

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION



CONSTRUCTION PERMIT

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

Senath
P.O. Box 609
Senath, MO 63876

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.

August 29, 2014
Effective Date


Sara Parker Pauley, Director, Department of Natural Resources

August 28, 2016
Expiration Date


John Madras, Director, Water Protection Program

CONSTRUCTION PERMIT

I. CONSTRUCTION DESCRIPTION

The existing Senath aerated lagoon is to be replaced with a “LemTec Biological Treatment Process”. The LemTec Process consists of complete mix aeration zone, partial mix aeration zone and a settling zone in a three cell, covered lagoon (insulated cover – R8); followed by a Lemna polishing reactor. The LemTec system has a design flow of 256,000 gallons per day (gpd) for a design population equivalent (PE) of 2,330. The new facility will also use ultraviolet (UV) disinfection of the effluent for *E. coli* control.

II. FINDING OF AFFORDABILITY

An Affordability Determination and Finding was performed in accordance with RSMO §644.145 and is enclosed with this construction permit. The Department finds the project is affordable with a medium to high economic burden to the community.

See Appendix.

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 Waters Engineering, Incorporated with received on dates of July 7 and July 31, 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 SE 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. A full closure plan shall be submitted to the Department's SE Regional Office for review and approval of any permitted wastewater treatment system being replaced. 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 No. MO- 0048666. Closure shall not commence until the submitted closure plan is approved by the Department.
11. Upon completion of construction;
 - A. The City of Senath will become the continuing authority for operation, maintenance, and modernization of these facilities;
 - B. Submit the enclosed form Statement of Work Completed to the Department in accordance with 10 CSR 20-6.010(5)(D);
 - C. Submit an electronic copy of the "as built" drawings if the project was not constructed in accordance with previously submitted plans and specifications; and
 - D. When renewing the operating permit, the permittee will be expected to include an updated facility description on their application.

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> .

The permittee was aware of EPA's published ammonia criteria during the design phase of this project. The design firm stated in July 2014 correspondence to the Department – "In addition, the upcoming Ammonia Criteria issued by EPA was taken into account during this design. Recirculation facilities are being provided to meet the estimated future limits for ammonia."

2. CONSTRUCTION PURPOSE

The LemTec system proposed for this project is intended to provide improved overall treatment and promote nitrification, resulting in ammonia discharge levels below 1 mg/L. The new facility will also use ultraviolet (UV) disinfection of the effluent for *E. coli* control.

3. FACILITY DESCRIPTION

The existing Senath aerated lagoon is to be replaced with a "LemTec Biological Treatment Process". The LemTec Process consists of complete mix aeration zone, partial mix aeration zone and a settling zone in a three cell, covered lagoon (insulated cover – R8); followed by a Lemna polishing reactor. The LemTec system has a design flow of 256,000 gallons per day (gpd) for a design population equivalent (PE) of 2,330.

4. COMPLIANCE PARAMETERS

The current Senath WWTF has exceeded BOD, TSS, *E. Coli*, and pH limits historically. The proposed facility should help eliminate these occurrences of effluent limitation exceedance, if the facility is operated and maintained properly. The proposed facility also has enhanced nitrification capabilities when compared to the current system. This will allow the facility to reduce the quantity of ammonia discharged in anticipation of limits that may result from EPA's published ammonia criteria for the protection of aquatic life.

5. REVIEW of MAJOR TREATMENT DESIGN CRITERIA

While the LemTec system is not specifically addressed in 10 CSR 20-8, *Design Guides*, the proposed design is consistent with criteria for an aerated lagoon specified in the 10 CSR 20-8.200 of the *Design Guides*. This facility is designed based on a detention time of 16.6 days and aeration capacity of approximately 11 lb. O₂/lb. BOD, both greater than the minimum criteria in the *Design Guides*. The excess O₂ capacity is partially intended to promote nitrification. The polishing/settling cell has a volume fraction of 0.38 of the treatment basin, better than the minimum requirement of the *Design Guides*. The design of the UV disinfection system is consistent with Chapter 104 of *Recommended Standards for Wastewater Facilities* (2004 Edition, 10 States Standards; facility design UV dose - 35 mJ/cm² @65% transmittance).

6. OPERATING PERMIT MODIFICATION

It is expected that the facility owner will include a new facility description in their next operating permit renewal application to reflect the installation of the LemTec Biological Treatment Process and UV disinfection system.

Review Engineer: Stephen P. Busch, P.E.
Unit Chief Approval: Cindy LePage, P.E.
Date: Aug. 19, 2014
Steve.Busch@dnr.mo.gov

APPENDICES

- **Affordability**

APPENDIX – AFFORDABILITY ANALYSIS

Missouri Department of Natural Resources
Water Protection Program
Affordability Determination and Finding
(In accordance with RSMo 644.145)

City of Senath, Dunklin County, MO-0048666
Failure to upgrade, Failure to Complete Schedule of Compliance

Section 644.145 RSMo requires the Missouri Department of Natural Resources to make a “finding of affordability” when “issuing permits under” or “enforcing provisions of” state or federal clean water laws“ pertaining to any portion of a combined or separate sanitary sewer system or publicly-owned treatment works.”

Description:

The city of Senath’s wastewater treatment facility is a three (3)-cell aerated lagoon with baffles. The lagoon has a design population of 2,330, a design flow of 0.256 million gallons per day (MGD), and is located in the NW¼, SW¼, Section 12, Township 17 North, Range 8 East of the Senath Quadrangle of Dunklin County and discharges effluent to Pole Cat Slough pursuant to Missouri State Operating Permit (MSOP) number MO-0048666. The MSOP was issued September 1, 2006, and expired by its own terms on August 31, 2011.

Residential Connections ¹ :	677
Commercial Connections:	17
Total Connections:	694

New Permit Requirements or Requirements Now Being Enforced:

The MSOP included a schedule of compliance (SOC) requiring the city to submit an engineering report by August 31, 2007, evaluating the lagoon’s ability to comply with current effluent limitations and final effluent limitations for Fecal Coliform (FC) and if applicable Total Residual Chlorine (TRC) that became effective August 30, 2011. The permit also required the city to install a disinfection system, or submit either an evaluation showing disinfection is not necessary to protect one or both of the recreational uses of the receiving stream or a use attainability analysis stating that one or both recreational uses are not attainable in the receiving stream. To date, the Department has not received an engineering report, and discharge monitoring reports submitted by the city for October 2011, and April, May, June and July 2012, indicate that the effluent produced by the lagoon is in violation of the final permitted effluent limitation for FC.

¹ Oct. 3, 2012 electronic correspondence from Waters Engineering on behalf of the city.

Range of Anticipated Costs Associated with Complying with Requirements:

The Department is drafting a new MSOP to replace the expired MSOP which will contain a SOC to meet final effluent limitations for Ammonia as Nitrogen. The capital costs for upgrades that will allow the lagoon to comply with effluent limitations for disinfection are estimated to be \$131,000.00. The capital costs for upgrades that will allow the lagoon to comply with effluent limitations for Ammonia as Nitrogen are estimated to range from \$1,103,200.00 to \$2,585,280.00.

The additional annual costs for operation of the facility are estimated to be \$5,800.00 for upgrades that will allow the lagoon to comply with effluent limitations for E. coli and \$108,500.00 to \$162,690.00² for upgrades that will allow the lagoon to comply with effluent limitations for Ammonia as Nitrogen.

The city has stated that additional funding will be required for the upgrades that will allow the lagoon to comply with effluent limitations for Ammonia as Nitrogen. The user rate is estimated to increase from \$19.00 to between \$36.00 and \$54.00 per month.

(1) A community's financial capability and ability to raise or secure necessary funding

(examine key indicators of the community's ability to raise funds);

Current User Rates	<u>\$19.00/month * 12 months =</u> <u>\$228.00/year</u>
Municipal Bond Rating <i>(if applicable):</i>	<u>Not Rated</u>
Bonding Capacity:	<u>\$1,223,833.00</u>
Current Outstanding Debt:	<u>\$994,740.87</u>

The city has indicated that it will begin the application process for a Missouri State Revolving Fund Loan and funding through the United States Department of Agriculture Rural Development and the Missouri Department of Economic Development.

(2) Affordability of pollution control options for the individuals or households of the community;

The city raised its user rate to the current level July 1, 2012, and that rate should be sufficient to pay for the disinfection upgrades, but the city will be required to upgrade its facility to produce effluent that will meet final effluent limitations for Ammonia in the next permit cycle and would like to delay the disinfection upgrades until they are ready to proceed with the Ammonia upgrades. The city has indicated that it will require external funding to complete the Ammonia upgrades.

² CAPDEWORKS construction cost estimate spreadsheet developed by the Department's Water Protection Program

Current annual operating costs (*exclude depreciation*): \$253,994.00

Current user rate: \$19.00/5,000 gallons per month,
\$228.00 annually

Estimated capital cost of pollution control options: \$1,103,200.00 to \$2,585,280.00
(Ammonia)
\$131,000.00 (disinfection)

Annual cost of additional (*operating costs and debt service*): \$108,500.00 to \$162,690.00
(Ammonia)
\$5,800.00 (disinfection)

Estimated resulting user rate: \$36.00 to \$54.00/5,000 gallons per
month, \$432.00 to 648.00 annually
(19.00+\$17.00 to 35.00= \$36.00 to 54.00)

Median Household Income (MHI) \$25,141.00

Usage Rates as a percent of MHI: 1.71 to 2.58%
(36x12=432./25,141.00=0.0171x100=1.71%;
54x12=648./25,141.00=0.0258x100=2.58%)

Check Appropriate Box	Financial Impact	Residential Indiciary (Usage Rate as a percent of MHI)
<input type="checkbox"/>	Low	Less than 1% MHI
<input checked="" type="checkbox"/>	Medium	Between 1% and 2% MHI
<input checked="" type="checkbox"/>	High	Greater than 2% MHI

(3) An evaluation of the overall costs and environmental benefits of the control technologies;

Capital costs for the UV disinfection are estimated at \$131,100.00, and additional annual operation costs for the disinfection are estimated at \$5,800.00. Capital costs for upgrades that will allow the lagoon to comply with effluent limitations for Ammonia as Nitrogen are estimated to range from \$1,103,200.00 to \$2,585,280.00. The additional annual costs for operation of the facility are estimated to be \$108,500.00 to \$162,690.00 for upgrades that will allow the lagoon to comply with effluent limitations for Ammonia as Nitrogen. The city has stated that additional funding will be required for the upgrades that will allow the lagoon to comply with effluent limitations for Ammonia as Nitrogen. The resulting increase in user rate is estimated to be \$17.00 to \$43.00 per month.

The receiving stream for the city’s facility is Pole Cat Slough, a class P stream, which is listed on the 303(d) list for 2010 due to low Dissolved Oxygen (DO), and has beneficial uses of Livestock and Wildlife Watering, Protection of Warm Water Aquatic Life and Human Health—Fish Consumption, and Whole Body Contact Recreation (B). The discharge of effluent that does not comply with permitted effluent limitations contributes to the further impairment of the receiving stream and endangers the aquatic life in the stream, livestock, wildlife, and public health. Such discharges have the potential to contaminate lakes and streams causing serious water quality problems that negatively impact the beneficial uses. Upgrading the facility will improve the effluent discharged and improve water quality in the receiving stream to protect the beneficial uses as described above.

(4) An inclusion of ways to reduce economic impacts on distressed populations in the community, including but not limited to low and fixed income populations. This requirement includes but is not limited to:

- (a) Allowing adequate time in implementation schedules to mitigate potential adverse impacts on distressed populations resulting from the costs of the improvements and taking into consideration local community economic considerations; and
- (b) Allowing for reasonable accommodations for regulated entities when inflexible standards and fines would impose a disproportionate financial hardship in light of the environmental benefits to be gained.

Potentially Distressed Populations	
Unemployment for <i>Senath, Dunklin County</i>	9.9%
Median Household Income <i>Senath, Dunklin County</i>	\$25,141
Percentage Change in MHI ³ (1990–2010)	47.0%
Percent Population Growth/Decline (1990-2010) ⁴	+8.9%
Change in Median Age in Years (1990-2010) ⁵	-7.4
Percent of Households in Poverty ⁶	41.4%
Percent of Households Relying on Food Stamps ⁷	38.4%

³ Median Household Income – 2006-2010 American Community Survey 5-year Estimates – Median Income in the Past 12 months - <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>
1990 Median Household Income - Summary Tape File 3 - <http://mcdc.missouri.edu/websas/xtabs3menu/mo/Places/>
⁴ 2010 Census Population Data - <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>
2000 Census Population Data - <http://www.census.gov/popest/data/cities/totals/2009/tables/SUB-EST2009-04-29.xls>
1990 Census Population Data – <http://www.census.gov/prod/cen1990/cp1/cp-1-27.pdf>
⁵ Median Age – 2010 American Community Survey 5-year Estimates – B01002 – <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?ref=geo&refresh=t>
1990 Median Age - <http://www.oseda.missouri.edu/mscdc/census/mo/trendplaces.html>
⁶ Poverty data – American Community Survey - <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>
⁷ Food stamps – 2006-2010 American community Survey 5-year Estimates – S2201 <http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t>

Opportunity for cost savings or cost avoidance:

The AOC establishes a schedule negotiated with the city to complete upgrades or replacement of the facility to enable the effluent to meet final effluent limitations contained in the MSOP and future effluent limitations for Ammonia as Nitrogen.

Opportunity for changes to implementation/compliance schedule:

The AOC allows adequate time for the city to recommend any upgrades needed to produce effluent that will comply with permit requirements and the Missouri Clean Water Law. The AOC allows the city to submit a request for a time extension to complete any affected obligations included in the AOC if/when the city becomes aware that a milestone will not be met by the required deadline.

(5) An assessment of other community investments relating to environmental improvements;

The city has no other obligations under this AOC.

(6) An assessment of factors set forth in the United States Environmental Protection Agency's guidance, including but not limited to the "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development" that may ease the cost burdens of implementing wet weather control plans, including but not limited to small system considerations, the attainability of water quality standards, and the development of wet weather standards;

Secondary indicators for consideration:

Socioeconomic, Debt and Financial Indicators

Indicators	Strong (3 points)	Mid- Range (2 points)	Weak (1 point)	Score
Bond rating indicator	Above BBB or Baa	BBB or Baa	Below BBB or Baa	Not Rated
Overall net debt as a % of full market property value ⁸	Below 2%	2% - 5%	Above 5%	1 $994,740.87/8,845,216.00=0.1125 \times 100=11.25\%$
Unemployment Rate	>1% below Missouri average	± 1% of Missouri average	>1% above Missouri average	1 $9.9\%-7.0\%=2.9\%$ above MO average
Median household income	More than 25% above Missouri MHI	± 25% of Missouri MHI	More than 25% below Missouri average	1 $\$25,141-\$44,306=\$19,165/44,306=$ $0.4326 \times 100=43.26\% < \text{MO average.}$
Property tax revenues as a % of full market property value	Below 2%	2% - 4%	Above 4%	3 $57,901.00/8,845,216.00=0.00655 \times 100=0.655\%$
Property tax collection rate	Above 98%	94% - 98%	Below 94%	Information not available to the Department at the time the affordability analysis was conducted

Average Score for Financial Capability Matrix: $1+1+1+3+=6/4=1.5=\text{Mid-Range}$

Residential Indicator (calculated at 1.71 to 2.58% from Criteria #2 above): Medium to High

Financial Capability Matrix

Financial Capability Indicators Score from above ↓	Residential Indicator (User rate as a % of MHI)		
	Low (Below 1%)	Mid-Range (Between 1.0% and 2.0%)	High (Above 2.0%)
Weak (below 1.5)	Medium Burden	High Burden	High Burden
Mid-Range (1.5 – 2.5)	Low Burden	Medium Burden*	High Burden*
Strong (above 2.5)	Low Burden	Low Burden	Medium Burden

Estimated Financial Burden: Medium to High

⁸ <http://auditor.mo.gov>, Missouri State Auditor's review of 2011 property tax rates

(7) An assessment of any other relevant local community economic condition.

Senath's population grew 8.9% from 1990-2010. In terms of economic strength, Dunklin County is below average when compared to other counties in the State. The percentage of labor force is 13% below the State average, the per capita wealth⁹ is 44% below the State average, and the per capita income is the 19% below the State's average.

In terms of retail sales, Dunklin County loses retail customers to surrounding counties and county residents spend less than the state average on retail goods and services. The buying power index of Dunklin County residents is about average compared to the rest of the regional economy¹⁰.

Conclusion and Finding

Although the city's median age is younger than the state average and the MHI has grown at an above average rate, its MHI remains lower than average. The city has an unemployment level above state average, a very high reliance on food stamps and its poverty level is significantly higher than the state average. The city plans to fund disinfection upgrades for its lagoon through a recent increase in the sewer user rate, but will need to seek funding for the upgrades needed to meet final effluent limitations for Ammonia as Nitrogen.

As a result of reviewing the above criteria, the Department hereby finds that the city's existing overall financial capability and the impact for most individual customers/households fall in the medium to high burden range, depending on the cost of improvements.

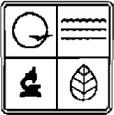
⁹ Per capita wealth is calculated by taking a sum of appraised value of residential property, mobile homes and motor vehicles and this sum is then divided by county population.

¹⁰ http://www.missourieconomy.org/pdfs/se_wia_retail_trade_analysis.pdf

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JUL 07 2014



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

**APPLICATION FOR CONSTRUCTION PERMIT –
WASTEWATER TREATMENT FACILITY**

WATER PROTECTION PROGRAM

FOR DEPARTMENT USE ONLY	
APP NO.	CP NO.
DATE RECEIVED	CHECK NO.
7/7/14	3027

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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: usda 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: _____ 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

Senath WWTF Improvements

2.2 PROJECT DESCRIPTION

Construction of new aerated lagoon with insulated floating covers, nitrifying reactor, recirculating pump station, UV disinfection, and flow measuring structures.

2.3 SLUDGE HANDLING, USE AND DISPOSAL DESCRIPTION

Sludge to be retained in lagoon.

2.4 DESIGN INFORMATION

- A. Current population: 1700; Design population: 2330
- B. Actual Flow: 140000 gpd; Design Average Flow: 256000 gpd;
 Actual Peak Daily Flow: 160000 gpd; Design Maximum Daily Flow: 900000 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 Senath WWTF		TELEPHONE NUMBER WITH AREA CODE 573-738-2346	E-MAIL ADDRESS morgan.kathy87@yahoo.com	
ADDRESS (PHYSICAL) Hornbeck Street	CITY Senath	STATE MO	ZIP CODE 63876	COUNTY Dunklin

Wastewater Treatment Facility: Mo- 0048666 (Outfall 1 Of 1)

3.1 Legal Description: ¼, NW ¼, SW ¼, Sec. 12 , T 17N , R 8E
(Use additional pages if construction of more than one outfall is proposed.)

3.2 UTM Coordinates Easting (X): 755765 Northing (Y): 4001445
For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)

3.3 Name of receiving streams: Pole Cat Slough

4.0 PROJECT OWNER

NAME City of Senath		TELEPHONE NUMBER WITH AREA CODE (573) 738-2346	E-MAIL ADDRESS morgan.kathy87@yahoo.com	
ADDRESS P.O. Box 609	CITY Senath	STATE MO	ZIP CODE 63876	

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 Same as 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. 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 Richard Cochran, Jr., P.E., Waters Engineering, Inc.		TELEPHONE NUMBER WITH AREA CODE (573) 471-5680	E-MAIL ADDRESS rcochran@waterseng.com	
ADDRESS P.O. Box 567	CITY Sikeston	STATE MO	ZIP CODE 63801	

7.0 PROJECT OWNER: I hereby certify that I am familiar with the information contained in this application and to the best of my knowledge and belief such information is true, complete, and accurate, and if granted this permit, I agree to abide by the Missouri Clean Water Law and all rules, regulations, orders, and decisions, subject to any legitimate appeal available to applicant under Missouri Clean Water Law. I also understand the issuance of the construction permit does not guarantee the proposed wastewater treatment will meet the required effluent limitations of the issued Missouri State Operating Permit for this facility.

PROJECT OWNER SIGNATURE


PRINTED NAME
Joe Lane

DATE
 5-30-14

TITLE OR CORPORATE POSITION Mayor	TELEPHONE NUMBER WITH AREA CODE (573) 738-2346	E-MAIL ADDRESS joe.lane38@yahoo.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: _____ 1/4, _____ 1/4, _____ 1/4, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ 1/4, _____ 1/4, _____ 1/4, _____ Sec. _____ T _____ R _____ County _____ Acres
Location: _____ 1/4, _____ 1/4, _____ 1/4, _____ 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):

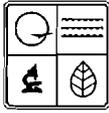
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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

RECEIVED

JUL 07 2016



MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH
FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS PER DAY

WATER PROTECTION PROGRAM

FACILITY NAME Senath Wastewater Treatment Facility	
PERMIT NO. MO-0048666	COUNTY Dunklin

APPLICATION OVERVIEW

Form B2 has been developed in a modular format and consists of Parts A, B and C and a Supplemental Application Information (Parts D, E, F and G) packet. All applicants must complete Parts A, B and C. Some applicants must also complete parts of the Supplemental Application Information packet. The following items explain which parts of Form B2 you must complete. Submittal of an incomplete application may result in the application being returned.

BASIC APPLICATION INFORMATION

- A. Basic Application Information for all Applicants. All applicants must complete Part A.
- B. Additional Application Information for all Applicants. All applicants must complete Part B.
- C. Certification. All applicants must complete Part C.

SUPPLEMENTAL APPLICATION INFORMATION

- D. Expanded Effluent Testing Data. A treatment works that discharges effluent to surface water of the United States and meets one or more of the following criteria must complete *Part D - Expanded Effluent Testing Data*:
 - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
 - 2. Is required to have or currently has a pretreatment program.
 - 3. Is otherwise required by the permitting authority to provide the information.
- E. Toxicity Testing Data. A treatment works that meets one or more of the following criteria must complete *Part E - Toxicity Testing Data*:
 - 1. Has a design flow rate greater than or equal to 1 million gallons per day.
 - 2. Is required to have or currently has a pretreatment program.
 - 3. Is otherwise required by the permitting authority to provide the information.
- F. Industrial User Discharges and Resource Conservation and Recovery Act / Comprehensive Environmental Response, Compensation and Liability Act Wastes. A treatment works that accepts process wastewater from any significant industrial users, also known as SIUs, or receives a Resource Conservation and Recovery Act or CERCLA wastes must complete *Part F - Industrial User Discharges and Resource Conservation and Recovery Act /CERCLA Wastes*.

SIUs are defined as:
 - 1. All Categorical Industrial Users, or CIUs, subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations 403.6 and 40 Code of Federal Regulations 403.6 and 40 CFR Chapter 1, Subchapter N.
 - 2. Any other industrial user that meets one or more of the following:
 - i. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions).
 - ii. Contributes a process waste stream that makes up five percent or more of the average dry weather hydraulic or organic capacity of the treatment plant.
 - iii. Is designated as an SIU by the control authority.
- G. Combined Sewer Systems. A treatment works that has a combined sewer system must complete *Part G - Combined Sewer Systems*.

ALL APPLICANTS MUST COMPLETE PARTS A, B and C



MISSOURI DEPARTMENT OF NATURAL RESOURCES
 WATER PROTECTION PROGRAM, WATER POLLUTION CONTROL BRANCH
**FORM B2 – APPLICATION FOR CONSTRUCTION OR OPERATING
 PERMIT FOR FACILITIES WHICH RECEIVE PRIMARILY DOMESTIC
 WASTE AND HAVE A DESIGN FLOW MORE THAN 100,000 GALLONS
 PER DAY**

FOR AGENCY USE ONLY	
CHECK NUMBER	
DATE RECEIVED	FEE SUBMITTED

PART A – BASIC APPLICATION INFORMATION

1. This application is for:

An operating permit and antidegradation review public notice.

A construction permit following an appropriate operating permit and antidegradation review public notice.

A construction permit, a concurrent operating permit and antidegradation review public notice.

A construction permit (submitted before Aug. 30, 2008 or antidegradation review is not required).

An operating permit for a new or unpermitted facility. Construction Permit # _____

An operating permit renewal: Permit #MO- _____ Expiration Date _____

An operating permit modification: Permit #MO- _____ Reason: _____

1.1 Is this a Federal/State Funded Project? Yes No Funding Agency/Project #: usda

1.2 Is the appropriate fee included with the application (See instructions for appropriate fee)? Yes No

2. FACILITY

NAME Senath Wastewater Treatment Facility		TELEPHONE NUMBER WITH AREA CODE 573-738-2346	
ADDRESS (PHYSICAL) Hornbeck Street	CITY Senath	STATE MO	ZIP 63876
2.1 LEGAL DESCRIPTION (Plant Site):		County Dunklin	
2.2 UTM Coordinates Easting (X): <u>7557</u> Northing (Y): <u>4001</u>		For Universal Transverse Mercator (UTM), Zone 15 North referenced to North American Datum 1983 (NAD83)	

3. OWNER City of Senath, Missouri

NAME Joe Lane	TITLE Mayor	TELEPHONE NUMBER WITH AREA CODE 573-738-2346	
ADDRESS P. O. Box 609	CITY Senath	STATE MO	ZIP 63876

3.1 Request review of draft permit prior to Public Notice? Yes No

4. CONTINUING AUTHORITY: Permanent organization which will serve as the continuing authority for the operation, maintenance and modernization of the facility.

NAME City of Senath	CITY Senath
ADDRESS P. O. Box 609	CERTIFICATE NUMBER (IF APPLICABLE) STATE MO ZIP 63876

5. OPERATOR

NAME Randy Gardner	TITLE Chief Operator	TELEPHONE NUMBER WITH AREA CODE 573-738-2346
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6. FACILITY CONTACT

NAME Joe Lane	TITLE Mayor
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FACILITY NAME Senath Wastewater Treatment Facility	PERMIT NO. MO- 0048666	OUTFALL NO. 1
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PART A – BASIC APPLICATION INFORMATION

7. ADDITIONAL FACILITY INFORMATION

7.1 BRIEF DESCRIPTION OF FACILITIES

Aerated lagoon with insulated floating covers, nitrifying reactor, recirculating lift station, and UV disinfection.

7.2 TOPOGRAPHIC MAP. ATTACH TO THIS APPLICATION A TOPOGRAPHIC MAP OF THE AREA EXTENDING AT LEAST ONE MILE BEYOND FACILITY PROPERTY BOUNDARIES. THIS MAP MUST SHOW THE OUTLINE OF THE FACILITY AND THE FOLLOWING INFORMATION. (YOU MAY SUBMIT MORE THAN ONE MAP IF ONE MAP DOES NOT SHOW THE ENTIRE AREA.)

- a. The area surrounding the treatment plant, including all unit processes.
- b. The location of the downstream landowner(s). (See Item 10.)
- c. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- d. The actual point of discharge.
- e. Wells, springs, other surface water bodies and drinking water wells that are: 1) within ¼ mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- f. Any areas where the sewage sludge produced by the treatment works is stored, treated or disposed.
- g. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act, or RCRA, by truck, rail or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored or disposed.

7.3 PROCESS FLOW DIAGRAM OR SCHEMATIC. PROVIDE A DIAGRAM SHOWING THE PROCESSES OF THE TREATMENT PLANT. ALSO, PROVIDE A WATER BALANCE SHOWING ALL TREATMENT UNITS, INCLUDING DISINFECTION (E.G. CHLORINATION AND DECHLORINATION). THE WATER BALANCE MUST SHOW DAILY AVERAGE FLOW RATES AT INFLUENT AND DISCHARGE POINTS AND APPROXIMATE DAILY FLOW RATES BETWEEN TREATMENT UNITS. INCLUDE A BRIEF NARRATIVE DESCRIPTION OF THE DIAGRAM.

7.4 FACILITY SIC CODE 4952	DISCHARGE SIC CODE: 4952	FACILITY NAICS CODE: .	DISCHARGE NAICS CODE: .
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7.5 NUMBER OF SEPARATE DISCHARGE POINTS

1

7.6 NUMBER OF PEOPLE PRESENTLY CONNECTED OR POPULATION EQUIVALENT

1700

DESIGN POPULATION EQUIVALENT

2330

NUMBER OF UNITS PRESENTLY CONNECTED

HOMES 481 APARTMENTS 105 TRAILERS 84 OTHER 24

TOTAL DESIGN FLOW (ALL OUTFALLS)

256,000 gpd

ACTUAL FLOW

140,000 gpd

7.7 DOES ANY BYPASSING OCCUR ANYWHERE IN THE COLLECTION SYSTEM OR AT THE TREATMENT FACILITY?

Yes No (If Yes, attach an explanation.)

7.8 LENGTH OF THE SANITARY SEWER COLLECTION SYSTEM IN MILES

9

7.9 IS INDUSTRIAL WASTE DISCHARGED TO THE FACILITY IDENTIFIED IN ITEM 2? Yes No

7.10 WILL THE DISCHARGE BE CONTINUOUS THROUGH THE YEAR? Yes No

A. DISCHARGE WILL OCCUR DURING THE FOLLOWING MONTHS

all

B. HOW MANY DAYS OF THE WEEK WILL THE DISCHARGE OCCUR?

7

7.11 IS WASTEWATER LAND APPLIED? (If Yes, Attach Form I)

Yes No

7.12 DOES THIS FACILITY DISCHARGE TO A LOSING STREAM OR SINKHOLE? Yes No

7.13 HAS A WASTE LOAD ALLOCATION STUDY BEEN COMPLETED FOR THIS FACILITY?

Yes No

7.14 LIST ALL PERMIT VIOLATIONS, INCLUDING EFFLUENT LIMIT EXCEEDANCES IN THE LAST FIVE YEARS.

ATTACH A SEPARATE SHEET IF NECESSARY. IF NONE, WRITE NONE: Numerous, See AOC 2013-WPCB-1211

8. LABORATORY CONTROL INFORMATION

8.1 LABORATORY WORK CONDUCTED BY PLANT PERSONNEL

Lab work conducted outside of plant.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Push-button or visual methods for simple test such as pH, settleable solids.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Additional procedures such as Dissolved Oxygen, Chemical Oxygen Demand, Biological Oxygen Demand, titrations, solids, volatile content.	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
More advanced determinations such as BOD seeding procedures, fecal coliform, nutrients, total oils, phenols, etc.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Highly sophisticated instrumentation, such as atomic absorption and gas chromatograph.	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

FACILITY NAME Senath Wastewater Treatment Facility	PERMIT NO. MO- 0048666	OUTFALL NO. 1
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PART A – BASIC APPLICATION INFORMATION

9. SLUDGE HANDLING, USE AND DISPOSAL

9.1 IS THE SLUDGE A HAZARDOUS WASTE AS DEFINED BY 10 CSR 25?
Yes No

9.2 SLUDGE PRODUCTION, INCLUDING SLUDGE RECEIVED FROM OTHERS
Design Dry Tons/Year ⁴⁶ Actual Dry Tons/Year ³⁴

9.3 CAPACITY OF SLUDGE HOLDING STRUCTURES

9.4 SLUDGE STORAGE PROVIDED
Cubic Feet Days of Storage Average Percent Solids of Sludge No Sludge Storage is Provided

9.5 TYPE OF STORAGE
 Holding Tank Basin Building Concrete Pad Other (Describe) Lagoon

9.6 SLUDGE TREATMENT
 Anaerobic Digester Storage Tank Lime Stabilization Lagoon
 Aerobic Digester Air or Heat Drying Composting Other (Attach Description)

9.7 SLUDGE USE OR DISPOSAL
 Land Application Contract Hauler Hauled to Another Treatment Facility Solid Waste Landfill
 Surface Disposal (Sludge Disposal Lagoon, Sludge Held For More Than Two Years) Incineration
 Other (Attach Explanation Sheet) Lag

9.8 PERSON RESPONSIBLE FOR HAULING SLUDGE TO DISPOSAL FACILITY

NAME
not applicable

ADDRESS	CITY	STATE	ZIP
---------	------	-------	-----

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO MO-
----------------	---------------------------------	------------------

9.9 SLUDGE USE OR DISPOSAL FACILITY

By Applicant By Others (Complete Below)

NAME
not applicable

ADDRESS	CITY	STATE	ZIP
---------	------	-------	-----

CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	PERMIT NO MO-
----------------	---------------------------------	------------------

9.10 DO THE SLUDGE OR BIOSOLIDS DISPOSAL COMPLY WITH FEDERAL SLUDGE REGULATIONS UNDER 40 CFR 503?
 Yes No (Attach Explanation)

10. DOWNSTREAM LANDOWNER(S). (ATTACH ADDITIONAL SHEETS AS NECESSARY.)

NAME
Eddie Ridings

ADDRESS P. O. Box 727	CITY Senath	STATE MO	ZIP 63876
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11. DRINKING WATER SUPPLY INFORMATION

11.1 SOURCE OF YOUR DRINKING WATER SUPPLY

A. PUBLIC SUPPLY (MUNICIPAL OR WATER DISTRICT WATER) (IF PUBLIC, PLEASE GIVE NAME OF PUBLIC SUPPLY)
Senath municipal water supply system

B. PRIVATE WELL

C. SURFACE WATER (LAKE, POND OR STREAM)

11.2 DOES YOUR DRINKING WATER SOURCE SERVE AT LEAST 25 PEOPLE AT LEAST 60 DAYS PER YEAR (NOT NECESSARILY CONSECUTIVE DAYS)?
Yes No

11.3 DOES YOUR SUPPLY SERVE HOUSING THAT IS OCCUPIED YEAR ROUND BY THE SAME PEOPLE? THIS DOES NOT INCLUDE HOUSING THAT IS OCCUPIED SEASONALLY?
Yes No

END OF PART A

MAKE ADDITIONAL COPIES OF THIS FORM FOR EACH OUTFALL			
FACILITY NAME Senath Wastewater Treatment Facility		PERMIT NO. MO- 0048666	OUTFALL NO. 1
PART B – ADDITIONAL APPLICATION INFORMATION			
20. INFLOW AND INFILTRATION			
ESTIMATE THE AVERAGE NUMBER OF GALLONS PER DAY THAT FLOW INTO THE TREATMENT WORKS FROM INFLOW AND INFILTRATION. Gallons Per Day <u>20,000</u>			
BRIEFLY EXPLAIN ANY STEPS UNDERWAY OR PLANNED TO MINIMIZE INFLOW AND INFILTRATION. <u>none required</u>			
20.1 OPERATION AND MAINTENANCE PERFORMED BY CONTRACTOR(S)			
ARE ANY OPERATIONAL OR MAINTENANCE ASPECTS (RELATED TO WASTEWATER TREATMENT AND EFFLUENT QUALITY) OF THE TREATMENT WORKS THE RESPONSIBILITY OF A CONTRACTOR? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If Yes, list the name, address, telephone number and status of each contractor and describe the contractor's responsibilities. (Attach additional pages if necessary.)			
NAME			
MAILING ADDRESS			
TELEPHONE NUMBER WITH AREA CODE			
RESPONSIBILITIES OF CONTRACTOR			
20.2 SCHEDULED IMPROVEMENTS AND SCHEDULES OF IMPLEMENTATION. PROVIDE INFORMATION ABOUT ANY UNCOMPLETED IMPLEMENTATION SCHEDULE OR UNCOMPLETED PLANS FOR IMPROVEMENTS THAT WILL AFFECT THE WASTEWATER TREATMENT, EFFLUENT QUALITY OR DESIGN CAPACITY OF THE TREATMENT WORKS. IF THE TREATMENT WORKS HAS SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES OR IS PLANNING SEVERAL IMPROVEMENTS, SUBMIT SEPARATE RESPONSES FOR EACH. (IF NONE, GO TO QUESTION B-20.3.)			
A. List the outfall number that is covered by this implementation schedule Outfall No. <u>1</u>		B. Indicate whether the planned improvements or implementation schedule are required by local, state or federal agencies. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
20.3 WASTEWATER DISCHARGES: COMPLETE QUESTIONS 20.4 THROUGH 20.7 ONCE FOR EACH OUTFALL (INCLUDING BYPASS POINTS) THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION ON COMBINED SEWER OVERFLOWS IN THIS SECTION.			
20.4 DESCRIPTION OF OUTFALL			
OUTFALL NUMBER <u>1</u>			
A. LOCATION <u>1/4</u> <u>NW</u> <u>1/4</u> <u>SW</u> Section <u>12</u> Township <u>17N</u> Range <u>8E</u> <input type="checkbox"/> E <input type="checkbox"/> W UTM Coordinates Easting (X): <u>7557</u> Northing (Y): <u>4001</u> For Universal Transverse Mercator (UTM), Zone <u>15</u> North referenced to North American Datum 1983 (NAD83)			
B. Distance from Shore (If Applicable) <u>NA</u> ft.		C. Depth Below Surface (If Applicable) <u>NA</u> ft.	
D. Average Daily Flow Rate <u>.14</u> mgd			
E. Does this outfall have either an intermittent or periodic discharge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Provide the following information:			
Number of Days Per Year Discharge Occurs: <u>365</u>	Average Duration of Each Discharge: <u>continuous</u>	Average Flow Per Discharge: <u>.14</u> mgd	Months in Which Discharge Occurs: <u>all</u>
Is Outfall Equipped with a Diffuser? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
20.5 DESCRIPTION OF RECEIVING WATER			
B. Name of Receiving Water <u>Pole Cat Slough</u>			
B. Name of Watershed (If Known)		U.S. Soil Conservation Service 14-Digit Watershed Code (If Known)	
B. Name of State Management/River Basin (If Known)		U.S. Geological Survey 8-Digit Hydrologic Cataloging Unit Code (If Known) <u>08020204-070001</u>	
B. Critical Flow of Receiving Stream (If Applicable) Acute <u> </u> cfs Chronic <u> </u> cfs		B. Total Hardness of Receiving Stream at Critical Low Flow (If Applicable) <u> </u> mg/L of CaCO ₃	

MO 780-1805 (09-08)

FACILITY NAME Senath Wastewater Treatment Facility	PERMIT NO. MO- 0048666	OUTFALL NO. 1
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PART B – ADDITIONAL APPLICATION INFORMATION (CONTINUED)

20.6 DESCRIPTION OF TREATMENT

A. WHAT LEVELS OF TREATMENT ARE PROVIDED? Check All That Apply
 Primary Secondary Advanced Other (Describe)

B. INDICATE THE FOLLOWING REMOVAL RATES (AS APPLICABLE)
 Design BOD₅ Removal Or Design CBOD₅ Removal 85 % Design SS Removal 75 %
 Design P Removal % Design N Removal % Other %

C. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe:
 Ultraviolet Disinfection

If disinfection is by chlorination, is dechlorination used for this outfall? Yes No

Does the treatment plant have post aeration? Yes No

20.7 EFFLUENT TESTING DATA. ALL APPLICANTS THAT DISCHARGE TO WATERS OF THE U.S. MUST PROVIDE EFFLUENT TESTING DATA FOR THE FOLLOWING PARAMETERS. PROVIDE THE INDICATED EFFLUENT DATA FOR EACH OUTFALL THROUGH WHICH EFFLUENT IS DISCHARGED. DO NOT INCLUDE INFORMATION OF COMBINED SEWER OVERFLOWS IN THIS SECTION. ALL INFORMATION REPORTED MUST BE BASED ON DATA COLLECTED THROUGH ANALYSIS CONDUCTED USING 40 CFR PART 136 METHODS. IN ADDITION, THIS DATA MUST COMPLY WITH QA/QC REQUIREMENTS OF 40 CFR PART 136 AND OTHER APPROPRIATE QA/QC REQUIREMENTS FOR STANDARD METHODS FOR ANALYTES NOT ADDRESSED BY 40 CFR PART 136.

OUTFALL NUMBER

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	VALUE	UNITS	VALUE	UNITS	NO. OF SAMPLES
pH (Minimum)	7.48	S.U.	-	S.U.	2/week
pH (Maximum)	8.15	S.U.	-	S.U.	2/week
FLOW RATE	.16	MGD	.14	MGD	2/week
TEMPERATURE (Winter)	No Data	°C	No Data	°C	No Data
TEMPERATURE (Summer)	No Data	°C	No Data	°C	No Data

*For pH report a minimum and a maximum daily value.

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML/MDL
	CONC.	UNITS	CONC.	UNITS	NO. OF SAMPLES		

Conventional and Nonconventional Compounds

BIOCHEMICAL OXYGEN DEMAND (Report One)	BOD ₅	37.5	mg/L	23.6	mg/L	monthly	SM-5210 B-01	45/65
	CBOD ₅	No Data	mg/L	No Data	mg/L	No Data	No Data	-
FECAL COLIFORM	36800	#/100 mL	1440	#/100 mL	monthly	SM-9222 D-97	400/1000	
TOTAL SUSPENDED SOLIDS (TSS)	80	mg/L	57.3	mg/L	monthly	SM-2540 D-97	70/110	
AMMONIA (AS N)	18.1	mg/L	3.9	mg/L	monthly	Lachat-10-107-0	-	
CHLORINE (TOTAL RESIDUAL, TRC)	No Data	mg/L	No Data	mg/L	No Data	No Data	.010/.019	
DISSOLVED OXYGEN	10.3	mg/L	6.5	mg/L	2/week	Probe	-	
TOTAL KJELDAHL NITROGEN (TKN)	No Data	mg/L	No Data	mg/L	No Data	No Data	-	
NITRATE PLUS NITRITE NITROGEN	No Data	mg/L	No Data	mg/L	No Data	No Data	-	
OIL AND GREASE	<5	mg/L	<5	mg/L	14	EPA-1664a	10/15	
PHOSPHORUS (TOTAL)	No Data	mg/L	No Data	mg/L	No Data	No Data	-	
TOTAL DISSOLVE SOLIDS (TDS)	No Data	mg/L	No Data	mg/L	No Data	No Data	-	
OTHER	No Data	mg/L	No Data	mg/L	No Data	No Data	-	

END OF PART B

PART C - CERTIFICATION

30. CERTIFICATION

All applicants must complete the Certification Section. This certification must be signed by an officer of the company or city official. All applicants must complete all applicable sections as explained in the Application Overview. By signing this certification statement, applicants confirm that they have reviewed the entire form and have completed all sections that apply to the facility for which this application is submitted.

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

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 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.

PRINTED NAME AND OFFICIAL TITLE (MUST BE AN OFFICER OF THE COMPANY OR CITY OFFICIAL)

Joe Lane, Mayor of Senath

SIGNATURE



TELEPHONE NUMBER WITH AREA CODE

573-238-2346

DATE SIGNED

5-30-14

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

For Design Flows Less than 1 Million Gallons Per Day,
Send Completed Form to:

Appropriate Regional Office

Map of regional offices with addresses and phone numbers is available on the Web at www.dnr.mo.gov/regions/ro-map.pdf.

For Design Flows of 1 Million Gallons Per Day or Greater,
Send Completed Form to:

Department of Natural Resources
Water Protection Program
ATTN: NPDES Permits and Engineering Section
P.O. Box 176
Jefferson City, MO 65102

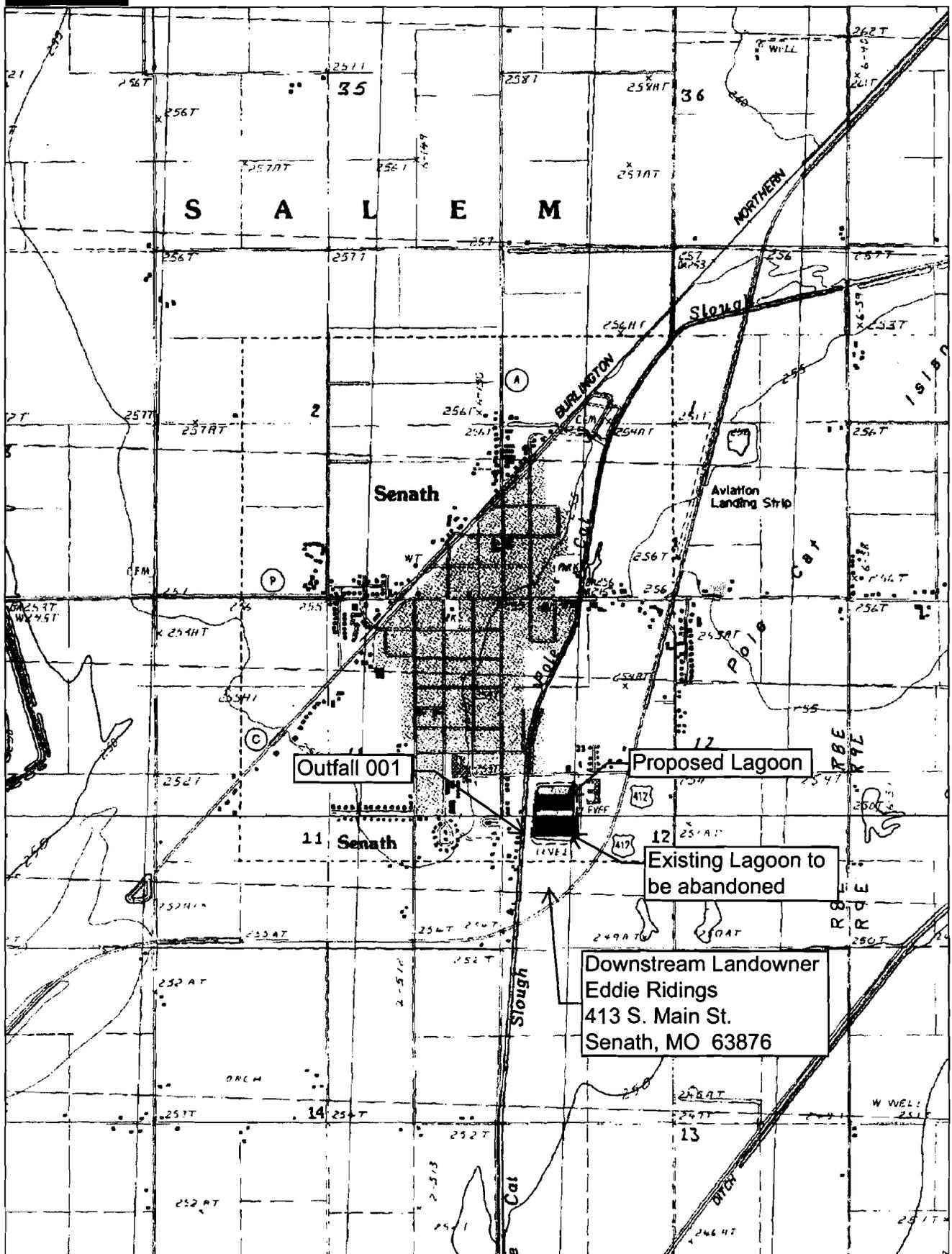
END OF PART C.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM B2 YOU MUST COMPLETE.

Do not complete the remainder of this application, unless:

1. Your facility design flow is equal to or greater than 1,000,000 gallons per day.
2. Your facility is a pretreatment treatment works.
3. Your facility is a combined sewer system.

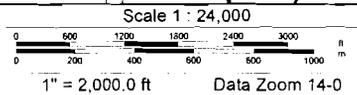
Submittal of an incomplete application may result in the application being returned. Permit fees for returned applications shall be forfeited. Permit fees for applications being processed by the department that are withdrawn by the applicant shall be forfeited.

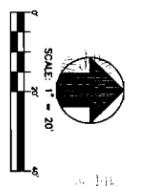
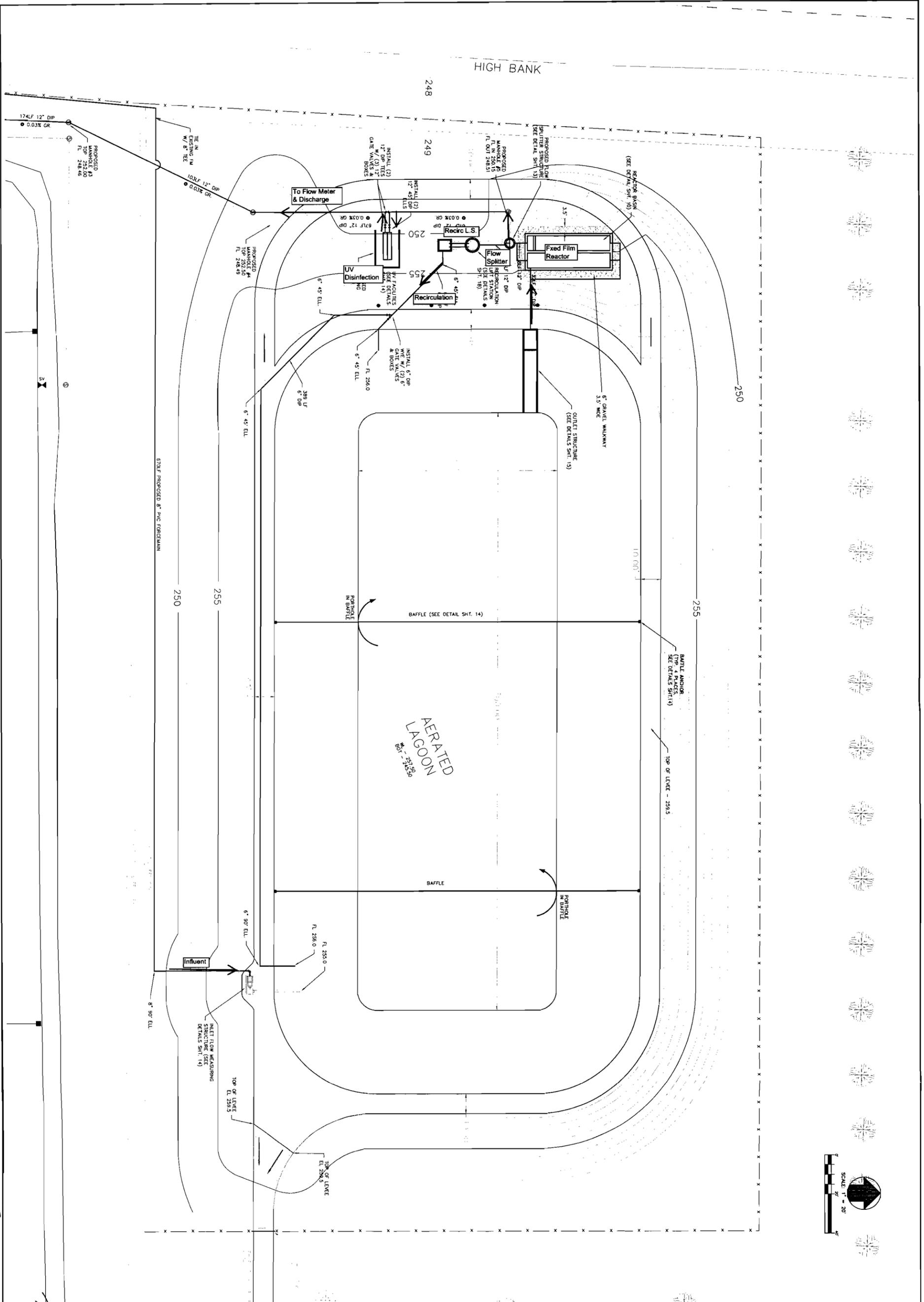


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www.delorme.com





DATE 4/11/2014	PROJECT NO. 1212
REVISION DATE 05/14/14	DRAWN BY NLS
SHEET NO. 3	SCALE 1" = 20'

WASTEWATER TREATMENT IMPROVEMENTS
SENATH, MISSOURI
PROPOSED LAGOON LAYOUT

WATERS ENGINEERING, INC.

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