BLUEGRASS WATER
Utility Operating Company
A CSWR Managed Utility

January 28, 2022

Nicholas Fields
Kentucky Department for Environmental Protection
Division of Enforcement
300 Sower Blvd., 3rd Floor
Frankfort, KY 40601

Bluegrass Water Utility Operating Company, Inc.
Fox Run WWTF
KYPDES Permit No. KY0086967
Agency Interest No. 1388

On behalf of Bluegrass Water Utility Operating Company, LLC, we are submitting this letter to address the current Corrective Action Plan status that was approved February 17, 2020. We are continuing to work to effluent compliance for this facility.

Per the original CAP, Bluegrass Water UOC continues to make improvements stipulated on the submitted construction permit. Due to the effect of COVID-19, our contractors have encountered delays on supplies and materials on common goods & services. With uncertainty of material deliveries and unexpected changes to our timeframe for completion, Bluegrass Water Utility Operating Company, LLS determined the repairs at Fox Run will be completed by October 1, 2022. Following the improvements included in the construction permit the facility should be able to consistently comply with permitted limits.

Please let me know if this letter meets the status report requirements of achieving system compliance.

Sincerely,

Enrique Chavez Jr.
Bluegrass Water Utility Operating Company, LLC
Utility Project Manager

BLUEGRASS WATER
Utility Operating Company
A CSWR Managed Utility

Attn: Wes Dement
Energy and Environment Cabinet,
Department for Environmental Protection
Division of Enforcement
300 Sower Blvd 3rd floor
Frankfort, KY 40601

Mr. Wes Dement,

In accordance with the Corrective Action Plan for Fox Run WWTF (KY0086967) submitted to the EEC on 12/23/2019 and approved by the Department on 2/17/2020 I hereby submit this status report concerning improvements made to the facility and next steps.

In the original CAP documents, it was conveyed that an analysis of the system implied that the wastewater treatment facility needed repairs and operational improvement to properly function. It was believed however, that with operational improvements and repairs, the facility may be capable of meeting limits.

The CAP laid out milestones for repairs, evaluation, and basic improvements at the facilities. The milestones included replacement and repair of the influent lift station, installation of a flow meter and remote monitoring system, spot welding of corroded portions of the aeration tank, evaluation of the disinfection system, and cleaning and jetting of the collection system. These activities were all completed within the timeline outlined in the CAP. The facility has consistently met limits since April, demonstrating the effectiveness of the operational improvements and repairs.

At this time, the facility is operating effectively and meeting limits, however there are several improvements being considered to potentially allow the plant to operate more effectively and efficiently. Specifically, we are evaluating the addition of flow EQ to help the facility to perform effectively during periods with high I&I, and we are evaluating switching from chlorine and dechlorination to peroxyacetic acid and post aeration for disinfection. Should these projects go forward BWUOC will submit construction permits for review by EEC/DEP and KYPSC.

Please feel free to reach out for any additional information or with any questions.

Thanks,

JON MEANY
Utility Engineer

(314) 380-8537 Ext. 215
(314) 482-0342
(314) 736-4759
jmeany@cswrgroup.com
1650 Des Peres Rd., Suite 303,
Des Peres, MO 63131

BLUEGRASS WATER
Utility Operating Company
A CSWR Managed Utility

September 23, 2022

Nicholas Fields
Kentucky Department for Environmental Protection
Division of Enforcement
300 Sower Blvd., 3rd Floor
Frankfort, KY 40601

Bluegrass Water Utility Operating Company, LLC.
Fox Run WWTF
KYPDES Permit No. KY0086967
Agency Interest No. 1388

On behalf of Bluegrass Water Utility Operating Company, LLC, we are submitting this letter to address the current Corrective Action Plan status that was approved on January 28, 2020. BGUOC submitted an extension request on January 28, 2022, with a projected completion date of October 1, 2022. We are continuing to work to effluent compliance for this facility.

Per the original CAP, Bluegrass Water UOC continues to make improvements stipulated on the submitted construction permit. BWOUC continues to encounter delays with supplies for the wet well project currently underway. With uncertainty of material deliveries and unexpected changes to our timeframe for completion, Bluegrass Water Utility Operating Company, LLC determined the repairs at Fox Run will be completed by March 31, 2023. Following the improvements included in the construction permit the facility should be able to consistently comply with permitted limits.

Please let me know if this letter meets the status report requirements of achieving system compliance.

Sincerely,

Enrique Chavez Jr.
Bluegrass Water Utility Operating Company, LLC
Utility Project Manager

BLUEGRASS WATER
Utility Operating Company
A CSWR Managed Utility

March 14, 2023

Nicholas Fields
Kentucky Department for Environmental Protection
Division of Enforcement
300 Sower Blvd., 3rd Floor
Frankfort, KY 40601

Bluegrass Water Utility Operating Company, LLC.
Fox Run WWTF
KYPDES Permit No. KY0086967
Agency Interest No. 1388

On behalf of Bluegrass Water Utility Operating Company, LLC, we are submitting this letter to address the current Corrective Action Plan status that was approved on January 28, 2020. BGUOC submitted an extension request on September 23, 2022, with a projected completion date of March 31, 2023. We are continuing to work to effluent compliance for this facility.

Per the original CAP, Bluegrass Water UOC continues to make improvements stipulated on the submitted construction permit. BWOUC continues to encounter delays with the completion of the new tank installations. The concrete pad was poured, and the tank is currently onsite, however, the contractor is currently working on the tank connections to get online. With uncertainty of contractor availability and unexpected changes to our timeframe for completion, Bluegrass Water Utility Operating Company, LLC determined the repairs at Fox Run will be completed by December 31, 2023. Following the improvements included in the construction permit the facility should be able to consistently comply with permitted limits.

Please let me know if this letter meets the status report requirements of achieving system compliance.

Sincerely,

Enrique Chavez Jr.
Bluegrass Water Utility Operating Company, LLC
Program & Compliance Manager

Project Fox Run WWTP Improvements

Accor

Engineer Benjamin Kuenzel
21 Design Group
1351 Jefferson Street Suite 301

ding to KPDES WLA, this WWTP is not assigned

Manhole Diameter	4	feet
Lowest Rim		feet

Manhole	Station	Rim	Invert Out	Invert In	Distance	Diameter
			Total 8-inch PVC		0	
			Total 8-inch PVC		0	

Slope	Storage Manhole	Pipe	
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FORM W-1

Commonwealth of Kentucky
Energy and Environment Cabinet
Division of Water

CONSTRUCTION PERMIT APPLICATION for WASTEWATER TREATMENT PLANT

See the INSTRUCTIONS for more information about selected portions of this application.
Questions on completing this application? Contact the Water Infrastructure Branch at 502/564-3410 or visit our website at http://water.ky.gov for more information.

I. CONSTRUCTION PROJECT INFORMATION

Project Name: Fox Run WWTF Improvements

Project City/County: Frankfort, Franklin County

Name of WWTP: Fox Run Subdivision WWTF

KPDES Number of WWTP, if known (for modifications to an existing plant): **KY** 0086967

Estimated cost of WWTP improvements and sewer line extension: $ 210,000.00

Project is: ☐ **WWTP Only** ☐ **WWTP with sewer lines**

☒ **Minor Modification to WWTP (Complete only Sections I, II, IV A, B, C, E3, H1, VII, VIII)**

II. APPLICANT INFORMATION

Applicant (Entity paying for construction): Bluegrass Water Utility Operating Company LLC E-mail: jfreemann@cswrgroup.com

Street Address: 1650 Des Peres Rd, Suite 303

City, State, Zip: St. Louis, MO, 63131

Will ownership be transferred? ☐ Yes. Name of new owner: _____ ☒ No

III. PRELIMINARY SUBMITTAL

Has a Preliminary Submittal been made with all the information in this section? [See 401 KAR 5:005, Section 3]

☐ Yes. Name of project: _____

County and Location of project, then skip to next section: _____

☐ No. Provide the information below that has not been previously submitted (use additional pages, as necessary). Place a **check** (✓) by the items included in the application or an **N/A** if the item is not applicable to the project.

N/A A. A copy of a 7½ minute USGS topographic map, with the WWTP, any proposed sewer lines, service area, and discharge location identified.

N/A B. For a WWTP located within a planning area, a letter from the regional or facility planning agency stating the proposed WWTP is compatible with the regional facility plan or the water quality management plan.

N/A C. For a WWTP located within a planning area, a demonstration that a connection to the regional facility is not available.

N/A D. For a regional WWTP, a water quality management plan that is in compliance with **401 KAR 5:006**.

IV. DESIGN CONSIDERATIONS

A. PLANS AND SPECIFICATIONS.

Design plans and specifications shall comply with 401 KAR 5:005 and "Recommended Standards for Wastewater Facilities" ("Ten States' Standards") 2014 edition. If engineering practices, other than those contained in "Ten States' Standards", were used in the design, indicate the source and the corresponding portion of the design. **[See 401 KAR 5:005, Section 7]**

Plans and specifications submittals shall meet on of the following options:

☐ Submit at least one paper printed set of detailed plans (no larger than 24" x 36") and a PDF copy of the plans and specifications on a data storage device such as a USB flash drive. Both copies shall be dated with a stamp, signature of a licensed professional engineer in Kentucky which complies with the requirements of 201 KAR 18:104. The digital plans shall consist of a single pdf file and be in a folder called "Engineering Plans" and the specifications manual shall be in a folder called "Specifications".

4 Submit a PDF copy of the plans and specifications digitally via the electronic form on the KY One Stop Business Portal website. The PDF copy shall be dated with stamp and signature of a licensed engineer in Kentucky which complies with the requirements of 201 KAR 18:104 Section 3. The plans shall be submitted as a single pdf file.

B. DESIGN ENGINEER, if the WWTP design capacity is greater than 10,000 gpd or if the sewer lines associated with the WWTP will become part of a sewer system served by a regional facility. **[Section 6]**

P.E.'s Name: Benjamin Kuenzel Firm: 21 Design Group

Street Address: 1351 Jefferson Street Suite 301

City, State, Zip: Washington, MO 63090

Phone: 636-432-5029 Fax: N/A E-mail: ben@21designgroup.net

C. CONFORMITY TO PLANS AND SPECIFICATIONS. Provide name of person who will inspect and certify that the constructed facility conforms to the approved plans and specifications. If the WWTP's design capacity is greater than 10,000 gpd, or if the sewer lines will become part of a sewer system served by a regional facility, this person must be a professional engineer (P.E.). **[Section 3]**

Name: Benjamin Kuenzel Firm: 21 Design Group

Street Address: 1351 Jefferson Street Suite 301

City, State, Zip: Washington, MO 63090

Phone: 636-432-5029 Fax: N/A E-mail: ben@21designgroup.net

D. DESIGN CAPACITIES. Provide the following design capacities, in million gallons per day or pounds per day. **[Section 3]**

Average Daily Flow: _____ MGD Influent BOD: _____ lb/day

Peak Daily Flow: _____ MGD Influent SS: _____ lb/day

Peak Hourly Flow: _____ MGD Influent NH_3-N: _____ lb/day

E. Design Criteria. Provide the following information (use additional pages, as necessary). Place a **check (✓)** by the items included in the application or an **N/A** if the item is not applicable to the project.

N/A 1. A schematic drawing of the facility layout and explanation of the proposed facility and method of operation. **[Section 3]**

N/A 2. WWTP's Reliability Category, Grade A, B, or C: _____. Include a detailed description of the reliability measures that will be used for the WWTP. **[Sections 3 and 13]**

✓ 3. A discussion of the design criteria used to size the unit processes. **[Section 3]**

F. LABORATORY SERVICES. Give name of laboratory that will provide services for self-monitoring and process control. **[Section 3]**

Firm Name: _____

Street Address: _____

City, State, Zip: _____

G. SITE LOCATION. Place a **check (✓)** by the items that are included in this application or an **N/A** if the item is not applicable to the project.

N/A 1. Include a plat or survey clearly indicating the site's boundaries, position of proposed facility in reference to the boundaries, and position of dwellings within 200 feet of the WWTP. **[Section 3]**

N/A 2. If an open-top WWTP is closer than 200 feet to the closest dwelling, include what structure or other measures will be used for noise and odor control. **[Section 4]**

N/A 3. For a WWTP with a spray irrigation system, if the distance from the spray field to the property boundary is less than 20 feet, include what protective measures will be used to inhibit spray from crossing property boundary. **[Section 21]**

H. OTHER INFORMATION TO BE SUBMITTED WITH APPLICATION. Place a **check (✓)** by the items that are included in this application or an **N/A** if the item is not applicable to the project.

✓ 1. If modifying or replacing an existing WWTP or sewer line, a closure plan indicating how the new facility will be constructed without a by-pass to a stream and the procedures that will be used for abandoning the existing facility. **[Section 3]**

N/A 2. A Sludge Management Plan for WWTPs, including the sludge processing method and how sludge will be ultimately disposed. **[Section 3]**

N/A 3. If the discharge point does not coincide with a blue line on a USGS map, a copy of a recorded deed, recorded other right of ownership, or recorded right of easement for a corridor to the nearest blue line stream. **[Section 3]**

N/A 4. A description of and detailed specifications for the flow measuring device. **[Section 7]**

N/A 5. If the WWTP discharges to a sinkhole or sinking stream, a plan for a groundwater tracer study (or a previously conducted groundwater tracer study). **[Section 4]**

V. SEWER LINES

Include the following items for projects that include sewer lines. If project is for only a WWTP, skip to next section. Place a **check (✓)** by the items that are included in this application or **N/A** if the item is not applicable to the project.

N/A A. If the project includes a pump station, the pump performance curve. **[Section 8]**

N/A B. If the project includes gravity sewer lines or force mains, a plan view and profile view for each. **[Section 6]**

N/A C. A demonstration that the sewer system has adequate capacity to treat the current and the anticipated flow to the WWTP and that the sewer system is not subject to excessive infiltration or excessive inflow. **[Section 8]**

N/A D. A demonstration that the WWTP has adequate capacity to transport the anticipated flow to the WWTP and the WWTP is not subject to excessive infiltration or excessive inflow. **[Section 8]**

VI. OTHER REQUIRED APPLICATIONS

___ A. If the WWTP has a discharge, complete and file with this application: KPDES Application (KPDES Form 1); and Form A, B, C, or Short Form C, as applicable.

___ B. If the WWTP does not have a discharge, complete and file with this application the "No Discharge Operating Permit Application, Form ND."

VII. FEES

Fees. Check or money order must be made payable to "**Kentucky State Treasurer**" for the total amount. **Fees do not apply** for a municipality, sanitation district, or other publicly owned facility. **[Section 5]**

WWTP Category: Minor Modification to a WWTP Amount: $ 200

Sewer Line Category: _____ Amount: $ _____

Total Amount: $ 200

VIII. CERTIFICATION

I, the applicant, certify under penalty of law that this document and all attachments were prepared under my direction or supervision. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment or both for known violations. **[Section 2]**

Applicant's Name and Official Title (Type or Print)	**Phone Number (Include area code)**
Jacob Freeman	(314)-550-1167
Signature 	**Date** 09/28/2020

Fox Run WWTP
Mr. Josiah Cox
500 Northwest Plaza Dr. STE 500

Saint Ann, MO 63074

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Mr. Josiah Cox
500 Northwest Plaza Dr. STE 500

Saint Ann, MO 63074

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20200002
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 05/14/2020

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 40 CFR 122.41(a), as adopted by 401 KAR 5:065, Section 2(1), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for CBOD. The permitted limit for CBOD is concentration monthly avg., less than or equal to 30 mg/L. The facility reported the following: concentration monthly avg. 45 mg/L for March 2020.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

2 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 40 CFR 122.41(a), as adopted by 401 KAR 5:065, Section 2(1), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Suspended Solids. The permitted limit for Total Suspended Solids is concentration monthly avg., less than or equal to 30 mg/L. The facility reported the following: concentration monthly avg. 32 mg/L for February 2020.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

3 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the

Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

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The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

4 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

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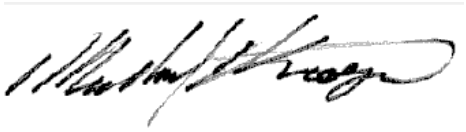
The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: 

Michael B. Kroeger, Assistant Director
Date: June 23, 2020

Fox Run WWTP
Mr. Lawrence W Smither
PO Box 91588

Louisville, KY 40291

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Mr. Lawrence W Smither
PO Box 91588

Louisville, KY 40291

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20200002
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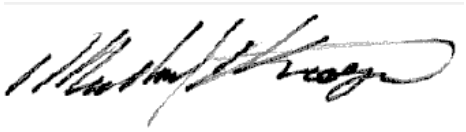
Issued By: 

Michael B. Kroeger, Assistant Director
Date: June 16, 2020

Fox Run WWTP
Alica Alexander
1650 Des Peres Rd Ste 303

Saint Louis, MO 63131

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Alica Alexander
1650 Des Peres Rd Ste 303

Saint Louis, MO 63131

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20210002
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 09/01/2021

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Suspended Solids. The permitted limit for Total Suspended Solids is concentration monthly avg., less than or equal to 30 mg/L; and concentration max. weekly avg., less than or equal to 45 mg/L. The facility reported the following: concentration monthly avg. 50 mg/L; and concentration max. weekly avg. 50 mg/L for May 2021.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

2 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Ammonia Nitrogen (as N). The permitted limit for Total Ammonia Nitrogen (as N) is concentration monthly avg., less than or equal to 4 mg/L; and concentration daily max., less than or equal to 6 mg/L. The facility reported the following: concentration monthly avg. 14.4 mg/L; and concentration daily max. 14.4 mg/L for June 2021.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

3 Violation Description for Subject Item AIOO0000001388():

No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:

Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Ammonia Nitrogen (as N). The permitted limit for Total Ammonia Nitrogen (as N) is concentration monthly avg., less than or equal to 4 mg/L; and concentration daily max., less than or equal to 6 mg/L. The facility reported the following: concentration monthly avg. 7.2 mg/L; and concentration daily max. 7.2 mg/L for May 2021.

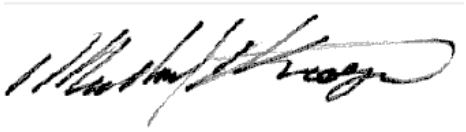
The remedial measure(s), and date(s) to be completed by are as follows:

The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: 

Michael B. Kroeger, Assistant Director
Date: September 23, 2021

Fox Run WWTP
Alica Alexander
1650 Des Peres Rd Ste 303

Saint Louis, MO 63131

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Alica Alexander
1650 Des Peres Rd Ste 303

Saint Louis, MO 63131

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20210003
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 12/02/2021

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Ammonia Nitrogen (as N). The permitted limit for Total Ammonia Nitrogen (as N) is concentration monthly avg., less than or equal to 4 mg/L. The facility reported the following: concentration monthly avg. 5.3 mg/L for September 2021.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: Natalie P. Bruner

Natalie P. Bruner, Environmental Control Manager
Date: January 6, 2022

Fox Run WWTP
Mandy Sappington
1630 Des Peres Rd Ste 140

Saint Louis, MO 631311871

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Mandy Sappington
1630 Des Peres Rd Ste 140

Saint Louis, MO 631311871

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20230001
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 02/16/2023

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Residual Chlorine. The permitted limit for Total Residual Chlorine is concentration monthly avg., less than or equal to .011 mg/L; and concentration daily max., less than or equal to .019 mg/L. The facility reported the following: concentration monthly avg. 2.2 mg/L; and concentration daily max. 2.2 mg/L for October 2022.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

2 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Dissolved Oxygen. The permitted limit for Dissolved Oxygen is concentration instantaneous min., greater than or equal to 7 mg/L. The facility reported the following: concentration instantaneous min. 6.94 mg/L for November 2022.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: Marlon A. Bascombe

Marlon Bascombe, Environmental Control Manager
Date: March 9, 2023

Fox Run WWTP
Alica Alexander
1650 Des Peres Rd Ste 303

Saint Louis, MO 63131

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Alica Alexander
1650 Des Peres Rd Ste 303

Saint Louis, MO 63131

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20220001
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 03/21/2022

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Ammonia Nitrogen (as N). The permitted limit for Total Ammonia Nitrogen (as N) is concentration monthly avg., less than or equal to 10 mg/L; and concentration daily max., less than or equal to 15 mg/L. The facility reported the following: concentration monthly avg. 17.5 mg/L; and concentration daily max. 17.5 mg/L for December 2021.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

2 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for E. Coli. The permitted limit for E. Coli is concentration 30-day geometric avg., less than or equal to 130 MPN/100 mL. The facility reported the following: concentration 30-day geometric avg. 152 MPN/100 mL for November 2021.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: Natalie P. Bruner
Natalie P. Bruner, Director
Date: April 13, 2022

Fox Run WWTP
Mr. Lawrence W Smither
PO Box 91588

Louisville, KY 40291

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Mr. Lawrence W Smither
PO Box 91588

Louisville, KY 40291

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20200001
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 02/28/2020

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

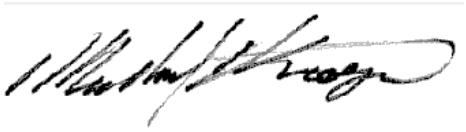
Description of Non Compliance:
Failing to comply with 40 CFR 122.41(a), as adopted by 401 KAR 5:065, Section 2(1), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for E. Coli. The permitted limit for E. Coli is concentration 30-day geometric avg., less than or equal to 130; and concentration 7-day geometric, less than or equal to 240. The facility reported the following: concentration 30-day geometric avg. 921 MPN/100 mL; and concentration 7-day geometric 921 MPN/100 mL for November 2019.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: 

Michael B. Kroeger, Assistant Director
Date: April 27, 2020

Fox Run WWTP
Mr. Lawrence W Smither
PO Box 91588

Louisville, KY 40291

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Mr. Lawrence W Smither
PO Box 91588

Louisville, KY 40291

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20200001
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 02/28/2020

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 40 CFR 122.41(a), as adopted by 401 KAR 5:065, Section 2(1), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for E. Coli. The permitted limit for E. Coli is concentration 30-day geometric avg., less than or equal to 130; and concentration 7-day geometric, less than or equal to 240. The facility reported the following: concentration 30-day geometric avg. 921 MPN/100 mL; and concentration 7-day geometric 921 MPN/100 mL for November 2019.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

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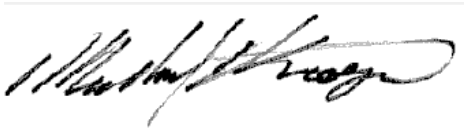
Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: 

Michael B. Kroeger, Assistant Director
Date: April 27, 2020

Fox Run WWTP
Alica Alexander
1650 Des Peres Rd Ste 303

Saint Louis, MO 63131

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Alica Alexander
1650 Des Peres Rd Ste 303

Saint Louis, MO 63131

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20210001
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 05/10/2021

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

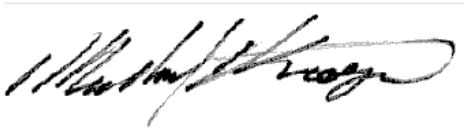
Description of Non Compliance:
Failing to comply with 40 CFR 122.41(a), as adopted by 401 KAR 5:065, Section 2(1), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Suspended Solids. The permitted limit for Total Suspended Solids is concentration monthly avg., less than or equal to 30 mg/L; and concentration max. weekly avg., less than or equal to 45 mg/L. The facility reported the following: concentration monthly avg. 103 mg/L; and concentration max. weekly avg. 103 mg/L for March 2021.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: 

Michael B. Kroeger, Assistant Director
Date: June 9, 2021

Fox Run WWTP
Mandy Sappington
1630 Des Peres Rd Ste 140
Des Peres, MO 63131

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Mandy Sappington
1630 Des Peres Rd Ste 140
Des Peres, MO 63131

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20220002
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 05/09/2022

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Ammonia Nitrogen (as N). The permitted limit for Total Ammonia Nitrogen (as N) is concentration monthly avg., less than or equal to 10 mg/L; and concentration daily max., less than or equal to 15 mg/L. The facility reported the following: concentration monthly avg. 21.6 mg/L; and concentration daily max. 21.6 mg/L for February 2022.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: Natalie P. Bruner

Natalie P. Bruner, Director
Date: June 16, 2022

Fox Run WWTP
Mandy Sappington
1630 Des Peres Rd Ste 140

Saint Louis, MO 631311871

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Mandy Sappington
1630 Des Peres Rd Ste 140

Saint Louis, MO 631311871

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20220003
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 08/11/2022

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Suspended Solids. The permitted limit for Total Suspended Solids is concentration monthly avg., less than or equal to 30 mg/L; and concentration max. weekly avg., less than or equal to 45 mg/L. The facility reported the following: concentration monthly avg. 122 mg/L; and concentration max. weekly avg. 122 mg/L for June 2022.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

2 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Residual Chlorine. The permitted limit for Total Residual Chlorine is concentration monthly avg., less than or equal to .011 mg/L; and concentration daily max., less than or equal to .019 mg/L. The facility reported the following: concentration monthly avg. 2.2 mg/L; and concentration daily max. 2.2 mg/L for May 2022.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: Marlon A. Bascombe

Marlon Bascombe, Environmental Control Manager
Date: September 14, 2022

Fox Run WWTP
Mandy Sappington
1630 Des Peres Rd Ste 140

Saint Louis, MO 631311871

COMMONWEALTH OF KENTUCKY
ENERGY and ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
Division of Enforcement

NOTICE OF VIOLATION

To: Fox Run WWTP
Mandy Sappington
1630 Des Peres Rd Ste 140

Saint Louis, MO 631311871

AI Name: Fox Run WWTP **AI ID:** 1388 **Activity ID:** ENV20220004
County: Franklin
Enforcement Case ID:
Date(s) Violation(s) Observed: 11/17/2022

This is to advise that you are in violation of the provisions cited below:

1 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Residual Chlorine. The permitted limit for Total Residual Chlorine is concentration monthly avg., less than or equal to .011 mg/L; and concentration daily max., less than or equal to .019 mg/L. The facility reported the following: concentration monthly avg. 1.02 mg/L; and concentration daily max. 1.02 mg/L for August 2022.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

2 Violation Description for Subject Item AIOO0000001388():
No person shall, directly or indirectly, throw, drain, run or otherwise discharge into any of the waters of the Commonwealth, or cause, permit or suffer to be thrown, drained, run or otherwise discharged into such waters any pollutant, or any substance that shall cause or contribute to the pollution of the waters of the Commonwealth in contravention of the standards adopted by the cabinet or in contravention of any of the rules, regulations, permits, or orders of the cabinet or in contravention of any of the provisions of this chapter. [KRS 224.70-110]

Description of Non Compliance:
Failing to comply with 401 KAR 5:065, Section 2(1), which cites to 40 CFR 122.41(a), by failing to comply with the terms and conditions of KPDES Permit No. KY0086967, monitoring point 001-1, for Total Residual Chlorine. The permitted limit for Total Residual Chlorine is concentration monthly avg., less than or equal to .011 mg/L; and concentration daily max., less than or equal to .019 mg/L. The facility reported the following: concentration monthly avg. .25 mg/L; and concentration daily max. .25 mg/L for September 2022.

The remedial measure(s), and date(s) to be completed by are as follows:
The permittee shall comply with the terms and conditions of the KPDES Permit. [KRS 224.70-110]

Violations of the above cited statute(s) and/or regulation(s) are subject to a civil penalty per day per violation. Violations carry civil penalties of up to $25,000 per day per violation depending on the statutes/regulations violated. In addition, violations may be concurrently enjoined. Compliance with remedial measures and their deadlines does not provide exemption from liability for violations during the period of remediation, nor prevent additional remedial measures from being required.

If you have questions or need further information, write or call the undersigned:

Department for Environmental Protection
Division of Enforcement
300 Sower Blvd
Frankfort, KY 40601
502-782-6859 (8:00 AM – 4:30 PM)

Issued By: Marlon A. Bascombe

Marlon Bascombe, Environmental Control Manager
Date: December 21, 2022

Fox Run Wastewater Facility Improvements - KY0086967
Design Considerations – Construction Permit Application
Date: September 28, 2020

Introduction

The purpose of this document is to specifically address the criteria used for the design of various improvements to the Fox Run Wastewater Treatment Facility, and to describe pertinent information required in Section IV - "Design Considerations" of the Construction Permit Application for said improvements.

Design Criteria

The process flow diagram for the proposed improvements is included in Section A of the appendix to this specific document.

Raw sewage will continue to enter the facility in the influent lift station. Instead of conveying flow directly to the existing extended aeration tank, the influent lift station forcemain will first enter a flow control structure that will send dry weather flows to the extended aeration tank and excessive wet weather flows to a new 4,100 gallon equalization tank. When wet weather subsides, operators will drain the equalization tank back into the influent pump station so that it can be pumped back into the flow control structure and then flow to the extended aeration tank. The flow control structure will use a rectangular weir (3" width) to direct flow to the extended aeration tank and a cone with large diameter (12" diameter) as an overflow set at a higher elevation than the rectangular weir opening to divert flows in excess of the plant's hydraulic capacity into the equalization tank.

The existing extended aeration system, clarifiers, disinfection system and dechlorination system will remain unchanged.

For sludge handling, a new, 4,100 gallon aerobic digester will be added to allow operators to have suitable location for stabilization of waste activated sludge, thickening, and storage of digested sludge. The new aerobic digestion system will provide 4.7 cubic feet of volume per population equivalent and 20 days of SRT. Waste activated sludge from the existing clarifiers will be conveyed using the existing return activated sludge air lifts to convey flow to the new aerobic digester. This will require the addition of minor piping and valving improvements to allow the "RAS" flow to be diverted to this "WAS" application on a daily basis for a short period of time. Sludge will be hauled from the new 4,100 gallon tank with vac-trucks that pull sludge from the bottom of the new aerobic digester.

The new aerobic digestion system will be aerated at a rate in excess of 30 scfm/1,000 cf using a new blower sized to provide 16 scfm at 4.15 psig. The existing extended aeration blower system's existing standby will be shared for use in serving as a redundant aerobic digester blower in the event the new

blower serving the aerobic digestion system goes down for maintenance. The air from the new blower will be introduced through a new coarse bubble diffused aeration system mounted in the new aerobic digester.

Based on the level of redundancy in the design, we believe the plant qualifies for classification as Grade A Reliability. A transfer switch will be installed that allows the use of a backup generator which will provide sufficient power for the entire facility including the blowers, allowing continuous use of all treatment processes. The aerobic digester blowers will have redundancy made available with the use of the existing extended aeration blower as a standby.

A summary of the design criteria used for unit process sizing is included in Section B of the Appendix including:

- Influent and Equalized Flows and Loadings
- Equalization Tank Sizing Summary
- Aerobic Digestion Sizing and Sludge Characteristics Summary
- Aerobic Digestion Aeration Sizing Summary

Each process was designed in accordance with the 2014 version of Ten State Standards for Wastewater Facilities and 401 KAR 5:005.

Site Location

A site plan can be found in the plan document which clearly shows the site boundaries and the position of the site in reference to those boundaries.

The facility is designed as an open-air plant, so multiple techniques will be used to minimize the negative impact of the plant improvements towards the local population including odor and noise. The blowers proposed were selected in part because they are regenerative style blowers that are quiet in operation. The aerobic digester will continuously be aerated to maintain aerobic conditions. And the equalization tank proposed will only receive flow during wet weather conditions, and the design has attempted to send all solids to the extended aeration plant and flow with few solids to the equalization tank, significantly reducing the potential for odor generation within the equalization tank.

Other Information

The improvements can be made without interrupting operations for extended periods. The construction of the new flow control structure will be performed over the existing aeration tank, so safety provisions will be required to safely add grating to support the new flow control structure over the extended aeration tank. Another constructability challenge will be observed when making improvements to RAS/WAS piping and valving, but the Contractor will be required to perform this work in no more than a 4-6 hour time frame to prevent a reduction in plant operating performance during construction.

Appendix

Section A - Process Flow Diagram

Section B - Summary of Design Criteria

Section A – Process Flow Diagram

1351 Jefferson St., Suite 301
Washington, MO 63090

636-432-5029

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

FLOWS & LOADINGS

PLANT INFLUENT FLOW
Q_{ADF}=20,000 GPD
Q_{PDF}= 60,000 GPD
Q_{PHF}= 80,000 GPD

EQUALIZED FLOW
Q_{ADF}=20,000 GPD
Q_{PDF}= 60,000 GPD
Q_{PHF}= 80,000 GPD

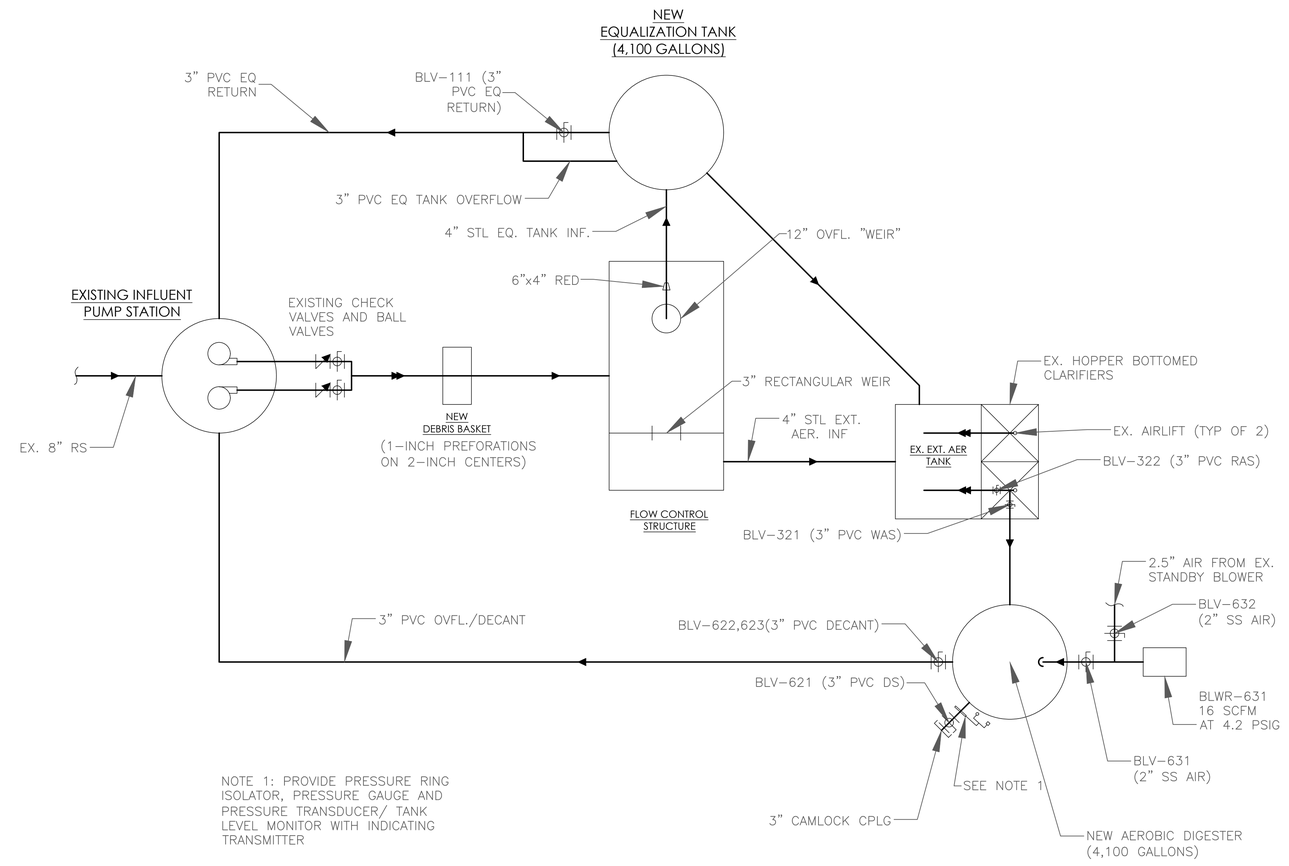
LOADINGS
BOD–225 MG/L
BOD–37.5 LBS/DAY
TSS–225 MG/L
TSS–37.5 LBS/DAY

EQUALIZATION TANK
DIMENSIONS: 9'–11"Ø, 7'–0" HWL, 0'–1" LWL
VOLUME: 4,044 GALLONS
HRT @ ADF: 4.9 HRS
HRT @ PHF: 1.2 HRS

CLARIFIER
DIMENSIONS: 2, 6'x6' HOPPERS
SURFACE AREA: 72SF
SOR @ EQUALIZED PDF: 833 GPD/SF
SOR @ EQUALIZED PHF: 833 GPD/SF

AEROBIC DIGESTER
WASTE ACTIVATED SLUDGE YIELD: .9 (LBS. WAS)/(LB. BOD)
WAS PRODUCTION: 33.8 LBS. WAS/DAY
VSS: TSS RATIO: 75%
% VSS DESTROYED: 38%
DIGESTER SLUDGE PRODUCTION: 24.2 LBS/DAY
DIGESTER SLUDGE CONCENTRATION: 14,000 MG/L TSS
DIGESTER SLUDGE VOLUME: 207 GPD
DIMENSIONS: 9'–11"Ø, 7'–0" HWL
VOLUME: 4,044 GALLONS
DIGESTER VOLUME/POP. EQVIA.: 4.7 CF/PE
SOLIDS RETENTION TIME: 20 DAYS

AEROBIC DIGESTER BLOWER & DIFFUSERS
MIXING RQMT: 30 SCFM/IKCF
SCFM RQD: 16 SCFM
DISCHARGE PRESSURE: 4.15 PSIG
NO. OF ¾" FLEXCAPS RQD: 6 (@ 2.67 SCFM/ DIFFUSER)
NO. OF BLOWERS: 1 OPERATING (SHARING STANDBY W/ EXT. AER)
TYP. OF BLOWER: REGENERATIVE
ELECTRICAL SERVICE: 240V,1Ø



NOTE 1: PROVIDE PRESSURE RING ISOLATOR, PRESSURE GAUGE AND PRESSURE TRANSDUCER/ TANK LEVEL MONITOR WITH INDICATING TRANSMITTER

#	DATE	REVISION	BY

21 DESIGN GROUP INC.
1351 Jefferson, Suite 301
Washington, MO 63090
mail@21designgroup.net
P: 636-432-3029

PROCESS FLOW

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

COMMONWEALTH OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C06

Section B – Summary of Design Criteria

Summary of Plant Design Criteria & Calculations
Fox Run Plant Improvements
September 28, 2020

	Plant Influent Characteristics		
1	No. of Customers	38	
2	Population Equivalent	114	PE
3	Annual Average Daily Flow	20,000	gpd
4	Maximum Monthly Average Daily Flow	20,000	gpd
5	Peak Daily Flow	60,000	gpd
6	Peak Hourly Flow (w/out Equalization)	80,000	gpd
7	Influent BOD	225	mg/L
8	Influent BOD	37.5	lbs/day
9	Influent TSS	225	mg/L
10	Influent TSS	37.5	lbs/day
11	Influent NH3-N	35	mg/L
12	Influent NH3-N	5.8	lbs/day
13	Influent TKN	40	mg/L
14	Influent TKN	6.7	lbs/day
15	Influent pH	7	
16	Water Temperature	13	deg-C
	Equalized Extended Aeration Influent		
17	Annual Average Daily Flow	20,000	gpd
18	Maximum Monthly Average Daily Flow	20,000	gpd
19	Peak Daily Flow (w/Equalization)	60,000	gpd
20	Peak Hourly Flow (w/Equalization)	60,000	gpd
21	Influent BOD	225	mg/L
22	Influent TSS	225	mg/L
23	Influent NH3-N	35	mg/L
24	Influent TKN	40	mg/L
25	Design Influent TKN	40	mg/L
26	Influent pH	7	
27	Water Temperature	13	deg-C
	Equalization Tank		
17	No. of Tanks Proposed	1	
18	Diameter of Each	9.92	ft
19	Low Water Level	0.08	ft
20	High Water Level	7.00	ft
21	Variable Volume Available	3,996	gallons
22	Total Volume Available	4,044	gallons
23	Hydraulic Retention Time at Average Flow	4.9	hours
24	Hydraulic Retention Time at Peak Daily Flow	1.6	hours

Summary of Plant Design Criteria & Calculations
Fox Run Plant Improvements
September 28, 2020

	Aeration Tank Summary		
25	No. of Aeration Tanks	1	
26	Length	24.0	
27	Width	12.0	
28	Depth	9.0	
29	Volume	19,388	gallons
30	Hydraulic Retention Time at the Average Daily Flow	23.3	hours
31	Hydraulic Retention Time at the Peak Daily Flow	7.8	hours
	Clarifier Summary		
32	No. of Hopper Bottom Clarifiers	2	
33	Clarifier Nos 1 and 2 - Existing		
34	Length	6.0	
35	Width	6.0	
36	Depth	10	
37	Total Surface Area	72	ft2
38	Surface Overflow Rate at Peak Flow	833	gpd/ft2
39	Allowable Surface Overflow Rate for Extended Aeration	1,000	gpd/ft2
	Aerobic Digestion Tank		
40	WAS Sludge Production Rate	0.9	lbs WAS/lb. BODr
41	WAS Sludge Production	33.8	lbs. WAS/day
42	Volatile Solids Concentration	75%	
43	% Volatile Solids Destroyed	38%	
44	Digested Sludge Production	24.2	lbs. DS/day
45	Digested Sludge Concentration	14,000	mg/L
46	Digested Sludge Production	206.7	gpd
47	No. of Sludge Holding Tanks	1	
48	Diameter	9.92	ft
49	Height	7.00	
50	Volume	4,044	gallons
51	Volume per Population Equivalent	4.7	cf/PE
52	SRT	20	days
	Aerobic Digestion Mixing and Aeration		
53	SCFM / 1,000 cf	30	scfm/1,000 cf
54	Airflow Requried to Mix and Aerate	16	scfm
55	No. of Diffuser Laterals in Aer Dig (8.75' Diameter)	3	lateral
56	No. of Diffusers Total in Aer Dig No. 2	6	diffusers
57	Discharge Pressure Required	4.14	psig
58	No. of Aerobic Digester Blowers	1.0	(Standby Shared)
59	Type of Blower to Use	Regenerative	
60	Model No. of Blower	Republic 4RC520-H77	
61	HP of Blower	3.4	
62	Electrical Service	240V, Single Phase	

Energy and Environment Cabinet
Department for Environmental Protection
Division of Water
Wastewater Inspection Report

AI ID: 1388 **AI Type:** SANI-Wastewater Treatment & Collection (2213)
AI Name: Fox Run WWTP
AI Address: US 60 W

City: Frankfort, **State:** Kentucky **Zip:** 40601
County: Franklin **Regional Office:** Frankfort Regional Office
Latitude: 38.170421 **Longitude:** -84.936721
Site Contact: Jacob Freeman
Title: permittee **Phone #: 314-550-1167**
Inspection Type: WW CEI-Minor Non-Mun **Activity #:** CIN20220001
Incident IDs: n/a
Inspection Start Date: July 20, 2022 **Time:** 10:00 AM **End Date:** July 20, 2022 **Time:** 10:35 AM
Site/Permit ID: KY0086967

Lead DEP Investigator: Deborah Singleton
Other DEP Investigators:
External Investigators:
Persons Interviewed:

General Comments: The responsible party holds KPDES Permit #kY0086967 for discharges associated with wastewater treatment facilities. The permit is current and expires on December 31, 2024.

The facility is under Agreed Order #DOW-3-0151. The facility has submitted a corrective action plan to address violations and structural issues at the plant. Several repairs and upgrades have already been completed and a plant construction permit has been obtained for additional upgrades.
Overall Compliance Status: Out of Comp- Viol documented

Investigation Results

SI: AIOO1388
SI Description:
Inspector Comment:

Requirement: Does the facility hold the proper KPDES permit?. [401 KAR 5:055 Section 2]
Compliance Status: C-No Violations observed
Comment: The responsible party holds KPDES Permit #KY0086967 for discharges associated with wastewater treatment facilities. The permit is current and expires on December 31, 2024.

Requirement: Have all required permits been obtained from the Division of Water prior to the construction or modification of the facility? [401 KAR 5:005 Section 1]
Compliance Status: C-No Violations observed
Comment: The responsible party holds KPDES Permit #KY0086967 for discharges associated with wastewater treatment facilities. a plant construction / expansion permit has been obtained for improvements to the facility.

Requirement: Is the facility being operated under the supervision of a properly certified operator? [401 KAR 5:010 Section 1]
Compliance Status: C-No Violations observed
Comment: The facility is under the charge of Mr. William McLain, active Class 3, license #64427.

Requirement: Is the collection system under the primary responsibility of an individual who holds an active collection system certification at the level appropriate for the size of the treatment facility receiving the waste? [401 KAR 5:010 Section 2]
Compliance Status: E-Not Evaluated
Comment: Not evaluated.

Requirement: Does the permittee retain records of all monitoring information including: the date, exact place, and time of sampling or measurements; the name of the individual who performed the sampling or measurements; the dates and times analyses were performed; the name of the individual who performed the analyses; the analytical techniques or methods used; the results of the analyses; all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation; copies of all reports required by this permit; and records of all data used to complete the application for this permit, for the period required by the cabinet and at a minimum of at least three (3) years from the date of the sample, measurement, report, or application? [401 KAR 5:065 Section 2(1)]
Compliance Status: E-Not Evaluated
Comment: Not evaluated. The permittee to ensure the required records are maintained.

Requirement: Is the facility required to prepare and implement a groundwater protection plan (GPP) as specified in regulation 401 KAR 5:037? If yes, does the facility have a GPP?. [401 KAR 5:037]
Compliance Status: E-Not Evaluated
Comment: Not evaluated.

Requirement: Is the permittee reporting monitoring results to the cabinet at the intervals specified in the permit? [401 KAR 5:065 Section 2(1)]
Compliance Status: C-No Violations observed
Comment: A review of the Discharge Monitoring Reports revealed that the permittee is reporting the monitoring results to the cabinet at the intervals specified in the issued KPDES Permit.

Requirement: Are the monitoring results reported to the cabinet on a Discharge Monitoring Report (DMR)? [401 KAR 5:065 Section 2(1)]
Compliance Status: C-No Violations observed
Comment: A review of the Discharge Monitoring Reports revealed that the permittee is reporting the monitoring results to the cabinet on a Discharge Monitoring Report. The facility submits the results utilizing the Net-DMR system.

Requirement: If the permittee monitors any pollutant more frequently than required by the permit, using test procedures approved under 40 CFR Part 136 or as specified in the permit, are the results of this monitoring included in the calculation and reporting of the data submitted in the DMR? [401 KAR 5:065 Section 2(1)]
Compliance Status: C-No Violations observed
Comment: Permittee is aware of this requirement.

Requirement: Are the calculations for all limitations which require averaging of measurements utilizing an arithmetic mean unless otherwise specified by the Cabinet in the permit? [401 KAR 5:065 Section 2(1)]
Compliance Status: C-No Violations observed
Comment: Permittee is aware of this requirement.

Requirement: Is the permittee in compliance for the reporting of spills, bypasses, and non-compliance according 401 KAR 5:065 Section 2(1). [401 KAR 5:065 Section 2(1)]. [401 KAR 5:065 Section 2(1)]
Compliance Status: C-No Violations observed
Comment: The facility is aware of the requirement to report all spills, accidents, bypasses, releases, etc. to the Cabinet by the most rapid means available. The 24 -hour emergency reporting number is: (800) 928-2380.

Requirement: Is the permittee in compliance with immediate reporting requirements for emergency or accidental releases to the environment according to 401 KAR 5:065 Section 3(5)?. [401 KAR 5:065 Section 3(5)]
Compliance Status: C-No Violations observed
Comment: The facility is aware of the requirement to report all spills, accidents, bypasses, releases, etc. to the Cabinet by the most rapid means available. The 24 -hour emergency reporting number is: (800) 928-2380.

Requirement: Is the facility being properly operated and maintained as specified in regulation 5:065? This includes: (a) proper operation and maintenance of all facilities, systems of treatment and control, and related appurtenances which are installed or used by the permittee to achieve compliance with permit conditions;
(b) proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures; (c) this provision also requires

the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. [401 KAR 5:065 Section 2(1)]
Compliance Status: C-No Violations observed
Comment: The facility was clean and operational at the time of the inspection. No odors were detected at the time of the inspection. Improvements have been made to the influent wet/ well pump station. Aeration basin had good roll and color. Clarifier was satisfactory. The effluent was clear and odorless and there was not any visual degradation observed in the stream. Several improvements have already been made to the facility. A new set of stairs to the top of the plant, safety rails have been installed and new grating has been installed on top of the plant. The outside of the WWTP structure has been painted. Perimeter fencing has been repaired. The plant operator maintains a current daily activity log. Operational tests are performed.

Requirement: Are the disinfection unit(s) maintained and operated properly to allow for compliance with permit conditions? [401 KAR 5:005 Section 11]
Compliance Status: C-No Violations observed
Comment: In compliance.

Requirement: Does the flow measuring device measure all flow received at the WWTP? For large wastewater facilities (average daily design capacity >50, 000 gpd), is flow measured by an indicating, recording, and totalizing flow measuring device? [401 KAR 5:005 Section 12]
Compliance Status: C-No Violations observed
Comment: Flow is measures by an appropriate timed method.

Requirement: Is a source of water provided for cleanup? If potable water is used, is a backflow preventor installed to protect the water supply? [401 KAR 5:005 Section 10(6)]
Compliance Status: E-Not Evaluated
Comment: not evaluated.

Requirement: Has fencing with a lockable gate been installed around the wastewater treatment plant? [401 KAR 5:005 Section 10(7)]
Compliance Status: C-No Violations observed
Comment: The facility is fenced and secure when facility personnel are not on site.

Requirement: Has an all-weather access road been installed to allow access to the wastewater treatment plant? Is the road adequately maintained to allow access to the facility for operation and maintenance activity? [401 KAR 5:005 Section 10(8)]
Compliance Status: C-No Violations observed
Comment: In compliance.

Requirement: Sewage sludge. Did the facility meet the requirements governing the disposal of sewage sludge from publicly owned treatment works, in accordance with 40 CFR Part 503? [401 KAR 5:065 Section 2(4)]
Compliance Status: N-Not Applicable
Comment: Not applicable.

Requirement: Is the effluent in compliance with KPDES permit limitations? Do the Discharge Monitoring Reports indicate KPDES permit violations? [401 KAR 5:065 Section 2(1)]. [401 KAR 5:065 Section 2(1)]
Compliance Status: D-Out of Compliance-Violations Documented
Comment: The Division of Enforcement performs the Discharge Monitoring Report reviews and takes appropriate action if necessary. Notices of Violations have been issued to the facility since the last inspection. The facility has failed to comply with the effluent limitations contained in the permit.

Requirement: Are samples taken in compliance with the monitoring requirements and taken at the following location(s): nearest accessible point after final treatment, but prior to actual discharge or mixing with receiving waters? Are the samples representative of plant flow? Are flow proportioned samples obtained when required by the KPDES permit? Are grab samples collected according to the KPDES permit requirements? Are composite samples collected and analyzed according to the KPDES permit conditions? Are samples collected according to KPDES permit requirements? [401 KAR 5:065 Section 2(1)]
Compliance Status: C-No Violations observed
Comment: Samples are obtained at an appropriate location. Flow proportioned sampling is not required. Pace Analytical performs the laboratory analysis.

Requirement: Are the facility sample collection procedures adequate? Are the samples collected in proper containers, preserved, and refrigerated properly? Are all samples analyzed within the allowed holding times? [401 KAR 5:065 Section 2(1)]
Compliance Status: E-Not Evaluated

Comment: The division is not present when the samples are collected from the outfalls and assumes that the samples are collected using appropriate containers, preservative, refrigeration, that holding times are observed and analyses performed as per permit specifications. The facility utilizes Pace Analytical to collect and analyze samples.

Requirement: Have samples been analyzed by a lab that has been certified according to 401 KAR 5:320? Are all field parameters collected by a lab or individual that holds a Field Only certification according to 401 KAR 5:320?. [401 KAR 5:320]
Compliance Status: C-No Violations observed
Comment: Laboratory analysis is performed by Pace Analytical.

Requirement: Have pollutants entered the waters of the Commonwealth? [KRS 224.70-110]
Compliance Status: C-No Violations observed
Comment: The plant effluent area was observed during the inspection. The effluent was clear and odorless and there was not any visual evidence of pollutants entering the waters of the Commonwealth noted at the time of the inspection.

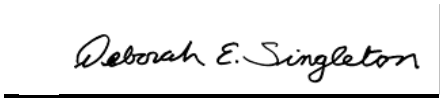
Requirement: Have surface waters been aesthetically or otherwise degraded? [401 KAR 10:031 Section 2]
Compliance Status: C-No Violations observed
Comment: The plant effluent area was observed during the inspection. The effluent was clear and odorless and there was not any visual evidence of surface water degradation noted at the time of the inspection.

Requirement: Is the permittee in compliance with all permit conditions? [401 KAR 5:065 Section 2]
Compliance Status: D-Out of Compliance-Violations Documented
Comment: The facility has failed to comply with the terms of the permit.

Documentation

- ☐ **Photos taken**
- ☐ **Documents obtained from facility**
- ☐ **Samples taken by outside source**
- ☐ **Request for Submission of Documents**
- ☐ Record of visual determination of opacity
- ☐ **Samples taken by DEP**
- ☐ Regional office instrument readings taken
- ☐ **Other documentation**

Inspector: Deborah Singleton



ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

DIVISION OF WATER
300 SOWER BLVD
FRANKFORT, KY, 40601

October 13, 2022

Mr. Jacob Freeman
Fox Run WWTP
US 60 W
Frankfort, Kentucky 40601

RE: Fox Run WWTP -- 1388
Permit No.: KY0086967
Franklin County, Kentucky
Activity ID: CIN20220001

Dear Mr. Freeman:

Attached for your information and records is a copy of the wastewater compliance inspection performed at Fox Run WWTP on July 20, 2022.

Please review the enclosed inspection report.

If you have any questions or comments concerning this inspection, please contact the Frankfort Regional Office at: (502) 564-3358.

Sincerely,

Deborah E. Singleton

DEP WORKSITE HAZARD ASSESSMENT

PART A

Site Name: **Fox Run WWTP**
AI #: **1388**

Incident #:

This form must be started before a site visit and considered during the site visit, as worksite conditions change or as new conditions are discovered, but remain incomplete and unsigned until after the site visit is concluded. This will help ensure your safety and health.

Description of Activities: wastewater compliance inspection.

PART B

Check the hazard(s) located at the site being assessed sufficient to require Personal Protection Equipment (PPE).

I. TORSO/WHOLE BODY

LIKELY INJURY/HAZARD

1. ☐ Cut/Abrasion/Puncture
2. ☐ Electrical
3. ☐ Chemical
4. ☐ Biological
5. ☐ Temperature

6. ☐ Struck By/Against
7. ☐ Body Fluids
8. ☐ Strain
9. ☐ Cumulative
10. ☒ Slip/Trip/Fall
11. ☒ Same Level Fall (A)
12. ☒ Different Level Fall (B)
13. ☐ Entrapment
14. ☐ Immersion, Submersion, Water
15. ☐ Permit Required Confined Space
16. ☐

I. 29 CFR 1910. MISC. STANDARDS - TORSO/WHOLE BODY

1. Adequate clothing
2. NO GO or maintain safe distance
3. Review MSDS and determine proper PPE
4. Proper clothing/barrier, cream/repellant
5. Cold-insulated jacket/coat, heat-appropriate clothing, work/rest intervals
6. Protective clothing, warning devices, guards
7. Protective apron/coveralls review BBP Plan
8. Proper work habit, assistance, appropriate tools
9. Body mechanics, proper tools, workstations
10. Proper footwear, harness/tether/lifeline, assistance
11. Same as # 10 (A)
12. Same as # 10 (B)
13. NO GO - Do not enter
14. Personal flotation device, tether/lifeline
15. NO GO
16. Call supervisor/branch manager/and/or ERT

II. HEAD **LIKELY INJURY/HAZARD** 1. ☐ Struck By 2. ☐ Struck Against 3. ☐ Electrical 4. ☐ Temperature 5. ☐	**II. 29 CFR 1910.135 HEAD PPE** 1. Hard hat 2. Hard hat 3. NO GO – Maintain distance 4. Hard hat with winter liner or sweat band, cooling device as required **5.** Call supervisor, branch manager and/or ERT
III. EYES/FACE **LIKELY INJURY/HAZARD** 1. ☐ Airborne 2. ☐ Chemical 3. ☐ Flash/Light/UV 4. ☐	**III. 29 CFR 1910.133 EYES/FACE PPE** 1. Safety goggles with side shields, goggles or full face shield for hazard 2. Review MSDS and determine appropriate eyewear and beware of any respiratory hazard 3. Non-vented goggles or full face shield filter or tinted lens and sunscreen for sun exposure **4.** Call supervisor, branch manager and/or ERT
IV. RESPIRATORY **LIKELY INJURY/HAZARD** 1. ☐ Oxygen Deficiency 2. ☐ Airborne Particles 3. ☐ Dusts 4. ☐ Fumes 5. ☐ Mists 6. ☐ Airborne Contaminants 7. ☐ Gases 8. ☐ Vapors 9. ☐ Combinations 10. ☐ Temperature 11. ☐	**IV. 29 CFR 1910.134 RESPIRATORY PPE** 1. NO GO 2. NO GO unless in DEP Respiratory Protection Program (RPP) OR unless respiratory hazard can be avoided (explain) 3. Same as #2 4. Same as #2 5. Same as #2 6. Same as #2 7. Same as #2 8. Same as #2 9. Same as #2 10. Cold temps - cover mouth/nose, Hot temps - SCBA or supplied air (tempered) 11. Call supervisor/branch manager and/or ERT NOTE: If in the RPP follow proper respirator selection protocols and procedures for any item checked above.

V. HAND/ARM **LIKELY INJURY/HAZARD** 1. ☐ Cut/Abrasion/Puncture 2. ☐ Electrical 3. ☐ Chemical 4. ☐ Biological 5. ☐ Temperature 6. ☐ Sunburn 7. ☐ Body Fluids 8. ☐ Cumulative 9. ☐ Strain 10. ☐	**V. 29 CFR 1910.138 HAND/ARM PPE** 1. Gloves - canvas, leather, mesh, Kevlar 2. NO GO or maintain safe distance 3. Review MSDS and determine appropriate gloves/sleeves or coveralls 4. Clothing/gloves/coveralls/barrier cream repellant 5. Gloves/clothing 6. Wear long sleeves, gloves or sunscreen 7. Latex/nitrile gloves (review Bloodborne Pathogen Plan - BBP) 8. Gloves/restraints 9. Adequate tools/assistance from others **10.** Call supervisor/branch manager and/or ERT
VI. FOOT/LEG **LIKELY INJURY/HAZARD** 1. ☐ Cut/Abrasion/Puncture 2. ☐ Electrical 3. ☐ Chemical 4. ☐ Biological 5. ☐ Temperature 6. ☐ Struck By/Against 7. ☐ Strain **8.** ☐	**VI. 29 CFR 1910.136 FOOT/LEG PPE** 1. Approved safety shoe, proper clothing 2. NO GO or maintain safe distance 3. Review MSDS and determine proper PPE 4. Coverall/barrier cream/repellant 5. Insulated footwear, clothing adequate for hazard 6. Safety shoes, adequate clothing, proper techniques 7. Adequate tools, assistance from others 8. Call supervisor/branch manager and/or ERT
VII. AUDITORY **NOISE LEVEL** 1. ☐ Ambient Level above 85 dBA 2. ☐ Impact Level above 85 dBA 3. ☐ NOTE: Noise level rule of thumb: If you are within 2-3 feet of someone and you have to yell to communicate you are above 85 dBA.	**VII.29 CFR 1910.95 HEARING PROTECTION** 1. Appropriate NRR ear plugs or muffs 2. Appropriate NRR ear plugs or muffs 3. Call supervisor/ branch manager and/or ERT

PART C

GO: ☒ NO GO: ☐

I WILL FOLLOW THE RECOMMENDATION FOUND IN THE RIGHT COLUMN ABOVE FOR EACH HAZARD CHECKED IN THE LEFT COLUMN ABOVE. IF EXCEPTIONS, CONTACT YOUR SUPERVISOR.

COMMENTS:

Wear appropriate boots and gear. Safety precautions taken

PART D

NOTE: Any *NO GO* situation witnessed should prompt immediate notification to your supervisor, branch manager, and/or the DEP's Emergency Response Center, (800) 928-2380, for further assessment and possible emergency declaration/contracting.

(Optional)SUPERVISOR: I have reviewed this document with the employee to discuss responsible safety measures, equipment and techniques.

(Optional) Supervisor Name Date

EMPLOYEE CERTIFICATION: I certify this WORKSITE HAZARD ASSESSMENT was conducted, reviewed and/or updated. Appropriate Personal Protective Equipment was utilized per hazards noted or anticipated.

Deborah E. Singleton

This document represents the request via an electronic submittal. The details associated with transaction, including payment information, are as follows:

Payment ID: 106259
Payment Date: 09/29/2020
Amount Paid: $200.00
Bill Company Name: Chad Carter
Bill Person Name: ,
Bill Address: 1351 Jefferson Street, Suite 301
Bill City, State, Zip: Washington, MO, 63090
Last 4 Numbers: 7991
Name on Account: Chad Carter

Details:

AI ID: 1388
Name: Fox Run WWTP
ID: -1
Amount: $200.00
Credit Card Fee: $6.00
Desc: construction permit minor mod

BLUEGRASS WATER
Utility Operating Company
A CSWR Managed Utility

July 29, 2020

Michael Kroeger (CC. Wesley Dement)
Kentucky Department for Environmental Protection
Division of Enforcement
300 Sower Blvd., 3rd Floor
Frankfort, KY 40601

Bluegrass Water Utility Operating Company, Inc.
Fox Run WWTF
KYPDES Permit No. KY0086967
Agency Interest No. 1388

Corrective Action Plan Revision:

I am pleased to submit this update to the Corrective Action Plan for the Fox Run WWTF approved by EEC/DEP on 2/17/2020. The scope of the original CAP was completed within the projected schedule of the CAP. Triage and repair work has been completed and the main aeration plant is in much better shape than it was at acquisition. The access road and gates were replaced, the tanks have been patched and painted, inappropriately sourced and installed influent pumps were replaced, damaged piping has been repaired and replaced, and aeration system components have been repaired and replaced. While the system is currently meeting limits, it continues to struggle to handle the amount of sludge solids coming through the facility, requiring frequent sludge hauling, and it struggles to keep up during wet weather events.

Per the original CAP, our evaluation following triage improvements has determined that the facility does require a construction permit to complete improvements. A construction permit application was submitted in September of 2020 for these additional improvements. The permit application includes changes to aid in the facility's ability to handle sludge and wet weather surge events. The permit application calls for installation of a wet weather storage basin and sludge digestor to the plant. The construction permit has been issued and we have begun to order parts and materials. We believe that work will proceed fairly quickly expect to complete the improvements at Fox Run by February 18, 2022. Following the improvements included in the construction permit the facility should be able to consistently comply with permitted limits.

Sincerely,

JON MEANY
Utility Engineer

(314) 380-8537 Ext. 215
(314) 482-0342
(314) 736-4759
jmeany@cswrgroup.com
1650 Des Peres Rd., Suite 303,
Des Peres, MO 63131

ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

February 12, 2021

Jacob Freeman
1650 Des Peres Rd Ste. 303
Saint Louis, MO 63131

Re: Fox Run WWTP Improvements
Franklin County, Kentucky
Fox Run WWTP
Activity ID: 1388, APE20200001
Receiving Treatment Plant KPDES #: KY0086967

Dear Mr. Freeman:

We have reviewed the plans and specifications for the above referenced project. The plans include the addition of a new flow control structure, an aerobic digester (4,100 gal.) with a 16 scfm (at 4.2 psig) blower, a wet weather storage tank (4,100 gal.), and a debris basket. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the attached construction permit.

If we can be of any further assistance or should you wish to discuss this correspondence, please do not hesitate to contact Michael Snyder at 502-782-1235.

Sincerely,

Terry Humphries, P.E.
Supervisor, Engineering Section
Water Infrastructure Branch
Division of Water

TH / MS
Enclosures
c: Franklin County Health Department
21 Design Group
Division of Plumbing

Fox Run Wastewater Facility Improvements - KY0086967
Design Considerations – Construction Permit Application
Date: September 28, 2020

Introduction

The purpose of this document is to specifically address the criteria used for the design of various improvements to the Fox Run Wastewater Treatment Facility, and to describe pertinent information required in Section IV - "Design Considerations" of the Construction Permit Application for said improvements.

Design Criteria

The process flow diagram for the proposed improvements is included in Section A of the appendix to this specific document.

Raw sewage will continue to enter the facility in the influent lift station. Instead of conveying flow directly to the existing extended aeration tank, the influent lift station forcemain will first enter a flow control structure that will send dry weather flows to the extended aeration tank and excessive wet weather flows to a new 4,100 gallon equalization tank. When wet weather subsides, operators will drain the equalization tank back into the influent pump station so that it can be pumped back into the flow control structure and then flow to the extended aeration tank. The flow control structure will use a rectangular weir (3" width) to direct flow to the extended aeration tank and a cone with large diameter (12" diameter) as an overflow set at a higher elevation than the rectangular weir opening to divert flows in excess of the plant's hydraulic capacity into the equalization tank.

The existing extended aeration system, clarifiers, disinfection system and dechlorination system will remain unchanged.

For sludge handling, a new, 4,100 gallon aerobic digester will be added to allow operators to have suitable location for stabilization of waste activated sludge, thickening, and storage of digested sludge. The new aerobic digestion system will provide 4.7 cubic feet of volume per population equivalent and 20 days of SRT. Waste activated sludge from the existing clarifiers will be conveyed using the existing return activated sludge air lifts to convey flow to the new aerobic digester. This will require the addition of minor piping and valving improvements to allow the "RAS" flow to be diverted to this "WAS" application on a daily basis for a short period of time. Sludge will be hauled from the new 4,100 gallon tank with vac-trucks that pull sludge from the bottom of the new aerobic digester.

The new aerobic digestion system will be aerated at a rate in excess of 30 scfm/1,000 cf using a new blower sized to provide 16 scfm at 4.15 psig. The existing extended aeration blower system's existing standby will be shared for use in serving as a redundant aerobic digester blower in the event the new

blower serving the aerobic digestion system goes down for maintenance. The air from the new blower will be introduced through a new coarse bubble diffused aeration system mounted in the new aerobic digester.

Based on the level of redundancy in the design, we believe the plant qualifies for classification as Grade A Reliability. A transfer switch will be installed that allows the use of a backup generator which will provide sufficient power for the entire facility including the blowers, allowing continuous use of all treatment processes. The aerobic digester blowers will have redundancy made available with the use of the existing extended aeration blower as a standby.

A summary of the design criteria used for unit process sizing is included in Section B of the Appendix including:

- Influent and Equalized Flows and Loadings
- Equalization Tank Sizing Summary
- Aerobic Digestion Sizing and Sludge Characteristics Summary
- Aerobic Digestion Aeration Sizing Summary

Each process was designed in accordance with the 2014 version of Ten State Standards for Wastewater Facilities and 401 KAR 5:005.

Site Location

A site plan can be found in the plan document which clearly shows the site boundaries and the position of the site in reference to those boundaries.

The facility is designed as an open-air plant, so multiple techniques will be used to minimize the negative impact of the plant improvements towards the local population including odor and noise. The blowers proposed were selected in part because they are regenerative style blowers that are quiet in operation. The aerobic digester will continuously be aerated to maintain aerobic conditions. And the equalization tank proposed will only receive flow during wet weather conditions, and the design has attempted to send all solids to the extended aeration plant and flow with few solids to the equalization tank, significantly reducing the potential for odor generation within the equalization tank.

Other Information

The improvements can be made without interrupting operations for extended periods. The construction of the new flow control structure will be performed over the existing aeration tank, so safety provisions will be required to safely add grating to support the new flow control structure over the extended aeration tank. Another constructability challenge will be observed when making improvements to RAS/WAS piping and valving, but the Contractor will be required to perform this work in no more than a 4-6 hour time frame to prevent a reduction in plant operating performance during construction.

Appendix

Section A - Process Flow Diagram

Section B - Summary of Design Criteria

Section A – Process Flow Diagram

1351 Jefferson St., Suite 301
Washington, MO 63090

636-432-5029

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

FLOWS & LOADINGS

PLANT INFLUENT FLOW
Q_{ADF}=20,000 GPD
Q_{PDF}= 60,000 GPD
Q_{PHF}= 80,000 GPD

EQUALIZED FLOW
Q_{ADF}=20,000 GPD
Q_{PDF}= 60,000 GPD
Q_{PHF}= 80,000 GPD

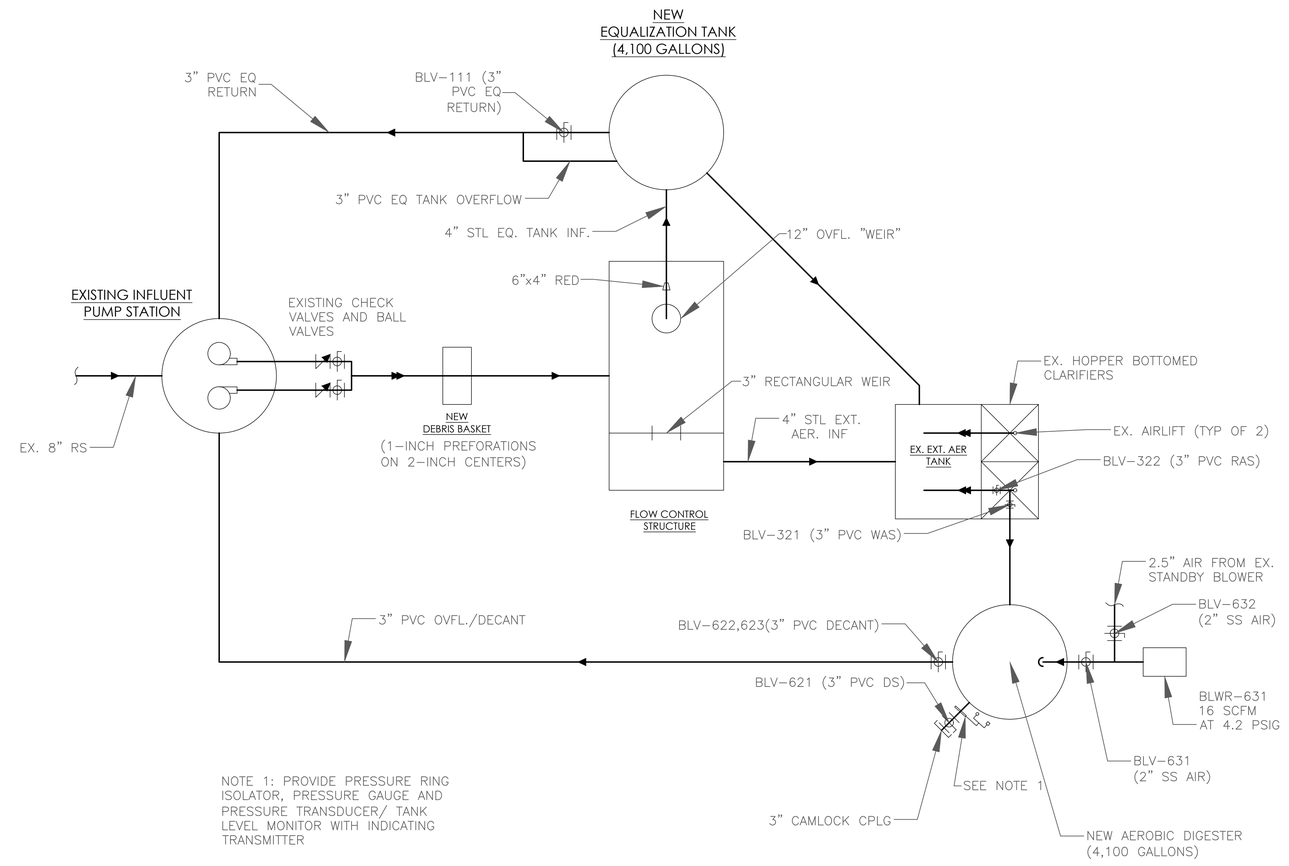
LOADINGS
BOD–225 MG/L
BOD–37.5 LBS/DAY
TSS–225 MG/L
TSS–37.5 LBS/DAY

EQUALIZATION TANK
DIMENSIONS: 9'–11"Ø, 7'–0" HWL, 0'–1" LWL
VOLUME: 4,044 GALLONS
HRT @ ADF: 4.9 HRS
HRT @ PHF: 1.2 HRS

CLARIFIER
DIMENSIONS: 2, 6'x6' HOPPERS
SURFACE AREA: 72SF
SOR @ EQUALIZED PDF: 833 GPD/SF
SOR @ EQUALIZED PHF: 833 GPD/SF

AEROBIC DIGESTER
WASTE ACTIVATED SLUDGE YIELD: .9 (LBS. WAS)/(LB. BOD)
WAS PRODUCTION: 33.8 LBS. WAS/DAY
VSS: TSS RATIO: 75%
% VSS DESTROYED: 38%
DIGESTER SLUDGE PRODUCTION: 24.2 LBS/DAY
DIGESTER SLUDGE CONCENTRATION: 14,000 MG/L TSS
DIGESTER SLUDGE VOLUME: 207 GPD
DIMENSIONS: 9'–11"Ø, 7'–0" HWL
VOLUME: 4,044 GALLONS
DIGESTER VOLUME/POP. EQVIA.: 4.7 CF/PE
SOLIDS RETENTION TIME: 20 DAYS

AEROBIC DIGESTER BLOWER & DIFFUSERS
MIXING RQMT: 30 SCFM/IKCF
SCFM RQD: 16 SCFM
DISCHARGE PRESSURE: 4.15 PSIG
NO. OF ¾" FLEXCAPS RQD: 6 (@ 2.67 SCFM/ DIFFUSER)
NO. OF BLOWERS: 1 OPERATING (SHARING STANDBY W/ EXT. AER)
TYP. OF BLOWER: REGENERATIVE
ELECTRICAL SERVICE: 240V,1Ø



NOTE 1: PROVIDE PRESSURE RING ISOLATOR, PRESSURE GAUGE AND PRESSURE TRANSDUCER/ TANK LEVEL MONITOR WITH INDICATING TRANSMITTER

#	DATE	REVISION	BY

21 DESIGN GROUP INC.
1351 Jefferson, Suite 301
Washington, MO 63090
mail@21designgroup.net
P: 636-432-3029

PROCESS FLOW

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

COMMONWEALTH OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C06

Section B – Summary of Design Criteria

Summary of Plant Design Criteria & Calculations
Fox Run Plant Improvements
September 28, 2020

	Plant Influent Characteristics		
1	No. of Customers	38	
2	Population Equivalent	114	PE
3	Annual Average Daily Flow	20,000	gpd
4	Maximum Monthly Average Daily Flow	20,000	gpd
5	Peak Daily Flow	60,000	gpd
6	Peak Hourly Flow (w/out Equalization)	80,000	gpd
7	Influent BOD	225	mg/L
8	Influent BOD	37.5	lbs/day
9	Influent TSS	225	mg/L
10	Influent TSS	37.5	lbs/day
11	Influent NH3-N	35	mg/L
12	Influent NH3-N	5.8	lbs/day
13	Influent TKN	40	mg/L
14	Influent TKN	6.7	lbs/day
15	Influent pH	7	
16	Water Temperature	13	deg-C
	Equalized Extended Aeration Influent		
17	Annual Average Daily Flow	20,000	gpd
18	Maximum Monthly Average Daily Flow	20,000	gpd
19	Peak Daily Flow (w/Equalization)	60,000	gpd
20	Peak Hourly Flow (w/Equalization)	60,000	gpd
21	Influent BOD	225	mg/L
22	Influent TSS	225	mg/L
23	Influent NH3-N	35	mg/L
24	Influent TKN	40	mg/L
25	Design Influent TKN	40	mg/L
26	Influent pH	7	
27	Water Temperature	13	deg-C
	Equalization Tank		
17	No. of Tanks Proposed	1	
18	Diameter of Each	9.92	ft
19	Low Water Level	0.08	ft
20	High Water Level	7.00	ft
21	Variable Volume Available	3,996	gallons
22	Total Volume Available	4,044	gallons
23	Hydraulic Retention Time at Average Flow	4.9	hours
24	Hydraulic Retention Time at Peak Daily Flow	1.6	hours

Summary of Plant Design Criteria & Calculations
Fox Run Plant Improvements
September 28, 2020

	Aeration Tank Summary		
25	No. of Aeration Tanks	1	
26	Length	24.0	
27	Width	12.0	
28	Depth	9.0	
29	Volume	19,388	gallons
30	Hydraulic Retention Time at the Average Daily Flow	23.3	hours
31	Hydraulic Retention Time at the Peak Daily Flow	7.8	hours
	Clarifier Summary		
32	No. of Hopper Bottom Clarifiers	2	
33	Clarifier Nos 1 and 2 - Existing		
34	Length	6.0	
35	Width	6.0	
36	Depth	10	
37	Total Surface Area	72	ft2
38	Surface Overflow Rate at Peak Flow	833	gpd/ft2
39	Allowable Surface Overflow Rate for Extended Aeration	1,000	gpd/ft2
	Aerobic Digestion Tank		
40	WAS Sludge Production Rate	0.9	lbs WAS/lb. BODr
41	WAS Sludge Production	33.8	lbs. WAS/day
42	Volatile Solids Concentration	75%	
43	% Volatile Solids Destroyed	38%	
44	Digested Sludge Production	24.2	lbs. DS/day
45	Digested Sludge Concentration	14,000	mg/L
46	Digested Sludge Production	206.7	gpd
47	No. of Sludge Holding Tanks	1	
48	Diameter	9.92	ft
49	Height	7.00	
50	Volume	4,044	gallons
51	Volume per Population Equivalent	4.7	cf/PE
52	SRT	20	days
	Aerobic Digestion Mixing and Aeration		
53	SCFM / 1,000 cf	30	scfm/1,000 cf
54	Airflow Requried to Mix and Aerate	16	scfm
55	No. of Diffuser Laterals in Aer Dig (8.75' Diameter)	3	lateral
56	No. of Diffusers Total in Aer Dig No. 2	6	diffusers
57	Discharge Pressure Required	4.14	psig
58	No. of Aerobic Digester Blowers	1.0	(Standby Shared)
59	Type of Blower to Use	Regenerative	
60	Model No. of Blower	Republic 4RC520-H77	
61	HP of Blower	3.4	
62	Electrical Service	240V, Single Phase	

FORM W-1

Commonwealth of Kentucky
Energy and Environment Cabinet
Division of Water

CONSTRUCTION PERMIT APPLICATION for WASTEWATER TREATMENT PLANT

See the INSTRUCTIONS for more information about selected portions of this application.
Questions on completing this application? Contact the Water Infrastructure Branch at 502/564-3410 or visit our website at http://water.ky.gov for more information.

I. CONSTRUCTION PROJECT INFORMATION

Project Name: Fox Run WWTF Improvements

Project City/County: Frankfort, Franklin County

Name of WWTP: Fox Run Subdivision WWTF

KPDES Number of WWTP, if known (for modifications to an existing plant): **KY** 0086967

Estimated cost of WWTP improvements and sewer line extension: $ 210,000.00

Project is: ☐ **WWTP Only** ☐ **WWTP with sewer lines**

☒ **Minor Modification to WWTP (Complete only Sections I, II, IV A, B, C, E3, H1, VII, VIII)**

II. APPLICANT INFORMATION

Applicant (Entity paying for construction): Bluegrass Water Utility Operating Company LLC E-mail: jfreemann@cswrgroup.com

Street Address: 1650 Des Peres Rd, Suite 303

City, State, Zip: St. Louis, MO, 63131

Will ownership be transferred? ☐ Yes. Name of new owner: _____ ☒ No

III. PRELIMINARY SUBMITTAL

Has a Preliminary Submittal been made with all the information in this section? [See 401 KAR 5:005, Section 3]

☐ Yes. Name of project: _____

County and Location of project, then skip to next section: _____

☒ No. Provide the information below that has not been previously submitted (use additional pages, as necessary). Place a **check** (✓) by the items included in the application or an **N/A** if the item is not applicable to the project.

N/A A. A copy of a 7½ minute USGS topographic map, with the WWTP, any proposed sewer lines, service area, and discharge location identified.

N/A B. For a WWTP located within a planning area, a letter from the regional or facility planning agency stating the proposed WWTP is compatible with the regional facility plan or the water quality management plan.

N/A C. For a WWTP located within a planning area, a demonstration that a connection to the regional facility is not available.

N/A D. For a regional WWTP, a water quality management plan that is in compliance with **401 KAR 5:006**.

IV. DESIGN CONSIDERATIONS

A. PLANS AND SPECIFICATIONS.

Design plans and specifications shall comply with 401 KAR 5:005 and "Recommended Standards for Wastewater Facilities" ("Ten States' Standards") 2014 edition. If engineering practices, other than those contained in "Ten States' Standards", were used in the design, indicate the source and the corresponding portion of the design. **[See 401 KAR 5:005, Section 7]**

Plans and specifications submittals shall meet on of the following options:

☐ Submit at least one paper printed set of detailed plans (no larger than 24" x 36") and a PDF copy of the plans and specifications on a data storage device such as a USB flash drive. Both copies shall be dated with a stamp, signature of a licensed professional engineer in Kentucky which complies with the requirements of 201 KAR 18:104. The digital plans shall consist of a single pdf file and be in a folder called "Engineering Plans" and the specifications manual shall be in a folder called "Specifications".

4 Submit a PDF copy of the plans and specifications digitally via the electronic form on the KY One Stop Business Portal website. The PDF copy shall be dated with stamp and signature of a licensed engineer in Kentucky which complies with the requirements of 201 KAR 18:104 Section 3. The plans shall be submitted as a single pdf file.

B. DESIGN ENGINEER, if the WWTP design capacity is greater than 10,000 gpd or if the sewer lines associated with the WWTP will become part of a sewer system served by a regional facility. **[Section 6]**

P.E.'s Name: Benjamin Kuenzel Firm: 21 Design Group

Street Address: 1351 Jefferson Street Suite 301

City, State, Zip: Washington, MO 63090

Phone: 636-432-5029 Fax: N/A E-mail: ben@21designgroup.net

C. CONFORMITY TO PLANS AND SPECIFICATIONS. Provide name of person who will inspect and certify that the constructed facility conforms to the approved plans and specifications. If the WWTP's design capacity is greater than 10,000 gpd, or if the sewer lines will become part of a sewer system served by a regional facility, this person must be a professional engineer (P.E.). **[Section 3]**

Name: Benjamin Kuenzel Firm: 21 Design Group

Street Address: 1351 Jefferson Street Suite 301

City, State, Zip: Washington, MO 63090

Phone: 636-432-5029 Fax: N/A E-mail: ben@21designgroup.net

D. DESIGN CAPACITIES. Provide the following design capacities, in million gallons per day or pounds per day. **[Section 3]**

Average Daily Flow: _____ MGD Influent BOD: _____ lb/day

Peak Daily Flow: _____ MGD Influent SS: _____ lb/day

Peak Hourly Flow: _____ MGD Influent NH_3-N: _____ lb/day

E. Design Criteria. Provide the following information (use additional pages, as necessary). Place a **check (✓)** by the items included in the application or an **N/A** if the item is not applicable to the project.

N/A 1. A schematic drawing of the facility layout and explanation of the proposed facility and method of operation. **[Section 3]**

N/A 2. WWTP's Reliability Category, Grade A, B, or C: _____. Include a detailed description of the reliability measures that will be used for the WWTP. **[Sections 3 and 13]**

✓ 3. A discussion of the design criteria used to size the unit processes. **[Section 3]**

F. LABORATORY SERVICES. Give name of laboratory that will provide services for self-monitoring and process control. **[Section 3]**

Firm Name: _____

Street Address: _____

City, State, Zip: _____

G. SITE LOCATION. Place a **check (✓)** by the items that are included in this application or an **N/A** if the item is not applicable to the project.

N/A 1. Include a plat or survey clearly indicating the site's boundaries, position of proposed facility in reference to the boundaries, and position of dwellings within 200 feet of the WWTP. **[Section 3]**

N/A 2. If an open-top WWTP is closer than 200 feet to the closest dwelling, include what structure or other measures will be used for noise and odor control. **[Section 4]**

N/A 3. For a WWTP with a spray irrigation system, if the distance from the spray field to the property boundary is less than 20 feet, include what protective measures will be used to inhibit spray from crossing property boundary. **[Section 21]**

H. OTHER INFORMATION TO BE SUBMITTED WITH APPLICATION. Place a **check (✓)** by the items that are included in this application or an **N/A** if the item is not applicable to the project.

✓ 1. If modifying or replacing an existing WWTP or sewer line, a closure plan indicating how the new facility will be constructed without a by-pass to a stream and the procedures that will be used for abandoning the existing facility. **[Section 3]**

N/A 2. A Sludge Management Plan for WWTPs, including the sludge processing method and how sludge will be ultimately disposed. **[Section 3]**

N/A 3. If the discharge point does not coincide with a blue line on a USGS map, a copy of a recorded deed, recorded other right of ownership, or recorded right of easement for a corridor to the nearest blue line stream. **[Section 3]**

N/A 4. A description of and detailed specifications for the flow measuring device. **[Section 7]**

N/A 5. If the WWTP discharges to a sinkhole or sinking stream, a plan for a groundwater tracer study (or a previously conducted groundwater tracer study). **[Section 4]**

V. SEWER LINES

Include the following items for projects that include sewer lines. If project is for only a WWTP, skip to next section. Place a **check (✓)** by the items that are included in this application or **N/A** if the item is not applicable to the project.

N/A A. If the project includes a pump station, the pump performance curve. **[Section 8]**

N/A B. If the project includes gravity sewer lines or force mains, a plan view and profile view for each. **[Section 6]**

N/A C. A demonstration that the sewer system has adequate capacity to treat the current and the anticipated flow to the WWTP and that the sewer system is not subject to excessive infiltration or excessive inflow. **[Section 8]**

N/A D. A demonstration that the WWTP has adequate capacity to transport the anticipated flow to the WWTP and the WWTP is not subject to excessive infiltration or excessive inflow. **[Section 8]**

VI. OTHER REQUIRED APPLICATIONS

___ A. If the WWTP has a discharge, complete and file with this application: KPDES Application (KPDES Form 1); and Form A, B, C, or Short Form C, as applicable.

___ B. If the WWTP does not have a discharge, complete and file with this application the "No Discharge Operating Permit Application, Form ND."

VII. FEES

Fees. Check or money order must be made payable to "**Kentucky State Treasurer**" for the total amount. **Fees do not apply** for a municipality, sanitation district, or other publicly owned facility. **[Section 5]**

WWTP Category: Minor Modification to a WWTP Amount: $ 200

Sewer Line Category: _____ Amount: $ _____

Total Amount: $ 200

VIII. CERTIFICATION

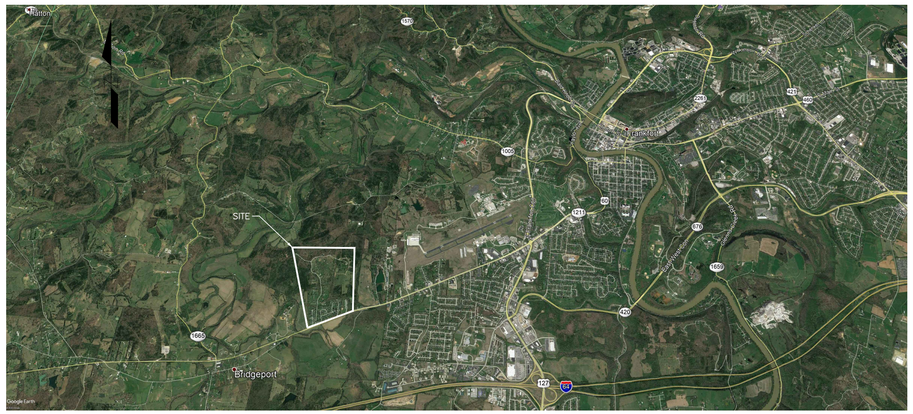
I, the applicant, certify under penalty of law that this document and all attachments were prepared under my direction or supervision. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment or both for known violations. **[Section 2]**

Applicant's Name and Official Title (Type or Print)	**Phone Number (Include area code)**
Jacob Freeman	(314)-550-1167
Signature 	**Date** 09/28/2020

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

FOX RUN WWTF
IN
FRANKLIN COUNTY, KENTUCKY

PERMIT ISSUE: SEPTEMBER 29, 2020
CONSTRUCTION ISSUE: _____, 2020
RECORD ISSUE: _____, 2020



VICINITY MAP

DRAWING LIST

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mail@21designgroup.net
P: 636-432-5029

BY	DATE	REVISION

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Washington, MO 63090
mail@21designgroup.net
P: 636-432-5029

COVER SHEET

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

STATE OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C01

General Notes and Construction Specifications

1. All water and sewer main construction shall be consistent with the local municipality requirements as well as all testing and disinfection requirements of Kentucky DEP.

2. The contractor shall obtain, erect, maintain and remove all signs, barricades, flagmen and other control devices as may be necessary for the purpose of regulating, warning or guiding traffic. Placement and maintenance of all traffic control devices shall be in accordance with the latest revision of the Manual on Uniform Traffic Control Devices.

3. Location of utilities shown on plans are approximate only, and are not necessarily complete. Contractor shall make his own investigations as to location of all existing underground structures, cables, utilities and pipe lines.

4. If existing utility lines of any nature are encountered which conflict in location with new construction, the contractor shall notify the engineer and owner so that the conflict may be resolved.

5. 5. The contractor shall notify One Call at least 48 hours prior to construction so that each utility company can stake out any underground improvements that they may have which might interfere with the proposed construction.

6. The contractor shall be required to make arrangements for the proper bracing, shoring and other required protection of all roadways, structures, poles, cables and pipe lines, before construction begins. He shall be responsible for any damage to the streets or roadways and associated structures and shall make repairs as necessary to the satisfaction of the engineer and owner at his own expense.

7. The contractor shall be responsible for the protection of all private and public utilities even though they may not be shown on the plans. Any utility that is damaged during construction shall be repaired or replaced to the satisfaction of the engineer and owner by the contractor at his own expense.

8. The contractor shall examine the plans and specifications, visit the site of the work and inform himself/herself fully with the work involved, general and local conditions, all federal, state and local laws, ordinances, rules and regulations and all other pertinent items which may affect the cost and time of completion of this project before submitting a proposal.

9. All work and materials shall be in accordance with code requirements.

10. Prior to submitting his bid, the contractor shall call the attention of the engineer to any material or equipment he deems inadequate and to any item of work omitted on the plans.

11. Structures for valve vaults for water mains shall be in accordance with the improvement plans and the applicable municipality construction requirements. Where granular trench backfill is required around these structures, the cost shall be considered as incidental and shall be included in the contract unit price for the structure.

12. Frame and cover or grates for water main structures shall be as indicated within these improvement plans.

13. All final adjustments of casting will be accomplished by the use of precast concrete adjusting rings set in butyl rope joint sealant, mortar joints will not be allowed. Total height of adjusting rings used shall not exceed twelve (12") inches. cost for adjustment is considered incidental.

14. The contractor shall be responsible to place on grade and coordinate with other contractors all underground structure frames such as catch basins, inlets, manholes, hydrants, buffalo boxes, valves, etc. No additional compensation shall be paid and said adjustments shall be considered incidental to other items of construction.

15. The contractor shall restore any area disturbed to a condition equal to or better than its original use. This shall include finish grading, establishment of a vegetative cover (seeding or sod), general cleanup and pavement replacement.

16. All trenches caused by the construction of all utilities and the excavation around catch basins, manholes, inlets and other appurtenances which occur within the limits of existing or proposed pavements, sidewalks and curb and gutters or where the edge of the trench shall be within two (2') feet horizontally of said improvements shall be backfilled with compacted granular trench backfill or with approved suitable select material and properly compacted to 100% of maximum density as determined by the standard proctor dry density (ASTM d 698) compaction test. When granular material is required, the cost shall be considered incidental and shall be included in the contractors bid.

17. The depth of backfill shall be measured from the top of the pipe embedment to the finished subgrade or as noted on the plans.

18. The contractor shall be responsible for providing safe and healthful working conditions throughout the construction of the proposed improvements.

19. The engineer will be given forty-eight (48) hours notice for any staking that is to be done. The cost of stakeout is the responsibility of the contractor.

20. The contractor shall inform the engineer and owner before work commences on each category of construction, i.e. water main, grading, pavement and drainage improvement. A twenty-four (24) hour notice shall be given for any item that requires final testing and inspection such as water mains or sanitary sewers.

21. The engineer will furnish the contractor with lines and grades necessary to the proper prosecution and control of the work. The contractor shall call the attention of the engineer to any errors or discrepancies which may be suspected in lines and grades which are established by the engineer, and shall not proceed with the work until any lines and grades which are believed to be in error have been verified or corrected by the engineer or his representative.

22. All survey monuments damaged or removed during construction of this project shall be replaced by the surveyor and said cost of replacement shall be paid by the contractor.

23. The contractor will have in his possession on the job site a copy of the plans and specifications during construction.

24. If approval for any items is required, the contractor shall contact the engineer for approval prior to ordering.

25. Any drain and/or field tile encountered by the contractor during the installation of the improvements shall be returned to original condition. This work to be considered incidental to the contract.

26. All road signs, street signs and traffic signs which need to be relocated or moved due to construction shall be taken down and stored by the contractor at his own expense, except those which are necessary for proper traffic control which shall be temporarily reset until completion of construction operations. After completion of the work, the contractor shall reset, at his expense, all said signs.

27. The contractor shall dispose of all excess excavation, unsuitable and unusable materials offsite and at an approved location in a manner that public or private property will not be damaged or endangered. This work is considered as incidental to the cost of the project. Contractor to follow any local, state, and federal guidelines for disposing of material off site.

28. No trench excavations will be permitted to remain open over any weekend, night, or any time site is left unattended.

29. Band-seal style couplings shall be used when joining sewer pipes of dissimilar materials.

30. As-built drawings shall be prepared by the contractor and submitted to the engineer as soon as the site improvements are completed. Any change in length, location or alignment shall be shown in red. As-builts will be performed by a licensed surveyor. It will include the tops and flowlines of all storm and sanitary structures.

31. The contractor is responsible for coordinating any required inspections with the engineer and city or state agency.

32. Special attention is drawn to the fact that the standard specifications requires the contractor to have a competent superintendent on the project site at all times, irrespective of the amount of work sublet. The superintendent shall be capable of reading and understanding the plans and municipality construction specifications, shall have full authority to execute orders to expedite the project, shall be responsible for scheduling and have control of all work as the agent of the contractor. Failure to comply with this provision will result in a suspension of work as provided in the contract documents.

33. The engineer and owner are not responsible for the construction means, methods, techniques, sequences or procedures, time of performance, programs or for any safety precautions used by the contractor. The contractor is solely responsible for execution of his work in accordance with the contract documents and specifications.

34. The utilities shown hereon were plotted from available information and do not necessarily reflect the actual existence, non-existence, size, type, or location of these or other utilities. The contractor shall be responsible for verifying the actual location of all utilities. All utilities shall be located in the field prior to any construction of improvements. These provisions shall in no way absolve any party from complying with the underground facility safety and damage prevention act.

35. All materials and methods of construction to meet the specifications submitted for the construction permit.

36. Construction should not commence until all permits have been received from all governing agencies.

37. No land disturbance activities can be completed until all land disturbance permitting has been acquired. It is the responsibility of the contractor to verify permits are in place prior to activities. Contractor will be responsible for any fines that are incurred due activities completed prior to having necessary permitting in place.

38. All fill material shall be made of selected earth materials, free from broken masonry, rock, frozen earth, rubbish, organic material and debris.

39. Grading contractor shall keep existing roadways clean of mud and debris at all times.If the city or owner has to clean the roads it will be at the expense of the contractor.

40. All graded areas shall be protected from erosion by erosion control devices and/or seeding and mulching as required by all local and state agencies and permits.

41. No grade shall exceed a 3:1 slope except where noted.

42. Interim stormwater drainage control in the form of siltation control measures are required.

43. Adequate temporary off-street parking shall be provided for construction employees. Parking on non-surfaced areas shall be prohibited in order to eliminate the condition whereby mud from construction and employee vehicles is tracked onto the pavement causing hazardous roadway and driving conditions.

44. The contractor shall, at all times, contain mud and other spoils on the site. No vehicle, trailer or construction equipment is to deposit mud or any other material on public streets. Project will be stopped if streets are not cleaned immediately.

45. Public roadways shall be kept open to traffic during all phases of construction of improvements. No driving lanes shall be closed without prior written permission from the governing agency.

46. The contractor shall furnish, maintain, and remove traffic control devices for the purpose of regulating, warning, and directing traffic during construction in the public roadways. All flagmen, barricades, warning signs, etc. shall conform to the manual for uniform traffic control devices.

47. No investigation has been performed by the engineer regarding hazardous waste, underground conditions or utilities affecting the tract of land shown herein.

48. This plan is not a survey in any sort and shall not constitute a boundary survey.

49. Onsite utilities have been shown based on documents obtained from public entities.

50. See MEP/Arch. plans for site lighting and electrical design/layout.

51. Contractor shall comply with all OSHA requirements for safety and construction.

52. All utility trenches in paved areas shall be compacted to the requirements of the specific paving specification. Only granular material shall be used in utility trenches under paved areas.

53. All unsurfaced areas shall receive a minimum of 6" of topsoil. Contractor shall seed, fertilize, mulch, and maintain all disturbed areas until stabilization is provided meeting the technical specifications and/or direction of the Engineer.

54. The contractor is responsible for maintenance of sediment control bmps throughout the entire project.

55. All sewer laterals shall have a 2% minimum slope.

56. All storm sewer covers shall have the words "Storm Drain" cast in the top in letters three inches high. All sanitary sewer covers shall have "Sanitary Sewer" meeting same specification.

57. All frames, grates and covers shall be ductile iron, conforming to ASTM A48, Class 30 and shall be designed for heavy duty traffic.

58. Manhole steps shall be constructed of polypropylene conforming to ASTM D 4101 and shall meet current state and federal safety standards. Steps shall be Neenah R-1981-N or approved equal.

59. Pre-cast manholes shall be at least 48" diameter and conform with ASTM C478 and to design dimensions. All lift hole shall be thoroughly wetted and completed filled with mortar and smoothed. Structures shall be free of fractures or cracks. All joints between pre-cast elements on manholes shall be made with an approved bitumastic material or an approved rubber gasket. Contractor shall submit shop drawings to engineer for approval prior to ordering.

60. All storm sewer 12" to 30" in diameter shall be Corrugated Polyethylene Pipe (CPP) or High Density Polypropolene (HDPP).
A. CPP pipe and fittings shall conform to ASTM F405 and F667 and shall have a circular cross-section and have a smooth wall interior.
B. End sections shall be polyethlyene flared type with toe plates.
C. Joints shall be provided with neoprene or manufacturer"s standard gaskets and meet ASTM F2881. Pipes up to shall be water tight according to D3212. Spigots shall have gaskets meeting the requirements of ASTM F477.
D. All CPP or HDPP shall be installed using embedment material meeting North Carolina Department of Transportation requirements.
E. Installation to conform to ASTM D2321 and pipe manufacturer's recommendations for backfill, bedding, installation, and minimum cover requirements.
F. Clean joints thoroughly, and coat bell, spigot and gasket with recommended lubricant before jointing.

61. Dual wall and triple wall polypropylene pipe (HDPP) shall confirm to the requirements of AASHTO M330 "Standard Specification for Polypropylene Pipe, ASTM F2736 (Dual wall) for sizes 12" to 30" and ASTM F2764 (Triple wall) for sizes 30" to 60". All polypropylene pipe shall be installed according with ASTM F2321 "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.",.

#	DATE	REVISION	BY

21 DESIGN GROUP INC.
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GENERAL NOTES

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

STATE OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C02

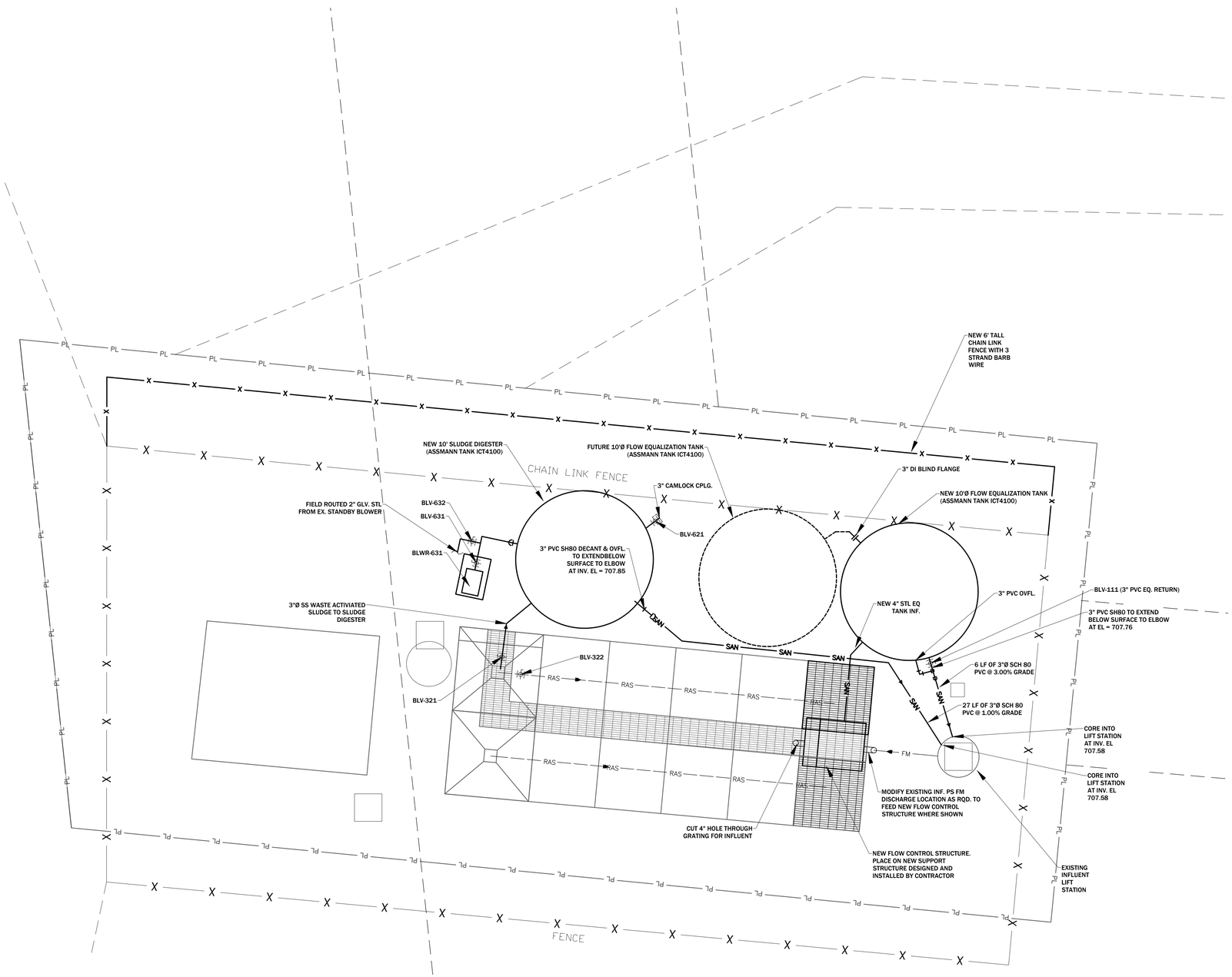
BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

DRAWING LEGEND

DESCRIPTION	EXISTING	PROPOSED
Easement		
Setbacks		
Property Lines		
Aerial Electric	AE	AE
Tree Line		
Sanitary Manhole	S	S
Utility Pole		
Fire Hydrant		
Telephone Box	T	T
Water Valve		
Gas Valve	G	G
Sign		
Grated Inlet		
Catch Basin		
Grated Curb Inlet		
Junction Box		
Flared End Section		

PAVEMENT LEGEND

- Existing Asphalt
- Existing Concrete
- New Concrete
- New Standard Duty Asphalt
- New Heavy Duty Asphalt
- New Standard Duty Concrete
- New Heavy Duty Concrete



BY	DATE	REVISION

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Washington, MO 63090
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P: 636-432-3029

SITE/UTILITY PLAN

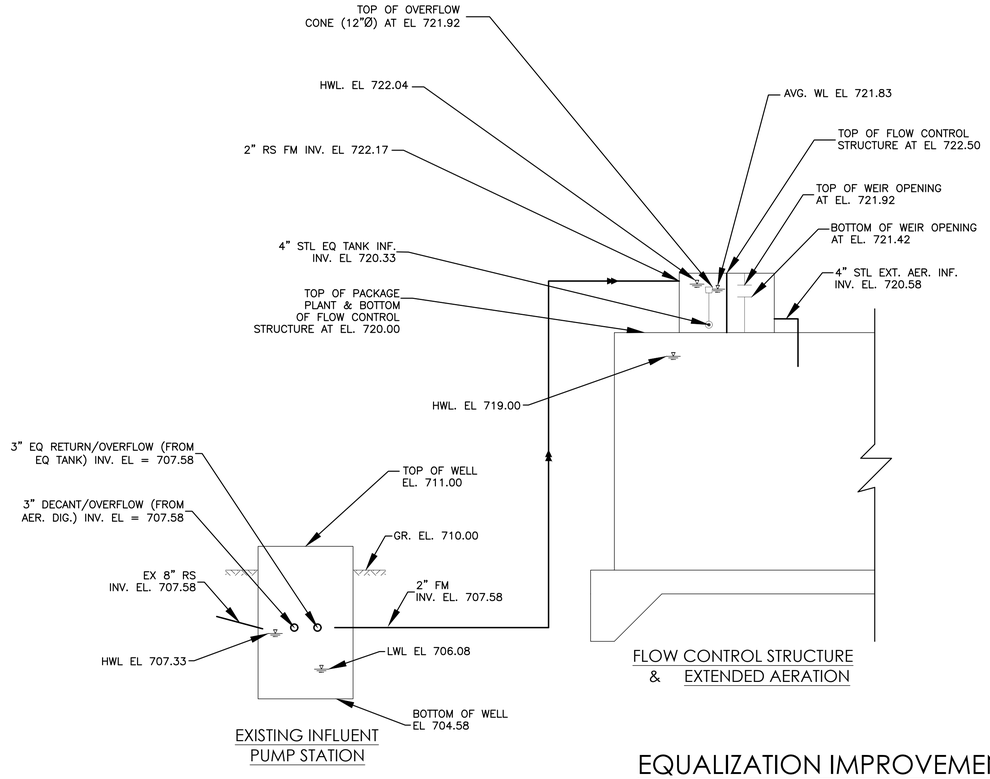
FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

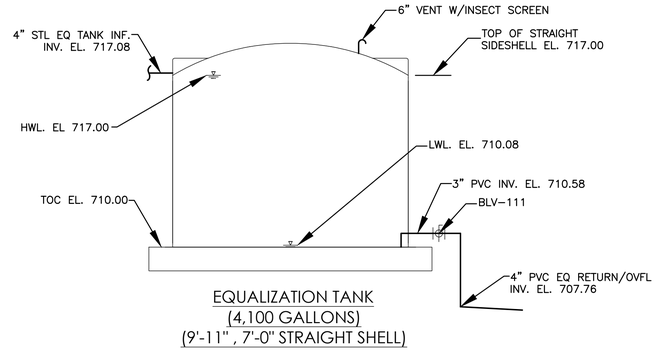
ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

STATE OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

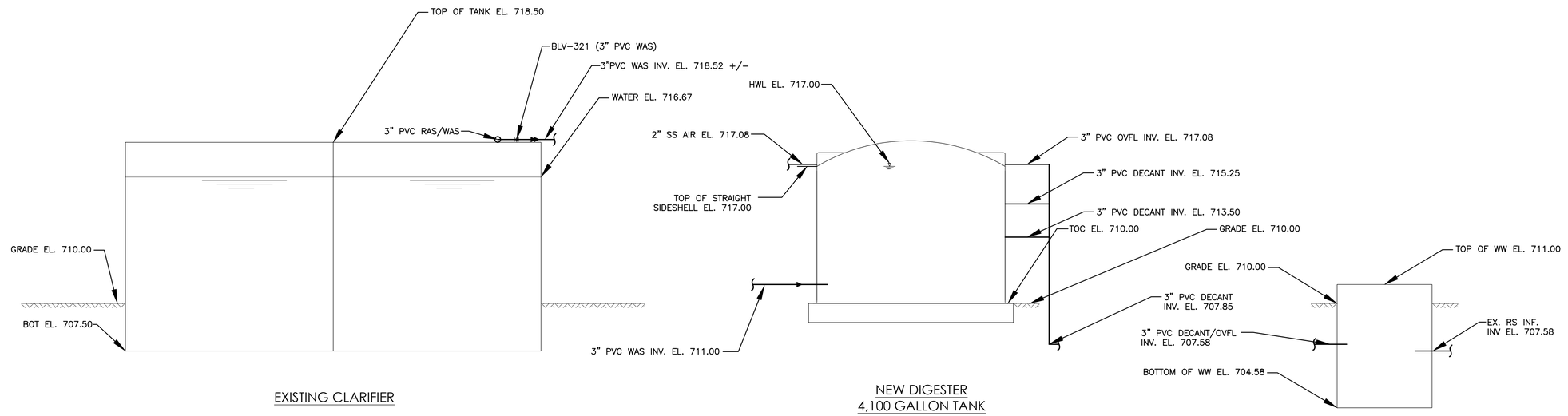
SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C03

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.





EQUALIZATION IMPROVEMENTS HYDRAULIC PROFILE



AEROBIC DIGESTER IMPROVEMENTS HYDRAULIC PROFILE

FIELD VERIFY ALL PUMP STATIONS ELEVATIONS BEFORE INITIATING CONSTRUCTION

BY	DATE	REVISION

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HYDRAULIC PROFILE

FOX RUN WWTF
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FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

STATE OF KENTUCKY · BENJAMIN J. KUENZEL · 33718 · LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C05

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

FLOWS & LOADINGS

PLANT INFLUENT FLOW
Q_{ADF}=20,000 GPD
Q_{PDF}= 60,000 GPD
Q_{PHF}= 80,000 GPD

EQUALIZED FLOW
Q_{ADF}=20,000 GPD
Q_{PDF}= 60,000 GPD
Q_{PHF}= 80,000 GPD

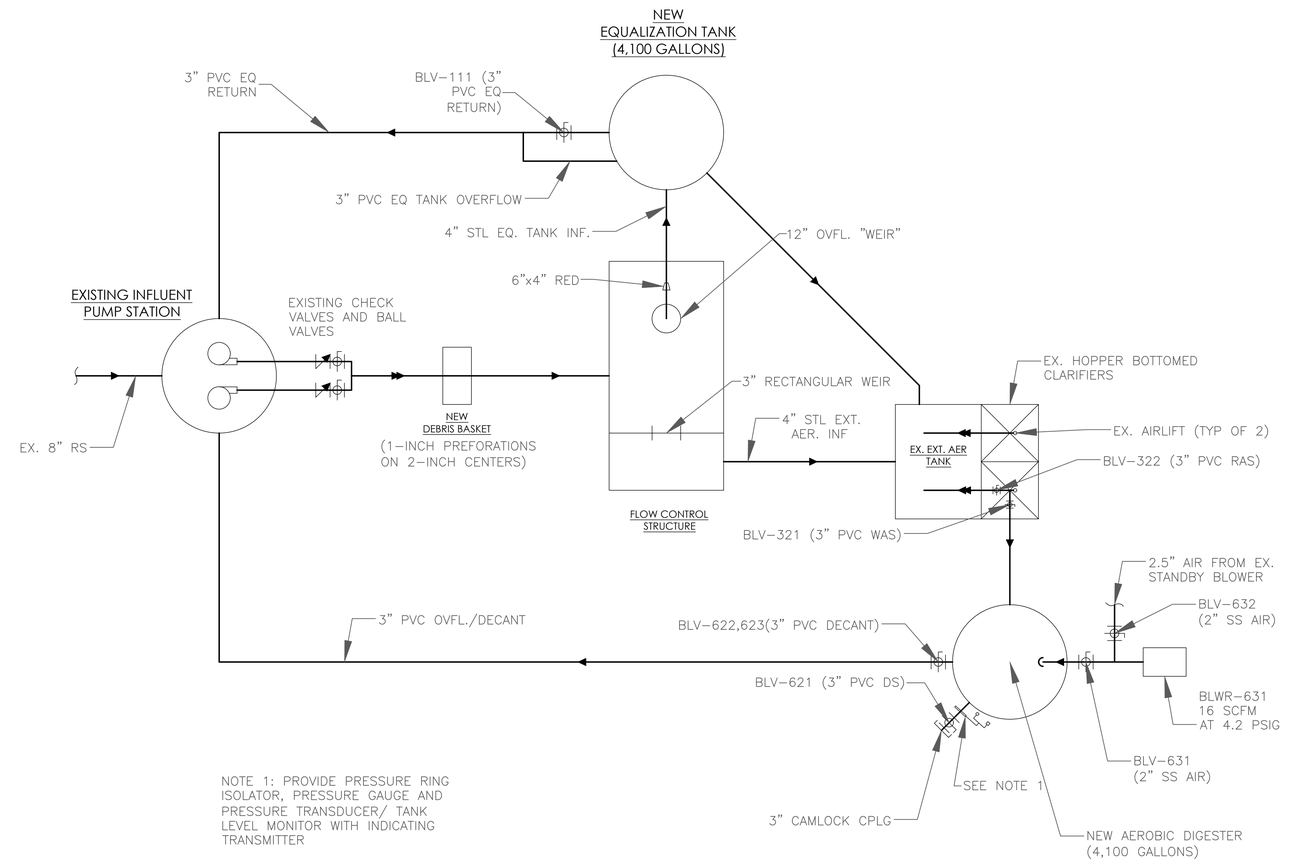
LOADINGS
BOD–225 MG/L
BOD–37.5 LBS/DAY
TSS–225 MG/L
TSS–37.5 LBS/DAY

EQUALIZATION TANK
DIMENSIONS: 9'–11"Ø, 7'–0" HWL, 0'–1" LWL
VOLUME: 4,044 GALLONS
HRT @ ADF: 4.9 HRS
HRT @ PHF: 1.2 HRS

CLARIFIER
DIMENSIONS: 2, 6'x6' HOPPERS
SURFACE AREA: 72SF
SOR @ EQUALIZED PDF: 833 GPD/SF
SOR @ EQUALIZED PHF: 833 GPD/SF

AEROBIC DIGESTER
WASTE ACTIVATED SLUDGE YIELD: .9 (LBS. WAS)/(LB. BOD)
WAS PRODUCTION: 33.8 LBS. WAS/DAY
VSS: TSS RATIO: 75%
% VSS DESTROYED: 38%
DIGESTER SLUDGE PRODUCTION: 24.2 LBS/DAY
DIGESTER SLUDGE CONCENTRATION: 14,000 MG/L TSS
DIGESTER SLUDGE VOLUME: 207 GPD
DIMENSIONS: 9'–11"Ø, 7'–0" HWL
VOLUME: 4,044 GALLONS
DIGESTER VOLUME/POP. EQVIA.: 4.7 CF/PE
SOLIDS RETENTION TIME: 20 DAYS

AEROBIC DIGESTER BLOWER & DIFFUSERS
MIXING RQMT: 30 SCFM/IKCF
SCFM RQD: 16 SCFM
DISCHARGE PRESSURE: 4.15 PSIG
NO. OF ¾" FLEXCAPS RQD: 6 (@ 2.67 SCFM/ DIFFUSER)
NO. OF BLOWERS: 1 OPERATING (SHARING STANDBY W/ EXT. AER)
TYP. OF BLOWER: REGENERATIVE
ELECTRICAL SERVICE: 240V,1Ø



NOTE 1: PROVIDE PRESSURE RING ISOLATOR, PRESSURE GAUGE AND PRESSURE TRANSDUCER/ TANK LEVEL MONITOR WITH INDICATING TRANSMITTER

#	DATE	REVISION	BY

21 DESIGN GROUP INC.
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PROCESS FLOW

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

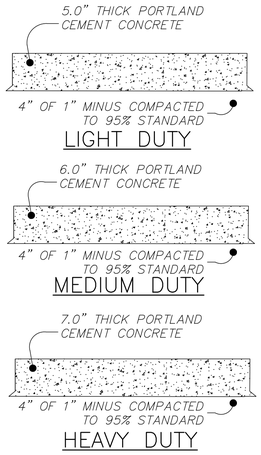
ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

COMMONWEALTH OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

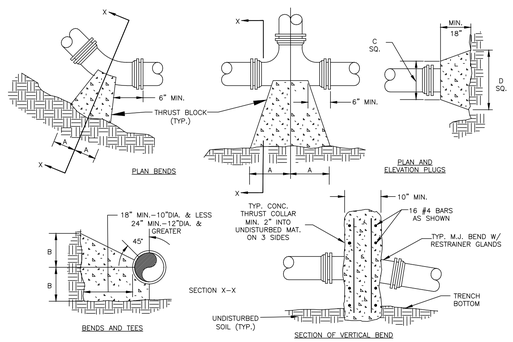
SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C06

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

NOTES:
1. PORTLAND CEMENT CONCRETE SHALL COMPLY WITH CURRENT DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI, AIR ENTRAINMENT OF 5 TO 7 PERCENT, AND SLUMP BETWEEN 1 TO 3 INCHES.
2. SUBGRADE SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF STANDARD PROCTOR (PER ASTM D-698)
3. SEE GEOTECHNICAL REPORT FOR PAVEMENT SPECIFICATION REQUIREMENTS.
4. MAXIMUM JOINT SPACING SHALL BE 24 TIMES THE CONCRETE THICKNESS WITH SLABS BE NO GREATER THAN 2:1 LENGTH TO WIDTH.
5. NON-REINFORCED CONCRETE PAVING. CONTRACTOR TO USE SMOOTH DOWELS AT CONSTRUCTION JOINTS.
6. SEE GEOTECHNICAL REPORT FOR ALL COMPACTION, POURING, AND MATERIAL REQUIREMENTS. IF A CONFLICT EXISTS, THE GEOTECHNICAL REPORT GOVERNS.
7. PROOF ROLL SUBGRADE DOUBLE TANDOM AXLE TRUCK PRIOR TO PLACING ROCK BASE MATERIAL.
8. CONCRETE CURING SHALL BE PROVIDED PER ASTM C-309 OR MODOT SPECIFICATIONS, WHICHEVER IS GREATER.
9. JOINT SEALER PER MODOT SPECIFICATIONS.
10. WEATHER PROVISIONS SHALL COMPLY TO MODOT STANDARD CONSTRUCTION REQUIREMENTS.



CONCRETE SECTION DETAILS
Not To Scale

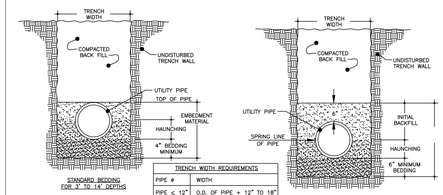


NOTES:
1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4° BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
4. ALL THRUST BLOCK & SUPPORT CONC. SHALL BE 3000 PSI READY MIX CONC.
5. THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.

PRESSURE = 200 psi
BEARING = 2000 psf
FACTOR OF SAFETY = 1.5

PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

THRUST BLOCK CONSTRUCTION
Not To Scale



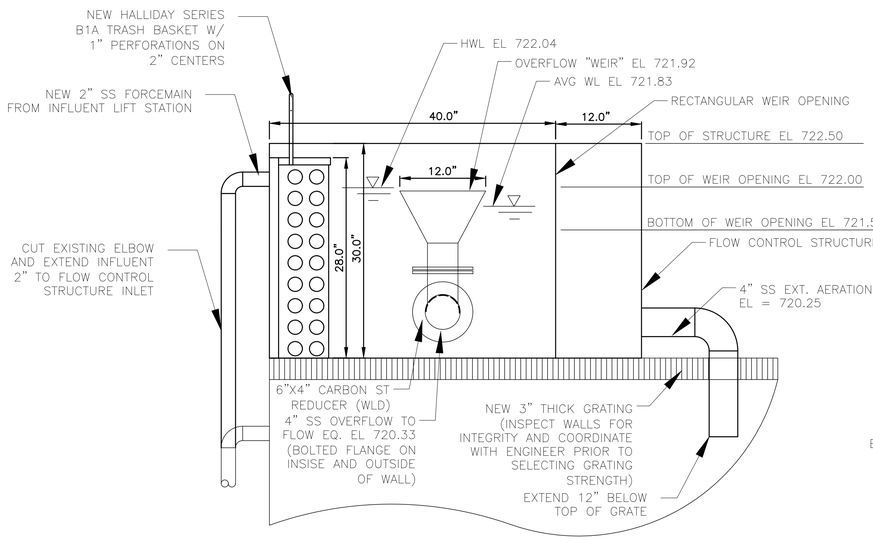
TRENCH WIDTH REQUIREMENTS	
PIPE #	WIDTH
PIPE ≤ 12"	O.D. OF PIPE + 12" TO 18"
PIPE > 12"	O.D. OF PIPE + 18"

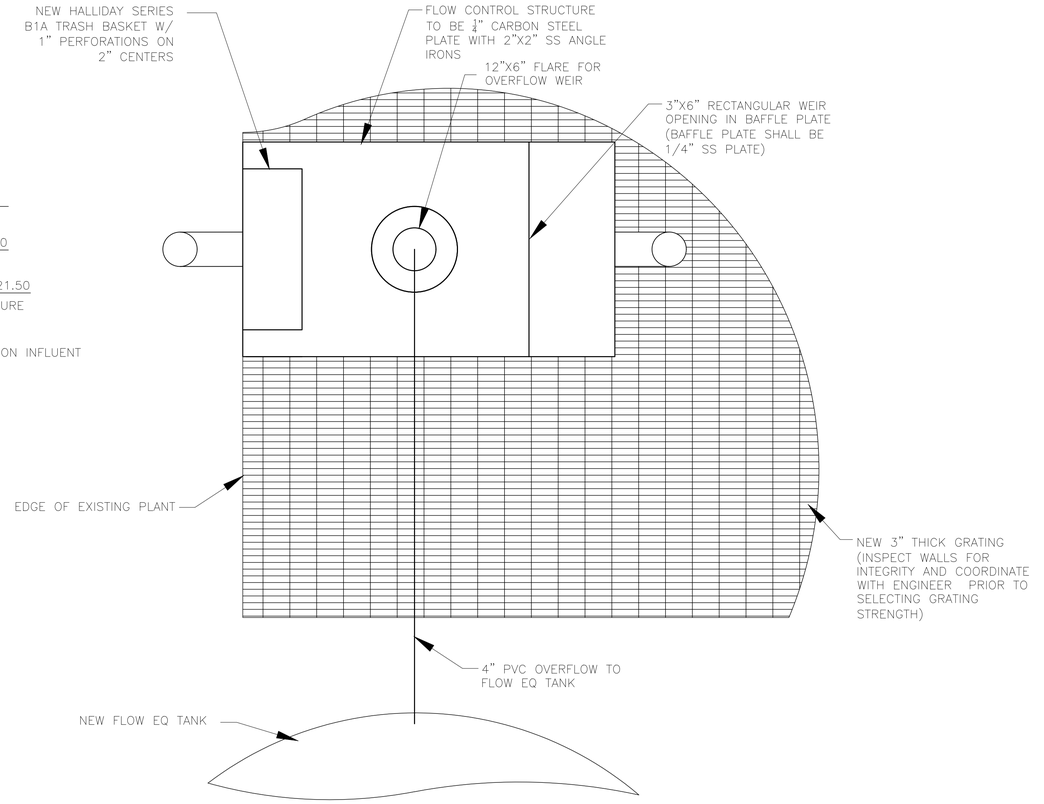
NOTES:
1. EMBEDMENT MATERIAL MUST BE 1" MINUS GRANULAR BACKFILL.
2. EMBEDMENT MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY.
3. STANDARD BEDDING SHALL BE UTILIZED FOR ALL CASES WHERE TRENCH BOTTOMS ARE UNSTABLE DUE TO SOIL TYPE OR MOISTURE CONDITIONS.
4. TRENCH EXCAVATION SHALL CONFORM TO ALL OSHA CONSTRUCTION REQUIREMENTS.
5. ANY TRENCHING UNDER PAVED AREAS SHALL BE BACKFILLED WITH 1" MINUS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
6. CONTRACTOR IS RESPONSIBLE FOR TRENCH SETTLEMENT.
7. IN AREAS OF ROCK CUT, TRENCHES SHALL BE BACKFILLED WITH WELL GRADED GRANULAR MATERIAL TO 6" ABOVE THE TOP OF PIPE.
8. ALL UTILITY INSTALLATION SHALL CONFORM TO THE PIPE MANUFACTURER.
9. HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE ALL VOIDS.

TRENCH DEPTH REQUIREMENTS	
UTILITY	MIN DEPTH
GAS	SEE UTILITY CO.
WATER	42"
ELECTRIC	24"
SANITARY	36"

PIPE REQUIREMENTS				
UTILITY	0' TO 3'	3' TO 16'	16' TO 30'	> 30'
GAS	SEE UTILITY COMPANY			
WATER	DUCTILE	CLASS 200	DUCTILE	N/A
ELECTRIC	PVC	PVC	N/A	N/A
STORM	CONCRETE	HDPE	CONCRETE	CONCRETE
SANITARY	DUCTILE	CLASS 200	DUCTILE	N/A

UTILITY TRENCHING & BEDDING DETAIL
Not To Scale





FLOW CONTROL STRUCTURE

BY:
DATE
REVISION

21 DESIGN GROUP INC.
1351 Jefferson, Suite 301
Washington, MO 63090
mail@21designgroup.net
P: 636-432-3029

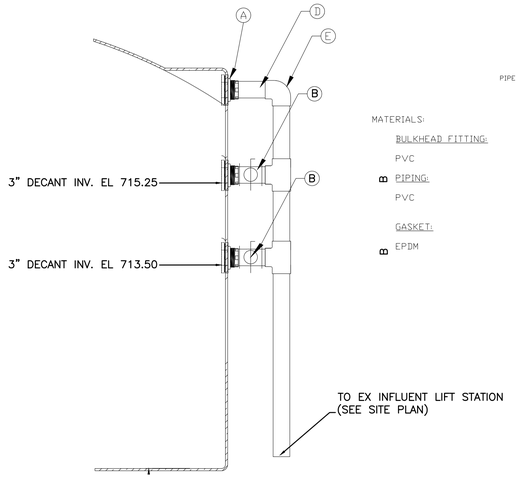
DETAIL SHEET

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

STATE OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C06



PIPE SUPPORT BRACKET

MATERIALS:

BULKHEAD FITTING:

PVC

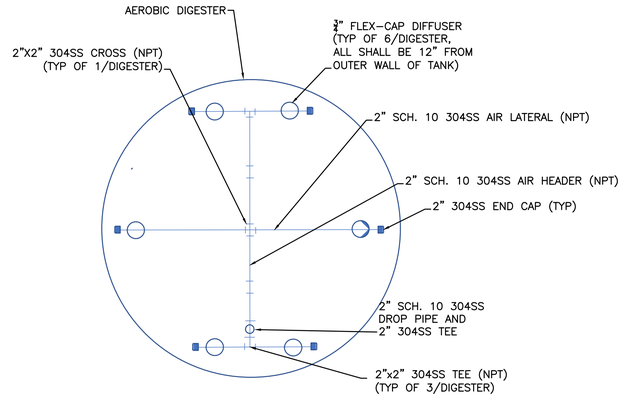
B PIPING:

PVC

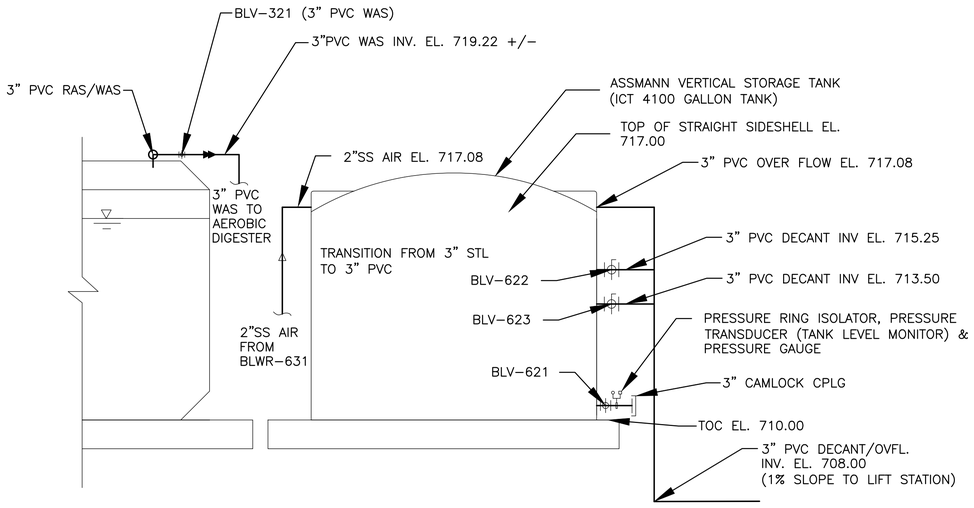
GASKET:

B EPDM

AEROBIC DIGESTER DECANT/OVERFLOW PIPE DETAIL



AEROBIC DIGESTER DIFFUSER LAYOUT PLAN



NEW AEROBIC DIGESTER
4100 GALLON TANK

NOTE: SEE PLAN FOR PROPER ORIENTATION OF PIPING CONNECTIONS; SOME PIPING CONNECTIONS SHOWN OUT OF PROPER ORIENTATION ON THIS SECTION VIEW

MMP	MISSION MONITORING WELL
CP-111	INFLUENT PUMP STATION CONTROL PANEL
CP-231	AERATION BLOWER CONTROL PANEL
CP-631	AEROBIC DIGESTER BLOWER CONTROL PANEL
DP	DISTRIBUTION PANEL
TS	TRANSFER SWITCH
MD	MAIN DISCONNECT (200A)

ELECTRICAL RISER DIAGRAM NOTES:

1. CONTRACTOR IS REQUIRED TO INSPECT EXISTING ELECTRICAL SYSTEM, VERIFY EXISTING METER SIZE, AND VERIFY WIRE, CONDUCTOR AND CONDUIT SIZING REQUIREMENTS PRIOR TO SUBMITTING BID.
2. CONTRACTOR TO SUBMIT ELECTRICAL LAYOUT AND DESIGN TO ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIALS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ALL ELECTRICAL EQUIPMENT NECESSARY FOR THE ENTIRE PROJECT INCLUDING ANY TRANSFORMER NEEDS.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ALL INSTRUMENTATION AND CONTROL PANELS NECESSARY FOR THE ENTIRE PROJECT.
5. UNISTRUT TO BE PROVIDED AS NEEDED TO INSTALL ALL ELECTRICAL AND CONTROL PANEL EQUIPMENT.
6. ALL CONDUIT SHALL BE SIZED AND PROVIDED BY CONTRACTOR. CONDUIT AND CONDUIT SIZING SHALL MEET ALL NEC CODE REQUIREMENTS FOR ABOVE AND BELOW GRADE INSTALLATION.
7. ALL WIRE AND CONDUCTORS SHALL BE ENCLOSED IN CONDUIT.
8. ALL WIRE SHALL BE COPPER EXCEPT ALUMINUM WILL BE ALLOWED UP TO THE DISTRIBUTION PANEL.

REMOTE WIRELESS MONITORING AND CONTROL REQUIREMENTS:

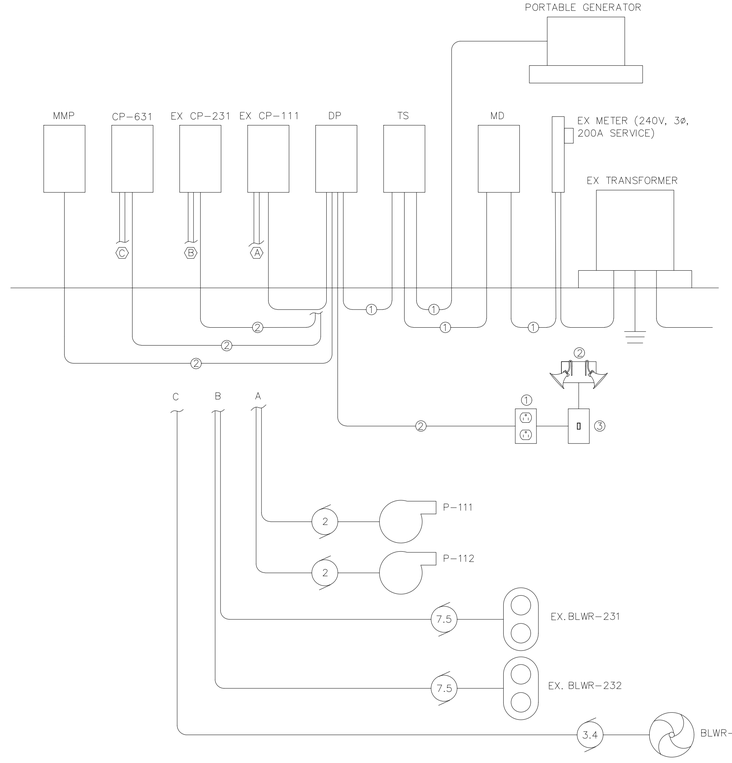
REMOTE WIRELESS MONITORING UNIT SHALL BE M850 SERIES UNIT PROVIDED BY MISSION COMMUNICATIONS (SALES REPRESENTATIVE IS JEFF CLARKE WITH HYDRO-KINETICS; 314-647-6104).

1. DIGITAL INPUTS
   a. P-111 RUN; P-111 FAIL
   b. P-112 RUN; P-112 FAIL
   c. BLWR-231 RUN; BLWR-231 FAIL
   d. BLWR-232 RUN; BLWR-232 FAIL
   e. BLWR-631 RUN; BLWR-631 FAIL

① 120V GFCI RECEPTACLE IN WEATHERPROOF BOX ON UNISTRUT.

② ONE SET OF LED DOUBLE ADJUSTABLE HEAD LIGHTS MOUNTED ON 6"x6" CCA TIMBER AT 8 FT. OFF GROUND. COORDINATE FIELD LOCATION FOR INSTALLATION W ENGINEER FOR ONE AT EQUALIZATION RETURN PUMP STATION.

③ 120V SINGLE POLE SWITCH IN WEATHERPROOF BOX.



ELECTRICAL RISER DIAGRAM

BY	DATE	REVISION

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DETAIL SHEET

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

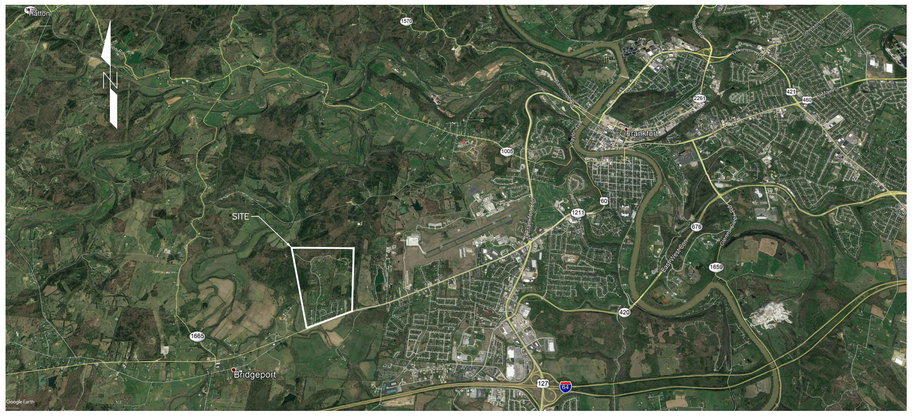
COMMONWEALTH OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	09/29/2020
DRAWING NO:	C07

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

FOX RUN WWTF
IN
FRANKLIN COUNTY, KENTUCKY

PERMIT ISSUE: SEPTEMBER 29, 2020
CONSTRUCTION ISSUE: _____, 2020
RECORD ISSUE: _____, 2020



VICINITY MAP

DRAWING LIST

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#	DATE	REVISION	BY

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mail@21designgroup.net
P: 636-432-5029

COVER SHEET

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

STATE OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	12/03/2020
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	12/03/2020
DRAWING NO:	C01

General Notes and Construction Specifications

1. All water and sewer main construction shall be consistent with the local municipality requirements as well as all testing and disinfection requirements of Kentucky DEP.

2. The contractor shall obtain, erect, maintain and remove all signs, barricades, flagmen and other control devices as may be necessary for the purpose of regulating, warning or guiding traffic. Placement and maintenance of all traffic control devices shall be in accordance with the latest revision of the Manual on Uniform Traffic Control Devices.

3. Location of utilities shown on plans are approximate only, and are not necessarily complete. Contractor shall make his own investigations as to location of all existing underground structures, cables, utilities and pipe lines.

4. If existing utility lines of any nature are encountered which conflict in location with new construction, the contractor shall notify the engineer and owner so that the conflict may be resolved.

5. 5. The contractor shall notify One Call at least 48 hours prior to construction so that each utility company can stake out any underground improvements that they may have which might interfere with the proposed construction.

6. The contractor shall be required to make arrangements for the proper bracing, shoring and other required protection of all roadways, structures, poles, cables and pipe lines, before construction begins. He shall be responsible for any damage to the streets or roadways and associated structures and shall make repairs as necessary to the satisfaction of the engineer and owner at his own expense.

7. The contractor shall be responsible for the protection of all private and public utilities even though they may not be shown on the plans. Any utility that is damaged during construction shall be repaired or replaced to the satisfaction of the engineer and owner by the contractor at his own expense.

8. The contractor shall examine the plans and specifications, visit the site of the work and inform himself/herself fully with the work involved, general and local conditions, all federal, state and local laws, ordinances, rules and regulations and all other pertinent items which may affect the cost and time of completion of this project before submitting a proposal.

9. All work and materials shall be in accordance with code requirements.

10. Prior to submitting his bid, the contractor shall call the attention of the engineer to any material or equipment he deems inadequate and to any item of work omitted on the plans.

11. Structures for valve vaults for water mains shall be in accordance with the improvement plans and the applicable municipality construction requirements. Where granular trench backfill is required around these structures, the cost shall be considered as incidental and shall be included in the contract unit price for the structure.

12. Frame and cover or grates for water main structures shall be as indicated within these improvement plans.

13. All final adjustments of casting will be accomplished by the use of precast concrete adjusting rings set in butyl rope joint sealant, mortar joints will not be allowed. Total height of adjusting rings used shall not exceed twelve (12") inches. cost for adjustment is considered incidental.

14. The contractor shall be responsible to place on grade and coordinate with other contractors all underground structure frames such as catch basins, inlets, manholes, hydrants, buffalo boxes, valves, etc. No additional compensation shall be paid and said adjustments shall be considered incidental to other items of construction.

15. The contractor shall restore any area disturbed to a condition equal to or better than its original use. This shall include finish grading, establishment of a vegetative cover (seeding or sod), general cleanup and pavement replacement.

16. All trenches caused by the construction of all utilities and the excavation around catch basins, manholes, inlets and other appurtenances which occur within the limits of existing or proposed pavements, sidewalks and curb and gutters or where the edge of the trench shall be within two (2') feet horizontally of said improvements shall be backfilled with compacted granular trench backfill or with approved suitable select material and properly compacted to 100% of maximum density as determined by the standard proctor dry density (ASTM d 698) compaction test. When granular material is required, the cost shall be considered incidental and shall be included in the contractors bid.

17. The depth of backfill shall be measured from the top of the pipe embedment to the finished subgrade or as noted on the plans.

18. The contractor shall be responsible for providing safe and healthful working conditions throughout the construction of the proposed improvements.

19. The engineer will be given forty-eight (48) hours notice for any staking that is to be done. The cost of stakeout is the responsibility of the contractor.

20. The contractor shall inform the engineer and owner before work commences on each category of construction, i.e. water main, grading, pavement and drainage improvement. A twenty-four (24) hour notice shall be given for any item that requires final testing and inspection such as water mains or sanitary sewers.

21. The engineer will furnish the contractor with lines and grades necessary to the proper prosecution and control of the work. The contractor shall call the attention of the engineer to any errors or discrepancies which may be suspected in lines and grades which are established by the engineer, and shall not proceed with the work until any lines and grades which are believed to be in error have been verified or corrected by the engineer or his representative.

22. All survey monuments damaged or removed during construction of this project shall be replaced by the surveyor and said cost of replacement shall be paid by the contractor.

23. The contractor will have in his possession on the job site a copy of the plans and specifications during construction.

24. If approval for any items is required, the contractor shall contact the engineer for approval prior to ordering.

25. Any drain and/or field tile encountered by the contractor during the installation of the improvements shall be returned to original condition. This work to be considered incidental to the contract.

26. All road signs, street signs and traffic signs which need to be relocated or moved due to construction shall be taken down and stored by the contractor at his own expense, except those which are necessary for proper traffic control which shall be temporarily reset until completion of construction operations. After completion of the work, the contractor shall reset, at his expense, all said signs.

27. The contractor shall dispose of all excess excavation, unsuitable and unusable materials offsite and at an approved location in a manner that public or private property will not be damaged or endangered. This work is considered as incidental to the cost of the project. Contractor to follow any local, state, and federal guidelines for disposing of material off site.

28. No trench excavations will be permitted to remain open over any weekend, night, or any time site is left unattended.

29. Band-seal style couplings shall be used when joining sewer pipes of dissimilar materials.

30. As-built drawings shall be prepared by the contractor and submitted to the engineer as soon as the site improvements are completed. Any change in length, location or alignment shall be shown in red. As-builts will be performed by a licensed surveyor. It will include the tops and flowlines of all storm and sanitary structures.

31. The contractor is responsible for coordinating any required inspections with the engineer and city or state agency.

32. Special attention is drawn to the fact that the standard specifications requires the contractor to have a competent superintendent on the project site at all times, irrespective of the amount of work sublet. The superintendent shall be capable of reading and understanding the plans and municipality construction specifications, shall have full authority to execute orders to expedite the project, shall be responsible for scheduling and have control of all work as the agent of the contractor. Failure to comply with this provision will result in a suspension of work as provided in the contract documents.

33. The engineer and owner are not responsible for the construction means, methods, techniques, sequences or procedures, time of performance, programs or for any safety precautions used by the contractor. The contractor is solely responsible for execution of his work in accordance with the contract documents and specifications.

34. The utilities shown hereon were plotted from available information and do not necessarily reflect the actual existence, non-existence, size, type, or location of these or other utilities. The contractor shall be responsible for verifying the actual location of all utilities. All utilities shall be located in the field prior to any construction of improvements. These provisions shall in no way absolve any party from complying with the underground facility safety and damage prevention act.

35. All materials and methods of construction to meet the specifications submitted for the construction permit.

36. Construction should not commence until all permits have been received from all governing agencies.

37. No land disturbance activities can be completed until all land disturbance permitting has been acquired. It is the responsibility of the contractor to verify permits are in place prior to activities. Contractor will be responsible for any fines that are incurred due activities completed prior to having necessary permitting in place.

38. All fill material shall be made of selected earth materials, free from broken masonry, rock, frozen earth, rubbish, organic material and debris.

39. Grading contractor shall keep existing roadways clean of mud and debris at all times.If the city or owner has to clean the roads it will be at the expense of the contractor.

40. All graded areas shall be protected from erosion by erosion control devices and/or seeding and mulching as required by all local and state agencies and permits.

41. No grade shall exceed a 3:1 slope except where noted.

42. Interim stormwater drainage control in the form of siltation control measures are required.

43. Adequate temporary off-street parking shall be provided for construction employees. Parking on non-surfaced areas shall be prohibited in order to eliminate the condition whereby mud from construction and employee vehicles is tracked onto the pavement causing hazardous roadway and driving conditions.

44. The contractor shall, at all times, contain mud and other spoils on the site. No vehicle, trailer or construction equipment is to deposit mud or any other material on public streets. Project will be stopped if streets are not cleaned immediately.

45. Public roadways shall be kept open to traffic during all phases of construction of improvements. No driving lanes shall be closed without prior written permission from the governing agency.

46. The contractor shall furnish, maintain, and remove traffic control devices for the purpose of regulating, warning, and directing traffic during construction in the public roadways. All flagmen, barricades, warning signs, etc. shall conform to the manual for uniform traffic control devices.

47. No investigation has been performed by the engineer regarding hazardous waste, underground conditions or utilities affecting the tract of land shown herein.

48. This plan is not a survey in any sort and shall not constitute a boundary survey.

49. Onsite utilities have been shown based on documents obtained from public entities.

50. See MEP/Arch. plans for site lighting and electrical design/layout.

51. Contractor shall comply with all OSHA requirements for safety and construction.

52. All utility trenches in paved areas shall be compacted to the requirements of the specific paving specification. Only granular material shall be used in utility trenches under paved areas.

53. All unsurfaced areas shall receive a minimum of 6" of topsoil. Contractor shall seed, fertilize, mulch, and maintain all disturbed areas until stabilization is provided meeting the technical specifications and/or direction of the Engineer.

54. The contractor is responsible for maintenance of sediment control bmps throughout the entire project.

55. All sewer laterals shall have a 2% minimum slope.

56. All storm sewer covers shall have the words "Storm Drain" cast in the top in letters three inches high. All sanitary sewer covers shall have "Sanitary Sewer" meeting same specification.

57. All frames, grates and covers shall be ductile iron, conforming to ASTM A48, Class 30 and shall be designed for heavy duty traffic.

58. Manhole steps shall be constructed of polypropylene conforming to ASTM D 4101 and shall meet current state and federal safety standards. Steps shall be Neenah R-1981-N or approved equal.

59. Pre-cast manholes shall be at least 48" diameter and conform with ASTM C478 and to design dimensions. All lift hole shall be thoroughly wetted and completed filled with mortar and smoothed. Structures shall be free of fractures or cracks. All joints between pre-cast elements on manholes shall be made with an approved bitumastic material or an approved rubber gasket. Contractor shall submit shop drawings to engineer for approval prior to ordering.

60. All storm sewer 12" to 30" in diameter shall be Corrugated Polyethylene Pipe (CPP) or High Density Polypropolene (HDPP).
A. CPP pipe and fittings shall conform to ASTM F405 and F667 and shall have a circular cross-section and have a smooth wall interior.
B. End sections shall be polyethlyene flared type with toe plates.
C. Joints shall be provided with neoprene or manufacturer"s standard gaskets and meet ASTM F2881. Pipes up to shall be water tight according to D3212. Spigots shall have gaskets meeting the requirements of ASTM F477.
D. All CPP or HDPP shall be installed using embedment material meeting North Carolina Department of Transportation requirements.
E. Installation to conform to ASTM D2321 and pipe manufacturer's recommendations for backfill, bedding, installation, and minimum cover requirements.
F. Clean joints thoroughly, and coat bell, spigot and gasket with recommended lubricant before jointing.

61. Dual wall and triple wall polypropylene pipe (HDPP) shall confirm to the requirements of AASHTO M330 "Standard Specification for Polypropylene Pipe, ASTM F2736 (Dual wall) for sizes 12" to 30" and ASTM F2764 (Triple wall) for sizes 30" to 60". All polypropylene pipe shall be installed according with ASTM F2321 "Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.".

#	DATE	REVISION	BY

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GENERAL NOTES

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

STATE OF KENTUCKY
BENJAMIN J. KUENZEL
33718
LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	12/03/2020
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	12/03/2020
DRAWING NO:	C02

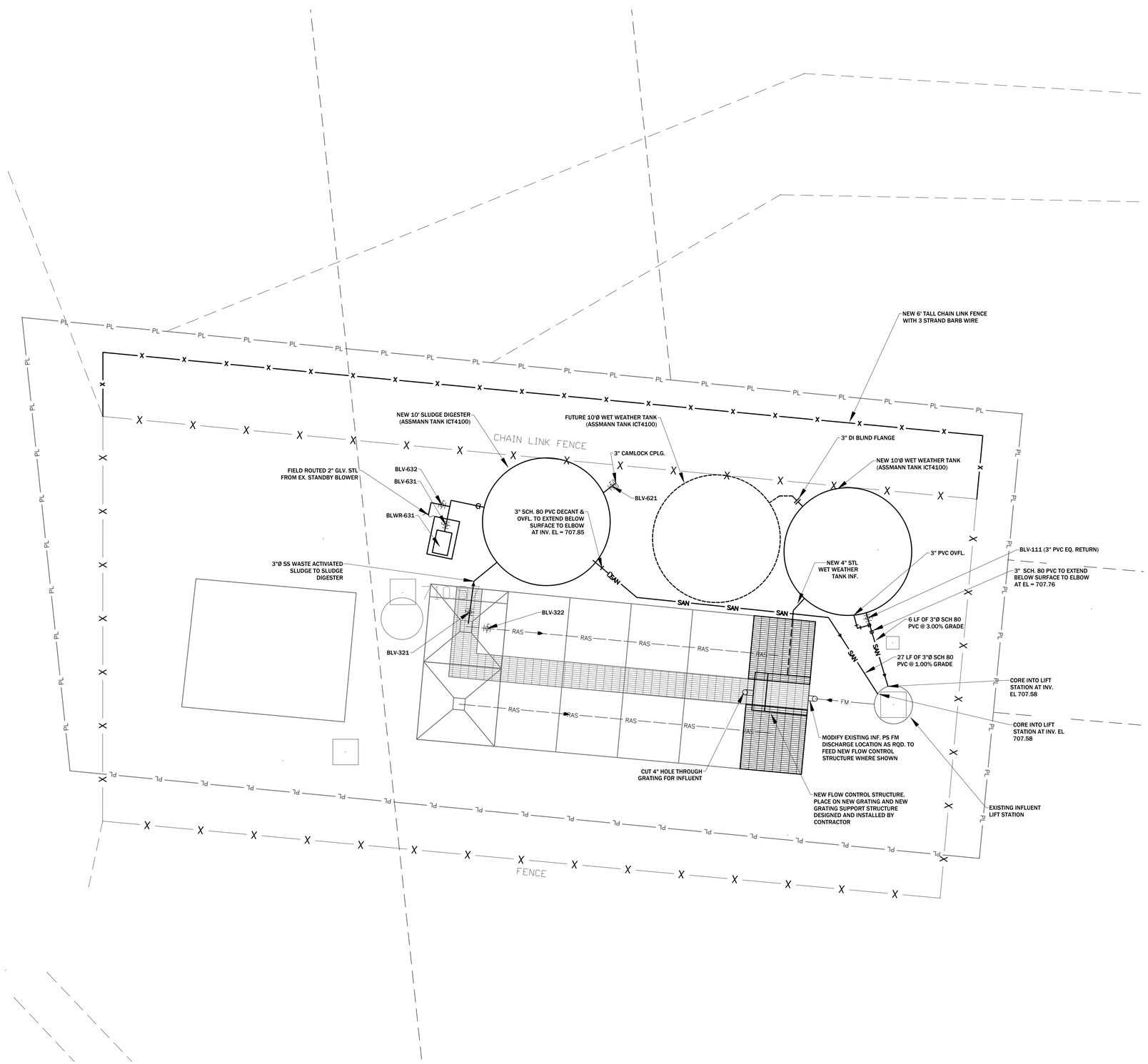
BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

DRAWING LEGEND

DESCRIPTION	EXISTING	PROPOSED
Easement		
Setbacks		
Property Lines		
Aerial Electric	AE	AE
Tree Line		
Sanitary Manhole	S	S
Utility Pole		
Fire Hydrant		
Telephone Box	T	T
Water Valve		
Gas Valve	G	G
Sign		
Grated Inlet		
Catch Basin		
Grated Curb Inlet		
Junction Box		
Flared End Section		

PAVEMENT LEGEND

- Existing Asphalt
- Existing Concrete
- New Concrete
- New Standard Duty Asphalt
- New Heavy Duty Asphalt
- New Standard Duty Concrete
- New Heavy Duty Concrete



BY	DATE	REVISION

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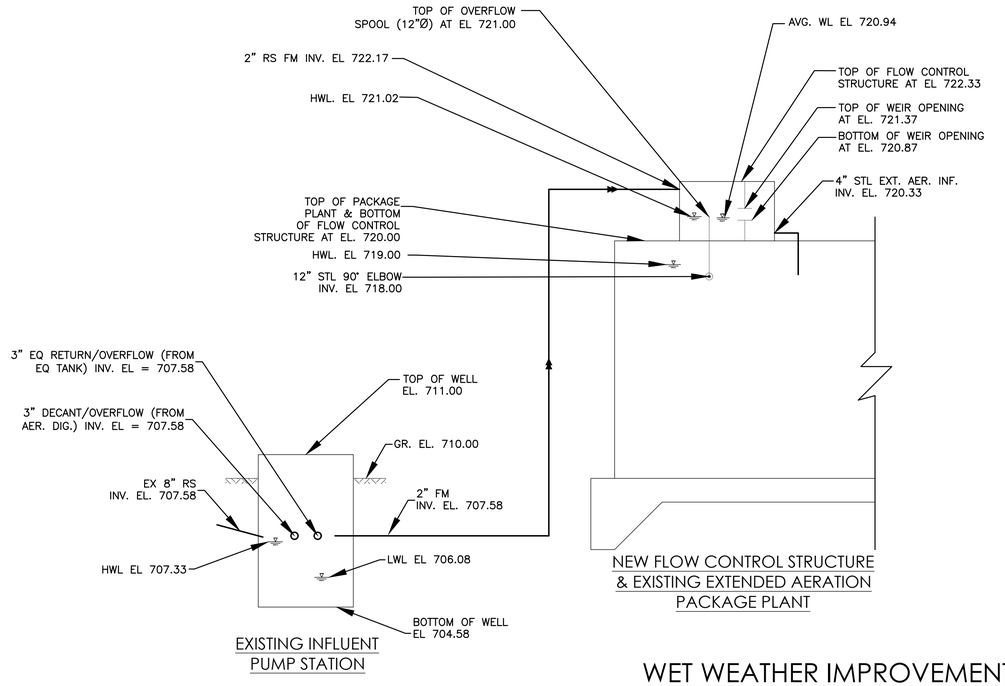
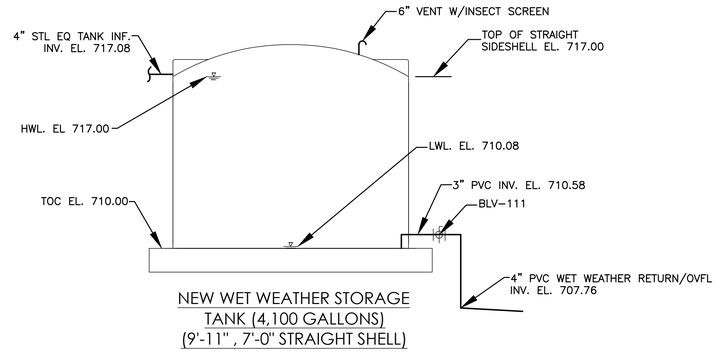
SITE/UTILITY PLAN

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

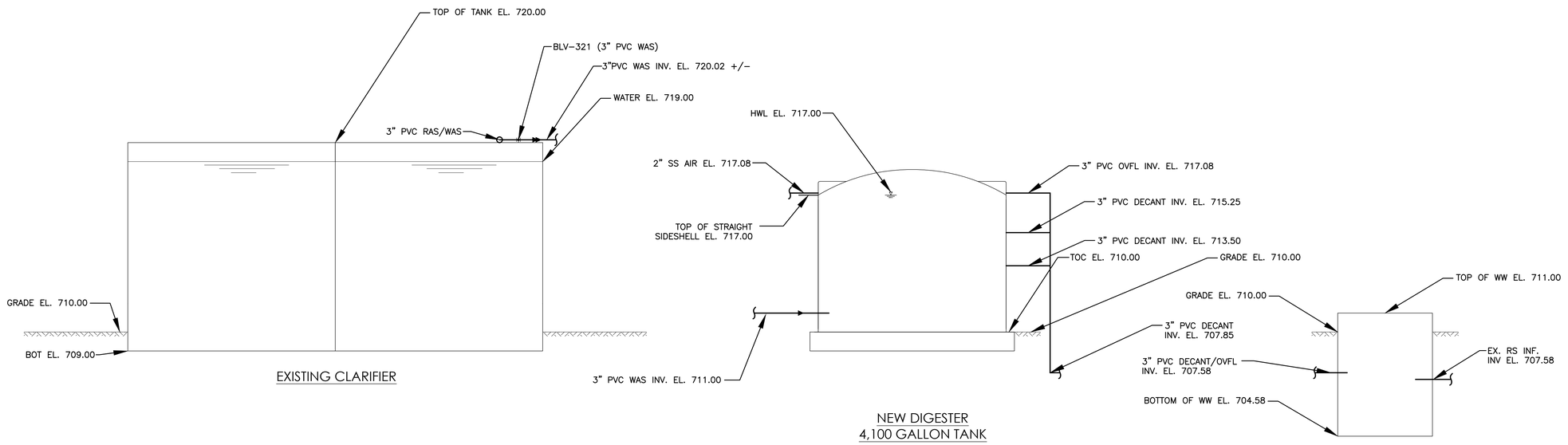
ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

SEAL DATE:	12/03/2020
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	12/03/2020
DRAWING NO:	C03





WET WEATHER IMPROVEMENTS HYDRAULIC PROFILE



AEROBIC DIGESTER IMPROVEMENTS HYDRAULIC PROFILE

FIELD VERIFY ALL PUMP STATIONS ELEVATIONS BEFORE INITIATING CONSTRUCTION

BY	DATE	REVISION

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HYDRAULIC PROFILE

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

SEAL DATE:	12/03/2020
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	12/03/2020
DRAWING NO:	C05

FLOWS & LOADINGS

PLANT INFLUENT FLOW
Q_{ADF}= 20,000 GPD
Q_{PDF}= 60,000 GPD
Q_{PHF}= 80,000 GPD

EXTENDED AERATION INFLUENT
Q_{ADF}= 20,000 GPD
Q_{PDF}= 60,000 GPD
Q_{PHF}= 60,000 GPD

LOADINGS
BOD–225 MG/L
BOD–37.5 LBS/DAY
TSS–225 MG/L
TSS–37.5 LBS/DAY

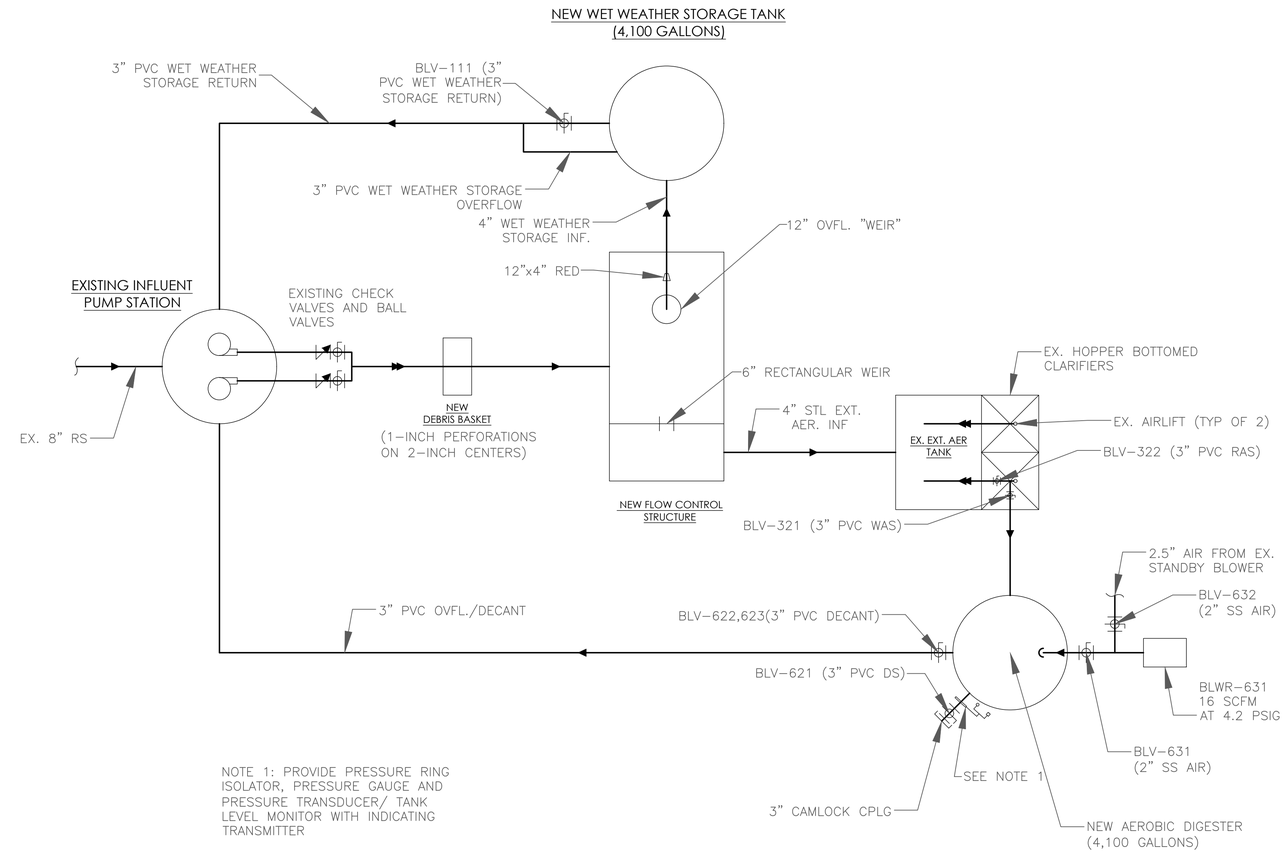
WET WEATHER STORAGE TANK
DIMENSIONS: 9'–11"Ø, 7'–0" HWL, 0'–1" LWL
VOLUME: 4,044 GALLONS
HRT @ ADF: 4.9 HRS
HRT @ PHF: 1.2 HRS

CLARIFIER
DIMENSIONS: 2, 6'x6' HOPPERS
SURFACE AREA: 72SF
SOR @ EQUALIZED PDF: 833 GPD/SF
SOR @ EQUALIZED PHF: 833 GPD/SF

AEROBIC DIGESTER
WASTE ACTIVATED SLUDGE YIELD: .9 (LBS. WAS)/(LB. BOD)
WAS PRODUCTION: 33.8 LBS. WAS/DAY
VSS: TSS RATIO: 75%
VSS DESTROYED: 38%
DIGESTER SLUDGE PRODUCTION: 24.2 LBS/DAY
DIGESTER SLUDGE CONCENTRATION: 14,000 MG/L TSS
DIGESTER SLUDGE VOLUME: 207 GPD
DIMENSIONS: 9'–11"Ø, 7'–0" HWL
VOLUME: 4,044 GALLONS
DIGESTER VOLUME/POP. EQVIA.: 4.7 CF/PE
SOLIDS RETENTION TIME: 20 DAYS

AEROBIC DIGESTER BLOWER & DIFFUSERS
MIXING RQMT: 30 SCFM/IKCF
SCFM RQD: 16 SCFM
DISCHARGE PRESSURE: 4.15 PSIG
NO. OF ¾" FLEXCAPS RQD: 6 (@ 2.67 SCFM/ DIFFUSER)
NO. OF BLOWERS: 1 OPERATING (SHARING STANDBY W/ EXT. AER)
TYP. OF BLOWER: REGENERATIVE
ELECTRICAL SERVICE: 240V,1Ø

NEW FLOW CONTROL STRUCTURE
DIMENSIONS: 5'–4"L. x 3'–0"W. x 2'–4" DEPTH
BOTTOM OF RECT. WEIR ELEV: 720.87
WATER LVL @ PHF: 721.02
WATER LVL @ ADF: 720.94



NOTE 1: PROVIDE PRESSURE RING ISOLATOR, PRESSURE GAUGE AND PRESSURE TRANSDUCER/ TANK LEVEL MONITOR WITH INDICATING TRANSMITTER

#	DATE	REVISION	BY

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Washington, MO 63090
mail@21designgroup.net
P: 636-432-3029

PROCESS FLOW

FOX RUN WWTF
HUNTERS TRACE DRIVE
FRANKFORT, KY

ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

SEAL DATE:	12/03/2020
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	12/03/2020
DRAWING NO:	C06

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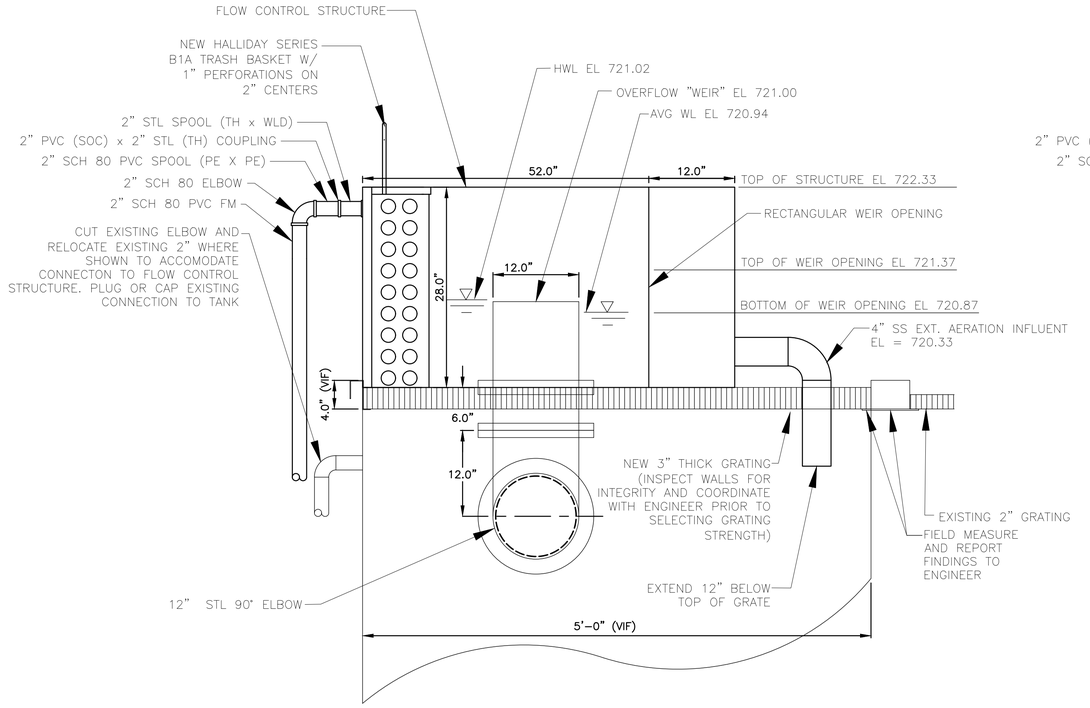
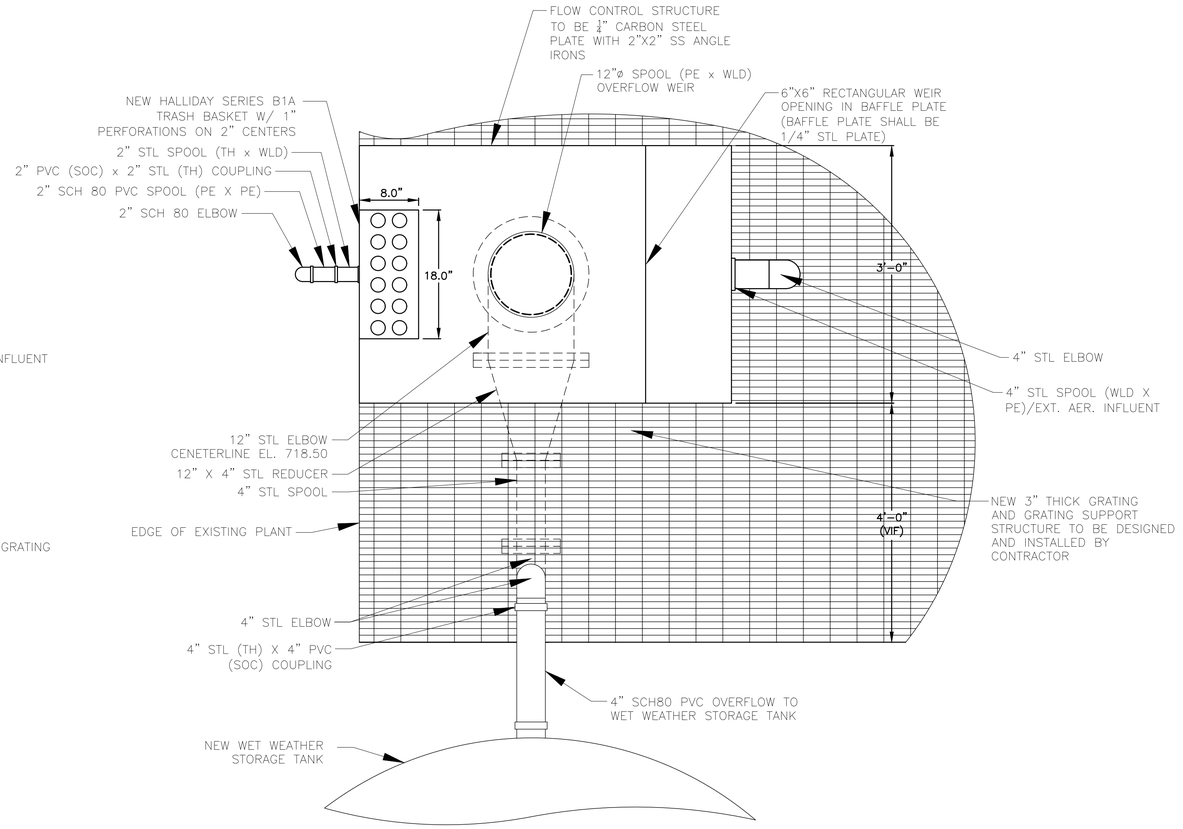
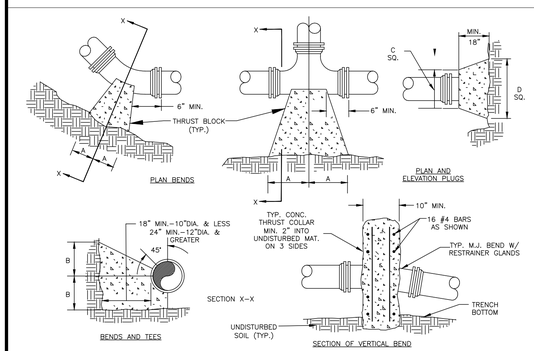






NOTES:

1. FOR VERT. BEND DOWN IN EXCESS OF 11 1/4° BEND, ANCHORAGE SHALL BE DESIGNED BY ENGINEER.
2. FOR VERT. BEND UPWARD, BLOCKING TO BE SIMILAR TO THAT FOR HORIZ. BEND.
3. GLANDS & BOLTS SHALL BE PROTECTED FROM CONC. BY PLASTIC SHEETING WHEN POURING THRUST BLOCKS.
4. ALL THRUST BLOCK & SUPPORT CONC. SHALL BE 3000 PSI READY MIX CONC.
5. THRUST BLOCKS WITH "B" DIMENSION GREATER THAN 30" SHALL HAVE THE RESTRAINED PIPE INSTALLED WITH A MINIMUM OF 4' OF COVER.

PRESSURE = 200 psi
BEARING = 2000 psf
FACTOR OF SAFETY = 1.5

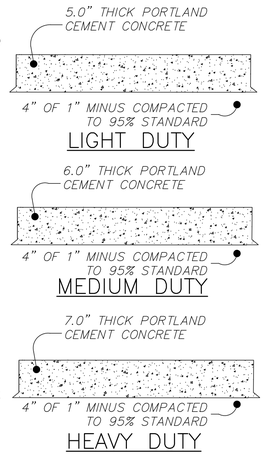
PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	11"	9"	10"	6"
6"	18"	12"	8"	10"	8"	8"	8"	8"	11"	10"	12"	18"
8"	18"	13"	10"	10"	8"	8"	8"	8"	11"	12"	12"	24"
10"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
16"	26"	20"	16"	18"	11"	13"	11"	13"	18"	20"	20"	36"
24"	82"	42"	62"	30"	44"	22"	22"	16"	82"	42"	82"	42"
30"	185"	42"	100"	42"	52"	42"	40"	30"	185"	42"	185"	42"

THRUST BLOCK CONSTRUCTION

Not To Scale

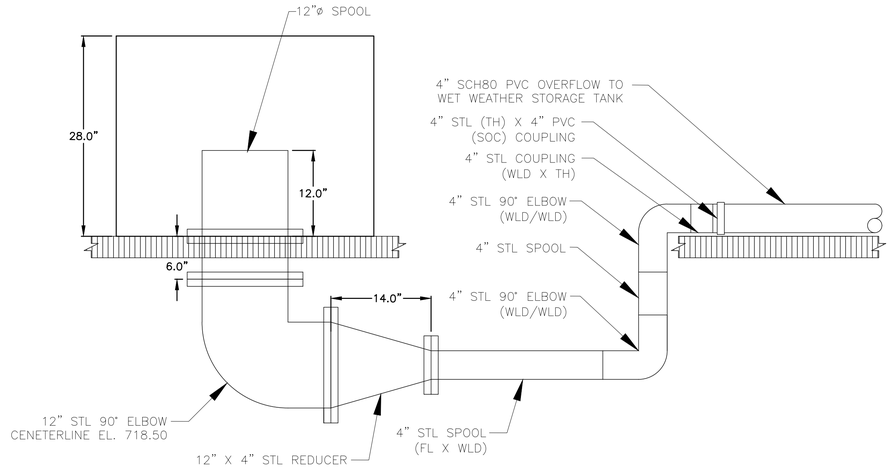
NOTES:

1. PORTLAND CEMENT CONCRETE SHALL COMPLY WITH CURRENT DOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI, AIR ENTRAINMENT OF 5 TO 7 PERCENT, AND SLUMP BETWEEN 1 TO 3 INCHES.
2. SUBGRADE SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF STANDARD PROCTOR (PER ASTM D-698)
3. SEE GEOTECHNICAL REPORT FOR PAVEMENT SPECIFICATION REQUIREMENTS.
4. MAXIMUM JOINT SPACING SHALL BE 24 TIMES THE CONCRETE THICKNESS WITH SLABS BE NO GREATER THAN 2:1 LENGTH TO WIDTH.
5. NON-REINFORCED CONCRETE PAVING. CONTRACTOR TO USE SMOOTH DOWELS AT CONSTRUCTION JOINTS.
6. SEE GEOTECHNICAL REPORT FOR ALL COMPACTION, POURING, AND MATERIAL REQUIREMENTS. IF A CONFLICT EXISTS, THE GEOTECHNICAL REPORT GOVERNS.
7. PROOF ROLL SUBGRADE DOUBLE TANDOM AXLE TRUCK PRIOR TO PLACING ROCK BASE MATERIAL.
8. CONCRETE CURING SHALL BE PROVIDED PER ASTM C-309 OR MODOT SPECIFICATIONS, WHICHEVER IS GREATER.
9. JOINT SEALER PER MODOT SPECIFICATIONS.
10. WEATHER PROVISIONS SHALL COMPLY TO MODOT STANDARD CONSTRUCTION REQUIREMENTS.



CONCRETE SECTION DETAILS

Not To Scale



FLOW CONTROL STRUCTURE

Not To Scale

NO.	DATE	REVISION
8		

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DETAIL SHEET

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BENJAMIN J. KUENZEL
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LICENSED PROFESSIONAL ENGINEER

SEAL DATE:	12/03/2020
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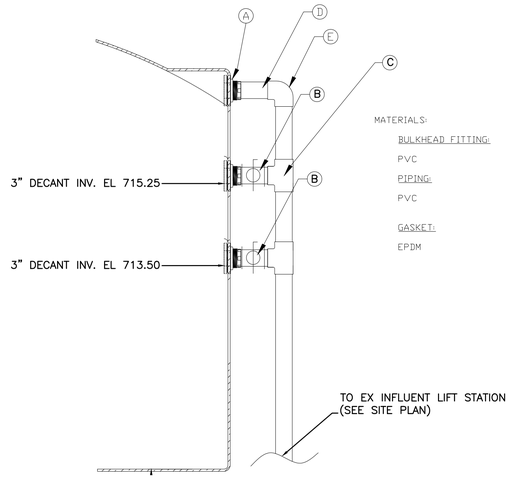


MATERIALS:

BULKHEAD FITTING:
PVC

PIPING:
PVC

GASKET:
EPDM

A. 3" DIAMETER BULKHEAD FITTING (SUPPLIED WITH TANK)

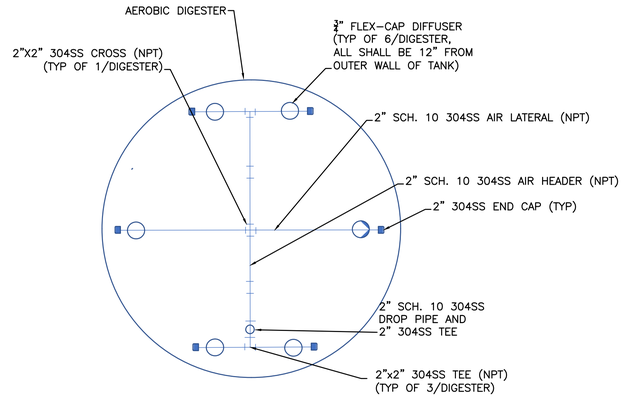
B. 3" SCH 80 PVC FULL PORT BALL VALVE (SUPPLIED BY CONTRACTOR)

C. 3" SCH 80 PVC TEE (SOC) (SUPPLIED BY CONTRACTOR)

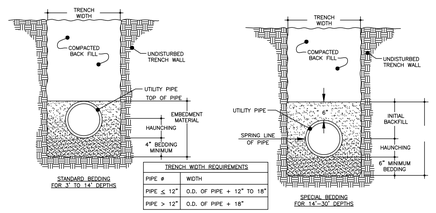
D. 3" SCH 80 PVC PIPE (SUPPLIED BY CONTRACTOR)

E. 3" SCH 80 PVC 90- DEG BEND (SOC)

AEROBIC DIGESTER DECANT/OVERFLOW PIPE
Not To Scale



AEROBIC DIGESTER DIFFUSER LAYOUT PLAN
Not To Scale



TRENCH WIDTH REQUIREMENTS	
PIPE ø	WIDTH
PIPE ≤ 12"	O.D. OF PIPE + 12" TO 18"
PIPE > 12"	O.D. OF PIPE + 18"

NOTES:
1. EMBEDMENT MATERIAL MUST BE 1" MINUS GRANULAR BACKFILL.
2. EMBEDMENT MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY.
3. STANDARD BEDDING SHALL BE UTILIZED FOR ALL CASES WHERE TRENCH BOTTOMS ARE UNSTABLE DUE TO SOIL TYPE OR MOISTURE CONDITIONS.
4. TRENCH EXCAVATION SHALL CONFORM TO ALL OSHA CONSTRUCTION REQUIREMENTS.
5. ANY TRENCHING UNDER PAVED AREAS SHALL BE BACKFILLED WITH 1" MINUS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
6. CONTRACTOR IS RESPONSIBLE FOR TRENCH SETTLEMENT.
7. IN AREAS OF ROCK CUT, TRENCHES SHALL BE BACKFILLED WITH WELL GRADED GRANULAR MATERIAL TO 6" ABOVE THE TOP OF PIPE.
8. ALL UTILITY INSTALLATION SHALL CONFORM TO THE PIPE MANUFACTURER.
9. HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE ALL VOIDS.

TRENCH DEPTH REQUIREMENTS	
UTILITY	MIN DEPTH
GAS	SEE UTILITY CO.
WATER	42"
ELECTRIC	24"
SANITARY	36"

PIPE REQUIREMENTS				
UTILITY	0' TO 3'	3' TO 16'	16' TO 30'	> 30'
GAS	SEE UTILITY COMPANY			
WATER	DUCTILE	CLASS 200	DUCTILE	N/A
ELECTRIC	PVC	PVC	N/A	N/A
STORM	CONCRETE	HDPE	CONCRETE	CONCRETE
SANITARY	DUCTILE	CLASS 200	DUCTILE	N/A

UTILITY TRENCHING AND BEDDING
Not To Scale

NOTE: SEE PLAN FOR PROPER ORIENTATION OF PIPING CONNECTIONS; SOME PIPING CONNECTIONS SHOWN OUT OF PROPER ORIENTATION ON THIS SECTION VIEW

NEW 4100 GALLON AEROBIC DIGESTER TANK
Not To Scale

MMP MISSION MONITORING WELL
CP-111 INFLUENT PUMP STATION CONTROL PANEL
CP-231 AERATION BLOWER CONTROL PANEL
CP-631 AEROBIC DIGESTER BLOWER CONTROL PANEL
DP DISTRIBUTION PANEL
TS TRANSFER SWITCH
MD MAIN DISCONNECT (200A)

ELECTRICAL RISER DIAGRAM NOTES:
1. CONTRACTOR IS REQUIRED TO INSPECT EXISTING ELECTRICAL SYSTEM, VERIFY EXISTING METER SIZE, AND VERIFY WIRE, CONDUCTOR AND CONDUIT SIZING REQUIREMENTS PRIOR TO SUBMITTING BID.
2. CONTRACTOR TO SUBMIT ELECTRICAL LAYOUT AND DESIGN TO ENGINEER FOR APPROVAL PRIOR TO ORDERING MATERIALS.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ALL ELECTRICAL EQUIPMENT NECESSARY FOR THE ENTIRE PROJECT INCLUDING ANY TRANSFORMER NEEDS.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL ALL INSTRUMENTATION AND CONTROL PANELS NECESSARY FOR THE ENTIRE PROJECT.
5. UNISTRUT TO BE PROVIDED AS NEEDED TO INSTALL ALL ELECTRICAL AND CONTROL PANEL EQUIPMENT.
6. ALL CONDUIT SHALL BE SIZED AND PROVIDED BY CONTRACTOR. CONDUIT AND CONDUIT SIZING SHALL MEET ALL NEC CODE REQUIREMENTS FOR ABOVE AND BELOW GRADE INSTALLATION.
7. ALL WIRE AND CONDUCTORS SHALL BE ENCLOSED IN CONDUIT.
8. ALL WIRE SHALL BE COPPER EXCEPT ALUMINUM WILL BE ALLOWED UP TO THE DISTRIBUTION PANEL.

REMOTE WIRELESS MONITORING AND CONTROL REQUIREMENTS:

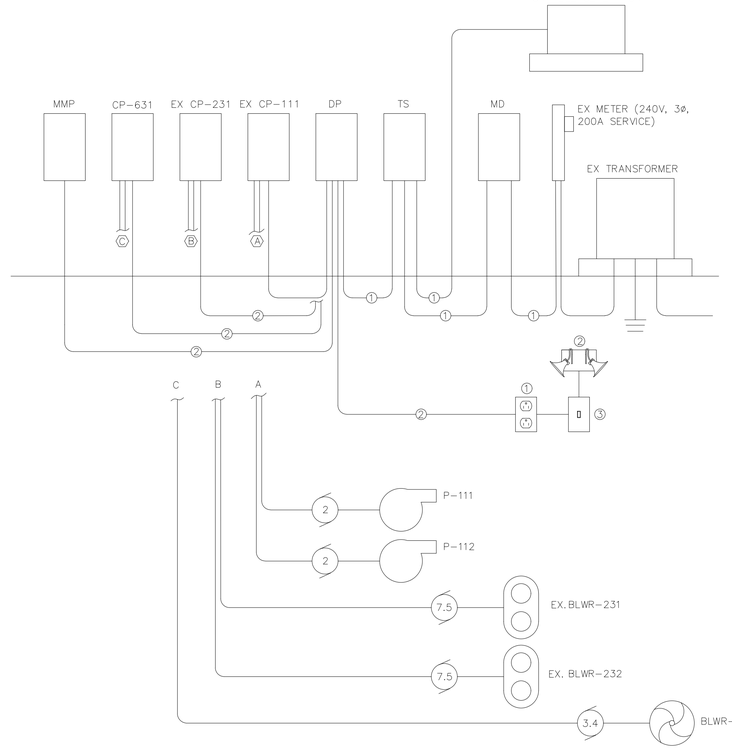
REMOTE WIRELESS MONITORING UNIT SHALL BE M850 SERIES UNIT PROVIDED BY MISSION COMMUNICATIONS (SALES REPRESENTATIVE IS JEFF CLARKE WITH HYDRO-KINETICS; 314-647-6104).

1. DIGITAL INPUTS
   a. P-111 RUN; P-111 FAIL
   b. P-112 RUN; P-112 FAIL
   c. BLWR-231 RUN; BLWR-231 FAIL
   d. BLWR-232 RUN; BLWR-232 FAIL
   e. BLWR-631 RUN; BLWR-631 FAIL

① 120V GFCI RECEPTACLE IN WEATHERPROOF BOX ON UNISTRUT.

② ONE SET OF LED DOUBLE ADJUSTABLE HEAD LIGHTS MOUNTED ON 6"x6" CCA TIMBER AT 8 FT. OFF GROUND. COORDINATE FIELD LOCATION FOR INSTALLATION W ENGINEER FOR ONE AT EQUALIZATION RETURN PUMP STATION.

③ 120V SINGLE POLE SWITCH IN WEATHERPROOF BOX.



ELECTRICAL RISER DIAGRAM
Not To Scale

BY	DATE	REVISION

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DETAIL SHEET

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SEAL DATE:	12/03/2020
DRAWN BY:	BJK
PROJ NUMBER:	542-19
DATE:	12/03/2020
DRAWING NO:	C07

Fox Run Wastewater Facility Improvements - KY0086967
Design Considerations – Construction Permit Application
Date: December 03, 2020

Introduction

The purpose of this document is to specifically address the criteria used for the design of various improvements to the Fox Run Wastewater Treatment Facility, and to describe pertinent information required in Section IV - "Design Considerations" of the Construction Permit Application for said improvements.

Design Criteria

The process flow diagram for the proposed improvements is included in Section A of the appendix to this specific document.

Raw sewage will continue to enter the facility in the influent lift station. Instead of conveying flow directly to the existing extended aeration tank, the influent lift station force main will first enter a flow control structure that will send dry weather flows to the extended aeration tank and excessive wet weather flows to a new 4,100 gallon wet weather storage tank. When wet weather subsides, operators will drain the storage tank back into the influent pump station so that it can be pumped back into the flow control structure and then flow to the extended aeration tank. The flow control structure will use a rectangular weir (6" width) to direct flow to the extended aeration tank and a 12" diameter spool as an overflow set at a higher elevation than the rectangular weir opening to divert flows in excess of the plant's hydraulic capacity into the wet weather storage tank. The rectangular weir and overflow pipe elevations are based on head calculations involving the peak hourly flow, provided on the third page of the Design Summary attached.

The addition of the wet weather storage tank is crucial to the success of the plant in regard to effectiveness of treatment during wet weather events. At its current state, the plant is forced to handle more flow than it was designed for during wet weather events, which is probably due to severe I and I within the aging collection system. The new wet weather upgrades will allow excess flow that the plant cannot handle (excess over 60,000 gpd) to be conveyed to the storage tank. A key parameter affected by the excess flows caused by I and I, is the Surface Overflow Rate (SOR) of the Clarifier. As 60,000 gpd of wastewater flows through the plant, the SOR of the clarifier is approximately 833 gpd/ft^2 , which is within the safe range for extended aeration activated sludge plants. In the absence of the wet weather storage tank, as flow increases up to 80,000 gpd, the SOR will approach and exceed 1,000 gpd/ft^2 which is higher than the standards set for extended aeration plants by the State of Kentucky.

The existing extended aeration system, clarifiers, disinfection system and dechlorination system will remain unchanged.

For sludge handling, a new, 4,100 gallon aerobic digester will be added to allow operators to have a suitable location for stabilization of waste activated sludge, thickening, and storage of digested sludge. The new aerobic digestion system will provide 4.7 cubic feet of volume per population equivalent and over 20 days of SRT. Waste activated sludge from the existing clarifiers will be conveyed using the existing return activated sludge air lifts to convey flow to the new aerobic digester. This will require the addition of minor piping and valving improvements to allow the "RAS" flow to be diverted to this "WAS" application on a daily basis for a short period of time. Sludge will be hauled from the new 4,100-gallon tank with vac-trucks that pull sludge from the bottom of the new aerobic digester.

The new aerobic digestion system will be aerated at a rate in excess of 30 scfm/1,000 cf using a new blower sized to provide 16 scfm at 4.15 psig. The existing extended aeration blower system's existing standby will be shared for use in serving as a redundant aerobic digester blower in the event the new blower serving the aerobic digestion system goes down for maintenance. The air from the new blower will be introduced through a new coarse bubble diffused aeration system mounted in the new aerobic digester.

The addition of a new aerobic digester tank will be crucial, as it will allow the ability to consistently waste sludge allowing the operators to maintain a healthy MLVSS concentration in the system more effectively. The system is currently challenged in the absence of an aerobic digester. The current system relies on the use of a vac truck to remove 3,000-6,000 gallons at a time (depending on the size of commercially available trucks locally). For this small facility, that represents a significant volume of waste activated sludge. This requires that the operators inventory excessive amounts of waste activated sludge within the extended aeration tank and clarifiers so that when this volume is removed there is still an adequate mass of biology available to achieve the treatment objectives. Having excessive amounts of waste activated sludge (or MLVSS) in the extended aeration tank can result in an "old sludge", which can result in a decline in settleability, or it can result in high clarifier sludge blankets which can be troublesome (resulting in solids excursions) during wet weather events. Having inadequate levels of sludge immediately following vac truck removal of waste activated sludge can result in reduced performance. The addition of the aerobic digester will significantly improve the operational control of the amount of mixed liquor utilized in the extended aeration tanks.

Based on the level of redundancy in the design, we believe the plant qualifies for classification as Grade A Reliability. A transfer switch will be installed that allows the use of a backup generator which will provide sufficient power for the entire facility including the blowers, allowing continuous use of all treatment processes. The aerobic digester blowers will have redundancy made available with the use of the existing extended aeration blower as a standby.

A summary of the design criteria used for unit process sizing is included in Section B of the Appendix including:

- Plant Influent and Extended Aeration Influent Flows and Loadings
- Wet Weather Storage Tank Sizing Summary
- Aerobic Digestion Sizing and Sludge Characteristics Summary
- Aerobic Digestion Aeration Sizing Summary
- Flow Control Structure Design Summary

Each process was designed in accordance with the 2014 version of Ten State Standards for Wastewater Facilities and 401 KAR 5:005.

Site Location

A site plan can be found in the plan document which clearly shows the site boundaries and the position of the site in reference to those boundaries.

The facility is designed as an open-air plant, so multiple techniques will be used to minimize the negative impact of the plant improvements towards the local population including odor and noise. The blowers proposed were selected in part because they are regenerative style blowers that are quiet in operation. The aerobic digester will continuously be aerated to maintain aerobic conditions, and the wet weather storage tank proposed will only receive flow during wet weather conditions. The design has attempted to send all solids to the extended aeration plant and flow with few solids to the new storage tank, significantly reducing the potential for odor generation.

Other Information

The improvements can be made without interrupting operations for extended periods. The construction of the new flow control structure will be performed over the existing aeration tank, so safety provisions will be required to safely add grating to support the new flow control structure over the extended aeration tank. Another constructability challenge will be observed when making improvements to RAS/WAS piping and valving, but the Contractor will be required to perform this work in no more than a 4-6 hour time frame to prevent a reduction in plant operating performance during construction.

Appendix

Section A - Process Flow Diagram

Section B - Summary of Design Criteria

Section A – Process Flow Diagram

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Washington, MO 63090

636-432-5029

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SCFM RQD: 16 SCFM
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ELECTRICAL SERVICE: 240V,1Ø

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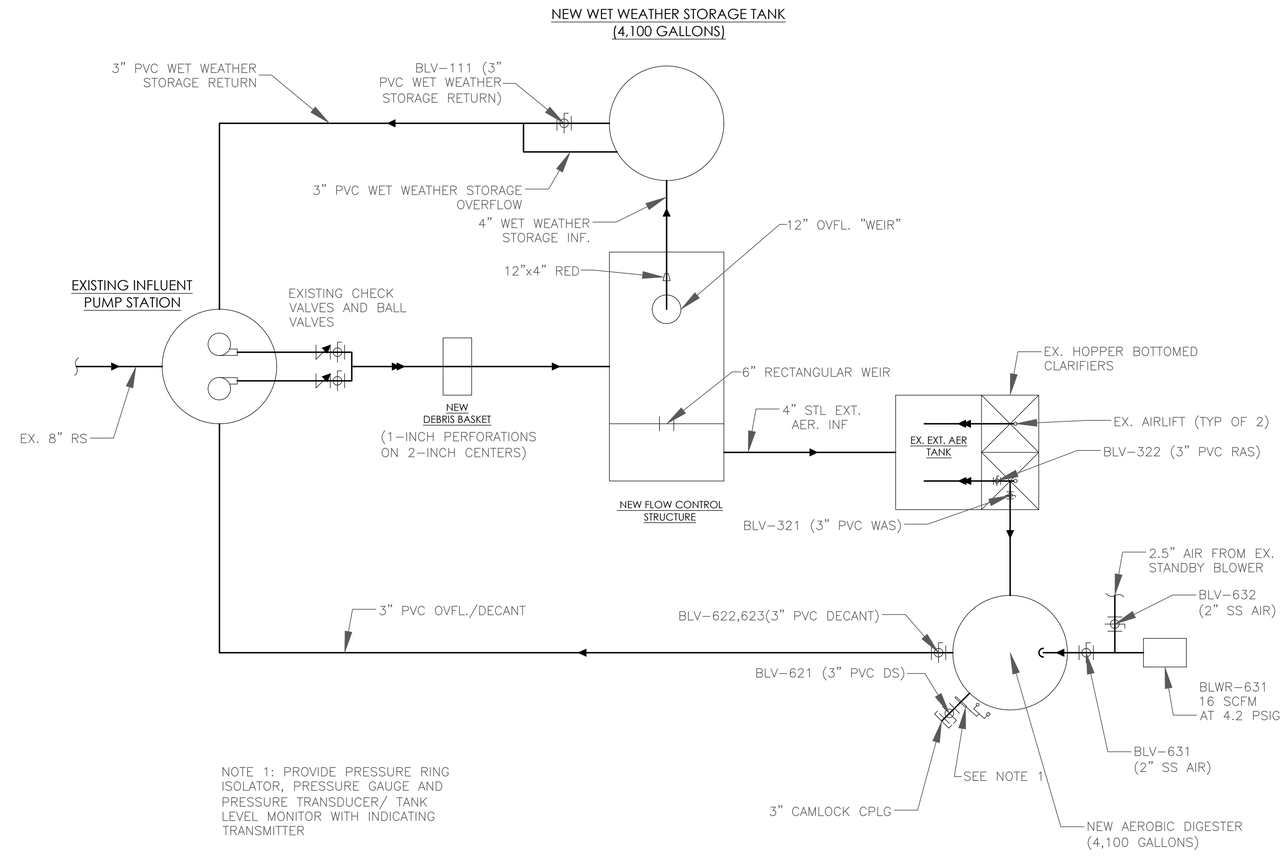

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DRAWING NO:	C06

Section B – Summary of Design Criteria

Summary of Plant Design Criteria & Calculations
Fox Run Plant Improvements
December 3, 2020

	Plant Influent Characteristics		
1	No. of Customers	38	
2	Population Equivalent	114	PE
3	Annual Average Daily Flow	20,000	gpd
4	Maximum Monthly Average Daily Flow	20,000	gpd
5	Peak Daily Flow	60,000	gpd
6	Peak Hourly Flow (w/out Equalization)	80,000	gpd
7	Influent BOD	225	mg/L
8	Influent BOD	37.5	lbs/day
9	Influent TSS	225	mg/L
10	Influent TSS	37.5	lbs/day
11	Influent NH3-N	35	mg/L
12	Influent NH3-N	5.8	lbs/day
13	Influent TKN	40	mg/L
14	Influent TKN	6.7	lbs/day
15	Influent pH	7	
16	Water Temperature	13	deg-C
	Equalized Extended Aeration Influent		
17	Annual Average Daily Flow	20,000	gpd
18	Maximum Monthly Average Daily Flow	20,000	gpd
19	Peak Daily Flow (w/Equalization)	60,000	gpd
20	Peak Hourly Flow (w/Equalization)	60,000	gpd
21	Influent BOD	225	mg/L
22	Influent TSS	225	mg/L
23	Influent NH3-N	35	mg/L
24	Influent TKN	40	mg/L
25	Design Influent TKN	40	mg/L
26	Influent pH	7	
27	MBBR Water Temperature	10	deg-C
	Equalization Tank		
17	No. of Tanks Proposed	1	
18	Diameter of Each	9.92	ft
19	Low Water Level	0.08	ft
20	High Water Level	7.00	ft
21	Variable Volume Available	3,996	gallons
22	Total Volume Available	4,044	gallons
23	Hydraulic Retention Time at Average Flow	4.9	hours

Summary of Plant Design Criteria & Calculations
Fox Run Plant Improvements
December 3, 2020

	Aeration Tank Summary		
24	No. of Aeration Tanks	1	
25	Length	24.0	
26	Width	12.0	
27	Depth	9.0	
28	Volume	19,388	gallons
29	Hydraulic Retention Time at the Average Daily Flow	23.3	hours
30	Hydraulic Retention Time at the Peak Daily Flow	7.8	hours
	Clarifier Summary		
31	No. of Hopper Bottom Clarifiers	2	
32	Clarifier Nos 1 and 2 - Existing		
33	Length	6.0	
34	Width	6.0	
35	Depth	10	
36	Total Surface Area	72	ft2
37	Surface Overflow Rate at Peak Flow	833	gpd/ft2
38	Allowable Surface Overflow Rate for Extended Aeration	1,000	gpd/ft2
	Aerobic Digestion Tank		
39	WAS Sludge Production Rate	0.9	lbs WAS/lb. BODr
40	WAS Sludge Production	33.8	lbs. WAS/day
41	Volatile Solids Concentration	75%	
42	% Volatile Solids Destroyed	38%	
43	Digested Sludge Production	24.2	lbs. DS/day
44	Digested Sludge Concentration	14,000	mg/L
45	Digested Sludge Production	206.7	gpd
46	No. of Sludge Holding Tanks	1	
47	Diameter	9.92	ft
48	Height	7.00	
49	Volume	4,044	gallons
50	Volume per Population Equivalent	4.7	cf/PE
51	SRT	20	days
	Aerobic Digestion Mixing and Aeration		
52	SCFM / 1,000 cf	30	scfm/1,000 cf
53	Airflow Requried to Mix and Aerate	16	scfm
54	No. of Diffuser Laterals in Aer Dig (8.75' Diameter)	3	lateral
55	No. of Diffusers Total in Aer Dig No. 2	6	diffusers
56	Discharge Pressure Required	4.14	psig
57	No. of Aerobic Digester Blowers	1.0	(Standby Shared)
58	Type of Blower to Use	Regenerative	
59	Model No. of Blower	Republic 4RC520-H77	
60	HP of Blower	3.4	
61	Electrical Service	240V, Single Phase	

Flow Control Structure Design Calculations

Airview Average Daily Flow	20,000	gpd
Peak Flow into the Structure	80,000	gpd
Acceptable Flow into the Pipe downstream of Weir	60,000	gpd
Amount of Overflow Targetted	20,000	gpd

Sharp Crested Suppressed Rectangular Weir: $Q = 3.333 * B * H^{(3/2)}$

With P, B, & H in Feet
With Q in cfs
Use for Overflow Pipe
Overflow Rate Estimated for Pipe

Q	0.031	cfs	Calculated
Q	13.89	gpm	Conversion
Q	20,000	gpd	Conversion
P	1	ft	Height of Weir Crest from Bottom of Structure
B	3.14159265	ft	Assumes 12" Diameter Overflow Pipe
H	0.02059458	ft	Head Over the Weir (Approximate)

Conditions Met?

H/P < 0.33	**YES**
H/B < 0.33	**YES**

Contracted Rectangular Weir: $Q = 3.333 * B' * H^{(3/2)}$ $B'=B-0.2H$

With W, P, B, B', & H in feet
With Q in cfs
Use for Rectangular Weir

Q	0.093	cfs	Calculated
Q	41.67	gpm	Conversion
Q	60,000	gpd	Conversion
W	3	ft	Overflow Structure Width
P	0.87	ft	Calculated Based on P Value of Overflow Pipe and Head Calculations
B	0.5	ft	Weir Crest Length
B'	0.46958014	ft	Effective Weir Crest Length (Used in Calculations)
H	0.15209931	ft	Head Over the Weir (Approximate)

Conditions Met?

H/B < 0.33	**YES**
W-B > 4H	**YES**
P > 2H	**YES**