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

APR 24 2014

Ms. Christina A. Maggi, City Administrator
City of Clinton
105 E. Ohio Street
Clinton, MO 64735

RE: AP#17878 Wastewater Treatment Plant Improvements – Clinton Wastewater Treatment Facility, MO-0097390, Construction Permit CP0001634

Dear Ms. Maggi:

The Missouri Department of Natural Resources' (Department) Water Protection Program has reviewed the plans and specifications submitted by Kent Newport, P.E. of HDR Engineering, Incorporated for the City of Clinton. Please find enclosed Construction Permit No. CP0001634.

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

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

If you were adversely affected by this decision, you may appeal to have the matter heard by the Administrative Hearing Commission. To appeal, you must file a petition with the Administrative Hearing Commission 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 Administrative Hearing Commission.

If you have any questions concerning this matter, please contact Steve Busch, of the Water Protection Program, at (573) 526-7558 or at steve.busch@dnr.mo.gov or Missouri Department of Natural Resources, P.O. Box 176, Jefferson City, MO 65102-0176.

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

Sincerely,

WATER PROTECTION PROGRAM

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

RHM:ig

Enclosures

c: Kent Newport, P.E.; HDR Engineering, Inc.
Kansas City Regional Office
File Copy

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

CONSTRUCTION PERMIT

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

City of Clinton
105 E. Ohio Street
Clinton, MO 64735

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.

April 24, 2014
Effective Date

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

April 23, 2016
Expiration Date

John Madras
Director of Staff, Clean Water Commission or Designee

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The Clinton wastewater treatment facility (WWTF) consists of headworks & grit removal, two (2) oxidation ditches, three (3) secondary clarifiers, ultraviolet (UV) disinfection, aerated sludge basin, two (2) sludge holding lagoons, and two (2) stormwater holding basins. Sludge is land applied. The facility is designed to treat 2.0 million gallons per day (MGD) for a population equivalent of 18,327.

The City of Clinton wishes to replace the existing west (No. 1) clarifier, replace the UV disinfection system, and add a new belt filter press facility. The clarifier replacement will increase the concrete basin depth by 2-feet and include new cage drive mechanism. The new UV disinfection system will be a Trojan UV 3000 open channel system which will replace an existing closed pipe disinfection system. The new belt filter press facility will include an AeroMod Tritan 1500 belt filter press, which will enhance sludge management flexibility for the facility.

II. FINDING OF AFFORDABILITY

The Finding of Affordability is not applicable. While the permittee is a publicly owned treatment works, the proposed project is the result of equipment replacement needs. No permit modifications are required as a result of this proposed project.

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 HDR Engineering, Incorporated received on March 12, 2014, with amends received on April 1, 2014.

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 XX Regional Office per 10 CSR 20-7.015(9)(E)2.

5. This Construction Permit is invalid for projects required to comply with the requirements contained in 10 CSR 20-4, "Grants and Loans"

6. Protection of drinking water supplies shall be in accordance with 10 CSR 20-8.120(10). "There shall be no physical connections between a public or private potable water supply system and a sewer, or appurtenance thereto which would permit the passage of any wastewater or polluted water into the potable supply. No water pipe shall pass through or come in contact with any part of a sewer manhole."

7. Sewers in relation to water works structures shall meet the requirements of 10 CSR 23-3.010 with respect to minimum distances from public water supply wells or other water supply sources and structures.

   A. Sewer mains shall be laid at least ten 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 ten 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 ten feet horizontally from any existing or proposed water main.

   C. 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 ten feet on both sides of the crossing, measured perpendicular to the water main. The carrier pipe shall be of materials approved by the Department for use in water main construction.

8. In addition to the requirements for a construction permit, 10 CSR 20-6.200 requires land disturbance activities of one acre or more to obtain a Missouri State Operating Permit to discharge stormwater. The permit requires Best Management Practices sufficient to control runoff and sedimentation to protect waters of the state. Land disturbance permits will only be obtained by means of the Department's ePermitting system available online at www.dnr.mo.gov/env/wpp/epermit/help.htm. See www.dnr.mo.gov/env/wpp/stormwater/sw-land-disturb-permits.htm for more information.

9. A United States (U.S.) Army Corps of Engineers (COE) permit (404) and a Water Quality Certification (401) issued by the Department or permit waiver may be required for the activities described in this permit. This permit is not valid until these requirements are satisfied. If construction activity will disturb any land below the ordinary high water mark of Jurisdictional Waters of the U.S. then a 404/401 will be required. Since the COE makes determinations on what is jurisdictional, you must contact the COE to determine permitting requirements. You may call the Department's Water Protection Program at 573-751-1300 for more information. See www.dnr.mo.gov/env/wpp/401/ for more information.

10. Upon completion of construction;

A. The City of Clinton will remain 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 built" drawings if the project was not constructed in accordance with previously submitted plans and specifications; and

IV. REVIEW SUMMARY

1. AMMONIA

The Water Protection Program is providing this notice to inform permittees that EPA's published ammonia criteria for aquatic life protection is lower than the current Missouri criteria. The department has initiated stakeholder discussions on this topic and at this time, there is no firm target date for starting the rulemaking to adopt new standards. More information can be found at http://dnr.mo.gov/pubs/pub2481.pdf .

2. CONSTRUCTION PURPOSE

West Clarifier Replacement: The Clinton WWTF was originally constructed with two clarifiers with shallow side water depth. In 1998 a third clarifier was added with a deeper configuration to improve solids management. This project will replace one of the original clarifiers with a unit having the deeper configuration to improve peak flow solids removal.

UV Disinfection System: The existing closed pipe UV system and piping configuration will not allow more than 2.3 MGD of flow through the facility even though the system is designed for a 4.0 MGD peak flow. This is because of the inverted siphon piping arrangement. The new facility will be constructed in line with the effluent pipe downstream of the existing UV facility. The new open channel Trojan UV3000 unit has a design peak flow capacity of 5.7 MGD and is expandable to 8.6 MGD. The new system will be housed in a new 18' X 34' UV Disinfection Building.

New Belt Filter Press Facility: The new facility is intended to supplement the existing sludge land application process. Aerated sludge basins, sludge holding lagoons, and the land application process will remain in operation. The new belt filter press facility is intended to add flexibility to the sludge management process when solids cannot be land applied during frozen, snow covered, or wet weather periods. Sludge process with the new belt filter press will be hauled to a solid waste management facility (i.e., landfill) or land applied with a manure spreader.

3. FACILITY DESCRIPTION

The Clinton wastewater treatment facility (WWTF) consists of headworks & grit removal, two (2) oxidation ditches, three (3) secondary clarifiers, ultraviolet (UV) disinfection, aerated sludge basin, two (2) sludge holding lagoons, and two (2) stormwater holding basins. Sludge is land applied. The facility is designed to treat 2.0 million gallons per day (MGD) for a population equivalent of 18,327.

The City of Clinton wishes to replace the existing west (No. 1) clarifier, replace the UV disinfection system, and add a new belt filter press facility. The clarifier replacement will increase the concrete basin depth by 2-feet and include new cage drive mechanism. The new UV disinfection system will be a Trojan UV 3000 open channel system which will replace an existing closed pipe disinfection system. The new belt filter press facility will include an AeroMod Tritan 1500 belt filter press, which will enhance sludge management flexibility for the facility.

4. COMPLIANCE PARAMETERS

The replacement of the clarifier is intended to aid in meeting total suspended solids permit effluent limits in a peak flow operating scenario. The new UV disinfection system will make compliance with *E.coli* limits more viable during peak flow conditions. Compliance with *Part III – Sludge and Biosolids from Domestic and Industrial Wastewater Treatment Facilities,* of the permit's Standard Conditions will be enhanced with the addition of the new belt filter press facility.

5. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

The design criteria for the clarifier are consistent with 10 CSR 20-8.160(4), *Design Considerations*. The UV disinfection system is capable of providing a UV dose $\geq$ 30.0 mJ/cm^2 ; which is consistent with *Recommended Standards for Wastewater Facilities*, 2004 Edition by the **Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers** (10 States Standards). The new belt filter press facility design criteria are consistent with the Design Guides, 10 CSR 20-8.170, *Sludge Handling and Disposal*.

6. OPERATING PERMIT MODIFICATION

Operating permit MO-0097390 will not require a modification to reflect the construction activities.

Review Engineer: Stephen P. Busch
Unit Chief Approval: Cindy LePage
Date: April 03, 2014

RECEIVED CP0001634

AP17878 C12991

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM MAR 12 2014

APPLICATION FOR CONSTRUCTION PERMIT – WASTEWATER TREATMENT FACILITY

WATER PROTECTION PROGRAM

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
FEE RECEIVED $2200.00	CHECK NO. 85114
DATE RECEIVED 3/12/14	SB

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: _____
☑ Attached is the No Degradation Evaluation Conclusion of Antidegradation Review form

1.3 Has the department approved the proposed project's facility plan*?
☑ YES Date of Approval: 2012 ☐ NO ☐ N/A (If Not Applicable, complete No. 1.4.)

1.4 [Complete only if answered Not Applicable on No. 1.3.] Is a copy of the engineering report* for wastewater treatment facilities with a design flow less than 22,500 gpd included with this application?
☐ YES ☐ NO

1.5 Is a copy of the appropriate plans* and specifications* included with this application?
☑ YES Denote which form is submitted: ☐ Hard copy ☑ Electronic copy (See instructions.) ☐ NO

1.6 Is a summary of design* included with this application? ☑ YES ☐ NO

1.7 Has the appropriate operating permit application (A, B, or B2) been submitted to the department?
☐ YES Date of submittal: _____
☑ Enclosed is the appropriate operating permit application submittal. Denote which form: ☐ A ☐ B ☑ B2
☐ N/A Please explain: _____

1.8 Is the facility currently under enforcement with the department or the Environmental Protection Agency? ☐ YES ☑ NO

1.9 Is the appropriate fee included with this application? ☑ YES ☐ NO (See instructions for appropriate fee.)

* Must be affixed with a Missouri registered professional engineer's seal, signature and date.

2.0 PROJECT INFORMATION

2.1 NAME OF PROJECT

Wastewater Treatment Plant Improvements, City of Clinton, MO

2.2 PROJECT DESCRIPTION

Replace existing closed pipe UV disinfection system with a open channel UV disinfection facility with a capacity of 5.7-MGD. Add a Belt Filter Press Facility to dewater sludge (180-gpm at 1% solids and 900 lbs/hr). The existing land application process facilities will remain in operation. As an Add Alternate, replace the existing west clarifier basin and mechanism. The diameter of the clarifier will remain the same but the depth will increase by 2+ feet. The design flow rate of the clarifier is 1.5 - MGD with MLSS 3,000 mg/L.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

The existing sludge is land applied on property at the plant. The belt filter press will allow the city to haul dewatered sludge to a landfill when weather or equipment problems prevent land application of the sludge.

2.4 DESIGN INFORMATION

A. Current population: 9,100 ; Design population: 18,327

B. Actual Flow: 1.57 gpd; Design Average Flow: 2.0 gpd;
Actual Peak Daily Flow: 2.4 gpd; Design Maximum Daily Flow: 4.0 gpd

2.5 ADDITIONAL INFORMATION

A. Is a topographic map attached? ☑ YES ☐ NO

B. Is a process flow diagram attached? ☑ YES ☐ NO

3.0 WASTEWATER TREATMENT FACILITY

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Clinton Wastewater Treatment Plant (WWTP)	660-885-6611	wseaton@cityofclintonmo.com

ADDRESS (PHYSICAL)	CITY	STATE	ZIP CODE	COUNTY
1101 S. Vansant Rd.	Clinton	MO	64735	Henry

Wastewater Treatment Facility: Mo- (Outfall 001 Of 1)

3.1 Legal Description: ____ ¼, SW ¼, SW ¼, Sec. 12, T 41N, R 26W
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 434201 Northing (Y): 4245186
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: Coal Creek

4.0 PROJECT OWNER

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
City of Clinton	(660) 885-6121	CMaggi@CITYOFCLINTONMO.COM

ADDRESS	CITY	STATE	ZIP CODE
105 E. Ohio Street	Clinton	MO	64735

5.0 CONTINUING AUTHORITY: Permanent organization that will serve as the continuing authority for the operation, maintenance and modernization of the wastewater collection system.

NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Same as above		

ADDRESS	CITY	STATE	ZIP CODE

5.1 A letter from the continuing authority, if different than the owner, is included with this application. ☐ YES ☐ NO ☑ N/A

5.2 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A MISSOURI PUBLIC SERVICE COMMISSION REGULATED ENTITY.

A. Is a copy of the certificate of convenience and necessity included with this application? ☐ YES ☑ NO

5.3 COMPLETE THE FOLLOWING IF THE CONTINUING AUTHORITY IS A PROPERTY OWNERS ASSOCIATION.

A. Is a copy of the as-filed restrictions and covenants included with this application? ☐ YES ☑ NO

B. Is a copy of the as-filed warranty deed, quitclaim deed or other legal instrument which transfers ownership of the land for the wastewater treatment facility to the association included with this application? ☐ YES ☑ NO

C. Is a copy of the as-filed legal instrument (typically the plat) that provides the association with valid easements for all sewers included with this application? ☐ YES ☑ NO

D. Is a copy of the Missouri Secretary of State's nonprofit corporation certificate included with this application? ☐ YES ☑ NO

6.0 ENGINEER

ENGINEER NAME / COMPANY NAME	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
Kenton Newport, PE / HDR Engineering, Inc.	(816) 347-1123	Kenton.Newport@hdrinc.com

ADDRESS	CITY	STATE	ZIP CODE
3741 NE Troon Drive	Lee's Summit	MO	64064-1988

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 Christina A. Maggi

PRINTED NAME	DATE
CHRISTINA A. MAGGI	2/19/14

TITLE OR CORPORATE POSITION	TELEPHONE NUMBER WITH AREA CODE	E-MAIL ADDRESS
CITY ADMINISTRATOR	660-885-6121	CMaggi@cityofclintonmo.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.

PART B – LAND APPLICATION ONLY
(Submit only if the proposed construction project includes land application of wastewater.)

8.0 FACILITY INFORMATION

8.1 Type of wastewater to be irrigated: ☐ Domestic ☐ State/National Park ☐ Seasonal business
☐ Municipal ☐ Municipal with a pretreatment program or significant industrial users
☐ Other (explain) _____

8.2 Months when the business or enterprise will operate or generate wastewater:
☐ 12 months per year ☐ Part of the year (list months): _____

8.3 This system is designed for:
☐ No-discharge.
☐ Partial irrigation when feasible and discharge rest of time.
☐ Irrigation during recreational season, April – October, and discharge during November – March.
☐ Other (explain) _____.

9.0 STORAGE BASINS

9.1 Number of storage basins: _____ (Use additional pages if greater than three basins.)

9.2 Type of basins: ☐ Steel ☐ Concrete ☐ Fiberglass ☐ Earthen ☐ Earthen with membrane liner

9.3 Storage basin dimensions at inside top of berm (feet). Report freeboard as feet from top of berm to emergency spillway or overflow pipe.
Basin #1: Length _____ Width _____ Depth _____ Freeboard _____ Berm Width _____ % Slope _____
Basin #2: Length _____ Width _____ Depth _____ Freeboard _____ Berm Width _____ % Slope _____
Basin #3: Length _____ Width _____ Depth _____ Freeboard _____ Berm Width _____ % Slope _____

9.4 Storage Basin operating levels (report as feet below emergency overflow level).
Basin #1: Maximum operating water level _____ ft Minimum operating water level _____ ft
Basin #2: Maximum operating water level _____ ft Minimum operating water level _____ ft
Basin #3: Maximum operating water level _____ ft Minimum operating water level _____ ft

9.5 Design depth of sludge in storage basins.
Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.6 Existing sludge depth, if the basins are currently in operation.
Basin #1: _____ ft Basin #2: _____ ft Basin #3: _____ ft

9.7 Total design sludge storage: _____ dry tons and _____ cubic feet

10.0 LAND APPLICATION SYSTEM

10.1 Number of irrigation sites _____ Total Acres _____ Maximum % field slopes _____
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ ¼, _____ ¼, _____ ¼, _____ Sec. _____ T _____ R _____ County _____ Acres
(Use additional pages if greater than three irrigation sites.)

10.2 Type of vegetation: ☐ Grass hay ☐ Pasture ☐ Timber ☐ Row crops
☐ Other (describe) _____

10.3 Wastewater flow (dry weather) gallons per day: Average annual _____ Seasonal _____ Off-season _____

10.4 Land application rate (design flow including 1-in-10 year storm water flows):
Design: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week
Actual: _____ inches/year _____ inches/hour _____ inches/day _____ inches/week

10.5 Total irrigation per year (gallons): Design: _____ gal Actual: _____ gal

10.6 Actual months used for irrigation (check all that apply):
☐ Jan ☐ Feb ☐ Mar ☐ Apr ☐ May ☐ Jun ☐ Jul ☐ Aug ☐ Sep ☐ Oct ☐ Nov ☐ Dec

10.7 Land application rate is based on:
☐ Hydraulic Loading ☐ Other (describe) _____
☐ Nutrient Management Plan (N&P) If N&P is selected, is the plan included? ☐ YES ☐ NO