

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Robert Caraccio
Project Engineer
Missouri American Water Company
727 Craig Road
St. Louis, MO 63141

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.

July 21, 2020
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

July 21, 2022
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Modification to an existing extended aeration wastewater treatment plant by the replacement of the existing clarifier with a circular 12 foot diameter clarifier; conversion of the existing clarifier to an aeration tank; addition of a lift station for sludge withdraw from the clarifier, and addition of fine bubble diffusers on the converted aeration 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. Design flow of the facility will remain at 21,368 gpd and the outfall will remain at the existing location. Discharge is to a Tributary to Rock Creek in Section 19, T43N, R11W, Cole County.

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 Valerie Holland, P.E., Bartlett & West, 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 Central Field Office per 10 CSR 20-7.015(9)(G).
5. 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.
6. 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.
7. 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 dnr.mo.gov/env/wpp/401/ for more information.
8. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.

10 CSR 20-8.140 Wastewater Treatment Facilities

- Flood protection shall apply to new construction and to existing facilities undergoing major modification. The wastewater facility structures, electrical equipment, and mechanical equipment shall be protected from physical damage by not less than the one hundred (100) - year flood elevation. 10 CSR 20-8.140 (2) (B)
- Unless another distance is determined by the Missouri Geological Survey or by the department's Public Drinking Water Branch, the minimum distance between wastewater treatment facilities and all potable water sources shall be at least three hundred feet (300'). 10 CSR 20-8.140 (2) (C) 1.
- Facilities shall be readily accessible by authorized personnel from a public right-of-way at all times. 10 CSR 20-8.140 (2) (D)
- The alarm shall be activated in cases of high water levels. Follow the provisions in subsection (7)(C) of this rule for alarm systems. 10 CSR 20-8.140 (4) (D)
- 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)
- A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140 (7) (E)
- Adequate provisions shall be made to effectively protect facility personnel and visitors from hazards. The following shall be provided to fulfill the particular needs of each wastewater treatment facility:
 - Fencing. Enclose the facility site with a fence designed to discourage the entrance of unauthorized persons and animals; 10 CSR 20-8.140 (8) (A)
 - Gratings over appropriate areas of treatment units where access for maintenance is necessary; 10 CSR 20-8.140 (8) (B)
 - Provisions for local lockout/tagout on stop motor controls and other devices; 10 CSR 20-8.140 (8) (L)
 - Provisions for an arc flash hazard analysis and determination of the flash protection boundary distance and type of PPE to reduce exposure to major electrical hazards shall be in accordance with NFPA 70E *Standard for Electrical Safety in the Workplace* (2018 Edition), as approved and published August 21, 2017. 10 CSR 20-8.140 (8) (M)

10 CSR 20-8.160 Settling

- Overflow weirs shall be readily adjustable over the life of the structure to correct for differential settlement of the tank. 10 CSR 20-8.160 (3) (C) 1.
- Walls of settling tanks shall extend at least six inches (6") above the surrounding ground surface and shall provide not less than twelve inches (12") of freeboard. 10 CSR 20-8.160 (3) (E)
- The design shall provide for convenient and safe access to routine maintenance items such as gear boxes, scum removal mechanism, baffles, weirs, inlet stilling baffle areas, and effluent channels. 10 CSR 20-8.160 (5) (B)

9. Upon completion of construction:

- A. Submit an electronic copy of the as built if the project was not constructed in accordance with previously submitted plans and specifications; and
- B. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N)

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Construction is being performed to enhance plant operability and provide consistent compliance with effluent limitations.

2. FACILITY DESCRIPTION

The MAWC, Deer Haven WWTP is an extended aeration treatment plant with flow equalization, chlorination, dechlorination, and a sludge holding tank. Improvements will include installing a larger clarifier and converting the existing clarifier to aeration volume. The design flow and population equivalent will not change as a result of the improvements. The discharge location to a Tributary to Rock Creek will remain the same.

The MAWC, Deer Haven WWTP is located at 1601 Fawn Court, Wardsville, in Cole County, Missouri. The facility has a design average flow of 21,368 gpd and serves an organic population equivalent of approximately 285 people.

3. COMPLIANCE PARAMETERS

The construction is to enhance treatment so current final limits established in Operating Permit MO-0119326 can be consistently met.

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

Parameter	Units	Monthly average limit
Biochemical Oxygen Demand ₅	mg/L	30
Total Suspended Solids	mg/L	30
Ammonia as N-summer	mg/L	1.2
Ammonia as N-winter	mg/L	2.5
pH	SU	6.5-9.0
Total Residual Chlorine	µg/L	8 (130 ML)
E. Coli	#/100mL	126

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

The design flow of the existing facility is 21,368 gpd, with a design population equivalent of 285. The design flow is appropriate and the area served by the facility is not expected to expand; the treatment plant serves the Deer Haven Estates Subdivision; the design flow will remain the same. The peak design flow factor is

4.08 for a peak design flow of 87,349 gpd. The outfall will also remain in the same location.

Existing Facilities to remain in use

- Flow equalization tank with a nominal volume of 707 cubic feet. Flow is equalized by air lifting to the aeration tanks.
- Four equally sized aeration tanks each approximately 5294 gallons.
- Three Tuthill 5 HP aeration blowers each with a capacity of 88 scfm.
- Tablet chlorinator; chlorine contact chamber; and tablet dechlorinator.
- Aerated sludge holding tank with a nominal volume of 707 cubic feet.

New Facilities

- New cast in place concrete clarifier with components manufactured by Lakeside Equipment Co.; 12 foot diameter Spiraflo Clarifier with peripheral feed. Surface area of 113 square feet for a settling rate of 772 gallons/square feet at peak hourly flow. Side water depth of 12 feet; rotating sludge scraper and skimmer. Overflow weir to be 9 inch wide trough with a 5 foot diameter; v-notch weirs on each side of trough; total effective weir length of 31.4 feet, providing a weir overflow rate of 2,780 gallons/foot at peak flow. Sludge withdraw using telescoping valve. Design meets or exceeds all minimum requirements.
- Existing clarifier structure will be converted to an aeration tank; the clarifier components and bottom hoppers will be removed. EDI fine bubble diffusers will be installed in the floor of the tank. Volume will be the same as the existing tanks. Final aeration volume of all five tanks will be 26,470 gallons. Extended aeration systems are generally expected to have 24 hours of aeration volume at design flow.

5. OPERATING PERMIT

These construction activities do not require a modification to the operating permit. Operating permit MO-0119326 will be expiring on September 30, 2020. A renewal application was received on or about March 30, 2020. If you have questions regarding the renewal application, please contact the NPDES permitting section at 573-751-1300.

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



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 Deer Haven WWTP Clarifier Addition	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$
---	---

2.3 PROJECT DESCRIPTION
 The driver of this project is to improve operations of the WWTF located in Cole County, Missouri. Capacity upgrades are not being pursued. In general, the scope of this project is to add a new clarifier and convert the existing hoppers clarifier into an aeration tank.

2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION
 MAWC pumps waste sludge out of this facility and hauls it to the Jefferson City WWTF for processing. The sludge handling will remain the same. Sludge is retained in the holding cell using baffles to hold back solids.

2.5 DESIGN INFORMATION

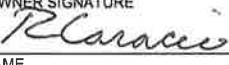
A. Current population: 285; Design population: 285

B. Actual Flow: 18,000gpd; Design Average Flow: 21,368gpd;
 Actual Peak Daily Flow: 57,218gpd; Design Maximum Daily Flow: 87,349gpd; Design Wet Weather Event: N/A

2.6 ADDITIONAL INFORMATION

A. Is a topographic map attached? YES NO

B. Is a process flow diagram attached? YES NO

3.0 WASTEWATER TREATMENT FACILITY				
NAME MAWC, Deer Haven Wastewater Treatment Plant		TELEPHONE NUMBER WITH AREA CODE (573)-996-2379		E-MAIL ADDRESS Robert.Caraccio@amwater.com
ADDRESS (PHYSICAL) 1601 Fawn Court	CITY Wardsville	STATE MO	ZIP CODE 65109	COUNTY Cole
Wastewater Treatment Facility: Mo- 0119326 (Outfall 001 Of 001)				
3.1 Legal Description: _____ ¼, <u>SW</u> ¼, <u>NE</u> ¼, Sec. <u>19</u> , T <u>43N</u> , R <u>11W</u> (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): <u>571460</u> Northing (Y): <u>4257447</u> For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: <u>Rock</u> Creek (C) (1034)				
4.0 PROJECT OWNER				
NAME Missouri American Water Company		TELEPHONE NUMBER WITH AREA CODE (314) 996-2379		E-MAIL ADDRESS Robert.Caraccio@amwater.com
ADDRESS 727 Craig Rd	CITY St. Louis	STATE MO	ZIP CODE 63141	
5.0 CONTINUING AUTHORITY: A continuing authority is a company, business, entity or person(s) that will be operating the facility and/or ensuring compliance with the permit requirements.				
NAME Missouri American Water Company		TELEPHONE NUMBER WITH AREA CODE (314) 996-2379		E-MAIL ADDRESS Robert.Caraccio@amwater.com
ADDRESS 727 Craig Rd	CITY St. Louis	STATE MO	ZIP CODE 63141	
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				
6.0 ENGINEER				
ENGINEER NAME / COMPANY NAME Valerie Holland P.E. / Bartlett & West, Inc.		TELEPHONE NUMBER WITH AREA CODE (573) 659-6714		E-MAIL ADDRESS valerie.holland@bartwest.com
ADDRESS 1719 Southridge Drive, Suite 100	CITY Jefferson City	STATE MO	ZIP CODE 65109	
7.0 APPLICATION FEE				
<input type="checkbox"/> CHECK NUMBER <input checked="" type="checkbox"/> JETPAY CONFIRMATION NUMBER 20016552				
8.0 PROJECT OWNER: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.				
PROJECT OWNER SIGNATURE 				
PRINTED NAME Robert Caraccio			DATE May 27, 2020	
TITLE OR CORPORATE POSITION Project Engineer		TELEPHONE NUMBER WITH AREA CODE (314) 619-9344		E-MAIL ADDRESS robert.caraccio@amwater.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.				