Preliminary Engineering Report

MAIN STREET STORMWATER SEPARATION AND CSO ABATEMENT, RF1-217

NORTHFIELD, VERMONT

January 28, 2019

STATE OF VERMONT
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PROFESSIONAL ENGINEER

1-28-19

Submitted to:
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SECTION 1
PROJECT PLANNING

General

The project planning area is within the Town of Northfield in Washington County, Vermont. The Wastewater Collection System serves the village center, Norwich University and the majority of Northfield Center. The Northfield Wastewater Treatment Plant and Northfield Stormwater Collection System discharge to the Dog River and are part of the Winooski River and Lake Champlain Basin Watersheds. The wastewater system provides service to approximately 3,500 residents.

The extents of the wastewater collection service area are shown in the location map, Figure 1-1. The project planning area, which includes two locations on and adjacent to North Main Street and South Main Street, is also shown on this map.

Environmental Resources

There are limited environmental resources present in the project planning area that affect design of the project. The environmental resource that is present is the Dog River and its associated flood zone and river corridor, which is shown in Figure 1-2. The proposed project is located outside of the flood zone and river corridor to avoid negative effects.

A review f data on the ANR Natural Resources Atlas shows a hazardous site at 245 S. Main Street with no contamination detected outside the former underground storage tank site. There are no other mapped hazardous sites in the project area.

Growth and Population Trends

The 2010 US Census population for Northfield Town is 6,207. The Town population has grown consistently over the last 100 years, as shown in Figure 1-3.

A linear projection of the historical Census population data shows a growth trend of 0.49% per year. The linear projection is higher than population projections included in the Northfield Town Plan, which show estimates in the mid 6,500s in 2030. In comparison, a projection for this report using the 0.49% annual growth results in an estimate of the 2030 population at 6,813. In the future planning year 2039, 20 years from 2019, the population is estimated at 7,122, also using the 0.49% annual growth.

Community Engagement

The Town involves the community in the project planning process by conducting public meetings to discuss the need for infrastructure improvements. These meetings are typically at Selectboard meetings, which are open to the public and held twice per month. The Town also has a Water and Wastewater Commission, which meets on a monthly basis. Public informational meetings conducted in advance of bond votes will be held in addition to normal Selectboard and Water and Wastewater Commission meetings.

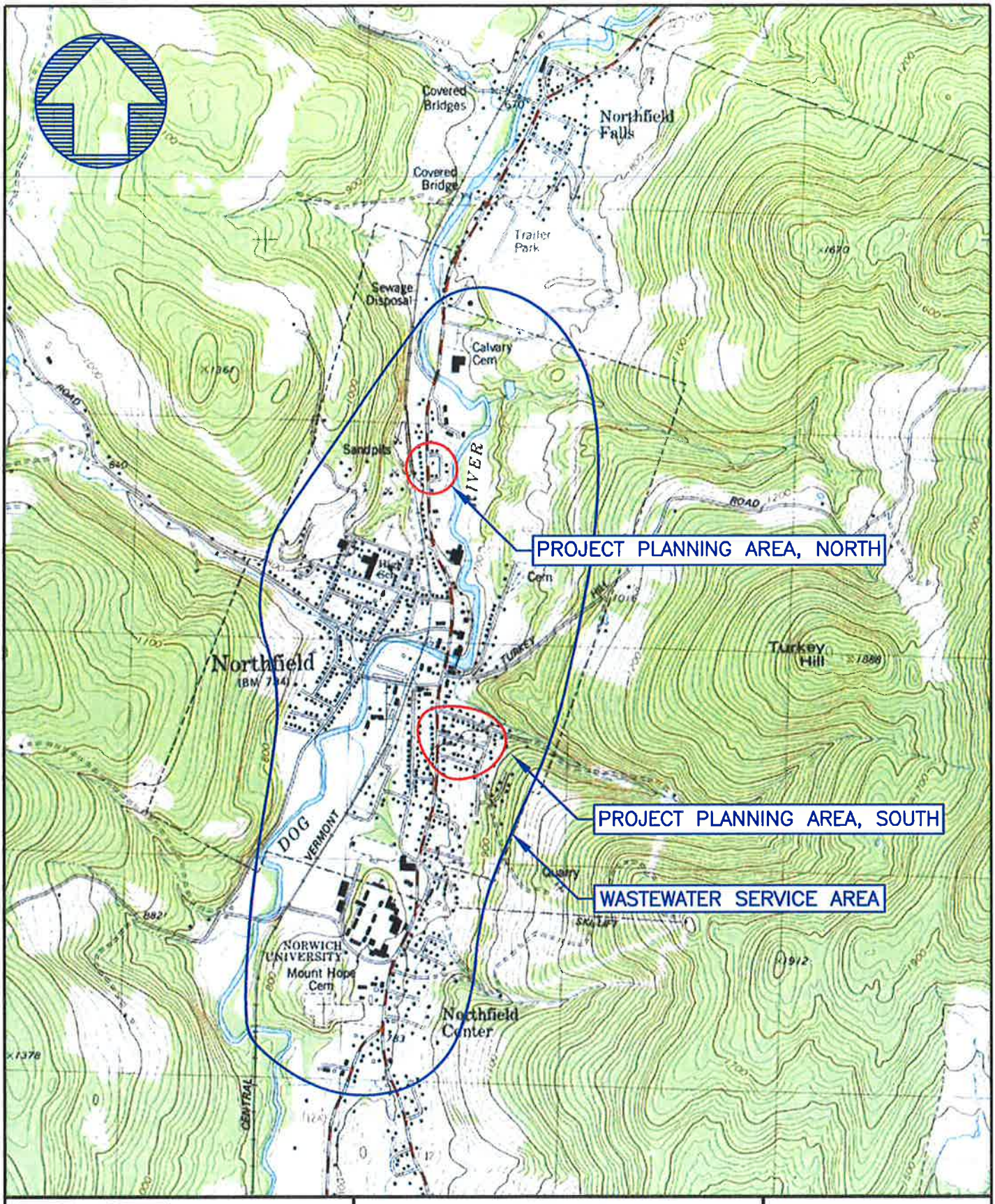

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FIGURE 1-1

LOCATION MAP

NORTHFIELD, VERMONT

PROJECT NO. 000000
PROJECT MJR. BLB
SCALE 1"=2000'
DATE DECEMBER 2018
DRAWING NO. Location Map.dwg

FILE: W:\CADD Files\Northfield VT\Main Street Drainage and CSO PER\Location Map.dwg Dec 28, 2018 - 10:44am

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)

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FIGURE 1-2

FEMA FLOOD ZONE LOCATION MAP

NORTHFIELD, VERMONT

PROJECT NO. 7180023
PROJECT MJR. NRJ
SCALE AS SHOWN
DATE JAN., 2019
DRAWING NO. FEMA Flood Zone.dwg

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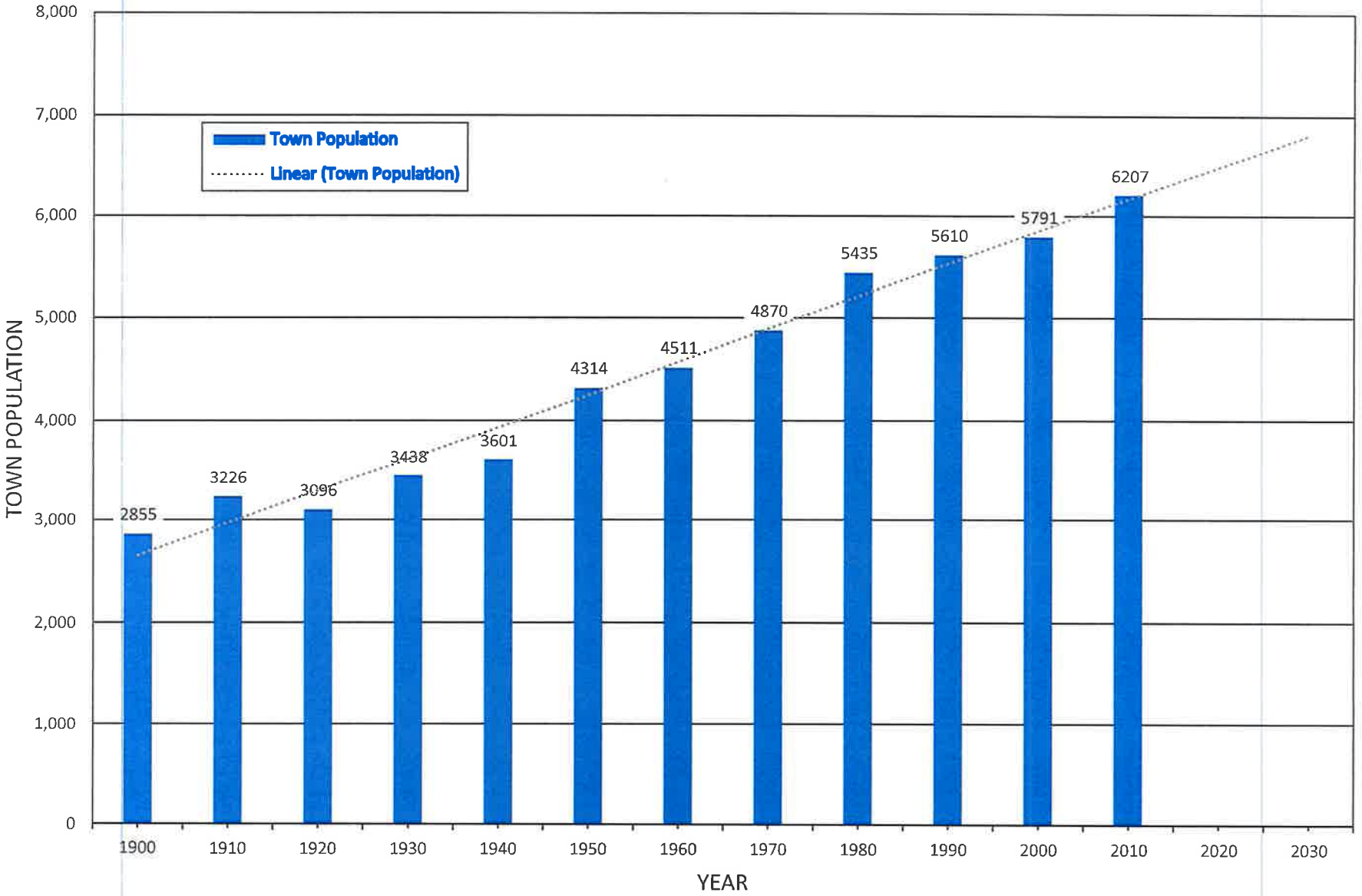
FIGURE 1-3
HISTORIC AND PROJECTED POPULATION



SECTION 2
EXISTING CONDITIONS

The Northfield wastewater facilities system includes the collection system, three pump stations and the Wastewater Treatment Plant (WWTP). The collection system is a combined system, with stormwater flow entering the system and adding to the total flow to the WWTP. During storm events, combined storm and wastewater flows can overflow at a location on East Street.

The Northfield wastewater collection system originally contained three Combined Sewer Overflows (CSO) outfalls. An extensive sewer separation project in the 1990s eliminated two outfalls, therefore the East Street CSO is the only CSO in the system. The East Street CSO location is Latitude 44.148657 and Longitude 72.655317. The Town is required to have East Street CSO (#04) in compliance with the 2016 CSO Overflow Rule under the pending 1272 Order to be issued by the Watershed Management Division Wastewater Program.

The remaining areas with combined sewers are described as follows:

1. South Main Street: Catch basins on South Main Street between South Street and Slate Avenue, a distance of 1,150 ft, connect to the existing 16-inch diameter sanitary sewer. The South Main Street sewer main has connecting mains from Slate Avenue, Elm Street and Prospect Street, which are also combined sewers. These areas contribute flows to CSO #04. The catch basins connected to the three side street sewers and to South Main Street sewer are shown in Figure 2-1. At the upper end of Slate Avenue, the catch basins discharge overland and do not connect to the sewer main.

2. North Main Street: Catch basins on Houston Street connect to the sanitary sewer collection system. Catch basins on North Main Street at Houston Street also connect to the sanitary sewer. The catch basins on Sherman Avenue discharge east with overland flow to the Dog River. The drain line is a 6-inch diameter main that has root intrusion. There is also a collection basin on private property at 483 North Main Street that connects to the sewer main. None of these areas contribute flows to CSO #04. The existing facilities are shown in Figure 2-2.

Immediately north of the South Main Street combined sewers, an existing storm drain system collects runoff from Central Street and the Northfield Commons area and conveys it, following treatment, to the Dog River. The combined sewers in the Northfield Commons area were separated as part of a CSO elimination project in 1993. Stormwater from this area discharges through a 30-inch diameter pipe to the Dog River.

LEGEND

S	8" COMBINED SEWER
S	10" COMBINED SEWER
S	12" COMBINED SEWER
S	16"+ COMBINED SEWER
D	12" STORM DRAIN
D	15" STORM DRAIN
D	24" STORM DRAIN
D	30" STORM DRAIN
S	SMH
	CB–COMBINED
	CB–SEPARATED

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Project #	7180023
Project Mgr.	NRJ
Design	
Drawn	BLB
Checked by	
Date	DEC 2018
Scale	1"=200'
Approved by	NRJ

TOWN OF NORTHFIELD
MAIN STREET DRAINAGE IMPROVEMENTS AND CSO

FIGURE 2-1
SOUTH MAIN STREET
EXISTING SITE PLA N

NORTHFIELD, VERMONT

2-1

DWG. NO.

SHEET 1 OF 1

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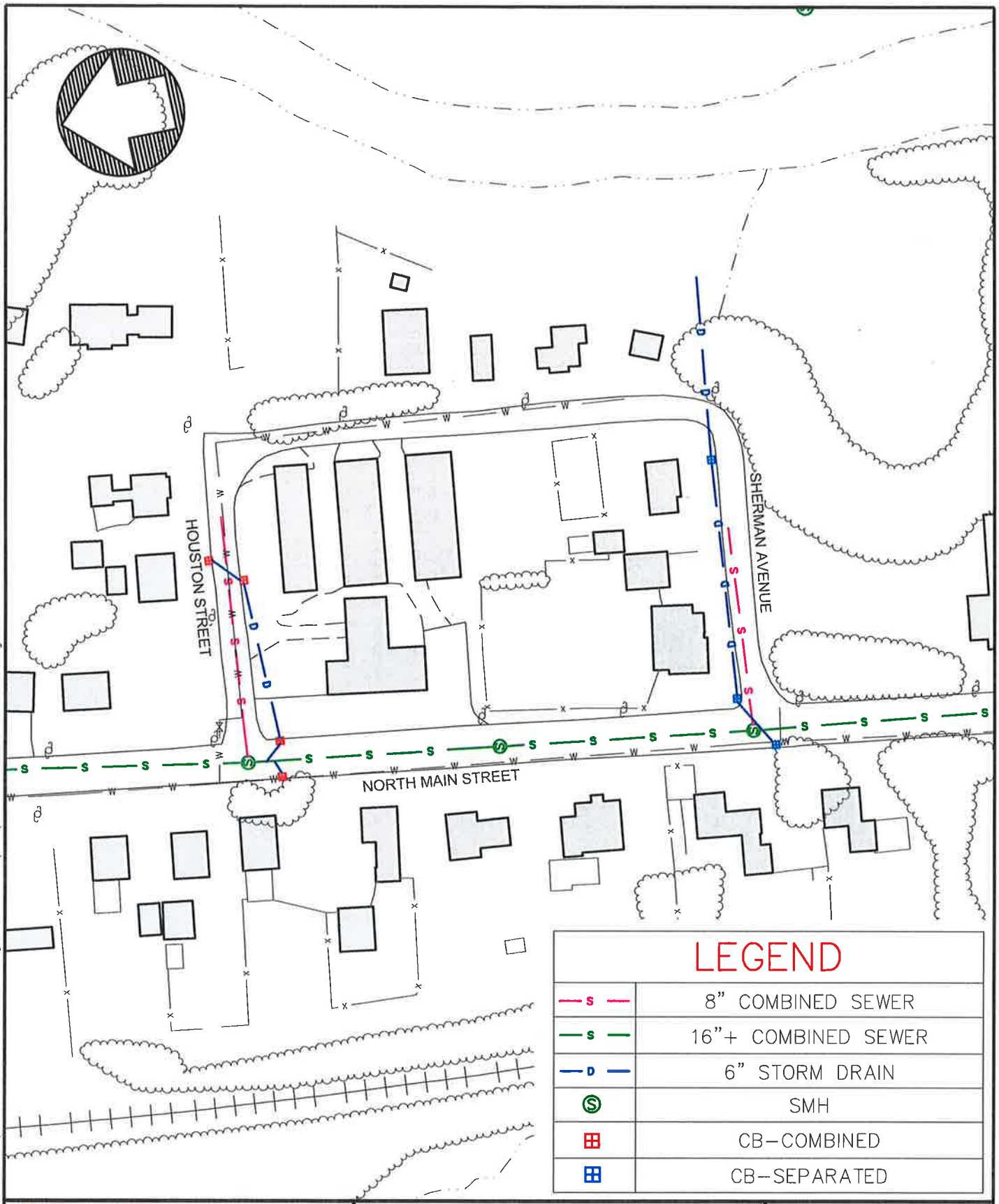

LEGEND	
S	8" COMBINED SEWER
S	16"+ COMBINED SEWER
D	6" STORM DRAIN
S	SMH
	CB–COMBINED
	CB–SEPARATED

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FIGURE NO 2-2

NORTH MAIN STREET EXISTING SITE PLAN

NORTHFIELD, VERMONT

PROJECT NO. 7180023
PROJECT MJR. NRJ
SCALE 1" = 100'
DATE DEC 2018
DRAWING NO.

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The Central Street catch basins were disconnected from the sanitary sewer system in 2015. Stormwater from this area discharges to a rain garden, which overflows to the Northfield Commons storm drain system at the intersection of Central and Wall St. A vortex chamber and bioretention basin were installed in 2016 at the outlet of the 30-inch pipe installed in the 1993 CSO project. Figure 2-3 shows the areas described above.

A survey of the existing catch basins to obtain structure elevations and pipe invert elevations was completed in September and October 2018. The condition of the brick and concrete structures was observed to be adequate considering their age, which is 40-50 years.

The South Main Street combined sewers are located south of the East Street CSO. Therefore, their contribution of flows to the wastewater system increases the possibility of an overflow of untreated waste to the Dog River. During the last three years, there have been seven authorized wet weather overflows at this CSO based on the State Wastewater Inventory database records. Examples of these reports are included in the Appendices.

The North Main Street combined sewers are located North of the East Street CSO and do not contribute to a potential overflow at this location. Stormwater that enters the sanitary sewer collection system through catch basins in this area is treated at the WWTP and increases the total flows to the WWTP.

These storm drain system connections are the remaining combined sewers in Northfield. There is one large former factory building north of East Street, known locally as the Nantana building, that has roof drain connections to the sewer collection system. The Town is working with the new building owner to eliminate the connections.

The pending 1272 Order will contain a requirement for the Town to develop a Long-Term Control Plan within 18 months of the Order's effective date as well as other minimum controls. The requirement for a Long-Term Plan only applies to towns with combined sewer overflow outfalls. Once the East Street CSO is eliminated, the 1272 Order requirements no longer apply.

The Town Wastewater Department obtains revenue through the collection of user fees based on metered water consumption. Users are billed monthly. Additional discussion of user rates is included in Section 5.

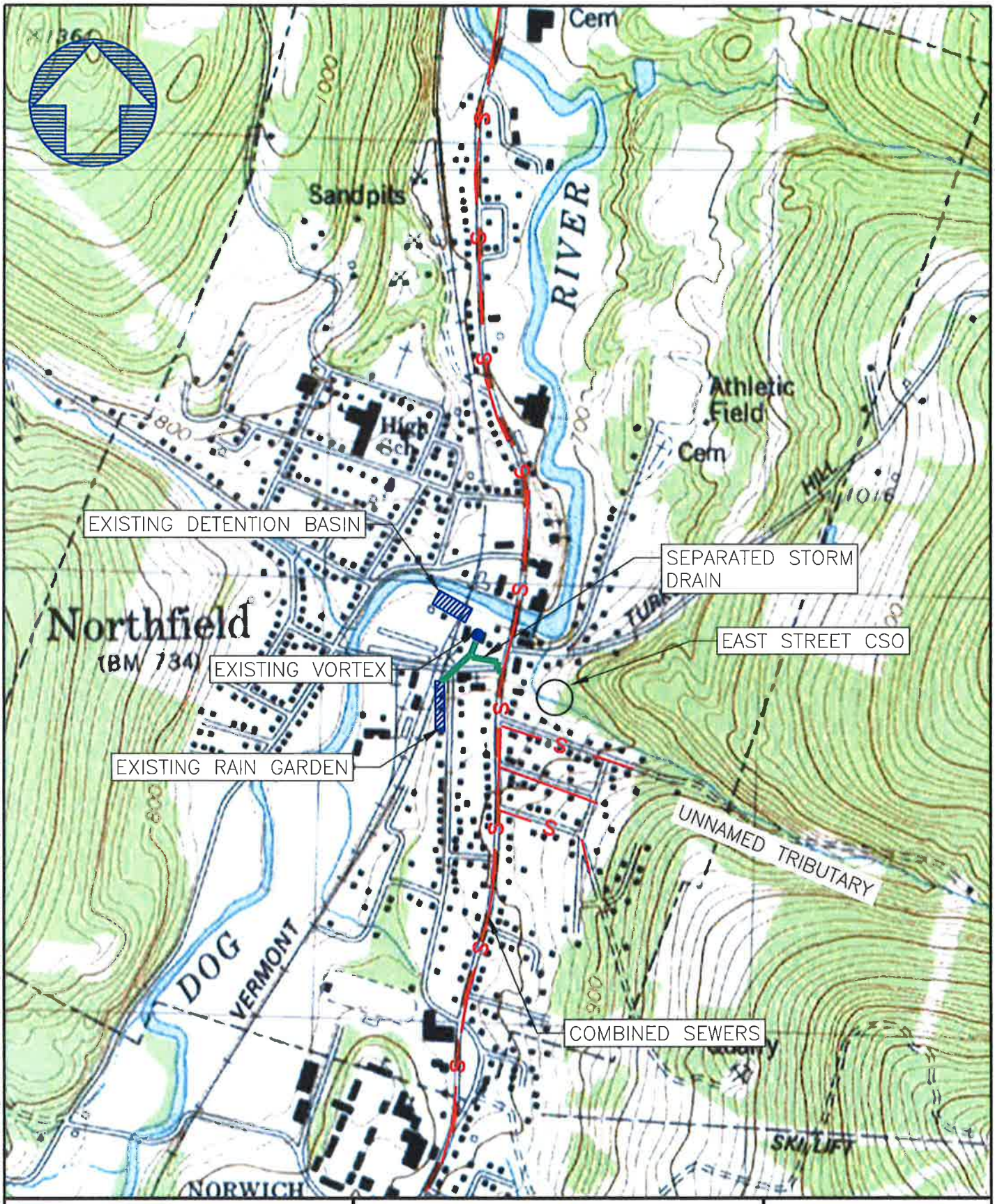

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FIGURE 2-3

MAIN STREET DRAINAGE SYSTEM

NORTHFIELD, VERMONT

PROJECT NO. 7180023
PROJECT MJR. BLB
SCALE 1" = 1,000'
DATE MAR 2018
DRAWING NO.

SECTION 3
NEED FOR PROJECT

Project Needs

The combined sewers in the project planning area are the last known combined sewers in town. Separation of the combined sewers on and adjacent to South Main Street will allow elimination of the last remaining CSO. This action addresses Health, Sanitation and Security needs. Although the CSO might be considered to be compliant with the 2016 CSO rule, each overflow event represents an environmental and water quality concern that can be addressed by the CSO elimination. In addition, CSO elimination will eliminate 1272 Order compliance needs, including the burdensome preparation of a Long-Term Control Plan.

Aging Infrastructure is a lesser concern compared to health and sanitary needs, but it is an issue for the combined sewer infrastructure. Most of the pipelines, catch basins and the outfall structure are over 50 years old and either due for replacement or subject to continued maintenance.

Reasonable Growth is not an issue related to the project planning area and does not factor into the need for the project.

SECTION 4
ALTERNATIVES CONSIDERED AND SELECTED

General

The evaluation of existing conditions describes the combined sewers on North Main Street and South Main Street that are within the project planning areas. The objective of this report is to identify alternatives to separate the combined sewers and reduce the inflow of stormwater to the Northfield sewer collection system. The eliminated stormwater inflow will reduce flows to the Wastewater Treatment Facility and overflows at the East Street CSO, allowing elimination of this CSO.

Alternative Improvements

The alternatives for both the North and South Main Street project areas include the Do Nothing alternative. The Do Nothing alternative is maintaining the existing combined sewers and not separating the sewers. This alternative does not meet the project need and Town objectives for eliminating the East Street CSO, and is therefore not considered further in this evaluation.

The two separate project areas also share the same potential alternatives for addressing the project need: 1) separation of stormwater from the sewer with discharge to surface water or 2) stormwater separation with treatment prior to discharge.

South Main Street

Separation of the combined sewers requires construction of a storm drain network to collect the stormwater from Slate Avenue, Elm Street, Prospect Street, Highland Avenue and portions of Byam Hill and Hill Street. The most downgradient location of this collection area is the intersection of South Main Street and Slate Avenue. From this location, the stormwater must be routed to a discharge location.

The stormwater treatment systems installed by the Town in 2016 north and west of the Northfield Commons area were intended to accommodate the flows from the South Main Street area once storm separation is accomplished. Connection to this system will require new storm drain from the west end of Slate Avenue to Wall Street. The proposed collection system is shown in Figure 4-1.

The alternative to a storm drain collection system for the entire drainage area is to treat a portion of the runoff with infiltration as a green stormwater practice. Infiltration is accomplished by trenches or basins constructed of washed stone wrapped in filter fabric. Stormwater is temporarily stored in the voids between stones and infiltrates through the soils below over time. Based on a review of soils mapping, the area appears suitable for infiltration as the NRCS soils data has an infiltration rate of 0.6 inches per hour, which is above the minimum of 0.2 inches per hour required. Field testing is required to confirm soil suitability.

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)

LEGEND:

PROPOSED STORM DRAIN - D

EXISTING STORM DRAIN - D

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Project #	7180023
Project Mgr.	BLB
Design	BLB
Drawn	MCB
Checked by	NRJ
Date	DEC., 2018
Scale	AS SHOWN
Approved by	NRJ

MAIN STREET STORMWATER SEPARATION

SOUTH MAIN STREET PROPOSED IMPROVEMENTS - ALTERNATIVE 1

NORTHFIELD, VERMONT

FIG 4-1

DWG. NO. Proposed Improvements.dwg

SHEET 1 OF 1

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Hydrologic analyses were completed to develop preliminary sizing for infiltration systems located along Highland Avenue, which would intercept stormwater before it travels down to South Main Street. The design storm used for the analysis is the 2 year storm. The conceptual design shows the required infiltration trench dimensions are 4 ft wide x 4 ft deep x 50 ft long to treat the 2 year storm. Phosphorus reduction estimates are shown in the calculation sheets included in the appendices.

Incorporating stormwater treatment has an economical advantage compared to collecting and conveying the stormwater downstream with a storm drain network since the costs per foot of infiltration trench are less than the costs per foot for a storm drain system. The alternative with infiltration trenches, which is a Tier 1 stormwater practice under the Vermont Stormwater Rules, is shown in Figure 4-2.

North Main Street

Separation of the combined sewers on North Main Street and Houston Avenue requires construction of a storm drain collection system on Houston Street with a discharge east to the Dog River. The existing drain system on Sherman Avenue is deteriorated and should be replaced to maintain the separation of this area from the sanitary sewer system.

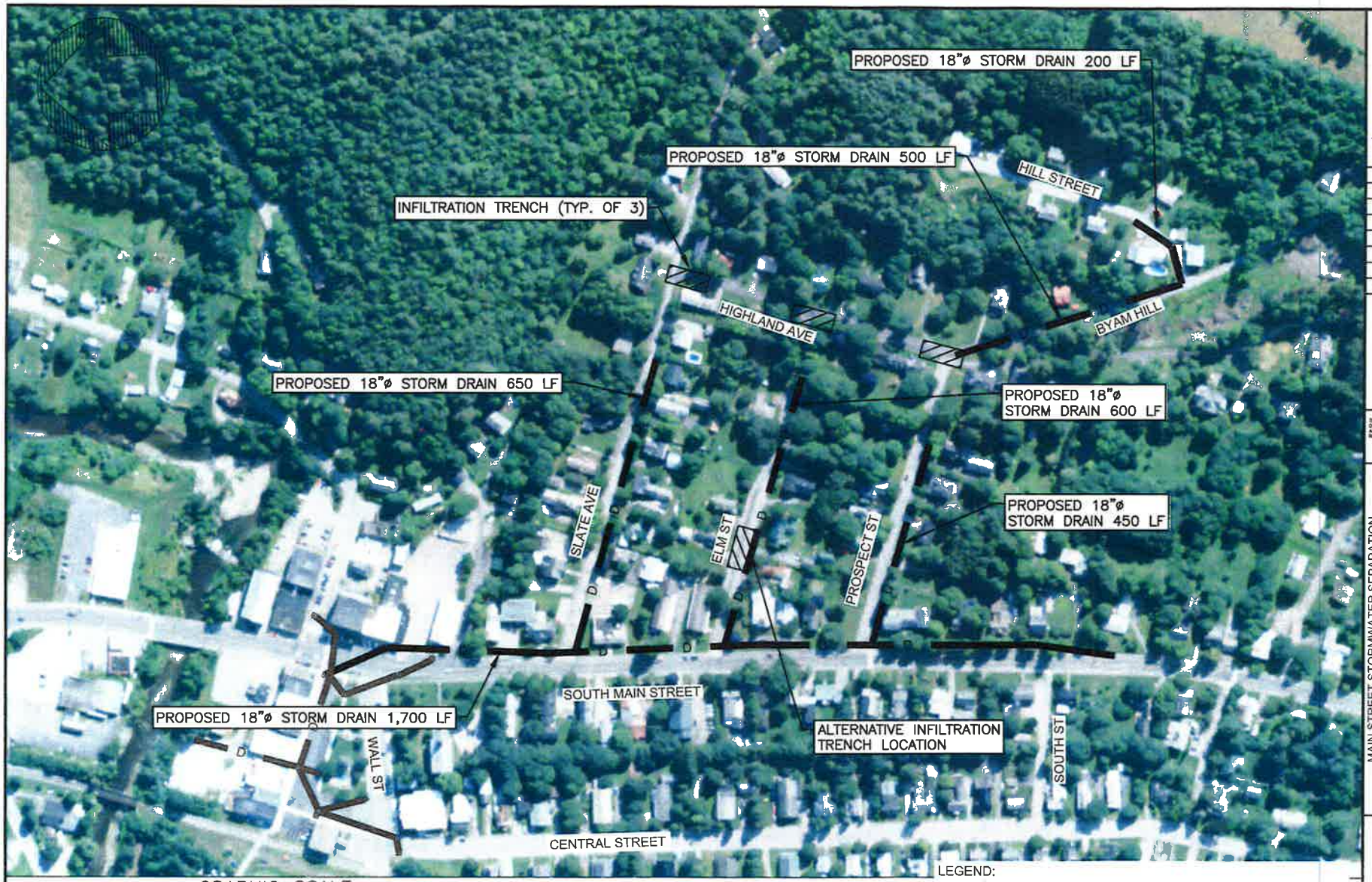
The Sherman Avenue storm drain discharges on property shown as parcel 922-001 owned by Margaret Lefebvre. The outfall is within the FEMA 100 year flood zone and therefore construction of treatment infrastructure at this location is not recommended.

The parcel directly east of Houston Avenue, where a new discharge would most likely be located, is labeled on the Town tax maps as "?007" and it appears the owner of this irregularly shaped parcel is unknown. Additional research is required to determine the design location for a discharge and the feasibility of the Town obtaining an easement for the storm drain. These efforts should begin immediately.

The improvements for North Main Street are shown in Figure 4-3. This figure also shows an alternative infiltration trench system on Elm Street. This location has the advantage of more area for a treatment system and should be explored further during the initial design stages.

Cost Estimates

Preliminary construction costs for the recommended improvements at South Main Street (two alternatives) and North Main Street are shown in Tables 4-1, 4-2 and 4-3.



GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)

LEGEND:

PROPOSED STORM DRAIN - D

EXISTING STORM DRAIN - D

NOTES:

1. TRENCH WIDTHS ARE SHOWN EXAGGERATED. ACTUAL WIDTH IS APPROXIMATELY 4 FT.

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Project #	7160023
Project Mgr.	BLB
Design	BLB
Drawn	MCB
Checked by	NRJ
Date	DEC., 2018
Scale	AS SHOWN
Approved by	NRJ

MAIN STREET STORMWATER SEPARATION

SOUTH MAIN STREET PROPOSED IMPROVEMENTS - ALTERNATIVE 2

NORTHFIELD, VERMONT

FIG 4-2

DWG. NO. Proposed Improvements.d

SHEET 1 OF 1

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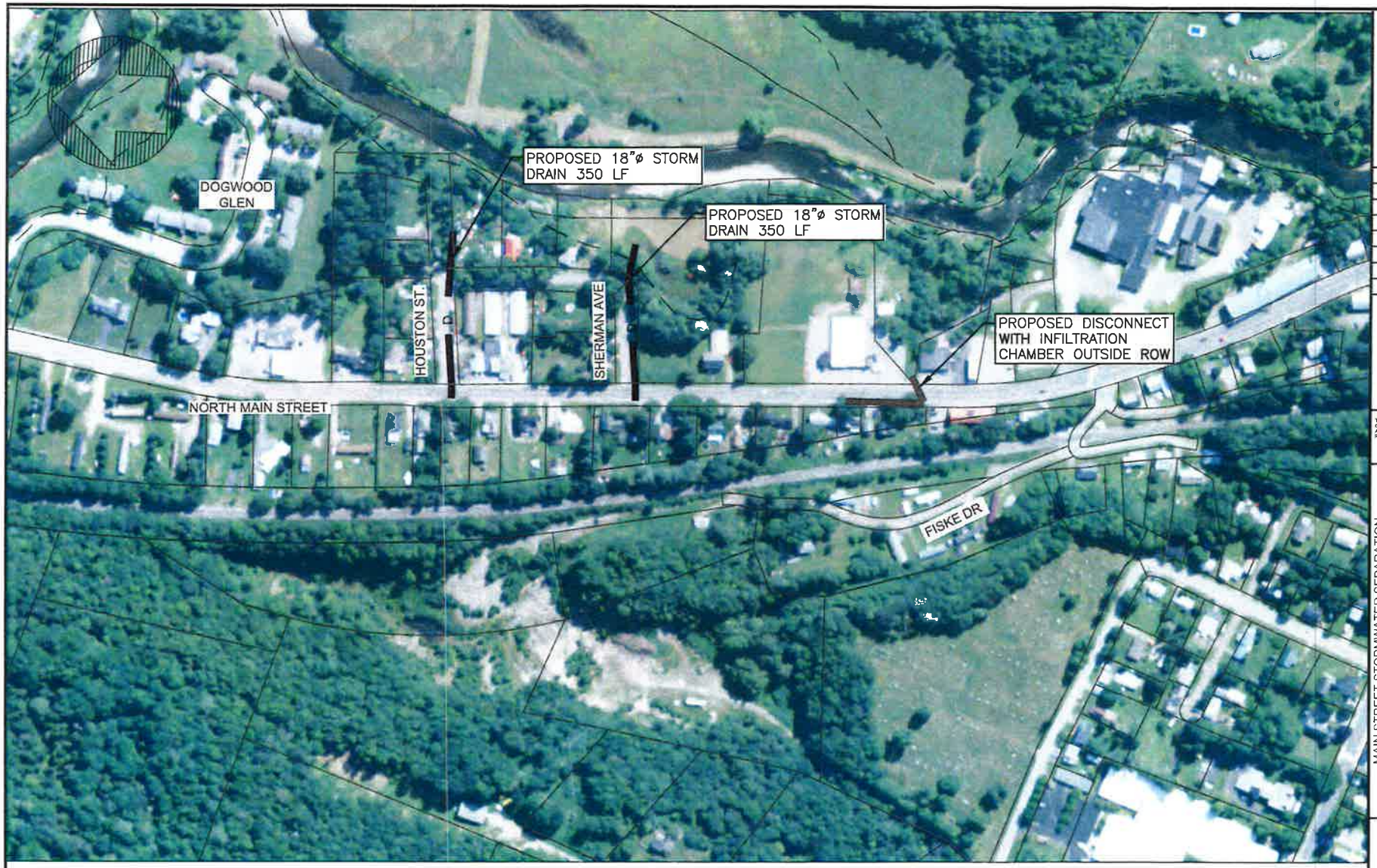

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)

LEGEND:

PROPOSED STORM DRAIN - D

EXISTING STORM DRAIN - D

PROPERTY LINES -

FLOOD ZONE -

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Project #	7180023
Project Mgr.	BLB
Design	BLB
Drawn	MCB
Checked by	NRJ
Date	DEC., 2018
Scale	AS SHOWN
Approved by	NRJ

MAIN STREET STORMWATER SEPARATION

NORTH MAIN STREET PROPOSED IMPROVEMENTS

NORTHFIELD, VERMONT

FIG 4-3

DWG. NO. Proposed Improvements

SHEET 1 OF 1

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TABLE 4-1
SOUTH MAIN ST. PROPOSED IMPROVEMENTS – ALT. 1
ESTIMATED CONSTRUCTION COSTS

Item	Length (ft)	Cost
Storm Drain Network:		
Slate Ave	850	$221,000
Elm St	600	$156,000
Prospect St	650	$169,000
Highland Ave	500	$130,000
Byam Hill	500	$130,000
Hill St	200	$52,000
S Main St	1,700	$442,000
Total Construction Cost		**$1,300,000**

Notes:

1. Unit prices are based on RS Means pricing and bid tabulations for recent projects. The estimates are made without the benefit of final design and actual costs may vary substantially. The cost estimates are dated December 2018, ENR = 11,186.
2. Storm drain network costs are based on a unit price of $260/lf that includes 18-inch HDPE pipe with 4 ft cover, standard catch basins, trench patch surface restoration, removal of existing catch basins, plugging connections to existing sewer main, miscellaneous work and cleanup inclusive of contractor overhead and profit.

TABLE 4-2
SOUTH MAIN ST. PROPOSED IMPROVEMENTS – ALT. 2
ESTIMATED CONSTRUCTION COSTS

Item	Length (ft)	Cost
Storm Drain Network:		
Slate Ave	650	$169,000
Elm St	600	$156,000
Prospect St	450	$117,000
S Main St	1,700	$442,000
Green Stormwater System:		
Infiltration Trenches	150	$23,000
Byam Hill	500	$130,000
Hill St	200	$52,000
Total Construction Cost		**$1,089,000**

Notes:

1. Unit prices are based on RS Means pricing and bid tabulations for recent projects. The estimates are made without the benefit of final design and actual costs may vary substantially. The cost estimates are dated December 2018, ENR = 11,186.
2. The storm drain network costs are based on a unit price of $260/lf that includes 18-inch HDPE pipe with 4 ft cover, standard catch basins, trench patch surface restoration, removal of existing catch basins, plugging connections to existing sewer main, and miscellaneous work and cleanup inclusive of contractor overhead and profit.
3. The infiltration trenches costs are based on a unit price of $150/lf that includes construction of a 4 ft wide trench, 6 ft deep with washed stone wrapped in filter fabric with miscellaneous work and cleanup including contractor overhead and profit.

TABLE 4-3
NORTH MAIN ST. PROPOSED IMPROVEMENTS
ESTIMATED CONSTRUCTION COSTS

Item	Length (ft)	Cost
Storm Drain Network:		
Houston Ave	350	$ 91,000
Sherman Ave	350	$91,000
N Main St. Miscellaneous		$3,000
Total Construction Cost		**$185,000**

Notes:

1. Unit prices are based on RS Means pricing and bid tabulations for recent projects. The estimates are made without the benefit of final design and actual costs may vary substantially. The cost estimates are dated December 2018, ENR = 11,186.
2. Storm drain network costs are based on a unit price of $260/lf that includes 18-inch HDPE pipe with 4 ft cover, standard catch basins, trench patch surface restoration, removal of existing catch basins, plugging connections to existing sewer main, miscellaneous work and cleanup inclusive of contractor overhead and profit. The miscellaneous work on N. Main Street is disconnection of the tie in from a storm collection system outside the right-of-way.

SECTION 5
PROPOSED PROJECT

Preliminary Project Description

The proposed project is the separation of the combined sewers in the South Main Street and North Main Street project areas. The South Main Street project involves construction of a storm drain network to collect the stormwater from Slate Avenue, Elm Street and Prospect Street. From the intersection of South Main Street and Slate Avenue the storm drain system will continue north to connect to the existing system at the Northfield Commons area for treatment prior to discharge to the Dog River. Stormwater from Highland Avenue and portions of Byam Hill and Hill Street will be collected and treated for improved water quality through a green stormwater system consisting of infiltration trenches. The stormwater system overflow will connect to the new drainage system below.

Separation of the combined sewers on North Main Street and Houston Avenue requires construction of a storm drain collection system on Houston Street with a discharge to the east to the Dog River. The existing drain system on Sherman Avenue is deteriorated and planned to be replaced to maintain the separation of this area from the sanitary sewer system.

Project Schedule

The proposed project schedule shown in Table 5-1 is based on several criteria including the following factors:

- The need for the improvements as defined by local officials.
- The rate effect of the project and implementation of rate increases.
- Funding requirements.

TABLE 5-1
PROJECT SCHEDULE

PROJECT TASK	DATE
Submit Preliminary Engineering Report	December 31, 2018
Submit Environmental Report	January 2019
Submit Funding Application for Final Design Funds	January 2019
Receive Approval of Funding	February 2019
Bond Vote	March/April 2019
Topographic Survey	April 2019
Submit Final Design Plans and Specifications	May 2019
Submit Application for Construction Funding	May 2019
Authorization to Bid	June 2019
Open Bids	July 2019

This project schedule is based on several items beyond the control of the municipality including the availability of funding, the time necessary to obtain permits, the time the regulatory and funding agencies need to review plans and specifications, and the

success or failure of local bond votes. The schedule may change based on the actual time needed to complete these tasks.

Permit Summary

The following permits and approvals are expected to be required for the project:

- Facilities Engineering Division Design Approval
- Stormwater Construction General Permit
- Temporary easements for construction

Total Project Cost Estimate

As shown in Table 5-2 the 2019 construction cost for the proposed project is $1,312,000, with a total project cost of $1,981,000. The green stormwater project, which is included in this total, has a construction cost of $205,000 and a total project cost of $300,000.

TABLE 5-2
CONSTRUCTION AND TOTAL PROJECT COSTS

Item	Cost
South Main Street Storm Drainage Improvements	$884,000
South Main Street Green Stormwater Project	$205,000
North Main Street Improvements	$185,000
2018 Construction Cost	$1,274,000
2019 Construction Cost	**$1,312,000**
Engineering	$302,000
Legal, Fiscal and Administrative	$39,000
Contingencies	$328,000
Total Project Cost	**$1,981,000**

Notes:
1. The construction cost estimate was prepared without the benefit of final design documents. Actual construction costs may vary substantially from these estimates. Construction costs are shown in Tables 4-2 and 4-3.
2. Contingencies are estimated at 25% of construction cost (C) during the preliminary design phase.
3. Engineering includes the planning costs to date, estimated final design costs and construction phase costs per the State curve.
4. Legal, fiscal and administrative costs are normally estimated at 3% of construction cost.
5. ENR 11,186 = December 2018.

Annual Operating Budget

Revenue:

The Sewer Department receives the majority of its revenue through user charges. Sewer users are billed based on their metered water consumption. The Department bills on a monthly basis with a fixed rate of $10.73 for administrative costs, $7.40 for capacity costs and a consumptive rate of $0.0605 per cubic foot.

A typical sewer user who consumes 210 gpd of water would incur a total annual sewer bill of $837.

The total revenue budgeted for 2018-2019 is $1,068,810. A copy of the Sewer Budget is included in the Appendices.

Expenditures:

The budgeted expenditures for 2018-2019 are also shown in the budget. The 2018-2019 budgeted costs are summarized as follows:

Operation and Maintenance Expenses	$956,500
Principal and Interest on Long-Term Debt	$112,310
Total 2017 Expenditures	$1,068,810

Proposed Financing

If the Town does not have the funds to finance the improvements locally the alternative is to take on long-term debt to finance the proposed project. Funding alternatives include:

- Municipal Bond Bank
- Clean Water State Revolving Fund (CWSRF) program
- Vermont Pollution Control Grants
- United States Department of Agriculture Rural Development (RD) water and wastewater grant/loan program.

The concepts and customer costs outlined in this section represent our interpretation of these different program requirements and should not be considered a guarantee of a grant/loan offer. Town officials will be required to obtain a written offer of funding from an agency representative.

Municipal Bond Bank:

The Vermont Municipal Bond Bank (VMBB) is a way for Vermont municipalities to access low cost financing through the national municipal bond markets. The VMBB does not charge an application fee or on-going loan fees and covers all costs associated with issuing the bond with the exception of the costs associated with the municipality's local bond counsel and the required accountant's financial statements.

When deciding if funding through VMBB is the best option for your system, it is important to understand that VMBB requires that municipalities obtain:

- legal opinions and loan documents generated by a preapproved bond counselor
- successful bond vote in compliance with Vermont statutes
- audit of the most recent fiscal year by a certified accountant

Clean Water State Revolving Fund (CWSRF):

The U.S. Environmental Protection Agency and the Vermont Agency of Natural Resources have developed a program to help local communities fund wastewater and stormwater improvements. The CWSRF offers low cost financial assistance for a variety of projects and provides financing for planning, final design and construction.

Vermont legislation (Act 103), in May 2016 authorized substantive changes to Vermont's water pollution control grants program. The legislation will replace three grant categories consisting of CSO abatement (grant of up to 25%), dry weather sewage flow abatement (grant of up to 35%), and sludge & septage improvements (grant of up to 50%) with a single, broader category referred to as water pollution abatement and control. This term is statutorily defined to include treatment of stormwater and sewage, groundwater protection and flood resiliency work. The legislation establishes a set of environmental and health based criteria that will be used to determine eligibility and State grant funding up to a maximum of 35%. The legislative changes also broaden eligibility of land acquisition costs. These changes will take effect on July 1, 2019. The Pollution Control Grants are separate from the CWSRF and can be used by the municipality if Municipal Bond Bank funding is utilized.

For the Federal FY2018 Intended Use Plan (IUP), the Clean Water State Revolving Fund (CWSRF) loan program is proposing to allow additional subsidy by way of two avenues:

1. Principal loan forgiveness for planning costs: Projects may receive up to 50% subsidy for eligible planning costs for a maximum amount of $100,000 per project.
2. Principal loan forgiveness for the Green Stormwater Pilot Program costs. There is a maximum cap of $300,000 per borrower with typically a 10:1 ratio between host project and green pilot project.

There are currently (FY 2020) nine categories for assigning priority to a project. Public Health has the greatest weighting of the nine categories, followed by water quality and affordability.

The priority for the project is assessed based on the information presented in this report and additional information provided by the municipality through funding applications. The Town qualified to receive a subsidy on 50% the planning costs for the host project or $15,140 and may receive forgiveness of the total project cost for the South Main Street infiltration trenches. Additional funding details will be developed as the project proceeds through design.

USDA Rural Development:

The United States Department of Agriculture (USDA) administers a loan and/or grant program for small communities (population fewer than 10,000 people) to complete infrastructure improvement projects for drinking water, sanitary sewer, storm sewer, and solid waste collection. The program is administered by USDA Rural Development (RD) Field Offices.

The program disburses funds to community projects based on a priority basis, which is determined by RD during the application process. Grant and loan eligibility criteria includes a target annual sewer rate for a typical residential household (210 gpd consumption) of 1.5% of the MHI. RD uses MHI data from the American Community Survey, and has recently converted to methodology that uses current MHI data.

The 2017 Median Household Income (MHI) for the Town is $67,750. The State MHI is $57,808. Based on the Town MHI, the target sewer rate under the RD program is $1,016 per year, while the current annual sewer rate is approximately $837. Based on this comparison, it appears the Town is eligible for 45% grant funding.

Grant funds when available are disbursed on a graduated scale with applicants from small communities with low median household incomes receiving a higher percentage of grant funds. Grant and loan funds are available only after a community has obtained the legal authority necessary to incur debt for construction and has been unable to obtain the needed funds from commercial sources at reasonable rates. Grants range from 25% to 45% with the RD program. Receipt of additional grant funds from other sources reduces the RD grant amount and not the loan (local share) amount.

Low interest federally subsidized loans are available through RD loan funding and vary based on the household income of the community. RD does offer Vermont communities the option of finance terms up to 30 years. The three categories of loans available are as follows with rates effective until December 31, 2018:

- Market Rate: 4.0% interest rate if the Median Household Income (MHI) equals or exceeds the current State non-metropolitan MHI.
- Intermediate Rate: 3.25% interest rate if the service area MHI is below the State MHI.
- Poverty Rate: 2.375% interest rate if the service area MHI is less than 80% of the State MHI and the project is needed to meet health or sanitary standards.

The Town MHI is greater than the State MHI ratio, therefore the project should qualify for the market interest rate.

Cost Projections and Rate Effects

To evaluate sewer rate adjustments necessary to fund the recommended improvements, we have assessed future expenses including long-term debt.

We have projected the expenses for the sewer fund based on the 2018 - 2019 budget and inflating expenses related to operation/maintenance items and administrative items at 3% per year. The proposed capital improvements are not anticipated to result in significant additional operating costs and the annual operating costs are anticipated to increase similar to the rate of inflation at about 3% per year.

We have shown the annual cost of future debt based on a level payment plan that includes both interest and principal. The analysis was prepared for local borrowing, CWSRF, and RD funding of the project as shown in Table 5-3.

SECTION 6
CONCLUSIONS AND RECOMMENDATIONS

The Town of Northfield has developed a plan to address the remaining combined sewers and eliminate the single remaining Combined Sewer Overflow outfall. As described within this report, the implementation of this plan requires construction of new storm drainage structures and piping as well as green infrastructure systems.

The schedule presented for the design phase is fairly aggressive to take advantage of funding opportunities currently offer by the State. The Town should address the following items that are identified as "next steps" for the project to proceed:

1. Apply for final design funding through the Clean Water State Revolving Fund

2. Contact affected property owners as soon as basemaps and proposed designs are developed to start the process of securing necessary easements.

3. Review proposed plans with the design to finalize locations of green stormwater infiltration trenches.

4. Prepare for a bond vote by April 15, 2019.

VERMONT OFFICIAL STATE WEBSITE VERMONT

Waste Water Inventory Website UserID: Password: Remember me next time. Log In

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Watershed Management Website | Drinking Water Website | Waste Management Website

View FacilityIncident Record

Close Tools

Facility Name:	Northfield
Caller Name And Title:	Patrick Demasi Utilites Superintendent
Municipality:	Northfield
Location (street or site):	East Street outfall
Incident Start Date:	09/06/2018
Incident End Date:	09/06/2018
Incident Start End Times:	09:30 am to 09:45 am
Estimated Duration Of Event:	
Nature Of Incident:	Authorized Wet Weather CSO Overflow
Estimated Volume (gallons):	>100 to 1,000 gallons
Cause Of Discharge:	High Flows
Type Of Obstruction:	None
Point Of Discharge:	Combined sewer overflow structure
Corrective Action Taken:	None
Waterbody Impacted:	Dog River
Contact Name And Title For Public:	Jeff Schulz
Call Date:	
WW Staff Called:	
Type Of Notification:	nForms
Public Overflow Report For Web:	Y

Description Of Incident: High flows caused by intense rain storm on 9-6-2018 resulted in the discharge of a combination of sewage and storm water from CSO East Street. This is an authorized discharge intended to protect the sewer system, to prevent overflows from other parts of the sewer system, and to prevent backups into homes or buildings.

nForm Submission Number: HNG-M1EK-810DF

VERMONT OFFICIAL STATE WEBSITE VERMONT

Waste Water Inventory Website UserID: Password: Remember me next time. Log In

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View FacilityIncident Record

Close Tools

Facility Name:	Northfield
Caller Name And Title:	Patrick Demasi
Municipality:	Northfield
Location (street or site):	East St. CSO
Incident Start Date:	07/23/2018
Incident End Date:	07/23/2018
Incident Start End Times:	02:18 pm to 02:45 am
Estimated Duration Of Event:	
Nature Of Incident:	Authorized Wet Weather CSO Overflow
Estimated Volume (gallons):	>100 to 1,000 gallons
Cause Of Discharge:	High Flows
Type Of Obstruction:	
Point Of Discharge:	Combined sewer overflow structure
Corrective Action Taken:	None
Waterbody Impacted:	Dog River
Contact Name And Title For Public:	Jeff Schulz
Call Date:	
WW Staff Called:	
Type Of Notification:	nForms
Public Overflow Report For Web:	Y

Description Of Incident:	High flows caused by intense rain storm
nForm Submission Number:	HNF-GT3E-HF4S8

Stormwater Treatment Practice Calculator

Identification

Date	1/29/2019
WPD ID	
STP Name	Elm Street Trench

Loading Information

Drainage Area	5 - Winooski River	
Impervious Area	0.1	acres
Pervious Area	2.34	acres

STP Information

STP Type	Infiltration Trench	
Storage Volume	320	ft³
Infiltration Rate	1.02 (Sandy Loam HSG B)	in/hr
Filter Course Depth		in

Estimated Phosphorus Reduction

Load	0.65	kg/year
STP Capacity	0.29	in
Efficiency	58.99	%
Reduction	0.38	kg/year

Stormwater Treatment Practice Calculator

Identification

Date	1/29/2019
WPD ID	
STP Name	Prospect Street Trench

Loading Information

Drainage Area	5 - Winooski River	
Impervious Area	0.15	acres
Pervious Area	1.52	acres

STP Information

STP Type	Infiltration Trench	
Storage Volume	320	ft^3
Infiltration Rate	1.02 (Sandy Loam HSG B)	in/hr
Filter Course Depth		in

Estimated Phosphorus Reduction

Load	0.52	kg/year
STP Capacity	0.31	in
Efficiency	60.91	%
Reduction	0.32	kg/year

Stormwater Treatment Practice Calculator

Identification

Date	1/29/2019
WPD ID	
STP Name	Slate Avenue Trench

Loading Information

Drainage Area	5 - Winooski River	
Impervious Area	0.31	acres
Pervious Area	2.36	acres

STP Information

STP Type	Infiltration Trench	
Storage Volume	320	ft^3
Infiltration Rate	1.02 (Sandy Loam HSG B)	in/hr
Filter Course Depth		in

Estimated Phosphorus Reduction

Load	0.89	kg/year
STP Capacity	0.2	in
Efficiency	46.12	%
Reduction	0.41	kg/year

FY 18-19 SEWER DEPARTMENT BUDGET

	OPERATING REVENUE	14-15 Approp	14-15 Actual	15-16 Approp	15-16 Actual	16-17 Approp	16-17 Actual	17-18 Approp	18-19 Commission	% / $
4260	Sales	928,300	1,014,582.41	1,007,030	858,548.80	756,890	772,097.37	773,500	797,750	
4270	Labor and Materials	0	1,672.59	0	298.00	1,000	0.00	1,000	1,000	
4280	Connection Fees	600	1,000.00	1,000	1,500.00	1,000	0.00	1,000	1,000	
4344	Amtrak Bill	0	0.00	0	72.22	0	0.00	0	0	
4656	Disconnect/Reconnect Fees	500	75.00	400	150.00	200	112.50	200	150	
4700	Interest on Overdue Accounts	1,250	1,462.42	1,200	1,585.76	1,260	1,654.58	1,300	1,500	
4710	Interest Income	4,000	2,981.90	3,000	3,624.31	2,700	3,601.93	3,000	3,700	
4730	Rent from Water Dept	0	0.00	3,600	3,600.00	3,600	3,600.00	3,600	3,600	
4750	Miscellaneous	0	0.00	0	0.00	0	0.00	0	0	
4751	Gain/(Loss) on Asset Disposal	0	(23.50)	0	15,000.00	0	0.00	0	0	
4790	Lien Fee	50	20.00	50	135.00	40	80.00	70	80	
4850	Disposal Fee/NU & Highway	10,540	10,537.80	10,540	10,537.80	10,540	10,537.80	10,540	10,540	
4880	Sale of Equipment	0	1,050.00	0	276.46	0	0.00	0	0	
	Subtotal	**945,240**	**1,033,358.62**	**1,026,820**	**895,328.35**	**777,230**	**791,684.18**	**794,210**	**819,320**	**3.2%**
										$25,110
	OTHER SOURCES									
	Borrowing	0	0.00	0	0.00	0	0.00	0	0	
	Surplus Cash	47,730	47,730.00	0	0.00	131,750	131,750.00	80,990	20,490	
	Surplus Health	0	0.00	0	0.00	0	0.00	0		
	Depreciation Fund - Current Year	212,000	212,000.00	210,000	210,000.00	208,000	208,000.00	213,000	217,000	
	Depreciation Fund/CIP Surplus	0	0.00	0	0.00	0	0.00	0	12,000	
4060	Transfer From CSO User Fee Reserve	7,680	2,647.75	0	0.00	0	0.00	0	0	
	Subtotal	**267,410**	**262,377.75**	**210,000**	**210,000.00**	**339,750**	**339,750.00**	**293,990**	**249,490**	**-15.1%**
										($44,500)
	TOTAL REVENUE	**1,212,650**	**1,295,736.37**	**1,236,820**	**1,105,328.35**	**1,116,980**	**1,131,434.18**	**1,088,200**	**1,068,810**	**-1.8%**
										($19,390)

FY 18-19 SEWER DEPARTMENT BUDGET

	OPERATING EXPENSE BUDGET	14-15 Approp	14-15 Actual	15-16 Approp	15-16 Actual	16-17 Approp	16-17 Actual	17-18 Approp	18-19 Commission	% / $
500	**Personnel**									
5017	Commissioners	300	300.00	300	300.00	300	300.00	300	300	
5020	Manager's Salary	7,350	6,306.71	6,920	6,905.25	6,920	6,839.06	7,090	7,270	
5030	Superintendent	26,040	25,406.80	25,660	25,661.46	26,570	26,964.29	27,640	28,470	
5042	Technical/Admin/Clerical	91,030	78,839.52	88,730	79,591.73	80,610	80,760.59	83,570	86,000	
5080	Overtime	21,580	18,338.68	21,890	17,652.82	22,370	18,586.46	21,400	21,990	
5090	Stand-by	1,660	1,504.00	1,660	1,440.00	1,660	1,792.00	2,080	2,080	
5144	Transfer Labor/Benefits to CIP	0	(2,403.25)	0	0.00	0	0.00	0	0	
5150	Health/Dental/Life/Disability Insur	48,580	33,921.07	42,070	38,293.82	39,170	41,656.99	42,060	45,060	
5160	Workers' Comp	7,100	5,555.50	6,900	7,112.50	8,170	6,888.00	6,770	8,410	
5170	FICA Expense	11,910	10,209.25	11,650	10,033.62	10,800	10,130.93	10,870	11,180	
5180	Retirement	7,680	6,893.20	7,680	7,050.52	7,460	7,251.92	7,650	8,000	
5190	ICMA Deferred Comp	7,710	6,575.91	7,150	6,609.06	2,780	3,617.59	0	0	
5350	Vaca/Sick Liability	0	(295.11)	500	1,362.05	500	1,630.66	500	1,000	
5360	Accrued Payroll Expense	500	373.68	500	1,317.94	500	742.44	500	500	
5369	Pension Expense-GASB 68	0	567.00	0	2,257.00	500	6,713.00	500	5,000	
	Subtotal	**231,440**	**192,092.96**	**221,610**	**205,587.77**	**206,310**	**213,873.93**	**210,930**	**225,260**	**6.8%** $14,330
600	**Contract Services**									
6010	Professional Service	4,000	590.00	2,500	665.00	1,000	788.00	1,000	1,000	
6020	Legal Services	2,000	0.00	2,000	390.50	1,000	0.00	500	500	
6080	Permit Fees	2,000	1,622.50	2,000	3,200.00	2,500	3,200.00	3,500	3,500	
6100	Audits	2,930	3,135.00	3,140	2,204.99	2,310	2,309.99	2,420	2,520	
6220	Maintenance Contracts	2,630	1,852.54	2,800	1,953.12	2,340	2,613.63	3,930	3,980	
6380	Health Admin/Fees	350	214.06	240	216.17	230	221.71	240	260	
6500	Sludge Management	55,000	53,526.13	55,000	48,056.64	54,000	54,912.23	52,000	54,000	
6510	Testing/Sampling	12,000	5,149.70	11,000	10,568.00	10,000	6,607.50	10,000	10,000	
6650	Accounting	23,100	23,100.00	24,080	24,080.00	23,390	23,390.00	27,080	28,380	
	Subtotal	**104,010**	**89,191.93**	**102,760**	**91,334.42**	**96,770**	**94,043.06**	**100,670**	**104,140**	**3.4%** $3,470

H 8460
BL 32840
D 2290
L 1470
45060

5/2/2018

A:\DATA\accounting\budgets\1819\UTILITIES 18-19\EWS BUDGET & HISTORY 18-19

FY 18-19 SEWER DEPARTMENT BUDGET

	OPERATING EXPENSE BUDGET	14-15 Approp	14-15 Actual	15-16 Approp	15-16 Actual	16-17 Approp	16-17 Actual	17-18 Approp	18-19 Commission	% / $
700	**Administrative**									
7010	Telephone	1,700	1,347.67	1,700	1,235.38	1,500	1,298.89	1,350	1,350	
7020	Postage	2,600	2,670.40	2,400	2,616.87	2,700	2,698.95	2,700	2,800	
7050	Office Supplies	2,000	1,469.03	1,500	968.71	1,500	1,350.56	1,500	1,600	
7060	Office Equipment/Maintenance	400	197.69	400	86.81	250	181.88	250	250	
7070	Dues/Meetings/Subscriptions	1,000	227.30	500	348.62	400	248.00	400	400	
7080	Vehicle Insurance	1,530	1,311.00	1,230	1,189.50	1,250	1,280.00	1,400	1,330	
7090	General Liability Insurance	5,600	4,944.00	4,780	4,824.00	5,300	6,251.00	5,620	4,280	
7100	Building/Property Insurance	7,730	6,733.00	6,410	6,270.50	6,690	6,772.00	7,390	7,940	
7110	Boiler/Machinery Insurance	3,310	2,710.00	2,380	2,331.50	2,490	2,551.50	2,820	3,360	
7140	Mileage	250	85.83	200	27.65	200	0.00	100	100	
7160	Rent	3,340	3,340.00	3,020	3,020.00	2,830	2,830.00	2,370	2,170	
7170	Advertising	100	4.37	300	0.00	100	77.88	100	100	
7200	Short Term Interest	700	436.99	410	236.01	210	195.86	0	0	
7210	Bond/Long Term Interest	118,130	117,825.00	114,270	113,955.58	110,260	91,934.67	90,140	85,010	
7220	Office Equipment/Support Fees	750	314.62	490	340.40	440	109.48	460	320	
7250	School/Training	1,200	231.33	1,000	164.80	1,000	939.22	750	1,000	
7252	Safety-Training/Equipment	1,500	161.36	1,500	1,064.71	1,000	103.89	1,000	1,000	
7260	Gen Gov't Admin Fee	3,680	3,680.00	3,680	3,680.00	3,680	3,680.00	3,680	3,680	
7282	PILOT Payment	14,890	14,890.00	14,890	14,890.00	14,890	14,890.00	14,890	14,890	
7290	Collection Exp/Bad Debt/Abate.	500	0.00	0	52.73	0	35.45	170	100	
7350	Lease Agreement	350	320.00	350	320.00	320	320.00	320	320	
7400	Bank Charges	70	23.75	100	42.29	50	29.56	80	50	
7600	Election Expense	0	0.00	0	204.07	240	205.18	0	250	
	Subtotal	**171,330**	**162,923.34**	**161,510**	**157,870.13**	**157,300**	**137,983.97**	**137,490**	**132,300**	**-3.8%** ($5,190)

FY 18-19 SEWER DEPARTMENT BUDGET

	OPERATING EXPENSE BUDGET	14-15 Approp	14-15 Actual	15-16 Approp	15-16 Actual	16-17 Approp	16-17 Actual	17-18 Approp	18-19 Commission	% / $
800	**Material & Supply**									
8010	Electricity	83,000	84,273.44	86,000	75,250.98	84,000	78,369.57	81,000	13,000	
8013	Electric-Green Lantern Solar Contract								54,000	
8020	Heating Oil	25,000	16,329.01	25,000	11,468.36	22,500	12,509.20	17,500	15,000	
8030	Water	33,000	31,530.14	33,000	24,927.53	39,000	23,907.10	25,000	25,000	
8070	Gasoline/Diesel	4,000	3,643.60	4,000	2,335.99	4,000	1,711.85	3,500	3,000	
8100	Chemicals	95,000	96,814.34	95,000	92,896.23	93,000	101,017.80	95,000	95,000	
8120	Building Supplies	0	283.81	0	0.00	0	0.00	0	0	
8160	Vehicle Maintenance	1,500	726.78	1,500	1,306.77	1,000	194.86	1,000	1,000	
8170	Mechanic Fee	300	0.00	300	155.28	300	0.00	300	300	
8180	Sewer Line Maintenance	7,000	2,860.59	5,000	1,208.11	5,000	2,555.12	3,000	3,000	
8250	Equipment Maintenance	12,000	10,422.70	12,000	15,955.77	11,000	8,862.34	11,000	11,000	
8300	Department Supplies	6,000	3,807.03	5,500	4,334.47	5,000	3,825.63	4,000	4,000	
8350	Uniforms	1,500	1,302.08	1,500	1,232.00	1,500	1,406.91	1,500	1,500	
8380	Building Maint/Supplies	2,500	3,860.64	2,000	2,295.08	2,500	2,442.67	2,500	2,500	
8420	Equipment Rental - VH/Town	2,500	2,500.00	3,450	3,450.00	3,450	3,450.00	1,130	1,130	
8460	Equipment/Tool Purchase	6,000	6,347.01	6,000	4,468.62	4,000	4,130.90	4,000	4,000	
8550	Depreciation Expense	212,000	210,981.77	210,000	216,851.70	208,000	215,436.96	213,000	217,000	
8561	Bond Cost Amort.	140	136.22	140	136.22	140	136.22	140	140	
8573	Phone System	0	0.00	0	147.06	0	0.00	0	0	
	Subtotal	**491,440**	**475,819.16**	**490,390**	**458,420.17**	**484,390**	**459,957.13**	**463,570**	**450,570**	**-2.8%** ($13,000)
	SUBTOTAL OPERATING EXPENSE	**998,220**	**920,027.39**	**976,270**	**913,212.49**	**946,770**	**905,858.09**	**912,660**	**912,270**	**0.0%** ($390)

FY 18-19 SEWER DEPARTMENT BUDGET

	PRINCIPAL DEBT RETIREMENT	14-15 Approp	14-15 Actual	15-16 Approp	15-16 Actual	16-17 Approp	16-17 Actual	17-18 Approp	18-19 Commission	% / $
FINAL PAYMENT										
FY 34-35	USDA Loan Refinanced W/ Bond Bank 2011	96,260	96,261.63	100,040	100,044.72	103,980	103,976.47	108,060	112,310	
FY 16-17	Roof Loan	11,670	10,281.00	10,280	10,281.00	10,280	10,281.00	0	0	
	Interest is shown in O&M as an expense									
	TOTAL PRINCIPAL DEBT PAYMENTS	107,930	106,542.63	110,320	110,325.72	114,260	114,257.47	108,060	112,310	3.9%
										$4,250

FY 18-19 SEWER DEPARTMENT BUDGET

CAPITAL/OTHER	14-15 Approp	14-15 Actual	15-16 Approp	15-16 Actual	16-17 Approp	16-17 Actual	17-18 Approp	18-19 Commission	% / $
Capital Improvements	104,000	104,000.00	112,050	112,050.00	53,450	53,450.00	64,980	41,730	
Transfer to Sand Fee Acct	2,500	2,500.00	2,500	2,500.00	2,500	2,500.00	2,500	2,500	
Transfer Sale of Equip/Scrap	0	1,050.00	0	15,276.46	0	0.00	0	0	
TOTAL CAPITAL/TRANSFERS	106,500	107,550.00	114,550	129,826.46	55,950	55,950.00	67,480	44,230	-34.5% ($23,250)
OTHER									
TOTAL OTHER	0	0.00	0	0.00	0	0.00	0	0	--- $0

FY 18-19 SEWER DEPARTMENT BUDGET

TOTAL EXPENDITURES	14-15 Approp	14-15 Actual	15-16 Approp	15-16 Actual	16-17 Approp	16-17 Actual	17-18 Approp	18-19 Commission	% / $
PERSONNEL	231,440	192,092.96	221,610	205,587.77	208,310	213,873.93	210,930	225,260	6.8% $14,330
CONTRACT	104,010	89,191.93	102,760	91,334.42	96,770	94,043.06	100,670	104,140	3.4% $3,470
ADMIN	171,330	162,923.34	161,510	157,870.13	157,300	137,983.97	137,490	132,300	-3.8% ($5,190)
MATERIALS	491,440	475,819.16	490,390	458,420.17	484,390	459,957.13	463,570	450,570	-2.8% ($13,000)
PRINCIPAL DEBT	107,930	106,542.63	110,320	110,325.72	114,260	114,257.47	108,060	112,310	3.9% $4,250
CAPITAL	106,500	107,550.00	114,550	129,826.46	55,950	55,950.00	67,480	44,230	-34.5% ($23,250)
OTHER	0	0.00	0	0.00	0	0.00	0	0	--- $0
TOTAL EXPENDITURES	1,212,650	1,134,120.02	1,201,140	1,153,364.67	1,116,980	1,076,065.56	1,088,200	1,068,810	-1.8% ($19,390)
Excess/(Shortfall)	0		35,680		0		0	0	

SEWER DEPT PROJECTED SCHEDULE OF NOTES & BONDS PAYABLE

	06/30/17 Principal Balance	Final Payment	Approp. 17 18	Budget 18 19	19 20	20 21	21 22	22 23
WWTF	2,753,573	FY 34-35	198,200	197,320	213,980	213,890	213,800	213,700
Authorized Debt	**2,753,573**		**198,200**	**197,320**	**213,980**	**213,890**	**213,800**	**213,700**
Proposed Borrowing:			-	-	-	-	-	-
Combined Total			**198,200**	**197,320**	**213,980**	**213,890**	**213,800**	**213,700**

*Includes Interest

SEWER DEPARTMENT CAPITAL IMPROVEMENT PLAN

	Purchase Date	03/31/16 Balances	Estimated Replacement Life	Estimated Replacement Cost	Estimated Replacement Year	Approp 17 18	Commission 18 19	Proposed - Not Approved 19 20	20 21	21 22	22 23	23 24	24 25	25 26	26 27	27 28
Mapping	Flyover 2011	11,103.41						1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Building Improvements		15,821.60				500	500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
Meters		3,095.25				3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Smart Meters		35,000.00	Transfer $25,000 to Backhoe			(25,000)	(35,000)	Use for Equip Rebuilds & System Improve.			5,000	5,000	5,000	5,000	5,000	5,000
Manholes		49,418.04		105,000		3,000	4,000	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500	7,500
Interceptor-Inspect/Clean		3,425.00	10	20,000	16-17	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Hydraulic Unit/Tools		6,105.10				500	500	500	500	500	500	500	500	500	500	500
Computers/Software	Server 06/16	12,221.16	5	78,325 Gross 10,000 Sewer	20-21					2,000	2,000	2,000	2,000	2,000	2,000	2,000
SCADA/Plant Computer Systems		15,148.39				5,000		1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
'15 Silverado 3500 w/Dump Body 4X4	09/11/15	22,393.10	7	48,000 Gross 38,000 Net	22-23	3,130	3,130	3,130	3,130	3,130	3,130	3,130	6,860	6,860	6,860	6,860
'15 Ford Escape - E50/W29/S21	01/30/15	5,753.85	7	27,000 Gross 5,670 Sewer	21-22								850	850	850	850
Lawn Mower - W50/S50	09/17/10	3,437.50	10	7,500 Gross 3,750 Sewer	20-21				310	400	400	400	400	400	400	400
45HP Tractor - W75/S25	07/26/13	4,871.61	15	60,000 Gross 15,000 Sewer	28-29	900	900	900	900	900	900	900	900	900	900	900
Copiers (2) - TG50/E25/W14.5/S10.5	04/18/14	989.37	7	11,000 Gross 1,160 Sewer	20-21	100	100	100	100	200	200	200	200	200	200	200
Vacuum Trailer - W50/S50	01/13/12	15,000.00	10	60,000 Gross 30,000 Sewer	21-22	3,000	3,750	3,750	3,750	3,750	3,750	3,000	3,000	3,000	3,000	3,000
Compactor - W50/S50	06/26/09	2,850.00	10	9,000 Gross 4,500 Sewer	19-20	850	850	850	500	500	500	500	500	500	500	500
Sewer Extension 12 & 12A		56,240.40						$35,000 from Smart Meters								
Equip Rebuilds-@ Plant		118,277.92				15,000	25,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000	15,000
System Improvements		93,490.67	30			15,000	15,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
Jetter	2001	16,000.00	20	40,000	21-22	6,000	6,000	6,000	6,000	6,000	2,000	2,000	2,000	2,000	2,000	2,000
Generator	2003	21,000.00	25	125,000	28-29	7,000	7,000	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550	11,550
Realign Electric Service		0.00														
Backhoe - W75/S25		(3,200.00)	15	100,000 w/Trade 25,000 Sewer	27-28	25,000	5,000	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700
Sewer CIP Totals		**508,442.37**				**64,980**	**41,730**	**85,480**	**85,440**	**87,630**	**88,630**	**88,730**	**92,460**	**92,460**	**92,460**	**92,460**

Undesignated Interest 03/31/16 11,818.05

Sand Fee Balance 12,500.00