

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Galena R-II Schools
Dr. Danny Humble, Superintendent
Galena Abesville School WWTF Improvements
54 Medical Springs Road
Galena, MO 75656

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.

July 21, 2026

Effective Date

July 20, 2028

Expiration Date

A handwritten signature in black ink, appearing to read 'Heather Peters', is written over a horizontal line.

Heather Peters, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Construction of an Amphidrome treatment system, including a controls building and piping modifications. Additionally, construction of flow meter and modifications to the disinfection system will be completed. The current treatment system's design flow is 3,800 gpd. The new treatment system's design flow will be 3,350 gpd.

This is a **DEMONSTRATION** project and additional monitoring requirements are included in the operating permit in accordance with the Approval Process for Innovative Technology Factsheet and 10 CSR 20-6.010(5).

The existing recirculating sand filter will be closed. A closure plan will need to be submitted to the Southwest Regional Office for review and approval prior to any 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 make a "finding of affordability". Per Section 644.145.3, a "finding of affordability" is a statement as to whether or not an individual or household would be required to make unreasonable sacrifices in order to make the projected monthly payments for sewer services. While this facility is a publicly-owned treatment works, the permittee accomplishes capital improvements through an established budget for operation and maintenance and not through the issuance of utility bills to customers for sewer services. Because of this, the department cannot determine the "affordability" of the new permit requirements.

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 Shelyn Slavens, P.E., with Allgeier, Martin and Associates, Inc. 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. 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).
5. 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.
6. A United States Army Corps of Engineers (USACE) Clean Water Act Section 404 Department of the Army permit and a Section 401 Water Quality Certification issued by the department may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied or notification is provided that no Section 404 permit is required by the USACE. You must contact your local USACE district since they determine what waters are jurisdictional and which permitting requirements may apply. You may call the department's Water Protection Program, Operating Permits Section at 573-522-4502 for more information. See <https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/section-401-water-quality> for more information.
7. 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-0119067. 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.

8. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
 - 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; 200' to a neighboring residence for open recirculating media filters following primary treatment; and 50' to a neighboring residence for all other discharging facilities. 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)
 - The outfall shall be so constructed and protected against the effects of flood water, ice, or other hazards as to reasonably ensure its structural stability and freedom from stoppage. 10 CSR 20-8.140(6)(A)
 - All sampling points shall be designed so that a representative and discrete twenty-four (24) hour automatic composite sample or grab sample of the effluent discharge can be obtained at a point after the final treatment process and before discharge to or mixing with the receiving waters. 10 CSR 20-8.140(6)(B)
 - All outfalls shall be posted with a permanent sign indicating the outfall number (i.e., Outfall #001). 10 CSR 20-8.140(6)(C)
 - Disinfection and dechlorination, when used, shall be provided during all power outages. 10 CSR 20-8.140(7)(A)2.
 - Electrical systems and components in raw wastewater or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors that are normally present, shall comply with the NFPA 70 *National Electric Code (NEC)* (2017 Edition), as approved and published August 24, 2016, requirements for Class I, Division 1, Group D locations. 10 CSR 20-8.140(7)(B)
 - An audiovisual alarm or a more advanced alert system, with a self-contained power supply, capable of monitoring the condition of equipment whose failure could result in a violation of the operating permit, shall be provided for all wastewater treatment facilities. 10 CSR 20-8.140(7)(C)

- No piping or other connections shall exist in any part of the wastewater treatment facility that might cause the contamination of a potable water supply. 10 CSR 20-8.140(7)(D)1.
- Where a potable water supply is to be used for any purpose in a wastewater treatment facility other than direct connections, a break tank, pressure pump, and pressure tank or a reduced pressure backflow preventer consistent with the department's Public Drinking Water Branch shall be provided. 10 CSR 20-8.140(7)(D)3.A.
- For indirect connections, a sign shall be permanently posted at every hose bib, faucet, hydrant, or sill cock located on the water system beyond the break tank or backflow preventer to indicate that the water is not safe for drinking. 10 CSR 20-8.140(7)(D)3.B.
- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140(7)(E)
- Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility:
 - Fencing. Enclose the facility site with a fence designed to discourage the entrance of unauthorized persons and animals; 10 CSR 20-8.140 (8) (A)
 - Gratings over appropriate areas of treatment units where access for maintenance is necessary; 10 CSR 20-8.140(8)(B)
 - First aid equipment; 10 CSR 20-8.140(8)(C)
 - Posted "No Smoking" signs in hazardous areas; 10 CSR 20-8.140(8)(D)
 - Appropriate personal protective equipment (PPE); 10 CSR 20-8.140(8)(E)
 - Portable blower and hose sufficient to ventilate accessed confined spaces; 10 CSR 20-8.140(8)(F)
 - 10 CSR 20-8.140(8)(G) Portable lighting equipment complying with NEC requirements. See subsection (7)(B) of this rule;
 - 10 CSR 20-8.140(8)(H) Gas detectors listed and labeled for use in NEC Class I, Division 1, Group D locations. See subsection (7)(B) of this rule;
 - Appropriately-placed warning signs for slippery areas, non-potable water fixtures (see subparagraph (7)(D)3.B. of this rule), low head clearance areas, open service manholes, hazardous chemical storage areas, flammable fuel storage areas, high noise areas, etc.; 10 CSR 20-8.140(8)(I)
 - Ventilation shall include the following:
 - Dampers are not to be used on exhaust or fresh air ducts. Avoid the use of fine screens or other obstructions on exhaust or fresh air ducts to prevent clogging; 10 CSR 20-8.140(8)(J)3.
 - Where continuous ventilation is needed (e.g., housed facilities), provide at least twelve (12) complete air changes per hour. Where continuous ventilation would cause excessive heat loss, provide intermittent ventilation of at least thirty (30) complete air changes per hour when facility personnel enter the area. Base air change demands on one hundred percent (100%) fresh air; 10 CSR 20-8.140(8)(J)4.

- Electrical controls. Mark and conveniently locate switches for operation of ventilation equipment outside of the wet well or building. Interconnect all intermittently operated ventilation equipment with the respective wet well, dry well, or building lighting system. The manual lighting/ventilation switch is expected to override the automatic controls. For a two (2) speed ventilation system with automatic switch over where gas detection equipment is installed, increase the ventilation rate automatically in response to the detection of hazardous concentrations of gases or vapors; 10 CSR 20-8.140(8)(J)5.
 - Fabricate the fan wheel from non-sparking material. Provide automatic heating and dehumidification equipment in all dry wells and buildings. 10 CSR 20-8.140(8)(J)6.
 - Explosion-proof electrical equipment, non-sparking tools, gas detectors, and similar devices, in work areas where hazardous conditions may exist, such as digester vaults and other locations where potentially explosive atmospheres of flammable gas or vapor with air may accumulate. 10 CSR 20-8.140(8)(K)
 - Provisions for local lockout/tagout on stop motor controls and other devices; 10 CSR 20-8.140(8)(L)
 - Provisions for an arc flash hazard analysis and determination of the flash protection boundary distance and type of PPE to reduce exposure to major electrical hazards shall be in accordance with NFPA 70E *Standard for Electrical Safety in the Workplace* (2018 Edition), as approved and published August 21, 2017. 10 CSR 20-8.140(8)(M)
- Secondary containment storage areas contain the stored volume of chemical until it can be safely transferred to alternate storage or released to the wastewater treatment plant at controlled rates that will not damage the facilities, inhibit the treatment processes, or contribute to stream pollution. Secondary containment shall be designed as follows:
 - A minimum volume of one hundred ten percent (110%) of the volume of the largest storage container located within the containment area plus the space occupied by any other tanks located within the containment area when protected from precipitation; 10 CSR 20-8.140(9)(A)2.B.
 - Walls and floors of the secondary containment structure constructed of suitable material that is compatible with the specifications of the product being stored. 10 CSR 20-8.140(9)(A)2.C.
- The following shall be provided to fulfill the particular needs of each chemical housing facility:
 - Provide storage for a minimum of thirty (30) days' supply, unless local suppliers and conditions indicate that such storage can be reduced without limiting the supply; 10 CSR 20-8.140(9)(B) 1.
 - Construct the chemical storage room of fire and corrosion resistant material; 10 CSR 20-8.140(9)(B)2.
 - Equip doors with panic hardware. To prevent unauthorized access, doors lock but do not need a key to exit the locked room using the panic hardware; 10 CSR 20-8.140(9)(B)3.

- Provide chemical storage areas with drains, sumps, finished water plumbing, and the hose bibs and hoses necessary to clean up spills and to wash equipment; 10 CSR 20-8.140(9)(B)4.
- Construct chemical storage area floors and walls of material that is suitable to the chemicals being stored and that is capable of being cleaned; 10 CSR 20-8.140(9)(B)5.
- Provide adequate lighting; 10 CSR 20-8.140(9)(B)7.
- Comply with the NEC recommendation for lighting and electrical equipment based on the chemicals stored. 10 CSR 20-8.140(9)(B)8.
- Store chemical containers in a cool, dry, and well-ventilated area; 10 CSR 20-8.140(9)(B)9.
- Design vents from feeders, storage facilities, and equipment exhaust to discharge to the outside atmosphere above grade and remote from air intakes; 10 CSR 20-8.140(9)(B)10.
- Locate storage area for chemical containers out of direct sunlight; 10 CSR 20-8.140(9)(B)11.
- Maintain storage temperatures in accordance with relevant Material Safety Data Sheets (MSDS). 10 CSR 20-8.140(9)(B)12.
- Design the storage area with designated areas for “full” and “empty” chemical containers; 10 CSR 20-8.140(9)(B)14.
- The following shall be provided, where applicable, for the design of chemical handling:
 - Make provisions for measuring quantities of chemicals used for treatment or to prepare feed solutions over the range of design application rates; 10 CSR 20-8.140(9)(C)1.
 - Select storage tanks, piping, and equipment for liquid chemicals specific to the chemicals; 10 CSR 20-8.140(9)(C)2.
 - Install all liquid chemical mixing and feed installations on corrosion resistant pedestals; 10 CSR 20-8.140(9)(C)3.
 - Provide sufficient capacity of solution storage or day tanks feeding directly for twenty-four- (24-) hour operation at design average flow; 10 CSR 20-8.140(9)(C)4.
 - Provide a minimum of two (2) chemical feeders for continuous operability. Provide a standby unit or combination of units of sufficient capacity to replace the largest unit out-of-service; 10 CSR 20-8.140(9)(C)5.
 - Chemical feeders shall—
 - Be designed with chemical feed equipment to meet the maximum dosage requirements for the design average flow conditions; 10 CSR 20-8.140(9)(C)6.A.
 - Be able to supply, at all times, the necessary amounts of chemicals at an accurate rate throughout the range of feed; 10 CSR 20-8.140(9)(C)6.B.
 - Provide proportioning of chemical feed to the rate of flow where the flow rate is not constant; 10 CSR 20-8.140(9)(C)6.C.
 - Be designed to be readily accessible for servicing, repair, and observation; 10 CSR 20-8.140(9)(C)6.D.
 - Protect the entire feeder system against freezing; 10 CSR 20-8.140(9)(C)6.E.

- Be located adjacent to points of application to minimize length of feed lines; 10 CSR 20-8.140(9)(C)6.F.
 - Provide screens and valves on the chemical feed pump suction lines; 10 CSR 20-8.140(9)(C)6.I.
 - Provide an air break or anti-siphon device where the chemical solution enters the water stream; 10 CSR 20-8.140(9)(C)6.J.
 - Provide for uniform strength of solution consistent with the nature of the chemical solution for solution tank dosing; 10 CSR 20-8.140(9)(C)8.
 - Use solution feed pumps to feed chemical slurries that are not diaphragm or piston type positive displacement types; 10 CSR 20-8.140(9)(C)9.
 - Provide continuous agitation to maintain slurries in suspension; 10 CSR 20-8.140(9)(C)10.
 - Emergency Power. Disinfection and dechlorination processes, when used, shall be provided during all power outages. 10 CSR 20-8.190(2)(A)
 - Contact period for Chlorine Disinfection. A minimum contact period of fifteen (15) minutes at design peak hourly flow or maximum rate of pumpage shall be provided after mixing thoroughly. 10 CSR 20-8.190(3)(A)
 - Solid dechlorination systems shall not be located in the chlorine contact tank. 10 CSR 20-8.190(4)(B)1.
 - Contact time. A minimum of thirty (30) seconds for mixing and contact time of dechlorination systems shall be provided at the design peak hourly flow or maximum rate of pumpage. 10 CSR 20-8.190(4)(B)2.
9. Upon completion of construction:
- The Galena R-II Schools will become the continuing authority for operation and maintenance of these facilities;
 - Submit an electronic copy of the as built if the project was not constructed in accordance with previously submitted plans and specifications; and
 - Submit the Statement of Work Completed form to the department in accordance with 10 CSR 20-6.010(5)(N) (<https://dnr.mo.gov/document-search/wastewater-construction-statement-work-completed-mo-780-2155>) and request activation of the Outfall #001 – Post Construction (CP0002582) description and associated interim post construction effluent limitations and monitoring requirements. The combined operating permit renewal and modification was public noticed on May 29, 2026, to June 29, 2026.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The Galena R-II school district currently operates the Galena Abesville School WWTF which is a recirculating sand filter (RSF) treatment plant. The RSF is incapable of meeting the facility's ammonia as N effluent limits. The school will replace the RSF with an Amphidrome system which is expected to meet the ammonia as N effluent limit.

2. FACILITY DESCRIPTION

The existing wastewater treatment facility consists of two 1,500-gallon capacity grease traps before four 1,500-gallon capacity septic tanks. The septic tanks are followed by two 1,500-gallon recirculation tanks which pump flow to the sand filter bed. Effluent from the sand filter is partially recirculated to the recirculation tank with the remaining flow sent to the disinfection system. The disinfection system consists of a chlorine tablet feeder, a contact tank, and a dechlorination tablet feeder. The effluent flows by gravity from the dechlorination table feeder to the outfall.

The Galena Abesville School WWTF is located at 54 Medical Springs Road, Galena, in Stone County, Missouri. The facility will have a design average flow of 3,350 gpd and serve a hydraulic population equivalent of approximately 34 people.

3. COMPLIANCE PARAMETERS

The existing facility does not consistently meet the current operating permit effluent limits for ammonia as N. The proposed project is required to meet final effluent limits for ammonia as N as established in Operating Permit MO-0119067.

The construction is to meet more protective effluent limits. As this is a demonstration project, for the first year of operation following construction, additional monitoring will be required of the influent and effluent to evaluate the performance of the Amphidrome system.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Existing major components that will remain in use include the following:

- Grease Interceptors – Two grease interceptors in series are utilized to intercept and collect grease from raw wastewater and prevents grease from clogging downstream components. Each grease interceptor has an actual effective total volume of 1,500 gallons.
- Septic Tanks – Four septic tanks in series provide passive primary treatment as the settleable solids in raw wastewater settle onto the bottom of the tank. Each septic tank has a 1,500-gallon capacity. The four septic tanks will remain in use but will be modified to serve instead as three anoxic tanks, and a reactor feed pump tank.

- Chlorination and Dechlorination– The existing risers housing the chlorination and dechlorination tablet feeders will continue to be used with piping modifications and new tablet feeders.

Construction will cover the following items:

- Components are designed for a Population Equivalent of 34 based on hydraulic loading to the system.
- Flood Protection – The facility is located partially within the 100-year flood zone. Several improvements will be made to protect the facility from physical damage by the 100-year flood:
 - The existing grease trap and septic tank risers will be extended above the 100-year flood elevation.
 - The existing chlorination and dechlorination chamber risers will be replaced with risers extending above the 100-year flood elevation.
 - All proposed valve vaults and risers on the new tanks within the flood zone are to be set above the 100-year flood elevation.
 - A four-inch diameter duckbill valve will be installed on the outfall line to prevent backflow of flood water.
- Anoxic/Flow Equalization Tanks – The first three existing septic tanks will be repurposed to serve as anoxic/flow equalization tanks. These tanks serve as a method of primary treatment, as flow equalization to handle variability and peak flows, and as sludge storage. The existing transfer lines between septic tanks will be replaced with new tee-drop pipes to provide storage volume for equalization of influent and backwash flows. The total equalization volume between the anoxic tanks and the reactor feed pump tank will be 2,540 gallons. A 6-inch backwash return line from the Amphidrome reactor will flow to the first anoxic tank.
 - Effluent filter – A new effluent filter with 1/8" openings will be installed on the outlet of the third tank.
- Reactor Feed Pump Tank – The fourth existing septic tank will be converted into the reactor feed pump tank. Two submersible centrifugal 0.729-hp pumps each capable of 34.7 gpm at 17.8 ft of TDH will be installed in the pump tank. A valve vault constructed next to the pump tank will house all of the necessary valves. The valve vault will have a 2-inch diameter drain line with a duckbill check valve to the pump tank. A 6-inch line will convey flow to the Amphidrome reactor.
- Amphidrome Reactor – a 5-ft diameter, 15-ft deep reactor, with an operating depth of about 10.1 ft.
 - The Amphidrome reactor is a submerged attached growth reactor with operation alternating between forward flow and reverse flow modes. Reverse flow is accomplished by pumping from the clearwell through the reactor and to the first anoxic tank.
 - A layer of silica sand media, 6-ft deep in the Amphidrome reactor shall be placed on top of the 1.5-ft deep gravel support layers.

- Total media required for BOD and nitrogen removal is 105.2 ft³, which is approximately 4.73 ft of media.
 - BOD removal is 150 lbs BOD / 1000 ft³ of media / day.
 - Ammonia removal is 40 lbs N / 1000 ft³ of media / day.
- The system is designed for 0.11 gpm/ft² of media at design average flow and 0.4 gpm/ft² of media at peak flow.
- The sand media's specific surface area is 250 ft²/ft³.
- The sand media shall be well rounded, not flat or angular, with a maximum uniformity coefficient ≤ 1.40 . The hardness shall be 6 to 7 on the Mohs scale, and the minimum specific gravity shall be 2.6. The hydrochloric acid solubility shall not exceed 3% when tested. The media should have a sphericity of 0.8 or greater as determined by methods described in Elements of Water Supply and Wastewater Disposal, Second Edition, 1971, pages 404-406, Fair, Geyer, Okun, John Wiley & Sons, Inc.
- The 1.5-inch influent line will enter at the top of the operating level.
- The 6-inch return/backwash line will be approximately 11.82 ft from the bottom of the reactor to take flow back to the anoxic tank when operating in the reverse flow mode.
- The Amphidrome Reactor will have air lateral lines extending across the filter floor with a reactor underdrain system. The underdrain aeration system shall be the nozzleless type, designed to evenly distribute process and backwash air.
- Additional alkalinity (sodium bicarbonate slurry) will be dosed in the Amphidrome reactor.
- Clearwell Tanks – Two 8.5-ft by 5.5-ft by 6-ft deep tank for combined working volume of approximately 1,700 gallons. The clearwell tanks are connected by an 8-inch transfer line. First tank will house the backwash/return flow pumps. Clearwell effluent will flow by gravity through a 4-inch line to the flow meter and chlorine tablet feeder.
 - 1,700-gallon capacity provides sufficient volume to backwash the reactor which is expected to circulate 600-1,050 gallons depending on the starting volume in the reactor.
 - Backwash Pumps – two backwash pumps transfer wastewater from the clearwell to Amphidrome reactor to backwash the filter while operating in the reverse flow mode. The backwash cycle will generally occur once per day during a low flow period (typically overnight).
 - The pumps will be submersible and centrifugal and shall be driven by a single phase, 1.2-hp, 60-hertz motor.
 - Each pump capable of operating at about 105 gpm at 7.4 ft of TDH.
- Flow Measurement – Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis.
 - A Seametrics flow computer and paddle-wheel sensor after clearwell before chlorine tablet feeder

- Disinfection – Disinfection is the process of removal, deactivation, or killing of pathogenic microorganisms.
 - Tablet Chlorinator – Installation of a Jet Model 108 or equal tablet chlorination chamber receiving clarified effluent and prior to the chlorine contact tank. The tablet chlorinator shall have a design flow of 10,000 gpd and a maximum flow rate of 35 gpm. The system will dispense hypochlorite as the wastewater comes into contact with the tablets.
 - Chlorine Contact Chamber – Installation of a capped 24-inch diameter pipe over 25 ft long. The inlet and outlet saddles will be installed 25 ft apart. This tank will allow for a 15-minute contact time during a peak flow of 35 gpm.
 - Tablet Dechlorinator – Installation of a Jet Model 108 or equal tablet dechlorination chamber receiving the chlorinated effluent and prior to Outfall No. 001. The tablet dechlorinator shall have a design flow of 10,000 gpd and a maximum flow rate of 35 gpm. The system will dispense sodium sulfite as the wastewater comes into contact with the tablets.
- Housed Facility – The proposed wastewater treatment facility shall be housed in a 14 ft by 17.33 ft building. Ventilation will be provided, which will offer 12 air changes per hour when the fan is switched ON.
 - Aeration by means of duplex 7.5 hp blowers each capable of supplying 60 scfm.
 - Alkalinity Feed System – A sodium bicarbonate slurry will be dosed to the Amphidrome reactor by the alkalinity feed system.
 - One storage tank is to be constructed of polyethylene with a total volume of 50 gallons.
 - Secondary containment will be provided by an eagle single drum containment unit (65 gal) for the storage tank.
 - Two chemical feed pumps to supply alkalinity to the Amphidrome reactor.
 - The pumps shall be Stenner 45 MJL2A1S or equal, 120-volt, single phase.
 - Each pump will have a capacity of 10 gpd at 25 psi.
 - An agitator with a suction shield will keep the alkalinity slurry in suspension. The agitator will be an LMI 10590.

5. OPERATING PERMIT

Operating permit MO-0119067 will required a modification to reflect the construction activities. The combined renewal and modification of the operating permit for Galena Abesville School WWTF, MO-0119067, was successfully public noticed from May 29, 2026, to June 29, 2026, with no comments received. Submit the Statement of Work Completed to the department in accordance with 10 CSR 20-6.010(5)(N) and request activation of the Outfall #001 – Post Construction (CP0002582) description and associated interim post-construction effluent limitations and monitoring requirements.

This facility does not meet the requirements of the MOGDS issued on July 1, 2024, for the following reason: the facility is constructing a demonstration project which requires additional monitoring requirements, a contingency plan, and submission of a report following one year of enhanced monitoring.

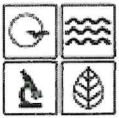
V. NOTICE OF RIGHT TO APPEAL

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250 RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Any appeal should be directed to:

Administrative Hearing Commission
U.S. Post Office Building, Third Floor
131 West High Street, P.O. Box 1557
Jefferson City, MO 65102-1557
Phone: 573-751-2422
Fax: 573-751-5018
Website: <https://ahc.mo.gov>

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

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

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

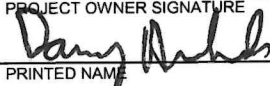
1.0 APPLICATION INFORMATION (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

- 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: _____
☒ 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 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

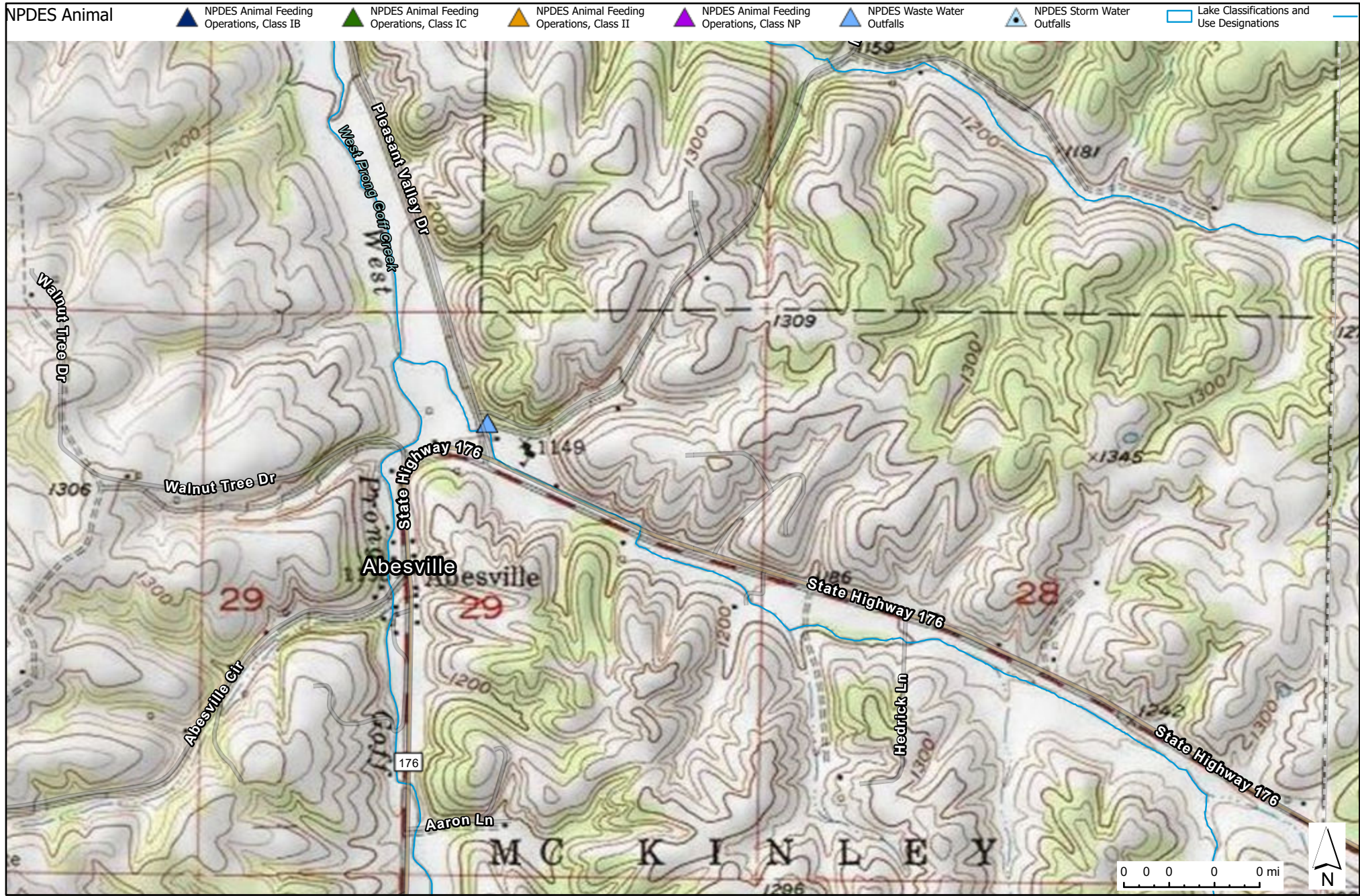
* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT Galena Abesville School WWTF Improvements	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 456,130
2.3 PROJECT DESCRIPTION Closure of existing recirculating sand filter, construction of controls building, installation of concrete tanks, piping modifications, site work, and installation of Amphidrome treatment system.	
2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION disposal by contract hauler	
2.5 DESIGN INFORMATION A. Current population: <u>114</u> (P.E.) Design population: <u>143</u> (P.E.) (P.E. assumes 14 gpd/student, per PUB2754) B. Actual Flow: <u>1,600</u> gpd; Design Average Flow: <u>2,000</u> gpd; Actual Peak Daily Flow: <u>11,810</u> gpd; Design Maximum Daily Flow: <u>12,000</u> 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 Galena Abesville School		TELEPHONE NUMBER WITH AREA CODE (417) 357-6377		E-MAIL ADDRESS
ADDRESS (PHYSICAL) 54 Medical Springs Road	CITY Galena	STATE MO	ZIP CODE 75656	COUNTY Stone
Wastewater Treatment Facility: Mo- 0119067 (Outfall 001 Of 001)				
3.1 Legal Description: _____ 1/4, _____ 1/4, _____ 1/4, Sec. 29, T 25N, R 22W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 467153 Northing (Y): 4077597 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Tributary to West Prong Goff Creek (losing)				
4.0 PROJECT OWNER				
NAME Galena R-II Schools		TELEPHONE NUMBER WITH AREA CODE (417) 357-6377		E-MAIL ADDRESS
ADDRESS P.O. Box 286	CITY Galena	STATE MO	ZIP CODE 65656	
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 Galena R-II Schools		TELEPHONE NUMBER WITH AREA CODE (417) 357-6377		E-MAIL ADDRESS
ADDRESS P.O. Box 286	CITY Galena	STATE MO	ZIP CODE 65656	
5.1 A letter from the continuing authority, if different than the owner, is included with this application. ☐ YES ☐ NO ☒ 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? ☐ YES ☐ 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? ☐ YES ☐ 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? ☐ YES ☐ 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? ☐ YES ☐ NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? ☐ YES ☐ NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Shelyn Slavens / Allgeier, Martin and Associates, Inc.		TELEPHONE NUMBER WITH AREA CODE (417) 680-7200		E-MAIL ADDRESS Shelyn.Slavens@amce.com
ADDRESS 7231 East 24th Street	CITY Joplin	STATE MO	ZIP CODE 64804	
7.0 APPLICATION FEE				
☐ CHECK NUMBER ☐ 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 Dr. Danny Humble			DATE 9/10/2015	
TITLE OR CORPORATE POSITION Superintendent		TELEPHONE NUMBER WITH AREA CODE (417) 357-6377		E-MAIL ADDRESS humbled@galena.k12.mo.us
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.				

Galena Abesville School Topo



layer13: Esri Community Maps Contributors, Missouri Dept. of Conservation, Missouri DNR, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS,

August 13, 2025 2:05 PM CDT

Galena-Abesville School WWTF Improvements Galena R-II School District

Process Flow Diagram

