Permit No. CP0002270

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

CONSTRUCTION PERMIT

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

John Craven
Sites and Facilities Manager
Young Life
2565 State Highway H
Lampe, MO 65681

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 11, 2022
Effective Date

April 10, 2024
Expiration Date

Chris Wieberg

Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

This project will add a new screening system, a new pretreatment system, and expand the membrane bioreactor currently in use to accomodate an increase in guests and staff at the youth camp upto 708. The project will be built according to Basis of Design – Wastewater Treatment Facility Upgrade and Expansion and the signed and sealed Clearwater Cove Youth Camp Wastewater Treatment Plant Improvements plans prepared by Gary M. Lee, P.E. in March 2021.

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 Gary Lee, P.E. with Lee Engineering 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. The wastewater treatment facility shall be located at least fifty feet (50') from any dwelling or establishment.

6. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.

7. 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.

8. 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.

9. 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.

10. 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). 10 CSR 20-8.130 (2) (A)

- Facilities shall be readily accessible by authorized personnel from a public right–of-way at all times. 10 CSR 20-8.140 (2) (D). 10 CSR 20-8.130 (2) (B)

- 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: 10 CSR 20-8.130(2)(C)
    - 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 distance between wastewater pumping stations and all potable water sources shall be at least fifty feet (50') in accordance with 10 CSR 23-3.010(1)(B). 10 CSR 20-8.130 (2) (D)

- Multiple pumps shall be provided except for design average flows of less than fifteen hundred (1,500) gallons per day. 10 CSR 20-8.130 (3) (B) 1.

- Electrical equipment. Electrical equipment shall be provided with the following requirements:

  - 10 CSR 20-8.130 (3) (B) 2. A. Electrical equipment must comply with 10 CSR 20-8.140(7)(B);
  - Utilize corrosive resistant equipment located in the wet well; 10 CSR 20-8.130 (3) (B) 2. B.
  - Provide a watertight seal and separate strain relief for all flexible cable; 10 CSR 20-8.130(3) (B) 2. C.
  - Install a fused disconnect switch located above ground for the main power feed for all pumping stations. 10 CSR 20-8.130 (3) (B) 2. D.
  - When such equipment is exposed to weather, it shall comply with the requirements of weather proof equipment; enclosure NEMA 4; NEMA 4X where necessary; and *NEMA Standard 250-2014*, published December 15, 2014. 10 CSR 20-8.130 (3) (B) 2. E.
  - Install lightning and surge protection systems; 10 CSR 20-8.130 (3) (B) 2. F.
  - Install a one hundred ten volt (110 V) power receptacle inside the control panel located outdoors to facilitate maintenance; 10 CSR 20-8.130 (3) (B) 2. G.
  - Provide Ground Fault Circuit Interruption (GFCI) protection for all outdoor receptacles. 10 CSR 20-8.130 (3) (B) 2. H.

- 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.

- 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)

- 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 shall be provided during all power outages. 10 CSR 20-8.140 (7) (A) 2.

- 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.

- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)

- Effluent twenty-four (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)

- 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.

- 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)

- Grease interceptors shall be provided on kitchen drain lines from institutions, hospitals, hotels, restaurants, schools, bars, cafeterias, clubs, and other establishments from which relatively large amounts of grease may be discharged to a wastewater treatment facility owned by the grease producing entity. Grease interceptors are typically constructed from fiberglass reinforced polyester, high density polyethylene (HDPE), or concrete. For corrugated HDPE grease interceptors, follow ASTM F2649 – 14 *Standard Specification for Corrugated High Density Polyethylene (HDPE) Grease Interceptor Tanks*, as approved and published September 1, 2014. For precast concrete grease interceptor tanks, follow ASTM C1613 – 17 *Standard Specification for Precast Concrete Grease Interceptor Tanks*, as approved and published September 1, 2017. 10 CSR 20-8.150 (3)

- All screening devices and screening storage areas shall be protected from freezing. 10 CSR 20-8.150 (4) (A) 1.

- Provisions for location and safety of comminutors shall be in accordance with screening devices,
    - Manually cleaned channels shall be protected by guard railings and deck gratings with adequate provisions for removal or opening to facilitate raking. 10 CSR 20-8.150 (4) (A) 3. A. (I)
    - Mechanically cleaned channels shall be protected by guard railings and deck gratings. 10 CSR 20-8.150 (4) (A) 3. A. (II)
    - Mechanical equipment shall have adequate removal enclosures to protect facility personnel against accidental contact with moving parts and to prevent dripping in multi-level installations. 10 CSR 20-8.150 (4) (A) 3. B. (I)
    - A positive means of locking out each mechanical device shall be provided. 10 CSR 20-8.150 (4) (A) 3. B. (II)

  - An emergency stop button with an automatic reverse function shall be located in close proximity to the mechanical device. 10 CSR 20-8.150 (4) (A) 3. B. (III)
  - 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)

- 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)

- Overflow weirs shall be readily adjustable over the life of the structure to correct for differential settlement of the tank. 10 CSR 20-8.160 (3) (C) 1.

- Walls of settling tanks shall extend at least six inches (6") above the surrounding ground surface and shall provide not less than twelve inches (12") of freeboard. 10 CSR 20-8.160 (3) (E)

- Safety features shall appropriately include machinery covers, life lines, handrails on all stairways and walkways, and slip resistant surfaces. For additional safety follow the provisions listed in 10 CSR 20-8.140(8). 10 CSR 20-8.160 (5) (A)

- The design shall provide for convenient and safe access to routine maintenance items such as gear boxes, scum removal mechanism, baffles, weirs, inlet stilling baffle areas, and effluent channels. 10 CSR 20-8.160 (5) (B)

- For electrical equipment, fixtures, and controls in enclosed settling basins and scum tanks, where hazardous concentrations of flammable gases or vapors may accumulate, follow the provisions in 10 CSR 20-8.140(7)(B). The fixtures and controls shall be conveniently located and safely accessible for operation and maintenance. 10 CSR 20-8.160 (5) (C)

- For solids pumping systems, audio-visual alarms shall be provided in accordance with 10 CSR 20-8.140(7)(C) for:
  - Pump failure; 10 CSR 20-8.170 (6) (A)
  - Pressure loss; 10 CSR 20-8.170 (6) (B) and
  - High pressure. 10 CSR 20-8.170 (6) (C)

- Belt presses and conveyors shall be provided with emergency shutoff controls along the entire length of the belt presses and conveyors that will:
  - Stop the press in an emergency; 10 CSR 20-8.170 (7) (A) 1. and
  - Trigger an audible alarm. 10 CSR 20-8.170 (7) (A) 2.

- Alarm systems shall be provided for sludge dewatering processes to notify the operator(s) of conditions that could result in process equipment failure or damage, threaten operator safety, or a solids spill or overflow condition. 10 CSR 20-8.170 (7) (B)

- Moving Bed Bioreactor (MBBR). A 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)

11. Upon completion of construction:

A. Young Life will become the continuing authority for operation and maintenance of these facilities;

B. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications; and

C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N).

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The current facility is being renovated and expanded to accomodate increased usage at a youth camp. The new design flow will be 25,000 gpd. The Department has reviewed the antidegradation report for this facility and issued the Water Quality and Antidegradation Review dated August 2021

The current plant is equipped with a 3mm OBEX screen furnished by Smith and Loveless (SL), the manufacturer of the Titan MBR plant. This screen is allowing debris to pass through and has a detrimental impact on the performance and life of the membrane units. This screen will be replaced by a rotating belt filter.

The flow equalization basin is undersized for the unique activities normal to this facility. During the summer camp activities, it is routine to conduct a camp wide mud fight which results in the entire camp showering all at one time. This has on occasion caused the existing flow equalization tank to overflow for a short duration. The basin will be expanded to accomodate this routine once-per-year peak flow. This basin will also house a moving bed biofilm reactor.

The membrane cells of the Titan plant has seen a few instances of freezing the return activated sludge pipeline during cold weather. There are chronic maintenance issues with the membrane cassettes caused by the debris mentioned previously. The improvements mentioned above should solve the maintenance issues. A second MBR is added for increased flow.

2. FACILITY DESCRIPTION

Clearwater Cove is a youth camp facility on Majestic Lane, Lampe, in Stone County, Missouri. The camp will eventually consist of four dormitories that will accommodate up to 708 guests and staff. The current WWTF is a Smith & Loveless Titan Membrane Biological Reactor (MBR), followed by UV disinfection, designed for average daily flow of 18,500 gallons per day (gpd). The facility is currently at capacity when the camp is occupied and an expansion of the WWTF is necessary.

3. COMPLIANCE PARAMETERS

The limits following the completion of construction will be applicable to the facility:

Parameter	Units	Monthly average limit
Biochemical Oxygen Demand$_5$	mg/L	10
Total Suspended Solids	mg/L	15
Ammonia as N 1st Q	mg/L	3.1
Ammonia as N 2nd Q	mg/L	2.1
Ammonia as N 3rd Q	mg/L	1.6
Ammonia as N 4th Q	mg/L	3.1
pH	SU	6.0-9.0
E. coli	#/100mL	126

4. ANTIDEGRADATION

The Department has reviewed the antidegradation report for this facility and issued the Water Quality and Antidegradation Review dated August 2021, due to modifications to accomodate increased flow and to improve performance. See **APPENDIX – ANTIDEGRADATION**.

5. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

The existing Titan MBR will be retained and enhanced. Major improvements are:

- replacing 3MM screen with rotating belt filter;
- larger 28,000 gal (20' diameter x 14' high) flow equalization basin with moving bed bioreactor component. The MBBR depth will be the top 8 feet, allowing for continuous pretreatment. An aeration system will keep the contents continuously agitated and provide oxygen to the microorganisms;
- existing SL 100 membrane cassette modules restored to original capacity;

- addition of a second SL 100 membrane cassette module;
- new chemical storage building; and
- piping & other enhancements for increased flow.

6. OPERATING PERMIT

Operating permit MO-0137774 requires a modification to reflect the construction activities. The draft modified operating permit was successfully public noticed from January 25, 2022 to February 25 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

Bern Johnson, Associate Engineer
Engineering Section
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John Rustige, P.E.
Engineering Section
john.rustige@dnr.mo.gov

Appendix 1 – Water Quality and Antidegradation Review

Water Quality and Antidegradation Review

For the Protection of Water Quality
and Determination of Effluent Limits for Discharge to
Tributary to Table Rock Lake

by

Clearwater Cove Youth Camp Wastewater Treatment Facility

August 2021

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1. Facility Information

FACILITY NAME: Clearwater Cove Youth Camp WWTF NPDES #: MO0137774

FACILITY TYPE: NON-POTW
FACILITY DESCRIPTION: Clearwater Cove is a youth camp facility on Table Rock Lake near Lampe, MO. The camp will eventually consist of four dormitories that will accommodate up to 708 guests and staff. This WQAR analyzes wastewater loads at full capacity, even though actual construction is at Phase II of a three-phase long term plan. The current WWTF is a Smith & Loveless Titan Membrane Biological Reactor (MBR), followed by UV disinfection, designed for average daily flow of 18,500 gallons per day (gpd). The facility is currently at capacity when the camp is occupied and an expansion of the WWTF is necessary.

As a result of the submitted alternative analysis, the applicant's preferred alternative is an expansion/upgrade of the current MBR. The design flow will be 0.025 MGD.

COUNTY:	Stone	UTM COORDINATES:	X= 457848/ Y= 4049010
12- DIGIT HUC:	11010001-1203	LEGAL DESCRIPTION:	SW ¼, NW ¼, Section 30, T22N, R23W
EDU*:	Ozark	ECOREGION:	Ozark/Highlands

* - Ecological Drainage Unit

2. Water Quality Information

In accordance with Missouri's Water Quality Standard [10 CSR 20-7.031(3)] and federal antidegradation policy at Title 40 Code of Federal Regulation (CFR) Section 131.12 (a), the Missouri Department of Natural Resources (Department) developed a statewide antidegradation policy and corresponding procedures to implement the policy. A proposed discharge to a water body will be required to undergo a level of Antidegradation Review which documents that the use of a water body's available assimilative capacity is justified. Effective August 30, 2008, and revised
July 13, 2016, a facility is required to use *Missouri's Antidegradation Implementation Procedure (AIP)* for new and expanded wastewater discharges.

2.1. Water Quality History:

The facility has had occasional exceedances over the years, but no violations. Three of four quarters in calendar year 2020 recorded exceedances of the monthly aluminum limit.

OUTFALL	DESIGN FLOW (CFS)	TREATMENT LEVEL	RECEIVING WATERBODY	DISTANCE TO CLASSIFIED SEGMENT (MI)
001	0.03875	Secondary	Tributary to Little Indian Creek (losing)	0.0
			Little Indian Creek (branch of Table Rock Lake)	0.32

3. Receiving Waterbody Information

WATERBODY NAME	CLASS	WBID	LOW-FLOW VALUES (CFS)			DESIGNATED USES**
			1Q10	7Q10	30Q10	
Tributary to Table Rock Lake	U		0.0	0.0	0.0	General Criteria
Table Rock Lake	L2	7313				AQL, HPP, IRR, LWW, SCR, WBC(A)

** Irrigation (IRR), Livestock & Wildlife Protection (LWP), Protection of Warm Water Aquatic Life (AQL), Human Health Protection (HHP), Cool Water Fishery (CLF), Cold Water Fishery (CDF), Whole Body Contact Recreation – Category A (WBC-A), Whole Body Contact Recreation – Category B (WBC-B), Secondary Contact Recreation (SCR), Drinking Water Supply (DWS), Industrial (IND), Groundwater (GRW).

RECEIVING WATER BODY SEGMENT #1: Tributary to Table Rock Lake
Upper end segment* UTM coordinates: X= 457733 / Y= 4048887
Lower end segment* UTM coordinates: X= 457724/ Y= 4049405

*Segment is the portion of the stream where discharge occurs. Segment is used to track changes in assimilative capacity and is bound at a minimum by existing sources and confluences with other significant water bodies.

4. General Comments

Lee & Company, LLC prepared, on behalf of Young Life Ministries Clearwater Cove, the *Basis of Design Wastewater Treatment Facility Upgrade and Expansion for Young Life Ministries* dated March, 2021. Applicant elected to assume that all pollutants of concern (POC) are significantly degrading the receiving stream in the absence of existing water quality. An alternative analysis was conducted to fulfill the requirements of the AIP. Information that was provided by the applicant in the submitted report was used to develop this review document.

Geohydrologic Evaluation was submitted with the request and the receiving stream is losing for discharge purposes (Appendix A).

A Missouri Department of Conservation Natural Heritage Review was obtained by the applicant; and no records of endangered species were found for the project area (Appendix B).

5. Antidegradation Review Information

The following is a review of the *Basis of Design* dated March, 2021.

5.1. TIER DETERMINATION

Below is a list of pollutants of concern reasonably expected to be in the discharge. Pollutants of concern are defined as those pollutants "proposed for discharge that affects beneficial use(s) in waters of the state. POCs include pollutants that create conditions unfavorable to beneficial uses in the water body receiving the discharge or proposed to receive the discharge." (AIP, Page 7).

Table 1. Pollutants of Concern and Tier Determination

POLLUTANTS OF CONCERN	TIER*	DEGRADATION	COMMENT
BOD_5	2	Significant	
TSS	2	Significant	
Ammonia	2	Significant	
Escherichia coli (*E. coli*)	1	Table Rock 303(d) list	
Phosphorus	1	Table Rock 303(d) list	
Nitrogen	1	Table Rock 303(d) list	

* Tier assumed. Tier determination not possible: ** No in-stream standards for these parameters. *** Standards for these parameters are ranges

5.2. EXISTING WATER QUALITY

No existing water quality data was submitted. POCs were considered to be Tier 2 except for those on the Table Rock Lake 303(d) list.

5.3. NO DISCHARGE EVALUATION

According to 10 CSR 20-6.010 (4)(D), reports for the purpose of constructing a wastewater treatment facility shall consider the feasibility of constructing and operating a no discharge facility. Because Missouri's antidegradation implementation procedures specify that if the proposed activity results in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are required. Part of that analysis as shown below is the non-degrading or no discharge evaluation. See Section 5.4.1 discussion for the regionalization alternative.

The no discharge option by land irrigation is not feasible because insufficient area is available (38 of 50 needed acres) and what land is available is exceeds the Department's maximum allowable slope for irrigation guidelines.

5.4. Demonstration of Necessity and Social and Economic Importance

Missouri's antidegradation implementation procedures specify that if the proposed activity does result in significant degradation then a demonstration of necessity (i.e., alternatives analysis) and a determination of social and economic importance are required. Four alternatives from non-degrading to less degrading to degrading alternatives were evaluated. Subsurface irrigation was eliminated as impracticable as mentioned above. Only those alternatives that were considered practicable were included in the economic efficiency analysis. The Membrane Bioreactor was the preferred alternative based on this analysis.

Alternatives Analysis Comparison

	MBBR	Orenco Textile Filter	Extended Aeration
BOD	10	10	10
TSS	15	15	15
Ammonia	1.3	1.3	1.3
Phosphorus	0.5	0.5	0.5
Practical	Y	Y	Y
Economical	Y	Y	Y
Life Cycle Cost($)	$913,830	$1,091,290	$3,100,000
Ratio	100%	119%	339%

5.5. Regionalization Alterative

Within Section II B 1. of the AIP, discussion of the potential for discharge to a regional wastewater collection system is mentioned. There is no treatment facility within five miles capable of treating Clearwater Cove's flow and no municipal facilities whatsoever within five miles.

Needs a Waiver to prevent conflict with area wide management plan approved under Section 208 of the Clean Water Act and/or under 10 CSR 20-6.010(3) (B) 1 or 2 Continuing Authorities? (Y or N) N

5.6. Losing Stream Alterative Discharge Location

Under 10 CSR 20-7.015(4) (A), *discharges to losing stream shall be permitted only after other alternatives including land application, discharge to gaining stream and connection to a regional facility have been evaluated and determined to be unacceptable for environmental and/or economic reasons*.

The Discharge is to a losing stream segment.

5.7. Social and Economic Importance Evaluation

The affected community includes those who reside on, vacation at, or otherwise enjoy Table Rock Lake, as well as the youth and staff from throughout Missouri who will benefit from the camp and its programs. This camp facility will provide social benefits for campers. It is open to kids from economically depressed communities, kids with disabilities, and teenage mothers. The camp will seek to introduce campers to sustainable and environmentally responsible living by exposing them to new and innovative infrastructure technologies supporting various aspects of the campground. The project hopes to have and maintain a low carbon footprint, low emissions, and close to zero waste programs.

The population of the camp will be 708 staff and guests at full capacity. Camp expenditures from operations, salaries, and construction bring needed income to the area and improve the tax base.

6. General Assumptions of the Water Quality and Antidegradation Review

1. A Water Quality and Antidegradation Review (WQAR) assumes that [10 CSR 20-6.010(3) Continuing Authorities and 10 CSR 20-6.010(4) (D), consideration for no discharge] has been or will be addressed in a Missouri State Operating Permit or Construction Permit Application.

2. A WQAR does not indicate approval or disapproval of alternative analysis as per [10 CSR 20-7.015(4) Losing Streams], and/or any section of the effluent regulations.
3. Changes to Federal and State Regulations made after the drafting of this WQAR may alter Water Quality Based Effluent Limits (WQBEL).
4. Effluent limitations derived from Federal or Missouri State Regulations (FSR) may be WQBEL or Effluent Limit Guidelines (ELG).
5. WQBEL supersede ELG only when they are more stringent. Mass limits derived from technology based limits are still appropriate.
6. A WQAR does not allow discharges to waters of the state, and shall not be construed as a National Pollution Discharge Elimination System or Missouri State Operating Permit to discharge or a permit to construct, modify, or upgrade.
7. Limitations and other requirements in a WQAR may change as Water Quality Standards, Methodology, and Implementation procedures change.
8. Nothing in this WQAR removes any obligations to comply with county or other local ordinances or restrictions.
9. If the proposed treatment technology is not covered in 10 CSR 20-8 Design Guides, the treatment process may be considered a new technology. As a new technology, the permittee will need to work with the review engineer to ensure equipment is sized properly. The operating permit may contain additional requirements to evaluate the effectiveness of the technology once the facility is in operation. This Antidegradation Review is based on the information provided by the facility and is not a comprehensive review of the proposed treatment technology. If the review engineer determines the proposed technology will not consistently meet proposed effluent limits, the permittee will be required to revise their Antidegradation Report.

7. *Mixing Considerations*

Mixing Zone (MZ): Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(a)].

Zone of Initial Dilution (ZID): Not Allowed [10 CSR 20-7.031(5)(A)4.B.(I)(b)].

8. *Permit Limits and Monitoring Information*

WASTELOAD ALLOCATION STUDY CONDUCTED (Y OR N):	N	USE ATTAINABILITY ANALYSIS CONDUCTED (Y OR N):	N	WHOLE BODY CONTACT USE RETAINED (Y OR N):	Y

OUTFALL #001

WET TEST (Y OR N): N FREQUENCY: NA AEC: NA METHOD: NA

TABLE 3. EFFLUENT LIMITS

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	BASIS FOR LIMIT (NOTE 2)	MONITORING FREQUENCY
FLOW	MGD	*		*		
BIOCHEMICAL OXYGEN DEMAND$_5$ ***	MG/L		15	10	PEL	Once/quarter
TOTAL SUSPENDED SOLIDS	MG/L		20	15	PEL	Once/quarter
PH	SU	6.0– 9.0		6.0 – 9.0	FSR	Once/quarter
AMMONIA						Once/quarter
1st Quarter	MG/L	12.1		3.1	WQBEL	
2nd Quarter	MG/L	12.1		2.1	WQBEL	
3rd Quarter	MG/L	12.1		1.6	WQBEL	
4th Quarter	MG/L	12.1		3.1	WQBEL	
ESCHERICHIA COLIFORM (*E. COLI*)	NOTE 1	126**		126**	FSR	Once/quarter
TOTAL PHOSPHORUS		*		0.5	PEL	Once/quarter

NOTE 1 – COLONIES/100 ML

NOTE 2– WATER QUALITY-BASED EFFLUENT LIMITATION – WQBEL; OR MINIMALLY DEGRADING EFFLUENT LIMIT –MDEL; OR PREFERRED ALTERNATIVE EFFLUENT LIMIT – PEL; OR TECHNOLOGY-BASED EFFLUENT LIMIT – TBEL; OR NO DEGRADATION EFFLUENT LIMIT – NDEL; OR FEDERAL/STATE REGULATION – FSR; OR NOT APPLICABLE – N/A. ALSO, PLEASE SEE THE **GENERAL ASSUMPTIONS OF THE WQAR #4 & #5.**

* Monitoring requirements only.

** The Monthly and Weekly Average for *E. coli* shall be reported as a Geometric Mean. The Weekly Average for *E. coli* will be expressed as a geometric mean if more than one (1) sample is collected during a calendar week (Sunday through Saturday).

*** This facility is required to meet a removal efficiency of 85% or more for BOD_5 and TSS. Influent BOD_5 and TSS data should be reported to ensure removal efficiency requirements are met.

9. Receiving Water Monitoring Requirements

No receiving water monitoring requirements recommended at this time.

10. Derivation and Discussion of Limits

Wasteload allocations and limits were calculated using two methods:

1) Water quality-based – Using water quality criteria or water quality model results and the dilution equation below:

$$C = \frac{(C_s \times Q_s) + (C_e \times Q_e)}{(Q_e + Q_s)}$$ (EPA/505/2-90-001, Section 4.5.5)

Where C = downstream concentration
C_s = upstream concentration
Q_s = upstream flow
C_e = effluent concentration
Q_e = effluent flow

Chronic wasteload allocations were determined using applicable chronic water quality criteria (CCC: criteria continuous concentration) and stream volume of flow at the edge of the mixing zone (MZ). Acute wasteload allocations were determined using applicable water quality criteria (CMC: criteria maximum concentration) and stream volume of flow at the edge of the zone of initial dilution (ZID).

Water quality-based maximum daily and average monthly effluent limitations were calculated using methods and procedures outlined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

2) Alternative Analysis-based – Using the preferred alternative's treatment capacity for conventional pollutants such as BOD_5 and TSS that are provided by the consultant as the WLA, the significantly-degrading effluent average monthly and average weekly limits are determined by applying the WLA as the average monthly (AML) and multiplying the AML by 1.5 to derive the average weekly limit (AWL). For toxic and nonconventional pollutant such as ammonia, the treatment capacity is applied as the significantly-degrading effluent monthly average (AML). A maximum daily can be derived by dividing the AML by 1.19 to determine the long-term average (LTA). The LTA is then multiplied by 3.11 to obtain the maximum daily limitation. This is an accepted procedure that is defined in USEPA's "Technical Support Document For Water Quality-based Toxics Control" (EPA/505/2-90-001).

Note: Significantly-degrading effluent limits have been based on the authority included in Section III. Permit Consideration of the AIP. Also under 40 CFR 133.105, permitting authorities shall require more stringent limitations than equivalent to secondary treatment limitations for 1) existing facilities if the permitting authority determines that the 30-day average and 7-day average BOD_5 and TSS effluent values could be achievable through proper operation and maintenance of the treatment works, and 2) new facilities if the permitting authority determines that the 30-day average and 7-day average BOD_5 and TSS effluent values could be achievable through proper operation and maintenance of the treatment works, considering the design capability of the treatment process.

10.1. OUTFALL #001 – **MAIN FACILITY OUTFALL**

10.2. LIMIT DERIVATION

- **Flow**. In accordance with [40 CFR Part 122.44(i)(1)(ii)] the volume of effluent discharged from each outfall is needed to assure compliance with permitted effluent limitations. If the permittee is unable to obtain effluent flow, then it is the responsibility of the permittee to inform the Department, which may require the submittal of an operating permit modification.

- **Biochemical Oxygen Demand (BOD_5).** BOD_5 limits of 10 mg/L monthly average, 15 mg/L average weekly limits were proposed. These are the losing stream limits at 10 CSR 20-7.015(4)(B)1.

- **Total Suspended Solids (TSS).** 15 mg/L monthly average, 20 mg/L average weekly limit. These are the losing stream limits at 10 CSR 20-7.015(4)(B)1.

- **pH**. – 6.0-9.0 SU. These are the losing stream limits at 10 CSR 20-7.015(4)(B)1.

- *Total Ammonia Nitrogen. Early Life Stages Present Total Ammonia Nitrogen criteria apply* [10 CSR 20-7.031(5)(B)7.C. & Table B3]. Background total ammonia nitrogen = 0.01 mg/L

Season	Temp (°C)	pH (SU)	Total Ammonia Nitrogen CCC (mg N/L)	Total Ammonia Nitrogen CMC (mg N/L)
Summer	25.4	7.8	1.6	12.1
Winter	14.6	7.8	3.1	12.1

Summer: April 1 – September 30, Winter: October 1 – March 31.

1st Quarter

Chronic WLA: $C_e = ((0.03875 + 0.0)3.1 – (0.0 * 0.01))/0.03875$
$C_e = 3.1$ mg/L

Acute WLA: $C_e = ((0.03875 + 0.0)12.1 – (0.0025 * 0.01))/0.03875$
$C_e = 12.1$ mg/L

MDL = 12.1 mg/L
AML = 3.1 mg/L

2nd Quarter

Chronic WLA: $C_e = ((0.03875 + 0.0)1.8 – (0.0 * 0.01))/0.03875$
$C_e = 1.8$ mg/L

Acute WLA: $C_e = ((0.03875 + 0.0)12.1 – (0.0 * 0.01))/0.03875$
$C_e = 12.1$ mg/L
MDL = 12.1 mg/L
AML = 2.1 mg/L

3rd Quarter

Chronic WLA: $C_e = ((0.03875 + 0.0)1.4 – (0.0 * 0.01))/0.03875$
$C_e = 1.4$ mg/L

Acute WLA: $C_e = ((0.03875 + 0.0)12.1 – (0.0 * 0.01))/0.03875$
$C_e = 12.1$ mg/L
MDL = 12.1 mg/L
AML = 1.6 mg/L

4th Quarter

Chronic WLA: $C_e = ((0.03875 + 0.0)3.1 – (0.0 * 0.01))/0.03875$
$C_e = 3.1$ mg/L

Acute WLA: $C_e = ((0.03875 + 0.0)12.1 – (0.0025 * 0.01))/0.03875$
$C_e = 12.1$ mg/L
MDL = 12.1 mg/L
AML = 3.1 mg/L

Season	Maximum Daily Limit (mg/l)	Average Monthly Limit (mg/l)
1st Quarter	12.1	3.1
2nd Quarter	12.1	2.1
3rd Quarter	12.1	1.6
4th Quarter	12.1	3.1

The existing process at this facility has shown to be capable of meeting very low ammonia concentrations. However, in a previous Antidegradation review for this facility/technology the Department found that the appropriate ammonia effluent limits were water-quality based. To be consistent with the previous review water quality-based effluent limits will be applied and given on a quarterly basis reflecting the revised ammonia methods.

- ***Escherichia coli (E. coli)***. Discharges to losing streams shall not exceed 126 per 100 mL as a Daily Maximum and Monthly Average at any time, as per 10 CSR 20-7.031(5)(C). No more than 10% of samples (collected over long series of sampling events) shall exceed 126 cfu per 100 mL daily maximum as per 10 CSR 20-7.015(9)(B)1.G.

- **Total Phosphorus.** To Table Rock Lake 0.5 mg/L per 10 CSR 20-7.015 (3)(F).

11. ANTIDEGRADATION REVIEW PRELIMINARY DETERMINATION

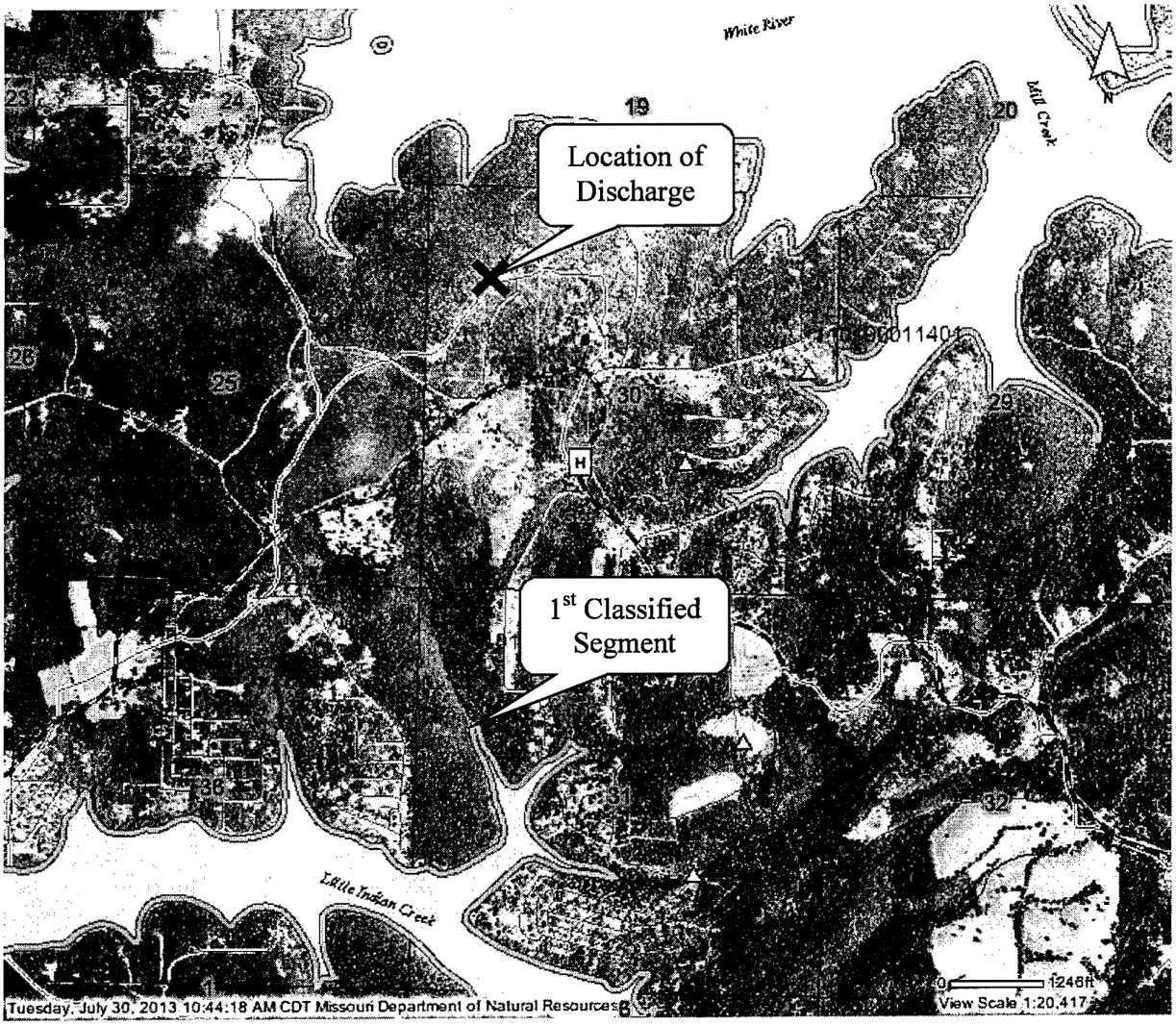
The proposed increased facility discharge to 0.025 MGD will result in significant degradation of the segment identified in a tributary to Little Indian Creek, a branch of Table Rock Lake. Expansion and enhancement of the current Membrane Bioreactor was determined to be the base case technology, the lowest cost alternative that meets technology and water quality based effluent limitations. The cost effectiveness of the other technologies and options were evaluated and found to not be practical or cost effective.

Per the requirements of the AIP, the effluent limits in this review were developed to be protective of beneficial uses and to attain the highest statutory and regulatory requirements. The Department has determined that the submitted review is sufficient and meets the requirements of the AIP. No further analysis is needed for this discharge.

Reviewer: Bern Johnson
Date: August 10, 2021
Unit Chief: John Rustige, P.E.

Appendix A: Map of Discharge Location

(*A USGS topographic map can be obtained on the web at http://www.dnr.mo.gov/internetmapviewer/.)*



Appendix B: Natural Heritage Review

(*Applicant must check for rare and endangered aquatic species that may be affected by the discharge by using the following web link: http://mdcgis.mdc.mo.gov/heritage/. The results of the survey must indicate whether there are known endangered species on the site.)*

Missouri Department of Conservation

Natural Heritage Review Report

June 13, 2013 -- Page 1 of 2

Resource Science Division
P. O. Box 180
Jefferson City, MO 65102
Prepared by: Emily Clancy
Emily.Clancy@mdc.mo.gov
(573) 522 – 4115 ext. 3182

GARY M. LEE PE
801 WESTCHESTER AVE.
HARRISONVILLE, MISSOURI 64701
glee@uam-llc.com

Project type:	Wastewater
Location/Scope:	Section 30 of T22N R23W
County:	Stone
Query reference:	Proposed WWTP Clearwater Cove Youth Camp
Query received:	June 6, 2013

This NATURAL HERITAGE REVIEW is not a site clearance letter. Rather, it identifies public lands and sensitive resources known to have been located close to and/or potentially affected by the proposed project. *On-site verification is the responsibility of the project. Natural Heritage records were identified at some date and location. This report considers records near but not necessarily at the project site. Animals move and, over time, so do plant communities. To say "there is a record" does not mean the species/habitat is still there. To say that "there is no record" does not mean a protected species will not be encountered. These records only provide one reference and other information (e.g. wetland or soils maps, on-site inspections or surveys) should be considered. Look for additional information about the biological and habitat needs of records listed in order to avoid or minimize impacts. More information is at http://mdc.mo.gov/discover-nature/places-go/natural-areas and mdc4.mdc.mo.gov/applications/mofwis/mofwis_search1.aspx. Contact information for the department's Natural History Biologist is online at http://mdc.mo.gov/contact-us.*

Level 3 issues: Records of federal-listed (these are also state-listed) species or critical habitats near the project site:
Natural Heritage records identify no critical habitats, no federal-listed species records within one mile of the site, or in the public land survey section listed above or sections adjacent.

Clean Water Act permits issued by other agencies regulate both construction and operation of wastewater systems, and provide many important protections for fish and wildlife resources throughout the project area and at some distance downstream. Fish and wildlife almost always benefit when unnatural pollutants are removed from water, and concerns are minimal if construction is managed to minimize erosion and sedimentation/runoff to nearby streams and lakes, including adherence to any "Clean Water Permit" conditions.

Revegetation of disturbed areas is recommended to minimize erosion, as is restoration with of native plant species compatible with the local landscape and for wildlife needs. Annuals like ryegrass may be combined with native perennials for quicker green-up. Avoid aggressive exotic perennials such as crown vetch and sericea lespedeza.

FEDERAL LIST species/habitats are protected under the Federal Endangered Species Act. Consult with the U.S. Fish and Wildlife Service (101 Park DeVille Drive Suite A, Columbia, Missouri 65203-0007; 573-234-2132).

Level 2 issues: Records of state-listed (not federal-listed) endangered species AND / OR state-ranked (not state-listed endangered) species and natural communities of conservation concern. The Department tracks these species and natural communities due to population declines and/or apparent vulnerability.
Natural Heritage records identify no state-listed endangered species within 1 mile of the site.

Natural Heritage records identify eastern tiger salamander (*Ambystoma tigrinum*, state-rank SU) within 1 mile of the project site. The state-rank SU is defined as currently unrankable due to lack of information or due to substantially conflicting information about status or trends. More information about this species can be found at: http://mdc.mo.gov/discover-nature/field-guide/eastern-tiger-salamander-0.

See http://mdc.mo.gov/sites/default/files/resources/2010/04/2013_species_concern.pdf for a

complete list of species and communities of conservation concern.

STATE ENDANGERED species are listed in and protected under the Wildlife Code of Missouri (3CSR10-4.111).

General recommendations related to this project or site, or based on information about the historic range of species (unrelated to any specific Natural Heritage records):

- Indiana bats (*Myotis sodalis*, federally and state listed "endangered") hibernate during winter months, in caves primarily in the southern half of Missouri. They spend summer months, primarily north of the Missouri River, roosting and raising young under the bark of trees in riparian forests and upland forests near perennial streams. During project activities, avoid degrading stream quality and where possible leave snags standing and preserve mature forest canopy. Do not enter caves known to harbor Indiana bats, especially from September to April. **If any trees need to be removed by your project, please contact the U.S. Fish and Wildlife Service (Ecological Services, 101 Park Deville Drive, Suite A, Columbia, Missouri 65203-0007; Phone 573-234-2132).**
- Gray bats (*Myotis grisescens*, federal and state-listed endangered) are likely to occur in the project area, as they forage over streams, rivers, and reservoirs in this part of Missouri. Avoid entry or disturbance of any cave inhabited by gray bats and when possible retain forest vegetation along the stream and from the gray bat cave opening to the stream. See http://mdc.mo.gov/104 for best management recommendations.
- Stone County has known karst geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water movement). Few karst features are recorded in natural heritage records, and ones not noted here may be encountered at the project site or affected by the project. Cave fauna (many of which are species of conservation concern) are influenced by changes to water quality, so check your project site for any karst features and make every effort to protect groundwater in the project area. See http://mdc.mo.gov/nathis/caves/manag_construc.htm for best management information.
- Streams in the area should be protected from soil erosion, water pollution and in-stream activities that modify or diminish aquatic habitats. Best management recommendations relating to streams and rivers may be found at: http://mdc.mo.gov/sites/default/files/resources/2013/02/constprojnearstreams_2013.pdf.
- Invasive exotic species are a significant issue for fish, wildlife and agriculture in Missouri. Seeds, eggs, and larvae may be moved to new sites on boats or construction equipment, so inspect and clean equipment thoroughly before moving between project sites.
  - Remove any mud, soil, trash, plants or animals from equipment before leaving any water body or work area.
  - Drain water from boats and machinery that have operated in water, checking motor cavities, live-well, bilge and transom wells, tracks, buckets, and any other water reservoirs.
  - When possible, wash and rinse equipment thoroughly with hard spray or HOT water (≧104° F, typically available at do-it-yourself carwash sites), and dry in the hot sun before using again.

These recommendations are ones project managers might prudently consider based on a general understanding of species needs and landscape conditions. Natural Heritage records largely reflect sites visited by specialists in the last 30 years. Many privately owned tracts have not been surveyed and could host remnants of species once but no longer common.

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: 8/20/21 ☐ 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: 8/30/2021
☐ 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
Clearwater Cove Wastewater Treatment Facility Upgrade and Expansion

2.2 ESTIMATED PROJECT CONSTRUCTION COST
$ 500,000

2.3 PROJECT DESCRIPTION
Existing treatment facility to be upgraded by use of MBBR media and aeration.

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
Ozark Environmental Services. Waste is stored in a holding tank and hauled to a local facility for treatment.

2.5 DESIGN INFORMATION

A. Current population: 589 ; Design population: 708

B. Actual Flow: 12k gpd; Design Average Flow: _____ gpd;
Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: 24,415 gpd; Design Wet Weather Event: n/a

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	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Clearwater Cove Young Life WWTP	417-779-5678	jcraven@cwc.younglife.org

ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE	COUNTY
Majestic View Lane	Lampe	MO	65681	Stone

Wastewater Treatment Facility: Mo- (Outfall Of)

3.1 Legal Description: SW ¼, NW ¼, ____ ¼, Sec. 30, T 22N, R 23W
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 457716 Northing (Y): 4048902
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: Tributary to Table Rock Lake

4.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Young Life	417-779-5678	jcraven@cwc.younglife.org

ADDRESS	CITY	STATE	ZIP CODE
2565 State Hwy H	Lampe	MO	65681

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	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Young Life	417-779-5678	jcraven@cwc.younglife.org

ADDRESS	CITY	STATE	ZIP CODE
2565 State Hwy H	Lampe	MO	65681

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	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Gary Lee / Lee and Company, LLC	816-805-3546	gary.lee@lee-engineers.com

ADDRESS	CITY	STATE	ZIP CODE
405 Galaxie Avenue	Harrisonville	MO	64701

7.0 APPLICATION FEE

☐ CHECK NUMBER ☑ JETPAY CONFIRMATION NUMBER 20028155

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

J E Craven

PRINTED NAME	DATE
John Craven	11.4.21

TITLE OR CORPORATE POSITION	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Sites and Facilities Manager	417-779-5678	jcraven@cwc.younglife.org

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.