

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Indian Point Water Association Wastewater Treatment Plant No. 2
0.2 mi W of 71 Dogwood Park Trail
Branson, MO 65616

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.

February 27, 2024

Effective Date

February 26, 2026

Expiration Date



John Hoke, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The Indian Point Water Association Wastewater Treatment Plant No. 2 will have two treatment trains, the existing 18,750 gpd plant and the new 62,000 gpd proposed plant. The overall design flow between both treatment plants is 80,750 gpd. The new 62,000 gpd moving bed biological reactor (MBBR) system with flow equalization, polishing reactor, chemical phosphorus removal, and UV disinfection will be constructed with its own discharge outfall, Outfall #002. The flow equalization tank is a two-chamber tank, with a volume of 19,464 gallons. From the flow equalization tank, flows will go to the two Aquatech MBBR Biomod systems. The Biomod system is a multi-chamber package system with aeration and media in different treatment chambers to facilitate treatment, each unit capable of treating a design average flow of 62,000 gpd. An open channel, UV disinfection system, with two banks in series with five modules per bank and two lamps per module. The disinfected effluent will flow by gravity through flow measurement equipment and to Outfall No. 002.

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 publicly-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 Michael Stalzer, P.E., with M.E. Stalzer, 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. 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 one 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. 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 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 300 feet. 10 CSR 20-8.140 (2) (C) 1.
- 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 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 #002). 10 CSR 20-8.140 (6) (C)
- All wastewater treatment facilities shall be provided with an alternate source of electric power or pumping capability to allow continuity of operation during power failures. 10 CSR 20-8.140 (7) (A) 1.
- 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.
- Hot water for any direct connections shall not be taken directly from a boiler used for supplying hot water to a digester heating unit or heat exchanger. 10 CSR 20-8.140 (7) (D) 2.
- 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.

- Where a separate non-potable water supply is to be provided, a break tank will not be necessary, but all system outlets shall be posted with a permanent sign indicating the water is not safe for drinking. 10 CSR 20-8.140 (7) (D) 4.
- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)
- Effluent 24 hour composite automatic sampling equipment shall be provided at all mechanical wastewater treatment facilities and at other facilities where necessary under provisions of the operating permit. 10 CSR 20-8.140 (7) (F)
- 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)
 - 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)
- The materials utilized for storage, piping, valves, pumping, metering, and splash guards, etc., for chemical handling, shall be specially selected considering the physical and chemical characteristics of each hazardous or corrosive chemical. 10 CSR 20-8.140 (9) (A) 1.

- 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 125 percent 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 not protected from precipitation; 10 CSR 20-8.140 (9) (A) 2. A.
 - A minimum volume of 110 percent 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.
- All pumps or feeders for hazardous or corrosive chemicals shall have guards that will effectively prevent spray of chemicals into space occupied by facility personnel. 10 CSR 20-8.140 (9) (A) 3.
- All piping containing or transporting corrosive or hazardous chemicals shall be identified with labels every 10 feet and with at least 2 labels in each room, closet, or pipe chase. 10 CSR 20-8.140 (9) (A) 4. A.
- All connections (flanged or other type), except those adjacent to storage or feeder areas, shall have guards that will direct any chemical leakage away from space occupied by facility personnel. 10 CSR 20-8.140 (9) (A) 4. B.
- Facilities shall be provided for automatic shutdown of pumps and sounding of alarms when failure occurs in a pressurized chemical discharge line. 10 CSR 20-8.140 (9) (A) 5.
- Dust collection equipment shall be provided to protect facility personnel from dusts injurious to the lungs or skin and to prevent polymer dust from settling on walkways that become slick when wet. 10 CSR 20-8.140 (9) (A) 6.
- The following shall be provided to fulfill the particular needs of each chemical housing facility:
 - Provide storage for a minimum of 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.
- Install floor surfaces to be smooth, chemical resistant, slip resistant, and well drained with three inches per ten feet (3"/10') minimum slope; 10 CSR 20-8.140 (9) (B) 6.
- 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.
- Control humidity as necessary when storing dry chemicals; 10 CSR 20-8.140 (9) (B) 13.
- Design the storage area with designated areas for “full” and “empty” chemical containers; 10 CSR 20-8.140 (9) (B) 14.
- Store incompatible chemicals separately to ensure the safety of facility personnel and the wastewater treatment system. Store any two chemicals that can react to form a toxic gas in separate housing facilities; 10 CSR 20-8.140 (9) (B) 16.
- 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 24- hour operation at design average flow; 10 CSR 20-8.140 (9) (C) 4.
 - Provide a minimum of two 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 for both automatic and manual operation for chemical feed control systems; 10 CSR 20-8.140 (9) (C) 6. G.
- Utilize automatic chemical dose or residual analyzers, and where provided, include alarms for critical values and recording charts; 10 CSR 20-8.140 (9) (C) 6. H.
- 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.
- Dry chemical feed system shall—
 - Be equipped with a dissolver capable of providing a minimum retention period of five minutes at the maximum feed rate; 10 CSR 20-8.140 (9) (C) 7. A.
 - Be equipped with two solution vessels and transfer piping for polyelectrolyte feed installations; 10 CSR 20-8.140 (9) (C) 7. B.
 - Have an eductor funnel or other appropriate arrangement for wetting the polymer during the preparation of the stock feed solution on the makeup tanks; 10 CSR 20-8.140 (9) (C) 7. C.
 - Provide adequate mixing by means of a large diameter, low-speed mixer; 10 CSR 20-8.140 (9) (C) 7. D.
 - Make provisions to measure the dry chemical volumetrically or gravimetrically; 10 CSR 20-8.140 (9) (C) 7. E.
 - Completely enclose chemicals and prevent emission of dust; 10 CSR 20-8.140 (9) (C) 7. F.
- 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.
- The following chemical safety items shall be provided in addition to the safety provisions in section (8) of this rule:
 - Appropriate personal protective equipment (PPE). 10 CSR 20-8.140 (9) (D) 1.
 - Warning signs requiring use of goggles shall be located near chemical stations, pumps, and other points of frequent hazard. 10 CSR 20-8.140 (9) (D) 3.
- The identification and hazard warning data included on chemical shipping containers, when received, shall appear on all containers (regardless of size or type) used to store, carry, or use a hazardous substance. 10 CSR 20-8.140 (9) (E)

- All wastewater treatment facilities must have a screening device, comminutor, or septic tank for the purpose of removing debris and nuisance materials from the influent wastewater. 10 CSR 20-8.150 (2)
- Effective flow splitting devices and control appurtenances (*e.g.* gates and splitter boxes) shall be provided to permit proper proportioning of flow and solids loading to each settling unit, throughout the expected range of flows. 10 CSR 20-8.160 (2) (B)
- Manufactured and synthetic filter media material shall—
 - Be used in accordance with all manufacturer's recommendations; 10 CSR 20-8.180 (4) (B) 3. A.
 - Be insoluble in wastewater and resistant to flaking, spalling, ultraviolet degradation, disintegration, erosion, aging, common acids and alkalis, organic compounds, and biological attack; 10 CSR 20-8.180 (4) (B) 3. B.
 - Be evaluated to determine the suitability based on experience with an installation treating wastewater under similar hydraulic and organic loading conditions (include a relevant case history involving the use of the synthetic media); 10 CSR 20-8.180 (4) (B) 3. C.
 - Have a structure able to support the synthetic media, water flowing through or trapped in voids, and the maximum anticipated thickness of the wetted biofilm; 10 CSR 20-8.180 (4) (B) 3. D.
- Moving Bed Bioreactor (MBBR). An MBBR secondary treatment system shall provide upstream preliminary treatment units capable of—
 - Screening to reduce pass-through and suspended solids; 10 CSR 20-8.180 (8)(A)
 - Grit removal; 10 CSR 20-8.180 (8)(B) and
 - Oil and grease removal. 10 CSR 20-8.180 (8)(C)
- Emergency Power. Disinfection and dechlorination processes, when used, shall be provided during all power outages. 10 CSR 20-8.190 (2) (A)
- The UV dosage shall be based on the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190 (5) (A) 1.
- If no flow equalization is provided for a batch discharger, the UV dosage shall be based on the peak batch flow. 10 CSR 20-8.190 (5) (A) 2.
- The UV system shall deliver the target dosage based on equipment derating factors and, if needed, have the UV equipment manufacturer verify that the scale up or scale down factor utilized in the design is appropriate for the specific application under consideration. 10 CSR 20-8.190 (5) (A) 3.
- The UV system shall deliver a minimum UV dosage 30,000 microwatt seconds per centimeters squared ($\mu\text{W} \cdot \text{s}/\text{cm}^2$). 10 CSR 20-8.190 (5) (A) 4.
- Open channel UV systems. The combination of the total number of banks shall be capable of treating the design peak hourly flow, maximum rate of pumpage, or peak batch flow. 10 CSR 20-8.190 (5) (B) 1.
- The UV system must continuously monitor and display at the UV system control panel the following minimum conditions:
 - The relative intensity of each bank or closed vessel system; 10 CSR 20-8.190 (5) (C) 1. A.
 - The operational status and condition of each bank or closed vessel system; 10 CSR 20-8.190 (5) (C) 1. B.

- The ON/OFF status of each lamp in the system; 10 CSR 20-8.190 (5) (C) 1. C. and
 - The total number of operating hours of each bank or each closed vessel system. 10 CSR 20-8.190 (5) (C) 1. D.
 - The UV system shall include an alarm system. Alarm systems shall comply with 10 CSR 20-8.140(7)(C). 10 CSR 20-8.190 (5) (C) 2.
8. Upon completion of construction:
- A. The TRR Management @ Indian Point LLC will become the continuing authority for operation and maintenance of these facilities;
 - B. Submit an electronic copy of the as built;
 - C. 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
 - D. Request the Operating Permit modification be issued. The operating permit modification fee has been paid.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The purpose of the new treatment plant is to serve the expansion of the development. The project owner is anticipating an expansion of 165 units with approximately 564 total bedrooms to the existing site increasing the overall wastewater design flow from 18,750 gpd to 80,750 gpd.

2. FACILITY DESCRIPTION

The Indian Point Water Association Wastewater Treatment Plant No. 2 is located at 0.2 mi W of 71 Dogwood Park Trail, Branson, in Stone County, Missouri. The facility will have two treatment trains, the existing 18,750 gpd plant and the new 62,000 gpd proposed plant. The overall design flow between both treatment plants is 80,750 gpd.

The 18,750 gpd existing facility consists of a primary settling tank, TVA reciprocating wetland system, chemical phosphorus removal, secondary settling, chlorination and dechlorination with sludge removed by a contract hauler will remain in place. A new 62,000 gpd MBBR system with flow equalization, polishing reactor, chemical phosphorus removal, and UV disinfection will be constructed with its own discharge outfall, Outfall #002. The new 62,000 MBBR will be sized to handle the 48,930 gpd of planned expansion now plus 13,070 gpd for future development. A new geohydrologic evaluation was not submitted during the process, as the proposed discharge is near the existing discharge point and that Table Rock Lake is considered a gaining stream.

3. **COMPLIANCE PARAMETERS**

The proposed project is required to meet final effluent limits established in the Antidegradation review dated July 2023. The limits following the completion of construction will be applicable to the facility:

PARAMETER	Unit	Monthly Average
Flow	MGD	*
BOD ₅	mg/L	10
TSS	mg/L	10
<i>Escherichia coli</i> **	#/100mL	126
Ammonia as N (Jan 1 – Mar 31)		1.8
Ammonia as N (Apr 1 – Jun 30)	mg/L	0.8
Ammonia as N (Jul 1 – Sep 30)		0.8
Ammonia as N (Oct 1 – Dec 31)		1.8
Total Phosphorus	mg/L	0.5
Aluminum, Total Recoverable	mg/L	*
pH	SU	9.0

* - Monitoring requirement only

4. **ANTIDegradation**

The department has reviewed the antidegradation report for this facility and issued the Water Quality and Antidegradation Review dated July 2023, due to the construction of the new treatment train expanding design average flow to 80,750 gpd. The proposed discharge is to Table Rock Lake. See operating permit modification **APPENDIX – ANTIDegradation**.

5. **REVIEW of MAJOR TREATMENT DESIGN CRITERIA**

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

The existing treatment plant, STEP/STEG system will remain in place. The 18,750 gpd existing facility consists of a primary settling tank, TVA reciprocating wetland system, chemical phosphorus removal, secondary settling, chlorination and dechlorination with sludge removed by a contract hauler.

Construction will cover the following items:

- Influent flow comes from the STEP/STEG collection system and is split between the existing treatment plant and the new MBBR facility. The flows directed to the MBBR system will flow into to flow equalization tank.
 - Installation of a flow splitter distribution box that will provide a 75/25 flow splitter with approximately 75 percent of the flow going to the new treatment plant.
 - Approximately 175 lf of 6-inch pipe will be added, with a 6-inch cleanout from the flow splitter to the new treatment plant.

- Flow equalization - The flow equalization tank is a two-chamber tank, each chamber is 9,732 gallons. The first chamber is a settling tank, the second is a pump chamber. The combined volume is 19,464 gallons, which provides 7.5 hours of storage at design average flow.
 - Pump– Construction of four pumps - two pumps per MBBR unit. Each pump will be a ½ HP Zoeller high head Model 161/4161 submersible effluent pump capable of operating at 62 gpm at 30 feet of TDH.
 - Flows from the equalization tank to the MBBR treatment train will flow through 2-inch Schedule 80 PVC pipe.
- Moving Bed Biofilm Reactor (MBBR) – Installation of two Aquatech MBBR Biomod systems. The Biomod system is a multi-chamber package system with aeration and media in different treatment chambers to facilitate treatment, with a total required aeration of 252 m³/hr (66,571 ft³/ hr). Each MBBR is capable of treating a design average flow of 62,000 gpd and a peak flow of 132,480 gpd, thus providing continuity of operations. The packaged BioMOD MBBR-S system capable of handling a daily flow rate of 46 gpm (66,240 gpd), which provides the facility treatment and redundancy. Each MBBR system has 4 chambers in an approximate 53 ft by 8 ft by 15 ft container. Each container is approximately 13.25 ft by 8 ft by about 13 ft, providing a volume of 10,114 gallons per chamber, or a retention time of approximately 3.9 hours per chamber at the design average flow of 62,000 gpd and 1.80 hours at peak flow. If both MBBRs are working, the retention time at the design average flow is approximately 7.8 hours and 3.6 hours at peak flow.
 - Chamber 1- Chamber 1 provides hydrolysis-fermentation process with oxidation of organic material. Treatment will occur with fine bubble aeration with middle bubble aerator for media mixing, providing the required 84 m³/hr (2,966 ft³/hr).
 - The floating media will be P-30 type made from re-granulated HDPE. The specific surface area of the media is 320 m²/m³ (97.5 ft²/ft³).
 - The chamber will be filled with approximately 5 m³ of media (176.6 ft³), which is approximately 13 percent of the chamber capacity.
 - This chamber will also have the chemical feed pump for phosphorus removal. The Grundphos DDC 9-7 coagulant dosing pump is a self-priming diaphragm pump, able to supply the calculated 25.31 liters/day (6.68 gpd) required for total phosphorus removal.
 - Chamber 2- Chamber 2 provides hetero-autrophic nitri-denitrification treatment, through ANAMMOX bacteria. Treatment will occur with fine bubble aeration with middle bubble aerator for media mixing, providing the required 84 m³/hr (2,966 ft³/hr).
 - The floating C-3000 type Biochip polyethylene media with a specific surface area of 300 m²/m³ (914 ft²/ft³) with a bulk density of 170 kg/m³ (10.6 lbs/ft³).

- The chamber will be filled with approximately 3.9 m³ of media (137.7 ft³), which is approximately 10 percent of the chamber capacity.
 - Chamber 3- Chamber 3 provides autotrophic nitrification with fine bubble aeration for additional ammonia treatment.
 - The provided aeration will provide the required 56 m³/hr (1,977 ft³/hr).
 - The floating Bioflow 9 polyethylene media with a specific surface area of 800 m²/m³ (243.8 ft²/ft³) with a bulk density of 145 kg/m³ (1796 ft³).
 - The chamber will be filled with approximately 6.8 m³ of media (240 ft³), which is approximately 17 percent of the chamber capacity.
 - Chamber 4- Chamber 4 is to provide polishing, with low organic loading on the biofilm. Fine bubble aeration with block static media.
 - The provided aeration will provide the required 28 m³/hr (988 ft³/hr)
 - The BioBlock B-200 polyethylene media will have a specific surface area of 200 m²/m³ (61 ft²/ft³) with a bulk density of 67 kg/m³ (4.18 lbs/ft³).
 - Approximately 24 pieces of static block media is placed in the basin to provide aeration.
 - Flows from the MBBR tank will flow through 6 inch PVC Schedule 40 pipe to the UV disinfection system.
 - Disinfection – Disinfection is the process of removal, deactivation, or killing of pathogenic microorganisms.
 - Open Channel Ultraviolet (UV) – A open channel, gravity flow, low pressure high intensity Aqua Azel UV disinfection system capable of treating a peak flow of 172 gpm (247,680 gpd) while delivering a minimum UV intensity of 30 mJ/cm² with an expected ultraviolet transmissivity of 65 percent or greater.
 - The single UV system consists of two banks in series with five modules per bank and two lamps per module. Total number of bulbs is 20.
 - The disinfected effluent will flow by gravity through flow measurement equipment and to Outfall No. 002.
 - Sludge will be collected from the flow equalization tank, and the first chamber of MBBR where it will contain coagulated sludge from the phosphorus removal. Sludge is removed by contract hauler.

6. OPERATING PERMIT

Operating permit MO-0128376 will require a modification to reflect the construction activities. The modified permit was successfully public noticed from August 18, 2023 to September 18, 2023 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 the operating permit modification be issued.

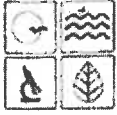
V. NOTICE OF RIGHT TO APPEAL

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>

Leasue Meyers, EI
Engineering Section
Leasue.meyers@dnr.mo.gov

Chia-Wei Young, P.E.
Engineering Section
Chia-wei.young@dnr.mo.gov



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 1,000.⁰⁰	CHECK NO. 6055 MM
DATE RECEIVED	7.29.22

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: 04/2022 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 Indian Point Water Association WWTF #2	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 750,000
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2.3 PROJECT DESCRIPTION
 WTTF expansion to include 62,000 gpd MMBR wwtf. Expanding the existing wwtf capacity of 18,750 gpd to 80,750 gpd.

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
 Pre-treated, screened effluent enters the membrane bioreactor, where biodegradation takes place. Permeate from the membranes constitutes treated effluent. The reject stream, consisting of concentrated biosolids, is wasted from the bioreactor.

2.5 DESIGN INFORMATION

A. Current population: 0; Design population: 1128


B. Actual Flow: _____ gpd; Design Average Flow: _____ gpd;
 Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: _____ gpd; Design Wet Weather Event: _____

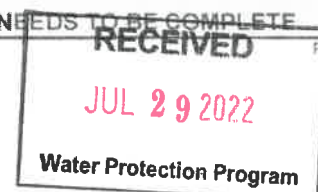
2.6 ADDITIONAL INFORMATION

A. Is a topographic map attached? YES NO

B. Is a process flow diagram attached? YES NO



3.0 WASTEWATER TREATMENT FACILITY				
NAME Dogwood Park Trail		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS dean@kimberling.com
ADDRESS (PHYSICAL) Dogwood Park Trail		CITY Branson	STATE MO	ZIP CODE 65616
COUNTY Stone				
Wastewater Treatment Facility: Mo- (Outfall Of)				
3.1 Legal Description: _____ ¼, _____ ¼, NE _____ ¼, Sec. 5 _____, T 22N, R 22W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): _____ Northing (Y): _____ For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: <u>Table Rock Lake</u>				
4.0 PROJECT OWNER				
NAME TRR Management @ Indian Point, LLC		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS dean@kimberling.com
ADDRESS P.O. Box 670		CITY Kimberling City	STATE MO	ZIP CODE 65686
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 SAME AS ABOVE		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS
ADDRESS		CITY	STATE	ZIP CODE
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 checked="" 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 checked="" 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 checked="" 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 checked="" 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 checked="" type="checkbox"/> NO				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Michael Stalzer, P.E.		TELEPHONE NUMBER WITH AREA CODE 417-860-9697		E-MAIL ADDRESS
ADDRESS 1658 W. Riverside Street		CITY Springfield	STATE MO	ZIP CODE 65807
7.0 APPLICATION FEE				
<input checked="" type="checkbox"/> CHECK NUMBER <input type="checkbox"/> ETPAY 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 DEAN E. JOHNSON			DATE 6/30/22	
TITLE OR CORPORATE POSITION TRR Management @ Indian Point, LLC		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS dean@kimberling.com
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				



PART B – LAND APPLICATION ONLY

(Submit only if the proposed construction project includes land application of wastewater.)

8.0 FACILITY INFORMATION

8.1 Type of wastewater to be irrigated: Domestic State/National Park Seasonal business
 Municipal Municipal with a pretreatment program or significant industrial users
 Other (explain) _____

8.2 Months when the business or enterprise will operate or generate wastewater:
 12 months per year Part of the year (list months): _____

8.3 This system is designed for:
 No-discharge.
 Partial irrigation when feasible and discharge rest of time.
 Irrigation during recreational season, April – October, and discharge during November – March.
 Other (explain) _____.

9.0 STORAGE BASINS

9.1 Number of storage basins: _____ (Use additional pages if greater than three basins.)

9.2 Type of basins: Steel Concrete Fiberglass Earthen Earthen with membrane liner

9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.
Basin #1: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____
Basin #2: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____
Basin #3: Length _____ Width _____ Depth _____ Freeboard _____ Depth _____ Safety _____ % Slope _____

9.4 Storage Basin operating levels (report as feet below emergency overflow level).
Basin #1: Maximum operating water level _____ ft Minimum operating water level _____ ft
Basin #2: Maximum operating water level _____ ft Minimum operating water level _____ ft
Basin #3: Maximum operating water level _____ ft Minimum operating water level _____ ft

9.5 Design depth of sludge in storage basins.
Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.6 Existing sludge depth, if the basins are currently in operation.
Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.7 Total design sludge storage: _____ dry tons and _____ cubic feet

10.0 LAND APPLICATION SYSTEM

10.1 Number of irrigation sites _____ Total Acres _____ Maximum % field slopes _____
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
(Use additional pages if greater than three irrigation sites.)

10.2 Type of vegetation: Grass hay Pasture Timber Row crops
 Other (describe) _____

10.3 Wastewater flow (dry weather) gallons per day: Average annual _____ Seasonal _____ Off-season _____

10.4 Land application rate (design flow including 1-in-10 year storm water flows):
Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week
Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

10.5 Total irrigation per year (gallons): Design: _____ gal Actual: _____ gal

10.6 Actual months used for irrigation (check all that apply):
 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

10.7 Land application rate is based on:
 Hydraulic Loading Other (describe) _____
 Nutrient Management Plan (N&P) If N&P is selected, is the plan included? YES NO

JUL 29 2022