

**STATE OF MISSOURI**  
**DEPARTMENT OF NATURAL RESOURCES**  
**MISSOURI CLEAN WATER COMMISSION**



**CONSTRUCTION PERMIT**

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

Tom Ross  
Camp Elim RV Park & Campground LLC  
24798 Clementine Outer Road  
Rolla, MO 65401

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.

September 14, 2023  
Effective Date

September 13, 2025  
Expiration Date

  
\_\_\_\_\_  
John Hoke, Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

A sewage collection system with approximately 1,075 lineal feet of 6-inch SDR-35 PVC gravity sewer and approximately 10 manholes, a 3,000 gallon septic tank, three aerated treatment units, a 4,000 gallon drainfield dosing tank equipped with two effluent pumps, pumped effluent passes through micro-filtration disc filters; a soil absorption field with an area of approximately 22,464 square feet, separated into 3 zones, each zone with approximately 3,744 lineal feet of 0.5-inch drip irrigation pipe, PVC return lines, headworks with automatic flush system, and all the necessary appurtenances to make the facilities complete and usable to treat the waste from a hydraulic population equivalent of 43 with an average daily flow of 4,300 gallons. This is a non-discharging facility to be located in the NE  $\frac{1}{4}$ , SW  $\frac{1}{4}$ , Sec. 3, T36N, R10W, Phelps County, Missouri.

Drainfield approximate location: UTM (zone 15) X = 586680, Y = 4191990.

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 Terris Cates, P.E., with Integrity Engineering, Inc., and as described in this permit.
3. The Department must be contacted in writing prior to making any changes to the plans and specifications that would directly or indirectly have an impact on the capacity, flow, system layout, or reliability of the proposed wastewater treatment facilities or any design parameter that is addressed by 10 CSR 20-8, in accordance with 10 CSR 20-8.110(11).
4. State and federal law does not permit bypassing of raw wastewater, therefore steps must be taken to ensure that raw wastewater does not discharge during construction. If a sanitary sewer overflow or bypass occurs, report the appropriate information to the Department's Southeast Regional Office per 10 CSR 20-7.015(9)(G).
5. The completed project shall be field tested to verify actual pumped volume of each dose. The timer controls shall be set to ensure a dosing rate not to exceed the allowable rate of 0.20 gallons per square foot per day.
6. 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.
7. 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.
8. 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.

9. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
- 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.
  - Electrical systems and components in raw wastewater or in enclosed or partially enclosed spaces where hazardous concentrations of flammable gases or vapors that are normally present, shall comply with the NFPA 70 National Electric Code (NEC) (2017 Edition), as approved and published August 24, 2016, requirements for Class I, Division 1, Group D locations. 10 CSR 20-8.140 (7) (B)
  - An audiovisual alarm or a more advanced alert system, with a self-contained power supply, capable of monitoring the condition of equipment whose failure could result in a violation of the operating permit, shall be provided for all wastewater treatment facilities. 10 CSR 20-8.140 (7) (C).
  - No piping or other connections shall exist in any part of the wastewater treatment facility that might cause the contamination of a potable water supply. 10 CSR 20-8.140 (7) (D) 1.
  - Where a potable water supply is to be used for any purpose in a wastewater treatment facility other than direct connections, a break tank, pressure pump, and pressure tank or a reduced pressure backflow preventer consistent with the department's Public Drinking Water Branch shall be provided. 10 CSR 20-8.140 (7) (D) 3. A.
  - A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)
  - Subsurface systems shall—
    - o Exclude unstabilized fill and soils that have been highly compacted and/or disturbed, such as old road beds, foundations, or similar things; 10 CSR 20-8.200 (7) (A) 1. A.
    - o Provide adequate surface drainage where slopes are less than two percent; 10 CSR 20-8.200 (7) (A) 1. B
    - o Provide surface and subsurface water diversion where necessary, such as a curtain or perimeter drain; 10 CSR 20-8.200 (7) (A) 1. C and
    - o Have a ten foot buffer from the property line. 10 CSR 20-8.200 (7) (A) 1. D
  - The vertical separation between the bottom of the drip lines and/or the trench and a limiting layer, including but not limited to, bedrock; restrictive horizon; or seasonal high water table, shall be no less than:
    - o Twelve inches for systems dispersing secondary or higher quality effluent; 10 CSR 20-8.200 (7) (A) 2. B
  - Loading rates shall not exceed the values assigned by the site and soil evaluation. 10 CSR 20-8.200 (7) (C)
  - All network piping and low pressure distribution piping and fittings with polyvinyl chloride (PVC) shall meet ASTM Standard D 1785 Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, or 120 as approved and published August 1, 2015, or equivalent rated to meet or exceed ASTM D2466 Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings as approved and published August 1, 2017. These standards shall hereby be incorporated by reference into this rule, as published by ASTM International,

100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959. This rule does not incorporate any subsequent amendments or additions. 10 CSR 20-8.200 (8) (A) 2.

- Emitters and drip dispersal lines shall be placed at a minimum on a two foot spacing to achieve even distribution of the wastewater and maximum utilization of the soil. 10 CSR 20-8.200 (9) (B)

10. Upon completion of construction:

- A. Submit an electronic copy of the as built's if the project was not constructed in accordance with previously submitted plans and specifications; and
- B. 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 the operating permit fee of \$150.00 to the Engineering Section of the Water Protection Program 60 days prior to operation. Form B - Application for an Operating Permit for Domestic or Municipal Wastewater was submitted with the application for Construction Permit.

#### **IV. REVIEW SUMMARY**

##### **1. CONSTRUCTION PURPOSE**

This project provides a wastewater collection and treatment facility to serve a new RV Park. The new facility will be no-discharge, soil absorption.

##### **2. FACILITY DESCRIPTION**

A new treatment facility will serve the Camp Elim RV Park. The wastewater treatment facility consists of a septic tank, aerated treatment units, dosing tank, filtration, microfiltration, and a drip subsurface soil absorption field. The total area of the field is approximately 22,464 sq. feet.

The Camp Elim RV Park WWTF will be owned and operated by Camp Elim RV Park & Campground LLC and is located at 24798 Clementine Outer Road, Rolla, Phelps County, Missouri. The facility has a design average flow of 4,300 gpd and serves a hydraulic population equivalent of 43.

### **3. COMPLIANCE PARAMETERS**

The proposed wastewater treatment facility will be a complete no-discharge treatment facility. All liquid waste will be treated and dispersed on-site. Periodic removal of waste sludge will be necessary. A Missouri State Operating Permit is required to be maintained. Monitoring of the facility will be required along with keeping records of maintenance activities. There are currently no sampling requirements.

### **4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA**

Collection system and treatment facility is designed to serve a RV Park with 31 full hook-up spaces, a laundry with two washing machines, office, and store. Sewage collection system consists of approximately 1,075 lineal feet of 6-inch SDR-35 PVC with 10 manholes. Design flow is 4,300 gpd considering 120 gpd per RV and 290 gpd per washing machine.

Treatment facility to consist of a 3,000 gallon, double compartment, septic tank with effluent filter (Polylok PL-250); followed by three aerated treatment units, Jet J-1,500CF arranged in parallel, each with aeration volume of 1,038 gallons, a settling compartment, and effluent filter (Zabel A3230); effluent will flow by gravity to a 4,000 gallon dosing tank equipped with two, 2.0 HP Liberty FL 200 Series effluent pumps, each with a capacity of approximately 50 gpm at TDH of 100 feet; actual dosing rate is approximately 25 gpm, flushing flow is approximately 33 gpm, pumped flow passes through a filter equipped with BioDisc-200 micro-filtration, 2-inch, disc filters (100 micron), 1.5-inch pvc supply and manifold lines; a soil absorption field with an area of approximately 22,464 square feet, separated into 3 zones, automatic distributing valves for zone selection; approximate zone size of 7,488 sq. ft. with 3,744 lineal feet of 0.5-inch drip irrigation pipe, 26 looped lines approximately 144 feet each, placed 2 feet on center, irrigation dripline pipe has a nominal diameter of 0.5-inch, emitters are placed every two feet and have an emitter rate of 0.81 gallons per hour, depth is approximately 6 inches, excess water and flush water is returned to the head of plant through 2.0-inch pvc return lines; headworks with automatic flush system; design application rate is 0.20 gallons per square foot; at design flow each zone will be dosed six times a day for approximately 9.5 minutes. Curtain drains will be placed upslope of all drainfields.

Treatment facility is more than 450 feet from public water supply well. All drainfields are at least 15 feet from property lines.

Absorption field size is based on a loading rate of 0.20 gallons per square foot per day. Detailed soil analysis was performed by Home and Farm Soil Consulting, Dennis M. Meinert, Soil Scientist. The soil loading rate is in accordance with the recommended rates in the soil report dated November 9, 2022. In the soils investigation there were 5 pits dug in the locations of the absorption fields. Depth to limiting layer is 18 inches or more; providing the required 12 inch vertical separation.

## **5. OPERATING PERMIT**

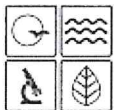
After completion of construction project submit: statement of work completed, as-built if the project was not constructed in accordance with previously submitted plans and specifications, and ensure that Application Form B, and fee has been submitted. Missouri State Operating Permit, General Permit MO-G823xxx, will be issued after receipt of the above documents. Form B was received 04/05/2023; the Operating Permit fee of \$150.00 has not been received.

## **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>

Andrew Appelbaum, P.E.  
Engineering Section  
[andy.appelbaum@dnr.mo.gov](mailto:andy.appelbaum@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	CHECK NO.
DATE RECEIVED	

### APPLICATION OVERVIEW

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

### PART A – BASIC INFORMATION

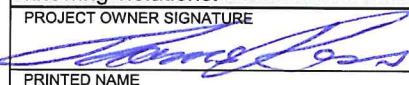
**1.0 APPLICATION INFORMATION** (Note – If any of the questions in this section are answered NO, this application may be considered incomplete and returned.)

- 1.1 Is this a Federal/State funded project? ☐ YES ☒ N/A Funding Agency: \_\_\_\_\_ Project #: \_\_\_\_\_
- 1.2 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?  
☐ YES Date of Approval: \_\_\_\_\_ ☒ N/A
- 1.3 Has the department approved the proposed project's facility plan\*?  
☐ YES Date of Approval: \_\_\_\_\_ ☒ NO (If No, complete No. 1.4.)
- 1.4 [Complete only if answered No on No. 1.3.] Is a copy of the facility plan\* for wastewater treatment facilities included with this application?  
☒ YES ☐ NO ☐ Exempt because \_\_\_\_\_
- 1.5 Is a copy of the appropriate plans\* and specifications\* included with this application?  
☒ YES Denote which form is submitted: ☒ Hard copy ☒ Electronic copy (See instructions.) ☐ NO
- 1.6 Is a summary of design\* included with this application? ☒ YES ☐ NO
- 1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?  
☐ YES Date of submittal: \_\_\_\_\_  
☒ Enclosed is the appropriate operating permit application and fee submittal. Denote which form: ☐ A ☒ B ☐ B2  
☐ N/A: However, In the event the department believes that my operating permit requires revision to permit limitation such as changing equivalent to secondary limits to secondary limits or adding total residual chlorine limits, please share a draft copy prior to public notice? ☐ YES ☐ NO
- 1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☐ YES ☒ NO
- 1.9 Is the appropriate fee or JetPay confirmation included with this application? ☒ YES ☐ NO  
See Section 7.0

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

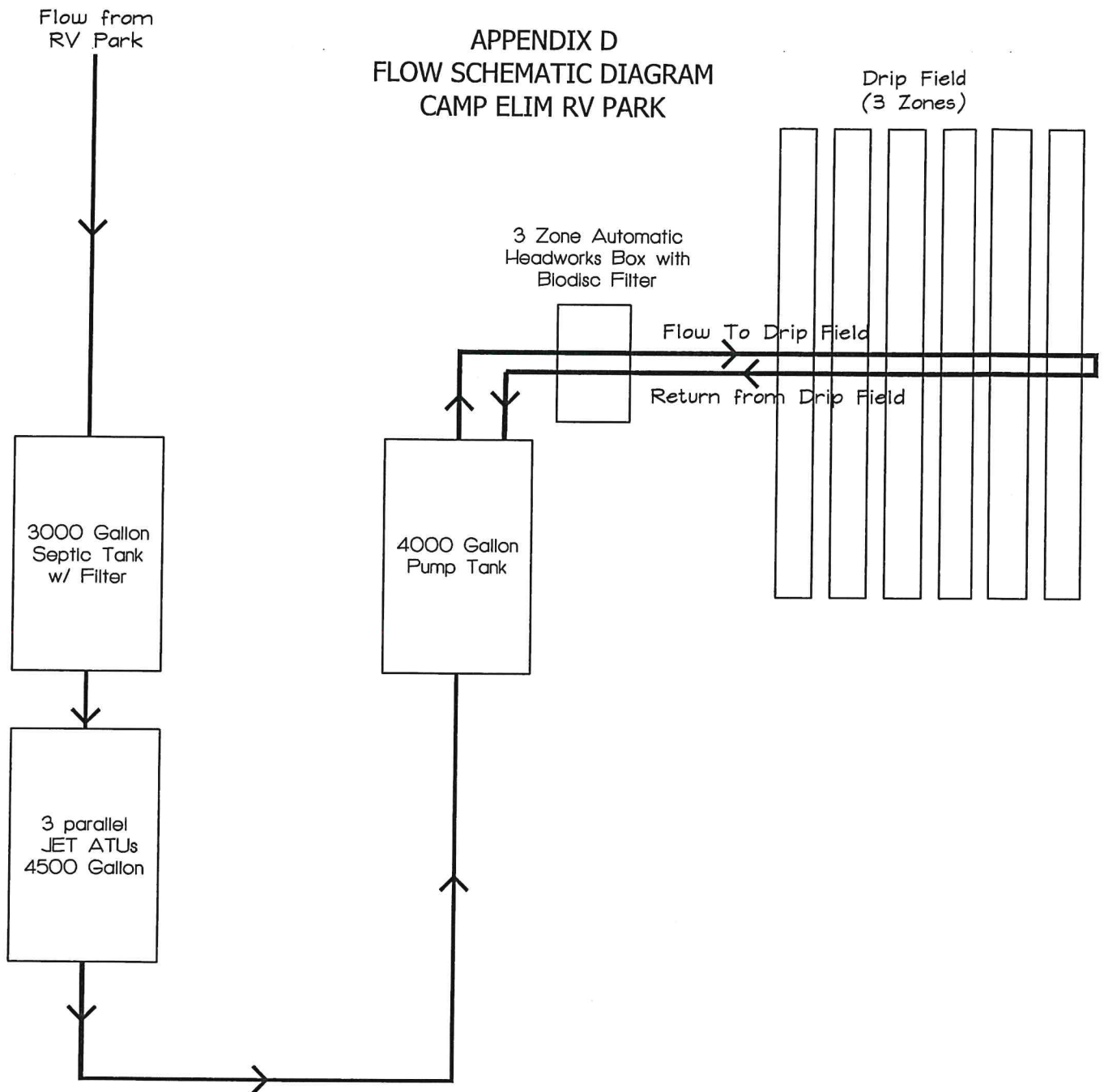
### 2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT Camp Elim RV Park	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 50,000
2.3 PROJECT DESCRIPTION A new RV park will have a wastewater collection system with 31 sewer hook ups. The treatment will include one 3000 gallon septic tank with effluent filters, three 1500 gallon aeration treatment units and a 4000 gallon equalization pump tank which pumps into a three zone drip irrigation field.	
2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION Primary settling septic tank - sludge will be pumped and hauled away as needed	
2.5 DESIGN INFORMATION A. Current population: <u>0</u> ; Design population: <u>62</u> B. Actual Flow: <u>4300</u> gpd; Design Average Flow: <u>4300</u> gpd; Actual Peak Daily Flow: <u>4300</u> gpd; Design Maximum Daily Flow: <u>4300</u> gpd; Design Wet Weather Event: <u>N/A</u>	
2.6 ADDITIONAL INFORMATION A. Is a topographic map attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO B. Is a process flow diagram attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	

<b>3.0 WASTEWATER TREATMENT FACILITY</b>				
NAME Camp Elim RV Park		TELEPHONE NUMBER WITH AREA CODE 573 578 0639		E-MAIL ADDRESS campelimrvpark@gmail.com
ADDRESS (PHYSICAL) 24798 Clementine Outer Road	CITY Rolla	STATE MO	ZIP CODE 65401	COUNTY Phelps
Wastewater Treatment Facility: Mo- (Outfall 1 Of 1 )				
3.1 Legal Description: _____ ¼, NE _____ ¼, SW _____ ¼, Sec. 3 _____, T 36N, R 10W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 586615 Northing (Y): 4191947 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: N/A, subsurface soil absorbtion				
<b>4.0 PROJECT OWNER</b>				
NAME Camp Elim RV Park		TELEPHONE NUMBER WITH AREA CODE 5734653605		E-MAIL ADDRESS campelimrvpark@gmail.com
ADDRESS 24798 Clementine Outer Road	CITY Rolla	STATE MO	ZIP CODE 65401	
<b>5.0 CONTINUING AUTHORITY:</b> 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 Camp Elim RV Park		TELEPHONE NUMBER WITH AREA CODE 5734653605		E-MAIL ADDRESS campelimrvpark@gmail.com
ADDRESS 24798 Clementine Outer Road	CITY Rolla	STATE MO	ZIP CODE 65401	
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				
<b>6.0 ENGINEER</b>				
ENGINEER NAME / COMPANY NAME Terris Cates / Integrity Engineering, Inc.		TELEPHONE NUMBER WITH AREA CODE (573)341-2100		E-MAIL ADDRESS terris@integrityeng.com
ADDRESS P.O. Box 700	CITY Rolla	STATE MO	ZIP CODE 65402-0700	
<b>7.0 APPLICATION FEE</b>				
<input checked="" type="checkbox"/> CHECK NUMBER <input type="checkbox"/> JETPAY CONFIRMATION NUMBER				
<b>8.0 PROJECT OWNER:</b> 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 Tom Ross			DATE 3/31/2023	
TITLE OR CORPORATE POSITION Owner		TELEPHONE NUMBER WITH AREA CODE 5734653605		E-MAIL ADDRESS campelimrvpark@gmail.com
Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES WATER PROTECTION PROGRAM P.O. BOX 176 JEFFERSON CITY, MO 65102-0176				
<b>END OF PART A.</b>				
<b>REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.</b>				



APPENDIX D  
FLOW SCHEMATIC DIAGRAM  
CAMP ELIM RV PARK



**INTEGRITY**  
ENGINEERING, INC.

ENGINEERING • ARCHITECTURE • LAND SURVEYING

TITLE: FLOW SCHEMATIC DIAGRAM  
DRAWN BY: tlc  
CHECKED BY: tlc  
SCALE: AS SHOWN  
FILENAME: FlowSchematic.dwg

JOB: Camp Elim RV Park  
DATE: MARCH 2023

**Appendix D**