SECTION 4

Description of Wastewater Treatment Alternatives

SECTION 4

DESCRIPTION OF WASTEWATER TREATMENT ALTERNATIVES

A. SELECTION OF WASTEWATER TREATMENT ALTERNATIVES

Numerous wastewater treatment alternatives were considered and analyzed. A brief summary of the analysis to determine the most feasible alternatives to evaluate in detail is presented in the following paragraphs.

Mechanical Treatment Plant

Abandonment of the existing aerated lagoon system and replacing with a mechanical plant is an option available to meet proposed effluent limits. Due to the comparatively small amount of wastewater generated, the high cost of constructing and operating a mechanical treatment system, complexity of operation and maintenance, staffing requirements, and land requirements, the alternative of a mechanical treatment system is eliminated and is not considered a viable alternative.

Regionalization

Regionalization is an option that considers entering into an agreement with a neighboring community to pump wastewater to that community for treatment. The Village of Hortonville, Wisconsin is the closest community to the Town of Dale with a permitted wastewater treatment facility. This community has a population of approximately 2,700 and is located approximately 6.5 miles away,

Neenah-Menasha Sewage Commission and Grand-Chute Menasha West Sewage Commission operate large regional wastewater treatment facilities in the Fox Valley area east of Dale. These facilities are more than 14 miles from the Town of Dale.

Although the regionalization option would eliminate the cost of constructing new wastewater treatment components, and operation and maintenance of treatment components would no longer be the responsibility of the Dale Sanitary District, this option is estimated to cost at least $1,700,000 and is not expected to be cost effective. Sewer user costs and additional costs to address phosphorus or chloride issues that would be charged by the regional facility to the Dale users are unknowns that would also need to be considered. Construction of a lift station and forcemain to pump wastewater to these facilities would be cost prohibitive, and is not considered a viable alternative.

Construction of a New Pond for Added Storage during Winter Months

Winter months are the hardest for the Dale Sanitary District Wastewater Treatment Facility to meet the proposed ammonia effluent limits. Construction of a stabilization lagoon adjacent to the existing aerated lagoon system would serve to hold wastewater during the winter months. Stabilization ponds are typically constructed with a 6 foot water depth, and an operating level from two to six feet.

An approximate 2.4 acre area owned by the Dale Sanitary District is available for expansion of the existing Dale Wastewater Treatment Facility. This area is located directly east of the site, and is bordered by wetlands on the south and the Canadian National Railroad on the north.

A stabilization pond constructed in this available area would provide less than one month of storage at the design flow. Extensive piping modifications and a new lift station would be required. Construction of a deeper aerated lagoon, instead of a stabilization pond, would require additional expense in blower and aeration equipment. These options are unreliable regarding the ability to meet effluent limits, and are not considered further as a viable alternative.

Establish a New Outfall Location

The proposed effluent limits for the Dale Wastewater Treatment Facility are based on the current outfall to an unnamed tributary to the Rat River. The low flow in this outfall stream results in more stringent effluent limits. Establishing a new outfall location for the plant may result in less stringent effluent limits that the existing plant would be capable of meeting.

Review of nearby waterways shows that the Rat River is the closest larger designated waterway located approximately 3.5 miles south of the existing Dale Wastewater Treatment Facility. This waterway is currently listed as an Impaired Waterway, noted as having low dissolved oxygen and phosphorus concerns. Pursuing this option would require construction of a new lift station and approximately 3.5 miles of new forcemain to a new outfall location, with an approximate cost of $1,000,000. Considering this expense and the uncertainty of obtaining less stringent effluent limits, this option is not considered further as a viable alternative.

Upgrade Aeration System in Existing System and Provide Lagoon Covers

Nitrification in a lagoon system requires three times as much oxygen as BOD removal. In addition, the nitrification process slows greatly, or even stops entirely in cold winter temperatures. Upgrading the existing aeration system to provide the oxygen required for nitrification, and addition of lagoon covers to keep the water warm enough to achieve nitrification appears to be too costly to make this a viable alternative. This option may be unreliable in its ability to meet proposed ammonia effluent limits.

Pretreatment of Wastewater

Providing pretreatment of influent to the Dale Wastewater Treatment Facility with a fixed-film aerobic treatment system is an option that will be considered in this Study. This option will utilize and expand the existing aerated lagoon treatment system.

Tertiary Treatment of Wastewater

Providing additional treatment components after the existing aerated lagoons or the existing polishing pond with tertiary treatment components are options that will be considered in this Study. These options will utilize and expand the existing aerated lagoon treatment system.

Converting the Existing Aerated Treatment Lagoon

Another option to be considered in this study is converting one of the aerated lagoon cells to a multi-celled activated sludge process. With this option, the remaining existing cells will be reconfigured for use as equalization storage, or sludge drying beds.

Phosphorus Removal

Treatment processes used to remove phosphorus are generally different than the treatment processes used to remove ammonia. The Alternatives presented below generally do not provide significant removal of phosphorus.

B. WASTEWATER TREATMENT ALTERNATIVE NO. 1 – NITROX SYSTEM

NitrOx Treatment Process

This alternative provides tertiary treatment to effluent leaving the aerated lagoon cells. Effluent from the NitrOx system will flow to the existing polishing pond. This option will utilize and expand the existing aerated lagoon treatment system.

The NitrOx Reactor System proposed by TriplePoint Environmental is a two stage nitrification reactor following the two existing aerated lagoons. The nitrification process involves addition of two (2) 8 feet by 8 feet by 11 feet deep concrete tanks which will operate in series. Each tank will contain millions of individual biofilm carriers that provide habitat for nitrifying bacteria. In addition, each NitrOx reactor cell will be aerated through a stainless steel aeration grid to provide the necessary oxygen, as well as to create a complete mix environment to keep the biofilm carriers in constant motion. A screening device will be required prior to the NitrOx reactor cells. Two 10 Hp positive displacement blowers are proposed. The two cells are covered with floating insulated covers to mitigate heat loss, and the media is kept in the tanks with stainless steel sieves. A thermal regulation heat exchanger is proposed for use during winter months when the water temperature drops below 4 degrees Celsius (39 degrees Fahrenheit), in order to increase the water temperature and allow effective nitrification. The hydraulic retention time in the two NitrOx tanks at the average daily design flow of 60,000 gallons per day is 3.1 hours.

The two concrete tanks and blowers are proposed to be placed at the northeast corner of the polishing pond. An area approximately 100 feet by 150 feet will be graded and filled to accommodate the new treatment components. New gravity sewer will be installed from the aerated lagoons to the NitrOx tanks. A bypass will be installed to allow either unit to be taken out of service.

A schematic drawing of improvements proposed for Alternative No. 1 is included as Figure 1 following this section.

Advantages

1. System utilizes existing lagoon infrastructure.
2. Relatively small area needed for new improvements.
3. Minimal additional piping required.
4. Relatively easy system operation.
5. Expect effective treatment in cold weather.
6. Production of additional sludge or additional sludge handling is not expected.

Disadvantages

1. Proposed heater adds to operation and maintenance expenses during the winter months.
2. Use of the heater includes additional maintenance concerns. The heater would have a life expectance of 10 years.
3. Process is relatively new and not extensively proven for effective operation in Wisconsin.

C. WASTEWATER TREATMENT ALTERNATIVE NO. 2 – OPTAER SYSTEM

OPTAER Treatment Process

This alternative also provides tertiary treatment, and will utilize and expand the existing aerated lagoon treatment system. Effluent leaving the existing polishing pond will flow to this horizontal flow submerged attached growth reactor (SAGR).

The OPTAER Reactor system proposed by Nexom proposes construction of two gravel beds that operate in parallel. Each gravel bed cell will be 55 feet by 45 feet and approximately 6 feet deep, with 20 feet in between the cells. Each will include clean aggregate media with evenly distributed wastewater flow across the width of the cell, and a horizontal collection chamber at the back end of the system. The clean aggregate provides the nitrifying bacteria a medium to form and grow on. The gravel beds are covered with a layer of peat mulch or wood chips to prevent freezing.

Aeration throughout the floor of each submerged attached growth reactor bed provides aerobic conditions that are required for nitrification. Two 10 Hp positive displacement blowers are proposed to provide air to the system.

The cells are to be constructed of a wood framed support wall and a geomembrane liner. An area approximately 150 feet by 300 feet will be graded and filled to accommodate the new OPTAER system. New gravity sewer will be installed to route effluent from the polishing pond to the gravel beds, and from the gravel beds to discharge piping.

A schematic drawing of improvements proposed for Alternative No. 2 is included as Figure 2 following this section.

Advantages

1. System utilizes existing lagoon infrastructure.
2. Low operation costs.
3. Relatively easy system operation.
4. Expect effective treatment in cold weather.
5. Production of additional sludge or additional sludge handling is not expected.
6. Process is proven for effective operation in cold weather climates

Disadvantages

1. Land requirements and additional sewer needed are larger than some of the other alternatives.

D. WASTEWATER TREATMENT ALTERNATIVE NO. 3 – FAST SYSTEM

FAST Treatment Process

This alternative provides pretreatment for wastewater influent to the Dale Wastewater Treatment Facility, and will utilize and expand the existing aerated lagoon treatment system. Effluent leaving the FAST system will flow to the lift station that will pump to the first existing aerated lagoon cell.

A Modular FAST Treatment Facility is proposed by Smith and Loveless. This is a fixed activated sludge treatment technology that utilizes fixed media and aeration to accomplish nitrification. Bacteria become attached to the fully submerged stationary media in the FAST tanks.

The proposed system includes a new lift station pumping to a 30,000 gallon underground concrete septic tank, followed by a 30,000 gallon underground concrete equalization tank, followed by four FAST tanks operating in parallel. Each of these tanks will be buried concrete tanks as well, 20 feet by 8 feet by 16.5 feet deep in size. Each of the FAST tanks will require a 10 Hp blower for aeration. The FAST tanks will provide an aeration zone, with clarification and digestion zones below.

The six proposed tanks would be placed in the approximate 100 foot by 200 foot area west of the existing Aerated Cell No. 1. A significant amount of new gravity sewer and interconnecting piping will be required to connect to the existing gravity sewer to the plant, and to transfer the treated wastewater to the existing raw wastewater pump station. Flow from this pretreatment system will discharge to the existing Dale Wastewater Treatment Facility.

A schematic drawing of improvements proposed for Alternative No. 3 is included as Figure 3 following this section.

Advantages

1. System utilizes existing lagoon infrastructure.

Disadvantages

1. Larger land requirements.
2. Additional raw sewage lift station required.
3. Significant re-routing of existing piping required.
4. High operation costs.
5. High capital costs.
6. More complicated operation requirements.
7. Significant number of additional system components added to the existing lagoon infrastructure.
8. Relative uncertainty in effective treatment in cold weather.
9. Additional sludge handling would be required. The septic tank would need to be pumped monthly, and FAST Tanks would need to be pumped approximately once every 3 months.

E. WASTEWATER TREATMENT ALTERNATIVE NO. 4 – LEMTEC SYSTEM

LemTec Treatment Process

Conversion of one of the existing aerated lagoon cells to a biological treatment process is proposed by Lemna Environmental Technologies. This is an aerated lagoon based biological treatment process which utilizes an aerobic treatment cell followed by a settling zone and polishing reactor to achieve the desired effluent limits.

The existing Aerated Cell No. 1 will be divided into two (2) cells with installation of a baffle wall. The first cell of the lagoon will be a complete aerated mix cell with a detention time of 4.0 days. This complete mix zone is an aerated, aggressively mixed cell that establishes an environment suitable for the rapid removal of BOD and ammonia. The complete mix cell will be followed by a settling cell with a detention time of 9 days.

Each of the cells in the proposed design will be covered by an insulated cover. The cover will improve total suspended solids removal, provide algae prevention and encourage nitrification by regulating temperatures within the cells.

Following the settling cell, the polishing reactor will provide additional BOD and ammonia treatment. Housed in a 8 feet by 16 feet by 12 foot deep buried concrete tank near the effluent of the pond, the polishing reactor is the final stage of the treatment process. The LemTec Polishing Reactor consists of submerged, attached-growth media modules used for maintaining an adequate population of bacteria. Aeration is provided by rack mounted coarse bubble diffusers located under the media.

The proposed polishing reactor and blowers are proposed to be constructed at the northwest corner of Aerated Cell No. 1. An area approximately 50 feet by 75 feet will be graded and filled to accommodate the new treatment components. New gravity sewer will be installed to route effluent from the modified pond to the polishing reactor and to existing piping. The existing Aerated Cell No. 2 and the existing polishing pond will be converted to an equalization basin or sludge drying beds. The existing Aerated Cell No. 2 could be baffled off and used in the future to create a flocculating zone and settling pond for chemical addition and phosphorus removal.

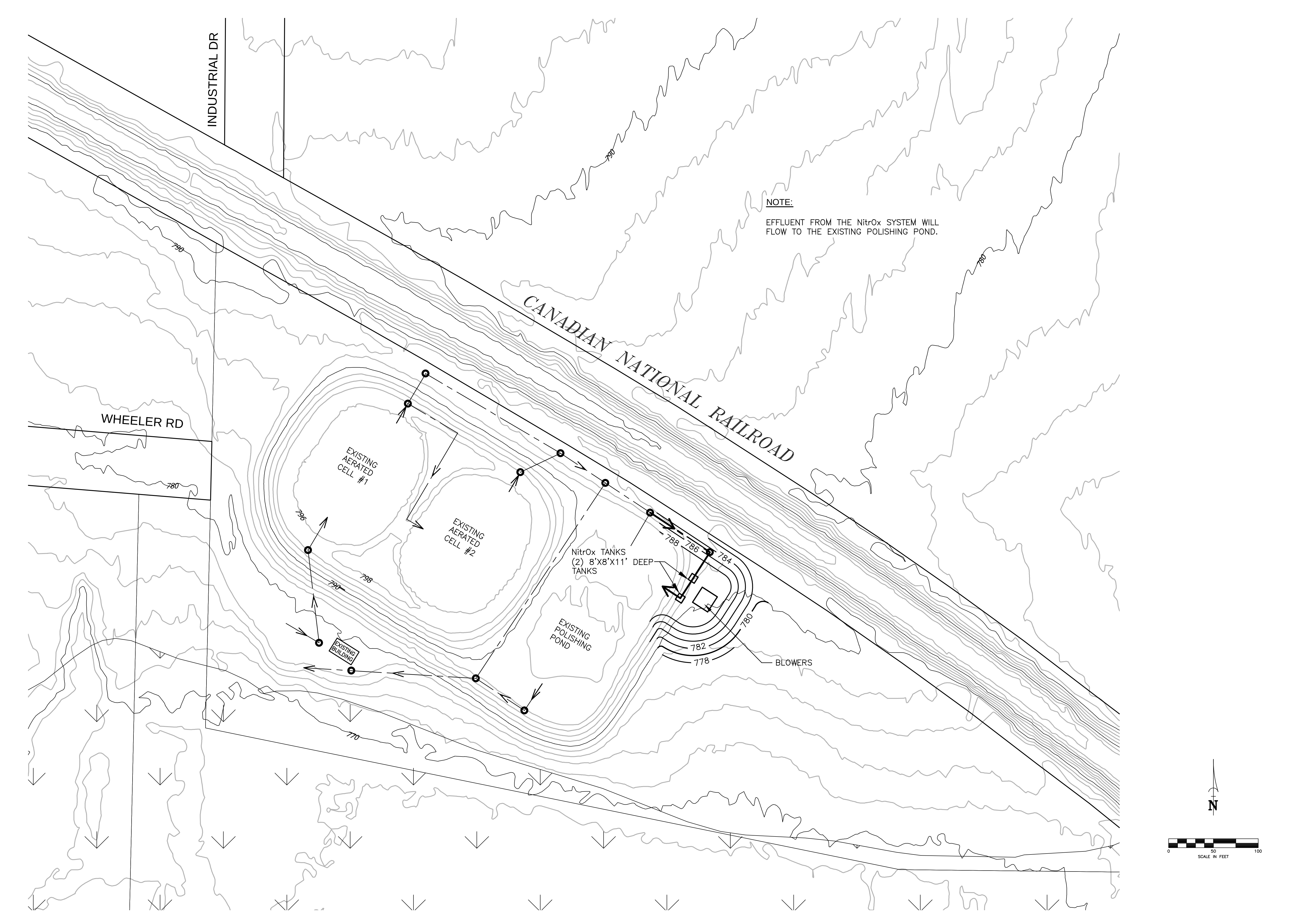
A schematic drawing of improvements proposed for Alternative No. 4 is included as Figure 4 following this section.

Advantages

1. Relatively low capital costs.
2. Minimal additional land requirements.
3. Two of the existing cells can be converted to an equalization basin or sludge drying beds.
4. Production of additional sludge or additional sludge handling is not expected.

Disadvantages

1. Does not utilize existing lagoon infrastructure.
2. Difficult to estimate capital costs to install process equipment and to convert existing ponds.



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DRAWN BY	FIELDWORK	APPROVED
EAE		MJM

NO.	DATE	REVISION

FIGURE 1
DALE SANITARY DISTRICT
WASTEWATER TREATMENT FACILITY PLAN
ALTERNATE NO. 1 - NitrOx SYSTEM BY TRIPLEPOINT ENVIRONMENTAL

SCALE	DATE
BAR SCALE	5/17/18

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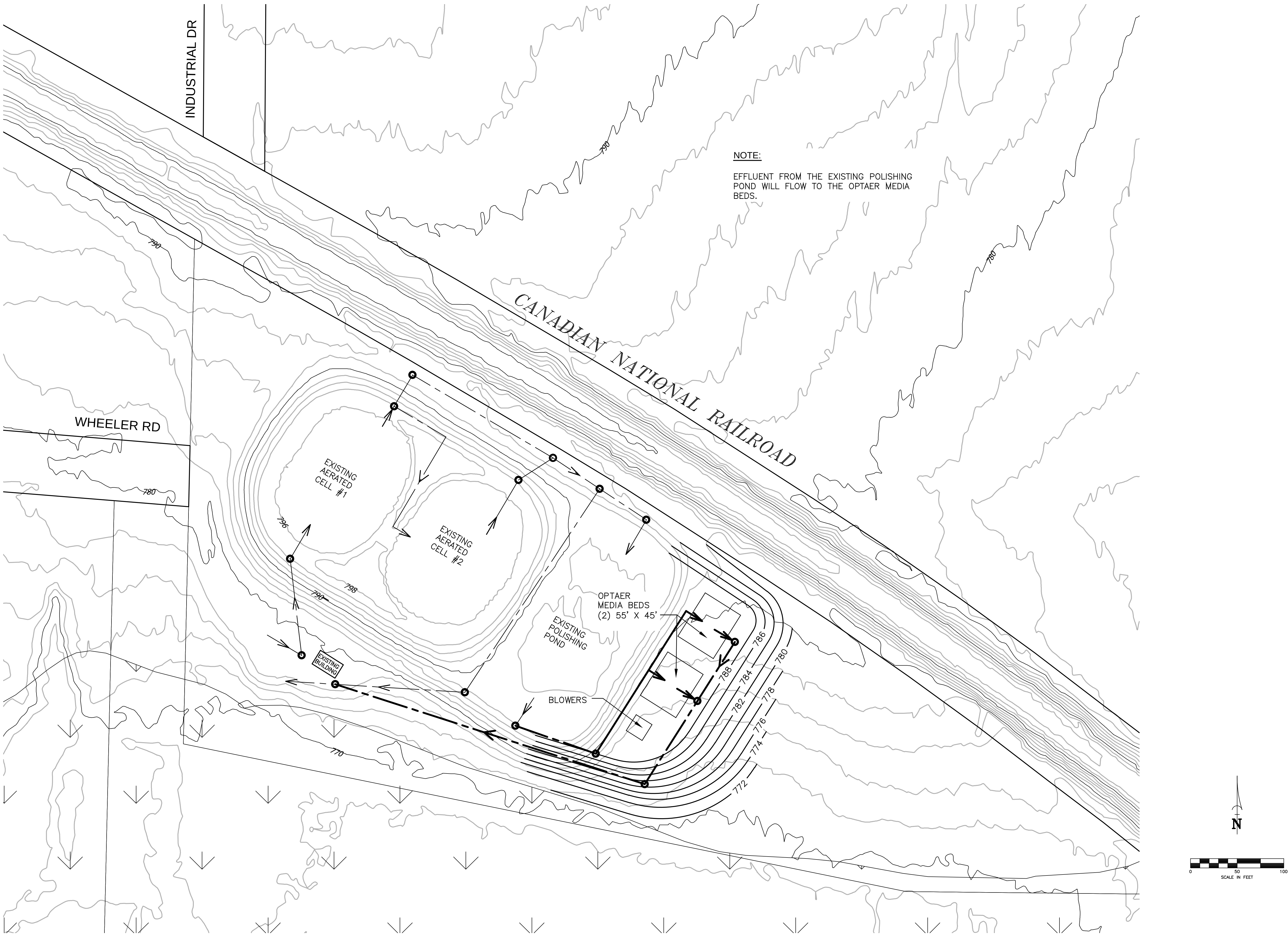

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FIGURE 2
DALE SANITARY DISTRICT

WASTEWATER TREATMENT FACILITY PLAN
ALTERNATE NO. 2 - OPTAER SYSTEM BY NEXOM

SCALE	DATE
BAR SCALE	5/17/18

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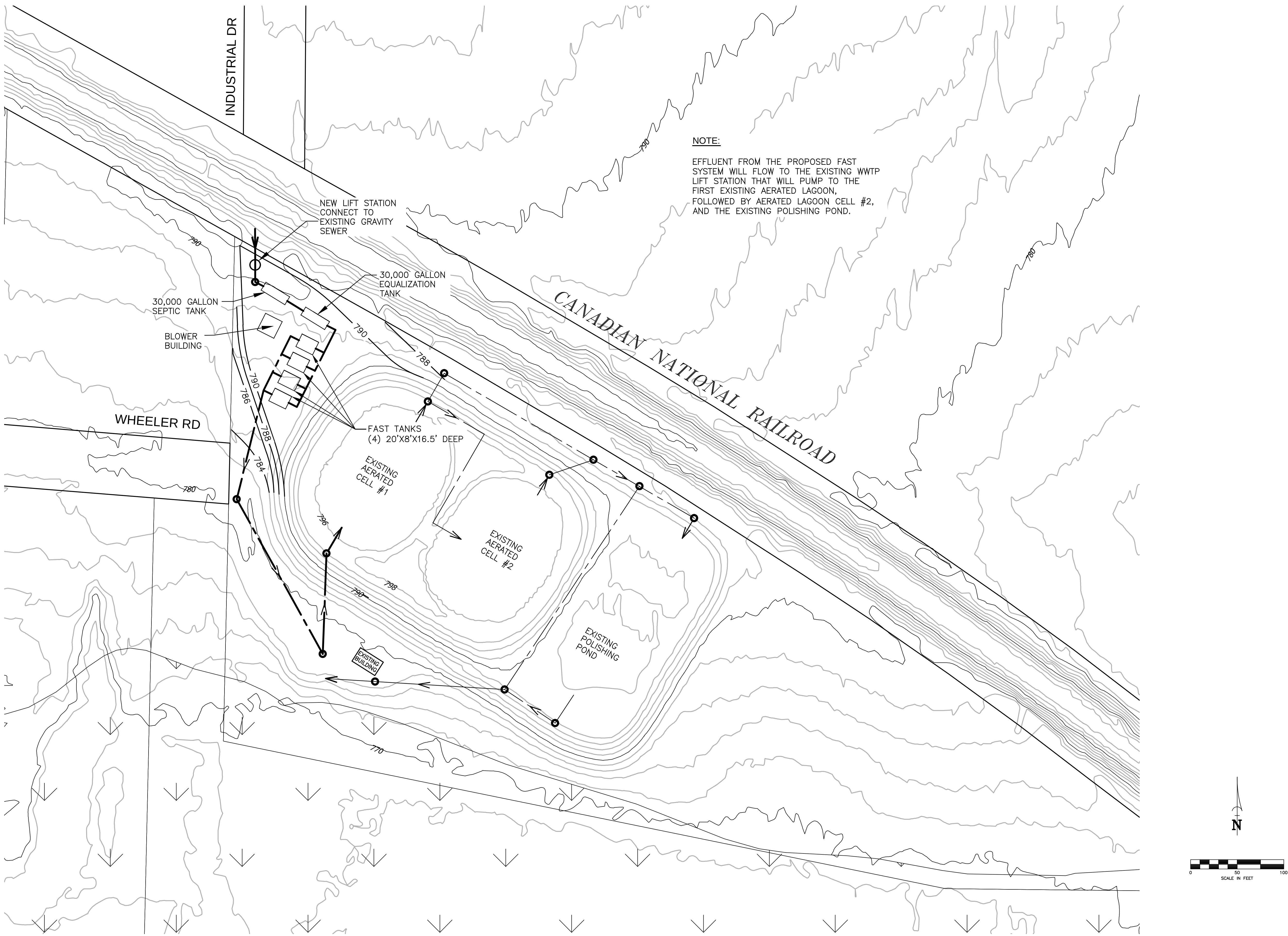

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FIGURE 3

DALE SANITARY DISTRICT

WASTEWATER TREATMENT FACILITY PLAN

ALTERNATE NO. 3 - FAST SYSTEM BY SMITH & LOVELESS

SCALE	DATE
BAR SCALE	5/17/18

COMPUTER FILE
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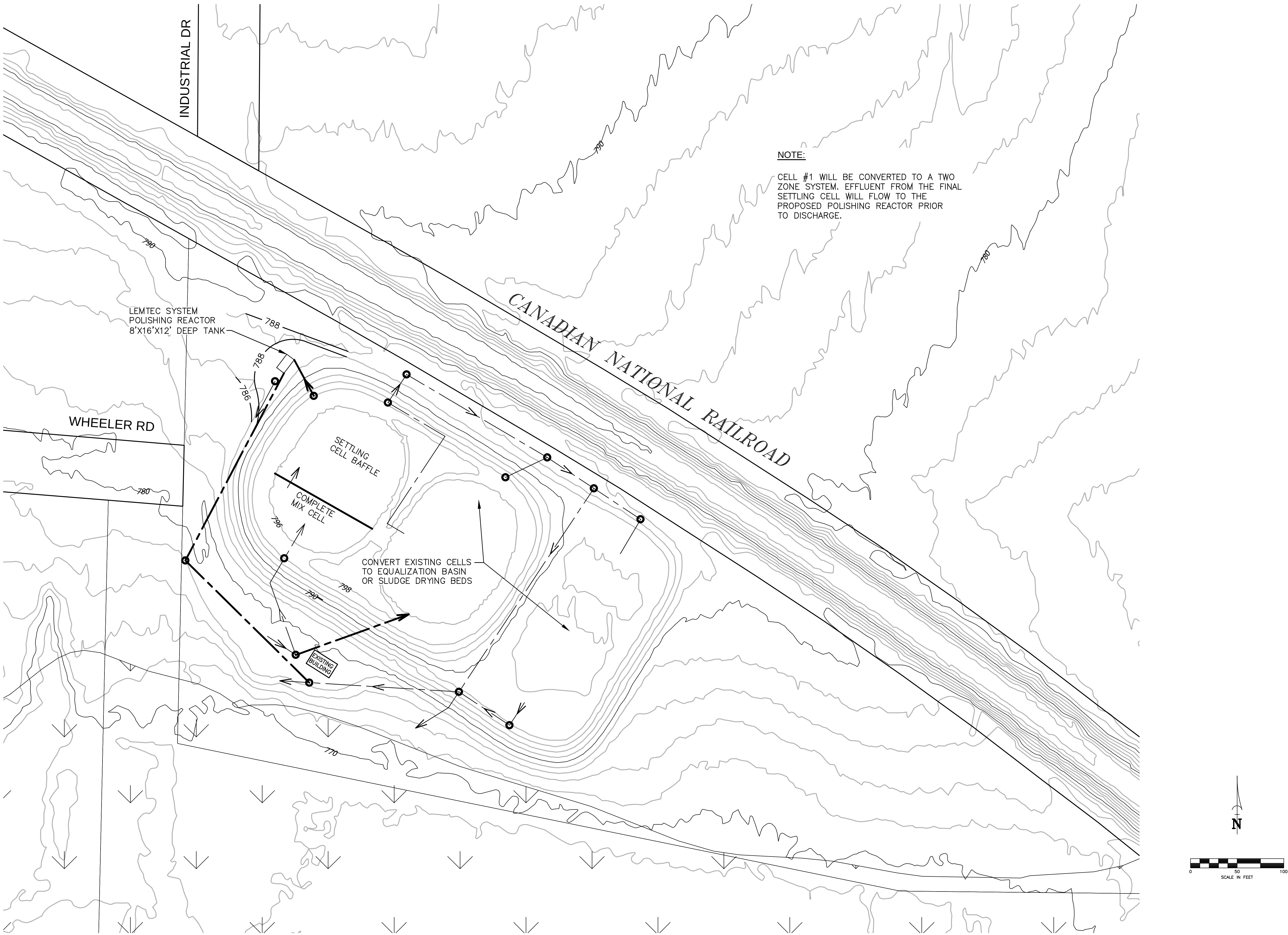

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FIGURE 4
DALE SANITARY DISTRICT
WASTEWATER TREATMENT FACILITY PLAN
ALTERNATE NO. 4 - LEMTEC SYSTEM BY LEMNA ENVIRONMENTAL TECHNOLOGIES

SCALE	DATE
BAR SCALE	5/17/18

COMPUTER FILE
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DRAWING NO.
1-0218-007

SECTION 5

Cost Estimates

SECTION 5

COST ESTIMATES

A. GENERAL

The estimated costs for each of the wastewater treatment alternatives summarized in Section 4 of this report will include both construction costs and operation, maintenance and replacement (OM&R) costs. In determining the cost effectiveness of the various alternatives, costs will be presented in terms of equivalent annual costs. The interest rate and time period utilized in the cost effectiveness analysis is 4 percent and 20 years, respectively.

B. ESTIMATED PROJECT COSTS

Preliminary project cost estimates presented herein are based on 2018 construction costs. Various material and equipment manufacturers and suppliers were contacted for information affecting cost estimates. Published and unpublished data on costs for similar kinds of construction were also utilized.

As previously stated, the estimated costs are for 2018. Increases in construction cost due to inflation are not taken into account. The cost estimates presented here are meant to be used as a guideline in the decision making process. Once a treatment alternative is selected and preparation of final drawings and specifications is underway, more refined cost estimates become available.

A cost breakdown for the different proposed alternatives is shown in Tables 5.1, 5.2, 5.3, and 5.4 respectively.

Table 5.1
Capital Cost Estimate - Alternative No. 1
NitrOx System by TriplePoint Environmental

Components by TriplePoint Environmental, Including:	$180,000
Positive Displacement Blowers and Enclosures For NitrOx System (Two 10 Hp)	
Blower Controls and VFD	
NitrOx Tank Media	
Stainless Steel Aeration Grid	
Media Retention Sieves	
Electric Heater and Controls	
Insulated NitrOx Tank Covers	
Product Delivery	
Installation Supervision	
Screening Prior to Nitrox System	$30,000
NitrOx System Blower Building	$40,000
Installation of Process Equipment	$25,000
Site Grading and Fill	$60,000
Concrete NitrOx Tanks (Approx. 8'x8'x11')	$35,000
Piping, Manholes, Valves	$15,000
Electrical and Lighting	$30,000
Replace Existing Aeration Piping, Diffusers and Blowers	$60,000
Fencing and Miscellaneous Site Work	$25,000
Subtotal	**$500,000**
Contingencies, Engineering, Legal, Administration (25%)	$125,000
Total Estimated Capital Cost	**$625,000**

Table 5.2
Capital Cost Estimate - Alternative No. 2
OPTAER System by Nexom

Components by Nexom, Including:	$145,000
Influent Flow Distribution Piping/Chambers and Effluent Collection Chambers	
Aeration diffusers, feeder and lateral piping	
Positive Displacement Blowers For OPTAER System (Two 10 Hp)	
Blower Controls	
Product Delivery	
Installation Supervision	
OPTAER System Blower Building	$40,000
Site Grading and Fill	$90,000
OPTAER Tank Framing and Sheathing	$5,500
Clean Rock Media	$46,200
Insulating Wood Chips	$2,100
Geotextile Fabric	$2,200
HDPE Liner	$18,000
Splitter Structure	$7,500
Piping, Manholes, Valves	$40,000
Effluent Level Control Manholes	$10,000
Installation of Process Equipment	$30,000
Electrical and Lighting	$30,000
Replace Existing Aeration Piping, Diffusers and Blowers	$60,000
Fencing and Miscellaneous Site Work	$25,000
Subtotal	**$551,500**
Contingencies, Engineering, Legal, Administration (25%)	$137,900
Total Estimated Capital Cost	**$689,400**

Table 5.3
Capital Cost Estimate - Alternative No. 3
FAST System by Smith and Loveless

Components by Smith and Loveless, Including:	$275,000
Positive Displacement Blowers for FAST (Four 10 Hp)	
Blower Controls	
FAST Components	
Flow Equalization Components	
Product Delivery	
Installation Supervision	
Installation of Process Equipment	$50,000
Raw Sewage Lift Station	$175,000
FAST System Blower Building	$50,000
Site Grading and Fill	$50,000
Concrete Tanks	$150,000
Piping, Manholes, Valves	$50,000
Electrical and Lighting	$40,000
Replace Existing Aeration Piping, Diffusers and Blowers	$60,000
Fencing and Miscellaneous Site Work	$25,000
Subtotal	**$925,000**
Contingencies, Engineering, Legal, Administration (25%)	$231,300
Total Estimated Capital Cost	**$1,156,300**

Table 5.4
Capital Cost Estimate - Alternative No. 4
LemTec System by Lemna Environmental

Components by Lemna Environmental, Including:	$250,000
Insulated Cover	
Baffle System	
Aeration System and Piping	
Blowers and Controls (Two 15 Hp)	
Polishing Reactor Media	
Product Delivery	
Installation Supervision	
Installation of Process Equipment	$60,000
Convert Existing Ponds	$50,000
Site Grading and Fill	$35,000
Concrete Polishing Reactor Tank (Approx. 8'x16'x12')	$25,000
Piping, Manholes, Valves	$40,000
Electrical, Lighting and Controls	$40,000
Fencing and Miscellaneous Site Work	$25,000
Subtotal	**$525,000**
Contingencies, Engineering, Legal, Administration (25%)	$131,300
Total Estimated Capital Cost	**$656,300**

C. ESTIMATED OPERATION AND MAINTENANCE COSTS

Additional estimated OM&R costs resulting from implementation of each alternative are shown in Table 5.5. For the purpose of this study, the O&M costs shown below consist primarily of additional electrical utility fees related to each alternative. These O&M costs would be above and beyond the existing O&M costs for the existing treatment facility.

Table 5.5
Additional Operational and Maintenance Costs

Alternative	Additional O&M Costs
Alternative No. 1 – NitrOx System	$19,600
Alternative No. 2 – OPTAER System	$4,200
Alternative No. 3 – FAST System	$23,300
Alternative No. 4 – LemTec System	$8,500

D. TOTAL ANNUAL COSTS

Table 5.6 summarizes the total annual cost for each treatment alternative. The initial capital cost was annualized with a four percent interest rate and a 20 year planning period for the cost effectiveness analysis. According to the results, Alternative No. 2 proposing the OPTAER System by Nexom provides the most cost effective means of wastewater treatment.

Table 5.6
Cost Summary for Wastewater Treatment Alternatives – Total Annual Cost

Alternative	Alternative No. 1 NitrOx System	Alternative No. 2 OPTAER System	Alternative No. 3 FAST System	Alternative No. 4 LemTec System
Capital Cost	$625,000	$689,400	$1,156,300	$656,300
Equivalent Annual Cost	$46,000	$50,700	$85,100	$48,300
Additional OM&R Cost	$19,600	$4,200	$23,300	$8,500
Total Annual Cost	$65,600	$54,900	$108,400	$56,800

SECTION 6

Recommendations and Implementation Plan

SECTION 6

RECOMMENDATIONS AND IMPLEMENTATION PLAN

A. GENERAL

In the previous section, each alternative is considered in terms of cost, environmental and operational considerations. The ranking of alternatives according to monetary costs is relatively straight forward because of the quantitative nature of the evaluation. The monetary evaluation indicated that construction of the OPTAER tertiary treatment system is the most cost-effective method to meet WPDES permit ammonia effluent limits. In addition, this system utilizes the existing lagoon infrastructure, and is relatively easy to operate and maintain. The process is proven to be effective for operation in cold weather climates. During the design phase, consideration will be given to providing separate blowers for the OPTAER system, or using common blowers for both this system and the aerated lagoons all housed in the existing building.

B. PUBLIC PARTICIPATION

Wastewater treatment facilities are designed for the benefit of the residents within the service area. To adequately assess the needs and desires of a community, public comments must be received. A public hearing should be held to discuss the contents of this Wastewater Treatment Facility Plan. A notice for this hearing should be published in the local newspaper.

C. RECOMMENDED ALTERNATIVE

Construction of the OPTAER tertiary treatment system alternative proposed by Nexom is the recommended wastewater treatment alternative to meet the WPDES permit ammonia effluent limits.

D. ARRANGEMENTS FOR IMPLEMENTATION

Institutional Responsibility

The Dale Sanitary District has the legal authority to construct and operate the proposed facility improvements and to request grant and/or loan participation from various agencies if so desired.

Current Dale Sanitary District Sewer Utility Rates

The current Dale Sanitary District Sewer Utility Rates include a fixed fee based on the type of customer. Quarterly fixed fees are as follows:

Residential:	$84.00
Apartments:	$84.00
Commercial:	$108.00
Alzena Subdivision Residents:	$147.00
Public Buildings:	$108.00

Table 5.6 in Section 5 of the Facility Plan includes a summary of estimated total annual costs. Capital costs are annualized with a 4% interest rate and a 20-year planning period. Additional OM&R costs are also included. The estimated total annual cost associated with Alternative No.

2 proposing the recommended OPTAER System is $54,900. This annual cost divided by the current 202 users results in an annual cost of $271.78 per year per user, or $67.95 per quarter per user. This will result in a significant increase to user fees. The Sanitary District will seek funding sources to reduce costs to their users.

Financial Responsibility

In order to make the wastewater improvements affordable for the citizens within the study area, some form of financial assistance program or method of financing the improvements will be necessary. A few of the options available are discussed in the following section.

E. FUNDING OPTIONS

Financial Assistance

There are a number of debt types that are used by municipalities to finance the capital costs of the proposed improvements projects. General obligation notes and bonds, revenue bonds, special assessment bonds, and hybrid revenue bonds are typical debt types. General obligation bonds are repaid primarily by property tax revenue. Revenue bonds are repaid by user charges from specified activities such as sewer charges. Special assessment bonds are levied against benefitted properties. Hybrid revenue bonds are a combination of user charge revenue and special assessment revenue.

Loan and grant funds for wastewater system improvements are available from various State of Wisconsin agencies. Many of the funding options available from these state agencies are dependent on the municipality's Median Household Income (MHI). Data regarding Median Household Income for 2015 (to be used for WI SFY 2019 projects) is available on the Wisconsin Department of Natural Resources web site. The Median Household Income for the State of Wisconsin is $54,610, and 80% of the State Median Household Income (a threshold used for the Clean Water Fund Hardship Financial Assistance program) is $43,688.

Data available from the WDNR website indicates that the Median Household Income for the Town of Dale as a whole is $81,686, and for the community of Dale, shown as a Census Designated Place (CDP), is $57,109. With these figures are being above the State MHI, the Sanitary District would not be eligible for some of the options discussed below.

Community Development Block Grants for Public Facilities

Municipalities with a population less than 50,000 are eligible for Community Development Block Grant funds for installation, upgrade or expansion of municipal wastewater systems. This program is administered by the Wisconsin Economic Development Corporation.

The maximum grant/loan amount is $500,000. Program funds are typically no more than 30% of the local share of the project cost.

All awards are in the form of a grant with substantial match. Award criteria is based on documentation of need, household incomes, household utility rates, ability to pay, matching funds, project readiness, and relationships to other activities taking place in the community. Also considered are efforts to secure funding from the WDNR Environmental Improvement Fund and USDA Rural Development.

Clean Water Fund Program

Any municipality or utility district is eligible to apply for low interest loans or hardship grants through the Clean Water Fund Program to construct or modify municipal wastewater systems to maintain compliance with existing effluent limits or to meet new or changed effluent limits. This program is administered by the Wisconsin Department of Natural Resources.

Hardship Financial Assistance are grants given to municipalities or utility districts with low income and high user costs and are 70% of the project maximum. To be eligible for Hardship financial assistance, municipalities must meet the following:

- The municipality's adjusted Median Household Income (MHI) must be 80% or less of the state's adjusted MHI.
- The estimated total annual residential user charge that relates to wastewater treatment would exceed 2% of the municipality's adjusted MHI.

The application process involves submitting an Intent to Apply (ITA) and a Priority Evaluation and Ranking Form (PERF) to WDNR by October 31st for the following state fiscal year funding cycle. The WDNR publishes a project priority list the following spring. The applicant then submits a loan or hardship grant application.

The expected interest rate for a Clean Water Fund Loan for 2019 is 1.980% and is available for wastewater projects less than $2,000,000. The maximum loan term is 20 years. Board of Commissioners of Public Lands Small Loan Program funds are sometimes available in conjunction with the Clean Water Fund loan program.

Dale Sanitary District proposes to seek Clean Water Funds for the improvements proposed in the Plan in accordance with WI Administrative Code NR 162. It is understood that a parallel cost estimate is needed to apply for financing at below-market interest rates for the portion of the capital costs required to provide treatment for non-industrial wastewater flows over the next 10 years. Note that wastewater treatment improvements proposed in this Plan will be designed to treat non-industrial flows. In addition, proposed improvements do not provide reserve capacity for population growth beyond 10 years, or any flows outside of flows eligible for below-market rate financing in Wisconsin Administrative Code NR 162.04(1). The Plan's projected average daily flow for Design Year 2040 is equal to the facilities existing average daily design flow of 60,000 gallons per day. As a result, the estimated parallel cost percentage for the improvements proposed in the Dale Sanitary District Wastewater Treatment Plan is 100%.

USDA Rural Development

USDA Rural Development provides loans and grants to construct, improve, or modify municipal wastewater systems to municipalities and utility districts with a population up to 10,000. Priority is given to municipalities with a population less than 5,500, projects serving low income communities, and projects necessary to alleviate a health or sanitary problem.

Median household income level, user rates and debt repayment ability apply to grant eligibility. Low interest loans for 100% of the project amount are also available, for a loan term of 40 years. The interest rate is based on the need for the project and the median household income of the area to be served.

Applications are accepted throughout the fiscal year of October 1 through September 30th.

F. IMPLEMENTATION SCHEDULE

WDNR has set the following deadlines for Ammonia Effluent Limit Facility Modifications in the current WPDES permit.

1. Submit Facilities Plan for WDNR Review	September 30, 2018
2. Submit Plans and Specifications for WDNR Review	March 31, 2019
3. Initiate Actions (Begin Construction)	October 1, 2019
4. Complete Actions (Complete Construction)	September 31, 2020

It is recommended that the Dale Sanitary District submit an Intent to Apply for WDNR Clean Water Funds by the October 31, 2018 deadline and submit a WDNR Clean Water Fund Application by the June 30, 2019 application deadline to receive State Fiscal Year 2020 funds.