



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL
Project # 10873 **Task #** 4 **January 2024**

SPECIFICATIONS AND CONTRACT DOCUMENT

ISSUED BY

Engineering Services Department

ALABAMA STATE PORT AUTHORITY

John C. Driscoll, Director & CEO

Kay Ivey, Governor of Alabama



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4

January 2024

2 | Page

TABLE OF CONTENTS

DIVISION I..... BID DOCUMENTS

DIVISION II CONTRACT DOCUMENTS

DIVISION III SPECIAL PROVISIONS

DIVISION IV GENERAL PROVISIONS

DIVISION V TECHNICAL SPECIFICATIONS



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

3 | Page

BID DOCUMENTS

DIVISION I
INDEX

INVITATION TO BID	I-1
INSTRUCTIONS TO BIDDERS	I-3
PROPOSAL	I-4
BID BOND	I-21
AFFIDAVIT & CERTIFICATE OF COMPLIANCE.....	I-22



Alabama State Port Authority *Specification Booklet*

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

I-1 | Page

INVITATION TO BID

Sealed bid proposals will be received via courier to the Alabama State Port Authority (ASPA), 1400 Alabama State Docks Blvd, Room 216, Administration Building, Mobile, AL 36602 by 1:00pm on February 29th, 2024. Sealed bid proposals can also be hand delivered from 1:45pm to 2:00pm on Thursday, February 29th, 2024, to the Alabama State Port Authority in the International Trade Center building, 250 North Water Street, 1st floor – Killian Room, Mobile, AL. Faxed or electronically submitted bids will not be accepted. ATTENDANCE TO THE BID OPENING IS NOT MANDATORY.

McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical Construction and Equipment Installation MOBILE, ALABAMA

The work consists principally of providing bonds, labor, materials, equipment, and supervision necessary for the construction, fabrication, installation of structures and equipment at McDuffie Terminal. Construction drawings/specifications, installation procedure manuals/drawings, installation technical information are provided herein. QAQC of installation work (REW equipment to be installed), commissioning of the two complete dual barge shifter systems at the Alabama State Port Authority's McDuffie Terminal in Mobile, Alabama shall be provided by REW, CMG and the owner. All equipment noted supplied by REW will be installed under this contract. All areas of the ASPA McDuffie Coal Terminal are restricted access facilities and require valid Port Access Credentials for entry.

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 issues related to the retrieval of the contract documents from the website should be directed to the ASPA Project Manager, Tom Alvarez, PE at tom.alvarez@alports.com or 251-441-7534.

A **MANDATORY** Pre-Bid Meeting is scheduled for Thursday, February 15th, 2024 at 10:00a.m. at the Alabama State Port Authority in the International Trade Center building, 250 North Water Street, 1st floor – Killian Room, Mobile, Alabama 36602 ([30°41'50.03"N, 88° 2'24.94"W](#)). At the conclusion of the Pre-Bid Meeting, a site visit will be offered to allow prospective Contractors to observe the existing conditions of the project site on the McDuffie Terminal. 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. **No same day escorts will be provided.** All escorted individuals are required to have a valid state or federal identification. All vehicles entering ASPA properties are required to have proof of vehicle registration and insurance.

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 and as to the requirements of the proposed Contract. Electing to not visit the site before bidding will not relieve the



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

I-2 | Page

prospective bidders from the stated requirements to “satisfy oneself as to the character, quality, and quantities of work to be performed, and as to the requirements of the proposed contract”.

A Guarantee will be required with each bid as follows: (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. All bidding Contractors must hold a current license from the State Licensing Board for General Contractors, Montgomery, Alabama with the classification of (H/RR) Heavy/Railroad or (H/RR-S) Specialty Construction: Marine Construction. Also, non-residents of the State must show evidence of having qualified with the Secretary of State to do business in Alabama.

Insofar as practical, the order of work will be as scheduled by the Contractor and approved by the ASPA Project Manager. The Contractor is required to submit a schedule detailing the construction within 10 calendar days of receipt of the Notice to Proceed. Contractor’s attention is directed to the fact that the facility’s cargo handling operation is a priority item, therefore, close coordination with McDuffie Operations and the project manager is required. All deliveries and construction activities shall be according to these specifications and all reference documents and coordinated with McDuffie Operations personnel.

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>

Bids will be publicly opened at 2:00 pm on February 29th, 2024 at the Alabama State Port Authority in the International Trade Center building, 250 North Water Street, 1st floor – Killian Room, Mobile, Alabama. 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 McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

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 Cowles, Murphy, Glover & Assoc. Project Manager, John Glover, at jglover@cmg-a.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 10:00am on Thursday, February 22nd, 2024.

2.0 PREQUALIFICATION OF BIDDERS

No proposal will be considered from any Contractor unless he 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) Contractor 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-22)



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

I-4 | Page

One copy of Item (a) through (f) should be placed in a sealed envelope with the bidder's name, 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:

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:

McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems
Electrical Construction and Equipment Installation

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.



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** I-5 | Page

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.

Additional Contract Documents

1. Richmond Engineering Works (REW) Reference Specification

A. Installation and Commissioning Manual	01/18/24
B. General Specification for Electrical Installation	09/10/23
C. Equipment Storage Procedures	REV 0
D. Standard Paint Specifications PS-4	REV 1

2. Drawing List: Electrical Equipment Installation

	<u>Revision</u>
A. 4224E-E1 Bu-1/Bu-3 Dual Barge Haul Shifter Demolition Site Plan	A
B. 4224E-E2 BU-1 Dual Barge Haul/Shifter Demolition Site Plan	A
C. 4224E-E3 BU-3 Dual Barge Haul/Shifter Demolition Site Plan	A

3. Richmond Engineering Works (REW) Electrical Drawings

<u>Drawing No.</u>	<u>Description</u>	<u>Revision</u>
SO3750-003	Barge Unloader BU-3 MCC Bucket 3C	0
SO3750-140	Barge Unloader BU-3 Dig Drive Power Elementary Diagram	0
SO3750-141	Barge Unloader BU-3 Dig Drive Control Elementary Diagram	0
SO3750-142	Barge Unloader BU-3 Dig Drive Power Elementary Diagram	0
SO3750-143	Barge Unloader BU-3 Dig Drive Encoder & Ethernet Elementary Diagram	0
SO3750-145	Barge Unloader BU-3 Return Drive Power Elementary Diagram	0
SO3750-147	Barge Unloader BU-3 Return Drive Control Elementary Diagram	0
SO3750-148	Barge Unloader BU-3 Return Drive Encoder & Ethernet Elementary Diagram	0
SO3750-151	Barge Unloader BU-3 Shifter Barge Elementary Diagram	0
SO3750-152	Barge Unloader BU-3 Shifter Barge Circuit Breaker Panel	0
SO3750-153	Barge Unloader BU-3 Shifter Barge Elementary Diagram	0
SO3750-200	Barge Unloader BU-3 Shifter Barge Conduit Layout	0
SO3750-201	Barge Unloader BU-3 Barge Haul Winch Conduit Arrangement	0
SO3750-202	Barge Unloader BU-3 Shifter Barge Cable Reel Conduit Arrangement	0
SO3750-310	Barge Unloader BU-3 Barge Haul Drives Panel Layout	0
SO3750-320	Barge Unloader BU-3 Shifter Barge Control Panel Layout	0
SO3750-321	Barge Unloader BU-3 Shifter Barge Junction Box Enclosure & Sub-Panel Layout	0
SO3750-540	Barge Unloader BU-3 Barge Haul Control Panel Interconnection	0
SO3750-541	Barge Unloader BU-3 Barge Haul Winches Interconnection	0
SO3750-542	Barge Unloader BU-3 Shifter Barge Cable Reel Interconnection	0



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024**

SO3750-550	Barge Unloader BU-3 Shifter Barge Control Panel Interconnection	0
SO3750-551	Barge Unloader BU-3 Shifter Barge Device Connections	0
SO3750-620	Barge Unloader BU-3 Shifter Barge PLC Chassis Layout	0
SO3750-621	Barge Unloader BU-3 Shifter Barge Chassis Layout Slots 1 & 2	0
SO3750-622	Barge Unloader BU-3 Shifter Barge Chassis Layout Slot 3	0
SO3750	BU3 – Barge Haul System Field Cables (SHT 1 of 2)	0
SO3750	BU3 – Barge Haul System Field Cables (SHT 2 of 2)	0
SO3828-001	Barge Unloader BU-1 Barge Haul Upgrade Single Line Diagram	0
SO3828-140	Barge Unloader BU-1 Dig Drive Power Elementary Diagram	0
SO3828-141	Barge Unloader BU-1 Dig Drive Control Elementary Diagram	0
SO3828-142	Barge Unloader BU-1 Dig Drive Power Elementary Diagram	0
SO3828-143	Barge Unloader BU-1 Dig Drive Encoder & Ethernet Elementary Diagram	0
SO3828-145	Barge Unloader BU-1 Return Drive Power Elementary Diagram	0
SO3828-147	Barge Unloader BU-1 Return Drive Control Elementary Diagram	0
SO3828-148	Barge Unloader BU-1 Return Drive Encoder & Ethernet Elementary Diagram	0
SO3828-150	Barge Unloader BU-1 Shifter Barge Elementary Diagram	0
SO3828-151	Barge Unloader BU-1 Shifter Barge Elementary Diagram	0
SO3828-152	Barge Unloader BU-1 Shifter Barge Circuit Breaker Panel	0
SO3828-200	Barge Unloader BU-1 Shifter Barge Conduit Layout	0
SO3828-201	Barge Unloader BU-1 Barge Haul Winch Conduit Arrangement	0
SO3828-202	Barge Unloader BU-1 Shifter Barge Cable Reel Conduit Arrangement	0
SO3828-310	Barge Unloader BU-1 Barge Haul Drives Panel Layout	0
SO3828-320	Barge Unloader BU-1 Shifter Barge Control Panel Layout	0
SO3828-321	Barge Unloader BU-1 Shifter Barge Junction Box Enclosure & Sub-Panel Layout	0
SO3828-540	Barge Unloader BU-1 Barge Haul Control Panel Interconnection	0
SO3828-541	Barge Unloader BU-1 Barge Haul Winches Interconnection	0
SO3828-542	Barge Unloader BU-1 Shifter Barge Cable Reel Interconnection	0
SO3828-550	Barge Unloader BU-1 Shifter Barge Control Panel Interconnection	0
SO3828-551	Barge Unloader BU-1 Shifter Barge Device Connections	0
SO3828-620	Barge Unloader BU-1 Shifter Barge PLC Chassis Layout	0
SO3828-621	Barge Unloader BU-1 Shifter Barge Chassis Layout Slots 1 & 2	0
SO3828-622	Barge Unloader BU-1 Shifter Barge Chassis Layout Slot 3	0
SO3828	BU1 – Barge Haul System Field Cables (SHT 1 of 2)	0
SO3828	BU1 – Barge Haul System Field Cables (SHT 2 of 2)	0



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024**

3A. Richmond Engineering Works (REW) Electrical Drawings with Installation Comments

<u>Drawing No.</u>	<u>Description</u>	<u>Revision</u>
SO3750-001	Barge Unloader BU-3 Motor Control Center Single Line Diagram	0
SO3750-114	Barge Unloader BU-3 Barge Haul Upgrade Single Line Diagram	0
S03750-500	Barge Unloader BU-3 PLC Panel TB1 Interconnection Diagram	0
SO3750-501	Barge Unloader BU-3 PLC Panel TB2 Interconnection Diagram	0
SO3750-502	Barge Unloader BU-3 PLC Panel TB3 Interconnection Diagram	0
SO3750-600	Barge Unloader BU-3 PLC Rack Layout	0
348281	Dravo Barge Unloader BU-1 Single Line Diagram Sht 1 of 6	2
348282	Dravo Barge Unloader BU-1 Single Line Diagram Sht 2 of 6	1
348283	Dravo Barge Unloader BU-1 Single Line Diagram Sht 3 of 6	2
348285	Dravo Barge Unloader BU-1 Single Line Diagram Sht 5 of 6	2
348288	Dravo Barge Unloader BU-1 MCC Elementary Wiring Diagram Sht 2 of 5	2
348289	Dravo Barge Unloader BU-1 MCC Elementary Wiring Diagram Sht 3 of 5	2
348290	Dravo Barge Unloader BU-1 MCC Elementary Wiring Diagram Sht 4 of 5	2
348291	Dravo Barge Unloader BU-1 MCC Elementary Wiring Diagram Sht 5 of 5	1
349118	Dravo Barge Unloader BU-1 Power & Control Arrangement Plan & Sections	
349119	Dravo Barge Unloader BU-1 Power & Control Arrangement Plan & Sections	
349121	Dravo Barge Unloader BU-1 Cable & Conduit Schedule Sht 1 of 4	
349122	Dravo Barge Unloader BU-1 Cable & Conduit Schedule Sht 2 of 4	
349123	Dravo Barge Unloader BU-1 Cable & Conduit Schedule Sht 3 of 4	
349124	Dravo Barge Unloader BU-1 Cable & Conduit Schedule Sht 4 of 4	
349125	Dravo Barge Unloader BU-1 Motor Control Center Interconnections	1
349126	Dravo Barge Unloader BU-1 Motor Control Center Interconnections	1
349128	Dravo Barge Unloader BU-1 Motor Control Center Interconnections	
349130	Dravo Barge Unloader BU-1 Auxiliary Panel Sht 1 of 2 Interconnections	
349131	Dravo Barge Unloader BU-1 Auxiliary Panel Sht 2 of 2 Interconnections	
349133	Dravo Barge Unloader BU-1 Air Compr. Cable Reel & Conv. Interconnections	
349138	Dravo Barge Unloader BU-1 Barge Haul Dig & Return Winch Interconnections	
349139	Dravo Barge Unloader BU-1 Low Voltage Distribution Pnl Interconnections	

1. Reference Marine Construction/Equipment Installation Project Drawings

<u>Drawing No.</u>	<u>Description</u>	<u>Revision</u>
4224M-C0	Cover Sheet	B
4224M-G1	General Notes	B
4224M-G2	General Notes	B
4224M-C1	Dual Barge Shifter Overall Existing Site Plan	B



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024**

4224M-C2	Dual Barge Shifter BU3 Enlarged Existing Site Plan	B
4224M-C3	Dual Barge Shifter BU1 Enlarged Existing Site Plan	B
4224M-C4	Dual Barge Shifter Demolition Plan	B
4224M-C5	Dual Barge Shifter New Overall Site Plan	B
4224M-C6	Dual Barge Shifter BU3 New Enlarged Site Plan	B
4224M-C7	Dual Barge Shifter BU1 New Enlarged Site Plan	B
4224M-S1	Dual Barge Shifter BU3 New Enlarged Dock Plan	C
4224M-S2	BU3 Dock Section	C
4224M-S3	Dual Barge Shifter BU1 New Enlarged Dock Plan	C
4224M-S4	BU1 Dock Section	C
4224M-S8	Dolphin "A" & "B" Elevation and Details	B
4224M-S9	Dolphin "C" Elevation and Details	C
4224M-S15	New Barge Breasting/Sheave Support Structure Details & Sections	C
4224M-S16	PCPS Pile Details	B
4224M-S17	New Barge Breasting Structure Pile Layout	C
4224M-S18	Ladder Placement	B

CMG – Reference Drawings

4224M-GA1	Dual Barge Shifter Site Plan	0
4224M-GA2	Dual Barge Shifter General Arrangement	0
4224M-GA3	Dual Barge Shifter	0

Richmond Engineering Works (REW) Reference Drawings

S03828-8001	Gen Arrangement of BU-1 Dual Barge Shifter System	D
S03828-8002	Gen Arrangement of BU-1 Dual Barge Shifter System Section Views	D
S03828-8010	Gen Arrangement of BU-1 Cable Reel	D
S03828-8011	Gen Arrangement of BU1 Cable Reel Section Views	B
S03828-8021	Gen Arrangement of Dua Shifter Barge System BU1 Anchor Bolt Locations & Loads	B
S03828-8051	Gen Arrangement of BU-3 Dual Barge Shifter System	C
S03828-8052	Gen Arrangement of BU-3 Dual Barge Shifter System Section Views	C
S03828-8060	Gen Arrangement of BU-3 Cable Reel	C
S03828-8061	Gen Arrangement of BU3 Cable Reel Section Views	B
S03828-8071	Gen Arrangement of Dual Barge Shifter System BU3 Anchor Bolt Locations & Loads	C
S03828-8097	Gen Arrangement of Barge Haul Drive Assembly for BU-1 & BU-3	A

2. Appendix 1 – Existing Barge Unloader Drawings (Provided as PDF)

- 10873.04 Reference Drawings Part 1.pdf
- 10873.04 Reference Drawings Part 2.pdf
- 10873.04 Reference Drawings Part 3.pdf
- 10873.04 Reference Drawings Part 4.pdf
- 10873.04 Reference Drawings Part 5.pdf



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

SCHEDULE OF PRICES

	Description	Unit	Quantity	Unit Price	Total
1	Electrical Demolition BU3				
1.1	Remove Existing Barge Haul Control Panel, 150AT Circuit Breaker in MCC Unit 1F, Existing Feeder and Control Conductors associated with Barge Haul Drive system	LS	1	\$	\$
1.2	Remove (2)60kVA Upstream/Downstream ISO XFMR's and Associated Power and Control Conductors, Conduit and Supports	LS	1	\$	\$
1.3	Remove (2)20HP Upstream/Downstream 230V dc Motors and Associated Power and Control Conductors, Conduit and Supports	LS	1	\$	\$
1.4	Remove all Existing Miscellaneous Supports/Devices/Equipment Required to Complete the Installation as Designed	LS	1	\$	\$
Subtotal					\$
2	Electrical Installation BU3				
2.1	Install Richmond Engineering Works (REW) Furnished Barge Haul Control Panel.	EA	1	\$	\$
2.2	Furnish and Install 225AT Circuit Breaker in Existing MCC Unit 1F for New Barge Haul Control Panel.	EA	1	\$	\$
2.3	Furnish and Install New 600V, 3-Conductor #300MCM with Ground (Field Cable P540-1) from MCC Unit 1F to Barge Haul Control Panel.	LF	70	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

I-10 | Page

2.4	Furnish and Install New 600V, VFD 3-Conductor #2AWG with Ground (Field Cable P540-2) from Barge Haul Control Panel to Digging Winch Motor.	LF	220	\$	\$
2.5	Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P540-3) from Barge Haul Control Panel to Digging Winch Brake.	LF	220	\$	\$
2.6	Furnish and Install New 600V, VFD 3-Conductor #2AWG with Ground (Field Cable P540-4) from Barge Haul Control Panel to Return Winch Motor.	LF	260	\$	\$
2.7	Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P540-3) from Barge Haul Control Panel to Return Winch Brake.	LF	260	\$	\$
2.8	Furnish and Install 100AT Circuit Breaker in Existing MCC Unit 2G for Shifter Barge Control Panel Power.	EA	1	\$	\$
2.9	Furnish and Install New 600V, 3-Conductor #2AWG with Ground (Field Cable P542-1) from MCC Unit 2G to New Cable Reel Slip Rings for Shifter Barge Control Panel.	LF	320	\$	\$
2.10	Install REW Furnished Shifter Barge Control Panel Trailing Cable (Field Cable P542-5) from New Cable Reel Slip Rings to Shifter Barge Control Panel. Cable to be installed on Reel.	LF	400	\$	\$
2.11	Furnish and Install 100AT Circuit Breaker in Existing MCC Unit 2M for Cable Reel VFD Panel.	EA	1	\$	\$
2.12	Furnish and Install New 600V, VFD 3-Conductor #12AWG with Ground (Field Cable P542-2) from Cable Reel VFD Panel to Cable Reel Motor.	LF	320	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

I-11 | Page

2.13	Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P542-3) from Cable Reel VFD Panel to Cable Reel Brake.	LF	320	\$	\$
2.14	Furnish and Install New 600V, 3-Conductor #2AWG with Ground (Field Cable P542-4) from MCC Unit 2M to Cable Reel VFD Panel.	LF	70	\$	\$
2.15	Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-1) from PLC Control Panel to Digging Winch Motor Temperature Switch.	LF	215	\$	\$
2.16	Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-2) from PLC Control Panel to Return Winch Motor Temperature Switch.	LF	255	\$	\$
2.17	Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-3) from PLC Control Panel to Digging Winch Payout Limit Switch.	LF	240	\$	\$
2.18	Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C501-4) from PLC Control Panel to Digging Local Maintenance Station.	LF	215	\$	\$
2.19	Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C501-5) from PLC Control Panel to Return Local Maintenance Station.	LF	255	\$	\$
2.20	Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C501-6) from PLC Control Panel to Return Winch Payout Limit Switch.	LF	280	\$	\$
2.21	Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-16) from PLC Control Panel to Digging Winch Released Limit Switch.	LF	215	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** I-12 | Page

2.22	Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-17) from PLC Control Panel to Return Winch Released Limit Switch.	LF	255	\$	\$
2.23	Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C540-1) from Barge Haul Control Panel to Return Winch Heater.	LF	255	\$	\$
2.24	Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C540-2) from Barge Haul Control Panel to Digging Winch Heater.	LF	215	\$	\$
2.25	Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C540-3) from PLC Control Panel to Barge Haul Control Panel.	LF	70	\$	\$
2.26	Furnish and Install New 600V, 3-Conductor #12AWG (Field Cable C540-4) from Low Voltage Distribution Panelboard 'LPAN' to Barge Haul Control Panel.	LF	60	\$	\$
2.27	Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C542-1) from Cable Reel VFD Panel to PLC Control Panel.	LF	70	\$	\$
2.28	Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C542-2) from Cable Reel VFD Panel to Cable Reel Motor Temperature Switch.	LF	220	\$	\$
2.29	Furnish and Install New 600V, 3-Conductor #12AWG (Field Cable LPAN-2) from Low Voltage Distribution Panelboard 'LPAN' to Cable Reel Space Heater	LF	220	\$	\$
2.30	Furnish and Install (1)4-Pair #16 AWG (Field Cable S500-3) Twisted & Shielded Cable from PLC Control Panel to Cable Reel Inclinator A	LF	235	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

I-13 | Page

2.31	Furnish and Install (1)4-Pair #16 AWG (Field Cable S500-4) Twisted & Shielded Cable from PLC Control Panel to Cable Reel Inclinometer B	LF	260	\$	\$
2.32	Furnish and Install (1) Cat5 Ethernet (Field Cable S540-1) from PLC Control Panel to Barge Haul Control Panel.	LF	70	\$	\$
2.33	Furnish and Install (1)4-Pair #16 AWG (Field Cable S540-3) Twisted & Shielded Cable from Barge Haul Control Panel to Digging Winch Encoder.	LF	220	\$	\$
2.34	Furnish and Install (1)4-Pair #16 AWG (Field Cable S540-4) Twisted & Shielded Cable from Barge Haul Control Panel to Return Winch Encoder.	LF	260	\$	\$
2.35	Furnish and Install (1)4-Pair #16 AWG (Field Cable S542-1) Twisted & Shielded Cable from Cable Reel VFD Panel to Cable Reel Motor Encoder.	LF	320	\$	\$
2.36	Furnish and Install (1) Cat5 Ethernet (Field Cable S542-2) from PLC Control Panel to Cable Reel Position Encoder	LF	320	\$	\$
2.37	Furnish and Install (1) Cat5 Ethernet (Field Cable S542-3) from PLC Control Panel to Cable Reel VFD Panel	LF	70	\$	\$
2.38	Furnish and Install (1) Cat5 Ethernet (Field Cable S600-10) from PLC Control Panel to POE Ethernet Switch for Cable Reel position Encoder	LF	10	\$	\$
2.39	Furnish and Install all Required Miscellaneous Items/Device to Complete the Installation as Designed.	LS	1	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** I-14 | Page

	<u>NOTE:</u> Cable Lengths are Estimated and Shall be Contractor verified prior to BID.				
Subtotal					\$
3	Electrical Demolition BU1				
3.1	Remove Conductors/Conduit/Supports from MCC Unit 4D to Cable Reel Junction Box. Furnish Spare Name Plate on MCC unit 4D.	LS	1	\$	\$
3.2	Remove Conductors/Conduit/Supports from MCC Unit 5D to Cable Reel Power Unit. Furnish Spare Name Plate on MCC unit 5D.	LS	1	\$	\$
3.3	Remove Conductors/Conduit/Supports from MCC Unit 1B to Dig Winch L.O. Pump Motor. Furnish Spare Name Plate on MCC unit 1B.	LS	1	\$	\$
3.4	Remove Conductors/Conduit/Supports from MCC Unit 1D to Dig Winch Blower Motor. Furnish Spare Name Plate on MCC unit 1D.	LS	1	\$	\$
3.5	Remove Conductors/Conduit/Supports from MCC Unit 1C to Return Winch L.O. Pump Motor. Furnish Spare Name Plate on MCC unit 1C.	LS	1	\$	\$
3.6	Remove Conductors/Conduit/Supports from MCC Unit 1E to Return Winch Blower Motor. Furnish Spare Name Plate on MCC unit 1E.	LS	1	\$	\$
3.7	Remove Existing Barge Haul Controller and all Associated Conductors, Conduit, Supports, Devices Connected to the barge Haul Controller. Junction Boxes 'JBDW' & 'JBRW' to Remain	LS	1	\$	\$
3.8	Remove Existing Cable Reel Junction Box 'JBCRC', Junction Box 'JBPB', and all Associated	LS	1	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** I-15 | Page

	Conductors, Conduit, Supports, Devices Associated with the Cable Reel.				
3.9	Remove all Existing Miscellaneous Supports/Devices/Equipment Required to Complete the Installation as Designed	LS	1	\$	\$
Subtotal					\$
4 Electrical Installation BU1					
4.1	Install Richmond Engineering Works (REW) Furnished Barge Haul Control Panel.	EA	1	\$	\$
4.2	Furnish and Install New 600V, 3-Conductor #300MCM with Ground (Field Cable P540-5) from MCC Unit 3A to Barge Haul Control Panel.	LF	70	\$	\$
4.3	Furnish and Install New 600V, VFD 3-Conductor #2AWG with Ground (Field Cable P540-1) from Barge Haul Control Panel to Return Winch Motor.	LF	260	\$	\$
4.4	Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P540-2) from Barge Haul Control Panel to Return Winch Brake.	LF	260	\$	\$
4.5	Furnish and Install New 600V, VFD 3-Conductor #2AWG with Ground (Field Cable P540-3) from Barge Haul Control Panel to Digging Winch Motor.	LF	220	\$	\$
4.6	Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P540-4) from Barge Haul Control Panel to Digging Winch Brake.	LF	220	\$	\$
4.7	Furnish and Install New 600V, 3-Conductor #2AWG with Ground (Field Cable P542-1) from	LF	320	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** I-16 | Page

	MCC Unit 6E to New Cable Reel Slip Rings for Shifter Barge Control Panel. Provide New MCC Unit 6E Name Plate 'SHIFTER BARGE'.				
4.8	Install REW Furnished Shifter Barge Control Panel Trailing Cable (Field Cable P542-5) from New Cable Reel Slip Rings to Shifter Barge Control Panel. Cable to be installed on Reel.	LF	400	\$	\$
4.9	Furnish and Install New 600V, VFD 3-Conductor #12AWG with Ground (Field Cable P542-2) from Cable Reel VFD Panel to Cable Reel Motor.	LF	320	\$	\$
4.10	Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P542-3) from Cable Reel VFD Panel to Cable Reel Brake.	LF	320	\$	\$
4.11	Furnish and Install New 600V, 3-Conductor #2AWG with Ground (Field Cable P542-4) from MCC Unit 6F to Cable Reel VFD Panel. Provide New MCC Unit 6F Name Plate 'CABLE REEL VFD'	LF	70	\$	\$
4.12	Furnish and Install (1)600V, 7-Conductor #14AWG (Field Cable C541-1) from Return Winch Junction Box 'JBRW' to Local Maintenance Station.	LF	15	\$	\$
4.13	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-2) from Return Winch Junction Box 'JBRW' to Payout Limit Switch.	LF	15	\$	\$
4.14	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-3) from Return Winch Junction Box 'JBRW' to Return Motor Temperature Switch.	LF	15	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

I-17 | Page

4.15	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-4) from Return Winch Junction Box 'JBRW' to Return Motor Space Heater.	LF	15	\$	\$
4.16	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-5) from Return Winch Junction Box 'JBRW' to Return Break Released Limit Switch.	LF	15	\$	\$
4.17	Furnish and Install (1)600V, 7-Conductor #14AWG (Field Cable C541-6) from Digging Winch Junction Box 'JBDW' to Local Maintenance Station.	LF	15	\$	\$
4.18	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-7) from Digging Winch Junction Box 'JBDW' to Payout Limit Switch.	LF	15	\$	\$
4.19	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-8) from Digging Winch Junction Box 'JBDW' to Return Motor Temperature Switch.	LF	15	\$	\$
4.20	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-9) from Digging Winch Junction Box 'JBDW' to Return Motor Space Heater.	LF	15	\$	\$
4.21	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-10) from Digging Winch Junction Box 'JBDW' to Return Break Released Limit Switch.	LF	15	\$	\$
4.22	Furnish and Install New 600V, 3-Conductor #12AWG (Field Cable C542-1) from Low Voltage Distribution Panelboard to Cable Reel Slip Ring Heater	LF	320	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873

Task # 4

January 2024

I-18 | Page

4.23	Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C542-2) from Cable Reel VFD Panel to Cable Reel Motor Temperature Switch.	LF	320	\$	\$
4.24	Furnish and Install (1)600V, 7-Conductor #14AWG (Field Cable C541-6) from Cable Reel VFD Panel to Auxiliary Control Panel.	LF	70	\$	\$
4.25	Furnish and Install (1)4-Pair #16 AWG (Field Cable S540-1) Twisted & Shielded Cable from Barge Haul Control Panel to Return Winch Motor Encoder.	LF	260	\$	\$
4.26	Furnish and Install (1)4-Pair #16 AWG (Field Cable S540-2) Twisted & Shielded Cable from Barge Haul Control Panel to Digging Winch Motor Encoder.	LF	220	\$	\$
4.27	Furnish and Install (1) Cat5 Ethernet (Field Cable S540-3) from Barge Haul Control Panel to Auxiliary Control Panel.	LF	70	\$	\$
4.28	Furnish and Install (1) Cat5 Ethernet (Field Cable S540-3) from Barge Haul Control Panel to Auxiliary Control Panel (Spare).	LF	70	\$	\$
4.29	Furnish and Install (1)4-Pair #16 AWG (Field Cable S542-1) Twisted & Shielded Cable from Cable Reel VFD Panel to Cable Reel Motor Encoder.	LF	320	\$	\$
4.30	Furnish and Install (1) Cat5 Ethernet (Field Cable S542-2) from Auxiliary Control Panel to Cable Reel Position Encoder.	LF	320	\$	\$
4.31	Furnish and Install (1) Cat5 Ethernet (Field Cable S542-3) from Cable Reel VFD Panel to Auxiliary Control Panel.	LF	70	\$	\$



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** I-19 | Page

4.32	Furnish and Install (1)4-Pair #16 AWG (Field Cable S500-3) Twisted & Shielded Cable from PLC Control Panel to Cable Reel Tension Inclinometer A	LF	300	\$	\$
4.33	Furnish and Install (1)4-Pair #16 AWG (Field Cable S500-4) Twisted & Shielded Cable from PLC Control Panel to Cable Reel Tension Inclinometer B	LF	300	\$	\$
4.34	Furnish and Install all Required Miscellaneous Items/Device to Complete the Installation as Designed	LS	1	\$	\$
<u>NOTE:</u> Cable Lengths are Estimated and Shall be Contractor verified prior to BID.					
Subtotal					\$
5	General Conditions				
5.1	Mobilization/Demobilization	LS	1	\$	\$
5.2	Insurance	LS	1	\$	\$
5.3	Performance and Labor & Material Bonds	LS	1	\$	\$
Subtotal					\$
Base Project Total					\$

- (1) The general requirements cost shall be absorbed into the listed line items with the schedule of prices, including insurances, overhead profit and all other miscellaneous fabrication activities involved with the specific equipment system supply phase including the drawings, installation manuals and construction related activities.
- (2) Miscellaneous (Item 3.8 and 6.8) should include any other items not specifically detailed in the schedule of prices but included in the complete construction and installation of the dual barge shifter systems in accordance with the specifications.



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
 Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** I-21 | 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 McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical Construction and Equipment Installaion in Mobile, Alabama, Project No.: 10873, Task No.: 4

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	
Surety	
By	



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** I-22 | 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.

- 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.



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation

Location Mobile, AL

Project # 10873 **Task #** 4

January 2024

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

ATTEST:

(Principal) Secretary
(SEAL)

(Witness as to Principal)

ATTEST:

(Surety) Secretary
(SEAL)

Witness as to Surety

(Address)

Principal

(s)

(Address)

Surety

BY: _____
Attorney-in-fact

(Address)

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



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation

Location Mobile, AL

Project # 10873 **Task #** 4

January 2024

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)

ATTEST:

Witness as to Surety

(Address)

Principal

BY: _____(s)

(Address)

Surety

BY: _____
Attorney-In-Fact

(Address)

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



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation

Location Mobile, AL

Project # 10873

Task # 4

January 2024

ACKNOWLEDGEMENT FOR CHANGE ORDERS

TO: ALABAMA STATE PORT AUTHORITY

RE: McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical Construction and
Equipment Installation

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/Equipment Supplier 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 McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation
Location Mobile, AL

Project # 10873 **Task #** 4 **January 2024** 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 _____, 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/EQUIPMENT SUPPLIER," 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:McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction and Equipment Installation
Project #: 10873 Task 4

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\ Equipment Supplier," 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.



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation

Location Mobile, AL

Project # 10873

Task # 4

January 2024

WITNESS:

Alabama State Port Authority

BY: _____

WITNESS:

Contractor
Party of the Second Part

BY: _____



Alabama State Port Authority

Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation

Location Mobile, AL

Project # 10873

Task # 4

January 2024

III-1 | Page

SP-01 DESCRIPTION OF WORK

The work consists of supplying labor, materials, equipment, bonds, and supervision necessary for the receiving and installation of Owner purchased equipment from Richmond Engineering Works (REW) and delivered to McDuffie Terminal. Verify with McDuffie personnel final delivery times and location. The equipment consists of, but not limited to, BU1-Barge Haul System with Shifter Barge Control Panel and Cable Reel with Control Panel; BU3-Barge Haul System with Shifter Barge Control Panel and Cable Reel and Control Panel. The contractor shall be responsible for verifying existing site conditions, required conductor lengths and material required to install equipment. Contractor will unpack and install equipment as per REW installation documents, provide commissioning assistance, provide contractor QAQC responsibility (provide designated personnel) over installation work (i.e. equipment to be installed and commissioned), commissioning of two complete dual barge shifter systems at the Alabama State Port Authority's McDuffie Terminal in Mobile, Alabama. Technical assistance, installation assistance, QAQC assistance and commissioning assistance will be provided by REW and CMG. All areas of the ASPA McDuffie Coal Terminal have restricted access facilities and require valid Port Access Credentials for entry.

SP-02 OWNER PURCHASE OF MATERIALS

The Alabama State Port Authority will utilize its sales tax exemption status on this project. The Contractor will be responsible for the purchase of all materials and will be required to apply for a sales and use tax certificate of exemption upon contract award.

The following shall apply to Section 20-14 (Owner Purchase of Materials) of Division IV General Provisions:

- 1) 20-14.2 Purchase of Materials or Equipment – Delete in its entirety
- 2) 20-14.3 Payment of Materials or Equipment – Delete in its entirety
- 3) 20-14.4 Accounting Procedures – Delete in its entirety
- 4) 20-14.5 Procedures – Delete in its entirety
- 5) 20-14.7 Project Close-Out – Delete in its entirety

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 240 calendar days after receipt of Notice to Proceed. The time stated for final completion shall include final clean-up of all work sites. 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. In addition, liquidated damages referenced in DIVISION V, CONSTRUCTION SPECIFICATIONS, shall also be initiated.

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. 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-08 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/Equipment Supplier shall also submit an organizational chart, which shall

clearly show the Contractor's/Equipment Supplier'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.

SP-09 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

Alabama Port Authority (APA) will issue monthly payments on this project. The Contractor will need to submit their monthly pay application for approval each month.

SP-11 INSURANCE

The following shall apply to Section 40 (Indemnification and Insurance Requirements) of Division IV General Provisions:

1. 40-08 Railroad Protective Liability – Delete in its entirety
2. 40-10 Professional Liability Insurance – 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 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 written guarantee in accordance with the requirements stipulated in the Division I Schedule of Prices and Division V Construction Specifications. This guarantee shall be issued from the date of final acceptance and shall cover any defective material or workmanship on the specified structure.

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.

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	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-22
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-23
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-25
70-01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS.....	IV-25
70-02 SAMPLES, TESTS, AND CITED SPECIFICATIONS.....	IV-25
70-03 CERTIFICATION OF COMPLIANCE	IV-25
70-04 PLANT INSPECTION.....	IV-26
70-05 ENGINEER'S FIELD OFFICE AND LABORATORY.....	IV-26
70-06 STORAGE OF MATERIALS	IV-26
70-07 UNACCEPTABLE MATERIALS	IV-26
70-08 OWNER-FURNISHED MATERIAL	IV-27
70-09 RECEIVING MATERIALS AND EQUIPMENT	IV-27
SECTION 80 LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC	IV-28
80-01 LAWS TO BE OBSERVED	IV-28
80-02 PERMITS, LICENSES, AND TAXES.....	IV-28
80-03 PATENTED DEVICES, MATERIALS AND PROCESSES.....	IV-28
80-04 RESTORATION OF SURFACES DISTURBED BY OTHERS	IV-28
80-05 SANITARY, HEALTH, AND SAFETY PROVISIONS.....	IV-29
80-06 PUBLIC CONVENIENCE AND SAFETY	IV-29
80-07 BARRICADES, WARNING SIGNS, AND HAZARD MARKINGS.....	IV-29
80-08 USE OF EXPLOSIVES.....	IV-29
80-09 PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE	IV-30
80-10 RESPONSIBILITY FOR DAMAGE CLAIMS	IV-30
80-11 THIRD PARTY BENEFICIARY CLAUSE.....	IV-30
80-12 OPENING SECTIONS OF THE WORK FOR OCCUPANCY.....	IV-30
80-13 CONTRACTOR'S RESPONSIBILITY FOR WORK.....	IV-31

80-14 CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS.....	IV-31
80-15 FURNISHING RIGHTS-OF-WAY.....	IV-32
80-16 PERSONAL LIABILITY OF PUBLIC OFFICIALS.....	IV-32
80-17 NO WAIVER OF LEGAL RIGHTS.....	IV-32
80-18 ENVIRONMENTAL PROTECTION.....	IV-33
80-19 ARCHAEOLOGICAL AND HISTORICAL FINDINGS.....	IV-33
SECTION 90 PROSECUTION AND PROGRESS.....	IV-34
90-01 SUBLETTING OF CONTRACT.....	IV-34
90-02 NOTICE TO PROCEED.....	IV-34
90-03 PROSECUTION AND PROGRESS.....	IV-34
90-04 LIMITATION OF OPERATIONS.....	IV-34
90-05 CHARACTER OF WORKERS, METHODS AND EQUIPMENT.....	IV-34
90-06 TEMPORARY SUSPENSION OF THE WORK.....	IV-35
90-07 DETERMINATION AND EXTENSION OF CONTRACT TIME.....	IV-36
90-08 FAILURE TO COMPLETE ON TIME.....	IV-37
90-09 CONTRACT DEFAULT.....	IV-37
90-10 CONTRACT TERMINATION.....	IV-38
SECTION 100 MEASUREMENT AND PAYMENT.....	IV-40
100-01 MEASUREMENT OF QUANTITIES.....	IV-40
100-02 SCOPE OF PAYMENT.....	IV-42
100-03 COMPENSATION FOR ALTERED QUANTITIES.....	IV-42
100-04 PAYMENT FOR OMITTED ITEMS.....	IV-42
100-05 PAYMENT FOR EXTRA AND FORCE ACCOUNT WORK.....	IV-43
100-06 PARTIAL PAYMENT.....	IV-44
100-07 PAYMENT FOR MATERIALS ON HAND.....	IV-44
100-08 CONTRACT CLOSE-OUT.....	IV-45
100-09 WITHHOLDING FOR CLAIMS AND LITIGATION.....	IV-45
100-10 FINAL PAYMENT.....	IV-46
100-11 RIGHT OF AUDIT.....	IV-46



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation

Location Mobile, AL

Project # 10873

Task # 4

January 2024

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

10-02 AISC. The American Institute of Steel Construction.

10-03 ASTM. The American Society for Testing and Materials.

10-04 AWARD. The acceptance, by the OWNER, of the successful bidder's proposal.

10-05 BIDDER. Any individual, partnership, firm or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.

10-06 CALENDAR DAY. Every day shown on the calendar.

10-07 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.

10-08 COMMERCE. The prime business of the OWNER, consisting of the transshipping and storage of goods and materials by highway, rail, barge, and ship.

10-09 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.

10-10 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.

10-11 CONTRACT ITEM (PAY ITEM). A specific unit of work for which a price is provided in the Contract.

10-12 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.

10-13 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.

10-14 DEPARTMENT. The Alabama State Port Authority.

10-15 DIRECTOR. The Director of the Alabama State Port Authority, as constituted under the laws of Alabama.

10-16 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.

10-17 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.

10-18 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.

10-19 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.

10-20 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.

10-21 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.

10-22 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.

10-23 LABORATORY. The official testing laboratories of the OWNER or such other laboratories as may be designated by the Engineer.

10-24 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.

10-25 MATERIALS. Any substance specified for use in the construction of the Contract work.

10-26 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.

10-27 OWNER. The term OWNER shall mean the State of Alabama acting by and through the Alabama State Port Authority.

10-28 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.

10-29 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.

10-30 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.

10-31 PROJECT. The agreed scope of work for accomplishing specific development.

10-32 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.

10-33 PROPOSAL FORM. The approved, prepared form on which the OWNER requires that formal bids be submitted for the work contemplated.

10-34 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.

10-35 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.

10-36 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.

10-37 STATE. The State of Alabama, the Party of the First Part to the Contract, acting by and through the Alabama State Port Authority.

10-38 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.

10-39 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.

10-40 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.

10-41 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.

10-42 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.

10-43 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.

10-44 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, 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 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	1,200.00

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 Manger 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's/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 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.

(Rev. 3/31/11)

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 (N/A)

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 this portion of the work, the subcontractor shall not 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

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 "NOT" be required to take out and maintain during the life of the contract Professional Liability insurance.

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. Each Certificate of Insurance shall note the project name, project number and task number for which the policy is applicable.

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.

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 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 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 right-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 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.

From the total of the amount determined to be payable on a partial payment, 10 percent of such total amount will be deducted and retained by the OWNER until the final payment is made. The balance (90 percent) of the amount payable, less all previous payments, shall be certified for payment.

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); backcharge 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 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 McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation

Location Mobile, AL

Project # 10873

Task # 4

January 2024

1 | Page

DIVISION V

CONSTRUCTION SPECIFICATIONS



Alabama State Port Authority
Specification Booklet

Project Name McDuffie Unloaders 1 and 3 Dual Barge Shifter Systems Electrical
Construction/Equipment Installation

Location Mobile, AL

Project # 10873

Task # 4

January 2024

V-1 | Page

DIVISION V INDEX

SECTION 1 - GENERAL PROVISIONS

01010 SCOPE OF WORK	1
01011 - CONSTRUCTION SEQUENCE	9
01035 - CHANGED CONDITIONS.....	11
01500 - CONSTRUCTION FACILITIES	12
01600 - QUALITY OF LABOR AND MATERIAL.....	12
01700 - ACCEPTANCE AND FINAL PAYMENT	12
01710 - FINAL CLEANUP	13
01750 - AS-BUILT DRAWINGS	13
01740 - GUARANTEE	14

SECTION 1 - GENERAL PROVISIONS

01000 – GENERAL

- 1.0 The work consists of, but is not limited to, furnishing of all labor, tools, equipment, materials, services, transportation and supervision necessary to complete the following items: demolition of existing conductors, conduits, supports, control panels and the installation of new circuit breaker, conductors, conduit, supports and all Richmond Engineering Works (REW) supplied electrical equipment, hardware and all other incidentals as shown on the respective design drawings and as further specified herein. The contractor will be required to coordinate with the mechanical and structural contractor (separate contract) for the installation of mechanical and structural required for the final commissioning of equipment.
- 2.0 The following detail Specifications, taken in conjunction with the Drawings and the General Clauses 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 Clauses of the Specifications and Contract form.
- 3.0 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.
- 4.0 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.
- 5.0 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. Current (latest) editions of all codes specified shall apply.

01010 - SCOPE OF WORK

- 1.0 The Alabama Port Authority is modernizing the Barge Unloader 1 and Barge Unloader 3 dolphins, fendering, haul equipment, and electrical systems to increase the barge unloading capacity at the McDuffie Terminal and to enhance operation by providing for more efficient handling and unloading of barges.
- 2.0 New Barge Haul System with Shifter Barge Control Panel and Cable Reel VFD Control Panel will be installed at Barge Unloader 3 (BU3). The work on BU3 will be performed first. Barge Unloader 1 (BU1) will remain in operation until BU3 is commissioned and “reliably” operational, i.e. after a 48 hour commissioning endurance test.

- 3.0 Modifications will be made to the existing MCC's serving BU3 and BU1 barge Haul Systems to accommodate the electrical requirements for the new barge hauling system, new cable reel equipment and electrical upgrade.
- 4.0 New equipment will be provided by the Owner, see REW reference drawings and specifications. Existing electrical control panels, junctions boxes, conduits and supports will be removed as directed by the contract drawings. The system equipment will include new electrical control panels, junctions boxes, conduits, conductors and supports for conduit and enclosures.
- 5.0 Work associated with Barge Unloader 1 (BU1) will be similar to work performed on BU3.
- 6.0 In addition, the project will include structural upgrades and mechanical modifications to be performed under separate contract. For equipment descriptions see Richmond Engineering Works (REW) reference drawings and specifications.

- 7.0 Demolition
 - 7.1 BU3
 - 7.1.1 Remove Existing Barge Haul Control Panel, 150AT Circuit Breaker in MCC Unit 1F, Existing Feeder and Control Conductors associated with Barge Haul Drive system. Barge Haul Control panel feeder conduit with conductors to be removed. Existing conduit and enclosure supports to be removed.
 - 7.1.2 Remove (2)60kVA Upstream/Downstream ISO XFMR's and Associated Power and Control Conductors. Existing conduit and enclosure supports to be removed.
 - 7.1.3 Remove (2)20HP Upstream/Downstream 230V dc Motors and Associated Power and Control Conductors, Conduit and Supports.
 - 7.1.4 Remove all Existing Miscellaneous Supports/Devices/Equipment Required to Complete the Installation as Designed.
 - 7.2 BU1
 - 7.2.1 Remove Conductors/Conduit/Supports from MCC Unit 4D to Cable Reel Junction Box. Furnish Spare Name Plate on MCC unit 4D
 - 7.2.2 Remove Conductors/Conduit/Supports from MCC Unit 5D to Cable Reel Power Unit. Furnish Spare Name Plate on MCC unit 5D
 - 7.2.3 Remove Conductors/Conduit/Supports from MCC Unit 1B to Dig Winch L.O. Pump Motor. Furnish Spare Name Plate on MCC unit 1B.
 - 7.2.4 Remove Conductors/Conduit/Supports from MCC Unit 1D to Dig Winch Blower Motor. Furnish Spare Name Plate on MCC unit 1D.

- 7.2.5 Remove Conductors/Conduit/Supports from MCC Unit 1C to Return Winch L.O. Pump Motor. Furnish Spare Name Plate on MCC unit 1C.
 - 7.2.6 Remove Conductors/Conduit/Supports from MCC Unit 1E to Return Winch Blower Motor. Furnish Spare Name Plate on MCC unit 1E.
 - 7.2.7 Remove Existing Barge Haul Controller and all Associated Conductors, Conduit, Supports, Devices Connected to the barge Haul Controller. Junction Boxes 'JBDW' & 'JBRW' to Remain.
 - 7.2.8 Remove Existing Cable Reel Junction Box 'JBCRC', Junction Box 'JBPB', and all Associated Conductors, Conduit, Supports, Devices Associated with the Cable Reel.
 - 7.2.9 Remove all Existing Miscellaneous Supports/Devices/Equipment Required to Complete the Installation as Designed.
- 8.0 Installation of New Barge Haul Systems
- 8.1 BU3
- 8.1.1 Install Richmond Engineering Works (REW) Furnished Barge Haul Control Panel in the location as shown on the contract drawings.
 - 8.1.2 Furnish and Install 225AT Circuit Breaker in Existing MCC Unit 1F for New Barge Haul Control Panel electrical service.
 - 8.1.3 Furnish and Install New 600V, 3-Conductor #300MCM with Ground (Field Cable P540-1) from MCC Unit 1F to Barge Haul Control Panel.
 - 8.1.4 Furnish and Install New 600V, VFD 3-Conductor #2AWG with Ground (Field Cable P540-2) from Barge Haul Control Panel to Digging Winch Motor.
 - 8.1.5 Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P540-3) from Barge Haul Control Panel to Digging Winch Brake.
 - 8.1.6 Furnish and Install New 600V, VFD 3-Conductor #2AWG with Ground (Field Cable P540-4) from Barge Haul Control Panel to Return Winch Motor.
 - 8.1.7 Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P540-3) from Barge Haul Control Panel to Return Winch Brake.
 - 8.1.8 Furnish and Install 100AT Circuit Breaker in Existing MCC Unit 2G for Shifter Barge Control Panel Power.
 - 8.1.9 Furnish and Install New 600V, 3-Conductor #2AWG with Ground (Field Cable P542-1) from MCC Unit 2G to New Cable Reel Slip Rings for Shifter Barge Control Panel.

- 8.1.10 Install REW Furnished Shifter Barge Control Panel Trailing Cable (Field Cable P542-5) from New Cable Reel Slip Rings to Shifter Barge Control Panel. Cable to be installed on Reel.
- 8.1.11 Furnish and Install 100AT Circuit Breaker in Existing MCC Unit 2M for Cable Reel VFD Panel.
- 8.1.12 Furnish and Install New 600V, VFD 3-Conductor #12AWG with Ground (Field Cable P542-2) from Cable Reel VFD Panel to Cable Reel Motor.
- 8.1.13 Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P542-3) from Cable Reel VFD Panel to Cable Reel Brake.
- 8.1.14 Furnish and Install New 600V, 3-Conductor #2AWG with Ground (Field Cable P542-4) from MCC Unit 2M to Cable Reel VFD Panel.
- 8.1.15 Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-1) from PLC Control Panel to Digging Winch Motor Temp Switch.
- 8.1.16 Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-2) from PLC Control Panel to Return Winch Motor Temp Switch.
- 8.1.17 Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-3) from PLC Control Panel to Digging Winch Payout Limit Switch.
- 8.1.18 Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C501-4) from PLC Control Panel to Digging Local Maintenance Station.
- 8.1.19 Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C501-5) from PLC Control Panel to Return Local Maintenance Station.
- 8.1.20 Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C501-6) from PLC Control Panel to Return Winch Payout Limit Switch.
- 8.1.21 Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-16) from PLC Control Panel to Digging Winch Released Limit Switch.
- 8.1.22 Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C501-17) from PLC Control Panel to Return Winch Released Limit Switch.
- 8.1.23 Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C540-1) from Barge Haul Control Panel to Return Winch Heater.
- 8.1.24 Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C540-2) from Barge Haul Control Panel to Digging Winch Heater.
- 8.1.25 Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C540-3) from PLC Control Panel to Barge Haul Control Panel.
- 8.1.26 Furnish and Install New 600V, 3-Conductor #12AWG (Field Cable C540-4) from Low Voltage Distribution Panelboard 'LPAN' to Barge Haul Control Panel.

- 8.1.27 Furnish and Install New 600V, 7-Conductor #14AWG (Field Cable C542-1) from Cable Reel VFD Panel to PLC Control Panel.
 - 8.1.28 Furnish and Install New 600V, 2-Conductor #14AWG (Field Cable C542-2) from Cable Reel VFD Panel to Cable Reel Motor Temperature Switch.
 - 8.1.29 Furnish and Install New 600V, 3-Conductor #12AWG (Field Cable LPAN-2) from Low Voltage Distribution Panelboard 'LPAN' to Cable Reel Space Heater.
 - 8.1.30 Furnish and Install (1)4-Pair #16 AWG (Field Cable S500-3) Twisted & Shielded Cable from PLC Control Panel to Cable Reel Inclinator A.
 - 8.1.31 Furnish and Install (1)4-Pair #16 AWG (Field Cable S500-4) Twisted & Shielded Cable from PLC Control Panel to Cable Reel Inclinator B.
 - 8.1.32 Furnish and Install (1) Cat5 Ethernet (Field Cable S540-1) from PLC Control Panel to Barge Haul Control Panel.
 - 8.1.33 Furnish and Install (1)4-Pair #16 AWG (Field Cable S540-3) Twisted & Shielded Cable from Barge Haul Control Panel to Digging Winch Encoder.
 - 8.1.34 Furnish and Install (1)4-Pair #16 AWG (Field Cable S540-4) Twisted & Shielded Cable from Barge Haul Control Panel to Return Winch Encoder.
 - 8.1.35 Furnish and Install (1)4-Pair #16 AWG (Field Cable S542-1) Twisted & Shielded Cable from Cable Reel VFD Panel to Cable Reel Motor Encoder.
 - 8.1.36 Furnish and Install (1) Cat5 Ethernet (Field Cable S542-2) from PLC Control Panel to Cable Reel Position Encoder.
 - 8.1.37 Furnish and Install (1) Cat5 Ethernet (Field Cable S542-3) from PLC Control Panel to Cable Reel VFD Panel.
 - 8.1.38 Furnish and Install (1) Cat5 Ethernet (Field Cable S600-10) from PLC Control Panel to POE Ethernet Switch for Cable Reel position Encoder.
- 8.2 BU1
- 8.2.1 Install Richmond Engineering Works (REW) Furnished Barge Haul Control Panel in the location as shown on the contract drawings.
 - 8.2.2 Furnish and Install New 600V, 3-Conductor #300MCM with Ground (Field Cable P540-5) from MCC Unit 3A to Barge Haul Control Panel.
 - 8.2.3 Furnish and Install New 600V, VFD 3-Conductor #2AWG with Ground (Field Cable P540-1) from Barge Haul Control Panel to Return Winch Motor.
 - 8.2.4 Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P540-2) from Barge Haul Control Panel to Return Winch Brake.

- 8.2.5 Furnish and Install New 600V, VFD 3-Conductor #2AWG with Ground (Field Cable P540-3) from Barge Haul Control Panel to Digging Winch Motor.
- 8.2.6 Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P540-4) from Barge Haul Control Panel to Digging Winch Brake.
- 8.2.7 Furnish and Install New 600V, 3-Conductor #2AWG with Ground (Field Cable P542-1) from MCC Unit 6E to New Cable Reel Slip Rings for Shifter Barge Control Panel. Provide New Unit 6E Name Plate 'Shifter Barge'.
- 8.2.8 Install REW Furnished Shifter Barge Control Panel Trailing Cable (Field Cable P542-5) from New Cable Reel Slip Rings to Shifter Barge Control Panel. Cable to be installed on Reel.
- 8.2.9 Furnish and Install New 600V, VFD 3-Conductor #12AWG with Ground (Field Cable P542-2) from Cable Reel VFD Panel to Cable Reel Motor.
- 8.2.10 Furnish and Install New 600V, 3-Conductor #12AWG with Ground (Field Cable P542-3) from Cable Reel VFD Panel to Cable Reel Brake.
- 8.2.11 Furnish and Install New 600V, 3-Conductor #2AWG with Ground (Field Cable P542-4) from MCC Unit 6F to Cable Reel VFD Panel. Provide New MCC Unit 6F Name Plate 'CABLE REEL VFD'.
- 8.2.12 Furnish and Install (1)600V, 7-Conductor #14AWG (Field Cable C541-1) from Return Winch Junction Box 'JBRW' to Local Maintenance Station.
- 8.2.13 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-2) from Return Winch Junction Box 'JBRW' to Payout Limit Switch.
- 8.2.14 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-3) from Return Winch Junction Box 'JBRW' to Return Motor Temperature Switch.
- 8.2.15 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-4) from Return Winch Junction Box 'JBRW' to Return Motor Space Heater.
- 8.2.16 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-5) from Return Winch Junction Box 'JBRW' to Return Break Released Limit Switch.
- 8.2.17 Furnish and Install (1)600V, 7-Conductor #14AWG (Field Cable C541-6) from Digging Winch Junction Box 'JBDW' to Local Maintenance Station.
- 8.2.18 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-7) from Digging Winch Junction Box 'JBDW' to Payout Limit Switch.
- 8.2.19 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-8) from Digging Winch Junction Box 'JBDW' to Return Motor Temperature Switch.
- 8.2.20 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-9) from Digging Winch Junction Box 'JBDW' to Return Motor Space Heater.

- 8.2.21 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C541-10) from Digging Winch Junction Box 'JBDW' to Return Break Released Limit Switch.
- 8.2.22 Furnish and Install New 600V, 3-Conductor #12AWG (Field Cable C542-1) from Low Voltage Distribution Panelboard to Cable Reel Slip Ring Heater.
- 8.2.23 Furnish and Install (1)600V, 2-Conductor #14AWG (Field Cable C542-2) from Cable Reel VFD Panel to Cable Reel Motor Temperature Switch.
- 8.2.24 Furnish and Install (1)600V, 7-Conductor #14AWG (Field Cable C541-6) from Cable Reel VFD Panel to Auxiliary Control Panel.
- 8.2.25 Furnish and Install (1)4-Pair #16 AWG (Field Cable S540-1) Twisted & Shielded Cable from Barge Haul Control Panel to Return Winch Motor Encoder.
- 8.2.26 Furnish and Install (1)4-Pair #16 AWG (Field Cable S540-2) Twisted & Shielded Cable from Barge Haul Control Panel to Digging Winch Motor Encoder.
- 8.2.27 Furnish and Install (1) Cat5 Ethernet (Field Cable S540-3) from Barge Haul Control Panel to Auxiliary Control Panel.
- 8.2.28 Furnish and Install (1) Cat5 Ethernet (Field Cable S540-3) from Barge Haul Control Panel to Auxiliary Control Panel (Spare).
- 8.2.29 Furnish and Install (1)4-Pair #16 AWG (Field Cable S542-1) Twisted & Shielded Cable from Cable Reel VFD Panel to Cable Reel Motor Encoder.
- 8.2.30 Furnish and Install (1) Cat5 Ethernet (Field Cable S542-2) from Auxiliary Control Panel to Cable Reel Position Encoder.
- 8.2.31 Furnish and Install (1) Cat5 Ethernet (Field Cable S542-3) from Cable Reel VFD Panel to Auxiliary Control Panel.
- 8.2.32 Furnish and Install (1)4-Pair #16 AWG (Field Cable S500-3) Twisted & Shielded Cable from PLC Control Panel to Cable Reel Tension Inclinator A.
- 8.2.33 Furnish and Install (1)4-Pair #16 AWG (Field Cable S500-4) Twisted & Shielded Cable from PLC Control Panel to Cable Reel Tension Inclinator B.
- 8.3 Furnish and Install all Required Miscellaneous Items/Device to Complete the Installation of Barge Haul System BU3 and BU1 as Designed. Contractor shall verify all conductor length prior to bid.
- 9.0 New Equipment – See Richmond Engineering Works (REW) drawings and specifications for complete list.
 - 9.1 Install REW furnished BU1 and BU3 Barge Haul Control panels.
 - 9.2 Install REW furnished BU1 and BU3 Cable Reel Control Panels..
 - 9.3 Install REW furnished BU1 and BU3 Shifter Barge Control Panels..

- 9.4 Install REW furnished BU1 and BU3 Maintenance Stations, Limit Switches, Encoders, Receptacles, Flood Lights, E-Stop pushbuttons, Tower Indication Lights, Photo-cell and items not listed here as per the contract documents.
- 9.5 Furnish and install all miscellaneous appurtenances for a complete and operational system.

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

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 more important items. Other details shall be consistent with them.

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.

Since some of the work consists of new construction which is supported by and joins to existing construction, it is necessary that the Contractor verify all existing conditions affecting the work whether shown on the drawings or not. All elevations and dimensions shall be verified prior to fabrication as it is the contractor's responsibility to ensure proper fit up. The Engineer shall be notified of any discrepancies that the Contractor discovers in the drawings.

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

01011 - CONSTRUCTION SEQUENCE

1.0 SCOPE

- 1.1 This section describes the work to be performed under this Contract and provides a construction sequence to be followed in prosecution of the work.

2.0 WORK UNDER OTHER CONTRACTS

- 2.1 Other contracts for McDuffie will be concurrently performed with the work under this Contract. The Contractor shall cooperate with other contractors as necessary for the orderly progression of all work. The contractor shall coordinate the work with McDuffie operations personnel to limit downtime of coal unloading operations. McDuffie personnel along with subcontractors will be performing upgrades to the Unloaders (BU3 and BU1) during the down time associated with the implementation of the new dual barge supplier haul systems.
- 2.2 The major area of coordination will need to be with the subcontractor performing modification to the existing unloader, which will affect the installation of winches/shifter barge/cable reel control panels and the work on the support structures.

3.0 DESCRIPTION OF WORK

- 3.1 The work consists of supplying labor, materials, equipment, bonds, and supervision necessary for the receiving and installation of Owner purchased equipment from Richmond Engineering Works (REW) and delivered to McDuffie Terminal. Verify with McDuffie personnel final delivery times and location. The equipment consists of, but not limited to, BU1-Barge Haul System with Shifter Barge Control Panel and Cable Reel with Control Panel; BU3-Barge Haul System with Shifter Barge Control Panel and Cable Reel and Control Panel. The contractor shall be responsible for verifying existing site conditions, required conductor lengths and material required to install equipment. Contractor will unpack and install equipment as per REW installation documents, provide commissioning assistance, provide contractor QAQC responsibility (provide designated personnel) over installation work (i.e. equipment to be installed and commissioned), commissioning of two complete dual barge shifter systems at the Alabama State Port Authority's McDuffie Terminal in Mobile, Alabama. Technical assistance, installation assistance, QAQC assistance and commissioning assistance will be provided by REW and CMG. All areas of the ASPA McDuffie Coal Terminal have restricted access facilities and require valid Port Access Credentials for entry.

4.0 CONSTRUCTION SEQUENCE

4.1 A suggested construction sequence is outlined below. The Contractor may submit to the owner/engineer an alternate sequence for approval. Any alternate sequence shall provide for completion of all items within the time specified in the contract documents.

4.2 Phase I (BU3)

4.2.1 Phase I shall consist of all work associated with BU3. The work shall include preparation of the barge loading area at the ship of BU3 dock to allow for the installation of cable reel control panel, barge haul control panel, shifter barge control panel and associated electrical devices. This work shall be complete by the end of April 2024. The existing barge unloader slip (BU3) is scheduled to be operational July 2024. The dual barge shifter shall be fully commissioned by the contractor and shall have successfully performed a 48 hour endurance test.

4.2.2 Phase I will also include all related structural work performed by the structural contractor under a separate contract. Phase I will also include work performed by McDuffie personnel and their subcontractors.

4.3 Phase II (BU1)

4.3.1 Phase II shall consist of all work associated with BU1. The work shall include preparation of the barge loading area at the ship of BU1 dock to allow for the installation of cable reel control panel, barge haul control panel, shifter barge control panel and associated electrical devices. This work shall be complete by the end of September 2024. The existing barge unloader slip (BU1) is scheduled to be operational November 2024. The dual barge shifter shall be fully commissioned by the contractor and shall have successfully performed a 48 hour endurance test.

4.3.2 Phase II will also include all related structural work performed by the structural contractor under a separate contract. Phase II will also include work performed by McDuffie personnel and their subcontractors.

4.4 Operations at McDuffie

McDuffie Terminal is an operating material handling facility and the Contractor shall inspect the site adequately enough to familiarize himself with these operations so as to be able to plan his construction with as little interference to existing operations as possible. All anticipated interferences shall be thoroughly coordinated with the Owner.

01035 – CHANGED CONDITIONS

- 1.0 The Contractor shall promptly, and before such conditions are disturbed, notify the Owner in writing of: (1) Subsurface or latent physical conditions at the site differing materially from those indicated in the Contract; or (2) previously unknown physical or other conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work of the character provided for in this Contract. The Engineer shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or the time required for, performance of this Contract, an equitable adjustment shall be made and the Contract modified in writing accordingly. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given notice as above required; provided that the Engineer may, if he determines the facts to justify, consider and adjust any such claims asserted before the date of final settlement of the Contract. If the parties fail to agree upon the adjustment to be made, the dispute shall be determined as provided in these specifications.

- 2.0 The Owner may make changes in the Drawings and Specifications or scheduling of the Contract within the general scope at any time by a written order. If such changes add to or deduct from the Contractor's cost of the work, the Contract shall be adjusted accordingly. All such work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time or ordering such change.

- 3.0 In giving instructions, the Engineer shall have authority to make minor changes in the work not involving extra cost, and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Engineer, and no claim for an addition to the Contract Sum shall be valid unless the additional work was so ordered.

- 4.0 The Contractor shall proceed with the work as changed and the value of any such extra work or change shall be determined as provided in the Agreement.

01500 – CONSTRUCTION FACILITIES

Electrical power, water, toilet facilities and trash removal may not be available at the site for construction use. Therefore, the Contractor shall plan to provide his own utility services during construction.

01600 – QUALITY OF LABOR AND MATERIAL

- 1.0 The entire work shall be done in every particular in a good, substantial and workmanlike manner, fully up to the standards of first class work of this type and according to the intent of the plans and specifications as interpreted by the Engineer, whose decision, as to the true intent of the plans and specifications, shall be final.
- 2.0 Any and all material, necessary for the construction of any part of the improvements specifically specified, shall be of good quality and acceptable to the Engineer. All workmen employed must be skilled in the performance of the special work to which they are assigned and whenever, in the judgment of the Engineer, any workman is deemed unskillful or incompetent, disorderly or unsatisfactory, he shall, at once, be removed from the project upon request of the Engineer. Such removal shall not be made the basis of any claim for compensation against Owner, or any of its officers or agents.

01700 – ACCEPTANCE AND FINAL PAYMENT

- 1.0 Upon receipt of written notice that the work is substantially completed or ready for final inspection and acceptance, the Engineer will promptly make such inspection, and when he finds the work acceptable under the Contract and the Contract fully performed or substantially completed he shall promptly issue a certificate, over his own signature, stating that the work required by this Contract has been completed or substantially completed and is accepted by him under the terms and conditions thereof, and the entire balance found to be due the Contractor, including the retained percentage, less a retention based on the Engineer's estimate of the fair value of the claims against the Contractor and the cost of completing the incomplete or unsatisfactory items of work with specified amounts for each incomplete or defective item or work, is due and payable. The date of substantial completion of a project or specified area of a project is the date when the construction is sufficiently complete in accordance with the Contract Documents as modified by any change orders agreed to by the parties so that the Owner can occupy the project or specified area of the project for the use for which it was intended.
- 2.0 Before issuance of final payment, the Contractor, if required, shall certify in writing to the Engineer that all payrolls, material bills, and other indebtedness connected with the work have been paid, or otherwise satisfied, except that in case of disputed indebtedness or liens, if the Contract does not include a payment bond, the Contractor may submit in lieu of certification of payment a surety bond in the amount of the disputed indebtedness or liens, guaranteeing payment of all such disputed amounts, including all related costs and

interest in connection with said disputed indebtedness or liens which the Owner may be compelled to pay upon adjudication.

- 3.0 The making and acceptance of the final payment shall constitute a waiver of all claims by the Owner, other than those arising from unsettled liens, from faulty work appearing within the guarantee period provided in the Special Conditions, from the requirements of the Drawings and Specifications, or from manufacturer's guarantees. It shall also constitute a waiver of all claims by the Contractor, except those preciously made and still unsettled.
- 4.0 If after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Engineer so certifies, the Owner shall, upon certificate of the Engineer, and without terminating the Contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.
- 5.0 If the Owner fails to make payments as herein provided, there shall be added to each such payment daily interest at the rate of 6 percent per annum commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the Contractor.

01710 – FINAL CLEANUP

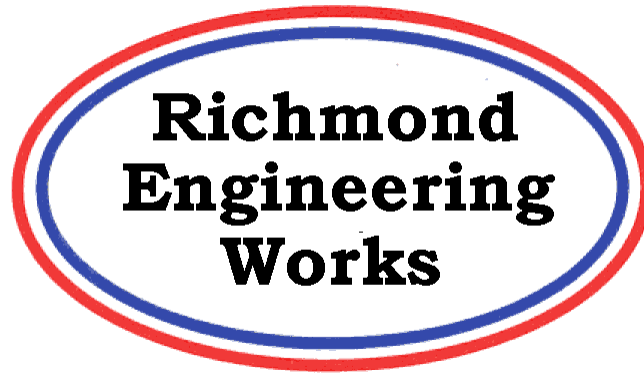
Upon completion of the work and before final inspection, the Contractor shall clean the work site, material sites, and all grounds occupied by him in connection with the work, of all rubbish, surplus, and discard material, false work, temporary structures, equipment and debris which accumulated during the work. All parts of the work shall be left in a neat and presentable condition. The Contractor shall not remove warning, regulatory and guide signs prior to final acceptance, except as requested by the Engineer.

01720 – AS-BUILT DRAWINGS

The Contractor shall be responsible to provide during construction, a set of drawings marked in red for as-builts and returned to Owner representative within 30 working days of satisfactory completion as a condition of final payment.

01740 – GUARANTEE

- 1.0 The Contractor shall guarantee to the Owner the satisfactory operation of all materials and equipment installed or furnished under this contract, and shall repair or replace, to the satisfaction of Owner, any defective materials, equipment, or workmanship which may show itself within two (2) years from the date of formal acceptance by Owner. In the event that any piece of equipment installed under this contract, carries a manufacturer's warranty or guarantee period of longer than the two-year specified, said guarantee or warranty shall be passed on to Owner. Any such guarantee or warranty, over the two-year period, shall be stated in writing.
- 2.0 This guarantee means Owner may procure replacements or repairs from the most available source to eliminate or hold the downtime to a minimum. All costs of replacements or repairs, under the guarantee, to be borne by the Contractor.
- 3.0 Owner will deal only with the prime Contractor, and not with second or third parties supplying to the prime Contractor, insofar as guarantees are concerned.



ALABAMA STATE PORT AUTHORITY

McDuffie Coal Terminal

Installation and Commissioning Manual

Alabama State Port Authority Project #10873

Richmond Engineering Works # SO3828

January 18, 2024

Main Office:
1601 Parkway View Drive
Pittsburgh, PA 15205
Phone: (412) 787-9640
Fax: (412) 787-9645

Minnesota Office:
9737 County Road # 23 SE
Alexandria, MN 56308
Phone: (320) 763-0830
Fax: (320) 763-0895

Installation and Commissioning Manual

TABLE OF CONTENTS

- I. Project Description
- II. Receiving and Staging Equipment
- III. Electrical Installation
 - A. Barge Haul Drives
 - 1.0 Barge Haul Drives
 - 2.0 Cable Reel
 - 3.0 Shifter Barge
 - B. Electric Building
 - 1.0 Equipment Removal
 - 2.0 Equipment Installation
- IV. Commissioning
 - A. I/O Checkout
 - B. Motor/Drive Verification
 - C. Barge Haul Operation
 - D. Shifter Barge Operation
 - E. Performance Test
- V. Attachments

I. PROJECT DESCRIPTION

Alabama State Port Authority (ASPA) is replacing the existing single barge pulling system with a Dual Barge Shifter Arrangement for barge unloaders BU1 and BU3. Richmond Engineering Works (REW) has been contracted to provide the design and supply of equipment for these systems. REW will also provide on-site technical assistance during the installation and commissioning of the equipment.

Barge Haul Drives

Each Dual Barge Haul System will consist of two (2) barge haul drive winches, sheaves, sag rollers, wire rope and equipment for moving two (2) barges through the unloader. The wire ropes will connect the barge haul winches to the shifter barge which will be pulled through the barge unloader. The loaded barges will be attached to the shifter barge for unloading.

Shifter Barge

A Shifter Barge is provided for moving the barges through the barge unloader. The shifter barge will be completely fabricated and assembled when it is brought to the terminal. The shifter barge will need to be moved into position and connected to the barge haul ropes by the mechanical contractor. The electrical contractor will connect the cable reel cable to the shifter barge.

Cable Reel

A new cable reel is provided to bring power to the shifter barge to operate the shifter barge hydraulic deck winches. The cable reel, cable guide and their support frames are to be assembled on the barge unloader. The cable will be shipped on a separate spool and will need connected to the reel and the shifter barge.

II. RECEIVING AND STAGING EQUIPMENT

The mechanical contractor is responsible for unloading supplies and equipment (fabricated steel, parts, and supplies), on site handling and security of supplied equipment and materials on jobsite. This includes, but is not limited to, furnishing tools, material and labor to protect the mechanical and electrical equipment from weather related damage/corrosion, damage that may occur during hoisting and shoring, and securing worksite from normal operation's traffic until the equipment is installed and accepted by the Owner.

The barge haul equipment will be shipped to the site via truck. Approximately eight (8) trucks will arrive to site to deliver the equipment for both systems.

The mechanical contractor will be responsible for supplying all labor, rigging, lifting equipment, cranes, cribbing, etc., for unloading the trucks. The equipment is to be staged and protected until assembly. The contractor is to provide all dunnage, tarps, temporary shelters or other protection for the equipment. The contractor is to work with the owner to determine a viable laydown area and/or an enclosed area for the fabricated and electrical equipment.

- a. Fabricated steel parts may be stored outside. Contractor is to provide means to avoid or disperse any water collecting on the parts. Tarps should be used to protect the equipment from the elements and water collecting on the equipment.
- b. Electrical components are to be stored in an enclosed space, protected from weather. It is preferred that control enclosures, drive panels and electrical components be stored in a climate-controlled space.

The contractor shall be responsible for moving all equipment from the laydown or storage areas to the assembly areas and ultimately to the erection area.

***The contractors, mechanical, electrical and hydraulic, are responsible to ensure all employees are safety trained, all LOTO procedures are followed and will need to verify with the owner that all equipment is locked out prior to any work on the barge haul systems.**

III. ELECTRICAL INSTALLATION

The electrical contractor's scope of work is defined as furnishing all the labor, tools, equipment, field supervision, review of existing procedures and documents and assembly/installation of the Barge Haul electrical system. The electrical contractor is to provide all conduit, cable, cable tray/raceway, pull boxes, terminations, etc., for a complete control and electrical system installation.

This specification describes the technical requirements for the installation of the following: conduit, tray, cable and connections for all equipment. Also, includes the startup work necessary for the System to function as defined in the contract documents.

The contractor is responsible for installation of the entire electrical system. If scaffold crews or mechanical assistance is required for any part of the installation (including hoisting, motor and drive alignment, painting, and welding), the contractor is responsible to procure and oversee the appropriate personnel.

The contractor is required to review the site conditions and become familiar with the requirements of the project.

Electrical wiring and materials shall conform to the latest edition of the IEC, National Electric Code (NEC) and to the applicable ANSI, IEEE and NEMA standards. All wires shall be tagged at each end and color coded for permanent identification. Minimum size of power conductor shall be #12 AWG copper. Insulation shall be moisture and oil resistant flame retarding covering, in accordance with IPCEA (Insulated Power Cable Engineers Association) specifications.

MV cables for fixed installation shall have copper conductors with XLPE insulation and screens rated for the prospective ground fault current of the respective system. Three (3) core MV cables shall be single wire armored with an overall PVC sheath.

480V power cables shall have stranded copper conductors, 0.6/1kV 90° XLPE insulation with an overall PVC sheath. For high current application, single core XLPE insulated cables may be used. For cables subject to "flexible" applications, EPR/CSP rubber type cabling shall be used.

All VFD power cabling shall be VFD duty shielded cable. VFD cables shall be routed in their own conduit without any other conductors.

120V multi-core control cables shall have #14 AWG stranded copper conductors 0.6/1kV 90° insulation with a ground conductor as standard.

24VDC control and instrument cables shall have a twisted pair format with overall or individual screened pairs as required for signal conditions. The cables shall be rated 300VDC. Signal level cables shall be segregated from control and VFD cables.

Fiber optic cables shall have loose tube construction. Fiber optic cables shall be routed with signal level cables.

A. BARGE HAUL DRIVES

1.0 Barge Haul Drives

The barge haul drives (motor, reducer, drum, brake, etc.) will be installed by the mechanical contractor.

The electrical contractor will provide and install all conduit and cable to the new barge haul drives. Connections to the field devices shall be made using flexible conduit with enough length to provide for the full range of adjustment of the devices.

The following devices are to be installed and wired at each barge haul drive:

- a. Barge haul drive motor, VFD Cable, 480vac, 3 phase.
- b. Barge haul drive motor heater and temperature switch.
- c. Barge haul drive motor feedback encoder.
- d. Barge haul drive brake, 480vac, 3 phase.
- e. Barge haul brake released limit switch.
- f. Barge haul rope drum payout limit switch.
- g. Barge haul drive local control station.

1.1 BU1

- a. Motor VFD, brake power, and motor feedback encoder cables are to be new from electrical building to device in conduit.
- b. Motor heater, motor temp switch, brake limit switch, payout limit switch, and local control station are to be new wire and conduit to existing barge haul junction boxes. Contractor shall determine the suitability of the existing junction boxes and shall replace them if necessary.

1.2 BU3

- a. All cables and conduit are to be new from the electrical building to devices.

2.0 Cable Reel

The shifter barge cable reel will be installed by the mechanical contractor.

The electrical contractor will provide and install all conduit and cable to the new cable reel. Connections to the field devices shall be made using flexible conduit with enough length to provide for the full range of adjustment of the devices.

The following devices are to be installed and wired at the cable reel:

- a. The cable reel cable is to be routed into the slip ring enclosure and terminated.
- b. Cable reel drive motor, VFD cable, 480vac, 3 phase.
- c. Cable reel drive motor brake, 480vac, 3 phase.
- d. Cable reel drive motor feedback encoder.
- e. Cable reel encoder.
- f. Slip ring enclosure heater.
- g. Over tension device inclinometers.

3.0 Shifter Barge

The cable reel cable is to be routed through the shifter barge tower and connected to the shifter barge control panel. When routing the cable through the tower, install three (3) wraps of the cable around the strain relief drum located in the tower. The cable will then route into the pull box and through conduit to the control panel.

B. ELECTRICAL BUILDING

1.0 Equipment Removal

The existing control panels for the existing barge haul drives are to be re-used. The contractor shall remove the existing barge haul VFDs and controls to make room for the new drives. The existing power feed from the MCC and isolation transformers is to be removed.

2.0 Equipment Installation

The new barge haul drive VFDs are to be installed into the existing control panels. The VFDs will be mounted and wired on the new sub-panels and then removed and shipped separately. The contractor shall install the sub-panels into the existing enclosures and then install the VFDs and connect them.

The VFDs and controls are to be wired as shown on the drawings. A new barge haul power feed is to be pulled from the MCC to the Barge Haul panel.

Connections shall be made to the existing PLC control system including hard-wired signals and Ethernet cable from the VFDs to the PLC.

Terminate all field connected cables to the VFDs or to the PLC.

IV. COMMISSIONING

The installation contractor shall not proceed with any commissioning prior to the owner's acceptance of the installation and the entire commissioning team is on site.

Commissioning shall involve the owner, installation contractor and its sub-contractors (as required) and the REW field representative. These personnel will be referred to as the commissioning team.

A. I/O CHECKOUT

The electrical contractor is responsible for verifying the integrity of the electrical system. Tests are required to be performed at various stages of erection. By performing tests at the appropriate times, erection can be carried out more efficiently and overall erection time can be minimized. In addition, faulty components can be identified early and corrective action can be taken to avoid schedule delays.

1. The contractor shall ring out all wires to ensure that they are correct and terminated per the design drawings.
2. Once the system is installed and all wires are terminated, the power to the system can be energized. Use caution and follow all plant LOTO procedures and energize only one (1) circuit at a time.
3. Energize the PLC panel and HMI. Verify the communication.
4. Verify the operation of each system input. Some of the inputs may require equipment motion and can be verified at the appropriate stage of commissioning.
5. PLC outputs can be forced from the PLC program to verify the operation of each system output. Caution must be used as some of the outputs may cause equipment motion and can be verified at the appropriate stage of commissioning.

B. MOTOR/DRIVE VERIFICATION

Each motor and drive shall be individually checked.

1. All motor and power cables are to be meggered and recorded. ***Cables must be disconnected from any electronics or VFD prior to megger checks.***
2. Motors should be uncoupled until proper rotation is verified. Once the megger tests are complete and acceptable, the motor starter or VFD can be energized to bump the motor for rotation. ***Be sure to follow all plant LOTO and safety procedures for energizing equipment.***
3. With the motor uncoupled, energize the brake and verify settings per the manufacturer's manual. Verify the brake released limit switch operation and adjust as needed. Seat the brake shoes/pads with the drum/disc per manufacturer's instructions.
4. Once the motor rotation is confirmed, the starter or VFD can be de-energized and the motor coupled for operation.

C. BARGE HAUL OPERATION

Once the I/O and motor rotation is verified and the motors coupled, the barge haul operation can be verified. The steps will be the same for each of the barge unloaders. The HMI should be used for operation.

D. SHIFTER BARGE OPERATION

The shifter barge will have been fully tested prior to arrival at the terminal. The operation should be verified once connected to the cable reel power as part of the commissioning plan.

1.0 Hydraulic Power Unit

- a. Verify power is on and the system is ready as indicated by the HPU Ready light on the control panel door and the green light on the light stack.

- b. Verify that the amber alarm lights on the control panel door and light stack are off. If any of the lights are on, then the indicated condition must be corrected before starting the HPU. A physical verification shall be conducted prior to the first start of the equipment.
- c. Press the HPU Start button and verify that the HPU starts and is running as indicated by the light on the control panel door and the red light on the light stack.
- d. The deck winches are manually controlled by the operating lever located on the manifold at each winch. Move the lever in each direction and verify operation of the winches. Use caution as the lever can be set in the take-up position for mooring operation. This should only be done when a barge is connected.
- e. When the tests are complete, push the HPU Stop button on the control panel door and verify that the HPU stops running as indicated by the light on the door and the red light in the light stack.

E. PERFORMANCE TEST

The performance testing is to verify the operation of the entire system working together. The HMI should be used for operation.

The system will be operated with material. The first barge will be used to test the operation and make adjustments to the system under load. The system should be operated as normal and stopped as needed to make adjustments.

V. ATTACHMENTS

- **Barge Haul System General Arrangement Drawings**
 - SO3828-8001 General Arrangement of BU-1 Dual Barge Shifter System
 - SO3828-8002 General Arrangement of BU-1 Dual Barge Shifter System Section Views
 - SO3828-8010 General Arrangement of BU-1 Cable Reel
 - SO3828-8011 General Arrangement of BU1 Cable Reel Section Views
 - SO3828-8021 General Arrangement of Dual Shifter Barge System BU1 Anchor Bolt Locations & Loads
 - SO3828-8051 General Arrangement of BU-3 Dual Barge Shifter System
 - SO3828-8052 General Arrangement of BU-3 Dual Barge Shifter System Section Views
 - SO3828-8060 General Arrangement of BU-3 Cable Reel
 - SO3828-8061 General Arrangement of BU3 Cable Reel Section Views
 - SO3828-8071 General Arrangement of Dual Barge Shifter System BU3 Anchor Bolt Locations & Loads
 - SO3828-8097 General Arrangement of Barge Haul Drive Assembly for BU-1 & BU-3

- **Electrical Drawings**
 - BU-1**
 - SO3828-001 Barge Unloader BU-1 Barge Haul Upgrade Single Line Diagram
 - SO3828-201 BU-1 Barge Haul Winch Conduit Arrangement
 - SO3828-202 BU-1 Shifter Barge Cable Reel Conduit Arrangement
 - SO3828-540 BU-1 Barge Haul Control Panel Interconnection
 - SO3828-541 BU-1 Barge Haul Winches Interconnection
 - SO3828-542 BU-1 Shifter Barge Cable Reel Interconnection

 - BU-3**
 - SO3750-003 Barge Unloader BU-3 Barge Haul Upgrade Single Line Diagram
 - SO3750-201 BU-3 Barge Haul Winch Conduit Arrangement
 - SO3750-202 BU-3 Shifter Barge Cable Reel Conduit Arrangement
 - SO3750-540 BU-3 Barge Haul Control Panel Interconnection
 - SO3750-541 BU-3 Barge Haul Winches Interconnection
 - SO3750-542 BU-3 Shifter Barge Cable Reel Interconnection

- **BU-1 Cable Schedule**

- **BU-3 Cable Schedule**

- **BU-1 Existing Drawing Mark-Ups**

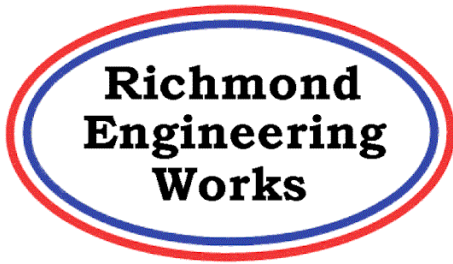
- **BU-3 Existing Drawing Mark-Ups**

- **Standard Paint Specification PS-4**

- **Equipment Storage Procedure**

- **General Specification for Electrical Installation**

The information contained in this document is considered confidential and proprietary to Richmond Engineering Works and shall not be disclosed to other persons without express written consent of Richmond Engineering Works.



Richmond Engineering Works, L.L.C.

1601 Parkway View Drive
Pittsburgh, PA 15205

Phone: 412-787-9640
Fax: 412-787-9645

GENERAL SPECIFICATION FOR ELECTRICAL INSTALLATION

August 10, 2023

Prepared by

Richmond Engineering Works
1601 Parkway View Drive
Pittsburgh, PA 15205
Phone: (412) 787-9640
Fax: (412) 787-9645
www.richmondengineering.com

Definitions

The following terms will be used throughout the document and are defined below:

1. REW- Richmond Engineering Works
2. Contractor-refers to the Contractor hired to complete the installation.
3. Day-Refers to work days, weekends not included.

Safety

Contractor is solely responsible for fully complying with local, state and federal regulations.

Contractor shall ensure that all subcontractors adhere to the Safety Policies and Procedures as well as the reporting requirements.

Contractor shall furnish all required safety equipment to its personnel as required to safely accomplish the work.

Contractor is responsible for the inspection of all tools and equipment.

Field Representative

REW technician or engineer on site during all or part of the installation to answer questions and work with the job foreman.

Standards for Equipment and Materials

The electrical contractor shall furnish and install the following equipment and material:

- a. Conduit and accessories as necessary.
- b. Power, control, and instrumentation cable, except where otherwise specified in the contract documents. All new wiring to have 25% spare circuits. All cable, conduit, wire, cable terminations, and conduit supports must be approved by REW.
- c. Connectors and lugs.
- d. All mounting brackets and supports necessary for the support of conduit, including bolting hardware.
- e. All mounting brackets and supports necessary for the support of limit switches and other control devices.
- f. Conduit fittings (nipples, ells, couplings, expansion joints, conduit covers, reducing bushings, etc.).
- g. Liquid-tight flexible conduit and connectors.
- h. All wiring devices.
- i. All other wiring material required.
- j. Grounding systems.

Equipment and material furnished by the electrical contractor shall conform to the following requirements:

- a. All conduit shall be rigid galvanized. IMC and aluminum conduit are unacceptable.
- b. Standard 90° rigid conduit elbows shall be used in conduit runs of 1-1/2" trade size and larger, wherever practical. Field bends shall not be lesser radius than that of manufactured elbows of the same trade size.
- c. Flexible conduit lengths shall conform to the following table:

<u>Conduit Size</u>	<u>Minimum Length</u>	<u>Maximum Length</u>
Less than 2"	18"	72"
2"	24"	72"
2 1/2"	30"	72"
3"	36"	72"

4"	48"	72"
5"	60"	84"
6"	72"	96"

- d. Flexible conduit shall be Sealtite type, as manufactured by Anaconda, or approved equal, with oil proof PVC jacket. Watertight connectors shall be used with flexible conduit.
- e. Junction, terminal, splice, and pull boxes shall be rated NEMA 4X with gasketed cover and corrosion-resistant hardware.
- f. All power wiring shall be rated 90 °C.
- g. All control terminals supplied by the electrical contractor shall be of the barrier type, rated 600 VAC, with washer head screw terminals and marking strips.

Standards of Erection

- a. Wiring and conduit installation will be in accordance with acceptable local codes.
- b. The Electrical Contractor shall terminate all wiring using compatible connectors.
- c. The Electrical Contractor shall tag all wiring, installed by him, at both ends using tubular or shrink-sleeve type markers with the wire numbers as defined on the REW supplied drawings.
- d. The Electrical Contractor shall tag all cables, installed by him, at both ends with write-on type labels. Conduits shall also be tagged at each end, showing the cable numbers that they contain.
- e. Install plastic bushings on all open ridged steel conduit ends at enclosures and cable trays prior to installation of cables. Attachment of rigid steel conduit to sheet-metal enclosures shall be with double lock nuts, one inside and one outside of the enclosure.
- f. The Electrical Contractor may not use wire nuts, Scotchloks or the like except on lighting, heating and Go-Switch circuits.
- g. The Electrical Contractor is to install the entire electrical system in complete conformance with the REW furnished drawings and documents, and in accordance with the applicable portions of the current National Electric Code (NEC), Occupational Safety Health Administration (OSHA) as well as all state and local codes.
- h. Before each end of each conductor is tagged and terminated, its identity must be verified by employing a continuity test procedure utilizing the conductor being checked as part of a test circuit to "talk over", light, ring a bell, etc.
- i. In no case will any burning or welding of steel work be done without the full knowledge and prior approval of REW. Burning or welding to structural steel will only be done in a manner which will not compromise the integrity of the structure.
- j. All scars resulting from burning and welding of support brackets, etc., shall be "touched-up" with field primer and field finish coat that matches the existing machine coloring.
- k. It is the Electrical Contractor's responsibility to locate the electrical equipment/material as indicated on the drawings and in a manner which does not interfere with the structural or mechanical functions of the equipment.
- l. It is the Electrical Contractor's responsibility to locate raceways as indicated on the drawings and in a manner which does not interfere with the structural or mechanical functions of the equipment.
- m. It is the Electrical Contractor's responsibility to locate raceway fittings, pull boxes, etc., as indicated on the drawings and in a manner which does not interfere with the structural or mechanical functions of the equipment.
- n. All cables shall be installed in conduit unless noted otherwise.

- o. Power feeders comprised of single conductor cables shall have all phase and grounding conductors run in the same conduit.
- p. Grounding conductor shall be the same size as the phase conductors for #8 AWG and smaller feeders. Grounding conductors for #6 AWG and larger feeders shall be sized in accordance with Article 250 of the NEC, but in no case shall be smaller than #8 AWG. For parallel power feeders, no more than one conductor per phase shall be installed in a conduit unless specifically indicated otherwise.
- q. All devices shall be effectively grounded by at least two grounding paths.
- r. All motors over 50 H.P. shall have a supplemental external ground strap.
- s. Each suspended portable cable with a drop over 12' (3.6M) must be supported independently at each end by a "Kellems" grip.
- t. The use of trays shall be as indicated on the contract drawings.
- u. Exposed portable cable shall enter conduits, pull boxes and junction boxes by means of individual watertight connectors.
- v. Exposed portable cable shall have physical protection, where subject to damage.
- w. Conduit runs to be provided with automatic drains at the low points of the runs.
- x. Conduit, raceways, and trays crossing pinned connections to have flexible sections to fully accommodate movement.
- y. Devices such as motors and limit switches which may require physical adjustment for alignment, etc., may not be directly connected to rigid conduit. Flexible conduit shall be used to interface between the rigid conduit and the device.
- z. Flexible conduit larger than 1-1/4" size will be provided with a separate copper ground cable and proper connectors to provide an effective ground path.
- aa. Cables operating at different voltage levels must be separated wherever possible.
- bb. Low voltage or signal level cables must be run in separate conduit and may not be mixed with power or control cables.
- cc. Crimp type cable lugs shall be installed with the proper tool as recommended by the lug manufacturer.
- dd. Electrical Contractor shall fabricate, locate, install and adjust all limit switch trips.
- ee. Mounting brackets for limit switches shall be slotted to permit adjustment.
- ff. All equipment, conduits, raceways, etc., shall be adequately supported and secured with a liberal safety factor to withstand all acceleration/deceleration forces.
- gg. Raceway entrances to boxes and devices must be made properly to maintain the integrity of the enclosure rating.
- hh. Electrical Contractor is responsible for proper operation of cable loops which includes but is not limited to supply, fabrication, and installation of supports, hangers, softeners, rollers, etc. and to make adjustments to permit proper cable loop operation.
- ii. Electrical Contractor is responsible for exercising extreme care when pulling cable into conduit. Whenever possible pulleys or flexible pull-in guides must be used. Approved cable pulling lubricants must be used (grease or soap are unacceptable). Cable must be continuously inspected during installation. Cuts or abrasions must be brought to the attention of the REW representative and repaired or removed as directed.
- jj. Electrical contractor to record megger results on all motors before connection. Data sheets shall be submitted to REW representative upon completion.

Supplied Equipment and Material

The Electrical Contractor is to supply cable, conduit, tray, crimp on connectors, wire labels, hubs, strain relief's and what ever else is required to for this job. The Electrical Contractor will also supply man lifts, benders and hand tools in the required amount for efficient completion of this job.

Conductor Labeling

Conductors (cables, wires, jumpers, fibers, etc.) shall be permanently identified by conductor identification sleeves. A conductor identification sleeve shall be provided on each end of each internal conductor. Conductor identification shall be permanent, unaffected by age, heat, light, or solvents and not easily dislodged. Adhesive labels are not acceptable. The quantity of sleeves required at each end will depend on the amount of information required and the diameter of the conductor.

Cable identification sleeves shall include, at a minimum, the following information:

- Cable number.

Wire and jumper identification sleeves shall include, at a minimum, the following information:

- Cable (or wire) identifier.
- Wire color (if wire is color coded), and wire number.
- Local terminal block ID.
- Local termination ID.
- Factory –fabricated pigtails to be connected to the Owner’s terminal blocks shall include, at a minimum, the following information.
- Terminal block and terminal to which it will be connected.
- Information to uniquely identify the I/O module and point at the opposite end.
- Unique pigtail identifier (number and color, etc.).

Wire labels are to be Brady Cat. # 2HT high temp sleeve-type wire markers, or equal. Markers shall be machine printed and are to remain loose on wires. **Do not heat-shrink the labels.**

Terminal Connectors

Terminal connectors for power cables and ground cables entering the switchgear shall be furnished and shall be as listed in the following table or an acceptable equal. Solder type terminals are not acceptable. The Contractor, during detailed design, will provide sizes for the power and ground cables:

Cable Size	Burdny Terminal Connector for Copper Conductors	
	Bolted Clamp Type	Compression Type
8 AWG and smaller		YAV
6 AWG through 1/0 AWG	YA-2	YA-2N
2/0 AWG and larger	VVA-2N	YA-2N

Equipment Safety Grounding (Earthing)

Electrical equipment that is part of an integral shipping unit or assembly shall be furnished with a bare copper grounding pad. The pad shall be suitable for field connection to the station ground grid.

Electrical equipment shall include all enclosures containing electrical connections or bare conductors with the exception of control devices, such as solenoids, pressure switches, and limit switches, unless such devices require grounding for proper operation.

Raceway system shall not be considered to be a ground conductor except for itself. Metal conduits containing power circuits shall be provided with grounding type bushings and shall be wired together inside enclosures and connected internally to the enclosure grounding pad or grounding bus with bare copper conductor. The grounding bushing ground conductor shall be sized in accordance with NEC or other internationally recognized standard but shall not be less than 8 AWG (10 mm²) bare copper conductor.

Ground conductors shall be soft drawn, bare stranded copper strand Class B as defined in ICEA S-19-81 (or Class II in IEC 228). Clamps, conductors, bolts, washers, nuts, and other hardware used with the grounding system shall be copper.

Electrical Interconnections

Electrical interconnections between devices, panels, and boxes shall use the wiring methods for Non-armored conductors/cable that are continuously supported and protected by conduit. The installation of the cable and raceway system shall meet the requirements of NEC or other internationally recognized standard.

Cable Requirements

The Contractor shall provide all interconnecting cables and fibers, such as data highway communications network, remote I/O communications network, Ethernet Cat6 required for connections between the various physically separated items. Cable quantities shall be the responsibility of the Contractor. Metallic and fiber optic cable using plug-in connectors shall be completely fabricated and tested by the Contractor and shall be used to interconnect the system during the factory acceptance tests. Metallic cables using terminal block connections shall be provided as bulk lots of cable, on reels.

No PVC jacketing or insulation is permitted on any wire, cable, or fiber.

Cable lengths shall be such that all wires can terminate at any location in the termination cabinets at both ends while being routed via designated paths. This ensures flexibility for accommodating any wiring changes that may be required during startup or in the future.

Power and Control Field Cables shall be rated 600V.

Instrumentation cable shall be Belden plenum type, shielded TW PR(s), with overall foil shield and drain wire, 16AWG (min).

FLEXIBLE CONTROL CABLES FOR CABLE LOOPS

Cordaflex (SMK) cable or equal. Flexible Reeling and Crane Cable 0.6/1kV. Cable consists of extra finely stranded tinned copper conductors with a short length of lay to provide an extremely flexible conductor assembly with greater mechanical strength.

THERMAL PARAMETERS

Fully flexible operation -35°C to +60°C

Maximum permissible operating 90°C

CHEMICAL PARAMETERS

Resistance to oil.

Weather resistance

Unrestricted use outdoors and indoors, resistant to ozone, UV and moisture

FLEXIBLE SIGNAL CABLES FOR CABLE LOOPS

Cordaflex (K) cable or equal. Portable reel and festoon cable – EP insulation, dual black neoprene jacket with braid reinforcement, 90°C, 600volt. Cable consists of extra finely stranded tinned copper conductors with a short length of lay to provide an extremely flexible conductor assembly with greater mechanical strength.

THERMAL PARAMETERS

Fully flexible operation -35°C to +60°C

Maximum permissible operating 90°C

Cable requirements will appear on the drawings. If a brand name and part number is specified, electrical contractor will provide it. If a general cable description is given, the electrical contractor can provide a cable of choice, suitable for the application and conditions. All multi-conductor cables will use the K1 color code. Motor cables may have all black numbered conductors. Motor VFD cables shall be shielded, and rated for 2kVAC, VFD service.

Fiber Cable

Multi-fiber cabling shall be Optical Cable Corporation GX series cables or Owner approved equivalent.

Fiber bundling configurations shall require approval of the Owner.

Fiber optic connectors shall use ceramic ferrules.

Fiber optic connectors shall be of the ST type unless otherwise approved by the Owner.

Multi-conductor Cables

Where multi-conductor cables are supplied to connect the I/O cards to the field wire terminal blocks, the multi-conductor cables shall be sized and configured such that the wires terminate to no more than one (1) I/O module at the SRU end, and to only physically adjacent terminal blocks on the field terminal block end.

Internal Wiring

Internal wiring in factory pre-wired electronic systems cabinets may be installed according to the Contractor's standard as to wire size, insulation, and method of termination on internal equipment except that insulation for all wiring (including circuit board wiring, backplane wiring, and power supply wiring) shall meet the VW-1 (vertical wire) flame test requirements of UL 44.

External Wiring

Interconnecting cables between devices shall meet the flame test requirements of IEEE Standard 383 (ANSI N41.5) using a gas burner flame source. The individual conductors of the interconnecting cables shall meet the flame resisting test requirements of ICEA S-19-81, Paragraph 6.19.6. Identification of conductors shall be done by insulation color coding and wire and cable tagging as specified in Section Conductor Labeling.

Light Fixture Supports

All required luminaire supports, hangers, clamps, hardware, and fasteners shall be furnished and installed as required for a rigid support. Supports shall be from the building structure support steel or walls. Light fixtures shall be bracket mounted, ceiling mounted or pendent mounted from 3/4 inch (min) rigid galvanized steel conduit pendants. Bottom of the fixture shall not be less than 7'-6" above the walkway. Galvanized strut channel brackets and fittings shall be installed where the fixtures cannot be mounted directly on the underside of decks or on structural steel. Strut channel, clamps, and miscellaneous fittings shall be as manufactured by B-Line, Unistrut, or acceptable equal. Stanchion mounted lights shall be installed at least three inches from the guardrails, and they shall be supported from 1 1/2 inch rigid galvanized steel conduit. The stanchions shall not be supported or attached in any fashion from the guardrails.

Light Fixture Wiring and Components

Rigid galvanized steel raceway and raceway fittings shall be used in lighting and convenience receptacles. XHHW conductor types shall be used in the lighting and convenience receptacle circuits and shall be provided in accordance with Cable Specification Sheets. Junction boxes, receptacle boxes shall be NEMA 4X stainless steel.

Conduit

Conduit interconnections between devices, panels, boxes, and fittings shall be rigid metal conduit that conforms to ANSI C80.1 and UL 6. Conduit connections shall be of the threaded type, and conduit, couplings, and fittings shall be hot-dipped galvanized steel. The interior and exterior surfaces of rigid metal conduit, couplings, and fittings shall have a continuous zinc coating with an overcoat of transparent enamel, lacquer, or zinc chromate. All steel conduit ends, after cutting or threading, shall be re-galvanized using a cold galvanizing zinc rich coating.

Minimum rigid conduit size shall be 3/4".

One exterior locknut, one interior locknut, and one bushing shall be provided at the termination of each rigid metal conduit not terminated in a hub.

Grounding type insulated bushings with insulating inserts in metal housings shall be provided on all conduits not terminated in hubs and couplings. Bushings shall be galvanized.

Conduit fittings shall conform to the requirements of UL 514. Liquid-tight flexible metal conduit fittings shall be galvanized steel or malleable iron, with insulated throat.

Conduit fittings used on outdoor equipment shall be gasketed.

Conduit shall be installed in exposed runs parallel or perpendicular to dominate surfaces with right angle turns made of symmetrical bends or fittings. Conduit shall be supported by means of conduit clamps and clamp-backs.

Moisture pockets shall be eliminated from conduits. If water cannot drain to the natural opening in the conduit system, a hole shall be drilled in the bottom of a pull box or conduit fitting provided in the low point of the conduit run. Conduit low point drains shall be installed in each conduit run to prevent a buildup of moisture.

Connections requiring minor flexibility for maintenance purposes or to mitigate transmission of vibration shall be Liquid-tight flexible metal conduit.

Liquid-tight flexible metal conduit may be used as long as the length does not exceed 3 feet (1 meter).

Conduit that enters the top of an enclosure or which enters outdoor enclosures shall enter through raintight steel or malleable iron hubs or threaded openings.

Liquid-tight flexible metal conduit shall be constructed of continuously interlocked rust resistant metal core with an integral ground wire in sizes 1/2 inch to 1-1/4 inch. Conduit shall be coated with a sunlight resistant thermoplastic jacket. The conduit shall also resist heat, oil, and chemical breakdown and shall be UL listed.

Wiring Tray System(s)

Cable Trays

Cable trays shall be trough, ladder or channel type, consisting of aluminum construction, complete with coupling accessories, elbows, tees, crosses, branch and reducer sections, cable drop-out accessories, covers, drip guards, barriers, cable clamps, hangers, anti-sway braces and all other appurtenances for a complete installation. Cable trays and their components shall be by one manufacturer such as "Medium Duty Versi-Span" by T.J. Cope; Husky Products Inc.; Binkley Co.; B-line or approved equal.

To attach conduits to cable tray, use a T&B Series 6200 or approved equal.

Wireway

Wireway that is intended for use as raceways for wire and cable shall be in accordance with NEC. Wireway shall be listed and meet NEMA standards.

NEMA 12 wireway shall be without knockouts. Covers shall be the hinge type with spring latch fasteners. Wireway covers and bodies shall be fabricated from 16-gauge steel minimum. Dividers shall be used to separate shielded wires from other wiring or as noted on the drawings.

Bonding/Grounding of Cable Tray

The stacker has pinned connections that allow it to move along the rails as separate structures, but together. The cable tray will be installed in a similar manor as not to stress the cable or tray. The Electrical Contractor is required to connect the non-continuous tray sections together with a #4 bare copper conductor, bolted to each side of the gap in the tray.

System Power and Grounding

General

The Contractor's electrical, system, or logic ground shall be designed for grounding to the station ground mat at a single connection point. Provide insulated ground cable from this point on the station ground mat to the system cabinets. The insulated ground cables will be connected to an insulated copper grounding bus bar which shall be provided by the Contractor in each cabinet.

The system cabinets shall be equipped to accept the insulated ground cables, which at this point will be isolated from the building ground. Any internal component grounds or commons shall be connected to the system ground, which shall be kept isolated from the building ground.

Required electrical ground or common from components not mounted in the system cabinets shall be brought to a terminal block connection within that component. This terminal block connection shall be located with the other terminals within the component and shall be available for connection through the shield of the field wiring to the system ground bus within the associated system cabinet. Isolation between building ground and system ground shall be inherent in the component design.

Each cabinet structure will be safety grounded to building steel. The Contractor shall provide separate connection points within each cabinet for attachment of Owner-furnished cables to the building ground.

At least 600 volt isolation shall be provided between the electrical, system, or logic grounding bus bar and cabinet or building ground for all system components.

When shielded terminations are required in cabinets furnished under these specifications, suitable terminals and supports shall be furnished adjacent to input terminals. Cabinet wiring by the Contractor shall include connection of the shield terminals to the grounding bus bar. The Contractor's shields shall be provided with insulating sleeves to prevent contact of the shields with the metallic structure.

The Contractor shall provide connectors in each cabinet for connection of the system ground and the safety ground. The connectors shall be sized to allow connection of 2 AWG field ground conductors. The connectors shall be Burndy Type YA-L or WA or Owner approved equivalent.

	<p style="text-align: center;">EQUIPMENT STORAGE PROCEDURES</p>	<p>Project No.: SO3828 Revision No.: 0</p>
--	--	--

TABLE OF CONTENTS

SECTION	PAGE
1 GENERAL REQUIREMENTS	2
2 ROTATING EQUIPMENT	2
2.1 Motors	2
2.2 Reducers	2
2.3 Bearings	2
3 ELECTRICAL COMPONENTS	3
3.1 Control Panels	3
3.2 Computer Equipment and HMI.....	3
3.3 Switches and Control Equipment.....	3
4 HYDRAULIC/PNEUMATIC EQUIPMENT	3
4.1 Hydraulic Power Unit	3
4.2 Cylinders	3
4.3 Manifolds and Control Panels.....	4
5 FABRICATED STEEL	4

	EQUIPMENT STORAGE PROCEDURES	Project No.: SO3828 Revision No.: 0
--	---	--

EQUIPMENT STORAGE PROCEDURES

1 GENERAL REQUIREMENTS

All equipment should be inspected prior to storage to ensure that the material/equipment has the proper protection for the duration of storage expected. The information contained herein has been prepared to identify the different storage requirements required.

If material/equipment is to be stored for a period of time prior to installation, the following procedures are recommended:

1. Indoor storage areas should be clean and dry. Storage should be off of the floor, preferably on skids, pallets or cribbing.
2. Machines surfaces should arrive with a coat of cosmoline to protect from corrosion. The cosmoline is to be removed upon installation. Unprotected surfaces should be coated with cosmoline for corrosion prevention.
3. Storage area should be free from rapid temperature changes. If necessary, an additional heat source should be used.
4. Storage area should not subject equipment to vibration.
5. Periodic recorded inspections should be made, checking the covering, any moisture present, cleanliness and general appearance. Any deficiencies should be recorded, and then corrected.
6. When outdoor storage is used, the material/equipment should be fully covered with weatherproof material, vented so as not to trap moisture, but drip-proof so the water cannot enter or splash up into it.
7. Storage must be above any possible water or snow lines.

2 ROTATING EQUIPMENT

2.1 Motors

1. Store Inside in a climate controlled area. Motors must be stored in a clean, dry, well-ventilated location free from vibration and rapid or wide temperature variations.
2. When in storage, the motor shaft must be turned several rotations monthly and the bearings re-lubricated yearly.

2.2 Reducers

1. Store inside with covered storage in a climate controlled area. Reducers must be stored in a clean, dry, well-ventilated location free from vibration and rapid or wide temperature variations.
2. When in storage, the reducer should be operated for 5 to 10 minutes every 2 months with the recommended lubricant.
3. For long term storage of 6 months or more, the reducer interior space should be filled with a vapor phase inhibitor.

2.3 Bearings

Includes components and assemblies containing bearings such as wheels and shafts. This section also applies to couplings and similar components.

1. Store Inside or Outside with Covered Storage and Blocked to prevent ground contact.

	EQUIPMENT STORAGE PROCEDURES	Project No.: SO3828 Revision No.: 0
--	---	--

2. Bearings stored in unprotected areas subject to rain, dust, etc, should be packed 100% full with grease. Prior to installation excess grease must be removed. Operation with bearings over-greased is likely to cause overheating and premature failure.

3 ELECTRICAL COMPONENTS

3.1 Control Panels

Includes PLC panel, VFD panels, MCC's, Junction Boxes, etc.

1. Store inside with covered storage in a climate controlled area. Electrical equipment must be stored in a clean, dry, well-ventilated location free from vibration and rapid or wide temperature variations.
2. Heaters may be needed to maintain consistent temperatures and prevent condensation inside the panels.
3. Any openings shall be completely sealed to prevent the ingress of dust or other contaminants.

3.2 Computer Equipment and HMI

Store inside in a climate controlled area. Computer equipment must be stored in a clean, dry, well-ventilated location free from vibration and rapid or wide temperature and humidity variations.

3.3 Switches and Control Equipment

Store inside with covered storage in a climate controlled area. Switches and control equipment must be stored in a clean, dry, well-ventilated location free from vibration and rapid or wide temperature variations.

4 HYDRAULIC/PNEUMATIC EQUIPMENT

4.1 Hydraulic Power Unit

Store inside in a climate controlled area. The HPU should be stored in a clean, dry, well-ventilated location free from vibration and rapid or wide temperature and humidity variations.

The HPU control room is suitable protection for the HPU and the HVAC unit can be powered temporarily to maintain temperature and prevent condensation.

4.2 Cylinders

1. Cylinders should be stored in a clean, dry, well-ventilated location free from vibration and rapid or wide temperature and humidity variations.
2. Coat the interior of the cylinder with oil and leave half-filled if practical.
3. Plug all ports to ensure foreign matter is kept out of the cylinder.
4. Store the cylinder in a vertical position if at all possible. If the cylinder must lay flat, regularly rotate the cylinder 90° to ensure seals maintain proper shape and elasticity.
5. Keep all mounting surfaces and threads either covered or coated with protective lubricant.

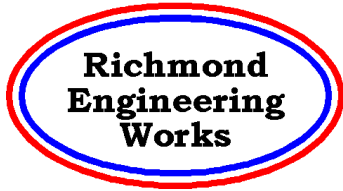
	EQUIPMENT STORAGE PROCEDURES	Project No.: SO3828 Revision No.: 0
--	---	--

4.3 Manifolds and Control Panels

Store inside in a climate controlled area. The manifolds and control equipment should be stored in a clean, dry, well-ventilated location free from vibration and rapid or wide temperature and humidity variations.

5 FABRICATED STEEL

1. Store Outside Covered.
2. Parts should be cribbed 12 to 18 inches from the ground on a solid surface to prevent shifting.
3. The material/equipment should be fully covered with weatherproof material, vented so as not to trap moisture, but drip-proof so the water cannot enter or splash up into it.
4. The covering must prevent the accumulation of standing water on painted surfaces. The paint will be damaged by prolonged submersion.
5. Check and clean the equipment monthly – more often during rainy periods.
6. Field Bolts should be stored inside protected from water and temperature changes that could cause condensation and corrosion.



An American Engineering Company

1601 Parkway View Drive
Pittsburgh, PA 15205

www.richmondengineering.com

Standard Paint Specification PS-4

1) General

This painting specification shall be utilized where structural steel components are submerged in water. All painting and shop preparation shall be performed in accordance with SSPC (Structural Steel Painting Council) and their manual identified as Volume 2, Systems and Specifications, latest edition, and the paint manufacturer's recommendations. In the event of a conflict, Richmond shall be notified, and the stricter requirement shall control.

2) Surface Preparation

All structural steel shapes, plates and miscellaneous parts requiring painting shall be prepared to Near White Metal Blast Clean in accordance with the SSPC-SP10/NACE #2 Commercial Blast Cleaning Method.

3) Primer Coat:

Apply one coat of Sherwin Williams Dura-Plate 235 Multi-Purpose Epoxy, 5.0 to 7.0 mils dry film thickness, or approved equivalent. Color shall contrast the finish coat to ensure complete coverage.

4) Finish Coat:

Apply one coat of Sherwin Williams Dura-Plate 235 Multi-Purpose Epoxy, 5.0 to 7.0 mils dry film thickness, or approved equivalent. Color to be provided per the manufacturing drawings.

Standard Paint Specification PS-4

5) Machined Surfaces:

Machined surfaces, if any exposed after assembly, shall be painted per this specification.

6) Stainless Steel Surfaces:

All stainless steel surfaces that will be exposed shall receive a light sandblast finish to eliminate discolorations, knicks, scratches and other imperfections resulting from the manufacturing process.

7) Miscellaneous:

- a) Faying surfaces of bolted connections shall be painted per this specification. This procedure is not rated for slip critical connections.
- b) All materials of paint system shall be the products of one manufacturer.
- c) Interior surfaces of pipes shall not be painted.
- d) All handrail, toe plate, posts and safety guards shall be painted safety yellow.
- e) All purchased items such as motors, reducers, etc. shall be painted in accordance with manufacturer's standard paint finish.