

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



GENERAL PERMIT for SEWER EXTENSION CONSTRUCTION

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

Construction Permit ID: MOGSE0452
Title of Project: Copper Ridge Phase 1
Owner: Fryeko, Inc.
Address: 627 E. Russell Ave.
WARRENSBURG, MO 64093

The project will also include general site work appropriate to the scope and purpose of the project and will include all the necessary appurtenances to make a complete and usable collection system. The construction of this project will be in the vicinity of the county below and discharge to Receiving Permit ID below:

County: Johnson Receiving Permit ID: MO0094579

for the construction of (described construction project):

Copper Ridge, Phase 1 - Construction of approximately 3,943 lf of eight-inch PVC SDR-26 gravity sewer lines with approximately 19 manholes to serve 87 PE and a design average flow of 8,700 gpd.

Project is in the vicinity of 1050 SE Hale Lake Road in Warrensburg, Johnson County and discharges to an existing system to be treated at Warrensburg East WWTP, MO-0094579. Enrico Villegas, Assistant City Manager, with City of Warrensburg provided an acceptance letter dated August 1, 2022.

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.

This permit applies only to the construction of water pollution control components; it does not apply to other environmentally regulated areas.

December 16, 2022

Issue Date

A handwritten signature in black ink that reads "Chris Wieberg".

Chris Wieberg, Director
Water Protection Program

December 15, 2024

Expiration Date

APPLICABILITY

1. This permit authorizes the construction of gravity sewer extensions, force mains, and lift stations. Non-earthen flow equalization storage basins at lift stations and inline storage, which flows back into the lift station or collection system, are also included.
2. A site specific sewer extension construction permit may be required by the Department due to compliance and enforcement actions.
3. Projects located within an Approved Sewer Program as noted in the operating permit of the receiving wastewater treatment facility are not required to obtain a construction permit from the Department of Natural Resources (Department).
4. This permit does not apply to:
 - A. Earthen storage basins;
 - B. Exempt projects unless requested by the applicant or required by enforcement.

PREREQUISITES:

1. The General Sewer Extension Construction Permit application, appropriate fee, and documentation in accordance with 10 CSR 20-6.010(5)(G).
2. The plans and specifications each signed and sealed by a professional engineer registered in the State of Missouri in accordance with 10 CSR 20-8 and 10 CSR 20-6.010.
3. The Design Certification form or Engineering Report or Summary of Design signed and sealed by a professional engineer registered in the State of Missouri certifying the design of the system was prepared in accordance with 10 CSR 20-6 and 10 CSR 20-8.
4. A statement from the continuing authority, as defined in 10 CSR 20-6.010, accepting the wastewater for treatment and indicating the permitted treatment facility has the available capacity.
5. A statement from the continuing authority, as defined in 10 CSR 20-6.010, accepting the responsibility for operation and maintenance of these facilities.

PERMIT CONDITIONS:

1. This permit authorizes the activities and scope of work detailed in the plans and specifications submitted with the request.
2. The construction must be in accordance with the final plans and specifications approved by the Department.
3. 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 regional office per 10 CSR 20-7.015(9)(E)2., or through the Online Bypass/SSO Reporting system found at <https://dnr.mo.gov/eservices.htm> under Water Protection.

PERMIT CONDITIONS: (continued)

4. Protection of drinking water supplies must meet the requirements of 10 CSR 23-3.010 .
 - A. 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.
 - B. Sewers shall be laid at least fifty feet (50') in a horizontal direction from any existing or proposed public water supply well or other water supply sources or structures.
5. Manholes shall be located with the top access at or above grade level.
6. In addition to the requirements for a construction permit, see 10 CSR 20-6.200 for land disturbance requirements 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.

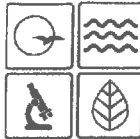
7. A United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) issued by the Department or permit waiver may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied. If construction activity 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 www.dnr.mo.gov/env/wpp/401/ for more information.

8. If this project eliminates a wastewater treatment facility under the jurisdiction of the Department, then a full closure plan shall be submitted with a Facility Closure Request Form, Form – MO 780-2512 to the Department's appropriate regional office for review and approval. 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. Closure shall not commence until the submitted closure plan is approved by the Department.
9. If this project is part of a project to resolve an enforcement action or is receiving funding from the Department, submit a statement of work complete following the completion of construction

AP 40929 MOSE 0452

RECEIVED
NOV 22 2022
Protection Program



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
APPLICATION FOR CONSTRUCTION PERMIT
SEWER EXTENSION

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO. <i>MY</i>
FEE RECEIVED <i>300.00</i>	CHECK NO. <i>232</i>
DATE RECEIVED <i>11.22.22</i>	

NOTE ▶ Please Read the accompanying instructions before completing this form

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 Department of Natural Resources approved the proposed project's engineering report*?
 YES Date of Approval: _____ NO N/A
- 1.3 Is a copy of the appropriate plans* and specifications* included with this application? YES NO
If the project is using standard specifications, name of community: Warrensburg, MO
- 1.4 Is a summary of design* included with this application? YES NO
- 1.5 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

Copper Ridge, Phase 1

ADDRESS	CITY	STATE	ZIP CODE	COUNTY
1050 SE Hale Lake Road (DD Highway)	Warrensburg	MO	64093	Johnson

2.2 Legal Description: $\frac{1}{4}$, SW $\frac{1}{4}$, SE $\frac{1}{4}$, Sec. 30, T 46, R 25

2.3 Project Components (check all that apply):

- Gravity sewers Pumping stations Force mains Alternative sewer system Other (Describe below.)

2.4 PROJECT DESCRIPTION

Construction of a 29 lot, single family subdivision (Phase1) including grading, utilities, paving, curb and sidewalk.

Sanitary sewer includes 19, 4' diameter concrete manholes, 3941 lf of 8" PVC pipe and 29 service wyes with lateral extensions to the right of way.

2.5 DESIGN INFORMATION

- A. Population or number of lots to be served by this extension: 29
- B. Estimated flow to be contributed by this extension: Design Average Flow: 8700 gpd Design Peak Hourly Flow: 1450 gph
- C. Industrial Wastes: Type: N/A Flow: gpd
- D. Receiving Sewer: Size: 8 inches Capacity: 704 gpm
- E. Does this project (check all that apply):
 Connect to an existing treatment plant Resolve enforcement issue Eliminate or consolidate an existing treatment plant
- F. Estimated number of onsite systems being removed: N/A
- G. Estimated costs associated with piping: \$ _____ Estimated costs associated with lift station(s): \$ _____

3.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	EMAIL ADDRESS	
Fryeko, Inc.	816-564-2230	refrye52@gmail.com	
ADDRESS	CITY	STATE	ZIP CODE
627 E. Russell Ave.	Warrensburg	MO	64093

CHARTER NUMBER (SECRETARY OF STATE) or REGISTERED AGENT
MO- 00457943

4.0 CONTINUING AUTHORITY: A continuing authority is a company, business, entity, or person(s) that will be legally responsible for ensuring compliance with the permit requirements and provide continuous stable oversight of the permitted facility or activity. The Continuing authority should be a relatively permanent entity responsible for the ongoing operation, maintenance and modernization, when needed, of the permitted facility or activity. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To access the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit [Clean Water Commission Chapter 6](#). A continuing authority's name must be listed exactly as it appears on the Missouri Secretary of State's (SoS's) webpage: [Missouri Secretary of State](#), unless the continuing authority is an individual(s), government entity, or otherwise not required to register with the SoS.

NAME City of Warrensburg		TELEPHONE NUMBER WITH AREA CODE 660-747-9131	EMAIL ADDRESS enrico.villegas@warrensburg-mo.com
ADDRESS 102 S. Holden	CITY Warrensburg	STATE MO	ZIP CODE 64093

CHARTER NUMBER (SECRETARY OF STATE)
N/A

4.1 Has appropriate continuing authority acceptance been provided as follows:

A letter from the continuing authority accepting responsibility for continued maintenance of the sewer (if the continuing authority is different than the original owner of the construction), or a properly executed "Continuing Authority and Receiving Wastewater Treatment Facility Acceptance" Form 780-2584. YES NO N/A

5.0 ENGINEER

ENGINEER NAME / COMPANY NAME Kevin Sterrett/Hg Consult, Inc.		TELEPHONE NUMBER WITH AREA CODE 816-703-7098	EMAIL ADDRESS ksterrett@hgcons.com
ADDRESS 1411 NE Todd George Road	CITY Lee's Summit	STATE MO	ZIP CODE 64086

6.0 RECEIVING WASTEWATER TREATMENT FACILITY

NAME Warrensburg-East Wastewater Treatment Plant		TELEPHONE NUMBER WITH AREA CODE 660-747-9131	EMAIL ADDRESS enrico.villegas@warrensburg-mo.com
MISSOURI STATE OPERATING PERMIT # MO-0094579	COUNTY Johnson	REMAINING CAPACITY (GPD) 1.5 MGD	

6.1 If different from the owner, has a letter been provided from the receiving treatment facility demonstrating that they agree to accept the expanded flow or has a properly executed Continuing Authority and Receiving Wastewater Treatment Facility Acceptance MO 780-2584 form been provided? YES NO N/A

6.2 A letter from the receiving wastewater treatment facility, if different than the continuing authority, is included with this application. YES NO N/A

6.3 If the receiving treatment plant or continuing authority is regulated by the Public Service Commission (PSC) for sewer activities, a Certificate of Convenience and Necessity has been received? Yes - Date: No N/A

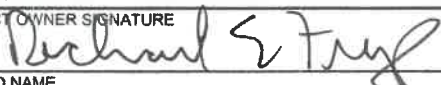
OPTIONAL QUESTIONS REGARDING MILITARY SERVICE

Have you or an immediate family member ever served in the U.S. Armed Forces?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
If yes, would you like information about military-related services in Missouri?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

7.0 Application Fee

Check Number 232 JetPay Confirmation Number

8.0 PROJECT OWNER: I certify under penalty of law this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure 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 there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

PROJECT OWNER SIGNATURE 		DATE 11/16/22
PRINTED NAME Rick Frey		
TITLE OR CORPORATE POSITION President	TELEPHONE NUMBER WITH AREA CODE 816-564-2230	EMAIL ADDRESS refrye52@gmail.com

Mail completed copy to:

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM
PO BOX 176
JEFFERSON CITY, MO 65102-0176

Submit completed electronic copy to:

Missouri Department of Natural Resources
at DNR.WPPEngineerSection@dnr.mo.gov

**INSTRUCTIONS FOR COMPLETING
APPLICATION FOR CONSTRUCTION PERMIT – SEWER EXTENSION**

All blanks must be filled in when the application is submitted to the Missouri Department of Natural Resources. This includes the **required signature**. The fee for a sewer extension construction permit is \$300.

In accordance with Missouri State law RSMo 644.051.3.(2), sewer extension projects installing up to a total of 1,000 linear feet of gravity sewer or force main with less than two pump stations are exempt from obtaining a construction permit. Since these projects are exempt, a construction permit will not be issued for this activity and completion of this form is not required.

Note: Use the form **Application for Construction Permit – Wastewater Treatment Facility Application for Construction Permit – Sewer Extension MO 780-1632**, if any wastewater treatment component(s) are to be constructed.

A land disturbance permit is required if construction will result in the disturbance of one or more acres of land. A land disturbance permit (MO-RA00000) is available through the department's ePermitting system at [ePermitting Splash Page](#). A permit fee in accordance with 10 CSR 20-6.011(2)(E) is required.

After receiving a complete application, the department enters the application information into the Missouri Clean Water Information System. You may search for the status of a construction permit online at [MoCWIS Application Search](#).

- 1.1 Check appropriate box. If the project is funded with federal or state monies, supply the funding agency name and project number.
 - 1.2 Check appropriate box and provide the date of department approval.
The department has developed a fact sheet to aid in the development of an approvable engineering report, [Engineering Report Guidance for Collection Systems, Fact Sheet – PUB2415](#). This document is available online at [Engineering Report Guidance for Collection Systems With a Design Flow of 22,500 Gpd or Greater](#). Engineering report exemptions are listed in 10 CSR 20-6.010(4)(B). Per 10 CSR 20-8.110(2), engineering reports must be approved by the department prior to the submittal of plans and specifications and a construction permit application.
 - 1.3 Check appropriate box. Provide a copy of the appropriate plans and specifications for department review when applying for a construction permit per 10 CSR 20-8.110 and 10 CSR 20-6.010. A Missouri registered professional engineering seal, signature and date is required on each sheet of the plans and the cover of the technical specifications. An electronic copy of the construction permit application and the information listed below in Portable Document Format (PDF) searchable format or department approved equivalent per 10 CSR 20-6.010(5)(G), along with one paper copy for projects not seeking department funding or two paper copies for projects seeking department funding under 10 CSR 20-4. If the project is relying on approved standard specifications from a particular municipality, provide the name of the community. The communities with department-approved standard specifications is available online at [Wastewater Construction Permits and Engineering Regulations](#)
 - 1.4 Check appropriate box. A summary of design shall accompany the plans and specifications when applying for a construction permit per 10 CSR 20-8.110. The department has developed a fact sheet to aid in the development of an acceptable summary of design, [Summary of Design Guidance, Fact Sheet – PUB2417](#). This document is available online at [Summary of Design Guidance for Wastewater Treatment Facilities - PUB2417](#).
 - 1.5 Check the appropriate box. Include fee with application per 10 CSR 20-6.011(2) and [Wastewater Treatment Facility Permit Fees – PU32564](#).
- Note:** The department returns incomplete construction permit applications and related engineering documents and the application forfeits the fees. See 10 CSR 20-6.011(5)(A). The applicant forfeits the fees when the applicant withdraws construction applications. See 10 CSR 20-6.011(5)(B).2.1. Provide the project name and location by street name or address.
- 2.1 Provide the project name and location by street name or address.
 - 2.2 Provide the project legal description. The department's mapping system is available online at [MAPIT ARCGIS](#).
 - 2.3 Check all of the applicable boxes.
The department considers anything other than a gravity sewer system to be an alternative sewer system. Examples of these systems are grinder pump pressure sewers, septic tank effluent pump, or STEP, sewers, septic tank effluent gravity, or STEG, sewers or small diameter gravity sewers.
 - 2.4 Briefly describe the project by providing the following information:
 - A. Total number of manholes.
 - B. Size of sewers and the total linear feet of each size.
 - C. Number of lift stations and design average flow and peak hourly flow capacities of each lift station.
 - D. Size and length of force mains.
 - E. Alternative sewer size and length, plus the number of components (e.g. septic tanks, grinder pumps, etc.)
 - 2.5 Provide the project design information and when required in the units specified:
 - A. Provide the population or number of lots to be served by the proposed sewer extension.
 - B. Provide the estimated design flow information in accordance with 10 CSR 20-8.110(4)(C)4.A.
 - **Design average flow** – The design average flow is the average of the daily volumes to be received for a continuous 12 month period expressed as a volume per unit time. However, the design average flow for facilities having critical seasonal high hydraulic loading periods (e.g., recreational areas, campuses and industrial facilities) shall be based on the daily average flow during the seasonal period.
 - **Design peak hourly flow** – The design peak hourly flow is the largest volume of flow to be received during a one hour period expressed as a volume per unit time.
 - C. Provide the type and flow in gallons per day of industrial wastes received by the propose sewer extension.

- D. Provide the receiving sewer size in inches and capacity in gallons per minute.
- E. Check all of the applicable boxes.
- F. Provide an estimate of the number of onsite systems decommissioned as a result of the project.
- G: Provide estimated cost (design, materials, land, and labor) for installation of piping and pump station(s).

- 3.0 Project Owner – Provide the legal name, mailing address, phone number and email address of the owner of the regulated activity or discharge. The owner identified in this section and subsequently reflected on the certificate page of the operating permit should be the owner of the regulated activity/discharge being applied for and is not necessarily the owner of the real property on which the activity or discharge is occurring. Also provide Charter Number of Project Owner from Secretary of State or name of Registered agent to comply with 10 CSR 20-6.010(2)(E) which states: “Private corporations which are not incorporated under the laws of Missouri shall be represented by a registered agent in the state of Missouri before a construction permit or an operating permit will be issued by the department.”
- 4.0 Continuing Authority – A continuing authority is a company, business, entity, or person(s) that will be legally responsible for ensuring compliance with the permit requirements and provide continuous stable oversight of the permitted facility or activity. The Continuing authority should be a relatively permanent entity responsible for the ongoing operation, maintenance and modernization, when needed, of the permitted facility or activity. A continuing authority is not, however, an entity or individual that is contractually hired by the permittee to sample or operate and maintain the system for a defined time period, such as a certified operator or analytical laboratory. To view the regulatory requirement regarding continuing authority, 10 CSR 20-6.010(2), please visit [Department of Natural Resources Division 20-Clean Water Commission Chapter 6-Permits](#). A continuing authority's name must be listed exactly as it appears on the Missouri Secretary of State's (SoS's) webpage: [Missouri Secretary of State Business Entity Search](#), unless the continuing authority is an individual(s), government entity, or otherwise not required to register with the SoS. Provide charter number listed on SoS's webpage, if applicable. If the Continuing Authority is the same as the Project Owner, write “Same as above”.
- 4.1 Check appropriate box. Include a letter signed by the continuing authority (if not the same as the project owner) stating they will “accept, operate, and maintain” the sewer extension. The continuing authority may complete the “Continuing Authority and Receiving Wastewater Treatment Facility Acceptance” form in lieu of a letter. Download the department's form [Continuing Authority Receiving Wastewater Treatment Facility Acceptance-Mo 780-2584](#). If the continuing authority will not accept and agree to operate and maintain the sewer extension, this application will be considered incomplete.
- 5.0 Complete Engineer contact information.
- 6.0 Complete Receiving Wastewater Treatment Facility information. Include the Missouri State Operating Permit number and the available remaining capacity in gallons per day, or gpd.
- 6.1 Check appropriate box. The receiving wastewater treatment facility must be notified and agree to the proposed sewer extension and additional flow, prior to submitting a construction permit to the department. If the receiving wastewater treatment facility will not accept the wastewater, this application will be considered incomplete.
- 6.2 Check appropriate box. Include a letter from the receiving wastewater treatment facility (if not same as the continuing authority) acknowledging and accepting the additional flow from the proposed sewer extension.
- 6.3 Check appropriate box. The Certificate of Convenience and Necessity (CCN) is granted by the Public Service Commission to for-profit companies to provide sewer services. 10 CSR 20-6.010(2)(B)3 requires the CCN be granted prior to applying for a permit from the department.
- 7.0 Check the appropriate box and include check or confirmation number. Applicants can pay fees online by credit card or eCheck through a system called JetPay. See [Water Permit Fees](#). Clicking on the JetPay link you can make a one-time payment by selecting the “Water Protection Program” as the Payment Category and WP 04 Construction Permits as the Payment Type. The system then asks for Wastewater Permit Number (which is “construction”) and Facility/Project name (which is the name of this project given in question 2.0). The fee for sewer extension review is \$300.
- Per Section 37.001, RSMo, a transaction fee will be included. The transaction fee is paid to the third party vendor JetPay, not the Department of Natural Resources.
 - Be sure to select the correct fee type and corresponding URL to ensure your payment is applied appropriately. If you are unsure what type of fee to pay, contact the Water Protection Program's Budget, Fees and Grants Management Unit by phone at 573-522-1485 for assistance.
 - Upon successful completion of your payment, JetPay provides a payment confirmation. Submit this form with a copy of the payment confirmation if requesting a new permit or a permit modification.
 - If you are unable to make your payment online, but want to pay with credit card, you may email your name, phone number, and invoice number, if applicable, to WPPFEES@dnr.mo.gov. The Budget, Fees and Grants Management Unit will contact you to assist with the credit card payment. **Please do not include your credit card information in the email.**
 - Applicants can find fee rates for various activities in 10 CSR 20-6.011 and [Wastewater Treatment Facility Permit Fees-- PUB2564](#).
- 8.0 The owner of the construction project must sign the application per 10 CSR 20-6.010(5)(G). Mail the completed form, related construction documents and applicable fee (or JetPay receipt) to the department. Also provide the application, plans and specifications in PDF searchable format via external media drive or email if size allows. Email information to DNRWPPEngineerSection@dnr.mo.gov.

9.0–13.0 Sewer Extension Checklist

This portion of the application is optional, but completing it is recommended because it can speed review. If designed properly, the engineer preparing the application should be able to answer “Yes” or “Not Applicable” (N/A) for each of the items. If an answer of “N/A” is necessary, section 13.0 provides a place to provide any explanation or useful comments. Section 13.0 also requires those completing the Sewer Extension Checklist (9.0 – 13.0) to properly sign, seal and date the checklist. If there are any questions concerning this form, contact the Department of Natural Resources, Water Protection Program at 800-361-4827 or 573-751-1300, or visit [Wastewater Construction Permits and Engineering](#).

9.0 SEWER EXTENSION CHECKLIST

SEWER EXTENSION DESIGN CERTIFICATION: Answer all questions yes or N/A. Answer N/A only if the question is clearly not applicable to the design of the proposed sewer extension.

	REGULATION		YES	N/A
1.	8.110(3)(A)	Is the design flow based on actual flow data for an existing system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	8.110(3)(B)	Are average design flows, peak hourly flows and I&I contributions for new systems calculated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.	8.110(9)(B)	Is there a detailed plan showing tributary area, boundaries, pertinent elevations, topography, existing and proposed facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4.	8.120(2)	Does the sewer exclude water from roofs, streets, groundwater from foundation drains and combined wastewater?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5.	8.120(3)(A)	Is the pipe installation, embedment and backfill designed to prevent damage to the pipe and its joints?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6.	8.120(3) (A)1	Is all sewer pipe constructed with a slope to obtain mean velocities of not less than 2 feet per second?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7.	8.120(3)(A)2	Is the pipe covered with at least 36" of soil or sufficiently insulated to prevent freezing?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8.	8.120(3)(B)	Is deflection testing specified to ensure no pipe exceeds a deflection of 5% of the inside diameter?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9.	8.120(4)(A)	Are manholes located at the end of each line, at all changes in grade, size or alignment and at all intersections?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10.	8.120(4)(C)	Are manholes at least 42 inches in diameter with a clear opening of 22 inches on sewer line larger than 8"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11.	8.120(4)(C)	Where cleanouts are used at the end of a lateral instead of a manhole, they are a minimum diameter of 8 inches or larger and equal to the diameter for pipes < 8"?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12.	8.120(4)(E)	Are the manholes watertight, constructed and installed in accordance with the manufacturer's recommendations and procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
13.	8.120(4)(F)	Do the specifications include a requirement for inspection and testing for manholes?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
14.	8.120(5)(A)	Is the sewer free from physical connections to a potable water supply system and no water pipes come in contact with a sewer manhole?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
15.	8.120(5)(B)	Are sewers and manholes located at least 50 feet horizontally from any existing or proposed water supply well, sources, structures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

10.0 PRESSURE SEWERS, GRINDER PUMP, STEP AND STEG SEWER CHECKLIST

	REGULATION		YES	N/A
16.	8.125(5)(A)1.	Does the cleaning velocity of ≥ 2 ft/s happen more than once per day?	<input type="checkbox"/>	<input type="checkbox"/>
17.	8.125(5)(A)2.	Is the diameter of the pressure sewer main pipe at least 1.5"?	<input type="checkbox"/>	<input type="checkbox"/>
18.	8.125(5)(B)	Are appurtenances compatible with the piping system?	<input type="checkbox"/>	<input type="checkbox"/>
19.	8.125(5)(B)2.	Are isolation valves located: upstream of major pipe intersections; both sides of stream, bridge and RR crossings; at terminal end of system?	<input type="checkbox"/>	<input type="checkbox"/>
20.	8.125(5)(C)	Do service line pipes have a minimum diameter of 1.25"?	<input type="checkbox"/>	<input type="checkbox"/>
21.	8.125(5)(D)1.A	Do simplex grinder pump stations service only a single equivalent dwelling unit (EDU)? i.e. 1 residence – 1 grinder pump.	<input type="checkbox"/>	<input type="checkbox"/>
22.	8.125(5)(D)1.B	Are multiple unit pump stations owned, operated and maintained by an approved continuing authority?	<input type="checkbox"/>	<input type="checkbox"/>
23.	8.125(5)(D)3.	Is there at least 70 gallons of storage in the grinder pump unit?	<input type="checkbox"/>	<input type="checkbox"/>
24.	8.125(5)(D)4.	Do grinder pump stations have shutoff valves, check valves and anti-siphon valves (where siphoning could occur) that are accessible from the ground surface?	<input type="checkbox"/>	<input type="checkbox"/>
25.	8.125(5)(D)7., 8.130(3)(B)2.	Are units serviceable and replaceable under wet conditions without electrical hazard and is electrical equipment suitable for hazardous locations (National Electrical Code, Class I, Group D, Division 1 location)?	<input type="checkbox"/>	<input type="checkbox"/>
26.	8.125(5)(D)8., 8.125(2)(F)6.	Are provisions in place to avoid interruption of service due to mechanical or power failure by providing standby power, storage capacity, or interconnection with another disposal system?	<input type="checkbox"/>	<input type="checkbox"/>
27.	8.125(6)(D)	In a STEP system is at least one septic tank (1,000 gallons or more) provided for each EDU with 20% of tank volume dedicated to freeboard and ventilation?	<input type="checkbox"/>	<input type="checkbox"/>
28.	8.125(6)(F)	Are duplex pumps provided for the design flow of 1,500 gallons or greater?	<input type="checkbox"/>	<input type="checkbox"/>

11.0 PUMP STATION CHECKLIST

	REGULATION		YES	N/A
29.	8.125(7)(C)	Is the minimum diameter sewer main pipe and service line of STEG sewer at least 4"?	<input type="checkbox"/>	<input type="checkbox"/>
30.	8.130(2)(A) 8.140(2)(B)	Is the pump station designed to withstand the 100-year flood?	<input type="checkbox"/>	<input type="checkbox"/>
31.	8.130(3)(A)	Is the dry well completely separate from the wet well and is a suitable and safe means of access provided to each?	<input type="checkbox"/>	<input type="checkbox"/>
32.	8.130(3)(B)	If the design flow is 1,500 gpd or more, are there at least 2 pumps or pneumatic ejectors provided?	<input type="checkbox"/>	<input type="checkbox"/>
33.	8.130(3)(D)	Are valves located outside wet well unless integral to a pump or its housing?	<input type="checkbox"/>	<input type="checkbox"/>
34.	8.130(3)(F) 8.140(8)(J)	Do wet and dry wells have separate ventilation systems?	<input type="checkbox"/>	<input type="checkbox"/>
35.	8.130(3)(G)	Does all potable water brought to pump stations comply with 8.140(7)(D)?	<input type="checkbox"/>	<input type="checkbox"/>
36.	8.130(6)	Is an alarm system provided with uninterrupted power?	<input type="checkbox"/>	<input type="checkbox"/>
37.	8.130(7)(A)	Is there 2 hours retention of the peak hourly flow for a design flow > 100,000 gpd or 4 hrs retention of the peak hourly flow for a design flow < 100,000 gpd?	<input type="checkbox"/>	<input type="checkbox"/>
38.	8.130(7)(B)	Are there independent utility substations provided for emergency power capable of starting and operating the pump station at its rated capacity?	<input type="checkbox"/>	<input type="checkbox"/>
39.	8.130(8)(A)	Is the force main velocity of ≥ 2 ft/s maintained?	<input type="checkbox"/>	<input type="checkbox"/>
40.	8.130	Are there complete operation instructions for the pumping stations provided that include emergency procedures, maintenance schedules, special tools and spare parts that may be necessary?	<input type="checkbox"/>	<input type="checkbox"/>

12.0 SUCTION LIFT PUMP AND SUBMERSIBLE PUMP STATION CHECKLIST

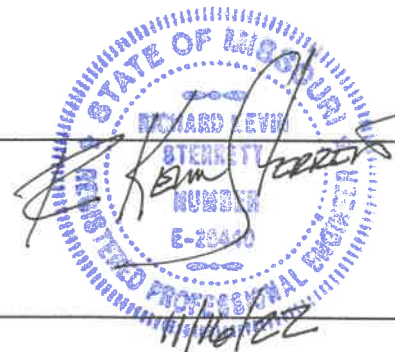
	REGULATION		YES	N/A
41.	8.130(4)	Are the suction lift pumps of the self priming or vacuum priming type?	<input type="checkbox"/>	<input type="checkbox"/>
42.	8.130(4)(A)	Is the combined total of dynamic suction lift at the "pump off" elevation and required net positive suction head at design operating conditions less than or equal to 22 feet?	<input type="checkbox"/>	<input type="checkbox"/>
43.	8.130(4)(B)	Are there dual vacuum pumps capable of removing air from the suction lift pump?	<input type="checkbox"/>	<input type="checkbox"/>
44.	8.130(5)(A)	Are submersible pumps readily removable and replaceable without personnel entering, or disconnecting any pipe in the wet well?	<input type="checkbox"/>	<input type="checkbox"/>

13.0 SEWER EXTENSION CHECKLIST -- CERTIFICATION STATEMENT

For any questions answered "N/A" provide an explanation. Also provide any useful general comments regarding design for review engineer.

Design flow at point of connection to the existing system is based on the existing pipes capacity, based on Manning's Equation.

Missouri Professional Engineer's seal, signature and date:



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