CITY OF PORTSMOUTH
Municipal Complex
1 Junkins Avenue
Portsmouth, New Hampshire 03801
(603) 431-2000

City Council Briefing and Public Input Session

Wastewater Facilities and Programs – Briefing 2

DATE: MONDAY, JUNE 11, 2012

LOCATION: CITY HALL – EILEEN DONDERO FOLEY COUNCIL CHAMBERS

TIME: 6:00 PM – 7:00 PM

A G E N D A

I. Call to Order – Mayor Spear

II. Introduction
- Overview

III. Regulatory Framework and Issues
- NPDES Permit Status
- US House Oversight Hearing
- Status of Legal Actions

IV. Collection System
- CSO-LTCP Project Status
- Mechanic Street Pumping Station - Requested Aesthetic Improvements Project

V. Wastewater Treatment Facilities
- Pilot Project Status
- Implementation Schedule

VI. Funding
- Projected Rate Impacts
- Rate Model RFQ

VII. *Questions and Comments* *(City Council and Public)*

VIII. Action Items

Past Briefings

- 1.1 - Details on the Maine experience and relationship to New Hampshire issue
- 1.2 - Provide legal and consultant costs for wastewater issues and legal challenge

Current Briefing

- 2.1 – Set Next Briefing Date and Agenda

List of Attachments

Attachment 2.1 – Summary Notes to April 9, 2012 Briefing prepared by Regina Villa Associates
Attachment 2.2 – John Hall US House Oversight Committee Testimony
Attachment 2.3 – Peter Rice US House Oversight Committee Testimony
Attachment 2.4 – Proposed Mechanic Street Pumping Station Aesthetic Improvements
Attachment 2.5 – CSO – LTCP Project Area Figures, 3A, 3B and Cass Street
Attachment 2.6 – Preliminary Results Lincoln Area Contract 3A

Future Agenda Topics

- Fats Oils and Grease - FOG
- Sump Pump Removal Program

KELLI L. BARNABY, CMC/CNHMC
CITY CLERK

NOTICE TO MEMBERS OF THE PUBLIC WHO ARE HEARING IMPAIRED: If you require assistance, contact Dianna Fogarty, Human Resources Director, at 603-610-7270, one week before the meeting to make arrangements.

Wastewater Facilities and Programs

City Council Briefing and Public Input Session
SUMMARY NOTE*

Prepared by Kate Barrett, Regina Villa and Associates

LOCATION OF MEETING: City Hall, Eileen Dondero Foley Council Chambers
1 Junkins Avenue, Portsmouth, NH

DATE/TIME OF MEETING: April 9, 2012, 6:30 PM – 8:30 PM

PURPOSE: Council Briefing and Public Input Session – Wastewater Facilities and Programs Work Session – Briefing #1

HANDOUTS:

- Binder with the following materials
  - Peirce Island Pilot Study Flyer
  - Moving Bed Bioreactor and Dissolved Air Flotation Fact Sheet
  - Biological Aerated Filter Fact Sheet
  - Conventional Activated Sludge with BioMag Fact Sheet
  - Peirce Island Wastewater Treatment Facility Fact Sheet

Call to Order

Mayor Spear called the meeting to order at 6:30 PM.

Introduction

Mayor Spear welcomed participants. He noted that tonight's meeting might be longer than will be necessary in the future to provide Councilors and the public with enough background information. The next briefing date will be set at the end of the meeting. Mayor Spear described the meeting format. After the presentation, Councilors can ask questions of City staff and then the meeting will be opened for public questions and input. Index cards were distributed for members of the public to write their questions or comments on and will be collected for reading and response. He asked if any Councilors had objections to the format of the meeting and none were expressed.

(* Briefing notes are not intended to be transcripts of the briefing but instead topics covered and the general discussion)

Mayor Spear invited John Bohenko, City Manager, to begin the presentation. Mr. Bohenko noted that the binders with agenda attachments provided to Councilors at tonight's meeting will be updated for each wastewater briefing. Materials will also be numbered and posted on the website, so Councilors and the public can refer back to what was discussed and distributed at previous meetings. The agenda is a template that will be used for future briefings and allows for tracking action items. Mr. Bohenko explained that this evening's presentation will cover a lot of information on background and basic concepts to help members of the public who may not have attended previous meetings on the topics. Future briefings will include more technical details. He invited Peter Rice, City Engineer, to begin the presentation.

Mr. Rice provided background to give people who are new to the process a baseline understanding that they can build on at future meetings and events.

Presentation

Mr. Rice referred to a PowerPoint presentation for the briefing (*the presentation is posted on the City Council's website*). He explained that the operation of the collection system is the same for the Peirce Island Wastewater Treatment Facility and Pease Tradeport facility. Wastewater is collected underground from homes and businesses in small pipes and transported to larger pipes in the streets. From there, the pipes are constructed so the wastewater flows by gravity to low points where it is collected and pumped to the treatment plant.

Mr. Rice explained that the City is operating under a Consent Decree with the US Environmental Protection Agency (EPA), which provides a formal structure and mutual agreement on how the City will comply with regulations. The federal government is creating local regulations, so there is not much flexibility in complying. The regulations have technical standards that require facilities to achieve a particular level of treatment. Water quality standards are site specific. Mr. Rice noted that the list of state impaired waters is updated every two years [those required to be listed under Section 303(d) of the Clean Water Act due to failure to meet water quality standards]. The City's treatment plants discharge into the Piscataqua River, which is an impaired water body (for pollutants not related to the City's Wastewater Treatment Facilities, WWTF), and they get a higher level of scrutiny and stricter regulations as a result.

Mr. Rice reported on some of the Department of Public Works stewardship programs implemented to protect the environment and public health. For instance, hazardous waste and prescription medicine are collected so people don't throw them down toilets or sinks, and pipes are cleaned to prevent clogging that might cause overflows. Vactor trucks vacuum out the catchbasins and jet them with water to clean out material and prevent it

from clogging pipes. The pipes are then cleaned by the same process. The City previously used a "two jet" rule where the pipes were jetted with water twice. Now it uses a remote controlled camera that moves through the pipes to make sure they are clean and it has found that more than two jets are needed to adequately clean the pipes. The camera allows City crews to see lateral lines that connect buildings to the pipes in the street, to pinpoint broken or collapsed pipes, and to identify blockages. Mr. Rice displayed a slide showing grease build up in a pipe, which restricts flow, and noted that grease in the lines is caused by restaurants that don't maintain their grease traps, so it discharges to the sewer. This type of poor maintenance passes the cost on to ratepayers and causes back-ups. The City started a FOG (fats, oil and grease) program to educate restaurants on best management practices. The program is typically introduced to restaurants when a change in ownership or change in use occurs, or there is an upgrade. The FOG program includes a pilot grease collection program. The goal of the program is to encourage an increase in cleaning frequency and better installation and operation of the collection systems to avoid the need for rigorous enforcement. The FOG program has been so successful that what the City typically outsourced to an independent company for $50,000 can now be done in-house by City staff and the budget line item has been eliminated.

An aerial photo was displayed showing collection pipes in green and pump stations as squares. The pump stations are located at low points in the City, so the wastewater flows to them by gravity. The pumps then pump the wastewater to the treatment facilities. Mr. Rice explained that combined sewer overflows (CSOs) occur when systems are overwhelmed with combined flows of wastewater and stormwater. The stormwater enters the combined system through catchbasins that are connected to sewers. It also enters through sump pumps that are improperly connected to sewers. The City is separating these flows, but in the meantime the CSOs are allowed to protect human health and property from sewer back-ups. There are two CSO outfalls in South Mill Pond. The area contributing to CSOs was outlined on the slide. By separating the flows, clean water is taken out of the City's system and costs are reduced because the clean water is not treated. The size of the future plant can also be reduced because it does not have to handle as much flow. Mr. Rice noted the importance of right sizing future plants by taking the reduced flows into account.

Mr. Rice next described the City's wastewater treatment facilities at Pease Tradeport and Peirce Island. The Pease facility can be seen from Route 16. Its outfall to the river is located at Schiller Station. The Peirce Island facility outfall is located off Henderson Point. Mr. Rice described the levels of treatment the facilities provide. The wastewater flows going to Peirce Island receive preliminary treatment by screening and collecting large items at the Mechanic Street Pump Station. Peirce Island uses advanced primary treatment and Pease uses secondary treatment processes. The processes do what nature does – filtering and biologically transforming pollution to clean water – but in a condensed space and shorter

timeframe. Advanced primary treatment outflow, or effluent, treats water to a level where it can be reused but is not potable. Tertiary treatment is sometimes added to the secondary treatment process at other facilities. Mr. Rice recounted the City's experience with the now abandoned Filter Building at Peirce Island. EPA required the City to construct the building in 1990 and 1991, and it turned out to be a non-piloted experience that was a failure. This experience led the City to request the opportunity to pilot test alternative treatment technologies before dedicating ratepayer funding to design and construction of a new plant.

New Hampshire Department of Environmental Services (DES) established water quality standards for what level of pollutants is allowable in the river, Mr. Rice explained. The standards are based on the river's ability to assimilate the pollutants without negatively affecting designated uses of the River. Nutrients and nitrogen in particular are the pollutants of concern for the Piscataqua River. EPA also sets limits, but they are for the levels of pollutants measured coming out of the wastewater treatment facility. EPA's limits can be set to the limit of technology, that is the most pollution a technology can remove without regard for cost or other factors, such as the assimilative capacity of the river. Lower nitrogen limits are more difficult to attain in colder climates because bacteria are less active in the wastewater at colder temperatures.

Mr. Rice reported that DES's standards are for the whole river and assumes a one size fits all approach without concern for site specific conditions. In addition, data is not conclusive on cause and effect related to nutrients in the river and how they are affecting eel grass. Despite this uncertainty, the City continues to move forward responsibly to test and upgrade treatment processes to protect the environment and public health. In December 2011, the City submitted a new application for its National Pollutant Discharge Elimination System (NPDES) permit for the Peirce Island facility outfall and a new permit is pending.

Mr. Rice noted that the current alternative treatment technology pilot testing is a direct result of the rigorous evaluation of the Wastewater Master Plan and uses criteria that were defined in the Plan. The key criteria are that the process can be upgraded to include nutrient removal to some degree and can be built within the current Peirce Island facility footprint. Rapid, high rate systems are necessary to accomplish these goals. The City is looking at Moving Bed Bioreactor with Dissolved Air Flotation, Biological Aerated Filter and Conventional Activated Sludge with BioMag processes. More information on these processes can be found on the City's website. Mr. Rice reminded the Councilors and public that the experience with the Filter Building is an excellent example of why the City must pilot the technologies before committing to one. The pilot testing is looking at how each system handles cold weather and high loads in the summer, among other conditions. The pilot systems had to be custom built on-site. Peirce Island is a jewel and highly utilized

public space, so the chosen process should not extend beyond the current facility site. He explained that the City would like to use the abandoned Filter Building for the additional process if possible. He noted at the Conventional Activated Sludge process would require more space and would spill out beyond the current site footprint.

Mr. Rice described the Pease Tradeport secondary treatment facility in more detail. The plant has two secondary sequencing batch reactors, which means that one is filling while the other one is treating and discharging. The system also has a tank that is used for equalizing the flow and the level in the tank rises and falls depending on how much flow is traveling through the facility. Pease is closer to Great Bay, which is the area of most concern to EPA; however, less than 10 percent of its effluent gets to that area. DES approved the model the City used to determine this amount and concurs with the finding. Minor upgrades to Pease would be required for the facility to meet an 8 milligrams per liter (mg/L) nitrogen limit. The City is hearing that 3 mg/L may be likely, but it has not performed the cost evaluations to meet this limit. Older parts of Pease also need to be upgraded.

Mr. Rice closed the collection and treatment part of the presentation by noting that several communities also use Portsmouth's facilities for septage disposal and the rate paid is based on the cost to treat it.

The City is a responsible steward of the environment. It is charged with protecting the environment and must consider cost-effectiveness in anything it does to ensure decisions are equitable and bearable for its residents and businesses. Mr. Rice explained various funding sources. The Enterprise Fund is a fee not a tax and is separate from the General Fund. The fee is two-tiered. The first tier includes up to 10 units per month (A unit is = 748 gallons). Any use beyond this is billed at a higher rate. Non-residential units are charged the same rates. A capacity use surcharge is billed for new construction or when there is a change in use to help pay for the additional demands on the facilities. There are also surcharges for businesses that discharge higher strength wastewater. Mr. Rice reported that the City will be conducting a water and sewer rate study. He reported that the EPA is requiring a modification to the City's Consent Decree, in particular the schedule of compliance for the WWTF and the CSO – LTCP projects. This modification will require that the Council consider the matter at the next meeting on April 16.

Mr. Rice described the City's regional cooperation and noted that complex environmental problems need regional action to leverage communities' strengths and ensure that decisions are appropriate and justified. He pointed out that the City participates in the Southeast Watershed Alliance, which is a quasi-public vehicle to implement a regional solutions. He also explained the reason behind the Great Bay Coalition's decision to file a

lawsuit against DES and the state. He pointed out that DES's own work shows that nutrients are not a problem with regard to eel grass. The agency fails to consider local conditions and is using a one size fits all approach based on science that is of questionable quality. Mr. Rice said the City is moving forward with the improvements, but wants to use an adaptive approach, treating to 8 mg/L and monitoring the results before making additional investments that might not be necessary. For four years, the City has tried to get DES to discuss and consider this approach, but there has been no movement. Formal legal action was necessary to ensure the City is involved in discussions affecting it and that DES follows the required formal rulemaking process. The lawsuit will ensure that ratepayers' money is spent wisely and with a maximum level of benefit and the City's resources are not wasted. The Coalition communities want to use an adaptive management plan in addressing the need and challenges. The adaptive plan must also address nonpoint sources of pollution, such as the runoff from rainfall that picks up pollutants and discharges directly to the river. DES's own data show that 70 percent or more of the nutrients in the river are due to nonpoint sources. Mr. Rice stressed that adaptive management does not mean do nothing – it means build and evaluate before building more.

Question and Answer

Mayor Spear invited Councilors to ask questions of City staff.

Councilor Dwyer asked about the timing around decisions on the three pilot technologies. Mr. Rice replied that staff should begin to have a sense of how the technologies are performing in June and will issue a formal data report with in July with a final report to the EPA by September 30, 2012. The Consent Decree deadline for making a decision is October 1, 2012. The next briefing will include an update on the pilot testing. Councilor Dwyer asked if the report will include costs and space implications for the three processes or provide the information for the selected processes. Mr. Rice said a finding might be that it's not possible to stay within the existing facility footprint. The City will then have to decide what that means. Will some flow need to be shed from Peirce Island to Pease? It isn't a simple solution and requires answering regulatory questions related to increasing flows at Pease. Staff will update the Council and public as the testing moves forward.

Councilor Coviello asked how often there are CSOs. Mr. Rice responded that the number of activations depends on rainfall amounts. The last six years were the wettest in the past 100 years. There are currently about 20 activations a year, but this number is expected to go down over time as combined sewers are separated in more areas of the City. Staff can tease out the details, if the Council would like more information. Councilor Coviello asked about the quantity of debris collected at the Mechanic Street Pump Station. Mr. Rice said the debris is collected by a bar press, ground, washed and compacted. It amounts to about one 55 gallon drum per day, or two if there has been rain. Councilor Coviello expressed

surprise that the regulators don't see the irony in using a one size fits all approach, requiring Portsmouth to comply with the same limits that upstream communities are given that closer to Great Bay. Mr. Rice said regulators are trying to do what's expedient. Setting site specific limits would require more time and money. They are also feeling pressure from others to act. He noted Maine as an example approach. The state has set stringent limits, but if there is no impairment, no action is required. Councilor Coviello asked about the City's waiver and the issue of impairment. The 1977 amendments to the Clean Water Act Section 301(h) permitted a NPDES waiver from secondary treatment for marine discharges, Mr. Rice said. The thinking at the time was that marine waters have a greater assimilative capacity, but the thinking has changed. The City designed a secondary treatment plant at Peirce Island thinking it would be cost effective to address the issue and 90 percent federal funding was available at the time. The state, however, wanted to use the funding for Lake Winnipesaukee, so submitted a letter to the federal government saying that a 301(h) waiver was appropriate for Portsmouth. The $5 million Filter Building was added at the last minute. Grease coated the sand and clogged the filter beds and created significant problems, so it was abandoned. In 1998, the City asked the regulators if section 301(h) would continue and were assured it would, so it began upgrades to the existing processes. The regulators subsequently issued a permit listing the Piscataqua River as impaired and denying a waiver. It did not matter that the impairment was due to other sources of contaminants than the treatment plant; in this case, PCBs and mercury.

Councilor Thorsen asked Mr. Bohenko to review the history of the process where the City considered moving the Peirce Island facility. He asked why the City is no longer considering moving the facility. Mr. Bohenko said that since the City would no longer have a waiver it looked at a number of scenarios to move treatment processes off Peirce Island, because the plant would have to expand to incorporate the additional treatment. The City looked at moving treatment to Pease and other locations upstream along the river (i.e., Schiller Station). Staff reported to the Council at several points in the evaluation process. The City began negotiations with a property owner along the river, but it became apparent that nitrogen could become an issue. The City is still waiting to hear from the regulators on the nitrogen issue. Nitrogen could now be a problem for both treatment plants. The Pease outfall also needs to be re-permitted and could open up new challenges for the City. One scenario looked at was to send flow to Pease for treatment and then pump it back to Peirce Island for discharge further out in the water. The City's analyses showed that any of the options for moving off Peirce Island were inordinately expensive, so the concept was abandoned and the decision made to phase in Peirce Island upgrades. The upgrades would be more affordable if they were phased in and could utilize technologies that would reduce the impact to Peirce Island. Mr. Bohenko noted the impact of the size of a traditional secondary treatment plant on Peirce Island, which resulted in the decision to evaluate and pilot test alternative technologies. The City is hopeful that the new facilities can stay within

the existing plant footprint. He added that the Filter Building experience led to the City's belief that pilot testing is necessary to make an informed decision. The decision to continue to use Peirce Island was a policy decision made by the City Council at that time. Mr. Rice noted that the three-volume report on the site evaluation process is posted on the website. Councilor Thorsen said it is important for the public to know why the City is focusing on this approach now. Is the Peirce upgrade a specific requirement of the Consent Decree? Suzanne Woodland, Assistant City Attorney, reported that the Decree requires the City to complete the Wastewater Master Plan process and refers to the process to do so as a series of steps. The Master Plan was submitted to DES and EPA in 2010. The Decree does not explicitly state how the City should achieve secondary treatment compliance, leaving it to the City to decide.

Councilor Novelline Clayburgh asked when the City will know about costs associated with this latest phase of work. Mr. Bohenko said the City is still waiting for a determination from EPA and DES to know what rules it must comply with. This issue of uncertainty about the rules is an example of why the City wants DES to follow a formal rulemaking process. Our current opinion of cost for upgrading to secondary treatment will cost the City about $40 million. Treating nitrogen to 8 mg/L could increase the cost to $60 million. And, treating to the level of technology – 3 mg/L – could cost up to $80 million. The cost of process chemicals needed to get to these limits and trucking to the plant add to operations costs. The problem is the City doesn't have the permit and doesn't know what to expect and plan for. City staff may come to the Council to ask for approval to fund testing or other activities. The regulators don't have funds for these types of activities, so permittees are being asked to do them. Testing is important to fully vet requirements, so communities have confidence that the upgrades and ratepayer money spent will achieve the expected results. The Coalition estimates that achieving 8 mg/L will cost the region $350 million over 20 years. A limit of 3 mg/L will cost the region $750 million over the same timeframe.

Councilor Lown asked about affordability. He understood that water and sewer bills can't be more than 2 percent of the median household income. Does 2 percent give staff a sense of how much the City can spend? Mr. Bohenko noted that EPA's affordability guidance is not a rule or requirement.

Councilor Lister noted that other towns are also frustrated and asked if cost-sharing and collaboration could help. Mr. Bohenko noted that legislation was introduced eight years ago to facilitate regional cooperation. Mr. Rice added that the Estuary Alliance for Sewage Treatment (EAST) allocated money to look at a regional facility, but the resulting "Big Pipe" concept was abandoned. Mr. Bohenko noted that there are economies of scale, but communities' systems have evolved separately and it would be hard to reverse the process now with infrastructure already in place.

Councilor Smith asked about the two CSOs in South Mill Pond. Mr. Rice said the Lincoln Avenue sewer separation project will reduce the number of CSOs. In the past, raw sewage was frequently discharged to the pond during rain events. The Lincoln Avenue project have reduced the amount by one million gallons. Councilor Smith asked about the budget and use of Enterprise Funds. If revenue exceeds expectations, how is the surplus used? Mr. Bohenko suggested a separate Council work session to go over the difference between cash and accrual methods and depreciation that are part of the budget setting process. The City must follow accounting standards for reporting and it reports full accrual, and earnings are retained. While the City uses the accrual basis, the cash basis is the true cost.

Mayor Spear spoke about the Maine experience with 3 mg/L and asked what it has committed to, and the concern Kittery has about what's happening in New Hampshire. Mr. Rice said he would get the specifics, but he understands that the Maine Department of Environmental Protection is waiting to see how the New Hampshire issue plays out.

Councilor Dwyer commented that the March 31 open house and tour was a great learning experience. It helped her get a better understanding of the size of the Filter Building and the potential space in it. She asked about the Integrated Fixed Film in Activated Sludge system that Hooksett uses that created a problem when the wafers used in the process were released into ocean and found on beaches across the region. Mr. Rice said in Hooksett's case, the recycle line in the system sends bacteria and nitrogen back to the headworks and when the recycle flow increased the system was overwhelmed and the wafers stacked up welding to themselves and creating a mat on the filter. The screen failed and the tanks flooded. The situation was a result of mechanical and operational errors. The pilot unit we are testing used a different media that doesn't stack and is less likely to clog. With a process such as this, a system should be in place to plan for a screen failure to ensure it does not become a catastrophic failure. Being cognizant of the issue and simulating a failure to plan how to push flow through is essential.

Mayor Spear invited members of the public to provide comments and ask questions.

1. *What is the cost of upgrading the Pease Tradeport facility?* A full evaluation has not been conducted for the upgrade of Pease to handle existing and future flows from just that facility's catchment area. The original Wastewater Master Plan estimated the cost of diverting all of the City's flow to the Pease facility to be between $80 million and $130 million.
2. *What does the City Council think about the current situation regarding wastewater issues in the City from a policy standpoint? How much has been spent on legal and consultant fees? Are the costs included in the budget and are expenses capped?* Mr. Rice said that under the

Coalition Memorandum of Agreement, the City's portion of the expenses related to the expenses for HydroQual's work is about $50,000. The additional cost associated with other permitting and legal actions over the last two years is approximately $60,000. City staff can get the exact costs. Staff think that expending the funds to make sure the permit limits and other related matters are based on sound science and a reasonable watershed approach is worth the investment; especially since the City will have to live with the decision for the next 30 to 40 years. While there is obvious great value in improving the environment, the City thinks it's important to test regulators' assumptions in setting limits to be a responsible steward of ratepayers money.

The Councilors expressed complete confidence in City staff's knowledge and decisions on the matter. Councilor Lown said that if the current litigation is based on science that supports the City's position, it is reasonable to spend money on legal and consultant fees on a matter that will save the City millions of dollars in the end. Councilor Coviello said he is confident that staff are asking the critical questions and ensuring the City is a good steward. He is comfortable relying on experts and staff. Councilor Dwyer made several points in support of the City's decision. She pointed out that increased energy use for higher levels of treatment will add costs to the facilities' operations. Scientific experts disagree, so it's important to ensure the scientific review is balanced and peer reviewed for these complex issues. She added that the investment and adaptive management are worth it, especially when considering the concerns about nonpoint sources of nitrogen. Councilor Novelline Clayburgh said that she appreciates the efforts of staff and the need to challenge and fully investigate the issues. The wastewater issues are resulting in the biggest project the City has ever undertaken and without financial aid from others it will be a hardship for residents. It is good that the Council is taking its time in deliberating diligently on the issues and actions. Councilor Thorsen said his experience in the private sector is that it takes about 10 to 15 percent of the total project budget to deal with environmental and technical issues, which are very complex. He doesn't think that the City's legal costs are out of line. It's important for the City to conduct pilot tests and adequately prepare for current and anticipated regulations. He is in favor of this preliminary work, which will help the City answer important questions. Mayor Spear noted that he has been watching this issue for the past four and a half years and has become convinced over time that the City's approach is sound. The hard work of staff and commitment of the Council resulted in a negotiated Consent Decree.

3. *How is rainwater kept separate from wastewater?* Mr. Rice said that in some cases where building basements are wet, the owners have connected the building drains to the sewer to solve the problem. Sump pumps are also a major problem if connected to

the sewer. Connections to drains are provided as combined sewers are separated in the City, so building owners have an alternative to connecting to the sewers.

The Councilors discussed the matter further.

Mayor Spear asked if there is an estimate of costs per ton to remove nitrogen if 70 percent of the load is from nonpoint sources. Mr. Rice said that higher stormwater flows dilute the nitrogen load making it more difficult to treat. He suggested a future work session topic to discuss the regional numbers for cost per ton to remove nitrogen. An economic impact study has been done.

Councilor Coviello asked about sewer separations in the City. Is catch basin stenciling being done in areas where sewers have been separated? Mr. Rice responded that students stencil catchbasins in areas where pipes have been separated, and there is an educational component to the program.

Councilor Dwyer asked if the City is considering a stormwater utility? The City is waiting for its permits before considering the value of creating a utility, Mr. Rice said.

Councilor Lown asked if treated effluent is discharged on outgoing tides only? Could the flow theoretically move upstream? The facilities discharge 24 hours a day, seven days a week. A model was done by Applied Science Associates of Rhode Island that showed that less than 4 percent of Peirce Island flow and less than 10 percent of Pease flow moves upstream. The vast majority goes out to sea. The model can be made available. It was submitted to DES and EPA.

Mayor Spear asked the Council to be thinking about why the City is suing on the rulemaking issue when it is not currently doing secondary treatment. The City's actions are in support of the environment, and the importance of considering land use which contributes to water quality in the river. He pointed out that the City looked at the work that has been done to answer questions and develop a sound basis for decision making and it is not convinced that 3 mg/L is the best limit or the best value for the investment. He said that comparing areas so far upstream with Portsmouth is not intuitive to him. He added that a lower limit that is unchallenged by the City will create a financial burden on residents. And, if the background level of nitrogen in the river is .3 mg/L, then land use issues need to be addressed.
Councilor Dwyer pointed out that there are lessons to be learned. It is a matter of looking like you're making a difference versus really making a difference.

Councilor Thorsen pointed out that the suit does not address the level or limits of nitrogen, but is really about the process DES used. The City was not involved, did not have an opportunity to make its arguments and is left not knowing how it will be affected and how it should plan.

Mr. Bohenko noted that DES is moving forward without making rules. Rulemaking is a legislative requirement and must include opportunities for public input. When asked about the lack of public process, the Commissioner of DES said that no formal rulemaking would take place at this time.

Councilor Coviello said that a comparison can't be made between the two upstream communities that agreed to go to a limit of 3 mg/L and Portsmouth. They are largely agricultural communities and there is more benefit to have lower limits on them. He thinks it's important to argue the science that the decisions are based on.

Councilor Lister said that rulemaking is important, so communities have the advantage of being able to monitor issues and be informed. He thanked City staff for their efforts to ensure that Portsmouth has this opportunity.

The next wastewater work session was scheduled for Monday, June 11 at 6:00 PM. The meeting was adjourned.

Action Items

- Details on the Maine experience and relationship to New Hampshire issue
- Provide legal and consultant costs for wastewater issues and legal challenge

Testimony of:

John C. Hall
Hall & Associates
Washington, DC

On Behalf of the Great Bay Municipal Coalition

"EPA Overreach and the Impact on New Hampshire Communities"

United States House of Representatives
Committee on Oversight and Government Reform

June 4, 2012

Good morning, Chairman Issa, Congressman Guinta, and Members of the Committee:

My name is John Hall. I am a principal at Hall & Associates, an environmental law firm which has been representing the Great Bay Municipal Coalition on Great Bay Estuary nutrient issues for the past two years. I have nearly three decades of experience in the environmental field, both as an attorney and as an environmental engineer, specializing in complex Clean Water Act matters. As mentioned in earlier testimony, the Region's actions will needlessly impose restrictive nutrient reduction requirements that will adversely impact the local economy for decades to come and not produce the intended environmental improvements for the Great Bay Estuary. In seeking to impose some of the most stringent nutrient limits in the nation, the Region has also violated several mandatory duties under the Clean Water Act (CWA), as well as numerous other EPA rules and policies. These statutory and regulatory provisions are designed to protect due process rights and ensure that only reliable scientific methods are employed in regulatory decision-making. In support of my testimony, I have submitted detailed documentation that outlines how EPA's actions have violated these procedural requirements and

EPA's science misconduct policies. (*See* Exs. A through D.) The following briefly reviews these procedural and regulatory improprieties.

Region I has issued three draft NPDES permits for Great Bay area communities that impose very stringent total nitrogen limits. These nitrogen limits are based on draft numeric water quality criteria that have never been formally adopted by the state or formally approved by EPA – a practice that is strictly prohibited under the Act. The Clean Water Act and the Agency's regulation known as the "Alaska rule," codified at 40 C.F.R. Section 131.21, require new state water quality standards, including new narrative criteria interpretations, to undergo a public review and adoption process under Section 303(c) BEFORE being applied to generate permits or declare waters impaired. To quote EPA in its "Questions and Answers on the Alaska Rule":

> "CWA section 303(c)(3) is explicit that <u>all standards must be submitted</u> to EPA for review <u>and must be approved</u> by EPA in order to be the 'applicable' standards. …. For actions under Section 303(d), the state … must base listings on the "applicable" water quality standard. … A state cannot use the new standard for CWA purposes, e.g., in a final permit, until EPA has approved the standard." (*See* Ex. A – EPA Questions and Answers on the Alaska Rule (September 12, 2000) (emphasis added.))

These regulatory procedures are designed to protect the ability of the public to provide meaningful input on water quality criteria adoption, before such criteria may be used to impose more restrictive requirements.

However, Region I simply ignored these requirements. The Region knew it had these mandatory duties and, early on, emphasized to the state the need to formally adopt the criteria into the state's water quality standards. (*See* Ex. B – A. Basile, EPA Region I, E-mail to P.

Trowbridge, NH Department of Environmental Services, dated Nov. 25, 2008.) When the state failed to do so, the Region came up with the idea to call the draft numeric criteria something else – a "narrative criteria interpretation" – as if that changed any procedural requirements or mandatory duties under the Clean Water Act. (*See* Ex. C – A. Williams, EPA Region I, E-mail to A. Basile, EPA Region I, dated Aug. 18, 2009.) The Region then informed the state that it must use the draft criteria immediately in developing the state's 2009 CWA Section 303(d) list of impaired waters. (*See* Ex. D at Letter Ex. 6 – S. Perkins, EPA Region I, Letter to H. Stewart, NHDES, dated Dec. 9, 2009.) Region I then hastily approved the state's radically revised impairment designations before anyone could stop them and without further public participation. In addition, the Region also knew that no cause and effect relationship between total nitrogen and eelgrass loss was demonstrated for the Estuary, based on federally-funded research. Nonetheless, the Region adopted the position that stringent nitrogen limits were essential in order to restore eelgrass populations. They then proceeded to claim, based on the draft numeric nutrient criteria, that "limits of technology" requirements must be applied to all point sources in the Estuary and stringent stormwater controls implemented.

The Clean Water Act's Section 101(e) mandates that EPA facilitate public participation in the development or revision of any standard or effluent limitation established by EPA or the state. 40 C.F.R. Sections 131.11 and 131.20 require water quality criteria to be publically reviewed to ensure they are scientifically defensible before they may be approved by EPA. The Region's insistence on using unadopted numeric criteria in permits and impairment listings plainly violated the public notice and comment provisions included in 40 C.F.R. Part 131, the requirements of CWA Sections 303(c) and 303(d), and violated the due process rights of the Coalition communities.

After circumventing the required notice and comment process, in March 2011, the Region then undertook additional efforts to exclude the public from involvement in a peer review process that was intended to "bless" the draft criteria. When the Coalition found out about the impending peer review, the Coalition specifically requested an opportunity to participate in that critical action. The Coalition then submitted comments on the major technical deficiencies in the draft numeric nutrient criteria and on the improper scope of the charge questions provided to the peer reviewers. However, the Region refused to allow the peer reviewers to address the Coalition's concerns. This is directly at odds with CWA Section 101(e) mandates and related public participation rules (e.g., 40 C.F.R. Section 131.20).

Unfortunately, this pattern and practice has continued to date. Since the "peer review", the affected communities have repeatedly submitted detailed site-specific information and analyses conducted by independent researchers that clearly show the proposed permit requirements were fundamentally flawed. To date, all of those submissions have been ignored without comment.

EPA's Scientific Integrity Policy and the Federal Policy on Research Misconduct provide that scientific analyses may not be based on fabricated scientific positions and agency bias. It is now apparent that serious regulatory violations, bias, and scientific misconduct underlie the Region's actions. The communities believe that the record is clear that the Region was determined to implement a predefined regulatory agenda of stringent nitrogen limits:

- even after the federally-funded Technical Advisory Committee for the Great Bay Estuary confirmed there was no cause and effect relationship between nitrogen, transparency, and eelgrass loss;
- even after the EPA's own Science Advisory Board stated that the type of

analysis used to support the Region's position was not scientifically defensible; and

- even after the Region itself internally identified major scientific deficiencies and significant conflicts with the Science Advisory Board's recommendations.

These are serious issues that require this Committee's oversight. What is the point of having local or federal Science Advisory Boards if EPA is simply going to ignore their findings and continue to employ methods that are criticized as fundamentally flawed and likely to misdirect environmental restoration efforts?

In closing, it is clear that the Region has no intention of conducting a comprehensive and impartial scientific assessment for Great Bay Estuary or complying with its congressionally-mandated public participation and water quality criteria approval responsibilities. For that reason, the Coalition submitted a letter to EPA Headquarters on May 4, 2012, documenting this misconduct and requesting that the matter be withdrawn from Region I and transferred to an independent panel of experts. (*See* Ex. D – Great Bay Municipal Coalition Letter to EPA Headquarters, dated May 4, 2012.) The Coalition continues to support that request as the only viable means for an objective review that will help to ensure local resources are not squandered based on misdirected policy mandates. The Coalition appreciates the Committee's investigation of this matter, and we hope the situation will be appropriately resolved in the near future. Thank you for your time.

Testimony of:

Peter H. Rice, P.E.
City Engineer Water & Sewer
City of Portsmouth

On Behalf of the City of Portsmouth

"EPA Overreach and the Impact on New Hampshire Communities"

United States House of Representatives
Committee on Oversight and Government Reform

June 4, 2012

Mister Chairman, and Members of the Committee, on behalf of the City of Portsmouth and the Great Bay Municipal Coalition Communities, I would like thank you for this opportunity to testify today.

My name is Peter Hamilton Rice. I was born in New Hampshire and I am a twice graduate of the University of New Hampshire with an undergraduate degree in economics and a Masters Degree in Civil Engineering. I am currently the City Engineer for the City of Portsmouth and have been employed in this position for the last ten years. Prior to working for the City I worked as a consulting engineer. I am a registered professional engineer and have served on a variety of State water and wastewater commissions and organizations. I have provided a copy of my curriculum vitae with my testimony. I have been extensively involved in the Great Bay nutrient issues since 2002 representing the City's interests.

The City of Portsmouth is a small city with a population of 21,000. Despite its small size, Portsmouth has "big city" infrastructure challenges. The City owns and operates two wastewater treatment facilities, has over 120 miles of sewer pipe and manages twenty pumping stations.

Communities such as Portsmouth want predictable, scientifically-supported, environmental regulations that deliver demonstrable environmental benefits. Within such a regulatory framework, limited municipal resources can be secured, budgeted and invested wisely to deliver necessary services with the maximum environmental benefit.

The City of Portsmouth has a proven track record of good environmental stewardship. In 2007 the City Council voted to adopt an "Eco-Municipality" designation which committed the City to sustainable development practices. To that end the City has updated its land use ordinances to reflect low impact design requirements, has incorporated Leadership in Energy and Environmental Design (LEED) principals into its municipal buildings and incorporated green infrastructure into its municipal projects. These efforts have been recognized through a number of awards including Gulf of Maine Council on the Marine Environment – Visionary Award 2010; New England Water Works Association Water System of the Year 2011; and an American Society of Civil Engineers (ASCE) Outstanding Civil Engineering Achievement Award in 2010.

In 2002, I assumed my predecessor's position on the State Water Quality Standards Advisory Committee. As the NH Municipal Association's representative on this Committee I became involved in the Nutrient Technical Advisory Committee (TAC) for the New Hampshire Estuary Project which is currently the Piscataqua Regional Estuary Partnership (PREP). The purpose of

the TAC was to provide technical peer review on the science used to develop water quality standards for the estuaries of New Hampshire. A specific focus of this Committee was whether and how nitrogen could be affecting Bay ecology, in particular eelgrass populations that have varied widely over time.

In 2005, EPA directed the State to develop nutrient standards for the Estuary – this was part of a national effort on EPA's part. Up until late 2008 nitrogen, although a concern, was not identified as the source of impacts on the Great Bay. In particular, it was concluded, based on federally funded studies, that increased nitrogen levels had not caused increased algal growth and had not adversely impacted transparency in the Bay. I have attached with my comments presentations given by DES staff relative to these conclusions. Then in 2008 there was an abrupt turn around. At a Water Quality Standards Advisory Committee meeting a simplified data analysis was presented, ignoring the previous detailed studies and reaching an opposite conclusion. This incorrect analysis was supported by EPA and subsequently became the basis for setting standards and declaring virtually all waters in the estuary nutrient impaired. All of this occurred without any formal adoption in accordance with law or formal approval of the criteria by EPA as new water quality standards. Thus, the impacted communities had no opportunity to challenge these changes.

This about face caused Portsmouth to reach out to other communities with wastewater treatment facilities to discuss the State's water quality criteria. The change in the State's conclusion with regard to role of nutrients spelled trouble for municipalities discharging into the Great Bay Estuary. The proposed criteria for nitrogen is not achievable and has been used by EPA to claim

that nitrogen must be treated to the "limit of technology" at wastewater treatment facilities and that stringent stormwater treatment must also be implemented to improve water transparency.

On March 15, 2010, I attended a Water Environment Federation EPA Staff briefing in Washington DC. Mike Hanlon, the Director of Wastewater Management, advised attendees that EPA didn't have the time or the money for science; and that EPA was going to apply the Chesapeake nutrient criteria program nationally. The following day at the Congressional Briefing breakfast I was told by Regional Administrator Spalding that until Portsmouth and the other communities developed their own science, EPA would not consider communities concerns that millions of dollars would be misspent, delivering little to no environmental benefit.

Complicating EPA's apparent limited "time and money," are the interests of Non-Governmental Organizations (NGOs) which appear to be having a disproportionate impact in the water quality process and the setting of permit limits. I was told that the regulators were worried about the possible lawsuits by NGOs and they were not afraid of the municipalities. This deference to the NGOs is an indication that EPA is more concerned about the policy issues than getting the science right and implementing cost effective solutions to protect and improve the environment.

This involvement by NGOs may explain why the repeated requests for involvement of the Coalition Communities' technical experts were rejected or trivialized.

For example, Portsmouth was given assurances by representatives of NHDES that it would be allowed to participate in a formal peer review of the NHDES draft nutrient criteria to be

organized by EPA. Instead, Portsmouth and the other communities were excluded from the draft criteria peer review process at the EPA level in 2010. This EPA peer review was a carefully orchestrated exercise designed to provide an appearance of scientific credibility to a fundamentally flawed nutrient criteria that met EPA's policy objectives. I have attached for the record correspondence relative to that process.

By rejecting the public's request for an inclusive, objective and open process, the regulators have delayed action which may have yielded environmental benefits in the near term. By ignoring good science, the EPA's regulatory process has set unachievable goals which will misapply scarce public funds while not achieving the intended goal. Communities are forced to spend money on lawyers instead of science and solutions.

These regulatory mandates will have a major impact on the local economy for decades to come. The City's sewer users have seen their sewer rates double in the last ten years. If limits of technology are mandated for Portsmouth permits, the sewer rate could be as high as $22 per 100 cubic feet. That means that for the average home owner their annual sewer bill would be $2,640. To put this in perspective, my sewer bill will be about 40% of my annual property tax bill. These high rates will have the unintended consequence of driving businesses to non-sewered communities. The magnitude of these costs demand that the standards must be based on a proper scientific foundation and not policy directives. Given the 180 degree reversal on the science we need an objective and fair peer review. We cannot afford to have local resources mis-allocated on ineffective and unnecessary measures that will have little beneficial impact on the Estuary.

In summary, the Great Bay Municipal Coalition is committed to protecting and restoring the Great Bay but we believe the existing science does not support the regulatory decisions being made and should not be the basis for NPDES permits.

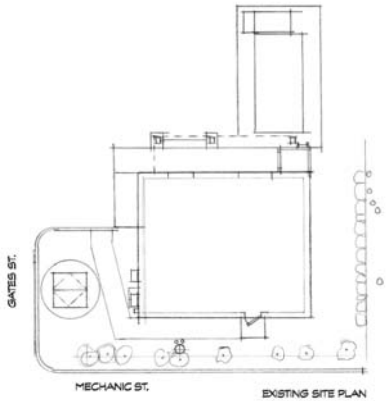
h\smw\public works\sewer and water\wastewater – nutrients\gov oversight hearing\phr testimony 52912

ATTACHMENT 2.4

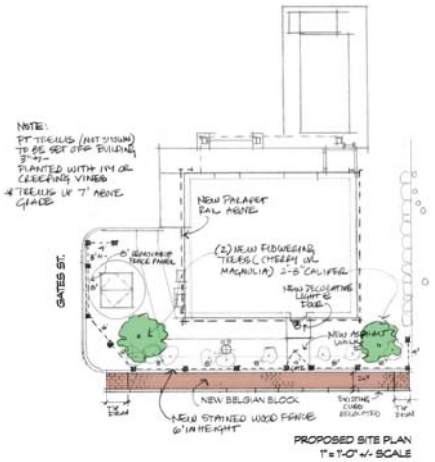
EXISTING VIEW

EXISTING VIEW

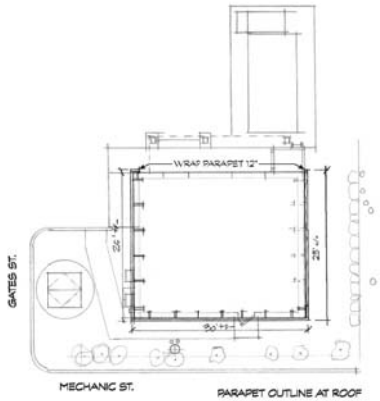
PROPOSED RENDERING PERSPECTIVE
(SOURCE: PLANNING DEPARTMENT)



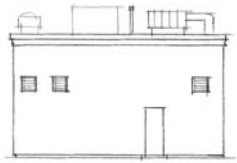
EXISTING SITE PLAN
1" = 1'-0" +/- SCALE



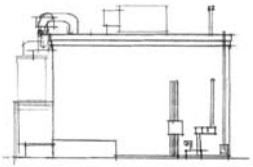
PROPOSED SITE PLAN
1" = 1'-0" +/- SCALE



PARAPET OUTLINE AT ROOF
1" = 1'-0" +/- SCALE

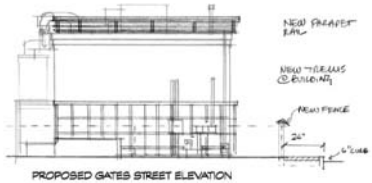


EXISTING MECHANIC STREET ELEVATION

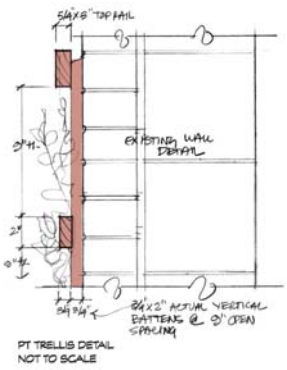


EXISTING GATES STREET ELEVATION

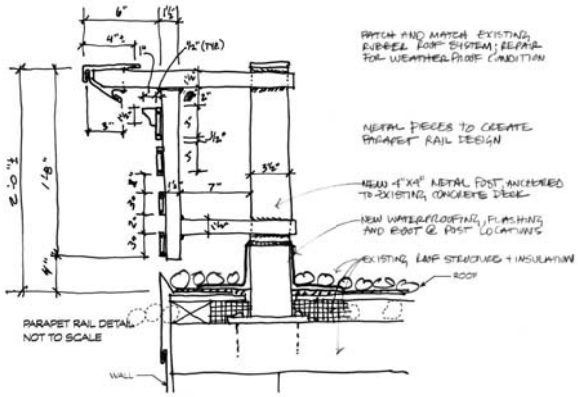
PROPOSED MECHANIC STREET ELEVATION



PROPOSED GATES STREET ELEVATION



PT TRELLIS DETAIL
NOT TO SCALE



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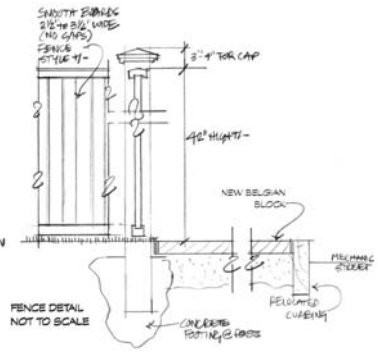


FENCE DETAIL
NOT TO SCALE

DOOR LIGHT DETAIL

TMS
architects
1 CATE STREET PORTSMOUTH, NH
WWW.TMSARCHITECTS.COM

MECHANIC STREET PUMP STATION

PORTSMOUTH, NH
2012-5-23

ATTACHMENT 2.5

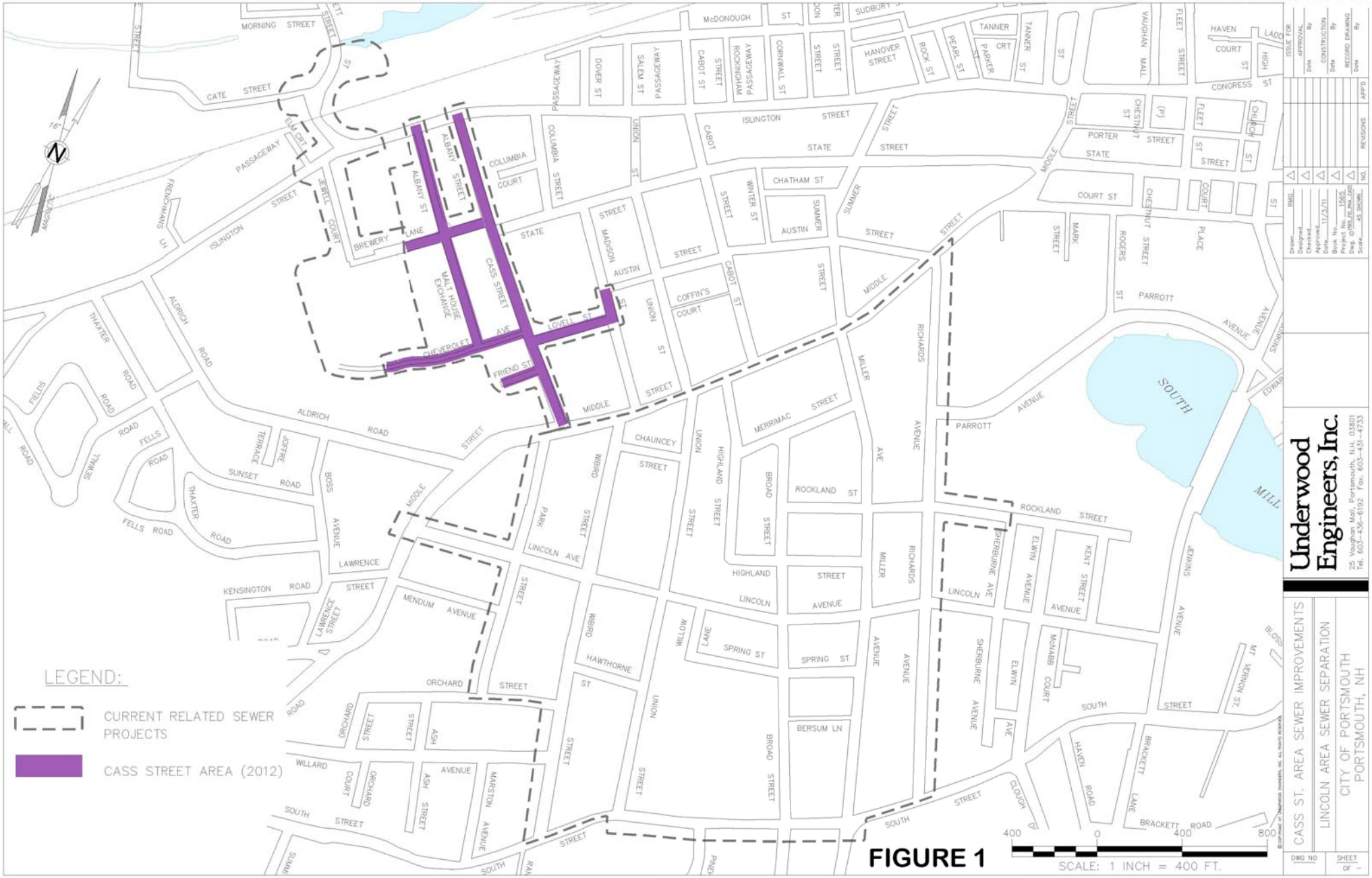
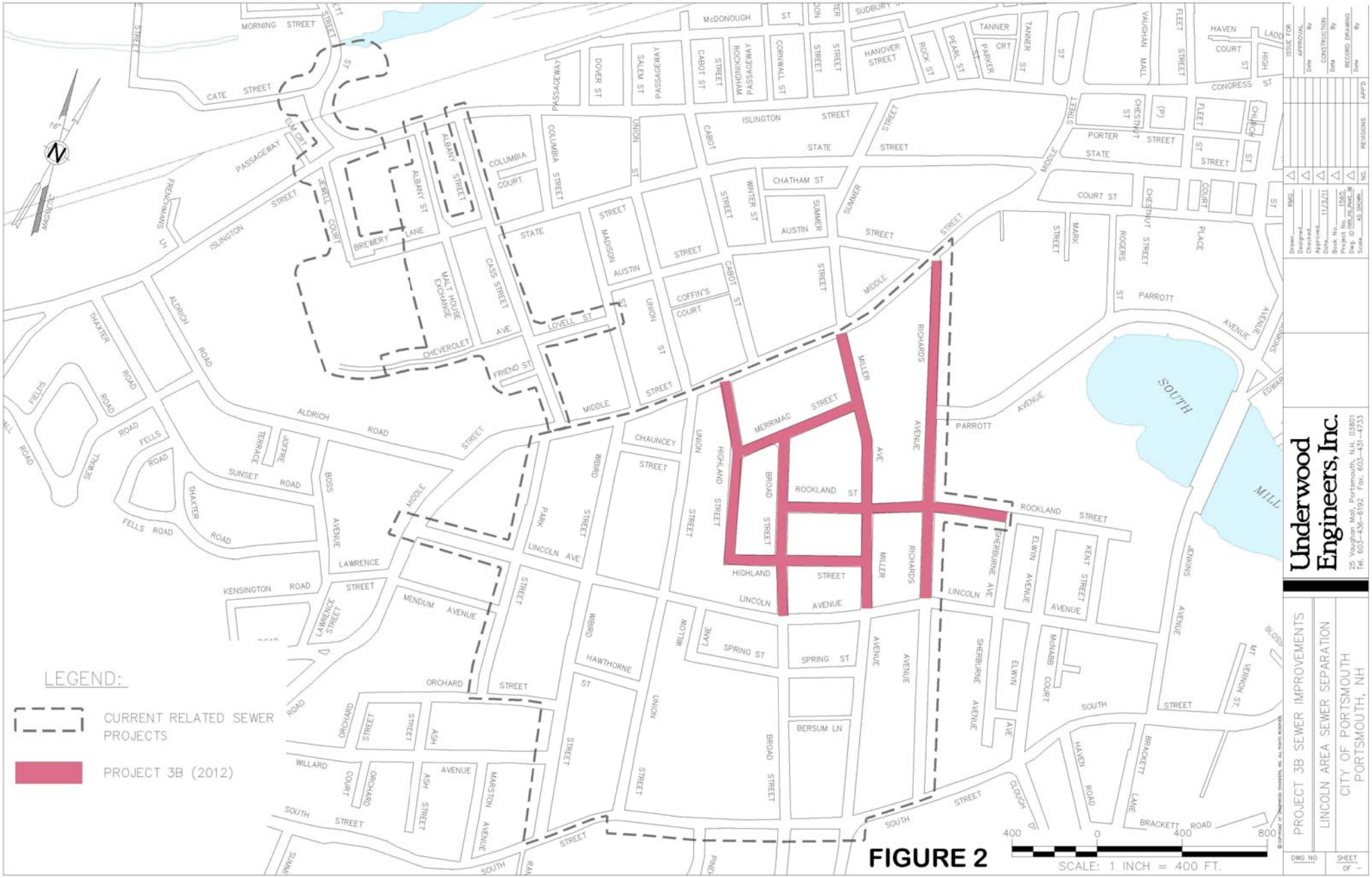


FIGURE 1

ATTACHMENT 2.5



ATTACHMENT 2.5

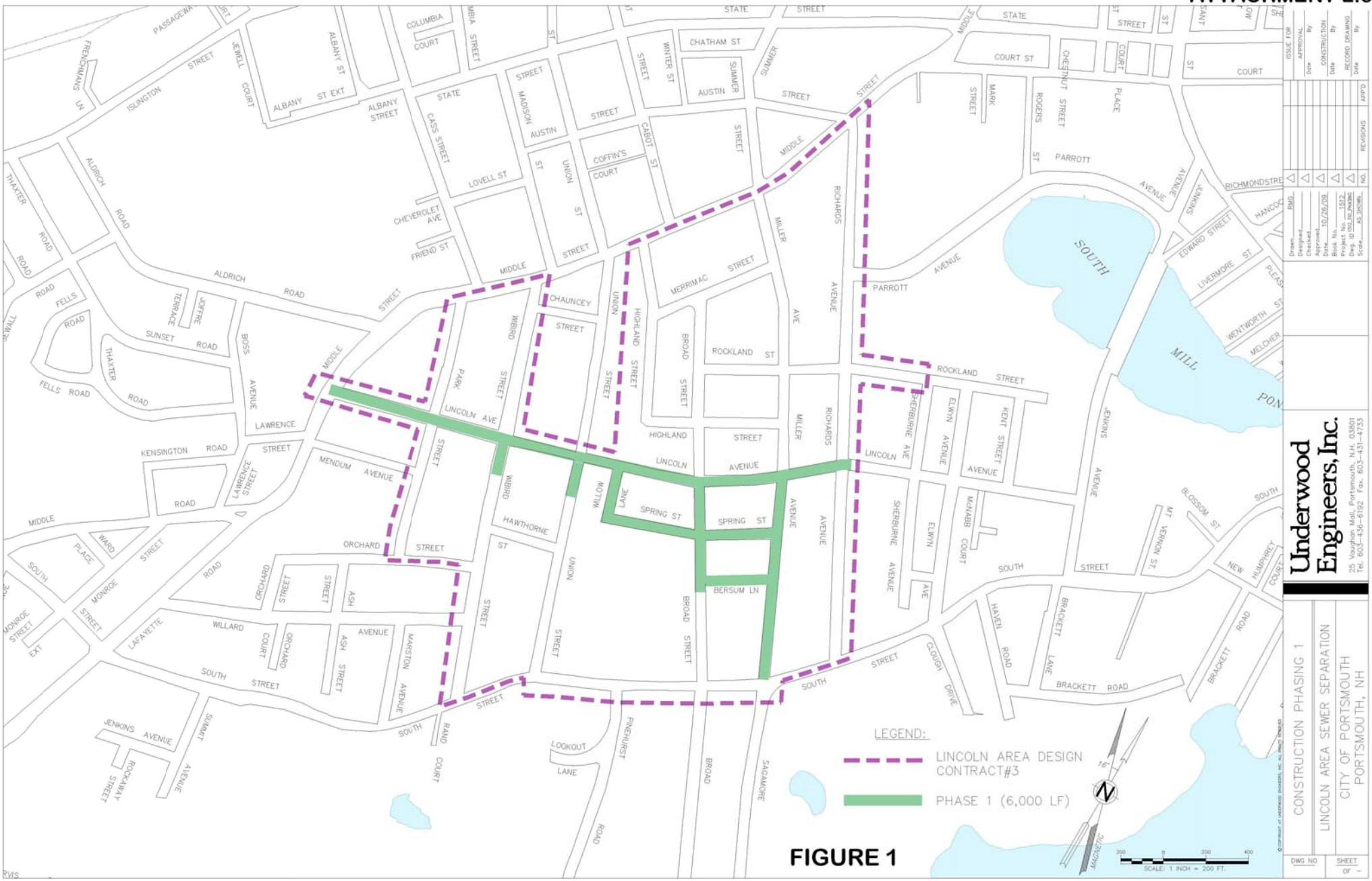


FIGURE 1

Preliminary Results- Lincoln Area Contract 3A Combined Sewer Overflow Volumes
Rain & CSI Volume

Before Separation

Time Stamp	City Hall Rain - Daily Rainfall (none)	10A - Daily Flow (mg)	10B - Daily Flow (mg)	Deer St - Daily Flow (mg)
04/20/2012 00:00:00	0.00000	0.00000	0.00000	0.00000
04/21/2012 00:00:00	0.00000	0.00000	0.00000	0.00000
04/22/2012 00:00:00	0.93000	0.00000	0.00000	0.00000
04/23/2012 00:00:00	2.19000	2.47501	0.27215	0.14853
04/24/2012 00:00:00	0.00000	0.00000	0.00000	0.00000
04/25/2012 00:00:00	0.00000	0.00000	0.00000	0.00000
Minimum				
Average				
Maximum				
Total	**3.12000**	**2.47501**	**0.27215**	**0.14853**

After Separation

Time Stamp	City Hall Rain - Daily Rainfall (none)	10A - Daily Flow (mg)	10B - Daily Flow (mg)	Deer St - Daily Flow (mg)
05/31/2012 00:00:00	0.00000	0.00000	0.00000	0.00000
06/01/2012 00:00:00	0.00000	0.00000	0.00000	0.00000
06/02/2012 00:00:00	2.58000	0.78384	0.35913	0.14819
06/03/2012 00:00:00	0.25000	0.14133	0.00000	0.00000
06/04/2012 00:00:00	0.52000	0.00000	0.00000	0.00000
06/05/2012 00:00:00	0.10000	0.00000	0.00000	0.00000
Minimum				
Average				
Maximum				
Total	**3.45000**	**0.92517**	**0.35913**	**0.14819**

Rain in inches
CSO mg = Million gallons