

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Roger Sparks, Engineering Manager
Missouri-American Water Company
MAWC, Clinton Estates WWTF
8338 SW 208th St
Trimble, MO 64492

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 28, 2022
Effective Date

March 27, 2024
Expiration Date


Chris Wieberg, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

Construction will include two chlorination tablet feeders (one installed immediately, and one set up to install), a concrete chlorine contact basin, two dechlorination tablet feeders (one installed immediately, and one set up to install), one manhole, and approximately 200 linear feet of six-inch PVC SDR-18 to connect the units and to prepare for installation of the second set of tablet feeders.

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 consistent with plans and specifications signed and sealed by Emily Wicoff, P.E., Snyder & Associates, 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 Kansas City Regional Office per 10 CSR 20-7.015(9)(G).
5. The wastewater treatment facility shall be located above the twenty-five (25)-year flood level.
6. 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.
7. 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 <https://dnr.mo.gov/data-e-services/missouri-gateway-environmental-management-mogem>. See <https://dnr.mo.gov/data-e-services/water/electronic-permitting-epermitting> for more information.
8. A United States Army Corps of Engineers (USACE) Clean Water Act Section 404 Department of the Army permit and a Section 401 Water Quality Certification issued by the Department may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied or notification is provided that no Section 404 permit is required by the USACE. You must contact your local USACE district since they determine what waters are jurisdictional and which permitting requirements may apply. You may call the Department's Water Protection Program, Operating Permits Section at 573-522-4502 for more information. See <https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/section-401-water-quality> for more information.
9. All construction must adhere to applicable 10 CSR 20-8 (Chapter 8) requirements listed below.
 - 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)
 - A means of flow measurement shall be provided at all wastewater treatment facilities. 10 CSR 20-8.140(7)(E)
 - Contact period for Chlorine Disinfection. A minimum contact period of fifteen (15) minutes at design peak hourly flow or maximum rate of pumpage shall be provided after thorough mixing. 10 CSR 20-8.190(3)(A)

- Solid dechlorination systems shall not be located in the chlorine contact tank. 10 CSR 20-8.190(4)(B)1.
- Contact time. A minimum of thirty (30) seconds for mixing and contact time of dechlorination systems shall be provided at the design peak hourly flow or maximum rate of pumpage. 10 CSR 20-8.190(4)(B)2.

10. Upon completion of construction:

- A. The Missouri-American Water Company will become the continuing authority for operation and maintenance of these facilities;
- B. Submit an electronic copy of the as built if the project was not constructed in accordance with previously submitted plans and specifications; and
- C. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N)

IV. REVIEW SUMMARY

1. CONSTRUCTION PURPOSE

Construction is necessary to meet final effluent limits for *Escherichia coliform* (*E. coli*) bacteria in the operating permit.

2. FACILITY DESCRIPTION

The existing treatment system includes two septic tanks, a recirculation tank, and two recirculating sand-media filter beds. The system was constructed in about 2004.

The MAWC, Clinton Estates WWTF is located at 8338 SW 208th Street, in Trimble, Clinton County, Missouri. The operating permit lists a design average flow of 74,000 gpd to serve a hydraulic population equivalent of approximately 740 people.

3. COMPLIANCE PARAMETERS

The proposed project is required to meet final *E. coli* effluent limits of 206 colonies per 100 mL as a monthly average and 1,030 colonies per 100 mL as a daily maximum, as established in Operating Permit MO-0129836. Monitoring for effluent dissolved oxygen will also be added. Effluent limits following the completion of construction will be applicable to the facility:

Parameter	Units	Monthly average limit
<i>E. coli</i>	#/100mL	206

4. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

Existing major components that will remain in use include the following:

- 30,000-gallons septic tank followed by a 25,000-gallon septic tank
- 30,000-gallon recirculation tank with 8 pumps

- Sand-media recirculating filter beds (two, approximately 80 feet by 48 feet each), with primary filter media was originally listed as 24-inch treatment depth with an effective size of 1.0 to 3.0 mm and a uniformity coefficient of 3.0. The RSF beds are followed by an 80/20 splitter (80% return; 20% discharge).
- The original (2003) engineering design plans showed a total of four filter beds for a design average flow of 74,000 gpd. However, only half the original design was constructed, and the current configuration (only 2 filter beds) would treat approximately 9.64 gpd/sqft at the permit-listed design flow. The current (as of 2022) regulations, at 10 CSR 20-8.180(3)(D)2., require that the hydraulic loading rate of a RSF not exceed 3.5 gpd/sqft for sand or rock filters. The design flow listed in the current operating permit was not addressed during this review, as the proposed construction was only for disinfection. However, based on 7,680 sq ft (two filter beds that are each approximately 80 feet by 48 feet), the maximum average flow allowed by *current* regulation (at 3.5 gpd/sqft) to properly treat the wastewater would be about 26,880 gpd. It is noted that the average of reported flows since the beginning of 2020 has been approximately 18,276 gpd, with a one-day high of 43,200 gpd during the fourth quarter of 2021. It is recommended that the MAWC evaluate the actual flows and treatment capacity of the existing WWTF and consider either constructing the remaining facility or reducing the permit-listed design flow based on an engineering evaluation of the system. If the WWTF begins to exceed permitted effluent limits, enforcement action may be initiated, and upgrades may be required.

Construction will cover the following items:

- Disinfection components are designed for a Population Equivalent of 740, based on hydraulic loading to the system.
- Disinfection – Disinfection is the process of removal, deactivation, or killing of pathogenic microorganisms.
 - Tablet Chlorinator – Installation of a tablet [Norweco® Bio-Dynamic®, Model ITR 4000-S or approved equal] chlorination chamber receiving clarified effluent and prior to the chlorine contact tank. The tablet chlorinator shall have a design average flow of 50,000 gpd and a maximum (peak-hour) flow of 200,000 gpd. Piping will be configured to allow a second, identical tablet feeder to be installed as flows approach design. The system will dispense hypochlorite as the wastewater comes into contact with the tablets.
 - Chlorine Contact Tank – Installation of a cast-in-place concrete tank approximately 22 ft x 9 ft x 5.15 ft with 3 end-around baffles (one concrete wall and two polycarbonate panels) allowing for at least a 40:1 length to width ratio. The tank will also be equipped with PVC SDR-18 adjustable risers to ensure at least a 15-minute contact time during peak flows, as follows:

Population Served	Design Avg Flow (gpd)	Peak Hourly Flow		Contact Basin Min. Water Depth* for 15 mins detention time (ft)	Potential Incremental Water Depths*	
		(gpd)	(gph)		Water Depth (ft)	Detention Time (min.)
230	23,000	94,990	3,958	0.83	1	18.1
250	25,000	100,000	4,167	0.87	1	17.2
300	30,000	120,000	5,000	1.04	1.5	21.5
350	35,000	140,000	5,833	1.22	1.5	18.5
400	40,000	158,000	6,583	1.38	1.5	16.4
450	45,000	177,750	7,406	1.55	2	19.4
500	50,000	197,500	8,229	1.72	2	17.5
550	55,000	217,250	9,052	1.89	2	15.9
600	60,000	237,000	9,875	2.06	2.54	18.5
650	65,000	256,750	10,698	2.23	2.54	17.0
700	70,000	276,500	11,521	2.41	2.54	15.8
740	74,000	292,300	12,179	2.54	2.54	15.0

* Corresponding riser heights to be 2" to 3" max. lower than depth listed, can be equal or greater for increased detention time

- Tablet Dechlorinator – Installation of a tablet [Norweco® Bio-Dynamic®, Model ITR 4000-S or approved equal] dechlorination chamber receiving the chlorinated effluent and prior to Outfall No. 001. The tablet dechlorinator shall have a design average flow of 50,000 gpd and a maximum (peak-hour) flow of 200,000 gpd. Piping will be configured to allow a second, identical tablet feeder to be installed as flows approach design. The system will dispense sodium sulfite as the wastewater comes into contact with the tablets.
- The facility will install one set of tablet feeders for chlorination and dechlorination, which can treat a daily average flow of up to 50,000 gpd with a peak flow of 200,000 gpd. However, the design average flow listed in the operating permit is 74,000 gpd, which generally has a peak-hour flow of about 12,000 gph (approximately equal to about 290,000 gpd). The operating permit will include a special condition requiring the permittee to have purchased and have on hand a second set of tablet feeders that shall be installed prior to peak flows exceeding 8,333 gph (200,000 gpd), which is the design maximum flow of the chosen set of tablet feeders. The installation of the second set of tablet feeders will be considered maintenance, and no additional construction permit will be required for installation of the second set of tablet feeders (if they meet the specifications listed in this construction permit and approved documents).
- Flow Measurement – Installation of accurate flow measurement devices will give the treatment facility a means of improved data analysis.
 - Weir – The tablet feeder is supplied with interchangeable outlet weir plates for flow measurement and to control chemical dosage. This measurement method does not include flow totalizing or recording.

5. OPERATING PERMIT

Operating permit MO-0129836 will require a modification to reflect the construction activities. The modified MAWC, Clinton Estates WWTF, MO-0129836, was submitted for public notice on March 18, 2022, to add TRC limits, DO monitoring, and additional special conditions regarding the disinfection system. Submit the Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(N) and request the operating permit modification be issued.

This facility does not meet the requirements of the MOGD issued on July 1, 2019, for the following reason: the design flow is greater than 50,000 gpd, and special conditions #15 and #16 are needed.

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>

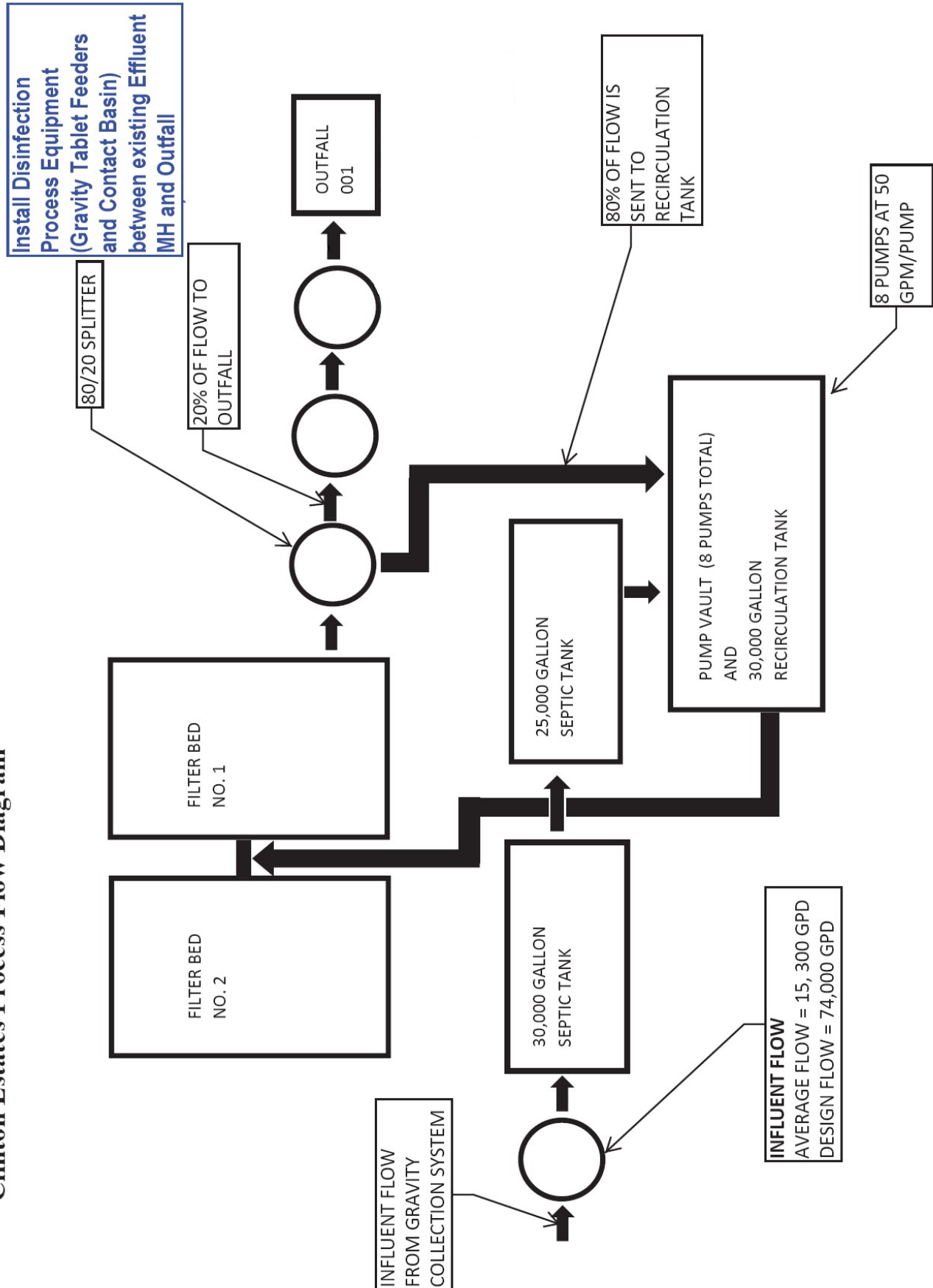
Scott Adams, P.E.
Engineering Section
scott.adams@dnr.mo.gov

APPENDICES

- **Process Flow Diagram**
- **Summary of Design**

Appendix 1 - Process Flow Diagram

Clinton Estates Process Flow Diagram



Appendix 2 – Summary of Design

Clinton Estates WWTF Disinfection Project, Trimble MO Summary of Design

Revised per MoDNR Comments

I **HEREBY CERTIFY** that this design summary was prepared by me or under my direct personal supervision and that I am a duly Registered Professional Engineer under the laws of the State of Missouri.



Emily S. Wicoff, P.E.
MO Registration No. PE-2019042851



802 Francis Street
St. Joseph, MO 64501
816.364.5222

*Clinton Estates WWTF
Disinfection Project*

1. Project Summary:

The Clinton Estates WWTF Disinfection Project consists of adding disinfection capabilities in order to ensure compliance with future E. coli limits. Proposed disinfection is provided in the form of gravity tablet disinfection/chlorination feeders, a concrete basin to provide the required treatment contact time, and gravity tablet dechlorination feeders prior to discharge.

The existing sand filter wastewater treatment plant is intended to accommodate a full build-out population of 740 people, which is much greater than the current 230 people. The proposed basin accommodates the plant's full design capacity, and both current and future high water levels are calculated in this report.

Disinfection Improvements include the following:

- Modifications to existing Effluent Manhole #2 (current sampling manhole) to accommodate the two new effluent lines
- New Concrete Contact Basin
- New Disinfection/Chlorination Tablet Feeder with stub-outs for future installation of second Disinfection Tablet Feeder
- New Dechlorination Tablet Feeder with stub-outs for future installation of second Dechlorination Tablet Feeder
- Upsized Discharge Piping to account for Full Build-out Flows, design peak hour flow Hydraulic Grade Lines, and Tablet Feeder inlets/outlets
- Contact Basin By-Pass Piping for off season months

2. Design Flows:

The new disinfection components must serve current population flows as well as accommodate full residential subdivision buildout in the future.

Population	Average Flow	Peak Hourly Flow	Notes
230 (current)	Actual=15,300 gpd	(not available)	Design flows for current and final build-out are considered in disinfection design; actual average flow is taken into consideration for tablet selection.
	Design=23,000 gpd	94,990 gpd (PF=4.13)	
740 (full build-out)	Design=74,000 gpd	292,300 gpd (PF=3.95)	

* Flow data is provided by Missouri American Water and existing facility NPDES permit.

Peaking factors shown above are calculated per MoDNR's Equation 1-1 found in Publication 2754:

Peaking Factor. The average design flow value shall be used in conjunction with a peaking factor from the following Equation 1-1, included herein [See 10 CSR 20-8.110(3)(B)(1)(B).]

Equation 1-1. Ratio of peak hourly flow to design average flow.

$$\text{Peaking Factor} = Q \text{ Peak Hourly} / Q \text{ Design Avg} = (18 + \sqrt{P}) / (4 + \sqrt{P})$$

Where:

Q Peak Hourly = design peak hourly flow

Q Design Avg = design average flow

P = Population in thousands

*Clinton Estates WWTF
Disinfection Project*

3. **Contact Basin Sizing:**

Per MoDNR Publication 2754, a contact time of 15 mins at peak hourly flow along with a tank minimum length to width ration of 40:1 must be provided:

Contact Period. A minimum contact period of fifteen (15) minutes at design peak hourly flow or maximum rate of pumpage shall be provided after thorough mixing [See 10 CSR 20-8.190(3)(A)]. When evaluating existing chlorine contact tanks, perform field tracer studies to assure adequate contact time.

Contact Tank

- Construct chlorine contact tank to reduce short-circuiting of flow to a practical minimum. Provide "over-and-under" or "end-around" baffling to minimize short-circuiting in tanks not provided with continuous mixing. Install baffles parallel to the longitudinal axis of the chamber with a minimum length to width ratio of forty to one (40:1) (the total length of the channel created by the baffles should be forty (40) times the distance between the baffles).
- Design the tank to facilitate maintenance and cleaning without reducing effectiveness of disinfection. Provide duplicate tanks, mechanical scrapers, or portable deck-level vacuum cleaning equipment. Consider providing skimming devices on all contact tanks.
- Covered tanks are discouraged.
- Provide measures to dewater each contact tank. For additional unit dewatering considerations, refer to subsection 5.3.3.

Peak hourly flows for the future full build-out and current population are assessed. Several contact basin configurations were considered, and the following calculations reflect final design.

A. Full Build-Out Future Population (9'x22' interior basin dimension) = 740 people = 292,300 gpd = (12,179 gph) peak hourly flow

$$\frac{292,300 \text{ gal}}{\text{Day}} \times \frac{1 \text{ day}}{24 \text{ hr}} \times \frac{1 \text{ hr}}{60 \text{ min}} = \frac{203 \text{ gal}}{\text{min}} \times 15 \text{ minutes} \times \frac{1 \text{ ft}^3}{7.48 \text{ gallons}} = 407 \text{ ft}^3$$

Minimum channel length req'd for 40:1 ratio = Provided channel length = **2' w x 40 = 80' long**

$$\text{Water Depth} = \frac{407 \text{ ft}^3}{(2' \text{ wide} \times 80' \text{ long})} = \mathbf{2.54\text{-ft deep} = \text{Contact Basin (HWL}_2 \text{ on Sheet C.02)}}$$

B. Current Population (9'x22' interior basin dimension) = 203 people = 94,990 gpd peak hourly flow

$$\frac{94,990 \text{ gal}}{\text{Day}} \times \frac{1 \text{ day}}{24 \text{ hr}} \times \frac{1 \text{ hr}}{60 \text{ min}} = \frac{65.97 \text{ gal}}{\text{min}} \times 15 \text{ minutes} \times \frac{1 \text{ ft}^3}{7.48 \text{ gallons}} = 132.3 \text{ ft}^3$$

$$\text{Water Depth} = \frac{132.3 \text{ ft}^3}{(2' \text{ wide} \times 80' \text{ long})} = \mathbf{0.83\text{-ft deep} = \text{Contact Basin (HWL}_1 \text{ on Sheet C.01)}}$$

4. **Hydraulic Grade Line (HGL) and Discharge Piping Size:**

Hydraulic Grade Line calculations were performed to confirm potential water elevations within the proposed improvements. In addition, the Hazen-Williams formula was used to calculate pipe capacity and discharge velocity. The following summarizes the analysis and proposed improvement:

- Existing 4-inch discharge pipe has a 2.24% slope, and it appears a friction coefficient of 150 was previously used to meet future peak hourly flow of 292,300 gpd (203 gpm). Discharge velocity is 5.3 fps assuming full pipe flow.
- The HGL from the existing effluent sampling manhole (MH #2 on plans) through discharge was calculated for both 4-inch and 6-inch piping with the new improvements and future 203 gpm peak hourly flow. The proposed HGL must remain less than the MH #2 influent pipe flowline of 945.53 in order to not affect the upstream treatment system hydraulics. A 4-inch pipe provides

*Clinton Estates WWTF
Disinfection Project*

an HGL that is 1.84-ft above MH #2's influent flowline, while a 6-inch pipe HGL is 1.1-ft below. See attached Hydraulic Grade calculations for various scenarios.

- In the Hydraulic Grade Line spreadsheets, a C-coefficient of 120 is used for the PVC pipe to account for a degree of future interior build-up or deterioration, and 100 is used for the concrete channel. Even with a C-coefficient of 150 for new PVC, the HGL for a 4-inch pipe remains above the MH #2 influent flowline.

→ Install a new 6-inch discharge pipe with improvements to accommodate future full build-out peak flow conditions (note: gravity tablet feeders with project appropriate capacity also have 6-inch influent/effluent lines)

5. Dechlorination Contact Time:

Per MoDNR Publication 2754, a contact time of 30 seconds must be provided:

Contact Time. A minimum of thirty (30) seconds for mixing and contact time shall be provided at the design peak hourly flow or maximum rate of pumpage [See 10 CSR 20-8.190(4)(B)2.]. Provide a suitable

Contact Time = $\frac{129 \text{ ft (dist. between dechlor module and outfall)}}{2.30 \text{ ft/s (velocity from attached spreadsheet)}}$ = 56 seconds > 30 seconds → ok

6. Tablet Feeder Selection:

Existing and future flows are coordinated with the supplier of the Norweco gravity tablet feeders. The supplier confirmed that the specified tablet feeders are able to treat flows less than the advertised minimum.

Initial install is to include two tablet feeders, one for disinfection/chlorination and one for dechlorination. Refer to item #6 below and construction plan set illustrating installation of two additional tablet feeders to meet increasing facility demands as the surrounding residential developments are build-out.

7. Future Full Build-out:

The proposed design accommodates both the existing population of 230 people and future full residential development build-out population of 740 people. In addition, the design simplicity allows for PVC risers in the contact basin to be removed and replaced with differing heights to accommodate any design range of flows between now and full build-out. The following chart provides guidance on riser height vs. flows and is available for incorporation into the overall facility operations and maintenance manual:

Population Served	Design Avg Flow (gpd)	Peak Hourly Flow		Contact Basin Min. Water Depth* for 15 mins detention time (ft)	Potential Incremental Water Depths*	
		(gpd)	(gph)		Water Depth (ft)	Detention Time (min.)
230	23,000	94,990	3,958	0.83	1	18.1
250	25,000	100,000	4,167	0.87	1	17.2
300	30,000	120,000	5,000	1.04	1.5	21.5
350	35,000	140,000	5,833	1.22	1.5	18.5
400	40,000	158,000	6,583	1.38	1.5	16.4
450	45,000	177,750	7,406	1.55	2	19.4
500	50,000	197,500	8,229	1.72	2	17.5
550	55,000	217,250	9,052	1.89	2	15.9
600	60,000	237,000	9,875	2.06	2.54	18.5
650	65,000	256,750	10,698	2.23	2.54	17.0
700	70,000	276,500	11,521	2.41	2.54	15.8
740	74,000	292,300	12,179	2.54	2.54	15.0

* Corresponding riser heights to be 2" to 3" max. lower than depth listed, can be equal or greater for increased detention time

*Clinton Estates WWTF
Disinfection Project*

Referring to Sheet C.02, the following steps are required once subdivision growth exceeds single disinfection tablet feeder/single dechlorination tablet feeder capacity ($>200,000 \text{ gpd} = 8,333 \text{ gph} = 138 \text{ gpm}$). Wall penetrations and pipe extensions beyond basin walls are installed with initial improvements for ease of implementation.

A. Complete Effluent Line 2 connection between Effluent MH#2 stub-out and Contact Basin stub-out:

- Install approximately 4.5 LF SDR18, including one 45-degree bend
- Install second Norweco ITR4000-S disinfection/chlorination gravity tablet feeder
- Remove plug and riser/90-degree bend installed in Effluent MH#2 to accommodate future growth to allow flow to enter Effluent Line 2

B. Complete Effluent Line 2 connection between Contact Basin stub-out and wye into 6" SDR18 line installed with initial improvements:

- Install second Norweco ITR4000-S dechlorination gravity tablet feeder
- Install approximately 4.5 LF SDR18, including one 45-degree bend and one wye to tie-in
- Take cap off of effluent Riser 2 and ensure Riser 1 is replaced to minimum elevation corresponding to peak hourly flow (see chart on previous page).



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: N/A ☐ 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 Disinfection Equipment Project Only (exempt per 10 CSR 20-6010.(4)(B)1.)
- 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.

**Fee already paid by Kissick
Construction Co., see attached
confirmation email**

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT Clinton Estates WWTF Disinfection	2.2 ESTIMATED PROJECT CONSTRUCTION COST \$ 55k est.
2.3 PROJECT DESCRIPTION Addition of concrete contact chamber with baffles and two tablet feeders (one tablet feeder for chlorination and one tablet feeder for dechlorination). Proposed design accommodates both existing and future full build-out design flows.	
2.4 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION (Not applicable to proposed disinfection equipment improvements)	
2.5 DESIGN INFORMATION A. Current population: <u>230</u> ; Design population: <u>740</u> B. Actual Flow: <u>15.3k</u> gpd; Design Average Flow: <u>74k</u> gpd; Actual Peak Daily Flow: <u>61.2k</u> gpd; Design Maximum Daily Flow: <u>328k</u> gpd; Design Wet Weather Event: _____	
2.6 ADDITIONAL INFORMATION A. Is a topographic map attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO B. Is a process flow diagram attached? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	

3.0 WASTEWATER TREATMENT FACILITY				
NAME MAWC, Clinton Estates WWTF (MO-0129836)		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS
ADDRESS (PHYSICAL) 0.15 mi E of intersection of SW Michelle		CITY Trimble	STATE MO	ZIP CODE 64492
COUNTY Clinton				
Wastewater Treatment Facility: Mo- 0129836 (Outfall 1 Of 1)				
3.1 Legal Description: _____ 1/4, _____ 1/4, _____ 1/4, Sec. 23, T 54N, R 33W (Use additional pages if construction of more than one outfall is proposed.)				
3.2 UTM Coordinates Easting (X): 364876 Northing (Y): 4370320 For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)				
3.3 Name of receiving streams: Tributary to Dicks Creek				
4.0 PROJECT OWNER				
NAME Missouri-American Water Company		TELEPHONE NUMBER WITH AREA CODE (816) 752-8106		E-MAIL ADDRESS Roger.W.Sparks@amwater.com
ADDRESS 727 Craig Road		CITY Creve Coeur	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 (same as Project Owner above)		TELEPHONE NUMBER WITH AREA CODE		E-MAIL ADDRESS
ADDRESS		CITY	STATE	ZIP CODE
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 Emily Wicoff / Snyder & Associates, Inc.		TELEPHONE NUMBER WITH AREA CODE 816-364-5222(o) / 913-626-9337(c)		E-MAIL ADDRESS ewicoff@snyder-associates.com
ADDRESS 802 Francis St.		CITY St. Joseph	STATE MO	ZIP CODE 64501
7.0 APPLICATION FEE				
<input type="checkbox"/> CHECK NUMBER <input type="checkbox"/> JETPAY CONFIRMATION NUMBER <div style="border: 1px solid blue; padding: 2px; display: inline-block; color: blue;"> Fee already paid by Kissick Construction Co., see attached confirmation email </div>				
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 Roger Sparks			DATE 11/19/2021	
TITLE OR CORPORATE POSITION Engineering Manager		TELEPHONE NUMBER WITH AREA CODE 816-752-8106		E-MAIL ADDRESS Roger.W.Sparks@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.				