COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF	**)**	
BLUEGRASS WATER UTILITY	**)**	
OPERATING COMPANY, LLC FOR AN	**)**	**Case No. 2022-00432**
ADJUSTMENT OF SEWAGE RATES	**)**	

DIRECT TESTIMONY

OF

JACOB FREEMAN

ON BEHALF OF

BLUEGRASS WATER UTILITY OPERATING COMPANY, LLC

FILED: February 27, 2023

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jacob Freeman. My business address is 1630 Des Peres Road, Suite 140, St. Louis, Missouri, 63131.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am Director of Engineering of CSWR, LLC ("CSWR"), the affiliated company responsible for providing management services and oversight to Bluegrass Water Utility Operating Company, LLC ("Bluegrass Water" or "Company") and all its affiliated utility operating companies. More specifically, I oversee all engineering, surveying, and facility construction for all newly acquired CSWR-affiliated water and wastewater utilities. I also oversee ongoing capital upgrades for those utilities.

Q. ON WHOSE BEHALF ARE YOU FILING THIS DIRECT TESTIMONY?

A. I am filing this testimony on behalf of Bluegrass Water. Bluegrass Water is the utility operating company of CSWR in Kentucky.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL BACKGROUND.

A. I hold a Bachelor of Science degree in Mechanical Engineering from the University of Missouri - Columbia. I am a licensed Professional Engineer in the states of Missouri, Illinois, and Kansas.

Before joining CSWR in January 2019, I was employed for two years by Corrigan Mechanical, a design-build mechanical contractor in St. Louis, Missouri. In that position my responsibilities included designing, estimating, and managing plumbing, HVAC, and process piping construction projects in Missouri and southern Illinois. After leaving that position, I spent eleven years performing similar tasks for Brotcke Well & Pump, one of the Midwest's largest well and pump service contractors, servicing wells and water treatment equipment throughout Missouri, Illinois, Kentucky, and Kansas. Immediately prior to leaving Brotcke, I served as Vice President and Principal in charge of all the company's engineering services. I also managed Brotcke's regional office in Kansas City, Missouri.

Q. PLEASE SUMMARIZE YOUR DUTIES AS THEY RELATE TO BLUEGRASS WATER.

A. I oversee all engineering, surveying, and facility construction for all newly acquired CSWR-affiliated water and wastewater utilities. I also oversee ongoing capital upgrades for those utilities.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE KENTUCKY PUBLIC SERVICE COMMISSION ("COMMISSION")?

A. Yes. I filed testimony in Bluegrass Water's previous rate case (2020-00290). I also offered verified responses in Case No. 2022-215 (responses to first, second, and third sets of data requests); Case No. 2022-104 (responses to first, second, third, and fourth sets of data requests); Case No. 2022-46 (responses to first and second sets of data requests); and Case No. 2022-102 (responses to first and second sets of data requests).

Q. PLEASE DESCRIBE THE SCOPE OF YOUR TESTIMONY.

A. My testimony addresses six points and is arranged as follows:

(1) I will discuss the regime of federal and state regulation of water and wastewater treatment facilities in Kentucky.

(2) I will discuss the scope of Bluegrass Water's wastewater operations in Kentucky.

(3) I will provide an update on three systems specifically discussed in Bluegrass Water's 2020 rate case (Case No. 2020-00290).

(4) I will provide a general update on system repairs at several other wastewater facilities that, while not specifically addressed in the Commission's decision in 2020-00290, were discussed in Bluegrass Water's testimony in that case.

(5) I will detail the condition of the systems and repairs made to date at four systems (Delaplain, Herrington Haven, Springcrest Sewer, and Herrington Haven) that were excluded from the last rate case.

(6) I will discuss a system (Darlington Creek) that was acquired after Bluegrass Water filed its last rate case.

II. STATE AND FEDERAL REGULATIONS OF WATER AND WASTEWATER SERVICE

Q. CAN YOU PLEASE PROVIDE A SUMMARY OF THE REGIME OF STATE AND FEDERAL REGULATIONS THAT AFFECT THE PROVISION OF WATER AND WASTEWATER SERVICE IN KENTUCKY?

A. CSWR must comply with federal and state regulations related to public waters systems and wastewater systems. This includes, among other federal and state statutes, the Safe Drinking Water Act ("SDWA"), Clean Water Act, and applicable provisions of Kentucky law.[1] The Kentucky Energy and Environment Cabinet ("EEC"), through its Division of

[1] The SDWA is applicable to the provision of drinking water service. Similarly, the Clean Water Act is applicable to the provision of wastewater service. While Bluegrass Water is only seeking to modify

Water ("DOW"), has been delegated authority, by the federal Environmental Protection Agency ("EPA"), to enforce the federal SDWA. Accordingly, CSWR must comply with federal and state requirements related to the operation of public water systems. Similarly, the DOW assumed the authority to administer the Clean Water Act requirements that have been implemented through the National Pollutant Discharge Elimination System ("NPDES"). The DOW administers this program through its Kentucky Pollutant Discharge Elimination System ("KPDES").

Q. IS BLUEGRASS WATER REQUIRED TO COMPLY WITH THESE REGULATIONS AS PART OF EVERYDAY OPERATION OF ITS FACILITIES IN KENTUCKY?

A. Yes. The drinking water and wastewater regulations exist to protect the environment and the health of the customers. Those regulations address safety measures that Bluegrass Water employs at all times, including disinfection, testing, and discharge of treated wastewater, among others.

Q. DID YOU FIND, UPON TAKING OWNERSHIP OF THE ACQUIRED SYSTEMS, THAT THERE WERE ANY REGULATORY COMPLIANCE ISSUES THAT NEEDED TO BE RECTIFIED?

A. Yes. Many of the systems Bluegrass Water purchased had ongoing violations with the DOW. Through Agreed Orders, Bluegrass Water is working with the DOW to address those issues as expeditiously as possible.

wastewater rates and not its water rates, this section discusses the federal and state regulatory regime applicable to both water and wastewater service.

Q. HOW DOES BLUEGRASS WATER UTILIZE AGREED ORDERS?

A. Before Bluegrass Water acquires discharging wastewater facilities in Kentucky, it engages with the DOW to: (1) identify current problems at the wastewater facilities that it seeks to acquire, (2) set out the remedial measures necessary to bring those facilities into compliance, and (3) establish a schedule for completing this remediation. Where required, Bluegrass Water and its third-party consultants apply for construction permits to implement improvements at facilities. Bluegrass Water will continue to engage the DOW through the negotiation of Agreed Orders.

Q. WOULD YOU DISCUSS SOME OF THE ISSUES THAT BLUEGRASS WATER ATTEMPTS TO RESOLVE THROUGH THE USE OF AGREED ORDERS?

A. As mentioned, the Company works with the DOW, through the negotiation of Agreed Orders, to identify, disclose, and establish corrective action plans aimed at correcting legacy violations identified at each site and ensuring each facility is in adequate condition and is adequately equipped to reliably comply with all relevant environmental regulations. These corrective action plans often involve making repairs to facility treatment equipment where facilities have fallen into disrepair and can no longer reliably treat to permitted limits. In some cases, engineering evaluation and operational observation show that repairs alone will not be adequate for a facility to achieve consistent compliance and more robust process improvements must be implemented enhancing the facilities treatment capabilities.

Q. DOES BLUEGRASS WATER NEED EEC APPROVAL FOR ANY OF THE REPLACEMENT / REPAIR WORK IT DOES ON ITS SYSTEMS?

A. Yes. Projects which modify or add to the treatment process, rated capacity, or discharge location of a discharging wastewater facilities require EEC and DOW permitting to

complete. These projects are also subject to Certificate of Public Convenience & Necessity ("CPCN") applications and approval processes.

Q. WHAT ENVIRONMENTAL COMPLIANCE ISSUES HAS BLUEGRASS WATER ENCOUNTERED WITH ITS NEW WASTEWATER SYSTEMS?

A. The wastewater systems acquired in the Commonwealth primarily have instances of noncompliance in their failure to comply with permit limits. Bluegrass Water has found in engineering analysis and operational observation that this continues to be true for most of the facilities Bluegrass Water has acquired since its last rate case. These newly acquired facilities will require process improvements (except for the Darlington Creek facility) in addition to repairs of existing infrastructure to reliably meet permitted limits, which is discussed in the individual testimony for each system. Beyond physical improvements, Bluegrass Water maintains high standards for its contract operators that ensures that facilities are operated properly and will not fall short of permit limits due to operational neglect, lack of expertise, or improper operation of treatment systems.

Bluegrass Water has also discovered, at some of its acquired systems, a failure to complete discharge monitoring reports (DMRs). In some cases this reflects reports that are completely missing, and other specific measurements missing from an otherwise completed report. Bluegrass Water has a robust computerized maintenance management system which issues work orders for all required testing to ensure that no required testing or reports are missed, skipped, or submitted incomplete. This system also helps to ensure that any other managerial or operational shortcomings related to facility operations, testing, documentation, and maintenance requirements under previous ownership are resolved and properly completed moving forward.

III. BLUEGRASS WATER SCOPE OF OPERATIONS

Q. What is the scope of the Bluegrass Water operations in Kentucky?

A. Bluegrass Water purchased its first systems in Kentucky (Kingswood and Persimmon Ridge wastewater) in September 2019. Since that time Bluegrass Water has purchased several other water and wastewater systems. To date, Bluegrass Water owns and operates twenty wastewater systems in Kentucky.[2] The following is a list of the twenty Bluegrass Water wastewater systems, the type of system, and the date of purchase:

FACILITY	TYPE	DATE OF PURCHASE
Kingswood	Extended Aeration	September 2019
Persimmon Ridge	Aerated Lagoon	September 2019
Brocklyn	Extended Aeration	September 2019
Airview	Extended Aeration	September 2019
Lake Columbia	Extended Aeration	September 2019
LH Treatment	Extended Aeration	September 2019
Fox Run	Extended Aeration	September 2019
Golden Acres	Extended Aeration	September 2019
Great Oaks	Extended Aeration	September 2019
Timberland	Extended Aeration	April 2020
River Bluffs	Extended Aeration	May 2020
Arcadia Pines	Non-Discharging – Facultative Lagoon	November 2020
Carriage Park	Non-Discharging – Facultative Lagoon	November 2020
Marshall Ridge	Non-Discharging – Facultative Lagoon	November 2020
Randview	Non-Discharging – Facultative Lagoon	November 2020
Delaplain Disposal	Extended Aeration	February 2021
Herrington Haven	Extended Aeration	February 2021
Springcrest Sewer	Non-Discharging – Septic System	February 2021
Woodland Acres	Extended Aeration	March 2021
Darlington Creek	Extended Aeration	March 2022

Q. HOW DOES CSWR IDENTIFY QUALIFIED CONSTRUCTION PARTNERS?

[2] While not the subject of this rate case, Bluegrass Water also owns and operates four drinking water systems associated with the 2020 acquisition of Center Ridge Water District.

A. CSWR, and its affiliate utility operating companies, typically rely upon recommendations from its third-party engineering consultants, contract operators (who are locally based) and construction managers to identify the group of contractors from which it will request bids on construction projects.

Q. HOW DOES CSWR SELECT A CONSTRUCTION PARTNER FOR SPECIFIC KENTUCKY PROJECTS?

A. When CSWR identifies a construction project that needs to be completed, it will work with its third-party engineering consultant to prepare a bid package describing the project, the timeline, and any other necessary parameters. Once bid packages are assembled, reviewed, and approved by the third-party engineering consultant and CSWR, the bid packages are sent out to our third-party construction manager who will then re-estimate the project and solicit bids from local contractors. Once bids are received, they are evaluated by our third-party construction manager for cost and completeness. A recommendation is then typically made of the lowest cost, responsive bidder to perform the construction project. A purchase order is then issued for the construction project.

Q. ARE ANY OF THE CONSTRUCTION OR ENGINEERING PARTNERS AFFILIATED WITH CSWR?

A. No. While CSWR employs operational, design and construction partners to manage third-party engineering and construction contractors, CSWR does not have, within its organization structure, any engineering, construction, or operations affiliates. Thus, all of the engineering / construction partners are independent third parties and the engineering / construction contracts are reached through arms-length contracts.

Q. IN ADDITION TO FINDING QUALIFIED CONTRACTORS AND SEEKING BIDS, ARE THERE OTHER DUE DILIGENCE MEASURES BLUEGRASS WATER TAKES BEFORE MAKING IMPROVEMENTS TO THE SYSTEMS IT HAS PURCHASED?

A. Yes. Bluegrass Water ensures that any replacements, repairs, and maintenance are necessary prior to completing them. Where possible, Bluegrass Water will use methods that are less expensive to reduce the cost customers ultimately pay. For instance, Bluegrass Water routinely analyzes the economics of connecting to third parties for wastewater treatment.

IV. UPDATES TO SYSTEMS ADDRESSED BY THE COMMISSION IN CASE NO. 2020-00290

Q. DID YOU PARTICIPATE IN BLUEGRASS WATER'S LAST RATE CASE?

A. Yes. I filed testimony in that proceeding and was the Company's primary witness on the condition of most of acquired systems and the improvements that had been undertaken or were planned for those systems. In that light, the Commission made findings about upgrades that were planned for the Brocklyn, Delaplain and River Bluffs sewage treatment facilities. I provide additional information on these systems below.

A. Brocklyn

Q. ARE YOU FAMILIAR WITH THE COMMISSION'S DISCUSSION IN THE LAST RATE CASE REGARDING THE BROCKLYN WASTEWATER FACILITY?

A. Yes. At pages 28-30 of that decision, the Commission expressed its belief that "there is a need to take action at Brocklyn to repair a significant issue with the existing plant" and that Bluegrass Water had explored "some alternatives to building a new package treatment plant in that it was initially attempting to simply repair the system." Finally, the Commission found that Bluegrass Water had "not yet explored all reasonable alternatives with respect to the proposed new sewage treatment plant at Brocklyn and, therefore, that the required CPCN should be denied without prejudice."

Q. HAS BLUEGRASS WATER FILED FOR A CPCN FOR THE REPLACEMENT OF THE BROCKLYN WASTEWATER TREATMENT PLANT?

A. No.

Q. WHY NOT?

A. Bluegrass Water has continued to maintain and repair the existing Brocklyn facility. Bluegrass Water will seek Commission approval prior to either replacing the current facility or, in the event that it is a more economical option, connecting to the City of Richmond.

B. Delaplain

Q. ARE YOU FAMILIAR WITH THE COMMISSION'S DISCUSSION IN THE LAST RATE CASE REGARDING THE DELAPLAIN WASTEWATER FACILITY?

A. Yes. At pages 31-32, the Commission recognized that the Delaplain facility suffered from flows that exceeded its design capacity and which may warrant an expansion of the facility. Additionally, the Commission pointed out that Bluegrass Water had engaged in preliminary discussions to connect the Delaplain facility to the city of Georgetown. Given

these two potential options, the Commission denied a CPCN for the proposed expansion without prejudice until Bluegrass Water had thoroughly examined the absence of wasteful duplication and the reasonable least cost alternative.

Q. HAS BLUEGRASS WATER COMPLETED ITS ANALYSIS AND APPLIED FOR A DELAPLAIN CPCN?

A. Yes. As discussed in more detail later in my testimony, Bluegrass Water has completed its analysis of the cost to expand the Delaplain facility as compared to the cost of connecting to the Georgetown municipal system. As reflected in that CPCN application (2022-00104), Bluegrass Water believes that the Delaplain expansion is the least cost alternative and requested authority to undertake the Delaplain project in that proceeding, which remains pending.

C. River Bluffs

Q. ARE YOU FAMILIAR WITH THE COMMISSION'S DISCUSSION IN THAT ORDER REGARDING THE RIVER BLUFFS WASTEWATER FACILITY?

A. Yes. At pages 32-35, the Commission addressed the proposed improvements for the River Bluffs facility. While it noted that the evidence "supported the need [for the improvements] and the absence of wasteful duplication", the Commission expressed concerns that "several of the construction items proposed were significantly over budget." Given this, the Commission adjusted Bluegrass Water's rate base to "the extent those construction items went over budget." That said, however, the Commission also allowed Bluegrass Water the opportunity to demonstrate in this case "that the additional costs were

for capital spending at River Bluffs that was needed and did not result in wasteful duplication."

Q. WOULD YOU DESCRIBE THE CONDITION OF THE RIVER BLUFFS FACILITY WHEN IT WAS ACQUIRED BY BLUEGRASS WATER?

A. The River Bluffs facility had a long history of non-compliance, especially for ammonia and suspended solids. Much of the steel treatment equipment and the structure of the treatment plant itself were severely corroded, causing suboptimal performance and raising concerns about plant safety. Additionally, the wiring in the control box at the lift station was in such poor condition that it raised electrocution concerns. The influent system was also in poor condition, with major components improperly installed.

Q. DO YOU HAVE ANY PICTURES THAT DEPICT THE NATURE OF THE PRELIMINARY PROBLEMS AT RIVER BLUFFS?

A. Yes. The following pictures demonstrate some of the problems.

Severe corrosion and rust found throughout the River Bluffs facility.

Unsafe wiring in the lift station control box.

Improper influent line installation.

Q. DO YOU BELIEVE THAT THE DESCRIPTION OF THE RIVER BLUFFS FACILITY, AS PROVIDED IN THE LAST CASE, WAS A THOROUGH DEPICTION OF THE CONDITION OF THAT TREATMENT PLANT?

A. No. At the time of the last rate case, the acquisition of the River Bluffs facility had only recently closed, and Bluegrass Water had not yet fully understood the issues with the River Bluffs facility, which were only fully realized through ongoing operational experience. Upon further operations at the River Bluffs system, it became clear that the facility was in

significantly worse condition than had been initially identified in both the prior rate case testimony and the third-party engineering partner's pre-acquisition evaluation. For instance, while steel deterioration had been noted, the scope of steel work required at the facility had been significantly underestimated. Specifically, a substantial amount of the steel infrastructure, including the steel tanks, the aeration piping, walkways, handrails, and interior tank baffling, was in a severely deteriorated condition.

Q. DO YOU HAVE ANY PICTURES THAT DEPICT THE EXTENT OF THE STEEL DETERIORATION?

A. Yes, the following pictures show the extent of the steel deterioration that had occurred at the River Bluffs system.

Examples of severe rust damage present throughout the facility before repairs

Q. WHY WAS IT IMPORTANT THAT THE RIVER BLUFFS RUST ISSUES BE REMEDIED?

A. The River Bluffs rust issues needed to be repaired to: (1) ensure that the tanks did not leak untreated wastewater into the environment, (2) maintain proper treatment processes, (3) allow for safe operation, and (4) extend the useful life of the plant.

Q. DID THE ADDITIONAL STEEL DETERIORATION RESULT IN A HIGHER REPAIR COST AT RIVER BLUFFS?

A. Yes. Bluegrass Water realized that repairs would necessarily include: (1) replacing damaged catwalks; (2) patching tank leaks; and (3) replacing damaged sections of wastewater plant piping and air headers. As the system was evaluated during operations, however, it became clear that the number of air leaks and the deteriorated aeration diffusers had reduced the efficiency of aeration treatment. As a result, replacement of the aeration

piping and diffuser system was also required to ensure proper treatment could occur in the system. Similarly, the return activated sludge lines, clarifier skimmer, and waste activated sludge lines had deteriorated in the plant and been replaced with PVC lines. Rather than running these lines to the appropriate locations in the treatment process, the previous owners had simply terminated these return lines at a point that matched the length of pipe on hand. This caused issues with plant function by not properly distributing the active sludge in the treatment process. As a result, these lines also required replacement.

Q. DO YOU HAVE A PICTURE THAT SHOWS THE REPAIRS MADE TO DETERIORATED STEEL EQUIPMENT?

A. Yes. The following pictures show the repairs and replacements made to deteriorated steel equipment at the River Bluffs facility.

New aeration piping (header drops and valving), new catwalk and handrails.

Repaired and recoated sludge holding tank.

Repaired tank exterior.

Q. WERE THERE OTHER PROBLEMS AT RIVER BLUFFS, OTHER THAN THE EXTENT OF STEEL DETERIORATION, THAT BECAME APPARENT AFTER BLUEGRASS WATER HAD COMMENCED OPERATIONS?

A. Yes. In addition to the issues with rust and deterioration throughout the plant, it became apparent that much of the equipment had prematurely reached the end of its useful life due to past operational neglect. For example, the sludge holding tank was completely filled with solid impacted sludge. The solid sludge resulted in a blower failure due to the air

system pushing into a "dead head" of solid sludge. As a result, air could not escape through the sludge, backpressure increased and one of the blowers burned out.[3] After Bluegrass Water commenced operations, the blower was temporarily repaired and the sludge holding basin pumped out. That said, however, the other blower has also reached the end of its useful life and will also need to be replaced. The delivery of the new blowers and controls, which were originally slated to arrive on 7/29/2022, have been repeatedly postponed by suppliers citing COVID-related supply chain delays.

Sludge-holding tank full of impacted sludge and damaged blowers.

Q. HAS BLUEGRASS WATER IDENTIFIED ANY ISSUES WITH THE DISINFECTION SYSTEM WHICH NECESSITATED ADDITIONAL CAPITAL SPENDING?

A. Yes. As mentioned, River Bluffs has historically struggled with ammonia and suspended solids limits. Since acquisition, however, the system has also struggled to comply with *E.coli* and total residual chlorine ("TRC") limits which are indicative of inadequacies in

[3] Arguably both blowers were undersized to operate the three package plants that made up the River Bluffs facility.

the disinfection system. Rather than utilizing a proper tablet feeder, previous ownership had been simply dumping tablets into the troughs at the end of the two primary treatment trains and using the third plant as an improvised contact chamber.

Upon acquiring the system, CSWR installed proper tablet feeders for chlorination and has been working on completing a small contact chamber for dechlorination as well. This is necessary to ensure that the plant can achieve consistent compliance with disinfection limits and prevent the release of harmful bacteria into the environment, while simultaneously preventing the release of elevated levels of chlorine which can damage the natural life in the receiving waters. To further improve the chlorination process and to increase the effluent quality, diffusers are also being run through the chlorine contact chamber to increase dissolved oxygen levels.

Form work for new dechlorination chamber.

Q. DID BLUEGRASS WATER IDENTIFY ANY ISSUES WITH THE RIVER BLUFFS COLLECTION SYSTEM WHICH REQUIRED ADDITIONAL CAPITAL SPENDING?

A. Yes, in addition to the mentioned treatment problems, the River Bluffs collection system was also in poor condition, with major components improperly installed. Specifically, two lift stations in the collection system had a long history of failures which caused backups into customer homes. Evaluation of these lift stations showed that the pumping systems and control systems had reached the end of their useful lives and could no longer be reliably repaired without an expectation of additional backups.

Q. WHAT REPAIRS HAVE BEEN MADE TO MITIGATE THE PROBLEMS WITH THE RIVER BLUFFS COLLECTION SYSTEM?

A. Bluegrass Water has overhauled the two lift stations with a new duplex grinder pump system as well as new control systems to prevent further service interruptions and damage to customer property.

Q. DO YOU HAVE ANY FINAL THOUGHTS ON THE NEED FOR THE ADDITIONAL INVESTMENT AND REPAIRS THAT WERE REQUIRED AT THE RIVER BLUFFS FACILITY?

A. Yes. While the condition of the system required more investment in initial repairs than originally projected, the repairs and renovations undertaken were essential and did not represent wasteful duplication. All of the improvements discussed above have been aimed at: (1) ensuring that the system can achieve consistent compliance with environmental limits; (2) providing safe and reliable service to customers; (3) preventing further malfunctions that interrupt service and damage customer property; and (4) restoring the facility to a safe and functional condition. It is the mission of Bluegrass Water to renovate these neglected systems to bring them into compliance and allow for safe and reliable

service to customers while minimizing rate impact. All of the steps taken at River Bluffs were consistent with this mission.

V. GENERAL UPDATE TO ADDITIONAL SYSTEMS

Q. IN ADDITION TO THE SPECIFIC IMPROVEMENTS MADE TO THE RIVER BLUFFS FACILITY, DO YOU HAVE AN UPDATE ON REPAIRS AND IMPROVEMENTS MADE AT OTHER BLUEGRASS WATER FACILITIES?

A. Yes. Since acquisition of its systems in Kentucky, repairs, improvements, and equipment replacement have continued in an effort to rehabilitate the neglected systems. The intent of this work is to bring facilities into compliance with environmental regulation, provide safe and reliable service to customers, and to reduce the ongoing operational expenses at facilities and therefore the rate impact of the system operations. In this regard, I would like to direct the Commission's attention to efforts being undertaken at the Great Oaks, Airview, Fox Run, Golden Acres, Persimmon Ridge, and Randview facilities. Each of these systems was owned and operated by Bluegrass Water at the time that it filed its 2020 rate case.

A. Great Oaks

Q. WOULD YOU SUMMARIZE THE CONDITION OF THE GREAT OAKS WASTEWATER TREATMENT FACILITY WHEN BLUEGRASS WATER FILED ITS LAST RATE CASE?

A. Yes. At the time of its last rate case, Bluegrass Water had begun making improvements to the Great Oaks facility including: (1) an overhaul of the influent lift station; (2)

replacement of the diffusers, blower and sludge returns; (3) repairs to steel structures including tanks, walkways, stairs, and handrails; and (4) remove of trash and debris from the clarifier.

Q. WOULD YOU PROVIDE AN UPDATE ON THE EFFORTS TO REHABILITATE THE GREAT OAKS FACILITY?

A. In the last two years, the remaining repairs and replacements in the aeration system have been completed to restore proper treatment. All steel tank repair and recoating work hasbeen completed to extend the life of the treatment plant. The facility's failed digester, which had been leaking into the contact chamber and causing solids and *E.coli* exceedances, has been removed from service completely and replaced with a digester contained in two polymer tanks with dedicated aeration. The new digester tanks: (1) provide greater solids storage capacity and treatment (i.e., a reduction in the organic portion of solids thereby reducing total sludge volume) and (2) allow for greater settling time to reduce the amount of water hauled away with solids and decrease sludge hauling expenses.

Q. DO YOU HAVE ANY PICTURES THAT DEPICT THESE IMPROVEMENTS?

A. Yes, the following pictures show the tank repairs as well as the newly installed digester polymer tanks.

Tanks before and after repair and painting, new digester tanks on concrete pad.

New blowers and controls for replacement digestor system.

B. Airview

Q. WOULD YOU SUMMARIZE THE CONDITION OF THE AIRVIEW WASTEWATER TREATMENT FACILITY WHEN BLUEGRASS WATER FILED ITS LAST RATE CASE?

A. Bluegrass Water has commenced several improvements to the Airview wastewater facility including: (1) removing trash and debris; (2) smoke testing the collection system to identify leaks; (3) renovating the sludge holding tank; (4) repairing fences; (5) repairing sludge return lines; (6) replacing effluent pipe; (7) renovating the aeration treatment system; and (8) repairing the facility access road. In addition, my testimony in that case detailed the need to remove the damaged contact chamber from the receiving creek and make necessary

repairs and to replace the influent bar screen. The Commission granted a CPCN for certain repairs at Airview. *See* 2020-290 at 27.

Q. DO YOU HAVE AN UPDATE ON THESE REPAIRS?

A. Yes, the renovations at the Airview facility have continued, and facility performance has improved. The damaged contact chamber has been removed from the creek, and the accumulated sludge has been removed. This included the installation of a proper tablet feeder for dechlorination following disinfection, preventing damage to aquatic life in the creek from chlorine residuals. Additionally, the severely corroded influent bar screen has been replaced, preventing nuisance solids from entering the treatment process which previously resulted in poor operational performance and damage to aeration piping. Finally, the repairs and recoating of the tank exterior and handrail installation were completed at the Airview facility. This will ensure operator safety and prevent leaks and further deterioration of the tank infrastructure.

Q. DO YOU HAVE ANY PICTURES THAT DEMONSTRATE THE IMPROVEMENTS MADE AT THE AIRVIEW FACILITY?

A. Yes, the following pictures depict the improvements made at the Airview wastewater facility.


Before and after contact chamber removal and new dechlorination tablet feeder


Before and after bar screen replacement.


Before and after tank exterior rehabilitation and handrail installation.

C. Fox Run

Q. WOULD YOU SUMMARIZE THE CONDITION OF THE FOX RUN WASTEWATER TREATMENT FACILITY WHEN BLUEGRASS WATER FILED ITS LAST RATE CASE?

A. The Fox Run facility had piles of trash on site, fencing was in disrepair, the influent lift station had improper pumps installed, and the lift station and collection system were in such a state of disrepair that they regularly dumped partially treated waste into receiving streams. Moreover, tanks and other steel structures exhibited rust requiring sanding, patching, and painting necessary to ensure plant life.

Q. DO YOU HAVE AN UPDATE ON THESE REPAIRS?

A. Since the last rate case, the tank exterior spot repairs and recoating have been completed to prevent deterioration and extend the useful life of the plant. Handrails have also been installed to ensure operator safety.

Q. DO YOU HAVE PICTURES SHOWING THESE REPAIRS?

A. Yes, the following pictures show the described repairs at the Fox Run facility.

Before and after exterior repairs and coating, and handrail installation.

D. Golden Acres

Q. WOULD YOU SUMMARIZE THE CONDITION OF THE GOLDEN ACRES WASTEWATER TREATMENT FACILITY WHEN BLUEGRASS WATER FILED ITS LAST RATE CASE?

A. The primary outstanding problem at the Golden Acres facility was associated with a history of flooding indicative of excessive Infiltration and Inflow ("I&I") flows entering the collection system and poor site grading which routed stormwater into the plant. Further, the effluent pipe was not allowing water to exit the plant at a rate comparable to flows entering the plant during I&I events. This had the effect of compromising the treatment process.

Q. DO YOU HAVE AN UPDATE ON THESE REPAIRS?

A. Yes, Bluegrass Water's investigation into the problems at Golden Acres showed that system flows were primarily caused by a very poorly configured effluent pipe characterized by two sharp turns. These elbows resulted in resistance to flows (especially during high flow periods) causing water to backup into the plant and ultimately to water overtopping the facility tanks. The problem was compounded by the fact that once the facility overflowed, water carried debris into the effluent pipe which further restricted effluent flow.

Since the last case, the effluent pipe has been replaced with a larger pipe and rerouted to eliminate the sharp turns in the piping. This has the beneficial effect of preventing backups and flooding. As a result, the treatment process has been restored and effluent quality improved. Finally, these improvements prevent the premature deterioration of equipment that had become submerged during flooding events.

Q. DO YOU HAVE PICTURES SHOWING THESE REPAIRS?

A. It is difficult to photograph the improvements as both the old and new discharge pipes are subsurface. That said, however, the condition of the receiving waters and outfall serves to demonstrate the massive improvement the piping repairs have had.

Before and after effluent quality. Note white discolored effluent and debris (mostly white toilet paper forming something akin to papier mâché) prior to improvements, and dramatic improvement to clear effluent following resolution.

E. Persimmon Ridge

Q. WOULD YOU SUMMARIZE THE CONDITION OF THE PERSIMMON RIDGE WASTEWATER TREATMENT FACILITY WHEN BLUEGRASS WATER FILED ITS LAST RATE CASE?

A. Persimmon Ridge had a history of KPDES permit exceedances (primarily biochemical oxygen demand ("BOD"), TRC, *E.coli*, dissolved oxygen, and total suspended solids ("TSS"). Upon commencement of operations, Bluegrass Water observed that four of the system's aerators were out of service and limiting the treatment process. While repairs to the aerators improved system performance, the system was incapable of meeting BOD and ammonia limits during the winter.

Q. HOW DOES BLUEGRASS WATER PROPOSE TO IMPROVE THE PERFORMANCE OF THE PERSIMMON RIDGE SYSTEM?

A. Working jointly with the DOW, it has been determined that that the Persimmon Ridge system was not adequate and further improvements would be required. As a result, Bluegrass Water filed a CPCN application (Case number 2022-0046) to install a two-stage Moving Bed Biofilm Reactor attached growth treatment system and associated equipment to work in conjunction with the existing treatment infrastructure. Additionally, Bluegrass Water applied for an EEC/DOW construction permit. Both the CPCN and construction permit have been approved, and the Company is preparing an RFP for construction of the MBBR. The construction will likely be completed in the summer of 2024.

F. Randview

Q. WOULD YOU SUMMARIZE THE CONDITION OF THE RANDVIEW WASTEWATER TREATMENT FACILITY WHEN BLUEGRASS WATER FILED ITS LAST RATE CASE?

A. The Randview facility is a non-discharging system consisting of two cells. The first cell has a lift station that pumps to the second cell. The second cell then discharges to a drainage field over which a farmer plants crops. Soil in the field is severely over-compacted, which blocks proper flow into the drainage field. Additionally, the preliminary site visits indicated that the second lagoon cell was overflowing a berm into the crop field in an illegal, unauthorized discharge of wastewater. Overgrowth around the lagoon and the lift stations indicated that maintenance or operations activities had not occurred for an

extended period. Effectively, the Randview system had been abandoned. Finally, the Randview systems lacked clear access to the facility.

Q. HOW DOES BLUEGRASS WATER INTEND TO REHABILITATE THE RANDVIEW SYSTEM?

A. In the course of investigating the most economical solution to the problems that plagued the Randview system, Bluegrass Water explored the viability of connecting the system to a nearby municipal treatment system with the city of Mayfield ("Mayfield"). Bluegrass Water has recently filed a joint application (Case No. 2022-00218) for the transfer of ownership of the Randview system to Mayfield. If granted, this will result in the consolidation of the Randview system with the municipal system.

Q. DOES BLUEGRASS WATER TYPICALLY CONSIDER THE VIABILITY OF CONSOLIDATING SEWER SYSTEMS WITH NEIGHBORING SYSTEMS?

A. Yes. Bluegrass Water has considered, within the context of several recent CPCN cases, the possibility of connecting its wastewater system to neighboring systems and avoiding the cost of system upgrades. For instance, in the CPCN application for authority to make system upgrades at Woodland Acres, part of the cost-benefit analysis considered the possibility of connecting the system to the nearest available municipal treatment facility, the city of Shepherdsville. Shepherdsville estimated that the capital cost of connecting to the system ranged from $3.6 to $6.0 million. In addition, Bluegrass Water would incur additional operations costs in the form of higher electric cost associated with lift stations and the pass-through charge from Shepherdsville. Ultimately, the Company determined that the connection to the city system was cost prohibitive at that time.

Still again, in the context of a CPCN application associated with upgrades at Herrington Haven, the Company considered the economics of connecting to either the city of Lancaster or the city of Danville. Without even considering the cost of obtaining easements, the capital cost associated with connecting the Herrington Haven system to one of the municipalities was $3.4 - $4.3 million. As the Commission concluded in granting approval of Bluegrass Water's CPCN application, this was not the most cost-effective solution.

Additionally, in the previously discussed CPCN application for Persimmon Ridge, the Company considered the viability of connecting to the KJC Correctional Institute for Women. There, the Company determined that it would cost $1.9 million to connect to the alternative facility and it would also incur the additional cost of expanding the alternative treatment facility to treat the flows from Persimmon Ridge. Given this, the connection alternative was rejected.

Finally, in the context of the pending CPCN application for Delaplain, the Company considered the economics of connecting the facility to the city of Georgetown. Again, that option was rejected as cost prohibitive. Specifically, Bluegrass Water would incur an approximate cost of $1.3 million to build a force main directly to the Georgetown treatment facility, as well as a to-be-determined cost of expanding the Georgetown facility to handle the wastewater flows from Delaplain. The Delaplain application remains pending.

VI. SYSTEMS EXCLUDED FROM LAST RATE CASE

Q. ARE YOU FAMILIAR WITH ANY SYSTEMS THAT WERE EXCLUDED FROM BLUEGRASS WATER'S LAST RATE CASE?

A. Yes. Because the Commission had not yet approved the Company's acquisition of the Delaplain, Herrington Haven, Springcrest, and Woodland Acres systems, those systems were excluded from the Company's last rate case.

A. Delaplain Disposal Company

Q. ARE YOU FAMILIAR WITH THE DELAPLAIN SYSTEM?

A. Yes. The Delaplain system is an extended aeration facility located in Scott County and serves approximately 338 connections. The system was acquired in February 2021.

The facility is a typical cylindrical configuration with flow equalization and aeration basins around the exterior of the plant and a clarifier in the center of the cylinder. The original treatment process consists of two influent lines: one via gravity from the east side of the facility and the other enters via force main from the west side of the facility which flows to a comminutor designed to grind and remove influent solids, then to a manually-cleaned bar screen which finalizes the pre-treatment removal of solids. The screened wastewater then discharges into the aeration tank which is supplied air by two 50 hp centrifugal blowers. A surge chamber with transfer pump exists and is designed to convey stored wastewater into the aeration tank as needed. The partially treated waste then flows to a circular clarifier equipped with a return-activated sludge system, waste-activated sludge system, and floating scum return piping to the aerobic digester. From the clarifier, the treated wastewater flows to a gaseous chlorination/dechlorination disinfection system prior to discharge.

Q. PLEASE DESCRIBE THE CONDITION OF THE DELAPLAIN SYSTEM AT THE TIME THAT IT WAS ACQUIRED.

A. The facility was in poor condition at the time of acquisition. Many components were aging or had reached the end of their useful life. In addition, some portions of the treatment process had obviously been bypassed when maintenance issues arose instead of being properly repaired. Damaged, inoperable, or inefficient processes at the facility involved steel deterioration, the comminutor at the headworks, the aeration system, the clarifier, and the disinfection system.

Q. PLEASE DESCRIBE THE ISSUES WITH STEEL DETERIORATION.

A. At the time of the acquisition, the steel tanks, catwalks, piping, and equipment at the Delaplain facility all exhibited at least some degree of rust and deterioration, indicating a failure to properly maintain coatings of the facility to extend the useful life of the plant.

Q. DO YOU HAVE PICTURES THE DEPICT THE STEEL DETERIORATION AT DELAPLAIN?

A. Yes. The following pictures show the extent of steel deterioration.

Notable rust on air header, walkways, tank, and transfer piping.

Q. PLEASE DESCRIBE THE ISSUES WITH THE COMMINUTOR AT THE DELAPLAIN SYSTEM.

A. At the time that Delaplain was acquired, the comminutor at the facility headworks was not in use. As a result, there were serious issues with nuisance solids at the facility. It was apparent that the bar screen at the headworks had regularly overflowed due to accumulation of these nuisance solids, and that a large amount of trash and solids had entered the facility, leaving trash throughout the plant. These sorts of nuisance solids adversely affect treatment processes by clogging pipes that convey waste from process to process, disrupt proper aeration, and accelerate deterioration of steel structures where they accumulate and keep steel wet above the surface of wastewater. The loading of trash in the facility was excessive enough that operations staff were frequently shoveling trash from the bar screen, leaving piles of trash on the facility catwalks to drip dry. This created unsanitary conditions for operators, accelerated degradation of steel walkways, and generally indicated that customers were flushing excessive amounts of trash into the system that should not be conveyed to the wastewater system.

Q. DO YOU HAVE A PICTURE THAT DEPICTS THE LOADING OF TRASH IN THE COMMINUTOR?

A. The following picture shows the trash at Delaplain.

Examples of nuisance solids at Delaplain.

Q. PLEASE DESCRIBE THE ISSUES WITH THE AERATION SYSTEM AT THE DELAPLAIN SYSTEM.

A. The Delaplain aeration system was operated with a coarse bubble diffuser system, offering lower air transfer rates than comparable fine bubble diffusers. While good mixing and aeration were occurring, there was evidence of areas where diffusers were in poor condition, aeration piping may have been leaking, and aeration patterns were poorly configured, reducing the efficiency of the treatment process. This is regularly demonstrated by the plant's inability to consistently comply with BOD, suspended solids, and dissolved oxygen limits.

Q. DO YOU HAVE A PICTURE THAT DEPICTS THE PROBLEMS WITH THE DELAPLAIN AERATION SYSTEM?

A. Yes. The following picture shows the unequal aeration patterns at Delaplain.

Coarse air diffusion pattern in aeration basins.

Q. PLEASE DESCRIBE THE ISSUES WITH THE CLARIFIER AT THE DELAPLAIN SYSTEM.

A. Regular exceedances of TSS limits at Delaplain was indicative of a clarifier that was not effectively preventing the release of solids in effluent. A number of problems contributed to this issue, including inefficiencies in the treatment process which led to a reduction in the breakdown of solids in the aeration treatment.

Q. DO YOU HAVE A PICTURE THAT SHOWS SOLIDS PASSING THROUGH THE DELAPLAIN CLARIFIER?

A. Yes, the following picture shows the Delaplain clarifier.

Notable solids passing through clarifier.

Q. PLEASE DESCRIBE THE ISSUES WITH THE DISINFECTION SYSTEM AT THE DELAPLAIN FACILITY.

A. The disinfection system had a number of issues as illustrated by a chronic history of oscillating between *E.coli* and TRC exceedances. The system's failure to effectively disinfect wastewater resulted in the release of harmful pathogens into the environment. Alternatively, the over-chlorination by operations staff in response to these exceedances resulted in damage to the natural microbiology in the receiving waters. Either of these conditions represent violations of permitted limits (regulatory noncompliance) in ways that may have caused damage to the environment.

While some of the equipment was in poor condition in need of repair, this pattern of violations seemed to primarily indicate a failure to properly operate the facility and precisely dose disinfection chemicals, resulting in a cyclical pattern of under-chlorinating until *E.coli* violations occurred, then over-chlorinating until TRC violations occurred.

Q. PLEASE DESCRIBE THE GENERAL CONDITION ISSUES AT THE DELAPLAIN SYSTEM.

A. In addition to the operational and equipment issues discussed, there were various other issues throughout the Delaplain facility at the time of acquisition. Portions of the fencing around the facility were damaged, potentially compromising the site security and allowing members of the public to encounter dangerous treatment equipment or untreated wastewater. Sludge had been allowed to accumulate in various places throughout the facility, a problem made worse by the large amounts of nuisance solids throughout the facility forming matted masses of sludge and rags. Where this occurred, vegetation had begun to grow in the plant structure, an issue that can accelerate damage to the plant and equipment and shorten useful life.

Q. DO YOU HAVE PICTURES THAT DEPICT THESE PROBLEMS?

A. Yes. The following pictures show the sludge and vegetation growth at Delaplain.

Vegetation growth on accumulated sludge and nuisance solids in the plant.

Q. WERE OTHER PROBLEMS OBVIOUS AT DELAPLAIN?

A. Yes. On some preacquisition visits to the plant, it was noted that there was: (1) a smell of oil or paint thinner in some of the influent wastewater; (2) a large number of automotive maintenance rags in the bar screen and screened trash; and (3) an oil sheen on the influent. This indicates a violation of the service agreements with some of the commercial

connections, as well as a failure to enforce those agreements on the part of the previous ownership which had allowed oil products and trash that is harmful to the wastewater treatment process to enter the facility. Bluegrass Water is working to resolve these issues and hold accountable commercial connections when improper materials are allowed to enter the domestic wastewater sewers.

Q. DO YOU HAVE A PICTURE SHOWING THE REFERENCED OIL SHEEN?

A. Yes. Attached is such a picture.

Oil sheen on wastewater indicating failure in pretreatment from commercial clients.

Q. HAS DELAPLAIN HAD A HISTORY OF EFFLUENT VIOLATIONS?

A. Yes. As alluded to above, the primary issue at Delaplain was a chronic history of effluent limit violations indicating inadequacies in the existing treatment process. The consistent history of BOD and TSS violations represents a fundamental failure to effectively treat waste in the processes currently in place at the facility. This sort of history is unacceptable and must be resolved and will require significant process changes at the facility.

Q. DO YOU HAVE A TABLE THAT DEPICTS THESE TREATMENT VIOLATIONS?

A. Yes. Schedule JF-1 shows a three-year compliance history by quarter as reflected in the EPA Enforcement and Compliance History Online ("ECHO") database.

Q. WHAT ACTIONS HAS BLUEGRASS WATER TAKEN TO IMPROVE THE DELAPLAIN SYSTEM?

A. Since acquisition, Bluegrass Water has primarily implemented repairs and operational improvements to the Delaplain system. Areas where nuisance solids and sludge have accumulated have been cleaned out preventing vegetation growth in the plant and preventing adverse effects of nuisance solids in the treatment plant. As part of the design process for the work included in the construction permit with the Division of Water and the CPCN application to the Commission, soil borings were completed throughout the site. Finally, the influent lift station only had one functional pump installed. In order to reduce the possibility of pump failure, service interruptions, backups and sanitary sewage overflows, Bluegrass Water has installed the required redundant pump.

Q. PLEASE DESCRIBE REMAINING PROBLEMS AT THE DELAPLAIN WASTEWATER SYSTEM AND HOW THE COMPANY PROPOSES TO ADDRESS THESE PROBLEMS.

A. As indicated, the primary issue with the Delaplain facility is its general inability to treat to permitted limits using the processes currently in place. This has resulted in regular violations of BOD, TSS, and Ammonia limits. The Company has determined that the facility must undergo process improvements to ensure that it can consistently comply with these permitted limits. Ultimately, two projects have been proposed and presented in a CPCN application to enhance the facility's ability to meet the permitted limits: (1) the

installation of a MBBR treatment system and (2) the installation of solids handling enhancements.

Q. PLEASE DESCRIBE THE PROPOSED MBBR TREATMENT SYSTEM.

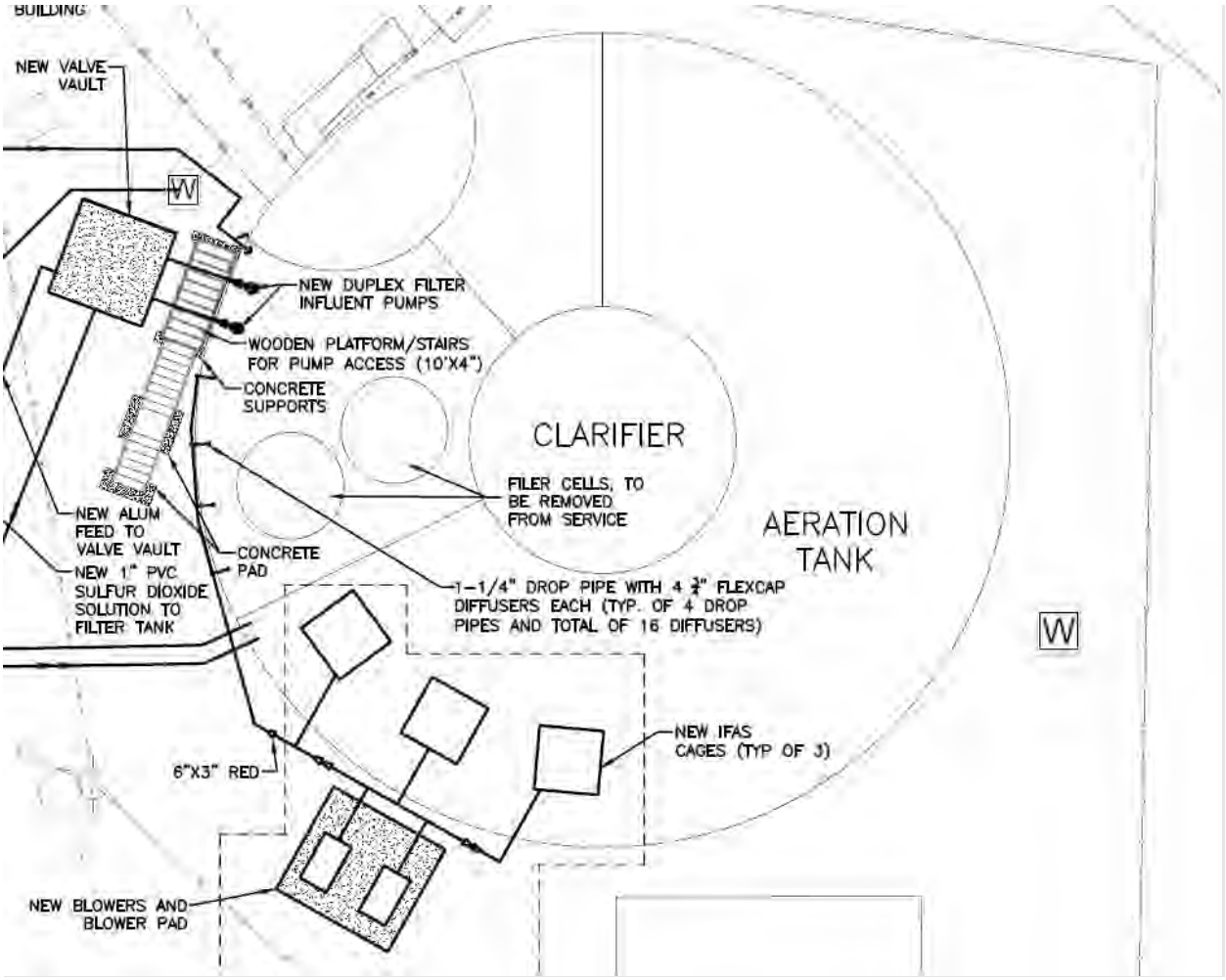
A. The MBBR treatment system involves the installation of three media cages inside the existing Delaplain facility aeration tankage. This will also include new blowers, control systems, pads and structures for the new blowers, new aeration piping valves and diffusers, and electric distribution to the new equipment.

As more fully described in the CPCN application, the MBBR option was selected as the best way to ensure consistent compliance with BOD and Ammonia limits while minimizing rate impact compared to other alternatives. The attached growth treatment process will also result in significantly more biological reduction of solids, reducing total solids in the facility and significantly reducing sludge hauling costs.[4]

Q. DO YOU HAVE A DIAGRAM SHOWING THE LAYOUT OF THE PROPOSED MBBR EQUIPMENT RELATIVE TO THE CURRENT DELAPLAIN EQUIPMENT?

A. Yes. The following diagram shows how the new Delaplain equipment will be laid out in the event that the Delaplain CPCN is approved.

[4] Other options, including the possibility of connecting to the city of Georgetown municipal treatment facility were studied and presented in the pending CPCN application.



Layout of MBBR cages and blower pads relative to existing aeration tankage.

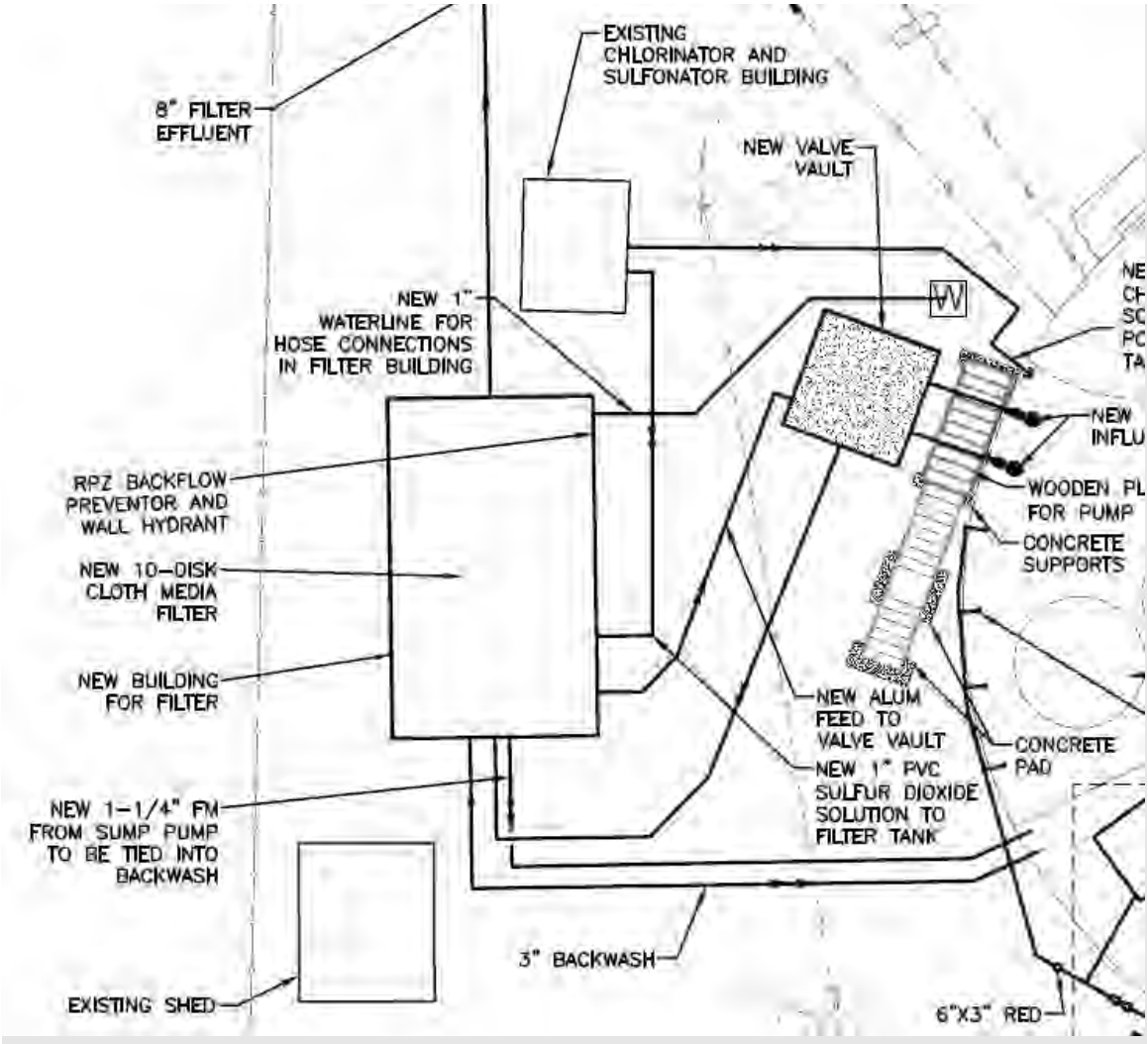
Q. PLEASE DESCRIBE THE PROPOSED SOLIDS HANDLING ENHANCEMENTS.

A. The proposed Delaplain solids handling enhancements include the installation of an alum feed system and a tertiary filtration system. The new chemical feed is intended to aid in sludge coagulation, improving the rate at which solids drop out of suspension in the clarifier. The tertiary filter will remove nearly all remaining solids from effluent prior to

disinfection and return them to the treatment process, enhancing compliance with TSS limits.[5]

Q. DO YOU HAVE A DIAGRAM SHOWING THE LAYOUT OF THE PROPOSED DELAPLAIN SOLIDS HANDLING ENHANCEMENTS?

A. The following diagram depicts how the solids handling enhancement equipment will be installed relative to current equipment at Delaplain.



Layout of filter and alum feed on plant site.

[5] As with the MBBR project, alternatives to the solids handling enhancements were also considered and presented in the CPCN application.

Q. WHAT IS THE STATUS OF THE APPROVAL PROCESS FOR THE DELAPLAIN UPGRADES?

A. Bluegrass Water has received construction permit approval from EEC / DOW for the proposed projects at the Delaplain site and has filed a CPCN application with the Commission seeking approval to undertake the construction. If approved, Bluegrass Water will proceed with issuing an RFP and begin improvement work.

Q. ARE ANY OTHER ITEMS PLANNED FOR THE DELAPLAIN FACILITY?

A. Yes. In addition to these process improvements, basic site repairs and upkeep must be completed in order to ensure the security, safety, and continued operational condition of the facility. This will include rust repair on tanks and piping, piping repair and replacement where damage is present, repairs to fencing, improvements to the access road, etc. These improvements are required to bring the facility into a condition where the facility can be properly operated and to ensure that the facility can remain in good condition moving forward.

B. Herrington Haven

Q. ARE YOU FAMILIAR WITH THE HERRINGTON HAVEN SYSTEM?

A. The Herrington Haven wastewater treatment system is an extended aeration/activated sludge treatment plant located in Garrard County near Lancaster. The facility serves 24 single-family residential connections in the Herrington Haven subdivision.

The facility is a small extended aeration treatment plant consisting of a manually cleaned bar rack screen, a single aeration basin, two hopper bottomed clarifiers, and a chlorine contact chamber. Downstream of the packaged plant there is a V-notched weir

box that is used for dechlorination contact time and flow monitoring. There was also a poorly installed UV disinfection unit temporarily attached on the outlet pipe of the V-notch weir box as a redundant form of disinfection.

Q. PLEASE DESCRIBE THE CONDITION OF THE HERRINGTON HAVEN WASTEWATER TREATMENT SYSTEM AT ACQUISITION.

A. The package plant was aged and showed significant signs of wear and corrosion. The blowers and diffusers were in poor condition and in need of replacement. One of the two return activated sludge lines had broken off into the aeration basin. This prevented the activated sludge from one of the clarifiers from properly mixing in the beginning of the aeration process. Significant sludge accumulation had occurred in the plant with inadequate sludge hauling occurring, physically reducing the treatment capacity and retention time of the facility. This was a problem that was further exaggerated by high I&I flows to the facility during rain events leading to overflows of sludge from the facility on several occasions. This had left sludge on the ground inside the fenced area around the plant. Due to the accumulation of sludge in the plant and high flows during rain events, the downstream V-notch weir box routinely overfilled, exceeding the height of the weir, and making the flow measurement ineffective.

Q. WOULD YOU DESCRIBE THE ISSUES WITH WEAR AND EROSION?

A. All walkways and covers of the different sections of the facility were severely corroded or missing, making the area over the clarifier and contact chamber no longer safe to walk on, and the area around the aeration basin had unprotected edges with no safety rails creating an unsafe condition where operators or visitors could accidentally fall. The rust issues also extend to the steel tankage itself with some areas needing repair to prevent significant

structural damage to the tanks or releases of untreated wastewater in unpermitted discharges/sanitary sewage overflows. The plant is surrounded on three sides by a brick retaining wall, which leaves little to no room for expansion inside the current plant footprint.

Q. DO YOU HAVE ANY PICTURES THAT DEPICT THE EXTENT OF THE WEAR AND EROSION?

A. The following pictures show the significant level of steel deterioration at the Herrington Haven facility.

Rust damaged walkways and no guard rails around aeration basin. Also note minimal aeration activity due to poor condition of aeration system, and minimal area for expansion due to retaining walls.

Q. DO YOU HAVE ANY PICTURES THAT SHOW THE SLUDGE ACCUMULATION WITHIN THE HERRINGTON HAVEN FACILITY?

A. Yes. The following picture shows the sludge accumulation at the facility.

Sludge accumulation inside of fenced area around plant due to plant overflow.

Q. DO YOU HAVE ANY PICTURES OF THE HERRINGTON HAVEN WEIR BOX?

A. Attached is a picture of the Herrington Haven weir box. Importantly, as previously mentioned, the picture demonstrates that the V-notch weir is completely submerged due to the amount of sludge in the weir box. The photo also shows the significant amount of rust on the weir box as well as the poorly installed UV unit on the back corner.

Herrington Haven weir box.

Q. WOULD YOU DESCRIBE THE UPKEEP OF THE AREA SURROUNDING THE ACTUAL PLANT?

A. Inside the fenced area at Herrington Haven there were piles of trash and damaged equipment which had not been properly disposed of. Similarly, the significant sludge accumulation throughout the facility indicates that regular operations activities were not being completed at the site.

Piles of trash left inside fenced area.

Q. HAS HERRINGTON HAVEN HAD A HISTORY OF EFFLUENT VIOLATIONS?

A. Yes, Herrington Haven has had a history of failing to treat effluent to permitted limits. This is demonstrated by the facility's record of regular effluent limit violations. The consistent history of Phosphorus, TSS, Ammonia, *E.coli*, and TRC violations represent a fundamental failure to effectively treat waste in the processes currently in place at the facility. The inability to meet *E.coli* is reflected in the fact that the previous owner had installed not only chlorine disinfection, but also the previously discussed UV disinfection unit.

Q. DO YOU HAVE A TABLE THAT DEPICTS THESE TREATMENT VIOLATIONS?

A. Yes. Schedule JF-2 shows a three-year compliance history by quarter as reflected in the EPA ECHO database.

Q. WHAT ACTIONS HAS BLUEGRASS WATER TAKEN TO IMPROVE THE HERRINGTON HAVEN SYSTEM?

A. Since acquisition, Bluegrass Water has primarily implemented repairs and operational improvements to the system. Areas where nuisance solids and sludge had accumulated have been cleaned out and maintained to restore treatment capacity. The damaged blower and sludge return have been repaired to restore proper treatment to the facility. In addition, the Company has installed new catwalk plates and covers over the clarifier, a chlorine contact chamber and weir box, and guard rails around the aeration basin to make the site safe for operations staff.

Q. DO YOU HAVE PICTURES SHOWING THESE SAFETY UPGRADES?

A. Yes. The following picture shows the newly installed handrails and clarifier cover.

New handrails and basin cover installed for operator safety.

Q. WHAT OTHER IMPROVEMENTS HAS THE COMPANY UNDERTAKEN?

A. The site access and area around and within the fenced area has had rock applied to prevent erosion, stop the growth of nuisance vegetation, and ensure that operations staff can access the facility in any weather condition. All weather access is important because equipment

issues and power interruptions which would require emergency maintenance from operators are most likely to occur during inclement weather events. To keep the site in an orderly condition, a locking cabinet has been installed for disinfection chemical and equipment storage. About 25% of the existing fencing has also been replaced to repair damaged sections. The operations staff noted issues with animals crawling up the discharge piping of the system, creating the potential for a backup and installed screening on the pipe to stop the animals.

Q. DO YOU HAVE ANY PICTURES SHOWING THE SITE IMPROVEMENTS?

A. Yes. The following picture shows the extensive amount of rock installed within the fenced area at Herrington Haven.

New rock applied to site and storage cabinet installed.

Q. PLEASE DESCRIBE REMAINING PROBLEMS AT THE HERRINGTON HAVEN AND HOW THE COMPANY PROPOSES TO ADDRESS THESE PROBLEMS.

A. As indicated, the primary issue with the Herrington Haven facility is its general inability to treat to permitted limits using the processes currently in place. This has resulted in regular violations of Phosphorus, TSS, Ammonia, *E.coli,* and TRC limits.

The Company has determined that the facility must undergo process improvements to ensure that it can consistently comply with these permitted limits. These improvements consist of three projects that have been presented in a CPCN application: (1) the installation of a MBBR treatment system; (2) the installation of solids handling enhancements; and (3) the replacement of the current disinfection system with a peroxyacetic acid treatment system.

Q. PLEASE DESCRIBE THE PROPOSED MBBR TREATMENT SYSTEM.

A. Within its CPCN application, Bluegrass Water proposed to install three media cages inside the existing Herrington Haven aeration tankage. As with the Delaplain facility, this will also include new blowers, control system, pads and structures for the new blowers, new aeration piping, valves, and diffusers, and electrical distribution to the new equipment.

As more fully described in the CPCN application, the MBBR option was selected as the best way to ensure consistent compliance with BOD and Ammonia limits while minimizing rate impact compared to other alternatives. The attached growth treatment process will also result in significantly more biological reduction of solids, reducing total solids in the facility and significantly reducing sludge hauling costs.[6] In addition to aiding in BOD and Ammonia treatment, the MBBR will result in significant reduction of sludge volumes by outperforming the current system in its ability to break down the organic portion of sludge.

Q. PLEASE DESCRIBE THE PROPOSED SOLIDS HANDLING ENHANCEMENTS.

[6] Other options, including the possibility of connecting to the cities of Lancaster and Danville were studied and presented in the pending CPCN application.

A. The second project within the Herrington Haven CPCN application is a new digester to enhance the facility's ability to handle solids. The digester will provide a place for high age sludge to be wasted from the clarifier which reduces sludge volume in the treatment basins; provides greater storage for sludge; and allows for tertiary sludge aeration for further breakdown of the organics in the sludge. This will allow sludge to be partially dewatered prior to hauling which reduces total sludge volumes needing to be treated and allows for less frequent sludge hauling with larger storage. This combination will significantly improve operational efficiency and reduce sludge hauling expenses.[7]

Q. DO YOU HAVE A DIAGRAM SHOWING THE LAYOUT OF THE PROPOSED HERRINGTON HAVEN MBBR AND SOLIDS HANDLING ENHANCEMENTS?

A. Yes. A diagram showing how the new Herrington Haven MBBR and solids handling equipment will be installed in relation to current equipment at the facility is provided as Schedule JF-3.

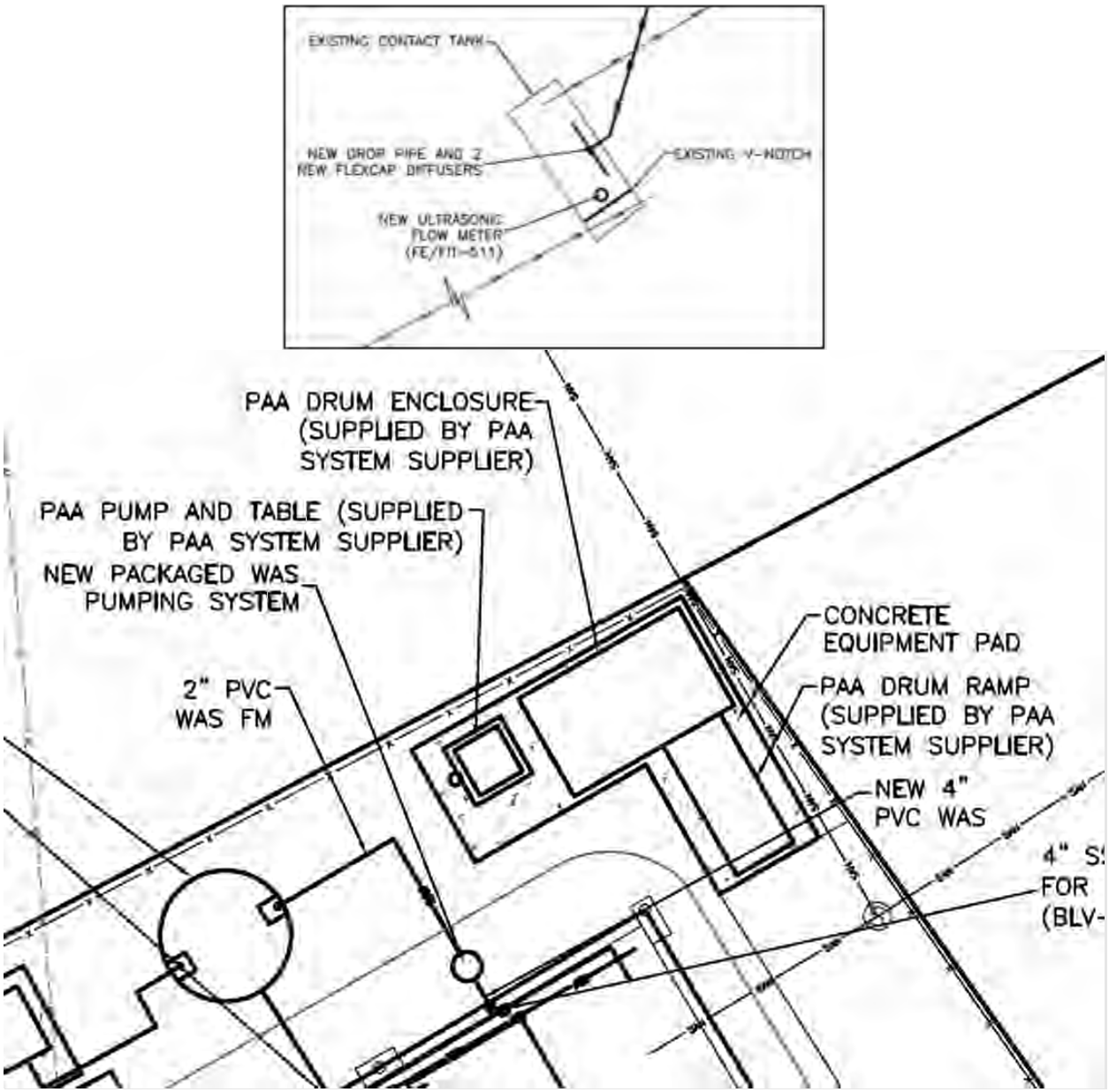
Q. PLEASE DESCRIBE THE NEW DISINFECTION SYSTEM.

A. The third project proposed with the Herrington Haven CPCN application is the replacement of the current disinfection system with a peracetic acid (a/k/a PAA) disinfection system. The discharge monitoring reporting results show numerous violations of both *E.coli* and TRC limits. This typically indicates that the system is poorly configured and is not effectively achieving disinfection. To eliminate both issues, the current treatment system will be converted to peracetic acid disinfection. This will resolve any ongoing TRC issues and will achieve effective disinfection.

[7] As with the MBBR project, alternatives analysis was conducted and presented in the CPCN application.

Q. DO YOU HAVE A DIAGRAM SHOWING THE NEW DISINFECTION SYSTEM AT HERRINGTON HAVEN?

A. Yes. The following diagram depicts the layout of the new peracetic acid disinfection system.



PAA feed in existing contact chamber with post aeration added (top) PAA storage and dosing equipment inside fenced plant area (bottom)

Q. ARE ANY OTHER IMPROVEMENTS PLANNED FOR THE HERRINGTON HAVEN FACILITY?

A. Yes. In addition to these process improvements, basic site repairs and upkeep must be completed in order to ensure the security, safety, and continued operational condition of the facility. This will include rust repair on tanks and piping, piping repair and replacement where damage is present, and other general site improvements or repairs. Collection system repairs will be made to areas where rainwater and groundwater are infiltrating the system as they are identified to eliminate issues with surge flows to the facility. These improvements are required to bring the facility into a condition where the facility can be properly operated and to ensure that the facility can remain in good condition moving forward.

C. Springcrest Sewer

Q. ARE YOU FAMILIAR WITH THE SPRINGCREST SEWER SYSTEM?

A. The Springcrest Sewer wastewater treatment system is a non-discharging septic wastewater system plant located in Jessamine County. The facility was acquired in February 2022 and serves 45 single family residential connections in the Equestrian Woods subdivision.

As a non-discharging facility, Springcrest had once been regulated by Jessamine County and, as a result, it does not have a significant compliance history available for review. The existing facility includes a low-pressure collection system which conveys the liquid phase of wastewater to four 6-foot diameter wet wells which are kept in hydraulic equilibrium with a 10-inch pipe connecting the wet wells. Each wet well is equipped with

a triplex pumping system to convey wastewater to four irrigation zones. Each zone is further subdivided into two subzones such that a portion of the zone may be removed from service for maintenance. The triplex pumping system in each wet well typically operates with two pumps in service and one pump functioning as a standby pump. The system is operated from a masonry block control building with one control panel operating all four pumping systems.

Q. PLEASE DESCRIBE THE CONDITION OF THE SPRINGCREST SEWER WASTEWATER TREATMENT SYSTEM AT ACQUISITION.

A. There were several issues with the facility at acquisition. Some of the pumps in the irrigation system had reached the end of useful life, compromising proper distribution of water into the irrigation fields. Similarly, some of the pumps in the low-pressure collection system's pumping stations had reached the end of their useful life and were risking failures which could cause backups into customer septic tanks and homes.

The irrigation fields were poorly maintained and overgrown. Excessive vegetation growth makes it impossible to maintain the irrigation piping and could cause damage to the irrigation system. The areas around the wet wells and control structure also exhibited significant overgrowth which similarly complicates operations activities and could cause damage to utility assets.

Q. DO YOU HAVE PICTURES THAT DEPICT THE VEGETATION GROWTH AT SPRINGCREST SEWER?

A. Yes. The following two pictures show vegetation growth at the irrigation fields as well as at the control structure.

Overgrowth on irrigation fields.

Overgrowth on control structure.

As can be observed above, while the masonry portion of the control structure was in good condition, the roofing was in poor condition, creating the potential for water damage to the control and power systems which would render the system inoperable.

Q. WOULD YOU DESCRIBE THE FENCING AND SECURITY AT THE SPRINGCREST FACILITY?

A. While the facility does have fencing along the leading edge and a gate, the fencing and gate were also overgrown with vegetation. The previous ownership did not maintain the

fencing or gate, as the electric utility regularly utilizes an easement through the utility site and repeatedly requested that the gate simply be left open, compromising any level of security that could have otherwise been attained.

Q. DO YOU HAVE A PICTURE OF THE STATE OF THE GATE?

A. The following picture shows the condition of the facility gate.

Condition of facility gate at acquisition.

Q. PLEASE DESCRIBE THE CONDITION OF IRRIGATION SYSTEM.

A. While not visible, as the irrigation system is subsurface, there were indications of failed valving in some portions of the system, making it impossible to turn on and off sections of the irrigation piping for maintenance or repair. This also indicates a past failure to exercise the valving in regular maintenance which would extend the useful lives of valves.

Q. WHAT ACTIONS HAS THE COMPANY TAKEN TO IMPROVE THE SPRINGCREST SEWER SYSTEM?

A. Since acquisition, Bluegrass Water has made various improvements to the Springcrest sewer system. Proper vegetation control and upkeep has been restored to the facility, keeping the areas around the irrigation field, wet wells, and control structure clear and

accessible. Controlling and maintaining vegetation growth around the facilities also helps to prevent damage to equipment.

Failed pumps have been replaced in both the wet well system and the low-pressure collection pump stations. Control systems have been repaired and improved. The Company has also added a small blower/mixer to each of the wet well tanks to improve the breakdown of solids which gather in the wet wells and improve the quality of the water being discharged to the irrigation system. This will also reduce the frequency and cost of solids hauling over time by providing some breakdown of the organic portion of the solids and therefore reduced sludge volume.

Q. DO YOU HAVE A PICTURE SHOWING THE IMPROVED VEGETATION MANAGEMENT AT SPRINGCREST?

A. The following picture shows the improved vegetation management at the Springcrest drain field.

Drain field and wet well area mowed and being maintained.

Q. DO YOU HAVE A PICTURE OF A NEWLY INSTALLED BLOWER / MIXER AT A SPRINGCREST WET WELL TANK?

A. Yes. Attached is such a picture.

Small blower and control panel installed at wet well basins.

Q. DOES BLUEGRASS WATER INTEND TO REPAIR THE ROOF AT THE SPRINGCREST CONTROL STRUCTURE?

A. Yes. While not yet completed, materials have been purchased to repair the roof of the control structure. This is necessary to prevent leaking into the building which could damage the power and control systems.

Q. PLEASE DESCRIBE REMAINING PROBLEMS AT THE SPRINGCREST SEWER WASTEWATER SYSTEM AND HOW BLUEGRASS WATER PROPOSES TO ADDRESS THESE PROBLEMS.

A. A few issues remain to be addressed at the Springcrest facility. As described above, repairs to the roof of the control structure are scheduled to be completed in the near future. Further, there are areas in the irrigation system where valves have been damaged, leading to portions of the irrigation zones which are either not functional or cannot be isolated for maintenance. The Company will either repair or replace these valves to restore

proper function to the system and allow for maintenance. The only other outstanding item is the installation of a remote monitoring system, pending approval of the Commission.[8]

D. Woodland Acres

Q. ARE YOU FAMILIAR WITH THE WOODLAND ACRES SYSTEM?

A. The Woodland Acres wastewater treatment system is an extended aeration activated sludge treatment plant located in Bullitt County near Shepherdsville. The facility was acquired in March 2021 and serves 91 single family residential connections in the Woodland Acres subdivision.

The facility includes an extended aeration treatment plant that consists of a manually-cleaned bar rack screen, a single aeration basin, flow equalization basin with two influent pumps (one portable), aerobic digestion, rapid sand filter, and a chlorine contact chamber. Dechlorination is utilized downstream of disinfection.

Q. PLEASE DESCRIBE THE CONDITION OF THE WOODLAND ACRES FACILITY WHEN IT WAS ACQUIRED.

A. The general condition of the Woodland Acres facility at the time of acquisition was poor. The severely corroded condition of the tanks represented a serious structural issue for the plant, with the potential for the tank collapsing without proper repairs to the tanks.

Q. DO YOU HAVE A PICTURE SHOWING THE DETERIORATED CONDITION OF TANKAGE?

[8] The installation of remote monitoring equipment is the subject of a pending CPCN application which would also allow for a limited waiver of the daily visit requirements. Remote monitoring equipment would allow operations staff to remotely track the status of wastewater equipment and would provide notice to operations staff of any abnormal operating condition. In the case of Springcrest sewer, this could prevent overflows from the wet wells which would cause environmental and equipment damage, and potential backups into customer homes and septic tanks.

A. Yes. The following picture not only shows the deterioration of the steel tank bulkhead walls it also demonstrates: (1) the poor condition of the aeration diffusers and drop pipes as well as (2) wiring simply strung across the tank.

Woodland Acres steel tank deterioration.

Q. WOULD YOU DESCRIBE THE CONDITION OF THE AERATION TREATMENT EQUIPMENT AT WOODLAND ACRES?

A. Beyond the issues with the condition of the facility tanks, much of the treatment equipment was in poor condition. Much of the aeration equipment had deteriorated and rusted to the point that it compromised the treatment effectiveness of the facility. As reflected in the previous picture, the aeration pattern in the basin was poor at acquisition, indicating that the diffusers and drop pipes had also deteriorated. As a result, aeration was not providing the necessary oxygen transfer to benefit microorganisms. In addition to the issues with the aeration piping, the blowers themselves were in poor condition and had reached the end of their useful lives. Air headers were rusting, with some locations potentially leaking air reducing the amount of air delivered to the basins.

Beyond the direct aeration process, one of the sludge returns (also driven by the aeration system with an air lift) had been broken off. This resulted in returned sludge not being properly mixed into the aeration basin in the way the facility was designed.

Q. DO YOU HAVE PICTURES THAT SHOWS THE DETERIORATED CONDITION OF THE AERATION EQUIPMENT AND SLUDGE RETURN?

A. The first picture shows the broken sludge return pipe which prevented returned sludge from mixing into the aeration basin. The second picture depicts the coarse aeration pattern in the aeration basin.

Broken sludge return pipe.

Coarse aeration pattern and severe rust in aeration basin.

Q. PLEASE DISCUSS THE CONDITION OF THE CLARIFIER AND DISINFECTION SYSTEM AT WOODLAND ACRES AT THE TIME OF ACQUISITION.

A. In addition to the issues with the aeration system, the clarifier and disinfection systems were deteriorated and in poor condition. The deterioration had reached a point where the skimmer was no longer functioning, allowing large amounts of pin floc to accumulate in the clarifier which would, during times of high flow, be washed out into the receiving waters. This had also led to vegetation growth in a floating mat of pin floc solids.

Additionally, the clarifier weir trough was severely rusted. This deterioration led to larger weir slots which increased the flow rate out of the clarifier thereby reducing the settling time and potentially leading to TSS exceedances.

Q. DO YOU HAVE A PICTURE DEPICTING THE ACCUMULATION OF PIN FLOC IN THE CLARIFIER?

A. Yes. The following picture shows the mat of pin floc in the clarifier as well as some vegetation growing in the pin floc.

Woodland Acres clarifier.

Q. WOULD YOU DESCRIBE THE CONDITION OF THE SAND EQUIPMENT AT WOODLAND ACRES AT THE TIME THAT IT WAS ACQUIRED?

A. Following clarification, the wastewater passed to a nearly nonfunctional sand filter system. The system had not been maintained, leading to a thick layer of sludge forming across the filtration media. As a result, large amounts of vegetation had grown on the sludge, and water entering the filter simply overflowed into the outlet chamber. It is likely that this excessive buildup of solids and vegetation in the filter led to an increased level of TSS in the treated wastewater.

Q. DO YOU HAVE A PICTURE SHOWING THE CONDITION OF THE WOODLAND ACRES SAND FILTER WHEN IT WAS ACQUIRED?

A. Yes. The attached pictures show the accumulation of sludge and vegetation in the Woodland Acres sand filter.

Woodland Acres sand filter.

Q. WOULD YOU DESCRIBE THE CONDITION OF THE DECHLORINATION SYSTEM AT WOODLAND ACRES WHEN IT WAS ACQUIRED?

A. As with the chlorination system, there was no proper means of dosing dechlorination chemicals at the time of acquisition. Instead, dechlorination tablets were placed in

improvised PVC tablet feeder pipes (PVC pipes with caps on one side that have holes drilled in the lower end) and placed in the open top of a T-section of piping on the outfall pipe. This did not provide adequate contact in the effluent stream for dechlorination to occur and also leads to bridging off of the tablets, contributing to the TRC exceedances.

Q. DO YOU HAVE A PICTURE SHOWING THE DECHLORINATION SYSTEM AT WOODLAND ACRES AT THE TIME OF ACQUISITION?

A. Yes. The following picture shows the dechlorination system at Woodland Acres.

Woodland Acres dechlorination system. Also, note deposited sludge in receiving waters confirming the issues with the clarifier and sand filter leading to TSS exceedances.

Q. WOULD YOU DESCRIBE THE CONDITION OF THE WOODLAND ACRES DIGESTER?

A. Like much of the other treatment equipment, the Woodland Acres digester was also in poor condition. Specifically, as with other steel equipment, the digester tanks and aeration piping exhibited serious rust and corrosion. As a result, the aeration of the sludge was poor, slowing the breakdown of the sludge. This also increased sludge hauling expenses. As in the clarifier, there were also issues related to vegetation growing in the digester basin, another indication of poor aeration and mixing in the basin.

Q. DO YOU HAVE A PICTURE OF THE WOODLAND ACRES DIGESTER?

A. Yes, the following picture shows the poor condition of the Woodland Acres digester, including the deteriorated tankage and the growth of vegetation.

Woodland Acres digester.

Q. WOULD YOU DESCRIBE THE CONDITION OF THE COLLECTION SYSTEM AT WOODLAND ACRES?

A. Yes. In addition to the previously discussed issues, there were also indications of problems with the Woodland Acres collection system as well. The facility experiences significant surge flows during and after periods of rainfall, indicating I&I of rain/groundwater into damaged portions of the collection system. These surges into the treatment facility may result in the loss of significant amounts of activated sludge in the facility as well as the removal of the microbiology needed to treat the wastewater in the facility. As a result, the operators had routinely shut off aeration at the facility during rain events in an effort to retain the sludge in the facility. While this does prevent the loss of essential biology in the facility, it means treatment was compromised during rain events.

Q. DO YOU HAVE A PICTURE OF THE AERATION SYSTEM DURING A RAINSTORM?

A. Yes. The following picture demonstrates the condition of treatment when aeration is turned off during a rainstorm in an effort to preserve sludge and microbiology.

Woodland Acres treatment basin during a rainstorm.

Q. WOULD YOU PROVIDE A DESCRIPTION OF THE CONDITION OF THE WOODLAND ACRES SITE?

A. Beyond issues with the treatment equipment, there were other issues with the condition of the Woodland Acres site at acquisition. The tanks had no intact catwalks or handrails to protect operations staff while operating the facility. This was unsafe, as tanks are nearly flush with the ground, and there is the potential for someone to fall into a tank.

At various areas around the site and fencing, vegetation has been allowed to grow out of control, causing damage to the fencing, potential erosion issues, and difficulty in operating the facility.

The Woodland Acres facility access road was poorly maintained and had not recently been re-rocked, making it difficult to ensure all-weather access to the facility for

operations staff. As operational issues are most likely to arise during adverse weather events, it is important to ensure operations staff have some form of all-weather access.

Q. DO YOU HAVE PICTURES THAT DEPICT THESE SITE ISSUES?

A. Yes, the following pictures show the problems with fencing and site access.

Dirt access road with little gravel visible in aerial photos.

Trees and vegetation causing damage to facility fencing.

Q. WHAT ACTIONS HAS BLUEGRASS WATER TAKEN TO IMPROVE THE WOODLAND ACRES SYSTEM?

A. Since acquisition, Bluegrass Water has primarily implemented repairs and operational improvements to the system. Areas where nuisance solids and sludge had accumulated have been cleaned out and maintained to restore treatment capacity. The portions of the

tanks where exterior tank walls were damaged were pumped down and patched to stop leaking from the tanks into the ground. This was necessary to prevent unauthorized discharges of partially treated wastewater. The damaged sludge return lines have been temporarily replaced with PVC, including replacing the missing line to carry waste sludge to the facility digester. Grating panels have been placed over the open treatment basins to make the site safer for operations staff. To provide a proper location for storage of disinfection chemicals and equipment, a small shed has been installed on the property. This will extend the life of the equipment and treatment chemicals and prevent spills of disinfection chemicals. This also aids in maintaining good housekeeping on the site.

Q. DO YOU HAVE PICTURES DEPICTING SOME OF THESE RECENT IMPROVEMENTS?

A. Yes. The following pictures show the installation of grating panels as well as the chemical storage shed.

New handrails and basin covers installed for operator safety.

New storage shed.

Q. DOES BLUEGRASS WATER PLAN OTHER GENERAL IMPROVEMENTS?

A. Yes. In addition to these process improvements that are discussed below, basic site repairs and upkeep must be completed to ensure the security, safety, and continued operational condition of the facility. This will include significant rust repair on tanks and piping, piping repair and replacement where damage is present. This is essential to maintaining the structural integrity of the facility and ensuring proper flow through facility processes without short circuiting or leaking. Collection system repairs will be made to areas where rainwater and groundwater are infiltrating the system as they are identified to reduce the most significant surge flows to the facility. Repairs to facility fencing, including removal of some of the overgrown vegetation, will be completed. The facility access road will be repaired and re-rocked. Grating installation across all tanks will be completed for operator safety and where appropriate, handrails will be installed. These improvements are required to bring the facility into a condition where the facility can be properly operated, achieve consistent compliance, and to ensure that the facility can remain in good condition moving forward.

Q. WOULD YOU DISCUSS THE HISTORICAL COMPLIANCE HISTORY OF WOODLAND ACRES?

A. A review of the Woodland Acres compliance history indicates a history of effluent limit violations, missing or late discharge monitoring reports (DMRs), as well as numerous Notices of Violation ("NOV") issued for these violations. The facility has regularly violated all significant effluent limits including BOD, TRC, *E.coli*, ammonia, and TSS. The previous owners/operators had also failed to submit DMRs for the 12 months leading up to acquisition by Bluegrass Water.

Q. DO YOU HAVE A TABLE THAT DEPICTS THESE TREATMENT VIOLATIONS?

A. Yes. Schedule JF-4 shows a three-year compliance history, by quarter, as reflected in the EPA ECHO database.

Q. DO YOU BELIEVE THAT WOODLAND ACRES IS CAPABLE OF MEETING EFFLUENT LIMITS EVEN IF CURRENT EQUIPMENT IS REPAIRED?

A. No. While there are many treatment issues at the facility, even if all of equipment was repaired and/or replaced, the existing facility would not be capable of consistent compliance with ammonia limits, especially with the ongoing I&I issues compromising treatment. The facility is not equipped to consistently meet the modern ammonia limits even if it were in perfect condition and being operated correctly. As a result, the facility requires process improvements to achieve consistent compliance.

Q. PLEASE DESCRIBE HOW BLUEGRASS WATER PROPOSES TO ADDRESS THESE PROBLEMS.

A. As indicated, the primary issue with the Woodland Acres facility is its general inability to treat to permitted limits, especially ammonia, using the processes currently in place. The Company has determined that the facility must undergo process improvements to ensure that it can consistently comply with these permitted limits. Ultimately, two projects have been proposed and presented in a CPCN application to enhance the facility's ability to meet the permitted limits: (1) the installation of a MBBR treatment system and (2) a Wet-Weather-Overflow prevention system.[9]

Q. PLEASE DESCRIBE THE PROPOSED MBBR TREATMENT SYSTEM.

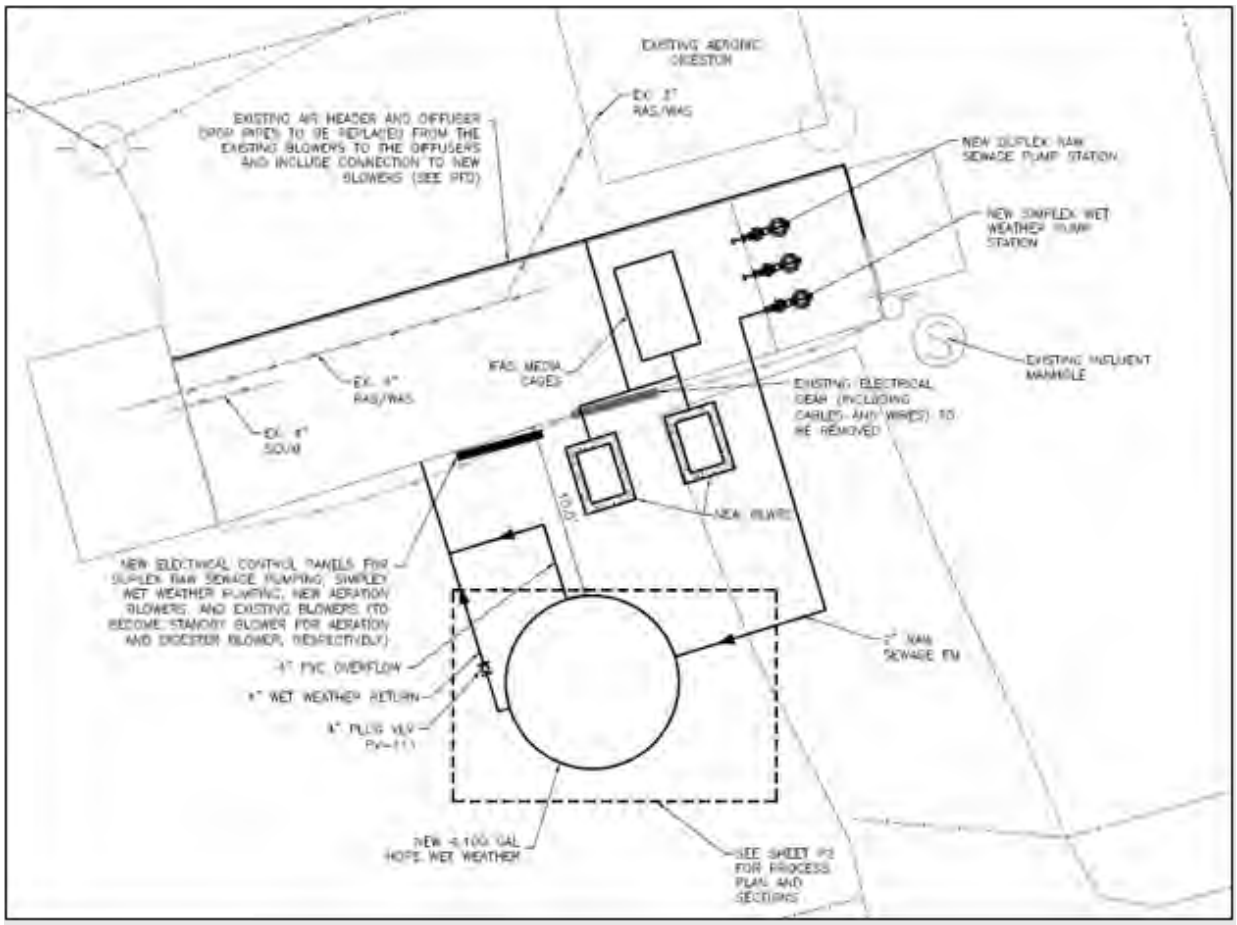
A. Much like the Delaplain and Herrington Haven projects, Bluegrass Water proposes to install an MBBR treatment system consisting of media cages installed inside the existing facility aeration tankage. This will include new blowers, control systems, pads and structures for the new blowers, new aeration piping valves and diffusers, and electric distribution to the new equipment. As more fully described in the CPCN application, this option was selected as the best way to ensure consistent compliance with BOD and Ammonia limits while minimizing rate impact compared to other alternatives.[10]

[9] The CPCN application also included a proposal for converting to a Peroxyacetic Acid disinfection system. That said, the third-party engineer has since determined that the existing chlorine disinfection system can be effectively repaired with a smaller capital investment and therefore that portion of the proposed project will be abandoned in favor of repairing the existing disinfection system to reduce rate impact. The rehabilitation of the dechlorination system will primarily consist of installing proper tablet feeders for chlorination and dechlorination tablets. The renovation of the contact chamber will be accomplished during the tank repairs to the entirety of the facility. These projects will harden the facility against high flows and enable consistent compliance with the permit limitations that the facility has historically struggled to meet.

[10] Other options to the MBBR and the Wet-Weather-Overflow system, including the possibility of connecting to the city of Shepherdsville were studied and presented in the CPCN application.

Q. DO YOU HAVE A DIAGRAM SHOWING THE LAYOUT OF THE PROPOSED MBBR EQUIPMENT RELATIVE TO THE CURRENT WOODLAND ACRES EQUIPMENT?

A. Yes. The following diagram shows how the new MBBR will be laid out relative to the current Woodland Acres equipment.



Layout of MBBR cage in existing tankage, blower pads, control system, and wet weather overflow prevention tankage.

Q. PLEASE DESCRIBE THE PROPOSED WET-WEATHER-OVERFLOW SYSTEM.

A. The second proposed project at Woodland Acres is the installation of a wet weather overflow prevention system. This will supplement the existing flow equalization tank and

provide holding space for wastewater in a polymer tank while excessive flows are coming to the facility. The system also allows operators to store and gradually dose the higher-than-normal wastewater flows that accumulate during rain events. While repairs to the collection system will be part of the ongoing operational maintenance of the system, it is unlikely that it will be possible to completely eliminate all I&I without essentially replacing the entire collection system. As a result, this project will be a more cost-effective way of resolving this issue and therefore minimize the rate impact of addressing the wet weather flows. The placement of the tankage can be seen in the above schematic excerpt.

Q. WHAT IS THE STATUS OF THE WOODLAND ACRES UPGRADES?

A. Bluegrass Water has received construction permit approval from EEC / DOW as well as a CPCN from the Commission. The project is currently being bid out along with the upgrades for Persimmon Ridge and Harrington Haven.

VII. RECENTLY ACQUIRED SYSTEMS

Q. HAS BLUEGRASS WATER ACQUIRED ANY SYSTEMS SINCE THE CONCLUSION OF THE LAST RATE CASE?

A. Yes. Since the completion of the last rate case, Bluegrass Water has acquired a wastewater system called Darlington Creek.

Q. ARE YOU FAMILIAR WITH THE DARLINGTON CREEK WASTEWATER SYSTEM?

A. Yes. The Darlington Creek wastewater treatment system is an extended aeration activated sludge treatment plant located in Campbell County near Alexandria. The facility was acquired in March 2022 and serves 90 single family residential connections. The facility

is a typical extended aeration activated sludge plant that utilizes two separate treatment trains, a digester, chlorine disinfection, dechlorination, and tertiary filtration. The facility has a separate blower building with two blowers which operate the plant and the tertiary filtration system prior to discharge, an onsite backup generator with manual transfer switch, and the site was secured with a wooden privacy fence.

Q. DO YOU HAVE ANY PICTURES THAT SHOW THE BLOWERS AND TERTIARY FILTRATION?

A. Yes, see the attached pictures.

Blowers and tertiary filter in blower building.

Q. PLEASE DESCRIBE THE CONDITION OF THE DARLINGTON CREEK WASTEWATER TREATMENT SYSTEM AT THE TIME OF ACQUISITION.

A. At acquisition, the facility tanks and safety grating over the treatment basins showed significant signs of corrosion and needed repair to ensure that the tanks do not leak wastewater. In addition, grating at the site showed signs of deterioration and needed replacement to ensure operator safety. The air headers are similarly corroded and in need

of repair or replacement to prevent air leaks and reduced treatment. No rem

system was present on the site.

Q. DO YOU HAVE PICTURES THAT DEPICT THE STEEL DETERIO

A. The attached picture show deterioration on the grating and the tanks.

Rusted grating and tanks at time of acquisition.

Q. PLEASE DESCRIBE THE CONDITION OF THE DARLINGT

CLARIFIER?

A. At the time of acquisition, a layer of duckweed had formed over the clar

cause elevated suspended solids levels in effluent and indicates that the scu

the clarifier were not properly functioning. This is likely due to the sc

elevated too high or the scum return being improperly configured, preventi

A. Yes. The attached picture of the Darlington Creek clarifier shows the layer of duckweed growing on the clarifier at the time that the system was acquired.

Thick layer of duckweed in clarifier indicating scum return failure.

Q. WOULD YOU DESCRIBE THE CONDITION OF THE DARLINGTON CREEK SITE?

A. At the time that Darlington Creek was acquired, some areas of the fence and the facility gate needed repair. Moreover, trees were overhanging some portions of the fence which allowed vegetation debris to fall into the plant, adversely affecting the treatment process. Upon closing, it also became clear that the existing backup generator was damaged and not functioning. This appeared to be the result of a lack of maintenance on the unit, which allowed corrosion to build up on generator components.

Q. DO YOU HAVE PICTURES SHOWING THE DETERIORATED CONDITION OF THE BACKUP GENERATOR?

A. Yes. The following pictures show the state of the backup generator at the time that Darlington Creek was acquired.

Rust and damage to the interior of the on-site generator.

Q. WHAT WAS THE CONDITION OF THE TERTIARY FILTER?

A. The tertiary filter was also not functional due to poor maintenance practices. The filter required significant repairs as a result.

Q. DO YOU HAVE A PICTURE OF THE NON-FUNCTIONAL TERTIARY FILTER?

A. Yes. Attached is a picture of the tertiary filter including the damaged membrane.

Damaged membrane on interior of tertiary filter.

Q. WERE THERE CONCERNS WITH THE DISINFECTION SYSTEM AT THE TIME THAT DARLINGTON CREEK WAS ACQUIRED?

A. Yes. At the time of acquisition, Bluegrass Water's third-party engineer was concerned that the Darlington Creek disinfection system provided inadequate contact time following chlorination to achieve proper disinfection of the treated wastewater.

Q. WOULD YOU DESCRIBE THE HISTORICAL TREATMENT PERFORMANCE AT DARLINGTON CREEK?

A. In addition to the issues previously discussed, the facility was flagged in the EPA ECHO system for late or missing submittals for the entire visible DMR history. Confirming the concerns about the disinfection system, sampling since the time of acquisition has confirmed a pattern of *E.coli* and TRC exceedances.

Q. DO YOU HAVE A TABLE THAT DEPICTS THESE TREATMENT VIOLATIONS?

A. Yes. Schedule JF-5 shows a three-year compliance history by quarter as reflected in the EPA ECHO database. (*Note*: while the ECHO system indicates that older DMRs were not received, this has been resolved and the historical data uploaded.)

Q. WHAT ACTIONS HAS BLUEGRASS WATER TAKEN TO IMPROVE THE DARLINGTON CREEK SYSTEM?

A. In the short period of time that it has owned Darlington Creek, Bluegrass Water has made several improvements to the system. The faulty backup generator has been repaired to ensure that power is available to the facility. This will prevent service interruptions and treatment failures in the event of a power outage.

In addition to the generator repair, various issues with the electrical and control systems at the plant have been repaired and reconfigured to ensure proper operation and to have the system ready to operate on the backup power in the event of a power outage. The

tertiary filter has also been repaired. This will ensure the system can maintain compliance with suspended solids limits. This is especially necessary as the facility clarifiers do not (standing alone) provide adequate depth for full compliance with suspended solids limits, making the filter essential to maintaining compliance.

Q. DO YOU HAVE PICTURES THAT SHOW THE IMPROVEMENTS MADE TO THE TERTIARY FILTER?

A. Yes. The attached pictures show the tertiary filters at Darlington Creek both prior to and after the referenced repairs to the tertiary filters.

Darlington Creek tertiary filter before and after repairs.

Q. PLEASE DESCRIBE REMAINING PROBLEMS AT THE DARLINGTON CREEK WASTEWATER SYSTEM.

A. As described, there are still issues that need to be resolved. The facility tanks and catwalks show significant rust and must be repaired to prevent leaks and ensure safe operation of the facility. Damaged sections of the catwalk will be replaced, and the rusted sections of the tank will be sanded to remove rust, patched where necessary and coated to prevent further rusting. The damaged portions of the fencing and the facility gate will also be

repaired to prevent trespassing at the site and to protect the public from exposure to hazardous wastewater and wastewater treatment equipment. Additionally, portions of the aeration headers and pipes that exhibited rust will be repaired and repainted or replaced as appropriate to prevent air leaks that could reduce treatment effectiveness. These repairs should also prevent leaks of wastewater that could result in sanitary sewage overflows. These repairs are needed because compromised treatment effectiveness would result in releases of dangerous pollutants into the environment, and sanitary sewage overflows can cause direct environmental damage and pose a health risk to anyone who is exposed to the sewage. Additionally, an accurate flow meter will be installed to provide greater operational awareness and control of the system. There are some indications of I&I problems that cannot be effectively evaluated absent accurate and continuous flow data, making this an essential improvement. Finally, Bluegrass Water is considering replacing the existing digester with a larger polymer tank digester similar to the one installed at Great Oaks. Such a digester should expand the sludge holding capacity at the facility and reduce sludge hauling expenses.

VIII. CONCLUSION

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

ELECTRONIC APPLICATION OF BLUEGRASS WATER UTILITY OPERATING COMPANY, LLC FOR AN ADJUSTMENT OF RATES
CASE NO. 2022-00432

VERIFICATION

I, Jake Freeman, Director of Engineering, verify, state, and affirm that I prepared or supervised the preparation of the Direct Testimony filed with this Verification, and that Direct Testimony is true and accurate to the best of my knowledge, information, and belief after a reasonable inquiry on this 27th day of February, 2023.

Jake Freeman
Director of Engineering

STATE OF MISSISSIPPI)
)
COUNTY OF HINDS)

SUBSCRIBED AND SWORN TO before me on this the 27th day of February, 2023.

Notary Public, State of Mississippi
My Commission Expires: _____

STATE OF MISSISSIPPI NOTARY PUBLIC ID # 290794 CAMILLE C. CABRERA Commission Expires April 27, 2025 RANKIN COUNTY

26095027v1

EXHIBIT 1

Detailed Facility Report

Detailed Facility Report

Facility Summary

DELAPLAIN DISPOSAL

249 W YUSEN DR, GEORGETOWN, KY 40324

FRS (Facility Registry Service) ID: 110006750523
EPA Region: 04
Latitude: 38.283618
Longitude: -84.554229
Locational Data Source: FRS
Industries: Heavy and Civil Engineering Construction
Indian Country: N

Enforcement and Compliance Summary

Statute	CWA
Compliance Monitoring Activities (5 years)	2
Date of Last Compliance Monitoring Activity	01/29/2021
Compliance Status	Violation Identified
Qtrs in Noncompliance (of 12)	10
Qtrs with Significant Violation	3
Informal Enforcement Actions (5 years)	16
Formal Enforcement Actions (5 years)	2
Penalties from Formal Enforcement Actions (5 years)	$5,000
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information
Clean Water Act (CWA): Minor, Permit Effective (KY0079049)
Resource Conservation and Recovery Act (RCRA): No Information

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information

JF-1

Safe Drinking Water Act (SDWA): No Information
Go To Enforcement/Compliance Details
Known Data Problems

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110006750523					N	38.283618	-84.554229
ICIS-NPDES	CWA	KY0079049	Minor: NPDES Individual Permit	Effective		01/31/2026	N	38.286111	-84.556111

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110006750523	DELAPLAIN DISPOSAL	249 W YUSEN DR, GEORGETOWN, KY 40324	
ICIS-NPDES	CWA	KY0079049	DELAPLAIN DISPOSAL	249 W YUSEN DR, GEORGETOWN, KY 40324	Scott County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
ICIS-NPDES	KY0079049	6552	Subdividers And Developers

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
ICIS-NPDES	KY0079049	237210	Land Subdivision

Facility Industrial Effluent Guidelines

Identifier	Effluent Guideline (40 CFR Part)	Effluent Guideline Description
No data records returned		

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
No data records returned			

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CWA	KY0079049	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	01/29/2021	
CWA	KY0079049	ICIS-NPDES	Inspection/Evaluation	Base Program - Reconnaissance without Sampling	State	12/17/2019	

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CWA	KY0079049	No	09/30/2022	10	02/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA (Source ID: KY0079049)		10/01-12/31/19	01/01-03/31/20	04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-02/17/23
	Facility-Level Status	Significant/Category I Noncompliance	Violation Identified	Violation Identified	Violation Identified	Violation Identified	Significant/Category I Noncompliance	Significant/Category I Noncompliance	No Violation Identified	Violation Identified	Violation Identified	No Violation Identified	No Violation Identified	Violation Identified
	Quarterly Noncompliance Report History	Effluent - Monthly Average Limit	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Reportable Noncompliance	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	Resolved	Other Violation	Other Violation	Resolved - Pending	Resolved - Pending	

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
	Pollutant	Disch Point	Mon Loc	Freq													
CWA	BOD, carbonaceous [5 day, 20 C]	001 - 1	Effluent Gross	Mthly	**45%**	**165%**					120%						45%
CWA	BOD, carbonaceous [5 day, 20 C]	001 - 1	Effluent Gross	NMth	63%	**260%**	11%				360%	20%		27%		47%	240%
CWA	Chlorine, total residual	001 - 1	Effluent Gross	Mthly			1400%		**900%**	**900%**							
CWA	Chlorine, total residual	001 - 1	Effluent Gross	NMth			3216%		1847%	3479%							
CWA	E. coli	001 - 1	Effluent Gross	Mthly	11%						82%						1088%
CWA	E. coli	001 - 1	Effluent Gross	NMth	908%	908%	908%	155%		203%	24900%		442%		21%	908%	908%
CWA	Nitrogen, ammonia total [as N]	001 - 1	Effluent Gross	NMth	33%												
CWA	Oxygen, dissolved [DO]	001 - 1	Effluent Gross	Neither											1%		
CWA	Solids, total suspended	001 - 1	Effluent Gross	Mthly	**191%**	**131%**					**313%**						
CWA	Solids, total suspended	001 - 1	Effluent Gross	NMth	867%	281%				73%	947%					20%	96%
CWA	pH	001 - 1	Effluent Gross	Neither													LIMIT VIOLATION
	Single Event Violations			**Agency**													
CWA	Reporting Violations - Failure to Notify			State	12/17/2019												
CWA	Management Practice Violations - Improper Operation and Maintenance			State						01/29/2021							
CWA	Permit Violations - Violation Specified in Comment			State						01/29/2021							

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	12/14/2022
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	09/08/2022
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	06/09/2022
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	04/07/2022
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	12/17/2021

Statute	System	Source ID	Type of Action	Lead Agency	Date
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	09/27/2021
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	06/02/2021
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	03/10/2021
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	12/01/2020
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	09/24/2020
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	06/11/2020
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	04/13/2020
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	12/26/2019
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	10/31/2019
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	06/03/2019
CWA	ICIS-NPDES	KY0079049	Base Program - Notice of Violation	State	01/07/2019

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost
CWA	ICIS-NPDES	OTHER	NPDES/KY0079049	Administrative - Formal	KY-DOW-21-3-0028	State	DELAPLAIN DISPOSAL COMPANY	09/27/2021	1	09/27/2021	$0	$0	--	$0	$0
CWA	ICIS-NPDES	OTHER	NPDES/KY0079049	Administrative - Formal	KY-DOW 170038	State	DELAPLAIN DISPOSAL COMPANY	05/24/2018	1	05/24/2018	$0	$5,000	$5,000	$0	$0

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
051002050805	Dry Run-North Elkhorn Creek	UT / DRY RUN CRK, UT TO DRY RUN	No	No	--	Yes

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
Ozone	No	--	Yes	1-Hour Ozone (1979)
Lead	No	--	No	--
Particulate Matter	No	--	No	--
Carbon Monoxide	No	--	No	--
Sulfur Dioxide	No	--	No	--

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

JF-1

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	21
Ozone	18
Diesel Particulate Matter	16
Air Toxics Cancer Risk	16
Air Toxics Respiratory Hazard Index	12
Traffic Proximity	10
Lead Paint	20
Risk Management Plan (RMP) Facility Proximity	20
Hazardous Waste Proximity	13
Superfund Proximity	2
Underground Storage Tanks (UST)	24
Wastewater Discharge	24

Number of EJ Indexes Above 80th Percentile
0

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	845
Population Density	303/sq.mi.
Housing Units in Area	321

General Statistics (ACS (American Community Survey))	
Total Persons	822
Percent People of Color	8%
Households in Area	271
Households on Public Assistance	6
Persons With Low Income	209
Percent With Low Income	26%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	38.283618
Center Longitude	-84.554229
Land Area	99%
Water Area	1%

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	57 (7%)
Minors 17 years and younger	214 (25%)
Adults 18 years and older	631 (75%)
Seniors 65 years and older	70 (8%)

Race Breakdown (U.S. Census) - Persons (%)	
White	811 (96%)
African-American	12 (1%)
Hispanic-Origin	20 (2%)
Asian/Pacific Islander	5 (1%)
American Indian	0 (0%)
Other/Multiracial	18 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	6 (1.11%)
9th through 12th Grade	15 (2.78%)
High School Diploma	153 (28.39%)
Some College/2-year	156 (28.94%)

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	9 (3.31%)
$15,000 - $25,000	16 (5.88%)
$25,000 - $50,000	34 (12.5%)
$50,000 - $75,000	47 (17.28%)
Greater than $75,000	166 (61.03%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	130 (24.12%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

JF-1

EXHIBIT 2

Detailed Facility Report

Detailed Facility Report

Facility Summary

HERRINGTON HAVEN SUBDIVISION

HERRINGTON HAVEN RD, LANCASTER, KY 40444

FRS (Facility Registry Service) ID: 110009937845
EPA Region: 04
Latitude: 37.663056
Longitude: -84.691389
Locational Data Source: NPDES
Industries: Heavy and Civil Engineering Construction
Indian Country: N

Enforcement and Compliance Summary

Statute	CWA
Compliance Monitoring Activities (5 years)	3
Date of Last Compliance Monitoring Activity	07/28/2022
Compliance Status	Violation Identified
Qtrs in Noncompliance (of 12)	11
Qtrs with Significant Violation	7
Informal Enforcement Actions (5 years)	12
Formal Enforcement Actions (5 years)	1
Penalties from Formal Enforcement Actions (5 years)	$0
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information
Clean Water Act (CWA): Minor, Permit Effective (KY0053431)
Resource Conservation and Recovery Act (RCRA): No Information

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information

Safe Drinking Water Act (SDWA): No Information
Go To Enforcement/Compliance Details
Known Data Problems

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110009937845					N	37.663056	-84.691389
ICIS-NPDES	CWA	KY0053431	Minor: NPDES Individual Permit	Effective		07/31/2023	N	37.661389	-84.689722

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110009937845	HERRINGTON HAVEN SUBDIVISION	HERRINGTON HAVEN RD, LANCASTER, KY 40444	
ICIS-NPDES	CWA	KY0053431	HERRINGTON HAVEN SUBDIVISION	HERRINGTON HAVEN RD, LANCASTER, KY 40444	Garrard County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
ICIS-NPDES	KY0053431	6552	Subdividers And Developers

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
ICIS-NPDES	KY0053431	237210	Land Subdivision

Facility Industrial Effluent Guidelines

Identifier	Effluent Guideline (40 CFR Part)	Effluent Guideline Description
No data records returned		

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
No data records returned			

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CWA	KY0053431	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	07/28/2022	
CWA	KY0053431	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	04/13/2021	
CWA	KY0053431	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	06/07/2018	

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CWA	KY0053431	No	09/30/2022	11	02/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA (Source ID: KY0053431)		10/01-12/31/19	01/01-03/31/20	04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-02/17/23
	Facility-Level Status	No Violation Identified	Violation Identified	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	No Violation Identified	Violation Identified	Violation Identified	Violation Identified

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
	Quarterly Noncompliance Report History				Resolved	Other Violation	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	Resolved	Other Violation	Other Violation	
	Pollutant	Disch Point	Mon Loc	Freq													
▸ CWA	BOD, 5-day, 20 deg. C	001 - 2	Effluent Gross	Mthly												143%	
▸ CWA	BOD, 5-day, 20 deg. C	001 - 2	Effluent Gross	NMth												62%	
▸ CWA	Chlorine, total residual	001 - 2	Effluent Gross	Mthly											8082%		264%
▸ CWA	Chlorine, total residual	001 - 1	Effluent Gross	Mthly		8991%											
▸ CWA	Chlorine, total residual	001 - 1	Effluent Gross	NMth		5163%											
▸ CWA	Chlorine, total residual	001 - 2	Effluent Gross	NMth											4637%		111%
▸ CWA	E. coli	001 - 1	Effluent Gross	Mthly				12%									
▸ CWA	Nitrogen, ammonia total [as N]	001 - 1	Effluent Gross	Mthly						20%	**5312%**	**946%**					
▸ CWA	Nitrogen, ammonia total [as N]	001 - 1	Effluent Gross	NMth							3500%	596%					
▸ CWA	Phosphorus, total [as P]	001 - 1	Effluent Gross	Mthly		**156%**	**41%**	**208%**	**347%**	**680%**	**520%**	**830%**	**50%**				
▸ CWA	Solids, total suspended	001 - 1	Effluent Gross	Mthly							**2058%**	**317%**	**114%**				
▸ CWA	Solids, total suspended	001 - 2	Effluent Gross	Mthly												223%	
▸ CWA	Solids, total suspended	001 - 2	Effluent Gross	NMth												116%	
▸ CWA	Solids, total suspended	001 - 1	Effluent Gross	NMth							1337%	178%	43%				
	Single Event Violations			Agency													

Statute	Program/Pollutant/Violation Type		QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA	Permit Violations - Violation Specified in Comment	State												07/28/2022	

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	01/04/2023
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	09/19/2022
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	04/18/2022
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	01/11/2022
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	10/01/2021
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	06/17/2021
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	03/16/2021
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	12/07/2020
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	10/05/2020
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	07/17/2020
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	12/18/2019
CWA	ICIS-NPDES	KY0053431	Base Program - Notice of Violation	State	06/15/2018

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost
CWA	ICIS-NPDES	OTHER	NPDES/KY0053431	Administrative - Formal	KY-DOW-21-3-0029	State	HERRINGTON HAVEN WASTEWATER CO INC	09/24/2021	1	09/24/2021	$0	$0	--	$0	$0

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
051002050504	Boone Creek-Dix River	DIX RIVER, HERRINGTON LAKE	No	No	BOD, 5-day, 20 deg. C | Nitrogen, ammonia total (as N) | Nitrogen, total (as N) | Oxygen, dissolved (DO) | Phosphorus, total (as P)	Yes

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use
KY	2020	KY-919	Herrington Lake	Impaired - 303(d) Listed	NUTRIENTS | ORGANIC ENRICHMENT/OXYGEN DEPLETION	Insufficient Information	Not Supporting	Fully Supporting	Fully Supporting	--

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)

No data records returned

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers
No data records returned								

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name
No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	47
Ozone	43
Diesel Particulate Matter	29
Air Toxics Cancer Risk	21
Air Toxics Respiratory Hazard Index	33
Traffic Proximity	5
Lead Paint	40
Risk Management Plan (RMP) Facility Proximity	26
Hazardous Waste Proximity	22
Superfund Proximity	5
Underground Storage Tanks (UST)	0
Wastewater Discharge	30

Number of EJ Indexes Above 80th Percentile
0

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	456
Population Density	164/sq.mi.
Housing Units in Area	224

General Statistics (ACS (American Community Survey))	
Total Persons	343
Percent People of Color	5%
Households in Area	133
Households on Public Assistance	1
Persons With Low Income	48
Percent With Low Income	14%

Geography

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	23 (5%)
Minors 17 years and younger	104 (23%)
Adults 18 years and older	352 (77%)
Seniors 65 years and older	58 (13%)

Race Breakdown (U.S. Census) - Persons (%)	
White	436 (96%)
African-American	4 (1%)
Hispanic-Origin	13 (3%)
Asian/Pacific Islander	3 (1%)
American Indian	2 (0%)
Other/Multiracial	11 (2%)

Geography	
Radius of Selected Area	1 mi.
Center Latitude	37.663056
Center Longitude	-84.691389
Land Area	88%
Water Area	12%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	9 (6.77%)
$15,000 - $25,000	10 (7.52%)
$25,000 - $50,000	25 (18.8%)
$50,000 - $75,000	24 (18.05%)
Greater than $75,000	65 (48.87%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	10 (4.05%)
9th through 12th Grade	13 (5.26%)
High School Diploma	75 (30.36%)
Some College/2-year	37 (14.98%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	94 (38.06%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

EXHIBIT 3

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

HERRINGTON HAVEN WWTF
IN
GARRARD COUNTY, KENTUCKY

PERMIT ISSUE: FEBRUARY 15, 2022
BID ISSUE: NOVEMBER 30, 2022
CONSTRUCTION ISSUE: _____, 2023
RECORD ISSUE: _____, 2023

VICINITY MAP

DRAWING LIST

PREPARED FOR:

CSWR
Central States Water Resources

JF-3

21 DESIGN GROUP INC.
1351 Jefferson, Suite 301
Washington, MO 63090
mail@21designgroup.net
P: 636-432-5029

#	DATE	REVISION	BY
1	2/15/2022	PERMIT SET	BJK
2	11/30/2022	BID SET	BJK

21 DESIGN GROUP INC.
1351 Jefferson, Suite 301
Washington, MO 63090
mail@21designgroup.net
P: 636-432-5029

COVER SHEET

HERRINGTON HAVEN WWTF IMPROVEMENTS
HERRINGTON HAVEN DRIVE
GARRARD, KENTUCKY

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

SEAL DATE:	11/30/2022
DRAWN BY:	KAR
PROJ NUMBER:	542-19
DATE:	11/30/2022
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. 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
1	2/5/2022	PERMIT SET	BJK
2	11/30/2022	BID SET	BJK

21 DESIGN GROUP INC.
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P: 636-432-3229

GENERAL NOTES

HERRINGTON HAVEN WWTF IMPROVEMENTS
HERRINGTON HAVEN DRIVE
GARRARD, KENTUCKY

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

SEAL DATE:	11/30/2022
DRAWN BY:	KAR
PROJ NUMBER:	542-19
DATE:	11/30/2022
DRAWING NO:	C02

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

SCALE: 1" = 5'

DRAWING LEGEND

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

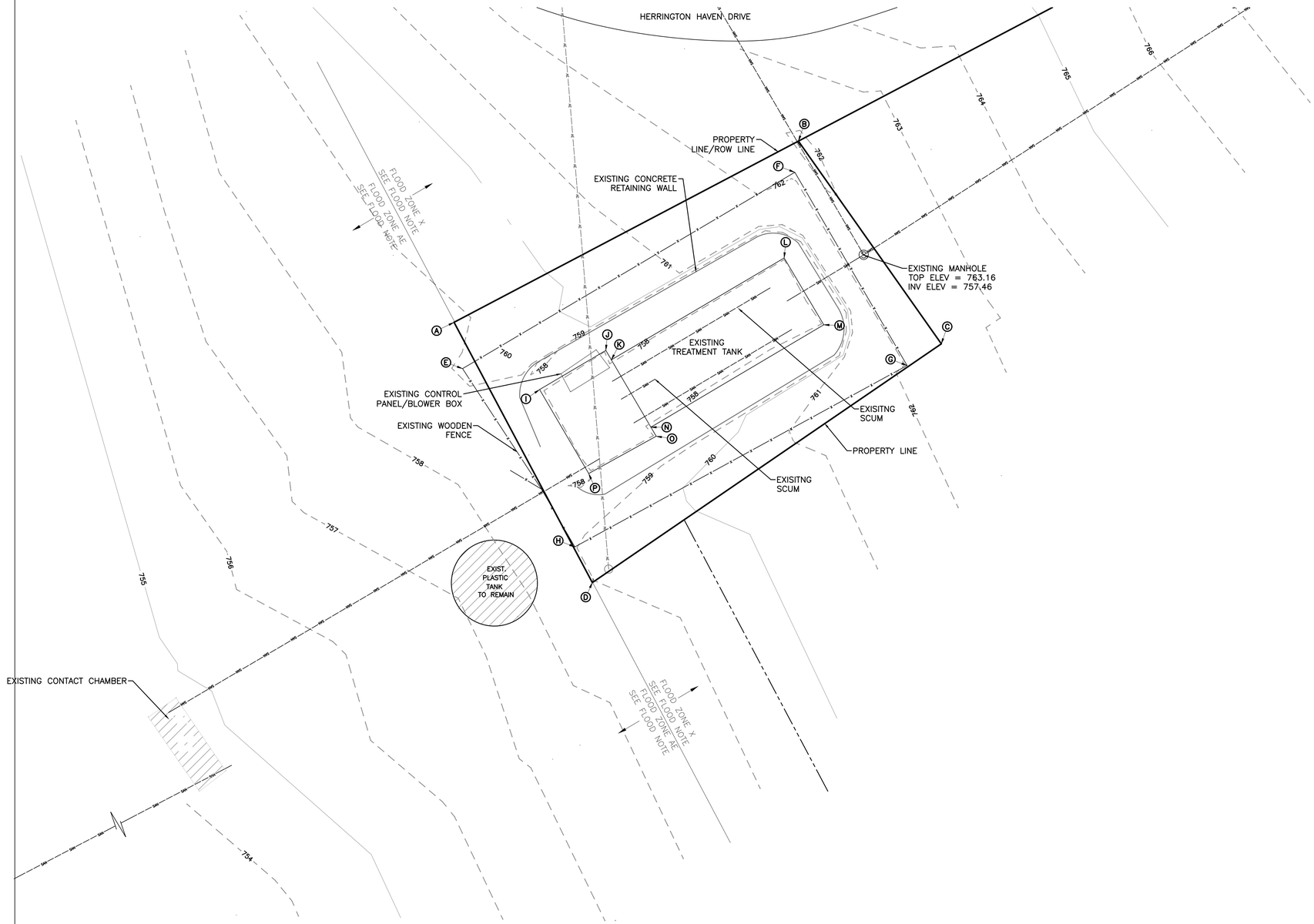
PAVEMENT LEGEND

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

EXISTING LOCATIONS

COORDINATE POINT	NORTHING	EASTING
A	3766110.9757	5228065.055
B	3766127.430	5228096.306
C	3766109.030	5228109.272
D	3766087.360	5228077.612
E	3766106.777	5228065.837
F	3766124.599	5228095.983
G	3766107.064	5228106.163
H	3766090.600	5228076.025
I	3766104.878	5228072.828
J	3766108.433	5228078.837
K	3766107.579	5228079.337
L	3766116.820	5228095.016
M	3766110.760	5228098.605
N	3766101.463	5228082.925
O	3766100.641	5228083.408
P	3766097.257	5228077.282

* NAD83 KENTUCKY STATE PLANES COORDINATES, SINGLE ZONE, US FOOT



JF-3

BY	DATE	REVISION
BJK	2/15/2022	PERMIT SET
BJK	11/30/2022	BID SET

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EXISTING CONDITIONS PLAN

HERRINGTON HAVEN WWTF IMPROVEMENTS
HERRINGTON HAVEN DRIVE
GARRARD, KENTUCKY

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

SEAL DATE:	11/30/2022
DRAWN BY:	KAR
PROJ NUMBER:	542-19
DATE:	11/30/2022
DRAWING NO:	C03

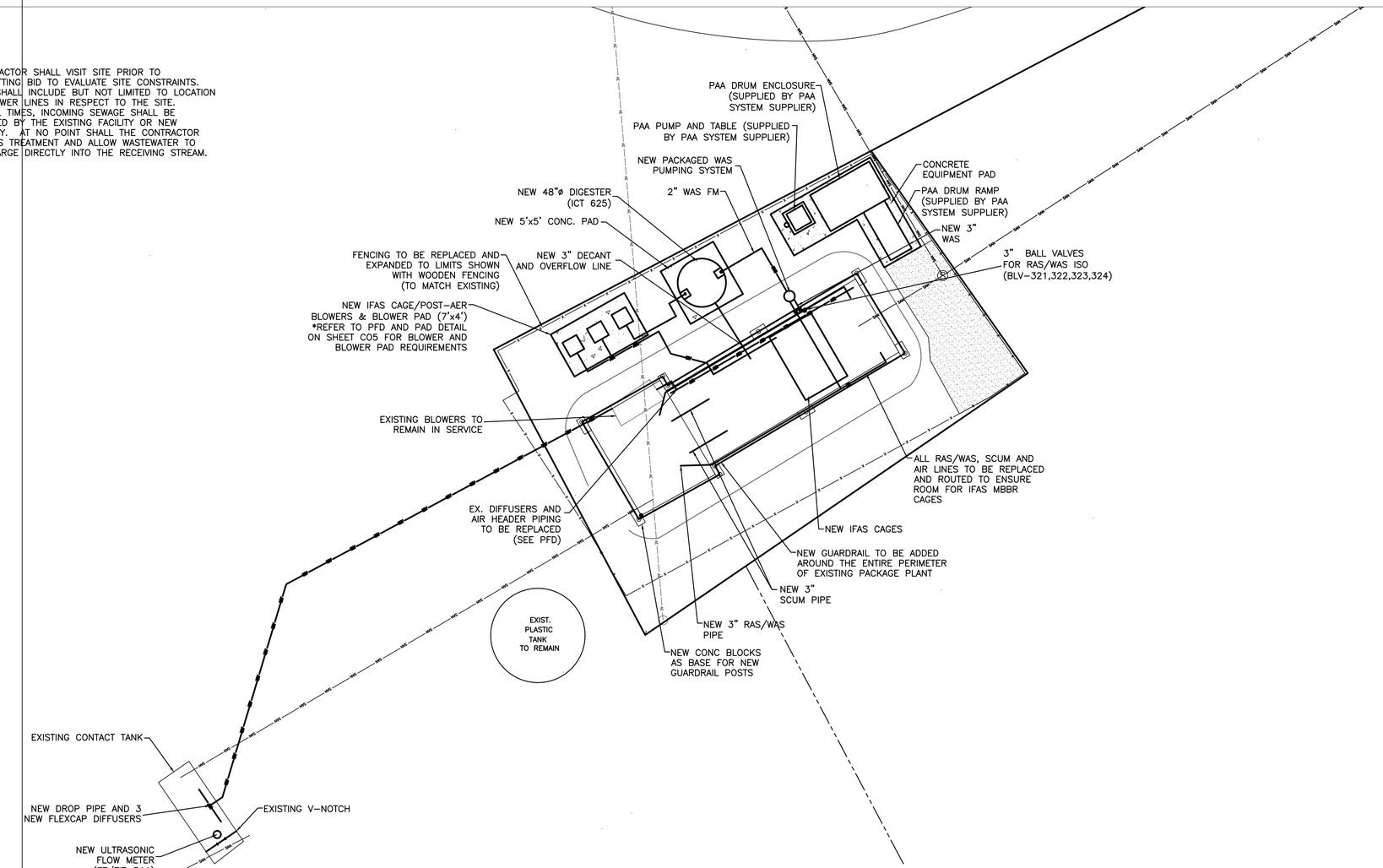
BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.

DRAWING LEGEND

- Asphalt
- Concrete
- Easement
- Setbacks
- Property Lines
- Sanitary Sewer
- Gas Main
- Water Main
- Underground Telephone
- Aerial Electric
- Underground Electric
- Storm Sewer
- Contours
- Tree Line
- Sanitary Manhole
- Utility Pole
- Hydrant
- Telephone Box
- Water Valve
- Gas Valve
- Sign
- Grated Inlet
- Catch Basin
- Grated Curb Inlet
- Junction Box
- Flared End Section

NOTE:

1. CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID TO EVALUATE SITE CONSTRAINTS. THIS SHALL INCLUDE BUT NOT LIMITED TO LOCATION OF POWER LINES IN RESPECT TO THE SITE.
2. AT ALL TIMES, INCOMING SEWAGE SHALL BE TREATED BY THE EXISTING FACILITY OR NEW FACILITY. AT NO POINT SHALL THE CONTRACTOR BYPASS TREATMENT AND ALLOW WASTEWATER TO DISCHARGE DIRECTLY INTO THE RECEIVING STREAM.



AIR PIPING MATERIALS

- ABOVE GRADE AIR PIPING: 304SS, PAINTED CARBON STEEL, OR GALVANIZED STEEL.
- BELOW GRADE AIR PIPING WITHIN 50' OF BLOWERS: WRAPPED GALVANIZED STEEL, UNLINED DUCTILE IRON, HDPE, OR SCH. 80 CPVC
- BELOW GRADE AIR PIPING DOWNSTREAM OF 50' OF BLOWERS: WRAPPED GALVANIZED STEEL, UNLINED DUCTILE IRON, HDPE, OR SCH 80 CPVC.

LIQUID PIPING MATERIALS

- ABOVE GRADE: FOR RS, RAS, WAS, SCUM, MBBR EFF, CLARIFIER EFF, CCT/POST-AER EFF, USE SCH. 80 PVC WITH UV INHIBITOR COATING, PAINTED CARBON STEEL, 304SS, OR DUCTILE IRON PIPE.
- BELOW GRADE FORCE MAIN: FOR RS FM USE SDR-21 PVC WITH DI FITTINGS, HDPE, OR DUCTILE IRON PIPE..
- BELOW GRADE GRAVITY: FOR RAS, WAS, SCUM, MBBR EFF, CLARIFIER EFF, CCT/POST-AER EFF., FILTER EFF. - USE SDR-35 PVC OR HDPE.

JF-3

#	DATE	REVISION	BY
1	2/5/2022	PERMIT SET	BJK
2	11/30/2022	BID SET	BJK

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SITE PLAN

HERRINGTON HAVEN WWTF IMPROVEMENTS
HERRINGTON HAVEN DRIVE
GARRARD, KENTUCKY

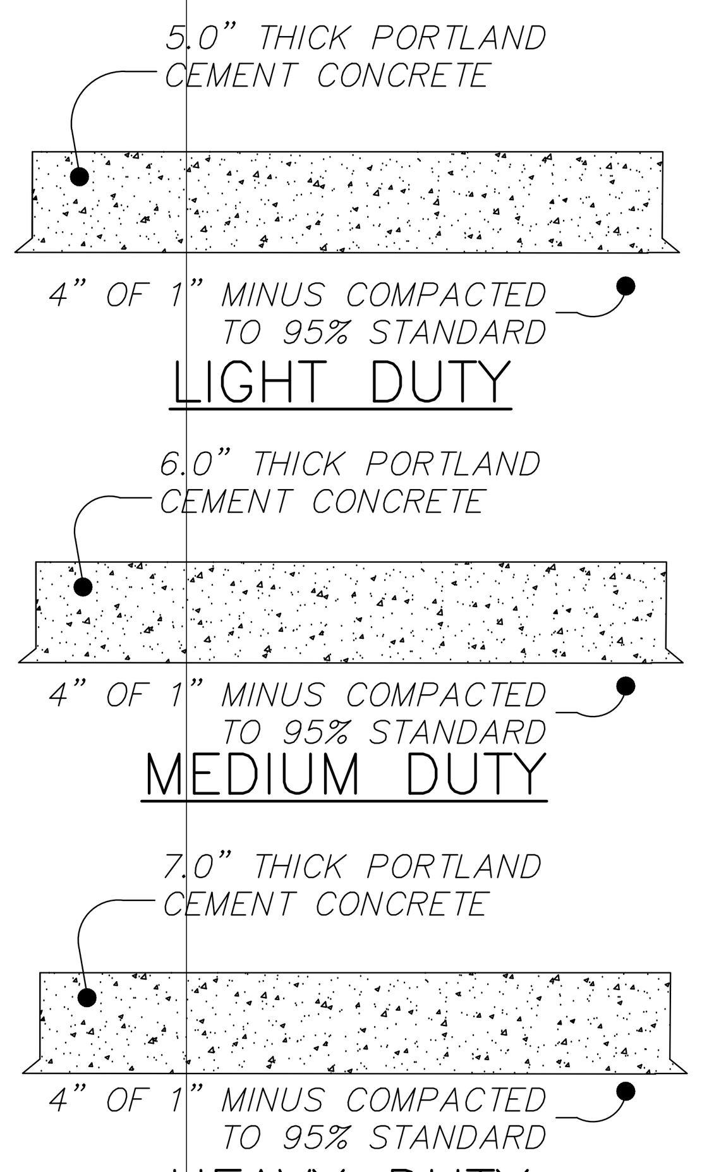
ENGINEERING CERTIFICATE OF AUTHORITY NO. 4804
ENGINEERING LICENSE:
BENJAMIN J. KUENZEL, PE33718

SEAL DATE:	11/30/2022
DRAWN BY:	KAR
PROJ NUMBER:	542-19
DATE:	11/30/2022
DRAWING NO:	C04

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

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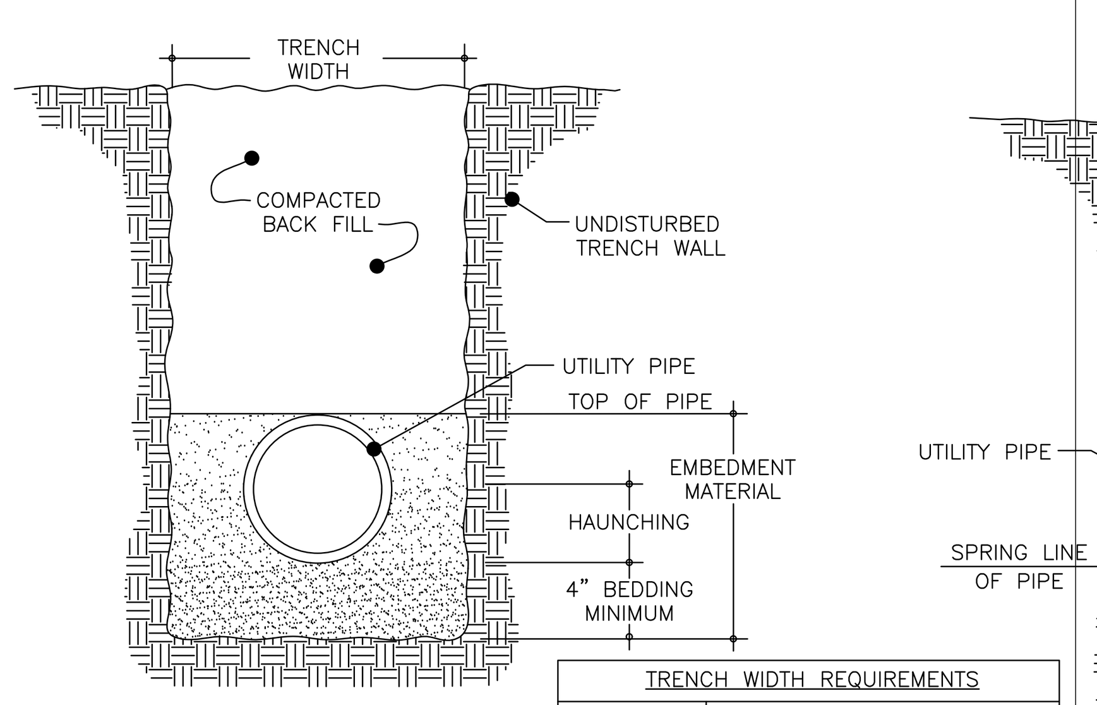
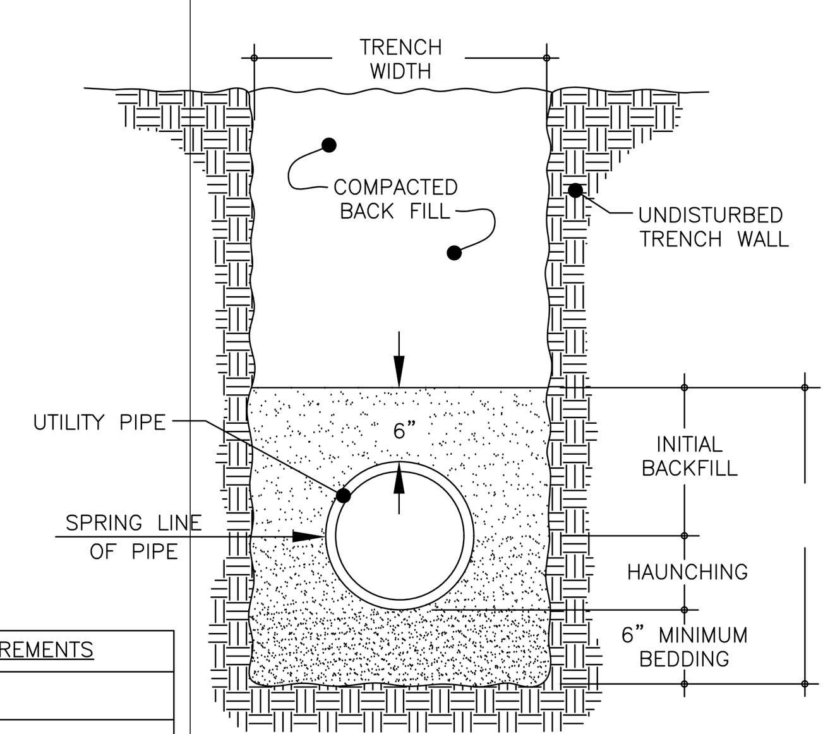


STANDARD BEDDING FOR 3' TO 14' DEPTHS

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



SPECIAL BEDDING FOR 14'-30' DEPTHS

NOTES:

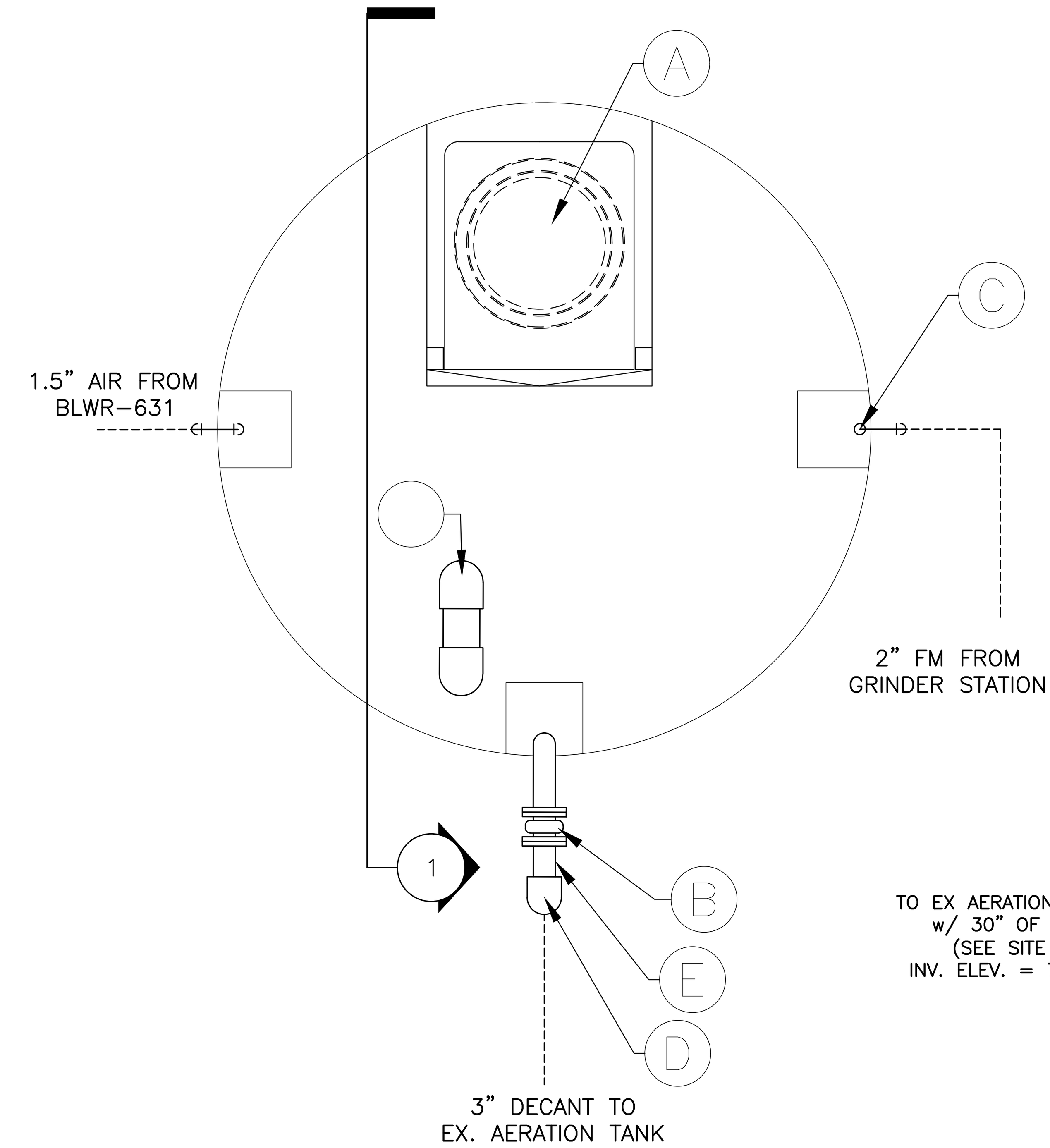
1. EMBEDMENT MATERIAL MUST BE 1" MINUS GRANULAR BACKFILL.
2. EMBEDMENT MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY.
3. STANDARD BEDDING SHALL BE UTILIZED FOR ALL CASES WHERE TRENCH BOTTOMS ARE UNSTABLE DUE TO SOIL TYPE OR MOISTURE CONDITIONS.
4. TRENCH EXCAVATION SHALL CONFORM 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. HAUNCING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE ALL VOIDS.

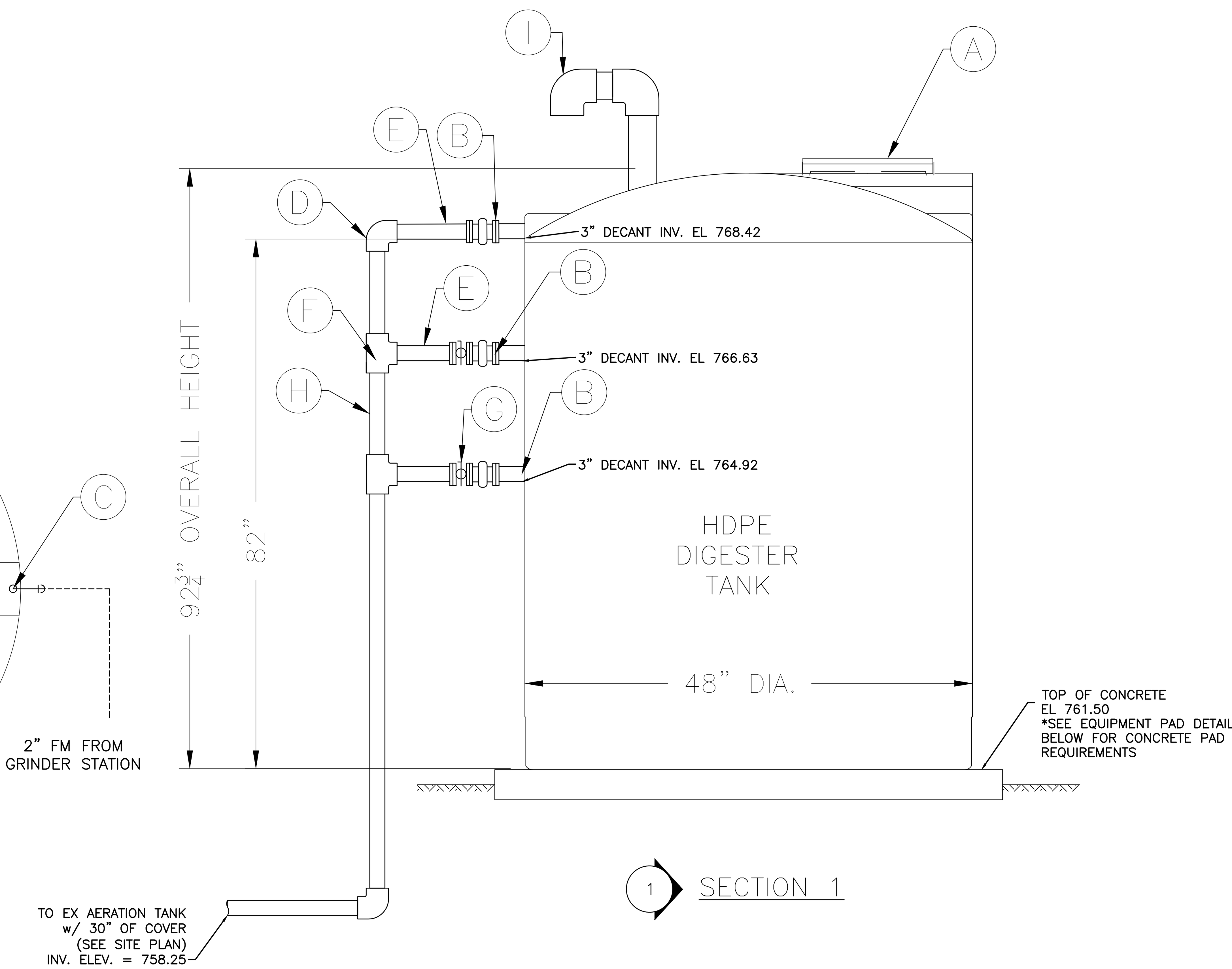
TRENCH DEPTH REQUIREMENTS	
UTILITY	MIN DEPTH
GAS	SEE UTILITY CO.
WATER	42"
ELECTRIC	24"
SANITARY	36"

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





1 SECTION 1

A	16" MANYWAY W/ LEVER LOCK COVER
B	3" FL (FL EXP JT PROVIDED AND INSTALLED BY CONTRACTOR)
C	2" BULKHEAD FTG, FLANGE ADAPTER INFLUENT FM
D	3" 90 DEG BEND (SOC)
E	3" FL ADPT & SPOOL (PExPE)
F	3" TEE (SOC)
G	3" FULL PORT BALL VALVE (FL)
H	3" SPOOL (PExPE)
I	6" VENT

AEROBIC DIGESTER TANK DECANT/OVERFLOW PIPE DETAIL

Not to Scale

JF-3

#	DATE	REVISION	BY
1	2/15/2022	PERMIT SET	BJK
2	11/30/2022	BID SET	BJK

21 DESIGN GROUP INC.
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DETAIL SHEET

HERRINGTON HAVEN WWTF IMPROVEMENTS
HERRINGTON HAVEN DRIVE
GARRARD, KENTUCKY

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

SEAL DATE: 11/30/2022
DRAWN BY: KAR
PROJ NUMBER: 542-19
DATE: 11/30/2022
DRAWING NO: C05

DESIGN CRITERIA:

PLANT INFLUENT FLOW

Q_{ADF}= 9,800 GPD BOD= 225 MG/L
Q_{PDF}= 29,400 GPD TSS= 225 MG/L
Q_{PHF}= 39,200 GPD TKN= 40 MG/L

EXTENDED AERATION

NO OF AERATION TANKS: 1
DIMENSIONS: (1) 7.00'x17.50'x8' SWD
TOTAL VOLUME: 7,330 GALLONS
HRT @ ADF: 17.95 HRS

IFAS (CAGES)

NO. OF IFAS CAGES: 1
DIMENSIONS: 4'x6'x8' (SWD)
TOTAL CAGE VOLUME = 1,436 GALLONS
INF. BOD = 225 MG/L, 18.4 LBS/D
EFF. BOD TARGET = 68 MG/L, 5.5 LBS/DAY
HRT @ ADF = 3.5 HRS
MEDIA SURFACE RQD. = 367 M^2
MEDIA VOLUME RQD. (W/650 M^2/M^3 MEDIA) = 20 CF
MEDIA VOLUME PROPOSED: 58 CF
MEDIA FILL % = 30 %
SCFM RQD. = 24 SCFM

CONTACT TANKS

NO. OF TANKS: 2
TANK 1 DIMENSIONS 2.5'X8'X9' EXISTING, W/IN PACKAGE PLANT
TANK 2 DIMENSIONS 3'X8'X8' EXISTING CONTACT TANK
VOLUME: 2,783 GAL
HRT@ PHF: 102 MINUTES

POST-AERATION

NO. OF TANKS: 1
DIMENSIONS: 3'X8'X8' EXISTING CONTACT TANK
TWO FLEXCAP DIFFUSERS USED FOR AIR FLOW
RATE: 20 SCFM/1,000 CF
SCFM PROVIDED: 6.0 SCFM

AEROBIC DIGESTER

VOLUME OF EACH DIGESTER: = 625 GALLONS
VSS CONCENTRATION OF WAS: = 75%
VSS DESTROYED = 45%
DIGESTED SLUDGE PRODUCTION = 4.9 LBS.DS/DAY
DIGESTED SLUDGE PRODUCTION = 38.9 GPD @ 15,000 MG/L TSS
SOLIDS RETENTION TIME = 16 DAYS

BLOWERS FOR EXT. AERATION, AIRLIFTS (2), POST-AIR:

BLWR 231, 232 (EXISTING BLOWERS TO CONTINUE TO BE USED)
SCFM REQUIRED FOR EXTENDED AERATION (W/IFAS CAGE) = 29 SCFM
SCFM REQUIRED FOR RAS/WAS AND SCUM AIRLIFTS = 12 SCFM
SCFM REQUIRED FOR POST-AERATION = 6 SCFM
TOTAL SCFM.: 47 SCFM
DISCHARGE PRESSURE RQD: 4.44 PSIG
NO. OF OPERATING BLOWERS: 1
TOTAL NO. OF BLOWERS: 2

BLOWERS FOR AEROBIC DIGESTION

BLWR 631 (NEW BLOWER)
SCFM REQUIRED DIGESTER: 8 SCFM
TOTAL SCFM: 8 SCFM
DISCHARGE PRESSURE REQUIRED: 3.95 PSIG

BLOWERS FOR IFAS AERATION

BLWR 233, 234 (NEW BLOWERS)
SCFM REQUIRED MBBR: 24 SCFM
TOTAL SCFM: 24 SCFM
DISCHARGE PRESSURE REQUIRED: 4.45 PSIG
NO. OF OPERATING BLOWERS: 1
TOTAL NO. OF BLOWERS: 2

PAA FEED PUMP

AVERAGE PUMPING RATE REQUIRED: 0.005 GPH
MAXIMUM PUMPING RATE REQUIRED (AT Q = 39,200 GPD): 0.054 GPH
PUMP TYPE: DIAPHRAGM METERING PUMP
NO. OF PUMPS (1 OPERATING, 1 SHELF STANDBY)
PROPOSED PUMP MINIMUM RATE: 0.002 GPH
PROPOSED PUMP MAXIMUM RATE: 0.21 GPH
PROPOSED MAXIMUM DISCHARGE PRESSURE: 50 PSIG

PAA STORAGE

STORE W/55 GAL: 438.5 DAYS
ESTIMATED (ASSUMES 2 PPM AS PAA OR 12.8 PPM AS PROXITANE IS REQUIRED DOSAGE).
SECONDARY CONTAINMENT VOLUME: 132 GAL.

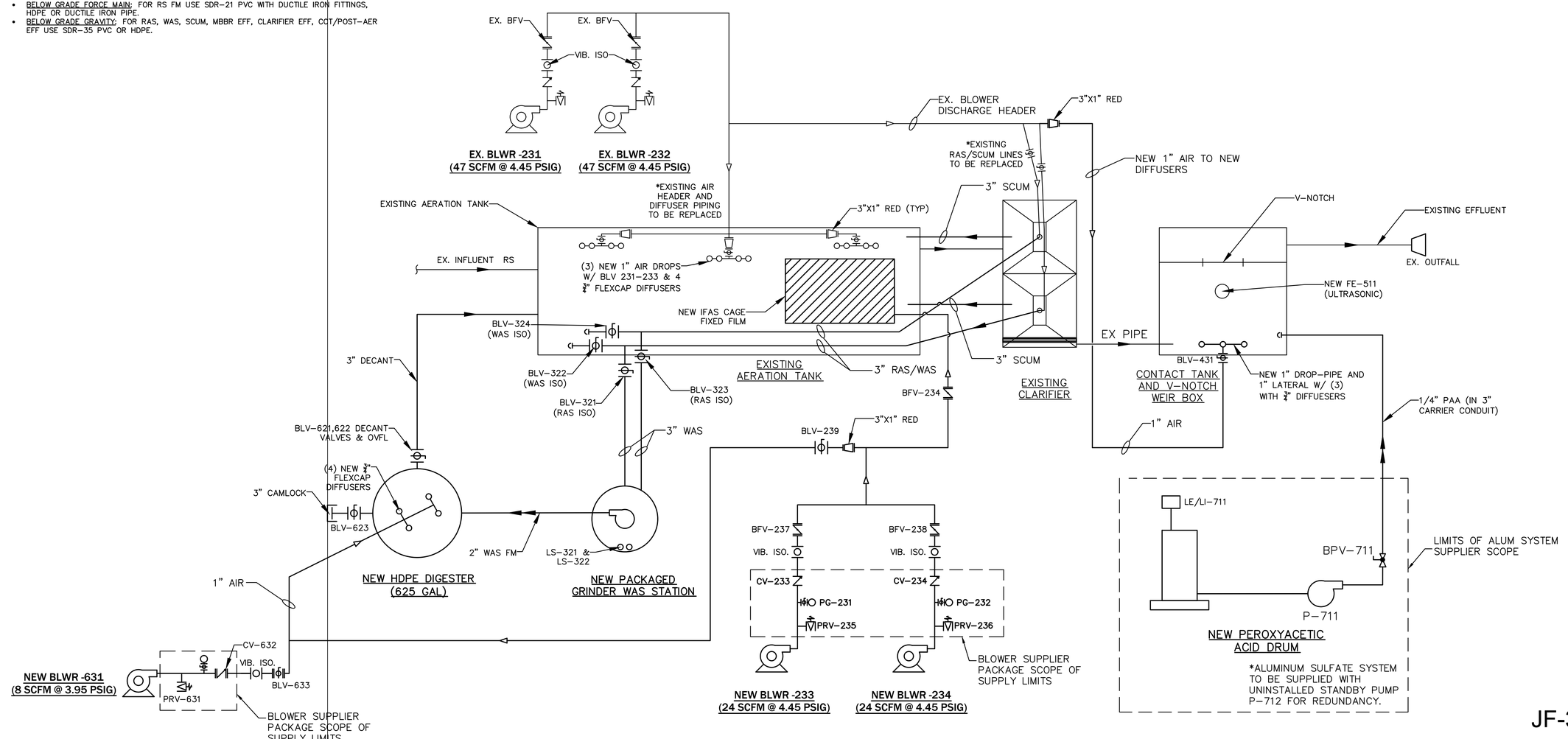
EFFLUENT PARAMETERS

BOD: 30 MG/L
TSS: 30 MG/L
NH3-N: 20 MG/L
E-COLI: 130 MPN/ML
TOTAL RESIDUAL CHLORINE: 0.011 MG/L
MIN. DISSOLVED OXYGEN: 2.0 MG/L

NOTES:

AIR PIPING MATERIALS:
- ABOVE GRADE AIR PIPING: 304 SS, PAINTED CARBON STEEL, OR GALVANIZED STEEL.
- BELOW GRADE AIR PIPING WITHIN 50 FT OF BLOWERS: WRAPPED GALVANIZED STEEL OR UNLINED DUCTILE IRON.
- BELOW GRADE AIR PIPING DOWNSTREAM OF 50 FT OF BLOWERS: WRAPPED GALVANIZED STEEL, UNLINED DUCTILE IRON, HDPE, OR SCH. 80 CPVC.

LIQUID PIPING MATERIALS:
- ABOVE GRADE: FOR RS, RAS, WAS, SCUM, MBBR EFF, CLARIFIER EFF, CCT/POST-AER EFF USE SCH.80 PVC WITH UV INHIBITOR COATING, PAINTED CARBON STEEL, 304SS, OR DUCTILE IRON PIPE.
- BELOW GRADE FORCE MAIN: FOR RS FM USE SDR-21 PVC WITH DUCTILE IRON FITTINGS, HDPE OR DUCTILE IRON PIPE.
- BELOW GRADE GRAVITY: FOR RAS, WAS, SCUM, MBBR EFF, CLARIFIER EFF, CCT/POST-AER EFF USE SDR-35 PVC OR HDPE.



JF-3

#	DATE	REVISION	BY
A	2/15/2022	PERMIT SET	BJK
B	11/30/2022	BID SET	BJK

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mail@21designgroup.net
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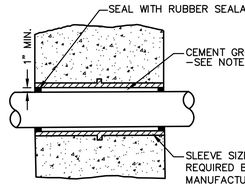
PROCESS FLOW DIAGRAM

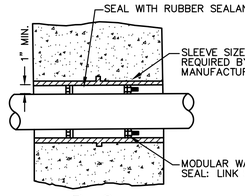
HERRINGTON HAVEN WWTF IMPROVEMENTS
HERRINGTON HAVEN ROAD
GARRARD, KENTUCKY

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

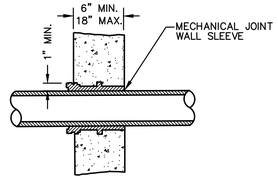
SEAL DATE:	11/30/2022
DRAWN BY:	KAR
PROJ NUMBER	0542-19
DATE:	11/30/2022
DRAWING NO:	P1



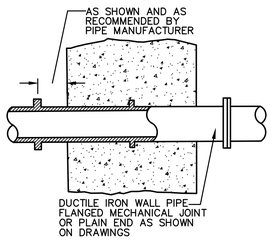
P–1



P–2



P–3



P–4

PIPE MATERIAL

CONDITION	STEEL	COPPER	PVC	IRON
EARTH TO PASSAGE	N/A	P–1	P–2	P–3
LIQUID TO PASSAGE	P–2	N/A	P–2	P–4
LIQUID TO EARTH	P–2	N/A	P–2	P–4
PASSAGE TO PASSAGE	P–1	P–1	P–1	P–1
LIQUID TO LIQUID	P–2	N/A	P–2	P–4

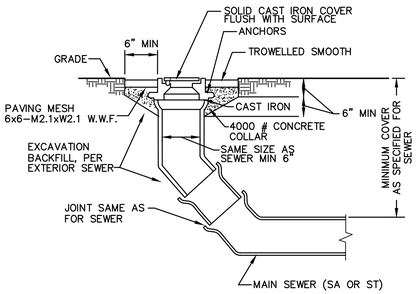
P–2 MAY BE USED IN LIEU OF P–1 AND P–3.
P–4 MAY BE USED IN LIEU OF P–3 AND IF CALLED FOR ON THE DRAWINGS P–4 SHALL BE USED IN LIEU OF P–3.

NOTES:

1. WHERE PIPES PASS THROUGH WALLS, FLOORS, OR CEILINGS, THE METHOD USED SHALL CONFORM TO THE STANDARD DETAILS AS SHOWN ON THIS DRAWING, EXCEPT WHERE SPECIAL DETAILS ARE SHOWN.
2. PASSAGE SHALL MEAN ANY ROOM, GALLERY, TUNNEL OR SIMILAR ENCLOSED SPACE IN WHICH PIPES RUN.
3. ALL SLEEVES SHALL BE CAST IRON UNLESS OTHERWISE NOTED.
4. FLANGES MAY BE INSTALLED FLUSH WITH WALL AND TAPPED FOR STUDS.
5. CEMENT GROUT CAULKING MAY BE ELIMINATED FOR PASSAGE TO PASSAGE PENETRATIONS.
6. LIQUID SHALL MEAN AN ELEVATION 1'–6" ABOVE MAXIMUM WATER ELEVATION.

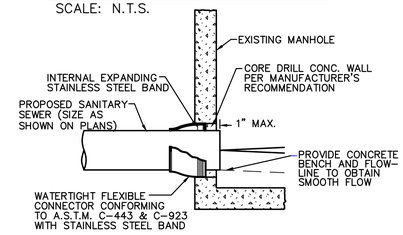
PIPE THROUGH WALLS DETAILS

SCALE: N.T.S.



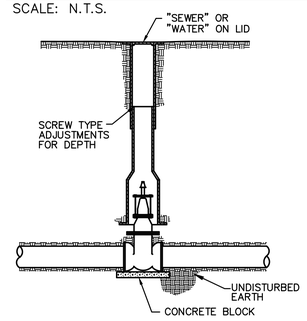
TYPICAL YARD CLEANOUT

SCALE: N.T.S.



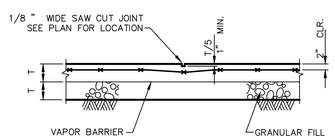
PIPE TO MANHOLE CONNECTION

SCALE: N.T.S.



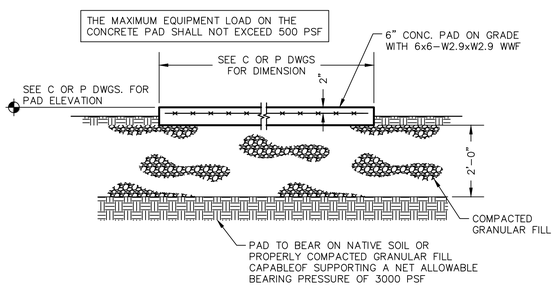
TYPICAL VALVE BOX INSTALLATION

SCALE: N.T.S.



TYPICAL SLAB ON GRADE CONTROL JOINT

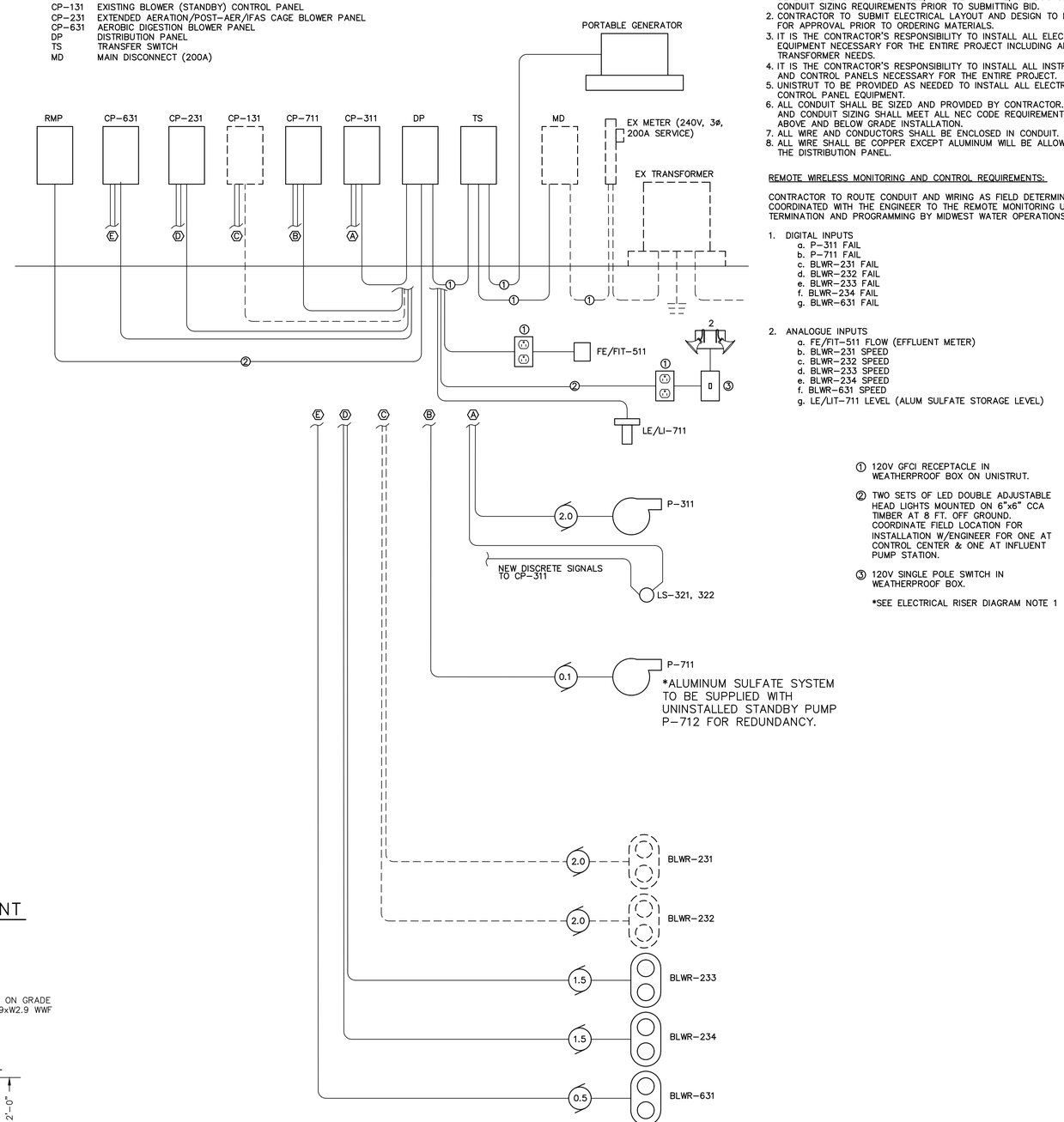
SCALE: N.T.S.



TYPICAL EXTERIOR EQUIPMENT PAD ON GRADE

SCALE: N.T.S.

RMP REMOTE MONITORING PANEL
CP–311 WAS PUMP STATION CONTROL PANEL
CP–711 ALUM SULFATE FEED PUMP CONTROL PANEL
CP–131 EXISTING BLOWER (STANDBY) CONTROL PANEL
CP–231 EXTENDED AERATION/POST–AER/IFAS CAGE BLOWER PANEL
CP–631 AEROBIC DIGESTION BLOWER PANEL
DP DISTRIBUTION PANEL
TS TRANSFER SWITCH
MD MAIN DISCONNECT (200A)



ELECTRICAL RISER DIAGRAM

ELECTRICAL RISER DIAGRAM NOTES:

1. CONTRACTOR IS REQUIRED TO INSPECT EXISTING ELECTRICAL SYSTEM, DETERMINE 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:

CONTRACTOR TO ROUTE CONDUIT AND WIRING AS FIELD DETERMINED AND COORDINATED WITH THE ENGINEER TO THE REMOTE MONITORING UNIT FOR TERMINATION AND PROGRAMMING BY MIDWEST WATER OPERATIONS.

1. DIGITAL INPUTS
   a. P–311 FAIL
   b. P–711 FAIL
   c. BLWR–231 FAIL
   d. BLWR–232 FAIL
   e. BLWR–233 FAIL
   f. BLWR–234 FAIL
   g. BLWR–631 FAIL
2. ANALOGUE INPUTS
   a. FE/FIT–511 FLOW (EFFLUENT METER)
   b. BLWR–231 SPEED
   c. BLWR–232 SPEED
   d. BLWR–233 SPEED
   e. BLWR–234 SPEED
   f. BLWR–631 SPEED
   g. LE/LIT–711 LEVEL (ALUM SULFATE STORAGE LEVEL)

① 120V GFCI RECEPTACLE IN WEATHERPROOF BOX ON UNISTRUT.

② TWO SETS 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 CONTROL CENTER & ONE AT INFLUENT PUMP STATION.

③ 120V SINGLE POLE SWITCH IN WEATHERPROOF BOX.

*SEE ELECTRICAL RISER DIAGRAM NOTE 1

JF-3

BY	BJK	BJK											
REVISION	PERMIT SET	BID SET											
DATE	2/15/2021	11/30/2022											
	A	B											

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PROCESS DETAILS AND ELECTRICAL RISER DIAGRAM

HERRINGTON HAVEN WWTF IMPROVEMENTS
HERRINGTON HAVEN DRIVE
GARRARD, KENTUCKY

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

SEAL DATE:	11/30/2022
DRAWN BY:	KAR
PROJ NUMBER:	0542-19
DATE:	11/30/2022
DRAWING NO:	P2

EXHIBIT 4

Detailed Facility Report

Detailed Facility Report

Facility Summary

WOODLAND ACRES

57 HEMLOCK DR, SHEPHERDSVILLE, KY 40165

FRS (Facility Registry Service) ID: 110033639784
EPA Region: 04
Latitude: 38.008333
Longitude: -85.729722
Locational Data Source: NPDES
Industries: Real Estate
Indian Country: N

Enforcement and Compliance Summary

Statute	CWA
Compliance Monitoring Activities (5 years)	2
Date of Last Compliance Monitoring Activity	03/23/2022
Compliance Status	Significant/Category I Noncompliance
Qtrs in Noncompliance (of 12)	12
Qtrs with Significant Violation	12
Informal Enforcement Actions (5 years)	13
Formal Enforcement Actions (5 years)	1
Penalties from Formal Enforcement Actions (5 years)	$0
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information
Clean Water Act (CWA): Minor, Permit Effective (KY0091600)
Resource Conservation and Recovery Act (RCRA): No Information
Safe Drinking Water Act (SDWA): No Information

Go To Enforcement/Compliance Details
Known Data Problems

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information
Compliance and Emissions Data Reporting Interface (CEDRI): No Information

JF-4

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110033639784					N	38.008333	-85.729722
ICIS-NPDES	CWA	KY0091600	Minor: NPDES Individual Permit	Effective		09/30/2026	N	38.008333	-85.729722

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110033639784	WOODLAND ACRES	57 HEMLOCK DR, SHEPHERDSVILLE, KY 40165	Bullitt County
ICIS-NPDES	CWA	KY0091600	WOODLAND ACRES	57 HEMLOCK DR, SHEPHERDSVILLE, KY 40165	Bullitt County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
ICIS-NPDES	KY0091600	6515	Mobile Home Site Operators

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
ICIS-NPDES	KY0091600	531190	Lessors of Other Real Estate Property

Facility Industrial Effluent Guidelines

Identifier	Effluent Guideline (40 CFR Part)	Effluent Guideline Description
No data records returned		

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
No data records returned			

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CWA	KY0091600	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	03/23/2022	
CWA	KY0091600	ICIS-NPDES	Inspection/Evaluation	Base Program - Reconnaissance without Sampling	State	08/02/2021	

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CWA	KY0091600	Yes	09/30/2022	12	02/17/2023

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA (Source ID: KY0091600)					10/01-12/31/19	01/01-03/31/20	04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-02/17/23
	Facility-Level Status				Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Violation Identified
	Quarterly Noncompliance Report History				Failure to Report DMR - Not Received	Effluent - Monthly Average Limit	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	Effluent - Monthly Average Limit	
	Pollutant	Disch Point	Mon Loc	Freq													
▸ CWA	BOD, carbonaceous [5 day, 20 C]	001 - 2	Effluent Gross	Mthly	235%	200%							60%	120%			

Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA	BOD, carbonaceous [5 day, 20 C]	001 - 2	Effluent Gross	NMth	123%	100%							7%	47%			
CWA	Chlorine, total residual	001 - 2	Effluent Gross	Mthly										**17264%**	**9809%**	**19900%**	**19900%**
CWA	Chlorine, total residual	001 - 2	Effluent Gross	NMth										9953%	5637%	11479%	11479%
CWA	E. coli	001 - 2	Effluent Gross	Mthly	275%									1762%			
CWA	E. coli	001 - 2	Effluent Gross	NMth	103%									908%			
CWA	Nitrogen, ammonia total [as N]	001 - 2	Effluent Gross	Mthly		10%					382%		**65%**	**86%**	**590%**		14%
CWA	Nitrogen, ammonia total [as N]	001 - 2	Effluent Gross	NMth							220%		10%	24%	360%		
CWA	Solids, total suspended	001 - 2	Effluent Gross	Mthly								203%		140%	15%		97%
CWA	Solids, total suspended	001 - 2	Effluent Gross	NMth								102%		60%			31%
	Single Event Violations			**Agency**													
CWA	Effluent Violations - Narrative Effluent Violation			State								08/02/2021					
CWA	Permit Violations - Violation Specified in Comment			State										03/23/2022			
	Late or Missing Discharge Monitoring Report (DMR) Measurements																
	Counts of Late DMR Measurements				23												
	Counts of Missing DMR Measurements				2				25								

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	01/12/2023
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	09/02/2022
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	05/26/2022
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	12/09/2021
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	10/06/2021
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	09/13/2021
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	06/03/2021

Statute	System	Source ID	Type of Action	Lead Agency	Date
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	09/30/2020
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	05/28/2020
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	12/11/2019
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	10/31/2019
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	09/05/2019
CWA	ICIS-NPDES	KY0091600	Base Program - Notice of Violation	State	06/18/2019

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost
CWA	ICIS-NPDES	OTHER	NPDES/KY0091600	Administrative - Formal	KY-DOW-21-3-0030	State	WOODLAND ACRES UTILITIES LLC	10/06/2021	1	10/06/2021	$0	$0	--	$0	$0

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
051401021103	Bullitt Lick Creek-Salt River	MUD RUN CRK, UT TO MUD RUN CREEK	No	No	--	Yes

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
Ozone	Yes	8-Hour Ozone (2015)	Yes	1-Hour Ozone (1979); 8-Hour Ozone (1997)
Lead	No	--	No	--
Particulate Matter	No	--	Yes	PM-2.5 (1997)
Carbon Monoxide	No	--	No	--
Sulfur Dioxide	No	--	No	--

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name

No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	31
Ozone	27
Diesel Particulate Matter	32
Air Toxics Cancer Risk	19
Air Toxics Respiratory Hazard Index	22
Traffic Proximity	8
Lead Paint	17
Risk Management Plan (RMP) Facility Proximity	15
Hazardous Waste Proximity	24
Superfund Proximity	36
Underground Storage Tanks (UST)	27
Wastewater Discharge	29

Number of EJ Indexes Above 80th Percentile
0

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	4,285
Population Density	1,301/sq.mi.
Housing Units in Area	1,665

General Statistics (ACS (American Community Survey))	
Total Persons	4,136
Percent People of Color	6%
Households in Area	1,659
Households on Public Assistance	11
Persons With Low Income	1,408
Percent With Low Income	34%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	38.008333
Center Longitude	-85.729722
Land Area	99%
Water Area	1%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	266 (16.03%)
$15,000 - $25,000	263 (15.85%)
$25,000 - $50,000	266 (16.03%)
$50,000 - $75,000	413 (24.89%)
Greater than $75,000	451 (27.19%)

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	423 (10%)
Minors 17 years and younger	1,341 (31%)
Adults 18 years and older	2,944 (69%)
Seniors 65 years and older	236 (6%)

Race Breakdown (U.S. Census) - Persons (%)	
White	4,103 (96%)
African-American	39 (1%)
Hispanic-Origin	48 (1%)
Asian/Pacific Islander	33 (1%)
American Indian	34 (1%)
Other/Multiracial	77 (2%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	99 (3.55%)
9th through 12th Grade	186 (6.67%)
High School Diploma	1,321 (47.36%)
Some College/2-year	659 (23.63%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	255 (9.14%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION

EXHIBIT 5

Detailed Facility Report

Detailed Facility Report

Facility Summary

DARLINGTON CREEK HOA SUBDIVISION

JCT OF US 27 S & KY 154, ALEXANDRIA, KY 41001

FRS (Facility Registry Service) ID: 110015982793
EPA Region: 04
Latitude: 38.852222
Longitude: -84.387778
Locational Data Source: NPDES
Industries: Heavy and Civil Engineering Construction
Indian Country: N

Enforcement and Compliance Summary

Statute	CWA
Compliance Monitoring Activities (5 years)	7
Date of Last Compliance Monitoring Activity	12/08/2022
Compliance Status	Violation Identified
Qtrs in Noncompliance (of 12)	11
Qtrs with Significant Violation	8
Informal Enforcement Actions (5 years)	5
Formal Enforcement Actions (5 years)	1
Penalties from Formal Enforcement Actions (5 years)	$0
EPA Cases (5 years)	--
Penalties from EPA Cases (5 years)	--

Regulatory Information

Clean Air Act (CAA): No Information
Clean Water Act (CWA): Minor, Permit Effective (KY0105325)
Resource Conservation and Recovery Act (RCRA): No Information

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information
Greenhouse Gas Emissions (eGGRT): No Information
Toxic Releases (TRI): No Information

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Safe Drinking Water Act (SDWA): No Information
Go To Enforcement/Compliance Details
Known Data Problems

Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Areas	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110015982793					N	38.852222	-84.387778
ICIS-NPDES	CWA	KY0105325	Minor: NPDES Individual Permit	Effective		06/30/2024	N	38.852222	-84.387778

Facility Address

System	Statute	Identifier	Facility Name	Facility Address	Facility County
FRS		110015982793	DARLINGTON CREEK HOA SUBDIVISION	JCT OF US 27 S & KY 154, ALEXANDRIA, KY 41001	
ICIS-NPDES	CWA	KY0105325	DARLINGTON CREEK HOA SUBDIVISION	JCT OF US 27 S & KY 154, ALEXANDRIA, KY 41001	Campbell County

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Description
ICIS-NPDES	KY0105325	6552	Subdividers And Developers

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
ICIS-NPDES	KY0105325	237210	Land Subdivision

Facility Industrial Effluent Guidelines

Identifier	Effluent Guideline (40 CFR Part)	Effluent Guideline Description
No data records returned		

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
No data records returned			

Enforcement and Compliance

Compliance Monitoring History

Last 5 Years

Statute	Source ID	System	Activity Type	Compliance Monitoring Type	Lead Agency	Date	Finding (if applicable)
CWA	KY0105325	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	12/08/2022	
CWA	KY0105325	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	03/22/2022	
CWA	KY0105325	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	11/24/2021	
CWA	KY0105325	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	02/25/2021	
CWA	KY0105325	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	06/10/2020	
CWA	KY0105325	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	02/10/2020	
CWA	KY0105325	ICIS-NPDES	Inspection/Evaluation	Base Program - Evaluation	State	01/03/2019	

Entries in italics are not counted as EPA official inspections.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CWA	KY0105325	No	09/30/2022	11	02/17/2023

Three-Year Compliance History by Quarter

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Statute	Program/Pollutant/Violation Type				QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+
CWA (Source ID: KY0105325)					10/01-12/31/19	01/01-03/31/20	04/01-06/30/20	07/01-09/30/20	10/01-12/31/20	01/01-03/31/21	04/01-06/30/21	07/01-09/30/21	10/01-12/31/21	01/01-03/31/22	04/01-06/30/22	07/01-09/30/22	10/01-02/17/23
	Facility-Level Status				Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	Significant/Category I Noncompliance	No Violation Identified	No Violation Identified	Violation Identified	Violation Identified	Violation Identified
	Quarterly Noncompliance Report History				Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Failure to Report DMR - Not Received	Resolved		Other Violation	Other Violation	
	Pollutant	Disch Point	Mon Loc	Freq													
CWA	Chlorine, total residual	001 - 2	Effluent Gross	Mthly											2718%		
CWA	Chlorine, total residual	001 - 2	Effluent Gross	NMth											1532%		
CWA	E. coli	001 - 2	Effluent Gross	Mthly											46%	12%	185%
CWA	E. coli	001 - 2	Effluent Gross	NMth													55%
	Single Event Violations			Agency													
CWA	Effluent Violations - Narrative Effluent Violation			State			06/10/2020										
CWA	Management Practice Violations - Improper Operation and Maintenance			State			06/10/2020										
CWA	Reporting Violations - Improper/ Incorrect Reporting			State													12/08/2022

Informal Enforcement Actions

Last 5 Years

Statute	System	Source ID	Type of Action	Lead Agency	Date
CWA	ICIS-NPDES	KY0105325	Base Program - Notice of Violation	State	12/14/2022
CWA	ICIS-NPDES	KY0105325	Base Program - Notice of Violation	State	09/08/2022
CWA	ICIS-NPDES	KY0105325	Base Program - Notice of Violation	State	06/24/2020
CWA	ICIS-NPDES	KY0105325	Base Program - Notice of Violation	State	02/04/2020
CWA	ICIS-NPDES	KY0105325	Base Program - Notice of Violation	State	03/28/2018

Entries in italics are not counted as "informal enforcement actions" in EPA policies pertaining to enforcement response tools.

Formal Enforcement Actions

Last 5 Years

Statute	System	Law/Section	Source ID	Type of Action	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty Assessed	State/Local Penalty Assessed	Penalty Amount Collected	SEP Cost	Comp Action Cost
CWA	ICIS-NPDES	OTHER	NPDES/KY0105325	Administrative - Formal	KY-DOW-21-3-0211	State	BLUEGRASS WATER UTILITY OPERATING COMPANY LLC DARLINGTON CREEK HOA INC	04/05/2022	1	04/05/2022	$0	$0	--	$0	$0

Environmental Conditions

Watersheds

12-Digit WBD (Watershed Boundary Dataset) HUC (RAD (Reach Address Database))	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD (Reach Address Database))	State Water Body Name (ICIS (Integrated Compliance Information System))	Beach Closures Within Last Year	Beach Closures Within Last Two Years	Pollutants Potentially Related to Impairment	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
051001011302	Phillips Creek-Licking River	PHILLIPS CRK, UT TO PHILLIPS CREEK	No	No	--	Yes

Assessed Waters From Latest State Submission (ATTAINS)

State	Report Cycle	Assessment Unit ID	Assessment Unit Name	Water Condition	Cause Groups Impaired	Drinking Water Use	Aquatic Life	Fish Consumption Use	Recreation Use	Other Use

No data records returned

Air Quality Nonattainment Areas

Pollutant	Within Nonattainment Status Area?	Nonattainment Status Applicable Standard(s)	Within Maintenance Status Area?	Maintenance Status Applicable Standard(s)
Ozone	No	--	Yes	1-Hour Ozone (1979)
Lead	No	--	No	--
Particulate Matter	No	--	Yes	PM-2.5 (1997)
Carbon Monoxide	No	--	No	--
Sulfur Dioxide	No	--	No	--

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-Site Releases	Total Off-Site Transfers

No data records returned

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year

Chemical Name

No data records returned

Community

EJScreen EJ Indexes

Twelve environmental justice (EJ) indexes of EJScreen, EPA's screening tool for EJ concerns. EPA uses these indexes to identify geographic areas that may warrant further consideration or analysis for potential EJ concerns. The index values below are for the Census block group or 1-mile maximum (US or State) in which the facility is located. Note that use of these indexes does not designate an area as an "EJ community" or "EJ facility." EJScreen provides screening level indicators, not a determination of the existence or absence of EJ concerns. For more information, see the EJScreen home page.

Show EJ Indexes calculated based on: Census Block Group - US

Census Block Group EJ Indexes (percentile)	
Particulate Matter 2.5	22
Ozone	19
Diesel Particulate Matter	12
Air Toxics Cancer Risk	4
Air Toxics Respiratory Hazard Index	10
Traffic Proximity	0
Lead Paint	18
Risk Management Plan (RMP) Facility Proximity	9
Hazardous Waste Proximity	3
Superfund Proximity	8

Number of EJ Indexes Above 80th Percentile
0

View EJScreen Report (US/regional/state percentiles, 1-mile average)

Census Block Group EJ Indexes (percentile)	
Underground Storage Tanks (UST)	23
Wastewater Discharge	11

Demographic Profile of Surrounding Area (1 mile)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 U.S. Census and 2016 - 2020 American Community Survey (ACS) 5-year Summary and are accurate to the extent that the facility latitude and longitude listed below are correct. EPA's spatial processing methodology considers the overlap between the selected radii and the census blocks (for U.S. Census demographics) and census block groups (for ACS demographics) in determining the demographics surrounding the facility. For more detail about this methodology, see the DFR Data Dictionary.

General Statistics (U.S. Census)	
Total Persons	561
Population Density	182/sq.mi.
Housing Units in Area	230

General Statistics (ACS (American Community Survey))	
Total Persons	352
Percent People of Color	1%
Households in Area	134
Households on Public Assistance	1
Persons With Low Income	65
Percent With Low Income	19%

Geography	
Radius of Selected Area	1 mi.
Center Latitude	38.852222
Center Longitude	-84.387778
Land Area	100%
Water Area	0%

Income Breakdown (ACS (American Community Survey)) - Households (%)	
Less than $15,000	12 (8.89%)
$15,000 - $25,000	9 (6.67%)
$25,000 - $50,000	27 (20%)
$50,000 - $75,000	16 (11.85%)
Greater than $75,000	71 (52.59%)

Age Breakdown (U.S. Census) - Persons (%)	
Children 5 years and younger	26 (5%)
Minors 17 years and younger	114 (20%)
Adults 18 years and older	447 (80%)
Seniors 65 years and older	66 (12%)

Race Breakdown (U.S. Census) - Persons (%)	
White	553 (99%)
African-American	1 (0%)
Hispanic-Origin	4 (1%)
Asian/Pacific Islander	2 (0%)
American Indian	0 (0%)
Other/Multiracial	4 (1%)

Education Level (Persons 25 & older) (ACS (American Community Survey)) - Persons (%)	
Less than 9th Grade	2 (.83%)
9th through 12th Grade	12 (4.96%)
High School Diploma	85 (35.12%)
Some College/2-year	45 (18.6%)
B.S./B.A. (Bachelor of Science/Bachelor of Arts) or More	71 (29.34%)

LAST UPDATED ON SEPTEMBER 21, 2022

DATA REFRESH INFORMATION