 <p>CLAYTON COUNTY Water AUTHORITY</p> <p>1600 Battle Creek Road, Morrow, GA 30260</p>	Bid Title	
	ADDENDUM # 3	
	DATE	Tuesday, June 30, 2020
	BID NUMBER	2020-GS-08 Walnut Creek Lift Station
	BID OPENING DATE	Wednesday, July 8, 2020 at 2:00 p.m. local time
ADDENDUM MUST BE SIGNED AND INCLUDED IN YOUR RESPONSE TO THE RFB.		

Bid Opening

Due to the ongoing concerns with Covid-19 virus, the CCWA has decided to change the bid drop-off and opening instructions. Attached to this Addendum are Bid Drop-Off and Bid Opening Instructions for this project.

The following REVISIONS shall be incorporated into the PROJECT MANUAL for the above-referenced project:

1. **Section 00 73 00 Supplementary Conditions**, revised based upon the changes within this Addendum, with the revised section attached.
2. **Section 40 05 68.23 Miscellaneous Valves**, revised based upon the changes within this Addendum, with the revised section attached.
3. **Section 46 21 13 Multi-Rake Type Mechanical Screens and Screen Conveyors**, revised based upon the changes within this Addendum, with the revised section attached.

All other terms and conditions of the PROJECT MANUAL remain unchanged.

The following QUESTIONS and ANSWERS shall be incorporated into the PROJECT MANUAL for the above-referenced project:


Q1: Are the proposed Liquidated damages in the Agreement additive/cumulative? Will they be assessed concurrently?

A1: Section 00 52 00, Part 3.2 Liquidated Damages item 3.2.1 provides the damage amount incurred until the project reaches Substantial Completion. Item 3.2.2 provides the damage amount incurred from the time after Substantial Completion through such a time that the project is ready for final payment (commonly referred to as "Final Completion"). Substantial completion-related liquidated damages and final completion-related liquidated damages will not be assessed concurrently.

Q2: Please specify the Technical Data in the referenced geotechnical investigations upon which the Contractor may rely.

A2: The items listed in Section 00 52 00 Agreement, Part 8 Contract Documents are the basis for the contract. No other items may be relied upon.

Q3: SC 9.04.A. states in part "terms of payment, payment period, and rates of interest set forth in this Agreement shall control to the exclusion of any provisions set forth in the Georgia Prompt Pay Act, O.C.G.A. § 13-11-1 et. seq. and the provisions of said Act are expressly

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waived". This extends the deadline for the Owner to pay the Contractor from 15 days in the Statute to over 30 days. SC 15.01 D. requires the Contractor to pay all Subcontractors and Suppliers within three days of receipt of payment from the Owner (whereas the Georgia Statute requires payment to Subcontractors within 10 days of receipt of payment from the Owner). This allows the Owner to double the amount of time to pay the Contractor, while significantly reducing the amount of time allowed in the Statute for the Contractor to pay Subcontractors and Suppliers. We would request the contract be changed to meet the State Statutes for payment requirements for both the contractor to the subcontractor as well as owner to contractor.

A3: See Section 00 73 00 Supplementary Conditions revised as a part of Addendum 3 and attached.

Q4: SC 12.02.A. is a form of Broad Form Indemnification, and conflicts with the indemnification language in GC 7.18. Please revise SC 12.02 A. to include "In the event of litigation between the Owner and the Contractor, the prevailing party shall be entitled to recover their legal costs to include reasonable attorney fees and expenses, expert and consultant fees, and court costs. The "Prevailing party" is the party who recovers at least 67% of its total claims in the action or who is required to pay no more than 32% of the other party's total claims in the action when considered in the totality of claims and counterclaims, if any. In claims for monetary damages, the total amount of recoverable attorney's fees and costs shall not exceed the net monetary award of the Prevailing Party".

A4: No change is made to Section 00 73 00 Supplementary Conditions in this regard.

Q5: Exhibit "A" Additional Insurance Requirements, requires the Contractor to name the Owner, Engineer, and Engineer's Consultants as additional insureds on "all policies of insurance". You cannot name additional insureds on Worker's Compensation. Please revise the Exhibit.

A5: See Section 00 73 00 Supplementary Conditions revised as a part of Addendum 3 and attached.


Q6: Exhibit "A" Additional Insurance Requirements, Article 1.01 states the Workers Compensation and Employer's Liability will include an Alternate Employer Endorsement naming the Owner as the Alternate Employer. We are finding it very difficult to obtain this endorsement at a reasonable price. Please confirm your desire to include this additional cost in your project.

A6: No change is made to Section 00 73 00 Supplementary Conditions in this regard.

Q7: We request to be considered as a Selected Manufacturer?

A7: There are two ways a product not named in the contract documents can be used in the construction of the project:

"Or equals" - when this term is used, a contractor can submit a different manufacturer through the submittal process as long as the item is materially the same in quality, appearance,

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performance and acceptable by the Owner. This method is further explained in Section 00 72 00, Paragraph 7.04 and Section 01 61 00, Paragraph 1.03.D.

“Substitutions” - this applies when a product is materially different than what is shown or called for in the contract documents but can still meet the intent of the design. Requirements for substitutions are explained in Section 00 72 00, Paragraph 7.05 and Section 01 25 00. Substitution requests are only accepted from the winning contractor after the contract agreement is signed.

ATTACHMENTS

1. 2020-GS-08 Walnut Creek LS - Bid drop-off and opening instructions
2. Section 00 73 00 Supplementary Conditions
3. Section 40 05 68.23 Miscellaneous Valves [Add 3]
4. Section 46 21 13 Multi-Rake Type Mechanical Screens and Screen Conveyors [Add 3]

<i>Acknowledgment of receipt of this addendum must be signed and included in your bid response.</i>	
COMPANY NAME	
SIGNATURE	
DATE	

2020-GS-08 WALNUT CREEK LIFT STATION

BID DROP-OFF AND BID OPENING INSTRUCTIONS

BID OPENING: JULY 8, 2020 AT 2:00 PM

Due to the current COVID-19 pandemic, the Clayton County Water Authority (CCWA) is currently closed for public bid related activities; however, we are still working to serve our community, while following state and local mandates, as well as taking all necessary precautions to stay safe and healthy during this crisis. For this reason, CCWA has issued the following bid drop-off and bid opening instructions:

BID DROP-OFF for Bid Opening Day, July 8, 2020:

Sealed bids may be dropped off at our main office with the receptionist, located at 1600 Battle Creek Road, Morrow, GA 30260, on or before Wednesday, July 8, 2020 at 2:00 pm (local time). All bids received after this date and time will be considered unresponsive.

Masks are strictly enforced. Therefore, you must wear a mask if you will be dropping off your sealed bid at our main office with the receptionist.

As an option you may also drop your bid package off at CCWA, Building B, located at

7340 B Southlake Parkway, Morrow, GA 30260
Building B - Warehouse (which is on same campus as the main office)
See attached map

When using this location please keep in mind to press the gate call button to allow entrance. Do not follow the car in front of you to get through the gate, as the gate closes after each car. The gate call button looks like the following:



Once you press the call button, please respond to the CCWA warehouse staff member with your name, company name and that you are dropping off your bid. CCWA staff will activate the gate to open and you can proceed to **Building B - Warehouse** to hand your bid submittal package to a CCWA warehouse staff member.

Masks are strictly enforced. Therefore, you must wear a mask if you will be dropping off your sealed bid at our Building B Warehouse.

2020-GS-08 WALNUT CREEK LIFT STATION

BID DROP-OFF AND BID OPENING INSTRUCTIONS

BID OPENING on July 8, 2020 at 2:00 pm local time:

Due to Georgia's State of Emergency from the COVID-19 pandemic, CCWA will hold the bid opening in our board room, via virtual conference call. If you wish to participate, please do so by using the following call-in instructions below:

[Join Microsoft Teams Meeting](#)

+1 912-483-5368 United States, Savannah (Toll)
Conference ID: 478 171 75#

Preliminary bid results will be posted in CCWA's website within 48 hours post bid opening and can be provided upon requests sent to the ccwa_procurement@ccwa.us email address.

CCWA appreciates your cooperation to complete the process the best way possible during this critical period.

Should you have any questions or require assistance on Wednesday, July 8, 2020 in dropping off your bid please call one of the following numbers:

Ms. Flores – 770-960-5223

Ms. Jones – 770-302-1781



These SUPPLEMENTARY CONDITIONS amend, modify or supplement Section 00 70 00 the STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT as prepared by the Engineers Joint Contract Documents Committee (EJCDC), Form C-700, 2013 Edition (hereinafter "the General Conditions"). To the extent these SUPPLEMENTARY CONDITIONS amend, modify, or supplement the General Conditions, said SUPPLEMENTARY CONDITIONS take precedence and shall control. All provisions of the General Conditions not so amended, modified, or supplemented, shall remain in full force and effect.

SC-1.01 A.8. Paragraph 1.01.A.8 of the General Conditions is amended to read as follows:

Change Order: A document which is signed by Contractor and Owner, and by Engineer if requested by Owner, and authorizes an addition, deletion or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

SC-1.01 A.15. Paragraph 1.01 A.15 of the General Conditions is amended by the addition of the following provision:

Execution of this Agreement by Contractor constitutes an acknowledgement and agreement by Contractor that all Contract Times stated in the Contract Documents are reasonable and are of sufficient duration for the Work required to be performed within such times. Contractor acknowledges that Work on Saturdays, Sundays, or legal holidays requires the prior written approval of Owner and further requires that Contractor shall be responsible for, and shall pay, any and all overtime or extra cost incurred by Owner or Engineer resulting from such Work on Saturdays, Sundays, or legal holidays. Contractor further acknowledges that unless expressly stated otherwise, all days and times set forth in the Contract Documents are measured by calendar days.

SC-1.01 A.20. Paragraph 1.01. A.20 of the General Conditions is amended to read as follows:

Engineer: The individual or entity named as such in the Agreement or any substitute or successor as subsequently identified by Owner in writing to Contractor.

SC-1.01 A.29. Paragraph 1.01. A.29 of the General Conditions is amended to read as follows:

Progress Schedule: A detailed written schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times. The Project Schedule shall be in such form and format as the Owner or Engineer may require. It shall be updated not less frequently than monthly, or as otherwise required by the Contract Documents, and it shall at all times reflect the current and existing critical path of the Work to be completed. The Owner and Contractor specifically agree that any float contained in the Progress Schedule, or any update thereof, shall belong to the Project, and in no event, shall Contractor make a claim for any alleged delay, acceleration, or early completion so long as the Project is completed within the Contract Time

SC-1.01 A.35. Paragraph 1.01. A.35 of the General Conditions is amended by the addition of the following provision:

The Schedule of Values shall be in such form and format as the Owner or Engineer may require, and Contractor shall provide such information and data as Owner or Engineer may require to substantiate its accuracy. Contractor shall not imbalance the Schedule of Values nor artificially inflate any element thereof. The Schedule of Values shall only be used as a basis for evaluating Contractor's Applications for Payment and receipt and approval of such Schedule by Owner and Engineer are conditions precedent to payment of any sums to Contractor.

SC-1.02 E. Paragraph 1.02. E. of the General Conditions is amended by the addition of the following provision to be identified as Paragraph 1-02. E.5:

The words "include" or "including," as used in the Contract Documents, shall be deemed to be followed by the phrase "without limitation."

SC-2.01 A. Paragraph 2.01 A. of the General Conditions is amended by the addition of the following provision:

Such bonds shall be executed by a surety acceptable to Owner and shall be in such form as Owner may require. All such bonds must comply with all requirements of Georgia law.

SC-2.01 C. Paragraph 2.01 C. of the General Conditions is amended by the insertion of the following phrase at the beginning of said Paragraph:

Upon written request of Contractor, . . .

SC-2.02 A. Paragraph 2.02 A. of the General Conditions is amended by the deletion of the first sentence of said Paragraph and the substitution in lieu thereof of the following:

Owner shall furnish to Contractor 2 full size copies, and one electronic copy, of the Contract Documents.

SC-2.04 B. Paragraph 2.04 B. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision herein, to the extent the policies or procedures of Owner require that any decision of Owner's authorized representative must first be approved by any officer or senior management employee of Owner, or by the Board of Directors of Owner, such decision shall not be binding or final until such approval has been issued in writing.

SC-2.05 A. Paragraph 2.05 A. of the General Conditions is amended by the addition of subparagraph 4. to read as follows:

Notwithstanding any other provision in this Paragraph 2.05, the Progress Schedule, Schedule of Submittals, and Schedule of Values shall comply with all other requirements of the Contract Documents and all must be acceptable to, and approved by, Owner.

SC-3.03 A.2. Paragraph 3.03 A.2 of the General Conditions is amended by the addition of the following provision:

Contractor shall have a continuing duty to read, carefully study, and compare each of the Contract Documents, the Shop Drawings and any applicable product data and shall give written notice to Engineer of any inconsistency, ambiguity, error or omission which Contractor may discover with respect to these documents before proceeding with the affected Work. The issuance, or the express or implied approval, by Owner or Engineer of the Contract Documents, Shop Drawings, or any product data shall not relieve Contractor of the continuing duties imposed hereby. OWNER MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY NATURE TO CONTRACTOR CONCERNING THE CONTRACT DOCUMENTS. By execution of this Agreement, Contractor acknowledges that it has received, reviewed, and carefully examined the Contract Documents and has reported in writing to Engineer any inconsistencies, ambiguities, errors, or omissions discovered by Contractor in said Documents.

SC-3.03 B.1. Paragraph 3.03 B.1 of the General Conditions is amended by the addition of the following subparagraph c.:

In resolving conflicts, discrepancies, or inconsistencies among any of the Contract Documents, the following hierarchy shall control: (a) as between figures given on Documents and scaled measurements, the figures shall govern; (b) as between large-scale drawings and small-scale drawings, the large-scale shall govern; (c) as between Drawings and Specifications, the requirements of the Specifications shall govern; (d) as between the General Conditions and the Supplementary Conditions, the Supplementary Conditions shall govern. Any and all such conflicts, discrepancies, or inconsistencies shall be immediately reported by Contractor in writing to Engineer.

SC-3.04 B. Paragraph 3.04 B of the General Conditions is amended by the deletion of the following language at the end of such Paragraph:

. . . and on Owner, unless it objects.

SC-4.01 A. Paragraph 4.01 A. of the General Conditions is deleted in its entirety and in lieu thereof the following is inserted:

The award of the Contract, if made, shall be to the lowest responsible bidder, or, if applicable, to the proposer whose proposal has been accepted, within ninety (90) days after the opening of bids or proposals; however, in no event shall the award be made until any required investigations are made as to the responsibility of the bidder or proposer to whom it is proposed to award the Contract. Following award and execution of this Agreement, and following receipt by Owner of

the required bonds and certificates of insurance, Contractor shall commence Work within ten (10) days from the date specified in a written Notice to Proceed issued by Owner or Engineer. The Contract Time shall commence to run upon issuance to Contractor of such Notice to Proceed. No work shall commence prior to the issuance of the Notice to Proceed or before delivery to Owner of the required bonds and certificates of insurance. Should Owner unreasonably delay issuance of the Notice to Proceed through no fault of Contractor, Contractor's sole and exclusive remedy shall be an extension of the Contract Time to the extent the time of performance has been reasonably delayed, but in no event, and under no circumstances, shall Contractor be entitled to an increase in the Contract Price.

SC-4.02 A. Paragraph 4.02 A. of the General Conditions is deleted in its entirety.

SC-4.04 B. Paragraph 4.04 B. of the General Conditions is amended by the addition of the following provision:

Strict compliance with all requirements of this Paragraph, and with all other scheduling requirements set forth in the Contract Documents, is a condition precedent for payment to Contractor, and any failure by Contractor to strictly comply with said requirements shall constitute a material breach of this Agreement.

SC-4.05 C. Paragraph 4.05 C. of the General Conditions is amended by adding the following subparagraphs:

5. Weather-Related Delays

- a. If "abnormal weather conditions" as set forth in Paragraph 4.05.C.2 of the General Conditions are the basis for a request for an equitable adjustment in the Contract Times, such request must be documented by data substantiating each of the following: 1) that weather conditions were abnormal for the period of time in which the delay occurred, 2) that such weather conditions could not have been reasonably anticipated, and 3) that such weather conditions had an adverse effect on the Work as scheduled.
- b. The existence of abnormal weather conditions will be determined on a month-by-month basis in accordance with the following:
 - 1) Every workday on which one or more of the following conditions exist will be considered a "bad weather day":
 - i. Total precipitation (as rain equivalent) occurring between 7:00 p.m. on the preceding day (regardless of whether such preceding day is a workday) through 7:00 p.m. on the workday in question equals or exceeds 0.1-inch of precipitation.
 - ii. Ambient outdoor air temperature at 11:00 a.m. is equal to or less than the following low temperature threshold: 32 degrees Fahrenheit; or, at 3:00 p.m. the ambient outdoor temperature is equal to or greater than the following high temperature threshold: 100 degrees Fahrenheit.
 - 2) Determination of actual bad weather days during performance of the Work will be based on the weather records measured and recorded by NOAA National Weather Service weather monitoring station at Jonesboro, GA.

- 3) Contractor shall anticipate the number of foreseeable bad weather days per month indicated in the Foreseeable Bad Weather Days table.

Foreseeable Bad Weather Days

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6	6	6	6	5	6	6	5	4	4	5	7

- 4) In each month, every bad weather day exceeding the number of foreseeable bad weather days established in the Foreseeable Bad Weather Days table will be considered as “abnormal weather conditions.” The existence of abnormal weather conditions will not relieve Contractor of the obligation to demonstrate and document that delays caused by abnormal weather are specific to the planned work activities or that such activities thus delayed were on Contractor’s then-current Progress Schedule’s critical path for the Project.

SC-5.01 A. Paragraph 5.01 A. of the General Conditions is amended by the addition of the following provision:

Prior to submission of its bid or proposal, Contractor shall inspect the Project site and shall include within its bid or price the cost of addressing all site conditions reasonably ascertainable from such inspection. Contractor shall also examine and inspect all easements and rights-of-way necessary for completion of its Work and shall comply with all conditions and stipulations of same. In no event shall Contractor enter upon the property of an adjacent landowner not under the control of Owner until such time as proper easements have been obtained and filed of record. Contractor shall in no event be entitled to damages, additional compensation, or any change in the Contract Price arising out of or relating to any failure by Owner to obtain any easement or rights-of-way.

SC-5.03 Paragraph 5.03 of the General Conditions is deleted in its entirety and in lieu thereof the following provisions are inserted:

Reports, tests, and drawings relating to the Project site are not Contract Documents. They represent information available to Engineer in the design of the Project. Any conclusions drawn from this information are the responsibility of Contractor, and neither Owner nor Engineer makes any representations or warranties concerning the accuracy or completeness of any such reports, tests, or drawings. Upon written request, and to the extent available, the following reports, tests, and drawings will be made available for review by Contractor or its representatives:

- Report of Subsurface Exploration and Geotechnical Engineering Evaluation (Willmer Engineer, January 07, 2020)
- Walnut Creek Lift Station Flood Study (Columbia Engineering, April 10, 2020)

SC-5.04 A.1. Paragraph 5.04 A.1. of the General Conditions is amended by the deletion of such provision.

SC-5.06 B. Paragraph 5.06 B. of the General Conditions is amended by the addition of the following language at the beginning of the first sentence thereof:

Except to the extent otherwise provided herein . . .

SC-6.01 A. Paragraph 6.01 A. of the General Conditions is amended by the deletion of the second sentence in said Paragraph and the insertion of the following sentence in lieu thereof:

These bonds shall remain in full force and effect for such time as provided by Georgia law or for such longer time as may be provided by the terms of said bonds

SC-6.01 B. Paragraph 6.01 B. of the General Conditions is amended by the addition of the following provision:

In addition to all other requirements set forth hereinabove, and in addition to all other insurance requirements set forth below, all bonds and policies of insurance required by the Contract Documents shall be issued by companies having a Best's rating of no less than A: VII. All such bonds and policies of insurance, as well as all required certificates of insurance, shall be executed or countersigned by a licensed resident agent of the surety or insurance company having its principal place of business in the State of Georgia, and in all ways complying with the laws of the State of Georgia.

SC-6.01 G. Paragraph 6.01 of the General Conditions is amended by the addition of subparagraph G. thereto which shall read as follows:

Upon request of Owner or Engineer, Contractor shall obtain and furnish to Owner and Engineer written consent of its performance bond surety to any Contract payment, proposed or executed Change Order, or such other action as may be taken or contemplated under the Contract Documents. Absence of such consent of surety, however, shall in no manner whatsoever relieve, release, or discharge any surety from any of its obligations under the performance bond, the payment bond, or otherwise.

SC-6.03 K. Paragraph 6.03 of the General Conditions is amended by the addition of subparagraph K. which provides as follows:

In addition to the insurance requirements set forth hereinabove, Contractor shall comply with any additional insurance requirements as set forth in the **attached Exhibit "A"**. In the event of any conflict between the requirements of Paragraph 6.03 as set forth hereinabove, and the requirements as set forth in Exhibit "A," the requirements of Exhibit "A" shall govern and control.

SC-6.03 I.3. Paragraph 6.03. I.3 of the General Conditions is amended by the deletion of the phrase ". . . until at least 10 days prior written notice. . ." and the substitution in lieu thereof of the following phrase:

“ . . . until at least 90 days prior written notice . . . ”

SC-6.05 B. Paragraph 6.05 B. of the General Conditions is amended by the deletion of the phrase “ . . . until at least 10 days prior written notice. . . ” and the substitution in lieu thereof of the following phrase:

“ . . . until at least 90 days prior written notice. . . ”

SC-7.01 B. Paragraph 7.01 B. of the General Conditions is amended by the deletion of said paragraph in its entirety and the substitution in lieu thereof of the following provision:

At all times during the progress of the Work, Contractor shall assign an on-site, full-time, competent, and experienced superintendent to the Project who, so long as said superintendent remains in the employment of Contractor, shall not be replaced without the prior written consent of Owner. **Such superintendent shall have no less than three years' experience as a superintendent on one or more projects similar in nature, size, and scope to the Project.** Contractor shall furnish Owner a detailed resume setting forth the qualifications of such superintendent prior to his or her assignment to the Project. The qualifications of such superintendent must be acceptable to Owner. The superintendent shall be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to, or received by, the superintendent shall be binding on Contractor.

SC-7.01 C. Paragraph 7.01 of the General Conditions is amended by the addition of subparagraph 7.01 C. which shall read as follows:

Contractor shall prepare and submit to Owner and Engineer a daily report setting forth for each day of Work the weather conditions; the number of workers present by craft; the identity of all management and supervisory personnel on site; a list of all active and inactive equipment on site; work accomplished by scheduled activity; all problems and issues impacting the Work in whole or in part; an identification of any visitors to the site; and such other information as may be relevant to the status of performance of this Agreement. This report shall be signed by the Project superintendent of Contractor or Contractor's other designated representative and shall be delivered to Owner and Engineer on or before 10:00 a.m. of the day following the day which is the subject matter of the report.

SC-7.02 B. Paragraph 7.02 B. of the General Conditions is amended by the deletion of the second sentence in said Paragraph and the substitution in lieu thereof of the following provision:

Contractor may perform Work outside regular business hours or on Saturdays, Sundays, or legal holidays only with the prior written consent of Owner which Owner may grant or withhold in its sole discretion. Before performing any authorized work on any of these days, or before performing authorized work outside regular business hours, Contractor shall provide Engineer and Owner not less than seventy-two (72) hours prior written notice.

SC-7.06 F. Paragraph 7.06 F. of the General Conditions is amended by the deletion of the phrase “If Owner requires the replacement of any Subcontractor . . .” and in lieu thereof the substitution of the following phrase:

“If without good cause, Owner requires the replacement of any Subcontractor. . .”

SC-7.06 K. Paragraph 7.06 K. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision herein, Contractor acknowledges and agrees that Owner or Engineer may communicate directly with Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work for the purpose of determining whether or not any of said entities have been, or are being, timely paid by Contractor or whether or not Contractor is otherwise complying with its obligations under this Agreement.

SC-7.06 L. Paragraph 7.06 L. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision herein, Contractor shall perform not less than twenty-five percent (25%) of all on-site labor with employees of Contractor.

SC-7.06 P. Paragraph 7.06 of the General conditions is amended by the addition of subparagraph P. thereto which shall read as follows:

In the event any Subcontractor or Supplier makes claim against Contractor for any increase in the subcontract price due such Subcontractor or Supplier, or for an increase in the time to perform any of the Work, or for any other compensation or relief, Contractor shall assert any and all available contractual, legal, and equitable defenses to any such claim or claims. Such defenses include, but are not limited to, any and all notice and claim defenses arising under the applicable subcontract or supplier agreement and all defenses arising under this Agreement as incorporated therein. Contractor shall not agree to “pass through” any such claim to Owner, or to pay any such claim, if it is subject to any of the defenses as set forth hereinabove. Contractor’s duty to defend against any invalid claims includes, but is not limited to, the duty to defend such claims in a court of competent jurisdiction or in arbitration, if applicable. Failure of Contractor to defend against any invalid Subcontractor or Supplier claims as required herein shall constitute a complete and unequivocal waiver of any right of Contractor to seek reimbursement from Owner or Engineer. Contractor shall furthermore indemnify and hold Owner harmless from any and all cost and expense, including attorneys’ fees and expert witness fees and cost, incurred in defending any Subcontractor or Supplier claims to which a valid contractual, legal or equitable defense was available to Contractor.

SC-7.06 Q. Paragraph 7.06 of the General Conditions is amended by the addition of subparagraph Q. thereto which shall read as follows:

Contractor shall require all Subcontractors, Suppliers, and others performing or furnishing any of the Work to maintain insurance coverages as set forth in Exhibit "A" hereto including, but not limited to, completed operations coverage at the minimum level stated in said Exhibit. Contractor shall maintain certificates of insurance from all such entities and said certificates shall be available upon request for inspection by Owner or Engineer.

SC-7.08 A. Paragraph 7.08 A. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision herein, Owner agrees that any fees for permits or licenses, or any inspection fees, obtained from, or payable directly to, Owner are waived. Contractor, however, shall pay for all other permits, licenses, and inspection fees required by any other governmental entity or agency.

The Owner has applied for the following permits related to the Project:

1. Clayton County Site Development Permit (including erosion and sediment control)
2. Clayton County Building Permit
3. Georgia Environmental Protection Division Stream Buffer Variance
4. Georgia Environmental Protection Division Sanitary Sewer Extension

NPDES Notice of Intent is not required for this project.

SC-7.10 D. Paragraph 7.10 of the General Conditions is amended by the addition of subparagraph D. thereto which shall read as follows:

While not intended to be inclusive of all Laws and Regulations for which Contractor is or may be responsible, the following Laws or Regulations are included herein by reference and compliance with same by Contractor is mandated by this Agreement:

- (1) Contractor shall not pay less than the prevailing rate of wages in accordance with O.C.G.A. § 34-4-3;
- (2) Qualified employees may be relieved from work for up to two hours to vote as provided by O.C.G.A. § 21.2-404;
- (3) Contractor and its Subcontractors, as well as others for whom they are responsible, shall not engage in discrimination as prohibited by O.C.G.A. § 34-1-2 or as prohibited by any other state or federal Law or Regulation;
- (4) Contractor shall comply with all notification requirements for excavators as required by O.C.G.A. § 25-9-6;
- (5) Contractor shall register and participate in the electronic verification ("E-Verify") of work authorization operated by the United States Department of Homeland Security or any equivalent federal work authorization program. The Contractor shall verify that its employees, and the employees of its Subcontractors, are in compliance with the Immigration Reform and Control Act of 1986, as required by applicable state law, including O.C.G.A. §13-10-91 *et. seq.* Contractor shall provide Owner and Engineer with executed affidavits verifying such employees' compliance with the federal and state laws identified

hereinabove. Contractor shall secure similar affidavits from all of its Subcontractors verifying their compliance with said federal and state laws. At all times applicable to this Agreement, and for not less than three years after final completion of the Project or for such longer time as may be required by law, Contractor shall maintain detailed records demonstrating compliance by it and its Subcontractors with these legal requirements.

SC-7.10 E. Paragraph 7.10 of the General Conditions is amended by the addition of the following subparagraph E. which shall read as follows:

Contractor shall cooperate with Owner in securing any tax refunds, credits, or rebates due Owner or in utilizing any tax exemptions available to Owner. Such cooperation shall include, but shall not be limited to, the execution of any required or necessary documentation.

SC-7.11 A. Paragraph 7.11 A. of the General Conditions is amended by the addition of the following provision:

Receipt by Engineer of the record documents required herein is an express condition precedent for final payment to Contractor.

SC-7.12 H. Paragraph 7.12 of the General Conditions is amended by the addition of the following subparagraph H. which shall read as follows:

Contractor shall provide, erect, maintain and finally remove all barricades and detour signs necessary to properly protect and divert traffic. Such barricades and signs shall be illuminated at night. Contractor shall be responsible for all damage, including any damage to the Work, resulting from any failure of the signs or barricades to protect the Work or related property from traffic, pedestrians, and animals, or from other sources. All barricades shall be acceptable to Owner and same shall comply with any and all rules, regulations, or other legal mandates of any governmental authorities having applicable jurisdiction.

SC-7.18 B. Paragraph 7.18 B. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision herein, no claim whatsoever shall be made by Contractor against any officer, employee, board member, or agent of Owner, on account of anything done or alleged to be done in breach of this Agreement.

SC-8.03 B. Paragraph 8.03 B. of the General Conditions is amended by the addition of the following provision:

Furthermore, in the event the remaining contract balance is not sufficient to satisfy the damages due Owner after the set-off provided herein, Contractor shall promptly, upon demand of Owner, pay to Owner the remaining amount necessary to compensate Owner for said damages.

SC-8.03 C. Paragraph 8.03 C. of the General Conditions is amended by the addition of the following provision:

Furthermore, in the event the remaining contract balance is not sufficient to satisfy the damages due Owner after the set-off provided herein, Contractor shall promptly, upon demand of Owner, pay the remaining amount necessary to compensate Owner for said damages.

SC-9.01 A. Paragraph 9.01 A. of the General conditions is amended to read as follows:

Except as otherwise provided in the Contract Documents, or unless the Owner in its discretion determines to communicate otherwise, the Owner shall issue communications to Contractor through Engineer.

SC-9.02 A. Paragraph 9.02 A. of the General Conditions is deleted in its entirety and in lieu thereof the following provision is inserted:

In case of termination of the Engineer, Owner may appoint a substitute Engineer whose status under the Contract Documents shall be that of the former Engineer.

SC-9.04 A. Paragraph 9.04 A. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision of the Contract Documents, Owner and Contractor expressly agree that the terms of payment, payment period, and rates of interest set forth in this Agreement shall control to the exclusion of any provisions set forth in the Georgia Prompt Pay Act, O.C.G.A. § 13-11-1 *et. seq.* and the provisions of said Act are expressly waived.

SC-10.01 A. Paragraph 10.01 A of the General Conditions is amended to read as follows:

Engineer will be Owner's representative during construction unless otherwise directed in writing by Owner. Engineer shall not, however, be authorized to increase the Contract Price or the Contract Time, or to approve any Change Order, without Owner's express written consent. The duties and responsibilities of the Engineer are as set forth in the Contract Documents and will not be changed without written notice by Owner to Contractor.

SC-10.02 A. Paragraph 10.02 A. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision herein, nothing contained in the Contract Documents shall limit or restrict any duty or obligation owed by Engineer to Owner arising out of, or related to, the Engineer's contract with Owner for engineering services.

SC-10.06 A. Paragraph 10.06 A. of the General Conditions is amended by the addition of the following provision;

Owner, however, shall have the express right to challenge any such determination for good cause and may submit any such challenge in accordance with the claim's provisions of this Agreement.

SC-10.07 A. Paragraph 10.07 A. of the General Conditions is deleted in its entirety and in lieu thereof the following provision is inserted:

Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents as Engineer may determine necessary which shall be consistent with the intent and reasonably inferable from the Contract Documents. Such written clarifications shall be binding on Owner and Contractor unless either notifies the Engineer within 10 days of receipt of same. Any dispute concerning entitlement to additional compensation or time arising out of any such clarifications or interpretations, shall be submitted for determination in accordance with the claim's provisions of this Agreement. If Owner requires, Contractor shall submit any claims, disputes or other matters relating to the Work, or to the requirements of the Contract Documents, to Engineer in writing for an initial decision. Such submission, if required by Owner, shall be a condition precedent to exercise by Contractor of any other rights or remedies provided by the Contract Documents or by law or equity with respect to any such claims, disputes or other matters.

SC-10.08 B. Paragraph 10.08 B. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision of this Paragraph, and notwithstanding any other provision of the Contract Documents, nothing contained in this Agreement nor in any provision of the Contract Documents, shall limit or restrict in any manner whatsoever the duties, obligations or responsibilities of the Engineer to Owner as set forth in the contract by and between Owner and Engineer or as provided by law or equity.

SC-10.08 E. Paragraph 10.08 E. of the General Conditions is amended by the addition of the following provision:

Furthermore, it is expressly agreed that any Resident Project Representative shall not have authority to authorize any deviation from the Contract Documents or approve any substitution of materials or equipment; undertake any of the responsibilities of the Contractor, the Contractor's superintendent, or of any Subcontractor; accept submittals from anyone other than Contractor; authorize Owner to occupy the Project in whole or in part; or participate in specialized tests or inspections conducted by others except as expressly authorized by the Engineer.

SC-11.09 A. Paragraph 11.09 A. is added to the General Conditions and said Paragraph shall read as follows:

Notwithstanding any other provision herein, Contractor acknowledges and agrees that some Change Orders (as determined by Owner in its discretion) shall require approval of Owner's Board

of Directors. Contractor further agrees that Owner shall have not less than 60 days to submit any such Change Orders to its Board of Directors for approval or rejection. In no event and under no circumstances shall Contractor make any claim for delay, acceleration, interference, or other claim for damages, cost, or expense arising out of, or relating to, the time required to secure approval or rejection of any Change Order, so long as said approval or rejection is made by the Board of Directors within 60 days after submission of the applicable Change Order by Contractor.

SC-12.01 B. Paragraph 12.01 B. of the General Conditions is deleted in its entirety and in lieu thereof the following provision is inserted:

Owner shall notify Contractor in writing of any claim by Owner against Contractor and Owner may furnish Engineer a copy of such notice. Within 20 days after receipt of Owner's notice of claim, Contractor shall notify Owner and Engineer in writing that (i) Contractor is in agreement with the claim in its entirety and affirms that it will execute a Change Order confirming such agreement; or, (ii) Contractor is in agreement with the claim in part, affirms that it will execute a Change Order confirming such partial agreement, and identifies with specificity any part or parts of the claim with which it disagrees and states the facts and circumstances which it contends supports such disagreement; or, (iii) Contractor is in disagreement with the claim in its entirety and states the facts and circumstances which it contends supports such disagreement. Failure by the Contractor to respond as required herein shall constitute full and complete acceptance of Owner's claim and agreement by Contractor with same in its entirety. Any claim by Contractor against Owner shall be initiated by written notice to Owner and Engineer within seven days after occurrence of the event, or the first appearance of the condition, giving rise to such claim. Such notice must be specifically identified as a "Notice of Claim." If required, such notice shall be on a form specified by Owner. Furthermore, within 20 days after submission of the notice required herein, Contractor shall submit in writing a detailed statement of the claim which shall be in such form, and which shall include such supporting documentation, as Owner or Engineer may require. Any such claim by Contractor shall be signed under oath and under penalty of perjury. Any claim shall state with specificity any damages claimed or proposed increases to the Contract Price. In the event Contractor requests any increase in the Contract Time, it shall submit, as part of its written claim, a detailed critical path method schedule showing with specificity how the critical path of the Project has been impacted as a result of the items set forth in the claim. FAILURE BY CONTRACTOR TO SUBMIT ANY CLAIM IN STRICT CONFORMITY WITH THE REQUIREMENTS OF THIS PROVISION SHALL CONSTITUTE AN ABSOLUTE AND UNEQUIVOCAL WAIVER OF SUCH CLAIM. Contractor may not reserve in any claim, or in any Change Order, any rights, or remedies to make claim for additional money or time arising out of the occurrence, events, or conditions giving rise to the claim. Reservation of the right to claim future impact damages is expressly and unequivocally prohibited. Pending final resolution of any claim of Contractor or Owner, Contractor shall diligently proceed with performance of this Agreement unless directed otherwise by Owner in writing, and Owner shall continue to make payment of all sums due Contractor in accordance with this Agreement. The resolution of any claim under this Paragraph shall be documented by Change Order executed by the parties.

SC-12.01 D.; E.; F.; and G. Paragraphs 12.01 D., E., F., and G of the General Conditions are deleted in their entirety.

SC-12.02 A. Paragraph 12.02 A. is added to the General Conditions and said Paragraph shall read as follows:

The Superior Court of Clayton County, Georgia, shall have sole and exclusive jurisdiction and venue over any action arising out of, or relating to, this Agreement and the parties expressly waive jurisdiction and venue in any other court and waive any right of removal to any federal court. Furthermore, in the event Owner institutes any action against Contractor arising out of, or relating to, this Agreement, and the event Owner prevails in whole or in part in any such action, or in the event Contractor asserts any claim against Owner in any legal proceeding and such claim is determined to be invalid in whole or in part, Contractor shall pay all of Owner's costs and expense incurred in prosecuting or defending any such action or proceeding including, but not limited to, all attorneys' fees and expenses, expert and consultants' fees and expenses, and court costs.

SC-13.01 C. Paragraph 13.01 C. of the General Conditions is amended by the addition of subparagraph 6. which shall read as follows:

Notwithstanding any other provision of this Agreement, in no event, and under no circumstances, shall "costs" include, nor shall Contractor make claim for or be entitled to recover, any home office overhead expense; loss of capital; loss of profit on other projects; loss of efficiency or productivity; loss of bonding capacity; or any consequential damage of any kind or nature.

SC-13.03 F. Paragraph 13.03 of the General Conditions is amended by the addition of subparagraph F. thereto which shall read as follows:

Notwithstanding any other provision herein, in the event of any adjustment to unit prices as set forth hereinabove, such adjustment shall only apply to variations above 125 percent or below 75 percent of the estimated units set forth in the Contract Documents. Contractor shall make no claim for an increase in the Contract Time based on an increase in units unless the number of units actually installed exceeds 125 per cent of those estimated in the Contract Documents.

SC-14.03 B. Paragraph 14.03 B. of the General Conditions is amended by the addition of the following provision:

Furthermore, Owner shall likewise have the right to determine and reject defective work.

SC-14.03 G. Paragraph 14.03 of the General Conditions is amended by the addition of subparagraph G. thereto which shall read as follows:

Notwithstanding any other provision of this Agreement, Contractor acknowledges and agrees that any failure of Owner or Engineer to notify Contractor of defective Work, or any lack of receipt by Contractor of any such notice, shall in no manner whatsoever relieve or discharge Contractor

from its obligation to perform the Work in conformity with the Contract Documents or its obligation to remove, repair, or correct defective Work.

SC-14.06 A. Paragraph 14.06 A of the General Conditions is deleted in its entirety and in lieu thereof the following provision is inserted:

If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the Completed Work will conform to the Contract Documents, or Contractor otherwise is in material breach of this Agreement, then Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

SC-15.01 B. Paragraph 15.01 B. of the General Conditions is deleted in its entirety and in lieu thereof the following provision is inserted:

At least 30 days before the date established for each progress payment (but not more than once each month), Contractor shall submit to Owner and Engineer for review an Application for Payment filled out and signed by Contractor covering Work completed as of the date of the Application and accompanied by such supporting documentation as required by the Contract Documents or as may be otherwise specified by Owner or Engineer. In its Application for Payment, Contractor may request payment for 90 percent of that portion of the Contract Price properly applicable to Contract requirements properly provided, labor, materials and equipment properly incorporated in the Work, plus 90 percent of that portion of the Contract Price properly allocable to materials or equipment properly stored on-site (or elsewhere if approved in advance in writing by Owner) for subsequent incorporation in the Work, less the total amount of previous payments received from Owner. Payment for stored materials and equipment shall be conditioned upon proof of appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner. Each Application for Payment shall constitute Contractor's representation that the Work has progressed to the level for which payment is requested in accordance with the schedule of values, that the Work has been properly installed or performed in full accordance with the requirements of the Contract Documents, and the Contractor knows of no reason why payment should not be made as requested. Thereafter the Engineer shall review the Application for Payment and may also review the Work at the Project site or elsewhere to determine the quantity and quality of the Work as represented in the Application for Payment and as required by the Contract Documents. Engineer shall determine and recommend to Owner the amount owing to Contractor. Owner shall make partial payments on account of the Contract Price to Contractor within 30 days following Owner's receipt of each Application for Payment with Engineer's approval. The amount of each partial payment shall be in the amount recommended by Engineer less such amounts, if any, otherwise owing by Contractor to Owner or which Owner shall have the right to withhold as authorized by this Agreement. Any recommendation by Engineer for payment to Contractor shall not preclude Owner from the exercise of any of its rights as set forth in this Agreement. Provided, however,

that when 50 percent of the contract value, including Change Orders and other additions to the contract value, provided for by the Contract Documents is due, and the manner of completion of the Contract Work and its progress are reasonably satisfactory to Owner, Owner shall withhold no more retainage. At the discretion of Owner, and with the approval of Contractor, the retainage of any Subcontractor may be released separately as the Subcontractor completes its work. If after discontinuing the retainage, Owner determines that the Work is unsatisfactory or Contractor has fallen behind schedule, Owner may resume retainage at the rate set forth hereinabove. Retainage shall be invested at the current market rate and any interest earned on the retained amounts shall be paid to Contractor upon completion of the Project within the time specified and for the Contract Price as same may have been amended by Change Order. For purposes of this Agreement, the terms, and conditions of O.C.G.A. § 13-10-20 are herein incorporated by reference and shall take precedence over, and shall control, any other terms or conditions in the Contract Documents.

SC-15.01 D. Paragraph 15.01 D. of the General Conditions is amended by the deletion of the phrase "Ten days" and the substitution in lieu thereof of the phrase "Thirty days". Additionally, the following provision is added to said Paragraph and shall state as follows:

Within ~~three-ten~~ days of receipt of payment from Owner, Contractor shall pay all Subcontractors and Suppliers whose work or products was included in the partial payment. If Owner fails to make any payment as provided herein, or as required elsewhere in the Contract Documents, interest shall accrue on any such payment, to the extent it is late, at the rate of 6 percent per annum. [\[Add No. 3\]](#)

SC-15.01 E. Paragraph 15.01 E. of the General Conditions is amended by the addition of the subparagraph 4. Thereto which shall state as follows:

In addition to the right to reduce or withhold payment as set forth hereinabove, Owner may furthermore demand return of some or all of the amounts previously paid to Contractor in order to protect Owner from the risk of loss arising from any of the items set forth in this Paragraph 15.01 E. In the event Owner makes demand upon Contractor for the return of any such amounts, Contractor shall promptly comply with such demand.

SC-15.03 A. Paragraph 15.03 A. of the General Conditions is deleted in its entirety and in lieu thereof the following provision is inserted:

When Contractor believes that the Work is Substantially Complete, it shall submit to Engineer and Owner a list of items to be completed or corrected prior to Final Completion. When Engineer, on the basis of an inspection, determines that the Work is in fact Substantially Complete, it will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall state the responsibilities of Owner and Contractor for Project security, maintenance, utilities, damage to Work, and insurance, and shall fix the time in which Contractor shall complete the items listed therein or any other items required for Final Completion. The Certificate of Substantial Completion shall be submitted to Owner and Contractor for their written acceptance of the responsibilities assigned to them in such certificate. Upon Substantial

Completion of the Work, and after execution by both Owner and Contractor of the Certificate of Substantial Completion, Owner shall pay Contractor an amount sufficient to increase total payments to Contractor to 100 percent of the Contract Price less 200 percent of the reasonable costs as determined by Owner, with advice of the Engineer, for completing all incomplete Work, correcting and bringing into conformance all defective and nonconforming Work, handling all unsettled claims, and performing any other remaining obligations of Contractor under the Contract Documents.

SC-15.03 B. Paragraph 15.03 B. of the General Conditions is deleted in its entirety.

SC-15.03 C. Paragraph 15.03 C. of the General Conditions is deleted in its entirety.

SC-15.04 A.2. Paragraph 15.04 A.2. of the General Conditions is deleted in its entirety.

SC-15.06 D. Paragraph 15.06 D. of the General Conditions is amended by the addition of the following provision:

Notwithstanding any other provision herein, Owner shall not be required to make payment of amounts which are the subject of a good faith dispute by and between Owner and Contractor.

SC-16.02 E. Paragraph 16.02 E. of the General Conditions is amended by the deletion of the following provision:

Such claims, costs, losses, and damages incurred by the Owner will be reviewed by the Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order.

SC-16.02 G. Paragraph 16.02 G. of the General Conditions is deleted in its entirety.

SC-16.03. Paragraph 16.03 of the General Conditions is deleted in its entirety and in lieu thereof the following provision is inserted:

- A. Owner may for any reason terminate performance under this Agreement by Contractor for convenience. Owner shall give written notice of such termination to Contractor specifying when termination becomes effective. Contractor shall incur no further obligations in connection with the Work and Contractor shall stop work when such termination becomes effective. Contractor shall also terminate outstanding orders and subcontracts unless instructed otherwise by Owner. Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. Owner may direct Contractor to assign Contractor's right, title, and interest under any subcontracts to Owner or its designee. Contractor shall transfer title and deliver to Owner such completed or partially completed Work and materials, equipment for installation, parts, fixtures, information, and contract rights which Contractor has or possesses.
- B. Contractor shall submit a written termination claim to Owner and Engineer specifying the amounts due because of the termination for convenience together with costs, pricing, or

other data as may be required by Owner or Engineer. If Contractor fails to file a termination claim within 60 days from the effective date of termination, Owner may in its sole discretion deem any such claim to be waived by Contractor, and Owner shall owe no further sums of any kind or nature to Contractor. Absent agreement to the amount due Contractor, and absent a waiver as set forth hereinabove, Owner shall pay Contractor, within 60 days after submission of a proper and verified claim, with such reasonable documentation as Owner or Engineer may require, the following amounts which shall constitute full and complete compensation to Contractor for all sums due under this Agreement, including all sums arising out of, or relating to, the termination for convenience: (1) contract prices for labor, materials, equipment and other services accepted under this Agreement; (2) reasonable costs incurred in preparing to perform and in performing the terminated portion of the Work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for overhead and profit thereon (such profits do not include anticipated profits, anticipated overhead, or consequential damages of any kind or nature); provided, however, if it appears that Contractor would not have profited, or would have sustained a loss if the entire Agreement would have been completed, no profit shall be allowed or included and the amount of any compensation shall be reduced to reflect the anticipated rate of loss, if any; (3) reasonable costs of settling and paying claims arising out of the termination of subcontracts or orders as required hereinabove. The total sum to be paid Contractor under this Paragraph shall not exceed the Contract Price, as properly adjusted by Change Orders, reduced by the amount of payments otherwise made, and shall in no event include any duplication of payment.

- C. In the event the employment of Contractor is terminated for cause pursuant to Paragraph 16.02 of this Agreement hereinabove, and in the further event it is subsequently determined by a Court of competent jurisdiction, or by an arbitrator or arbitration panel, that such termination was without cause, such termination shall thereupon be deemed and treated as a termination for convenience under this Paragraph 16.03 and the provisions of this Paragraph shall apply.

SC-17.01. Paragraph 17.01 of the General Conditions is deleted in its entirety.

SC-18.01 A. Paragraph 18.01 A. of the General Conditions is amended by the addition of the following subparagraph 3. which shall state as follows:

Regardless of how it is sent or delivered, written notice shall be effective for all purposes of this Agreement if same is received by an officer or designated representative of the party to whom such notice was addressed.

SC-19.01 A. The General Conditions are amended by the addition of Paragraph 19.01 A. which shall read as follows:

No official of Owner who is authorized in such capacity and on behalf of Owner to negotiate, make, accept, or approve, or to take any part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any interested

personally in this Agreement or any part thereof. No officer, employee, architect, attorney, engineer or inspector of or for Owner who is authorized in such capacity and on behalf of Owner to exercise any legislative, executive, supervisory or similar functions in connection with construction of the Project shall become directly or indirectly interested personally in this Agreement or in any part thereof or in any material supply contract, subcontract, insurance contract, or any other contract pertaining to the Project.

END OF SECTION

EXHIBIT "A"**ADDITIONAL INSURANCE REQUIREMENTS**

1.01 In addition to any other coverage required by the Contract Documents, Contractor shall provide, and shall require its Subcontractors to provide, unless otherwise agreed by Owner in writing, the following insurance coverage:

Workers' Compensation and Employers Liability:

Workers' Compensation

Statutory Limits

Employers Liability

\$1,000,000 Each Accident

\$1,000,000 Disease Employee Limit

\$1,000,000 Each Employee

The policy will include an "Alternate Employer Endorsement" naming Owner as the Alternate Employer. The policy will be amended to provide 90 days' notice to Owner in the event of cancellation or nonrenewal. The policy will include Terrorism Peril Coverage.

Commercial General Liability:

The Policy will be on an Occurrence Form with no less than the following limits:

\$1,000,000 Per Occurrence Limit

\$1,000,000 Personal and Advertising Injury Limit

\$1,000,000 Fire Damage

\$5,000 Medical Expense Limit Per Person

\$2,000,000 General Aggregate

\$2,000,000 Products / Completed Operations: Per Occurrence and Aggregate

The policy will include the following:

- (1) Contractual Liability covering this Contract;
- (2) The policy will cover explosion, collapse and underground coverage;
- (3) The General Aggregate will be per project;
- (4) The policy will include Cross Liability (Separation of Insureds) coverage;
- (5) The policy will be amended to require 90 days' notice to Owner and Engineer in the event of cancellation or nonrenewal;
- (6) The policy will be amended by naming the Owner and Engineer as additional insureds for Primary Coverage and the Additional Insured Endorsement will cover Operations and Products and Completed Operations;
- (7) The policy will be amended to provide that the Owner's Protective Liability policy will be in excess to this policy;
- (8) The Contractor shall furnish a certificate of continuing Products and Completed Operations coverage for a period of five years after completion or amend the current policy to include an Extended Reporting Period of five years after completion;

(9) This policy will include Terrorism Peril Coverage.

Automobile Liability:

Automobile Liability Coverage including Owned, Hired, and Non-owned vehicles with a Combined Single Limit (CSL) of \$1,000,000. The policy will be amended to provide 90 days' notice to Owner in the event of cancellation or nonrenewal. This policy will include Terrorism Peril Coverage.

Umbrella Liability (Occurrence Form):

An Umbrella or Excess Liability policy will be provided. Such policy will be excess over Employers Liability, Commercial General Liability, and Automobile Liability. The policy will include Cross Liability (Separation of Insureds) and 90 days' notice to Owner in the event of cancellation or nonrenewal. The total limit of coverage, when combined with the underlying, will be not less than \$5,000,000 per Occurrence and Aggregate. The certificate of insurance will include a copy of the endorsement providing that the policy is excess to the underlying coverage with coverage exceptions identified. This policy will include Terrorism Peril Coverage.

Owner's Protective Liability:

The Contractor will furnish Owner's Protective Liability with a limit of \$2,000,000. Coverage should be project specific, stand-alone policy, naming project owner and principal as named insured. This policy will include Terrorism Peril Coverage.

Contractor's Pollution Liability (Occurrence Form):

The Contractor will provide a Contractor's Pollution Liability policy written on an "occurrence form" with an occurrence limit of not less than \$2,000,000 per Occurrence. The Owner, and such others as Owner shall designate, will be named as additional insureds. This policy will include Terrorism Peril Coverage.

1.02 In addition to the coverage requirements set forth hereinabove, the following insurance requirements shall be applicable unless provided otherwise in the Contract Documents:

(a) Contractor shall purchase and maintain property insurance upon the Work at the Project Site in the amount of the Contract Price, including as may be adjusted by Change Order, or for full replacement cost, whichever is greater. The property insurance shall contain no partial occupancy restriction for utilization of the Project by Owner for its intended purpose;

(b) With respect to all insurance policies and all insurance coverage required to be furnished by Contractor, Contractor shall provide Owner and Engineer prior to performing any Work on

the Project certificates of insurance indicating the applicable coverage and all required endorsements. Upon request by Owner or Engineer, Contractor shall furnish a complete copy of any required policy;

(c) Unless otherwise agreed in writing, the Owner, Engineer, and Engineer's Consultants shall be named as additional insureds on all policies of insurance [\[excepting Worker's Compensation Insurance\]](#) required to be furnished by Contractor. The additional insureds shall be listed by endorsement which shall include coverage for the respective officers, directors, partners, employees, agents, and other consultants and subcontractors of such additional insureds, and the insurance afforded to these additional insureds shall provide primary and noncontributory coverage for all claims covered thereby; [\[Add No. 3\]](#)

(d) To the extent any of the policies of insurance furnished by Contractor contain deductibles in any amount, Contractor shall be liable for, and shall pay, any such deductible amounts;

(e) With respect to all insurance required from Contractor by any of the Contract Documents, Contractor waives, and will require by endorsement its insurance carriers to waive, any and all rights of subrogation against Owner, Engineer and each additional named insured on any applicable policy;

(f) Nothing contained in any policy of insurance, nor any of the insurance requirements set forth in the Contract Documents, shall in any way limit, restrict, or release Contractor from any of its duties, obligations, or liabilities arising under or relating to the Contract Documents.

SECTION 40 05 68.23
MISCELLANEOUS VALVES [\[ADD NO. 3\]](#)

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. Reference Section 40 05 00 – Basic Mechanical Requirements.

PART 2 – PRODUCTS

2.01 PRESSURE ~~REDUCING RELIEF, REDUCING AND REGULATING~~ VALVES [\[ADD NO. 3\]](#)

- A. Pressure ~~reducing relief~~ valves (wastewater service) shall be diaphragm activated, single seat, pilot operated and shall maintain a ~~constant maximum downstream upstream~~ pressure by relieving excess ~~upstream~~ pressure. [\[ADD NO. 3\]](#)
- B. The valve shall be normally ~~open closed~~ and shall ~~close open~~ to maintain the required ~~back maximum downstream~~ pressure when the valve inlet pressure reaches the pilot control set point. [\[ADD NO. 3\]](#)
- C. The initial pilot control setting shall be provided by the Engineer prior to installation.
- D. The stem shall be stainless steel and shall be guided through the center for 100% of the stem travel.
- E. The main valve throttling plug shall be provided with V-port sections to insure precise control at low flow rates.
- F. All internal metal parts shall be bronze or stainless steel.
- G. The control pilot shall be direct acting, spring loaded, and adjustable with bronze body and stainless-steel trim.
- H. The diaphragm and seat disc shall be BUNA-N.
- I. The valve shall be of the globe pattern as shown on the Drawings and shall be fully repairable in the line.
- J. Wastewater pressure reducing valve shall be manufactured by Cla-Val or equal.

2.02 SURGE RELIEF VALVES FOR WASTEWATER SERVICE [\[ADD NO. 3\]](#)

- A. The valve shall be normally closed against the system pressure by external springs and shall open quickly to relieve pressure when the system pressure exceeds the relief setting.
- B. The surge relief setting shall be factory set and field adjustable by adjust the spring compression.
- C. The valve shall close when the system pressure subsides below the surge relief setting. The closing speed shall be adjustable to suit the application by a self-contained, sealed hydraulic system.
- D. The relief body shall be a 90 degree elbow design.
- E. Body shall be constructed of ASTM A536 Grade 65-45-12 ductile iron or ASTM A126 Class B grey iron.
- F. Internal components shall be made of 316 SST or bronze conforming to ASTM B584.
- G. Flanges shall be flat faced and conform to ASME B16.42 Class 150.
- H. Closing force shall be provided by external springs located in a protective steel enclosure. A single adjustment screw shall be provided for field adjustment of relief pressure setting.
- J-I. Wastewater surge relief valves shall be manufactured by DeZURIK/APCO, Ross Valve or equal.

2.022.03 SEWAGE AIR AND VACUUM/PRESSURE AIR RELEASE VALVES

- A. Description and Service
 - 1. Valve shall have the following functions: continuous discharge of dis-entrained pressurized air/gas, unrestricted vacuum break, and pipeline surge protection in a single chamber. Valves shall be anti-surge and anti-shock air release and vacuum break valves.
 - a. The small orifice shall release air accumulations after the pipeline is filled, under pressure and in operation.
 - b. The valve shall be equipped with an integral surge alleviation mechanism that automatically dampens surge pressures due to rapid air discharge or the subsequent rejoining of separated water columns
- B. Construction and Design

1. The intake/discharge orifice area is equal to the nominal size of the valve, i.e., an 8" valve shall have 8" full flow inlet and 8" outlet.
2. Nozzle and Anti-Shock floats shall be solid unbreakable HDPE that will not deform under twice the design working pressure.
3. Manufacturer shall have ISO 9001, and third-party vacuum testing to certify sizing and performance.
4. Valve shall have a 10-year in-service warranty for all internal components

C. Materials of Construction

1. Fusion Bonded Ductile Cast Iron Body, 304 Stainless Steel Top Cover and Fasteners
2. 304 Stainless Steel Body, Flange, Top Cover and Fasteners
3. 316 Stainless Steel Nozzle & Lower Float Assembly
4. Integral High Density Polyethylene Anti-Shock and Nozzle Floats
5. EPDM Seats and Seals
6. Tangential top and bottom Flushing Ports

D. The air valve shall be Vent-O-Mat Series RGXII, or equal.

E. Schedule:

Location	Size	ARV/PRV Model #	Connection
10" FM	2"	RGXII	Flanged

END OF SECTION

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SECTION 46 21 13

MULTI-RAKE BAR SCREENS AND SCREENINGS CONVEYORS [ADD NO. 3]

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall furnish, install, test, paint, and place in satisfactory operation, multi-rake bar screens (screens) and screenings conveyors as specified herein and as shown on the Drawings.
- B. The equipment shall be provided complete with all accessories, special tools, spare parts, mountings and other appurtenances as specified and as may be required for a complete and operating installation. Contractor shall supply anchor bolts.
- C. All vertical and horizontal alignments and interconnecting parts between the screens, screenings conveyors and all other ancillary equipment as described herein shall be coordinated by the Contractor with the Manufacturer to insure a complete and fully operational design. Any modifications or changes to the structure necessary to facilitate the installation of the screening equipment shall be the responsibility of the Contractor at no additional cost to the Owner.
- D. It shall be the Contractor's responsibility to ensure that the mechanically cleaned bar screen furnished and installed shall be compatible and have the necessary operating clearances with the structural elements and equipment shown on the Contract Drawings.
- E. Layout, dimensions, and elevations shown on the Drawings are representative of the mechanical bar screen. Any costs for re-design, materials, or construction due to requirements of the mechanical bar screen equipment ultimately furnished shall be the responsibility of the Contractor.
- F. Equipment shall be provided in accordance with the requirements of Section 46 00 00 – Equipment General Provisions.
- G. Motor starters, remote interlocking control and alarm circuits, power wiring, conduit, and power and control connections, exterior to the equipment, shall be furnished in accordance with Division 26 – Electrical, unless otherwise specified hereinafter.

1.02 OPERATING CONDITIONS AND PERFORMANCE REQUIREMENTS

- A. The mechanical bar screen shall be designed for operation in a rectangular channel for removal of screenings from flowing raw sewage and discharging the screenings to the screenings conveyor.

- B. Screenings shall be mechanically raised on the screen to the dead plate and automatically discharged as specified in this section.
- C. The screen frame shall be set in the channel and designed for installation with sidewall seal plates, furnished with the screen, so the screen can be removed for servicing. The screen shall be front cleaning with multiple rakes entering the bar rack from the upstream side of the rack. Back cleaned screens and single rake designs shall not be acceptable.
- D. Screen shall be heavy-duty, vertical, front cleaned, front return type with traveling cleaning rakes transported on a chain and sprocket mechanism.
- E. The screen shall be designed to operate outdoors in a damp, wet, corrosive atmosphere.
- F. All parts of the equipment furnished herein shall be amply proportioned for all stresses that may occur during fabrication, shipment, erection, and continuous operation.
- G. All corresponding parts shall be interchangeable, and all parts subject to wear shall be standard pattern and easily replaceable.
- H. Adequate lubrication shall be provided for bearings, and lubrication points shall be readily accessible or piped to an accessible point with appropriate label.
- I. All electrical components, switches, conduits, etc. shall be rated for use in a Class I, Division 2, Group D, hazardous location. All screen and conveyor mounted electrical devices with "make and break" contacts shall be mounted in NEMA 7 enclosures.
- J. Equipment Schedule - Multi-Rake Bar Screens

Equipment Characteristics	
Number of Units	1
Tag Numbers	SCR-1
Clear Opening Between Bars	1/2"
Bar Width	0.31" (Tapered or Teardrop)
Angle of Inclination (from horizontal)	75°
Screen Speed per Cleaning Interval	10 sec (normal operation) 5 sec (high speed)
Motor Horsepower (maximum)	3 hp
Flow Conditions	
Minimum Flow/Unit, (MGD)	0.2
Design Flow/Unit, (MGD)	0.4
Peak Flow/Unit, (MGD)	1.4
Performance Requirements	
Upstream Channel width	See Drawings
Downstream Channel width	See Drawings
Channel depth (Interior)	15'-0"
Channel invert at screen, elevation	879.00
Operating floor elevation (top of slab)	894.00

Max Head-loss allowable at peak flow, clean screen	8"
Max Head-loss allowable at peak flow, 50% Blind	2'-10"
Downstream Water Depth (from Channel Invert) at Max Flow	11"

K. Equipment Schedule – Screenings Conveyors [ADD NO. 3]

Equipment Characteristics	
Number of Units	1
Tag Numbers	SCC-1
Minimum screw diameter	12"
Maximum screw length	As Required
Minimum drain connection	3"
Inclination / Slope	25°
Pressure Relief Cover(s)	Yes
Conveyor Style	Shafted or Shaftless
Flow Conditions	
Minimum Flow/Unit, (MGD)	0.2
Design Flow/Unit, (MGD)	1.5
Peak Flow/Unit, (MGD)	5.6
Performance Requirements	
Minimum Capacity, each	20 cf/hr
Feed concentration, % dry solids	1-2.5%
Screenings discharge, % dry solids	35%

1.03 SUBMITTALS

A. The following items shall be submitted with the Shop Drawings in accordance with, or in addition to the submittal requirements specified in Section 01 33 00 – Submittal Procedures and Section 46 00 00 – Equipment General Provisions:

1. Performance Affidavit
2. Horsepower
3. Voltage
4. Rotative Speed of Motors
5. Total Weight of Equipment
6. Approximate Weight of Shipped Materials
7. Complete Erection, Installation, and Adjustment Instructions and Recommendations
8. Electrical Schematic Wiring Diagrams Indicating all Controls and Interlocks for Proper Operation of Equipment
9. Operations and Maintenance Manuals

PART 2 – EQUIPMENT

2.01 ACCEPTABLE MANUFACTURERS

- A. Acceptable manufacturers of the screens and screenings conveyors shall be Huber Technology, JWC, Headworks, Duperon or approved equal. The screen and screenings conveyor shall be manufactured by the same company.^[ADD NO. 2]

2.02 MULTI-RAKE BAR SCREEN

- A. The bar screen shall include cleaning rakes, rake wiper, chains, sprockets, shafts, bearings, drive unit complete with reducer, motor and overload device, side frames with lifting lugs, bar rack, dead plate, discharge chute, head section, side wall sealing plates, and mounting brackets. Plastic filter elements shall not be acceptable.
- B. The cleaning rakes shall be activated to remove screenings deposited on the bar rack both by level control and by timer actuation. When the rakes reach the bottom position of the rotational path, the rake tines shall be engaged into the bars. The rake shall then be raised, transporting the screenings upwards towards the discharge position.
- C. An overcurrent protection relay or torque overload switch shall be provided to detect a rapid increase in motor current due to excessive loads or equipment binding. Positive overload protection against an object which is too large to be discharged shall be provided by a shear bolt. Further requirements are listed under Electrical Requirements (paragraph 2.04) and Controls and Instrumentation (paragraph 2.05).
- D. The rake shall be traversed forward over the discharge chute apex by action of the L-shaped guides mounted in the side frame. The wiper shall be designed to pivot to allow efficient cleaning of the rake on each pass and cushioned during travel to the rest position by a compression spring or the rake as it turns to go down.
- E. Unless specified otherwise hereinafter, stainless steel shall be ASTM A-167, Type 316L.
- F. Frame
 1. The bar rack and dead plate shall be supported by heavy rigid structural steel side frames, resulting in a structurally self-supporting unit. The screen shall not be attached directly to the walls or channel floor and shall be designed to be pulled out of the channel.
 2. The side frames shall be adequately designed for the intended duty and constructed of at least 3/16-inch 316L stainless steel plate formed to a channel section and suitably reinforced to support the required loads. Support beams shall be provided on the front of the frame above the maximum waterline. Beams shall be 3/16-inch thick, U-shape.

3. The side frames shall include L-shaped guides for both the carrying and return run of the screen chain. The L-shaped guides shall assure proper meshing between the rake teeth and the dead plate and shall be securely fixed to the side frames for the full height of travel. The L-shaped guides shall be of 316L stainless steel, of 2.5-inch minimum width.
4. The side frames shall include shrouds around the footshaft sprockets to prevent debris from interfering with the proper meshing of the chains and sprockets. The shrouds shall also be designed to prevent grit accumulation at the chain and sprocket location. Shrouds are not needed if the chain and sprockets are completely outside of the channel flow or if sprockets are not utilized in the design of the screen.
5. Mounting brackets shall be furnished on the back side of the screen that is fixed to the channel walls. The brackets shall not be less than ¼-inch x 3-inch x 3-inch, 316L stainless steel anchored to the wall by no less than three (3) stud anchors.
6. Rubber channel wall seals shall be furnished on the front side of the screen to seal the spacing between the screen frame and the channel wall. Seals shall be fastened to the screen via a 316L stainless steel flat bar bolted to the frame. The seal shall span the entire height of the frame from the channel floor to the top of the bar rack.
7. Side frames shall be secured to the top of the channel walls by use of a flanged section sized by the manufacturer and field mounted by the contractor. The flanged section shall include mounting holes for anchors into the concrete and the top of the flange shall be field welded to the side frame.
8. Lifting lugs shall be provided on the side frames and shall be of sufficient quantity and position to aid removal of the screen from the channel.
9. Maintenance access to the chain rollers, pins, side rails, rake head connections shall be through easily removable, ¼-inch thick stainless-steel covers in the side frame above the top of the channel.

G. Bar Rack

1. The bar rack shall consist of 316L stainless steel, vertical, continuous tapered or teardrop, section bars and held firmly and accurately in place by means of bolted fingerplates incorporating Type 316L stainless steel hardware. Horizontal supports shall be used to reinforce the screen-field bars, such that the bar screen supports the loads of partially or fully blinded conditions. Fully blinded conditions are assumed to be the full depth of the channel, as described in the Equipment Schedule.

2. The screen field shall be accurately constructed to give a clear opening between the bars, per the equipment schedule. There shall be no spaces wider than the opening between the bars which would permit passage of larger solids through the screen.
3. The bar rack shall extend from the bottom of the channel to a height of three (3) feet above the channel bottom and shall be fastened at that point to a dead plate.
4. Bars, bar rack, and dead plate shall be supported from the framework. Bars shall be readily removable. The bar rack shall be constructed so that screen bars are replaceable in cassettes or individually replaceable without welding or cutting. Bars that are supported from the framework and removable in sections shall be acceptable.

H. Cleaning Rakes

1. The screening rakes shall be designed such that screenings will not wrap around the tines or the stationary bars and will not fall back into the sewage flow during the cleaning cycle.
2. The cleaning rakes shall be mounted on two (2) strands of chain running over two (2) sets of sprocket wheels. Rakes shall run in guides on both sides to ensure engagement and clean bars from the upstream side of the screen. The debris shall be removed from the bar racks by the cleaning rakes, conveyed up the dead plate to the discharge point where the rakes shall be cleaned by the rake wiper.
3. Cleaning rakes shall be 316L stainless steel with teeth of suitable thickness and depth to effectively clean the front and sides of the bars. Rake bar thickness shall be 1/2-inch with a reinforcement profile of 1/4-inch and side sheets of at least 3/8-inch thickness. Alternatively, each rake head assembly shall consist of a rake tooth plate and rake shelf. Rake head shall be precision cut from 3/4-inch thick plate having a minimum depth of 8-inches. The rake head teeth shall be shaped to properly engage the clear space openings in the bar rack. The rake teeth shall engage into the bar rack a minimum of 50 percent of the bar depth. The rake tooth plate shall be replaceable and shall attach to a formed rake shelf. The formed rake shelf and integral end plates shall be manufactured from 1/4-inch thick plate. Each rake head shall have a minimum carrying capacity of 0.22 cu ft/ft of rake head width.
4. The raking tines shall have the tooth profile precision cut from a single continuous bar of sufficient thickness and depth to ensure adequate stiffness and strength to sufficiently handle the duty cycles.
5. The rake tines shall penetrate into the screen bar spacing to ensure that screenings are completely cleared during each lifting operation. Rake tines are mechanically engaged into the screen bars. During each cleaning stroke, the

raking tines shall engage into the bottom of the bar screen grids at the channel invert. Drive chains, chain guides, chain sprockets, bearings, and axles shall be fully replaceable without having to remove the screen from the channel.

I. Discharge System

1. Screenings transported to the top of the screen shall be discharged by means of a mechanical scraper.
2. The rake wiper, of not less than 3/16" thick 316L stainless steel, shall be furnished with replaceable 3/8" thick polyethylene wiper blade and wear strips bolted to two (2) structural pivot arms. The arms shall be mounted on a minimum one (1) inch diameter pivot shaft and supported by self-aligning ball bearings. The wiper arms shall be designed to return the wiper quietly and without shock to the screen. The entire wiper mechanism shall be located within the head section.
3. The scraper mechanism shall be fitted with a compression spring or shock absorber that allows the scraper to return to its resting position smoothly without any shock.

J. Discharge Hoppers

1. Each mechanical bar screen shall be provided with a discharge hopper. Discharge hoppers shall be fabricated from 5/32-inch Type 304L stainless steel.
 - a. Each hopper shall be designed independently according to the receiving equipment below the specific screen.
 - b. Hoppers shall be designed to taper at an angle no less than 60 degrees from horizontal to provide a transition from the width of the mechanical screen discharge to the width of the receiving equipment below the screen.
 - c. Each hopper shall be provided with a vertical extension chute of sufficient length to direct screenings from the hopper to the inlet of the conveyor as indicated on the Drawings. Extension chutes shall be fabricated from 14-gauge Type 304L stainless steel and shall be provided with a 12" square hinged inspection hatch.
 - d. Each hopper shall be provided with a screenings diverter bypass chute mounted in the back of the discharge hopper that will swing out to provide a bypass of the screenings out over the screen conveyor. The bypass chute shall be recessed in the back of the hopper to prevent any buildup of screenings material when in the retracted position. The access door shall be designed in such a manner to allow the bypass chute to swing out and locked in place to allow the screening to discharge on the floor. This switch shall be easily done by an operator without any tools.

2. A 1/8-inch thick 60 Durometer Neoprene rubber gasket shall be provided to seal the extension chute to the inlet flange connection of the associated equipment item.
3. Hopper design submittals shall be coordinated with all associated equipment items to ensure proper fit of overall screenings discharge system (including all vertical and horizontal dimensions of the hoppers, chutes, mechanical screens, and associated equipment items such as conveyors and screenings presses).

K. Dead Plate

1. The dead plate and apron shall be constructed of not less than 3/16-inch thick 316L stainless steel plate, shop welded to the side frames of the screen.
2. The dead plate shall extend from the bar rack to the top of the discharge apron. Appropriate support/stiffening of the dead plate shall be provided on its back side to guarantee a maximum gap between the rack bar and dead plate, leading to the discharge chute without interruption.

L. Sprockets

1. Sprockets for the screen chains shall be Type 316L stainless steel. The screen chain sprockets shall not be less than 8-tooth, 12.5 PD. Footshaft sprockets shall be free to turn on the stub shaft and held in place by use of a retainer plate bolted to the shaft. Footshaft sprockets and stub shaft shall be provided with UHMWPE, stooody, or silicium carbide slide, bushings. The lower sprocket shall be of proven self-lubricating material and be maintenance free. No lower bearing requiring lubrication shall be allowed.

M. Chains

1. The screen chains shall be 316L stainless steel of high tensile strength and corrosion resistant. The chain pitch shall be approximately 6-inch. The chain pins shall be stainless steel and hardened. The assembled chain shall have an ultimate strength not less than 24,000 lbs.
2. Chain guide shall be securely fixed to the screen frame for the full height of travel and shall not protrude into the flow.

N. Head Section

1. The side frames of the bar screen shall act as the side panels of the head section above the operating floor. The head section shall be fabricated of not less than 3/16-inch thick 316L stainless steel plate. The hood over the headshaft assembly shall be removable and provided with lifting handles for access to the headshaft.

The head section shall be provided with stainless steel inspection doors located for easy access.

O. Shafting

1. All shafting shall be 316L stainless steel. Keyways with fitted keys shall be provided where necessary.
2. The headshaft shall drive both chain assemblies and be equipped with an adjustable screw type take-up providing for a 6-inch adjustment of the screen chains.
3. The footshaft shall be fixed replaceable steel stub shaft with a bonded ceramic collar or a stainless-steel stub shaft with a field replaceable hardened steel sleeve.

P. Anchor Bolts

1. All anchor bolts, bolts, and nuts shall be 316 stainless steel of ample size and strength for the purpose intended and as shown on the Drawings. Anchor bolts shall be a minimum of $\frac{3}{4}$ -inch thick and shall be provided by the Contractor.

Q. Bearings

1. Bearings for the upper sprocket shall be the UCT take-up type, housed, and grease lubricated. Bearings shall be cast steel, cast iron-housed, adjusted by threading a stainless-steel screw up and down in two (2) milled guide slots.
2. Bearings for the lower sprocket shall be of polyethylene construction and self-lubricated, provided with a ceramic collar to fit around the stub shaft.
3. Alternatively, the upper sprockets shall be key mounted onto a drive shaft. The lower sprockets shall rotate on a 304 stainless steel stub shaft with a hardened steel sleeve attached to the frame. Lower sprocket bearings shall be manufactured from a self-lubricating, abrasion resistant polymeric synthetic material. Lower sprockets and bearings shall be replaceable without removing the screen from the channel.

R. Drive Unit

1. The drive unit shall be of the motorized type mounted on an adjustable drive chain take-up base on the screen head section. The drive unit speed reducer shall be of the helical gear type, fully housed, running in oil, with anti-friction bearings throughout and close coupled to the motor.
2. The drive unit shall be assembled by the Manufacturer and shipped as a complete assembly to ensure proper assembly of all components.

3. The motor shall be suitable for duty in a corrosive atmosphere and high shock loads complying with the applicable provisions of the standards of NEMA and IEEE. Motors shall conform to the applicable requirements of Section 26 05 60 – Low-Voltage Electric Motors.
4. The drive mechanism for the rakes shall incorporate a solid shaft constructed of stainless-steel Grade 316L. The drive unit, including the reduction gearbox, shall be directly shaft-mounted and shall be positioned to facilitate maintenance work.

2.03 SCREENINGS CONVEYORS

- A. Unless specified otherwise hereinafter, all materials shall be ASTM A-167, Type 304L stainless steel. All stainless steel shall be pickled and passivated in accordance with the requirements of ASTM A-380. At a minimum, all stainless-steel surfaces shall be bead blasted prior to assembly to removal all weld discoloration and surface contaminants and provide for Spontaneous Passivation as recognized in ASTM A380-99
- B. Troughs, Covers, End Plates And Chutes
 1. Conveyor Troughs
 - a. Conveyor trough bodies shall be “U” type with trough dimensions conforming to the requirements of CEMA Standard 300, with exceptions as noted herein. The conveyor trough bodies shall be rolled to shape with the double formed top flanges formed with, or welded to, the trough body. Trough end flanges, welded to each trough section, shall be provided for joining adjacent sections or connecting trough end plates to the trough sections.
 - b. Individual trough segment lengths, measured from end flange to end flange shall not exceed the lengths given in the conveyor schedule for each conveyor. Conveyors with lengths greater than the maximum individual trough segment length shall be constructed of two or more sections bolted together at the trough end joining flanges.
 - c. Each shafted screw conveyor trough shall be equipped with 3-inch diameter NPT drain nipples located at the drive and tail trough ends and at each intermediate bearing location. The drain nipple(s) shall extend three inches below the screw conveyor trough and be supplied with a threaded cap.
 - d. Each shaftless screw conveyor trough shall be equipped with 3-inch diameter NPT drain nipples located at the drive and tail trough ends. The drain nipple(s) shall extend three inches below the screw conveyor trough and be supplied with a threaded cap.
 - e. Conveyor troughs for shaftless screw conveyors shall be equipped with a wear liner across the entire inside length. The wear liner shall be fabricated

of 1/2-inch thick (minimum) high density UHMW polyethylene with sintered wear resistant filler and synthetic lubricant. The wear liner shall be provided in 4-foot long sections (maximum length) for ease of replacement. The wear liner shall be held in place using stainless steel clips welded or bolted to the inside of the trough. Clips and bolts shall be placed away from the conveyor spiral path.

- f. Conveyor troughs for shaftless screw conveyors shall be furnished with anti-floatation devices. The anti-floatation devices shall be fabricated of HDPE flat bars with a minimum thickness of 3/8-inch and a minimum width of 2-inches. The anti-floatation device bar shall run the entire length of the screw conveyor and shall be located above the screw on both sides of the trough. The bars shall be supported by stainless steel brackets attached to the trough cover flange every two-feet.

2. Conveyor Covers

- a. A sectional stainless steel plate shall cover the entire trough, with the exception of where the inlet chute connections are located. Cover segments at inlet chute connections shall extend, on each side, beyond the inlet chute connection and shall be bolted in place. Each cover section shall be not greater than 6-feet in length. The cover segments shall be arranged so that the trough flange and a trough stiffener provide support to each edge.
- b. The covers shall open for maintenance and cleaning purposes. The cover shall be furnished with a toggle-clamp type, or spring clip type, quick release connections on each side of the cover. The quick release connectors shall remain attached to the conveyor trough when the cover is removed.
- c. Gaskets shall be installed along each trough cover flange and each stiffener to ensure a drip proof connection and minimize air leakage through the conveyor cover.
- d. Pressure relief covers shall be provided at conveyor discharge ends when required by the conveyor schedule and shall expose the full width of the conveyor trough when opened. Pressure relief covers shall be designed to open upon build-up and packing of material at the discharge endpoint. Pressure relief covers shall be supplied with safety limit switches as described elsewhere in this section.

3. Conveyor End Plates

- a. End plates shall be fabricated from stainless steel plate and shall be bolted and gasketed to the trough end flange. End plates shall be designed to support the drives, bearings and gear reduction assembly.

- b. The end plate assembly shall be supported independently of the conveyor troughs. Support points for the drive and tail end assemblies shall be welded to the end plates.
- c. Where shafts penetrate the end plates the end plate shall be provided to accommodate the stuffing box.

4. Conveyor Chutes

- a. Trough inlet and discharge chutes shall be bolted to the adjoining equipment as shown on the Contract Drawings. Inlet and discharge chutes shall be supplied with reinforced rectangular or circular flanges.
- b. Trough inlet chute connection flanges shall be located approximately 3-inches above the top of the conveyor trough. Trough discharge chute connection flanges shall be located approximately 3-inches below the bottom of the conveyor trough.
- c. The Conveyor Equipment Supplier shall furnish connection chutes and transition pieces between the conveyors and related equipment. Chute connections and transition pieces with length greater than 2-feet between flanges shall include at least four handles to facilitate removal of the connection chute. Handles shall be fabricated from 1/2-inch diameter rod of the same material as the chute, formed and welded to the sides of the chute.
- d. Where shown on the drawings, conveyor equipment supplier shall furnish flexible discharge chutes fabricated from heavy duty rubber resistant to deterioration from contact with dewatered sludge or outdoor exposure.
- e. Full-face gaskets shall be provided between each flanged inlet, discharge, connection and transition chute.

C. Conveyor Drive Train Equipment

- 1. The conveyor drive train equipment shall transmit power to the conveyor drive shaft using a shaft mounted speed reducer directly connected to an electric motor.
- 2. Drive Shaft Assembly
 - a. The drive end assembly shall consist of the following components.
 - 1) Drive Shaft
 - 2) Packing Gland/Stuffing Box
 - 3) Hollow Shaft Gear Reducer

- 4) Bearing and Housing
 - 5) Drive Motor
- b. The tail end shaft assembly shall consist of the following components
 - 1) Tail Shaft
 - 2) Packing Gland/Stuffing Box
 - 3) Bearing and Housing
 - c. Only a drive end assembly shall be provided for shaftless screw conveyors. Both drive end and tail end assemblies shall be provided for shafted screw conveyors.
 - d. Drive shafts and tail shafts on shafted screw conveyors are to be complete with mating connections appropriate for mating the drive shaft to the rotor center tube. Drive shafts for the shaftless screw conveyors are to be complete with mating connections appropriate for mating to the shaftless screw assembly. The drive and tail shafts shall be of adequate diameter to handle all radial, thrust and torsion loads. The drive and tail end shafts shall be mounted to the shafted rotor or shaftless spiral by a flanged connection.
 - e. An adjustable packing gland seal shall be provided where shafts project through the conveyor end plate. Packing glands shall be provided with not less than five packing rings per stuffing box. Packing shall be grease lubricated. Grease fitting(s) shall be provided to lubricate the packing rings.
 - f. The drive end shaft shall be provided with both an inside and outside support bearing. The bearings shall be spherical roller bearings mounted in pillow block bearing housings. The inner drive end bearing shall be “free floating” and designed to handle radial loadings. The outer drive end bearing shall be “fixed” and designed to handle radial and thrust loads. The outer drive end bearing shall be mounted outboard of the packing gland/stuffing box assembly with sufficient clearance to permit removal of stuffing box bolts, cover and repack the stuffing box without having to remove the bearing housing or bearing from the housing. The bearing housing shall be fitted with an Alemite grease fitting. Grease feed tubing shall be run from the inner support bearing to a location on the conveyor exterior to facilitate lubrication.
 - g. The tail end shaft shall be provided with an outside support bearing. The bearing shall be a spherical roller bearing, mounted in a pillow block bearing housing. The outside support bearing shall be outboard of the packing gland/stuffing box assembly with sufficient clearance to permit removal of stuffing box bolts, cover and repack the stuffing box without having to

remove the bearing housing or bearing from the housing. The bearing housing shall be fitted with an Alemite grease fitting.

- h. The support bearings shall conform to the standards of the Anti-Friction Bearing Manufacturer's Association (AFBMA) and shall have a minimum L-10 life expectancy of 50,000 hours under the design loading condition.

3. Drive Motor

- a. Drive motors shall conform to the applicable requirements of Section 26 05 60 – Low-Voltage Electric Motors.
- b. Drive motors shall be suitable for continuous severe duty service.

4. Speed Reducer

- a. The speed reducer shall be a direct driven, enclosed shaft mount type unit. The speed reducer shall mount directly on the driven shaft. All gears shall be AGMA Class II, single or double reduction, helical gear units with high capacity roller bearings. The reducer will be the standard air-cooled unit with no auxiliary cooling.
- b. The speed reducer housing shall be constructed of ductile, iron and shall be ribbed for added strength.
- c. The speed reducer bearings shall be ball or tapered roller type and provide a 50,000-hour B-10 life at the expected design loading rate. All seals shall be double lip, spring-loaded type and made of nitrile rubber.
- d. Speed reducer gears and bearings shall be splash lubricated using petroleum-based oil, containing anti-foam and rust inhibiting additives. Speed reducer installation shall be accomplished by using ductile iron, fully split, twin tapered bushings keyed to the shaft. Reducer removal shall be accomplished by providing jack screw holes in the bushing flanges to mechanically remove the tapered assembly.
- e. The speed reducer shall be manufactured to Quality Class 8 per AGMA Standard 6001-C88, minimum. The gear reducer shall be selected for AGMA Class 11 service with a 1.4 service factor based on motor nameplate horsepower.
- f. The speed reducer shall be as manufactured by SEW Eurodrive, Inc., Nord Gear Corp., or equal.

D. Conveyor Supports

1. The conveyor troughs shall be supported using saddle type supports shaped to the profile of the troughs and extending to a common fixed distance below the centerline of the screw. Saddle type supports shall be located not greater than 10-foot center-to-center. Separate support points shall be provided under the drive end and tail end assemblies. These supports are to be welded as an integral part of these assemblies.
2. Stiffeners shall be placed across the top of the trough and fastened on both sides. Stiffeners shall be designed to maintain the trough shape under loading and shall also act as a face seal for the covers. Stiffeners shall be located so as not to impede the removal of maximum screw lengths as listed herein.
3. Support loadings are to be based on a completely filled trough, weight of the conveyor and the dynamic loading when operating.
4. The Contractor shall coordinate with the Conveyor Equipment Supplier support locations with the facility structural constraints. Access to other process systems and equipment shall not be restricted by the conveyor supports.
5. Each conveyor shall be field shimmed as required to conform to the manufacturer's installation tolerances.
6. Supports shall be constructed of ASTM A-36 structural steel shapes. Support members shall be hot dip galvanized coated to a minimum 3-4 mils DFT per ASTM A123.

E. Shaftless Screw Assemblies

1. The shaftless screw flights shall be cold rolled spirals fabricated from high strength carbon spring steel bars with a minimum tensile strength of 87,000 psi and a minimum Brinnel hardness of 220. Screw assemblies shall be provided with a dual spiral. Outer spiral flights shall have a minimum thickness of 1-inch and a minimum width of 2-3/4 inches. Inner spiral flights shall have a minimum thickness of 5/8-inch and a minimum width of 1-1/2 inches.
2. The manufacturer shall demonstrate that the drive unit cannot produce enough torque, at 250 percent of the motor nameplate horsepower, to exceed the torsional rating of the shaftless spiral. The spiral deflection shall not exceed 0.010 inches per foot of length at the maximum loading condition.
3. Shaftless screw conveyor spiral flights shall be formed in a forming machine to the diameter and pitch required. Spirals shall be concentric to ± 0.080 -inch maximum. Each formed section shall be factory welded into full lengths. Where the length of

the conveyor precludes shipping, sub-sections of flighting shall be divided into maximum shipping lengths and welded together in the field.

4. Field splicing of flighting sections shall be by full penetration welds done in strict accordance with the manufacturer's instructions using AWS certified welders.
5. The spiral flighting outside face shall be flat and smooth with round edges. The outside face shall be parallel with the flight centerline axis.
6. Spiral flighting shall be connected to the drive shaft using a flanged connection plate that shall be welded to the spiral on one end. Transition between the flighting and connection flange shall be smooth and fabricated to the tolerances listed below. The drive shaft shall have a matching mating flange and shall be bolted to the flight connection plate.
7. Flighting shall be formed accurately to the pitch required within $\pm 5/32$ -inch, with an average deviation of the pitch not exceeding ± 0.050 -inch over the length of the conveyor. Flanged faces shall be machined to ± 0.001 -inch perpendicular to the centerline axis of the screw. Screw pitch shall be measured at the outside diameter of the screw flights along four (4) straight lines parallel to the axial centerline of the spiral at 90° offsets and shall not vary more than ± 0.02 times the screw flight outside diameter from the design pitch.
8. The manufacturer is to repair, or replace, the spiral flighting not found in compliance with the aforesaid tolerances with new equipment until the spiral flighting meets the dimensional tolerance requirements. All refurbishment and payments necessary for ascertaining the dimensional tolerance of repaired or new replacement equipment shall be borne by the equipment manufacturer.
9. Shaftless flighting shall receive a shop coat of primer.

F. Shafted Screw Assemblies

1. Shafts

- a. Screw conveyor shafts shall be fabricated from Schedule 40 (minimum thickness) Type 304 stainless steel pipe with a minimum shaft outside diameter as specified elsewhere in this specification. The shaft thickness shall be suitable for the expected static and dynamic loadings for each conveyor type specified herein.
- b. The allowable shaft deflection between two bearing support points shall not exceed $3/32$ -inch for a simply supported tube with a uniform loading equal to the mass of the tube and associated flighting or the maximum center-to-center bearing distance as specified elsewhere herein.

- c. Each shaft section shall be constructed from a single piece of steel pipe (not fabricated by butt welding sections of pipe). Each shaft end shall be fitted with an appropriate coupling arrangement for affixing the shaft to adjoining shafts, the drive end assembly or the tail end shaft assembly. Couplings shall be Type 304 stainless steel and use stainless steel fasteners.
- d. The coupling bolt holes shall be designed to allow for removal of the bolts with the shaft center tube installed in the conveyor without removal of adjoining conveyor sections.

2. Flights

- a. Flights shall be fabricated from Type 304 stainless steel with a minimum thickness of 1/4-inch.
- b. Flights shall be of sectional construction, pre-cut, with uniform thickness and formed accurately to the design pitch. Radial welds of the sectional flight segments shall be level-welded, full and continuous on both sides of the flight junctions to the shaft.
- c. Flights shall extend beyond the end of the screw conveyor shaft to within 3/16-inch of the trough end plates and intermediate bearing supports to clear material from inlet and outlet chutes and drain connections.
- d. Following fabrication of the screw assembly (flights mounted to shaft) the assembly shall be mounted in a finishing jig and the flight outside diameter trimmed to a true circular diameter about the centerline axis of the shaft tube within ± 0.050 -inches.
- e. Flighting shall be formed accurately to the pitch required within $\pm 5/32$ -inch, with an average deviation of the pitch not exceeding $\pm 1/8$ -inch over the length of the conveyor between bearings. Flanged faces shall be machined to ± 0.001 -inch perpendicular to the centerline axis of the screw. Screw pitch shall be measured at the outside diameter of the screw flights along four (4) straight lines parallel to the axial centerline of the spiral at 90° offsets and shall not vary more than ± 0.02 times the screw flight outside diameter from the design pitch.
- f. The manufacturer is to repair, or replace, the spiral flighting not found in compliance with the aforesaid tolerances with new equipment until the spiral flighting meets the dimensional tolerance requirements. All refurbishment and payments necessary for ascertaining the dimensional tolerance of repaired or new replacement equipment shall be borne by the equipment manufacturer.

3. Intermediate Bearings

- a. The conveyor flighting shall be supported by CEMA Style 226 type 304 stainless steel hanger bearing brackets with hardened iron bearings, hardened coupling shafts and grease pipe extensions. Intermediate bearings shall be provided on shafted conveyors with a maximum center-to-center separation between bearings not greater than 12'-0". The intermediate bearing assembly shall be designed to allow removal of the bearing assembly without removal of the adjoining rotors, shafts, or bearings.
- b. The conveyor flights shall cantilever beyond the rotor end on each side of the bearing such that the gap or missing space without blade shall not be greater than 3-inches. The extended flight sections shall be supported from the adjacent torque tubes to accommodate the intermediate bearing support bracket. The bearing shall conform to the standards of the AFBMA and shall have a minimum L-10 life of 50,000 hours.
- c. Intermediate bearing assemblies shall accommodate torsional load, misalignment, and longitudinal movement in two directions due to thermal expansion and differential loadings of the screw conveyor rotors both upstream and downstream due to sludge loading. Intermediate bearings shall be free-floating transmitting thrust loadings to one end of the conveyor where the thrust end fixed bearing is fitted.
- d. Seals shall be provided on both sides of the intermediate bearing to prevent sludge contamination of bearings and grease leakage into the conveyed sludge.
- e. The intermediate bearing shall be supported by both sides of the conveyor trough using support brackets with bolted connection through the trough walls.
- f. Type 304 stainless steel tubing shall be provided to transmit grease from the grease fitting mounted external to the conveyor trough to the intermediate bearing. The bearing housing shall be equipped with an access port allowing grease to enter the central bearing area and seal assembly. Grease tubing shall be routed to prevent damage to the tubing from the material being conveyed and to prevent clogging or bridging of the conveyed material.
- g. The intermediate bearing shall be equipped with a spring-loaded lubricator assembly. The lubricator assembly shall be located above each intermediate bearing location. The lubricator assembly reservoir shall be equipped with a metal base complete with base coupling, piston with O-rings, compression springs, and filling connections.

G. Safety Devices And Limit Switches

1. Safety Trip Cords

- a. Each screw conveyor shall be furnished with emergency trip cords running on both sides of the conveyor and a safety stop switch in compliance with OSHA standards.
- b. Trip cabling shall be 3/16-inch O.D. fabricated of internal 3/32-inch 7 x 7 strand galvanized aircraft cable and orange colored nylon outer sheathing. Cabling shall be supported by galvanized steel or chrome plated eyebolts every 10 feet. Wire clamps shall be stainless steel.
- c. The switch assembly shall be able to handle up to 20 feet of conveyor length. Safety switch shall be housed in a NEMA 7 explosion-proof enclosure and shall have a DPDT micro-switch and stainless steel external hardware. Emergency trip cord and safety switch shall be Conveyor Components Company Model RS-2X, or equal.

2. Zero Speed Switches

- a. Provide non-contacting, proximity-type speed switch on screw conveyors to detect zero speed condition. The zero-speed switch shall consist of a sensor/pre-amplifier and an amplifier/output unit. For shafted screw conveyors, the switch shall be located on the non-driven end of shafted conveyors.
- b. The sensor/pre-amplifier shall utilize magnetic proximity effect to detect equipment rotational speed without physical connection to the rotating equipment. Sensors shall provide output pulses in proportion to rotational speed by detection of a ferrous target mounted on the rotating equipment for shaftless screw assembly and by detection of the rotating flights of a shafted screw assembly. The sensor shall operate satisfactorily with air gaps of up to 4". The sensor/pre-amplifier shall be provided complete with mounting flange, threaded body and locknut.
- c. The amplifier/output switch unit shall provide two SPDT contacts that operate on detection of an under-speed operating condition. The SPDT contact outputs shall be rated for 5A at 120 volts AC. The unit shall include an adjustable start-up delay of 0 to 60 seconds to override zero speed alarm during initial acceleration. Units shall operate on 120-volt AC power. Provide set point adjustment range of 2 to 3,000 pulses per minute.
- d. Zero speed detection switches shall be Milltronics MFA-4 with MSP-12 sensor/pre-amplifier, suitable for installation in a Class 1, Division 2 environment, or equal.

3. Pressure Relief Cover Limit Switches

- a. Each pressure relief cover shall be furnished with a limit switch for detection of a pressure relief operating condition and initiation of conveyor shutdown. Limit switches shall be of a heavy-duty design suitable for installation in a Class 1, Division 2 environment, as furnished by Square D, or equal.

2.04 ELECTRICAL REQUIREMENTS

- A. All motors and all necessary items integral to the mechanical screen required for proper screen operation and control shall be furnished and installed, as described herein and shall be ready for the electrical connections to be made under Division 26 of the Specifications. The Contractor shall coordinate screen controls with the requirements of Division 40.
- B. Motor Schedule:

	Screen Drive	Conveyor
Rating	460V, 3 ph, 60 Hz	460V, 3 ph, 60 Hz
Maximum Horsepower	3	3
Speed, rpm	1800	1800
Enclosure	TEFC-XP	TEFC-XP
Insulation	Class H	Class H
Inverter Duty	Yes	No
Service Factor	1.0	1.0
Motor Winding Temperature Switches	No	No

- C. Motors shall be provided with a separate heavy gauge aluminum conduit box for power connections. A grounding lug shall be provided inside the conduit box. Motors shall be as specified in Section 26 05 60 – Low-Voltage Electric Motors.
- D. All electrical appurtenances furnished by the equipment manufacturer shall be rated for installation in a Class I, Division 2, Group D, hazardous location.
- E. All conduit, couplings, fittings, and fasteners furnished by the equipment manufacturer shall be PVC coated rigid aluminum and liquid tight, PVC coated, flexible metal conduit to suit the application. Conduit seals shall be furnished and installed as required.
- F. All electrical components mounted on the mechanical screen shall be wired to NEMA 7 cast aluminum screen mounted junction boxes, one power and one control, complete with terminal strips. Wiring shall be completed to the control panel by the Contractor.

2.05 CONTROL EQUIPMENT

- A. Control Panel

1. The screening equipment manufacturer/supplier shall provide a local control panel for the screen drive and screenings conveyor. All control equipment for both an individual screen drive and respective screenings conveyor shall be housed in a single common panel. Provide a U.L. listed or recognized control panel in an indoor, NEMA 1A enclosure. IEC rated devices are not acceptable. All controls and other ancillary local control panel equipment not listed herein shall also be provided. Components of the Control Panel shall meet the applicable requirements of Division 26.
2. The Control Panel shall be furnished, completely pre-wired and factory tested, requiring only mounting and connection to external wiring in the field by an electrical contractor.
3. The screen manufacturer shall be responsible for proper sizing of the panel to meet dimensional constraints, as shown on the Drawings. The control panel shall include, but not be limited to, the following:
 - a. General Requirements
 - 1) A single 480 VAC three-phase power supply connection with a circuit breaker-type, lockable disconnect switch operable from outside the control panel.
 - 2) Internal step-down transformers as required to achieve 120VAC control voltage
 - 3) A Programmable Logic Controller (PLC) shall be provided in accordance with specification 40 63 43 and used to control the motor controllers as described in the Control Operations section below.
 - 4) Provide cabinet ventilation as necessary for an indoor, dry non-air-conditioned control panel location.
 - b. Multi-Rake Bar Screen Requirements
 - 1) An AC variable frequency drive (VFD) suitable for forward-reverse and fast-slow operation of the screen drive motor. Provide the VFD with a branch circuit breaker, an input reactor and solid-state overload relay.
 - 2) Hand-Off-Auto (H-O-A) control switch with AUTO control provided by the control panel provided under this Section.
 - 3) E-STOP pushbutton
 - 4) FORWARD-REVERSE selector switch

- 5) An elapsed RUN TIME meter
- 6) The following door-mounted 30.5mm push-to-test indicating lights shall be provided to indicate running and alarm status of the screen. Legend plates and a door-mounted Alarm RESET push button shall also be provided.
 - a) POWER ON indication light
 - b) LOCAL/REMOTE indication light
 - c) RUN-FAST indication light
 - d) RUN-SLOW indication light
 - e) FAIL indication light
 - f) OVERCURRENT indication light
 - g) E-STOP indication light

c. Screenings Conveyor Requirements

- 1) NEMA rated, reversing, combination motor starter complete with motor circuit protector and solid-state overload relay.
- 2) Hand-Off-Auto (H-O-A) control switch on the front of the control panel with AUTO control provided by the panel provided under this Section.
- 3) E-STOP pushbutton
- 4) FORWARD-REVERSE selector switch
- 5) An elapsed RUN TIME meter conveyor
- 6) The following door-mounted 30.5mm push-to-test indicating lights shall be provided to indicate running and alarm status of the screenings conveyor. Legend plates and a door-mounted alarm RESET push button shall also be provided.
 - a) POWER ON indication light
 - b) LOCAL/REMOTE indication light
 - c) RUN indication light
 - d) FAIL indication light

- e) OVERCURRENT indication light
 - f) E-STOP indication light
4. The PLC shall provide the following I/O points for output to the plant control system for remote indication and alarm:
- a. Screen RUN FAST indication
 - b. Screen RUN SLOW indication
 - c. Screen FAIL indication
 - d. Screen OVERCURRENT indication
 - e. Screen E-STOP indication
 - f. Screenings Conveyor RUN indication
 - g. Screenings Conveyor FAIL indication
 - h. Screenings Conveyor OVERCURRENT indication
 - i. Screenings Conveyor E-STOP indication
 - j. Level Differential (analog output)

B. Manufacturer supplied PLC Requirements

1. The manufacturer-supplied PLC shall be furnished, installed and programmed by the manufacturer. The PLC shall continuously monitor and control the associated system and provide all the required alarms, indications of system parameters, equipment status, etc. to the main control system at the plant.
2. Where individual equipment PLCs are not required to be connected to the plant control system via the data highway network, they shall provide the individual hardwired signals as specified in the Contract Documents. Outputs to the plant control system are described in the Drawings, the Input/Output Schedule, the individual equipment specification sections, and in Section 40 61 96 – Functional Control Descriptions.
3. The operator interface for control of each individual system shall be performed by local operator interface units as specified in Section 40 62 63 or individual pilot devices on the equipment local control panel as specified in the associated equipment specification section.

4. Where remote indication is required to be provided to the plant control system, the individual system supplier shall be responsible for coordination with the instrumentation subcontractor to provide a complete and working equipment control system. The equipment supplier shall coordinate testing of the completed system with the instrumentation subcontractor, which shall conform to the requirements of Section 40 61 21.72 – Field Testing.
 5. The Contractor, equipment supplier and instrumentation subcontractor shall coordinate testing and startup of the equipment provided by the equipment supplier with the plant control system, including but not limited to the following tasks:
 - a. Provide assistance with control system testing of inputs, outputs, and control strategies as needed.
 - b. Provide support or interface work necessary to perform physical checkout and field testing to the final field devices. The schedule may require the instrumentation subcontractor and equipment manufacturer personnel to perform loop checks simultaneously, as directed by the Design-Builder
 - c. Coordinate and assist as needed to maintain I/O connectivity throughout the system.
 - d. Ensure personnel safety while equipment is exercised via the plant control system.
 - e. Ensure that process, instrumentation, and control equipment are not damaged while equipment is exercised via the plant control system.
 - f. Provide temporary modifications to field devices and their terminations, if needed.
 - g. Providing labor and supervision, which may include, but is not limited to, the following: electricians, instrument technicians, manufacturer's representatives, and individual(s) knowledgeable about process startup and operation.
 - h. Operation of process equipment for verification of each plant control system input and output.
- C. Ultrasonic Level Sensors and Differential Level Transmitter shall be provided by the screen manufacturer in accordance with specification 40 72 13. Provide 120 VAC power for the differential level transmitter from the Control Panel from an isolated circuit protected by a circuit breaker. Circuit breaker shall be pre-wired to terminal blocks for Contractor use.

2.06 CONTROL OPERATIONS

- A. LOCAL/OFF/REMOTE handswitches shall be provided by the Contractor for both the screen and the screenings conveyor ~~conveyorempactor~~ located near the equipment as shown on the Drawings. In the OFF position, the associated equipment shall not run. In the REMOTE position, the associated equipment shall be controlled by the factory control panel. In the LOCAL position, the associated equipment shall run in the direction (conveyor) or speed (screen) selected at the factory control panel. [ADD NO. 3]
- B. An EMERGENCY STOP handswitch shall be provided by the Contractor for the screen located near the screen as shown on the Drawings. When the EMERGENCY STOP handswitch is depressed, the screen shall stop immediately and not run until the handswitch is reset. An EMERGENCY STOP pull cord shall be provided for the conveyor by the conveyor manufacturer. When the EMERGENCY STOP pull cord is engaged, the conveyor shall stop immediately and not run until the pull cord is reset.
- C. When the screen is in the REMOTE HAND mode, the screen shall be started and stopped at the vendor control panel FCP-SCR-1 and shall operate in accordance with Forward/Reverse selector switch. In the REMOTE OFF mode, the screen shall not run under any condition. In the REMOTE AUTO mode, the bar screen shall be controlled by the vendor control panel control logic as described below.
1. Under normal conditions, the screen shall operate in the REMOTE AUTO mode controlled by an adjustable on/off PLC cycle timer on a timed basis. ON and OFF cycle times shall be operator adjustable between 0 and 60 minutes.
 2. If the level differential is below an operator-adjustable setpoint, the screen shall run in the SLOW mode according to the selected ON and OFF cycle times.
 3. If the differential level increases to the operator selected set point, the screen shall run continuously in the FAST mode until the differential level has dropped below the operator-selected setpoint.. The screen shall then resume normal AUTO operation running in SLOW mode according to the selected ON and OFF cycle times.
 4. If the differential level increases to a second, higher operator-selectable set point, the screen shall continue to operate in FAST mode and a HIGH DIFFERENTIAL LEVEL ALARM output shall be generated for remote alarm.
- D. When the screenings conveyor is in the REMOTE HAND mode, the screenings conveyor shall be started and stopped at the vendor control panel and will operate in accordance with the Forward/Reverse selector switch. When the conveyor is in the REMOTE OFF mode, the screenings conveyor shall not run under any condition. When the conveyor is in the REMOTE AUTO mode, the screenings conveyor shall be controlled by the vendor control panel as described below.

1. The screenings conveyor shall start whenever the mechanical screen starts.
2. The screenings conveyor shall stop after an operator-adjustable time delay (initially set at 30 seconds) after the mechanical screen has stopped.
3. If the screenings conveyor fails to start within a time delay (initially set at 5 seconds) after the screen is started, a CONVEYOR FAIL signal shall be generated for remote alarm. The screen shall continue to run.

2.07 ACCESSORIES, SPARE PARTS, AND SPECIAL TOOLS

- A. Spare parts and accessories shall be provided by the Contractor as specified in Section 46 00 00 – Equipment General Provisions.
- B. The spare parts which are identical and interchangeable with the original parts shall be furnished in clearly identifiable and labeled containers.
- C. The Contractor shall furnish all special tools (one per like piece of equipment) necessary to disassemble, service, repair and adjust the equipment.
- D. The Contractor shall furnish spare parts as recommended by the equipment manufacturers in addition to those listed below.
- E. Spare parts shall be packaged with labels bearing the description and quantity of the contents.
- F. The following spare parts shall be provided for each mechanically cleaned bar screen:
 1. Two (2) sets (10 linear feet each) of chain
 2. One (1) set (2 pieces) of lower sprockets (including polyethylene bushes)
 3. One (1) set (2 pieces) of upper sprockets
 4. One (1) set (2 pieces) of stub shaft assembly (consists of stub shaft, bonded ceramic collar, polyethylene washers (2 pieces), retaining rings, and spring pin or as pertinent to manufacturer design)
 5. Two (2) rake bars
 6. Two (2) shear bolts

PART 3 – EXECUTION

3.01 MANUFACTURER’S FIELD SERVICES

- A. The services of a qualified manufacturer's technical representative shall be provided in accordance with Section 46 00 00 – Equipment General Provisions, and shall include the following site visits:

Service	Number of Trips	Number of Days/Trip
Installation and Testing	1	2
Startup and Training	1	3
Services after Startup	1	1

3.02 FIELD TESTING

- A. Testing shall be in accordance with Section 46 00 00 – Equipment General Provisions.
- B. The bar screen shall be field tested after installation, and in the presence of the Engineer and manufacturer’s representative, to confirm and verify the structural and mechanical compliance to the requirements specified. The field acceptance test shall include demonstrating that the screen can operate continuously without vibration, jamming or overheating and perform its specified function satisfactorily.
- C. All labor, materials, and test apparatus necessary for conducting the field acceptance tests shall be furnished by the Contractor at no additional cost to the Owner.
- D. Each screen shall be factory assembled and tested for a minimum of 1 hour prior to delivery to check alignment and clearances of the cleaning rakes, dead plate, and side frame guides. Each screen shall also be delivered to the site fully assembled (other than the motor/reducer unit, drive chain, chain cover, discharge chute and support legs). It shall be capable of being set in place and field erected by the Contractor with minimal field assembly.
- E. Upon completion of the installation, each piece of equipment shall be tested for satisfactory operation without excessive noise, vibration and overheating. All equipment must be adjusted and checked for misalignment, clearances, supports and adherence to safety standards.
- F. Any repairs recommended and normal replacement of components due to wear including additional spacers to limit tolerances related to materials and workmanship of the screens or to make adjustments to the screen shall be provided by the Contractor under the conditions of the warranty.

3.03 INSTALLATION

- A. The screen shall be shipped assembled ready for installation into the channel. Where the screen cannot be shipped assembled due to carrier limitations, the screen frame shall be provided with bolted splice joints to facilitate assembly and/or disassembly of the bar screen during installation.
- B. If a screen is not shipped assembled this will not eliminate the requirement for complete shop assembly and testing of the bar screen before shipment.
- C. All equipment specified herein shall be installed and tested by the Contractor in accordance with the manufacturer's instructions and checked by the manufacturer's representative, in conformity with the applicable sections of this Specification. After installation, the equipment shall be aligned, balanced, and adjusted as required for proper operation and proper alignment.
- D. Where warning is necessary, safety hazard labels shall be attached to the equipment.

3.04 WELDING

- A. The Equipment Manufacturer's shop welding procedures, welders and welding operators shall be qualified and certified in accordance with the requirement of AWS D1.1 "Welding in Building Construction" of the American Welding Society.
- B. The Equipment Manufacturer's shop drawings shall clearly show complete information regarding location, type, size and length of all field welds in accordance with "Standard Welding Symbols" AWS A2.0 of the American Welding Society. Special conditions shall be fully explained by notes and details.
- C. The Contractor's welding procedures, welders and welding operators shall be qualified and certified in accordance with the requirements of AWS D1.1 "Welding in Building Construction" of the American Welding Society.
- D. The Contractor shall perform all field welding in conformance with the information shown on the Equipment Manufacturer's drawings regarding location, type size and length of all welds in accordance with "Standard Welding Symbols" AWS A2.0 of the American Welding Society, and special conditions as shown by notes and details.

3.05 PAINTING

- A. All surface preparation, shop painting, field repairs, field painting and other pertinent detailed painting specifications shall conform to applicable sections of Section 09 90 00 – Painting.

- B. All inaccessible surfaces of the equipment which normally require painting, shall be shop finish painted by the manufacturer. The motor and gear reducer shall be painted in accordance with Section 09 90 00 – Painting.
- C. Gears, bearing surfaces, and other unpainted surfaces shall be protected prior to shipment by a heavy covering of rust-preventive compound sprayed or hand-applied which shall be maintained until the equipment is placed in operation. This coating shall be easily removable by a solvent.

3.06 EQUIPMENT IDENTIFICATION

- A. The mechanical bar screen shall be provided with a substantial stainless-steel nameplate, securely fastened in a conspicuous place and clearly inscribed with the manufacturer's name, year of manufacture, serial number, and principal rating data.

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