STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

JAN 13 2016

Mr. Brandon Williams
Brandon O. Williams Development LLC
2985 Boutin Dr.
Cape Girardeau, MO 63701

RE: Recirculating Sand Filter, Savers Farm Wastewater Treatment Facility, MO-0137839, Construction Permit No. CP0001757, Cape Girardeau County

Dear Mr. Williams:

The Missouri Department of Natural Resources, Water Protection Program has reviewed the plans and specifications submitted by Strickland Engineering for Brandon O. Williams Development LLC. Please find enclosed Construction Permit No. CP0001757.

This permit will terminate 24 months from the date of issuance. In accordance with 10 CSR 20-6.010(4)(G), the department may grant an extension only one time. If you believe that an extension is necessary, you must submit a request and a justification in writing for the extension at least 30 days prior to the permit expiration date.

This construction permit does not supersede any requirements of the operating permit or enforcement actions. Nothing in this permit removes any obligations to comply with county or other local ordinances or restrictions.

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to 10 CSR 20-1.020 and 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. Contact information for the AHC is: Administrative Hearing Commission, 131 W. High Street, Jefferson City, Missouri 65102, Phone: 573-751-2422, Fax: 573-751-5018, and Website: www.oa.mo.gov/ahc.

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If you have any questions concerning this matter, please contact Mr. Andrew Appelbaum, of the Water Protection Program, at (314) 416-2062 or Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, Missouri 65102.

Thank you for your efforts to help ensure clean water in Missouri.

Sincerely,

WATER PROTECTION PROGRAM

Refaat Mefrakis

Refaat H. Mefrakis, P.E.
Engineering Section Chief

RHM:aak

Enclosures

c: Mr. Marc Mahnke P.E., Strickland Engineering
Southeast Regional Office

Permit No. CP0001757

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

CONSTRUCTION PERMIT

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

Brandon O. Williams Development, LLC
2985 Boutin Drive
Cape Girardeau, MO 63701

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.

January 13, 2016
Effective Date

Sara Parker Pauley
Sara Parker Pauley, Director, Department of Natural Resources

January 12, 2018
Expiration Date

John Madras
John Madras, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Collection System:

The proposed wastewater collection system will consist of a conventional gravity sewer system with a lift station and force mains, which will carry raw wastewater to the receiving wastewater treatment facility. Construction and installation of approximately 3,244 linear feet (lf) of 8-inch PVC Standard Dimension Ratio (SDR)-35 and 74 lf of 8-inch ductile iron gravity sewer lines with approximately 17 manholes; approximately 731 lf of 2-inch through 3-inch PVC SDR-21 force main, a duplex lift station with each pump capable of operating at 49 gallons per minute (gpm) at a total dynamic head (TDH) of 65 feet, emergency storage in the wet-well and collection system of approximately 5,620 gallons, telemetered alarm, and all necessary appurtenances to make a complete and usable wastewater collection system to serve 24 homes with an estimated design average flow of 8,880 gallons per day. The lift station and force main is designed to serve 38 homes with an estimated design average flow of 14,060 gallons per day. The project will also include general site work appropriate to the scope and purpose of the project.

Recirculating Sand Filter:

A recirculating sand filter treatment facility, consisting of a cast in place septic tank, 2 parallel trains with 3 chambers each, total effective volume approximately 89,000 gallons; two interconnected recirculation tanks with approximately 10,300 gallons between the low water level and the high water "on" level; two sets of pumps with two pumps each, each effluent pump will have the capacity of 325 gpm; four sand filters each with a surface area of 3,000 square feet, each pump serves a single filter, filters to have a 30 mil. PVC liner, 36-inches of filter media; two flow splitters. Ultraviolet disinfection system, two modules with two lamps each module, treatment capacity of 130 gpm. Sixty degree V-notch weir with ultrasonic flow measurement and recording. And all the necessary appurtenances to make the facilities complete and usable to treat the waste from a population equivalent of 500, with an average daily flow of 50,000 gallons. The facility will discharge to a tributary of Goose Creek in Land Grant #00318, T32N, R13W, Cape Girardeau County, Missouri. UTM (zone 15), X=797451, Y=4144828.

II. COST ANALYSIS FOR COMPLIANCE

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 Strickland Engineering on August 18, 2015, and September 8, 2015.

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 Southeast 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 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 www.dnr.mo.gov/env/wpp/epermit/help.htm. See 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/ for more information.

10. Upon completion of construction;

    A. Savers Farm Homeowners Association will become the continuing authority for operation, maintenance, and modernization of these facilities;

    B. Submit the enclosed form Statement of Work Completed to the department in accordance with 10 CSR 20-6.010(5)(D); and

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

    D. Submit a copy of the Record Plat (Phase One) as recorded with Cape Girardeau County.

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 .

The facility plan and application state that the facilities are designed to comply with the anticipated future ammonia limitations.

2. CONSTRUCTION PURPOSE

The treatment facility will serve a new development of approximately 114 single family homes, Savers Farm Subdivision. The collection system will serve the first 24 lots. The lift station will serve 38 lots (including all of the first 24 lots).

3. FACILITY DESCRIPTION

This is a new 50,000 GPD wastewater treatment facility. It will consist of septic tanks, recirculating tank, recirculating sand filter, and ultraviolet disinfection. Discharge will be to a tributary of Goose Creek.

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

The recirculating sand filter is designed for a flow of 50,000 GPD. The 114 lots have a design flow of 42,180 GPD, based on 370 gallons per day per home. The septic tank capacity is approximately twice the design flow. The sand filter surface area is based on 4 GPD/square foot. There will be four filters each approximately 3,000 square feet. The recirculation rate will be set at 4 to 1. The effective operating volume of the recirculating tank will be set at approximately 10,300 gallons, or 21 % of the design flow. This is the volume between the minimum water level and the timer override level and provides for flow equalization and consistent operation. If necessary this volume can be increased by adjusting floats. Each filter has a dedicated pump; distribution to the filters is by a two foot by two foot grid of 1-inch pvc pipe, application rate of approx. 4.3 gpm per hole.

The ultraviolet disinfection unit is designed to treat a flow of 130 gpm. This is equivalent to 20% of the application pump (to the sand filter) capacity (325 gpm) multiplied by two since two pumps may operate at the same time.

5. OPERATING PERMIT

An application for operating permit, Form B, and the first annual fee of $3,000 was received on December 16, 2014. Operating permit MO0137839, was placed on public notice on February 13, 2015. There were no comments received.

Operating permit MO0137839 will be issued after receipt of the Statement of Work Completed, as-builts if necessary, and the recorded Record Plat. Discharge from the facility is prohibited until an operating permit is issued.

Andrew G. Appelbaum, P.E.
Engineering Section
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: 12/14

1.3 Has the department approved the proposed project's facility plan*?
☑ YES Date of Approval: 02/15 ☐ 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: 12/14
☐ 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

Savers Farm Subdivision

2.2 PROJECT DESCRIPTION

3,709 lf of 8" gravity sewer, 17 manholes, 1 pump station, 731 lf of sanitary force main and all necessary appurtenances for a complete and useable sewer system to serve 38 lots (24 in current phase). 50,000 gpd septic tank and recirculating pea gravel filter and all necessary appurtenances for a complete and usable sanitary treatment system to ultimately serve 114 lots (24 in current phase).

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Septic tank will provide for 10,200 cf of sludge storage. When necessary sludge will be disposed of by contract hauler.

2.4 DESIGN INFORMATION

A. Current population: 0 ; Design population: 422

B. Actual Flow: _____ gpd; Design Average Flow: 50,000 gpd;
Actual Peak Daily Flow: _____ gpd; Design Maximum Daily Flow: _____ 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

3.0 WASTEWATER TREATMENT FACILITY

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Savers Farm Subdivision WWTF	(573) 382-7373	bowconstruction@aol.com

ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE	COUNTY
County Road 302	Jackson	MO	63755	Cape Girardeau

Wastewater Treatment Facility: Mo- (Outfall Of)

3.1 Legal Description: NW ¼, NE ¼, NE ¼, Sec. 6, T 31 N, R 13 E
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 797480 Northing (Y): 4144871
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: Goose Creek

4.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Brandon O. Williams Development, LLC	(573) 335-3382	bowconstruction@aol.com

ADDRESS	CITY	STATE	ZIP CODE
2985 Boutin Drive	Cape Girardeau	MO	63701

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
Savers Farm Subdivision Homeowner's Association	(573) 335-3382	bowconstruction@aol.com

ADDRESS	CITY	STATE	ZIP CODE
2985 Boutin Drive	Cape Girardeau	MO	63701

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
Marc Mahnke / Strickland Engineering	(573) 243-4080	mmahnke@stricklandengineering.com

ADDRESS	CITY	STATE	ZIP CODE
113 W. Main Street	Jackson	MO	63755

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
Brandon Williams

PRINTED NAME		DATE
Brandon O. Williams		5-15-15
TITLE OR CORPORATE POSITION	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Owner/Developer	(573) 335-3382	bowconstruction@aol.com

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

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