

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Logan-Rogersville R VIII
100 E. Front Street
Rogersville, MO 65742

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 (Department).

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.

April 9, 2020
Effective Date

April 8, 2022
Expiration Date


Edward B. Galbraith, Director, Division of Environmental Quality


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The proposed project is to construct a new non-discharging lagoon with surface sprinkler land application field with a design flow of 8,250 gpd, and to close and fill the existing lagoon.

The storage lagoon will be sealed with a compacted clay liner that has a design permeability not exceeding 1.0×10^{-7} cm/sec. The basin will be non-aerated, have a surface area of 0.52 acres at the 3 foot level, and a volume of 908,696 gallons. This provides approximately 75 days at the 1 in 10-year rainfall minus evaporation for the proposed storage period.

The land application site is located immediately northwest of the school and is owned by the project owner. The site is approximately 4.86 acres with grass hay. Maximum application rates are 0.2 inches/hour, 1 inch/day, 3 inches/week, and 24 inches/year.

A 14 HP land application pump capable of operating at 20-33 gpm will transfer treated wastewater from the lagoon to the land application site. One Big Sprinkler 1250K moveable sprinkler cart will be used, which is capable of a 112 to 144 ft diameter spray field. The wastewater will be irrigated at a hydraulic rate and sprinkler locations will be rotated for even application, as outlined in the facility's operation and maintenance manual.

A closure plan will need to be submitted to the Southwest Regional Office for review and approval prior to any lagoon closure activities.

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 facility.

II. COST ANALYSIS FOR COMPLIANCE

Pursuant to Section 644.145, RSMo, when issuing permits under this chapter that incorporate a new requirement for discharges from publicly owned combined or separate sanitary or storm sewer systems or publicly owned treatment works, or when enforcing provisions of this chapter or the Federal Water Pollution Control Act, 33 U.S.C. 1251 et seq., pertaining to any portion of a publicly owned combined or separate sanitary or storm sewer system or [publicly owned] treatment works, the Department of Natural Resources shall make a "finding of affordability" on the costs to be incurred and the impact of any rate changes on ratepayers upon which to base such permits and decisions, to the extent allowable under this chapter and the Federal Water Pollution Control Act. This process is completed through a cost analysis for compliance. Permits that do not include new requirements may be deemed affordable.

The Department is not required to complete a cost analysis for compliance because the facility is not a combined or separate sanitary sewer system for a publically-owned treatment works.

III. 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 consistent with plans and specifications signed and sealed by Pinnacle Design Consultants, LLC and as described in this permit.
3. The Department must be contacted in writing prior to making any changes to the plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(11).
4. 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.
5. 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 Southwest Regional Office per 10 CSR 20-7.015(9)(G).
6. The wastewater treatment facility shall be located no closer than the minimum distance of 200' to a neighboring residence and 50' to property line for lagoons per 10 CSR 20-8.140(C)(2)
7. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
8. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred- (100-) year flood elevation per 10 CSR 20-8.140(2)(B). The minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300') per 10 CSR 20-8.140(2)(C)1.
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 dnr.mo.gov/env/wpp/epermit/help.htm. See dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm for more information.

10. A United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) issued by the Department or permit waiver 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 be required. Since the COE makes determinations on what is jurisdictional, you must contact the COE to determine permitting requirements. You may call the Department's Water Protection Program at 573-751-1300 for more information. See dnr.mo.gov/env/wpp/401/ for more information.
11. In accordance with 10 CSR 20-6.010(12), a full closure plan shall be submitted to the Department's Southwest Regional Office for review and approval of any permitted wastewater treatment system being replaced. The closure plan must meet the requirements outlined in Standard Conditions Part III of the Missouri State Operating Permit No. MO-0139475. Closure shall not commence until the submitted closure plan is approved by the Department. 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.
12. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

10 CSR 20-8.120 Gravity Sewers.

- Rain water from roofs, streets, and other areas and groundwater from foundation drains shall be excluded from all new sewers. 10 CSR 20-8.120 (2)
- Service connections to the gravity sewer main shall be watertight and cannot protrude into the sewer. 10 CSR 20-8.120 (3) (C) 1.
- Location. Manholes shall be installed—10 CSR 20-8.120 (4) (A)
 - At the end of each line;
 - At all changes in grade, size, or alignment;
 - At all sewer pipe intersections; and
 - At distances appropriate to allow for sufficient cleaning and maintenance of sewer lines.
- There shall be no physical connections between a public or private potable water supply system and a sewer or appurtenance that would permit the passage of any wastewater or polluted water into the potable supply. 10 CSR 20-8.120 (5) (A)
- Sewers shall be laid at least fifty feet (50') in a horizontal direction from any existing or proposed public water supply well or other water supply sources or structures. Sewers must also comply with 10 CSR 23-3.010. 10 CSR 20-8.120 (5) (B)

10 CSR 20-8.140 Wastewater Treatment Facilities

- Flood protection shall apply to new construction and to existing facilities undergoing major modification. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred- (100-) year flood elevation. 10 CSR 20-8.140 (2) (B)
- Unless another distance is determined by the Missouri Geological Survey or by the department's Public Drinking Water Branch, the minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300'). 10 CSR 20-8.140 (2) (C) 1.
- No treatment unit with a capacity of twenty-two thousand five hundred gallons per day (22,500 gpd) or less shall be located closer than the minimum distance of 200' to a neighboring residence and 50' to property line for lagoons. See 10 CSR 20-2.010(68) for the definition of a residence. 10 CSR 20-8.140 (2) (C) 2.
- Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140 (2) (D)
- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)

10 CSR 20-8.200 Wastewater Treatment Lagoons and Wastewater Irrigation Alternatives.

- The minimum berm width shall be eight feet (8') to permit access of maintenance vehicles. 10 CSR 20-8.200 (4) (A) 2.
- Minimum freeboard shall be two feet (2'). 10 CSR 20-8.200 (4) (A) 3.
- An emergency spillway shall be provided. 10 CSR 20-8.200 (4) (A) 4.
- An emergency spillway must have the ability for a representative sample to be collected if a discharge occurs. 10 CSR 20-8.200 (4) (A) 4. C.
- Unlined corrugated metal pipe shall not be used for influent lines due to corrosion problems. 10 CSR 20-8.200 (4) (D) 1.
- A manhole shall be installed with its invert at least six inches (6") above the maximum operating level of the lagoon, prior to the entrance into the primary cell, and provide sufficient hydraulic head without surcharging the manhole. 10 CSR 20-8.200(4)(D)2.
- The influent line(s) shall be located along the bottom of the lagoon so that the top of the pipe is just below the average elevation of the lagoon seal; however, there shall be an adequate seal below the pipe. 10 CSR 20-8.200 (4) (D) 3.

- The wetted application area of a surface irrigation system must be located
 - Outside of flood-prone areas having a flood frequency greater than once every ten (10) years; 10 CSR 20-8.200 (6) (B) 1.
 - At least one hundred fifty feet (150') from existing dwellings or public use areas, excluding roads or highways; 10 CSR 20-8.200 (6) (B) 2. A.
 - At least fifty feet (50') inside the property line; 10 CSR 20-8.200 (6) (B) 2. B.
 - At least three hundred feet (300') from any sinkhole, losing stream, or other structure or physiographic feature that may provide direct connection between the ground water table and the surface; 10 CSR 20-8.200 (6) (B) 2. C.
 - At least three hundred feet (300') from any existing potable water supply well not located on the property. Adequate protection shall be provided for wells located on the application site; 10 CSR 20-8.200 (6) (B) 2. D.
 - One hundred feet (100') to wetlands, ponds, gaining streams (classified or unclassified; perennial or intermittent); 10 CSR 20-8.200 (6) (B) 2. E. and
- The wetted application area of a surface irrigation system must be fenced, or if not fenced, provide in the construction permit application or the facility plan, the—
 - Method of disinfection being utilized; 10 CSR 20-8.200 (6) (B) 3. A.
 - Suitable barriers in place, 10 CSR 20-8.200 (6) (B) 3. B. or
 - Details on how public access is limited and not expected to be present. 10 CSR 20-8.200 (6) (B) 3. C.
- At a minimum, treatment prior to irrigation shall provide performance equivalent to that obtained from a primary wastewater lagoon cell cell designed and constructed in accordance with 10 CSR 20-8.200(3) and (4)
- The size of storage basins shall be based on the design wastewater flows and net rainfall minus evaporation expected for a one (1) in ten (10) year twenty-four (24) hour return frequency for a 75 day storage period.

13. Upon completion of construction:

- A. The Logan-Rogersville R-VIII will become the continuing authority for operation and maintenance of these facilities;
- B. Submit an electronic copy of the as built's if the project was not constructed in accordance with previously submitted plans and specifications; and
- C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request that the operating permit modification be issued.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Logan-Rogersville Elementary School is proposing an addition to the school that will impact the existing lagoon, therefore the proposed plan is to construct a new non-discharging lagoon with land application field and to close and fill the existing lagoon.

2. FACILITY DESCRIPTION

The current wastewater treatment facility is an unpermitted single stage lagoon system. The existing lagoon discharges to a tributary of Turner Creek classified as a losing stream. The proposed project includes a new lagoon with surface sprinkler land application system and closing the existing lagoon.

The Logan-Rogersville Elementary School WWTF is located at 7297 E. Farm Rd. 164, Rogersville, in Greene County, Missouri, approximately 4.5 miles northwest of the City of Logan-Rogersville. The facility has a design average flow of 8250 gpd and serves a hydraulic population equivalent of approximately 550 people.

3. COMPLIANCE PARAMETERS

The proposed project is required to meet requirements as established in Operating Permit MO-0139475. The facility will be required to monitor storage basin freeboard, precipitation, irrigation period, volume irrigated, irrigation area, and irrigation rate.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Construction will cover the following items:

- Components are designed for a Population Equivalent of 83 based on hydraulic loading to the system. The system will serve a school with expected population of 550.
- Flow Measurement – Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis. A use meter will be used to determine flow.
- Storage Lagoon – Lagoon will be constructed and sealed with a compacted clay liner that has a design permeability not exceeding 1.0×10^{-7} cm/sec. The basin will have 3:1 side slopes, a depth from the top of the berm to the lagoon floor of 8 ft, with 2 ft for sludge depth, and 2 ft of freeboard plus 0.5 feet above emergency spillway. The maximum operating level is 5.5 ft. The basin is non-aerated, has a surface area of 0.52 acres at the 3 foot level, and a volume of 635,387 gallons

with 2 feet of sludge storage retained at bottom and 908,696 gallons from freeboard to lagoon bottom. This provides approximately 77 days of retention at the proposed design flow and 75 days at the 1 in 10-year rainfall minus evaporation for the proposed storage period. The berm width will be 8 ft. This lagoon site is going to be fenced. A geohydrologic evaluation was completed on May 24, 2019 by Fletcher Bone of the Missouri Geological Survey and indicated moderate overall geologic limitations and a moderate collapse potential and recommends installation of a clay pad and compaction and determination of the permeability coefficient.

- Land Application Site – The land application site is located northwest of the school, in the vicinity of 7297 E Farm Rd 164, Rogersville, Greene County. The land application site is owned by the project owner and is approximately 4.86 acres with grass hay. This site is fenced. Maximum application rates are 0.2 inches/hour, 1 inch/day, 3 inches/week, and 24 inches/year.
- Wastewater Irrigation –
 - Land Application Pump – Installation of a land application pump to transfer treated wastewater from the lagoon to the land application site. The pump will be a Kohler High Pressure FP25K 14HP Hand Prime irrigation pump capable of operating at 20-33 gpm with 22 to 58 psi. The system includes 15 ft. of 2 inch suction hose with strainer.
 - Moveable Sprinklers – One Big Sprinkler 1250K moveable sprinkler cart, with a height of 33 inches, will be used. The sprinkler system includes 300 ft. of 2 inch discharge hose with quick connects. The sprinkler cart will be capable of a field of spray of 56 to 72 ft in one direction (112 to 144 ft diameter) per the manufacture's table using a 10mm nozzle. The wastewater will be irrigated at a hydraulic rate and sprinkler locations will be rotated for even application, as outlined in the facility's operation and maintenance manual.

5. OPERATING PERMIT

Operating permit MO-0139475 will be a new operating permit reflecting the construction activities. The Logan-Rogersville Elementary School WWTF, MO-0139475, was successfully public noticed from March 6, 2020 to April 6, 2020 with no comments received. Upon construction completion, submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit be issued.

This facility does not meet the requirements of the MOG823 issued on August 25, 2017 for the following reason: publicly owned.

Cailie Carlile, P.E.
Engineering Section
cailie.carlile@dnr.mo.gov



MISSOURI DEPARTMENT OF NATURAL RESOURCES **RECEIVED**
WATER PROTECTION PROGRAM
APPLICATION FOR CONSTRUCTION PERMIT -
WASTEWATER TREATMENT FACILITY

DEC 09 2019
Water Protection Program

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
AP 21097	10000215
FEE RECEIVED	CHECK NO.
\$1000.00	4529
DATE RECEIVED	
12-9-19	

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Treatment Facility form has been developed in a modular format and consists of Part A and B. All applicants must complete Part A. Part B should be completed for applicants who currently land-apply wastewater or propose land application for wastewater treatment. Please read the accompanying instructions before completing this form. Submittal of an incomplete application may result in the application being returned.

PART A – BASIC INFORMATION


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: _____ Project #: _____
- 1.2 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?
☐ YES Date of Approval: _____ ☒ N/A
- 1.3 Has the department approved the proposed project's facility plan*?
☐ YES Date of Approval: _____ ☒ NO (If No, complete No. 1.4.)
- 1.4 [Complete only if answered No on No. 1.3.] Is a copy of the facility plan* for wastewater treatment facilities included with this application?
☒ YES ☐ NO ☐ Exempt because _____
- 1.5 Is a copy of the appropriate plans* and specifications* included with this application?
☒ YES Denote which form is submitted: ☒ Hard copy ☐ Electronic copy (See instructions.) ☐ NO
- 1.6 Is a summary of design* included with this application? ☒ YES ☐ NO
- 1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?
☒ YES Date of submittal: Nov. 28, 2019
☐ Enclosed is the appropriate operating permit application and fee submittal. Denote which form: ☐ A ☐ B ☐ B2
☐ N/A: However, in the event the department believes that my operating permit requires revision to permit limitation such as changing equivalent to secondary limits or adding total residual chlorine limits, please share a draft copy prior to public notice? ☐ YES ☐ NO
- 1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☐ YES ☒ NO
- 1.9 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
Logan-Rogersville Elementary School | 2.2 ESTIMATED PROJECT CONSTRUCTION COST
\$ 75,000.00 |
|--|---|
- 2.3 PROJECT DESCRIPTION
Single cell lagoon with mobile land application system.
- 2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Sludge shall be stored in lagoon.
- 2.5 DESIGN INFORMATION
- A. Current population: _____; Design population: 500 _____
- B. Actual Flow: _____ gpd; Design Average Flow: 8,250 gpd;
Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: _____ gpd; Design Wet Weather Event: _____
- 2.6 ADDITIONAL INFORMATION
- A. Is a topographic map attached? ☒ YES ☐ NO
- B. Is a process flow diagram attached? ☐ YES ☒ NO

3.0 WASTEWATER TREATMENT FACILITY				
NAME Logan-Rogersville Elementary School		TELEPHONE NUMBER WITH AREA CODE (417) 882-2626		E-MAIL ADDRESS srandles@logrogstudents.net
ADDRESS (PHYSICAL) 7297 E. Farm Rd. 164	CITY Rogersville	STATE MO	ZIP CODE 65742	COUNTY Greene
Wastewater Treatment Facility: Mo- (Outfall Of)				
3.1 Legal Description: _____ 1/4, _____ 1/4, _____ 1/4, Sec. 08, T 28N, R 20W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 1454582; Northing (Y): 478885.3 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Tributary of Turner Creek				
4.0 PROJECT OWNER				
NAME Logan-Rogersville R-VIII		TELEPHONE NUMBER WITH AREA CODE (417) 753-2891		E-MAIL ADDRESS srandles@logrogstudents.net
ADDRESS 100 E. Front St.	CITY Rogersville	STATE MO	ZIP CODE 65742	
5.0 CONTINUING AUTHORITY: A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements.				
NAME Logan-Rogersville R-VIII		TELEPHONE NUMBER WITH AREA CODE (417) 753-2891		E-MAIL ADDRESS srandles@logrogstudents.net
ADDRESS 100 E. Front St.	CITY Rogersville	STATE MO	ZIP CODE 65742	
5.1 A letter from the continuing authority, if different than the owner, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A				
5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.				
A. Is a copy of the certificate of convenience and necessity included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.				
A. Is a copy of the as-filed restrictions and covenants included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME David Bodeen		TELEPHONE NUMBER WITH AREA CODE (417) 501-8820		E-MAIL ADDRESS bodeen@pinnacledc.com
ADDRESS 304 W. Erie St Suite B	CITY Springfield	STATE MO	ZIP CODE 65807	
7.0 APPLICATION FEE				
<input checked="" type="checkbox"/> CHECK NUMBER 4529 <input type="checkbox"/> JETPAY CONFIRMATION NUMBER				
8.0 PROJECT OWNER: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that 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 that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.				
PROJECT OWNER SIGNATURE 				
PRINTED NAME Shawn B. Randles			DATE 12/2/2019	
TITLE OR CORPORATE POSITION Superintendent		TELEPHONE NUMBER WITH AREA CODE (417) 753-2891		E-MAIL ADDRESS srandles@logrogstudents.net
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176				
END OF PART A.				
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.				