

**STATE OF MISSOURI**  
**DEPARTMENT OF NATURAL RESOURCES**

MISSOURI CLEAN WATER COMMISSION



**CONSTRUCTION PERMIT**

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

Boy Scouts of America - Great Rivers Council, Inc.  
1203 Fay Street  
Columbia, MO 65201

for the construction of (described facilities):

See attached.

Permit Conditions:

See attached.

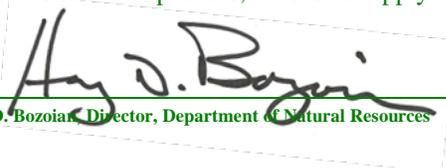
Construction of such proposed facilities shall be in accordance with the provisions of the Missouri Clean Water Law, Chapter 644, RSMo, and regulation promulgated thereunder, or this permit may be revoked by the Department of Natural Resources (Department).

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.

November 1, 2016  
Effective Date

  
Harry D. Bozoian, Director, Department of Natural Resources

October 31, 2018  
Expiration Date

  
John Madras, Director, Water Protection Program

## **CONSTRUCTION PERMIT**

### **I. CONSTRUCTION DESCRIPTION**

This construction permit is a reissuance of CP0001596. No changes were made. The project was not completed in the timeframe of the original construction permit.

#### **PHASE ONE: POOL AND WELCOME CENTER**

Phase One of this project includes construction and installation of a new low pressure pipe subsurface drip irrigation system to serve a new Pool and Welcome Center building with a design flow of 2990 gallons per day (gpd).

Effluent will gravity flow from the Pool and Welcome Center to a 4000 gallon, 2-chamber septic tank with a Biotube effluent filter and then into a 4000 gallon duplex pump tank with each pump capable of operating at 30 gallons per minute (gpm) at 40 feet of total dynamic head (TDH). The sewage will be pumped through approximately 628 linear feet (lf) of 2 inch Schedule 40 polyvinyl chloride (PVC) force main with 1 air release valve to a Hydrotek distribution valve assembly with a PVC enclosure.

The distribution valve will alternate the flow between 4 zones, each with 5 laterals, 2 inches in diameter and 100 feet in length installed 12 inches deep. The center-to-center spacing of the laterals will be 5 feet. The pipe will be perforated with 5/32 inch holes at 12 holes per lateral (8 foot spacing) with all holes facing downward. Each lateral will have a valve at the influent side and riser pipe to allow venting. There will be 8 doses per day with 375 gallons per dose and each dose lasting 12.5 minutes at 30 gallons per minute.

The application rate of 0.3 gallons per day per square foot was used to determine the approximately 10,000 square foot application area. Distribution pipe will be installed in gravel trenches 6 to 12 inches wide and 4 inches below and 2 inches above the distribution pipe. Trenches will be filled with clean, washed gravel or crushed stone 1 ½ to 2 ½ inches in size. At least 10 inches of soil backfill will be placed over the gravel trenches.

This drip irrigation field will be located at approximately UTM: X= 511182, Y= 4225103, near 270 Camp Hohn Drive, Gravois Mills, MO in Camden County. The project will also include general site work appropriate to the scope and purpose of the project.

#### **PHASE TWO: 28,500 GALLON PER DAY DRIP IRRIGATION SYSTEM PENDING FUNDING**

Phase Two of this project is a no-discharge drip irrigation system for a design average daily flow of 23,450 gpd from an estimated population equivalent of 600. The proposed drip system will be designed with a 20 percent safety factor to treat a flow of 28,500 gpd. Primary treatment will include 2-chamber septic tanks with screened Biotube effluent filters and a grease trap with an 8000 lb. minimum grease retention capacity for the dining hall. The collection system will consist of a Septic Tank Effluent Pump (STEP) system with force mains and gravity sewers that will carry primary treated effluent to the 35,000 gallon dosing tank at the drip irrigation field.

This project will include construction and installation or modification of 2 gravity flow septic tanks, 2 STEP tanks each with 2 screened effluent pumps each capable of pumping 30 gpm at 30 to 35 feet of TDH, and a 2326 gallon duplex lift station with 2 submersible non-clog wastewater pumps each capable of pumping 45 gpm at 60 feet of TDH.

This project will include installation of approximately 4050 linear feet (lf) of 2 inch through 3 inch polyvinyl chloride (PVC) Standard Dimension Ratio (SDR)-21 force main with air release valves, approximately 620 lf of 4 inch through 6 inch PVC SDR-35 gravity sewer lines with cleanouts, and all other necessary appurtenances to make a complete and usable wastewater collection system.

One 35,000 gallon concrete or fiberglass storage basin/dosing tank will be constructed which will pump to the irrigation field. The drip irrigation system will be installed at a 1 foot depth and will consist of 8 drip irrigation zones each approximately 0.4 acres in size with turf grass cover. Laterals will be installed on contour. The application rate of 0.2 gallons per day per square foot was used to determine the approximately 3.3 acre size of the absorption field.

The system will include approximately 71,250 feet of drip line (8,906 feet per zone) with a minimum of 34 and a maximum of 55 laterals per zone. The maximum length of the laterals will be 266 feet. Emitters will have 1 foot spacing along the drip lines with 2 foot row spacing of drip lines. There will be 3 inch PVC Schedule 40 supply lines to each zone and 3 inch PVC Schedule 40 flush pipes. The dosing pump will be capable of pumping 68.3 gpm at a TDH of 159 feet.

These facilities will be located at approximately UTM: X= 510467, Y=4224964 in Gravois Mills, MO in Camden County. The project will also include general site work appropriate to the scope and purpose of the project.

## **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 in accordance with the plans and specifications submitted by Engineering Surveys and Services on October 25, 2013; revised December 19, 2013, May 6, 2014, and July 7, 2014; and resubmitted September 27, 2016.
3. The department must be contacted in writing prior to making any changes to the approved 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(8).
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)(E)2.
5. This construction permit is invalid for projects required to comply with the requirements contained in 10 CSR 20-4, "Grants and Loans"
6. Protection of drinking water supplies shall be in accordance with 10 CSR 20-8.120(10). "There shall be no physical connections between a public or private potable water supply system and a sewer, or appurtenance thereto which would permit the passage of any wastewater or polluted water into the potable supply. No water pipe shall pass through or come in contact with any part of a sewer manhole."
7. Sewers in relation to water works structures shall meet the requirements of 10 CSR 23-3.010 with respect to minimum distances from public water supply wells or other water supply sources and structures.
  - A. Sewer mains shall be laid at least 10 feet horizontally from any existing or proposed water main. The distances shall be measured edge-to-edge. In cases where it is not practical to maintain a 10 foot separation, the department may allow a deviation on a case-by-case basis, if supported by data from the design engineer. Such a deviation may allow installation of the sewer closer to a water main, provided that the water main is in a separate trench or on an undisturbed earth shelf located on either side of the sewer and at an elevation so the bottom of the water main is at least 18 inches above the top of the sewer. If it is impossible to obtain proper horizontal and vertical separation as described above for sewers, the sewer must be constructed of slip-on or mechanical joint pipe or continuously encased and be pressure tested to 150 pounds per square inch to assure water tightness.

- B.** Manholes should be located at least 10 feet horizontally from any existing or proposed water main.
  - C.** Manholes shall be located with the top access at or above grade level.
  - D.** Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade. When it is impossible to obtain proper vertical separation as stipulated above, one of the following methods must be specified:
    - a. The sewer shall be designed and constructed equal to the water pipe and shall be pressure tested to assure water tightness prior to backfilling; or
    - b. Either the water main or sewer line may be continuously encased or enclosed in a watertight carrier pipe which extends 10 feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the department for use in water main construction.
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 [www.dnr.mo.gov/env/wpp/epermit/help.htm](http://www.dnr.mo.gov/env/wpp/epermit/help.htm). See [www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm](http://www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm) for more information.
9. A United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) issued by the department or permit waiver may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied. If construction activity will disturb any land below the ordinary high water mark of jurisdictional waters of the U.S. then a 404/401 will be required. Since the COE makes determinations on what is jurisdictional, you must contact the COE to determine permitting requirements. You may call the department's Water Protection Program at 573-751-1300 for more information. See [www.dnr.mo.gov/env/wpp/401/](http://www.dnr.mo.gov/env/wpp/401/) for more information.
10. Upon completion of construction;
- A.** Submit the enclosed form Statement of Work Completed to the department in accordance with 10 CSR 20-6.010(5)(D); and
  - B.** Submit an electronic copy of the asbuilts if the project was not constructed in accordance with previously submitted plans and specifications.

- C. Submit an electronic copy of the asbuilts if the project was not constructed in accordance with previously submitted plans and specifications.

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

##### **1. AMMONIA**

The Water Protection Program is providing this notice to inform permittees that EPA's published ammonia criteria for aquatic life protection is lower than the current Missouri criteria. The department has initiated stakeholder discussions on this topic and at this time, there is no firm target date for starting the rulemaking to adopt new standards. More information can be found at <http://dnr.mo.gov/pubs/pub2481.pdf>.

This facility will be installing a no-discharge drip irrigation system. Therefore, ammonia effluent limitations are not applicable.

##### **2. CONSTRUCTION PURPOSE**

The Boy Scouts of America (BSA) Great Rivers Council is planning to upgrade their facilities at the Lake of the Ozarks Scout Reservation near Gravois Mills, Missouri. Phase One of the project will accommodate a new pool and welcome center and Phase Two will accommodate an additional 250 campers and will include the addition of a dining facility. The existing collection system and treatment facilities will need to be expanded to serve the additional population.

##### **3. FACILITY DESCRIPTION**

The existing wastewater treatment facilities at the site include 5 septic tanks (3 concrete and 2 plastic tanks), and multiple latrines. Both types of systems are maintained by a contractor who pumps the sludge and hauls it to a permitted offsite treatment facility. The current design population of the camp site is 350. The planning and service area is limited to the 450 acre Boy Scout property.

Phase One of this project will include construction and installation of a subsurface drip irrigation system to serve a new pool and welcome center building with a design flow of 2990 gpd. The design population for the site as a whole will not change as a result of Phase One.

Phase Two of this project is to expand the camp site to accommodate an additional 250 campers bringing the total design population to 600. A new subsurface drip irrigation system, separate from the one constructed in Phase One, will be installed to treat 28,500 gpd (design average flow of 23,450 with a 20 percent safety factor). Phase Two construction is dependent on the facility receiving sufficient funding. It is unknown when the facility will receive this funding, so the timeline for beginning construction of Phase Two is currently unknown.

#### **4. COMPLIANCE PARAMETERS**

This construction permit is for a no-discharge drip irrigation system. The facility will be issued general operating permit MOG823 for land application of domestic wastewater. MOG823 does not contain any effluent limitations for subsurface application. The operating permit will contain other requirements, such as setback distances and development of an Operation and Maintenance manual.

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

All wastewater pumping stations will be equipped with audiovisual high water alarms with battery backup. The reservation is staffed with a full-time, year-round facility operations ranger whose purpose is to respond to emergencies with all facilities of the camp including wastewater facility maintenance. An automatic phone dialer will be provided at the Phase Two pump control panel in case of control power failure and pump failure. Elapsed time meters will be provided for each pump to record hours of operation. Dosing tank pumps shall be equipped with pump calibration time clocks or approved equal flow measurement facilities.

All wastewater septic tanks will be maintained on a regular sludge pumping schedule. An Operations and Maintenance Manual will be provided to explain the key operating procedures at a level easily understood by the owner and the operator of the facility.

The pool and welcome center STEP tank (Phase One) will have a storage capacity of 957 gallons, which is 3 hours of emergency storage above the high water alarm and a minimum of 3000 gallons of storage above the pump off elevation. The lift station (Phase Two) will include 3.5 hours of storage volume above the high water alarm. The south shower building (Phase Two) will have a storage capacity of 246 gallons, which is 1.5 hours of flow above the high water alarm.

Cleanouts will not be included on the three-inch force main because the pumped wastewater will be screened septic tank effluent.

The drip irrigation field for Phase Two is 180 to 195 feet above the 100 year flood plain and will be over 900 feet from the existing drinking water well. Site topography consists of 2 percent to 20 percent slopes with large level areas near the ridges of the property. The application rate will not exceed 0.2 gallons per day per square foot.

The drip irrigation field for Phase One is 293 feet from a proposed water well. The application rate will not exceed 0.3 gallons per day per square foot.

Warning signs will be placed near both Phase One and Phase Two drip irrigation fields to restrict vehicle traffic and any soil disturbing activities. There is also a full-time park ranger on staff that will be available to instruct visitors about the soil absorption system and answer any questions that might arise.

**6. OPERATING PERMIT**

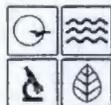
This facility has already been issued a new operating permit to reflect these construction activities. The general operating permit for this facility (MOG823055) was issued concurrently with the previous construction permit.

Cailie Carlile, E.I.  
Engineering Section  
[cailie.carlile@dnr.mo.gov](mailto:cailie.carlile@dnr.mo.gov)

RECEIVED

SEP 27 2016

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MO6823055  
AP25324  
C 17049



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
WATER PROTECTION PROGRAM Water Protection Program  
APPLICATION FOR CONSTRUCTION PERMIT -  
WASTEWATER FACILITY

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
<input type="checkbox"/> FEE RECEIVED <b>\$1000.00</b>	<input type="checkbox"/> CHECK NO. <b>54172</b>
<input type="checkbox"/> DATE RECEIVED <b>9-27-16</b>	

APPLICATION OVERVIEW

The Application for Construction Permit – Wastewater Facility form is for construction pertaining to domestic wastewater treatment facilities, agrichemical facilities, and components thereof. This 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 Is this an application for an agrichemical?  YES (See instructions.)  N/A
- 1.3 Has the Missouri Department of Natural Resources approved the proposed project's antidegradation review?  
 YES Date of Approval: 05/02/2013
- 1.4 Has the department approved the proposed project's facility plan\*?  
 YES Date of Approval: 07/17/2014  NO  N/A (If Not Applicable, complete No. 1.5.)
- 1.5 [Complete only if answered Not Applicable on No. 1.4] Is a copy of the engineering report\* for wastewater treatment facilities with a design flow less than 22,500 gpd included with this application?  
 YES  NO
- 1.6 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
- 1.7 Is a summary of design\* included with this application?  YES  NO Project was previously approved. See attached approval.
- 1.8 Is a general operating permit applicable?  
 YES Submit the appropriate operating permit application to the Regional Office at least 60 days prior to operation.  
 NO Enclose the appropriate operating permit application and fee submittal. Denote which form:  B  B2  N/A
- 1.9 Is the facility currently under enforcement with the department or the Environmental Protection Agency?  YES  NO
- 1.10 Is the appropriate fee included with this application?  YES  NO (See instructions for appropriate fee.)

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

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT

Lake of the Ozarks Scout Reservation

2.2 PROJECT DESCRIPTION

See attached project description.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

By contract hauler.

2.4 DESIGN INFORMATION

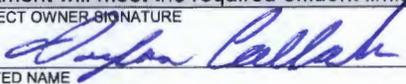
- A. Current population: 350; Design population: 600
- B. Actual Flow: \_\_\_\_\_ gpd; Design Average Flow: 23,450 gpd;  
Actual Peak Daily Flow: \_\_\_\_\_ gpd; Design Maximum Daily Flow: 28,500 gpd;  
Design Wet Weather Event: \_\_\_\_\_

2.5 ADDITIONAL INFORMATION

- A. Is a topographic map attached?  YES  NO
- B. Is a process flow diagram attached?  YES  NO

2.6 ESTIMATED PROJECT CONSTRUCTION COST

\$ 490,000.00

<b>3.0 WASTEWATER TREATMENT FACILITY</b>				
NAME Lake of the Ozarks Scout Reservation		TELEPHONE NUMBER WITH AREA CODE (573) 374-5761		EMAIL ADDRESS mdimond@bsamail.org
ADDRESS (PHYSICAL) 525 Camp Hohn Road		CITY Gravois Mills	STATE MO	ZIP CODE 65037
				COUNTY Camden
Wastewater Treatment Facility: Mo- (Outfall Of )				
3.1 Legal Description: Lot 6 ¼, ¼, NE ¼, Sec. 3, T 39N, R 18W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 510467 Northing (Y): 4224964 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: N/A No Discharge				
<b>4.0 PROJECT OWNER</b>				
NAME Boy Scouts of America - Great Rivers Council, Inc.		TELEPHONE NUMBER WITH AREA CODE (573) 449-2561		EMAIL ADDRESS Douglas.Callahan@Scouting.org
ADDRESS 1203 Fay Street		CITY Columbia	STATE MO	ZIP CODE 65201
<b>5.0 CONTINUING AUTHORITY:</b> Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.				
NAME Boy Scouts of America - Great Rivers Council, Inc.		TELEPHONE NUMBER WITH AREA CODE (573) 449-2561		EMAIL ADDRESS Douglas.Callahan@Scouting.org
ADDRESS 1203 Fay Street		CITY Columbia	STATE MO	ZIP CODE 65201
5.1 A letter from the continuing authority, if different than the owner, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A				
5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.				
A. Is a copy of the certificate of convenience and necessity included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.				
A. Is a copy of the as-filed restrictions and covenants included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input type="checkbox"/> NO				
<b>6.0 ENGINEER</b>				
ENGINEER NAME / COMPANY NAME Benjamin Ross, PE/Engineering Surveys and Services		TELEPHONE NUMBER WITH AREA CODE (573) 449-2646		EMAIL ADDRESS BROSS@ess-inc.com
ADDRESS 1113 Fay Street		CITY Columbia	STATE MO	ZIP CODE 65201
<b>7.0 PROJECT OWNER:</b> I hereby certify that I am familiar with the information contained in this application and to the best of my knowledge and belief such information is true, complete, and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders, and decisions, subject to any legitimate appeal available to applicant under Missouri Clean Water Law. I also understand the issuance of the construction permit does not guarantee the proposed wastewater treatment will meet the required effluent limitations of the issued Missouri State Operating Permit for this facility.				
PROJECT OWNER SIGNATURE 				
PRINTED NAME Douglas Callahan			DATE 9/23/2010	
TITLE OR CORPORATE POSITION Scout Executive		TELEPHONE NUMBER WITH AREA CODE (573) 449-2561		EMAIL ADDRESS Douglas.Callahan@Scouting.org
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>				

**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  Subsurface  
 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: 1 (Use additional pages if greater than two 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. 35,000 gallon  
 Basin #1: Length \_\_\_\_\_ Width \_\_\_\_\_ Depth \_\_\_\_\_ Freeboard \_\_\_\_\_ Depth \_\_\_\_\_ Safety \_\_\_\_\_ % Slope \_\_\_\_\_  
 Basin #2: 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

9.5 Design depth of sludge in storage basins.  
 Basin #1: \_\_\_\_\_ ft Basin #2: \_\_\_\_\_ ft

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

9.7 Total design sludge storage: \_\_\_\_\_ dry tons and \_\_\_\_\_ cubic feet

**10.0 LAND APPLICATION SYSTEM**

10.1 Type of land application:  Fixed Head Sprinklers  Center Pivot  Traveling Gun  Drip Dispersal  
 Subsurface Low Pressure Pipe  Other (describe) \_\_\_\_\_

10.2 Number of irrigation sites 1 Total Acres 3.3 Maximum % field slopes \_\_\_\_\_  
 Location: \_\_\_\_\_ ¼, Lot 6 ¼, NE ¼, 3 \_\_\_\_\_ Sec. 39N T 18W R Camden \_\_\_\_\_ County 3.3 \_\_\_\_\_ 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.)

10.3 Type of vegetation:  Grass hay  Pasture  Timber  Row crops  
 Other (describe) Turf Grass

10.4 Wastewater flow (dry weather) gallons per day: Average annual \_\_\_\_\_  
 Seasonal \_\_\_\_\_ Off-season \_\_\_\_\_

10.5 Land application rate (design flow including 1-in-10 year storm water flows):  
 Design: \_\_\_\_\_ inches/year \_\_\_\_\_ inches/hour 0.2 inches/day 1.4 inches/week  
 Actual: \_\_\_\_\_ inches/year \_\_\_\_\_ inches/hour \_\_\_\_\_ inches/day \_\_\_\_\_ inches/week

10.6 Total irrigation per year (gallons): Design: \_\_\_\_\_ gal Actual: \_\_\_\_\_ gal

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

10.8 Land application rate is based on:  
 Hydraulic Loading  Other (describe) \_\_\_\_\_  
 Nutrient Management Plan (N and P) If N and P is selected, is the plan included?  YES  NO