

Public Works and Buildings Committee
City Hall Council Chambers
Meeting Minutes
February 16, 2023 7PM

MEMBERS PRESENT

Councilor Donald Hamann, Chairman
Councilor Jim Gray, Vice Chairman
Councilor John Larochelle
Councilor Steve Beaudoin
Councilor Alexander de Geofroy

OTHERS PRESENT

Peter C. Nourse PE, Director of City Service
Lisa Clark, Deputy Director DPW
Dan Camara, Coordinator GIS & Asset Mgmt.

MINUTES

Councilor Hamann called the Public Works and Building Committee to order at 7PM

1. Approval of January 19, 2023 Meeting Minutes

Councilor Beaudoin made a motion to accept the minutes of the January 19, 2023 meeting as presented. Councilor Larochelle seconded the motion. The motion passed unanimously.

2. Public Input

No Public Input.

3. Colonial Pines Phase 4 Sewer Routing Options

Mr. Nourse displayed on the monitor the original phasing plan for the Colonial Pines Sewer Extension Project (attached). He stated that in October 2022 he had reviewed the project strategy for Phase 4 of this large project. He stated that Phase 4 includes homes on Hemlock Street, Meadow and Balsam Lane. He noted that the current scope of Phase 4 has highest cost of all phases. He stated it includes approximately 74 homes and has 9000 feet of sewer main with 10,000 feet of new drainage and road surface. Mr. Nourse stated that the current project estimate is \$9.1Million. He stated that this project scored high for a Clean Water State Revolving Fund (CWSRF) Loan, but there is only a 10% principal forgiveness with this CWSRF loan. Mr. Nourse stated that given that this area consists of newer homes, larger parcels where homes are further than the 100-foot mandatory tie-in, and the compression of the Sewer Capital Improvement Project Budget (CIP), he has looked at prioritizing and breaking the Phase 4 Project into two phases. One phase to be completed now, and one phase that could be completed at a later time based on the need for public sewer. Mr. Nourse stated that the engineers have drawn up two options for the next phase and the preferred phase would capture all the homes that have known problems with existing septic systems. Mr. Nourse stated that in August of 2022 he had sent out survey letters to all homes within the Phase 4 area. He displayed a

map of the area on the monitors that showed the responses to the survey. This map is attached to minutes. He noted that 60% of the homes in the area had responded to the survey and 55% of those responses (shown in green) stated that they would like to tie-in to City Sewer. The properties in red responded but said they are not interested in tie into sewer at this time. The parcels in light gray did not respond. Mr. Nourse then displayed a map on the monitors that showed the two possible options of the reduced scope. This map is attached to minutes. Mr. Nourse stated that Option 1 is shown in orange and reduces the next phase of cost estimate to \$4.4Million. He stated that this option would capture all systems that are currently known to be in distress. He stated that Option 2 is shown in blue and reduces cost estimate to \$4.3Million. Mr. Nourse stated that his recommendation is for Option 1 as it would reduce the scope of Phase 4 and it picks up all the homes with noted septic system distress and all homes that stated a preference to tie in except for 29 Hemlock. He stated that he had spoken with the property owner of 29 Hemlock Street, and they report that they are interested in tie-in, but their current septic is not in distress. Mr. Nourse stated that Option 2 could be completed later, possibly several years later as the Sewer Fund CIP is heavy with other priority projects. Mr. Nourse stated that the FY2024 CIP request will fund the Option 1 at \$4.4Million and the funds for Option 2 are programmed for FY2025 and could be pushed if necessary, with consideration of other projects. Councilor Gray ask about the sections that have both orange and blue lines. Mr. Nourse stated that just means both options would cover that area, but if option one completes that work, it will not be necessary in the next option. Councilor Beaudoin expressed his support for reducing the scope and going with Option 1 and suggested we may see additional Federal or State funding coming in during the interim. Mr. Nourse stated it is important to note that this neighborhood is expecting the Sewer Extension and that Councilors may receive inquiries from residents in the area regarding it if it is pushed off. Councilor Hamann stated his approval of Option 1 for Phase 4. Councilor Gray suggested using the terms Phase 4 and Phase 5 going forward vs. Options 1 & 2.

Mr. Nourse stated that the Committee had previously asked him process of decommissioning current septic tanks. He informed the Committee that per State of NH requirements the contents are pumped out, filled with stone, and crushed in place and then loamed over.

4. Cocheco Well – Water Treatment Plant Upgrades

Mr. Nourse gave the Committee some background information on the current Cocheco Well. He stated that the City of Rochester started investigating groundwater supply back in the late 1990's. He said aquifer studies were conducted and test wells were drilled to determine yield productions. He stated that in 2000 there were thirteen sand and gravel packed areas identified as favorable for groundwater extraction sites with 4 being ranked the highest. Eventually the best zone was determined to be the site of the Cocheco Well which is located off RT11 just north of Two Rod Road. The facility was built in 2010 with American Recovery and Reinvestment Act Funds (ARRA). Mr. Nourse stated that the well is permitted for up to one-million gallons per day and typically provides approximately 15% of the City's demand when in operation. He called the well both supplemental and redundant, stating it is supplemental when it is on because it reduces the workload and the stress of the Strafford Road Surface Water Plant. He stated that it is redundant because it has its own watershed and power grid. He stated that there have

been times when the well has provided up to 25% of our need. Mr. Nourse stated that the well has limitations to use based on the flow rates of the Cocheco River. He stated that there is an average of forty-five days in the summer that we cannot operate the well due to these limits. He stated that the original design was completed with provisions for a future connection that would provide treatment of Iron and Manganese. Mr. Nourse explained the advantages of blending the surface water and well water within our system. He stated that the Total Organic Carbon (TOC) that comes out of the well is approximately 1/16th of what comes from the surface water reservoir. He says this is important to reducing disinfection byproducts. Mr. Nourse explained that disinfection byproducts are halogenated compounds that are regulated by the Environmental Protection Agency (EPA) and we are required to test and report for this. Mr. Nourse stated that in addition to the lower TOC levels the lower water temps from the well vs. surface water retard the kinetics for disinfection by-product formation which plays into better water quality. He stated that this assists us to stay in compliance with the maximum contaminant levels (MCL) set by the EPA. Mr. Nourse stated that there is also a downside to groundwater wells. He stated that they can have Manganese and Iron that can have detrimental effects that have been historically viewed as nuisances such as staining of fixtures and clothing, taste, and odor, and they can also accelerate the formation of biofilm in the City's water system. Mr. Nourse stated that the EPA and State have regulated these metals as Secondary Contaminants because they are not health hazards. Since the Cocheco Well went online in 2011 it has shown a steady increase in Iron and Manganese. He displayed charts displaying the increases over time for both Iron and Manganese. He stated that while both show an increase, these charts show that Manganese is the prominent issue. Mr. Nourse explained that in 2004 the EPA issued a Drinking Water Health Advisory for Manganese. He stated that an advisory is not enforceable for action but is meant to be used as a guideline for addressing Manganese contamination. The advisory explains that manganese is ubiquitous in air, soil, and water and is an essential nutrient for humans and animals. The advisory states that chronic high doses or exposure may be harmful and that the nervous system is primary target. Mr. Nourse stated that there is substantial data supporting neurological disorders from inhaled exposure in trade environments, but there is little data regarding oral exposure. He stated that there is little data supporting links to cancer. He stated that the groups thought to be most sensitive to exposure are the very young and the elderly due to the speed in which the body can metabolize the manganese. The Advisory recommends reducing the level of manganese to 0.05 milligrams per liter (MG/L), which happens to be Secondary Contaminant level that the EPA has promulgated. Mr. Nourse stated that the lifetime health advisory is set at 0.3 MG/L for infants younger than six months. Attached to minutes is the EPA Fact sheet on Iron and / or Manganese in Drinking Water. In December of 2020 based on the EPA Advisory New Hampshire's Ambient Groundwater Quality Standards for Manganese in drinking water was dropped from 0.84 MG/L to 0.30 MG/L. This standard was to be enforceable for Public Water Systems and further a public notification would be required to be issued if concentrations in produced water reached 0.1 MG/L. Mr. Nourse stated that although our Cocheco Well finish water is below the limit of 0.30 MG/L, it is routinely above the public notification level of 0.1 MGL. Mr. Nourse stated that even though our well comes out into the system via Rt. 11 and blends with the surface water, we would still be subject to the notification process

regulation. He stated given this information he asked our Drinking Water Engineering Consultant to design an upgrade to the Cocheco Well Water Plant to treat for the Manganese and Iron. He stated the goal was set to treat the Manganese level to 0.03MG/L which is 1/10th of the primary level of 0.3 MG/L. He stated that we do have options that would accomplish this goal and the design includes treatment for Iron reduction to reach 0.2 MG/L He stated that this is lower than the current Secondary Contaminate level of 0.3 MG/L. Mr. Nourse stated that this would be a significant upgrade to the Cocheco Well Plant with an original estimate of \$5.6Million which has been funded and authorized by the City Council. He stated that there are American Rescue Plan Act (ARPA) Funds, Drinking Water and Ground Water Trust fund Grant and Loans committed to this project. Mr. Nourse stated that this estimate for the project was very rough and is now outdated given the inflation rates. He stated that the estimate for this project is now \$12Million. Mr. Nourse stated that NHDES contacted Rochester and other Public Water Systems last month to advise that the implementation of an enforceable standard for Manganese has been suspended indefinitely due to policy and legal issues. He stated the requirement to reduce to the 0.3 MG/L and to issue notifications at 0.1 MG/L are not required at this time. Mr. Nourse stated that although this is not required at this time NHDES is encouraging the reductions and have said that they may adopt the reduced levels at a later date and could take enforcement actions by issuing Administrative Orders. He stated that the Regulators may also prioritize public funding for the treatment of Manganese in Public Water Systems. He stated that currently the Secondary Contaminant level for Manganese remains at 0.05 MG/L. Mr. Nourse stated that as a Public Water System we are still interested in reducing Manganese due to the nuisance and biofilm issues and in preparation of future regulation. Mr. Nourse explained with the current funding we are going to pilot a green sand program that will likely assist us with reduction as planned and we are going to explore possible additional external funding sources for this project. Councilor Laroche asked if the City receives complaints about the water quality nuisance issues. Mr. Nourse stated we do receive complaints about the color and staining. He noted some issues at East Rochester homes. The Committee was in support of the Pilot Program and was pleased that staff will look for additional grant funding.

5. Gonic Dams Removal Project Update

Mr. Nourse stated he last discussed this project with the Committee in October of 2014. He stated that this is a long-standing project that has had fits and starts and a recent funding opportunity has sparked it for progress again. He explained that this is a State of NH initiated project to remove both the Gonic Mill Dam and the Gonic Sawmill Dam. He stated that this has been in the works for over twenty years. The State's cited reasons for removal are in regards to public safety and for the ecological health of the Cocheco River. Mr. Nourse displayed graphic showing the location of the Gonic Dams. He stated the removal of the dams will improve resilience to extreme weather events and flooding by reducing water stage and flood inundation areas and removal would also reconnect 13 miles of river and improve water quality in the Gulf of Maine. Attached to these minutes is a pictorial presentation Mr. Nourse put together to show the Dam locations and previous work in the area. Mr. Nourse stated that a failure of the dams could result in damage to the City's sewer main that runs through this area. He also discussed the source and previous efforts to mitigate the sediment contamination of soils in these areas. Mr.

Nourse stated that the State of NH and the owner of the Gonic Dam (Gosport Co.) have reached a legal settlement that mandates the removal of both Dams prior to 2025 by owner, Gosport. An ARPA Grant for Critical Flood Infrastructure in the amount of \$150,000 was awarded to the City of Rochester. Although the City is not the owner of the Dams, only Public Entities can apply for ARPA Grants. Mr. Nourse stated that the City has become the Grantee and has a subrecipient agreement with Gosport to execute the work. The Scope of the work to be covered by the Grant includes Final Design for Dam removal, a Sediment Management Plan and Report, Sewer System Protection, Permitting and Bid Documents. Mr. Nourse stated that he believes there is no liability for the City on this project. Gosport is responsible to make this happen. Councilor Larochelle asked if a decision was made regarding the responsibility of the contaminated sediments that are on “Lot 3” of the plan. Mr. Nourse stated that this is still not resolved as the ownership of Lot 3 has not been determined. Mr. Nourse stated that it does look good for future funding opportunities for the dam removal and contaminate mitigation. Mr. Nourse stated that there is a Kick Off meeting for the project at Gosport Office. Councilor Gray asked for the meeting details as he may be able to attend. Mr. Nourse stated he would forward details to Councilor Gray and other Gonic Representatives. .

6. Winter Operations Policy Update

Mr. Nourse stated that at the last meeting he had presented an updated Winter Operations Policy and that Ms. Clark had emailed the Committee the existing policy and the red lined version. He asked if the Committee had a chance to look at it and asked if there were any questions or comments. Councilor Gay stated that it was much shorter in length. There were no questions or concerns.

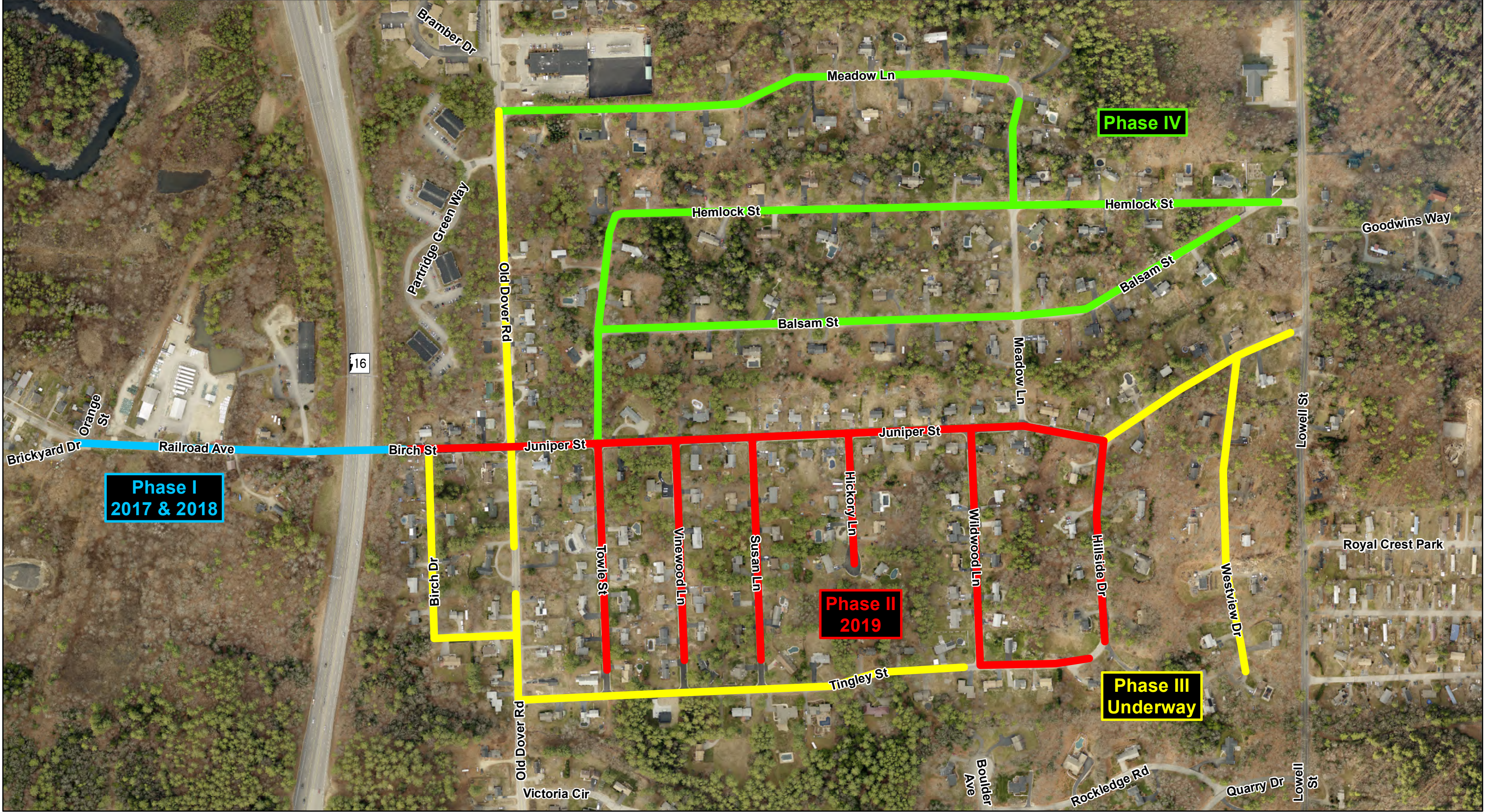
7. Other:

Portland Street Road Closure – Councilor Gray asked if there was any additional information on this. He stated he saw a posting for road closure. It was determined that the Road Closure was for Railroad repairs on 2/20/2023 through 2/21/2023.

Gonic Sewer Issue – Mr. Nourse stated that investigations into the “mystery slime” located in the Gonic Sewer Mains continues. He stated he is hopeful to provide a full report next meeting. Councilor Beaudoin asked if this has caused issues at the Wastewater Treatment Facility (WWTF). Mr. Nourse stated that it has not caused problems at the WWTF, but the Sewer Pump Station has had several clogs requiring staff to go in and clean out.

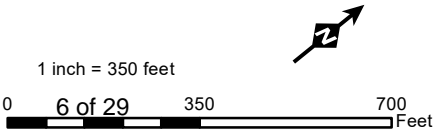
Councilor Hamann adjourned the meeting at 7:42 PM.

Minutes respectfully submitted by Lisa J. Clark, DPW Deputy Director Operations & Administration.



Legend

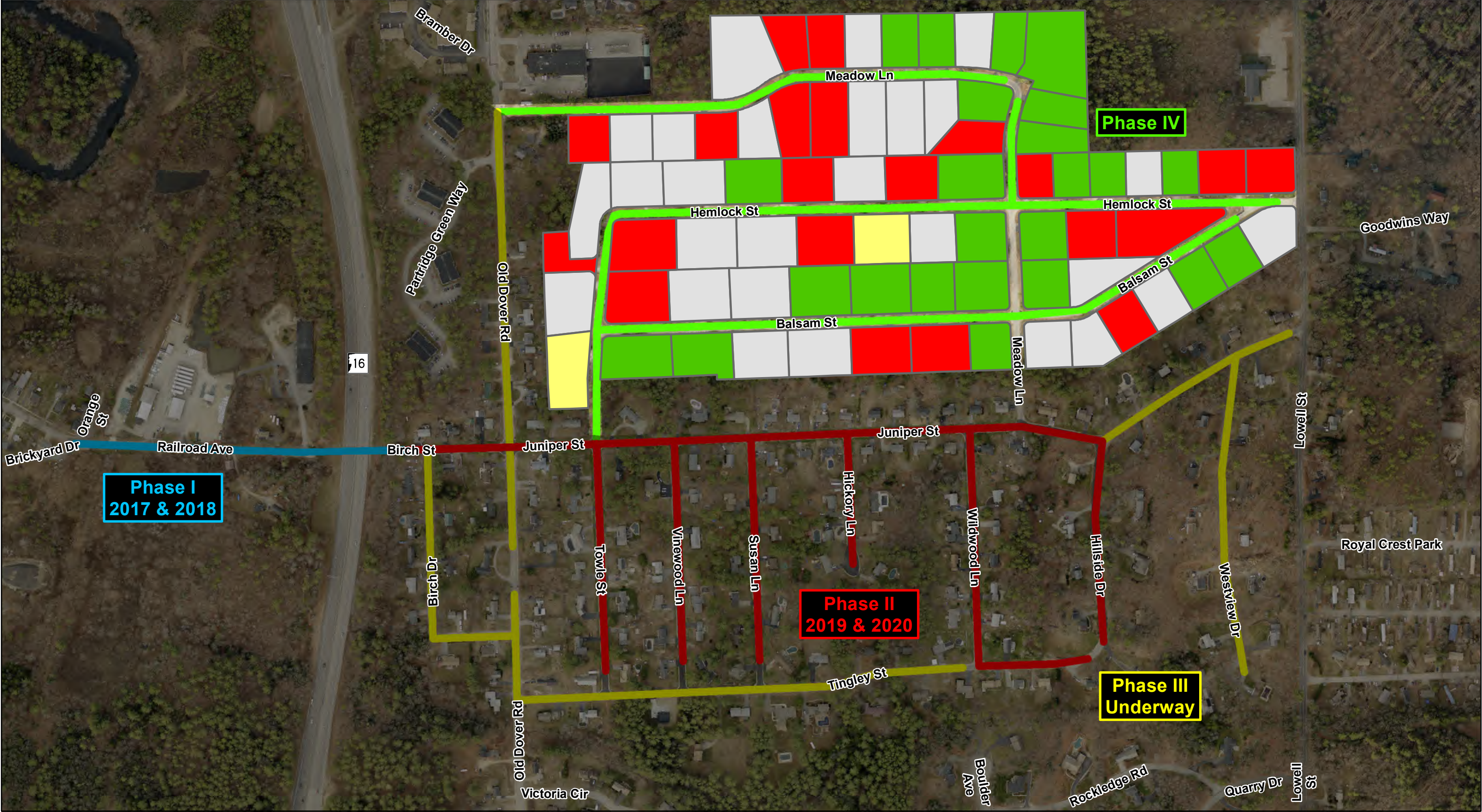
- Phase I
- Phase II
- Phase III
- Phase IV











This map is intended for planning purposes only.
All features shown should be considered approximate.
Date: 10/4/2022
Author: DC - Rochester, NH
Source: NHGRANIT, ArcGIS Online, City of Rochester

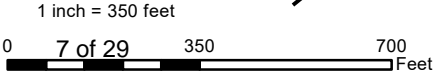
Sewer Project Phasing
Colonial Pines

Rochester, NH



Legend

- | | | | |
|--|--|---|-----------|
|  | "Yes" Response to Survey (24) |  | Phase I |
|  | "No" Response to Survey (21) |  | Phase II |
|  | No Preference Provided in Response to Survey (2) |  | Phase III |
|  | No Response Received (29) |  | Phase IV |



This map is intended for planning purposes only.
All features shown should be considered approximate.
Date: 11/15/2022
Author: DC - Rochester, NH
Source: NHGRANIT, ArcGIS Online, City of Rochester

Phase IV Survey Response
Colonial Pines

Rochester, NH

Option 2
 Sewer: 4,050 LF
 Drainage: 3,950 LF
 Roadway: 4,400 LF
 Total Budget: \$4.3M

Option 1
 Sewer: 4,100 LF
 Drainage: 3,600 LF
 Roadway: 4,800 LF
 Total Budget: \$4.4M

Preliminary Sewer Routing Options
 2/15/23

SCALE: 1 INCH = 160' FT.

Option 2
 Sewer: 4,050 LF
 Drainage: 3,950 LF
 Roadway: 4,400 LF
 Total Budget: \$4.3M

Option 1
 Sewer: 4,100 LF
 Drainage: 3,600 LF
 Roadway: 4,800 LF
 Total Budget: \$4.4M

Preliminary Sewer Routing Options
 2/15/23

The map displays a residential area with streets including Meadow Lane, Hemlock Street, Balsam Street, Juniper St, Towle St, Vinewood Ln, Susan Lane, Hickory Lane, Wildwood Lane, Tingley Street, West View Drive, Birch Drive, and Old Dover Road. Property lots are numbered and color-coded (red, green, yellow). Stationing for the sewer lines is marked along the routes. A north arrow and a scale bar (1 inch = 160 feet) are also present.

Option 2
 Sewer: 4,050 LF
 Drainage: 3,950 LF
 Roadway: 4,400 LF
 Total Budget: \$4.3M

Option 1
 Sewer: 4,100 LF
 Drainage: 3,600 LF
 Roadway: 4,800 LF
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Preliminary Sewer Routing Options
 2/15/23

The map displays a residential area with streets including Meadow Lane, Hemlock Street, Balsam Street, Juniper St, Towle St, Vinewood Ln, Susan Lane, Hickory Lane, Wildwood Lane, Tingley Street, West View Drive, Birch Drive, and Old Dover Road. Property lots are numbered and color-coded (red, green, yellow). Stationing for the sewer lines is provided along their paths. A north arrow and a scale bar (1 inch = 60 feet) are also present.

ENVIRONMENTAL Fact Sheet



29 Hazen Drive, Concord, New Hampshire 03301 • (603) 271-3503 • www.des.nh.gov

WD-DWGB-3-8

2019

Iron and/or Manganese in Drinking Water

INTRODUCTION AND OCCURRENCE

Iron and manganese occur naturally in the earth's crust and are released into water by weathering processes. Both elements are very common in both shallow and deep wells in New Hampshire. Concentrations in groundwater vary widely depending on the local geology and groundwater chemistry, from barely detectable levels of 0.05 mg/L or less, to more than 1.0 mg/L manganese or greater than 10 mg/L iron. Depending on localized pH and oxygen levels in the aquifer, these constituents may be found in their reduced, soluble forms (Mn^{2+} , Fe^{2+}), or as oxidized, colloidal, particulate forms. Laboratory analyses of total versus filtered metals may be used to establish their relative presence as dissolved or particulate in order to evaluate treatment options.

HEALTH EFFECTS

Iron and manganese are generally considered secondary or aesthetic contaminants due to their staining of plumbing fixtures and laundry. This still holds true for iron, however, the US EPA issued a [manganese Health Advisory Level](#) of 0.3 mg/L in 2004 indicating that infant exposure should be avoided because of their inability to purge excess manganese. Based on these studies, NHDES recommends that water used to reconstitute/dilute infant formula should have no detectable manganese. Private well users should have their water tested, and customers of community water systems should contact their water supplier or NHDES to become informed about their own drinking water quality. If manganese is present in the water supply, parents of infants should consider treatment (see below), or the use of bottled water that shows no detectable manganese. For information about the health effects of manganese, particularly the potential neurotoxic effects on children, please see NHDES Fact Sheet ARD-EHP-15, "Manganese: Health Information Summary."

HEALTH STANDARDS OR ADVISORIES

In addition to EPA's Manganese Health Advisory of **0.3 mg/L for infants**, New Hampshire's ambient groundwater quality standard (AGQS) for manganese is **0.840 mg/L**. The AGQS is a health based standard and is enforceable for public water systems and groundwater discharges. There are no health-based standards for iron in drinking water in New Hampshire. The federal and state **secondary** or **aesthetic standards**, established under the Safe Drinking Water Act of 1974, are **iron at 0.30 mg/L and manganese at 0.05 mg/L**. Secondary standards are reference levels where the contaminant may contribute to taste or staining of plumbing fixtures or laundry.

TESTING

Obtain water sample bottles by contacting an accredited laboratory from the list provided at des.nh.gov, or a web search for "NHDES Private Wells." NHDES recommends testing for the Standard Analysis suite of parameters which includes iron, manganese, bacteria, arsenic, lead, uranium and other important water quality parameters. NHDES recommends testing for the standard analysis suite **every 3 to 5 years**.

MITIGATION AND TREATMENT

Treatment for iron and/or manganese depends on raw water levels and whether the minerals are dissolved, particulate, or both. Co-occurrence with other contaminants such as hardness, sulfide or arsenic also affects the selection of treatment. Whole-house treatment is recommended in order to control staining of fixtures and laundry. Installation cost for a typical residential whole-house system is \$1,500 to \$3,000 for a single filtration step, regardless of technology. Common options are:

- a) **Oxidation-Filtration** – filter tradenames for this technology include Birm®, Greensand®, Clack MTM® and Filox®. This is the preferred option for residential and public water supplies regardless of contaminant levels, due to its selectivity to iron and manganese, and avoidance of brine discharge to the environment.

When **manganese** is present, a strong pre-oxidant such as potassium permanganate (KMnO₄) or chlorine pellets are required for filtration to be effective. Residential systems can be equipped with a permanganate or chlorine pellet feed tank for either intermittent (batch) or continuous pre-oxidation.

For **iron only**, AIR pre-oxidation is adequate. In some cases, fine colloidal iron may pass through the filter. If so, a deeper filter bed, or multi-layer bed including a fine garnet layer may be used to improve iron capture.

- b) **Softening** – cation exchange “softening” may be used when there is iron or manganese co-occurrence with high hardness over 150 mg/L. This process exchanges all cations (calcium, magnesium, iron, manganese) with the ‘softer’ minerals sodium or potassium. The softener is regenerated with standard salt (sodium chloride), with the brine waste discharged to your septic system or a drywell. Advantages of softening systems are their simplicity and low maintenance cost. However, they are highly inefficient for iron/manganese because they must remove all the “good minerals” calcium and magnesium first, which are present at two to three orders of magnitude higher concentration. Other disadvantages are the high volume of brine discharges which contaminate the groundwater including your own well and those of your neighbors, and the increased sodium levels which may be a concern for those on a sodium-restricted diet.

Reducing Salt Use – if a softener must be used, reducing salt discharge to the environment is extremely important to protect groundwater and nearby streams. Recommendations to reduce salt discharges are:

- Avoid water softeners unless water hardness is over 150 mg/L AND causing aesthetic issues.
- Use non-salt treatment technologies such as Birm or Greensand filtration for Iron or Manganese.
- Use a “demand-based” unit which backwashes based on actual water use rather than on a fixed timer.
- Reduce the brine loading to 6-8 pounds salt/CF instead of the factory setting of 10-12 pounds/CF.

FOR MORE INFORMATION

Contact the Drinking Water and Groundwater Bureau at (603) 271-2513 or dwginfo@des.nh.gov, or visit us at www.des.nh.gov. You may also input your water test results to the “**NHDES Be Well Informed**” water treatment application (available via a web search) to interpret your results and identify appropriate treatment options.

Note: This fact sheet is accurate as June 2019. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.



Gonic Dam & Gonic Sawmill Dam Removal Project



GOMEZ AND SULLIVAN
Engineers, P.C.

SANBORN HEAD

Building Trust. Engineering Success.

Gonic Dam

GONIC MILL

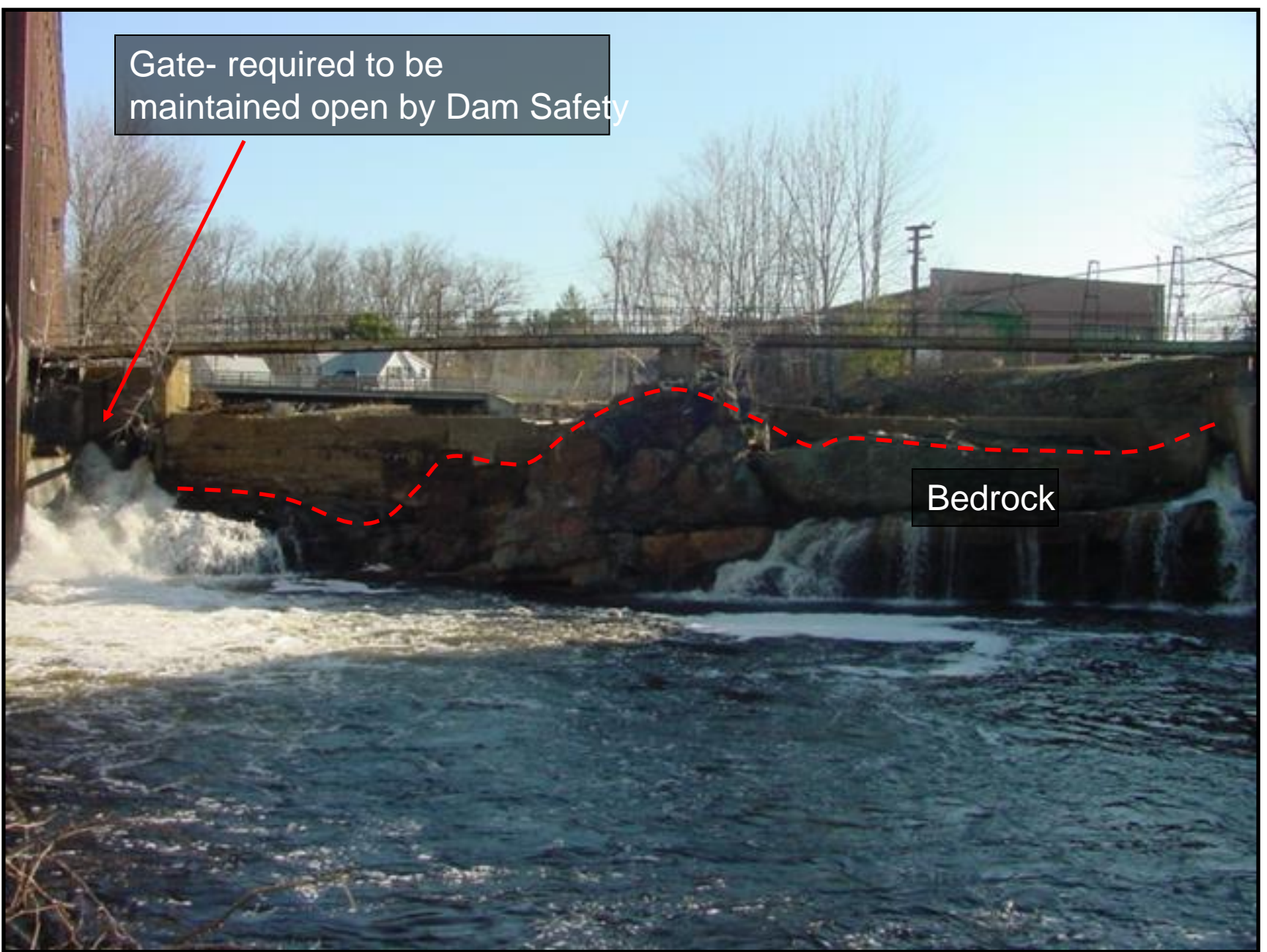
NEFCO



Gate- required to be
maintained open by Dam Safety

Bedrock

Gonic Dam- Looking upstream at dam



Gonic Sawmill Dam



Gonic Sawmill Dam



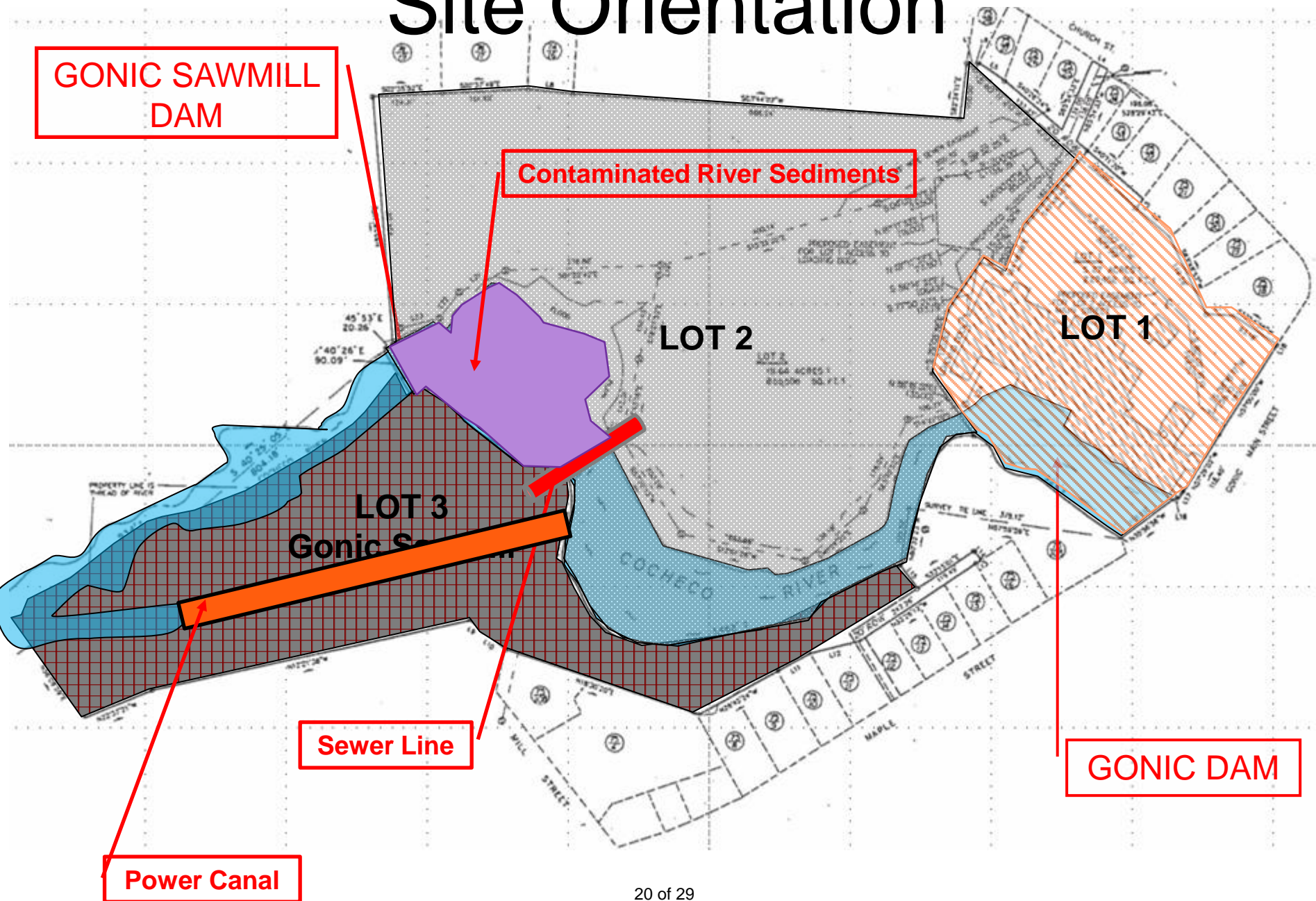








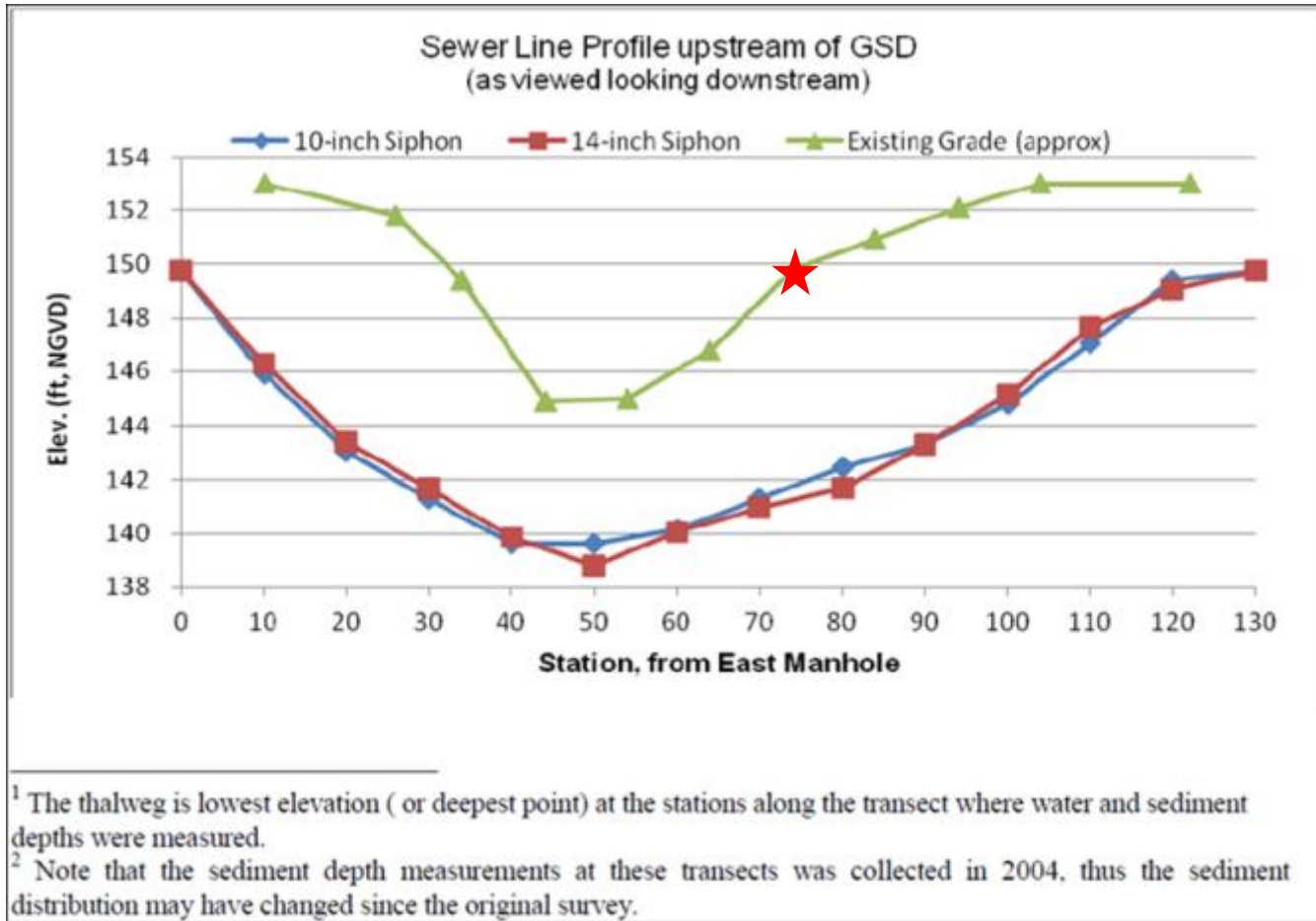
Site Orientation



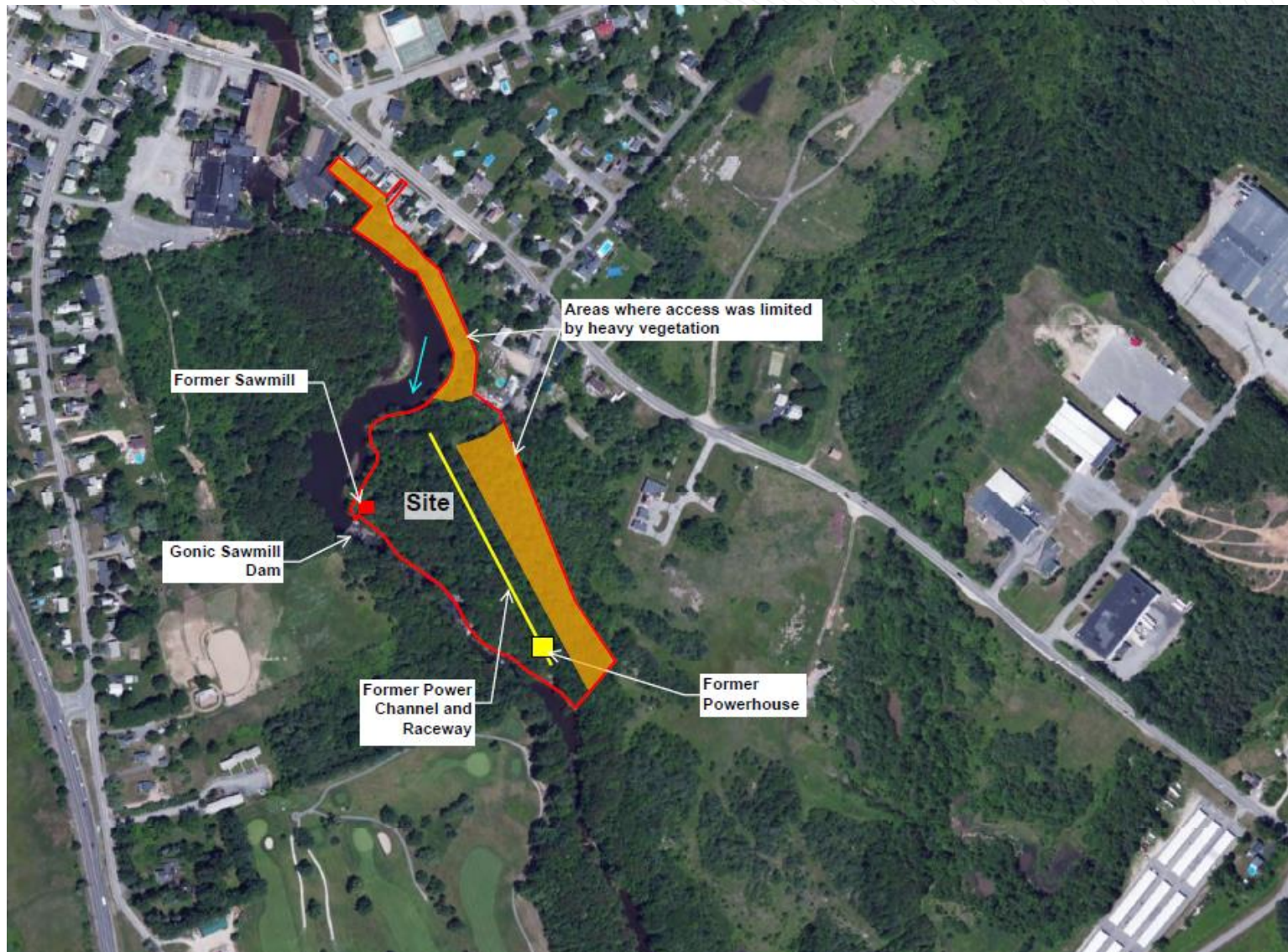
Hypothetical failure of the Gonic Sawmill Dam may imperil a sewer line that crosses the Gonic Sawmill Impoundment.



SEWER LINE SCOUR ANALYSIS



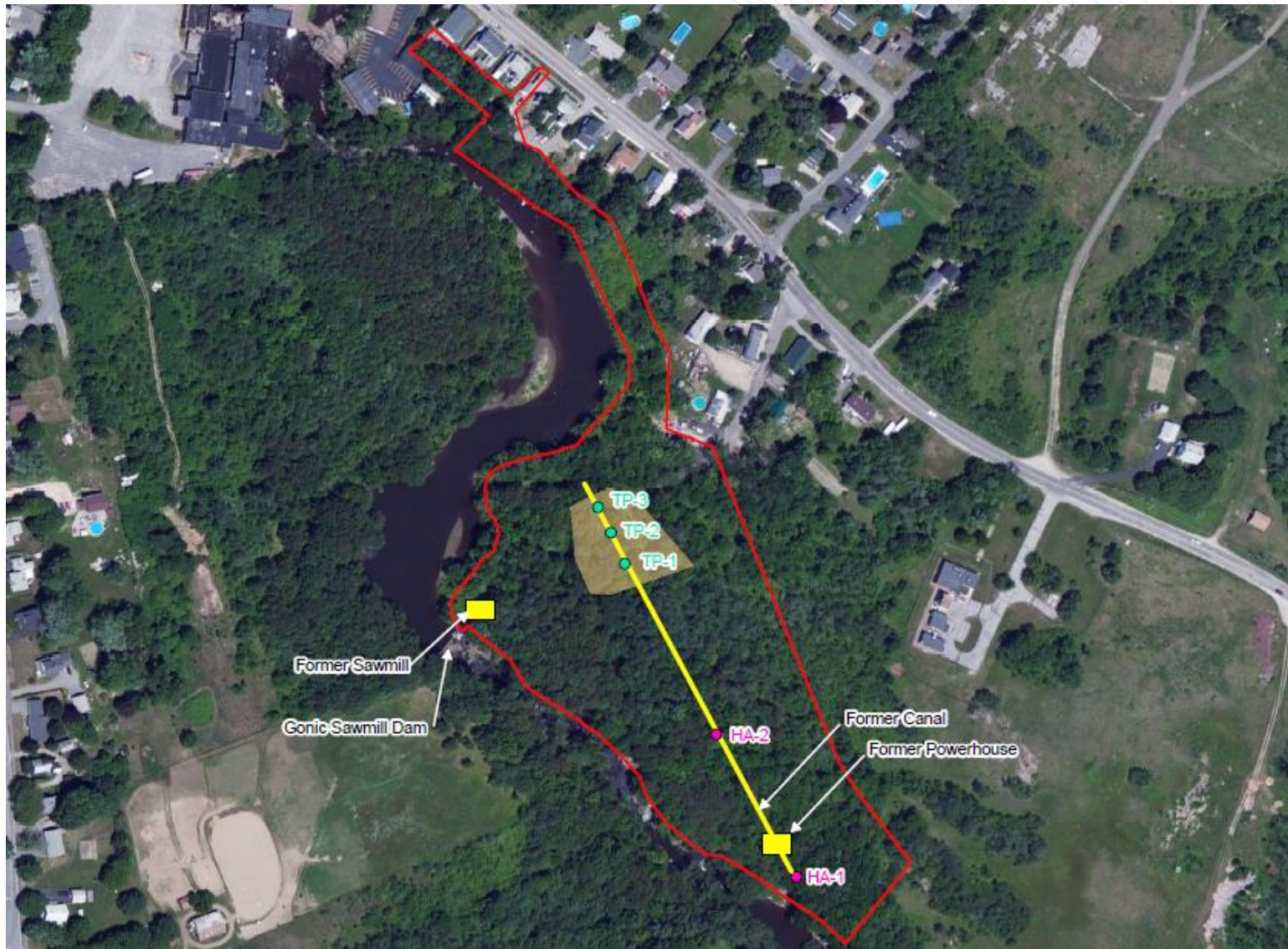
Phase I ESA



At 1pm..... Site walk



Phase II ESA



Phase II Findings – Filled Portion of Canal





Phase II Findings – Remaining Portion of Canal



