate the location of their proposed field office, if needed, laydown areas, etc. with the Owner.

3.02 CONSTRUCTION AIDS AND SAFETY PRECAUTIONS

- A. The Contractor shall comply with applicable laws, ordinances, rules, regulations and orders pertaining to personnel, construction machinery and equipment, hoists, cranes,

staging, materials handling facilities, tools, appliances and other construction aids. The Contractor shall provide first aid facilities where required.

- B. The Contractor shall provide barriers and shall post “No Trespassing”, other construction safety signs and MOT signage as necessary to protect the public. Appropriate barriers should be erected around all open excavations.
- C. At areas that require public safety precautionary measures, the Contractor shall install construction fencing such as U.S. Netting Safety Fence SFS series (1.800.331.2973) or equivalent. The fence shall be 6.0 feet minimum height, high-visibility, high-density mesh with rigid-material warning signs.
- D. The Contractor shall limit public access within the Project Site for the protection of the public. Any stockpile areas shall also be adequately protected with construction as necessary to isolate the work area from public access. The Contractor shall be responsible for public safety around any stockpile areas and at the construction site. All temporary safety fencing, barricades, warning lights, signs, MOT signage and flagmen shall be provided and maintained by Contractor as needed. The Contractor shall maintain security of the construction site. The Contractor is permitted to exclude the public from his Work Area as necessary to perform the Work.
- E. The contractor shall remove safety fencing upon completion of the work immediately prior to demobilizing from the project site.

3.03 SPECIAL CONTROLS

- A. Water Control: The Contractor shall maintain site drainage.
- B. Archeological and Historic Preservation Control: If during the course of construction, the Contractor discovers any archaeological or historic properties, all land-disturbing activities in the vicinity of the properties shall be halted and the Contractor shall notify the Owner immediately. The Owner will consult with the proper authorities and will obtain permission to proceed. The Contractor will be entitled to time extensions equal to the time the Work is suspended but will not be entitled to additional compensation.

3.04 SANITARY FACILITIES AND DOMESTIC WATER SUPPLY

The Contractor shall provide sanitary and drinking water facilities to accommodate its employees to comply with the applicable requirements and regulations. Facilities shall be located within the immediate Project Site and readily accessible.

3.05 TELEPHONE SERVICES AND COMMUNICATION SYSTEMS

Telephone service is not currently available at the site. The Contractor will be responsible for making their own arrangements for telephone service.

3.06 NAVIGATION

- A. Vessel traffic through the channels near the Project Site will occur throughout the duration of the project. The Contractor shall not prevent Channel traffic from passing the Project Site. The contractor is required to coordinate with the Harbormaster and ASPA Engineering as necessary.
- B. Obstruction of Channel: The Owner shall not be responsible for keeping channels free from vessels or other obstructions. The Contractor shall conduct the Work in such a manner as to not endanger commercial navigation. The Contractor will be required to conduct the Work in such a manner as to preclude any obstruction to navigation. In case the Contractor's equipment so obstructs the channel or harbor as to make difficult or endanger the passage of vessels, the Contractor shall notify the Harbormaster and the said equipment shall be promptly moved on the approach of any vessel to such extent as may be necessary to afford a practicable passage. Upon completion of the Work, the Contractor shall promptly remove his equipment, including ranges, buoys, piles, and other marks placed by him under the Contract in navigable waters or on shore.
- C. The Contractor shall anticipate vessel traffic in the slip at the pier and vessel berthing/mooring operations at the pier across the slip. Support tug traffic is to be expected during construction. Support tugs will regularly operate at the pier west end for refueling/overnight mooring operations. Construction sequencing and all work at the west end of the Pier shall be coordinated with the Owner and tug operators.

3.07 SIGNAL LIGHTS

The Contractor shall display signal lights and conduct his operation in accordance with the General Regulations of the Department of the Army and of the Coast Guard governing lights and day signals to be displayed by towing vessels with tows on which no signal can be displayed; vessels working on, dredges, and vessels engaged in laying cables or pipe or in submarine or bank protection operations and day signals to be displayed by vessels of more than 65 feet in length moored or anchored in a fairway or channel, and the passing by other vessels of floating plant working in navigable channels, as set forth in Commandant U.S. Coast Guard Instruction M16672.2 Navigation Rules: International Inland (COMDTINST M16672.2) or 33 C.F.R. 81 Appendix A (International) and 33 C.F.R. 84 and 33 C.F.R. 84 through 89 (Inland) as applicable.

3.08 TEMPORARY POWER

The Contractor will be responsible for providing their own temporary power if required. Upon completion of the Work, temporary power shall be removed from the site.

3.09 TEMPORARY BUILDINGS

- A. General: The Contractor may install temporary field trailers within the Project Site, and if so elected, must allow space for Resident Engineer. Proposed location shall be submitted to Engineer for review and approval prior to mobilization.
- B. Camp: Camp for employees at the Project Site will not be allowed. **The Contractor and its employees shall make their own arrangements for lodging.**

3.10 USE OF PROJECT SITE

- A. Staging on the Pier shall be limited to the Relieving Platform only. No Staging on the Pier outside of the Reliving Platform is allowed. Construction access to the site shall be limited to the existing Relieving Platform and by barge. The Relieving Platform is an elevated concrete slab that extends 30 feet south from the face of the existing warehouse. The warehouse doors must be accessible. Coordinate with ASPA operations on which doors must maintain accessibility and which doors may be temporarily obstructed.
- B. The Contractor will not have exclusive or unrestricted use of the Project Site for storage and its operations due to ongoing projects by Others near and in close proximity to the Project Site. The Contractor shall recognize and take into account during its planning and execution of the Work that the Engineer or Owner may require access to and use of certain areas or spaces during certain periods. The Contractor will need to coordinate access with ASPA Engineering and warehouse operators as necessary including but not limited to staging areas and vehicular access route(s).
- C. The Contractor shall perform all work within the boundaries defined on the Contract Drawings. If other areas are required for construction, the Contractor shall secure any necessary agreement or construction easement documentation with the private landowners at no additional expense to the Owner. The actual selected location shall be coordinated with and approved by the Owner.
- D. Work will be conducted within the Project Site limits during the duration of the Contract.
- E. The Owner assumes no responsibility for the condition or maintenance of any road or structure thereon that may be used by the Contractor in performing the Work under these specifications or in traveling to and from the Project Site of the Work. The Contractor is responsible for constructing, maintaining, and removing any additional access that they deem necessary to the site of the work. No payment will be made to the Contractor by the Owner for any work done in improving, repairing, or maintaining any road or structure thereon for use in the performance of the Work under these specifications.
- F. The Contractor shall be responsible for restoring the Contractor Use Areas, Contractor Site Access Areas, Project Site, and other impacted areas to their original condition as directed by the Owner/Engineer.

3.11 PROTECTION OF PROPERTY

- A. The Contractor shall not enter upon private property for any purpose without first obtaining permission from the private property owner or his duly authorized representative and providing documentation of that permission to the Owner. The Contractor shall be responsible for the preservation of all public and private property along and adjacent to work completed under the Contract and shall use every precaution necessary to prevent damage or injury thereto. He shall exercise due care in preventing and shall be responsible for damages to structures of all kinds, whether owned by the Owner or privately, and shall protect from disturbance or damage all land monuments until they have been properly referenced by the Engineer.

- B. The Contractor is also responsible for the protection of and repair of any damages to the existing roadways and facilities used during the course of construction at no additional expense to the Owner.
- C. If a staging area is utilized during construction, the Contractor is responsible for obtaining and abiding by any site use agreements with specific requirements pertaining to site restoration and improvements. The Contractor is responsible for all staging area cleanup and restoration work required at no additional expense to the Owner.
- D. The Contractor shall protect private or public property on or in the vicinity of the Project Site. The Contractor shall ensure that it is not removed, damaged, destroyed, or prevented from being used unless the contract so specifies. Property includes land, utilities, trees, landscaping, improvements legally on the right-of-way, markers, monuments, building, structures, pipe, conduit, sewer or water lines, signs, and other property of all description whether shown on the Contract Drawings or not.
- E. If the Owner requests in writing, or if otherwise necessary, the Contractor shall install protection, acceptable to the Owner, for property such as that listed herein. The Contractor is responsible for locating all property that is subject to damage by the construction operation.
- F. If the Contractor (or agents/employees of the Contractor) damage, destroy, or interfere with the use of such property, the Contractor shall restore it to original condition. The Contractor shall also halt any interference with the property's use. If the Contractor refuses or does not respond immediately, the Owner may have such property restored by other means and subtract the cost from money that will be or is due the Contractor.
- G. Navigation Aids may be located adjacent to the Project Site. If present, construction activities shall proceed so that the Navigation Aids are not damaged. Any damage to the Navigation Aid shall be immediately reported to the Owner. Repair of damage to Navigation Aids and any necessary reinstallation shall be the responsibility of the Contractor at no additional expense to the Owner.

END OF SECTION

SECTION 01 55 00

VEHICULAR ACCESS

PART 1 – GENERAL

1.01 DESCRIPTION

This Section discusses the limitations, regulations, and submittals related to any vehicular access to the project site.

1.02 RELATED SECTIONS

The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this Work as if specified in this section. Related Sections include the following:

- A. Section 01 33 00, "Submittals"
- B. Section 01 52 00, "Construction Facilities"

1.03 SUBMITTALS

All Submittals shall be made in accordance with Section 01 33 00, "Submittals". Submittals for this Section shall include the following:

- A. Construction Access Plan (Paragraph 1.04)
- B. Traffic Control Plan (Paragraph 1.06)

1.04 CONSTRUCTION ACCESS PLAN

The Contractor shall submit a Construction Access Plan and Construction Access Restoration Plan or Maintenance of Traffic (MOT) Plan, in writing, to the Engineer and Owner, at the Pre-Construction Conference for review and approval. The Plan shall be reviewed by the Engineer and Owner before accessing the Work Area. The Plan shall include, but not be limited to, the following:

- A. Planned access route for mobilization and demobilization as well as servicing of the project with supplies, personnel, and fuel.
- B. Location of staging area including fuel storage/refueling location, equipment storage.
- C. Upland Staging Area Plan that describes the equipment, procedures, and spill prevention methods for handling materials within the site(s).
- D. Types of equipment the Contractor proposes to use for construction and delivering construction materials, supplies, and personnel to the project site and on the

construction site to transport materials, personnel, etc.

- E. If applicable, plan for coordinating with the Owner and other contractors working in the area in order to gain access to locked gates within the Owner's Property or other work areas where access is controlled by other contractors, as necessary.

1.05 TRAFFIC CONTROL AT THE SITE

- A. All required and necessary traffic control throughout the Work Area and adjacent roadways including all signs, barricades, signals, and flaggers shall be provided by the Contractor.
- B. All work around and involving roadways, lane closures or truck crossings will be conducted in accordance with the ALDOT Traffic Signal Design Guide & Timing Manual, and ALDOT Standard Specifications for Highway Construction. The Contractor shall provide and ensure that appropriate "Roadwork Ahead", "Trucks Entering Roadway", "Truck Crossing" signs are established and maintained as required per ALDOT Standard Specification and Standard Traffic Signal Design Guide.
- C. The Contractor shall maintain and protect traffic on all affected roadways during the construction period. Measures for the protection and diversion of traffic, including provisions for flaggers, placing lights on or around equipment, and the erection and maintenance of adequate warning, danger and direction signs shall be as required by state (ALDOT) and local entities having jurisdiction. It is the Contractor's responsibility to contact each of the local jurisdictions to determine their requirements and to incorporate those requirements into his Traffic Control Plan.
- D. The Contractor shall be aware of regular traffic activity in the project vicinity. Warehouse access via the south side doors must be maintained. Coordinate with warehouse operators as required.

1.06 TRAFFIC CONTROL PLAN

The Contractor shall submit a Traffic Control Plan, in writing, to the Engineer and Owner, at the Pre-Construction Conference for review and approval. The Plan shall be reviewed by the Engineer and Owner before transporting any materials to the Project Site. The Plan shall include, but not be limited to, the following:

- A. Traffic control provisions for any state highways used.
- B. Traffic control provisions for Contractor use areas.
- C. Traffic control provisions for any other required traffic control in the vicinity of the project site.

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

3.01 CONSTRUCTION ACCESS

- A. Construction access to the site shall be limited to the existing Relieving Platform and by barge. The Relieving Platform is an elevated concrete slab that extends 30 feet south from the face of the existing warehouse.
- B. The Contractor is responsible for fully investigating the project area and existing conditions to ensure suitability of equipment for the Work described herein relative to access restrictions. The Contractor will be responsible for developing a Construction Access Plan (Paragraph 1.04), taking into account the access and any access restrictions. Review of this Plan regarding materials or equipment the Contractor proposes to use shall not relieve Contractor of his responsibility for errors therein and for failure of equipment to completely access the site and complete the work in a safe, sufficient manner acceptable to the Owner. Approval of the Construction Access Plan by the Owner shall not be regarded as an assumption of risks or liability by the Owner, or by any officer, employee or consultant of the Owner. The Contractor shall have no claim under the Contract because of the failure, or partial failure, of the method of work or equipment so reviewed as a result of access.
- C. At the conclusion of the project site construction activities, the Construction Access roads shall be restored to the original grade and condition as necessary subject to the approval of the Engineer and Owner.
- D. The Contractor will not have exclusive use of the Pier or adjacent roads during the execution of the Work. The Contractor will be responsible for the coordination of their proposed work activities with the Owner.

3.02 PUBLIC ROADWAY TRUCK ROUTES AND STAGING

- A. Haul route from the staging and/or storage areas shall be limited to the Relieving Platform. Staging on the Pier shall be limited to the Relieving Platform only. No Staging on the Pier outside of the Reliving Platform is allowed.
- B. Barge loading and offloading facility to the Work Area Limits shall be determined by the Contractor unless otherwise noted in the Contract Drawings or these Specifications. However, the Contractor must obey all State and Local laws governing truck traffic along the routes. If the Contractor chooses to deliver the materials via overland routes, he is subject to the provisions specified herein.
- C. The Contactor shall coordinate with and obtain approval (regarding load restrictions and traffic control requirements) from applicable State and Local organizations for use of Public Roads along the Contractors proposed haul route, when applicable.

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Mobile County Engineering & Public Works*

- D. *Alabama State Port Authority (ASPA)* The Owner assumes no responsibility for the condition or maintenance of any road or structure thereon that may be used by the Contractor in performing the Work under these Specifications or in traveling to and from the site of the Work. The Contractor is responsible for constructing, maintaining, and removing any additional access allowed in the Contract Documents that he deems necessary to the site of the Work. Any damage to the existing roadways that are used for access purposes shall be repaired by the Contractor and shall be restored to its original condition.
- E. Should the Contractor, during the progress of the Work misplace any material, plant, equipment, or other materials along Public Roadways, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such misplaced Materials to the Owner and Engineer.

END OF SECTION

SECTION 01 57 20

PROTECTION OF ENVIRONMENT

PART 1 – GENERAL

1.01 SUMMARY

- A. The work specified in this Section consists of providing, maintaining and removing temporary and permanent erosion and sedimentation controls. All the work for the project shall conform in full with ALDOT Standard Specification for Highway Construction (2018), and Related Sections:
 - 1. Section 107 Legal Relations and Responsibility to the Public
 - 2. Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas, Volume 1. 2018.
 - 3. Alabama Department of Environmental Management (ADEM)
- B. Land disturbance activity requiring a Development Order will not commence until the order is approved.
- C. Basic Principles
 - 1. Conduct the earthwork and excavation activities in such a manner to fit the topography, soil type and conditions.
 - 2. Minimize the disturbed area and duration of exposure to erosion elements.
 - 3. Stabilize disturbed areas immediately.
 - 4. Safely convey run-off from the site to an outlet such that erosion will not be increased off site.
 - 5. Retain sediment on site that was generated on site.
 - 6. Minimize encroachment upon watercourses.
- D. Temporary Erosion and Sedimentation Control; In general, temporary erosion and sedimentation control procedures shall be directed toward:
 - 1. Preventing soil erosion at the source.
 - 2. Preventing silt and sediment from entering any waterway if soil erosion cannot be prevented.
- E. Preventing silt and sediment from migrating downstream in the event it cannot be prevented from entering the waterway.

Permanent Erosion Control: Permanent erosion control measures shall be implemented to prevent sedimentation of the waterways and to prevent erosion of the Project site.

1.02 REFERENCES

The publications listed below form a part of this Technical Specification to the extent referenced. Publications are referred to in the text by basic designation only.

- A. Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas, Volume 1. 2018.

PART 2– PRODUCTS

- A. The Contractor is responsible for the selection and adequacy of all materials and equipment used for compliance with the Owner and Contractor supplied permits.
- B. A floating turbidity barrier shall be employed as part of the BMP's. Unless specified in the Contract Drawings, the turbidity barrier class shall be Type II per the Alabama Handbook for Erosion Control July 2018. The floating turbidity barrier shall extend down 12 feet (minimum) at Mean Low Water. The turbidity barrier materials and installation methods shall be consistent with the Handbook for Erosion Control. Contractor shall coordinate with Engineer and ADEM for the turbidity barrier permit and turbidity barrier footprint. Refer to Appendix C for additional details on turbidity curtain requirements.

PART 3 – EXECUTION

3.01 GENERAL

- A. All debris or deleterious material resulting from construction shall be removed from the Project Site and prevented from entering waters of the State.
- B. **All work operations shall be conducted in a manner that causes little or no adverse environmental impact to adjacent areas. If at any time, as a result of project activities, water quality problems develop (including equipment leaks or spills), operations associated with the problems shall cease, the Contractor shall immediately correct the problem, and contact the appropriate authorities. The Engineer and Owner should be notified of the problem as soon as possible but is not the first responder.**

3.02 PROTECTION OF ENVIRONMENTAL RESOURCES

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this Contract shall be protected during the entire period of this Contract. The Contractor shall confine his activities to areas defined by the Contract Documents. Environmental protection shall be as stated in the following paragraphs.

3.03 PROTECTION OF LAND RESOURCES

Prior to the beginning of any construction, the Contractor shall identify all land resources to be impacted by construction for approval by the Owner. The Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and landforms without special permission from the Owner. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.

3.04 PROTECTION OF WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to avoid pollution of surface and ground waters. As soon as possible the Contractor shall clear all waterways of temporary embankments, temporary bridges, matting, falsework, debris, or other obstructions placed during construction operations that are not part of the finished work. The Contractor is responsible for maintaining area drainage during construction.

3.05 PROTECTION OF FISH AND WILDLIFE RESOURCES

The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage of fish and wildlife. Species that require specific attention along with measures for their protection will be listed by the Contractor prior to beginning of construction operations.

3.06 CONSTRUCTION DEBRIS

The Contractor shall collect and properly dispose all trash and construction debris in accordance with all local and state solid waste management regulations and practices. No construction waste material shall be allowed to fall into the water or buried on the Project Site. The Contractor shall store all waste materials in approved metal dumpsters, or other containers approved by the Engineer. The dumpster shall be emptied as necessary or as required by local and state regulation, and the contents hauled away for proper disposal.

3.07 EQUIPMENT MAINTENANCE

The Contractor's equipment used in excavation and filling operations shall be inspected, cleaned, and maintained to prevent loss of petroleum products.

3.08 EROSION AND SEDIMENT MAINTENANCE

- A. **Best Management Practices (BMPs): Contractor should employ BMPs to minimize environmental impacts.** The Contractor can find a list of BMPs recommended by the **Alabama Handbook for Erosion Control, Sediment Control, and Stormwater Management on Construction Sites and Urban Areas, Volume 1. 2018.**

<https://www.dot.state.al.us/dsweb/divped/Stormwater/pdf/AlabamaHandbookforErosionControl.pdf>

- B. Excavation: All excavation shall be conducted in a manner that will minimize turbidity and sedimentation and that will comply with all local/state regulations.
- C. The Corp of Engineers permit procured by the Engineer and Owner is included in Appendix D of the Project Manual. The Contractor shall be responsible for complying with all the requirements of the permit at all times.

END OF SECTION

SECTION 01 71 13

MOBILIZATION AND DEMOBILIZATION

PART 1 – GENERAL

1.01 SUMMARY

Mobilization consists of preparatory work and operations, including those necessary for movement of personnel, equipment, supplies and incidentals to and within the Work Area; the establishment of offices, buildings, and other facilities necessary for the Work on the project; the cost of bonds and any required insurance; and other pre-construction expenses necessary for start of the Work. All equipment transported to the Site by barge must be floating at all times during the transit to and from the Site of Work, i.e., no grounding of equipment will be permitted during transit.

1.02 ARBITRARY MOBILIZATION BY CONTRACTOR

The Owner will pay for Mobilization and Demobilization only once. Should the Contractor demobilize prior to completing the project, such demobilization and subsequent remobilization shall be at no additional cost to the Owner.

1.03 JUSTIFICATION OF MOBILIZATION COSTS

In the event that the Owner considers the amount in this item, sixty percent (60%) and forty percent (40%) which represents mobilization and demobilization respectively does not bear a reasonable relation to the cost of the Work in this Contract, the Owner may require the Contractor to produce cost data to justify this portion of the Bid. Failure to justify such price to the satisfaction of the Owner will result in payment of actual mobilization costs, as determined by the Owner at the completion of mobilization, and actual demobilization costs at the completion of demobilization, and payment of the remainder of this item in the final payment under this Contract. The determination of the Owner is not subject to appeal.

1.04 PERMITS

The Contractor shall obtain, and pay for, all required building permits and other county or city construction and road use permits and comply with applicable laws and regulations regarding mobilization, transport of equipment, personnel and supplies, and the construction and maintenance of temporary facilities including but not limited to: structures, storage sites, laydown areas, and construction utilities.

1.05 EASEMENTS AND LAND USE AGREEMENTS

The Contractor is responsible for obtaining any easements or land use agreements for areas outside of the defined project area, at no additional expense to the Owner.

PART 1– PRODUCTS

(Not Used)

PART 2 – EXECUTION

(Not Used)

END OF SECTION

SECTION 01 71 23.16

CONSTRUCTION SURVEYING

PART 1 – GENERAL

1.01 QUALITY CONTROL

- A. The Contractor shall establish and maintain control for all work performed to assure compliance with the Specifications.
- B. All work performed shall be in conformity with the lines, grades, slopes, cross sections, and dimensions shown in the Contract Drawings. If the Contract Drawings, special provisions, or these Specifications state specific tolerances, the work shall be performed to meet or exceed those limits. The Contractor shall not deviate from the approved Contract Drawings unless the Engineer approves in writing.
- C. At the Engineer's request, the Contractor shall provide copies of any quality control records requested.
- D. Scope: Work covered by this section consists of furnishing all labor, materials, and equipment for performing construction surveying.

1.02 REFERENCES

- A. US ARMY CORPS OF ENGINEERS:
 - 1. EM 1110-1-1005 (Jan 2007) Topographic Surveying Manual

1.03 SUBMITTALS

All Submittals shall be made in accordance with Section 01 33 00, "Submittals":

- A. Construction Surveys

1.04 DATUMS

All surveys shall reference the North American Datum of 1983 (NAD83), and North American Vertical Datum of 1988 (NAVD88) in U.S. Survey Feet.

1.05 QUALIFICATIONS OF SURVEYORS

All surveying, and temporary benchmark establishment work shall be conducted in responsible charge of a licensed professional land surveyor. The surveyor shall have a minimum 2 years of documented experience using the equipment proposed for use on this project.

1.06 TOPOGRAPHIC SURVEY EQUIPMENT

The Contractor shall employ a suitable method to locate and control horizontal positions that will meet or exceed the tolerance specified.

PART 2– PRODUCTS

(Not Used)

PART 3 – EXECUTION

3.01 CONSTRUCTION SURVEYS

A. General

1. The benchmarks located near the Project Site shown on Contract Drawings shall be used for horizontal and vertical control. The Contractor shall notify the Engineer if any discrepancies or errors are identified for benchmarks provided in order to resolve any benchmark issues in coordination with the Contractor and the Contractor's Surveyor. Contractor shall protect benchmarks before construction operations commence and throughout the duration of construction. If the benchmarks are disturbed and/or destroyed by the Contractor during the Work, the Engineer may require the benchmarks to be reinstalled by a professional, licensed surveyor at no expense to the Owner.
2. Construction surveys shall be conducted utilizing surveying procedures and methodology that meet or exceed accuracy tolerances of +/- 0.05 feet in vertical and +/- 0.05 feet horizontal.
3. All construction surveys shall be performed and recorded to the nearest 0.01 feet.
4. Surveys will be of sufficient frequency and accuracy during construction so that the Engineer can determine that all construction is being performed within the tolerances of the Specifications. From time to time Engineer can require additional surveys and/or spot checks during construction.

B. Construction Staking

1. The Contractor shall perform all construction staking required to layout and set any construction stakes, baselines and marks which are needed to establish the lines, grade, slopes, cross sections, etc. A baseline offset from the Project Site shall be established, utilizing benchmarks and monuments provided on the Contract Drawings, at a location that shall not be disturbed by construction activities and located close to the work so that it provides alignment and location reference. In addition, the Contractor shall perform surveys during construction to ensure that the materials are being placed within the tolerance specified. The Engineer shall be allowed to review any surveying data prior to the start of Work.

A. AS-BUILT SURVEY

1. The Contractor shall perform a final post-construction survey (As-Built) within two (2) business days after completion of all construction. As-Built Survey shall include a full topographic dataset which provides coordinates and geometry of all newly installed elements, including but not limited to utilities, concrete construction, piling, and any critical construction points and spot elevations.
2. Survey drawings required by these Specifications shall be submitted in AutoCAD 2018 (or compatible format) and shall be signed and sealed by a registered professional land surveyor and submitted to the Engineer.
3. Point files shall contain point number, station, Northing and Easting (referenced to the datum specified in Paragraph 1.04), Elevation (referenced to the datum specified in Paragraph 1.04 and reported to the nearest 0.01 feet), and point description in electronic format.

END OF SECTION

SECTION 02 30 00
EXCAVATION AND FILL

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The work under this Section shall cover the excavation, hauling, disposal, or compaction of all material which is encountered within the limits of the work and is necessary for all construction in accordance with these specifications and in conformity with the typical cross sections shown on the plans.

1.02 WORK SCOPE

The Contractor is responsible for, but not limited to, the excavation and backfill of the following:

- A. Excavation and backfill along the demolished section of the relieving platform slab and the demolished section of pavement at the return wall for the installation of the new sheet pile bulkhead.
- B. Utility Locate. Locate and coordinate excavation and backfill work with utilities.

1.03 RELATED SECTIONS

The provisions and intent of the Contract, including the General Conditions, Special Conditions and General Requirements, and other Division V Construction Specifications apply to this work as if specified in this section. Work related to this section is described in:

- 1. Section 01 33 00 "Submittals"
- 2. Section 01 57 20 "Protection of the Environment"
- 3. Section 02 41 00 "Demolition"
- 4. Section 31 41 16 "Steel Sheet Pile"

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

- 1. ALDOT Standard Specifications for Highway Construction (2018), Division 100, Division 200
- 2. AASHTO M145 – Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes

1.04 MATERIALS

- A. All excavation below designated elevation will be classified as "Structure Excavation" and shall include all materials encountered regardless of their nature.

- B. **Underwater Backfill Foundation Material.** Underwater backfill consist of any backfill up to elevation +3.0'. This material may be placed underwater, i.e. it is not necessary to pump the water from within the excavation; however, the material should be placed in a controlled manner that will assure that no voids develop within the soil mass. Underwater Select Fill Material shall conform to ALDOT 210.02(c)3. Material for underwater backfill shall be selected sandy material of an A-3 Classification or an approved A-1 or A-2 material of which not more than 15 percent passes the Number 200 {75 µm} sieve. A rocky material that will form a firm foundation when deposited under water may also be acceptable.
- C. **Above Water Backfill Foundation Material:** Above elevation +3 ft the excavation shall be backfilled/filled with select silty or clayey sands that classify as AASHTO A-2-4(0) or A-4(0). These soils shall be placed in loose lifts of approximately 8 inches and each lift and be compacted prior to placement of the succeeding lift. From elevation +3 ft to elevation +7 ft each lift shall be compacted to at least 95 percent standard proctor density (AASHTO T99). Above elevation +7 ft, each lift should be compacted to at least 100 percent standard proctor density.
- D. **General Backfill.** Commercial material shall be aggregates meeting the requirements of ALDOT #467 or ALDOT #57.
- E. **Re-Use of Excavated Suitable Material.** Excavated suitable material shall be used, insofar as practicable and suitable. The Engineer shall be the judge of the suitability of the excavated materials for re-use.

1.05 SUBMITTALS

The following items shall be submitted to the Engineer for review in accordance with Section 01 33 00 – “Submittals”

- A. Source of Materials
- B. Construction Best Management Practices Plan (CBMPP)
- C. Weather Preparedness and Recovery Plan

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 GENERAL DEMOLITION

- A. Excavation shall not begin until utilities and mechanical lines in the vicinity of the construction work area have been identified and such exploratory work verified and coordinated with the Engineer.
- B. Structure excavation shall be of the size and depth conforming to the outline of the structure shown on the plans. Unsuitable foundation material below the normal design elevation shall be removed as directed by the Engineer and paid for as Structure Excavation.

- C. Only suitable, approved materials shall be used in the work.
- D. Choice of equipment to perform the work shall be that of the Contractor. The type and number of units shall be such as to perform the excavation operations in conformity with these specifications and secure the density required and protecting existing structures.
- E. Unless otherwise directed in the plans or directed by the Engineer, all sheeting and bracing used in making structure excavation shall be removed by the Contractor following the completion of the work.
- F. Foundation Backfilling: Fill Materials shall be placed in uniform horizontal lifts with maximum height of 8 inches loose measure and compacted to at least 95 percent of the maximum dry density as defined in the standard (D689/AASHTO T99) density test.
- G. General Backfilling: When General Backfill aggregates are used; the material will be compacted in layers not exceeding 8 inches. Mechanical tampers or vibrator plate compactors shall be used unless other method of compaction is approved in writing.
- H. No backfill shall be placed against a newly constructed structure for a period of 10 days unless authorized by the Engineer.
- I. The contractor shall implement and maintain appropriate structural and nonstructural Best Management Practices (BMPs), for the prevention and control of pollutants, and abide by the regulations of the Alabama Department of Environmental Management (ADEM) applicable to construction stormwater and project permits.

3.02 SHORING AND SLOPE STABILITY

- A. Shoring may be required in Structure Excavation work when the material encountered is unstable, when such excavation will present hazardous or undesirable condition, or when necessitated due to water conditions. Materials and design to be used for this work will be determined by the Contractor.
- B. Slope sides of excavations to comply with local codes and ordinances having jurisdiction. The Contractor shall comply with all applicable regulations governing temporary excavation slopes, including local regulatory safety requirements.

3.03 TESTING

- A. The Contractor shall engage the Geotechnical Engineer of Record to perform daily site observations and compaction test to verify proctors in accordance with the recommendation of the Geotechnical Report. Provide written reports of all test and retest.

3.04 DISPOSAL OF UNSUITABLE MATERIAL

- A. Unsuitable Material. Unsuitable material that cannot be re-used shall be deposited at an approved area off the project site. Stockpiling at the site is not allowed unless authorized by the Owner in writing.

3.05 BASIS OF PAYMENT

- A. Payment for this item shall include furnishing all materials, equipment, tools, labor, pumping, bailing, draining, and all incidentals necessary to complete the work and shall include installation and removal of any cribs, cofferdams, shoring, sheeting, or other protection, the satisfactory disposal of any unsuitable material from the excavation, and the placement and compaction in backfill of the material excavated and suitable for such use.

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1 - GENERAL

1.01 DESCRIPTION

The demolition work includes the requirements for the removal, whole or partial, and satisfactory disposal and/or salvage of all structures, debris, and other obstructions that are designated to be demolished on the drawings or within these specifications.

1.02 WORK SCOPE

The Contractor is responsible for, but not limited to, the demolition of the following:

- A. Selective demolition and disposal of a portion of the concrete relieving platform slab, elevated concrete pier slab, concrete beams, concrete walls, and timber bulkhead as noted on the demolition drawings for both Base Bid and Bid Additive.

1.03 RELATED SECTIONS

The provisions and intent of the Contract, including the General Conditions, Special Conditions and General Requirements, and other Division V Construction Specifications apply to this work as if specified in this section. Work related to this section is described in:

- 1. Section 01 33 00 "Submittals"
- 2. Section 01 57 20 "Protection of the Environment"
- 3. Section 03 30 00 "Cast-in-place Concrete"

1.04 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

- 1. American National Standards Institute (ANSI)
- 2. ANSI A10.6 – "Safety Requirements for Demolition Operations"
- 3. Code of Federal Regulations (CFR)
- 4. 40 CFR 261 Identification and Listing of Hazardous Waste
- 5. 30 TAC 335 Industrial Solid Waste and Municipal Hazardous Waste
- 6. Guidelines for the Classification and Coding of Industrial and Hazardous Wastes (RG – 022)

1.05 JOB CONDITIONS

- A. It is the Contractor's responsibility to visit the site and perform any inspection the Contractor deems appropriate, and to examine the drawings and specifications to become familiar with the quantity and character of all materials to be demolished prior to the deadline for submission of bids. The Contractor assumes full responsibility for the proper disposal of all demolition materials in an approved facility and in accordance with all applicable local, state and federal regulatory requirements.
- B. Demolition Notations on Drawings are schematic and general in nature and do not attempt to show the exact scope or detail of all required demolition.
- C. If existing unidentified utilities, structures, or services are discovered that affect the work in any way, Contractor must submit information in writing to the Owner for resolution prior to proceeding.
- D. If any demolition material is suspected to contain hazardous substances, the Contractor shall submit information in writing to the Owner and Engineer for resolution prior to proceeding.

1.06 SUBMITTALS

The following items shall be submitted to the Engineer for review in accordance with Section 01 33 00 – "Submittals"

- A. Demolition Work Plan

1.07 DEMOLITION WORK PLAN:

- A. A demolition work plan shall be submitted to the Engineer for review and approval. The demolition work plan shall be submitted prior to commencing the demolition work.
- B. The plan shall include a summary of the procedures proposed for the accomplishment of the demolition work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The plan shall include the location of all offsite disposal sites and transportation methods. The plan shall also include all proposed locations for stockpiling materials to be salvaged.
- C. The plan shall include a detailed description for how the Contractor will remove, transport, and dispose of hazardous material as detailed in Paragraph 3.07. The plan shall also include detailed information regarding the landfill used including, but not limited to, certification that the landfill meets the liner and leachate standards of the Minimum Functional Standards, Chapter 335 TAC.
- D. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in

accordance with U.S. Army Corps of Engineers Engineering Manual EM 385-1-1.

- E. Within the Demolition Work Plan, the Contractor shall include best management practices to conduct the demolition in a manner to contain floatable materials, disturbed sediments, spills, blowing debris, storm water pollution and any other affect resulting from the Contractor's demolition activities.

1.08 COORDINATION

- A. The Contractor shall fully coordinate all demolition work with the Engineer and Owner, and shall file and obtain adequate approval from the Alabama Department of Environmental Management (ADEM) for all demolition work, and shall be in conformance with ALDOT Section 205 – Removal and Relocation of Structures.
- B. Demolition of any existing electrical components, including light poles, light fixtures, transformers, etc. shall be coordinated with Alabama Power.
- C. All demolition work shall proceed in an orderly and careful manner with due consideration for any existing structures, including any portions of the surrounding structure, which are to remain.

1.09 CONTRACTOR ACCESS

- A. The Contractor shall include all anticipated access by barge for equipment delivery and for disposal of debris and materials off site.

1.10 DEMOLISH AND DISPOSE

- A. Demolish or remove and dispose of concrete debris indicated on the Contract Drawings and as further required to properly implement the new work of the Contract.
- B. Demolition and disposal shall be in accordance with all federal, state, and local laws and regulations. Contractor shall obtain any necessary permits.

1.11 REMOVAL

- A. Remove and dispose of all broken up pieces and other obstructions that lie wholly or partially within the specified demolition work.

1.12 DISPOSAL

- A. All demolished materials not designated to be salvaged shall become the property of the Contractor. Remove from site and dispose of legally. Prior to disposal, the Contractor shall provide the Engineer with the locations of all disposal sites to be used and copies of applicable permits and approvals for each site.
- B. Burning shall not be allowed at the project site.

1.13 PROTECTION

A. Protection of Personnel

1. During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site.
2. Provide protection of persons and existing adjacent property.

B. Protection of Existing Property

3. The Contractor shall take necessary precautions to avoid damage to the existing structures to remain in place. Any damaged items shall be repaired or replaced to the satisfaction of the Owner. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural support or adding new supports as may be required as a result of any cutting, removal, or demolition work perform under this contract.
4. Avoid any encroachment on adjacent properties unless prior permission is obtained from the Owner. Repair and make good any damage to adjoining properties or improvements caused by operations under this Contract.

C. Protection of the Environment

1. Any demolition work that disturbs sediment and frees contaminants shall adhere to the US Army Corps of Engineers permit for water quality.
2. Locations and amounts of hazardous materials are not specifically noted on these drawings. If the contractor uncovers materials in areas that have not been abated or tested, they are obligated to contact the Engineer and Owner for additional testing and must stop work in the affected area(s). This excludes creosote materials as all creosote materials shall be disposed of per Paragraph 3.07.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.01 GENERAL DEMOLITION

- A. The Contractor shall keep the Engineer and Owner aware of the timing and duration of project activities. Any changes or delays from the information provided to the Engineer and Owner shall be communicated as soon as it is known.
- B. The Contractor shall confirm all structures to be demolished with the Engineer and Owner prior to starting work.

3.02 SEQUENCING

- A. Refer to Contract Drawings for sequencing.

3.03 UTILITY SERVICES

- A. The Contractor shall demolish a 6 feet section of utility piping as it penetrates the proposed new sheet pile wall and where the existing utility piping interferes with the new bid additive prestressed concrete piles. Refer to the utility drawings for the connections between the new utility piping and the existing piping.)

3.04 DEMOLITION OF STRUCTURES

- A. Completely remove and dispose of designated structures and other obstructions, unless specified to be salvaged. Adjacent materials designated to remain that are damaged by the Contractor as a result of their operations shall be replaced at no additional cost to the Owner.
- B. Execute all required demolition in an orderly and careful manner.
- C. All structures, materials, debris and rubble obtained from the demolition work (unless specified to be salvaged) shall be removed from the premises promptly and disposed of at Contractor's expense at a commercially operating upland facility.
- D. Particular care shall be taken at boundaries of demolition work to provide for smooth and properly finished merging of new work with existing structures or site features to remain.
- E. All damage to existing surfaces or site components to remain, resulting from demolition work, shall be filled, patched, or refinished as required for proper completion and appearance of the finished Work.
- F. Demolition work shall be scheduled and conducted in such a manner as not to destabilize the work area during the time period between completion of demolition and completion of new work within the demolition areas. The Contractor is responsible for protections and maintenance of work area until final completion.
- G. Perform work in accordance with ANSI A10.6 and regulatory requirements.

3.05 PROTECTION:

- A. The Contractor shall be solely responsible for safety, adequacy and satisfactory performance of methods and means employed for demolition.
- B. Protection of Personnel: During the demolition work, the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of any structural elements will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.
- C. Protection of Structures: Structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, shall remain standing without additional bracing, shoring,

or lateral support until demolished, unless directed otherwise by the Engineer and Owner. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

- D. Protection of Existing Property: The Contractor shall take necessary precautions to avoid damage to existing items to remain in place, to be reused, or to remain the property of the Owner; any damaged items shall be repaired or replaced to the satisfaction of the Owner. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural support or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

3.06 DEMOLITION OF CONCRETE

- A. Before removal of existing concrete or other supporting members, provide shoring as required and in a manner suitable to the work sequence.

3.07 DISPOSAL

- A. All materials, except those indicated as salvage, and except those materials containing substances classified as hazardous or potentially hazardous by regulating local, state or federal controlling agencies, shall upon their demolition or removal become the property of the Contractor. All such material, including those containing hazardous or potentially hazardous substances shall be removed and promptly disposed of in a legal manner, away from the site and in a local disposal facility, except as otherwise provided herein.
- B. No material shall be disposed of offshore or in adjoining waterways.
- C. Dispose of any ammoniacal copper zinc arsenate (ACZA), chromated copper arsenate (CCA), and creosote treated timber materials as required by state and federal regulations and approved by the Engineer and Owner.

State Regulations: ADEM

3.08 CLEANUP

- A. Remove tools, equipment, and demolished materials from the site. Remove protections, barricades and temporary work. Remove and transport debris and rubbish in a manner that will prevent spillage into waters, onto streets or adjacent area. Restore work site to a condition comparable or better than originally encountered prior to demolition.

END OF SECTION

SECTION 03 10 00

CONCRETE FORMWORK

PART 1 – SCOPE OF WORK

1.01 GENERAL

- A. The contractor is to furnish all labor, equipment and material required to comply with the intent of the Contract Drawings pertaining to concrete formwork and shall comply with the requirements of Section 501 of the ALDOT Standard Specifications for Highway Construction.
- B. The design and engineering of the formwork, as well as its construction, are to be the responsibility of the Contractor. All forms are to be tight, adequately constructed, and securely held in place. All forms are to withstand, without deformation, the load of the fresh concrete, reinforcing, construction personnel and the effects of the vibrating process, as well as prevent the leakage of mortar. The alignment of forms is to be carefully undertaken to ensure that the forms are secured to the lines and elevations required. Forms are to be clean and are to be recleaned and repaired for each use. Form surfaces against which concrete is to be placed are to be coated with a non-staining material to prevent the adhesion of the concrete.
- C. Proper safe shoring, reshoring, and time of stripping of forms, plus number, adequacy, size and location of these shores, re-shores and forms shall be in accordance with ALDOT Section 501 and shall be so designed and constructed that all local Codes are adhered to. It shall be the sole responsibility of the Contractor to provide a safe structure at all times, and to provide safety to human life and property.
- D. All corners, edges and arises are to be constructed with a minimum 1" chamfer, or as shown on the Contract Drawings. Larger bevels and bull-nose shall be constructed as shown. The Contractor is to review the Contract Drawings to determine what other special concrete configurations may be required.
- E. Form design, tolerances of finished lines, and camber to compensate for deflections due to the weight of the fresh concrete, reinforcing, and construction personnel shall conform to ALDOT Section 501, or as otherwise required.
- F. The Contractor shall provide all chamfers, bevels, "V" scores, construction and expansion joints, waterstops, recesses, notches, reveals, keyways, reglets, inserts, anchors, depressions, ledges, knock-out panels, and temporary cleanout openings of suitably shaped materials in order to produce the cast-in-place concrete work as indicated on the Contract Drawings and in accordance with ALDOT Section 501.
- G. The Contractor shall build into the formwork all plates including sliding plates, floor drains, sleeves, frames, anchors, anchor bolts, shelf angles, flashing,

reglets, hangers, recesses, necessary ties, anchors and inserts required to anchor any brick, masonry, precast concrete or other special items.

- H. All forms shall be arranged with joints either vertical or horizontal and having a uniform spacing. All panel faces shall be as large as possible to reduce the number of form joints. Form ties shall be uniformly spaced. Joints and form ties shall be arranged in a geometric pattern acceptable to the Owner.

1.02 RELATED SECTIONS

- A. 01 33 00 – “Submittals”
- B. 03 15 00 – “Concrete Accessories”
- C. 03 20 00 – “Concrete Reinforcement”
- D. 03 30 00 – “Cast-in-Place Concrete”

1.03 SUBMITTALS

- A. The Contractor shall submit shop drawings for fabrication and erection of formwork for specific finished concrete surfaces. Shop drawings shall show the general construction of forms including jointing, special formed joints or reveals, location and pattern of form tie placement, and other items which affect the exposed concrete visually.
- B. Shop drawing review shall be for the general applications and features only. The design of formwork for structural stability and sufficiency shall be the Contractor's responsibility. The submission of shop drawings shall be in accordance with ALDOT Section 105 – Control of Work and project specification 01 33 00- “Submittals”.

PART 2 - PRODUCTS

(Not Used)

PART 3 EXECUTION

(Not Used)

END OF SECTION

SECTION 03 15 00

CONCRETE ACCESSORIES

PART 1 – SCOPE OF WORK

1.01 GENERAL

- A. This Section of the Specification covers the furnishing and installation of all accessories for concrete construction, exclusive of reinforcing steel. These accessories include, but are not necessarily limited to: construction joints, water stops, epoxy anchors, dovetail anchors, embedded items to support, brace or carry equipment or the work of others, expansion anchors, anchor bolts, elastomeric bearing pads, electrical conduit, and other items to be placed in the concrete work.
- B. These items may in some instances be specified in other Sections of these Specifications but their inclusion in the concrete work is covered under this Section.
- C. All accessories associated with the support of reinforcing steel shall be as specified in another Section of the Specifications.
- D. The Contractor is to install expansion joints and construction joints as specified in this and/or other Sections of the Specifications. Refer to Contract Drawings for locations.
- E. Insert or embedded items are to include supports, anchorages, base plates, pipe sleeves, electrical conduit, and other such items which may not necessarily be related to concrete construction but are required in order to accommodate the work of others. All such items are to be securely installed to prevent movement when the concrete is placed. Concrete shall not be placed until all insert items have been placed and the Engineer have observed their location.
- F. The Contractor is to arrange to furnish and install all insert items, of the material necessary within the formwork, prior to the placing of concrete.
- G. Materials and methods of construction not specifically covered in the Plans and Specifications shall conform to ALDOT Standard Specification for Highway Construction (2018).

1.02 RELATED SECTIONS

- A. 01 33 00 – “Submittals”

- B. 03 10 00 – “Concrete Formwork”
- C. 03 20 00 – “Concrete Reinforcement”
- D. 03 30 00 – “Cast-in-Place Concrete”

1.03 SUBMITTALS

- A. The Contractor is to furnish to the Engineer any samples which might be required to determine the type of materials to be placed in the work. Any shop drawings required to detail such work are to be submitted at that time.
- B. Submittals are to be made in accordance with requirements stated in Specification Section 01 33 00 – Submittals.

PART 2 PRODUCTS

2.01 WATERSTOPS

- A. The Contractor is to furnish and install waterstops in the locations indicated on the Contract Drawings.
- B. Dumbbell waterstops shall be of extruded polyvinyl chloride which is dimensionally stable, dense, homogeneous, and non-porous. The waterstops shall be capable of effectively sealing construction joints in concrete against the infiltration or leakage of water.
- C. Polyvinyl-chloride waterstops are to be as manufactured by Greenstreak (Sika), Progress Unlimited Inc., or equal. Waterstops shall be 9” wide dumbbell and dumbbell center bulb type meeting U.S. Army Corps of Engineers CRD C 572 74 Specifications, unless otherwise noted on Contract Drawings.
- D. Dumbbell waterstops are to be of the following style or equal:

1. Greenstreak:

Construction Joints	751
Expansion Joints	753
Split	751

2. Progress:

Construction Joints	E
Expansion Joints	H
Split	E

- E. Split-type waterstops may be used where acceptable to the Engineer provided the two divided sections are joined together by stapling.
- F. Bentonite waterstops are to be “Volclay Waterstop – Rx” as manufactured by American Colloid Company, or equal.
- G. “Waterstop – Rx” is a formulated joint sealant comprised of Volclay bentonite/butyl rubber and supplied in coil form.
- H. Bentonite waterstops are to be used where acceptable to the Engineer, or as shown on the Contract Drawings.

2.02 EMBEDDED ELECTRICAL CONDUIT

- A. All conduit encased in concrete shall be iron or steel (galvanized). Conduit wall thickness shall conform to standard schedule 40-steel pipe

2.03 OTHER EMBEDDED AND INSERT ITEMS

- A. Anchor bolts are to be as indicated and/or detailed on the Contract Drawings and as specified elsewhere in the Contract Documents, in case of conflicts the Contractor shall immediately notify the Engineer in writing for discussion and resolution.
- B. Expansion anchors are to be Type 316 stainless steel wedge type, such as “Kwik Bolt 3 316 Stainless Steel” as manufactured by Hilti, or equal.
- C. Anchor bolts cast in concrete for attachment of aluminum and stainless-steel work are to be Type 316 stainless steel hooked bolts, with stainless steel nuts and washers. Anchor bolts, for attachment of structural steel work, shall conform to F1554 Gr. 55, unless otherwise indicated on the Contract Drawings.
- D. Epoxy anchors shall be stainless steel type 316 threaded rod stud unless otherwise noted in the drawings. Reinforcing dowels shall match material used for the slabs or beams. Epoxy shall be a two component, low deflection ceramic filled epoxy. The epoxy material shall be “HIT-RE 500” as manufactured by Hilti, or equal. The adhesive shall contain no solvents or styrene. A carbide bit shall be used for the drilling of holes for use with epoxy, in no way shall a diamond-tipped core bit be used for this application unless allowed by the manufacturer where the capacity of the anchor is not reduced.

PART 3 PART 3 – EXECUTION

3.01 WATERSTOPS

- A. The Contractor is to ensure steel reinforcing bars do not interfere with proper position of waterstops. The joints shall be cleaned of dirt and construction debris prior to second placement of concrete.

- B. Field jointing of the dumbbell waterstops shall be made by welded butt splices. At intersections, dumbbell waterstops shall be spliced to preformed type joints which have been fabricated at the Manufacturer's plant. Splices are to be located a sufficient distance away from corners and elsewhere to permit adequate working room and are to be formed by means of electric tools designed specifically for this purpose, or by other acceptable methods. Splices shall be neatly made and the resulting joint is to have continuity and be in true alignment with the unspliced portions of the embedded water stops. The splices shall have a tensile strength of not less than 80% of the tensile strength of the unspliced material. The procedure for making splices in the field, and the description of the equipment required for properly making such splices, is to be presented for review at the time of the submission of the certified copies of the test reports and the samples of the waterstops. The initial splices are to be made under the supervision of a qualified representative of the Manufacturer of the waterstops.
- C. Where directed by the Engineer, splices shall be electrically tested, by an instrument recommended by the waterstop Manufacturer and supplied by the Contractor for unwelded portions, pinholes, openings, or any other imperfections in the weld, which would affect its water tightness. The Contractor shall test the welded joint in the presence of the Engineer and any joint not passing the test, as determined by the Engineer, shall be immediately replaced with a new joint and retested. Concrete shall not be placed against welded waterstops until they have been accepted.
- D. Dumbbell waterstops shall be placed as shown on the Contract Drawings or as ordered, forming a continuous watertight diaphragm in each joint, and be so secured and supported as to prevent displacement during the progress of the work and until the concrete has set. Waterstops are to be held rigidly in place. In no case are the waterstops to be bent over the joint. To ensure their proper embedment in concrete, the waterstops shall be secured in position by means of anchoring rings, 16-gauge tie wire, or other acceptable methods. The placing of concrete in forms is not to be done until the secured waterstops have been inspected.
- E. The bentonite waterstop material shall be confined within a joint, with a minimum 3" concrete cover to the exterior of the joint surface. An exposed length of the waterstop material should not be submerged for extended periods of time. If the waterstop material exhibits considerable swelling prior to confinement in the joint, it must be replaced with new material. Field joining shall be made by butt splice.
- F. The Contractor shall ensure that the bentonite waterstop material will not be displaced during or prior to concrete placement. The Contractor shall use cut nails and/or "Waterstop – Rx Adhesive", as manufactured by American Colloid Company, to hold the material in place.

3.02 EMBEDDED ELECTRICAL CONDUIT

- A. The Contractor, and/or the electrical trade Sub-Contractor, shall review with the Engineer the proposed location and method of installation of conduits in concrete construction and shall not proceed with installation of same until arrangement of conduits and openings has been agreed upon.
- B. No conduits shall be so located and installed that will impair the structural integrity of the concrete members.
- C. All conduit cross-overs shall be so located so they do not vertically displace any main reinforcing bars or otherwise impair the structural integrity of the framing system.
- D. No conduit with an outside diameter larger than one-third of the concrete slab thickness will be permitted to be installed in the slab system.
- E. All conduits shall be spaced a minimum of three conduit diameters center to center. Larger spacing of conduit is preferred.

3.03 OTHER EMBEDDED AND INSERT ITEMS

- A. Anchor bolts are to be set in pipe sleeves, where directed by the Engineer. All anchor bolts are to be set in templates and adequately braced to prevent misalignment during the placement of concrete. All bolts are to be of such a length that at least two (2) threads are exposed after tightening.

3.04 EPOXY ANCHOR SYSTEM

- A. Substitution for cast-in-place embedded anchors shall be prohibited without prior written approval from the engineer of record.
- B. Where called for epoxy anchors, bolts, dowels, reinforcing shall use an epoxy adhesive such as Hilti HIT RE500 V3 or equal. Follow all the manufacturer's written instructions for installation.
- C. All post-installed anchors and hardware (nuts and washers) shall be 304 or 316 stainless steel. Reinforcing dowels shall match the material of the reinforcing in the slabs or beams.
- D. Diameter of hole shall be as recommended by manufacturer for the particular product specified in the drawings.
- E. All anchored threaded rods and rebars shall be continuously monitored by an independent testing agency retained by the Contractor or tested after installation at contractor's expense. a minimum of 10% of each day's applications and no less than 2 shall be tested by applying a tension load 2 times the manufacturer's allowable load to the embedded anchor. if a test application fails, all applications for that day shall be tested. testing procedures and results shall be submitted and approved by the Engineer.

END OF SECTION

SECTION 03 20 00
CONCRETE REINFORCEMENT

PART 1 – SCOPE OF WORK

1.01 GENERAL

- A. This Section of the Specifications covers the furnishing, bending and placement of all reinforcing steel, welded wire reinforcement, supports and fastenings used in the concrete work. This Section also includes furnishing placement (shop) drawings covering the layout and bending of all reinforcing. These placement drawings are to be furnished to the Engineer for review, as per the requirements of Specification Section 01 33 00 – Submittals, prior to cutting, bending, or placing any reinforcement. No work shall be started until the drawings have been reviewed by the Engineer.
- B. All reinforcing is to be kept clean, free of dirt, oil or other substances which might in any way impair the bond between the reinforcing and concrete. The Contractor is to advise the Engineer to his readiness to have the reinforcing inspected after it has been installed. No concrete is to be placed unless the reinforcing, which is in place, has been observed by the Engineer or Authorized Representative.
- C. The contractor is to finish all labor, equipment and material required to comply with the intent of the Contract Drawings pertaining to concrete work. All the concrete reinforcement work for the project shall conform in full to ALDOT Standard Specifications for Highway Construction (2018), Section 502 – Steel Reinforcement, Section 835 – Steel Reinforcement, and all related sections.

1.02 RELATED SECTIONS

- A. 01 33 00 – “Submittals”
- B. 03 10 00 – “Concrete Formwork”
- C. 03 15 00 – “Concrete Accessories”
- D. 03 30 00 – “Cast-in-Place Concrete”

1.03 SUBMITTALS

- A. The Contractor is to allow proper time for the review of shop drawings. The Contractor is to allow sufficient time for inspection of reinforcing steel, once placed, before ordering and placing of concrete.

- B. The Contractor is to submit rebar shop drawings showing all plans, sections, details, elevations, bar schedules and diagrams of all bars, arrangements and assemblies as required for the fabrication and placement in the concrete formwork. Details are to be included for all special reinforcements at openings, and for all support accessories, which must be adequate in strength to hold applied live and dead loads without excessive or permanent displacement of the reinforcement.

PART 2 – PRODUCTS

- A. Where reinforcing material is properly identified, mill reports will be accepted. The Contractor shall submit certificates of the mill tests. All reinforcing steel shall come from an ALDOT approved steel mill. Approved steel mills are listed in the Department's Materials, Sources and Devices with Special Acceptance Requirements Manual, List I-12, Deformed and Plain Steel Bar Producing Mills.

(Refer to ALDOT Standard Specifications for Highway Construction (2018), Section 835 – Steel Reinforcement, and all related sections.)

PART 3 – EXECUTION

3.01 REINFORCEMENT TESTING

- A. In the event that the Engineer requires additional testing of reinforcing materials which have been delivered to the Project Site, the Contractor is to make such materials available in the sizes, lengths, and quantities necessary for testing, at no additional cost.

3.02 FABRICATION

- A. All reinforcement is to be fabricated to conform to required shapes and dimensions, with fabrication tolerances complying with CRSI "Manual of Standard Practice" MSP-1-97. In case of fabricating errors, the Contractor shall not re bend or straighten reinforcement in a manner that will injure or weaken the material. All reinforcing steel is to be pre-cut and pre-bent off site in an approved fabricating shop by an acceptable subcontractor for reinforcing steel fabrication.

3.03 DELIVERY, HANDLING, AND STORAGE

- A. All concrete reinforcement is to be delivered to the Project Site bundled, tagged, and marked. Metal tags are to be used to indicate bar size, lengths, and other information corresponding to markings shown on the placement diagrams.
- B. All concrete reinforcing materials are to be stored at the Project Site, to prevent damage and accumulation of dirt or excessive rust.

3.04 INSTALLATION

- A. The Contractor is to comply with the previously specified Codes and Standards and Concrete Reinforcing Steel Institute recommended practice described in "Placing Reinforcing Bars", latest edition, for details and methods of reinforcement placement and supports, and as herein specified.
- B. All reinforcement shall be cleaned prior to installation to remove loose rust and mill scale, earth, ice, and other materials which reduce or destroy the bond with the concrete.
- C. Bar supports shall be provided for reinforcement in foundation elements, slabs on ground, and all framed beams and slabs. Reinforcement shall be positioned, supported, and secured against displacement by formwork, construction, or concrete placement operations. Reinforcement shall be located and supported by metal chairs, runners, bolsters, spacers, and hangers.
- D. Reinforcing steel shall be supported in a manner that will maintain the clear distances between bars and the face of concrete as indicated on the Contract Drawings or mentioned in the Specifications. Supports are to include slab and beam bolsters, low and high chairs, spacers and other devices suitable for the proper spacing, supporting and fastening of reinforcing bars or welded wire reinforcement in place. Consideration is to be given for all loads applied to the reinforcing. Supports for slabs on grade are to include sand plates, laterally welded braces for high chair legs and specially designed steel framed supports for heavy reinforcing.
- E. In no case will the use of masonry, stone, or wood be permitted for bar supports. Plastic protected or non-staining legs are to be provided in the case of bar supports being in contact with the formwork of concrete surfaces exposed to view after completion.
- F. Provide reinforcing steel bar supports manufactured in accordance with all requirements of the CRSI Manual of Standard Practice. Metal supports shall be in accordance with CRSI Manual of Standard practice MSP-1-97 for Class 3 bar supports except that supports which are to be in direct contact with removable forms shall be Class 1 supports. Any premolded Class 1 support tips that do not provide a tight snug fit shall be rejected and removed from the work.
- G. Use chairs and bolsters of adequate strength to withstand loading without permanent deformation or breakage. Ensure that bar supports, both chair and bolster, do not move during concrete placing operations. To prevent movement, tie supports to the reinforcing steel. When using bar supports on corrugated metal stay-in-place forms, use supports specifically designed for the form being used.
- H. The Contractor is to vary the support bar diameters and spacing to suit each specific support requirement and detail them to suit the condition of loading.
- I. The Contractor shall not place reinforcing bars more than two (2) inches beyond the last leg of any continuous bar support. The Contractor shall not use supports as bases for runways for concrete conveying equipment and similar construction loads.

- J. All reinforcement shall be secured against displacement by tying with No. 16 gauge, black soft annealed wire at all intersections, and shall be so supported so as to keep all reinforcement away from the exposed surfaces. Whenever the members are reinforced with two curtains of reinforcement, bar spacers securely tied to both curtains shall be provided.
- K. The Contractor shall set all wire ties so that twisted ends are directed away from exposed concrete surfaces.
- L. Tack welding of reinforcement shall not be permitted.
- M. Reinforcement shall be contact lap spliced where practical, with the location of and minimum lap lengths as called for on the Contract Drawings. Where no lap length is noted on plan or section, the minimum lap shall be as per the typical details for tension lap splices. All adjacent splices shall be progressively staggered at 5' 0" on center. Unless otherwise shown on the plans, bar splices shall be Class B per ACI 318.
- N. Splicing: All laps or splices shall be Class B unless otherwise noted and shall be tied with No. 16 gauge black annealed wire and seized tight at both ends. Reinforcement shall not be spliced at points of maximum stress and, where possible, shall have splice locations staggered, and shall be designed to develop the strength of the steel without exceeding the allowable unit bond strength.
- O. The Contractor shall install welded wire reinforcement in as long lengths as practical. He shall lap adjoining pieces at least one full mesh and lace splices with 16 gauge wire. He shall not make end laps midway between supporting beams, or directly over beams of continuous members. The Contractor shall offset end laps in adjacent widths to prevent continuous laps. If fabric is ordered in rolls, transverse wires are to be on the inside of the rolls. All such fabric is to be unrolled in the direction of the span.
- P. Welding of reinforcing steel is strictly prohibited unless prior approval is provided by the Engineer.
- Q. After the reinforcement has been placed, the Contractor shall notify the Engineer as to his readiness to have the reinforcing inspected. Concrete shall not be placed until the reinforcement placement is complete and has been observed by the Engineer or Authorized Representative.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 – SCOPE OF WORK

1.01 GENERAL

- A. This Section of the Specifications covers the furnishing and installation of all cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.
- B. The contractor is to furnish all labor, equipment and material required to comply with the intent of the Contract Drawings pertaining to cast-in-place concrete work. All the cast-in-place concrete work for the project shall conform in full to ALDOT Standard Specifications for Highway Construction (2018), Section 501 and 510, and all referenced sections.

1.02 RELATED SECTIONS

- A. 01 33 00 – “Submittal”
- B. 03 10 00 – “Concrete Formwork”
- C. 03 15 00 – “Concrete Accessories”
- D. 03 20 00 – “Concrete Reinforcement”

1.03 SUBMITTALS

- A. Batching Plants: Batching plant supplying concrete shall be on List I-7, “Portland Cement Concrete Producer”, of the Materials, Sources and Devices with Special Acceptance Requirements Manual (MSDSAR) of ALDOT. The concrete producer shall submit a valid BMT-75 and proof of NRMCA certification prior to batching concrete.
- B. Product Data: For each type of product indicated.
- C. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.

Indicate amounts of mixing water to be withheld for later addition at Project site.
- D. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

- E. Formwork Shop Drawings: Prepared by or under the supervision of a qualified professional engineer detailing fabrication, assembly, and support of formwork. Form work Shop Drawing shall be signed and sealed by the qualified professional engineer registered in the State of Alabama.
- F. Shoring and Reshoring: Indicate proposed schedule and sequence of stripping formwork, shoring removal, and reshoring installation and removal.
- G. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 - 1. Location of construction joints is subject to approval by the Engineer.
- H. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.
 - 5. Fiber reinforcement.
 - 6. Waterstops.
 - 7. Curing compounds.
 - 8. Floor and slab treatments.
 - 9. Bonding agents.
 - 10. Adhesives.
 - 11. Vapor retarders.
 - 12. Semirigid joint filler.
 - 13. Joint-filler strips.
 - 14. Repair materials.
- I. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
 - 1. Aggregates.
- J. The concrete producer shall provide the Contractor with a Certificate of Compliance for each truck load of concrete, which is to be submitted to the Engineer. The Certificate of Compliance shall verify that the delivered concrete complies with the mix design and shall include:
 - 1. Manufacturer Plant (batching facility)
 - 2. Contracting Agency Contract number.
 - 3. Date
 - 4. Time batched
 - 5. Truck No.
 - 6. Initial revolution counter reading.
 - 7. Quantity (quantity batched this load
 - 8. Type of concrete by class and prouder design mix number
 - 9. Cement producer, type, and Mill Certification No.
 - 10. Fly Ash (if used) brand and Type
 - 11. Approved aggregate gradation designation
 - 12. Mix design weight per cubic yard and actual batched weights for:

- a. Cement
 - b. Fly ash (if used)
 - c. Coarse concrete aggregate and moisture content (each size)
 - d. Fine concrete aggregate and moisture content
 - e. Water (including free moisture aggregates)
 - f. Admixtures brand and total quantity batched.
 - g. Air-entraining admixtures.
 - h. Water-reducing admixtures.
 - a. Other admixtures.
- K. Floor surface flatness and levelness measurements indicating compliance with specified tolerances as follows:

Deviation from Plumb	$\pm \frac{1}{8}$ in
Horizontal Deviation (Centerline alignment)	$\pm \frac{3}{16}$ in
Length, width, or depth of specified elements	$\pm \frac{3}{16}$ in
Reinforcement Cover (Top, Bottom, and Sides)	+3 in
Slope of formed and unformed surfaces with respect to the specified plane or elevation shall not exceed the following amounts in 10 ft	$\pm \frac{1}{8}$ in
Cast-in-Place concrete at interface with existing concrete	$\pm \frac{1}{16}$ in
Floor Flatness (FF)	35
Floor Levelness (FL)	25

- L. Testing: Concrete sampling and testing plan, and Laboratory Testing report(s)
- M. Equipment Summary: Summary of pumping, transport, and vibratory equipment to be used for concrete pouring, and any other equipment to be used for concrete handling and/or placement.

1.04 QUALITY ASSURANCE

- A. Refer to paragraph 3.08, this specification, for testing requirements.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Refer to Section 03 20 00 – Concrete Reinforcement for reinforcement requirements.
- B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants. Refer to Section 03 15 00 – Concrete Accessories for requirements.

PART 2 – PRODUCTS

2.01 FORM FACING MATERIALS

- A. Refer to Section 03 10 00 – Concrete Formwork for Facing Material requirements.

2.02 CONCRETE MATERIALS

- A. All the cast-in-place concrete work for the project shall conform in full to ALDOT Standard Specifications for Highway Construction (2018), Section 501 – Structural Portland Cement Concrete. Concrete specific requirements are summarized in this section.
- B. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 - 1. Portland Cement: ASTM C 150, Type II
 - 2. Fly Ash: Type F, less than 25%.
 - 3. Silica Fume: ASTM C 1240, less than 9%
- C. Normal-Weight Aggregates: Coarse Aggregate shall comply with the graduation and material requirements of ALDOT Section 801 – Coarse Aggregate and 802- Fine Aggregate.
- D. Maximum Coarse-Aggregate Size: 1-inch (25 mm) nominal.
 - 1. Free of materials with deleterious reactivity to alkali in cement.
- E. Water: ASTM C 94/C 94M.
- F. The minimum concrete compressive strength at 28 days shall be 5000 psi, or as specified on the Contract Drawings. Substitution with a lower strength mixture is not permitted.

2.03 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- C. Proportion normal-weight concrete mixture as follows:
 - 1. Maximum Water-Cementitious Materials Ratio: 0.40 w/cm
 - 2. Maximum Slump: 3 ½ inches ± 1 inch for vibrated concrete, provided the water cement ratio does not exceed the requirements and an approved water reducer is used. Approved Type “F” chemical admixtures may be used to chemically increase the slump specified to a maximum slump of

6 inches. Tolerance does not apply when Type "F" chemical admixtures are used.

3. Target Air Content: 6%. Approved air entraining admixtures are listed in the MSDSAR manual, List II-1, "Chemical Admixtures for Portland Cement Concrete".
4. Concrete Temperature: 95 deg. F max.
5. Cementitious Materials: Use both fly ash and silica fume to reduce the total amount of Portland cement, which would otherwise be used, by not more than 34%.
6. Permeability: 2,000 coulombs, max

2.04 ADMIXTURES

- A. Concrete admixtures, if added, shall conform to the requirements of ALDOT Technical Specifications for Highway Construction (2018), Section 501.
- B. Admixtures: Use admixtures as directed by the Design Engineer and in strict accordance with manufacturer's written instructions.
 1. Use water-reducing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.05 VAPOR RETARDERS

- A. Plastic Vapor Retarder: ASTM E 1745, Class A. Include manufacturer's recommended adhesive or pressure-sensitive tape.

2.06 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.

PART 3 – EXECUTION

3.01 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork in accordance with Specification Section 03 10 00 – Concrete Formwork.

3.02 CONCRETE PLACEMENT

- A. Concrete Placement Procedures shall conform to ALDOT Specifications Section 501.
- B. Contractor shall notify the Engineer at least 24 hours before placing concrete. No concrete shall be placed until the Engineer has observed the concrete work to be performed. All special inspections to be performed by Contractor.
- C. No concrete shall be placed until the Engineer has reviewed and approved the concrete mix design.
- D. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- E. Time of hauling: The delivery and placement of ready-mixed concrete shall be completed within the time frames listed in the following table. These times are measured from the time at which water is added to the cement until the time at which placement of the load is completed.

Time limitations for the delivery and placement of concrete		
Temperature of the Concrete	Mixtures without Retarding Admixtures	Mixtures with Retarding Admixtures
Less than 85°F	1 hour	1 hour and 45 Minutes
85°F or More	45 minutes	1 hour and 15 Minutes

- F. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ALDOT Section 501.03.(c)
 - 1. In no instance shall the maximum water-cementitious ratio of the mixture design, or the maximum slump be exceeded.
- G. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

- H. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- I. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture above 50 deg F. If there are indications that there will be temperatures below 40 deg. during the first three days after placement of concrete, concrete shall be protected from cold temperatures by keeping the surface at temperatures above 50 deg F for the first 72 hours after placement and above 32 deg F for an additional 72 hours. However, the protective covering shall be retained in place until the temperature inside the protective covering reaches that of the surrounding atmosphere.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
 - 4. Hot-Weather Placement: Comply with ACI 305 and as follows:
 - a. In no instance shall the concrete be placed when the temperature of the plastic concrete is above 90 deg F. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - b. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.03 CONCRETE PROTECTING AND CURING

- A. General: Concrete curing shall conform to ALDOT Specifications Section 501. A summary of general criteria is provided in this section.

- B. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305 for hot-weather protection during curing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
 - 1. Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven (7) days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven (7) days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3.04 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated in the contract drawings and as approved by the Engineer.
- C. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of

contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.

- D. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

3.05 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- C. Waterproofing: Expansion and Isolation (Construction) Joints in the concrete construction shall be waterproofed with elastic waterproofing material Koster Joint Sealant FS-H, or Everlastic Expansion Joint Fillers as manufactured by Williams Products, Inc., or approved equal, according to manufacturer recommendations.
- D. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

3.06 CONCRETE SURFACE REPAIRS

- A. After removal of forms, concrete with surface defects and out of alignment or level beyond required tolerances, shall be repaired in accordance with ACI 301.
- B. All tie holes shall be patched.
- C. Curing shall be interrupted for the shortest time and in the smallest area practicable to perform repair.
- D. Methods of making repairs shall be approved by the Engineer.
- E. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- F. Patching Mortar: Mix dry-pack patching mortar, consisting of one-part Portland cement to two and one-half parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- G. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by the Engineer.
- H. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding. Maximum grinding depth shall be 3/8 inch.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edge to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose

steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
8. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
9. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.07 FINISHING FORMED SURFACES

- A. General: Unless otherwise specified in the drawings, exposed surfaces shall have a textured finish obtained using a burlap or cotton drag, brush, or broom so that a uniform gritty texture is obtained.
- B. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 1. Apply to concrete surfaces not exposed to public view. Tolerances in accordance with ACI 347-R14, Class C, Table 5.3.1.
- C. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, and to be covered with a coating or covering material applied directly to concrete. Tolerances in accordance with ACI 347-R14, Class A, Table 5.3.1.
- D. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another

abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.

- E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.08 FIELD QUALITY CONTROL

- A. Testing and Inspecting: The Engineer will review qualified testing and inspecting agency field tests, inspections, and test reports.
- B. Testing and Inspecting: The Contractor shall engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports. The contractor shall coordinate inspections and testing with the Engineer.
- C. Concrete Tests: Concrete Testing Services: Tests shall be performed per AASHTO Standards by a qualified concrete technicians and concrete laboratories per ALDOT-405. Mold and cure one set of 5 standard cylinders for each compressive strength test required.
 - 1. Testing Frequency: Obtain at least a composite sample for each 150 cu. yd. of concrete or 5000 s.f, or fraction thereof of each concrete mixture placed each day. Test one specimen at 3 and 7 days, two specimens at 28 days, and save one specimen as spare to test at 56 days if required. Compressive strength from concrete cylinders will be accepted when the average of two consecutive cylinders test results, obtained at the same age, equals or exceeds the specified 28-day compressive strength.
 - 2. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 - 3. Slump: T119; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 4. Air Content: T152, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 5. Concrete Temperature: T309; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each composite sample.

6. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
7. Compressive-Strength Tests: T22.
8. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three-consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below 5% of the specified compressive strength.
11. Test results shall be reported in writing to the concrete manufacturer and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for 3-, 7- and 28-day tests. Provide 56-day test results if required.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by the Engineer but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by the Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with T24 or by other methods as directed by the Engineer.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

3.09 ACCEPTANCE OF CONCRETE

- A. The Engineer will review testing reports and investigate any concrete not meeting the acceptance requirements outlined. Concrete investigations will be used to determine the suitability of potentially substandard concrete according

to ALDOT Section 501 and may include any and all the procedures outlined in ALDOT-170.

- B. Fresh Concrete will be accepted on the basis of slump, total air content, and temperature meeting the outlined requirements.
- C. Hardened concrete shall be accepted on the basis of compressive strength meeting the requirements specified.
- D. If the investigation results show that the concrete fails to meet the contract requirements, the Contractor shall be responsible for the cost of the investigation including but not limited to, per-diem, travel expenses, and sampling and testing.
- E. All unsatisfactory concrete shall be removed or repaired as directed by the Engineer. No additional compensation to the Contractor will be allowed for compliance with the outlined requirements.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 – SCOPE OF WORK

1.01 GENERAL

- A. This Technical Specification section covers the detailing, supply, fabrication and installation of metal components including all miscellaneous metal fabrication and connection components required to complete the work as required by the Contract Drawings and Specifications. Components covered under this specification include:
 - 1. Miscellaneous fabricated metal items
 - 2. Miscellaneous structural steel
 - 3. Bolts and nuts (if not specified elsewhere)
 - 4. Welding Specifications
- B. Materials and methods of construction not specifically covered in the Contract Drawings and Specifications shall conform to the ALDOT Standard Specifications for Highway Construction (2018).
- C. The design, manufacture, and installation of all items under this section shall be performed by experienced personnel meeting the minimum qualifications as defined in this specification as applicable.
- D. The work specified in this section may be considered as individual bid items or incidental to bid item work and costs as defined in the contract. All fastening materials and installation of such shall be considered incidental to applicable bid item work and are not to be paid for separately.

1.02 RELATED SECTIONS

- A. 01 33 00 – “Submittals”
- B. 31 41 16 – “Steel Sheet Piles”
- C. 09 96 26 – “Marine Coatings”

1.03 REFERENCES

- A. All work performed and materials installed by the Contractor are to be in strict accordance with the most recent revisions of the following Codes and Standards:

- B. The publications listed below form a part of this specification to the extent referenced. Latest editions apply.

1. American Welding Society (AWS)

D1.1 Structural Welding Code – Steel

2. American Society of Testing and Materials (ASTM)

A500 Gr B Structural Steel

A572 Structural Steel

F593 Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs

F594 Standard Specification for Stainless Steel Nuts

A123 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

A153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware

A563 Carbon and Alloy Steel Nuts

A780 Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings

A992 Structural Steel Shapes

316 Stainless Steel

F1554 Gr 55 Anchor Bolts

1.04 GENERAL

- A. Miscellaneous metals material specification requirements shall apply to all metal items unless otherwise identified or noted on the Contract Drawings.
- B. Temporary construction. The Contractor is responsible for temporary bracing and support of all structures during construction and shall protect all exposed partially complete work against damage. The Contractor shall take precautions to assure that the structure is adequately braced to avoid damage from wave, wake or other force action during construction. Any structural component damaged during construction shall be replaced by the Contractor at no cost to the Owner. The Contractor's proposed methods for providing temporary protection shall be included in the work plan as approved by the Engineer.

1.05 QUALITY ASSURANCE

- A. Fabricate and install structural steel in accordance with AISC Code of Standard Practice.
- B. Field Measurements. The Contractor is responsible for performing all necessary field measurements prior to ordering and fabrication of the miscellaneous metals.
- C. Fabricator qualifications: The Contractor shall engage an experienced fabricator who has completed metal fabrication work similar in material, design, and extent to that indicated for this project and with a record of successful in-service performance.

- D. Qualification of Welders and Welding Operators. Welders and welding operators shall be qualified for shop and field welding in accordance with AWS D1.1, Section 5, Parts C and D for steel welding.

1.06 MATERIAL TESTS

- A. Miscellaneous metals and appurtenant materials shall be tested and certified by the manufacturer to meet the specified chemical, mechanical, and section property requirements prior to delivery to the site. Testing of miscellaneous metals for mechanical properties shall be performed after the completion of all rolling and forming operations. Testing of miscellaneous metals shall meet the requirement of ASTM A6.

1.07 SUBMITTALS

- A. The following items shall be submitted to the Engineer for review per technical specification Section 01 33 00 - Submittals:
 - 1. Shop Drawings, including complete bills of material for metal fabrications, frame connection fabrications, attachments, and any other miscellaneous metal fabrications, and all fabricated assemblies.
 - 2. Signed & Sealed Design drawings with supporting calculations shall be developed for fabrication items designed by the fabricator or manufacturer and such design documentation shall be submitted for review and approval by the Engineer and Owner prior to fabrication.
 - 3. Submit manufacturers' mill certificates and certificates of compliance for the following materials as applicable:
 - a. Steel
 - b. Fasteners
 - c. Cast Iron
 - d. Stainless Steel
- B. Placement drawings, showing location in the Project of all fabrications, cross referenced to the shop drawings.
- C. Work plan for new fabrications and installations, and rehabilitation of existing structures; including proposed schedule and procedures shall be submitted to the Engineer.
- D. Manufacturer's literature and data for products used that demonstrates compliance with the applicable materials specifications.
- E. Certificates: Contractor to provide a copy of the Materials Safety Data Sheets (MSDS) and Consumer Information Safety (CIS) sheets to the Owner's Representative.

- F. Company Data: The Contractor shall submit the proposed metal fabricator and/or galvanizing sub-Contractors' name, address, contact name, phone number and company information, verifying that the company is in compliance with the specifications, to the Engineer for review.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. The Contractor shall supply miscellaneous metal connectors, and other metal items required to fabricate and install new structural items and perform repairs, rehabilitations to existing structures and associated components, as applicable. Metal fastener compatibility shall be as required by AISC 360 to avoid increasing the corrosion of the base metal. Miscellaneous structural steel materials shall be new, free from defects and imperfections, and shall unless otherwise indicated, conform to the following:
1. Steel Shapes: ASTM 572 Gr. 50 or Better, unless noted on the Drawings, herein, or otherwise approved by the Engineer.
 2. High Strength Bolts: ASTM F3125, Gr. A325 T1 (Galvanized)
 3. Nuts: ASTM A563 (Galvanized)
 4. Plates/Bars ASTM A572, Gr.50
 5. Structural Shapes: ASTM A992
 6. Sheet Pile See Section 31 41 16 – Steel Sheet Pile

2.02 REQUIREMENTS FOR FASTENERS, HARDWARE, AND WELDMENTS

- A. Bolt, anchor bolt, washer, and nut requirements vary depending on the materials being fastened.
- B. Bare steel to coated steel hardware:
1. Regular hot-dip galvanized hexagon head type bolts shall be used in accordance with ASTM F3125, Gr A325 T1, with threads excluded from the shear plane unless otherwise noted. Hardened washers conforming to ASTM F436 shall be used under all nuts and bolt heads unless otherwise noted. Nuts shall be heavy hex nuts conforming to ASTM A563 and shall be lubricated. Lock nuts conforming to ASTM A563 shall be used if shown on the Contract Drawings
- C. All joints between dissimilar materials which react electrolytically are to be separated with appropriate insulators, such as micarta strips, or protected with zinc chromate primer, as directed.

2.03 METAL FABRICATION

A. General

1. Items shall be shop fabricated to the extent practicable for transportation and handling. No splicing is allowed. If having no splices becomes impractical, splices shall be designed and detailed by the Contractor and submitted to the Engineer for review and approval.
2. Parts shall be match-marked to ensure accurate installation.

- B. Tolerances. Items shall be fabricated to the tolerances indicated herein or on the Drawings, or if not specified, to accepted industry standards.

2.04 STEEL FABRICATION COATING METAL GALVANIZING

- A. Fabricated and/or steel items specified or specifically required to be galvanized steel shall be galvanized in accordance with ASTM. Hot dip galvanization process shall be completed after fabrication.
- B. Repair of Zinc-Coated Surfaces. Repair all galvanized surfaces removed or damaged during welding, or shipping in accordance with ASTM A780. Repair material shall be a zinc-based alloy solder (zinc rod). Application shall be in accordance with ASTM A780 and rod manufacturer's recommendations. Minimum applied thickness shall be the minimum original galvanizing thickness required for the component in accordance with ASTM galvanizing requirements, or 12 mils, whichever is greater. After cooling, apply two coats of zinc rich paint. The Contractor shall submit repair material and methods of repair to the Engineer for review and approval.

2.05 FABRICATION MARKING

- A. Marking the Weight. Mark the weight on sub-assemblies and individual members weighing over 200 pounds.
- B. Marking Piece Marks and Directional Arrows. Mark piece marks and directional arrows on all members and sub-assemblies to be assembled at the job site. Use the piece marks assigned on the shop detail drawings or erection drawings.
- C. Method of Marking. Make all markings plainly visible with waterproof paint after shop painting.
- D. Marking Materials to be Galvanized. Stamp piece marks or match marks in material to be galvanized with metal dies so that the marks are clearly legible after galvanizing.
- E. Fabrications. All fabrications shall be marked to correspond to the fabricators placing drawings.

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS

- A. All joints between dissimilar materials which react electrolytically are to be separated with appropriate insulators, such as micarta strips, or protected with zinc chromate primer, as directed.
- B. All metal fastenings are to be installed in conformance with the manufacturer's recommendations and with the best practices in the construction industry.

3.02 GENERAL METAL FABRICATION AND INSTALLATION

- A. **Materials Delivery and Storage.** Materials delivered to the site shall be new and undamaged and shall be accompanied by certified test reports. Steel fabrications shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage. Storage of metal materials and/or fabrications should also facilitate required inspection activities.
- B. **Field Measurements.** The Contractor shall obtain all field measurements required for proper and adequate fabrication and installation of the work. Exact field measurements are the Contractor's responsibility.
- C. **Fabrication:**
 - 1. **Structural Fabrication:** Materials must be straight before being laid off or worked. If straightening is necessary, it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds will not be accepted except where welding is definitely specified, indicated or otherwise approved. Bends shall be made by approved dies, press brakes or bending rolls. Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Proposed flame cutting of material other than structural steel shall be subject to approval and shall be indicated on detail drawings. Shearing shall be accurate, and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown. Exposed edges and corners shall be chamfered to a ¾ inch radius. Finished members shall be free of twists, bends and open joints. Bolts, nuts and screws shall be tight.
 - 2. **Metal Fabrication:** Metal may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a surface that is smooth and free from cracks and notches is obtained. Surfaces and edges to be welded shall be prepared in accordance with AWS. Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided or

hand-guided cuts not exposed to view. Hand-guided cuts that are to be exposed or visible shall be chipped, ground or machined to sound metal.

3. Shop Assembly: Structural unit furnished shall be assembled in the shop to determine the correctness of the fabrication and matching of the component parts unless otherwise specified. Tolerances shall not exceed those shown. Each unit assembled shall be closely checked to ensure that all necessary clearances have been provided. Assembly in the shop shall be in the same position as final installation in the field unless otherwise specified. Errors or defects disclosed shall be immediately remedied by the Contractor without cost to the Owner. Before disassembly for shipment each piece of a structural unit shall be match-marked to facilitate erection in the field. The location of match-marks shall be indicated by circling with a ring of white paint after the shop coat of paint has been applied or as otherwise directed.
4. Metal fabrications shall be placed accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels.
5. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

3.03 GENERAL WELDING REQUIREMENTS

- A. Welding shall be done in accordance with AWS procedures, including procedures for repair of defective welds.
- B. All welds shall be visually inspected by a Contractor provided independent testing company. The components shall be inspected as statically loaded, non-tubular and tubular connections in accordance with AWS requirements.
- C. All welds and edges that may be encountered by the public after construction shall be ground to remove all burrs and weld splatter to the satisfaction of the Engineer.
- D. The Contractor shall engage a qualified testing agency to test all field welds in accordance with AWS criteria. Acceptance criteria shall be for non-cyclic loading. Welds failing shall be repaired at the Contractor's expense, which will also include all costs for retesting to achieve a passing inspection test.

3.04 STEEL WELDING

- A. Qualifications. Steel welding shall be performed by welders certified as being qualified in accordance with AWS D1.1, Section 5, Parts C and D. Welders shall be qualified to perform the type of weld being performed in all positions of the relevant type (plate, tube, etc.), using the procedures, materials, and equipment of the type required for the work. All welding shall conform to AWS D1.1. All welds shall be visually inspected by a Contractor provided independent testing company.
- B. Weld filler metal. Weld filler metal shall meet Charpy requirements of 20 foot-pounds at -20 degrees Fahrenheit and shall have chemistry similar to the base metal. Filler metals shall only be used in welding positions recommended by the filler metal manufacturer, and any welds not conforming to manufacturer's recommendations shall be removed and replaced by the Contractor at the Contractor's expense. Welding consumables shall be stored in accordance with the manufacturer's recommendations and in accordance with AWS requirements and recommendations. Overmatching weld filler metals shall be avoided.
- C. Electrodes shall be selected to match the base metal as follows:
 - 1. Use E70XX electrodes with steels that have a yield strength \leq 60 ksi
 - 2. Use E80XX electrodes with steels that have a yield strength $>$ 60 ksi
- D. Preheat. Preheat shall be based on material grade and thickness in accordance with AWS D1.1 Annex I.
- E. Inspection timeline. Prior to galvanizing, all required weld inspections and required repairs shall be performed.
- F. Welding galvanized/metalized components. All welding shall be done prior to galvanizing if possible, unless otherwise required for field-assembly. Galvanizing/metalizing within one inch of the finished weld location shall be removed prior to welding.
- G. Fillet weld soundness Test. Fillet weld procedures shall be qualified by a fillet soundness test in accordance with AWS requirements.

3.05 MISCELLANEOUS METALS INSTALLATION

- A. All parts to be installed shall be thoroughly cleaned. Packing compounds, rust, dirt, grit and other foreign matter shall be removed. Holes and grooves for lubrication shall be cleaned. Enclosed chambers or passages shall be examined to make sure that they are free from damaging materials. Where units or items are shipped as assemblies they will be inspected prior to installation. Disassembly, cleaning and lubrication will not be required except where necessary to place the assembly in a clean and properly lubricated condition. Pipe wrenches, cold chisels or other tools likely to cause damage to the surfaces of rods, nuts or other parts shall not be used for assembling and tightening parts. Bolts and screws shall be tightened firmly and uniformly but

care shall be taken not to overstress the threads. When a half nut is used for locking a full nut the half nut shall be placed first and followed by the full nut. Threads of all bolts, rods, nuts and screws shall be lubricated with an approved lubricant before assembly. Threads of corrosion-resisting steel bolts and nuts shall be coated with an approved anti-galling compound. Driving and drifting bolts or keys will not be permitted.

- B. Alignment and Settings. Each structural unit shall be accurately aligned by the use of steel shims or other approved methods so that no binding in any moving parts or distortion of any member occurs before it is fastened in place. The alignment of all parts with respect to each other shall be true within the respective tolerances required.

3.06 ANCHORAGE, FASTENINGS, AND CONNECTIONS

- A. Provide anchorage where necessary for fastening miscellaneous metal items securely in place. Include for anchorage not otherwise specified or indicated machine and carriage bolts for steel; through bolts. Provide non-ferrous attachments for non-ferrous metal. Make exposed fastenings of compatible materials, generally matching in color and finish, to which fastenings are applied. Conceal fastenings where practicable.
- B. All bolts shall be installed at the proper location and set straight and square with connecting members. Bolt installation shall conform to the requirements of AISC 303 specifications for structural joints.
- C. Bolt holes shall be provided where required or specified and at the proper location or position. Holes in metals members shall be shop punched or drilled. Field cutting or drilling of holes shall not be allowed. Unless otherwise indicated or specified, all holes for items that are to be inserted through metal members shall be standard size and not more than 1/16 inch larger than the diameter of the item being installed.

3.07 TEMPORARY CONSTRUCTION

- A. The Contractor is responsible for temporary bracing and support of all structures during construction and shall protect all exposed partially complete work against damage. The Contractor shall take precautions to ensure that structures are adequately braced to avoid damage during construction. Any structural component damaged during construction shall be replaced by the Contractor at no cost to the Owner. The Contractor's proposed methods for providing temporary protection shall be included in the work plan as approved by the Engineer.

END OF SECTION

SECTION 09 96 26

MARINE COATINGS

PART 1 – SCOPE OF WORK

1.01 GENERAL

- A. Coating (Painting) of New Structural Steel – The work under this item shall consist of all labor, materials, tools and equipment necessary to paint new structural steel, including preparing the surface, furnishing and applying paint in the shop and performing field repairs on all structural steel for the following structure(s):
 - 1. Steel Sheet Piles Coating Extents: Top 30 vertical feet, both sides.
 - 2. Miscellaneous Metals as required by other Technical Specification Sections
- B. The work to be performed as part of this specification is considered incidental to work and the cost shall be included as part of other associated bid items.

1.02 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. Refer to the latest editions.

American Conference of Governmental Industrial Hygienists (ACGIH)
ACGIH 0100 Threshold Limit (for Chemical Substances and Physical Agents) and Biological Exposure Indices, 2001-2002.

American Society for Testing and Materials (ASTM)
D 4417 Field Measurement of Surface Profile of Blast Cleaned Steel, 2014 Edition

Adhesion

ASTM D4541, Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

Amine Value

ASTM "D 1652, Standard Test Methods for Epoxy Content of Epoxy Resins

Bend Test

ASTM D 522, Standard test Method for Mandrel Bend Test of Attached Organic Coatings

Blistering

ASTM D 714, Standard Test Method for Evaluating Degree of Blistering of Paints

Density

ASTM D1475, Density of Liquid Coatings, Inks, and Related Products

Discontinuity

ASTM D5162, Standard Practice for Discontinuity (Holiday) testing of Nonconductive Protective Coating on Metallic Substrates

Dry Time

ASTM D 1640, Drying, Curing, or Film Formation of Organic Coatings at Room Temperature

ASTM D4752, Standard Practice for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub

Epoxide Equivalent

ASTM D1652, Standard test methods for Epoxy Content of Epoxy resins

Viscosity (Brebs unit (KU))

ASTM D562, Consistency of Paints Using the Stormer Viscometer

Dry Film Thickness

ASTM D7091, Standard Practice for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to Ferrous Metals and Nonmagnetic, Nonconductive Coatings Applied to Non-Ferrous Metals.

Code of Federal Regulations (CFR)

29 CFR 1910 Occupational Safety and Health Standards

29 CFR 1926 Safety and Health Regulations for Construction

National Association of Corrosion Engineers (NACE)

RP0287-2016 Field Measurement of Surface Profile of Abrasive Blast Cleaned Steel Surfaces Using a Replica Tape

Steel Structures Painting Council (SSPC) Specifications

SSPC SP 11 Bare Metal Power Tool Cleaning

SSPC SP 10 Near White Blast Cleaning

SSPC SP 3 Power Tool Cleaning

SSPC SP 1 Solvent Cleaning

SSPC PA 1 Shop, Field, and Maintenance Painting

SSPC PA 2 Measurement of Dry Paint Thickness with Magnetic Gadgets Guide 6 Containing Debris Generated During Paint Removal Operations, 2015 Edition

SSPC Guide 6 Guide for Containing Surface Preparation Debris

SSPC SP COM Surface Preparation Commentary, 2016 Edition

U.S. Army Corps of Engineers

EM 385-1-1. 1996 Safety and Health Requirements Manual

1.03 RELATED SECTIONS

- A. 01 33 00 – “Submittal”
- B. 31 41 16 – “Steel Sheet Piles”
- C. 05 50 00 – “Metals Fabrications”

1.04 DEFINITIONS

- A. Coating Sub-Contractor: Company specializing in the metal preparation and application of shop and field coating (paint) systems with at least 2 years' experience in performing coating work. Coating Sub-Contractor is a company contracted with the Contractor (or the Contractor itself) or steel Manufacturer to apply coating to the new steel fabrications. Coating Sub-Contractor shall be approved by the Engineer prior to the start of metal preparation for coating application.
- B. Paint: The term "paint" or "coat" as used herein includes emulsions, enamels, paints, stains, varnishes, sealers, and other coatings, organic or inorganic, whether they be used as prime, intermediate, or finish coats. This definition does not include troweled or sprayed-metal coating.
- C. Shop painting: The term "shop painting" or "shop coating" as referred to herein covers surface preparation and painting or coating operations conducted in a shop, mill, or plant, before shipment of paint-receiving items to the project site.

1.05 SUBMITTALS

- A. The following items shall be submitted to the Engineer for review in accordance with Section 01 33 00 – Submittals:
 - 1. Coating Work Plan
 - 2. Certificates: Contractor to provide a copy of the Materials Safety Data Sheets (MSDS) and Consumer Information Safety (CIS) sheets to comply with OSHA's hazard Communication Standard, and Technical Data sheets for each coating system to the Engineer within ten (10) days after the notice to proceed. Certificate of Qualifications shall also be included for the Contractor(s) performing the work.
 - 3. A written notification that the coating specified corresponds to the manufacturer's intended use for that coating.
 - 4. Written notification that the surface area to receive coatings has been prepared in accordance with the manufacturer's recommendations for that coating and the requirements of this specification.
 - 5. Written notification that the coatings have been mixed in accordance with the recommendations of the coating manufacturer and the requirements of this specification.
 - 6. Written notification that the coatings have been cured in accordance to the conditions required by the coating manufacturer and the requirements of this specification.
- B. Coating Work Plan:
 - 1. A coating work plan shall be submitted to the Engineer for review and approval ten (10) days prior to the start of any coating work.

2. The plan shall include:
 - i. Proposed coating product data and information providing the coating manufacturer's name, address, and phone number, and the coating manufacturer's recommended application procedures for each coating system
 - ii. Proposed Coating Sub-Contractors' name, address, contact name, phone number and qualifications, verifying that the company is in compliance with the specifications
 - iii. A detailed description of the field painting preparation work including cleaning, scraping, blasting of steel surfaces; containment of solvents, alkali and emulsions, if used; and containment of paint flakes, loose material, dust and other materials removed by power cleaning.
 - iv. A schedule for the field application of coatings, if field application is expected.

1.06 SHOP TESTING

- A. The Engineer reserves the right to inspect any or all sites listed by the supplier. If inspection is necessary, secure permission from the Engineer for inspection.
- B. The Contractor will bear the cost of sampling and testing of materials that fail to conform to the requirements of this Specification.
- C. Following shop surface preparation and prior to coating application, perform post surface preparation testing on the surfaces to receive coating for chloride and sulfate contamination. Use a commercially available post surface preparation testing kit. One or more readings greater than 32 micrograms per square inch of chlorides shall be cause for rejection of surface, or one or more readings greater than 5 micrograms per square centimeter of surface shall be cause for rejection of surface. Clean rejected surface thoroughly and retest.
- D. Contractor shall be responsible for all adhesion and non-destructive thickness testing for all shop related work. Frequency of adhesion testing shall be per coating manufacturer recommendations. Thickness testing shall be performed on all shop coated structural members (at least one per coating session for each structure). Results from shop coating tests shall be submitted to the Engineer for review.

1.07 COATING TESTING

- A. General: Testing of dry film thickness is required for the marine coating work in accordance with SSPC-PA 2. Results of the testing shall be submitted for review and shall include the following as a minimum:
 1. The type of instrument used, including manufacturer, model number, serial number and date of calibration.

2. The type of certified standard used to verify gage accuracy, including manufacturer, model number, serial number and thickness value(s).
 3. The thickness of the measured shim(s) used to adjust the Type 2 gage.
 4. The average Base Metal Reading (BMR) (if appropriate).
 5. The spot and area measurements.
 6. The gage operator and date of measurement acquisition.
- B. The Engineer reserves the right to hire an independent testing agency to verify any of the coating applied and coating test results.
- C. Dry Film Thickness: Measure the dry film thickness of the marine coating applied using a magnetic dry film thickness gauge in accordance with SSPC PA 2.
- D. Contractor shall be responsible for all coating testing related work. Results from coating tests shall be submitted to the Engineer for review. The test results shall include a letter of compliance certifying that the dry film thickness of the coating meets the requirements of the specifications.

1.08 SAFETY AND HEALTH PROVISIONS

- A. The Coating Sub-Contractor shall follow all required safety and health plans and procedures consistent with US Federal regulations as described in 29 CFR 1910, Occupational Safety and Health Standards; 29 CFR 1926, Safety and Health Regulations for Construction; EM385-1-1, US Army Corps of Engineers Safety and Health Requirements Manual; the permissible exposure limits (PEL's) contained in the latest edition of ACGIH 0022, Threshold Limit Values (for Chemical Substances and Physical Agents) and Biological Exposure Indices.

1.09 QUALITY ASSURANCE

- A. Qualifications of Coating Contractors: Submit evidence that key personnel of the contractor have a minimum of five years' experience applying the specified coating under similar conditions and have successfully performed surface preparation and application of coatings on marine steel structures on a minimum of three separate projects within the past three years. List information by individual and include the following:
1. Employer (if other than the Contractor)
 2. Name of facility
 3. Mailing address and telephone number of facilities
 4. Name of individual in facility's organization who can be contacted as a reference
 5. Location, size and description of structure
 6. Description of work carried out on structure

- B. Qualifications of Coating Manufacturer's Representative: Evidence of experience and training of the coating manufacturer's representative(s), including name, phone number and address, a statement from the coating manufacturer certifying that the representative has successfully completed all of the manufacturer's training for material storage, mixing, application, and testing, has been directly involved in evaluation and application of industrial coatings for not less than ten steel structures within the last five years, and is not an employee of the Contractor. The manufacturer's representative shall advise on surface preparation, inspections, surface repair materials and methods, material handling, batching and mixing, application, curing, and testing.
- C. Coating Materials: Provide manufacturer's certification of conformance to contract requirements.
- D. Coating System Instructions: Submit manufacturer's printed instructions, including detailed mixing and application procedures, number and types of coats required, minimum and maximum application temperatures, and curing procedures. Include materials safety data sheets (MSDS) for materials to be used at the job site

1.10 DELIVERY, STORAGE, HANDLING

- A. Paints shall be processed and packaged to ensure that within a period of one year from date of manufacture, they will not gel, liver, or thicken deleteriously, or form gas in the closed container. Paints, unless otherwise specified or permitted, shall be packaged in standard containers not larger than 5 gallons, with removable friction or lug-type covers. Each container of paint or separately packaged component thereof shall be labeled to indicate the purchaser's order number, date of manufacture, manufacturer's batch number, quantity, color, component identification and designated name, and formula or specification number of the paint together with special labeling instructions, when specified. Paint shall be delivered to the job in unbroken containers. Paints that can be harmed by exposure to cold weather shall be stored in ventilated, heated shelters.

PART 2 - PRODUCTS

2.01 COATING PRODUCTS

- A. The following is a list of Engineer pre-approved coating systems. All products used in the coating system are to be provided by the same manufacturer. The coating system shall use the coatings from one supplier only and all coating materials shall be compatible. The coating used shall be applicable for the intended use in splash zone and immersed conditions to cope with tidal movements and surges. Materials for marine coating shall conform to the following manufacturers, or approved equal, and minimum finished dry film thickness.

B. Tolerance for Coating Dry Film Thickness:

Minimum: As Specified

Maximum: Unrestricted

a. Epoxy Coating System I (Carboline)

Coat	Material	Mils Dry Film Thickness	
		Min.	Max.
Primer	Carboguard 890 GF	24 DFT	NA
Top	Carboguard 890 GF	24 DFT	NA
	Total	48 DFT	NA

b. Epoxy Coating System II (Devoe)

Coat	Material	Mils Dry Film Thickness	
		Min.	Max.
Primer	Interzone 954	24 DFT	NA
Top	Interzone 954	24 DFT	NA
	Total	48 DFT	NA

PART 3 - EXECUTION

3.01 GENERAL

- A. All steel components shall be shop coated as specified in this section and in accordance with the specified coating manufacturers' instructions.
- B. Where there is a discrepancy between the manufacturer's requirements for shop applied coating system and the requirements in this specification, the Contractor shall notify the Engineer prior to proceeding. The most conservative shall govern unless otherwise directed by the Engineer.
- C. Coat thicknesses specified in Section 2.01 indicate minimum requirements. Contractor shall apply coating with the specified maximum thickness per layer to meet manufacturer's recommendations.
- D. Proportioning and Mixing of Coating System: Follow manufacturer's instructions for proportioning, mixing, and storing. Apply mixed products within stated pot life for each product. Do not thin or modify coatings unless written authorization is provided by the coating manufacturer's representative and approved by the Engineer.
- E. Field Touch-Up Coating: All field welds, bolts, and areas with damaged or distressed coating shall be field coated (field repaired) per Section 3.04 and 3.05.

- F. The Contractor shall shop prepare all structural and ancillary elements to receive marine coating

3.02 CLEANING AND PREPARATION OF SURFACES

- A. All steel materials to be coated shall be cleaned and prepared in strict accordance with the coating manufacturers written recommendations and instructions.
- B. Surfaces to be coated shall be clean and free of oil, grease, dust, weld splatter (including existing weld splatter), steel slivers, and other contaminants before applying paint or surface treatments. Cleaning of surfaces to be painted shall be conducted in strict accordance with the coating manufacturer's recommendations. The removal of oil and grease shall, in general, be accomplished in accordance with SSPC SP 1. Cleaning and painting shall be so programmed that dust or other contaminants from the cleaning process do not fall on wet, newly painted surfaces. Surfaces not intended to be painted, such as side seals, stainless steel, and wearing surfaces shall be suitably protected from the effects of cleaning and painting operations. Welding of, or in the vicinity of, previously painted surfaces shall be conducted in a manner to prevent weld spatter from striking the paint and to otherwise reduce coating damage to a minimum. Paint damaged by welding operations shall be restored to the specified condition. All edges of items to be painted shall be rounded or chamfered a minimum of 1/16 of an inch.
- C. All steel materials to be coated shall be grit blasted to a grade SSPC-SP10, unless otherwise required by the coating manufacturer. Remove residual dust from blasted surface by blowing with dry, oil-free air, vacuuming, or sweeping

3.03 SHOP COATING APPLICATION

- A. Shop Application of Coating to Steel Materials shall be in accordance with the following:
 - 1. Field Coating Application is not allowed, except touch-up.
 - 2. General: Apply each coat so that finished surfaces are free from runs, sags, brush marks, or variations in color. Upon completion of shop applied coating, all coated surfaces shall be holiday tested. The items shall be visually inspected in the field for identification and repair of any holidays. Repairs to the coating shall be made in accordance with materials and procedures as recommended by the coating manufacturer, and as indicated on the submitted technical data sheets.
 - 3. Color: epoxy finish coating shall be light gray; where a single finished color is to be applied to an entire structure system and matching individual structural elements. Confirm color with the Owner. Where multiple coats are applied, the first coat shall be a different color that distinguishes it from the finish coat.
 - 4. Application: Apply coatings in accordance with SSPC PA 1.

- B. Application of coating system shall be conducted in strict accordance with coating manufacturer's recommendations. The finished coating shall be within the specified limits for holidays, pinholes, bubbles, runs, drops, ridges, waves, laps, unnecessary brush marks, and variations in color, texture, and gloss. All paint coats shall be applied in such manner as to produce an even, continuous film of uniform thickness. Edges, corners, crevices, seams, joints, welds, rivets, bolts, and other surface irregularities shall receive special attention to ensure that they receive the specified thickness of paint by hand stripping with a stiff bristled brush. Spray equipment shall be equipped with traps and separators and where appropriate, mechanical agitators, pressure gages, pressure regulators, and screens or filters. Air caps, nozzles, and needles shall be as recommended by the spray equipment manufacturer for the material being applied.
- C. Coating application shall be conducted in accordance with coating manufacturer's recommendations for atmospheric conditions, method and time of coat applications, drying time, mixing, safety, and all other manufacturer application recommendations for conformance with manufacturer's warranty. Unless otherwise specified by the coating manufacturer's recommendations, do not allow drying time between coats to exceed 72 hours.
- D. Coating shall be allowed to cure prior to handling, transportation, and installation. Curing time shall be in accordance with the manufacturers written recommendations.
- E. Painter and Quality Control Personnel Certification
 - 1. Painters: Painters shall be versed in the application of paint systems similar to or equal to that specified to be applied. Certification of all painters is required for each type of paint and each type of spray gun application that will be used.
- F. Repair of Defects
 - 1. Repair detected breaks, thin areas, and exposed areas damaged prior to or during installation by surface treatment and application of additional coating or by manufacturers' recommendations. Allow a period of at least 72 hours to pass following final coat before placing in immersion service.

3.04 FIELD TOUCH-UP COATING APPLICATION

- A. General: Coordinate the coating repair work with the work by others. Field coating on items as needed to repair any transportation or installation damages according to the following instructions. In addition, repair observed coating holidays and thin areas. Provide surface preparation as required by the approved coating system manufacturer's recommendations but shall not be less than SSPC-SP6, and shall be performed in the presence of the Engineer. Where a field applied coating is used, the coating system shall match the shop applied

coating. Apply all field coatings with a brush or roller. Spray painting shall not be allowed in the field unless approved by the manufacturer. Apply coatings in the field to the Coating Dry Film Thickness as required in Part 2 of this specification for the approved coating.

- B. Field Touch-Up on Field Welds: Field welded joints shall receive field touch up coating. Surfaces to be welded that have been previously coated, and surfaces adjacent to a weld, shall be cleaned of coating by rotary wire brushing in the presence of the engineer prior to welding. Surfaces shall be free from loose or thick scale, slag, rust, moisture, grease and other foreign material that would prevent proper welding or produce objectionable fumes. Completed field welded surfaces to receive field touch-up coating shall be cleaned and prepared in strict accordance with the coating manufacturers written recommendations and instructions.
- C. All field coatings shall match the color of the shop applied coating system. All coatings applied in the field shall be applied using Brush & Roller. Spray paint is not allowed in the field unless approved by the manufacturer.

3.05 APPLICATIONS CONDITIONS AND RECOAT WINDOWS FOR COATINGS

- A. General: Follow manufacturer's recommendations for recoat windows. The application condition requirements for the coating system are very time and temperature sensitive and are intended to avoid the delamination problems frequently found on industrial and marine structures. Plan coating application to ensure that specified temperature, humidity, and condensation conditions are met. If conditions do not allow for orderly application of each required coat, use appropriate means of controlling air and surface temperatures, as required. Partial or total enclosures may be required, as well as other measures, to control conditions to allow for orderly application of all required coats.
 - 1. The Contractor shall cross check the application of the coating cure time with the ambient conditions that will occur during application. Coatings shall not be applied under conditions that are outside of the recommendations of the coating supplier.
 - 2. The Contractor and the coating supplier shall be in agreement that the requirements of this Section are met prior to commencing with the coating application.
 - 3. The Contractor and the coating applicator shall reach agreement on the extent of work, time of work, and location of the work. A test specimen shall be made at the direction of the Engineer if necessary. The Coating Manufacturer's Representative or certified coating applicator shall provide recommendations and be in agreement with the Contractor regarding the field coating application process.
 - 4. The Contractor will not be permitted to use temporary tabs attached to the piling for supporting scaffolding or work platforms for coating application. Friction collars with protective devices or some other approved method for scaffolding or work platforms shall be used.

- B. Conditions for Application of Coating: Coating shall be applied only after the following conditions have been met:
1. The Contractor shall follow the ambient temperature requirements required by the coating manufacturer. In any case, temperatures shall be above 40° F. The coating temperature and substrate temperature shall be within 10° F of each other.
 2. Coatings shall be applied when the temperature of the substrate is at least 5° F above the dew point and not falling. The dew point is the temperature at, or below which moisture will condense.
 3. Coatings shall not be applied during prevailing winds speeds of 15 mph or greater, or at speeds greater than recommended by the manufacturer.
 4. Do not apply exterior coatings in snow, rain, fog or mist.

END OF SECTION

SECTION 31 41 16

STEEL SHEET PILE

PART 1 – GENERAL

1.01 SCOPE

- A. The extent and location of the “Steel Sheet Pile” work is indicated in the Contract Drawings. The work includes the requirements for furnishing and installing sheet piles (by vibrating and/or driving). This section includes the requirements for cutting or building up of these piles as necessary in accordance with these specifications, reference standards, and applicable provisions of pertinent codes.

Steel sheet piling construction work include:

1. Steel sheet piles in quantities, with sections and lengths as identified in the Contract Drawings for the construction of the new sheet pile wall.
 2. Steel sheet pile system includes:
 - a. Steel sheet pile installation
 - b. Steel sheet pile coating
- B. Materials and methods of construction not specifically covered in the Plans and Specifications shall conform to ALDOT Standard Specifications for Highway Construction (2018).

1.02 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Latest editions apply.

American Welding Society (AWS)

D1.1 Structural Welding Code – Steel

American Society of Testing and Materials (ASTM)

A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel

1.03 RELATED SECTIONS

- A. 05 50 00 – “Metal Fabrications”
B. 09 96 26 – “Marine Coatings”

1.04 QUALITY ASSURANCE

- A. The Contractor shall facilitate and assist in keeping a complete record of each pile installed, whether vibrated and/or driven, noting the rate, type, time, location and if driven keeping a driving record with blow counts for every foot or fraction of a foot driven and energy rating and fuel setting of the hammer. Facilitate and assist shall include, but not be limited to providing access to the pile installation site, providing visual access to the site, and access to Contractor records. Data shall be recorded on a "Pile Driving Record Sheet."
- B. Records: The Contractor shall keep a complete and accurate record of each pile installed. Indicate pile location, diameter, original length, mudline elevation, tip elevation, cutoff elevation, penetration in blows per foot for entire length of penetration for the pile, penetration for the pile, penetration in inches per blow for the last 10 blows, hammer data including rate of operation, make, and size, unusual pile behavior, or circumstances experienced during driving such as re-driving, heaving, weaving, obstructions and unanticipated interruption. Submit copy of pile installation records to the Owner's Representative within 24 hours of completion of pile installation. Submit complete record of all the installed piles to the Engineer within 7 calendar days after completing all pile installation work. The pile records shall be current, and the as-built locations shall be noted on the Record Drawings.
- C. Provide skilled workman at all times who shall be experienced and familiar with construction of marine structures. Supervisory personnel shall have a minimum of five (5) years of experience with the work performed in this contract.
- D. Work shall comply with the ASPA, ALDOT standard specifications 2018, Federal, and industry standard regulations regarding safety for construction work.

1.05 SUBMITTALS

- A. The following items shall be part of the Shop Drawings and Work Plan and shall be submitted to the Engineer for review at least 30 days prior to the start of onsite construction activities in accordance with Section 01 33 00 – Submittals:
 - 1. Pile Placement Plan: Submit pile placement plan. The pile placement plan shall include installation sequence, installation procedures, methods for controlling the location and alignment of piles, and installation template design and configuration.
 - 2. Manufacturer or fabricator of piling.
 - 3. Mill certification that the quality of materials meets the specified Standard and is of the correct grade, with appropriate yield strength and chemical composition.
 - 4. Records verifying fabrication/erection, tolerances, welding inspection, and nondestructive test (NDT) conformance.
 - 5. A set of detail drawings for all proposed sheet piling including fabricated sections shall show complete piling dimensions and details, driving

sequence and location of installed piling. Detail drawings shall include details and dimensions of templates and other temporary guide structures for handling piling to prevent permanent deflection, distortion or damage to piling interlocks.

6. The shop drawings shall also include dimensions and details for special corner sections, corner piles, and/or arcs and circles. Interlock swing piles shall be used to conform to the configuration shown on the drawings. The metal sheet pile shop drawings shall include manufacturers section number, the designated angle (bending and/or corner) pile positioning, Contractor's established bearings for tangents, and repetitive pattern of the new sheet pile wall. Shop drawing plan views shall also show the positioning of the plumb piles and sheet piles.
7. The Contractor shall submit descriptions of all pile driving equipment to be employed in the work. The submittal shall include details of the pile hammer, power plant, model numbers, manufacturers name, templates, relevant performance parameters, etc.
8. Contractor shall submit a vibration monitoring plan for the steel sheet pile installation. Refer to **Contract Drawings** for vibration monitoring plan.
9. For driven piles provide Wave Equation Analysis Results and Driving Recommendations: The wave equation analysis shall be used to assess the ability of the proposed driving system to install the pile to the required capacity and desired penetration depth within the allowable driving stresses. The wave equation analysis shall be performed for piles of different tip elevations. The limiting penetration rates and ultimate pile capacities shall be submitted in both tabular and graphical formats and shall be in a manner that can be readily used by field personnel.
10. Pile installation and driving records including description of pile dimensions and location, description of installation equipment and methodology. Records shall include rate of pile embedment and total installation time, and other pertinent information as required or requested by the Owner (within 1 day after completion of each driven pile).
11. As-built location of piles, as well as other information needed for the Engineer's review and acceptance, as soon as possible after installation.

1.06 PRODUCT HANDLING

A. Protection:

1. Use all means necessary to protect the materials of this section before, during and after installation and to protect the installed work and materials of all other trades.
2. Piles in storage or temporary stockpile shall be supported in such a manner that will not impair the alignment of the piles.
3. Piles shall be handled and transported only with acceptable equipment and by qualified personnel.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer at no additional cost to the Owner.

C. Dents, gouges, or arc strikes in the piling greater than 1/8-inch shall be removed or repaired as required under AWS. Pile deficiencies greater than 1/8-inch will

be rejected, and the pile shall be removed from the site and replaced by the vendor at no additional cost to the Owner.

- D. Transportation: Full length of piling shall be supported during transportation.

PART 2 - PRODUCTS

2.01 STEEL SHEET PILING

New Wall Sheet Piling

- A. Sheet piling supplied for the construction of the wall shall be new and undamaged hot-rolled steel sections conforming to ASTM A572 Grade 60 min. Steel sheet piling shall be coated in accordance with Technical Specification Section 09 96 26 – Marine Coatings.

- a. Wall Steel Sheet (Based on Skyline AZ 52 -700)

Type of Section	Minimum Nominal Width – Single Sheet (In.)	Minimum Nominal Web/Flange Thickness (In.)	Min. Moment of Inertia Per Lin. Ft. of Wall (In.) ⁴	Min. Section Modulus Per Lin. Ft. of Wall (In.) ³ (Elastic)	Approximate Weight Per Sq. Ft. of Wall (lbs/ft ² .)
AZ 52 - 700 Section	27.56	0.669 0.945	953.0	95.9	50.93
AZ 19-700	27.56	0.375	288.4	34.8	23.35
AZ12-770	30.31	0.335	156.9	23.2	19.31

- B. Miscellaneous Metals. Metal plates, shapes, bolts, nuts, corner sections, and other appurtenant fabrication and installation materials shall conform to the manufacturer's standards and to the requirements specified in the respective sheet piling standards and as specified in Section 05 50 00 – Metal Fabrications.
- C. Pile Fabrication: Full length piles shall be used wherever practical. When splicing is necessary and cannot be avoided, piles shall be fabricated to the specified length with no more than one splice made at 25 feet from the top of the pile (max). Planned splices outside of this limit shall be submitted to the Engineer for review/approval. The approved splice method shown on the plans shall be used. If other method is used, the Contractor's proposed method of pile splice shall be signed and sealed by qualified licensed Engineer and shall be submitted to the Engineer for review and distribution. Splices shall be performed by AWS D1.1 qualified welders. Welds using a backing bar in accordance with AWS D1.1 are allowed provided the bar does not interfere with the contractor's method of pile installation. E8018 electrodes shall be used for splicing.
- D. Pile dimensional tolerances shall be as follows: Overall length shall be at least 36" longer than the length indicated between the tip and cutoff elevation plus an

allowance for any damage to the head due to driving; deviation from a straight line shall not exceed length/1,000 along the entire length of pile.

- E. Mark piling with lines of high visibility paint or ink on one-foot intervals from bottom to top. Number every five feet. Markings shall be neat and clearly visible. At all times during driving, the marked portion of the pile shall remain visible to the Owner's Representative. Paint markings on coated pile sections, shall be of material approved by the coating manufacturer.
- F. Weld Testing: All welds shall be 100% visually inspected and all pile butt welds shall be 100% ultrasonically tested by a Sheet Pile Manufacturer provided independent certified testing company.

2.02 EQUIPMENT

- A. General: Type generally used in the standard pile driving practice, operated at manufacturer's specified rate, to develop required rated energy per blow.
- B. Pile Installation Equipment: A vibratory and/or impact hammer of sufficient size and capacity shall be used to install steel piles. The Contractor is to consider the effects the pile installation equipment operation will have on existing adjacent structures, revetments, and adjacent infrastructure, as well as environmental measures to be implemented during pile driving operations as required by the environmental permits and as otherwise required in this and other technical specifications. Selection of the pile installation hammer(s) with adequate capacity to drive piles to the required tip elevation is the responsibility of the Contractor. The hammer used shall have a delivered energy suitable for the total weight of the pile, the character of subsurface material to be encountered and the design length. The selected hammer shall be such that it does not damage the piles as determined by a wave equation analysis.
- C. Hammer: Sufficient capacity, size and type able to deliver consistent effective dynamic energy, suitable for piles to be driven into subgrade material into which they are to be driven, when operating at not less than 75 percent efficiency of rated driving energy.
- D. Driving Caps: Cast steel or structural steel driving cap with grooved base conforming to pile shape. Keep bearing surfaces of grooves true and smooth.
- E. Leads: Fixed or rigid type pile driver leads that will hold pile firmly in position and alignment, and in axial alignment with hammer.
- F. Wave Equation Analysis: In selecting the appropriate hammer, the Contractor shall perform a wave equation analysis for the piles. The wave equation analysis shall be performed by a registered professional engineer and shall be based on the specific equipment to be used in this contract. For each hammer to be used by the Contractor, the Contractor shall perform a bearing graph analysis as part of the wave equation analysis. Bearing graph analysis shall be

performed and submitted in both graphical and tabular form for one-foot depth increments starting at the existing ground surface and continuing to a depth 10 feet below the required pile tip elevation shown on the contract Drawings. The results of the bearing graph analysis shall be used to determine limiting penetration rates (blows/inch) such that axial stresses in the piles do not exceed 90 percent of the pile yield stress. The bearing graph analysis shall provide ultimate pile capacities versus blow counts for each hammer being used. The Contractor shall submit a summary table for each hammer he proposes to use. The table shall contain for each one foot of depth as described above the blow count rates corresponding to 90 percent of the pile yield stress and the required ultimate pile capacities specified.

2.03 TESTS, INSPECTIONS, AND VERIFICATIONS

- A. Requirements for material tests, workmanship and other measures for quality assurance shall be as specified and in Section 05 50 00 – Metal Fabrications.
- B. Materials Tests: Materials tests shall conform to the following requirements. Sheet piling and appurtenant materials shall be tested and certified by the manufacturer to meet the specified chemical, mechanical and section property requirements prior to delivery to the site. Testing of sheet piling for mechanical properties shall be performed after the completion of all rolling and forming operations. Testing of sheet piling shall meet the requirements of ASTM A6.
- C. Interlocked Joint Strength in Tension Test: The interlocked joint strength in tension test shall conform to the piling manufacturer's standard test, include testing of at least two 3-inch long coupons taken randomly from different as-produced pilings of each heat and must be approved.
- D. Handling Holes: Handling holes, if used, shall be located within the top 10 inches of the sheet pile.
- E. Tolerances: All steel sheet piling and fabricated sheet pile connections will have an allowable weight variation of plus or minus 2-1/2 percent . Length tolerance is minus 1-inches, plus 6-inches.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. Subsurface geotechnical data is available and provided as part of the Contract Documents.
- B. Obstructions such as armor rock, riprap, debris may be present within the area of sheet pile installation and shall be taken into consideration by the Contractor when developing their work plan and bids.

3.02 SPECIAL STEEL SHEET SECTIONS

- A. New steel sheet piling fabrication work for special corner and transition piles shall be conducted in accordance with the requirements of this section, and technical specification Section 05 50 00 – Metal Fabrications.

3.03 PILE INSTALLATION

- A. Installation: It is anticipated that all sheet pile installation work will be performed from a barge moored to the existing Pier. The Contractor is responsible for transporting and stockpiling of the sheet pile on a barge for access from the water.
- B. Pile Placement: Pile placement shall follow the placement plan. The Contractor shall establish a permanent base line to provide for inspection of pile placement by the Engineer during pile driving operations. The base line shall be established prior to driving piles and shall be maintained during the installation of the piles.
- C. Handling: Move steel piling by the use of “bridles,” “strong backs,” or other appropriate rigging which will prohibit the occurrence of permanent deformations. Handle pile so as to protect the pile coating. Repair damages or defects in pile coatings as specified.
- D. Installation Templates: Templates: The correct relative position of all piles shall be maintained by the use of templates. Templates shall remain in place as long as required to ensure proper alignment and connection of piles to other components. Since the Contractor may be directed by the Engineer to drive the piles to a different tip elevation, change the pile spacing, or add additional piles, all templates shall be designed and detailed to accommodate installation of additional pile or pile length at any spacing.
- E. **Hammer Special Extension:** Due to the geometric limitations around the area of installation of the new sheet pile, a special hammer extension may be required to achieve the final cutoff elevation.
- F. Obstructions: If obstructions are encountered that result in sudden, unexpected change in penetration resistance and deviation from specified tolerances, the Contractor may be required to perform one or all of the following:
 - a. Removal of obstruction.
 - b. Extraction, repositioning, and redriving or re-drilling.
 - c. Addition of extra piles.
- G. Installation Tolerances: Install piles as accurately as possible in true line and position. Prior to installing steel piling, submit to the Engineer for approval, complete details of installation equipment and falsework and bracing to be used in placing piling. Falsework and bracing must be of such a nature as to offer complete assurance of plumbness and alignment. Crooked alignment to avoid interference from obstructions will not be permitted; and such obstructions, when encountered, must be removed before proceeding with pile installation. Install pile within the following maximum tolerances (any pile deviated in final position more than the limits specified will be automatically rejected).
- H. Location: Pile head within 2 inches of design location shown.

- I. Plumbness and Deviation from Batter: Plumbness within 0.5% (1/4 inch in 4 feet) of true vertical.
- J. Cut-off elevations shall not deviate more than 2 inches above or more than 3 1/2 inches below the elevations shown on the drawings following completion of restrikes. Cut-off of piles not meeting minimum pile tip elevations shall only be allowed with the approval of the Engineer.
- K. Field Splices: Pile Lengthening (Splicing): If the pile(s) as determined by testing (or field conditions) and installation driving records do not achieve the design capacities or sufficient penetration in to the firm material and the pile(s) need to be lengthened or driven to a greater penetration to achieve such capacities, the contractor is to notify the Engineer in writing. The Contractor is to supply the materials, perform the splicing work and the pile installation work so as to maintain construction work continuity. The Contractor shall provide the Engineer with a unit price cost to supply the material and perform the pile splicing work for review and approval, and the pile installation work is to be performed at the bid unit cost. The cost of pile lengthening work shall include the splicing, cutting off and fitting the lengthened pile section once the load capacities have been achieved, and coating of the lengthened pile section. The piles shall be spliced in the leads with full penetration groove welds. All field splices shall be visually and ultrasonically tested by an independent testing agency. The contractor, not the owner, shall hire the testing agency
- L. Field Treatment: All field splices shall be marine coated per Section 09 96 26 – Marine Coatings
- M. Temporary Construction: The Contractor is responsible for temporary bracing and support of the structure during construction and shall protect all exposed partially complete work against damage. The Contractor shall take precautions to assure that the structure is adequately braced to avoid damage from wave action during construction. Any structural component damaged during construction shall be replaced by the Contractor at no cost to the Owner. The Contractors means and methods of providing temporary protection shall be included in the work plan approved by the Engineer.
- N. Protection of Existing Structures: When the plans require steel pile driving/construction operations in close proximity to existing structures, take all reasonable precautions to prevent damage to such structures. The requirements described herein apply to all types of structures (on or off the right-of-way) that may be adversely affected by construction operations due to vibrations, ground loss, ground heave, or dewatering. Do not commence work at points where the construction operations are adjacent to utility facilities or other property, until making arrangements with the utility facilities to protect against damage that might result in expense, loss, disruption of service, or other undue inconvenience to the public. The Contractor is solely and directly responsible to the Owners of such properties for all damages, injuries, expenses, losses, inconveniences, or delays caused by the Contractor's

operations. Monitor existing structures as shown on Plans or as instructed by the Owner in a manner approved by the Engineer. Notify the Engineer of any movements detected and immediately take any remedial measures required to prevent damage to the existing structures.

3.04 PILE ACCEPTANCE CRITERIA

- A. The Contractor shall engage the Geotechnical Engineer of Record to monitor all pile installation.
- B. The Contractor shall submit the as-built location of piles, as well as other information needed for the Engineer's review and acceptance, as soon as possible after installation.
- C. Misdriven or Damaged Piles: Piles damaged, mis-located, installed out of alignment, or outside of the tolerance shall be replaced with new or be pulled and re-installed as directed by the Owner's Representative at no additional expense to the Owner. Additional work required due to improper location or installation is the Contractor's responsibility. Lateral pulling of pile heads to proper location will not be allowed under any circumstances.
- D. Piles may be rejected (not accepted) by the Engineer if any one of the following conditions exist:
 - a. Piles have not been installed to the minimum tip elevation as determined from the pile installation logs or Engineer records.
 - b. Piles are not installed within the specified tolerances for plan location, plumbness, or cut-off elevation.
 - c. Incorrect sheet pile section or yield strength from what is specified in the Contract Documents.

END OF SECTION

SECTION 35 20 20

MISPLACED MATERIAL

PART 1 – GENERAL

1.01 SCOPE

This Section covers the requirements regarding any misplaced material by the Contractor.

1.02 RELATED SECTIONS

- A. 01 57 20 – “Protection of the Environment”

1.03 IN WATER

- A. Should the Contractor, during the progress of the Work, lose, dump, throw overboard, sink, or misplace any material, plant, or Equipment, which in the opinion of the Owner and Engineer may be dangerous to, or obstruct navigation, or may cause negative impact to the environment, the Contractor shall recover and remove the same with the utmost dispatch at no expense to the Owner. The Contractor shall give immediate notice, with description and location of such obstructions to the Owner and Engineer, and if required to the United States Coast Guard (USCG), and when required, mark or buoy such obstructions until the same are removed. In the event of refusal, neglect, or delay in compliance with the above requirements, such obstructions may be removed by the Owner, and the cost of such removal may be deducted from any money due or to become due to the Contractor or may be recovered under his/her bond. The liability of the Contractor for removal of a vessel wrecked or sunk without fault or negligence shall be limited to that provided in Sections 15, 19, and 20 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 410 et seq.).

1.04 ON LAND

- A. Should the Contractor, during the progress of the Work misplace any material, plant, Equipment, or other Materials outside of what is authorized within the Work Area without the approval of the Owner or Engineer, the Contractor shall recover and remove the same with the utmost dispatch. The Contractor shall give immediate notice, with description and location of such misplaced Materials to the Owner and Engineer.
- B. Misplaced Materials shall be removed at the Contractor's expense. Additionally, the Contractor will be responsible for restoring unauthorized disposal areas to pre-construction conditions at his/her own expense as specified in Section 01 57 20, “Protection of the Environment”. In the event of refusal, neglect, or delay in compliance with the above requirements, such obstructions may be removed by the Owner, and the cost of such removal may be deducted from any money due or to become due to the Contractor or may be recovered under his/her bond.

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

(Not Used)

END OF SECTION