Jacobs

ADDENDUM NO. 2

TO THE CONTRACT DOCUMENTS

Date: May 12, 2021
Jacobs Project No.: D3403200

for the
Crestview WWTP Solids Handling Improvements

To All Plan Holders:

The following changes, additions are hereby made part of the Contract Documents for the Crestview WWTP Solids Handling Improvements Project, dated March 2021, as fully and completely as if the same set forth fully therein:
The following provides a summary of questions/comments and clarifications.

Specifications

A. PART 1. TECHNICAL SPECIFICATIONS

1. Section 08 16 13 Paragraph 2.01 – ADD Special-Lite, Inc. as an approved manufacturer.

2. Section 26 05 33 Paragraph 3.04.C – ADD the following subparagraph:

   "3. Aluminum for ac circuits, rigid galvanized steel or PVC coated rigid galvanized steel for dc circuits or AFD driven motors circuits."

3. Section 33 16 13 Paragraph 1.06.D – DELETE subparagraphs 2, 3, 4, 5, and 6 in their entirety.

4. Section 44 42 13 Paragraph 2.03 – ADD Aerator Solutions; EcoJet as an approved manufacturer.

5. Section 44 46 13 Paragraph 2.03 – ADD Jim Myers & Sons, Inc. as an approved manufacturer.

6. Section 44 46 13 Paragraph 2.03 – ADD Custom Conveyor as an approved manufacturer.

7. Section 44 46 16:

   a. Paragraph 1.08 – DELETE subparagraphs A, B, and C and ADD the following:

      "A. Design of the BFP equipment and Drawings are based on best available information pertaining to the specified equipment

manufacturer(s). Contractor and BFP manufacturer to coordinate actual equipment installation and connections and make necessary adjustments and accommodations as necessary to furnish a complete and operable system."

b. Paragraph 2.05.B, subparagraph 3.a – DELETE the last sentence: "Tubular sections are not permitted."

c. Paragraph 2.05.B, subparagraph 3.c – CHANGE from "equivalent to 200 pounds per inch" TO "equivalent to 280 pounds per inch"

d. Paragraph 2.05.D – INSERT the following and renumber subparagraphs 1 - 6 TO subparagraphs 2 – 7:

"1. An independent gravity drainage zone with a separate drainage zone belt with its own drive, tracking, and tensioning systems is to be provided.

e. Paragraph 2.05.E, subparagraph 1 – CHANGE "provide an adjustable wedge zone" TO "provide an adjustable, curved wedge zone"

f. Paragraph 2.05.H, subparagraph 6 – CHANGE "1-gallon reservoir" TO "20-gallon reservoir"

g. Paragraph 2.05.H – CHANGE the first sentence of subparagraph 7 as follows:

"7. Mount the pump, motor, reservoir, high and low pressure oil filter and valves adjacent to the belt filter press as close as possible to minimize excess piping runs, fittings, and hoses while also in a location to not restrict maintenance access to the BFP or hydraulic unit."

h. Paragraph 2.05 M, subparagraph 3 – CHANGE "Minimum L-10 life of 200,000 hours" TO "Minimum L-10 life of 1,000,000 hours"

B. PART 2; DRAWINGS

1. Drawing 01-G-0009, Luminair Schedule, ADD the following make/model per fixture type:

   a. Type A: "Metalux as an approved manufacturer with the model to be determined to meet the contract requirements."

   b. Type B: "Metalux as an approved manufacturer with the model to be determined to meet the contract requirements."

   c. Type C: "NLS Lighting LLC as an approved manufacturer with the model to be determined to meet the contract requirements."

d. Type D: “NLS Lighting LLC as an approved manufacturer with the model to be determined to meet the contract requirements.”

e. Type E: “Barron Lighting as an approved manufacturer with the model to be determined to meet the contract requirements.”

f. Type F: “NLS Lighting LLC as an approved manufacturer with the model to be determined to meet the contract requirements.”

g. Type G: “NLS Lighting LLC as an approved manufacturer with the model to be determined to meet the contract requirements.”

h. Type X: “Direct Tech Sales as an approved manufacturer with the model to be determined to meet the contract requirements.”

2. Drawing 05-E-6001, Duct Bank Schedule EXDB-20: ADD the following conduits to section:

   Conduit #19, NEW 1”, [P28], TO HTR, FROM MCC-C4

   Conduit #20, NEW 1”, [P28], TO HTR, FROM MCC-C4

   Conduit #21, NEW 1”, [A26], TO 40-VCP-20-1, FROM CP-B

3. Drawing 05-E-6001, DB-21A: ADD the following conduit to this section:

   a. Conduit #26, 1”, [A26], TO 40-VCP-20-1, FROM CP-B

4. Drawing 05-E-6001, DB-21C: ADD the following conduit to this section:

   a. Conduit #17, 1”, [A26], TO 40-VCP-20-1, FROM CP-B

5. Drawing 20-E-2001, ADD 30A disconnect in NEMA 4X enclosure next to each TJB for floating mixers.

6. Drawing 20-E-2001, ADD General Note 4 as follows:

   “4. Mount mixer TJB and disconnect switch a minimum of 24” off basin wall and outside of hazardous envelope.”

7. Drawing 40-D-2002, MOVE the hydraulic unit 40-M-20-1E adjacent to the belt press towards the northeast corner of the belt press. Coordinate final location with Owner and Engineer.

8. Drawing 40-E-2002, DELETE and REPLACE in its entirety with the revised Drawing 40-E-2002 attached.

9. Drawing 90-E-2001, ADD call out [C40] and [A4] for conduits between MCC-C4 and CP-B.

10. Drawing 96-E-6001, DELETE and REPLACE in its entirety with the revised Drawing 96-E-6001 attached.

11. Drawing 96-E-6001, ADD 3way light switch in WP enclosure at each end of drive through to control Type B light fixtures.

C. PART 3; QUESTIONS AND RESPONSES (Q and R)

1. Q: Please confirm that this project does not require any prevailing wages and/or AIS requirements.

   R: Confirmed.

2. Q: Plan Sheet 01-G-004, Foundations Note No. 1, refers to a Geotechnical Design Memorandum dated February 11, 2021 by Jacobs. Please provide a copy of this geotechnical design memorandum if pertinent to this project.

   R: Memorandum is attached herein.

3. Q: Specification 33 16 13.15, Section 2.11B, requires an aluminum ladder. Please confirm if the Aerobic Digesters require interior ladders.

   R: No. interior ladders are not required in the digesters.

4. Q: Plan Sheet 99-S-5007, Detail 0552-001 and Specification 05-52 16, Section 2.01D, calls for the aluminum railing to be anodized. However, Specification 33 16 13.15, Section 2.11.A.2, calls for aluminum accessories to have a "mill" finish. Please confirm if the aluminum railing is required to be anodized.

   R: Aluminum accessories as noted in Specification 33 16 13.15 do not apply to the railings. Aluminum railings to be per the requirements within Specification 05 52 16, Aluminum Railings.

5. Q: Please confirm that the two Aerobic Digesters do not require any interior and/or exterior coatings.

   R: Confirmed

6. Q: Plan Sheet 20-E-2001, Note No. 2, calls for grounding connection to the tank's foundation reinforcing steel. Please be note that bonding to any reinforcing embedded in the tank structure is not allowed, per AWWA D110. Per AWWA D110, section 5.16, all grounding to the prestressed concrete tank is prohibited. Instead, all bonding should be done by using air terminals with separate grounding connections. Please confirm separate grounding connections are acceptable in lieu of bonding directly to the tank structure.

   R: Confirmed

7. Q: Can the "Florida" Notary Requirement be waived, and us be able to use any state notary, such as Alabama?

   R: The notary may be from another state as long as it is notarized.

8. Q: Spec Section 26 05 33 – 3.04 Conduit: in lieu of PVC coated RGC is Rigid Aluminum acceptable?

R: Aluminum may be used in exposed interior or exterior areas except where cable is serving a VFD driven motor. All cables between VFD and Motor shall be in RGS or PVC coated RGS for shielding purposes.

9. Q: Would schedule 80 PVC be permitted underground and below slabs vs. PVC coated GRC?

   R: No, conduits fill calculations are based on PVC schedule 40.

10. Q: Drawing 96-E-6001 calls for (2) 10KW unit heaters while 40-M-2001 is calling for 25KW units. Which is correct?

    R: 25KW, see revised drawings attached herein.

11. Q: A detail for MH-60 and MH 62P along with HH 60 and HH 62P are not shown. Will these be provided?

    R: Details are on standard detail sheets. Detail 2605-442b for manholes and detail 2605-444 for handholes.

12. Q: Drawing 40-E-2002, 40HS-30-1C and 40HS-20-1A device locations are not shown.

    R: These I&C tags represent the emergency stop pull cords for the screw conveyor and belt filter press which are located along the length of each unit. See Drawing 40-D-3002 for the general location of 40HS-30-1C. Coordinate with equipment manufacturers for wiring connection locations.

13. Q: Will an escalation clause be allowed (in relation to electrical circuits)?

    R: No.

14. Q: Drawing 94-E-2001 EX DB-20 shown on west side of the Electrical building, is this correct? I recall from the site visit that this was on the North side?

    R: Correction: EX DB-20 is stubbed up on the North side of the Electrical building.

15. Q: Can the base plate elevations be provided for the Pre-Engineered Metal Building?

    R: See the Pier Schedule on Drawing 40-S-2001 for elevations.

All Bidders shall acknowledge receipt of this Addendum.

JACOBS

Scott L. Jernigan, P.E.
Project Manager

Documents attached herein:
Revised Drawing 40-E-2002
Revised Drawing 96-E-6001
Geotechnical Design Memorandum, Dated February 11, 2021, by Jacobs

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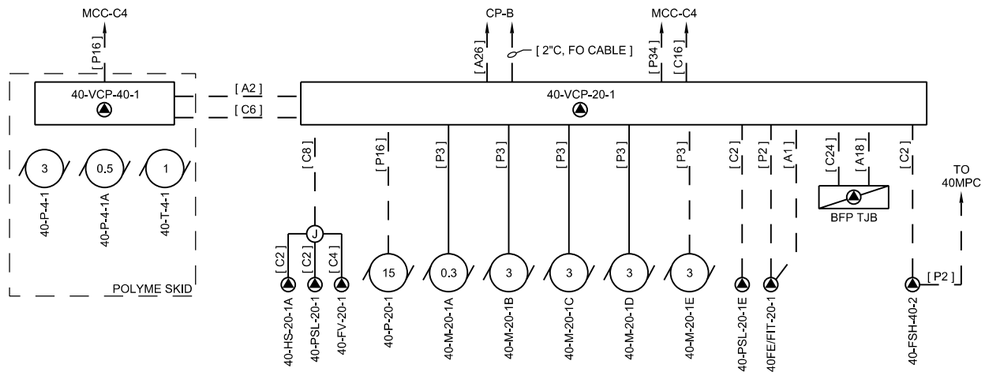
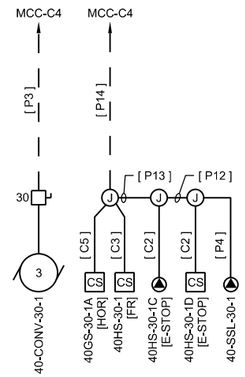


WIRING DIAGRAM



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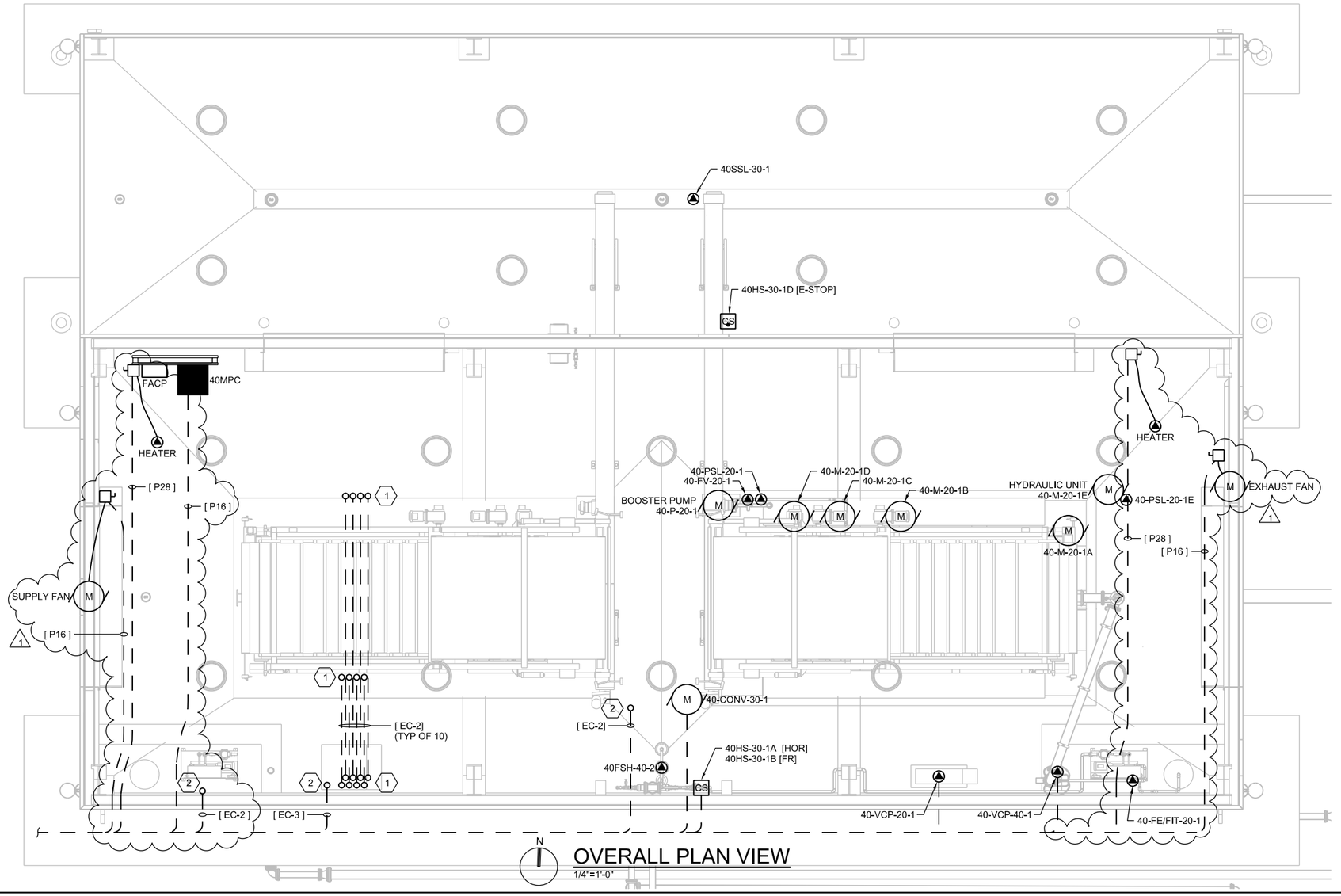

OVERALL PLAN VIEW

1/4"=1'-0"

SHEET KEYNOTES

1. PROVIDE SPARE CONDUIT BETWEEN FUTURE CONTROL PANEL AND BELT FILTER PRESS. STUB UP AND CAP EMPTY CONDUIT.
2. PROVIDE SPARE CONDUIT BETWEEN DEWATERING BUILDING AND ELECTRICAL BUILDING AS SHOWN. SEE DUCT BANK FOR ADDITIONAL DETAILS. STUB AND CAP CLOSE TO BUILDING WALL.

NO.	DATE	REVISION	DR	CHK	APVD	BY
1	05/2021	ADDENDUM NO. 2	G MESSER	D NICHOLSON	APVD	GM

DSGN: KB HORTON | KB HORTON | KBH

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PENSACOLA, FLORIDA 32502
EB25861

Jacobs

CRESTVIEW WWTP
SOLIDS HANDLING IMPROVEMENTS
CITY OF CRESTVIEW
CRESTVIEW, FL

ELECTRICAL
DEWATERING BUILDING
POWER PLAN

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	MARCH 2021
PROJ	D3403200
DWG	40-E-2002
SHEET	56 of 76

BID DOCUMENTS

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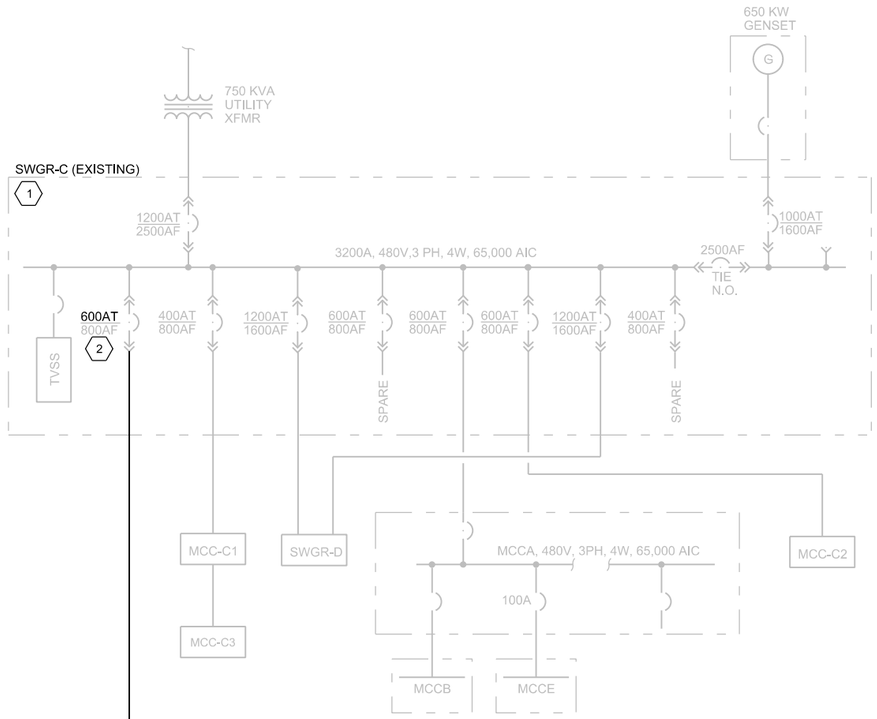
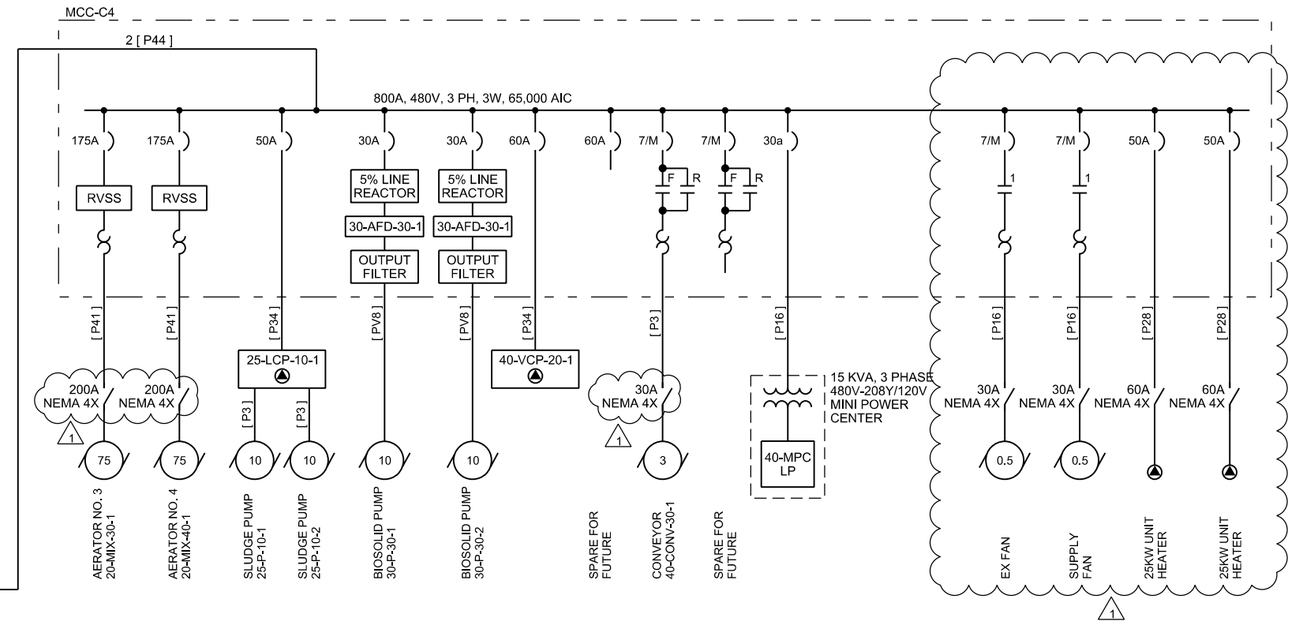
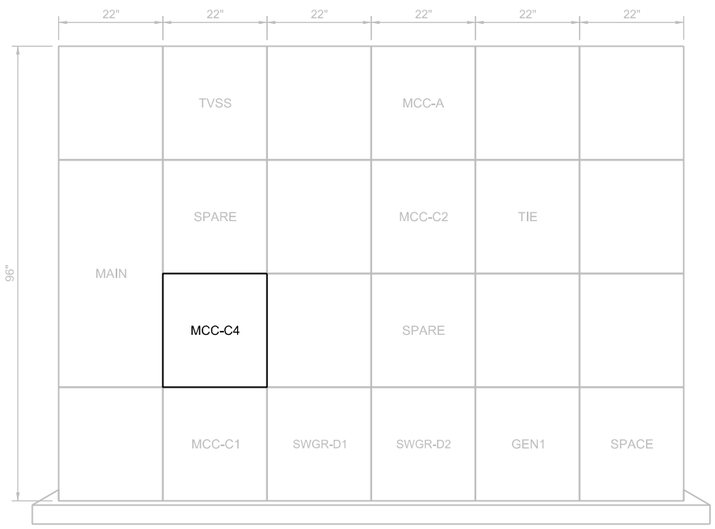
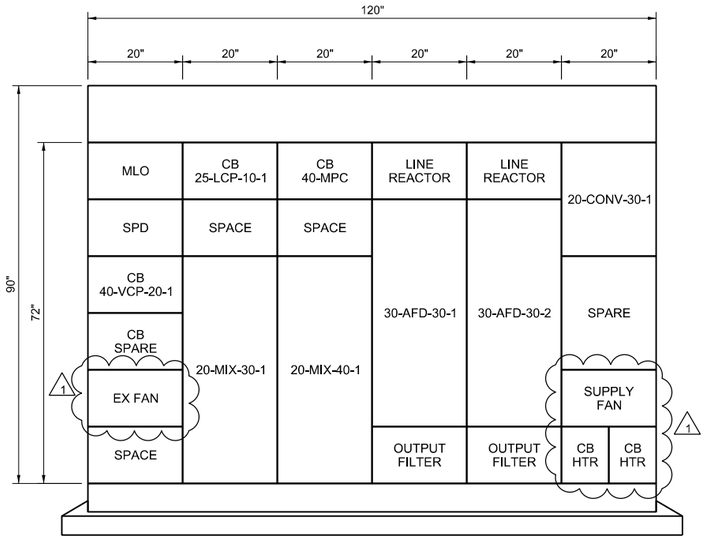






EXISTING SWGR-C FRONT ELEVATION
NTS



MCC-C4 FRONT ELEVATION
NTS

LOAD SUMMARY	
DESCRIPTION	AMPS
125% HISTORICAL LOAD	553.0
MCC-C4 LOAD	317.0
SWGRC DESIGN LOAD	870.0
EXPECTED PEAK LOAD	759.0
CALCULATED ISC 26,169A	

SHEET KEYNOTES

1. EXISTING SWITCHGEAR IS ISO SWITCHGEAR USING CUTLER HAMMER MAGNUM DS BREAKERS. ISO PROJECT # 35838.
2. UTILITY EXISTING SPARE CIRCUIT BREAKER. SET TRIP SETTING FOR 600A. LOADS ON MCC-C4 ARE NOT REQUIRED ON GENERATOR. SET SYSTEM TO OPEN FEEDER BREAKER WHEN ON GENERATOR.

NO.	DATE	REVISION	BY	CHK
1	05/2021	ADDENDUM NO. 2	GM	KBH

DSGN KB HORTON DR G MESSER CHK D NICHOLSON APVD KB HORTON APVD

25 W CEDAR STREET, SUITE 350
PENSACOLA, FLORIDA 32502
EB25861

CRESTVIEW WWTP
SOLIDS HANDLING IMPROVEMENTS
CITY OF CRESTVIEW
CRESTVIEW, FL

ELECTRICAL
MCC ONE-LINE DIAGRAM AND FRONT ELEVATION

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

DATE	MARCH 2021
PROJ	D3403200
DWG	96-E-6001
SHEET	58 of 76

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City of Crestview

Crestview WWTP Solids Handling Improvements

Digesters and Dewatering Building Geotechnical Analyses

February 11, 2021

City of Crestview

Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
0	02/11/2021	Geotechnical TM	O. Insa	J. Ramos	J. Ramos	

Crestview WWTP

Project No:	D3403200
Document Title:	Technical Memorandum
Date:	February 11, 2021
Client Name:	City of Crestview
Attention	Design Team – Jacobs
Project Manager:	Scott Jernigan, P.E.
Author:	Ousmane Insa, E.I.T. and José Ramos, P.E.

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Summary

This technical memorandum summarizes the results of the geotechnical evaluation and recommendations performed by Jacobs for the design of the proposed Solids Handling Improvements project. The project site is located at 5101 Arena Rd, Crestview, FL, 32536.

The project consists of the construction of two new digesters to overcome the increase in influent flow and a new dewatering building to handle the increase in solids loadings. The proposed digesters are planned to have the same finished floor elevation as the existing ones, which will vary between 224.97 and 228.22 feet NAVD88. The Dewatering Building is planned to have a finished floor elevation varying between 233.5 and 234.5 feet NAVD88. Existing ground elevation at the proposed structures site varies from 225 to 234 feet NAVD 88. The digesters will be circular 60-feet diameter prestressed concrete tanks with an approximate contact pressure equivalent to 1000 psf. Based on preliminary information provided by the Jacobs Structural Design team, the Dewatering Building will have column loads varying from 11 to 40 kips. The wall loads vary from 0.6 to 1 kip/ft. The loads provided include a combination of dead load, live load, and wind load.

Settlement analyses for the proposed loading conditions were analyzed to estimate the settlement. The settlement analyses were conducted using computer software Settle3 by Rocscience applying the theory of elasticity (Young's Modulus) to the analyzed soil profile.

1. Geotechnical Review of Data

1.1 Standard Penetration Test Borings

Limited geotechnical data is available from two different site investigations performed in April 2006 and February 2010 for other plant improvement projects.

The subsurface exploration performed in the report dated April 2006 was performed by Universal Engineering Science and consisted of two 25-foot deep and four 40-foot deep Standard Penetration Test (SPT) borings. Based on the boring location diagram and the current site plan, boring B-1 drilled in 2006 appears to be in close proximity to the proposed Dewatering Building. Due to the limited field data available, this boring was used for analyses purposes. The soils depicted in this record boring consist of 2.5 feet very loose sand (SP), underlain by very loose to medium dense silty sand (SP-SM) encountered to termination depth of 25 feet. The soil boring logs does not show recorded groundwater table at the time of the exploration within the drilled depths.

In 2010, the subsurface exploration performed by Insitu Group of Orlando consisted of thirteen CPT soundings drilled to depths varying between 20 feet to 80 feet. Based on the current site plan, CPT-3 through CPT-5 were pushed in the vicinity of the proposed digesters and were used in the settlement analyses. The soil profile consisted of 10 to 15 feet of loose to medium dense sand and silty sand overlying medium dense to very dense sand and silty sand to the maximum depth of the soundings.

2. Laboratory Data

Laboratory testing was performed on representative soil samples and the results are presented in the geotechnical reports included in Attachment 1.

3. Subsurface Profile

The subsurface conditions depicted in both explorations appear to be uniform and consisted of 7 to 15 feet of very loose to loose sand underlain by medium dense to dense sand and silty sand up to 93 feet. The groundwater table was not encountered in the borings at the time of exploration.

4. Recommendations and Design Consideration

Geotechnical engineering analyses were performed to determine the foundation design recommendations. In general, geotechnical engineering evaluations and recommendations have been based on published, empirical correlations with soil properties. In addition, recommended design criteria are based on performance tolerances, such as allowable bearing resistance and settlement, as understood and applied to similar structures.

4.1 Foundation Design Recommendation

The proposed digesters are planned to have the same inside slab elevation as the existing ones, which will vary between 224.97 and 228.22 feet NAVD88.

The two digesters are planned to be 60 feet diameter prestressed concrete tanks with a side water depth of approximately 15 feet. The foundation bearing pressure is estimated at 1000 psf. The proposed foundation system will consist of a monolithically reinforced concretemembrane slab. The foundation can be designed using a net allowable bearing resistance of 2,000 psf.

The Dewatering Building is planned to be a stand-alone 77 feet by 54 feet single story structure with preliminary column loads varying from 11 to 40 kips and preliminary wall loads varying from 0.6 to 1 kip/ft. Based on the subsurface conditions depicted in the soil boring logs, it is recommended that overexcavation and removal of the loose fill material be performed to a minimum depth of 5 feet below the bottom of foundations. The overexcavated material may be reused as a structural fill material. Assuming the subsurface soil will be overexcavated and prepared as recommended herein, the foundation can be designed using a net allowable bearing resistance of 2,000 psf. Following subgrade preparation, total and differential settlements in the order of 1 inch and ½ inch should be anticipated.

All the underground utility lines located underneath the proposed structures should be removed and rerouted. The excavation backfill material should be structural fill as recommended herein.

4.2 Groundwater Control

Groundwater was not encountered during the two explorations; as a result, dewatering is not anticipated. If encountered, groundwater inflow can be controlled with direct pumping, French drains or sumps. Management of groundwater control should be handled as a performance requirement. The Contractor should be responsible of controlling surface runoff during rain events.

4.3 Excavation Support

Excavations should be performed in accordance with local, state, or federal regulations (for example OSHA Health and Safety Standards for Excavations). The soils encountered in excavations vary from silty sand (SM, SP-SM) to sand (SP) and should be considered Type-C soils according to OSHA guidelines. Excavations should not be exposed to heavy rainfall or exposed longer than 24 hours. Temporary excavations shall be sloped at an angle not steeper than two horizontal to one vertical (27 to 30 degrees measured from the horizontal). For deeper or steeper excavations than the recommended maximum depth and slope, or when adjacent structures restrict the limits to excavate safely, benching and/or sheeting and shoring systems may be required.

4.4 Subgrade Preparation & Structural Fill

It is recommended that the very loose material in the vicinity of the proposed dewatering building be removed to a minimum depth of 5 feet below the bottom of foundations, and the excavations backfilled with compacted

structural fill. The bottom of the excavation should extend laterally at least 5 feet from the outside perimeter of the proposed structures.

Subgrade shall be compacted to minimum of 95% relative density as determined by ASTM D1557. Compaction shall be verified in several locations to a minimum of 12-inches below the prepared subgrade.

For fill and backfill material, structural fill material shall be placed in 6 inch maximum loose lifts and to a minimum of 98% relative density as determined by ASTM D1557.

Structural fill to be placed under footings, slab-on-grade, and mat foundations should consist of sand, silty sand, or sandy silt classified as SP, SW, SM, SC, SM-ML, SP-SM, SP-SC and ML in accordance with the Unified Soil Classification System (USCS) (ASTM D2487). The in-situ silty sand and sand may be suitable for backfilling. The structural fill should be placed in accordance with the following procedures:

1. After subgrade has been prepared as recommended herein, structural fill shall be placed in 6-inch maximum loose lifts and compacted to a minimum of 98% of maximum dry density as defined by ASTM D1557, at a moisture content of plus or minus 2 percent of optimum.
2. Allow for a minimum 6-inch layer of gravel course beneath proposed footings, slab-on-grade, and mat foundations. Gravel material can be FDOT No. 57 stone. The upper 12 inches of floor slab subgrade soils should be compacted to at least 98 percent of maximum dry density as defined by ASTM D1557.

The maximum allowable particle size for the fill material should be 3 inches.

Backfill behind structure walls should consist of granular material consisting of sand and silty sand classified as SP, SP-SM, or SM in accordance with USCS (ASTM D2487). Fill that will be placed behind walls should be compacted with plate vibratory compactor or hand-operated power tampers. The backfill material should be placed in 6-inch maximum loose lifts with each lift compacted to 98% of the maximum dry density as defined by ASTM D1557. To prevent excessive lateral pressure on external walls, large compaction equipment should not be allowed within a zone formed by a 45-degree slope from the base of the wall footing.

4.5 Pipe Trench Backfill

The soil borings performed at the site indicate that the material to be excavated for utility installation may include silty sand (SP-SM or SM) or sand (SP). These sands may be suitable for trench backfilling. We recommend backfilling the trenches with sand (SP) or silty sand (SM) or Graded Aggregate Base (GAB) containing maximum 15 percent fines (percent passing No. 200 sieve). The pipe bedding and pipe zone material specified for conduits, thin-walled pipes and PVC pipe should be sand with maximum 8 percent of non-plastic fines (percent passing No. 200 sieve).

All trench backfill material shall be placed simultaneously on both sides of the pipe and should be compacted with plate vibratory compactors or hand-operated power tampers. Care should be employed not to damage or shift the pipe alignment. The backfill material should be placed in 6-inch maximum loose lifts with each lift compacted to 95 percent of the maximum dry density, as determined by ASTM D1557. To prevent excessive lateral pressure on pipes, large compaction equipment should not be allowed within a zone formed by a 45-degree slope from the base pipe trench. If the trench is under a road or concrete slab, the trench backfill zone should be compacted to no less than 95 percent of ASTM D1557.

4.6 Design Parameters and Foundation Recommendations

The following design parameters for structural foundations are recommended:

A. Net Allowable Soil Bearing Pressure: 2,000 psf (For Mat Foundations)

2,000 psf (For Strip Footings)

B. Groundwater (GW) Elevation:
   100 Year Flood N/A (Located in the minimal Flood zone)

C. Equivalent Drained Fluid Pressures (Unsaturated above GW):
   Active = 38 lbs/ft^3
   At Rest = 58 lbs/ft^3
   Passive = 348 lbs/ft^3

D. Equivalent Undrained Fluid Pressures (below GW):
   Active = 80 lbs/ft^3
   At Rest = 89 lbs/ft^3
   Passive = 222 lbs/ft^3

E. Vertical Surcharge = 230 PSF (equivalent to 2 ft of soil weight)

F. Lateral Earth Pressures Coefficients:
   Active = 0.33
   At Rest = 0.50
   Passive = 3.03

G. Coefficient of Friction (concrete/soil) = 0.40

H. Modulus of Subgrade Reaction Adjusted
   Floor Slab = 45 PCI – Dewatering
   = 20 PCI – Digesters Mat

I. Native Soil Unit Weight = 115 PCF

J. Factor of Safety (FOS) for Uplift Resistance
   Normal high GW Elev FOS = 1.25
   100-yr Flood Elev FOS = 1.10

The soil bearing capacity is often controlled by the serviceability limit state, or settlement, rather than bearing capacity.

5. Limitations

This geotechnical technical memorandum has been prepared for the exclusive use of Jacobs design team for specific applications to the design and construction of the proposed Digesters and Dewatering Building at the City of Crestview WWTP. It has been prepared in accordance with generally accepted geotechnical engineering practices for testing and analyses. Jacobs makes no other warranty, expressed or implied.

The information contained in this report is based on the data obtained through available documents, site reconnaissance, field investigations, and laboratory tests presented in previous geotechnical reports dated April 2006 and February 2010 and included in Attachment 1. The logs of soil borings indicate subsurface conditions only at specific locations and time, and only to the depths penetrated. These logs do not necessarily reflect variations that may exist between locations or at different depths, or possible changes that may take place over time. If variations in subsurface conditions from those described in this memorandum are noted during subsequent design phases or construction, the information presented in this report should be re-evaluated.

The geotechnical information presented in this memorandum is based on the engineering reports., preliminary plans and layout developed for the project at the time of this report preparation and information provided by the Jacobs structural design team. In the event that any changes in the nature, design or location of the proposed facility occurs, the conclusions and recommendations presented herein should not be considered valid unless such changes are reviewed, and conclusions of this report are modified or verified in writing by Jacobs. Jacobs is not responsible for any claims, damages, or liability associated with the reinterpretation or reuse of the data in this report by others.

Attachment 1:
Geotechnical Reports