STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

CONSTRUCTION PERMIT

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

Don Gibson
RR1 Box 147
Arbela, MO 64342

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.

August 2, 2018
Effective Date

Edward B. Galbraith, Director, Division of Environmental Quality

August 1, 2020
Expiration Date

Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

One of three existing lagoon cells will be renovated and converted to a flow equalization basin while the other two will be decommissioned. A grinder pump will be placed in the converted flow equalization basin. Following the grinder pump two 5,000 gallon septic tanks will be placed. A 6,000 gallon recirculation tank will be constructed following the two septic tanks. A 3-zone sand filter bed will be constructed with connection to the recirculation tank. An Ultraviolet (UV) disinfection system will be placed in a concrete structure following the recirculation tank.

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 in accordance with the plans and specifications submitted by Shoreline Surveying & Engineering, LLC on March 26th, 2018.

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 South West Regional Office per 10 CSR 20-7.015(9)(E)2.

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. Wastewater treatment facility shall not be located within one hundred feet (100'), and preferably three hundred feet (300') of any water well or water supply structure.

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 dnr.mo.gov/env/wpp/epermit/help.htm. See dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm for more information.

9. A full closure plan shall be submitted to the Department's South West Regional Office for review and approval of any permitted wastewater treatment system being replaced. In accordance with 10 CSR 20-6.010(12), the closure plan must meet the requirements outlined in Standard Conditions Part III of the Missouri State Operating Permit No. MO-0138967. Closure shall not commence until the submitted closure plan is approved by the Department
10. Upon completion of construction:

    A. The Don Gibson will become the continuing authority for operation, maintenance, and modernization 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)(D) and request the operating permit be issued.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

The purpose of the construction of this facility is to replace the existing 3 cell lagoon that was constructed and operated without a permit. The existing lagoon system is reported to be in very poor condition making the construction of a new facility a more practical option. The new facility will provide the campground with a permitted wastewater treatment system capable of meeting effluent limits applied in the associated operating permit.

2. FACILITY DESCRIPTION

The campsite is currently served by an unpermitted 3 cell lagoon. Two of the three will be decommissioned while the third will be converted to a flow equalization basin. The proposed septic tanks, recirculation tank and UV system will be constructed within the same footprint of the existing facility.

The Bennett Springs Campground WWTF is located at 10221 MO-64, Lebanon, Laclede County, Missouri. The facility has a design average flow of 5,348 gpd and serves a population equivalent of approximately 369 people.

3. COMPLIANCE PARAMETERS

The final effluent limits the project is required to meet are established in Operating Permit MO-0138967.

EFFLUENT LIMITS OUTFALL #001

PARAMETER	UNITS	DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE
FLOW	MGD	*		*
BIOCHEMICAL OXYGEN DEMAND$_5$ ***	MG/L		15	10
TOTAL SUSPENDED SOLIDS	MG/L		20	15
PH	SU	6.5 – 9.0		6.5 – 9.0
AMMONIA AS N (APR 1 – SEPT 30)	MG/L	1.7		0.6
AMMONIA AS N (OCT 1 – MAR 31)	MG/L	5.6		2.1
ESCHERICHIA COLIFORM (*E. COLI*)	NOTE 1	126**		126**

4. ANTIDEGRADATION

The Department has reviewed the antidegradation report for this facility and issued the Water Quality and Antidegradation Review dated February 21, 2018, due to facility being a new permitted discharge.

5. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

- Septic Tank – Raw wastewater will flow by gravity to a 5,000 gallon tank. When the water level reaches a height of 6ft up from the bottom of the first tank the wastewater will then flow by gravity to the second 5,000 gallon septic tank. Each septic tank is 17.5 ft x 8 ft x 8.25 ft with a water level depth of 6 ft 1-in. The septic tanks provide approximately 1.9 days of detention at design average flow. A Zabel model A1800 Septic Tank Effluent Filter will be installed at the outlet of the second septic tank in series. Each tank will have two 24-in diameter cleanout access covers at either end of the tank. The pumped wastewater shall discharge into the recirculation tank. Settled solids in the septic tank shall be removed by a contract hauler.
- Recirculation Tank – Construction of one recirculation tank to pump primary treated wastewater to the recirculating sand filter. The recirculation tank is 17.5 ft x 8 ft x 9.5 ft deep with a wastewater volume of approximately 6,000 gallons. Effective flow equalization volume of 1,900 gallons between the low water level and the high water "on" level. The recirculation tank has 2 - 1 HP submersible Liberty FL100 pumps – each capable of 77.4 gpm at 36.2 ft TDH. The pumps transfer wastewater to 3 separate zones of the recirculating media filter by means of a 2-inch PVC distribution manifold which splits the flow into 18 1-inch PVC laterals
- Recirculating Media Filter – The concrete lined recirculating media filter bed is split into 3 zones. The bed is approximately 37 ft 3-in x 61 ft 4-in x 4 ft 6-in deep each for a total surface area of 2,160 ft^2 which gives a total hydraulic loading of 2.5 gpd/ft^2 at design average flow. The PVC laterals spaced 2-ft apart with 30 1/8-inch shielded orifices per lateral. The laterals are located 4-in of 3/8-inch pea gravel. The sand filter layer is 2.5 ft deep containing sand particles with an effective size of 1.8 mm to 2.5 mm and a uniformity coefficient between 1 and 3. The underdrain layer has a 3-inch layer of 3/8-inch pea gravel on top of an 7-inch layer of 1/2-inch to 3/4-inch rock. The bed has 1 underdrain comprised of 4-inch slotted PVC piping. In the filter bed, the underdrains flow by gravity to the recirculation tank where 20 % flows to the disinfection system and the other 80% is recirculated back to the sand filter.
- Closed Vessel Ultraviolet (UV) – A closed vessel, gravity flow, low pressure high intensity UV disinfection system capable of treating a peak flow of 26,500 gpd while delivering a minimum UV intensity of 30 mJ/cm^2 with an expected ultraviolet transmissivity of 85% or greater. The closed vessel UV system consists of a single lamp. A single Sanitron S37 or equal unit will be housed in the UV

disinfection basin. The basin will have a 4 inch floor drain. The disinfected effluent will flow by gravity through flow measurement equipment and to Outfall No. 001.

- Emergency Power – A standby backup generator and automatic transfer switch will be provided to operate the treatment facility in event of power failure.

6. OPERATING PERMIT

Operating Permit MO-0138967 was public noticed from 6/22/2018 to 7/23/2018. No comments were received. Upon construction completion, submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(D).

Aaron Sawyer
Engineering Section
aaron.sawyer@dnr.mo.gov

NP29590
CP0001982

RECEIVED
MAR 26 2018
Water Protection Program

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 1000.00	CHECK NO. 8484
DATE RECEIVED 3-26-18	JS

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: 2018
☐ Attached is the No Degradation Evaluation Conclusion of Antidegradation Review form

1.3 Has the department approved the proposed project's facility plan*?
☐ YES Date of Approval: _____ ☐ NO ☑ N/A (If Not Applicable, complete No. 1.4.)

1.4 [Complete only if answered Not Applicable on No. 1.3.] 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

1.5 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 submittal. Denote which form: ☐ A ☑ B ☐ B2
☐ N/A Please explain: _____

1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☑ YES ☐ NO

1.9 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

Bennett Springs Campground WWTF

2.2 PROJECT DESCRIPTION

Replacing the existing lagoon system with an new RSF WWTF with Flow Equalization and UV disinfection.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Sludge will be pumped and hauled to another facility (TBD) from the flow equalization and septic tanks as needed.

2.4 DESIGN INFORMATION

A. Current population: _____; Design population: 369 PE

B. Actual Flow: _____ gpd; Design Average Flow: 5348 gpd;
Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: 26.5k gpd

2.5 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
RDW WWTF	417-886-4500	hshcare@aol.com

ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE	COUNTY
Lot 11 Hwy. AA	Nixa	MO	65714	Christian

Wastewater Treatment Facility: Mo- 0114464 (Outfall 1 Of 1)

3.1 Legal Description: NW ¼, SW ¼, NW ¼, Sec. 34, T 28, R 22W
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 470388 Northing (Y): 4104985
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: James R.

4.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Don Gipson	(660) 341-4921	tstimber@nemr.net

ADDRESS	CITY	STATE	ZIP CODE
RR1 Box 147	Arbela	MO	64342

5.0 CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Same as Owner		

ADDRESS	CITY	STATE	ZIP CODE

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
Jared Wheaton, PE/SSE, LLC	(573) 392-3312	jared@shorelinese.com

ADDRESS	CITY	STATE	ZIP CODE
3048 Hwy 52	Eldon	MO	65026

7.0 PROJECT OWNER: 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: Don Gipson

PRINTED NAME	DATE
Don Gibson	3.20.18

TITLE OR CORPORATE POSITION	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Owner	(660) 341-4921	tstimber@nemr.net

Mail completed copy to: MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
P.O. BOX 176
JEFFERSON CITY, MO 65102-0176

END OF PART A.
REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHETHER PART B NEEDS TO BE COMPLETE.

PART B – LAND APPLICATION ONLY
(Submit only if the proposed construction project includes land application of wastewater.)

8.0 FACILITY INFORMATION

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

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

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

9.0 STORAGE BASINS

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

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

9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.

Basin #1:	Length	_____	Width	_____	Depth	_____	Freeboard	_____	Berm Width	_____	% Slope _____
Basin #2:	Length	_____	Width	_____	Depth	_____	Freeboard	_____	Berm Width	_____	% Slope _____
Basin #3:	Length	_____	Width	_____	Depth	_____	Freeboard	_____	Berm Width	_____	% Slope _____

9.4 Storage Basin operating levels (report as feet below emergency overflow level).

Basin #1:	Maximum operating water level	_____ ft	Minimum operating water level	_____ ft
Basin #2:	Maximum operating water level	_____ ft	Minimum operating water level	_____ ft
Basin #3:	Maximum operating water level	_____ ft	Minimum operating water level	_____ ft

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

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

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

10.0 LAND APPLICATION SYSTEM

10.1 Number of irrigation sites _____ Total Acres _____ Maximum % field slopes _____

Location:	_____ ¼,	_____ ¼,	_____ ¼,	_____ Sec.	_____ T	_____ R	_____ County	_____ Acres
Location:	_____ ¼,	_____ ¼,	_____ ¼,	_____ Sec.	_____ T	_____ R	_____ County	_____ Acres
Location:	_____ ¼,	_____ ¼,	_____ ¼,	_____ Sec.	_____ T	_____ R	_____ County	_____ Acres

(Use additional pages if greater than three irrigation sites.)

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

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

10.4 Land application rate (design flow including 1-in-10 year storm water flows):

Design:	_____ inches/year	_____ inches/hour	_____ inches/day	_____ inches/week
Actual:	_____ inches/year	_____ inches/hour	_____ inches/day	_____ inches/week

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

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

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