

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

The Missouri Department of Natural Resources hereby issues a permit to:

Boone County Commission
Phenora Subdivision North Lagoon
1314 North 7th Street
Columbia, MO 65201

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo., and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources.

As the department does not examine structural features of design or the efficiency of mechanical equipment, the issuance of this permit does not include approval of these features.

A representative of the department may inspect the work covered by this permit during construction. Issuance of a permit to operate by the department will be contingent on the work substantially adhering to the approved plans and specifications.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

May 20, 2026
Effective Date

May 19, 2028
Expiration Date



Heather S. Peters, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

This project includes the construction of a new sanitary sewer main to interconnect the existing flow from the Phenora Subdivision North Lagoon to the Boone County Regional Sewer District (BCRSD) Rocky Fork Interceptor Wastewater Treatment Plant (WWTP). This new sewer main will include approximately 1,170 linear feet (lf) of 8-inch (8") diameter PVC pipe, 385 lf of 6" diameter PVC pipe, 8 sanitary manholes and will connect into existing service locations. The existing Phenora Subdivison North Lagoon (MO-0099911) will be abandoned and closed according to Missouri Department of Natural Resources regulations. The project will serve approximately 34 residential units, with approximately 102 people being served.

This project will also include general site work appropriate to the scope and purpose of the project and all necessary appurtenances to make a complete and usable wastewater treatment system.

The project site is located north of the City of Columbia boundary, approximately 0.4 miles south of the 763 South exit off of Highway 63 South. The sewer main will connect into existing sewer lines north of North Highway VV that leads to the BCRSD Rocky Fork WWTP.

II. CONSTRUCTION PERMIT CONDITIONS

The permittee is authorized to construct, subject to the following conditions:

1. This construction permit does not authorize discharge.
2. All construction shall be in accordance with the plans and specifications submitted by Engineering Surveys and Services on May 9, 2025, and signed and sealed by Zachary K. Thomas, P.E. on June 20, 2023, and approved by the department on May 20, 2026.
3. Regulation 10 CSR 20-4.040(18)(B)1 requires that projects be publicly advertised, allowing sufficient time for bids to be prepared and submitted. Projects should be advertised at least 30 days prior to bid opening.
4. The department must be contacted in writing prior to making any changes to the approved plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed project or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(11).
5. As per 10 CSR 20-4.040, all changes in contract price or time within the approved scope of work must be by change order in accordance with Section 19 of this rule.
6. Manholes shall be located with the top access at or above grade level.

7. State and federal law does not permit bypassing of raw wastewater; therefore, steps must be taken to ensure that raw wastewater does not discharge during construction. If a sanitary sewer overflow or bypass occurs, report the appropriate information to the department's electronic Sanitary Sewer Overflow/Bypass Reporting system at <https://dnr.mo.gov/mogem/> or Northeast Regional Office per 10 CSR 20-7.015(9)(G).
8. Protection of drinking water supplies shall be in accordance with 10 CSR 20-8.120(5), which includes by reference the provisions of 10 CSR 23-3.010. Separation distance requirements between water mains and sanitary sewers in 10 CSR 60-10.010 are also applicable.
9. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of 1 acre or more to obtain a Missouri State Operating Permit to discharge stormwater. The permit requires best management practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the department's ePermitting system available online at <https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem>. See <https://dnr.mo.gov/data-e-services/water/electronic-permitting-epermitting> for more information.
10. A United States Army Corps of Engineers (USACE) Section 404 Department of Army permit (§404) along with the department's Section 401 Water Quality Certification or waiver (§401) may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied. If construction activity will disturb any land below the ordinary high water mark of jurisdictional waters of the U.S., then a §404/§401 will likely be required. Since the USACE makes determinations on what is jurisdictional, you must contact the USACE to determine permitting requirements. See <https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/section-401-water-quality> for more information or you may contact the department's Water Protection Program at 573-522-4502 or wpsc401cert@dnr.mo.gov.
11. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements.
12. In accordance with 10 CSR 20-6.010(12), a full closure plan was submitted and approved by the department's Northeast Regional Office for permitted wastewater treatment system MO-0099911. The closure activities must meet conditions in the approved closure plan and the requirements in Standard Conditions Part III of the Missouri State Operating Permit No. MO-0099911. Form J – *Request for Termination of a State Operating Permit*, shall be submitted to the Water Protection Program for termination of any existing Missouri State Operating Permit once closure is completed in accordance with the approved closure plan.
13. Upon completion of construction:
 - A. The Boone County Commission will become the continuing authority for operation and maintenance of these facilities;

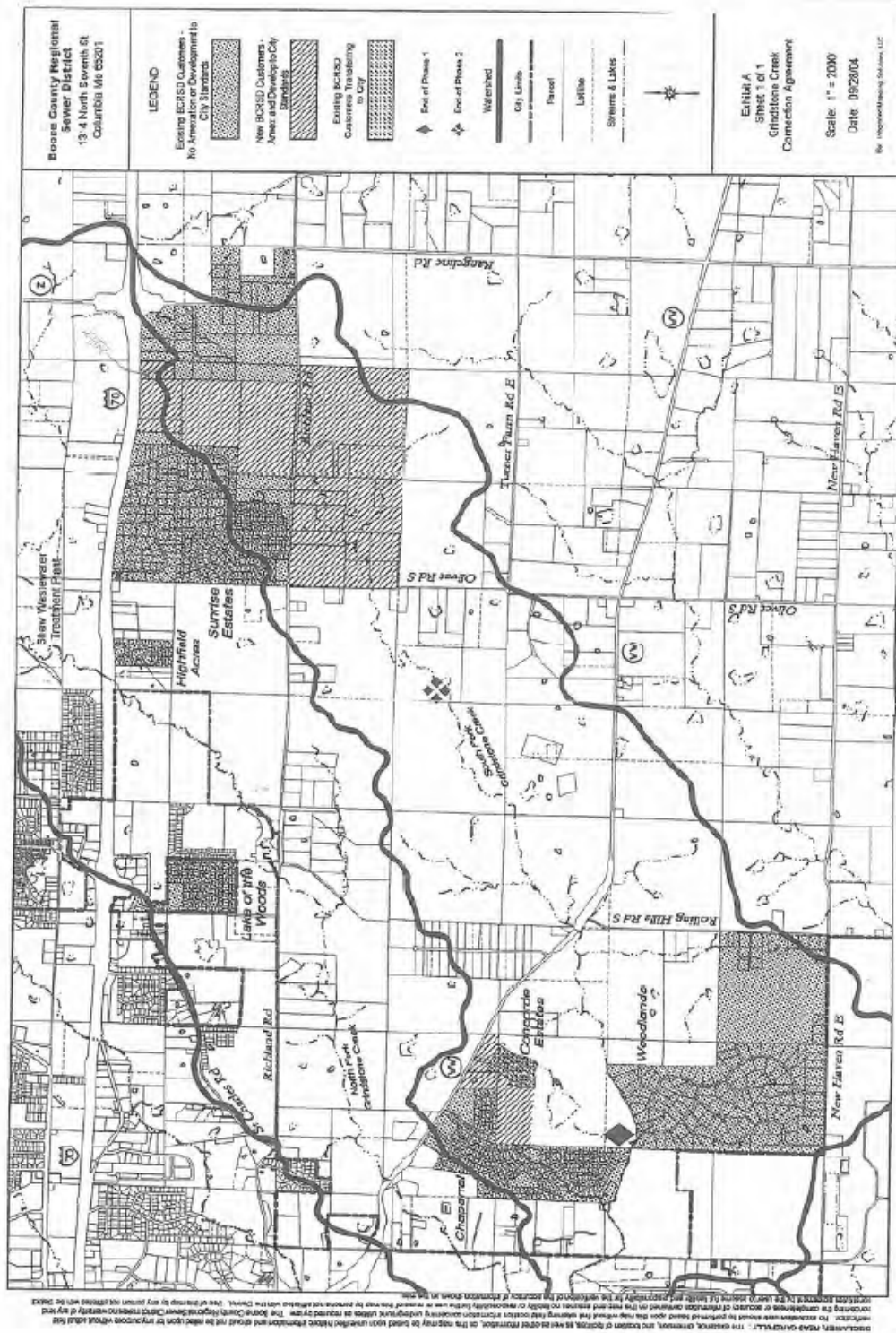
- B. Submit an electronic copy of the as-builts if the project was not constructed in accordance with previously submitted plans and specifications;
- C. Submit the Statement of Work Completed form (<https://dnr.mo.gov/document-search/wastewater-construction-statement-work-completed-mo-780-2155>) to the department in accordance with 10 CSR 20-6.010(5)(N).

Joshua Brown, P.E.
Financial Assistance Center
Joshua.brown@dnr.mo.gov

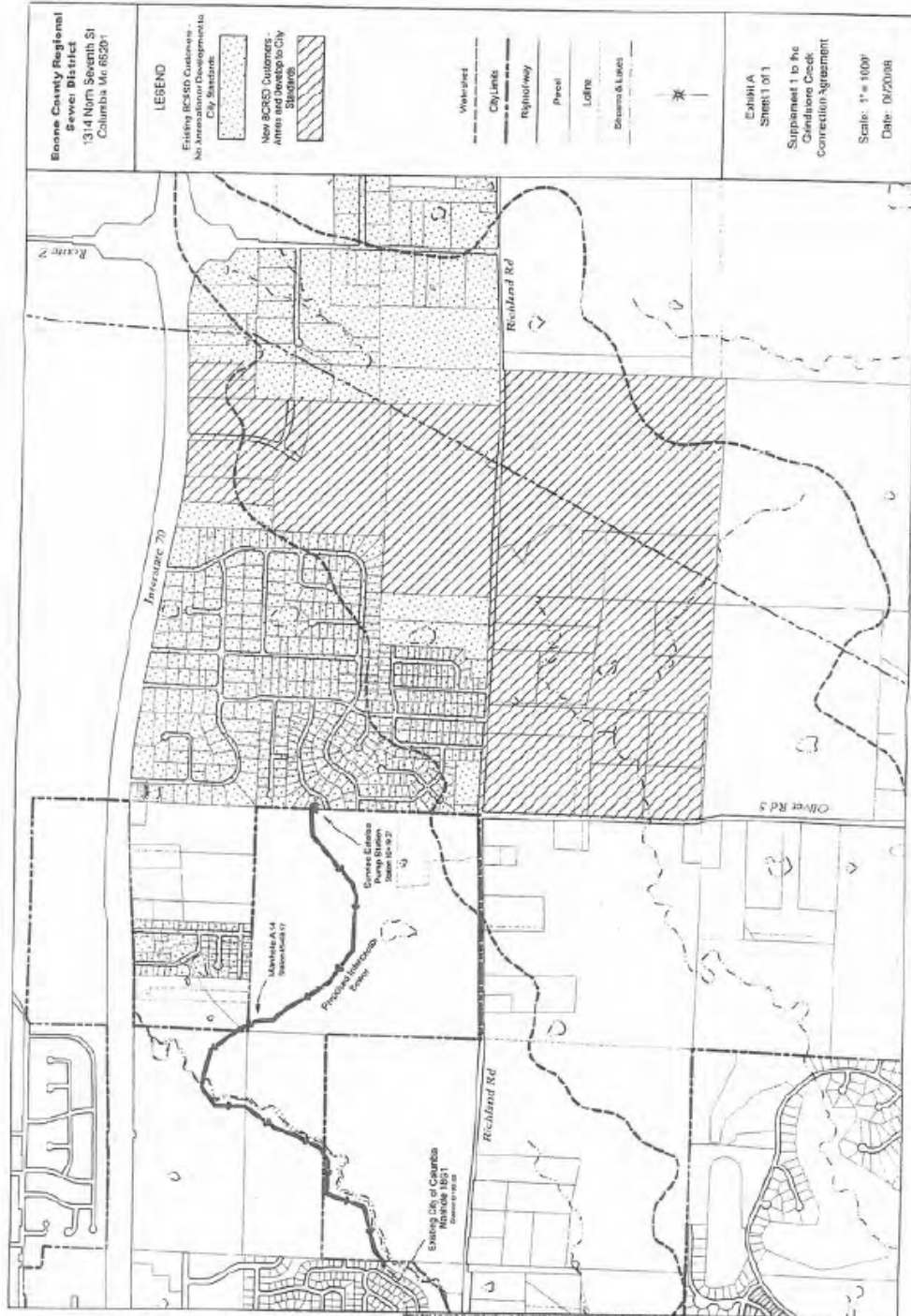
APPENDICES

- Appendix A – Project Maps
- Appendix B – Closure Plan Approval

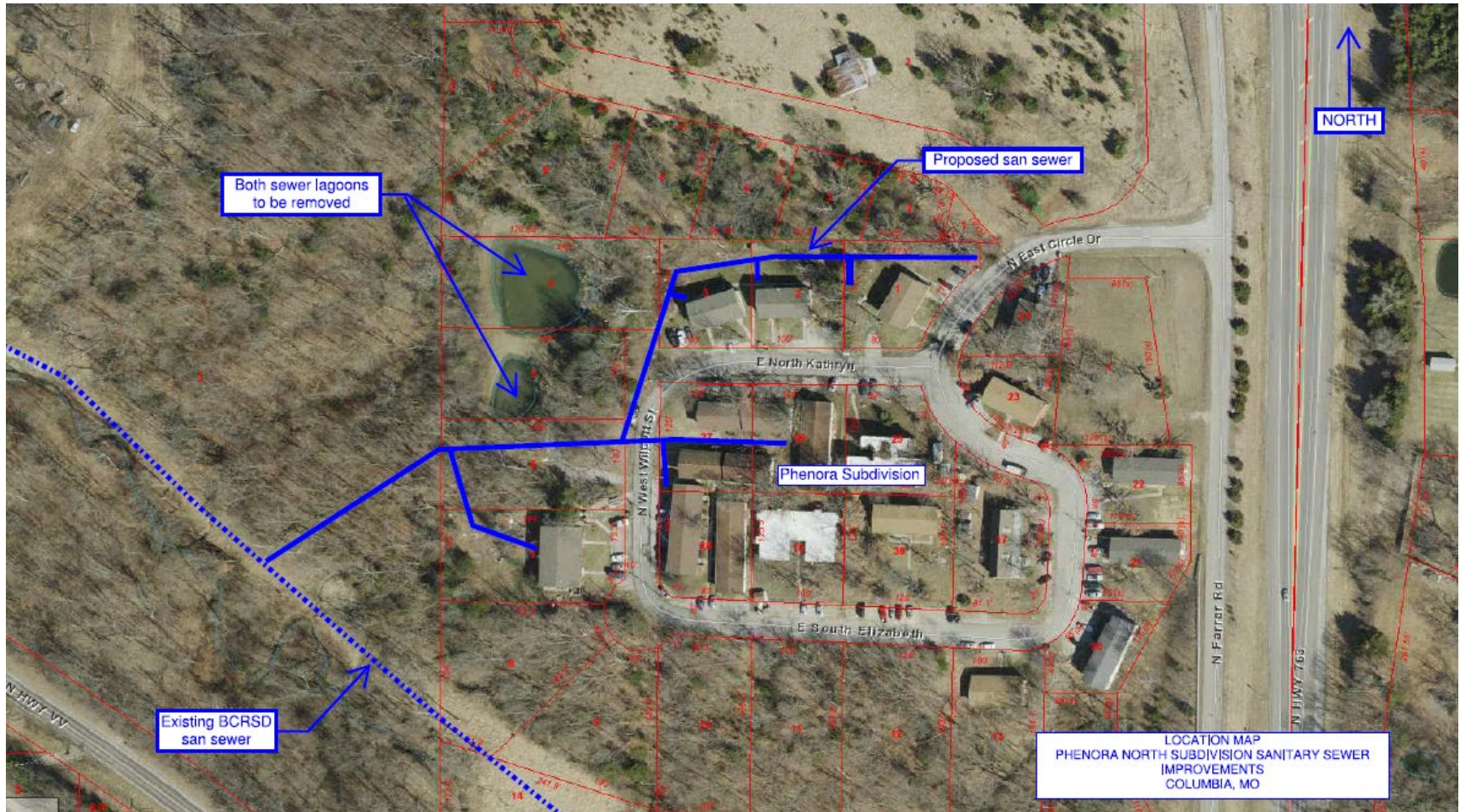
APPENDIX A – PROJECT MAPS



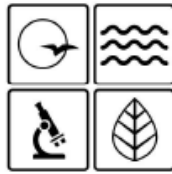
NOTICE: THIS PLAN, SPECIFICATIONS, AND LIST OF MATERIALS IS A PRELIMINARY DESIGN. THE ENGINEER HAS NOT CONDUCTED A FIELD SURVEY TO VERIFY THE ACCURACY OF THE INFORMATION PROVIDED HEREON. THE USER OF THIS PLAN ASSUMES ALL LIABILITY FOR ANY ERRORS OR OMISSIONS. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED HEREON. THE USER OF THIS PLAN ASSUMES ALL LIABILITY FOR ANY ERRORS OR OMISSIONS. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED HEREON.



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APPENDIX B – CLOSURE PLAN APPROVAL



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

5.100 BCRSD Highfield Acres WWTF
Boone County
#MO-0053376

August 19, 2024

Virgil Farnen Operations Manager
1314 North 7th Street
Columbia, MO 65201

CLOSURE PLAN APPROVAL

Dear Virgil Farnen:

A closure plan review was conducted by a Missouri Department of Natural Resources' team member pursuant to the Missouri Clean Water Law regarding the submittals received by the Northeast Regional Office on July 30, 2024. The closure plan was submitted for the wastewater treatment plant associated with the Boone County Regional Sewer District (BCRSD) Highfield Acres Wastewater Treatment Facility (WWTF), located 0.05 miles west of the Western Lane and Eastern Lane intersection, in Boone County. The entity operates under the authority of Missouri State Operating Permit #MO-0053376.

Please see the attached closure plan review document for the approval.

Your cooperation in achieving and maintaining environmental compliance is appreciated. Fact sheets are available on the department's website to assist entities with understanding and following environmental requirements.

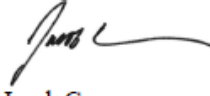


BCRSD Highfield Acres WWTF
August 19, 2024
Page 2

If you have any questions or would like to schedule a time to meet with a department team member to discuss compliance requirements, please contact Troy LaLond at 660-385-8000 in the Northeast Regional Office, 1709 Prospect Drive, Macon, MO 63552 or by email at NERO@dnr.mo.gov.

Sincerely,

NORTHEAST REGIONAL OFFICE



Jacob Cross
Regional Director

Enclosure: Closure Plan Review

c: Ryan Johanning P.E. Cochran Engineering
Ginny Bretzke, P.E. Water Protection Program, Financial Assistance Center

**Missouri Department of Natural Resources
Northeast Regional Office
Closure Plan Review
BCRSD Highfield Acres WWTF
0.05 miles west of Western Lane and Eastern Lane intersection, Columbia, Missouri 65201
Boone County
#MO-0053376
August 19, 2024**

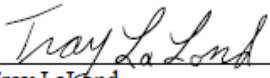
On July 30, 2024, the Missouri Department of Natural Resources' Northeast Regional Office received a closure plan for the Boone County Regional Sewer District (BCRSD) Highfield Acres Wastewater Treatment Facility (WWTF). Revisions to the closure plan were submitted on July 31, 2024, and August 14, 2024.

The closure plan was reviewed in accordance with Clean Water Commission Regulation 10 CSR 20-6.010(12), "Closure of Treatment Facilities," and Standard Conditions Parts I and III of Missouri State Operating Permit #MO-0053376 for the disposal of wastewater treatment facility residues. The department approves the submitted closure plan with the following conditions:

- A disturbance of one acre or greater during closure activities requires a land disturbance permit.
- All reports and fees required by Missouri State Operating Permit #MO-0053376 must be submitted as required until termination of the operating permit.

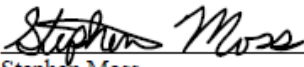
Please remember to coordinate with the Department's Water Pollution Control Branch to ensure proper termination or modification of Missouri State Operating Permit #MO-0053376 is completed to reflect the closure of this wastewater treatment facility.

SUBMITTED BY:

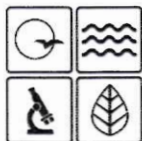


Troy Lalond
Environmental Program Specialist
Northeast Regional Office

REVIEWED BY:



Stephen Moss
Engineering Program Supervisor
Northeast Regional Office



MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM
**APPLICATION FOR CONSTRUCTION PERMIT –
 SEWER EXTENSION**

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED	CHECK NO.
DATE RECEIVED	

NOTE ▶ Please Read the accompanying instructions before completing this form

1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

- 1.1 Is this a Federal/State funded project? YES N/A Funding Agency: DNR CWSRF Project #: C295299-04
- 1.2 Has the Department of Natural Resources approved the proposed project's engineering report*?
 YES Date of Approval: October 28, 2025 NO N/A
- 1.3 Is a copy of the appropriate plans* and specifications* included with this application? YES NO
 If the project is using standard specifications, name of community: N/A
- 1.4 Is a summary of design* included with this application? YES NO
- 1.5 Is the appropriate fee or JetPay confirmation included with this application? YES NO
 See Section 7.0

* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT

Phenora North Subdiv. NID North Lagoon Closure & Sanitary Sewer Improvements

ADDRESS	CITY	STATE	ZIP CODE	COUNTY
West Wilcott Street & North Kathryn	Columbia	MO	65202	Boone

2.2 Legal Description: $\frac{1}{4}$, NE $\frac{1}{4}$, NE $\frac{1}{4}$, Sec. 24, T 49N, R 13W

2.3 Project Components (check all that apply):

- Gravity sewers Pumping stations Force mains Alternative sewer system Other (Describe below.)

2.4 PROJECT DESCRIPTION

Replace existing onsite sanitary sewers serving 10 multifamily residential buildings. Construct new 8-inch gravity sanitary sewer main extending west to connect to BCRSD sewer main. Remove existing 2 cell lagoon treatment system.

2.5 DESIGN INFORMATION

- A. Population or number of lots to be served by this extension: 11 lots; design population 120 persons
- B. Estimated flow to be contributed by this extension: Design Average Flow: 12000 gpd Design Peak Hourly Flow: 2110 gph
- C. Industrial Wastes: Type: N/A Flow: N/A gpd
- D. Receiving Sewer: Size: 8 inches Capacity: 167 gpm
- E. Does this project (check all that apply):
 Connect to an existing treatment plant Resolve enforcement issue Eliminate or consolidate an existing treatment plant
- F. Estimated number of onsite systems being removed: 1 lagoon treatment system
- G: Estimated costs associated with piping: \$ 165,000 Estimated costs associated with lift station(s): \$ 0

3.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	EMAIL ADDRESS	
Boone County Regional Sewer District (BCRSD)	(573) 443-2774	DCunningham@bcrsd.com	
ADDRESS	CITY	STATE	ZIP CODE
1314 N. 7th Street	Columbia	MO	65201

CHARTER NUMBER (SECRETARY OF STATE) or REGISTERED AGENT

4.0 CONTINUING AUTHORITY: A continuing authority is a company, business, entity, or person(s) that will be legally responsible for ensuring compliance with the permit requirements and provide continuous stable oversight of the permitted facility or activity. The Continuing authority should be a relatively permanent entity responsible for the ongoing operation, maintenance and modernization, when needed, of the permitted facility or activity. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit [Clean Water Commission Chapter 6](#). A continuing authority's name must be listed exactly as it appears on the Missouri Secretary of State's (SoS's) webpage: [Missouri Secretary of State](#), unless the continuing authority is an individual(s), government entity, or otherwise not required to register with the SoS.

NAME Boone County Regional Sewer District (BCRSD)		TELEPHONE NUMBER WITH AREA CODE (573) 443-2774	EMAIL ADDRESS DCunningham@bcrsd.com
ADDRESS 1314 N. 7th Street	CITY Columbia	STATE MO	ZIP CODE 65201
CHARTER NUMBER (SECRETARY OF STATE)			

4.1 Has appropriate continuing authority acceptance been provided as follows:
A letter from the continuing authority accepting responsibility for continued maintenance of the sewer (if the continuing authority is different than the original owner of the construction), or a properly executed "Continuing Authority and Receiving Wastewater Treatment Facility Acceptance" Form 780-2584. YES NO N/A

5.0 ENGINEER

ENGINEER NAME / COMPANY NAME Benjamin Ross / Engineering Surveys & Services		TELEPHONE NUMBER WITH AREA CODE (573) 449-2646	EMAIL ADDRESS bross@ess-inc.com
ADDRESS 1113 Fay Street	CITY Columbia	STATE MO	ZIP CODE 65201

6.0 RECEIVING WASTEWATER TREATMENT FACILITY

NAME BCRSD Rocky Fork WWTP		TELEPHONE NUMBER WITH AREA CODE (573) 443-2774	EMAIL ADDRESS jhorton@bcrsd.com
MISSOURI STATE OPERATING PERMIT # MO-0137294	COUNTY Boone	REMAINING CAPACITY (GPD) 240,000	

6.1 If different from the owner, has a letter been provided from the receiving treatment facility demonstrating that they agree to accept the expanded flow or has a properly executed Continuing Authority and Receiving Wastewater Treatment Facility Acceptance MO 780-2584 form been provided? YES NO N/A

6.2 A letter from the receiving wastewater treatment facility, if different than the continuing authority, is included with this application.
 YES NO N/A

6.3 If the receiving treatment plant or continuing authority is regulated by the Public Service Commission (PSC) for sewer activities, a Certificate of Convenience and Necessity has been received? Yes - Date: No N/A

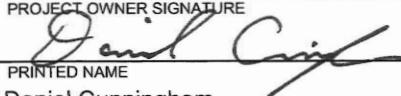
OPTIONAL QUESTIONS REGARDING MILITARY SERVICE

Have you or an immediate family member ever served in the U.S. Armed Forces?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, would you like information about military-related services in Missouri?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

7.0 Application Fee

<input type="checkbox"/> Check Number	<input checked="" type="checkbox"/> JetPay Confirmation Number 20066207
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8.0 PROJECT OWNER: I certify under penalty of law this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PROJECT OWNER SIGNATURE 		DATE 12/4/25
PRINTED NAME Daniel Cunningham		DATE 12/4/25
TITLE OR CORPORATE POSITION Project Manager, BCRSD	TELEPHONE NUMBER WITH AREA CODE (573) 443-2774	EMAIL ADDRESS DCunningham@bcrsd.com

<p>Mail completed copy to:</p> <p>MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM PO BOX 176 JEFFERSON CITY, MO 65102-0176</p>	<p>Submit completed electronic copy to:</p> <p>Missouri Department of Natural Resources at DNR.WPPEngineerSection@dnr.mo.gov</p>
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9.0 SEWER EXTENSION CHECKLIST				
SEWER EXTENSION DESIGN CERTIFICATION: Answer all questions yes or N/A. Answer N/A only if the question is clearly not applicable to the design of the proposed sewer extension.				
	REGULATION		YES	N/A
1.	8.110(3)(A)	Is the design flow based on actual flow data for an existing system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	8.110(3)(B)	Are average design flows, peak hourly flows and I&I contributions for new systems calculated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.	8.110(9)(B)	Is there a detailed plan showing tributary area, boundaries, pertinent elevations, topography, existing and proposed facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.	8.120(2)	Does the sewer exclude water from roofs, streets, groundwater from foundation drains and combined wastewater?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.	8.120(3)(A)	Is the pipe installation, embedment and backfill designed to prevent damage to the pipe and its joints?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6.	8.120(3) (A)1	Is all sewer pipe constructed with a slope to obtain mean velocities of not less than 2 feet per second?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7.	8.120(3)(A)2	Is the pipe covered with at least 36" of soil or sufficiently insulated to prevent freezing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8.	8.120(3)(B)	Is deflection testing specified to ensure no pipe exceeds a deflection of 5% of the inside diameter?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9.	8.120(4)(A)	Are manholes located at the end of each line, at all changes in grade, size or alignment and at all intersections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10.	8.120(4)(C)	Are manholes at least 42 inches in diameter with a clear opening of 22 inches on sewer line larger than 8"?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11.	8.120(4)(C)	Where cleanouts are used at the end of a lateral instead of a manhole, they are a minimum diameter of 8 inches or larger and equal to the diameter for pipes < 8"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12.	8.120(4)(E)	Are the manholes watertight, constructed and installed in accordance with the manufacturer's recommendations and procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13.	8.120(4)(F)	Do the specifications include a requirement for inspection and testing for manholes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14.	8.120(5)(A)	Is the sewer free from physical connections to a potable water supply system and no water pipes come in contact with a sewer manhole?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15.	8.120(5)(B)	Are sewers and manholes located at least 50 feet horizontally from any existing or proposed water supply well, sources, structures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10.0 PRESSURE SEWERS, GRINDER PUMP, STEP AND STEG SEWER CHECKLIST				
	REGULATION		YES	N/A
16.	8.125(5)(A)1.	Does the cleaning velocity of ≥ 2 ft/s happen more than once per day?	<input type="checkbox"/>	<input type="checkbox"/>
17.	8.125(5)(A)2.	Is the diameter of the pressure sewer main pipe at least 1.5"?	<input type="checkbox"/>	<input type="checkbox"/>
18.	8.125(5)(B)	Are appurtenances compatible with the piping system?	<input type="checkbox"/>	<input type="checkbox"/>
19.	8.125(5)(B)2.	Are isolation valves located: upstream of major pipe intersections; both sides of stream, bridge and RR crossings; at terminal end of system?	<input type="checkbox"/>	<input type="checkbox"/>
20.	8.125(5)(C)	Do service line pipes have a minimum diameter of 1.25"?	<input type="checkbox"/>	<input type="checkbox"/>
21.	8.125(5)(D)1.A	Do simplex grinder pump stations service only a single equivalent dwelling unit (EDU)? i.e. 1 residence – 1 grinder pump.	<input type="checkbox"/>	<input type="checkbox"/>
22.	8.125(5)(D)1.B	Are multiple unit pump stations owned, operated and maintained by an approved continuing authority?	<input type="checkbox"/>	<input type="checkbox"/>
23.	8.125(5)(D)3.	Is there at least 70 gallons of storage in the grinder pump unit?	<input type="checkbox"/>	<input type="checkbox"/>
24.	8.125(5)(D)4.	Do grinder pump stations have shutoff valves, check valves and anti-siphon valves (where siphoning could occur) that are accessible from the ground surface?	<input type="checkbox"/>	<input type="checkbox"/>
25.	8.125(5)(D)7., 8.130(3)(B)2.	Are units serviceable and replaceable under wet conditions without electrical hazard and is electrical equipment suitable for hazardous locations (National Electrical Code, Class I, Group D, Division 1 location)?	<input type="checkbox"/>	<input type="checkbox"/>
26.	8.125(5)(D)8., 8.125(2)(F)6.	Are provisions in place to avoid interruption of service due to mechanical or power failure by providing standby power, storage capacity, or interconnection with another disposal system?	<input type="checkbox"/>	<input type="checkbox"/>
27.	8.125(6)(D)	In a STEP system is at least one septic tank (1,000 gallons or more) provided for each EDU with 20% of tank volume dedicated to freeboard and ventilation?	<input type="checkbox"/>	<input type="checkbox"/>
28.	8.125(6)(F)	Are duplex pumps provided for the design flow of 1,500 gallons or greater?	<input type="checkbox"/>	<input type="checkbox"/>

11.0 PUMP STATION CHECKLIST				
	REGULATION		YES	N/A
29.	8.125(7)(C)	Is the minimum diameter sewer main pipe and service line of STEG sewer at least 4"?	<input type="checkbox"/>	<input type="checkbox"/>
30.	8.130(2)(A) 8.140(2)(B)	Is the pump station designed to withstand the 100-year flood?	<input type="checkbox"/>	<input type="checkbox"/>
31.	8.130(3)(A)	Is the dry well completely separate from the wet well and is a suitable and safe means of access provided to each?	<input type="checkbox"/>	<input type="checkbox"/>
32.	8.130(3)(B)	If the design flow is 1,500 gpd or more, are there at least 2 pumps or pneumatic ejectors provided?	<input type="checkbox"/>	<input type="checkbox"/>
33.	8.130(3)(D)	Are valves located outside wet well unless integral to a pump or its housing?	<input type="checkbox"/>	<input type="checkbox"/>
34.	8.130(3)(F) 8.140(8)(J)	Do wet and dry wells have separate ventilation systems?	<input type="checkbox"/>	<input type="checkbox"/>
35.	8.130(3)(G)	Does all potable water brought to pump stations comply with 8.140(7)(D)?	<input type="checkbox"/>	<input type="checkbox"/>
36.	8.130(6)	Is an alarm system provided with uninterrupted power?	<input type="checkbox"/>	<input type="checkbox"/>
37.	8.130(7)(A)	Is there 2 hours retention of the peak hourly flow for a design flow > 100,000 gpd or 4 hrs retention of the peak hourly flow for a design flow < 100,000 gpd?	<input type="checkbox"/>	<input type="checkbox"/>
38.	8.130(7)(B)	Are there independent utility substations provided for emergency power capable of starting and operating the pump station at its rated capacity?	<input type="checkbox"/>	<input type="checkbox"/>
39.	8.130(8)(A)	Is the force main velocity of ≥ 2 ft/s maintained?	<input type="checkbox"/>	<input type="checkbox"/>
40.	8.130	Are there complete operation instructions for the pumping stations provided that include emergency procedures, maintenance schedules, special tools and spare parts that may be necessary?	<input type="checkbox"/>	<input type="checkbox"/>

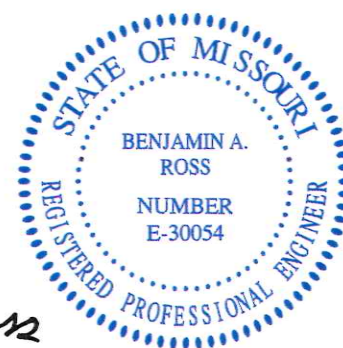
12.0 SUCTION LIFT PUMP AND SUBMERSIBLE PUMP STATION CHECKLIST				
	REGULATION		YES	N/A
41.	8.130(4)	Are the suction lift pumps of the self priming or vacuum priming type?	<input type="checkbox"/>	<input type="checkbox"/>
42.	8.130(4)(A)	Is the combined total of dynamic suction lift at the "pump off" elevation and required net positive suction head at design operating conditions less than or equal to 22 feet?	<input type="checkbox"/>	<input type="checkbox"/>
43.	8.130(4)(B)	Are there dual vacuum pumps capable of removing air from the suction lift pump?	<input type="checkbox"/>	<input type="checkbox"/>
44.	8.130(5)(A)	Are submersible pumps readily removable and replaceable without personnel entering, or disconnecting any pipe in the wet well?	<input type="checkbox"/>	<input type="checkbox"/>

13.0 SEWER EXTENSION CHECKLIST -- CERTIFICATION STATEMENT

For any questions answered "N/A" provide an explanation. Also provide any useful general comments regarding design for review engineer.

- 100 gallons per day/person was assumed in flow calculations. This is a small facility with no actual existing flow data.
- Peak hourly flow calculated based on population of 120 and design flow of 12,000 gpd = 500 gph; Peaking factor $(18 + \sqrt{0.120}) / (4 + \sqrt{0.120}) = 4.22$; peak hourly flow = 500 gph * 4.22 = 2110 gph. I&I considered negligible, new collection system to connect to existing system near buildings.
10. Manholes are 48" diameter; all proposed sewer pipe is no greater than 8 inches.

Missouri Professional Engineer's seal, signature and date: December 3, 2025



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