

SPECIFICATIONS AND CONTRACT DOCUMENTS

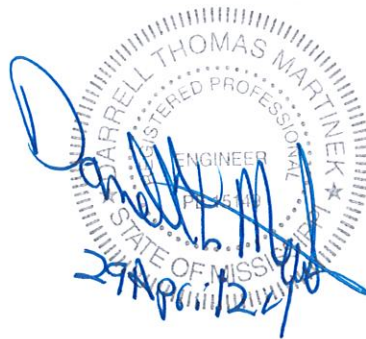
FOR

GS# 323-024

**ARPA INFR. – WASTE CENT. TREATMENT
SOUTH MISSISSIPPI CORRECTIONAL INSTITUTION
LEAKESVILLE, MISSISSIPPI**

PREPARED FOR:

**STATE OF MISSISSIPPI
BUREAU OF BUILDING, GROUNDS AND REAL PROPERTY MANAGEMENT
501 NORTH WEST STREET
SUITE 1401B [WOOLFOLK BUILDING]
JACKSON, MISSISSIPPI 39201**



April 29, 2024



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State of Mississippi
Bureau of Building, Grounds and Real Property Management

GS# 323-024
ARPA Infr. – Waste Cent. Treatment
South Mississippi Correctional Institution
Leakesville, Mississippi

CONTRACT DOCUMENTS AND TECHNICAL SPECIFICATIONS

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GS# 323-024 ARPA INFR.-WASTE CENT. TREATMENT
SOUTH MISSISSIPPI CORRECTIONAL INSTITUTION
LEAKESVILLE, MISSISSIPPI
APRIL 29, 2024

PROJECT TEAM LISTING

OWNER

STATE OF MISSISSIPPI
Bureau of Building, Grounds and Real Property Management
501 North West Street, Suite 1401B [Woolfolk Building]
Jackson, MS 39201

INSTITUTION/AGENCY

South Mississippi Correctional Institution
22689 MS Hwy 63 North
Leakesville, MS 39451

ENGINEER OF RECORD

W.L. BURLE ENGINEERS, P.A.
111 South Walnut Street
Greenville, MS 38701
662-332-2619

CONSULTING ENGINEER

ELECTRICAL ENGINEER.....Atwell and Gent, P.A.
309 University Drive
Starkville, MS 39759
662-324-5658

GS# 323-024 ARPA INFR.-WASTE CENT. TREATMENT
SOUTH MISSISSIPPI CORRECTIONAL INSTITUTION
LEAKESVILLE, MISSISSIPPI
APRIL 29, 2024

PROJECT ENGINEER

W.L. BURLE ENGINEERS, P.A.
111 South Walnut Street
Greenville, MS 38701
662-332-2619

Darrell T. Martinek, P.E., P.S.
P: 662-332-2619
Email: dtm@wlburle.com



*Drawings and Specification Sections Prepared
by W.L. Burle Engineers, P.A. are
Denoted in the Table of Contents with (BURLE)*

GS# 323-024 ARPA INFR.-WASTE CENT. TREATMENT
SOUTH MISSISSIPPI CORRECTIONAL INSTITUTION
LEAKESVILLE, MISSISSIPPI
APRIL 29, 2024

ELECTRICAL ENGINEER

Atwell and Gent, P.A.
309 University Drive
Starkville, MS 39759
662-324-5658

Joey Bowman, P.E.
P: 662-324-5658
Email: jbowman@atwellandgent.com



*Drawings and Specification Sections Prepared
by Atwell and Gent, P.A are
Denoted in the Table of Contents with (AG)*

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**DEPARTMENT OF FINANCE AND ADMINISTRATION
BUREAU OF BUILDING, GROUNDS AND
REAL PROPERTY MANAGEMENT
JACKSON, MISSISSIPPI**

ADVERTISEMENT FOR BIDS

Sealed bids will be received electronically via MAGIC or physically delivered to the office of the Bureau of Building, Grounds and Real Property Management, 501 North West Street, Suite 1401 B, Jackson, Mississippi, 39201, until 2:00:00 p.m. (14:00:00 Military Time) on Thursday, 05/30/2024, for:

RE: GS# 323-024 ARPA Infr. - Waste Cent. Treatment
South Mississippi Correctional Institution
RFx # 3160006572

at which time they will be publicly opened and read. Contract documents may be obtained from:

Professional: W. L. Burle Engineers, P.A.
Address: 111 South Walnut Street
Greenville, Mississippi 38701
Phone: 662-332-2619
Email: dtm@wlburl.com

A deposit of \$200.00 is required. Bid preparation will be in accordance with Instructions to Bidders bound in the project manual. The Bureau of Building, Grounds and Real Property Management reserves the right to waive irregularities and to reject any or all bids. **NOTE: Telephones and desks will not be available for bidders use at the bid site.**

Bureau of Building, Grounds and Real Property Management

Dates of Publication:

04/30/2024
05/07/2024

Note: Whenever reference is made, in any document or meeting, to 2:00:00 p.m., it shall also mean, and be the same as, 14:00:00 Military Time.

INSTRUCTIONS TO BIDDERS
SECTION 00 2100
BIDS WITH UNIT PRICES ONLY
PART 1 - GENERAL

- 1.01 **QUESTIONS:** Questions should be directed to the Professional. Should a Bidder find discrepancies in, or omissions from, the Drawings or Project Manual, or be in doubt as to their meaning, the Bidder should immediately notify the Professional. The Professional will send written instruction(s) or interpretation(s) to all known holders of the documents. Neither the Owner, nor the Professional, will be responsible for any oral instruction or interpretation.
- 1.02 **BIDDER'S QUALIFICATIONS:**
- A. **Certificate of Responsibility:** The Mississippi State Board of Contractors is responsible for issuing Certificates of Responsibility to Contractors. To be awarded a Contract for public work, Sections 31-3-15 and 31-3-21 of the **Mississippi Code 1972, Annotated** requires a Contractor to have a current Certificate of Responsibility at bid time and during the entire length of the job. The Certificate of Responsibility number issued becomes a significant item in all public bidding.
 - B. **Bid Under \$50,000:** If a Bidder submits a bid not exceeding \$50,000, no Certificate of Responsibility number is required; however, a notation stating the *bid does not exceed \$50,000* must appear on the face of the envelope, or a Certificate of Responsibility number.
 - C. **Bid Over \$50,000:** Each Bidder submitting a bid in excess of \$50,000 must show its Certificate of Responsibility number on the bid and on the face of the envelope containing the bid.
 - D. **Joint Venture Bid:** When multiple Contractors submit a joint venture bid in excess of \$50,000, a *joint venture* Certificate of Responsibility number must be shown on the bid and on the face of the envelope containing the bid. If the Multiple-Contractor joint venture has no *joint venture* Certificate of Responsibility number, each of the Contractors participating in the bid must indicate their individual Certificate of Responsibility numbers on the bid and on the face of the envelope.
- 1.03 **NON-RESIDENT BIDDER:** When a non-resident Bidder (a Contractor whose principal place of business is outside the State of Mississippi) submits a bid for a Mississippi public works project, one of the following is required and shall be submitted with the Proposal Form: (Code 31-3-21(3))
- A. **Copy of Law:** If the non-resident Bidder's state has a resident Bidder preference law, a copy of that CURRENT law shall be submitted with the Proposal Form. (modified to "current" August 2016)
 - B. **Statement:** If the state has no such law then a statement indicating *the State of (Name of State) has no resident Contractor preference law* shall be submitted with the Proposal Form.
- 1.04 **DISQUALIFICATION OF BIDDER:** A Bidder may be disqualified for any of the following reasons: (see 600.53)
- A. Failure to comply with the bid requirements.
 - B. Bidder is in arrears on existing Contracts with the Bureau or another state agency, university, community college, or junior college.
 - C. Bidder is involved in an ongoing dispute related to the Bidder's execution, workmanship, or timely performance of a previous Contract with the Bureau or another state agency, university, community college, or junior college.
 - D. Bidder has defaulted on a previous Contract with the Bureau of another state agency, university, community college, or junior college.
- 1.05 **CONDITIONS OF WORK:** Each Bidder must fully inform himself of all conditions relating to the construction of the Project and employment of labor thereon. Failure to do so will not relieve a successful Bidder of obligations to furnish all material and labor necessary to carry out the provisions of the Contract. Insofar as possible, the Bidder must employ methods, or means, which will not cause interruption of, or interference with, the work of any other Bidder, or Contractor.
- 1.06 **EXAMINATION OF SITE:** All Bidders, including the general Contractor and Subcontractors, shall visit the building site, compare the Drawings and Project Manual with any work in place and be informed of all conditions. Failure to visit the site will in no way relieve the successful Bidder from furnishing any materials or performing any work required to complete work in accordance with Drawings and Project Manual without additional cost to the Owner.
- 1.07 **LAWS AND REGULATIONS:** The Bidder's attention is directed to the fact that all applicable Mississippi state laws, rules and regulations of all authorities having jurisdiction over construction of the Project apply to the Contract.

- 1.08 **OBLIGATION OF BIDDER:** At the bid opening, each Bidder will be presumed to have inspected the site, read and become thoroughly familiar with the Drawings and the Project Manual, including all addenda.
- 1.09 **BID DOCUMENT DEPOSIT AND RETURN:** The deposit amount, if any, shall be established as the estimated actual cost of copying and reproduction plus shipping via USPS standard Ground Transportation, ~~is~~ shall be indicated in the Advertisement for Bids. Bidders may request shipping via express carrier or expedited delivery at their own additional cost. Upon returning the documents to the Professional within ten (10) working days of the bid date and in good condition, all document holders will be refunded the full deposit amount. Further, any document holder who is awarded the contract, related subcontracts and/or vendor agreements may elect to retain their documents and request refund of the full deposit amount upon execution of the construction contract and approval of general contractor, however; such documents shall be counted toward the total number of copies furnished free of charge to the general contractor. No partial sets of documents will be issued. Selected trade organizations, plan rooms and web-based distribution networks will be issued one (1) set of documents without charge. (see 600.50) If there is no charge for bid documents, this paragraph does not apply.

PART 2 - PROPOSAL FORM

- 2.01 **METHOD OF BIDDING:** Lump sum, single bids received on a general contract will include general, mechanical and electrical construction and all work shown on Drawings or specified in the Project Manual.
- 2.02 **PROPOSAL FORMS:** The Bidder shall make all proposals on forms provided and shall fill all applicable blank spaces without interlineations or alteration and must not contain recapitulation of the work to be done. No oral or telegraphic proposals will be considered.
- 2.03 **TIME OF COMPLETION:** The Bidder shall agree to commence work on, or before, a date specified in a written *Notice to Proceed* and fully complete the Project within the calendar days indicated on the Proposal Form.
- 2.04 **BASE BID AND ALTERNATES:**
- A. On the Proposal Form, the Bidder shall include a numerical amount for each blank unit price and total price for each pay item. Where blanks are included for both unit prices and total prices, the amounts entered for unit prices shall govern.
 - B. The Proposal Form shall contain a brief description of each alternate modifying the scope. The Bidder shall include a numerical amount for each blank unit price and total price for each pay item for each alternate. Where blanks are included for both unit prices and total prices, the amount entered for unit prices shall govern. Refer to Section 01 2300 entitled *Alternates* for additional information.
- 2.05 **SUBSTITUTIONS:** No substitutions, qualifications or redefining of the Specification requirements are allowed to be marked on the Proposal Form, unless specifically required by the Bid Documents. Refer to Section 01 600 entitled *Substitutions and Product Options* which covers procedures after the award of Contract
- 2.06 **ADDENDA:** Any addenda to the Drawings or Project Manual issued before or during the time of bidding shall be included in the proposal and become a part of the Contract. The Proposal Form will have ample space to indicate the receipt of addenda. When completing the Proposal Form, the Bidder shall list the Addendum number in spaces provided. (see proposal form)
- 2.07 **BIDDER IDENTIFICATION:**
- A. **Signature:** The Proposal Form shall be signed by any individual authorized to enter into a binding agreement for the Business making the bid proposal.
 - B. **Name of Business:** The name appearing on the Proposal Form should be the complete spelling of bidder's name - exact as recorded at the Secretary of State [<http://www.sos.state.ms.us> / Corporations] which should be the same as you applied for at the Mississippi State Board of Contractors [<http://www.msbec.us>] (see 2.07, 3.01, 5.01, proposal form)
 - C. **Legal Address:** The address appearing on the Proposal Form should be the same address exact as recorded at the Secretary of State [<http://www.sos.state.ms.us> / Corporations] which should be the same as you applied for at the Mississippi State Board of Contractors [<http://www.msbec.us>]
 - D. **Certificate of Responsibility Number(s):** The Certificate of Responsibility Number(s) appearing on the Proposal Form should be the same number appearing in the current Mississippi State Board of Contractors Roster.

2.08 **BID SECURITY:** The Bid Security shall be in the form of a Bid Bond, or a Certified Check.:

A. Bid Bond: The Bidder may submit a Bid Bond by a Surety licensed in Mississippi in the amount of five percent (5%) of the base bid. The Bid Bond shall be duly executed by the Bidder, a Mississippi Licensed Agent for said Surety approved by the Mississippi Insurance Department OR signed by the Surety AND countersigned by a Mississippi Licensed Agent for said Surety approved by the Mississippi Insurance Department. <https://www.mid.ms.gov> (or most up-to-date link) (No standard form is required for the Bid Bond.) Where bid is to be submitted electronically, a scanned copy of bid bond is acceptable.

B. Certified Check: The Bidder may submit a certified check made out to the *Bureau of Building, Grounds and Real Property Management* in the amount of five percent (5%) of the base bid. All checks received from Bidders will be returned upon request, unless a Bidder is one (1) of the three (3) apparent low Bidders. The three (3) apparent low Bidder's checks will be held for forty-five (45) days, unless a Contract is awarded and executed in less time. Where bid is to be submitted electronically, certified check must be physically delivered to the address indicated on the Advertisement for Bids prior to the time and date stated.

2.09 **POWER OF ATTORNEY:** Each bid security must be accompanied by an appropriate Power of Attorney. No Power of Attorney is necessary with a certified check.

PART 3 - SUBMITTING THE PROPOSAL FORM

3.01 **SUBMITTAL:** A bid must be either submitted electronically via MAGIC or physically delivered to the address indicated on the Advertisement for Bids prior to the time and date stated.

A. Physical Submittal: If physically submitted, only one original of Bid Proposal shall be submitted which should be sealed in an opaque envelope marked, mailed or hand-delivered as shown below:

<p><i>(In upper left hand corner)</i> Name of Firm (complete spelling of bidder's name and address – exact as recorded at the Secretary of State which should be the same as you applied for at the Mississippi State Board of Contractors – see 2.07, 3.01, 5.01)</p> <p style="text-align: center;"><i>(Bid shall be addressed and delivered to)</i> Bureau of Building, Grounds and Real Property Management 501 North West Street, Suite 1401B [Woolfolk Building] Jackson, Mississippi 39201</p> <p><i>(In lower left hand corner)</i> Bid for Project # _____ Title _____ Using Agency _____ Certificate of Responsibility # _____ (for over \$50,000.00) Under \$50,000.00 (add statement)</p>
--

If the Bid is mailed, the bid envelope shall be placed inside a second envelope to prevent inadvertent premature opening of the Proposal.

B. Electronic Submittal: Bidders must be registered prior to submitting bids electronically. It is the responsibility of the Bidder to allow sufficient time to complete or confirm such registration before the date and time established to receive bids. Information on registration and bidding electronically may be found at www.dfa.ms.gov/dfa-offices/mmrs/mississippi-suppliers-vendors. For further assistance e-mail mash@dfa.ms.gov OR call (601) 359-1343, Option 2. If a Bidder desires to receive system generated Construction Bid Notices for future Bureau of Building, Grounds and Real Property Management opportunities, use Product Code 90922.

3.02 **MODIFICATION TO BID:** A bidder may modify the bid prior to the scheduled closing time indicated in the Advertisement for Bids in the following manner:

- A. **Notification on Envelope:** A modification may be written on the outside of the sealed envelope containing the bid.
- B. **Electronic Bid:** Information and attachments may be modified and re-submitted via MAGIC.
- C. **Facsimile:** A facsimile (fax) will not be acceptable.

3.03 **WITHDRAWAL OF BID:** Any bid may be withdrawn prior to the scheduled time for opening of bids. However, bids may not be withdrawn until forty-five (45) days after bid opening.

PART 4 - BID OPENING AND AWARD OF CONTRACT

4.01 **OPENING OF BIDS:** Bids will be publicly opened shortly after the time stated in the Advertisement for Bids. Bidder representatives are invited; however, attendance is not mandatory.

Closure of agency preventing the opening of bids at the advertised date and time due to Force Majeure Event reasons will result in bids being publicly opened . . . on the next business day that the agency shall be open and at the previously advertised time . . . See 600.47 of the BoB Procedure Manual for wording in detail.

4.02 **IRREGULARITIES:** The omission of any information requested on the Proposal Form may be considered as an informality, or irregularity, by the awarding public body when in their opinion the omitted information does not alter the amounts contained in the submitted bid proposal, or place other Bidders at a disadvantage.

4.03 **PROTEST:** Any protest must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening.

4.04 **ERRORS:** Any claim of error and request for release from bid must be delivered in writing to the Owner within twenty-four (24) hours after the bid opening. The Bidder shall provide sufficient documentation with the written request clearly proving an error was made.

4.05 **AWARD OF CONTRACT:** The Owner reserves the right to reject any, or all bids. A Contract will be awarded on the basis of the low base bid, or low combination of base bid and those alternates selected by the Owner in any order determined to be in the best interest of the Using Agency and which produces a total within available funds. The base bid and alternate amounts for such award shall be based upon the unit quantities identified on the Proposal Form multiplied by the Unit Prices submitted by the Bidder.

4.06 **FAILURE TO ENTER INTO A CONTRACT:** The Bidder shall forfeit the Bid Security to the Owner as liquidated damages for failure, or refusal, to execute and deliver the Contract, Bond and Certificate of Insurance within ten (10) "working" days after notice of the acceptance of the bid/receipt of Contracts from the Professional.

4.07 **SECURITY FOR FAITHFUL PERFORMANCE:** (modified Dec 2013 SoS; Jan 2015 SoS) (see also 2.08 herein, 600.42, 600.57.9)

Simultaneously, with delivery of the executed Contract, if contract is over \$25,000.00, the Contractor will furnish a Surety Bond, or Bonds, as security for faithful performance, the payment of all persons performing labor on the project, and furnishing materials in connection with this Contract. The Surety on such Bond, or Bonds, will be a duly authorized surety company satisfactory to the Owner and meeting all of the following requirements:

- A. Licensed at the time of award by the State of Mississippi's Commissioner of Insurance for the purpose of providing surety. . http://www.mid.state.ms.us/licapp/search_main.aspx <https://www.mid.ms.gov> (or most up-to-date link)
- B. Listed at the time of award in the Department of the Treasury's Federal Register as a company holding certificates of authority as acceptable sureties on Federal Bonds, commonly referred to as the Treasury List.
- C. All Bonds shall be executed on the form provided in the Project Manual under Section 00600 entitled Contract Bond.
- D. The Contract Bond shall be duly executed by the Bidder, a Surety licensed in Mississippi signed by a Mississippi Licensed Agent for said Surety approved by the Mississippi Insurance Department OR signed by the Surety AND countersigned by a Mississippi Licensed Agent for said Surety approved by the Mississippi Insurance Department with the name and address typed, or lettered legibly. (with Surety Seal, preferably embossed seal). http://www.mid.state.ms.us/licapp/search_main.aspx <https://www.mid.ms.gov> (or most up-to-date link)
- E. All Bonds must be accompanied by an appropriate Power of Attorney dated same as Contract Bond (with Seal, preferably embossed seal).

PART 5 - BIDDER'S CHECKLIST

The following checklist is for the Bidder's assistance only. It is not inclusive and **is not a part of the bid documents**; therefore, this checklist does not have to be included with the Proposal Form when submitting a bid proposal.

5.01 **PROPOSAL FORM:** (only one original proposal form to be submitted) (also see 3.011)

Base Bid

Write in the amount of each unit price and total price for each pay item for base bid. The unit prices shall govern.

Alternates

Write in the amount of each unit price and total price for each pay item for each alternate. The unit price shall govern.

Addenda

Acknowledge the receipt of each addendum by writing in the number of the addendum.

Acceptance

Proposal is signed by authorized person

Name of Business - complete spelling of bidder's name and address - exact as recorded at the Secretary of State

[\[http://www.sos.state.ms.us\]](http://www.sos.state.ms.us) which should be the same as you applied for at the Mississippi

State Board of Contractors [<http://www.msbc.us>] (see 2.07, 3.01, 5.01, proposal form)

Legal address of the business listed above (at SOS and Contractor's Board)

Correct Certificate of Responsibility Number(s) as it appears in the current Mississippi State Board of Contractors Roster

Certificate of Responsibility Number(s) on envelope or included with electronic bid (see below for on proposal form) Base Bid is under \$50,000 and no number is required

Base Bid is under \$50,000 and the statement "bid does not exceed \$50,000" is on the outside of the sealed envelope or included with electronic bid (modified 01/01/18 for electronic)

Base Bid is over \$50,000 and number is required

Joint Venture and *joint venture* number is required

OR

Joint Venture participants' numbers are required

5.02 **BID SECURITY:**

Included Bid Bond

OR

Included Certified Check

5.03 **POWER OF ATTORNEY:**

Included Power of Attorney

5.04 **NON-RESIDENT BIDDER:**

Attached a Copy of Non-Resident Bidder's Preference Law

OR

Attached a Statement

5.05 **SUB-CONTRACTORS NAME Refer to 1.04 for responsiveness**

List any Mechanical, Plumbing, and/or Electrical Sub-Contractors regardless of cost.

* List name even for under \$50,000 (see 5.06 regarding COR)

* Fire Protection Sprinkler Contractors do not have to be listed

* If there is a separate HVAC/Plumbing Sub-Contractor, so notate as mentioned herein

* If Mechanical, Plumbing, and/or Electrical Sub-Contractor is performed by the General, be sure the General has a COR for said discipline

* If there is no Mechanical, Plumbing, and/or Electrical Sub-Contractor listed, then use of Sub-Contractor to perform such scope will not be permitted.

5.06 **SUB-CONTRACTORS' COR NUMBER Refer to 1.04 for responsiveness**

* List Certificate of Responsibility Number for any listed Sub-Contractor over \$50,000.00

PROPOSAL FORM
SECTION 00 4200

To: Bureau of Building, Grounds and Real Property Management
501 North West Street, Suite 1401B [Woolfolk Building]
Jackson, Mississippi 39201

Re: Project # _____
Project Title _____
Location _____

I propose to complete all work in accordance with the Project Manual and Drawings within _____ consecutive calendar days for the sum of: (Professional must specify number of days)

BASE BID: (Write in the amount of the base bid in words and numbers. In case of conflict, the written word governs.)

Words: _____ Dollars (\$ _____)

ALTERNATES: (Write in the amount of all of the alternates in words and numbers. In case of conflict, the written word governs.)

Alternate #1 () Adds () Deducts
Words: _____ Dollars
(\$ _____)
Description _____

Alternate #2 () Adds () Deducts
Words: _____ Dollars
(\$ _____)
Description _____

Alternate #3 () Adds () Deducts
Words: _____ Dollars
(\$ _____)
Description _____

Alternate #4 () Adds () Deducts
Words: _____ Dollars
(\$ _____)
Description _____

Alternate #5 () Adds () Deducts
Words: _____ Dollars
(\$ _____)
Description _____

**PROPOSAL FORM
SECTION 00 4200**

To: Bureau of Building, Ground and Real Property Management
501 North West Street, Suite 1401B [Woolfolk Building]
Jackson, Mississippi 39201

Re: Project # - GS# 323-024
Project Title - ARPA Infr. - Waste Cent. Treatment
Location - South Mississippi Correctional Institution, Leakesville, Mississippi

I propose to complete all work in accordance with the Project Manual and Drawings within **500 consecutive calendar days** for the following unit price(s):

Base Bid Items					
Pay Item	Description	Quantity	Units	Unit Price	Total Amount
1	Mobilization/Demobilization, Complete	1	LS		
2	Relocation of Existing Lagoon Aerators, Complete	1	LS		
3	Relocation of Existing Lagoon Aerators Electrical System, Complete	1	LS		
4	Dewater East Lagoon System, Complete	1	LS		
5	Demolition of East Lagoon Liner System, Complete	1	LS		
6	Demolition of Existing Fencing, All Types, Complete	1	LS		
7	Demolition of Existing Sanitary Sewer Piping, Manholes, and Appurtenances, Complete	1	LS		
8	Demolition of Existing Screen Structure, Piping and Appurtenances, Complete	1	LS		
9	Demolition of Existing Pavements, All Types and All Depths, Complete	1	LS		
10	Course Screen System, Complete	1	LS		
11	Course Screen System Electrical, Complete	1	LS		
12	Influent Pump Station, Complete	1	LS		
13	Influent Pump Station Electrical, Complete	1	LS		
14	Fine Screen System, Complete	1	LS		
15	Fine Screen System Electrical, Complete	1	LS		
16	Soda Ash Feed System, Complete	1	LS		
17	Soda Ash Feed System Electrical, Complete	1	LS		
18	Installation of East Lagoon Liner System, Complete	1	LS		
19	Biological Treatment Lagoon System, Complete	1	LS		
20	Biological Treatment Lagoon System Electrical, Complete	1	LS		
21	North Clarifier System, Complete	1	LS		
22	South Clarifier System, Complete	1	LS		
23	North Clarifier System Electrical, Complete	1	LS		
24	South Clarifier System Electrical, Complete	1	LS		
25	Scum Pump Station, Complete	1	LS		
26	Scum Pump Station Electrical, Complete	1	LS		
27	Filter System, Complete	1	LS		
28	Filter System Electrical, Complete	1	LS		
29	Parshall Flume System, Complete	1	LS		

**PROPOSAL FORM
SECTION 00 4200**

Base Bid Items					
Pay Item	Description	Quantity	Units	Unit Price	Total Amount
30	UV Disinfection System, Complete	1	LS		
31	UV Disinfection System Electrical, Complete	1	LS		
32	Effluent Pump Station, Complete	1	LS		
33	Effluent Pump Station Electrical, Complete	1	LS		
34	Erosion Control, Complete	1	LS		
35	Site Lighting, Complete	1	LS		
36	Backup Generator, Complete	1	LS		
37	SCADA System, Complete	1	LS		
38	Removal of Existing Trees All Sizes and Species, Complete	0.37	ACRES		
39	Clearing & Grubbing, Complete	1.3	ACRES		
40	Turfing, Complete	1	ACRES		
41	Installation of Fencing, Complete	1,362	LF		
42	Installation of 4" Gravity Sewer, All Depths, Complete	60	LF		
43	Installation of 6" Gravity Sewer, All Depths, Complete	211	LF		
44	Installation of 10" Gravity Sewer, All Depths, Complete	630	LF		
45	Installation of 12" Gravity Sewer, All Depths, Complete	465	LF		
46	Installation of 14" Gravity Sewer, All Depths, Complete	165	LF		
47	Installation of 15" Gravity Sewer, All Depths, Complete	280	LF		
48	Installation of 18" Gravity Sewer, All Depths, Complete	220	LF		
49	Installation of 3" Sanitary Sewer Force Main, All Depths, Complete	105	LF		
50	Installation of 4" Sanitary Sewer Force Main, All Depths, Complete	115	LF		
51	Installation of 8" Sanitary Sewer Force Main, All Depths, Complete	295	LF		
52	Installation of 10" Sanitary Sewer Force Main, All Depths, Complete	185	LF		
53	Installation of Water Line Piping, All Depths, Complete	330	EA		
54	Installation of Water Faucets, Complete	7	EA		
55	Installation of Sanitary Sewer Manhole, All Depths, Complete	7	EA		
56	Installation of 6" Gravel Surface, Complete	430	SY		
57	Asphalt Pavement, Complete	840	SY		
58	Installation of 4" Concrete Pavement, Complete	175	SY		
59	Installation of 8" Concrete Pavement, Complete	140	SY		
60	Installation of 8" Storm Sewer Line, Complete	46	LF		
61	Installation of 12" Storm Sewer Line, Complete	210	LF		
62	Installation of 18" Storm Sewer Line, Complete	184	LF		
63	Installation of Surface Inlet, 24" x 24" Lockable Cast Iron Grate, Complete	5	EA		
				Total Bid-Base Bid Items	

**PROPOSAL FORM
SECTION 00 4200**

Add Alternate #1					
Description: Complete all work required on to replace the lagoon liner system in the West Lagoon					
Pay Item	Description	Quantity	Units	Unit Price	Total Amount
1	Dewater West Lagoon System, Complete	1	LS		
2	Demolition of West Lagoon Liner System, Complete	1	LS		
3	Installation of West Lagoon Liner System, Complete	1	LS		
Total Additive Alternate 1 Items					

Add Alternate #2					
Description: Complete all work required on to remove and dispose of all sludge in both the East and West Lagoons					
Pay Item	Description	Quantity	Units	Unit Price	Total Amount
1	Mobilization - Portable De-watering Equipment	1	LS		
2	Erosion Control	1	LS		
3	Sludge Removal & Disposal, Complete	225	Dry Ton		
Total Additive Alternate 2 Items					

Bidder acknowledges that (1) each bid unit price includes an amount considered by bidder to be adequate to cover tax, bond, insurance, permit fees, overhead, profit, labor, equipment, and materials for each separately identified bid item, and (2) estimated quantities are not guaranteed, and are solely for the purpose of comparison of bids, and final payment for all unit price bid items will be based on actual quantities, determined as provided in the Section 01 8000 Part 7, Measurement and Payment. The Bidder also agrees to perform any increased or decreased quantities of work at the unit prices bid for each item.

ADDENDA ACKNOWLEDGMENT: (modified dates August 2016)

No. _____ No. _____ No. _____
No. _____ No. _____ No. _____

ACCEPTANCE:

I certify that I am authorized to enter into a binding contract, if this Proposal is accepted.

Signature _____ Date _____
Name and Title _____
Name of Business _____

Complete spelling of bidder's name and address - **exact as recorded at the Secretary of State**

[<http://www.sos.state.ms.us/busserv/corp/soskb/csearch.asp>] which should be the same as you applied for at the Mississippi State Board of

Contractors [<http://www.msdoc.us/Search2.CFM>] (see 2.07, 3.01, 5.01) **PLEASE LOOK IT UP at SoS. SoS rules when the 2 are different.**

Address _____ (mailing)
Address _____ (physical)
City/State/Zip Code _____ County _____
Phone _____ Fax _____ Email _____

- **BIDDER'S CERTIFICATE OF RESPONSIBILITY NUMBER(S):** _____
- **MINORITY BUSINESS ENTERPRISE?** Yes _____ No _____ (to assist with Code 57-1-57)

- Attach copy of Non-Resident Bidder's Preference Law (5.04 of Bidder's Checklist)

- **Mechanical / Plumbing / Electrical Contractors:** (modified Dec 2013 SoS per 10/17/12 Addendum 1 & Feb 2014; 021219 sub over \$50,000.00; modified 04/06/2020)

Regarding said Divisions of the Specifications of the BoB Standard Form of Agreement Between The Owner and The Contractor: List any Mechanical/Plumbing and/or Electrical Sub-Contractors that will perform work of this contract; regardless of cost even for under \$50,000.00. COR must be included where sub-contract exceeds \$50,000.00. If no sub-contractor is listed, and such work is within scope of contract and over \$50,000.00, bidder's own COR classification(s) must be sufficient to self-perform any such work. If no sub-contractor is listed, then use of sub-contractor to perform such scope will not be permitted. This is in accordance with 5.05 and 5.06 of the Bidder's Checklist.

Mechanical Contractor: _____ Certificate of Responsibility No. _____
Plumbing Contractor: _____ Certificate of Responsibility No. _____
Electrical Contractor: _____ Certificate of Responsibility No. _____

■

**STANDARD FORM OF AGREEMENT BETWEEN
THE OWNER AND THE CONTRACTOR SECTION
00 5200**

This Agreement made the _____ day of _____, 20____ between the Owner,

Bureau of Building, Grounds and Real Property Management
501 North West Street, Suite 1401B [Woolfolk Building]
Jackson, Mississippi 39201

created by Section 7-1-451 et seq., and Section 31-11-1, et seq., **Mississippi Code of 1972, Annotated**, and acting for the State of Mississippi;
and between the Contractor:

Business Name _____
Address _____
City/State/Zip _____ Phone: _____ Fax: _____ Email: _____

The Contractor is a (check and complete one of the following):

_____ CORPORATION or LLC solely organized and existing under the laws of the State of _____
and having its principal office in _____, _____, _____
(City) (County) (State)

_____ PARTNERSHIP of the following (list all partners):

_____ SOLE PROPRIETORSHIP

For the following Project:

GS#

This Agreement entered into as of the day and year first written above:

OWNER: BUREAU OF BUILDING, GROUNDS AND
REAL PROPERTY MANAGEMENT

CONTRACTOR:

By: _____
(Signature)

By: _____
(Signature)

Adrian Massey, Director
(Name and Title)

(Name and Title)

APPROVED AS TO FORM:

By: _____
(Signature of Attorney)

THE OWNER AND THE CONTRACTOR AGREE AS SET FORTH IN PAGES ONE THROUGH THREE, ARTICLES ONE THROUGH FIVE, AS FOLLOWS:

ARTICLE 1: THE WORK AND CONTRACT DOCUMENTS

1.1.1 The Contractor will perform all the work required by the Contract Documents for the Project indicated above.

1.2 THE CONTRACT DOCUMENTS

1.2.1 The Contract Documents which constitute the entire Agreement between the Owner and the Contractor, are enumerated as follows:

1.2.2 Project Manual dated April 29, 2024

BIDDING REQUIREMENTS

- Advertisement for Bids
- Instructions to Bidders
- Proposal Form

STANDARD FORM OF AGREEMENT BETWEEN THE OWNER AND THE CONTRACTOR

CONTRACT BOND

POWER OF ATTORNEY

CERTIFICATE OF INSURANCE

AFFIDAVIT OF PAYMENT TO ALL SUBCONTRACTORS

CONDITIONS OF THE CONTRACT

- General Conditions
- Supplementary Conditions
- Labor Requirements
- Minority Participation
- Special Conditions

ADDENDA

SPECIFICATIONS (check the specs listed on the contents and included in the manual)

- | | |
|---|--|
| <input checked="" type="checkbox"/> Division 1: General Requirements | <input type="checkbox"/> Division 26: Electrical |
| <input checked="" type="checkbox"/> Division 2: Existing Conditions | <input type="checkbox"/> Division 27: Communications |
| <input checked="" type="checkbox"/> Division 3: Concrete | <input type="checkbox"/> Division 28: Electronic Safety and Security |
| <input type="checkbox"/> Division 4: Masonry | <input checked="" type="checkbox"/> Division 31: Earthwork |
| <input checked="" type="checkbox"/> Division 5: Metals | <input checked="" type="checkbox"/> Division 32: Exterior Improvements |
| <input type="checkbox"/> Division 6: Wood, Plastics and Composites | <input checked="" type="checkbox"/> Division 33: Utilities |
| <input type="checkbox"/> Division 7: Thermal and Moisture Protection | <input type="checkbox"/> Division 34: Transportation |
| <input type="checkbox"/> Division 8: Openings | <input type="checkbox"/> Division 35: Waterway and Marine Construction |
| <input checked="" type="checkbox"/> Division 9: Finishes | <input type="checkbox"/> Division 40: Process Interconnections |
| <input type="checkbox"/> Division 10: Specialties | <input type="checkbox"/> Division 41: Material Processing and Handling Equipment |
| <input type="checkbox"/> Division 11: Equipment | <input type="checkbox"/> Division 42: Process Heating, Cooling, and Drying Equipment |
| <input type="checkbox"/> Division 12: Furnishings | <input type="checkbox"/> Division 43: Process Gas and Liquid Handling, Purification, and Storage Equipment |
| <input checked="" type="checkbox"/> Division 13: Special Construction | <input type="checkbox"/> Division 44: Pollution and Waste Control Equipment |
| <input type="checkbox"/> Division 14: Conveying Equipment | <input type="checkbox"/> Division 45: Industry-Specific Manufacturing Equipment |
| <input type="checkbox"/> Division 21: Fire Suppression | <input checked="" type="checkbox"/> Division 46: Water and Wastewater Equipment |
| <input type="checkbox"/> Division 22: Plumbing | <input type="checkbox"/> Division 48: Electrical Power Generation |
| <input type="checkbox"/> Division 23: HVAC | |
| <input type="checkbox"/> Division 25: Integrated Automation | |

1.2.3 Addenda

- Addendum No. 1, dated _____
- Addendum No. 2, dated _____
- Addendum No. 3, dated _____
- Addendum No. 4, dated _____
- Addendum No. 5, dated _____

1.2.4 Drawings dated April 29, 2024

- | | |
|--|--|
| Sheets No. <u>C-100</u> through <u>C-105</u> | Sheets No. <u>C-701</u> through <u>C-703</u> |
| Sheets No. <u>C-201</u> through <u>C-229</u> | Sheets No. <u>C-801</u> through <u>C-804</u> |
| Sheets No. <u>C-301</u> through <u>C-332</u> | Sheets No. <u>C-901</u> through <u>C-904</u> |
| Sheets No. <u>C-401</u> through <u>C-406</u> | Sheets No. <u>E-101</u> through <u>E-801</u> |
| Sheets No. <u>C-501</u> through <u>C-503</u> | Sheets No. _____ through _____ |
| Sheets No. <u>C-601</u> through <u>C-602</u> | Sheets No. _____ through _____ |

1.2.5.1 Other documents, dated _____

Division 0

ARTICLE 2: CONTRACT SUM

2.1 CONTRACT SUM

2.1.1 The Owner will pay the Contractor in current funds for the performance of the work subject to additions and deductions by Change Order as provided in the Contract Documents, the Contract Sum of _____ Dollars

(\$ _____). The Contract sum is determined as follows:

Base Bid		\$ _____
Modifications	() Adds () Deducts	\$ _____
Negotiations		\$ _____
Alternate No. _____	() Adds () Deducts	\$ _____
Alternate No. _____	() Adds () Deducts	\$ _____
Alternate No. _____	() Adds () Deducts	\$ _____
Alternate No. _____	() Adds () Deducts	\$ _____
Alternate No. _____	() Adds () Deducts	\$ _____
Total Contract Sum		\$ _____

2.2 LIQUIDATED DAMAGES

2.2.1 The stipulated liquidated damages described in Paragraph 9.11 of the *Supplementary Conditions* are in the amount of Two Hundred Fifty and 00/100 dollars Dollars (\$ 250.00) for each calendar day.

ARTICLE 3: CONTRACT TIME

3.1 TIME

3.1.1 The work to be performed under this Contract shall be commenced upon the date stated in the *Notice to Proceed*. The work is to be substantially complete, subject to approved Change Orders, no later than 500 calendar days from the date stated in the *Notice to Proceed*.

ARTICLE 4: PAYMENTS AND FINAL PAYMENTS

4.1 PROGRESS PAYMENTS

4.1.1 Based upon applications for payment submitted to the Professional by the Contractor and *Certificates for Payment* issued by the Professional, the Owner will make progress payments on account of the Contract Sum to the Contractor as provided in the Contract Documents.

4.2 FINAL PAYMENT

4.2.1 Final payment constituting the entire balance of the Contract Sum will be paid by the Owner to the Contractor when the work has been completed, the Contract fully performed and a final Certificate for Payment has been issued by the Professional and approved by the Owner.

ARTICLE 5: MISCELLANEOUS PROVISIONS

5.1 DEFINITION OF TERMS

5.1.1 Terms used in this Agreement which are defined in the General, Supplementary, and Special Conditions of the Contract will have the meanings designated in those Conditions.

5.2 CONTRACTOR'S INTEREST IN AGREEMENT

5.2.1 The Contractor will not assign, sublet, or transfer the interest in this Contract agreement without the written consent of the Owner. The Owner and Contractor hereby agree to the full performance of the covenants contained herein.

5.3 PROFESSIONAL

5.3.1 The Professional assigned to this Project is as follows:

Name W.L. Burle Engineers, P.A.
 Address 111 South Walnut Street, Greenville, MS 38701
 Telephone 662-332-2619 Fax Number 662-332-2622 E-Mail Address dtm@wlburle.com

*** END OF SECTION ***

Division 0

CONTRACT BOND
SECTION 00 6100

I. PREAMBLE

KNOW ALL MEN BY THESE PRESENTS: THAT _____,
Principal, a _____, residing at _____,
authorized to do business in the State of Mississippi under
the laws thereof, and _____ Surety, a corporation of the State of
_____, authorized to do business in the State of Mississippi under the laws thereof, are held and firmly bound
unto the Bureau of Building, Grounds and Real Property Management of the State of Mississippi, Oblige, hereinafter referred to as "Owner," for the
use and benefit of the Owner and those claimants and others set forth hereinbelow and described in Sections 31-5-51 and 31-5-3, **Mississippi Code
of 1972, Annotated**, as amended, in the amount of _____
Dollars (\$ _____), lawful
money of the United States, for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and
assigns, jointly and severally, firmly by these present.

WHEREAS, Principal has by written agreement dated _____, 20_____, entered into a Contract with the
Owner for the following:

as provided in said Contract and in accordance with the Contract Documents. All of the terms and provisions of the above mentioned Contract,
drawings, Project Manual, and addenda are by reference made a part hereof and fully incorporated herein, and are hereinafter referred to as "the
Contract." All of the terms and provisions of Sections 31-5-51, 31-5-3, supra, Section 31-5-53 of the **Mississippi Code of 1972, Annotated**, as
amended, and all other code sections cited herein are also by reference made a part hereof and fully incorporated herein.

II. PERFORMANCE BOND

NOW, THEREFORE, the condition of this Performance Bond is such that if Principal shall promptly and faithfully perform said Contract, then this
obligation shall be null and void; otherwise, it shall remain in full force and effect, subject however, to the following conditions:

Whenever the Owner has performed its obligation but the Principal has defaulted under the terms of the Contract, or any portion thereof, and the
Owner has declared the Principal to be in default, the Surety shall promptly:

- 1. Remedy the default, or
- 2. Complete the Contract in accordance with its terms and conditions, or
- 3. Procure the completion of the Contract in accordance with its terms and conditions.

Even if there should be a succession of defaults, the Surety is responsible for completion of the Contract. The Surety shall provide sufficient funds to
pay the cost of completion of the Contract in its entirety including other costs and damages for which the Surety may be liable thereunder, less the
balance of the Contract price. The term "balance of the Contract price," as used in this paragraph, shall mean the total amount payable by Owner to
Principal under the Contract and any Change Orders thereto, less the amount paid by Owner to Principal.

III. LABOR AND MATERIAL PAYMENT BOND

NOW, THEREFORE, the condition of this Labor and Material Payment Bond is such that if Principal shall promptly make payments to all persons
supplying labor or material used in the prosecution of the work under said Contract, then this obligation shall be null and void; otherwise, it shall
remain in full force and effect; however, the Owner shall not be liable for the payment of any costs or expenses of any suit described in Subsection (2)
of Section 31-5-51, supra.

IV. BOND FOR PAYMENT OF TAXES AND OTHER ASSESSMENTS

NOW THEREFORE, the condition of this Bond for Payment of Taxes and Other Assessments is such that if Principal shall promptly make payment of all taxes, licenses, assignments, contributions, damages, penalties, and interest thereon, when and as the same may lawfully be due the State of Mississippi, or any County, Municipality, Board, Department, Commission, or political subdivision thereof, by reason of and directly connected with the performance of said Contract or any part thereof as provided by Sections 27-65-1, 27-65-21, 27-67-1, and 31-5-3, **Mississippi Code 1972, Annotated**, or any other applicable statute or other authority, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

V. GENERAL CONDITIONS

The following conditions apply to all three (3) of the above-mentioned Bonds:

1. The Performance Bond is for an amount equal to the full amount of said Contract.
2. The Labor and Material Payment Bond is for an amount equal to the full amount of said Contract.
3. If any changes are made in the work, or any extensions of time are granted, or any increases in the total dollar amount of the Contract are made, such changes, extensions, increases, or other forbearance on the part of either the Owner or the Principal will not, in any way, release the Principal and Surety, or either of them, from their liability hereunder, or any portion thereof, notice to the Surety of any such change, extension, increase, or forbearance being expressly waived.
4. These Bonds are governed by and shall be construed in accordance with Mississippi law. Any inconsistency with these Bonds and any provision of Mississippi law shall be remedied by deleting the inconsistent portion of these Bonds and leaving the remaining consistent portions in full force and effect.

Signed and sealed this _____ day of _____, 20_____.

SURETY _____
Mississippi NAIC number: _____

By: _____
(Signature)

Attorney-in-Fact
(Typed Name) (Title)

Surety Agent MS Ins Dept License Number: _____
(Leave blank if you do not have a Mississippi #)

(Surety Address)

(Surety City/State/Zip/Phone)

MISSISSIPPI LICENSED AGENT COMPANY NAME

(add MS Licensed Agent address below)

COUNTERSIGNED: (if Surety Agent above is NOT MS Licensed)

(Signature) _____

Licensed Mississippi Agent
(Typed Name) (Title)

Countersignature Agent MS License Number: _____

(MS Licensed Agent Address)

(MS Licensed Agent City/State/Zip/Phone)

PRINCIPAL _____

By: _____
(Signature) (same person on Bond and Contract page)

(Typed Name and Title)

(Address)

(City/State/Zip/Phone)

Surety Company, Surety Agent's Name, Address, etc. should be typed and with seal (preferably embossed seal) on Bond and P/A. The P/A should be for the Attorney-in-Fact with seal (preferably embossed seal).

The Contract Bond shall be duly executed by the Bidder AND a MS Licensed Agent said Surety approved by the MS Ins Dept
OR
signed by the Surety's Agent AND countersigned by a MS Licensed Agent for said Surety approved by the MS Ins Dept.

Countersignature, when signed, can be the same as the Attorney-in-Fact when the Attorney-in-Fact and/or Surety IS licensed in Mississippi. Countersignature will be different when the Attorney-in-Fact and/or Surety is "not" licensed in Mississippi. P/A will be for the Attorney-in-Fact.

Check the Surety Company AND the Surety Agent
AND/OR the Countersignature Company and/or Agent at MS Ins Dept web:
<https://www.mid.ms.gov> (or most up-to-date link)

Easier to locate Agent at MID when name agrees with MID licensed name.)

(Bond Agent MID or Code requirements are different from the Ins Cert Agent MID or Code requirements.)

CERTIFICATE OF INSURANCE

SECTION 00 6216

This certificate of insurance neither affirmatively nor negatively amends, extends, or alters the coverage afforded by the policies below.

INSURED: (Contractor's Name & Address) PROJECT: (Number, Name & Location) GS# 323-024 ARPA Infr. - Waste Cent. Treatment South Mississippi Correctional Institution, Leakesville, Mississippi OWNER: Bureau of Building, Grounds & Real Property Management				COMPANIES PROVIDING COVERAGE w/ MID Lic or NAIC #	
				A	#
				B	#
				C	#
				D	#
				E	#
				F	#
G		#			
Companies above must be approved by the MS Ins Dept at https://www.mid.ms.gov (or most up-to-date link) per Code & WComp at http://www.mwcc.ms.gov (MID mod'd 041615)					
Type Insurance	Co	Policy Number	Policy Period	Coverage and Minimum Amount	
General Liability Commercial General Liability				General Aggregate	\$ 1,000,000
				Products Comp/Ops (Aggregate)	\$ 1,000,000
				Personal Injury (Per Occurrence)	\$ 500,000
				BI & PD (Per Occurrence)	\$ 1,000,000
				Fire Damage (Per Fire)	\$ 50,000
				Medical Expense (Per Person)	\$ 5,000
Owners/Contractors Protective Liability				General Aggregate	\$ 1,000,000
				Per Occurrence	\$ 500,000
Automobile Liability				Bodily Injury/Property Damage Combined Single Limit (Per Occurrence)	\$ 500,000
				OR Bodily Injury (Per Person)	\$ 250,000
				Bodily Injury (Per Accident)	\$ 500,000
			Property Damage (Per Occurrence)	\$ 100,000	
* Excess Liability (Umbrella on projects over \$500,000)				Aggregate	\$ 1,000,000
				Per Occurrence	\$ 1,000,000
MS Workers' Compensation (As required by Statute) Employers' Liability				Accident (Per Occurrence)	\$ 100,000
				Disease-Policy Limit	\$ 500,000
				Disease-Per Employee	\$ 100,000
Property Insurance (not required when project is demolition ONLY – required for ALL other projects including paving)				OR Builders' Risk	Must be equal to
				Installation Floater	Value of Work
Other					
Certification: I certify that these policies (subject to their terms, conditions and exclusions) have been (1) issued to the Insured for the coverages and at least the amounts as indicated by companies licensed in Mississippi; (2) countersigned by a Mississippi Licensed Agent; and (3) endorsed to require the company to give thirty (30) days written notice to the Owner prior to cancellation or non-renewal of above.					
Producing Agent: (Name, Address and Telephone)				(Signature) MID Lic # or countersign below	
				(Name and Title of Authorized Representative) (typed)	
				Agent must be approved by the MS Ins Dept or countersign https://www.mid.ms.gov	

Check if Mississippi Licensed Agent
 OR Countersign by Mississippi Licensed Agent MID Lic #

Division 0

CERTIFICATE OF INSURANCE INSTRUCTIONS

SECTION 00 6217

1. The *Certificate of Insurance* is a tabulation of insurance required for this Project as specified in Article 11 entitled *Insurance and Bonds* in the General Conditions (AIA Document A201, Sixteenth Edition, 2017).
2. The *Certificate of Insurance* must be completed, certified by the original signature of a Mississippi Licensed Insurance Agent and/or countersignature and bound in each set of the Contract Documents. Insurance Companies providing coverage, and Agent and/or Countersignature Agent, must be approved by the Mississippi Insurance Department on their web at <https://www.mid.ms.gov> (or most up-to-date link). (Agent does not have to be on the MID web “for providers necessarily” – but must be an approved Agent on MID web. Easier to locate Agent at MID when name agrees with MID licensed name.)
3. Indicate Insured, Project, Companies providing coverage, policy numbers and policy periods in the blanks as applicable.
4. If the "OWNERS/CONTRACTORS PROTECTIVE LIABILITY" insurance is part of the Commercial General Liability Insurance Policy, or included by endorsement, indicate the policy number and period of the CGL policy in the "OWNERS/CONTRACTORS PROTECTIVE LIABILITY" blank spaces.
5. Automobile Liability Insurance may be provided which covers Bodily Injury and Property Damage in one (1) Combined Single Limit, or may be provided with separate minimum limits as shown on the Certificate of Insurance and specified in Article 11 of the Supplementary Conditions. The person signing the Certificate of Insurance should show which option the Contractor has selected by marking out the coverage that is not provided under the policies indicated.
6. OTHER INSURANCE (if required) will be indicated by typing in the "OTHER" block and detailed in Article 11 of the Supplementary Conditions.
7. CERTIFICATION wording may not be changed without specific written approval from the Owner.
8. "Riders", Binders, TBA, TBD, or other unsolicited attachments, are not allowed as part of the *Certificate of Insurance* unless specifically requested in writing by the Owner, or specified as part of the requirements for this Project.
9. CAUTION: The *Certificate of Insurance* is intended to be used for all Projects. The Contractor must provide all insurance specified in the Contract Documents for this Project, whether indicated on this form, or not. The Contractor must verify all insurance has been provided as required.
10. In accepting the Insurance Certificate by Owner, it would be helpful if some indication is given when, and if, the Provider is a Surplus Line Carrier, a Broker, or Self Insured (because they may not be on the MID web list referenced herein). (The Owner will have to ask MID (or know) at some point.)
11. The Workers Comp insurance provider must be approved and show up on the Workers Comp web at <http://www.mwcc.state.ms.us> / Services / Proof of Coverage Inquiry / accept / etc. and at the last step – enter the “contractor’s name”.

Note: Regarding #2 and #11. At the MID web – you enter the Surety Company / Provider / Agent. At the MWCC web – You enter the Vendor’s name, then click on the policy number to see the MWCC Ins Provider.

*** END OF SECTION ***

Division 0

**AFFIDAVIT CERTIFYING
PAYMENT TO ALL SUBCONTRACTORS
SECTION 00 6300**

Department of Finance and Administration
Bureau of Building, Grounds and Real Property Management

I acknowledge that, pursuant to Miss. Code Ann. §31-5-25 and H.B. 1562, Laws of 2002, that I am required to submit monthly certification indicating payments to subcontractors on prior payment requests. I, the undersigned Contractor, do hereby certify that I have paid the following amounts to subcontractors for Work which has been performed and incorporated into previous Applications for Payment which were issued and payment received from the Owner on the project listed below. I understand that this document must be submitted on a monthly basis after the submittal, approval and payment of Application for Payment #1. I understand that the Bureau of Building reserves the right to require me, the undersigned, to provide verification of payment and/or additional information.

Project Number: _____

Project Name: _____

Using Agency: _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Subcontractor: _____ Amount: \$ _____

Division 0

Page 2 of 2
DFA/Bureau of Building
Affidavit Certifying Payment Form

Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____
Subcontractor: _____ Amount: \$ _____

(Attach additional list of subcontractors and amounts, if necessary)

Contractor Name and Title: _____
Contractor Certificate of Responsibility Number: _____
Contractor Signature: _____ Date: _____

STATE OF MISSISSIPPI
COUNTY OF _____

SWORN TO AND SUBSCRIBED BEFORE ME, the undersigned notary public,
this the _____ day of _____, 20____.

NOTARY PUBLIC

My Commission Expires:

Division 0

GENERAL CONDITIONS

SECTION 00 7200

PART 1 - GENERAL

1.01 DESCRIPTION

- A. **SCOPE:** The **General Conditions of the Contract for Construction**, AIA Document A201, Seventeenth Edition, 2017, Articles 1 through 15 inclusive, is a part of this Contract and is incorporated herein.
- B. **BIDDING COPY:** For the purpose of bidding, Contractors are presumed to be familiar with AIA Document A201, a copy of which may be obtained from the Professional, or examined in the Professional's office.

***** END OF SECTION *****

Division 0

ARPA SUPPLEMENTARY CONDITIONS
SECTION 00 7300
PART 1 – GENERAL

1.01 Description

A. Owner: These supplements are necessary because the Owner is an agency, or political subdivision, of the State of Mississippi and occupies a different position from that of the usual Owner.

B. Document: The following supplements modify, change, delete from, or add to the **General Conditions of the Contract**, AIA Document A201, Seventeenth Edition, 2017. When any Article of the **General Conditions** is modified, or deleted, by these *Supplementary Conditions*, the unaltered provisions of that Article, Paragraph, Subparagraph, or Clause will remain in effect.

Article 1
GENERAL PROVISIONS

1.1 Basic Definitions

1.1.1 The Contract Documents

Change this subparagraph to read as follows:

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and Special Conditions), Drawings, Specifications and Addenda issued prior to the execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for minor changes in the Work issued by the Prime Professional. The Contract Documents also include the advertisement or invitation for bids or proposals, Instructions to Bidders, and the Contractor's bid or proposal.

1.1.2 The Contract

Change each instance of the word “*Architect*” to “*Prime Professional*” and each instance of the word “*Architect's*” to “*Prime Professional's*”.

1.1.7 Instruments of Service

Change the word “*Architect*” to “*Prime Professional*” and change the word “*Architect's*” to “*Prime Professional's*”.

1.1.8 Initial Decision Maker

Change this Subparagraph to read as follows:

The Initial Decision Maker is the person identified as the Professional in Paragraph 5.3.1 of the Standard Form of Agreement Between the Owner and the Contractor and will render initial decisions on Claims in accordance with Section 15.2.

ARPA Division 0

-
- 1.1.9 Add a new Subparagraph as follows:

Commissioning Authority Professional

A professional independent of the Prime Professional retained by the owner who manages a quality-focused process for enhancing the delivery of the project. The process focuses upon verifying and documenting that the facility and all of its systems are planned, designed, installed, tested, operated, and maintained to meet the Owner's project requirements.

- 1.2.1 Change this Subparagraph to read as follows:

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor and unless otherwise provided in the Contract Documents, this shall include all labor, materials, equipment, tools, machinery, water, heat, utilities, transportation, and other facilities and services, whether temporary or permanent and whether or not incorporated in the Work. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results. In case of any direct conflict among the Contract Documents, the specifications shall take precedence over the drawings, supplemental or special conditions shall take precedence over more general conditions or requirements, details shall take precedence over plans, and larger scale drawings shall take precedence over smaller scale drawings.

1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

- 1.5.1 Change each instance of the word "Architect" to "Prime Professional" and each instance of the word "Architect's" to "Prime Professional's" and add a new sentence at the end of this Subparagraph:

This Paragraph in no way supersedes the Owner's document rights set forth in the separate Agreement Between the Owner and the Professional.

- 1.5.3 Add a new Subparagraph as follows:

Transparency

In accordance with the Mississippi Accountability and Transparency Act of 2008, §27-104-151, et seq., of the Mississippi Code of 1972, as Amended, the American Accountability and Transparency Act of 2009 (P.L. 111-5), where applicable, and §31-7-13 of the Mississippi Code of 1972, as amended, where applicable, a fully executed copy of this agreement shall be posted to the State of Mississippi's accountability website at: <https://www.transparency.mississippi.gov>

1.6 Notice

- 1.6.1 Change this Subparagraph to read as follows:

Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is address and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if transmitted to the government or business issued e-mail address of the respective party.

1.7 Digital Data Use and Transmission

Delete the last sentence of this Paragraph.

1.8 **Building Information Models Use and Reliance**

Change this Paragraph to read as follows:

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in a written documents shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

Article 2
OWNER

2.1 **General**

2.1.1 Change this Subparagraph to read as follows:

The Owner, as used in these Documents, refers to the Bureau of Building, Grounds and Real Property Management, acting for and on behalf of the State of Mississippi and for the benefit of the Institution, Agency, or Department for which the Work under this Contract is being performed. The Owner is the entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner's representative, who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization, is the individual who signed the Agreement Between the Owner and the Contractor, his successor in the case of that individual's retirement or termination, or his direct supervisor in the case of that individual's absence. Except as otherwise provided in Subparagraph 4.2.1, the Prime Professional does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

2.1.2 Delete this Subparagraph in its entirety.

2.2 **Evidence of the Owner's Financial Arrangements**

2.2.1 Delete this Subparagraph in its entirety.

2.2.2 Delete this Subparagraph in its entirety.

2.3.1 Delete this Subparagraph in its entirety.

2.2.3 Delete this Subparagraph in its entirety.

2.2.4 Delete this Subparagraph in its entirety.

2.3 **Information and Services Required of the Owner**

2.3.2 Add the word "or Engineer" following each instance of the word "Architect" and add the words "or engineering respectively" following each instance of the word "architecture".

2.3.3 Add the word "or Engineer" following each instance of the word "Architect".

2.3.6 Change this Subparagraph to read as follows:

Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, such copies of Drawings and Project Manuals as are reasonably necessary, but in no instance to exceed twenty-five (25) copies, for the execution of the Work.

ARPA Division 0

2.4 **Owner’s Right to Stop the Work**

Change this Subparagraph to read as follows:

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents as required by Section 12.2 or fails to carry out Work in accordance with the Contract Documents, the Owner may issue, or direct the Prime Professional to issue, a written order to the Contractor to stop the Work or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3. The rights and remedies under this Subparagraph are in addition to and do not in any respect limit any other rights of the Owner, including the right to terminate in accordance with Article 14.

2.5 **Owner’s Right to Carry Out the Work**

Change this Paragraph read as follows:

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. The Prime Professional may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner’s expenses and compensation for the Prime Professional’s additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Prime Professional, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

Article 3
CONTRACTOR

3.1 **General**

3.1.3 Change the word “Architect” to “Prime Professional” and change the word “Architect’s” to “Prime Professional’s”.

3.2 **Review of Contract Documents and Field Conditions by Contractor**

3.2.2 Change each instance of the word “Architect” to “Prime Professional”.

3.2.3 Change each instance of the word “Architect” to “Prime Professional”.

3.2.4 Change the word “Architect” to “Prime Professional”.

3.3 **Supervision and Construction Procedures**

3.3.1 Change each instance of the word “Architect” to “Prime Professional”.

3.4 **Labor and Materials**

3.4.1 Add a new sentence to the end of this Subparagraph:

Where the Contract Sum is ten million dollars (\$10,000,000.00) or greater, the Contractor shall furnish a written Project Workforce Continuity Plan on or before the date of the Notice to Proceed that affirms that the Contractor has ready access to a sufficient supply of appropriately skilled and unskilled labor to ensure high-quality construction and enumerates steps that the Contractor will take to ensure an adequate workforce is available throughout the life of the project.

ARPA Division 0

3.4.2 Change each instance of the word “*Architect*” to “*Prime Professional*” and add the words “*where such substitution results in a modification of the Contract Sum or Contract Time*” to the end of this sentence.

3.4.4 Add a new Subparagraph as follows:

Employee Status Verification System *If applicable, the Contractor represents and warrants that it will ensure its compliance with the Mississippi Employment Protection Act, Section 71-11-1, et seq. of the Mississippi Code Annotated (Supp 2008), and will register and participate in the status verification system for all newly hired employees. The term “employee” as used herein means any person that is hired to perform work within the State of Mississippi. As used herein, “status verification system” means the Illegal Immigration Reform and Immigration Responsibility Act of 1996 that is operated by the United States Department of Homeland Security, also known as the E-Verify Program, or any other successor electronic verification system replacing the E-Verify Program. The Contractor agrees to maintain records of such compliance and, upon request of the State and approval of the Social Security Administration or Department of Homeland Security, where required, to provide a copy of each such verification to the State. The Contractor further represents and warrants that any person assigned to perform services hereunder meets the employment eligibility requirements of all immigration laws of the State of Mississippi. The Contractor understands and agrees that any breach of these warranties may subject the Contractor to the following: (a) termination of this Agreement and ineligibility for any state or public contract in Mississippi for up to three (3) years, with notice of such cancellation/termination being made public, or (b) the loss of any license, permit, certification or other document granted to the Contractor by an agency, department or governmental entity for the right to do business in Mississippi for up to one (1) year, or (c) both. In the event of such cancellation/termination, the Contractor would also be liable for any additional costs incurred by the State due to the contract cancellation or loss of license or permit.*

3.4.5 Add a new Subparagraph as follows:

In providing labor for the proper execution and completion of the Work, the Contractor shall comply with the provisions of Section 31-5-19 of the Mississippi Code of 1972, Annotated.

3.4.6 Add a new Subparagraph as follows:

In providing materials for the proper execution and completion of the Work, the Contractor shall comply with the provisions of Section 31-5-23 of the Mississippi Code of 1972, Annotated.

3.5 **Warranty**

3.5.1 Change each instance of the word “*Architect*” to “*Prime Professional*”.

3.7 **Permits, Fees, Notices and Compliance with Laws**

3.7.1 Change this Subparagraph to read as follows:

Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for any applicable permits, fees, licenses, and inspections by government agencies necessary for the proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

3.7.3 Delete the words “*knowing it to be*” from this Subparagraph.

3.7.4 Change each instance of the word “*Architect*” to “*Prime Professional*” and change the word “*Architect’s*” to “*Prime Professional’s*”.

3.7.5 Change the word “*Architect*” to “*Prime Professional*”.

3.9 Superintendent

3.9.2 Change this Subparagraph to read as follows:

The Contractor, as soon as practicable after award of the Contract, and prior to commencement of any on-site Work, shall notify the Owner and Prime Professional of the name, qualifications and references of the proposed superintendent and any assistant superintendents where provided for in the Contract Documents. Within 14 days of receipt of the information, the Prime Professional shall notify the Contractor stating whether the Owner or the Prime Professional (1) has reasonable objection to the proposed superintendent based upon information provided or other requirements provided for in the Contract Documents or (2) requires additional information or time for review. Failure of the Prime Professional to respond within the 14-day period shall constitute notice of no reasonable objection.

3.9.3 Change the word “Architect” to “Prime Professional”.

3.10 Contractor’s Construction and Submittal Schedules

3.10.1 Change this Subparagraph to read as follows:

The Contractor, promptly after being awarded the Contract, and no later than fifteen days after the date established in the Notice to Proceed, shall submit for the Owner’s and Prime Professional’s information a Contractor’s construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed the time limits current under the Contract Documents. Submission of a schedule that indicates or expresses an intent to complete Work prior to the time limits established by the Contract Documents shall not make the Owner liable to the Contractor for any failure to achieve early completion or obligate the Owner to take or prevent any actions to facilitate the Contractor’s completion prior to the expiration of the Contract Time. The schedule shall be revised monthly or at more frequent intervals as required by the conditions of the Work and Project.

3.10.2 Change each instance of the word “Architect’s” to “Prime Professional’s” and change the word “Architect” to “Prime Professional”.

3.10.3 Change the word “Architect” to “Prime Professional”.

3.11 Documents and Samples at the Site

Change each instance of the word “Architect” to “Prime Professional”.

3.12 Shop Drawings, Product Data and Samples

3.12.4 Change each instance of the word “Architect” to “Prime Professional”.

3.12.5 Change each instance of the word “Architect” to “Prime Professional”.

3.12.6 Change the word “Architect” to “Prime Professional”.

3.12.7 Change the word “Architect” to “Prime Professional”.

3.12.8 Change each instance of the word “Architect’s” to “Prime Professional’s” and change the word “Architect” to “Prime Professional”.

3.12.9 Change the word “*Architect*” to “*Prime Professional*” and change the word “*Architect’s*” to “*Prime Professional’s*”.

3.12.10.1 Change each instance of the word “*Architect*” to “*Prime Professional*”.

3.12.10.2 Change each instance of the word “*Architect*” to “*Prime Professional*”.

3.15 **Cleaning Up**

3.15.2 Change this Subparagraph to read as follows:

If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be assessed to the Contractor.

3.16 **Access to Work**

Change this Paragraph to read as follows:

The Contractor shall provide the Owner, Prime Professional, Commissioning Authority Professional, Separate Contractors and their authorized representatives with access to the Work in preparation and progress wherever located. This shall include the provision of lifts, ladders, scaffolding and/or equivalent for access to elevated work.

3.17 **Royalties, Patents and Copyrights**

Change each instance of the word “*Architect*” to “*Prime Professional*”.

3.18 **Indemnification**

3.18.1 Change this Subparagraph to read as follows:

To the fullest extent allowed by law, Contractor shall indemnify, defend, save and hold harmless, protect, and exonerate the Owner, Prime Professional, Prime Professional’s consultants, Commissioning Authority Professional, Commissioning Authority Professional’s consultants, as well as the State of Mississippi, its Commissioners, Board Members, officers, employees, agents, and representatives, from and against all claims, demands, liabilities, suits, actions, damages, losses, and costs of every kind and nature whatsoever, including, without limitation, court costs, investigative fees and expenses, and attorneys’ fees, arising out of or caused by Contractor’s and/or its partners, principals, agents, employees, and/or subcontractors in the performance of or failure to perform this Agreement. In the State’s sole discretion, Contractor may be allowed to control the defense of any such claim, suit, etc. In the event Contractor defends said claim, suit, etc., Contractor shall use legal counsel acceptable to the State; Contractor shall be solely liable for all reasonable costs and/or expenses associated with such defense and the State shall be entitled to participate in said defense. Contractor shall not settle any claim, suit, etc., without the State’s concurrence, which the State shall not unreasonably withhold.

Article 4 ARCHITECT

Change the title of this article from “*ARCHITECT*” to “*PRIME PROFESSIONAL*”.

4.1 **General**

4.1.1 Change this Subparagraph to read as follows:

The Prime Professional is the person identified as the Professional in the Agreement Between the Owner and the Contractor and retained by the Owner pursuant to Section 2.3.2.

ARPA Division 0

4.1.2 Change each instance of the word “*Architect*” to “*Prime Professional*”.

4.2 **Administration of the Contract**

4.2.1 Change the first line of this Subparagraph to read as follows:

The Prime Professional will provide administration of the Contract as described in the Contract Documents, and will be the Owner’s representative during construction until the end of the period for correction of Work as described in Section 12.2.

4.2.2 Change each instance of the word “*Architect*” to “*Prime Professional*”.

4.2.3 Change each instance of the word “*Architect*” to “*Prime Professional*”.

4.2.4 Change each instance of the word “*Architect*” to “*Prime Professional*” and each instance of the word “*Architect’s*” to “*Prime Professional’s*”.

4.2.5 Change the word “*Architect’s*” to “*Prime Professional’s*” and change the word “*Architect*” to “*Prime Professional*”.

4.2.6 Change each instance of the word “*Architect*” to “*Prime Professional*”.

4.2.7 Change each instance of the word “*Architect*” to “*Prime Professional*” and each instance of the word “*Architect’s*” to “*Prime Professional’s*”.

4.2.8 Change each instance of the word “*Architect*” to “*Prime Professional*”.

4.2.9 Change the word “*Architect*” to “*Prime Professional*”.

4.2.10 Change each instance of the word “*Architect*” to “*Prime Professional*” and the word “*Architect’s*” to “*Prime Professional’s*”.

4.2.11 Change the word “*Architect*” to “*Prime Professional*” and the word “*Architect’s*” to “*Prime Professional’s*”.

4.2.12 Change each instance of the word “*Architect*” to “*Prime Professional*”.

4.2.13 Change the word “*Architect’s*” to “*Prime Professional’s*”.

4.2.14 Change each instance of the word “*Architect*” to “*Prime Professional*”.

Article 5
SUBCONTRACTORS

5.2 **Award of Subcontracts and Other Contracts for Portions of the Work**

5.2.1 Change this Subparagraph to read as follows:

Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, prior to award of the Contract by the Owner, shall furnish in writing to the Owner through the Prime Professional, the names, classifications, and COR #'s of Sub-Contractors over Fifty Thousand Dollars (\$50,000.00) (as well as entities who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. Such list shall also include any Mechanical, Plumbing, or Electrical Sub-Contractor as listed on Proposal Form regardless of amount. Within 7 days of receipt of the information, the Prime Professional shall notify the Contractor whether the Owner or the Prime Professional (1) has reasonable objection to any such proposed Sub-Contractor or entity based upon information provided or other

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requirements provided for in the Contract Documents or (2) requires additional information or time for review. Failure of the Prime Professional to respond within the 7-day period shall constitute notice of no reasonable objection. Where a Project involves a Mississippi Landmark or a building and/or site potentially eligible for such designation, the Contractor shall also furnish documentation that all Sub-Contractors, regardless of Sub-Contract amount, have at least the minimum number of years of successful experience specified by the Prime Professional in work on previous projects involving State or National Landmarks of similar type, scale and complexity and that all key personnel to be utilized to perform the Work are experienced craftsmen with not less than five (5) years of experience.

5.2.2 Change this Subparagraph to read as follows:

The Contractor shall not contract with a proposed Sub-Contractor or entity to whom the Owner or Prime Professional has made reasonable and timely objection. Other than the Mechanical, Plumbing, or Electrical Sub-Contractors as listed on the Proposal Form, the Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection. Only where the listed Mechanical, Plumbing, or Electrical Sub-Contractor has (1) closed their business (2) entered into bankruptcy or (3) refuses to enter into a contract with the Contractor will substitution of such Sub-Contractor be permitted prior to the execution of the Agreement Between the Owner and Contractor. Substitution for refusal to enter into contract shall not be permitted if the reason for such refusal is due to unilateral reduction by Contractor of such Sub-Contractor's bid price.

5.2.3 Change this Subparagraph to read as follows:

If the Owner or Prime Professional has reasonable objection to a Sub-Contractor or entity proposed by the Contractor, other than the Mechanical, Plumbing, or Electrical Sub-Contractors as listed on the Proposal Form, the Contractor shall propose another to whom the Owner or Prime Professional has no reasonable objection. Neither the Contract Sum nor Contract Time may be increased or decreased due to any change in Sub-Contractor or entity. Failure of Contractor to identify Sub-Contractors or entities to whom the Owner and Prime Professional have no reasonable objections within 10 working days of initial submission shall result in the bid or proposal being deemed non-responsible at which time the Owner may elect to award to the next lowest responsive, responsible bidder or resolicit the project.

5.2.4 Change this Subparagraph to read as follows:

Following the execution of the Agreement Between the Owner and Contractor, the Contractor shall not substitute a Sub-Contractor or entity for one previously selected if the Owner or Prime Professional makes reasonable objection to such substitution. In no case shall substitution of Mechanical, Plumbing or Electrical Sub-Contractors be permitted except where such Sub-Contractor has (1) closed their business (2) entered into bankruptcy (3) becomes in arrears or (4) becomes involved in an ongoing dispute with the Contractor related to the Sub-Contractor's execution, workmanship, or timely performance of their portion of the Work.

Add new Subparagraphs as follows for ARPA:

5.3 CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS

5.3.1 The Contractor shall take all affirmative steps necessary to assure that minority business, women's business enterprises, and labor surplus area firms are used when possible, including those steps listed in 2 C.F.R. § 200.321(b).

5.4 DOMESTIC PREFERENCES FOR PROCUREMENTS

5.4.1 To the extent applicable, appropriate, and consistent with law, the Contractor certifies that, during the term of this Contract, it will comply with applicable requirements of 2 C.F.R. § 200.322 and will include these requirements in all agreements with sub-contractors utilized in the work of this agreement.

5.5 PROCUREMENT OF RECOVERED MATERIALS

5.5.1 The Contractor certifies that, during the term of this Contract, it will comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act in accordance with the guidelines and requirements of 2 C.F.R. § 200.323 and will include these requirements in all agreements with sub-contractors utilized in the work of this agreement.

5.6 ADDITIONAL FEDERAL REQUIREMENTS

5.6.1 This Contract shall be governed by the federal requirements contained in 2 C.F.R. Pt. 200, App. II, where applicable, or not otherwise addressed herein and will include these requirements in all agreements with sub-contractors utilized in the work of this agreement.

Article 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.2.2 Change each instance of the word “*Architect*” to “*Prime Professional*”.

6.3 Change the word “*Architect*” to “*Prime Professional*”.

Article 7 CHANGES IN THE WORK

7.2 Change Orders

7.2.1 Change each instance of the word “*Architect*” to “*Prime Professional*”.

7.2.2 Add a new Subparagraph as follows:

The maximum mark-up included in a Change Order for profit and overhead is limited to twenty percent (20%) of the total of the actual cost for materials, labor and subcontracts. Profit and overhead include: all taxes, fees, permits, insurance, bond, job superintendent, job and home office expense. All Sub-Contractors and Sub-Sub-Contractors shall acquiesce to the same requirements when participating in a Change Order.

7.3 Construction Change Directives

7.3.4 Change the word “*Architect*” to “*Prime Professional*”.

7.3.4.1 Change the word “*Architect*” to “*Prime Professional*”.

7.3.6 Change this Subparagraph to read as follows:

Upon receipt of a Construction Change Directive signed by the Prime Professional and the Owner, the Contractor shall promptly proceed with the change in the Work and advise the Prime Professional of the Contractor’s agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

7.3.7 Change this Subparagraph to read as follows:

A Construction Change Directive signed by the Contractor indicates the Contractor’s agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall become effective once signed by the Prime Professional and the Owner and will subsequently be incorporated into a Change Order.

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7.3.8 Change the word “*Architect*” to “*Prime Professional*”.

7.3.9 Change this Subparagraph to read as follows:

Until such time that a Construction Change Directive is recorded as a Change Order, the Contractor may not request payment for Work completed under the Construction Change Directive in Applications for Payment.

7.3.10 Change each instance of the word “*Architect*” to “*Prime Professional*”.

7.4 Change each instance of the word “*Architect*” to “*Prime Professional*” and the word “*Architect’s*” to “*Prime Professional’s*”.

Article 8 **TIME**

8.1 Definitions

8.1.2 Change this Subparagraph to read as follows:

The date of commencement of the Work is the date established in the Notice to Proceed.

8.1.3 Change the word “*Architect*” to “*Prime Professional*”.

8.2 Progress and Completion

8.2.1 Change this Subparagraph to read as follows:

Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work and acknowledges that such period includes time for all applicable submittals, selections, reviews, approvals, inspections, meetings, as well as discovery and investigation of any latent conditions.

8.2.2 Change this Subparagraph to read as follows:

The Contractor shall not knowingly commence the Work prior to the date established in the Notice to Proceed or the effective dates of bond and insurance required to be furnished by the Contractor.

8.3 Delays and Extensions of Time

8.3.1 Change this Subparagraph to read as follows:

If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Prime Professional, of an employee of either, or of a Separate Contractor; (2) by labor disputes, pandemics, acts of terrorism, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions in excess of any weather days otherwise provided for in the Contract Documents that are documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor’s control; (3) by delay authorized by the Owner pending dispute resolution; or (4) by other causes that the Contractor asserts, and the Owner, in consultation with the Prime Professional determines justify delay, then the Contract Time shall be extended for such reasonable time as the Owner, in consultation with the Prime Professional, may determine. Such determination shall take into consideration the critical path of the Work and will be reduced by any

Float in the Contractor's Construction Schedule that does not affect the overall completion of the Work. Except where such delay is due to suspension by the Owner in accordance with Article 14 or such delay has the effect of stopping all progress of the Work for 14 calendar days or more, the Contract Sum will not be increased for additional general overhead expenses; however, it may be increased for direct expenses directly related to the delay of specific portions of the Work so delayed. Any claim for loss or any delay occasioned by any Sub-Contractor or entity under contract with the Contractor, shall be settled between the Contractor and such other Sub-Contractor or entity.

Article 9
PAYMENTS AND COMPLETION

9.2 Schedule of Values

Change this Paragraph to read as follows:

Where the Contract is based on a stipulated sum, the Contractor shall submit a schedule of values to the Prime Professional, at least 10 working days before the first Application for Payment, a schedule of values allocating the entire Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Prime Professional. This schedule, unless objected to by the Prime Professional or Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any subsequent changes to the schedule of values shall be submitted to the Prime Professional and supported by such data to substantiate its accuracy as the Prime Professional may require, and unless object to by the Prime Professional or Owner, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

9.3 Applications for Payment

9.3.1 Add a new sentence to the end of this Subparagraph:

The form of Application for Payment will be AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet, or a computer generated form containing similar data.

9.3.1.1 Delete this Subparagraph in its entirety.

9.3.1.3 Add a new Clause to Subparagraph 9.3.1 as follows:

On any contract as described herein, of which the total amount is Two Hundred Fifty Thousand Dollars (\$250,000.00) or greater, or on any contract with a subcontractor, regardless of amount, five percent (5%) shall be retained until the Work is at least fifty percent (50%) complete, on schedule and satisfactory in the Prime Professional's opinion, at which time fifty percent (50%) of the retainage held to date shall be returned, subject to consent of surety, to the prime contractor for distribution to the appropriate subcontractors and suppliers; provided, however, that future retainage shall be withheld at the rate of two and one-half percent (2 1/2%). When submitting request for reduction in retainage, the Contractor will include, with the application, a Consent of Surety to Reduction which is AIA Form G707A, and a Power of Attorney. (Code 31-5-33)

9.3.1.4 Add a new Clause to Subparagraph 9.3.1 as follows:

The Contractor must submit each month with this Application for Payment a separate letter stating that he is requesting an extension of time or that he had no need for an extension for that period of time. No payment on a monthly application will be considered due and payable until the letter is received. Complete justification such as weather reports or other pertinent correspondence must be included for each day's request for extension. A Contractor's letter, or statement, will not be considered as adequate justification. The receipt of this request and data by the Owner will not be considered as approval of the Owner or Prime Professional in any way.

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9.3.2.1 Add a new Clause to Subparagraph 9.3.2 as follows:

Payment in an amount not greater than the documented cost paid by the Contractor for ~~on~~ materials stored at some location other than the Project site, may be approved by the Prime Professional and the Owner after the Contractor has submitted the following items:

- .1 An acceptable Lease Agreement between the General Contractor and the owner of the land, or building, where the materials are stored covering the specific area where the materials are located.*
- .2 Consent of Surety, or other acceptable Bond, to cover the materials stored off-site.*
- .3 All Perils Insurance coverage for the full value of the materials stored off-site.*
- .4 A Bill of Sale from the Manufacturer to the General Contractor for the stored materials.*
- .5 A complete list and inventory of materials manufactured, stored and delivered to the storage site and of materials removed from the storage site and delivered to the job site.*
- .6 A review by the Prime Professional of the materials stored off-site prior to release of payment. Where the storage location is greater than 50 miles of the building site, the Contractor shall pay or reimburse reasonable travel costs of the Prime Professional and/or his Consultants for such review.*
- .7 Guarantee no storage costs, additional delivery fees, or subsequent costs to the Owner.*

9.4 Applications for Payment

9.4.1 Change each instance of the word “Architect” to “Prime Professional” and the word “Architect’s” to “Prime Professional’s”.

9.4.2 Change each instance of the word “Architect” to “Prime Professional” and each instance of the word “Architect’s” to “Prime Professional’s”.

9.5 Decisions to Withhold Certification

9.5.1 Change each instance of the word “Architect” to “Prime Professional” and the word “Architect’s” to “Prime Professional’s”.

9.5.1.7 Delete the word “repeated” from this Clause.

9.5.2 Change the word “Architect” to “Prime Professional”.

9.5.3 Delete this Subparagraph in its entirety.

9.5.4 Change each instance of the word “Architect” to “Prime Professional”.

9.6 Progress Payments

9.6.1 Change each instance of the word “Architect” to “Prime Professional”.

9.6.2 Change the first line of this Subparagraph to read as follows:

The Contractor shall pay each Sub-Contractor and material supplier, in accordance with Section 31-5-27 of the Mississippi Code 1972, Annotated, in proportion to the percentage of work completed by each less applicable retainage.

9.6.3 Change each instance of the word “Architect” to “Prime Professional”.

9.6.4 Change the word “Architect” to “Prime Professional”.

9.6.9 Add a new Subparagraph as follows:

The amount retained by the Contractor from each payment to each Sub-Contractor and material supplier shall not exceed the percentage retained by the Owner from the Contractor.

9.6.9.1 Add a new Clause to Subparagraph 9.6.9 as follows:

The Contractors shall submit monthly certification, in accordance with Section 31-5-25 of the Mississippi Code 1972, Annotated, on Owner's "Affidavit Certifying Payment to All Subcontractors" form, to the Prime Professional indicating payments to subcontractors on prior payment request.

9.6.10 Add a new Subparagraph as follows:

The Owner agrees to make payment in accordance with Mississippi Law on "Time for full and final payment to contractors; exemptions; monthly submission by contractors of proof of payment to subcontractors", Section 31-5-25 of the Mississippi Code of 1972, Annotated, which generally provides for payment of undisputed amounts within forty-five (45) days of when they are due and payable. Payments by state agencies using the statewide electronic payment and remittance vehicle shall be made and remittance information provided electronically as directed by the State. These payments shall be deposited into the bank account of the Contractor's choice. Contractor understands and agrees that the State is exempt from the payment of taxes. All payments shall be in United States currency. No payment, including final payment, shall be construed as acceptance of defective or incomplete work, and the Contractor shall remain responsible and liable for full performance.

9.7 **Failure of Payment**

Change this Paragraph to read as follows:

The Contractor and the Owner shall be subject to the remedies as prescribed in Section 31-5-25 of the Mississippi Code 1972, Annotated.

9.8 **Substantial Completion**

9.8.1 Add the following sentence to the end this Subparagraph to read as follows:

In order to be considered occupiable or utilizable by the Owner, all life safety systems must be operable and tested and the commissioning requirements for the Work or designated portion thereof must be complete except for thermographs of electrical systems, trend log monitoring, seasonal testing, near-warranty end activities and verification of training sessions.

9.8.3 Change this Subparagraph to read as follows:

Upon receipt of the Contractor's list, the Prime Professional will promptly visit the site to determine whether the Work or designated portion thereof is substantially complete. If, in the opinion of the Prime Professional, the Work or designated portion thereof is not substantially complete, the Prime Professional will not proceed with inspection and the Prime Professional will report the reasons for such determination to the Contractor. In such case, the Contractor shall then submit a revised list and request for inspection when these reasons have been resolved.

9.8.4 Change this Subparagraph to read as follows:

When the Work or designated portion thereof is substantially complete and affirmed by the Owner, the Prime Professional will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the punch list accompanying the Certificate. Unless otherwise provided in the Contract Documents, warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

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9.9 Partial Occupancy or Use

9.9.1 Change each instance of the word “*Architect*” to “*Prime Professional*”.

9.9.2 Change the word “*Architect*” to “*Prime Professional*”.

9.10 Final Completion and Final Payment

9.10.1 Change this Subparagraph and add the associated Clauses to read as follows:

When, in the opinion of the Contractor, the Work is ready for final inspection and acceptance by the Owner, the Contractor shall make such notice to the Prime Professional.

- 1. Upon receipt of the Contractor’s notice that the Work is ready for final inspection and acceptance by the Owner, the Prime Professional will promptly visit the site and assess the state of the Work to determine if it is ready for final inspection by the Owner. If, in the Prime Professional’s judgment, the Work is not ready for final inspection, the Prime Professional will report the reasons for such determination to the Contractor. In such case, the Contractor shall then submit a revised request for final inspection when these reasons have been resolved.*
- 2. Once the Prime determines the Work is ready for final inspection, the Prime Professional will call for final inspection of the with the Owner for the purpose of determining whether the Work is acceptable under the Contract Documents.*
- 3. The final inspection shall be conducted in the presence of the Owner and a list of defects or discrepancies, if any, will be compiled into a final punch list furnished to all parties.*
- 4. Once corrections of all final punch list items have been confirmed by the Prime Professional, the Prime Professional will provide a letter recommending final acceptance of the Work to the Owner.*

9.10.2 Change this Subparagraph to read as follows:

Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Prime Professional (1) final application for payment, (2) consent of surety to final payment, (3) power of attorney, (4) Contractor’s affidavit of release of liens, (5) Contractor’s affidavit of payment of debts and claims, (6) Contractor’s guarantee of work, (7) Project Record Documents and (8) certificates, warranties, guarantees, bonds or documents as called for in the individual sections of the Project Manual. The final payment will be reduced by the value of any amounts assessed to the Contractor per Section 2.5 Owner’s Right to Carry Out the Work, Section 6.3 Owners Right to Clean Up, or Section 9.11 Liquidated Damages where such amounts have not been reconciled by a Change Order per Section 7.2 prior to final acceptance unless such amounts have been resolved via separate agreement(s) between the Owner and the Contractor.

9.11 Liquidated Damages

9.11.1 Add a new Paragraph as follows:

Time being of the essence and a matter of material consideration thereof, a reasonable estimate in advance is established to cover losses incurred by the Owner if the project is not substantially complete on the date set forth in the Contract Documents. The Contractor and his Surety will be liable for and will be assessed by the Owner the sums stipulated in Paragraph 2.2 of the Standard Form of Agreement Between the Owner and the Contractor as fixed and agreed as liquidated damages for each calendar day of delay until the work is substantially complete unless circumstances dictate otherwise in the discretion of the Owner. The Contractor and his Surety acknowledge that losses to the Owner caused by the delay of the Contractor are not readily ascertainable and that the amount estimated per day and established as liquidated damages is reasonable and not a penalty.

Article 10
PROTECTION OF PERSONS AND PROPERTY

10.1 Add a new sentence to the end of this Paragraph:

Where the Contract Sum is ten million dollars (\$10,000,000.00) or greater, such precautions and programs shall include a requirement that all workers of the Contractor, Subcontractor and Sub-subcontractors have not less than OSHA 10 certification and that all supervisors and workers with safety roles have not less than OSHA 30 certification.

10.2 **Safety of Persons and Property**

10.2.5 Change this Subparagraph to read as follows:

The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Sub-Contractor, a Sub-Sub-Contractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible for Clauses 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss attributable to acts or omissions of the Owner or Prime Professional and not attributable to the fault or negligence of the Contractor. Where damage or loss is insured under property insurance required by the Contract Documents, the Contractor shall promptly report, file and facilitate the claim process so as to minimize any impacts on the timely completion of the Work. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Paragraph 3.18.

10.3 **HAZARDOUS MATERIALS**

10.3.2 Delete this Subparagraph in its entirety.

10.3.3 Delete this Subparagraph in its entirety.

10.3.4 Delete this Subparagraph in its entirety.

10.3.5 Delete this Subparagraph in its entirety.

10.3.6 Delete this Subparagraph in its entirety.

Article 11
INSURANCE AND BONDS

11.1 **Contractor's Insurance and Bonds**

11.1.1 Add a sentence to the end of this Subparagraph as follows:

Insurance shall be purchased to protect the Contractor from claims set forth below for not less than the limits of liability specified below or required by law, whichever coverage is greater, which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Sub-Contractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

Add new Clauses as follows:

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.1 GENERAL LIABILITY:

*Commercial General Liability
(Including XCU)*

<i>General Aggregate.....</i>	<i>\$ 1,000,000.00 Aggregate</i>
<i>Products & Completed Operations.....</i>	<i>\$ 1,000,000.00 Aggregate</i>
<i>Personal & Advertising Injury.....</i>	<i>\$ 500,000.00 Per Occurrence</i>
<i>Bodily Injury & Property Damage.....</i>	<i>\$ 1,000,000.00 Per Occurrence</i>
<i>Fire Damage Liability.....</i>	<i>\$ 50,000.00 Per Occurrence</i>
<i>Medical Expense.....</i>	<i>\$ 5,000.00 Per Person</i>

.2 OWNERS & CONTRACTORS PROTECTIVE LIABILITY:

<i>Bodily Injury & Property Damage.....</i>	<i>\$ 1,000,000.00 Aggregate</i>
<i>Bodily Injury & Property Damage.....</i>	<i>\$ 500,000.00 Per Occurrence</i>

.3 AUTOMOBILE LIABILITY:

(Owned, Non-owned & Hired Vehicles)

Contractor Insurance Option Number 1:

<i>Bodily Injury & Property Damage.....</i>	<i>\$ 500,000.00 Per Occurrence</i>
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(Combined Single Limit)

Contractor Insurance Option Number 2:

<i>Bodily Injury.....</i>	<i>\$ 250,000.00 Per Person</i>
<i>Bodily Injury.....</i>	<i>\$ 500,000.00 Per Accident</i>
<i>Property Damage.....</i>	<i>\$ 100,000.00 Per Occurrence</i>

.4 EXCESS LIABILITY:

(Umbrella on projects over \$500,000)

<i>Bodily Injury & Property Damage.....</i>	<i>\$ 1,000,000.00 Aggregate</i>
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(Combined Single Limit)

.5 WORKERS' COMPENSATION:

(As required by Statute)

EMPLOYERS' LIABILITY:

<i>Accident.....</i>	<i>\$ 100,000.00 Per Occurrence</i>
<i>Disease.....</i>	<i>\$ 500,000.00 Policy Limit</i>
<i>Disease.....</i>	<i>\$ 100,000.00 Per Employee</i>

.6 PROPERTY INSURANCE:

<i>Builder's Risk.....</i>	<i>\$ Equal to Value of Work</i>
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or

<i>Installation Floater.....</i>	<i>\$ Equal to Value of Work</i>
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11.1.5 Add a new Subparagraph to read as follows:

Insurance shall be maintained without interruption from the date of commencement of the Work until the date of final payment unless otherwise noted on the Certificate of Substantial Completion.

11.1.6 Add a new Subparagraph to read as follows:

Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to final execution of the Contract and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

11.1.7 Add a new Subparagraph as follows:

If the coverages are provided on a claims-made basis, the policy date or retroactive date shall predate the Contract; the termination date, or the policy, or applicable extended reporting period shall be no earlier than the termination date of coverages required to be maintained after final payment.

11.1.8 Add a new Subparagraph as follows:

If any insurance requires deductibles, the Contractor shall pay costs not covered because of such deductibles.

11.1.9 Add a new Subparagraph as follows:

The Owner as fiduciary shall have power to adjust and settle a loss with Insurers unless one of the parties in interest shall object in writing within five (5) days after occurrence of loss.

11.2 **Owner's Insurance**

Delete this Paragraph in its entirety and substitute the following:

The Contractor shall purchase and maintain such insurance as will protect the Owner from his contingent liability to others for damages because of bodily injury, including death, and property damage, which may arise from operations under this Contract and other liability for damages which the Contractor is required to insure under any provision of this Contract. Certificate of this insurance will be filed with the Owner and will be the same limits set forth in 11.1.5.

11.2.1 Delete this Subparagraph in its entirety.

11.2.2 Delete this Subparagraph in its entirety.

11.2.3 Delete this Subparagraph in its entirety.

11.3 **Waivers of Subrogation**

11.3.1 Delete this Subparagraph in its entirety.

11.3.2 Delete this Subparagraph in its entirety.

11.5 **Adjustment and Settlement of Insured Loss**

11.5.1 Delete this Subparagraph in its entirety.

11.5.2 Delete this Subparagraph in its entirety.

Article 12
UNCOVERING AND CORRECTION OF WORK

12.1 Uncovering of Work

- 12.1.1 Change each instance of the word “*Architect’s*” to “*Prime Professional’s*”, change the word “*Architect*” to “*Prime Professional*”, and add the words “*or Contract Sum*” at the end of this sentence.
- 12.1.2 Change each instance of the word “*Architect*” to “*Prime Professional*”.

12.2 Correction of Work

- 12.2.1 Change the word “*Architect*” to “*Prime Professional*” and the word “*Architect’s*” to “*Prime Professional’s*”.
- 12.2.2.1 Change the word “*Architect*” to “*Prime Professional*”.

Article 13
MISCELLANEOUS PROVISIONS

13.1 Governing Law

Change this Paragraph to read as follows:

The Contract shall be governed by the laws of the State of Mississippi.

13.3 Rights and Remedies

- 13.3.2 Change the word “*Architect*” to “*Prime Professional*”.

13.4 Tests and Inspections

- 13.4.1 Change each instance of the word “*Architect*” to “*Prime Professional and Commissioning Authority Professional*”.
- 13.4.2 Change the first two instances of the word “*Architect*” to “*Prime Professional*” and the second two instances of the word “*Architect*” to “*Prime Professional and Commissioning Authority Professional*”.
- 13.4.3 Change the word “*Architect*” to “*Prime Professional’s and Commissioning Authority Professional’s*”.
- 13.4.5 Change each instance of the word “*Architect*” to “*Prime Professional and/or the Commissioning Authority Professional*”.
- 13.5 Delete this Paragraph in its entirety.
- 13.6 Add a new Subparagraph as follows for ARPA:

Byrd Anti-Lobbying Certification

Upon construction award, the Contractor will complete and submit the attached Exhibit “B” being Certification Regarding Lobbying to the Owner within seven (7) days of award as a prerequisite to entering into the Contract and as evidence of compliance regarding the use of any Federal appropriated funds for the project stipulated in this Contract and any other stipulations in said Certification Regarding Lobbying; thereby also including said language in sub-contracts, agreements, etc.

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Article 14
TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 Termination by the Contractor

14.1.1.3 Change the word “*Architect*” to “*Prime Professional*”.

14.1.1.4 Delete this Clause in its entirety.

14.1.3 Change the word “*Architect*” to “*Prime Professional*”.

14.1.4 Change the word “*Architect*” to “*Prime Professional*”.

14.2 Termination by the Owner for Cause

14.2.1.1 Delete the word “*repeatedly*” from this Clause.

14.2.1.3 Delete the word “*repeatedly*” from this Clause.

14.2.1.3 Delete the word “or” from this Clause.

14.2.1.4 Change the period to a semi-colon and add the word “*or*” to this Clause.

14.2.1.5 Add a new Clause as follows:

fails to achieve Substantial Completion of the Project within the time limits established by the Contract Documents.

14.2.2 Change the word “*Architect*” to “*Prime Professional*” and change the words “*certification by*” to “*advice of*”.

14.2.4 Change the word “*Architect’s*” to “*Prime Professional’s*”.

Article 15
CLAIMS AND DISPUTES

15.1 Claims

15.1.2 Change this Subparagraph to read as follows:

Commencement of Statutory Limitation Period

The Owner and Contractor shall commence all claims and causes of action within the time period specified by applicable state law.

15.1.3.1 Change each instance of the word “*Architect*” to “*Prime Professional*”.

15.1.4 Change this Subparagraph to read as follows:

Where both the Owner and the Contractor concur with the Initial Decision Maker’s decision, the Contract Sum and Contract Time shall be adjusted in accordance with Article 7 and the Prime Professional will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

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15.1.7 Delete this Subparagraph in its entirety.

15.2 **Initial Decision**

15.2.1 Change this Subparagraph to read as follows:

Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3 and 10.4, shall be referred to the Initial Decision Maker for initial decision. The Prime Professional will serve as the Initial Decision Maker. An initial decision by the Initial Decision Maker shall be required as a condition precedent to arbitration or litigation of all Claims between the Contractor and Owner arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered by the Initial Decision Maker. The Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

15.2.2 Change the words “approve the Claim” to “recommend approval of the Claim to the Owner”.

15.2.4 Change the words “reject or approve the Claim” to “recommend rejection or approval of the Claim to the Owner”.

15.2.5 Change the Subparagraph to read as follows:

The Initial Decision Maker will render an initial decision to recommend approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision recommendation shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Prime Professional, if the Prime Professional is not serving as the Initial Decision Maker, of any recommended change in the Contract Sum or Contract Time or both. Where the Owner concurs with the recommendation it is binding on the parties but subject to arbitration or litigation.

15.2.6 Delete this Subparagraph in its entirety.

15.2..6.1 Delete this Clause in its entirety.

15.3 **Mediation**

15.3.1 Delete this Subparagraph in its entirety.

15.3.2 Delete this Subparagraph in its entirety.

15.3.3 Delete this Subparagraph in its entirety.

15.3.4 Delete this Subparagraph in its entirety.

15.4 **Arbitration**

15.4.1 Delete this Subparagraph in its entirety.

15.4.1.1 Delete this Clause in its entirety.

15.4.2 Delete this Subparagraph in its entirety.

15.4.3 Delete this Subparagraph in its entirety.

15.4.4 Delete this Subparagraph in its entirety.

15.4.4.1 Delete this Clause in its entirety.

15.4.4.2 Delete this Clause in its entirety.

15.4.4.3 Delete this Clause in its entirety.

15.5 Add a new Paragraph as follows:

Arbitration Procedures for the Department of Finance and Administration's Bureau of Building, Grounds and Real Property Management

All matters of dispute arising out of any agreement with the Department of Finance and Administration for planning, design, engineering, construction, erection, repair, or alteration of any building, structure, fixture, road, highway, utility or any part thereof, or any agreement with the Department of Finance and Administration for architectural, engineering, surveying, planning, and related professional services which provides for mediation or arbitration, shall comply with the following course for resolution. No arbitration hearing shall be granted on any claim in excess of One Hundred Thousand Dollars (\$100,000.00).

15.5.1 Add a new Subparagraph and Clauses as follows:

Conditions Precedent to Arbitration

- .1 The aggrieved party must first notify opposing party in writing in detail of the matter(s) in dispute the amount involved and the remedy sought. Such writing shall include copies of any documents, writings, plans, or other matter pertinent to the resolution of the dispute. The Director of the Bureau of Building and a principal of the opposing party shall be the proper parties for such notice and shall be active parties in any subsequent dispute resolution.*
- .2 If the dispute cannot be satisfactorily resolved, within thirty (30) days of the complaint being rejected in writing by either party, notice by certified mail shall be given to the Deputy Director of the Department of Finance and Administration. A copy of the notice shall be sent by certified mail to the opposing party. Such notice shall be in writing setting forth in detail the matter(s) in dispute, the amount involved, the remedy sought and state that informal resolution between the parties cannot be reached. Such writing shall include copies of any documents, writings, plans, or other matter pertinent to the resolution of the dispute. Opposing party shall have the opportunity to set forth in writing a rebuttal with pertinent documents attached. At the sole discretion of the Deputy Director, oral testimony may be had on the matter.*

15.5.2 Add a new Subparagraph as follows:

Requests for Arbitration

Within thirty (30) days of a claim being rejected in writing by the Deputy Director of the Department of Finance and Administration, either party may request arbitration. Notices for requests for arbitration shall be made in writing to the Executive Director of the Department of Finance and Administration, P.O. Box 267, Jackson, MS 39201. Such notice shall set forth in detail the matter(s) in dispute, the amount involved, and the remedy sought. A copy of the request shall be mailed to the opposite party. The party requesting arbitration must deposit the sum of two hundred (\$200.00) with its request as a deposit against costs incurred by the arbitrators. Each party will be notified in writing in any manner provided by law of certified mail not less than twenty (20) days before the hearing of the date, time and place for the hearing. Appearance at the hearing waives a party's right to notice.

15.5.3 Add a new Subparagraph as follows:

Selection of Arbitrators

Upon request for arbitration, a panel of three (3) arbitrators shall be chosen. One (1) member shall be appointed by the Executive Director of the Department of Finance and Administration. One (1) member shall be appointed by the executive director of a professional or trade association which represents interests similar to that of the non-state party. The third member shall be appointed by the first two.

15.5.4 Add a new Subparagraph as follows:

Hearings

*All hearings shall be open to the public. All hearings will be held in Jackson, Mississippi, unless another location is mutually agreed to by the parties. The hearings shall be conducted as prescribed by **Mississippi Code 1972, Annotated**, Sections 11-15-113, 11-15-115, and 11-15-117. A full and complete record of all proceedings shall be taken by a certified court reporter. The scheduling and cost of retaining the court reporter shall be the responsibility of the party requesting arbitration. The costs of transcription of the record shall be the responsibility of the party requesting such transcript. No arbitration hearing shall be held without a certified court reporter. Deliberations of the arbitrators shall not be part of the record.*

15.5.5 Add a new Subparagraph as follows:

Awards

Awards shall be made in writing and signed by the arbitrators joining in the award. A copy of the award shall be delivered to the parties by certified mail.

15.5.6 Add a new Subparagraph as follows:

Fees and Expenses

Reasonable fees and expenses, excluding counsel fees, incurred in the conduct of the arbitration shall be at the discretion of the Arbitrator except each party shall bear its own attorney's fees and costs of expert witnesses.

15.5.7 Add a new Subparagraph as follows:

Modifications, Confirmations, and Appeals

*All modifications, confirmations and appeals shall be as prescribed by **Mississippi Code 1972, Annotated**, Section 11-15-123 et seq. All awards shall be reduced to judgment and satisfied in the same manner other judgments against the State are satisfied.*

15.5.8 Add a new Subparagraph as follows:

Secretary for the Arbitrators

All notices, requests, or other correspondence intended for the arbitrators shall be sent to Executive Director, Department of Finance and Administration, P.O. Box 267, Jackson, MS 39201.

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**MINORITY PARTICIPATION
SECTION 00 7339**

PART 1 – PARTICIPATION FORM

1.01 GENERAL

The Contractor will submit the following form within seven (7) days from the Notice to Proceed:

Department of Finance and Administration
Bureau of Building, Grounds and Real Property Management
501 NORTH WEST STREET, SUITE 1401 B • JACKSON, MISSISSIPPI 39201
TEL (601) 359-3621 • FAX (601) 359-2470

Minority Tracking or Participation Form
February 2003

This document will serve as a tracking instrument for minority participation in publicly funded construction projects managed by the Bureau of Building, Grounds and Real Property Management. This document will aid DFA/BOB in its commitment to encourage minority participation during the bidding process. Your conscientious effort and commitment to help establish good business relations with minority subcontractors, consultants, suppliers, partners and/or joint ventures is greatly appreciated.

Any responses will be deemed public information and may be incorporated into reporting information compiled by the Bureau of Building in the following manner: Contractors that listed minority participation, Contractors that did not list minority participation and Contractors that submitted an incomplete (partially filled-out or blank) form.

The Prime General Contractor will submit to the Owner within seven (7) days from the Notice to Proceed, a completed *Minority Tracking Form* (as follows) outlining the use of minority subcontractors that will be used on the project.

Minority - A person who is a citizen or lawful permanent resident of the United States and who is the following:
African American, Hispanic American, Asian American, American Indian or Female

Project Name and Number: _____

General Contractor: (Name) _____

Check the Following Appropriate Box

There are NO minority participants included in this bid proposal.

There are minority participants included in this bid proposal. The minority participants may be defined as: Subcontractor(s)/Consultant(s)/ Supplier(s) / Partner(s) / Joint Ventures(s).

List minority participants and their discipline/responsibility per the above or per Construction Specification Institution (CSI) forty-eight (48) divisions.

Name: _____

Division 0

Division: _____

Amount \$ _____

Page 2 of 3
DFA / Bureau of Building
Minority Participation Form

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division 0

Division: _____

Amount \$ _____

Page 3 of 3 (Submit if necessary)
DFA / Bureau of Building
Minority Participation Form

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division: _____

Amount \$ _____

Name: _____

Division: _____

Amount \$ _____

End of Form

Division 0

CERTIFICATION REGARDING LOBBYING

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

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

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

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

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, United States Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Organization: _____

Street address: _____

City, State, Zip: _____

CERTIFIED BY: (type or print)

TITLE:

(signature)

(date)

Disclosure of Lobbying Activities

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352
(See reverse for public burden disclosure)

<p>1. Type of Federal Action: a. contract _____ b. grant c. cooperative agreement d. loan e. loan guarantee f. loan insurance</p>	<p>2. Status of Federal Action: a. bid/offer/application _____ b. initial award c. post-award</p>	<p>3. Report Type: a. initial filing _____ b. material change</p> <p>For material change only: Year _____ quarter _____ Date of last report _____</p>
<p>4. Name and Address of Reporting Entity: _____ Prime _____ Subawardee Tier _____, if Known:</p> <p>Congressional District, if known:</p>	<p>5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:</p> <p>Congressional District, if known:</p>	
<p>6. Federal Department/Agency:</p>	<p>7. Federal Program Name/Description:</p> <p>CFDA Number, <i>if applicable</i>: _____</p>	
<p>8. Federal Action Number, if known:</p>	<p>9. Award Amount, if known:</p> <p>\$ _____</p>	
<p>10. a. Name and Address of Lobbying Registrant <i>(if individual, last name, first name, MI):</i></p>	<p>b. Individuals Performing Services <i>(including address if different from No. 10a)</i> <i>(last name, first name, MI):</i></p>	
<p>11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.</p>	<p>Signature: _____</p> <p>Print Name: _____</p> <p>Title: _____</p> <p>Telephone No.: _____ Date: _____</p>	
<p>Federal Use Only</p>	<p>Authorized for Local Reproduction Standard Form - LLL (Rev. 7-97)</p>	

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitations for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Included prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s) performing services, and include full address if different from 10(a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503

LABOR REQUIREMENTS

SECTION 00 7343

PART 1 - EQUAL OPPORTUNITY

1.01 GENERAL

The Contractor will maintain policies of employment as follows:

- A. The Contractor and all Subcontractors will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin or age. The Contractor will take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, sex, national origin, or age. Such action will include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.
- B. The Contractor and all Subcontractors will, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants receive consideration for employment without regard to race, religion, color, sex, national origin or age.

PART 2 – FEDERAL REQUIREMENTS

2.01 APPLICABILITY

When project funding includes Federal funds, the applicable Federal Labor Standards Provisions will be included herein, to which the Contractor, and all Subcontractors, shall be subject to. Where no such pages are included, then no special provisions shall apply.

PART 3 - WAGE RATES

3.01 GENERAL

When project funding includes Federal funds, the applicable Federal Government Wage Determinations will be included herein, to which the Contractor, and all Subcontractors, shall be subject to. Where no such pages are included, then no special wages shall apply.

"General Decision Number: MS20240074 01/05/2024

Superseded General Decision Number: MS20230074

State: Mississippi

Construction Type: Heavy
HEAVY CONSTRUCTION PROJECTS

Counties: Clarke, George, Greene, Jasper, Kemper, Leake, Neshoba, Newton, Pearl River, Smith, Stone and Wayne Counties in Mississippi.

HEAVY CONSTRUCTION PROJECTS EXCLUDING FLOOD CONTROL

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 14026 generally applies to the contract.. The contractor must pay all covered workers at least \$17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	<ul style="list-style-type: none">. Executive Order 13658 generally applies to the contract.. The contractor must pay all covered workers at least \$12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

OPERATOR: Bulldozer, Includes
Water Sewer Lines.....\$ 14.71 ** 0.00

TRUCK DRIVER: Dump Truck,
Includes Water Sewer Lines.....\$ 13.25 ** 0.00

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

=====
** Workers in this classification may be entitled to a higher
minimum wage under Executive Order 14026 (\$17.20) or 13658
(\$12.90). Please see the Note at the top of the wage
determination for more information. Please also note that the
minimum wage requirements of Executive Order 14026 are not
currently being enforced as to any contract or subcontract to
which the states of Texas, Louisiana, or Mississippi, including
their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave
for Federal Contractors applies to all contracts subject to the
Davis-Bacon Act for which the contract is awarded (and any
solicitation was issued) on or after January 1, 2017. If this
contract is covered by the EO, the contractor must provide
employees with 1 hour of paid sick leave for every 30 hours
they work, up to 56 hours of paid sick leave each year.
Employees must be permitted to use paid sick leave for their
own illness, injury or other health-related needs, including
preventive care; to assist a family member (or person who is
like family to the employee) who is ill, injured, or has other
health-related needs, including preventive care; or for reasons
resulting from, or to assist a family member (or person who is
like family to the employee) who is a victim of, domestic
violence, sexual assault, or stalking. Additional information
on contractor requirements and worker protections under the EO
is available at
<https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification

and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator

(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====
END OF GENERAL DECISION"

SPECIAL CONDITIONS
SECTION 00 8000

PART 1 - PERFORMANCE INFORMATION

N/A

PART 2 – GRANT CONDITIONS

N/A

PART 3 – OTHER CONDITIONS

N/A

ADDENDA
SECTION 00 9000

1.01 **ADDENDA**

Any Addendum issued on this Project will be included in Section 00 9000 and become a part of the *Standard Form of Agreement Between the Owner and Contractor*.

SUMMARY OF WORK

SECTION 01 1000

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. **Work Covered:** Work covered by the Contract Documents is as shown in drawings and described in words in the Project Manual. The Project Title and location is indicated on the first page of this Project Manual.
- B. **Start of Work:** Work shall be started immediately upon issuance of a *Notice to Proceed*. Prior to this, all Contracts and beginning documents will have been executed and insurance in force.
- C. **Time of Completion:** The completion of this Work is to be on, or before, the time indicated in the *Standard Form of Agreement Between the Owner and the Contractor*.
- D. **Contractor's Duties:**
 - 1. Except as specifically noted, provide and pay for:
 - a. Labor, materials and equipment.
 - b. Tools, construction equipment and machinery.
 - c. Water, heat and utilities required for construction.
 - d. Other facilities and services necessary for proper execution and completion of the Work.
 - 2. Pay legally required sales, consumer, use, payroll, privilege and other taxes.
 - 3. Secure and pay for, as necessary for proper execution and completion of work, and as applicable at the time of the receipt of the bids:
 - a. Permits.
 - b. Government fees.
 - c. Licenses.
 - 4. Give required notices.
 - 5. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of work.
 - 6. Promptly submit written notice to Professional of observed variance of Contract Documents from legal requirements. It is not the Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations. Appropriate modifications to Contract Documents will adjust necessary changes. Assume responsibility for work known to be contrary to such requirements, without notice.
 - 7. Enforce strict discipline and good order among employees. Do not employ or work unfit persons, or persons, not skilled in assigned task.
 - 8. Provide a written safety plan.
- E. **Hazardous Materials:** The Prime General Contractor is responsible for the removal and disposal of any hazardous materials encountered in the performance of the Contract requirements. Hazardous Containing Materials [HCM] include, but are not limited to, Asbestos and Lead Paint and should be identified and removed as a part of the Contract. The absence of details does not relieve the Prime General Contractor from the responsibility of removal and disposal; but, a Change Order could be executed in the absence of identified HCM in the documents.
- F. **Coordination:** The Prime General Contractor is responsible for the coordination of the total project. All other Contractors and all Subcontractors will cooperate with the Prime General Contractor so as to facilitate the general progress of the Work. Each trade shall afford all other trades every reasonable opportunity for the installation of their work. Refer to Section 01 3100 entitled *Project Coordination*.

1.02 CONTRACTS

Contracts: Construct work under a single Prime General Contract. Refer to Section 00 5200 entitled *Standard Form of Agreement Between the Owner and the Contractor*.

1.03 **WORK BY OTHERS**

Work by Others shall be described in each appropriate Project Manual section and noted on the Drawings.

1.04 **OWNER-FURNISHED PRODUCTS**

- A. **Products Furnished By Owner:** Products furnished by Owner shall be described in each appropriate Project Manual section and noted on the Drawings.
- B. **Products:** Delivered and unloaded at site.
- C. **Owner's Duties:**
 - 1. Schedule delivery date with Supplier in accordance with construction schedule.
 - 2. Obtain installation drawings and instructions.
 - 3. Submit claims for transportation damages.
 - 4. Arrange Guarantees, Warranties, etc..
- D. **Contractor's Duties:**
 - 1. Designate required delivery date for each product in construction schedule.
 - 2. Promptly inspect delivered products, report missing, damaged, or defective items.
 - 3. Handle at site, including uncrating and storage.
 - 4. Protect from exposure to elements and from damage.
 - 5. Repair or replace damaged items resulting from Contractor's operations.
 - 6. Install and make final connections.

1.05 **CONTRACTOR'S USE OF PREMISES**

- A. Confine operations at site to areas permitted by:
 - 1. Law.
 - 2. Ordinances.
 - 3. Permits.
 - 4. Contract Documents.
 - 5. Owner.
- B. Do not unreasonably encumber site with materials or equipment.
- C. Do not load structure with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on premises.
- E. Move any stored products which interfere with operations of Owner or other Contractors.
- F. Obtain and pay for use of additional storage or work areas needed for operations.
- G. Limit use of site for work and storage to the area indicated in the drawings.

1.06 **SPECIAL REQUIREMENTS**

- A. Refer to Section 01 8000 entitled *Special Requirements* for any Project specific summary of work requirements.

ALLOWANCES

SECTION 01 2100

1.01 DESCRIPTION

- A. **Related Work Specified Elsewhere:** Sections of Specifications as listed under Schedule of Allowances.
- B. **Allowances for Products:**
 - 1. Purchase products under each allowance as directed by the Professional.
 - 2. Amount of each allowance includes:
 - a. Net cost of product.
 - b. Delivery and unloading at site.
 - c. Applicable taxes.
 - 3. In addition to amounts of allowances, include in bid, for inclusion in Contract Sum, Contractor's costs for:
 - a. Handling at site, including uncrating and storage.
 - b. Protection from elements and damage.
 - c. Labor, installation and finishing.
 - d. Other expenses required to complete installation.
 - e. Overhead and profit.
- C. **Selection of Products:**
 - 1. **Architect's Duties:** Consult with Contractor in consideration of products and Suppliers; make selections, designate products to be used; and, notify Contractor in writing.
 - 2. **Contractor's Duties:** Assist Professional in determining qualified Suppliers; obtain proposals from Suppliers when requested by the Professional; and, make appropriate recommendations for consideration of the Professional. Upon notification of selection, enter into Purchase Agreement with designated Supplier.
- D. **Delivery:** The Contractor is responsible for arranging all delivery and unloading and should promptly inspect products for damage or defects and submit claims for transportation damage.
- E. **Installation:** Comply with requirements of referenced specification section.
- F. **Adjustment of Costs:** Should actual purchase cost be more, or less, than the specified allowance amount, the Contract Sum will be adjusted by Change Order equal to the amount of the difference.

1.02 SCHEDULE OF ALLOWANCES

- A. Refer to Section 01 8000 entitled *Special Requirements* for Project specific Schedule of Allowances.

ALTERNATES

SECTION 01 2300

1.01 DESCRIPTION

- A. **Scope:** This section describes the changes to be made under each alternate.
- B. **General:** The referenced Specification sections contain the pertinent requirements for materials and methods to achieve the work described herein. Coordinate related work and modify surrounding work, as required, to complete the Project under each alternate designated in the Contract.

1.02 DESCRIPTION OF ALTERNATES

- A. Refer to Section 01 8000 entitled *Special Requirements* for Project specific description of project Alternates.

CHANGE ORDER PROCEDURES

SECTION 01 2600

1.01 SCOPE

- A. This Section describes the procedures for processing Change Orders to the Contract by the Owner, the Professional and the Contractor.

1.02 CHANGE ORDER PROCEDURES

- A. **Change Proposed by Professional:** The Professional may issue a Change Order Request to the Contractor which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications and a change in Contract Time for executing the change. The Contractor will prepare and submit a Change Order Proposal within ten (10) working days.
- B. **Change Proposed by Contractor:** The Contractor may propose a change by submitting a request for change to the Professional, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other Contractors. Document any requested substitutions in accordance with Section 01 6000 entitled *Substitutions and Product Options*.
- C. **Contractor's Documentation:**
1. Maintain detailed records of Work completed on a time and material basis. Provide full information required for evaluation of proposed changes, and substantiate costs of changes in the Work.
 2. Document each quotation for a change in cost or time with sufficient data allowing evaluation of the quotation.
 3. On request, provide additional data to support computations:
 - a. Quantities of products, labor, and equipment
 - b. Taxes, insurance and bonds
 - c. Overhead and profit
 - d. Justification for any change in Contract Time
 - e. Credit for deletions from Contract, similarly documented
 4. Support each claim for additional costs, and for Work completed on a time and material basis, with additional information:
 - a. Origin and date of claim
 - b. Dates and times work was performed and by whom
 - c. Time records and wage rates paid
 - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
- D. **Construction Change Directive:** The Professional may issue a document, approved by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. The document will describe changes in the Work, and will designate method of determining any change in Contract Sum or Contract Time. The change in Work will be promptly executed.
- E. **Format:** The Professional will prepare three (3) originals of the Change Order or Change Directive using the Bureau of Building, Grounds and Real Property Management's *Change Order Form*. Where time is of the essence, and at the sole discretion of the Owner, scanned documents may be deemed acceptable to the Owner where signatures and dates are executed in blue ink.
- F. **Types of Change Orders:**
1. **Stipulated Sum Change Order:** Based on Proposal Request and Contractor's fixed price quotation, or Contractor's request for a Change Order as approved by the Professional.

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2. **Unit Price Change Order:** For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Construction Change Directive. Changes in Contract Sum or Contract Time will be computed as specified for Time and Material Change Order.
 3. **Time and Material Change Order:** Submit itemized account and supporting data after completion of change, within time limits indicated in the *Standard Form of Agreement Between the Owner and the Contractor*. The Professional will determine the change allowable in Contract Sum and Contract Time as provided in the Contract Documents. The Contractor shall maintain detailed records of Work accomplished on Time and Material basis and shall provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- G. **Execution of Change Order:** The Professional will issue Change Orders for signatures of parties as provided in the *Standard Form of Agreement Between the Owner and the Contractor*. Final execution of all Change Orders requires approval by the Owner.
- H. **Correlation of Contractor Submittals:** The Contract shall promptly revise *Schedule of Values* and the *Application for Payment* forms to record each authorized Change Order as a separate line item and adjust the Contract Sum. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust time for other items of Work affected by the change and resubmit. Promptly enter changes in Project Record Documents.

SCHEDULE OF VALUES

SECTION 01 2973

1.01 DESCRIPTION

- A. **Scope:** Submit a *Schedule of Values* to the Professional at least ten (10) days prior to submitting the first Application for Payment. Upon the Professional's request, the Contractor will provide supportive data substantiating their correctness. Use *Schedule of Values* only as basis for Contractor's Application for Payment.
- B. **Form of Submittal:** Submit Schedule of Values on AIA Document G703, or computer generated form containing similar style, using Table of Contents of these Specifications as basis for format for listing costs of work for sections under Divisions 2-48. Identify each line item with number and title as listed in Table of Contents in these Specifications.
- D. **Preparing Schedule of Values:**
1. Itemize separate line item cost for each of the following general cost items: Performance and Payment Bonds, field supervision and layout, temporary facilities and controls.
 2. Itemize separate line item cost for work required by each Section of these Specifications. Break down installed cost with overhead and profit.
 3. Where determined to be feasible by the Owner, for each line item which has installed value of more than \$20,000, break down costs into sub-components or divisions of \$20,000 or less, rounding figures to nearest dollar. Make sum of total costs of all items listed in Schedule equal to total Contract Sum.
- E. **Preparing Schedule of Unit Material Values:**
1. Submit separate Schedule of unit prices for materials to be stored on which progress payments will be made. Make form of submittal parallel to Schedule of Values with each line item identified same as line item in Schedule of Values. Include in unit prices only: cost of material, delivery, unloading at site, and sales tax.
 2. Make sure unit prices multiplied by quantities equal material cost of that item in Schedule of Values.
- F. **Review and Resubmittal:** After Professional's review, if requested, revise and resubmit Schedule of Values in same manner.

APPLICATIONS FOR PAYMENT

SECTION 01 2976

1.01 SCOPE

- A. This Section describes procedures for preparing and submitting Applications for Payment by the Contractor.

1.02 APPLICATIONS FOR PAYMENT

A. **Format:**

1. Applications for Payments will be prepared on AIA forms G702 - *Application and Certificate for Payment* and G703 - *Continuation Sheet*; or, a computer generated form containing similar data may be used.

B. **Preparation of Application:**

1. Present required information in typewritten form
2. Execute certification by signature of authorized officer
3. Use data from approved *Schedule of Values*. Provide dollar value in each column for each line item for portion of Work performed and for stored products.
4. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original Item of Work.
5. Prepare Application for Final Payment as specified in Section 01 7700 entitled *Contract Closeout*.

C. **Submittal Procedures:**

1. Submit original and one (1) copy of each Application for Payment
2. Submit an updated construction schedule with each Application for Payment as described in Section 01 3216 entitled *Progress Schedule* or Section 01 3127 entitled *Network Analysis Schedules*.
3. Submit requests for payment at intervals agreed upon by the Professional, Owner and Contractor.
4. Submit requests to the Professional at agreed upon times, or as may be directed otherwise.

D. **Substantiating Data:**

1. Submit data justifying dollar amounts in question when such information is needed.
2. Provide one (1) copy of the data with a cover letter for each submittal.
3. Indicate the Application number, date and line item number and description.

PROJECT COORDINATION

SECTION 01 3100

1.01 DESCRIPTION

- A. **Scope:** To set forth procedures, conditions and responsibility for coordination of the total project.
- B. **Project Coordinator:** The Contractor, as soon as practicable after the award of each Job Order, and prior to commencement of any on-site Work, shall submit name(s) and qualifications of the proposed superintendent and any assistant superintendents as set forth in the Contract Documents. Upon the approval of the Professional and the Owner, the Project Coordinator will remain until the Project is completed and cannot be removed during construction without the written consent of the Owner and the Professional.
- C. **Project Manager:** Where a Project involves a Mississippi Landmark or a building and/or site potentially eligible for such designation, the Contractor shall also submit name and qualifications of the project home office project manager as set forth in the General and Supplementary Conditions of the Contract. Upon the approval of the Professional and the Owner, the Project Coordinator will remain until the Project is completed and cannot be removed during construction without the written consent of the Owner and the Professional.

DUTIES OF PROJECT COORDINATOR

- A. **General:**
1. **Coordination:** Coordinate the work of all Subcontractors and Material Suppliers.
 2. **Supervision:** Supervise the activities of every phase of work taking place on the Project.
 3. **Mechanical/Electrical:** Take special care to coordinate and supervise the work of the plumbing, heating and cooling and electrical Subcontractors.
 4. **Communication:** Establish lines of authority and communication at the job site.
 5. **Location:** The Project Coordinator must be present on the job all of the time.
 6. **Permits:** Assist in obtaining building and special permits required for construction.
- B. **Interpretations of Contract Documents:**
1. **Consultation:** Consult with Architects and Engineers to obtain interpretations.
 2. **Assistance:** Assist in resolution of any questions.
 3. **Transmission:** Transmit written interpretations to concerned parties.
- C. **Cessation of Work:** Stop all work not in accordance with the requirements of the Contract Documents.
- D. **Division One:** Coordinate and assist in the preparation of all requirements of Division One and specifically as follows:
1. **Cutting and Patching:** Supervise and control all cutting and patching of other trades' work.
 2. **Project Meetings:** Schedule and preside at all project meetings.
 3. **Construction Schedules:** Prepare and submit all construction schedules; supervise work to monitor compliance with schedules.
 4. **Shop Drawings, Product Data and Samples:** Administer the processing of all submittals required by the Project Manual.
 5. **Schedule of Values:** Assist in preparation and be knowledgeable of each entry in the Schedule of Values.
 6. **Testing:** Coordinate all required testing.
 7. **Temporary Facilities and Controls:** Allocate, maintain and monitor all temporary facilities.
 8. **Substitutions and Product Options:** Administer the processing of all substitutions.
 9. **Project Closeout:** Conduct final inspections and assist in collection and preparation of closeout documents.
 10. **Cleaning:** Direct and execute a continuing cleaning program throughout construction, requiring each trade to dispose their own debris.
 11. **Project Record Documents:** Maintain up-to-date project record documents.
 12. **Safety Measures:** Plan and enforce all safety requirements.
- E. **Changes:** Recommend and assist in the preparation of requests to the Professional for any changes in the Contract.
- F. **Application for Payment:** Assist in the preparation and be knowledgeable of each entry in the Application and Certificate for Payment.

SUBCONTRACTOR'S DUTIES

- A. **General:** The Subcontractor is responsible for coordinating and supervising employees in the work to be accomplished under their part of the Contract.
- B. **Schedules:** Conduct work to assure compliance with construction schedules.
- C. **Suppliers:** Transmit all instructions to Material Suppliers.
- D. **Cooperation:** Cooperate with the Project Coordinator and other Subcontractors.

OWNER-PURCHASED PRODUCTS

- A. **General:** Cooperate, accept delivery, arrange storage and protect Owner-purchased products until installation, or final acceptance.

PROJECT MEETINGS

SECTION 01 3119

1.01 DESCRIPTION

- A. **Contractor's Responsibilities:** The General Contractor will administer all progress meetings which include the following:
1. Prepare agenda
 2. Distribute written notice of meetings to listed attendees seven (7) days in advance
 3. Make physical arrangements for and presiding at the meetings
 4. Record minutes
 5. Distribute copies of the minutes to listed attendees, regardless of actual participation, within four (4) days
- B. **Pre-Construction Meeting:** The Bureau will schedule a pre-construction meeting as soon as possible after the award of Contract and the issuance of a *Notice to Proceed*.
1. **Attendees:**
 - a. Owner
 - b. Professional and Consultants
 - c. General Contractor
 - d. Major Subcontractors, including mechanical and electrical
 - e. Representatives of governmental, or other regulatory agencies
 - f. Commissioning Authority Professional (if Cx on project)
 2. **Minimum Agenda:** (prepared by the General Contractor)
 - a. Distribute and discuss preliminary construction schedule
 - b. Critical work sequencing
 - c. Designation of responsible personnel
 - d. Procedures for maintaining record documents
 - e. Use of premises, including office and storage areas
 - f. Owner's requirements
 - g. Security procedures
 - h. Housekeeping procedures
 - i. Commissioning issues (if Cx on project)
 3. **Utilities:** A written agreement must be reached on how all utilities will be furnished and the rates the Contractor will be charged. This agreement should be resolved at this meeting. Refer to Section 01 5000 entitled *Construction Facilities and Temporary Controls* and Section 01 8000 entitled *Special Requirements* of this Project Manual for additional utility requirements.
- C. **Progress Meetings:**
1. The Bureau will schedule regular meetings at the time of the pre-construction conference
 2. Hold all meetings as progress of work dictates
 3. **Attendees:**
 - a. Owner
 - b. Professional and Consultants
 - c. General Contractor
 - d. Subcontractors, as pertinent to the agenda
 - e. Commissioning Authority Professional (if Cx on project)
 4. **Minimum Agenda:**
 - a. Review, approve minutes of the previous meeting
 - b. Review work progress since last meeting
 - c. Note field inspections, problems and decisions
 - d. Identify problems which impede planned progress
 - e. Review off-site fabrication problems
 - f. Revise construction schedule, as indicated
 - g. Plan progress during the next work period
 - h. Review proposed changes

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- i. Complete other current business
 - j. Commissioning issues (if Cx on project)
- D. **Commissioning Meetings (if Cx on project):**
- 1. The Bureau will schedule a commissioning scoping meeting the pre-construction conference. Regular Commissioning Meetings will coincide with regularly scheduled Progress Meetings until such time that the Commissioning Process requires additional meetings. The Commissioning Authority Professional will chair, facilitate and document all Commissioning Meetings.
 - 2. **Attendees:**
 - a. Owner
 - b. Commissioning Authority Professional
 - c. Professional and Consultants
 - d. General Contractor
 - e. Subcontractors, as pertinent to unresolved issues identified in current Issues Log
 - f. Testing, Adjusting and Balancing Contractor
 - g. Using Agency's Building Operator/Physical Plant Representative
 - 3. **Minimum Agenda:**
 - a. Review, approve minutes of the previous meeting
 - b. Review Issues Log

PROGRESS SCHEDULES

SECTION 01 3216

1.01 DESCRIPTION

- A. **Scope:** Provide projected construction schedules for the entire Work and revise periodically. The following is a minimum requirement and other type schedules are acceptable with Owner's approval. This type of schedule is acceptable for any Project whose initial Contract award amount is **less than** one (1) million dollars (\$1,000,000).
- B. **Form of Schedules:** Prepare in form of horizontal bar chart.
 - 1. Provide separate horizontal bar column for each trade or operation.
 - 2. Place in order of the Table of Contents of Specifications.
 - 3. Identify each column by major Specification section number.
 - 4. Identify the first work day of each week by horizontal time scale.
 - 5. Scale and space to allow for updating.
- C. **Contents of Schedule:**
 - 1. Provide complete sequence of construction by activity.
 - 2. Indicate dates for beginning and completion of each stage of construction.
 - 3. Identify work of separate floors, separate phases, or other logically grouped activities.
 - 4. Show projected percentage of completion for each item of work as of first day of month.
- D. **Updating:**
 - 1. Show all changes occurring since previous submission of updated schedule.
 - 2. Indicate progress of each activity and completion dates.
- E. **Submittals:**
 - 1. Submit initial schedules to the Professional within fifteen (15) days after date of *Notice to Proceed*.
 - 2. Submit to Professional periodically updated schedules accurately depicting progress to first day of each month.
 - 3. Submit two (2) copies, one (1) to be retained by the Professional and the other forwarded to the Owner.

NETWORK ANALYSIS SCHEDULE

SECTION 01 3217

1.01 DESCRIPTION

- A. **Scope:** Provide projected network analysis schedules for the entire Work and revise periodically. This type of schedule is acceptable for any Project whose initial Contract award amount is one million dollars (\$1,000,000), or greater.

1.02 REFERENCES

- A. **Critical Path Methods in Construction Practice, 4th Edition:** Written by James M. Antill and Ronald W. Woodhead, published by Wiley.

1.03 QUALITY ASSURANCE

- A. **Contractor's Administrative Personnel:** Two (2) years minimum experience in using and monitoring CPM schedules on comparable Projects is required.

1.04 FORMAT

- A. **Listings:** Reading from left to right, in ascending order for each activity, identify each activity with the applicable specification section number.
- B. **Diagram Sheet Size:** Height and width as required.
- C. **Scale and Spacing:** To allow for notations and revisions.

1.05 SCHEDULES

- A. **Critical Path Methods:** Prepare network analysis diagrams and supporting mathematical analyses using the critical path method.
- B. **Order of Work:** Illustrate order and interdependence of activities and sequence of Work; how start of a given activity depends on completion of preceding activities, and how completion of the activity may restrain start of subsequent activities.
- C. **Complete Sequence of Construction:** Illustrate complete sequence of construction by activity, identifying work of separate stages. Provide dates for submittals and return of submittals; dates for procurement and delivery of products; and dates for installation and provision for testing. Provide legend for symbols and abbreviations used.
- D. **Mathematical Analysis:** Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:
1. Preceding and following event numbers
 2. Activity description
 3. Estimated duration of activity, in maximum thirty (30) day intervals
 4. Earliest start date
 5. Earliest finish date
 6. Actual start date
 7. Actual finish date
 8. Latest start date
 9. Latest finish date
 10. Total and free float

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11. Monetary value of activity (keyed to *Schedule of Values*)
 12. Percentage of activity completed
 13. Responsibility
- E. **Analysis Program:** Capable of compiling monetary value of completed and partially completed activities, of accepting revised completion dates, and re-computation of all dates and floats.
- F. **Required Sorts:** List activities in sorts or groups:
1. By preceding work item or event number from lowest to highest
 2. By amount of float, then in order of early start
 3. By responsibility in order of earliest possible start date
 4. In order of latest allowable start dates
 5. In order of latest allowable finish dates
 6. Contractor's periodic payment request sorted by *Schedule of Values* listings, Specifications section
 7. Listing of basic input data which generates the report
 8. Listing of activities on the critical path
 9. Monthly cash flow
- G. **Schedule of Values:** Coordinate contents with *Schedule of Values* in Section 01 2973.

1.06 SUBMITTALS FOR REVIEW

- A. **Preliminary Network Diagram:** Within fifteen (15) days after the date established in the *Notice to Proceed* submit proposed preliminary network diagram defining planned operations for the first sixty (60) days of Work, with a general outline for the remaining Work.
- B. **Review:** Participate in review of preliminary and complete network diagrams jointly with the Professional.
- C. **Proposed Complete Network Diagram:** Within twenty (20) days after joint review of proposed preliminary network diagram, submit draft of proposed complete network diagram for review. Include written certification that mechanical and electrical Subcontractors have reviewed and accepted proposed schedule.
- D. **Complete Network Diagram:** Within ten (10) days after joint review, submit complete network analysis consisting of network diagrams and mathematical analysis.
- E. **Updated Network Schedules:** Submit updated network schedules with each Application for Payment.
- F. **Copies:** Submit the number of opaque reproductions the Contractor requires, plus two (2) copies which will be retained by the Professional and the Owner.

1.07 REVIEW AND EVALUATION

- A. **Review:** Participate in joint review and evaluation of network diagrams and analysis with the Professional at each submittal.
- B. **Evaluate:** Evaluate Project status to determine Work behind schedule and Work ahead of schedule.
- C. **Revisions:** After review and approval of the Professional, revise as necessary as a result of the review and resubmit within ten (10) days.

1.08 UPDATING SCHEDULES

- A. **Schedules:** Maintain schedules to record actual start and finish dates of completed activities.
- B. **Progress:** Indicate progress of each activity to date of revision, with projected completion date of each activity. Update diagrams to graphically depict current status of Work.

Division One

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- C. **Modifications:** Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
 - D. **Changes:** Indicate changes required to maintain Date of Substantial or Total Completion. These changes will be made only with the approval of the Professional.
 - E. **Extensions:** Contract completion time will be adjusted only for causes specified in the Contract. Requests for an extension of the contract completion date by the Contractor shall be supported with a justification, CPM data and supporting evidence as the Owner may deem necessary for determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the Contract. Submission of proof based on revised activity logic duration and costs is obligatory to any approvals. The schedule must clearly display that the Contractor has used, in full, all the float time available for the work involved in the request. The Owner's determination as to the total number of days of contract extension shall be based upon the current computer-produced calendar-dated schedule for the time period in question and all other relevant information. Actual delays in activities which, according to the computer-produced calendar-dated schedule, do not affect the extended and predicted contract completion dates shown by the critical path in the network, will not be the basis for a change to the contract completion date. The Owner will, within a reasonable time after receipt of such justification and supporting evidence, review the facts and advise the Contractor in writing of the Owner's decision. The Contractor shall submit each request for a change in the contract completion date to the Owner. The Contractor shall include as a part of each change order proposal, a sketch showing all CPM revisions, duration changes, and cost changes, for the work in question and its relationship to other activities on the approved arrow diagram.
 - F. **Substantiate:** Submit sorts required to support recommended changes.
 - G. **Report:** Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect.

1.09 **DISTRIBUTION**

- A. **Distribution of Copies:** Following joint review, distribute copies of updated schedules to Contractor's Project site, to Subcontractors, Suppliers, Professional and Owner.
- B. **Reporting Problems:** Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

SECTION 01 3323

1.01 **DESCRIPTION**

- A. **Scope:** Submit to the Professional shop drawings, product data and samples required by Specification sections. Submit an additional copy of shop drawings, product data and samples related to items/systems identified to be commissioned to the Commissioning Authority Professional to be reviewed concurrently with the Professional. (if Cx on project).
- B. **Shop Drawings:** Original drawings prepared by Contractor, Subcontractor, Supplier, or Distributor which illustrate some portion of the Work; showing fabrication, layout, setting, or erection details.
 - 1. Prepared by a qualified detailer.
 - 2. Identify details by reference to sheet and detail numbers shown on Contract drawings.
 - 3. Minimum sheet size: 8 1/2" x 11"
 - 4. Reproductions for submittals: Opaque diazo prints.

C. **Product Data:**

1. **Manufacturer's Standard Schematic Drawings:** Modify drawings to delete information which is not applicable to the Project. Supplement standard information to provide additional information applicable to the Project.
2. **Manufacturer's Catalog Sheets, Brochures, Diagrams, Schedules, Performance Charts, Illustrations and Other Standard Descriptive Data:** Clearly mark each copy to identify pertinent materials, products, or models. Show dimensions and clearances required. Show performance characteristics and capacities, wiring diagrams and controls.

D. **Samples:** Physical examples to illustrate materials, equipment or workmanship and to establish standard by which completed work is judged.

1. **Office Samples:** Of sufficient size and quantity to clearly illustrate functional characteristics of products or material with integrally related parts and attachment devices and full range of color samples. After review, samples remain the property of the Professional until completion of the construction project.
2. **Field Samples and Mock-ups:** Erect on project site at location acceptable to Professional. Construct each sample, or mock-up, completely including work of all trades required in finished work.

E. **Contractor's Responsibilities:**

1. Review shop drawings, product data and samples prior to submission.
2. Verify field measurements, field construction criteria, catalog numbers and similar data.
3. Coordinate each submittal with requirements of work and of Contract Documents.
4. Contractor's responsibility for errors and omissions in submittals is not relieved by the Professional's review of submittals.
5. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Professional's review of submittals unless Professional gives written acceptance of specific deviations.
6. Notify Professional in writing at the time of submission of deviations in submittals from requirements of Contract Documents.
7. Begin no work requiring submittals until the return of submittals bearing Professional's stamp and initials, or signature indicating review.
8. After Professional's review, distribute copies.

F. **Submission Requirements:**

1. Schedule submission with ample time before dates reviewed submittals will be needed.
2. Submit number of copies of shop drawings and product data which Contractor requires for distribution, plus one (1) copy to be retained by the Professional.
3. Submit number of samples specified in each Specification section.
4. Accompany submittals with transmittal letter, in duplicate, containing date, Project title and number; Contractor's name and address; the number of each shop drawings, product data and samples submitted; notification of deviations from Contract Documents; and, other pertinent data.
5. Submittals shall include:
 - a. Date and revision dates.
 - b. Project title and number.
 - c. The names of the Professional, Contractor, Supplier, Manufacturer and separate detailer, when pertinent.
 - d. Identification of product, or material.
 - e. Relation to adjacent structure, or materials.
 - f. Field dimensions clearly identified as such.
 - g. Specification section number.
 - h. Applicable standards such as ASTM number, or federal specifications.
 - i. A blank space (2" x 3") for the Professional's stamp.
 - j. Identification of deviations from Contract Documents.
 - k. Contractor's stamp, initialed or signed, certifying the review of submittal, verification of field measurements and compliance with Contract Documents.

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- G. **Resubmission Requirements:**
1. **Shop Drawings:** Revise initial drawings, as required, and resubmit as specified for initial submittal. Indicate on the drawings any changes which have been made other than those required by the Professional.
 2. **Product Data and Samples:** Submit new data and samples, as required, for initial submittal.
- H. **Distribution of Submittals After Review:**
1. Distribute copies of shop drawings and product data which carry Professional's stamp to Contractor's file, job site file, Subcontractor, Supplier and Fabricator.
 2. Distribute samples as directed.
- I. **Professional's Duties:**
1. Review submittals with reasonable promptness.
 2. Review for design concept of Project and information given in Contract Documents.
 3. Review of separate item does not constitute review of an assembly in which item functions.
 4. Affix stamp and initials, or signature, certifying the review of submittal.
 5. Return submittals to Contractor for distribution.

TESTING LABORATORY SERVICES

SECTION 01 4529

1.01 **DESCRIPTION**

- A. **Scope:** The Contractor will employ and pay for the services of an independent laboratory to perform specified services. In some instances, Owner will provide such testing services through independent testing laboratory retained by the Professional. Employment of a testing laboratory or provision of such services by others shall in no way relieve the Contractor of his obligation to perform work in accordance with the Contract.
- B. **Inspection, Sampling and Testing:** Refer to each individual specification section for specific inspection, sampling and testing requirements.
- C. **Qualification of Laboratory:**
1. Meet the *Recommended Requirements for Independent Laboratory Qualification* published by the American Council of Independent Laboratories.
 2. Meet the basic requirements of ASTM E 329-70, *Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction*.
 3. **Responsible Engineer:** Perform all testing under the direct supervision of a registered Professional engineer employed full time by the testing laboratory.
 4. **Submittals:** Submit a copy of the inspection report of the facilities made by materials reference laboratory of National Bureau of Standards of any deficiencies reported by the inspection.
 5. **Approval:** The Professional must approve the testing laboratory.
- D. **Laboratory's Duties:**
1. Upon notice, cooperate with the Professional and the Contractor to promptly provide qualified personnel. Perform specified inspections, sampling and testing of materials and methods of construction to ascertain compliance with requirements of Contract Documents. Promptly notify the Professional and the Contractor of irregularities or deficiencies of work observed during performance of services.
 2. Reports of inspections and tests will include:
 - a. Date issued
 - b. Project title and number
 - c. Testing laboratory's name and address
 - d. Name and signature of inspector
 - e. Date of inspection, or sampling
 - f. Record of temperature and weather
 - g. Date of test

Division One

- h. Identification of product and Specification section
 - i. Location of Project
 - j. Type of inspection, or test
 - k. Observations regarding compliance with Contract Documents
3. Prompt distribution of copies of the inspection reports and tests to:
- a. Owner
 - b. Professional
 - c. General Contractor
 - d. Consulting Engineer, when pertinent
 - e. Subcontractor, when pertinent

E. Contractor's Responsibilities:

- 1. Cooperate with laboratory personnel to provide access to work and to manufacturer's operation. Provide the laboratory with the required quantities of preliminary samples representative of materials to be tested and required quantities. When required, furnish copies of mill test reports. Furnish laboratory casual labor to obtain and handle samples at the site and to facilitate inspections and tests. Provide facilities for laboratory's exclusive use for storage and curing of test samples. Notify laboratory sufficiently in advance of operations to allow for assignment of personnel and scheduling of tests.
- 2. Arrange and pay for additional samples and tests required for Contractor's convenience. When initial tests indicate work does not comply with Contract Documents, the Contractor may employ and pay for the services of a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing.

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

SECTION 01 5000

1.01 **DESCRIPTION**

- A. **Scope:** Work required under this section consists of all temporary construction facilities, services and related items to complete the work indicated on the drawings and described in the Project Manual.
- B. **Standards:**
 - 1. Conform to or exceed all temporary construction requirements stated in the current edition of the **International Building Code** [Chapter entitled *Safeguards During Construction*].
 - 2. Refer to Section 00 7200 entitled *General Conditions of the Contract For Construction, Article 10 Protection of Persons and Property* as amended by Section 00 7300 *Supplementary Conditions*.
- C. **Materials:** All materials required by the Work of this section shall be as specified in the respective sections.

1.02 **FACILITIES AND CONTROLS**

- A. **Access:** The Prime General Contractor shall provide an adequate access and/or roads to the site of the structure, if required for the prosecution of work; and, should also provide and maintain at least one (1) temporary, or permanent, access to each working elevation to be permanently occupied.
- B. **Hoisting Facilities:** The Prime General Contractor shall be responsible for providing suitable capacity and hoisting facilities for all people and materials. The use of the hoisting facilities shall be by mutual agreement of the Prime General Contractor and the individual Contractor.
- C. **Field Office and Sheds:** At all times, the Prime General Contractor shall provide and maintain an on-site office with telephone, which may also be used by Subcontractors, the Owner and the Professional. Office location will be approved by the Owner. Where no suitable available space within an existing building is specifically identified for such purposes in Section 01 8000 entitled *Special Requirements* or elsewhere in the Contract Documents, the Prime General Contractor shall provide a trailer with full utilities for such purpose throughout

the Contract Time with space for both Contractor management personnel as well as for holding progress meetings. Each general and individual Contractor shall provide suitable watertight/dampproof sheds or containers to house their construction materials.

- D. **Sanitation Facilities:** The Prime General Contractor is responsible for furnishing adequate temporary toilet facilities on the job site unless use of existing facilities on site is specifically permitted in Section 01 8000 entitled *Special Requirements* or elsewhere in the Contract Documents.
- E. **Drinking Water:** The Prime General Contractor shall provide at all times sanitary drinking water facilities for all workmen on the job including ice, when required, and paper cups, etc.
- F. **Fire Protection:** The Prime General Contractor shall provide general temporary fire protection except where the Work is within an existing building with operational permanent fire protection systems. Subcontractors will be responsible for their own. Where operational permanent fire protection systems exist, the Prime General Contractor and all Subcontractors shall take care not to damage such systems and take measures to prevent accidentally engaging such systems. Where the temporary disabling of any existing operational system is required for the performance of the Work, such shut-down shall be coordinated with the Owner.
- G. **Storage:** The Prime General Contractor shall coordinate the allocation of storage areas to the various Subcontractors.
- H. **Temporary Heating/Cooling/Dehumidification:** The Prime General Contractor shall provide heating, cooling, dehumidification, fuel and services, as necessary, to protect all work from dampness and cold or excessive heat and humidity until final acceptance. If in the late stages of the construction, mechanical and electrical installations will permit operation without damage to systems, and subject to the approval of the Professional and Owner, the mechanical and electrical facilities may be used to provide heating, cooling, dehumidification and ventilation in strict accordance with conditions established by the Professional and/or his Consultants. However, the Owner is saved harmless of any costs of operation, including the periodic replacement of filters, or responsibility as to acceptance of mechanical and/or electrical installations.
- I. **Utilities:** The Prime General Contractor shall make arrangements for and furnish all water, gas, electricity (lighting and power) and other utilities necessary for construction purposes unless otherwise specified in Section 01 8000 entitled *Special Requirements* or elsewhere in the Contract Documents. Where any such utilities are to be furnished by the Institution or Agency, and such requirements are not detailed in Section 01 8000 or elsewhere in the Contract Documents, a written agreement must be reached on how any such utilities (water, gas, and electricity) will be furnished and the rates the Contractor will be charged by the Institution or Agency prior to initial use of any such utility. A copy of the final agreement signed by the Contractor and the Institution or Agency must be forwarded to the Owner. If the written agreement is not filed with the Owner, the Contractor and the Institution or Agency waives all rights as to the rates charged. The Owner will then determine all utility rates and assess the charges before final payment is rendered.
- J. **Project Sign:** Where required in Section 01 8000 entitled *Special Requirements* or elsewhere in the Contract Documents, the Contractor shall furnish and erect on adequate supports and maintain one (1) neatly constructed sign identifying the names of the Project, Governor, Owner, Prime Professional, Contractor and Using Agency/Institution, and Governing Board as applicable. Sign shall also indicate the source(s) of funds for the project. The erection of additional signs depicting the names of the Contractor, Sub-Contractor, or Vendors is strictly prohibited. Unless a larger sign is otherwise detailed in the Contract Documents, such sign shall be as follows:
 - 1. The Prime General Contractor will erect on adequate supports one (1) neatly constructed and painted or printed four foot by eight foot (4' x 8') plywood or equivalent panel conforming to the Owner's Project Sign Template to be furnished with text, colors, and graphics specific to the Project.
 - 2. No logos, graphics, custom fonts or similar are permitted for Prime Professional or Contractor names depicted on Project Sign.
 - 3. The Prime General Contractor is responsible for maintaining the Project Sign until Final Acceptance of the Work or until Substantial Completion when authorized by the Owner. Any damage, including chipping, peeling or fading of text or images shall be promptly repaired or replaced.

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SUBSTITUTIONS AND PRODUCT OPTIONS

SECTION 01 6000

1.01 DESCRIPTION

A. Scope: To set forth the procedure and conditions for substitutions and to give the product options available to the Contractor.

1.02 PRODUCTS LIST

- A. Within thirty (30) days after the Contract has been signed, the Contractor will submit to the Professional five (5) copies of a complete list of all products proposed for installation.
- B. Tabulate the list by Specification sections.
- C. For products specified under reference standards, include with listing of each product:
 - 1. Name and address of Manufacturer.
 - 2. Trade name.
 - 3. Model, or catalog designation.
 - 4. Manufacturer's data.
 - 5. Performance and test data.
 - 6. Reference standards.
 - 7. Percentage of recovered materials.

1.03 CONTRACTOR'S OPTIONS

- A. For products specified only by reference standards or technical performance requirements, select any product meeting product standards by any Manufacturer.

- B. For products specified by naming a minimum of three (3) products or Manufacturers, select any product and Manufacturer named. Equivalent products of domestic manufacture containing not less than the same percentage of recovered materials as named products will always be accepted if equal in all consequential respects.

- C. For product specified by naming one (1) or more products and/or Manufacturers, but indicating the option of selecting equivalent products by stating "or equal" after specified product and/or Manufacturer, select named product or any product of domestic manufacture containing not less than the same percentage of recovered material as named product meeting specified reference standards or technical performance requirements as represented by the named products and/or Manufacturers.

- D. For products specified by naming only one (1) product and/or Manufacturer as a "basis of design", an equivalent product of domestic manufacture containing not less than the same percentage of recovered materials as named product will always be accepted if it is equal in all consequential respects.

- E. For products specified by naming only one (1) product and Manufacturer and stating no substitutions will be accepted, there is no option and no substitutions will be allowed. This option must have written approval by the Owner before bidding.

1.04 SUBSTITUTIONS

- A. A product or construction method that varies from a product or construction method specified in one or more consequential characteristics, reference standards, or technical performance requirements shall be considered a substitution.

- B. Professional will not consider requests for substitutions during bidding.

- C. Within thirty (30) days after the Contact has been signed, the Professional will consider formal requests from the Contractor for substitution of products in place of those specified. Submit five (5) copies of the request for substitutions. Include in the request:

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1. Narrative summarizing characteristics, reference standards, or technical performance requirements that product varies from and how the proposed product or construction method will meet or exceed project requirements
 2. For products:
 - a. Product identification including Manufacturer's name and address.
 - b. Manufacturer's literature: Product description, performance and test data and reference standards.
 - c. Samples.
 - d. Name and address of similar projects on which product was used and date of installation.
 3. For construction methods:
 - a. Detailed description of proposed method.
 - b. Drawings illustrating methods.
 4. Agreement to pay for any additional professional costs if acceptance of substitution will require substantial revision of Contract Documents.
 5. Data relating to any delays to the construction schedule if any will result from proposed substitution.
 6. Accurate cost data on proposed substitution if any project cost increases are anticipated or any cost savings are being offered for proposed substitution.
- D. In making request for substitution, Contractor represents:
1. Proposed product, or method, has been investigated and determined that it is equal or superior in all respects to that specified.
 2. The same or better guarantee and/or warranty will be provided for substitutions for product or method specified.
 3. Installation of accepted substitutions will be coordinated into the Work, making such changes required of work to be complete in all respects at no additional cost to the Owner.
 4. All claims for additional costs related to substitution, including any delays to the construction schedule, which consequently become apparent will be waived.
 5. Unless specifically identified in substitution submittal and such delay is specifically agreed to by Change Order to the Contract, substitution will not cause any delay to the construction schedule.
 6. Proposed product, or method, will not result in any additional costs to the Owner.
- E. Substitutions will not be considered if:
1. Indicated, or implied, on shop drawings or product data submittals without formal request submitted in accordance with this Section.
 2. Acceptance will require substantial revision of Contract Documents unless compensation for such additional professional costs are paid by Contractor at no additional cost to the Owner.
 3. In the Professional's judgment, the product, or material, is not equal.
- F. For products where all named products are of domestic manufacture, substitutions of products of foreign manufacture will not be considered unless Contractor can sufficiently document that one or more of the following conditions exist:
1. No product of domestic manufacture meeting the product specifications is readily available that can be provided within the time constraints of the project requirements.
 2. Cost to provide a product of domestic manufacture meeting the product specifications is significantly greater than proposed product substitute.
- G. Substitutions of products with those of less percentage of recovered material than named product(s) shall only be considered where Contractor can sufficiently document that one or more of the following conditions exist:
1. No product of equal or greater percentage of recovered material as named product(s) is available that can be provided within the time constraints of the project requirements.
 2. Cost to provide a product of equal or greater percentage of recovered material as named product(s) meeting the product specifications is significantly greater than that of named product(s).

CUTTING AND PATCHING

SECTION 01 7329

1.01 GENERAL DESCRIPTION

- A. **Scope:** To set forth broad, general conditions covering cutting and patching that applies to everyone and everything on the job.
- B. Execute cutting including excavating, fitting, or patching of work required to:
 - 1. Make several parts fit properly.
 - 2. Uncover work to provide for installation of ill-timed work.
 - 3. Remove and replace defective work.
 - 4. Remove and replace work not conforming to Contract requirements.
 - 5. Install specified work in existing construction.
- C. In addition to Contract requirements, upon Professional's written instructions:
 - 1. Uncover work for observation of covered work.
 - 2. Remove samples of installed materials for testing.
 - 3. Remove work to provide alteration of existing work.
- D. Do not cut or alter work of another Contractor without permission.
- E. **Payment of Costs:** Costs caused by ill-timed, or defective work, or work not conforming to Contract Documents will be borne by party responsible for ill-timed, defective work, or non-conforming work.

1.02 MATERIALS/PRODUCTS

- A. **Materials for Replacement or Work Removed:** Comply with Specifications for type of work to be accomplished.

1.03 EXECUTION

- A. **Inspection:** Inspect existing conditions of work, including elements subject to movement, or damage during cutting and patching.
- B. **Preparation Prior to Cutting:** Provide shoring, bracing and support, as required, to maintain structural integrity of the building. Provide protection for other portions of work and protection from the elements.
- C. **Performance:**
 - 1. Execute cutting and demolition by methods which prevent damage to other work and will provide surfaces to receive installation of repairs and new work.
 - 2. Execute excavating and backfilling by methods which prevent damage to other work and prevent settlement.
 - 3. Restore work which has been cut or removed; install new products to provide completed work in accordance with requirements of Contract Documents.
 - 4. Refinish entire surfaces, as necessary, to provide an even finish. Refinish continuous surfaces to the nearest intersection and assemblies entirely.

CLEANING

SECTION 01 7400

1.01 DESCRIPTION

- A. **Scope:** Maintain premises and public properties from accumulations of waste, debris and rubbish caused by operations. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials and clean all sight-exposed surfaces; leave Project clean and ready for occupancy.

Division One

1.02 **PRODUCTS**

- A. **Materials:** Use only cleaning materials recommended by Manufacturer of surface to be cleaned. Use cleaning materials only on surfaces recommended by the cleaning materials Manufacturer.

1.03 **EXECUTION**

- A. **During Construction:** Execute cleaning to insure that building, grounds and public properties are maintained free from accumulations of waste materials and rubbish. Wet down dry materials and rubbish to lay dust and prevent blowing dust. At reasonable intervals during progress of work, clean site and public properties and dispose of waste materials, debris and rubbish. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property. Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for substantial completion or occupancy. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights. Schedule cleaning operations so that dust or other contaminants resulting from cleaning process will not fall on wet or newly painted surfaces.
- B. **Final Cleaning:** Employ experienced workmen, or professional cleaners, for final cleaning. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces and concealed spaces. Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from sight-exposed finishes. Repair, patch and touch up marred surfaces to specified finish to match adjacent surfaces. Broom clean paved surfaces; rake clean other surfaces of grounds. Replace air conditioning filters, if units were operated during construction. Clean ducts, blowers and coils if air conditioning units were operated without filters during construction. Maintain cleaning until Project, or respective portions thereof, is occupied by Owner.

STARTING OF SYSTEMS

SECTION 01 7500

1.01 **GENERAL**

- A. **Scope:** This Section describes the procedures for start up of all building equipment and systems including necessary demonstration and instructions.

1.02 **STARTING SYSTEMS**

- A. Coordinate Schedule for start-up of various equipment and systems.
- B. Notify Professional and Owner seven (7) days prior to start-up of each system.
- C. Verify each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
- D. Verify that tests, meter readings and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of responsible Contractors' personnel in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require Manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.
- H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

Division One

1.03 **DEMONSTRATION AND INSTRUCTIONS**

- A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of Substantial Completion.
- B. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at designated location.
- D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

CONTRACT CLOSEOUT
SECTION 01 7700

1.01 **DESCRIPTION**

- A. **Scope:** The work required in this Section consists of the final inspections and the submission of all closeout documents and related items to complete the Work indicated on the Drawings and described in the Project Manual.

1.02 **FINAL INSPECTIONS**

- A. **Professional's Review:** The Contractor shall make written notice that the Work of a Job Order is ready for final inspection and acceptance by the Owner to the Professional; such notice to be given not less than ten (10) days prior to the date desired for inspection. The Professional will promptly visit the site and assess the state of Work of the Job Order to determine if it is ready for final inspection by the Owner. If, in the Professional's judgment, the Work of the Job Order is not ready for final inspection, the Professional will report the reasons for such determination to the Contractor. In such case, the Contractor shall then submit a revised request for final inspection when those reasons have been resolved. Once the Professional determines the Work of the Job Order is ready for final inspection, the Prime Professional will call for final inspection of the Project with the Owner for the purpose of determining whether the Work of the Job Order is acceptable under the Contract Documents.
- B. **Owner's Inspection:** After the Professional has ascertained the Work of the Job Order to be ready, an Owner's inspection will be scheduled within ten (10) days thereafter. The Contractor will have not more than thirty (30) days thereafter, unless a longer time for specific items is mutually agreed to in writing by the Owner and Contractor to make any corrections of the final punch list items and to submit closeout documents.
- C. **Correction of Work Before Final Payment:** The Contractor shall address all defects or discrepancies noted on the final punch list and promptly remove from the Owner's premises all materials condemned for failure to conform to the Contract, whether incorporated in the Work or not, and the Contractor shall, at his own expense, replace such condemned materials with those conforming to the requirements of the Contract. Failure to remedy such defects or discrepancies after thirty (30) days, unless a longer time for specific items is mutually agreed to in writing by the Owner and Contractor, will allow the Owner to make good such defects and such costs shall be deducted from the balance due the Contractor, or charged to the Contractor in the event no payment is due.

1.03 **CLOSEOUT DOCUMENTS**

Unless otherwise notified, the Contractor shall submit to the Owner through the Professional, three (3) copies of the following before final payment is made:

- A. **Request for Final Payment:** AIA Document G702, current edition, completed in full or a computer generated form having similar data.

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- B. **Consent of Surety Company to Final Payment:** AIA Document G707, current edition, completed in full by the Bonding company.
 - C. **Power of Attorney:** Closeout documents should be accompanied by an appropriate Power of Attorney.
 - D. **Release of Liens and Certification that All Bills Have Been Paid:** AIA Document G706A, current edition, completed in full or a sworn statement and affidavit from the Contractor to the Owner stating that all bills for this job have been paid and that the Owner is released from any and all claims and/or damages.
 - E. **Contractor's Affidavit of Payment of Debts and Claims:** AIA Document G706, current edition, completed in full.
 - F. **Guarantee of Work:** Sworn statement that all work is guaranteed against defects in materials and workmanship for one (1) year from date of Owner's acceptance, except where specified for longer periods.
 - 1. Word the Guarantee as follows, or in a similar manner:
We hereby guarantee all work performed by us on the above captioned Project to be free from defective materials and workmanship for a period of one (1) year or such longer period of time as may be called for in the Contract Documents for such portions of the Work.
 - 2. All guarantees and warranties shall be obtained in the Owner's name.
 - 3. Within the Guaranty period, if repairs or changes are requested in connection with guaranteed work which, in the opinion of the Owner, are rendered necessary as a result of the use of materials, equipment or workmanship which are inferior, defective or not in accordance with the terms of the Contract, the Contractor shall promptly, upon receipt of notice from and without expense to the Owner, place in satisfactory condition building, site, equipment or contents thereof. The Contractor shall make good any work, materials, equipment or contents of said buildings or site which may be disturbed by fulfilling any such Guaranty.
 - 4. If, after notice, the Contractor fails to proceed promptly to comply with the terms of the Guaranty, the Owner may have the defects corrected and the Contractor and his Sureties shall be liable for all expense incurred.
 - 5. All special guarantees applicable to definite parts of the work stipulated in the Project Manual or other documents forming part of the Contract shall be subject to the terms of this paragraph during the first year of the life of such special guaranty.
 - G. **Project Record Documents:** Furnish all other record documents as set forth in Section 01 7800 entitled *Project Record Documents*. Failure provide such documents within thirty (30) days of Request for Final Payment shall result in the Owner, in consultation with the Professional, determining a fair market value of such documents with such costs to be retained or deducted from the balance due the Contractor, or charged to the Contractor in the event no payment is due.
 - H. **Additional Documents Specified Within the Project Manual:** Provide all additional certificates, warranties, guarantees, bonds or documents as called for in the individual sections of the Project Manual. The Contractor is responsible for examining the Project Manual for these requirements. Failure provide such documents within thirty (30) days of Request for Final Payment shall result in the Owner, in consultation with the Professional, determining a fair market value of such documents with such costs shall be deducted from the balance due the Contractor, or charged to the Contractor in the event no payment is due.

PROJECT RECORD DOCUMENTS

SECTION 01 7800

1.01 DESCRIPTION

- A. **Scope:** To set forth the procedure and requirements for keeping project record documents.

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- B. Maintenance Documents:**
1. Throughout the Contract, maintain one (1) copy of all of the following: Contract Drawings, Project Manual, Addenda, Change Order(s), reviewed shop drawings, reviewed submittals, hardware schedules, field, and laboratory test records, equipment brochures, parts lists, operating instructions and other modifications to the Contract.
 2. Store documents on site apart from documents used for construction.
 3. Maintain documents in clean, dry, legible condition. Do not use record documents for construction purposes.
 4. Make documents available, at all times, for inspection by the Professional, Commissioning Authority Professional, and the Owner.
 5. Keep documents in 8 ½” x 11” loose leaf binders. Clearly label each binder on the spine. Sub-divide with permanently marked tabs of card stock. Provide a main tab for each specification section. Provide sub-tabs for each major piece of equipment or component.
 6. Format for information behind each tabbed piece of equipment/component shall be:
 - a. Contractor/Installer Information: Include address, phone number and contact name. Include emergency service contact information as applicable.
 - b. Manufacturer Information: Include address, phone number and contact name.
 - c. Shop Drawings and Product Data
 - d. Operation and Maintenance Instructions
 - e. Control Drawings
- C. Recording:**
1. **General:** Mark all modifications in red pencil. Keep record documents current. Do not permanently conceal any work until required information has been recorded.
 2. **Contract Drawings:** Legibly mark to record actual construction.
 - a. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
 - b. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
 - c. Field changes in dimension and detail.
 - d. Changes made by change order(s) or field order(s).
 3. **Project Manual and Addenda:** Legibly mark up each section to record Manufacturer, trade name, catalog number and Supplier of each product and item of equipment actually installed.
 4. **Shop Drawings:** Maintain as record documents. Legibly mark drawings to record changes made after review.
- D. Submittal:** At completion of Project, deliver two (2) copies of each record document to the Professional, who will transmit both sets to the Institution or Agency. Additionally, provide to Owner updated As-Built Contract Documents in electronic format utilizing electronic format copy of Contract Documents furnished by Professional or by scanning of marked-up contract Documents.

SPECIAL REQUIREMENTS

SECTION 01 8000

PART 1 - SUMMARY OF WORK SUPPLEMENT

1.01 WORK SEQUENCE

- A. Owner will occupy the building during construction, coordinate with Owner's Representative in scheduling work to vacate the areas as the Contractor requires.
- B. Construct work in stages as follows:
 - 1. See Drawing C-101 Drawing Index and General Notes for Work Sequence
 - 2. _____
 - 3. _____

1.02 PARTIAL OWNER OCCUPANCY

- A. Schedule early completion of designated areas for Owner's usage prior to substantial completion of entire Project as follows: N/A
- B. Owner will occupy the following areas throughout the Project or during portions of the Project as follows:
Existing Waste Water Treatment Plant
- C. Prior to occupancy of any portion of the Project, a *Certificate of Substantial Completion* for designated areas shall be executed establishing responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance for such portion of the Work.

PART 2 - ALLOWANCE SUPPLEMENT

2.01 SCHEDULE OF ALLOWANCES

- A. Include in the Bid, for inclusion in the Contract Sum, the amount of \$ N/A for purchase of N/A
(Refer to Section _____, _____)
- B. Include in the Bid, for inclusion in the Contract Sum, the amount of \$ N/A for purchase of N/A
(Refer to Section _____, _____)

PART 3 - ALTERNATE SUPPLEMENT

3.01 DESCRIPTION OF ALTERNATES

- A. Alternate Number One. Complete all work required to remove, dispose of, and replace the liner in the west lagoon.
- B. Alternate Number Two. Complete all work required to dispose of all sludge in both the east and west lagoons at a Subtitle D landfill.
- C. Alternate Number Three. N/A.

D. Alternate Number Four. N/A.

E. Alternate Number Five. N/A.

PART 4 – CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS SUPPLEMENT

4.01 **FIELD OFFICE**

4.02 **UTILITIES**

4.03 **PROJECT SIGN**

PART 5 – ANTICIPATED DELAYS

5.01 **ADVERSE WEATHER**

PART 6 – INSTITUTION/AGENCY REQUIREMENTS

6.01 **PROHIBITED ACTIVITIES**

6.02 **USE OF PREMISES**

PART 7 - MEASUREMENT AND PAYMENT**7.01 LUMP SUM**

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the PROPOSAL FORM and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum payment item, shall be included in the listed item cost most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials and equipment, and performing any associated quality control, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

7.02 LUMP SUM ITEMS**A. "Mobilization/Demobilization, Complete"**

1. Payment will be made for all costs associated with the mobilization/demobilization of personnel and equipment to/from the project site(s) located in Leakesville, Greene County, MS. Mobilization also includes providing all initial services, bonds, insurance, temporary facilities, Davis-Bacon Poster, and any other required signage.
2. Unit of measure: lump sum.

B. "Relocation of Existing Lagoon Aerators, Complete"

1. Payment will be made for all costs associated with relocating (removing and reinstalling) the existing lagoon aerators in accordance with the Contract Documents. All deteriorated or unusable accessories such as anchorage, connection items, cables, etc. shall be replaced with new accessories of same type and material removed. No separate payment will be made for required accessories to complete relocation.
2. Unit of measure: lump sum.

C. "Relocation of Existing Lagoon Aerators Electrical System, Complete"

1. Payment will be made for all costs associated with relocating (removing and reinstalling) the electrical system for the existing lagoon aerators in accordance with the Contract Documents. All deteriorated or unusable accessories such as wire, connectors, etc. shall be replaced with new accessories of same type and material removed. No separate payment will be made for required accessories to complete relocation.

2. Unit of measure: lump sum.

D. "Dewater East Lagoon System, Complete"

1. Payment will be made for all costs, materials, equipment, labor, quality control services, sampling, testing, and analysis, reports, fees and all costs incidental thereto associated with the transferring of wastewater, sludge, vegetation, and/or other undesirable materials from the eastern lagoon to west lagoon in accordance with the Contract Documents.

2. Unit of measure: lump sum.

E. "Demolition of East Lagoon Liner System, Complete"

1. Payment will be made for all costs, materials, equipment, labor, quality control services, sampling, testing and analysis, reports, fees and all costs incidental thereto associated with the removal, loading, weighing, transporting, unloading and disposal of the existing lagoon liner, vegetation and/or other undesirable materials in accordance with the Contract Documents. Contractor shall furnish to the Professional all truck weight tickets and copies of the waste manifest for all loads hauled to the landfill at no additional cost to the Owner.

2. Unit of measure: lump sum.

F. "Demolition of Existing Fencing, All Types, Complete"

1. Payment will be made for all costs, materials, equipment, labor, and all costs incidental thereto associated with the removal and disposal of the existing fencing (all types) in accordance with the Contract Documents.

2. Unit of measure: lump sum.

G. "Demolition of Existing Sanitary Sewer Piping, Manholes, and Appurtenances, Complete"

1. Payment will be made for all costs associated with the removal and disposal of the existing sanitary sewer piping, manholes, and all associated appurtenances to be demolished as shown in the Contract Documents. Compensation for excavation, backfill, fill, equipment, labor, tests, and incidental items necessary for demolition of existing sanitary sewer piping, manholes, and all associated appurtenances, as shown in the Contract Documents, shall also be included.

2. Unit of measure: lump sum.

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- H. “Demolition of Existing Screen Structure, Piping, and Appurtenances, Complete”
1. Payment will be made for all costs associated with the removal and disposal of the existing screen structure, piping, and all associated appurtenances to be demolished as shown in the Contract Documents. Compensation for excavation, backfill, fill, equipment, labor, tests, and incidental items necessary for demolition of existing screen structure, piping, and all associated appurtenances, as shown in the Contract Documents, shall also be included.
 2. Unit of measure: lump sum.
- I. “Demolition of Existing Pavements, All Types and All Depths, Complete”
1. Payment will be made for all costs associated with the removal and disposal of the existing pavements (all types and all depths) and all associated appurtenances to be demolished as shown in the Contract Documents. Compensation for excavation, backfill, fill, equipment, labor, tests, and incidental items necessary for demolition of existing pavements and all associated appurtenances, as shown in the Contract Documents, shall also be included.
 2. Unit of measure: lump sum.
- J. “Course Screen System, Complete”
1. Payment will be made for all costs associated with supplying, assembly, and installation of the multi-rake Course Screen Systems; including but not limited to; fuel, temporary pumps, piping, structures, concrete, reinforcement, grating, fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, excavation, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate anchoring, spare parts, controls, quality control testing and inspection, and all work and/or appurtenances required for a complete and operational coarse screen system, in accordance with the Contract Documents. Compensation shall also be for providing all submittals, shop drawings, samples, and information, as required by the Contract Documents. Payment also includes the removal of all items required for the installation of the coarse screen systems, start-up and training of Using Agencies’ personnel or designated representatives, and all items incidental thereto to complete the fully operational coarse screen system as required by the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies’ personnel or designated representatives.

2. Unit of measure: lump sum.

K. "Course Screen System Electrical, Complete"

1. Payment will be made for all costs associated with purchasing, transporting, supplying, assembling, and installation of electrical coarse screen system improvements, including but not limited to; installation of the control panel, power supply, ultrasonic level sensors, transmitters, sensor and transmitter mounting, connection to existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, electrical work, cabling, conduit, conductors, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, de-watering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other work/materials necessary for a fully operational electrical coarse screen system improvement in accordance with the Contract Documents.

2. Unit of measure: lump sum.

L. "Influent Pump Station, Complete"

1. Payment shall include furnishing all materials, equipment, and labor for installation of the pump equipment for the Influent Pump Station. This encompasses the pumps, motors, enclosure, fittings, gauges, valves, controls, control panel(s), flow meter, instruments, electrical conduits, and testing. Additionally, it covers concrete equipment pad, pump vaults, structural concrete, mix design, admixtures, water, reinforcing steel, forms, coatings, curing materials, joint filler, sealants, dowel bars, anchors (nuts, bolts, washers, etc.), waterstops, wall pipes, hatch assemblies, thrust blocks, pipe bends and connections, metallic tape, water meter, pipe supports, ladder/rungs, controls, electrical connections, drainage pipes and structures, utility services (power, water, etc.), gravity sewer pipe, pressure sewer pipe, pressure sewer valves, connections to existing sewer, and testing. Payment shall also extend to miscellaneous items necessary for completion, such as utility locates, verification of pipe alignment, excavating, trench safety, shoring, dewatering, base/sub-base preparation, process water by-passing, temporary pumps and piping, fuel, backfill, fill, bedding material, and any associated quality control testing or other work incidental thereto to complete a fully operational pump station system as required by the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies' personnel or designated representatives.

2. Unit of measure: lump sum.

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M. “Influent Pump Station Electrical, Complete”

1. Payment will be made for all costs associated with purchasing, transporting, supplying, assembling, and installation of electrical influent pump station improvements, including but not limited to; installation of the control panel, power supply, ultrasonic influent flowmeters, transmitters, sensors, sensor and transmitter mounting, connection to existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, electrical work, cabling, conduit, conductors, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, de-watering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other work/materials necessary for a fully operational electrical influent pump station system improvement in accordance with the Contract Documents.
2. Unit of measure: lump sum.

N. “Fine Screen System, Complete”

1. Payment will be made for all costs associated with supplying, assembly, and installation of the multi-rake Fine Screen Systems; including but not limited to fuel, temporary pumps, piping, structures, concrete, reinforcement, grating, fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, excavation, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate, anchoring, spare parts, controls, quality control testing and inspection, and all work and/or appurtenances required for a complete and operational fine screen system, in accordance with the Contract Documents. Compensation shall also be for providing all submittals, shop drawings, samples, and information, as required by the Contract Documents. Payment also includes the removal of all items required for the installation of the fine screen systems, start-up and training of Using Agencies’ personnel or designated representatives, and all items incidental thereto to complete the fully operational fine screen system as required by the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies’ personnel or designated representatives.
2. Unit of measure: lump sum.

O. “Fine Screen System Electrical, Complete”

1. Payment will be made for all costs associated with purchasing, transporting, supplying, assembling, and installation of electrical fine

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screen system improvements, including but not limited to; installation of control panel, power supply, the ultrasonic level sensors, transmitters, sensor and transmitter mounting, connection to existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, electrical work, cabling, conduit, conductors, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, de-watering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other work/materials necessary for a fully operational electrical fine screen system improvement in accordance with the Contract Documents.

2. Unit of measure: lump sum.

P. "Soda Ash Feed System, Complete"

1. Payment will be made for all costs associated with supplying, assembly, and installation of the Soda Ash Feed System; including but not limited to; fuel, temporary pumps, piping, structures, metal work and metal building, HVAC, concrete, reinforcement, grating, fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, excavation, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate anchoring, spare parts, controls, quality control testing and inspection, and all work and/or appurtenances required for a complete and operational soda ash feed system, in accordance with the Contract Documents. Compensation shall also include providing all submittals, shop drawings, samples, an Operation and Maintenance Manual for the system, and shall include start-up/training for Using Agencies' personnel or designated representatives.

2. Unit of measure: lump sum.

Q. "Soda Ash Feed System Electrical, Complete"

1. Payment will be made for all costs associated with purchasing, transporting, supplying, assembling, and installation of electrical work for soda ash feed system and building improvements, including but not limited to; installation of the power supply, building breaker panel, transmitters, sensors, sensor and transmitter mounting, connection to existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, electrical work for HVAC, electrical work soda ash feed system, electrical work for lifts or cranes, lighting, cabling, conduit, conductors, controls, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, de-watering, backfilling, turfing, restoration of the

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site, traffic control, utility locates, and all other work/materials necessary for a fully operational soda ash feed system, building wiring, or other electrical improvements in accordance with the Contract Documents.

2. Unit of measure: lump sum.

R. "Installation of East Lagoon Liner System, Complete"

1. Payment will be made for all cost associated with completely installing the East Lagoon Liner System including, but not limited to, site preparation, material procurement, stockpiling, protection, waste management, surface preparation, layout, installation, anchoring and securing, seaming, testing, quality assurance, and reporting in accordance with the contract drawings and specifications. The HDPE liner system will be installed with precise, straight lines, and all grading will adhere to the Contract Documents. The contractor must include provisions for waste, scrap, and overlap in their pricing; no additional payment will be provided for these aspects.

2. Unit of measure: lump sum.

S. "Biological Treatment Lagoon System, Complete"

1. The Contractor shall be responsible for all material, equipment, labor, quality control, submittals, shop drawings, sampling, testing, analysis, fees, permitting, reporting, and scheduling associated with constructing the Biological Treatment Lagoon System. This includes, but is not limited to, the cost of fuel, excavation, grading, temporary pumps, piping, structures, concrete, reinforcement, mix designs, grating, fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate, anchoring, spare parts, controls, quality control testing and inspection, and all work and/or appurtenances required for a complete and fully operational biological treatment system in accordance with the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies' personnel or designated representatives.

2. Unit of measure: lump sum.

T. "Biological Treatment Lagoon System Electrical, Complete"

1. Payment will cover all costs associated with purchasing, transporting, supplying, assembling, and installing electrical components for the biological treatment lagoon system. This includes, but is not limited to, the installation of control panel, power supply, flowmeters, transmitters, sensors, sensor and transmitter mounting, connection to the existing

SCADA system, electrical box enclosures, displays, monitors, mounting equipment, temperature control systems, lighting, cabling, conduit, conductors, controls, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, dewatering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other electrical work necessary for a fully operational biological treatment lagoon system in accordance with the Contract Documents..

2. Unit of measure: lump sum.

U. “North Clarifier System, Complete”

1. The Contractor shall be responsible for all material, equipment, labor, quality control, submittals, shop drawings, sampling, testing, analysis, fees, permitting, reporting, and scheduling associated with constructing the North Clarifier System. This includes, but is not limited to, the cost of fuel, excavation, grading, temporary pumps, piping, structures, concrete, reinforcement, mix designs, grating, fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate, anchoring, spare parts, controls, quality control testing and inspection, and all work and/or appurtenances required for a complete and fully operational clarifier system in accordance with the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies’ personnel or designated representatives.

2. Unit of measure: lump sum.

V. “South Clarifier System, Complete”

1. The Contractor shall be responsible for all material, equipment, labor, quality control, submittals, shop drawings, sampling, testing, analysis, fees, permitting, reporting, and scheduling associated with constructing the South Clarifier System. This includes, but is not limited to, the cost of fuel, excavation, grading, temporary pumps, piping, structures, concrete, reinforcement, mix designs, grating, fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate, anchoring, spare parts, controls, quality control testing and inspection, and all work and/or appurtenances required for a complete and fully operational clarifier system in accordance with the Contract Documents. Compensation shall also include providing an Operation and Maintenance

Manual for the system, as well as start-up and training for Using Agencies' personnel or designated representatives.

2. Unit of measure: lump sum.

W. "North Clarifier System Electrical, Complete"

1. Payment will cover all costs associated with purchasing, transporting, supplying, assembling, and installing electrical components for the North Clarifier System. This includes, but is not limited to, the installation of control panel, power supply, transmitters, sensors, sensor and transmitter mounting, connection to the existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, temperature control systems, lighting, cabling, conduit, conductors, controls, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, dewatering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other electrical work necessary for a fully operational clarifier system in accordance with the Contract Documents..
2. Unit of measure: lump sum.

X. "South Clarifier System Electrical, Complete"

1. Payment will cover all costs associated with purchasing, transporting, supplying, assembling, and installing electrical components for the South Clarifier System. This includes, but is not limited to, the installation of control panel, power supply, transmitters, sensors, sensor and transmitter mounting, connection to the existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, temperature control systems, lighting, cabling, conduit, conductors, controls, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, dewatering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other electrical work necessary for a fully operational clarifier system in accordance with the Contract Documents..
2. Unit of measure: lump sum.

Y. "Scum Pump Station, Complete"

1. Payment shall include furnishing all materials, equipment, and labor for installation of the pump equipment for the Scum Pump Station. This encompasses the pumps, motors, enclosure, fittings, gauges, valves,

controls, instruments, and testing. Additionally, it covers concrete equipment pad, pump vaults, structural concrete, mix design, admixtures, water, reinforcing steel, forms, coatings, curing materials, joint filler, sealants, dowel bars, anchors (nuts, bolts, washers, etc.), waterstops, wall pipes, hatch assemblies, thrust blocks, pipe bends and connections, metallic tape, water meter, pipe supports, ladder/rungs, drainage pipes and structures, utility services (water, etc.), gravity sewer pipe, pressure sewer pipe, pressure sewer valves, connections to existing sewer, and testing. Payment shall also extend to miscellaneous items necessary for completion, such as utility locates, verification of pipe alignment, excavating, trench safety, shoring, dewatering, base/sub-base preparation, process water by-passing, temporary pumps and piping, fuel, backfill, fill, bedding material, and any associated quality control testing or other work incidental thereto to complete a fully operational pump station system as required by the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies' personnel or designated representatives.

2. Unit of measure: lump sum.

Z. "Scum Pump Station Electrical, Complete"

1. Payment will cover all costs associated with purchasing, transporting, supplying, assembling, and installing electrical components for the Scum Pump Station. This includes, but is not limited to, the installation of control panel, power supply, flowmeters, transmitters, sensors, sensor and transmitter mounting, connection to the existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, temperature control systems, lighting, cabling, conduit, conductors, controls, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, dewatering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other electrical work necessary for a fully operational pump station system in accordance with the Contract Documents.

2. Unit of measure: lump sum.

AA. "Filter System, Complete"

1. Payment will be made for all costs associated with equipment, supplying, assembly, and installation of the Filter System; including but not limited to; fuel, temporary pumps, piping, structures, metal work and metal building, HVAC, bridge crane system, concrete, reinforcement, grating,

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fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, excavation, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate, anchoring, spare parts, controls, quality control testing and inspection, and all work and/or appurtenances required for a complete and operational filtration system, in accordance with the Contract Documents. Compensation shall also include providing all submittals, shop drawings, samples, an Operation and Maintenance Manual for the system, and shall include start-up/training for Using Agencies' personnel or designated representatives.

2. Unit of measure: lump sum.

BB. "Filter System Electrical, Complete"

1. Payment will be made for all costs associated with purchasing, transporting, supplying, assembling, and installation of electrical work for filter system and building improvements, including but not limited to; installation of control panels, power supply, electrical breaker panel, transmitters, sensors, sensor and transmitter mounting, connection to existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, electrical work for HVAC, electrical work for lifts or cranes, lighting, cabling, conduit, conductors, controls, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, de-watering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other work/materials necessary for a fully operational filtration system, building wiring, or other electrical improvements in accordance with the Contract Documents.
2. Unit of measure: lump sum.

CC. "Parshall Flume System, Complete"

1. The Contractor shall be responsible for all material, equipment, labor, quality control, submittals, shop drawings, sampling, testing, analysis, fees, permitting, reporting, and scheduling associated with constructing the Parshall Flume System. Payment shall also include, but is not limited to, the cost of fuel, excavation, grading, temporary pumps, piping, structures, concrete, reinforcement, mix designs, grating, fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate, anchoring, spare parts, controls, quality control testing, and inspection. Additionally, payment shall cover all electrical work, including, but not limited to, the installation of control panel, power supply, flowmeters, transmitters, sensors, mounting, connection to

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SCADA system, electrical box enclosures, displays, monitors, mounting equipment, temperature control systems, lighting, cabling, conduit, conductors, controls, equipment grounding, wiring, training, software, hardware, website development, programming, utility locates, and all other electrical work necessary for a fully operational parshall flume system in accordance with the Contract Documents. Compensation shall also include providing, submittals, shop drawings, an Operation and Maintenance Manual for the system, and start-up training for Using Agencies' personnel or designated representatives.

2. Unit of measure: lump sum.

DD. "UV Disinfection System, Complete"

1. Payment will be made for all costs associated with equipment, supplying, assembly, and installation of the UV Disinfection System; including but not limited to; fuel, temporary pumps, piping, structures, metal work and metal building, HVAC, bridge crane system, concrete, reinforcement, grating, fittings, cutting, drilling, joint restraints, labor, equipment, traffic control, demolition, excavation, trench safety, shoring, dewatering, base/sub-base preparation, backfill, utility locate, anchoring, spare parts, controls, quality control testing and inspection, and all work and/or appurtenances required for a complete and operational disinfection system, in accordance with the Contract Documents. Compensation shall also include providing all submittals, shop drawings, samples, an Operation and Maintenance Manual for the system, and shall include start-up/training for Using Agencies' personnel or designated representatives.
2. Unit of measure: lump sum.

EE. "UV Disinfection System Electrical, Complete"

1. Payment will be made for all costs associated with purchasing, transporting, supplying, assembling, and installation of electrical work for the UV Disinfection System and associated building improvements, including but not limited to; installation of control panel, power supply, the ultrasonic influent flowmeters, transmitters, sensors, sensor and transmitter mounting, connection to existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, electrical work for HVAC, electrical work for lifts or cranes, lighting, cabling, conduit, conductors, controls, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, de-watering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other work/materials necessary

for a fully operational disinfection system, building wiring, or other electrical improvements in accordance with the Contract Documents.

2. Unit of measure: lump sum.

FF. “Effluent Pump Station, Complete”

1. Payment shall include furnishing all materials, equipment, and labor for installation of the pump equipment for the Effluent Pump Station. This encompasses the pumps, motors, enclosure, fittings, gauges, valves, controls, and testing. Additionally, it covers concrete equipment pad, pump vaults, structural concrete, mix design, admixtures, water, reinforcing steel, forms, coatings, curing materials, joint filler, sealants, dowel bars, anchors (nuts, bolts, washers, etc.), waterstops, wall pipes, hatch assemblies, thrust blocks, pipe bends and connections, metallic tape, pipe supports, ladder/rungs, controls, electrical connections, drainage pipes and structures, utility services (water, etc.), gravity sewer pipe, pressure sewer pipe, pressure sewer valves, connections to existing sewer, and testing. Payment shall also extend to miscellaneous items necessary for completion, such as utility locates, verification of pipe alignment, excavating, trench safety, shoring, dewatering, base/sub-base preparation, process water by-passing, temporary pumps and piping, fuel, backfill, fill, bedding material, and any associated quality control testing or other work incidental thereto to complete a fully operational pump station system as required by the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies’ personnel or designated representatives.

2. Unit of measure: lump sum.

GG. “Effluent Pump Station Electrical, Complete”

1. Payment will be made for all costs associated with purchasing, transporting, supplying, assembling, and installation of electrical effluent pump station improvements, including but not limited to; installation of control panel, power supply, transmitters, sensors, sensor and transmitter mounting, connection to existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, electrical work, cabling, conduit, conductors, equipment grounding, wiring, process demonstration, training, software, hardware, website development, programming, testing, materials, equipment, tools, labor, trenching, excavating, demolition, de-watering, backfilling, turving, restoration of the site, traffic control, utility locates, and all other work/materials necessary for a fully operational electrical effluent pump station system improvement in accordance with the Contract Documents.

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2. Unit of measure: lump sum.

HH. "Erosion Control, Complete"

1. Payment will be made for all costs associated with preparing a Small Construction Stormwater Pollution Prevention Plan. Payment also includes providing, installing, maintaining, replacement, and removal of all erosion control devices. Payment further includes all inspections, reports and record retention as required by both the Mississippi Department of Environmental Quality (MDEQ) and the Professional.
2. Unit of measure: lump sum.

II. "Site Lighting, Complete"

1. Payment will be made for all labor, materials, equipment, and other associated cost necessary to complete site lighting installations. Payment shall include, but not be limited to, primary line connections, transformer connections, switch panels, secondary service connections, metering, circuiting, lighting control, fixtures, poles, bases, electrical box enclosures, conduit, equipment grounding, wiring, trenching, excavating, de-watering, backfilling, turfing, restoration of the site, traffic control, utility locates, and all other work/materials necessary for complete and fully operational site lighting in accordance with the Contract Documents.
2. Unit of measure: lump sum.

JJ. "Backup Generator, Complete"

1. Payment will be made for all electrical work, tools, labor, materials, equipment, start-up, fuel, and other associated cost necessary to construct and/or install the treatment system backup generator. Payment shall include, but not be limited to, generator set, transfer switch, trenching, excavating/backfilling, turfing, conduits, wiring, service risers, conductors, standoff bracing, demolition of select existing electrical appurtenances, and all work incidental thereto necessary to completely install the treatment system backup generator in accordance with the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies' personnel or designated representatives.
2. Unit of measure: lump sum.

KK. "SCADA System, Complete"

1. Payment will be made for all costs associated with supplying, assembling, and installation of the SCADA system, transmitters, sensor and transmitter

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mounting, connection to existing SCADA system, electrical box enclosures, displays, monitors, mounting equipment, electrical work, cabling, conduit, equipment grounding, wiring, and all other materials, equipment, labor, and any quality control services incidental to completing the work as shown in the Contract Documents. Payment also includes compensation for all items incidental to the installation of a complete and operational SCADA and flow monitoring system, including but not limited to, process demonstration, training, software, hardware, website development, programming, testing, and all work incidental thereto necessary to install and monitor the SCADA and flow monitoring system, in accordance with the Contract Documents. Compensation shall also include providing an Operation and Maintenance Manual for the system, as well as start-up and training for Using Agencies' personnel or designated representatives.

2. Unit of measure: lump sum.

LL. "Alternate #1 – Dewater West Lagoon System, Complete"

1. Payment will be made for all costs, materials, equipment, labor, quality control services, sampling, testing and analysis, reports, fees and all costs incidental thereto associated with the transferring of wastewater, sludge, vegetation, and/or other undesirable materials from the western lagoon to the east lagoon in accordance with the Contract Documents.

2. Unit of measure: lump sum

MM. "Alternate #1 - Demolition of West Lagoon Liner System, Complete"

1. Payment will be made for all costs, materials, equipment, labor, quality control services, sampling, testing and analysis, reports, fees and all costs incidental thereto associated with the removal, loading, weighing, transporting, unloading and disposal of the existing lagoon liner, vegetation and/or other undesirable materials in accordance with the Contract Documents. Contractor shall furnish to the Professional all truck weight tickets and copies of the waste manifest for all loads hauled to the landfill at no additional cost to the Owner.

2. Unit of measure: lump sum.

NN. "Alternate #1 - Installation of West Lagoon Liner System, Complete"

1. Payment will be made for all cost associated with completely installing the West Lagoon Liner System including, but not limited to, site preparation, material procurement, stockpiling, protection, waste management, surface preparation, layout, installation, anchoring and securing, seaming, testing,

quality assurance, and reporting in accordance with the contract drawings and specifications. The HDPE liner system will be installed with precise, straight lines, and all grading will adhere to the Contract Documents. The contractor must include provisions for waste, scrap, and overlap in their pricing; no additional payment will be provided for these aspects.

2. Unit of measure: lump sum

OO. “Alternate #2 – Mobilization-Portable De-Watering Equipment”

1. Payment will be made for all costs associated with the mobilization/demobilization of dewatering equipment and personnel to/from the project site located in Leakesville, Greene County, Mississippi. The cost for mobilization shall include dewatering equipment which has the capacity to provide the dewatering of sludge acceptable to the Professional.

2. Unit of measure: lump sum

PP. “Alternate #2 – Erosion Control”

1. Payment will be made for costs associated with including necessary area for operations associated with Alternate #2 work to the stormwater pollution prevention plan. Payment also includes providing, installing, maintaining, replacement, and removal of all erosion control devices. Payment further includes all inspections, reports and record retention as required by both the Mississippi Department of Environmental Quality (MDEQ) and the Professional.

2. Unit of measure: lump sum

7.03 **UNIT PRICE**

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the PROPOSAL FORM and described below. All costs for items of work, which are not specifically mentioned to be included in a particular unit price payment item, shall be included in the listed item cost most closely associated with the work involved. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated quality control, tests and reports, and for performing all work required for each of the price items.

7.04 **UNIT PRICE ITEMS**

A. “Removal of Existing Trees All Sizes and Species, Complete”

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1. Payment will be made for all costs associated with the complete removal and disposal of existing trees (all sizes and species) as specified in the Contract Documents.
 2. Unit of measure: acre.
- B. "Clearing and Grubbing, Complete"
1. Payment will be made for all costs associated with the clearing and grubbing of the project site as specified in the Contract Documents.
 2. Unit of measure: acre.
- C. "Turving, Complete"
1. Payment will be made for all costs associated with the establishment of turf. Payment shall include all testing, fertilizer, seed planting, mulching and all incidentals thereto as specified in the Contract Documents. Measurement for turf will be taken on the slope of the ground to compute the actual surface area.
 2. Unit of measure: acre.
- D. "Installation of Fencing, Complete"
1. Payment will be made for all costs associated with the repairs or new installations of security fencing as shown and/or specified in the Contract Documents. Payment for all work and materials shall include, but not be limited to, framing bars, barbed wire, razor wire, wire fabric, tie rods, tie wire, stretching bars, fittings, gate post, footings, materials, equipment, labor, and all costs incidental thereto.
 2. Unit of measure: linear foot.
- E. "Installation of 4" Gravity Sewer, All Depths, Complete"
1. Payment will be made for all costs associated with constructing the 4" gravity sewer line system, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 4" gravity sewer line system in accordance with the Contract Documents.
 2. Unit of measure: linear foot.
- F. "Installation of 6" Gravity Sewer, All Depths, Complete"

Division One

1. Payment will be made for all costs associated with constructing the 6” gravity sewer line system, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 6” gravity sewer line system in accordance with the Contract Documents.
 2. Unit of measure: linear foot.
- G. “Installation of 10” Gravity Sewer, All Depths, Complete”
1. Payment will be made for all costs associated with constructing the 10” gravity sewer line system, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 10” gravity sewer line system in accordance with the Contract Documents.
 2. Unit of measure: linear foot.
- H. “Installation of 12” Gravity Sewer, All Depths, Complete”
1. Payment will be made for all costs associated with constructing the 12” gravity sewer line system, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 12” gravity sewer line system in accordance with the Contract Documents.
 2. Unit of measure: linear foot.
- I. “Installation of 14” Gravity Sewer, All Depths, Complete”
1. Payment will be made for all costs associated with constructing the 14” gravity sewer line system, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 14” gravity sewer line system in accordance with the Contract Documents.

2. Unit of measure: linear foot.
- J. "Installation of 15" Gravity Sewer, All Depths, Complete"
1. Payment will be made for all costs associated with constructing the 15" gravity sewer line system, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 15" gravity sewer line system in accordance with the Contract Documents.
 2. Unit of measure: linear foot.
- K. "Installation of 18" Gravity Sewer, All Depths, Complete"
1. Payment will be made for all costs associated with constructing the 18" gravity sewer line system, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 18" gravity sewer line system in accordance with the Contract Documents.
 2. Unit of measure: linear foot.
- L. "Installation of 3" Sanitary Sewer Force Main, All Depths, Complete"
1. Payment will be made for all costs associated with constructing the 3" sanitary sewer force main, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 3" sanitary sewer force main in accordance with the Contract Documents.
 2. Unit of measure: linear foot.
- M. "Installation of 4" Sanitary Sewer Force Main, All Depths, Complete"
1. Payment will be made for all costs associated with constructing the 4" sanitary sewer force main, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base

preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 4” sanitary sewer force main in accordance with the Contract Documents.

2. Unit of measure: linear foot.

N. “Installation of 8” Sanitary Sewer Force Main, All Depths, Complete”

1. Payment will be made for all costs associated with constructing the 8” sanitary sewer force main, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 8” sanitary sewer force main in accordance with the Contract Documents.

2. Unit of measure: linear foot.

O. “Installation of 10” Sanitary Sewer Force Main, All Depths, Complete”

1. Payment will be made for all costs associated with constructing the 10” sanitary sewer force main, including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, manhole penetrations, outfalls, cleanouts, joint restraints, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 10” sanitary sewer force main in accordance with the Contract Documents.

2. Unit of measure: linear foot.

P. “Installation of Water Line Piping, All Depths, Complete”

1. Payment will be made for all costs associated with constructing the water line piping (all sizes and installation depths), including but not limited to, temporary pumps, fuel, temporary piping, piping supports, fittings, connections, joint restraints, splash blocks, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, fill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the required water lines in accordance with the Contract Documents.

2. Unit of measure: linear foot.

Q. "Installation of Water Faucets, Complete"

1. Payment will be made for all costs associated with labor, materials, and equipment required for furnishing and installing the water faucets, and all associated items thereof to complete the work in accordance with the Contract Documents. Payment shall also include, but not be limited to, labor, utility locates, verification of existing and required pipe alignment, connections, fittings, piping, valves, unions, excavating, trenching, shoring, dewatering, base/sub-base preparation, process water by-passing, temporary pumps, fuel, backfill, fill, bedding material, turf establishment and any associated quality control testing, and all work incidental thereto.
2. Unit of measure: each.

R. "Installation of Sanitary Sewer Manhole, All Depths, Complete"

1. Payment will be made for all costs associated with constructing the sanitary sewer manhole (all depths), including but not limited to, temporary pumps, fuel, temporary piping, piping, wall pipes, waterstops, fittings, connections, concrete, covers, frame, reinforcement, joint restraint, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, pipe alignment, demolition, backfill, fill, bedding material, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the sanitary sewer manhole in accordance with the Contract Documents.
2. Unit of measure: each.

S. "Installation of 6" Gravel Surface, Complete"

1. Payment will be made for all fuel, labor, materials, testing, reporting, submittals and equipment cost associated with the installation of the 6" Gravel Surface as specified in the Contract Documents.
2. Unit of measure: square yard.

T. "Asphalt Pavement, Complete"

1. Payment will be made for all costs associated with the construction of the required asphalt pavement. Payment shall include, but not be limited to all labor, materials, equipment, submittals, testing and reporting needed to construct the required asphalt pavement as specified in the Contract Documents.
2. Unit of measure: square yard.

U. "Installation of 4" Concrete Pavement, Complete"

1. Payment will be made for all costs associated with the construction of the required 4" concrete pavement. Payment shall include, but not be limited to all labor, materials, equipment, submittals, testing and reporting needed to construct the required 4" concrete pavement as specified in the Contract Documents.
2. Unit of measure: square yard.

V. "Installation of 8" Concrete Pavement, Complete"

1. Payment will be made for all costs associated with the construction of the required 8" concrete pavement. Payment shall include, but not be limited to all labor, materials, equipment, submittals, testing and reporting needed to construct the required 8" concrete pavement as specified in the Contract Documents.
2. Unit of measure: square yard.

W. "8-Inch Storm Sewer Line, Complete"

1. Payment will be made for all costs associated with constructing the 8-inch storm sewer piping, including but not limited to, temporary pumps, fuel, temporary piping, piping, fittings, connections, outfalls, cleanouts, joint restraints, waterstops, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 8-inch storm sewer in accordance with the Contract Documents.
2. Unit of measure: linear foot.

X. "12-Inch Storm Sewer Line, Complete"

1. Payment will be made for all costs associated with constructing the 12-inch storm sewer piping, including but not limited to, temporary pumps, fuel, temporary piping, piping, fittings, connections, outfalls, cleanouts, joint restraints, waterstops, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 12-inch storm sewer in accordance with the Contract Documents.
2. Unit of measure: linear foot.

Y. “18-Inch Storm Sewer Line, Complete

1. Payment will be made for all costs associated with constructing the 18-inch storm sewer piping, including but not limited to, temporary pumps, fuel, temporary piping, piping, fittings, connections, outfalls, cleanouts, joint restraints, waterstops, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the 18-inch storm sewer in accordance with the Contract Documents.
2. Unit of measure: linear foot.

Z. “Surface Inlet, 24” x 24” Lockable Cast Iron Grate, Complete”

1. Payment will be made for all costs associated with constructing the surface inlet 24"x24" lockable cast iron grate, including but not limited to, temporary pumps, fuel, temporary piping, piping, fittings, connections, concrete, grating, frame, reinforcement, joint restraint, waterstops, labor, equipment, traffic control, excavation, trench safety, shoring, dewatering, base/sub-base preparation, demolition, backfill, utility locates, testing, restoration of the site, and all work incidental thereto necessary to construct the surface inlet 24"x24" lockable cast iron grate in accordance with the Contract Documents.
2. Unit of measure: each.

AA. “Alternate #2 – Sludge Removal & Disposal, Complete”

1. Measurement for sludge removal and disposal shall be with the appropriate means and methods for accurate measurements for payment on basis of actual “dry” tons of sludge loaded, weighed, transported, unloaded and landfilled. There are no certified scales at the Waste Water Treatment Plant (WWTP) or in the immediate vicinity of the project site. The Contractor shall weigh each truck/load at a certified scale or install a certified portable scale on site. The Contractor shall provide proof of certification for either option. Contractor shall be responsible for coordinating the location of the portable scale, procurement, installation and removal of portable scale, obtaining the required certification, and all rental and maintenance costs associated with the scale. All vehicles used for hauling, are to be inspected, measured and assigned a three digit number. After accurate measurement, the Owner’s representative will certify a decal or marking affixed on the equipment which shall identify the number assigned to the equipment, the date of measurement and the capacity of the unit equipment. Each individual truck or transport vehicle to be used in “over-the-road” hauling of sludge shall be weighed upon

each mobilization at approved certified scales both empty and full so as to determine the net weight of load being transported to the landfill. Singular measure samples from loads being transported will be combined and thoroughly mixed so as to obtain a representative composite sample on a daily basis. Said composite sample will then be tested for its percent of solid contents. This percentage will be applied to the total of all transported loads for that day. At the end of each day the Contractor shall provide the Owner's representative with truck weight tickets and a copy of the waste manifest for all loads hauled to the landfill. Payment will be made for all costs, materials, equipment, labor, quality control services, sampling, testing and analysis, reports, fees and all costs incidental thereto associated with decanting, treatment and dewatering, loading, weighing, transporting, unloading and landfill disposal of lagoon sludge/residuals (and other associated undesirable materials thereof) from the WWTP.

2. Unit of measure: dry ton.

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PART 3 EXECUTION

- 3.1 QUALITY CONTROL

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DIVISION 02 – EXISTING CONDITIONS

SECTION 02 0513

GENERAL

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

These Specifications provide for furnishing all equipment, labor and materials and constructing the GS# 323-024 ARPA Infr. – Waste Cent. Treatment, South Mississippi Correctional Institution, Leakesville, Mississippi, and all related work. These Specifications require steady and uninterrupted progress during construction. CONTRACTOR shall diligently prosecute the work and provide the necessary equipment, skilled and experienced crew, and a regular and well-balanced supply of materials to ensure uniform and continuous progress.

All work herein described shall be performed in a skillful and workmanlike manner by the CONTRACTOR and/or the CONTRACTOR's approved Subcontractors. The CONTRACTOR and/or CONTRACTOR's approved Subcontractors, shall bear all responsibility for the work and shall willingly submit to inspection and review of the work at all times by representatives of PROFESSIONAL and OWNER.

CONTRACTOR shall be responsible for all construction surveys, staking and layout. PROFESSIONAL shall furnish CONTRACTOR basic reference lines, grades and benchmarks from which CONTRACTOR shall lay out the work.

1.2 PAYMENT

Payment for all work performed under this contract shall be made at the price as shown on the Bid Proposal. These proposal prices and payment shall constitute full compensation for furnishing all equipment, materials, and labor, for constructing the work as shown on the drawings and as specified herein, and for performing all work incidental thereto.

1.3 REFERENCES

Referenced publications are listed throughout the CONTRACT DOCUMENTS that outline methods and test procedures which are to be implemented and/or followed during the construction of the project. CONTRACTOR shall provide and maintain a copy of these reference standards on site for the duration of the project.

1.4 CONSTRUCTION SITE ACCESS

All CONTRACTOR employees, sub-contractor employees, and delivery drivers must complete the Mississippi Department of Corrections (MDOC) Vendor – Release of Information form attached at the end of this section for a National Crime Information Center (NCIC) background investigation and shall be approved by MDOC prior to accessing the project site.

1.5 LOCATION OF EXISTING UTILITIES

Prior to beginning any work, the CONTRACTOR shall determine the type along with location of all existing utilities within the limits of each work location. The following information shall be obtained for all utilities within ten (10) horizontal feet of required below grade piping and structures:

- a. Horizontal location within 0.1 feet;
- b. Elevation within 0.1 feet;
- c. Diameter; and
- d. Material Type.

CONTRACTOR shall prepare a sketch indicating the locations of existing utilities. This information shall be provided to the PROFESSIONAL in both pdf and text file format.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 QUALITY CONTROL

CONTRACTOR shall establish and maintain a quality control system that is managed by the Resident Superintendent and assure that all work performed complies with the contract requirements. The Resident Superintendent shall perform the following quality control duties:

- 3.1.1 Maintain a list that shows the status of all submittals. Layout the required work.
- 3.1.2 Review the appropriate submittals, contract requirements, materials, and equipment immediately before a new phase of work begins and instruct employees about the requirements of the new phase of work.
- 3.1.3 Schedule meetings between PROFESSIONAL and CONTRACTOR's employees and CONTRACTOR's approved Subcontractors' employees for PROFESSIONAL to review the contract requirements prior to beginning a new phase of work.
- 3.1.4 Review work performed each day and determine if it has been constructed as required.
- 3.1.5 Assure that the required testing is performed by a laboratory that is approved by PROFESSIONAL.
- 3.1.6 The CONTRACTOR shall be responsible for preparing a report each day (even if no work is performed) that includes project title, CONTRACTOR's name, date, weather, suitability for work, major pieces of equipment on site, work performed by the CONTRACTOR, Subcontractors names and work performed by each Subcontractor, results of reviewing work performed, results of all tests performed and any appropriate remarks. Each report shall be signed and dated by the Resident Superintendent and contain the following statement:

“On behalf of the Contractor, I certify that this report is complete and correct and that all materials and equipment used and work performed this day are in compliance with the contract requirements to the best of my knowledge, except as noted above.”

A copy of each daily report shall be submitted to PROFESSIONAL within 48 hours of the date the report covers.

- End of Section -



**MISSISSIPPI DEPARTMENT OF CORRECTIONS
Vendor - Release of Information**

To Whom It May Concern:

The Mississippi Department of Corrections will conduct a background investigation to verify information that you have provided in conjunction with your planned visit to our facilities. In order to conduct the investigation, the following information is required.

Social Security #: _____ Date of Birth: _____ Race: _____ Sex: _____

Driver's License Number: _____ State Issued: _____

Current Address: _____
Street Apt #

City State Zip Code

Have you ever been arrested and or convicted of a crime? Yes _____ No _____ If yes: Date: _____

Charge: _____ City: _____ State: _____

Have you ever been associated with a street gang? _____ Yes _____ No

Do you have any tattoos on your body? _____ Yes _____ No If you answered yes, what does it symbolize? _____

In order that the investigation can be completed, I hereby authorize the Mississippi Department of Corrections and any of its authorized employees to receive and collect information from any law enforcement agency and or judicial entity. I also give MDOC permission to run a NCIC with the information that I provided above for a security clearance.

Name (Print) Signature Date

.....
NCIC Completed: _____ By: _____
Date Signature of MDOC Staff

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SECTION 02 1051

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

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DIVISION 02 – SITE WORK

SECTION 02 1051

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

These specifications provide for furnishing reports, all equipment, labor and materials and constructing the Storm Water Pollution Prevention Plan (SWPPP) and all related work. These specifications require steady and uninterrupted progress during construction. The CONTRACTOR shall diligently prosecute the work and provide the necessary equipment, skilled and experienced crew, and a regular and well-balanced supply of materials to ensure uniform and continuous progress.

All work herein described shall be performed in a skillful and workmanlike manner by the CONTRACTOR, or CONTRACTOR'S approved Subcontractors, who shall bear all responsibility for the work and who shall willingly submit to inspection and review of the work at all times by representatives of the PROFESSIONAL and the OWNER.

The CONTRACTOR shall be responsible for all construction surveys, staking and layout. The PROFESSIONAL shall furnish the CONTRACTOR basic reference lines, grades, and benchmarks from which the CONTRACTOR shall lay out the work.

1.2 REFERENCES

Referenced publications are listed throughout the contract documents that outline methods and test procedures which are to be implemented and/or followed during the construction of the project. The CONTRACTOR shall provide and maintain a copy of these reference standards on site for the duration of the project.

1.3 STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

A Small Construction Storm Water Pollution Prevention Plan (SWPPP) shall be prepared by the CONTRACTOR and submitted to the OWNER and PROFESSIONAL for review. A copy of the Small Construction SWPPP shall be kept on the project site by the CONTRACTOR. The CONTRACTOR shall perform all of the requirements of the State of Mississippi, Mississippi Department of Environmental Quality (MDEQ) Office of Pollution Control

(OPC) Small Construction General Permit for Land Disturbing Activities from One (1) Acre to less than Five (5) Acres.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 SWPPP DEVELOPMENT

The CONTRACTOR shall develop, prepare, construct, monitor, and maintain a Small Construction Storm Water Pollution Prevention Plan (SWPPP) and submit the plan to the OWNER and PROFESSIONAL for review. The SWPPP shall be developed in accordance with the MDEQ SWPPP Guidance Manual for Construction Activities which can be found at the following web address:

<http://www.mdeq.ms.gov/wp-content/uploads/2017/06/ConstructionGM.pdf>

The CONTRACTOR shall not begin any work on the site until the OWNER has approved the SWPPP. Prior to beginning work, the CONTRACTOR shall submit all required notices to MDEQ. The CONTRACTOR shall be responsible for installation and monitoring of erosion control measures, performing all required inspections and documenting the results.

3.2 QUALITY RECORDS

The CONTRACTOR shall complete and maintain all records required by MDEQ. A copy of all records shall be provided to the OWNER and PROFESSIONAL upon completion of the project or upon request.

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DIVISION 02 – EXISTING CONDITIONS

SECTION 02 4100

DEMOLITION

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Demolition

Demolition is the complete removal of existing features as required to provide for the specified construction. CONTRACTOR shall patch, trim-out, refinish, or otherwise prepare and restore to its original condition existing work partially demolished which is to remain, receive new finish, connect to, or be a part of existing or new work.

1.1.2 Salvage

CONTRACTOR shall remove the items designated on the drawings. Unless otherwise shown on the drawings, all materials and/or items removed under this Contract shall become the property of CONTRACTOR and shall be promptly removed from the site.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 SCHEDULE

CONTRACTOR shall notify PROFESSIONAL at least seven (7) calendar days prior to commencing work on each major demolition segment or item, schedule all work to avoid damage, nuisance, and harm to persons or property, and shall not interfere with OWNER's daily operations.

3.2 UTILITIES

CONTRACTOR shall protect all utilities to remain and shall disconnect all utilities to be removed before commencing any other work under this Section. CONTRACTOR shall coordinate protection and disconnection of utilities with the Facilities Manager of the University of Mississippi and/or the utility owner. Special care shall be exercised in disconnecting any utilities which might cause damage or harm to persons or property.

3.3 EXISTING ITEMS NOT TO BE DEMOLISHED

CONTRACTOR shall execute all demolition work in an orderly and careful manner with due consideration for existing items not to be demolished, including parts of surrounding areas to remain. CONTRACTOR shall repair or replace damaged items as approved by PROFESSIONAL at no additional cost to OWNER.

3.4 ITEMS TO BE DEMOLISHED

3.4.1 Fencing

Demolition of the fencing includes removal and proper disposal of the fence fabric, fasteners, posts, gates, wire and all associated appurtenances as required for the required construction as shown on the drawings.

3.4.2 Utilities

Demolition of utilities includes the removal and proper disposal of all items associated with utilities, including but not limited to, piping, fittings, inlets, valves, manholes, concrete structures, bollards, appurtenances and all items incidental thereto as required for the work described in CONTRACT DOCUMENTS.

3.4.3 Pavement

Demolition of pavement includes the full depth removal and proper disposal of all concrete paving, asphalt paving, and gravel pavement as required for the required construction as shown on the drawings.

3.4.4 Lagoon Liner

Demolition of the lagoon liner includes the removal and proper disposal of all lagoon liner materials, anchors, connections and all associated appurtenances as required for the required construction as shown on the drawings.

3.4.5 Soil

Demolition of soil includes the removal of soil as required for the required construction as shown on the drawings.

3.4.6 Backfill

Where items are removed from below the elevation of the existing ground surface, the resulting voids shall be backfilled to the elevation of the adjacent existing ground in accordance with Section 31 2323.11 BACKFILL AND FILL.

3.4.7 Appurtenances

Demolition of appurtenances includes the removal and proper disposal of sidewalks, fences, signs, brick columns, shrubs and any other obstruction required to complete the project as shown on the drawings or encountered in the field. All perimeter fencing and security systems shall be reinstalled at the end of each work day in accordance with South Mississippi Correctional Institution's requirements.

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DIVISION 02 – SITE WORK

SECTION 02 6550

SPECIAL WASTE/BIOSOLID REMOVAL AND DISPOSAL OPERATIONS

PART 1 GENERAL

1.1 DEFINITIONS

1. Special Waste – Shall be any unprocessed sludge residuals in the upper six (6) inches to one (1) foot of the lagoon(s) sludge bed, and/or the upper portion of the sludge bed consisting of any pertinent plant growth (grass, shrubs, and/or brush), grubbing, and other undesirable materials that must be landfilled at a certified landfill facility permitted to receive the special waste materials.
2. Biosolids – Shall be all sludge bed materials below the designated upper six (6) inch to lower one (1) foot special waste layer, and/or all processed sludge materials capable of being land applied at a land application site. Biosolids to be received at a certified land application site shall be processed sludge that has been dewatered, screened (through ½” screen opening) of undesirable materials and grinded to pass a ¼” sieve (at shoreline processing station). Biosolids to be land applied will be paid for at the unit price “Biosolids Removal/Land Application Disposal, Complete”. Biosolids to be landfilled will be at the unit price for “Special Waste/Biosolids Removal Landfill Disposal, Complete”. Landfilled biosolids do not have to be processed through a shoreline processing station.

1.2 SCOPE OF WORK

All work shall comply with all existing Federal and State laws and regulations that apply to special waste and biosolid disposal practices, including, but not limited to, the 40 CFR Part 503 rules and regulations, the MDEQ National Pollutant Discharge Elimination System (NPDES) Permit (Permit No. MS0050750), the land application site permit, the Mississippi Nonhazardous Waste Management Regulations, and the CWA Section 405(d) technical standards.

1.2.1 Special Waste/Biosolids Removal Landfill Disposal, Complete

For all removal and offsite disposal of Special Waste/Biosolid materials, the Contractor shall landfill a portion and/or all the Special Waste and Biosolids removed from each lagoon system located at the South Mississippi Correctional Institution (SMCI), 22689 MS Highway 63 North, Leakesville,

MS. Disposal amounts and disposal requirements shall be dependent up the requirements of the Certified Landfill Facility being used by the Contractor at no additional cost to the Owner. Special Waste and Biosolids to be landfilled do not have to be processed through a shore line processing station. All Special Waste and Biosolids to be landfilled must pass the required Paint Filter Test (SE-846 Test Method 9095B: Paint Filter Liquids Test).

1.2.2 Special Waste Removal/Landfill Disposal, Complete

The Contractor shall provide all monitoring, sampling, testing, reporting, labor, materials, and equipment required to remove all Special Waste from the lagoon(s) located at SMCI Waste Water Treatment Plant (WWTP), 22669 Highway 63 North, Leakesville, Greene County, MS. The estimated total volume of residual Special Waste/Biosolids materials is approximately 200 dry tons in the eastern lagoon and approximately 300 dry tons in the western lagoon (an estimated 500 dry tons overall from both lagoons). The Contractor shall transport/dispose of the Special Waste at a certified landfill facility. All special waste materials must pass the Environmental Protection Agency's (EPA's) Paint Filter Test (SW-846 Test Method 90295B Paint filter Liquids Test; herein, referred to as "Paint Filter Test"). Disposal amounts and disposal requirements shall be dependent up the requirements of the Certified Landfill Facility being used by the Contractor at no additional cost to the Owner.

1.2.3 Biosolids Removal/Land Application Disposal, Complete

All land applied biosolids removed from the lagoon(s) shall be dewatered, screened (through ½" screen opening) of undesirable materials, and grinded to pass a ¼" sieve (at shoreline processing station) for any application of biosolids at a permitted land application site.

The Contractor shall responsible for all monitoring, sampling, testing, reporting, labor, materials, and equipment required to remove, dewater, process, transport and dispose of all remaining Biosolids from the lagoon(s) located at the SMCI Waste Water Treatment Plant (WWTP), 22669 Highway 63 North, Leakesville, Greene County, MS. The Contractor shall transport/dispose of the Biosolids to an approved land application facility permitted to receive Biosolids from the SMCI WWTP facility. Classification, sampling, testing, and analysis of the Biosolid materials at the SMCI WWTP shall be the responsibility of the Contractor at no additional cost to the Owner.

1.3 REFERENCES

The current edition of the publications listed below form a part of this specification to

the extent referenced. The publications are referred to in the text by basic designation only.

CODE OF FEDERAL REGULATIONS

40 CFR PART 253 Rule	State of Mississippi Non-hazardous Solid Waste Management Regulations
40 CFR PART 503 Rule	Standards for the Use or Disposal of Sewage Sludge; Current Edition.

ADMINISTRATIVE PROCEDURES ACT RULES (APAR)/MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ)

APAR TITLE 11, PART 3, Rule	Hazardous Waste Regulations
APAR TITLE 11, PART 4, Rule	Nonhazardous Solid Waste Management Regulations
APAR TITLE 11, PART 6, Rule	Wastewater Pollution Control Regulations
MDEQ NPDES Permit No. MS0050750	WWTP National Pollutant Discharge Elimination System Permit

1.4 REQUIREMENTS OF REGULATORY AGENCIES

The Contractor shall comply with all applicable requirements of the Mississippi Department of Environmental Quality (MDEQ), Division of Solid Waste, U.S. Environmental Protection Agency (EPA), and/or other agencies or authorities having jurisdiction over the hauling and disposal requirements of special waste and biosolid materials. The Contractor shall apply for, pay for, and obtain necessary and/or required permits for all operations to dispose of the Special Waste materials at an approved landfill facility and/or Biosolids at an approved land application site, each permitted to receive these materials.

1.5 PERTINENT INFORMATION

1.5.1 Project Site

1. Location: The SMCI WWTP lagoons are located at 22669 Highway 63 North, Leakesville, MS, in Section 32, Township 3 North, Range 6 West, Greene County, MS (Coordinates: Latitude 31.1745° North, Longitude -88.6096° West).
2. Ownership: The property is owned by the State of Mississippi.
3. Size: The eastern lagoon is approximately nine-tenths (0.90) of an acre and the western lagoon is approximately seven-tenths (0.70) of an acre.
4. Lagoon Depth: The average depth of the eastern lagoon is

approximately thirteen (13) feet deep with an average sludge depth of approximately two (2) feet deep across the lagoon and the average depth of the western lagoon is approximately fifteen (15) feet deep with an average sludge depth of approximately four and a quarter (4.25) feet deep across the lagoon.

5. Site Access: A construction access to the SMCI WWTP is located on the north right of way of Old Highway 24 approximately 4,425.0 feet west of the intersection of Highway 63 and Old Highway 24.

1.5.2 Truck Hauling Route

The Contractor shall submit truck hauling routes from SMCI WWTP to each disposal site, for the Professional's approval. Trucks transporting special waste/biosolid materials from the SMCI WWTP facility shall not deviate from the approved routes while loaded.

1.5.3 Landfill Disposal Site

1. Landfill Name/Address/Submittals: The contractor shall submit the name, address and landfill submittal documents to Owner and Professional for approval.
2. Landfill Hours of Operation: The Contractor shall coordinate all disposal operations with the certified landfill facilities hours of operation at no additional cost to the Owner.
3. Access: The Contractor's drivers shall coordinate with the landfill personnel as to where to dump loads.
4. Landfill Disposal Cost: Contractor shall be responsible for special waste/biosolid removal and landfill disposal. Special Waste/biosolid materials transported off the SMCI WWTP property, shall become sole ownership of the Contractor.
5. Hauling Requirements: The Contractor must have a certified Commercial Driver's License (CDL) that meets local, state, and federal standards/requirements and state/federal endorsements for hauling hazardous and non-hazardous waste materials.
6. Material Profile and Analytical Testing: The Contractor shall be responsible for all profiling and analytical testing. The Contractor shall ensure that Special Waste materials are tested, profiled, and approved by the approved Landfill Facility prior to hauling and delivery operations. A Material Profile and Analytical testing shall be required as specified by the approved landfill facility at no additional cost to the Owner. A waste manifest shall be delivered with each load of Special Waste materials disposed of at the approved landfill facility.
7. Landfill Submittal Forms: An electronic copy of the Contractors submittals for landfill's Special Waste Application, MDEQ Industrial

Waste Profile (Explanation of Incomplete TCLP Analysis/Waste Assessment), and Non-Hazardous Waste Manifest shall be provided to the Owner and Engineer. Copies of these forms shall be submitted and approved by the Engineer prior to disposal operations.

8. Analytical Test Required: Analysis of Special Waste materials shall be representative. The required landfill analysis shall include, but not be limited to, TCLP Metals (RCRA 8 Heavy Metals), TCLP VOC's, TCLP SVOC's, Flash Test, pH Test and Paint Filter Test. Contractor shall be responsible for submitting all required lab analysis to the approved landfill facility along with any material profile documentation at no additional cost to the Owner. Two (2) paint filter test will be required for each load; each load must pass a paint filter test prior to leaving the WWTP and pass a paint filter test prior to disposal at the approved landfill facility.

1.5.4 Land Application Disposal Site

The Contractor shall have the option to utilize permitted land application site(s) for disposal or lease an existing permitted land application facility, permitted to receive Biosolids from the SMCI WWTP, under the requirements for that facilities' particular land application permit and/or the leaser's requirements.

The Contractor may dispose of Biosolids at any approved certified land application facility permitted to receive Biosolids from the SMCI WWTP. All labor, equipment, and material cost, including but not limited to, permitting a land application site, dewatering, loading, the processing/conditioning of the Biosolids, transporting, disposal, sludge and soil testing, sampling and analysis; lime application, field application of Biosolids, field buffer layouts, planning around weather and seasonal restrictions, planning around crop schedules, complying with Local, State, and Federal authorities, monitoring, reporting, and all other permitting cost/land application activities; shall be the Contractor's responsibility for incorporating all cost to complete the desired outcome of the Contract Documents. All cost shall be incorporated into the CONTRACTOR's BASE BID under this contract with no additional cost to the OWNER.

1. Biosolid Disposal Requirements: The Contractor shall be responsible for the removal, transport, disposal, sampling, testing/analysis, and reporting of Biosolid removal and disposal of biosolid materials. The Contractor shall dewater all biosolids to a minimum 18% total solids, screened (through 1/2" screen opening) of undesirable materials and grinded to pass a 1/4" sieve at the Contractors shoreline processing station prior to loading, transporting, and disposal at the Land Application site. The Contractor shall ensure that all Biosolids pass a

- Mesh No. 60 ($\pm 5\%$) paint filter (Paint Filter Test Method 9095B) on Biosolids not less than 40 °F. The Contractor shall be responsible for all sludge sampling, testing and analysis for Biosolid Land Application disposal operations. The Biosolids sampling and frequency of sampling shall be incorporated into the base bid item for Biosolids disposal.
2. The Contractor shall be responsible for all sampling, testing and analysis of soil, annual reporting, and all other local, state and federal requirements.
 3. Submittals: The site name, location, site access, application acreage, application rate, application period, shall be submitted to Owner and Professional at the pre-construction meeting. During construction, copies of weight tickets and associated sludge %TS analysis must be provided to Owner and Professional within 24 hours of the date of application.

1.6 PERMITS, LICENSES, AND REGULATIONS

1.6.1 General

All work and cost associated with providing and/or obtaining the necessary permits from the local, State and Federal jurisdictions, for the lagoon Special Waste/Biosolids removal, landfill/land application disposal, and protecting the environment during and after the operation, shall be the responsibility of the Contractor. The Contractor shall maintain all regulatory permits, license applications, and renewals throughout the course of the project.

1.6.2 Regulatory Requirements

1. The Contractor shall comply with all existing Federal and State laws and regulations that apply to the disposal practices of Special Waste/Biosolid materials, including, but not limited to, the 40 CFR Part 503 rules and regulations, the MDEQ National Pollutant Discharge Elimination System (NPDES) Permit (Permit No. MS0050750), the associated MDEQ Biosolids Land Application Permit, the Mississippi Nonhazardous Waste Management Regulations, and with the CWA Section 405(d) technical standards, where applicable.
2. The Contractor shall schedule, perform, operate and/or maintain all equipment, Special Waste handling and disposal operations, sampling and analysis, monitoring, and reporting to achieve compliance to local, State and Federal requirements. Contractor shall submit copies of all required and/or record documents to Owner, Professional and any Local, State and Federal regulatory agencies within both reasonable and required time frames.

3. The Contractor shall furnish unto the Owner and Professional, within reasonable time, any relevant information requested by any Local, State and Federal regulatory agencies to determine compliance with this project at no additional expense to the Owner.

1.7 GROUNDWATER AND SURFACE DRAINAGE

The Contractor shall anticipate an influx of water into the lagoon. All water shall be transferred to the adjacent sludge lagoons in accordance with the order of work and as specified in the contract documents. No separate payment will be made for the handling, disposing, or pumping of water.

1.8 SPILL RESPONSE

The Contractor shall develop and have approved by the Professional, an emergency spill control plan. The Contractor will follow the plan while conducting operations. The plan shall provide for the prompt cleanup of spills in compliance with all applicable requirements under the permit and state and federal regulations. The plan shall remain available at the SMCI WWTP site as well as in all vehicles transporting special waste/biosolid materials. All spills shall be reported to the Owner, Professional, and using agency immediately, if on the using agency's property, or within 12 hours, if not on the using agency's property. The Contractor shall be responsible for all additional reporting of such spills, as required by the permit and/or all local, state, and federal regulations. The Contractor shall have equipment readily available to clean major and minor spills immediately in the event one occurs and shall be solely responsible for all costs associated with the cleanup with no additional cost to the Owner.

1.9 DIGITAL VIDEO RECORDING

1.9.1 General

All digital video shall be DVD format and in color. DVDs shall be indexed and catalogued in such a manner that each recorded area is readily identifiable, and shall also indicate the date and time on which the recording was made. Owner and Professional shall be supplied copies of all DVDs prior to and after construction. All DVD copyrights shall become the property of the Owner.

1.9.2 Project Site

Prior to commencing work, the Contractor shall have a digital video taken of all areas where operations are to take place. The video shall be provided to the Professional prior to commencing work. The video shall serve as a record of the existing conditions for disputes arising from restoration, and should

therefore be taken along the line of construction and site access and staging areas at sufficient detail as necessary to clearly depict details of existing conditions. The Contractor shall also have digital video taken of any unusual conditions encountered during construction that are not already a matter of video or photographic record. In any areas where existing conditions cannot be determined by means of video, the area shall be restored as approved by the Professional at no cost to the Owner. No separate payment shall be made for work defined in this section and all costs in connection therewith, shall be included in the unit price bid.

1.10 CONTRACTOR COORDINATION

The Contractor shall be made aware of other contracts within the work area. The Contractor shall cooperate with other contractors regarding staging, site access and any other needs as directed by the Professional. No separate payment shall be made for work defined in this section and all costs in connection therewith, shall be included in the unit price bid.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL

The Contractor shall remove, dewater, load, transport and landfill dispose of all materials not suitable for Biosolids Land Application, as a Special Waste. The contractor may remove, dewater, screen, grind, load, transport and dispose of all other applicable Biosolid materials to a permitted biosolids land application site. Processed material screening and grinding operations will not be required for material going to a permitted and approved landfill facility. It is the Contractor's sole responsibility to ensure that all work is performed in accordance with the contract documents and drawings and all local, state and federal laws and regulations.

The Contractor shall be responsible for all methods used for the removal of the Special Waste/Biosolid materials from the Lagoon; however, any method employed must be approved by the Professional. The Contractor's selection of equipment and methods used to remove the Special Waste/Biosolids shall take into consideration the removal of the existing waste in the lagoon, the size of the available work areas, existing WWTP operations, and any other factors that may affect the work under this project.

3.2 PRE-CONSTRUCTION ACTIVITIES

3.2.1 Sludge Sampling and Testing

3.2.1.1 General

The Contractor shall be responsible for sampling and analyzing the Special Waste. The Contractor's sampling and preservation methods shall conform to the methods of the approved laboratory and as outlined in the sources of guidance for EPA's POTW Sludge Sampling and Analysis Guidance Document, the EPA Sewage Sludge Sampling Video, and Environmental Regulations and Technology: Control of Pathogens and Vector Attraction in Sewage Sludge. The Contractor shall provide a sampling and testing schedule to the project Engineer prior to sampling and testing operations. All sampling/testing field notes and analysis shall be submitted to the Professional and shall be retained by the Contractor and kept on file for one (1) year after the contract close out or as required by local, state, and federal authorities.

3.2.1.2 Special Waste Sampling, Testing and Analysis

Analysis of sludge or other Special Waste materials shall be representative. The required landfill analysis shall include, but may not be limited to, TCLP Metals (RCRA 8 Heavy Metals), TCLP VOC's, TCLP SVOC's, Flash Test, pH Test and Paint Filter Test. Lab Analysis shall be submitted to the landfill for approval along with the material profile documentation. Two (2) paint filter test will be required for each load of sludge materials disposed of at the landfill. Each load must pass a paint filter test prior to leaving the WWTP. Each load must pass a paint filter test prior to disposal at approved landfill facility. The Contractor shall ensure that Special Waste materials are tested, profiled, and approved by the approved landfill facility prior to hauling and delivery operations. The frequency of the landfills Material Profile and Analytical testing shall be as required by the approved landfill facility at no additional cost to the Owner.

3.2.1.3 Biosolids Sampling, Testing, and Analysis

All biosolids applied to land must meet the state, and federal ceiling concentrations for pollutants listed in the EPA 40 CFR Part 503 Rules, and the MDEQ Biosolids Land Application Permit for the application site. The Contractor shall sample and obtain analysis from a Certified Laboratory, approved by the Professional. The pollutants/parameters to be sampled for, shall include, but not be limited to, arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium and zinc (10 Heavy Metal Pollutants), Polychlorinated Biphenyls (PCB), Total Kjeldahl

Nitrogen (TKN), Ammonia Nitrogen (NH₃-N), Nitrate Nitrogen, Nitrite Nitrogen, Phosphorus, Potassium, Percent Total Solids (% TS), Percent Volatile Solids (% VS), pH, and Fecal Coliform (7 samples/sludge locations in lagoon to ensure the calculated geometric mean is below 2,000,000 cfu or mpn).

Frequency of sampling and analysis shall be the responsibility of the Contractor based on the number of dry tons of Biosolids disposed of at the land application site. The frequency of the sampling and analysis shall be in accordance with all state and federal authorities' latest regulations and requirements. The table below outlines the typical frequency for monitoring based on the amount of biosolids being land applied.

TABLE 1 – Frequency of Monitoring for Surface Disposal of Biosolids

Amounts of Biosolids* (metric tons per 365-day period)	Frequency
Greater than zero but less than 290	Once per year
Equal to or greater than 290 but less than 1,500	Once per quarter (4 times/Yr.)
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (6 times/Yr.)
Equal to or greater than 15,000	Once per month (12 times/Yr.)

*1 Metric Ton = 1.1 US Ton

3.2.2 Mississippi One-Call Notification

All underground utilities must be identified and clearly marked prior to any excavation at the site. The Contractor must call Mississippi One Call System, Inc. at least 48 hours prior to any construction activities are to occur at the site. A copy of the locate request form must be submitted to the Professional prior to excavation.

3.3 SLUDGE REMOVAL OPERATIONS

All sludge residuals and undesirables inside the lagoons shall be removed by the Contractor. This work includes furnishing all labor, materials, equipment, tools and performing all operations in connection with pumping standing/decant water from the Eastern Lagoon over to an adjacent lagoon and disposing of the sludge and undesirable material at the designated disposal sites (or vice versa). The Contractor is responsible for all methods used for the removal of the sludge and undesirable materials; however, any method employed shall be approved by the Professional. The Contractor's selection of equipment and methods used to remove the sludge and

undesirable materials shall take into consideration the work required and any other factors that may affect the work under this project.

3.3.1 Lagoon Decantation

The Contractor shall transfer decanted water to the adjacent lagoon. The volume of water removed shall be limited to the extent needed for completing all operations. The Contractor shall use the appropriate means and methods necessary to ensure that solids and/or special waste are not transferred to the adjacent lagoon during the decanting process. Under special circumstances, following written authorization by the Professional, the Contractor may add water to sludge material for purposes of pumping operations. The domestic water supply shall be protected by a Contractor provided and installed reduced pressure backflow preventer at no additional cost to the Owner.

3.3.2 Quantity of Special Waste

The Contractor shall be responsible for removing all special waste material from the western and/or eastern lagoons. Approximately 200 dry tons of special waste materials estimated to be inside the eastern lagoon approximately 300 dry tons of special waste materials are estimated to be inside the western lagoon.

3.3.3 Quantity of Biosolids

There is the possibility of zero (0) up to 500 dry tons of biosolids which can be processed and land applied.

3.3.4 Limits of Work

The Contractor shall confine his operations to the limits of the work areas as designated on the Contract Drawings and as designated by the Owner, Professional, and/or Using Agency. Any damage resulting from work outside the limits of work shall be restored by the Contractor and shall be subject to approval by the Professional. Upon completion of all work required under this Contract, the Contractor shall restore the areas used for his work to the original condition and to a condition acceptable to the Professional and Owner. Restoration shall include but is not limited to grading as required, furnishing and installing topsoil, and seeding/sodding. The Contractor shall remove Special Waste as required for clearing/grubbing, liner removal, and/or other requirements as outlined by the contract documents. Disposal methods thereafter, being either Special Waste Landfill Disposal or Biosolids Land Application Disposal, shall be based on the disposal requirement needs for completing the project and the preference of the Contractors methods for disposal, and the Contract Base Bid, Bid Item unit price. Any over

excavation caused by the Contractor's operations during sludge removal operations may result in fill replacement by Contractor at no additional cost to the Owner.

3.3.5 Equipment

Any combination of machines or equipment of the common practice that are in good, safe working condition and that will produce the required results may be used with approval of the Professional, except where certain types of equipment are specified in the project documents. Equipment necessary for the proper execution of the work shall be on the project and have been approved by the Professional prior to its use in the special waste/biosolid removal and dewatering operations. The machines and equipment shall be maintained in a satisfactory operation condition at all times during use. Equipment with leakage of water, oil, grease, or other objectionable materials shall be corrected promptly or removed from the worksite and replaced with satisfactory equipment.

Power for the equipment can be supplied through temporary electrical facilities and Contractor must make all necessary provisions to provide temporary power for all equipment at no additional contract cost to the Owner. Contractor shall provide and install all means for electrical power including, but not limited to, electrical cables, fuses, breakers, and all other electrical components necessary for operations.

The Using Agency may provide power free of charge and the Contractor must utilize a licensed electrical contractor to make and remove any and all connections to the existing power supply. Only electrical power connected downstream of the existing facilities electrical meter will be provided at no charge to the Contractor. All electrical installations shall be in compliance with the National Electric Code and all other applicable local, state, and federal codes. Connections to the existing power supply shall in no way interfere with the operation of the belt press building and associated equipment required for the Owner to dewater sludge.

The Contractor shall provide and install all temporary means for water to be used in the cleaning of equipment or other required operations. The Contractor shall be responsible for obtaining, providing, and installing the necessary pressure and flow for all hook ups, hoses, pumps, valves, back-flow-preventers and enclosures and other necessary means. The Using Agencies water supply shall be protected by a Contractor provided reduced pressure backflow preventer.

3.4 SLUDGE TREATMENT AND DEWATERING

3.4.1 Special Waste/Biosolid Landfill Materials

The Contractor shall dewater all Special Waste and/or Biosolids to ensure there are no free liquids evident and that it passes a Mesh No. 60 ($\pm 5\%$) paint filter (Paint Filter Test Method 9095B) on special waste material not less than 40 °F. If the special waste and/or biosolids do not meet/pass the Paint Filter Test criteria, the Contractor shall provide means to treat the special waste and/or biosolids to meet the criteria. The Contractor shall be responsible for all sludge sampling, testing and analysis for Special Waste and/or biosolids disposal operations. The Special Waste and/or Biosolids sampling, testing, analysis and frequency thereof, shall be incorporated into the bid item(s) for which the work is most closely associated along with all other necessary operations to complete the work and achieve the desired outcome.

3.4.2 Biosolid Land Applied Materials

The Contractor shall ensure all biosolids have been screened (through ½” screen opening) of undesirable materials and grinded to pass a ¼” sieve at the Contractors shoreline processing station prior to loading, transporting, and disposal at an approved Land Application site. The Contractor shall ensure that all Biosolids pass a Mesh No. 60 ($\pm 5\%$) paint filter (Paint Filter Test Method 9095B) on biosolids not less than 40 °F. The Contractor shall be responsible for all sludge sampling, testing and analysis for Biosolid Land Application disposal operations. The Biosolids sampling, testing, analysis and frequency thereof, shall be incorporated into the bid item for Biosolids disposal along with all other necessary operations to complete the work and achieve the desired outcome.

3.5 SLUDGE LOADING OPERATIONS

The Contractor shall furnish all watertight transport containers and/or vehicles for Special Waste/Biosolid materials. The loading operations will occur adjacent to the edge of the lagoons at the SMCI WWTP. The Contractor shall use the appropriate means and methods necessary for all loading operations.

3.5.1 Operation Hours

The Contractor shall not conduct operations required by this contract on Sundays or on State of Mississippi legal holidays without the written permission from the Using Agency. Decanting and loading operations shall be limited from 6 A.M. to 5 P.M.

3.5.2 Loading during Inclement Weather Conditions

No loading operations shall be performed during periods of heavy rainfall.

All trucks trailers must be equipped with tarping devices that fully cover the trailer so as to divert rainwater (snow, etc.) from entering the loaded trailer. Any load that remains onsite overnight un-tarped during periods of inclement weather shall be disposed at the approved landfill facility by the Contractor at no cost to the Owner, unless that load was pre-weighed immediately after loading with a Professional's or Owner's representative onsite during weigh-in (No Exceptions). Weights of trailers pre-weighed prior to any period of inclement weather and prior to going to the landfill shall be used to determine the disposal cost.

Empty trailers exposed to inclement weather prior to loading shall be drained or cleanout prior to loading Special Waste/Biosolid Materials. Special Waste/Biosolid materials loaded into trailers with standing water, snow, or other related materials shall be disposed at the approved landfill facility by the Contractor at no cost to the Owner (No Exceptions).

Any trailer loaded with "Special Waste" or "Biosolids" and containing waste material generated by the Contractor and/or materials not classified as a "Special Waste" or "Biosolids" removed from the lagoon under this section shall be disposed of at the approved landfill facility by the Contractor, at no cost to the Owner (No Exceptions).

3.6 HAULING AND ROUTES

The Contractor shall furnish all watertight transport containers and/or vehicles for transportation of special waste/biosolid materials and pay for all operation handling and hauling, disposal, maintenance, taxes, fees, tolls, and any other costs to remove and transport waste from the SMC I WWTP lagoon to an approved landfill facility and/or application site. The transport vehicles will be inspected, licensed and appropriately marked for the purpose of transporting both classifications of materials.

The transport trucks will deliver approved Special Waste/Biosolid materials to their designated disposal site. Special Waste materials will generally be delivered to the landfill site between the hours of operation at the approved landfill facility. Transport trucks delivering Biosolids to the land application site will be limited to the hours of the land application operations designated by the land application permit holder.

The Contractor shall use the appropriate means and methods for calculating accurate haul load weights and measurements (Refer to Section 01025 Measurement and Payment). All equipment shall comply with all vehicle licensing, registration, and weight restriction laws and requirements. The Contractor shall be responsible for unloading all waste out of the transport vehicles at the approved disposal site. A site representative from each disposal site will inspect the loads and instruct drivers upon arrival to each disposal site of the unloading operations and where to unload.

3.6.1 Hauling and Routing Requirements

1. The Contractor shall use only the approved truck routes to transport waste from the SMCI WWTP to the landfill or land application site. No transport vehicle shall travel on any local street or through any residential area and all transport vehicles shall remain on primary highways. The Contractor shall use the hauling routes which were submitted to/approved by, the Professional.
2. The Contractor shall be responsible for having a sufficient number of vehicles to assure availability and completion of the work within the project schedule.
3. All transport vehicles shall be operated within the weight limits established in the states and localities through which the transport vehicles must travel, and shall be equipped with adequate fire extinguishing equipment.
4. Storage time in a transportation vehicle shall not exceed State and Federal regulations. Transport vehicles shall be readily cleanable and shall be maintained in clean, sanitary condition to prevent odors, insects, rodents, or other nuisance conditions.
5. Methods employed by the Contractor to haul and dispose of Special Waste/Biosolid materials shall meet all permit requirements, local ordinances, and all local, state, and federal laws in effect at the time of this Contract.
6. All hauling and handling equipment and labor shall be provided by the Contractor. Hauling equipment shall not permit leakage, splash or blow out onto roads during the loading or transporting of materials. The Contractor shall use bed liners, covers/tarps, and all other equipment necessary to prevent spillage, leakage, blow-out or seepage during transporting operations. The Contractor shall be responsible for all costs for cleaning up any tracked, spilled, leaked, or splashed sludge materials, soils, and other contents on roads or other areas at or away from the site of Work.
7. The Contractor shall coordinate his hauling operations with the facilities' operations and with other Contractors/subcontractors performing work at the project site and disposal sites. Any loading and transporting operations by the Contractor shall be scheduled in order to avoid conflicts with disposal delivery operations, disposal site hours of operations, other active work operations encountered during this project.

The Owner will designate routes or roadways at the treatment facility for the Contractor's use. The hauling operation shall be limited to these designated routes or roadways.

8. The Contractor shall transport materials directly from the SMCI WWTP to the designated disposal site. Under no circumstances shall the Contractor be allowed to make any additional stops in transit to the disposal site to haul any payload other than the special waste or biosolid materials from the project site. All loads transported shall be pre-weighed with a certified onsite set of scales provided by the Contractor prior to weighing in at the approved landfill facility and delivery/disposal at the approved land application site.

3.6.2 Trucks and Identification

Special Waste/Biosolid materials may be transported in side dump trailers, end dump trailers with leak proof tailgates, or other type trailers with leak-proof systems may be used only after approval from the Professional. Trucks and trailers must meet all state and local regulations. Open trucks must be covered with a tarpaulin or similar device as necessary to prevent windblown removal of material during transport. The capacity will be certified by an independent agency capable of performing such certifications, and Contractor shall furnish the Owner a copy of said certification prior to use. The truck must be uniquely and legibly numbered on the sides with letter and/or numbers at least 4 inches high. These identification numbers must correspond with the certification document as to capacity.

3.6.3 Operation Hours

The Contractor shall not conduct transporting/hauling operations required by this contract on Sundays or on SMCI State of Mississippi holidays without the written permission of the Owner and/or Using Agency. Hauling and disposal of special waste or biosolid materials shall be restricted to the landfill or land application sites hours of operation.

3.6.4 Measuring Tonnage

All vehicles used for hauling, are to be inspected, measured and assigned a three digit number. After accurate measurement, the Professional will certify a decal or marking affixed on the equipment which shall identify the number assigned to the equipment, the date of measurement and the capacity of the unit equipment.

Each individual truck or transport vehicle to be used in "over-the-road" hauling of special waste or biosolid materials shall be weighed upon each

mobilization at approved certified scales both empty and full so as to determine the net weight of load being transported to the disposal site. The Engineer shall be present at initial weigh-in of each truck.

3.6.4.1 Load Tickets and Submittals

Engineer will verify the fullness, monitor/inspect and gather uniform samples provided by the Contractor for each load prior to its departure. Load tickets shall bear the following:

1. Vessel's Identification Number
2. Vessel's Certified Contents Capacity
3. Date/Time
4. Project Name and Number
5. Owner, Using Agency, or Professional's Personnel Signature
6. Contractor's Truck Driver's Signature

At the end of each day the Contractor shall provide the Professional with field sampling forms, truck weight tickets and a copy of the waste manifest for all loads hauled.

3.7 LAGOON LINER

The Contractor shall remove all sludge residuals and undesirable materials down to the top of the HDPE liner. Liners scheduled to be demolished shall be removed, transported and disposed of in accordance with the Contract Documents.

3.8 RECORDS AND SUBMITTALS

3.8.1 Suspensions and Delays

An interruption in the Contractor's operation for a period of time longer than twenty-four (24) hours shall be reported in writing by the Contractor to the Owner, Using Agency, and Professional immediately.

3.8.2 Records of Special Waste/Biosolids Removed

The Contractor shall maintain and submit record documents including, but not limited to, the weight tickets, waste manifest, paint filter test results, truck logs, sludge disposal analysis, tonnage of materials disposed, % TS sampling

records and analysis, and other required records in a form and manner as directed by the Owner and Professional. The Professional shall be given copies of these submittals on the next available work day and within receipt of any lab analysis results.

3.8.2.1 Truck Loading Log

The Contractor shall ensure that information in the truck loading log is correctly and legibly documented. Failure to properly, correctly and/or legibly document any load shall result in non-payment for that load. The log shall include, but not be limited to, the following information:

- a. Date Loaded and Load Identification Number;
- b. Date delivered if different from loaded date;
- c. Identity of driver;
- d. Time loading operations began;
- e. If paint filter test was performed and results;
- f. The truck number and/or identification number;
- g. Any leaks observed and corrective actions;
- h. Are tarps, covers, liners, etc. in place for transport;
- i. The time the loaded vehicle left the WWTP;
- j. The time the vehicle delivered the load;
- k. Any reasons for delay or return of load;
- l. Total Weight of loaded truck;
- m. Empty Weight of unloaded truck; and
- n. Number of tons delivered that load.

3.8.2.2 Field Data Log

The field log shall include, but not be limited to, the following information:

- a. Date of Operation;
- b. Truck driver name, truck number or identification number;
- c. Land Application Site Operator's name(s) (if applicable);
- d. Time truck loading operation began;
- e. Time truck loading operation ended;
- f. If paint filter test was performed and results;
- g. Time the percent solids sample taken;
- h. Method of sample preservation;
- i. Reasons for downtime, delay, spills or leaks and corrective actions taken;
- j. Number of loads delivered;
- k. Number of loads returned and reason; and

- l. Number of tons delivered that day.

3.8.2.3 Monitoring, Analysis, and Submittals

Contractor shall monitor all activities on a daily basis through use of Truck Logs/Field Logs/Daily Reports and on a weekly basis through the use of a Weekly Reports.

Contractor shall retain, maintain, and provide all required permitting, rate calculations, and monitoring information, including copies of all testing and analysis reports (including the chain of custody) and records to the Owner and Professional which are required by the landfill, and any other local, state, and federal agencies.

Records of monitoring information shall include:

- a. The dates, specific locations, and time of sampling or measurements;
- b. The individuals who performed the sampling or measurements;
- c. The date(s) analyses were performed;
- d. The individual(s) who performed the analyses;
- e. The analytical techniques or methods used; and
- f. The results of such analyses

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DIVISION 03 – CONCRETE

SECTION 03 1100

CONCRETE FORMING

PART 1 GENERAL

1.1 SECTION INCLUDES

1.1.1 Formwork for cast-in-place concrete, with shoring, bracing and anchorage.

1.1.2 Openings for other work.

1.1.3 Form accessories.

1.1.4 Form stripping.

1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

1.2.1 Section 03 2000 – Concrete Reinforcing.

1.2.2 Section 03 3000 – Cast-in-Place Concrete: Supply of concrete and accessories for placement by this Section.

1.3 RELATED SECTIONS

1.3.1 Section 03 2000 – Concrete Reinforcing.

1.3.2 Section 03 3000 – Cast-in-Place Concrete.

1.4 REFERENCES

1.4.1 ACI 301 – Structural Concrete for Buildings.

1.4.2 ACI 318 – Building Code Requirements for Reinforced Concrete.

1.4.3 ACI 347 – Guide to Formwork for Concrete.

1.4.4 PS 1 – Construction and Industrial Plywood.

1.5 DESIGN REQUIREMENTS

1.5.1 Design, engineer and construct formwork, shoring and bracing to conform to code requirements; resultant concrete to conform to required shape, line and dimension.

1.6 QUALITY ASSURANCE

1.6.1 Perform work in accordance with ACI 347.

1.6.2 Maintain one copy of document on site.

1.7 QUALIFICATIONS

1.7.1 Design framework under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Mississippi.

1.8 DELIVERY, STORAGE, AND HANDLING

1.8.1 Deliver, store, protect and handle products to site.

1.9 COORDINATION

1.9.1 Coordinate this Section with other Sections of work which require attachment of components to formwork.

1.9.2 If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement before proceeding, request instructions from PROFESSIONAL.

PART 2 PRODUCTS

2.1 WOOD FORM MATERIALS

2.1.1 Softwood Plywood: PS 1, B Grade, Group 1, Exterior.

2.1.2 Softwood Plywood: PS 1, HDO, Group 1, Exterior.

2.1.3 Lumber: No. 2 grade; with grade stamp clearly visible.

2.2 PREFABRICATED FORMS

2.2.1 Preformed Steel Forms: Tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces. Special care shall be used at areas of exposed concrete.

2.3 FORMWORK ACCESSORIES

2.3.1 Form Ties: Snap-off type, adjustable length, free of defects that could leave holes larger than ½ inch in concrete surface.

2.3.2 Form Release Agent: Colorless mineral oil which will not stain concrete, absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.

2.3.3 Corners: Chamfer type; ¾ x ¾ inch.

2.3.4 Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

PART 3 EXECUTION

3.1 EXAMINATION AND QUALITY CONTROL

3.1.1 Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

3.1.2 Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

3.1.3 Do not reuse wood formwork more than 6 times for concrete surfaces to be exposed to view.

3.2 EARTH FORMS

3.2.1 Earth forms are permitted for below ground footings.

3.3 ERECTION – FORMWORK

- 3.3.1 Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- 3.3.2 Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over stressing by construction loads.
- 3.3.3 Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.
- 3.3.4 Align joints and make watertight. Keep form joints to a minimum.
- 3.3.5 Formwork ties for grade beams with exposed exterior shall be uniformly spaced horizontally and vertically.
- 3.3.6 Obtain approval before framing openings in structural members which are not indicated on Drawings.
- 3.3.7 Provide chamfer strips on external corners of beams, columns and walls.

3.4 APPLICATION – FORM RELEASE AGENT

- 3.4.1 Apply form release agent on formwork in accordance with manufacturer's recommendations.
- 3.4.2 Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- 3.4.3 Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS

- 3.5.1 Provide formed openings where required for items to be embedded in passing through concrete work.
- 3.5.2 Locate and set in place items which will be cast directly into concrete.

- 3.5.3 Coordinate with work of other Sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other Work.
- 3.5.4 Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- 3.5.5 Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- 3.5.6 Close temporary openings with tight fitting panels, flush with inside face of forms and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.6 FORM CLEANING

- 3.6.1 Clean forms as erection proceeds to remove foreign matter within forms.
- 3.6.2 Clean formed cavities of debris prior to placing concrete.
- 3.6.3 Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.
- 3.6.4 During cold weather, remove ice and snow from within forms. Do not use de-icing agents. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

3.7 FORMWORK TOLERANCES

- 3.7.1 Construct formwork to maintain tolerances required by ACI 301.

3.8 FORM REMOVAL

- 3.8.1 Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- 3.8.2 Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

3.8.3 Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

3.9 SCHEDULE

3.9.1 Grade B plywood for areas not exposed.

3.9.2 HDO plywood for Grade Beams and wall to be exposed.

3.9.3 Steel column forms for exposed concrete columns.

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SECTION 03 2000

CONCRETE REINFORCING

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1.1.1 Reinforcing steel bars and accessories for cast-in-place concrete.

1.2 RELATED SECTIONS

1.2.1 Section 03 1100 – Concrete Forming.

1.2.2 Section 03 3000 – Cast-in-Place Concrete.

1.2.3 Section 01 4529 – Testing Laboratory Services.

1.3 REFERENCES

1.3.1 ACI 301 – Specifications for Structural Concrete.

1.3.2 ACI 318 – Building Code Requirements for Structural Concrete.

1.3.3 ACI SP-66 – American Concrete Institute – Detailing Manual.

1.3.4 ANSI/AWS D 1.4 – Structural Welding Code –Reinforcing Steel.

1.3.5 ASTM A 615 – Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

1.3.6 ASTM A 1064 – Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete.

1.3.7 AWS D 12.1 – Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction.

1.3.8 CRSI – Concrete Reinforcing Steel Institute – Manual of Practice.

1.3.9 CRSI 63 – Recommended Practice for Placing Reinforcing Bars.

1.4 SUBMITTALS

1.4.1 Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices.

1.4.2 Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

1.5.1 Contractor Quality Assurance

1.5.1.1 Perform Work in accordance with CRSI 63, 65 and Manual of Practice, ACI 301, ACI SP-66, and ACI 318.

1.5.1.2 Maintain one copy of each document on site.

1.5.1.3 Submit certified copies of mill test report of reinforcement materials analysis.

1.5.2 Testing Laboratory Quality Assurance

CONTRACTOR shall coordinate and schedule in a timely manner with the testing laboratory to perform the following inspections and tests:

1.5.2.1 Verify reinforcing steel for size, spacing, location and support.

1.5.2.2 Verify proper reinforcing steel concrete coverage.

1.6 QUALIFICATIONS

1.6.1 Welders' Certificates: Submit certificates, certifying welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.7 COORDINATION

1.7.1 Coordinate with placement of formwork, formed opening and other Work.

PART 2 PRODUCTS

2.1 REINFORCEMENT

2.1.1 Reinforcing Steel: ASTM A 615, 60 ksi yield grade; deformed billet steel bars.

2.1.2 Fiber Reinforcement: Similar and equal to Fibermesh InForce as manufactured by Synthetic Industries. Application rate shall be 1.5 pounds per cubic yard. Fiber reinforcement shall not be considered as an alternative to reinforcing steel unless otherwise noted herein or upon written approval from the PROFESSIONAL. Fiber reinforcement shall only be considered as a supplement in addition to reinforcing steel unless otherwise noted.

2.2 ACCESSORY MATERIALS

2.2.1 Tie Wire: Minimum 16 gage annealed type.

2.2.2 Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions.

2.2.3 Special Chairs, Bolsters, Bar Support, Spacers Adjacent to Weather Exposed Concrete Surfaces: Plastic coated steel type; size and shape as required.

2.3 FABRICATION

2.3.1 Fabricate concrete reinforcing in accordance with ACI 318.

2.3.2 Weld reinforcement in accordance with ANSI/AWS D 1.4 and ANSI/AWS D 12.1.

2.3.3 Locate reinforcing splices not indicated on drawings, at point of minimum stress.

PART 3 EXECUTION

3.1 PLACEMENT

- 3.1.1 Place, support and secure reinforcement against displacement. Do not deviate from required position.
- 3.1.2 Do not displace or damage vapor barrier.
- 3.1.3 Accommodate placement of formed openings. Do not cut bars.
- 3.1.4 Maintain concrete cover around reinforcing as per ACI 318.

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DIVISION 03 – CONCRETE

SECTION 03 3000

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 DESCRIPTION

1.1.1 This work includes all cast-in-place concrete and other related items necessary to complete the project indicated by the CONTRACT DOCUMENTS, unless specifically excluded.

1.1.2 Related Work Specified Elsewhere:

1.1.2.1 Quality Control

1.1.2.2 Formwork

1.1.2.3 Reinforcing

1.2 QUALITY ASSURANCE

1.2.1 Testing Laboratory

1.2.1.1 CONTRACTOR will engage the services of a recognized independent testing laboratory approved by PROFESSIONAL to perform the following services:

- A. Test of cement.
- B. Test of coarse and fine aggregate.
- C. Design and control of the concrete mix.
- D. Test all mixtures as established by CONTRACTOR to be used on the job as specified.

- E. Field testing of concrete and laboratory compression test on concrete cylinders.
- F. Reports of all tests.

1.2.2 Certificates

- 1.2.2.1 CONTRACTOR shall obtain Certificates from the manufacturer of the cement confirming that all cement used on the project was tested in accordance with ASTM C 150, together with reports of the test results. CONTRACTOR shall furnish two (2) copies of these certificates to PROFESSIONAL.
- 1.2.2.2 CONTRACTOR shall obtain delivery tickets from the ready-mix plant for all concrete furnished to the project and shall furnish one (1) copy of each ticket to PROFESSIONAL. Information shown on the delivery ticket shall consist of items 15.1.1 through 15.1.10 and items 15.2.1 through 15.2.8 of ASTM C 94.

1.2.3 Design Mix

- 1.2.3.1 A design mix shall be established for each required strength and mix as specified herein.
- 1.2.3.2 Design mix is to be established to provide concrete of 10% higher strength than the specified job strength, and the proposed mix is to be submitted to PROFESSIONAL for review and approval prior to use on the job. Laboratory cylinders are to be made according to ASTM C 192 and compression tests according to ASTM C 39, using representative materials. Control of mixes is to be maintained at the ready-mix plant and on the job and be reviewed and checked by the testing laboratory previously mentioned in this Section.
- 1.2.3.3 When the mix is approved, no change shall be made without the written consent of PROFESSIONAL.

1.2.4 Testing

- 1.2.4.1 The required tests on cement and aggregate are covered by ASTM C 150 and ASTM C 33, respectively.

- 1.2.4.2 The testing of concrete shall be in accordance with the procedure outlined in ASTM C 31 and laboratory compression tests in accordance with ASTM C 39. Temperature shall be tested in accordance with ASTM C 1064, slump shall be tested in accordance with ASTM C 143. Air content shall be tested in accordance with either ASTM C 173 or ASTM C 231. All testing of concrete shall be conducted by or under the direction of a registered Professional Engineer employed full time by the testing laboratory.
- 1.2.4.3 A field test shall be conducted on the first load of each class of concrete delivered to the site each day and for every 50 cubic yards, or fraction thereof, of each class of concrete placed each day. In addition, a test shall be conducted at any other time during the progress of the work when requested by PROFESSIONAL.
- 1.2.4.4 A sample for a field test shall be taken from the center of the load of concrete. This sample shall be of a large enough volume to conduct two full tests or in conformance with ASTM C 172, whichever is larger.
- 1.2.4.5 A field test of concrete shall conform to ASTM C 39 and consist of measuring the slump, determining the air content (when required), determining the weight per cubic foot, and making a minimum of five (5) test cylinders. These test cylinders are to be labeled with an identification number, stored, and tested in accordance with ASTM C 39. Additional Information to be recorded shall be time and date of field test, truck identification number and batch number, weather data (air temperature and humidity), the temperature of the concrete, and the place of depositing in the structure of the sampled batch of concrete. All this information and test data shall be recorded on the testing laboratory's test report.
- 1.2.4.6 A slump exceeding the specified maximum in two consecutive tests on different portions of the sample will be cause for rejection of the load.
- 1.2.4.7 Laboratory Compression tests shall be conducted on one (1) test cylinder from each field test at seven (7) days, and three (3) cylinders at twenty-eight (28) days. The strength of concrete will be considered satisfactory so long as the average of the three test results equals or exceeds the specified compressive strength, f'_c , and no individual acceptance test result is below the specified f'_c by more than 500 psi. The remaining

cylinder from each field test shall be stored by the testing laboratory and tested at the direction of PROFESSIONAL.

- 1.2.4.8 The testing laboratory shall write a test report on each test cylinder that is broken. In addition to any information required elsewhere, this report shall include all information and test data recorded in the field test when the cylinder was made, cylinder identification number, date test cylinder was received at the testing laboratory, age of cylinder when broken, weight of cylinder before broken, actual compression strength of the cylinder, and type of fracture. The testing laboratory shall provide CONTRACTOR and PROFESSIONAL with two (2) copies of each test report within five (5) days after the test cylinder is broken.

1.2.5 Evaluation of Concrete Strength

- 1.2.5.1 If tests of concrete strength are questionable, the strength of the concrete in place shall be considered questionable and shall be subject to further testing at the expense of CONTRACTOR.
- 1.2.5.2 These additional tests of questionable concrete shall be conducted by an independent testing laboratory approved by OWNER and PROFESSIONAL. Tests shall be conducted in accordance with ASTM C 42 (when concrete cores may be obtained in the field) or by load tests conducted and results evaluated in accordance with Chapter 2 of ACI 318.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Cement

- 2.1.1.1 Portland Cement, ASTM C 150, Type 1 or ASTM C 595, Type IL (10) shall be used in concrete placed for building footings, bollards, fence posts and pavement.
- 2.1.1.2 Portland Cement, ASTM C150, Type II or ASTM C595 Type IL (MS) shall be used in concrete placed for manholes, pump stations, coarse screen, fine screen, clarifiers, filters and disinfection system structures.

2.1.2 Aggregate

2.1.2.1 ASTM C 33 with maximum size of 1 , except for toppings with maximum size of $\frac{3}{4}$.

2.1.2.2 Aggregate must be free from lignite or any other deleterious materials (0.5 percent limit).

2.1.3 Water

From the South Mississippi Correctional Institution's water supply.

2.1.4 Admixtures

2.1.4.1 Air-Entraining, ASTM C 260, 3%.

2.1.4.2 Retardant – Pozzoloth by Master Builders Company, Sonotard by Sonneborn, Plastiment by Sika Chemical Company, or equal.

2.1.5 Moisture/Vapor Barrier

10 mil polyethylene film.

2.1.6 Concrete Sealer

Sono-Glaze by Sonneborn, or approved equal.

2.1.7 Bonding Agent

Blue Bond as manufactured by Blue Bond Co., Acryl 60 as manufactured by Standard Dry Wall Products, Inc., or approved equal.

2.1.8 Waterstops

2.1.8.1 Waterstops between required concrete pours shall be flat dumbbell or centerbulb type, PVC (CRD C 572); 6 .

2.1.8.2 Waterstops between existing and required concrete SikaSwell S-2 as manufactured by Sika Corporation, or approved equal.

2.1.9 Curing

4 mil polyethylene, washed or clean river sand, or burlap.

2.1.10 Non-slip aggregate

Pure aluminum oxide or silicon carbide aggregate, No. 12 to 30 combination.

2.2 SAMPLES

2.2.1 PROFESSIONAL and the Testing Laboratory shall have free access to all materials used, and the required samples are to be furnished by CONTRACTOR, as desired.

2.3 CONCRETE MIXES

2.3.1 Use ready mix concrete, mixed and delivered in accordance with requirements of ASTM C 94. The concrete strengths listed below are the required compressive strength at the end of twenty-eight (28) days. The proportions of material weight shall be uniformly and accurately controlled. Control mixes for concrete shall be as follows:

2.3.1.1 3500 psi – at least 6 sacks of cement per cubic yard, not over 5 gallons of water per sack.

2.3.1.2 4000 psi – at least 6-1/2 sacks of cement per cubic yard, not over 5 gallons of water per sack.

2.3.1.3 5000 psi – at least 7 sacks of cement per cubic yard, not over 5 gallons of water per sack.

2.3.2 Slump for all concrete mixes shall not exceed 5 .

2.3.3 Calcium chloride shall not be used.

2.3.4 It is the responsibility of CONTRACTOR to furnish concrete which conforms to the quality and strength specified.

PART 3 EXECUTION

3.1 PLACING CONCRETE

- 3.1.1 Water may be added at the job site if neither the maximum permissible water/cement ratio nor the maximum slump is exceeded. All concrete delivery trucks will have actual batch weight tickets available that clearly indicate the quantity of water that may be added at the jobsite that will not exceed the maximum water/cement ratio.
- 3.1.2 Concrete shall be placed so as to avoid segregation of materials and to prevent cold joints by avoiding rehandling, by keeping pours naturally level, and by adequate vibration.
- 3.1.3 Placing is not to be started during rain or snow, and if placing is underway when such conditions occur, continue operations only long enough to provide a suitable construction joint.
- 3.1.4 During hot weather or periods of low humidity combined with a definite breeze, rapid loss of moisture shall be discouraged by thorough wetting of forms and by using a fine fog spray when finishing. At these times particular attention shall be given to providing an adequate number of finishers to expedite this operation.
- 3.1.5 During cold weather fresh concrete shall be protected from freezing.
- 3.1.6 Prior to placing, forms shall be cleaned free of foreign material and shall be washed down with water.
- 3.1.7 Placing shall be a continuous operation between planned construction joints with fresh cement mixed only with plastic concrete already in place. Avoid cold joints.
- 3.1.8 Vibration shall be thorough, using vibrators small enough to work within reinforcing. The vibrator shall be inserted at many points about 24" apart. Avoid over-vibration and transporting concrete in forms by vibration. Two vibrators shall be immediately available at all times.
- 3.1.9 Any pumped concrete shall be placed by a Subcontractor fully experienced in this type of work, using equipment which readily handles the concrete specified without interruption of placing.

- 3.1.10 Footings may be placed separately from the stems or piers and grade beams, and shall be allowed to cure a minimum of 7 days before placing construction loads on the footings.
- 3.1.11 Concrete shall be discharged at the job within 1-1/2 hours after water has been added to the cement and aggregates or cement batched with the aggregates, unless a longer time is specifically authorized by PROFESSIONAL. During hot weather and under other conditions contributing to quick stiffening of concrete, or when high early-strength cement is being used, PROFESSIONAL may require a reduction in this elapsed time at no additional cost to OWNER.
- 3.1.12 Deposit concrete in uniform horizontal layers a maximum of 12 inches deep. Concrete shall not be dropped from a conveyor or buggy a distance greater than 5 feet to the point of deposit. For greater height, a chute is to be used.
- 3.1.13 CONTRACTOR shall keep a complete record at the job site of every concrete pour. This record shall include the date, the time the concrete pour began and ended, weather date, quantity of pour, location of the concrete within the structure, and the number of test cylinders taken. CONTRACTOR shall also record in this same record the time and date when the test cylinders are removed from the site.
- 3.1.14 Place no concrete before embedded items are in place and not before forms, reinforcing and affected work of other trades have been examined. Notify PROFESSIONAL and all trades affected as to when concrete will be placed, and allow adequate time for installation of all necessary parts.
- 3.1.15 Sleeves, conduit and other pipes passing through the floors, walls or beams shall be such size and, in such location, as not to impair significantly the strength of construction. All pipes and sleeves shall be at least equal to Standard Schedule 40 steel pipe and shall be spaced not less than 3 diameters on center.
- 3.1.16 Care shall be taken to see that all reinforced steel in the form-work is kept a minimum of 1.5 clear of any form, either bottom or side.
- 3.1.17 No concrete shall be deposited when the air temperature is below 35 degrees F or when the temperature is forecast to go below 35 degrees F within the next 12 hours after placing. Whenever the temperature of surrounding areas is below 35 degrees F or likely to drop, adequate equipment to provide for heating or concrete materials and for protecting concrete is required. All concrete when placed shall

have a temperature of between 50 and 90 degrees F. This temperature range shall be maintained for at least 72 hours or for as much as may be necessary to insure a proper rate of curing. No anti-freeze chemical will be permitted.

3.1.18 At the time of concrete placement, CONTRACTOR shall review with PROFESSIONAL the amount of concrete to be placed. There shall be an adequate number of experienced technicians, adequate equipment to handle the concrete, and adequate concrete at site during the entire pour. Partial pours which sit unfinished for over 45 minutes shall be removed at the discretion of PROFESSIONAL.

3.1.19 Notify PROFESSIONAL at least 48 hours prior to each pour.

3.2 CONSTRUCTION JOINTS

3.2.1 Locate construction joints in grade beams and slabs midway between supports and provide shear keys as directed by PROFESSIONAL.

3.2.2 Allow concrete to set for 24 hours before an adjoining pour is started. Slabs across the joint shall be level, and the surface shall not be feathered.

3.2.3 Before proceeding with the following pour at the joint, thoroughly clean the joint, remove all loose laitance, and brush in a thick cement slurry.

3.2.4 Where the top of grade beams extend above finished grade or above finished floor, provide a continuous vertical water-stop in all grade beam construction joints. Waterstops shall begin at the bottom of the grade beams and extend up to either the top, or a point 2 0 above grade and/or compacted fill.

3.2.5 At all construction joints located at the junction of interior concrete slab floors to grade beams, provide a continuous horizontal waterstop.

3.3 CURING

3.3.1 Keep all concrete moist for 5 days after placing. Cover with 4 mil polyethylene film, and leave forms in place.

3.4 PATCHING

- 3.4.1 Honeycombed and defective concrete shall be removed and replaced or repaired, as directed by PROFESSIONAL.
- 3.4.2 Defective concrete as determined by PROFESSIONAL shall be repaired as follows:
 - 3.4.2.1 The completed patch shall be indistinguishable from surrounding surfaces in color and texture.
 - 3.4.2.2 Patching mixture, using same cement sand as used in concrete shall consist of one part cement to 2-1/2 parts sand, with just enough mixing water to permit placing. Premix mixture, allow to stand at least 30 minutes before using, and stir with trowel during this period.
 - 3.4.2.3 Remove material to sound concrete, dampen surface and brush thick 1 to 1 cement sand bond coat into surface.
 - 3.4.2.4 When bond coat begins to lose water sheen, thoroughly pack patching mixture in place, leaving it somewhat higher than adjacent surface. Embed pieces of gravel by hand into patch.
 - 3.4.2.5 Finish to duplicate major surface and wet cure for 5 days.

3.5 FINISHES FOR FLAT WORK

- 3.5.1 Trowel finish floor surfaces scheduled as concrete finish surfaces or floor surfaces scheduled to receive floor covering. Trowel finished surfaces shall be rule planes within 1/8 in 10 as determined by a 10 straight-edge placed anywhere on the slab in any direction.
- 3.5.2 Smooth trowel finish after the slab is screeded and floated. Start troweling when all water has disappeared from the surface to first level the surface, then start final troweling when concrete has set where it no longer shows indentation from finger pressure. Trowel to a hard, smooth surface free of marks. Dusting of cement and sand will not be permitted.
- 3.5.3 Exterior walks and drives shall have smooth trowel and fine broom finish.

- 3.5.4 Floors which are to receive quarry or ceramic tile shall be screeded and floated to an elevation which will allow proper space for setting beds, and the structural slab shall be sloped to the floor drains.
- 3.5.5 Slope floors to drains, where shown.
- 3.5.6 Trowel concrete steps and landings smooth with a troweled finish.
- 3.5.7 Make all exterior concrete stairs, ramps, and loading docks non-slip by applying non-slip aggregate at the rate of 25 pounds per 100 square feet during concrete installation, in strict accordance with the manufacturer's instructions.
- 3.5.8 Floor slabs with a scheduled concrete finish shall receive three full treatments of chemical hardener applied according to the manufacturer's printed instructions. After the slabs are well cured, allowed to dry, cleaned, and free of any foreign matter, use one gallon of hardener for each 100 square feet for each treatment.

3.6 FINISHES FOR GRADE BEAMS

- 3.6.1 Exposed grade beam faces shall have a smooth form finish. Repair and patch defective areas with all fins or other projections completely removed and smoothed. Provide grout cleaned finish consisting of one part Portland cement to 1-1/2 parts fine sand by volume and mix with water to the consistency of thick paint. Blend standard Portland cement and white Portland cement, amounts determined by trial patches, so that the final color meets PROFESSIONAL's approval.
- 3.6.2 Thoroughly wet concrete surfaces and apply grout immediately to coat surfaces and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray at least 36 hours after rubbing.

3.7 FLOOR SLABS ON EARTH

- 3.7.1 Concrete floor slabs on earth shall be placed over a well compacted subgrade. Roll or tamp fill until thoroughly compacted to 95 percent standard proctor. Over fill, lay moisture/vapor barrier polyethylene film, lap joints 6 and seal with tape or mastic. Film shall be fabricated into as large sheets as possible. Turn film up on walls approximately 3 . Stretch and weight edges and laps to maintain their positions until concrete is placed. Do not displace the film. Immediately place

concrete of required thickness and strike off at proper level to receive finishes specified.

3.8 EXPANSION JOINTS

3.8.1 Form expansion joints as indicated and keep free of all foreign materials. Maintain clear widths shown between adjoining concrete and masonry surfaces.

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SECTION 03 6200

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DIVISION 03 – CONCRETE

SECTION 03 6200

NON-SHRINK GROUTING

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN CONCRETE INSTITUTE (ACI)

ACI 211.5 R	Guide for Submittal of Concrete Proportions
ACI 214 R	Guide to Evaluation of Strength Test Results of Concrete
ACI 311.4 R	Guide for Concrete Inspection
ACI MCP SET	Manual of Concrete Practice

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 33/C 33M	Standard Specification for Concrete Aggregates
ASTM C 150/C 150M	Standard Specification for Portland Cement
ASTM C 595	Standard Specification for Blended Hydraulic Cements
ASTM C 1107/C 1107M	Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)

CORPS OF ENGINEERS (COE)

COE CRD C 400

Requirements for Water for Use in Mixing or Curing
Concrete

1.2 SUBMITTALS

The following submittals are required:

1.2.1 Manufacturer's literature shall be submitted which demonstrates compliance with the applicable specifications.

1.2.2 Gradation laboratory reports.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Portland Cement

Provide Portland cement grout conforming to ASTM C 150/C 150M for Cement, Type I or ASTM C 595 Type IL (10).

2.1.2 Aggregates

Submit samples reports conforming to ASTM C 33/C 33M for aggregates and the gradation as directed.

2.1.3 Water

Water for mixing and curing shall be fresh, clean, potable, and free from injurious amounts of oil, acid, salt, or alkali, except that unpotable water may be used if it meets the requirements of COE CRD C 400.

PART 3 EXECUTION

3.1 PREPARATION

Prepare cavities for grouting by cleaning away foreign matter, laitance, dirt, grease, or oil. Clean all contact surfaces of concrete and masonry no less than 24 hours before grout application.

3.1.1 Mixing

3.1.1.1 Mix grout ingredients for both cementitious grout and epoxy grout in accordance with the manufacturer's written mixing instructions and recommendations.

3.1.1.2 Mix grout materials in proper mechanical mixers.

3.1.1.3 Mix grout as close to the work area as possible.

3.2 APPLICATION

3.2.1 Placing Grout

Place grout in accordance with the manufacturer's written installation instructions and recommendations. Do not use grout that has begun to set or if more than one (1) hour has elapsed after initial mixing.

3.3 FIELD QUALITY CONTROL

Provide testing and submit test reports in accordance with ASTM C 1107/C 1107M for the expansive grout to meet the following performance requirements:

Compressive Strength: 5,000 psi

3.4 PROTECTION

Protect freshly placed grout from premature drying and excessive cold or hot temperatures. Comply with manufacturer's written requirements for cold-weather and hot-weather protection during curing.

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DIVISION 05 – METAL FABRICATIONS

SECTION 05 5000

METAL FABRICATIONS

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36 / A 36M	Carbon Structural Steel
ASTM A 123 / A 123M	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 193	Standard Specification for Stainless Steel Bolting Materials
ASTM A 240	Standard Specification for Stainless Steel Plates

AMERICAN WELDING SOCIETY (AWS)

AWS D 1.1 / D 1.1M	Structural Welding Code – Steel
AWS D 1.6 / D 1.6M	Structural Steel Welding Code – Stainless Steel

1.2 SUBMITTALS

The CONTRACTOR shall submit product data that demonstrate that the required material is provided and shall submit manufacturer's recommended installation instructions.

1.3 GENERAL REQUIREMENTS

The CONTRACTOR shall verify all measurements and shall take all field measurements necessary before fabrication. Welding to or on structural steel shall be in accordance with AWS D 1.1 / D 1.1M. Items specified to be galvanized shall be hot-dip galvanized after fabrication. Galvanizing shall be in accordance with ASTM A 123 / A 123M. Exposed

fastenings shall be compatible materials, shall generally match in color and finish, and shall harmonize with the material to which fastenings are applied. Materials and parts necessary to complete each item, even though such work is not definitely shown or specified, shall be included. Poor matching of holes for fasteners shall be cause for rejection. Fastenings shall be concealed where practicable. Thickness of metal and details of assembly and supports shall provide strength and stiffness. Joints exposed to the weather shall be formed to exclude water. Structural steel shall comply with ASTM A 36 / A 36M.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 WORKMANSHIP

Miscellaneous metalwork shall be well formed to shape and size, with sharp lines and angles and true curves. Drilling and punching shall produce clean true lines and surfaces. Welding shall be continuous along the entire area of contact except where tack welding is permitted. Exposed connections of work in place shall not be tack welded. Exposed welds shall be ground smooth. Exposed surfaces of work in place shall have a smooth finish. Where tight fits are required, joints shall be milled. Corner joints shall be coped or mitered, well formed, and in true alignment. Work shall be accurately set to established lines and elevations and securely fastened in place. Installation shall be in accordance with manufacturer's installation instructions and approved drawings, cuts, and details.

3.2 ANCHORAGE

Anchorage shall be provided where necessary for fastening miscellaneous metal items securely in place. Anchorage not otherwise specified or indicated shall include slotted inserts made to engage with the anchors, expansion shields, and power-driven fasteners when approved for concrete; toggle bolts and through bolts for masonry; machine and carriage bolts for steel; and lag bolts and screws for wood.

3.3 SHOP PAINTING

Surfaces of ferrous metal, except galvanized surfaces, shall be cleaned and shop coated with the manufacturer's standard protective coating unless otherwise specified. Surfaces of items to be embedded in concrete shall not be painted. Items to be finish painted shall be prepared according to manufacturer's recommendations, or as specified.

3.4 GENERAL INSTALLATION REQUIREMENTS

All items shall be installed at the locations shown and according to the manufacturer's recommendations.

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DIVISION 09 – FINISHES

SECTION 09 9000

PAINTING AND COATING, GENERAL

PART 1 GENERAL

1.1 REFERENCES

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

SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC-SP3

Power Tool Cleaning

1.2 SUBMITTALS

The following submittals are required:

1.2.1 Manufacturer's product data for each type of paint that demonstrates compliance with the contract requirements.

1.2.2 Manufacturer's recommendations for surface preparation, application, and for clean-up for each type of paint.

1.3 GENERAL REQUIREMENTS

Surface preparation and high-performance coatings application to substrates encountered in water/wastewater treatment facilities as noted on the drawings and as specified herein. The CONTRACTOR shall furnish all labor, material, and equipment required to complete the project in a manner satisfactory to the Engineer.

PART 2 PRODUCTS

2.1 PAINT

The term "paint" as used herein includes emulsions, enamels, paints, stains, varnishes, sealers, cement-emulsion filler, and other coatings, whether used as prime, intermediate, or finish coat.

2.1.1 Exterior Metal

- 2.1.1.1 Items to Receive Paint: All mild steel, see Section 05 5000 for air piping coating requirements.
- 2.1.1.2 Surface Preparation: Shall meet SSCP-SP3 Power Tool Cleaning.
- 2.1.1.3 Surface Profile: 1.5 to 2.5 mils.
- 2.1.1.4 Primer: PermaClean II Epoxy Primer as manufactured by Induron Protective Coatings, or approved equal, applied to achieve 3.0 to 5.0 dry mils. Color shall be Tan.
- 2.1.1.5 Second Coat: PermaClean II Epoxy as manufactured by Induron Protective Coatings, or approved equal, applied to achieve 2.0 to 4.0 dry mils. Color shall be Hi Vis Yellow 0350.
- 2.1.1.6 Total System Minimum DFT: 5.0 mils.

2.2 DELIVERY, STORAGE, AND HANDLING

- 2.2.1 Material shall be delivered to the site in original containers with labels intact and seals unbroken. Labels should provide the following information: material name, coating manufacturer, color name and number, batch or lot number, date of manufacture, mixing, and thinning instructions.
- 2.2.2 All coatings shall be stored in an enclosed structure to protect them from weather and excessive heat or cold. Flammable coatings must be stored to conform to City, County, State, and Federal safety codes for flammable coatings or paint materials. At all times coatings shall be protected from freezing.
- 2.2.3 All empty containers shall be disposed of in accordance with local, state, and federal regulations.

PART 3 EXECUTION

3.1 PROTECTION OF AREAS NOT TO BE PAINTED

Items not to be painted, which are in contact with, adjacent to or near painted surfaces, shall be removed or protected prior to surface preparation and painting operations. Items removed prior to painting shall be replaced when painting is completed. Following completion of painting, workmen skilled in the trades involved shall reinstall removed items. Surfaces contaminated by coating materials shall be restored to original condition.

3.2 SURFACE PREPARATION

Surfaces to be painted shall be prepared in accordance with the paint manufacturer's recommendations.

3.3 APPLICATION

Paint shall be applied in accordance with paint manufacturer's recommendations.

3.4 SURFACES TO BE PAINTED

All mild steel, see Section 05 5000 for coating requirements.

3.5 CLEANING

Debris that may constitute a fire hazard shall be placed in closed metal containers and removed at the end of each day. Upon completion of the work, paint and other deposits on adjacent surfaces shall be removed and the entire job left in a neat and clean condition.

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DIVISION 13 – SPECIAL CONSTRUCTION

SECTION 13 3419

PREENGINEERED METAL BUILDING

PART 1 GENERAL

1.1 GENERAL REQUIREMENTS

1.1.1 Scope of Work

The work required by this Section consists of furnishing all labor, materials, and equipment necessary for the design, fabrication, delivery, and erection of metal buildings of the style and dimensions as shown on the drawings and in accordance with the specifications. The work required by this section also includes all labor, materials, and equipment necessary for the design and construction of the metal building foundation including excavation and backfill.

1.1.2 Related Work

The related work shall include all labor, materials, and equipment necessary to construct the site piping, electrical work, and all other related work as shown on the drawings and as required by the specifications.

1.1.3 Description of Buildings

1.1.3.1 Building Dimensions

Building dimensions shall be as standard with manufacturer, not less than those indicated, but exceeding the indicated dimensions only by the amount of the closest standard size thereto. Eave height shall be measured from the top of finished floor to intersection of insides of roof and sidewall sheets. The clear height between finished floor and bottom of roof steel shall be as indicated.

1.1.3.2 Framing

The buildings to be provided shall have vertical walls and a single-slope roof. The buildings shall be a single-span structure with one of the following framing systems: self-framing, column with single-span or continuous trusses, continuous beam frames, column with rigid frames, or rigid frame type, similar to AISC 335, Type I construction. End walls shall be beam and column design. Roof slope shall be as shown on the drawings. Design framed openings structurally.

1.1.3.3 Foundation

- a. The concrete foundation shall be designed by the contractor.
- b. Concrete shall comply with the following sections:

SECTION 03100 CONCRETE FORMWORK
SECTION 03200 CONCRETE REINFORCEMENT
SECTION 03300 CONCRETE
- c. A safety factor of 1.5 for overturning, sliding and uplift shall be used.
- d. The foundation loads shall be supplied by the building manufacturer.

1.2 REFERENCES

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

ALLUMINUM ASSOCATION (AA)

AA ADM	Aluminum Structures, Construction Manual Series Section 1
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AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC FCD	Quality Certification Program
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AISC 335	Structural Steel Buildings Allowable Stress Design and Plastic Design
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AISC 348	Allowable Stress Design Specification for Structural Joints Using ASTM A 325 or A 490 Bolts
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AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 446	Steel Sheet, Zinc-Coated (Galvanized) By the Hot-Dip Process for Storm Sewer and Drainage Pipe
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1.5 DESIGN REQUIREMENTS

MBMA Low Rise Manual, for loading combinations and definitions with the exceptions of wind load and special collateral loads. Design for each material shall be as specified by the Design Authority as listed in MBMA Low Rise Manual.

1.5.1 Roof Dead, Live and Snow Loads

Live loads shall be based on 20 psf as applied according to MBMA Low Rise Manual criteria. No tributary load reduction will be allowed.

1.5.2 Wind Loads

Wind loads shall be based on 125 mph in accordance with MBMA Low Rise Manual criteria.

1.5.3 Collateral Load

Collateral load will be based on 5 psf.

1.5.4 Seismic Loads

Procedures for determining and applying seismic forces shall be in accordance with the 2018 IBC.

1.5.5 Deflection

1.5.5.1 Structural Members

The maximum deflection of main framing members shall not exceed $1/240^{\text{th}}$ of their respective spans. The maximum deflection due to live load in roof panels and purlins shall not exceed $1/180^{\text{th}}$ of their respective spans.

1.5.5.2 Roof Panels

The roof panels shall be “PBR” profile, UL 580, Class 90. The design analysis shall establish that the roof when deflected under dead plus live or snow loads, will not result in a negative gradient. Maximum deflections shall be based on sheets continuous across two or more supports with sheets unfastened and fully free to deflect. In addition, the roof decking shall be designed for 300-pounds.

Panels thinner than 0.03 inches are not permitted for diaphragms used to resist seismic loads in Seismic Zones 2 through 4.

1.5.5.3 Wall Panels

The wall panels shall be “PBR” profile. The maximum deflection due to wind on wall panels and girts shall be limited to 1/120th of their respective spans except that when interior finishes are used the maximum allowable deflection shall be limited to 1/180th of their respective spans.

1.5.5.4 Openings

Limit deflections of steel framing above and along the side of door openings to ensure proper operation. Frame all equipment openings over 12 by 12 inches.

1.6 DELIVERY, STORAGE AND HANDLING

Deliver, store, and handle manufactured items so that materials remain dry and undamaged. Do not store material in contact with materials that may cause staining.

1.7 WARRANTY

In addition to the warranty required by the General Conditions of the contract, the CONTRACTOR shall furnish the OWNER the manufacturer’s standard Certificate of Warranty which will warranty to the Owner the integrity of the building against water leaks arising out of or caused by ordinary wear and tear by the elements for a period of no less than 20 years.

PART 2 PRODUCTS

2.1 WALL AND ROOF PANELS

Roof panel material shall be 26-gauge galvalume as manufactured by National Steel Corporation, conforming to the requirements of ASTM A 446 Grade E. Minimum yield stress shall be 80,000 psi for Grade E. Wall panel material shall have “Siliconized Polyester.”

2.2 INSULATION

Fiberglass insulation facing shall be laminated on one side of the facing with polypropylene/fiberglass scrim reinforcement/0.00035” aluminum foil/6” fiberglass insulation. The insulation shall have the following properties:

Fire Hazard Classification	ASTM E84/UL-73
Water Vapor Transmission	0.02 PERMS
Cold Weather Workability to	20 degrees F
Mullen Bursting Strength	100 psi

PART 3 EXECUTION

3.1 ERECTION

Erect in accordance with the manufacturer's approved erection instructions and diagrams. Correct defects and errors in the fabrication of building components in a manner approved by the Engineer. If defects or errors in fabrication of components cannot be corrected, remove, and provide non-defective components. When installing wall and roof systems, install closure strips, flashing, sealing material, and other accessories in accordance with building manufacturer's instructions to provide a weathertight system, free of abrasions, loose fasteners, and deformations. After erection is complete, repair and coat abraded and damaged, primed or factory-finished surfaces to match adjacent surfaces.

3.1.1 Dissimilar Metals

Prevent direct contact between aluminum surfaces, and ferrous or other incompatible metals, by one of the following methods:

- a. Paint the incompatible metal with a coating of manufacturer's standard heavy-bodied paint.
- b. Paint the incompatible metal with a prime coat of corrosion inhibitive primer followed by two coats of aluminum metal-and-masonry paint, or other suitable protective coating, excluding products containing lead and chromium pigmentation.
- c. Provide an approved non-absorptive gasket.
- d. Apply an approved caulking between the aluminum and the incompatible metal.

If drainage from incompatible metal passes over aluminum, paint the incompatible metal by method (a) or (b). Paint aluminum surfaces in contact with concrete by method (a).

3.1.2 Rigid Frames, Bases and Sill Members

Brace frames as necessary to ensure safety. Set accurately, using a non-shrink grout to obtain uniform bearing on the concrete and to maintain a level base line elevation. Clean surfaces to receive the mortar and thoroughly moisten immediately before placement of mortar. Water cure exposed surfaces of mortar with wet burlap for 7 days. End walls shall be of the non-expandable rigid frame design.

3.1.2.1 Field Welding

Field welding of steel shall be performed in accordance with AWS D1.1. Field welding of aluminum shall be performed in accordance with AA ADM.

3.1.2.2 Field Bolting

Field bolting shall be performed in accordance with AISC 348.

3.1.3 Wall Construction

Apply panels full water heights from base to eave with no horizontal joints except at the junctions of door frames, window frames and similar locations. Lay side laps away from the prevailing winds. Seal side and end laps with the joint sealing material recommended by the manufacturer. Flash or seal walls at the base, at the top, around windows, door frames, framed louvers, and other similar openings. Flashing will not be required where approved "self-flashing" panels are used. Minimum end laps for all types of panels shall be 2-1/2 inches. Minimum side laps for all types of panels shall be one corrugation, one configuration or an interlocking joint.

3.1.4 Roof Construction

Apply the roofing panels in the longest lengths obtainable with end laps occurring only at structural members with no transverse joints except at the junction of ventilators, curbs, light transmitting roof panels and similar openings. Lay side laps away from the prevailing wind, and seal side and end laps with joint sealing material. Flash and seal the roof at eaves and rakes, at projections through the roof, and elsewhere as necessary. Minimum side lap shall be one corrugation, configuration, or interlocking rib except 1-1/2 corrugations for standard corrugated sheets. End laps shall not be less than 6 inches and shall occur only over purlins.

3.1.5 Minimum Fastener Spacing

Space fasteners according to manufacturer's instructions, but not to exceed:

- a. 8 inches on center (o.c.) at end laps of covering.
- b. 12 inches o.c. at connection of covering to intermediate supports.
- c. 12 inches o.c. side laps of roof coverings, 18 inches o.c. at side laps of wall.

3.1.6 Installation of Insulation

3.1.6.1 Roof Insulation

Install over purlins before roof coverings are applied. Hold insulation rigid until secured in place. Insulation facing shall be exposed on the interior side of the building. Fold and staple facing tabs of insulation on 6-inch centers, from exterior side of building to completely seal joints. If folding and stapling can only be accomplished from the inside, push the tabs neatly up between the edges of adjoining blankets and cover side laps of insulation with metal strips formed for this purpose and paint to match the facing material. Install the strips spanning from purlin to purlin and in accordance with the metal building manufacturer's recommendations.

3.1.6.2 Wall Insulation

Install over girts before wall covering are applied. Hold insulation rigid until secured in place. Expose facing toward the interior side of the building. Fold and staple facing tabs of insulation on 6-inch centers, from exterior side of building, to completely seal joints. If folding and stapling can only be accomplished from the inside, push the tabs neatly up between the edges of adjoining blankets and cover side laps of insulation with metal strips formed for this purpose and paint to match the facing material. Install the strips spanning from girt to girt and in accordance with the metal building manufacturer's recommendations.

3.2 FIELD PAINTING

Immediately upon detection, abraded or corroded areas on shop painted surfaces shall be cleaned and painted in accordance with SECTION 09900 PAINTING AND COATING, GENERAL with the same color and material used for the shop coat.

- End of Section -

SECTION 25 31 00

PROCESS INSTRUMENTATION AND CONTROLS

PART 1 - GENERAL

1.01 SCOPE

- A. The Work under this Section shall include configuring software, hardware integration with field installation, commissioning, instrumentation calibration, wiring, warranty, training, and technical field services as needed.
- B. These specifications cover the intended function of the equipment, but do not necessarily cover all details necessary for a complete, operable and functional system. The CONTRACTOR shall supply all devices and appurtenances necessary to provide a complete, operable and satisfactory system as indicated or specified.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 26 05 00 - General Electrical Provisions
- B. Section 26 05 33 - Conduits
- C. Section 26 05 19 - Wires and Cables
- D. Section 26 05 35 - Junction Boxes
- E. Section 26 05 29 - Supporting Devices
- F. Section 26 05 26 - Grounding
- G. Section 25 31 01 - Control System Integration
- H. Section 25 31 02 - SCADA System
- I. Section 25 31 03 - Influent Pump Station Control Panel
- J. Section 25 31 04 - Effluent Pump Station Control Panel

1.03 SUBMITTALS

- A. Manufacturer's data shall be submitted in accordance with paragraph entitled SUBMITTALS in Section 26 05 00 of these Specifications.
- B. Sufficient information, clearly presented shall be included to determine compliance with Drawings and Specifications.
- C. The specific item proposed and its area of application shall be marked on the catalog cuts.
- D. Hardware Submittals: Before any components are fabricated, and/or integrated into assemblies or shipped to the job site, furnish to the ENGINEER, for their review, submittal documents in accordance with Section 26 05 00. Submittals shall include full details, shop drawings, catalog cuts and such other descriptive matter and

documentation as may be required to fully describe the equipment and to demonstrate its conformity to these specifications. Specifically, the CONTRACTOR shall submit the following materials:

1. Block diagram and operational description of the system showing all major components and their interconnections and interrelationships. Label each diagram and specify all external power and communications interfaces. All diagrams shall be in an 11 by 17 format. Required documentation sets shall be furnished in bound hardcopy and final documentation shall also be provided in electronic format on CD.
 2. Drawings of equipment to be supplied shall include, as a minimum: overall dimension details for each panel, console, etc., including internal and external arrangements and door mounted operator devices with nameplate designations. Wiring diagrams of equipment including field device connections shall be included and specific installation/wiring requirements identified.
 3. Operational Description shall include the principal functions/capabilities of the PLC's and remote terminal units as provided and configured /programmed. Included shall be a description of system communications.
 4. Provide a detailed Bill of Materials along with descriptive literature identifying component name, manufacturer, model number, and quantity supplied.
- E. Test Outlines and Procedures Submittals: Test descriptions shall be in sufficient detail to fully describe the specific tests to be conducted to demonstrate conformance with this specification.
- F. Operations and Maintenance Data: At a minimum, include the following information in accordance with Section 26 05 00.
1. Operating and Calibration instructions.
 2. Troubleshooting Information.
 3. Wiring Diagrams with wire numbers and termination point.

1.04 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of all control panels, instrumentation, SCADA RTUs, and SCADA Antenna. Include interconnection wiring and cabling information, and terminal block layouts in controller cabinets.
- B. Operation and Maintenance Data: Submit bound copies of operating and programming instructions, and include card replacement, adjustments, and preventive maintenance

procedures and materials.

1.05 QUALIFICATIONS

- A. All control systems equipment shall be furnished and installed by the CONTRACTOR. The CONTRACTOR shall provide and be responsible for the proper operation of all SCADA System and required Controls. The CONTRACTOR is responsible for the installation of indicated instruments.
- B. The CONTRACTOR shall be responsible for all coordination necessary in order to furnish, to supervise installation and connections, to calibrate, and to place into operation the SCADA antenna, control instrumentation and controls along with all other equipment and accessories as specified.
- C. Guarantee on the control system function and equipment shall be one (1) year from date of final acceptance by the OWNER. The CONTRACTOR shall promptly replace, without additional cost to the OWNER, any part of this process and control installation which is found to be defective within said period of one year, ordinary wear and tear and lightning damage excepted.

1.06 GENERAL REQUIREMENTS

- A. All control wires shall be stranded copper Type THHN or MTW respectively, except where indicated on the Drawings. All 4-20 ma signal control wire shall be #18 shielded TC cable or as shown on the Drawings.
- B. All materials, equipment, and devices shall meet the requirements of UL where UL standards are established for those items and the requirements of NFPA-70.
- C. All electrical components of the system shall operate on 120 VAC, 60 Hz, single phase power source expect as otherwise noted. Any other devices necessary to obtain proper operation of the instrumentation and control system from these energy sources shall be furnished with the system.
- D. Instrumentation equipment and enclosures shall be suitable for the environmental conditions specified. All system elements shall operate properly in the presence of telephone lines, power lines and electrical equipment.
- E. All work and materials shall comply with the National Electrical code and applicable local regulations and ordinances. Where required by applicable codes, panel assemblies, materials and equipment shall be approved, identified, labeled or listed by Underwriters' Laboratories or other testing organization acceptable to the governing authority.
- F. All instrumentation shall meet or exceed I.S.A. Standards and Recommended Practices, ANSI OSHA and any other applicable code.

1.07 INTERFACE WITH OTHER PRODUCTS AND EQUIPMENT

- A. Provide all required cables, cords, and connective devices for interface with other control system components.
- B. Coordinate size and configuration of enclosure to meet project requirements.

1.08 MAINTENANCE

- A. The control system supplier shall maintain on call qualified field service electricians and electronic technicians to assist with system maintenance.
- B. In the event emergency repairs is required on the control system. The control system supplier shall have a qualified technician trained on the system and on the OWNER'S premises within a maximum of 24 hours.

PART 2 - NOT USED

PART 3 EXECUTION

3.01 INSTALLATION:

- A. Provide all required hardware, software, programming, and commissioning services.
- B. Installation shall be in accordance with the NEC, and as shown on the drawings.
- C. Installation of instruments as shown on the drawings.

3.02 TRAINING

- A. Train Owner's maintenance personnel to adjust, operate, and maintain control devices.
- B. Train Owner's maintenance personnel on procedures and schedules for maintaining control devices.
- C. Review data in Operations & Maintenance Manuals.
- D. Schedule training with Owner, through Engineer, with at least (7) days' advance notice.

END OF SECTION

SECTION 25 31 01

CONTROL SYSTEM INTEGRATION

PART 1 - GENERAL

1.01 SCOPE

- A. The Work under this Section consists of furnishing materials, equipment, labor, and services necessary for the installation of the control equipment and system integrations for the Work as shown on the Drawings and as Specified in the Project Specifications.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 26 05 00 - General Electrical Provisions
- B. Section 26 05 19 - Wires and Cables
- C. Section 26 05 26 - Grounding
- D. Section 25 31 00 - Process Instrumentation and Controls
- E. Section 25 31 02 - SCADA System
- F. Section 25 31 03 - Influent Pump Station Control Panel
- G. Section 25 31 04 - Effluent Pump Station Control Panel

1.03 RELATED DOCUMENTS

- A. Other Specifications Sections not specifically mentioned apply to this Section.

1.03 SUBMITTALS

- A. Manufacturer's data shall be submitted in accordance with paragraph entitled SUBMITTALS in Section 26 05 00 of these Specifications.
- B. Before any components are fabricated, and/or integrated into assemblies or shipped to the job site, furnish to the ENGINEER, for review, submittal documents in accordance with Section 26 05 00. Submittals shall include full details, shop drawings, catalog cuts and such other descriptive matter and documentation as may be required to fully describe the equipment and to demonstrate its conformity to these specifications. Specifically, the CONTRACTOR shall submit the following materials:
 - 1. Block diagram and operational description of the system showing all major components and their interconnections and interrelationships. Label each diagram and specify all external power and communications interfaces. All diagrams shall be in an 11 by 17 format. Required documentation sets shall be furnished in bound hardcopy and final documentation shall also be provided in electronic format on CD.

2. Drawings of equipment to be supplied shall include, as a minimum: overall dimension details for each panel, console, etc., including internal and external arrangements and door mounted operator devices with nameplate designations. Wiring diagrams of equipment including field device connections shall be included and specific installation/wiring requirements identified.
 3. Operational Description shall include the principal functions/capabilities of the PLC's as provided and configured /programmed. Included shall be a description of system communications.
 4. Provide a detailed Bill of Materials along with descriptive literature identifying component name, manufacturer, model number, and quantity supplied.
 5. Training Material
- C. Test Outlines and Procedures Submittals: Test descriptions shall be in sufficient detail to fully describe the specific tests to be conducted to demonstrate conformance with the Specifications.
- D. Operations and Maintenance Data: At a minimum, include the following information in accordance with Section 26 05 00.
1. Operating and Calibration instructions.
 2. Troubleshooting Information.
 3. Wiring Diagrams with wire numbers and termination point.

1.04 COORDINATION

- A. All programming and wire termination in the System Integrator's equipment shall be performed by a systems integrator.
- B. Equipment Installation: by General Contractor and Electrical Contractor.

1.05 QUALITY ASSURANCE

- A. The CONTRACTOR'S attention is directed to the fact that all specified instruments and controls must form a completely integrated system and, as such, the System Integrator shall become familiar with requirements necessary to provide equipment specified for the system regardless of manufacture, and shall be responsible to the CONTRACTOR for the complete and satisfactory operation of the entire plant instrumentation and control system.
- B. CONTRACTOR shall use a Systems Integrator that has a least 5 years experience in installation and programming similar size projects. System Integrator shall be responsible for all final terminations from the control panel and instruments to the control termination points. Electrical Contractor shall pull all wires to this point, label

each wire, and provide this list to the System Integrator.

- C. All components shall be from the same manufacturer and supplied by a single source, the system integrator.
- D. Individual Responsibilities
 - 1. System Integrator
 - a. The System Integrator shall have the authority to organize the data layout within each individual device used in the user interface system. This said data layout will be based on the device provider's listing of available data points for monitor and control. The System Integrator will dictate the data used and the layout needed to facilitate the most efficient system possible. This efficient system methodology will be to minimize the number of queries needed to retrieve the necessary information. The System Integrator may also require the separation of status and control registers to more easily facilitate expansion and/or changes to the data structure. The System Integrator does not have the authority to change the program algorithm for the subsystem device. The actual functionality of the system is under direct control of the ENGINEER and the pertinent specifications. The System Integrator is responsible for contacting each device provider and attaining the listing of data available and then communicating with the provider the proper organization of data in the system.
 - 2. Device Providers
 - a. Device providers must generate a listing of all pertinent data available for monitor and control within the user interface system. It is the device provider's responsibility to be in contact with the System Integrator to ensure proper operation within the integrators scope of work. The device provider has direct control over the program algorithm for the portion of the system the said device is specified.

1.06 APPLICABLE PUBLICATIONS:

- A. The following specifications and standards, except as hereinafter modified, are incorporated herein by reference and form a part of this Specification to the extent indicated by the references thereto. Except where a specific date is given, the issue in effect (including amendments, addenda, revisions, supplements, and errata) on the date of Invitation for Bids shall be applicable. In text such specifications and standards are referred to by basic designation only.
 - 1. National Fire Protection Association (NFPA) Publication:
No. 70.....National Electrical Code (NEC)
 - 2. National Electrical Manufacturers Association (NEMA) Publications:

No. ICS-1General Standards for Industrial Control and Systems
No. ICS-2Industrial Control Devices, Controllers and Assemblies

No. ICS-4Terminal Blocks for Industrial Control Equipment and
Systems

No. ICS-6Enclosures for Industrial Control and Systems

3. Underwriters Laboratories, Inc. (UL) Publications:

UL 50Cabinets and Enclosures For Electrical Equipment

UL 508Safety Standard For Industrial Control Equipment

PART 2 - PRODUCTS

2.01 GENERAL

- A. Control Panels, Equipment, Instruments and Meters furnished by the CONTRACTOR

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine the areas and conditions under which work of this Section and other Sections that will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

END OF SECTION

SECTION 25 31 02

SCADA SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes the following:

1. SCADA System for transmission of data between the Waste Water Treatment Plant Central Terminal Unit (CTU) and Remote Terminal Units (RTU's). The Plant SCADA System shall communicate with the existing Owner's Network. The SCADA System shall include all equipment, devices, wiring, and incidental materials to operate the system and display or relay information in accordance with these specifications. The intention of this Section is to secure a complete SCADA System that will operate and monitor equipment in accordance with narratives and requirements indicated in the plans, these specifications, and manufacturer's literature for the equipment installed. All circuits and devices for protection of installed equipment shall be included in the price bid.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 26 05 00 - General Electrical Provisions
- B. Section 26 05 33 - Conduits
- C. Section 26 05 19 - Wire and Cables
- D. Section 26 05 35 - Junction Boxes
- E. Section 26 05 29 - Supporting Devices
- F. Section 26 05 26 - Grounding
- G. Section 25 31 00 - Process Instrumentation and Controls
- H. Section 25 31 02 - Control System Integration
- I. Section 27 13 43 - Communications Services Cabling

1.03 SYSTEM DESCRIPTION

- A. System shall consist of a fiber optic backbone for communications between the Waste Water Treatment Plant CTU and all RTU's. In addition, local connections to control panels and Owner's network shall consist of Category 6 Ethernet cabling. Instrument cabling shall be including where applicable.
- B. Remote Terminal Units located at the following:
 1. Clarifiers (includes connections to Aerators and Clarifier Rakes).

2. Filters & Biolac System
3. UV Disinfection System.
4. Effluent Pump Statopm
5. Headworks (includes connections to Influent Pump Station, Fine Screen, and Coarse Screen).

1.04 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication and installation details for SCADA System equipment.
 1. Include plans, elevations, sections, details, and attachments to other work.
 2. For coaxial cable, include the following installation data for each type used:
 - a. Nominal OD.
 - b. Minimum bending radius.
 - c. Maximum pulling tension.
 3. Wiring diagrams.
 4. Design Calculations including line of sight and antenna requirements.
 5. Control Panel Drawings
- C. Equipment list.
- D. Field quality-control test reports.
- E. Operation and Maintenance Data: Submit bound copies of operating and programming instructions, and include card replacement, adjustments, and preventive maintenance procedures and materials.

1.05 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.01 BASIS OF DESIGN

- A. Provide products to meet requirements, acceptable SCADA Integrators are:
 1. Dexter Fortson.

2.02 CENTRAL OFFICE

- A. The Central Office location shall consist of the following SCADA hardware, software, terminal devices, and accessories:
 1. Rack mounted HMI Server Computer shall be a Dell desktop computer with Dual

24"LCD monitors with minimum requirements:

- a. Dell Precision 7910XL, Xeon Processor, 64GB RAM, Dual 2TB SDD
- b. Windows® Office Professional 2021 w/ Window® 11 License
- c. CD-RW/DVD Combo
- d. 3 Year Basic Limited Warranty
- e. Microsoft antivirus protection
- f. Wireless Keyboard & Mouse
- g. Adobe Acrobat X Standard
- h. Rack mount Tripplite 1500VA UPS SMART 1500RM2U
- i. HP OfficeJet All-in-One inkjet Printer.

2. Wall Mount Rack Enclosure with the following:

- a. 12U rack spaces
- b. Lightning arrestor protection as required.
- c. Fiber Patch Panel with connector shelf, Black Box JPM427A-R2
- d. Networking Patch Panel, Black Box JPM624A with panel adapters
- e. 24 Port Ethernet Network Switch with integral Fiber Optic Media Converters.
- f. Voice Synthesized Dialer.

3. HMI SCADA software shall be provided. Installation integrator shall have an installed base of this platform of HMI applications. Once install is complete and tested integrator must provide a hard drive image with restore disk as part of deliverables. This should include a manual for hard drive restore process. The Software shall include the following:

- a. Backup / Imaging software installed on HMI Server to meet or exceed the following:
 - 1) A disk image file contains the exact, byte-by-byte copy of a hard drive, partition or logical disk and can be created with various compression levels on the fly without stopping Windows OS and therefore without interrupting your business.
 - 2) Drive image files can then be stored in a variety of places, including various removable media such as CD-R(W)/DVD and Cloud Storage.
 - 3) Restores the images on the original disks, on any other partitions or even on a hard drive's free space on the fly.
- b. Remote Alarm Software shall be installed on HMI server as listed above. Alarm notifications will be noted in each section as well as alarm method.
- c. All HMI Data logging will be logged to a database server for long term storage. The Database server shall be installed on the HMI server as listed above. Logged data points will be listed in each section. In addition to general logged data points the following shall be logged.
 - 1) Activity Log
- d. All SCADA, RTU and system component collateral shall be able to be viewed from within the HMI. This includes but is not limited to the

following:

- 1) Installation and configuration manuals (PDF)
 - 2) RTU Drawings with component list (PDF)
 - 3) System and network drawings (PDF)
- e. Integrator shall provide and install interface to SCADA HMI Screens allow remote access via existing LCIDA SCADA Network.
- f. Include the following SCADA Software:
- 1) Tag Database System (National Instruments Labview backbone)
 - 2) Reports Generation Toolkit
 - 3) Ethernet/IP Driver
 - 4) OpenLink Protocol Driver
 - 5) Alarm Notification System (Voice, Text, E-mail)
 - 6) Compatible with existing LCIDA SCADA System.
- B. Central Office shall include a Central Terminal Unit (CTU). The CTU shall be provided per paragraph 2.04 "REMOTE TERMINAL UNIT (RTU)".

2.03 COMMUNICATIONS CABLING

- A. Provide Fiber Optic Backbone for Plant SCADA Communications between RTU and SCADA Network Equipment. Provide Category 6 Ethernet Cable for Horizontal Cabling from CTU, Server, and SCADA Network Equipment. Refer to Specifications Section 27 13 43 - Communications Services Cabling.

2.04 REMOTE TERMINAL UNIT (RTU)

- A. Each Remote Terminal Unit shall include but is not limited to the following specifications. Each RTU shall be interchangeable where the only difference is in program and enclosure type. All components shall be off the shelf products and non-proprietary. With exception of Ethernet radios, all components shall be available to be purchased locally within 250 miles of installation area:
1. Each RTU shall use a PLC controller. Allen-Bradley Compactlogix 1769-L33ER Processor (I/O Build 32DI, 8DO, 8AI, 4AO).
 2. Each RTU shall include a Fiber Optic Media Converter and Ethernet CAT 6 Eight Port Switch.
 3. Each RTU shall include a power supply and a UPS.
 4. Each RTU shall include terminals.
 5. Each RTU shall include Line Surge Protection and Line Filter.
 6. Each of the RTU controller outputs shall be individually fused to protect controller's outputs.
 7. Each wire shall be labeled with Brady label that correspond to number on associated drawing.
 8. Each RTU shall be protected with main breaker and duplex receptacle.
 9. Each RTU shall contain wire way with covers to protect internal wiring.
 10. Each RTU shall include battery backup. A SPDT relay will be installed into each RTU such that each node's battery backup and power fail indicator can be tested remotely from HMI.

11. Each RTU Enclosure shall be as follows. Accepted manufacturers include, Hoffman, Hubbell, and Hammond enclosures will be accepted.
 - a. Enclosures that are located outside shall be of NEMA type 4X stainless steel.
 - b. Enclosures that are located inside shall be NEMA type 1.
 - c. Minimum enclosure dimensions shall be 36”H x 36”W x 12”D with 3-point latch and capable of wall or unistrut mounting.
 - d. Include Door Position Switch for Intrusion Alarm.

B. Remote Terminal Unit (RTU) I/O Schedules:

1. Electrical Power Distribution System
 - a. Alarm: Power Fail
 - b. Status: Generator Run Status
 - c. Status: ATS Position (Normal/Emergency)
2. All CTU’s & RTU’s
 - a. Alarm: Comm Fail
 - b. Alarm: Power Fail
 - c. Alarm: Intrusion Detection
3. Headworks System
 - a. Alarm: Influent Pump Station Control Panel Power Fail
 - b. Alarm: Influent Pump Station Control Panel Comm Fail
 - c. Alarm: Influent Pump Motor(s) Fail
 - d. Alarm: Fine Screen Motor(s) Fail
 - e. Alarm: Coarse Screen Motor(s) Fail
 - f. Status: Influent Pump Motor(s) Running
 - g. Status: Influent Pump(s) H-O-A Selector Switch Position
 - h. Status: Fine Screen Motor(s) Running
 - i. Status: Coarse Screen Motor(s) Running
 - j. Status: Coarse Screen Motor(s) H-O-A Selector Switch Position
 - k. Status: Influent Pump Station Flow Meter.
 - l. Analog Out: IPS Flow Meter signal to Soda Ash Control Panel.
4. Aerators
 - a. Alarm: Aerator Control Panel Power Fail
 - b. Alarm: Aerator Control Comm Fail
 - c. Alarm: Aerator Motor(s) Fail
 - d. Status: Aerator Motor(s) Running
 - e. Status: Aerator Motor(s) H-O-A Selector Switch Position
5. Clarifiers
 - a. Alarms: Rake Drive Motor(s) Fail
 - b. Alarms: Scum Pump Motor(s) Fail
 - c. Status: Rake Drive Motor(s) Running
 - d. Status: Rake Drive Motor(s) H-O-A Selector Switch Position
 - e. Status: Scum Pump Motor(s) Running
 - f. Status: Scum Pump Motor(s) H-O-A Selector Switch Position

6. Filters & Blowers
 - a. Alarm: Filter Control Panel(s) Power Fail
 - b. Alarm: Filter Control Panel(s) Comm Fail
 - c. Alarm: Biolac Control Panel Power Fail
 - d. Alarm: Biolac Control Panel Comm Fail
 - e. Alarm: Blower Motor(s) Fail
 - f. Status: Blower Motor(s) Running
 - g. Status: Blower(s) H-O-A Selector Switch Position

7. UV Disinfection
 - a. Alarms: SCC, PDC #1A, PDC #1B, PDC #1C & HSC Power Fail
 - b. Alarm: SCC Comm Fail
 - c. Alarm: No Flow
 - d. Status: PDC #1A, PDC #1B and PDC #1C ON/OFF
 - e. Status: Parshall Flume Flow from SCC
 - f. Status: Level Sensor Alarm

8. Effluent Pump Station
 - a. Alarm: Effluent Pump Station Control Panel Power Fail
 - b. Alarm: Effluent Pump Station Control Panel Comm Fail
 - c. Alarm: Effluent Pump Motor(s) Fail
 - d. Status: Influent Pump Motor(s) Running
 - e. Status: Influent Pump(s) H-O-A Selector Switch Position

PART 3- EXECUTION

3.01 INSTALLATION

- A. Install surge suppressors.

3.02 GENERAL WIRING

- A. Wiring Method: Install cables in raceways except as otherwise indicated.
- B. Splices, Taps, and Terminations: For power and control wiring, use numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.
- C. Grounding: According to recommendations in IEEE 142 and IEEE 1100.

3.03 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals according to Section 26 05 53 " Identification of Electrical Systems".

3.04 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including

connections, and to assist in field testing. Report results in writing.

- B. Test Schedule: Schedule tests after pretesting has successfully been completed and system has been in normal functional operation for at least 14 days. Provide a minimum of 10 days' notice of test schedule.
- C. Operational Tests: Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation. Test equipment for proper operation in all functional modes.
- D. Train Owner Representatives in operation and maintenance of SCADA System. Include a minimum of 16 hours of instruction.

END OF SECTION

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SECTION 25 31 03

INFLUENT PUMP STATION CONTROL PANEL

PART 1 - GENERAL

1.01 SCOPE

- A. The work covered under this section of the specifications includes the furnishing and installation of a complete pump station electrical control system as hereinafter described and all necessary appurtenances to provide a complete control system for this installation.
- B. The pump station control panel shall be factory assembled, wired and tested and covered by complete electrical drawings and instructions.
- C. The pump control panel and control system described hereafter shall be supplied by the pump supplier to provide single source responsibility for complete functioning system.
- D. The CONTRACTOR shall include in the bid all cost for factory-trained service personnel to adjust all the equipment until the system has been completely accepted.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 26 05 00 - General Electrical Provisions
- B. Section 26 05 06 - Grounding
- C. Section 26 05 29 - Supporting Devices
- D. Section 26 05 33 - Conduits
- E. Section 25 31 02 - SCADA System

1.03 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA ICS 3 - Industrial Control and Systems: Factory Built Assemblies.
 - 2. NEMA ICS 6 - Industrial Control and Systems: Enclosures.

1.04 SUBMITTALS

- A. Manufacturer's data shall be submitted in accordance with paragraph entitled SUBMITTALS in Section 26 05 00 of these Specifications.
- B. Hardware Submittals: Before any components are fabricated, and/or integrated into assemblies or shipped to the job site, furnish to the ENGINEER, for their review, submittal documents in accordance with Section 26 05 00. Submittals shall include full details, shop drawings, catalog cuts and such other descriptive matter and

documentation as may be required to fully describe the equipment and to demonstrate its conformity to these specifications. Specifically, the CONTRACTOR shall submit the following materials:

1. Block diagram and operational description of the system showing all major components and their interconnections and interrelationships. Label each diagram and specify all external power and communications interfaces. All diagrams shall be in an 11 by 17 format. Required documentation sets shall be furnished in bound hardcopy and final documentation shall also be provided in electronic format on CD.
 2. Drawings of equipment to be supplied shall include, as a minimum: overall dimension details for each panel, console, etc., including internal and external arrangements and door mounted operator devices with nameplate designations. Wiring diagrams of equipment including field device connections shall be included and specific installation/wiring requirements identified.
 3. Operational Description shall include the principal functions/capabilities of the control systems as provided and configured /programmed. Included shall be a description of system communications.
 4. Provide a detailed Bill of Materials along with descriptive literature identifying component name, manufacturer, model number, and quantity supplied.
- C. Test Outlines and Procedures Submittals: Test descriptions shall be in sufficient detail to fully describe the specific tests to be conducted to demonstrate conformance with this specification.
- D. Operations and Maintenance Data: At a minimum, include the following information in accordance with Section 26 05 00.
1. Operating and Calibration instructions.
 2. Troubleshooting Information.
 3. Wiring Diagrams with wire numbers and termination point.

1.05 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of control panels and input and output devices connected to control system. Include interconnection wiring and cabling information, and terminal block layouts in controller cabinets. Include copy of manufacturer's certified drawings.

- B. Operation and Maintenance Data: Submit bound copies of operating and programming instructions, and include card replacement, adjustments, and preventive maintenance procedures and materials.

1.06 QUALITY ASSURANCE

- A. All instrumentation and control systems equipment shall be furnished and installed by the CONTRACTOR. The CONTRACTOR shall provide and be responsible for the proper operation of the pumping station control system. The CONTRACTOR shall perform in house submittal drawings and assembly of products. Subcontracting submittal drawings and equipment assembly will not be permitted.
- B. The CONTRACTOR shall be responsible for all coordination necessary in order to furnish, to supervise installation and connections, to calibrate, and to place into operation all the controls along with all other equipment and accessories as specified.
- C. Guarantee on the control system function and equipment shall be one (1) year from date of final acceptance by the OWNER. The CONTRACTOR shall promptly replace, without additional cost to the OWNER, any part of this process and control installation which is found to be defective within said period of one year, ordinary wear and tear and lighting damage excepted.

1.07 GENERAL REQUIREMENTS

- A. All control wires shall be stranded copper Type THHN or MTW respectively, except where indicated on the Drawings. All 4-20 ma signal control wire shall be #16 shielded TC cable or as shown on the Drawings.
- B. All materials, equipment, and devices shall meet the requirements of UL where UL standards are established for those items and the requirements of NFPA-70.
- C. All electrical components of the system shall operate on 120 VAC, 60 Hz, single phase power source except as otherwise noted. Any other devices necessary to obtain proper operation of the instrumentation and control system from these energy sources shall be furnished with the system.
- D. Instrumentation equipment and enclosures shall be suitable for the environmental conditions specified. All system elements shall operate properly in the presence of telephone lines, power lines and electrical equipment.
- E. All work and materials shall comply with the National Electrical Code and applicable local regulations and ordinances. Where required by applicable codes, panel assemblies, materials and equipment shall be approved, identified, labeled or listed by Underwriters' Laboratories or other testing organization acceptable to the governing authority.

- F. All instrumentation shall meet or exceed I.S.A. Standards and Recommended Practices, ANSI OSHA and any other applicable code.

1.08 INTERFACE WITH OTHER PRODUCTS AND EQUIPMENT

- A. Provide all required cables, cords, and connective devices for interface with other control system components.
- B. Coordinate size and configuration of enclosure to meet project requirements.

1.09 TRAINING

- A. A training program for the OWNER'S personnel shall be included. The training program shall instruct the owner's personnel in the operation and philosophy of the equipment so that they have a firm understanding of the configuration and operation of the system. The training program shall additionally instruct the OWNER's personnel in the use of the various maintenance aids and equipment available to isolate and correct each circuit malfunction in the minimum possible time.
- B. A minimum of four (4) hours training shall be provided on the pumping station control system operation and maintenance and shall be scheduled with the OWNER or OWNER'S representative.

1.09 CONTROL STRATEGY

- A. **FOR INFLUENT PUMP STATION**, pumps shall operate on a lead/lag/lag basis as controlled by the triplex pump controller. In the automatic mode, the triplex pump controller shall receive stop, start, and speed commands based upon the level in the pump station wet well as sensed by the submersible level transmitter.
- B. **FOR INFLUENT PUMP STATION**, a back-up float system shall be utilized in the event of submersible pressure transmitter failure for high and low level alarms.
- C. Pump(s) shall not be allowed to operate on high temperature and shall automatically switch to the other pump.
- D. Pump(s) shall alternate on pump failure and seal failure when a failure condition is detected, and the pumps are in the automatic mode. The failed pump shall become the lag pump on future cycles until the failure condition is corrected.
- E. Pumps shall automatically alternate and exercise uniformly. Each motor shall be able to be selected for Lead operation or fully automatic alternation on each call-for cycle.

- F. All electronic controls shall be bypassed (including delays) when the Man-Off-Auto switches are in the Manual or Off positions to allow motor control even in the event of a circuit failure.
- G. Provide variable delays for Power-On, Pump Failure and Improper Sequence Pump Off delays. Field adjustable motor failure delays shall be provided in the range of five (5) seconds to eight (8) minutes. Upon motor failure, the remaining functional motor shall be made Lead until the failure is corrected and manually reset. The failed motor shall only be called to operate at the lag pump operating level. Individual, adjustable power-on delays shall also be supplied which delay pump start during initial startup or after a power failure. In the event that both motors are called for at the same time, there shall be a minimum of five (5) seconds between motor starts and stops.
- H. Level inputs shall be optically isolated and intrinsic safe. All setpoints shall be approved by the Project Engineer.

PART 2 - CONTROL PANEL SPECIFICATIONS

2.01 GENERAL

- A. The described equipment shall be housed in a NEMA 4X stainless steel enclosure, properly sized in accordance with manufacturer's recommendations. The enclosure shall be designed specifically for mounting in an unprotected outdoor location. The enclosure shall have a gasketed hinged, front weather door with locking capability and an internally mounted hinged deadfront panel so that all the components normally actuated by Operating Personnel are accessible without opening the dead front panel and yet are not exposed to the elements or to unauthorized personnel. The exterior door of the enclosure shall be provided with a lockable door operator with a three point latching system.
- B. The control panel shall be designed for the voltage available at each site as indicated on the drawings.
- C. Provide a properly sized Main Circuit Breaker. In addition, provide a deadfront operator mounted on the interior deadfront door. The operator shall prevent the deadfront door from being opened while the breaker is in the "ON" position. The main circuit breaker must have a minimum ampere interrupting capacity of 42,000 at symmetrical RMS amps. The main circuit breaker shall have a trip rating to allow full voltage starting and continuous operation of the motors. The circuit breaker shall be manufactured by Square-D or as accepted.
- D. Individual thermal magnetic circuit breakers or motor circuit protectors shall be supplied as branch circuit protection for each pump motor. The circuit breaker must have a minimum ampere interrupting capacity of 42,000 at symmetrical RMS amps. The circuit breakers or motor circuit protectors shall be provided with adjustable trip units.

The circuit breaker shall be operable through the operator's door of the enclosure and shall have a trip rating to allow full voltage starting and continuous operation of the motors. The circuit breaker shall be manufactured by Square-D, Eaton, or as accepted. The circuit breaker or motor circuit protector shall be provided with lockout-tag out provisions to allow the operator to padlock the circuit breaker or motor circuit protector in the OFF position.

- E. Provide properly sized Power Distribution Block(s) (PDB), as required for the control panel. Power distribution blocks shall be manufactured by Marathon, Square D, or as accepted.
- F. Provide a service entrance rated Type 2, AC power distribution Surge Protection Device designed to protect all types of loads fed from the distribution panels, branch panels and/or individual equipment panels. Units shall be UL listed and shall bear a UL label. Surge Protection Device shall be rated for 160kA per phase and 80kA per mode. Unit shall come complete with a properly rated sized circuit breaker for disconnect means.
- G. The control panel shall be supplied with a properly sized control power circuit breaker and fused control power transformer where necessary. The control power circuit breaker shall supply power to all control wiring within the enclosure.
- H. Independent voltage monitors shall be provided on the load side of the pump disconnects to monitor incoming voltage and provide protection to the motors. These monitors shall detect incoming service abnormalities including unbalance, reversal, over voltage, under-voltage and rapid cycling protection and provide automatic cutout of pumps and provide local alarm. Upon detection that incoming power has returned to normal, the unit will restore pump operation and discontinue alarm. This device shall have a nominal 2-4 second dropout delay and (2-300 second) adjustable restoration time delay. Phase monitor shall be protected by 1 amp, 240 volts fuses on the primary side.
- I. **FOR INFLUENT PUMP STATION**, the control panel shall be provided with variable frequency drive (VFD), for 3-phase starting for each pump motor. Each VFD shall be equipped with auxiliary contacts on the starter contactor and the overload relay for all required interlocking and "overload tripped" indication. Each VFD shall include an adjustable solid-state overload protection relay and an H-O-A selector switch. Each VFD and overload relay shall be properly sized for the motors furnished on this project.
- J. The control panel shall be provided with elapsed time meters for each pump motor.
- K. 120 VAC control power for each motor starter coil and H-O-A selector switch shall be provided.
- L. A control power circuit breaker shall be provided and operable through the inner dead front panel of the control panel to provide a disconnect means and short circuit protection for any 120 VAC (or less) devices not powered from motor starter circuits.

- M. The control panel shall have three position selector switches mounted on the interior dead front panel for Hand-Off-Auto operation of each pump. In the Hand position the motor shall be called to operate. In the Off mode the motor shall not be allowed to operate. In the Auto mode, the motor shall operate in response to control signals from the controller. Selector Switch(s) shall be of the maintained position type. The selector switch(s) shall be operator's door mounted, 30.5mm diameter, NEMA Type 4X furnished with industrial rated heavy duty NEMA Type 4X with modular contact block assemblies. Contact Blocks shall be stacking screw together type with parallel double break contacts with wiping action. Contact blocks shall be rated NEMA A600, 600 Volt, 10A continuous duty, 7200VA make, 720VA break AC. Contacts shall have compression type screw terminals with self lifting spring washers to insure that the wire remains secure even under severe vibration. Snap together contact blocks are not acceptable. Selector switches shall be Square D Series 9001, Siemens Class 52, or Allen-Bradley 800-H Line.
- N. Provide a single "Lamp Test" pushbutton with dual-input lights for all specified alarm conditions. Lamp test shall also test the external, top mounted, common alarm light. Door-mounted indicator lights shall be the LED type, NEMA 4X rated.
- O. **FOR INFLUENT PUMP STATION**, provide a triplex pump controller, to interface with wet well submersible transducer and high/low level floats to provide control of the pump station pumps. The triplex pump controller shall be a microprocessor based pump controller or shall consist of a level/meter controller and a separated triplex controller for monitoring and automatically controlling three submersible pumps in a pump down mode of operation in response to wet well fluid levels. The triplex pump controller shall allow an operator to control setpoints which shall be field adjustable throughout the complete signal range from the front of the controller. Setpoints shall be displayed on an LCD or digital readout at any time via keypad or pushbutton. The setpoints shall be field adjustable to operate on rising above or falling below the desired setpoint. The controller shall receive an analog signal from the wet well submersible pressure level transmitter. Back-up float switches shall be utilized in the event of a submersible pressure level transmitter failure and activate the common alarm light. The controller shall provide the following OFF-ON set point controls:
1. High Level Alarm (Rising Level)
 2. Lag Pump Start (Rising Level)
 3. Lag Pump Start (Rising Level)
 4. Lead Pump Start (Rising Level)
 5. Pump(s) Stop (Falling Level)
 6. Low Level Alarm (Falling Level)

The triplex pump controller shall additionally control the operation of the pumps. The controller shall be able to control the pumps via submersible transducer. The controller shall be provided with dry contact outputs for All-Stop, Lead Start and Lag/Lag Start

during normal operation. Each dry contact shall be rated for a minimum of 10 amps at 120 VAC or 5 Amps at 240 VAC. In the automatic mode, the triplex pump controller shall provide stop, start, and speed commands based upon the fluid level in the station wetwell as sensed by a submersible transducer. Back-up float switches shall be utilized in the event of a submersible pressure level transmitter failure and activate the common alarm light. The triplex controller shall exercise the pumps uniformly. All electronic controls shall be bypassed (including delays) when the Man-Off-Auto switches are in the Manual or Off positions to allow motor control even in the event of a circuit failure. The Triplex Pump Controller shall provide adjustable variable delays for Power-On, Motor Failure, Motor Start, and Short Cycle. Field adjustable motor failure delays shall be provided in the range of five (5) seconds to five (5) minutes. Adjustable power-on delay shall also be included for the pump during initial startup or after a power failure. The controller shall provide local display of each pump run status, each pump total run time, each pump average daily starts. The controller shall be provided with pump high temperature/seal failure controls. The controller shall disable/fail the affected pump when a high temperature or seal failure signal is received and provide local alarm. The controller shall disable the affected pump and automatically operate the non-affected pump. The controller shall include built-in Pump Failure detection logic. In the event the pump has been called into operation and the pump run signal is not received within a pre-adjustable time period. A motor failure shall be produced. The failed motor shall be disabled, an alarm shall be displayed, and the next available pump based on the selected alternation sequence shall be requested to start. The controller shall contain all relays and electronic equipment required to interface with each pump motor thermal protection and seal failure switches. The controller shall also be furnished with all relays and electronic devices required to interface with the solid state motor overload relays, and motor contactor auxiliary switches. The duplex pump controller shall be constructed for industrial applications for use in harsh environments. Unit(s) shall have a Temperature Operating range of -40 to + 85 Deg C, and be able to operate in environments with 10-90% non condensing humidity. Unit shall be UL Listed and in compliance with FCC part 15 Class A emissions and CE IEC61000 Surge Withstand certifications. The Triplex Pump Controller shall be a standard, catalogued product of a water and wastewater automation equipment manufacturer regularly engaged in the design and manufacture of such equipment for a period of at least fifteen (15) years.

- P. Provide ethernet port and connection to SCADA system. Coordinate all I/O requirements with the SCADA system supplier.
- Q. Provide an analog signal Line Filter for the pump controller. Line filter shall protect associated equipment from transient voltage surges and induced voltages.
- R. Provide and install all control relays to interface between control devices as required.
- S. Provide a single phase, in-line (series) 120 volt, single-phase, continuous power Surge Protection Device designed to protect all of the loads fed from the control power circuit. Device shall have protection modes and protection status indication of each mode when

power is present (L-N, L-G, N-G).

- R. Provide a condensation protective heater and adjustable high temperature cutout thermostat in the control panel. The heater shall operate at 120 VAC. The heater's surface area for heat dissipation shall be large enough to prevent a skin burn (if an operator's hand should inadvertently come in contact with the unit when energized). The heater shall be regulated by a humidistat located within the control panel enclosure.
- T. Provide a 120-volt, 15-amp, Weatherproof Duplex GFCI Receptacle mounted on the side of the enclosure for electrical hand tool use. Receptacle shall come complete with a weatherproof cover. Cover shall be UL listed for wet locations and shall be constructed of tough plastic that is resistant to high impact and sunlight. In addition, the cover shall be non-corrosive, non-conductive and protect against rain, snow and ice.
- U. Provide thermostatically controlled exhaust fans to properly ventilate the controller enclosure. Exhaust fans shall operate based on temperature setting. Exhaust fans shall be mounted near the top of the enclosure.
- V. Provide a weatherproof exterior common Alarm Light with red Lexan lens mounted on side of enclosure. The alarm light shall burn dim during normal conditions to indicate "Power On" and "Light Bulb Good" and shall flash brightly during any alarm condition.

PART 3 FIELD INSTRUMENTATION AND MODIFICATIONS

- 3.01 **SUBMERSIBLE PRESSURE/LEVEL TRANSMITTER:** Provide a solid-state direct submersible level sensor and transducer designed as pressure sensor for continuous, hydrostatic level measurement in open containers/basins. Transmitter shall have a high resistance to overload and aggressive media with a ceramic diaphragm and enclosed in 316L stainless steel housing. The range of the transmitter shall be as required for the desired application with excitation voltage of 10 - 35V DC. Instrument cable shall be commercially available shielded instrument cable with a minimum of forty-foot (40') cable length. The transmitter shall be capable of being supported by its own cable. The electronics shall be completely potted and provide an analog output to drive a level meter controller. The output shall be 4 - 20mA. The operating temperature shall be -20 to +70°C (-4 to +158°F) and the accuracy shall be ±0.2% full scale. Pressure overload rating shall be 40 times the adjusted span. Long term drift shall be ±0.1% full scale per year. The transmitter shall be mounted near the bottom of the vessel with support bracket and be cable connected. Transmitter shall have approvals by: ATEX, FM, and CSA.
- 3.02 **JUNCTION BOX AND ANALOG SIGNAL LINE FILTER:** Provide and install a properly sized NEMA 4 rated junction box, suited for outdoor/wet locations, complete with an analog signal Line Filter (LF), per Component Specifications, for the wetwell pressure/level transmitter. Junction shall have a 1/8" drain/breather hole installed in the bottom of the enclosure. Line filter shall protect associated equipment from transient voltage surges and induced voltages. Junction box shall be field installed by the

Contractor in close proximity of the submersible pressure level transmitter. The Contractor shall be responsible for properly sealing the conduits entering junction box.

- 3.03 FLOAT SWITCHES: Provide a float control system for the pumping station to operate the pumps in the event of a submersible pressure/level transmitter failure or standalone for Pump Station No. 5. Provide a High Level, Lead and Lag Start, and an All Stop back-up Float Switches mounted in wet well. Float switches shall be set at one foot (1') above (High) and below (Low) normal operating levels. Normal operating levels shall be set per Project Engineers direction. The float switch shall be a direct acting switch and contain a single pole mercury switch, which actuates when the longitudinal axis of the float is horizontal and deactuates when the liquid level falls 1" below the actuation elevation. The float shall have a chemical resistant polypropylene casing with a firmly bonded electrical cable protruding. One end of the cable shall be permanently connected to the enclosed mercury switch and the entire assembly shall be capsulated to form a completely watertight and impact resistance unit. Provide the following float switches and control points:
- A. High Level Alarm/All Run
 - E. Low Level Alarm/All Stop

PART 4 EXECUTION

4.01 CONTROL PANEL SERVICE AND TRAINING

- A. The services of a factory trained, qualified representative shall be provided to inspect the completed installation, make all adjustments necessary to place the system in trouble-free operation and instruct the operating personnel in the proper care and operation of the equipment.
- B. After the control panel has been installed, the Supplier shall demonstrate with performance of each unit, and document that the system operates properly as specified.
- C. The Supplier shall provide systems training for operations staff totaling no less than 4 hours, refer to Section 1.09 Training.
- D. All training shall be conducted at the job site. Travel expenses are the responsibility of the supplier.

4.02 GENERAL INSTALLATION

- A. Installation of instrumentation and controls shall be in strict compliance with the manufacturer's instructions. The location of these items as shown on the Contract Drawings are approximate only. Exact locations shall be as approved by the ENGINEER during construction. It is the duty of the CONTRACTOR to obtain in the

field all relevant information required for proper placement of instrumentation and controls. In the case of interference with other work, proceed as instructed by the ENGINEER and provide all materials and labor required to prevent construction delays.

- B. Execution of the installation shall be in full accordance with codes and local rulings. The CONTRACTOR shall be responsible for any expenses that are a result of work performed contrary to said codes and regulations.

END OF SECTION

SECTION 25 31 04

EFFLUENT PUMP STATION CONTROL PANEL

PART 1 - GENERAL

1.01 SCOPE

- A. The work covered under this section of the specifications includes the furnishing and installation of a complete pump station electrical control system as hereinafter described and all necessary appurtenances to provide a complete control system for this installation.
- B. The pump station control panel shall be factory assembled, wired and tested and covered by complete electrical drawings and instructions.
- C. The pump control panel and control system described hereafter shall be supplied by the pump supplier to provide single source responsibility for complete functioning system.
- D. The CONTRACTOR shall include in the bid all cost for factory-trained service personnel to adjust all the equipment until the system has been completely accepted.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 26 05 00 - General Electrical Provisions
- B. Section 26 05 06 - Grounding
- C. Section 26 05 29 - Supporting Devices
- D. Section 26 05 33 - Conduits
- E. Section 25 31 02 - SCADA System

1.03 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA ICS 3 - Industrial Control and Systems: Factory Built Assemblies.
 - 2. NEMA ICS 6 - Industrial Control and Systems: Enclosures.

1.04 SUBMITTALS

- A. Manufacturer's data shall be submitted in accordance with paragraph entitled SUBMITTALS in Section 26 05 00 of these Specifications.
- B. Hardware Submittals: Before any components are fabricated, and/or integrated into assemblies or shipped to the job site, furnish to the ENGINEER, for their review, submittal documents in accordance with Section 26 05 00. Submittals shall include full details, shop drawings, catalog cuts and such other descriptive matter and

documentation as may be required to fully describe the equipment and to demonstrate its conformity to these specifications. Specifically, the CONTRACTOR shall submit the following materials:

1. Block diagram and operational description of the system showing all major components and their interconnections and interrelationships. Label each diagram and specify all external power and communications interfaces. All diagrams shall be in an 11 by 17 format. Required documentation sets shall be furnished in bound hardcopy and final documentation shall also be provided in electronic format on CD.
 2. Drawings of equipment to be supplied shall include, as a minimum: overall dimension details for each panel, console, etc., including internal and external arrangements and door mounted operator devices with nameplate designations. Wiring diagrams of equipment including field device connections shall be included and specific installation/wiring requirements identified.
 3. Operational Description shall include the principal functions/capabilities of the control systems as provided and configured /programmed. Included shall be a description of system communications.
 4. Provide a detailed Bill of Materials along with descriptive literature identifying component name, manufacturer, model number, and quantity supplied.
- C. Test Outlines and Procedures Submittals: Test descriptions shall be in sufficient detail to fully describe the specific tests to be conducted to demonstrate conformance with this specification.
- D. Operations and Maintenance Data: At a minimum, include the following information in accordance with Section 26 05 00.
1. Operating and Calibration instructions.
 2. Troubleshooting Information.
 3. Wiring Diagrams with wire numbers and termination point.

1.05 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of control panels and input and output devices connected to control system. Include interconnection wiring and cabling information, and terminal block layouts in controller cabinets. Include copy of manufacturer's certified drawings.

- B. Operation and Maintenance Data: Submit bound copies of operating and programming instructions, and include card replacement, adjustments, and preventive maintenance procedures and materials.

1.06 QUALITY ASSURANCE

- A. All instrumentation and control systems equipment shall be furnished and installed by the CONTRACTOR. The CONTRACTOR shall provide and be responsible for the proper operation of the pumping station control system. The CONTRACTOR shall perform in house submittal drawings and assembly of products. Subcontracting submittal drawings and equipment assembly will not be permitted.
- B. The CONTRACTOR shall be responsible for all coordination necessary in order to furnish, to supervise installation and connections, to calibrate, and to place into operation all the controls along with all other equipment and accessories as specified.
- C. Guarantee on the control system function and equipment shall be one (1) year from date of final acceptance by the OWNER. The CONTRACTOR shall promptly replace, without additional cost to the OWNER, any part of this process and control installation which is found to be defective within said period of one year, ordinary wear and tear and lighting damage excepted.

1.07 GENERAL REQUIREMENTS

- A. All control wires shall be stranded copper Type THHN or MTW respectively, except where indicated on the Drawings. All 4-20 ma signal control wire shall be #16 shielded TC cable or as shown on the Drawings.
- B. All materials, equipment, and devices shall meet the requirements of UL where UL standards are established for those items and the requirements of NFPA-70.
- C. All electrical components of the system shall operate on 120 VAC, 60 Hz, single phase power source except as otherwise noted. Any other devices necessary to obtain proper operation of the instrumentation and control system from these energy sources shall be furnished with the system.
- D. Instrumentation equipment and enclosures shall be suitable for the environmental conditions specified. All system elements shall operate properly in the presence of telephone lines, power lines and electrical equipment.
- E. All work and materials shall comply with the National Electrical Code and applicable local regulations and ordinances. Where required by applicable codes, panel assemblies, materials and equipment shall be approved, identified, labeled or listed by Underwriters' Laboratories or other testing organization acceptable to the governing authority.

- F. All instrumentation shall meet or exceed I.S.A. Standards and Recommended Practices, ANSI OSHA and any other applicable code.

1.08 INTERFACE WITH OTHER PRODUCTS AND EQUIPMENT

- A. Provide all required cables, cords, and connective devices for interface with other control system components.
- B. Coordinate size and configuration of enclosure to meet project requirements.

1.09 TRAINING

- A. A training program for the OWNER'S personnel shall be included. The training program shall instruct the owner's personnel in the operation and philosophy of the equipment so that they have a firm understanding of the configuration and operation of the system. The training program shall additionally instruct the OWNER's personnel in the use of the various maintenance aids and equipment available to isolate and correct each circuit malfunction in the minimum possible time.
- B. A minimum of four (4) hours training shall be provided on the pumping station control system operation and maintenance and shall be scheduled with the OWNER or OWNER'S representative.

1.09 CONTROL STRATEGY

- A. **FOR EFFLUENT PUMP STATION**, pumps shall operate on a lead/lag/lag basis as controlled by the triplex pump controller. In the automatic mode, the triplex pump controller shall receive stop, start, and speed commands based upon the level in the pump station wet well as sensed by the submersible level transmitter.
- B. **FOR EFFLUENT PUMP STATION**, a back-up float system shall be utilized in the event of submersible pressure transmitter failure for high and low level alarms.
- C. Pump(s) shall not be allowed to operate on high temperature and shall automatically switch to the other pump.
- D. Pump(s) shall alternate on pump failure and seal failure when a failure condition is detected, and the pumps are in the automatic mode. The failed pump shall become the lag pump on future cycles until the failure condition is corrected.
- E. Pumps shall automatically alternate and exercise uniformly. Each motor shall be able to be selected for Lead operation or fully automatic alternation on each call-for cycle.

- F. All electronic controls shall be bypassed (including delays) when the Man-Off-Auto switches are in the Manual or Off positions to allow motor control even in the event of a circuit failure.
- G. Provide variable delays for Power-On, Pump Failure and Improper Sequence Pump Off delays. Field adjustable motor failure delays shall be provided in the range of five (5) seconds to eight (8) minutes. Upon motor failure, the remaining functional motor shall be made Lead until the failure is corrected and manually reset. The failed motor shall only be called to operate at the lag pump operating level. Individual, adjustable power-on delays shall also be supplied which delay pump start during initial startup or after a power failure. In the event that both motors are called for at the same time, there shall be a minimum of five (5) seconds between motor starts and stops.
- H. Level inputs shall be optically isolated and intrinsic safe. All setpoints shall be approved by the Project Engineer.

PART 2 - CONTROL PANEL SPECIFICATIONS

2.01 GENERAL

- A. The described equipment shall be housed in a NEMA 4X stainless steel enclosure, properly sized in accordance with manufacturer's recommendations. The enclosure shall be designed specifically for mounting in an unprotected outdoor location. The enclosure shall have a gasketed hinged, front weather door with locking capability and an internally mounted hinged deadfront panel so that all the components normally actuated by Operating Personnel are accessible without opening the dead front panel and yet are not exposed to the elements or to unauthorized personnel. The exterior door of the enclosure shall be provided with a lockable door operator with a three point latching system.
- B. The control panel shall be designed for the voltage available at each site as indicated on the drawings.
- C. Provide a properly sized Main Circuit Breaker. In addition, provide a deadfront operator mounted on the interior deadfront door. The operator shall prevent the deadfront door from being opened while the breaker is in the "ON" position. The main circuit breaker must have a minimum ampere interrupting capacity of 42,000 at symmetrical RMS amps. The main circuit breaker shall have a trip rating to allow full voltage starting and continuous operation of the motors. The circuit breaker shall be manufactured by Square-D or as accepted.
- D. Individual thermal magnetic circuit breakers or motor circuit protectors shall be supplied as branch circuit protection for each pump motor. The circuit breaker must have a minimum ampere interrupting capacity of 42,000 at symmetrical RMS amps. The circuit breakers or motor circuit protectors shall be provided with adjustable trip units.

The circuit breaker shall be operable through the operator's door of the enclosure and shall have a trip rating to allow full voltage starting and continuous operation of the motors. The circuit breaker shall be manufactured by Square-D, Eaton, or as accepted. The circuit breaker or motor circuit protector shall be provided with lockout-tag out provisions to allow the operator to padlock the circuit breaker or motor circuit protector in the OFF position.

- E. Provide properly sized Power Distribution Block(s) (PDB), as required for the control panel. Power distribution blocks shall be manufactured by Marathon, Square D, or as accepted.
- F. Provide a service entrance rated Type 2, AC power distribution Surge Protection Device designed to protect all types of loads fed from the distribution panels, branch panels and/or individual equipment panels. Units shall be UL listed and shall bear a UL label. Surge Protection Device shall be rated for 160kA per phase and 80kA per mode. Unit shall come complete with a properly rated sized circuit breaker for disconnect means.
- G. The control panel shall be supplied with a properly sized control power circuit breaker and fused control power transformer where necessary. The control power circuit breaker shall supply power to all control wiring within the enclosure.
- H. Independent voltage monitors shall be provided on the load side of the pump disconnects to monitor incoming voltage and provide protection to the motors. These monitors shall detect incoming service abnormalities including unbalance, reversal, over voltage, under-voltage and rapid cycling protection and provide automatic cutout of pumps and provide local alarm. Upon detection that incoming power has returned to normal, the unit will restore pump operation and discontinue alarm. This device shall have a nominal 2-4 second dropout delay and (2-300 second) adjustable restoration time delay. Phase monitor shall be protected by 1 amp, 240 volts fuses on the primary side.
- I. **FOR EFFLUENT PUMP STATION**, the control panel shall be provided with variable frequency drive (VFD), for 3-phase starting for each pump motor. Each VFD shall be equipped with auxiliary contacts on the starter contactor and the overload relay for all required interlocking and "overload tripped" indication. Each VFD shall include an adjustable solid-state overload protection relay and an H-O-A selector switch. Each VFD and overload relay shall be properly sized for the motors furnished on this project.
- J. The control panel shall be provided with elapsed time meters for each pump motor.
- K. 120 VAC control power for each motor starter coil and H-O-A selector switch shall be provided.
- L. A control power circuit breaker shall be provided and operable through the inner dead front panel of the control panel to provide a disconnect means and short circuit protection for any 120 VAC (or less) devices not powered from motor starter circuits.

- M. The control panel shall have three position selector switches mounted on the interior dead front panel for Hand-Off-Auto operation of each pump. In the Hand position the motor shall be called to operate. In the Off mode the motor shall not be allowed to operate. In the Auto mode, the motor shall operate in response to control signals from the controller. Selector Switch(s) shall be of the maintained position type. The selector switch(s) shall be operator's door mounted, 30.5mm diameter, NEMA Type 4X furnished with industrial rated heavy duty NEMA Type 4X with modular contact block assemblies. Contact Blocks shall be stacking screw together type with parallel double break contacts with wiping action. Contact blocks shall be rated NEMA A600, 600 Volt, 10A continuous duty, 7200VA make, 720VA break AC. Contacts shall have compression type screw terminals with self lifting spring washers to insure that the wire remains secure even under severe vibration. Snap together contact blocks are not acceptable. Selector switches shall be Square D Series 9001, Siemens Class 52, or Allen-Bradley 800-H Line.
- N. Provide a single "Lamp Test" pushbutton with dual-input lights for all specified alarm conditions. Lamp test shall also test the external, top mounted, common alarm light. Door-mounted indicator lights shall be the LED type, NEMA 4X rated.
- O. **FOR EFFLUENT PUMP STATION**, provide a triplex pump controller, to interface with wet well submersible transducer and high/low level floats to provide control of the pump station pumps. The triplex pump controller shall be a microprocessor based pump controller or shall consist of a level/meter controller and a separated triplex controller for monitoring and automatically controlling three submersible pumps in a pump down mode of operation in response to wet well fluid levels. The triplex pump controller shall allow an operator to control setpoints which shall be field adjustable throughout the complete signal range from the front of the controller. Setpoints shall be displayed on an LCD or digital readout at any time via keypad or pushbutton. The setpoints shall be field adjustable to operate on rising above or falling below the desired setpoint. The controller shall receive an analog signal from the wet well submersible pressure level transmitter. Back-up float switches shall be utilized in the event of a submersible pressure level transmitter failure and activate the common alarm light. The controller shall provide the following OFF-ON set point controls:
1. High Level Alarm (Rising Level)
 2. Lag Pump Start (Rising Level)
 3. Lag Pump Start (Rising Level)
 4. Lead Pump Start (Rising Level)
 5. Pump(s) Stop (Falling Level)
 6. Low Level Alarm (Falling Level)

The triplex pump controller shall additionally control the operation of the pumps. The controller shall be able to control the pumps via submersible transducer. The controller shall be provided with dry contact outputs for All-Stop, Lead Start and Lag/Lag Start

during normal operation. Each dry contact shall be rated for a minimum of 10 amps at 120 VAC or 5 Amps at 240 VAC. In the automatic mode, the triplex pump controller shall provide stop, start, and speed commands based upon the fluid level in the station wetwell as sensed by a submersible transducer. Back-up float switches shall be utilized in the event of a submersible pressure level transmitter failure and activate the common alarm light. The triplex controller shall exercise the pumps uniformly. All electronic controls shall be bypassed (including delays) when the Man-Off-Auto switches are in the Manual or Off positions to allow motor control even in the event of a circuit failure. The Triplex Pump Controller shall provide adjustable variable delays for Power-On, Motor Failure, Motor Start, and Short Cycle. Field adjustable motor failure delays shall be provided in the range of five (5) seconds to five (5) minutes. Adjustable power-on delay shall also be included for the pump during initial startup or after a power failure. The controller shall provide local display of each pump run status, each pump total run time, each pump average daily starts. The controller shall be provided with pump high temperature/seal failure controls. The controller shall disable/fail the affected pump when a high temperature or seal failure signal is received and provide local alarm. The controller shall disable the affected pump and automatically operate the non-affected pump. The controller shall include built-in Pump Failure detection logic. In the event the pump has been called into operation and the pump run signal is not received within a pre-adjustable time period. A motor failure shall be produced. The failed motor shall be disabled, an alarm shall be displayed, and the next available pump based on the selected alternation sequence shall be requested to start. The controller shall contain all relays and electronic equipment required to interface with each pump motor thermal protection and seal failure switches. The controller shall also be furnished with all relays and electronic devices required to interface with the solid state motor overload relays, and motor contactor auxiliary switches. The duplex pump controller shall be constructed for industrial applications for use in harsh environments. Unit(s) shall have a Temperature Operating range of -40 to + 85 Deg C, and be able to operate in environments with 10-90% non condensing humidity. Unit shall be UL Listed and in compliance with FCC part 15 Class A emissions and CE IEC61000 Surge Withstand certifications. The Triplex Pump Controller shall be a standard, catalogued product of a water and wastewater automation equipment manufacturer regularly engaged in the design and manufacture of such equipment for a period of at least fifteen (15) years.

- P. Provide ethernet port and connection to SCADA system. Coordinate all I/O requirements with the SCADA system supplier.
- Q. Provide an analog signal Line Filter for the pump controller. Line filter shall protect associated equipment from transient voltage surges and induced voltages.
- R. Provide and install all control relays to interface between control devices as required.
- S. Provide a single phase, in-line (series) 120 volt, single-phase, continuous power Surge Protection Device designed to protect all of the loads fed from the control power circuit. Device shall have protection modes and protection status indication of each mode when

power is present (L-N, L-G, N-G).

- R. Provide a condensation protective heater and adjustable high temperature cutout thermostat in the control panel. The heater shall operate at 120 VAC. The heater's surface area for heat dissipation shall be large enough to prevent a skin burn (if an operator's hand should inadvertently come in contact with the unit when energized). The heater shall be regulated by a humidistat located within the control panel enclosure.
- T. Provide a 120-volt, 15-amp, Weatherproof Duplex GFCI Receptacle mounted on the side of the enclosure for electrical hand tool use. Receptacle shall come complete with a weatherproof cover. Cover shall be UL listed for wet locations and shall be constructed of tough plastic that is resistant to high impact and sunlight. In addition, the cover shall be non-corrosive, non-conductive and protect against rain, snow and ice.
- U. Provide thermostatically controlled exhaust fans to properly ventilate the controller enclosure. Exhaust fans shall operate based on temperature setting. Exhaust fans shall be mounted near the top of the enclosure.
- V. Provide a weatherproof exterior common Alarm Light with red Lexan lens mounted on side of enclosure. The alarm light shall burn dim during normal conditions to indicate "Power On" and "Light Bulb Good" and shall flash brightly during any alarm condition.

PART 3 FIELD INSTRUMENTATION AND MODIFICATIONS

- 3.01 **SUBMERSIBLE PRESSURE/LEVEL TRANSMITTER:** Provide a solid-state direct submersible level sensor and transducer designed as pressure sensor for continuous, hydrostatic level measurement in open containers/basins. Transmitter shall have a high resistance to overload and aggressive media with a ceramic diaphragm and enclosed in 316L stainless steel housing. The range of the transmitter shall be as required for the desired application with excitation voltage of 10 - 35V DC. Instrument cable shall be commercially available shielded instrument cable with a minimum of forty-foot (40') cable length. The transmitter shall be capable of being supported by its own cable. The electronics shall be completely potted and provide an analog output to drive a level meter controller. The output shall be 4 - 20mA. The operating temperature shall be -20 to +70°C (-4 to +158°F) and the accuracy shall be ±0.2% full scale. Pressure overload rating shall be 40 times the adjusted span. Long term drift shall be ±0.1% full scale per year. The transmitter shall be mounted near the bottom of the vessel with support bracket and be cable connected. Transmitter shall have approvals by: ATEX, FM, and CSA.
- 3.02 **JUNCTION BOX AND ANALOG SIGNAL LINE FILTER:** Provide and install a properly sized NEMA 4 rated junction box, suited for outdoor/wet locations, complete with an analog signal Line Filter (LF), per Component Specifications, for the wetwell pressure/level transmitter. Junction shall have a 1/8" drain/breather hole installed in the bottom of the enclosure. Line filter shall protect associated equipment from transient voltage surges and induced voltages. Junction box shall be field installed by the

Contractor in close proximity of the submersible pressure level transmitter. The Contractor shall be responsible for properly sealing the conduits entering junction box.

- 3.03 FLOAT SWITCHES: Provide a float control system for the pumping station to operate the pumps in the event of a submersible pressure/level transmitter failure or standalone for Pump Station No. 5. Provide a High Level, Lead and Lag Start, and an All Stop back-up Float Switches mounted in wet well. Float switches shall be set at one foot (1') above (High) and below (Low) normal operating levels. Normal operating levels shall be set per Project Engineers direction. The float switch shall be a direct acting switch and contain a single pole mercury switch, which actuates when the longitudinal axis of the float is horizontal and deactuates when the liquid level falls 1" below the actuation elevation. The float shall have a chemical resistant polypropylene casing with a firmly bonded electrical cable protruding. One end of the cable shall be permanently connected to the enclosed mercury switch and the entire assembly shall be capsulated to form a completely watertight and impact resistance unit. Provide the following float switches and control points:
- A. High Level Alarm/All Run
 - E. Low Level Alarm/All Stop

PART 4 EXECUTION

4.01 CONTROL PANEL SERVICE AND TRAINING

- A. The services of a factory trained, qualified representative shall be provided to inspect the completed installation, make all adjustments necessary to place the system in trouble-free operation and instruct the operating personnel in the proper care and operation of the equipment.
- B. After the control panel has been installed, the Supplier shall demonstrate with performance of each unit, and document that the system operates properly as specified.
- C. The Supplier shall provide systems training for operations staff totaling no less than 4 hours, refer to Section 1.09 Training.
- D. All training shall be conducted at the job site. Travel expenses are the responsibility of the supplier.

4.02 GENERAL INSTALLATION

- A. Installation of instrumentation and controls shall be in strict compliance with the manufacturer's instructions. The location of these items as shown on the Contract Drawings are approximate only. Exact locations shall be as approved by the ENGINEER during construction. It is the duty of the CONTRACTOR to obtain in the

field all relevant information required for proper placement of instrumentation and controls. In the case of interference with other work, proceed as instructed by the ENGINEER and provide all materials and labor required to prevent construction delays.

- B. Execution of the installation shall be in full accordance with codes and local rulings. The CONTRACTOR shall be responsible for any expenses that are a result of work performed contrary to said codes and regulations.

END OF SECTION

SECTION 25 31 05

AERATOR CONTROL PANEL

PART 1 - GENERAL

1.01 SCOPE

- A. The work covered under this section of the specifications includes the furnishing and installing all controls hereinafter specified to perform the intended function. The Aerator Control Panel shall be supplied with RVSS Starter(s).

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Section 26 05 00 - General Electrical Provisions
- B. Section 25 31 00 - Process Instrumentation and Controls
- C. Section 25 31 01 - Control System Integration
- D. Section 25 31 02 - SCADA System
- E. Section 26 05 26 - Grounding and Bonding for Electrical Systems
- F. Section 26 05 29 - Hangers and Supports for Electrical Systems
- G. Section 26 05 33 - Raceways and Boxes for Electrical Systems
- H. Section 26 29 13 - Enclosed Controllers

1.03 REFERENCES

- A. National Electrical Manufacturers Association:
 - 1. NEMA IA 2.2 - Programmable Controllers-Equipment Requirements and Tests.
 - 2. NEMA IA 2.3 - Programmable Controllers - Programming Languages.
 - 3. NEMA ICS 3 - Industrial Control and Systems: Factory Built Assemblies.
 - 4. NEMA ICS 6 - Industrial Control and Systems: Enclosures.

1.04 SUBMITTALS

- A. Manufacturer's data shall be submitted in accordance with paragraph entitled SUBMITTALS in Section 26 05 00 of these Specifications.
- B. Hardware Submittals: Before any components are fabricated, and/or integrated into assemblies or shipped to the job site, furnish to the ENGINEER, for their review, submittal documents in accordance with Section 26 05 00. Submittals shall include full details, shop drawings, catalog cuts and such other descriptive matter and documentation as may be required to fully describe the equipment and to demonstrate its conformity to these specifications. Specifically, the CONTRACTOR shall submit the following materials:

1. Block diagram and operational description of the system showing all major components and their interconnections and interrelationships. Label each diagram and specify all external power and communications interfaces. All diagrams shall be in an 11 by 17 format. Required documentation sets shall be furnished in bound hardcopy and final documentation shall also be provided in electronic format on CD.
 2. Drawings of equipment to be supplied shall include, as a minimum: overall dimension details for each panel, console, etc., including internal and external arrangements and door mounted operator devices with nameplate designations. Wiring diagrams of equipment including field device connections shall be included and specific installation/wiring requirements identified.
 3. Operational Description shall include the principal functions/capabilities of the PLC's as provided and configured /programmed. Included shall be a description of system communications.
 4. Provide a detailed Bill of Materials along with descriptive literature identifying component name, manufacturer, model number, and quantity supplied.
- C. Test Outlines and Procedures Submittals: Test descriptions shall be in sufficient detail to fully describe the specific tests to be conducted to demonstrate conformance with this specification.
- D. Operations and Maintenance Data: At a minimum, include the following information in accordance with Section 26 05 00.
1. Operating and Calibration instructions.
 2. Troubleshooting Information.
 3. Wiring Diagrams with wire numbers and termination point.

1.05 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit bound copies of operating and programming instructions, adjustments, and preventive maintenance procedures and materials.

1.06 QUALIFICATIONS

- A. All instrumentation and control systems equipment shall be furnished and installed by the CONTRACTOR. The CONTRACTOR shall provide and be responsible for the proper operation of the AERATOR control system. The CONTRACTOR shall perform in house submittal drawings and assembly of products. Subcontracting submittal drawings and equipment assembly will not be permitted.

- B. The CONTRACTOR shall be responsible for all coordination necessary to furnish, and to supervise installation and connections, to calibrate, and to place into operation all the controls along with all other equipment and accessories as specified.
- C. Guarantee on the control system function and equipment shall be one (1) year from date of final acceptance by the OWNER. The CONTRACTOR shall promptly replace, without additional cost to the OWNER, any part of this process and control installation which is found to be defective within said period of one year, ordinary wear and tear and lighting damage excepted.

1.07 GENERAL REQUIREMENTS

- A. All control wires shall be stranded copper Type THHN or MTW respectively, except where indicated on the Drawings. All 4-20 ma signal control wire shall be #16 shielded TC cable or as shown on the Drawings.
- B. All materials, equipment, and devices shall meet the requirements of UL where UL standards are established for those items and the requirements of NFPA-70.
- C. All electrical components of the system shall operate on 120 VAC, 60 Hz, single phase power source except as otherwise noted. Any other devices necessary to obtain proper operation of the instrumentation and control system from these energy sources shall be furnished with the system.
- D. Instrumentation equipment and enclosures shall be suitable for the environmental conditions specified. All system elements shall operate properly in the presence of telephone lines, power lines and electrical equipment.
- E. All work and materials shall comply with the National Electrical Code and applicable local regulations and ordinances. Where required by applicable codes, panel assemblies, materials and equipment shall be approved, identified, labeled, or listed by Underwriters' Laboratories or other testing organization acceptable to the governing authority.
- F. All instrumentation shall meet or exceed I.S.A. Standards and Recommended Practices, ANSI OSHA and any other applicable code.

1.08 INTERFACE WITH OTHER PRODUCTS AND EQUIPMENT

- A. Provide all required cables, cords, and connective devices for interface with other control system components.
- B. Coordinate size and configuration of enclosure to meet project requirements.

1.09 TRAINING

- A. A training program for the OWNER'S personnel shall be included. The training program shall instruct the owner's personnel in the operation and philosophy of the equipment so that they have a firm understanding of the configuration and operation of the system. The training program shall additionally instruct the OWNER's personnel in the use of the various maintenance aids and equipment available to isolate and correct each circuit malfunction in the minimum possible time.
- B. A minimum of four (4) hours training shall be provided on the Aerating station control system operation and maintenance and shall be scheduled with the OWNER or OWNER'S representative.

1.10 CONTROL STRATEGY

- A. Aerators shall operate on a manual or automatic as controlled by the controller.
- B. In the automatic mode, the controller shall receive stop and start commands for each aerator from remote SCADA operator input including timer mode.
- C. In timer mode, aerators shall run at setpoints per operator's input. Timer shall be capable of being set from 0 - 24 hours.
- D. The Aerators shall be capable of being monitored and controlled remotely from the SCADA System.
- E. All electronic controls shall be bypassed (including delays) when the Man-Off-Auto-Timer switches are in the Manual or Off positions to allow motor control even in the event of a circuit failure.

PART 2 - PRODUCTS

2.01 GENERAL

- A. The described equipment shall be housed in a NEMA Type 4X ANSI 304 Stainless Steel enclosure, properly sized in accordance with manufacturer's recommendations. The enclosure shall be designed specifically for mounting in an unprotected outdoor location. The enclosure shall have a gasketed hinged, front weather door with locking capability and an internally mounted hinged dead front panel so that all the components normally actuated by Operating Personnel are accessible without opening the dead front panel and yet are not exposed to the elements or to unauthorized personnel.

- B. The control panel shall be designed for 277/480 Volt, three-phase, four-wire power.
 - C. Provide properly sized Power Distribution Block(s) (PDB), as required for the control panel. Power distribution blocks shall be manufactured by Marathon, Square D, or approved equal.
- 2.02 SURGE PROTECTION DEVICE (SPD/TVSS): The SPD/TVSS shall be mounted in the control panel adjacent to the Main Breaker. The SPD/TVSS is connected to the main bus in the panel with conductors of size and of no greater length than indicated in the Surge Protection Device manufacturer's installation instructions. SPD/TVSS shall be a Type 2 device ideal for distribution panels, branch panels and critical loads. Unit shall come complete with 30 Amp circuit breaker for disconnect means. Unit shall have the following features.
- A. Provide SPD/TVSS in accordance with specification section 26 35 53 - Voltage Regulators.
- 2.03 Provide a Power Monitor. The power monitor shall constantly monitor the three-phase voltages to detect harmful power line conditions, caused by single phasing, low voltage, phase reversal and voltage unbalance. When a harmful condition is detected, no three-phase motors shall be allowed to operate. Phase monitor shall be protected by 1 amp, 480 volt fuses on the primary side.
- 2.04 AERATORS NO.1 & NO.2: Provide a combination circuit breaker and Reduced Voltage Soft Starter (RVSS), for each Aerator. Refer to Specification Section 26 29 13 - Enclosed Controllers. In addition, provide the following additional equipment and controls for both Aerators.
- A. The Aerators shall be controlled by a PLC Controller. The controller shall be capable of operating manually. In the automatic mode, the Aerator Controller shall receive stop and start commands from the SCADA System input, as described below. C. In timer mode, aerators shall run at setpoints per operator's input. The timer shall be capable of being set from 0 - 24 hours. The Aerators shall be capable of being monitored and controlled remotely from the SCADA System. All electronic controls shall be bypassed (including delays) when the Man-Off-Auto switches are in the Manual or Off positions to allow motor control even in the event of a circuit failure. The Controller shall be a standard, catalogued product of a water and wastewater automation equipment manufacturer regularly engaged in the design and manufacture of such equipment for a period of at least fifteen (15) years. The Controller shall have the following operators and indicators:
 - 1. Manual-Off-Automatic selector switch for each aerator motor
 - 2. Green "Running" pilot light for each aerator motor
 - 3. Red "Failure" pilot light for
 - 4. Adjustable Timer either locally or remotely set by SCADA.

- 2.05 MAIN BREAKER: Provide a properly sized Main Breaker and for the actual motor horsepower being furnished. In addition, provide a through the deadfront operator mounted on the deadfront door. The operator shall prevent the deadfront door from being opened while the breaker is in the “ON” position.
- 2.06 Control Relays - Control Relays shall be plug-in enclosed polycarbonate type. Coil winding shall be polyurethane insulated with insulation resistance of 100 megohms minimum. Dielectric strength shall be 1400 volts R.M.S. and temperature range of -50 degrees C to 65 degrees C. Mechanical life expectancy shall be in excess of 20 million operations. Pull-in speed shall be 14 milliseconds typical with 10 milliseconds typical drop-out speed. Relay shall have a continuous duty cycle and be UL recognized. Control relays shall be manufactured by Square D, Allen Bradley, Time Mark or as accepted.
- 2.07 ANALOG SIGNAL LINE FILTER: Provide an analog signal Line Filter for the controller. Line filter shall protect associated equipment from transient voltage surges and induced voltages.
- 2.08 CONTROL POWER SURGE PROTECTOR: Provide a single phase, in-line (series) 120 volt, single-phase, 20A continuous power Surge Protection Device (SPD-2), per Specifications, designed to protect all of the loads fed from the control power circuit. Device shall have protection modes and protection status indication of each mode when power is present (L-N, L-G, N-G).
- 2.09 TRANSFORMER MAIN BREAKER: Provide a 20-amp, 2-pole, 480-volt circuit breaker for transformer primary side protection and disconnect.
- 2.10 DISTRIBUTION TRANSFORMER: Provide a general purpose transformer with a 480 Volt primary, 120/240 Volt, single-phase, three-wire secondary, 1.5-kVA, dry type distribution transformer. Transformer shall be dry type with 115-degree temperature rise under full load. Transformer shall be resin-filled general purpose transformer with epoxy encapsulation. The enclosure has no openings, so that airborne particles or contaminants cannot be detrimental to operation. The core-and-coil assembly shall be embedded in an epoxy resin compound and mounted on the bottom right side of the control panel center. Transformer shall be UL Listed and CSA Certified.
- 2.11 BRANCH CIRCUIT BREAKERS: Provide the following 120/240 volt branch circuit breakers.
1. 20 amp – 1 pole, for Control Power and Alarm Light
 2. 20 amp – 1 pole, for Exhaust Fan
 3. 20 amp – 1 pole, for SPARE
 4. 20 amp – 1 pole, for GFCI Duplex Receptacles
- 2.12 DUPLEX RECEPTACLE: Provide a 120V, 15 amp, duplex receptacle mounted on the

backplate of the controller enclosure for programming and diagnostic equipment use. Receptacle shall come complete with handy box.

- 2.13 **GROUND FAULT INTERRUPTER RECEPTACLE:** Provide a 120 Volt, 15 amp, Weatherproof Duplex GFCI Receptacle mounted on the side of enclosure for electrical hand tool use. Receptacle shall come complete with a weatherproof cover. Cover shall be UL listed for wet locations, with cover closed, and shall be constructed of tough plastic that is resistant to high impact and sunlight. In addition, the cover shall be non-corrosive, non-conductive and protect against rain, snow and ice.
- 2.14 **CABINET INTERIOR LIGHTING:** Provide two (2), fifteen-inch (15”) long fluorescent light stripes mounted inside the control panel enclosure that will automatically illuminate interior dead front and cabinet interior when either controller cabinet doors are opened. Light bulbs shall be 8 Watts. Fixtures shall be centered over each door of the enclosure.
- 2.15 **ANTI-CONDENSATION HEATER:** Provide a thermostatically controlled cabinet heater mounted inside the control panel enclosure. Cabinet heater shall be 250 Watt, 120VAC with field adjustable thermostat in NEMA 1 enclosure. Heater shall be wired with high temperature wire and connectors. Thermostat shall be adjustable from 50°F to 90°F with 2°F fixed differential and mounted on the back plate of the enclosure.
- 2.16 **GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE:** Provide a 120-volt, 15-amp, Weatherproof Duplex GFCI Receptacle mounted on the side of the enclosure for electrical hand tool use. Receptacle shall come complete with a weatherproof cover. Cover shall be UL listed for wet locations and shall be constructed of tough plastic that is resistant to high impact and sunlight. In addition, the cover shall be non-corrosive, non-conductive and protect against rain, snow, and ice.
- 2.17 **EXHAUST FANS:** Provide four (4) filtered steel louvers and two (2) ten-inch (10”) thermostatically controlled exhaust fans to properly ventilate the controller enclosure. Exhaust fans shall operate based on temperature setting or when the variable frequency drive operates. Exhaust fans shall be mounted near the top of the enclosure.
- 2.18 **COMMON ALARM LIGHT:** Provide a weatherproof exterior common Alarm Light with red Lexan lens mounted on side of enclosure. The alarm light shall burn dim during normal conditions to indicate “Power On” and “Light Bulb Good” and shall flash brightly during any alarm condition.
- 2.19 **CIRCUIT BREAKERS:** The Circuit Breaker for each Aerator, dry-type transformer, and controls shall be properly sized for the served devices, per NEC (NFPA 70). The operating handles of the circuit breakers shall be operable through the interior dead front panel of the control panel. The minimum interrupting rating for the 480-volt circuit breakers shall be 35 kA.
- 2.20 **SCADA INTERFACE:** Provide ethernet port and connection to SCADA System. Verify

SCADA I/O requirements with SCADA supplier.

PART 3 EXECUTION

3.01 ENGINEERING SUPERVISION

- A. A minimum of one (1) days and two (2) trips start-up service and training operating personnel shall be included. During the first year of operations following acceptance, the system supplier shall check the calibration and operation of the system at intervals of four (4) months for periods of not less than one (1) days or for as long as may be required to correct any deficiencies covered by the equipment and/or system warranty. These services shall be furnished by the CONTRACTOR as a part of the Work included under this section of the Specifications.

3.02 GENERAL INSTALLATION

- A. Installation of instrumentation and controls shall be in strict compliance with the manufacturer's instructions. The location of these items as shown on the Contract Drawings are approximate only. Exact locations shall be as approved by the ENGINEER during construction. It is the duty of the CONTRACTOR to obtain in the field all relevant information required for proper placement of instrumentation and controls. In the case of interference with other work, proceed as instructed by the ENGINEER and provide all materials and labor required to prevent construction delays.
- B. Execution of the installation shall be in full accordance with codes and local rulings. The CONTRACTOR shall be responsible for any expenses that are a result of work performed contrary to said codes and regulations.

END OF SECTION