

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Innsbrook Estates Owner Association
#1 Innsbrook Drive
Wright City, MO 63390

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.

March 5, 2018
Effective Date


Edward B. Galbraith, Director, Division of Environmental Quality

March 4, 2020
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The facility proposed to construct a total 100,000 gallons of flow equalization tanks, associated aeration equipment, and piping.

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 Cochran on February 5 and 23, 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 St. Louis 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. The wastewater treatment facility shall be located at least fifty feet (50') from any dwelling or establishment.
7. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
8. 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.
9. 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."
10. 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.
11. 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.
12. 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.
13. Upon completion of construction:
- A. The Innsbrook Estates Owners 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);
 - C. Submit an electronic copy of the as builts if the project was not constructed in accordance with previously submitted plans and specifications; and

- D. When the facility applies for their next operating permit renewal, they will be expected to include an updated facility description on their application.

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Innsbrook is a vacation home community. Holiday periods can cause sewage flows to reach 3 to 4 times the average daily flow. The existing treatment plant does not have the capacity or flow equalization volume to handle the holiday spikes. Innsbrook is in the Master Planning Phase for expanding the treatment capacity of the existing plant. In the interim, Innsbrook proposed to add 100,000 gallons of flow equalization to its treatment facility. The additional flow equalization will serve as a buffer allowing the storage of holiday flow spikes. Once flows recede to average daily levels, the sewage stored in the expanded flow equalization can be routed through the plant for treatment without exceeding plant capacity.

2. FACILITY DESCRIPTION

Innsbrook's treatment facility is an extended aeration process with ultra-violet disinfection equipment treating the effluent. Sewage flows are conveyed to the existing treatment facility via a low pressure collection system. The facility has a design flow of 68,000 gpd and an actual flow of 31,000 gpd. The existing flow equalization has a usable capacity of 16,300 gallons. The facility is adding 100,000 gallons of flow equalization to the treatment plant to store the holiday spikes for later treatment.

The Innsbrook WWTF is located at Innsbrook Estates Drive, Wright City, in Warren County, Missouri. The facility has a design average flow of 68,000 gpd and serves a hydraulic population equivalent of approximately 1400 people.

3. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

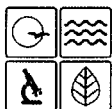
The facility uses 20 precast concrete tanks as the equalization basins. The equalization basins have a total design volume of above 100,000 gallons. The size of each tank is 12 ft x 6 ft x 12 ft deep. The tanks will be aerated to maintain aerobic conditions and keep solids in suspension. 20 tanks will be divided into two groups with 10 tanks in each group. Each group of tanks has its own air supply system. Air will be added at a rate of 1.25 cfm per 1,000 gallons of stored water suggested in Metcalf & Eddy and meets the minimum of 1.25 cfm required in 10 CSR 20-8.150(7)(E)2. For supplying the air requirement, two blower motor units will be furnished and installed. New blowers shall be capable of delivering 125 cfm at 3,600 rpm with an outlet pressure of 4 psi.

The new storage capacity will only be utilized during spikes in flow. The plant operations will remain unchanged during normal flow conditions.

4. OPERATING PERMIT MODIFICATION

It is expected that the facility owner will include a new facility description in their next operating permit renewal application to reflect the installation of a total 100,000 gallons of flow equalization tanks.

Lei Hou, PE
Engineering Section
lei.hou@dnr.mo.gov



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
**APPLICATION FOR CONSTRUCTION PERMIT –
WASTEWATER FACILITY**

FOR DEPARTMENT USE ONLY

APP NO.

CP NO.

FEE RECEIVED

CHECK NO.

DATE RECEIVED

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: _____
- 1.4 Has the department approved the proposed project's facility plan*?
☐ YES Date of Approval: _____ ☐ 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
- 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
- 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

Innsbrook WWTF Flow Equalization Improvements

2.2 PROJECT DESCRIPTION

Construction of 100,000 gallons of flow equalization and associated aeration equipment, piping and appurtenances.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Sludge is hauled off site by contractor hauler.

2.4 DESIGN INFORMATION

- A. Current population: _____; Design population: 1,400
- B. Actual Flow: 31,000 gpd; Design Average Flow: 68,000 gpd;
Actual Peak Daily Flow: 116,384 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

2.6 ESTIMATED PROJECT CONSTRUCTION COST

\$ 300,000.00

3.0 WASTEWATER TREATMENT FACILITY					
NAME Innsbrook Estates		TELEPHONE NUMBER WITH AREA CODE (636) 928-3366		EMAIL ADDRESS william.haydon@innsbrook-resort.com	
ADDRESS (PHYSICAL) Highway F		CITY Wright City	STATE MO	ZIP CODE 63390	COUNTY Warren
Wastewater Treatment Facility: Mo- 0098906 (Outfall 1 Of 1)					
3.1 Legal Description: NW ¼, SE ¼, ¼, Sec. 8, T 46N, R 1W (Use additional pages if construction of more than one outfall is proposed.)					
3.2 UTM Coordinates Easting (X): 669834 Northing (Y): 4291925 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)					
3.3 Name of receiving streams: Charrette Creek					
4.0 PROJECT OWNER					
NAME Innsbrook Owners Association		TELEPHONE NUMBER WITH AREA CODE (636) 928-3366		EMAIL ADDRESS william.haydon@innsbrook-resort.com	
ADDRESS #1 Innsbrook Drive		CITY Wright City	STATE MO	ZIP CODE 63390	
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 Innsbrook Owners Association		TELEPHONE NUMBER WITH AREA CODE (636) 928-3366		EMAIL ADDRESS william.haydon@innsbrook-resort.com	
ADDRESS #1 Innsbrook Drive		CITY Wright City	STATE MO	ZIP CODE 63390	
5.1 A letter from the continuing authority, if different than the owner, is included with this application. <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A					
5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.					
A. Is a copy of the certificate of convenience and necessity included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION					
A. Is a copy of the as-filed restrictions and covenants included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO					
6.0 ENGINEER					
ENGINEER NAME / COMPANY NAME David Van Leer		TELEPHONE NUMBER WITH AREA CODE (636) 584-0540		EMAIL ADDRESS dvanleer@cochraneng.com	
ADDRESS 530A East Independence Drive		CITY Union	STATE MO	ZIP CODE 63084	
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					
PRINTED NAME William Haydon				DATE 1/31/16	
TITLE OR CORPORATE POSITION Manager		TELEPHONE NUMBER WITH AREA CODE (636) 928-3366		EMAIL ADDRESS william.haydon@innsbrook-resort.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.					