Woodridge Lake Sewer District (WLSD)

Regional Sewer Connection Project

Facilities Plan Summary Report

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FACILITIES PLANNING SUMMARY REPORT
PROPOSED REGIONAL SEWER CONNECTION PROJECT
WOODRIDGE LAKE SEWER DISTRICT (GOSHEN, CT)
ISSUED ON MAY 9, 2016

This Facilities Planning Summary Report (FPSR) was prepared and formatted for consistency with the Connecticut Department of Energy and Environmental Protection (DEEP) and its Plan of Study Checklist guidelines, as provided by DEEP staff during recent correspondence with Woodridge Lake Sewer District (WLSD). We developed this FPSR in outline format to demonstrate that the planning milestones were addressed and to facilitate review by DEEP staff. The guidelines are shown in black font. Our FPSR text, as it related to WLSD and its past Facilities Planning tasks and proposed Regional Sewer Connection Project, is shown in blue font. Attachments including tables, figures and references, are included as referenced Appendices to the FPSR. This FPSR: summarizes past planning efforts and deliverables; provides an overview of the alternatives and the comparison of alternatives; and describes the proposed Regional Sewer Connection Project, including the implementation schedule.

1) PROJECT NEED

a) Plan of Study

WLSD retained Woodard & Curran in 2010 to complete the Facilities Plan Update Project, including wastewater management goals for the 20 year planning period. WLSD prepared and submitted several scope of work and amendment requests to DEEP. The State subsequently issued Pre-Approval letters and Clean Water Fund (CWF) Agreement/Amendments. WLSD submitted related Facilities Plan Reports in July 2013 (Preliminary Summary Report for Local and Regional Alternatives) and October 2013 (Hydrogeological Report for Local/On-Site Alternative). Copies of the cover pages for these two Reports are included in Appendix A. These Reports were generated when the anticipated costs for the Local Alternative were lower than the Regional Alternatives, so the conclusions of the Reports are updated herein based on current data and conclusions. Regardless, the details associated with the evaluation of the existing WLSD effluent disposal system were well-documented in the latter Report. More recently, as documented through discussions and correspondence over the past 12 to 18 months, WLSD has been in the process of implementing the Regional Alternative (Torrington), through the proposed Regional Sewer Connection Project. WLSD secured a funding commitment from USDA Rural Development in early 2016 for the full amount of the proposed Project, and will not be requesting additional CWF funds from DEEP beyond the planning phase. USDA Rural Development approved both a Preliminary Engineering Report (PER) and Environmental Report (ER) in March 2016. Copies of the Final PER and Final ER covers are included in Appendix B. This FPSR includes elements of the PER/ER, past planning work and reports with DEEP, and provides a detailed summary of the proposed Regional Sewer Connection Project and the Project Implementation Plan.

b) Why Needed?

WLSD's wastewater infrastructure was constructed in 1972. DEEP issued a Consent Order (CO) to WLSD in 1989. The CO requires WLSD to address its sanitary sewer collection and wastewater treatment/disposal needs. In response to the CO, WLSD conducted several planning studies, but a capital plan to resolve the issues was not implemented. The current WLSD leadership team implemented several recent upgrades and proactive maintenance measures over

the past five years. In 2013, open cut sewer repairs were performed to mitigate excessive infiltration and inflow. In 2015, an I/I Removal Project was performed to grout and line sewer mains and manholes. This significantly reduced extraneous flows in the collection system. Also in 2015, the Pump Station Upgrades Project was implemented to improve emergency readiness, flow data trending and remote monitoring capabilities by adding supervisory control and data acquisition (SCADA) systems at WLSD's eight remote pump stations. Copies of the covers for the Project Manuals for the two recently completed construction projects are included in Appendix C.

c) Drivers

The 1989 CO remains in effect today. The most recent correspondence with DEEP regarding the Consent Order occurred in late 2015 and early 2016. Copies of this correspondence, in which DEEP requested a formal/proposed timeline for implementation of the proposed Project, and WLSD responded to this request, are included in Appendix D.

The majority of the concerns related to health and sanitation center on the WPCF effluent disposal system. Although the permitted capacity of the disposal system is 100,000 gallons per day, soil permeability and seasonal limitations impact the actual performance of the system. The requirements of the 1989 CO are centered on the surrounding Class GAA groundwater supply and separation to groundwater and travel time, all of which relate to protection of public health and the environment. Based on the testing and the State's wastewater/effluent disposal guidelines, addressing these concerns with an on-site re-use quality treatment system and an enhanced disposal system on the existing site proved to be too costly, with no clear path to regulatory/permitting approval. Copies of the WLSD discharge permit and 1989 CO are included in Appendix E.

2) PLANNING AREA

a) Define Limits

The Woodridge Lake Sewer District (WLSD) is an existing, private residential development around 385-acre Woodridge Lake in the Town of Goshen, Connecticut. The Planning Area, including the existing sewer service area, parcels comprising WLSD and Woodridge Lake itself, is depicted in the figure in Appendix F.

b) Large Enough to Consider Regional Alternatives?

The location of the WLSD sewer service area, together with the closest regional sewer service area in the City of Torrington, are both shown in the figure in Appendix G that depicts the proposed Regional Sewer Connection Project. Both the City of Torrington and the Town of Litchfield were considered as part of the Regional Alternatives evaluation during the Wastewater Facilities Planning process.

3) PLANNING ENTITY

a) Define Local Planning Entity

WLSD acts as an independent municipal tax district. WLSD is an entity comprised of only 691 residential dwellings, led by volunteers and citizen participation. The WLSD Board and its Sub-Committees (Finance, Planning, Operations and Capital) meet regularly to review budgets, capital projects, and

wastewater planning information. WLSD holds regular Annual Meetings with its residents, and has an active public participation program, including emails, mailers and a WLSD website regarding activities and projects in the sewer service area and at the Water Pollution Control Facility (WPCF). Most recently, WLSD held its Annual Meeting on April 30, 2016, to discuss the plans associated with the Regional Sewer Connection Project with its residents. Overall, the residents expressed support for the Project. The residents will vote to Authorize funds for the proposed Project at their upcoming Budget Meeting on May 28, 2016.

4) SPECIFIC TASKS OF FACILITIES PLAN

a) Description of the Existing Facilities and Performance

The existing sanitary sewer collection system, pump stations, WPCF and effluent disposal system are shown in the figures in Appendices F (WLSD collection system) and H (existing WPCF site).

- Collection System: The WLSD collection system was privately constructed approximately 40 years ago, and includes 16.2 miles (85,500 feet) of gravity sewer and 1.9 miles (10,000 feet) of force main piping. The majority of the gravity sewer mains are double-walled plastic truss pipe, with a limited amount of cast iron pipe. Of the 691 existing sewer connections, approximately 115 are low-lying homes around Woodridge Lake that are served by individual grinder pumps, which discharge to mainline gravity sewers. The average daily wastewater flow to the WLSD WPCF was approximately 105,000 gallons per day (gpd) from January 2010 through December 2011. During this same period, total daily flows ranged from a minimum daily flow of 43,000 gpd to a maximum daily flow of 402,000 gpd. This fluctuation, which preceded the 2015 I/I Removal Project, is due to variations in seasonal population use but also due to variations in I/I. Wastewater is comprised of sanitary and I/I flow sources. Based on our observations, the average annual sanitary flow is approximately 63,000 gpd, and the remaining average annual I/I is 42,000 gpd. Our calculations show that the average I/I from month to month ranged from near zero in low-groundwater summer months to nearly 160,000 gpd in March of 2011. For the number of connections, the system has an unusually large amount of pipe, which allows for greater inflow and infiltration (I/I) potential.

- Pump Stations: During the Facilities Plan Project, several limitations at WLSD's eight pump stations were observed, including unreliable autodialers and pump controllers without the ability to connect to a SCADA system. The lack of a centralized flow monitoring and data collection system hampered the trending and analysis of operational and flow data. Deficiencies with the pump stations also included the lack of the ability to bypass pumps and motors that could fail in the event of station flooding. In addition, six of the eight pump stations lacked permanent emergency generators and instead have portable generator quick connects. The majority of these issues were addressed in 2015 as part of the Pump Stations/SCADA Upgrades Project. Refer to Appendix C for a copy of the Project Manual cover sheet for this Project.

- Water Pollution Control Facility: The WPCF and effluent disposal system are located on a separate 90-acre site, east of the sewer service area. The existing WPCF was constructed in 1972. The WPCF incorporates several unit treatment processes, including preliminary treatment equipment,

activated sludge, rapid rate multi-media filtration, aerobic sludge digestion, sludge drying beds, a waste sludge dewatering system, as well as an Operations Building and Garage. Effluent produced by the WPCF typically meets the existing permit requirements for treatment. Visual inspection of the 40+ year old in-ground steel tanks suggests that remaining serviceability is severely limited. The rapid rate multimedia filtration system has neither been able to perform as intended since construction in 1972 nor remain in service since being upgraded in 2011. Solids produced at the WPCF are dewatered and disposed of on-site to the east of the WPCF. The anticipated permit requirements and excessive age of the equipment at the WLSD WPCF minimize the life expectancy of the facility. The WPCF was not designed to provide the high levels of treatment that are anticipated to be required in the near future as a result of the continued use of the on-site effluent disposal fields. In order to convert the existing system to a nutrient removal process, the existing tank volume would need to be approximately three times as large as the existing process tanks.

- Effluent Disposal System: WLSD utilizes groundwater disposal for treated effluent, which is regulated by DEEP through a 1977 DEEP Discharge Permit and a 1989 Consent Order. The WLSD plant discharges effluent to the groundwater disposal system, which consists of approximately 90 beds over roughly 90 acres. These beds were constructed in a ridge and furrow configuration with most of the beds approximately 25 feet wide, and ranging in length from just over 100 feet up to 700 feet. Treated effluent is discharged to the beds via a series of pipelines and valves. WPCF staff manually open and close valves to direct flow to a particular bed and typical operation involves loading only a single bed at a time. The system is not configured to allow operation of multiple beds simultaneously: (1) because of existing piping limitations; and (2) since the beds are not at the same elevation preventing effective distribution of flow.

b) Description of Population Projections

There are currently 691 existing residential developments connected to the WLSD sanitary sewer system. Based on 2010 Census data, the unit population per home in Goshen is 2.54. This results in an estimated current population of approximately 1,755. Over the past several years, there have been approximately six new sewer connections per year. WLSD includes 877 buildable lots, all of which were originally approved as part of the Sewer Service Area. At full buildout, we estimate a population of approximately 2,228. It should be noted that many of the WLSD homes are used seasonally, so the actual full-time population is lower than Town-wide Goshen estimates. This contributes to lower water use and wastewater generation patterns in the Project Area.

c) Description of the Methods to Generate Future Flow Figures

During the Facilities Planning process, we projected the future flow and pollutant loadings at build-out conditions by estimating average dwelling and per-capita unit generation rates from existing data, and applying them to the projected sewer connections and estimated population at build out. For this analysis, which was updated in March 2016 for the PER with USDA Rural Development, we utilized existing electronic files provided by the WLSD, and we compiled additional information from the Town of Goshen and the State of Connecticut. This information included land use, zoning, wetlands, sensitive resources,

conservation restrictions, flood zones, and areas designated by the State for preservation or development. For these projections, we considered developed lots, vacant lots, new lots that can be created through subdivision, and undevelopable lots that will never be connected to the sewer system. Specifically, we developed per-connection and per-capita unit generation rates from influent flow and load data collected by the WLSD from January 2010 to December 2011 (confirmed by comparing to more recent 2015 flow data during PER). The projected build-out sewer population was estimated to be 2,228 individuals using the total number of existing (691) and projected (186) sewer connections from the build-out analysis. This includes an assumption of 2.54 persons per connection, based on the average household size for the Town of Goshen from the 2010 census data. This projection represents an increase in the sewer population of approximately 473 people above the current sewer population of approximately 1,755. The future flow is important for underscoring the need for a long-term I/I management program, and for determining the conceptual size and hydraulic capacity of the proposed facilities for the evaluation of Local and Regional Alternatives. Pollutant loads were especially important for considering the range of treatment requirements for the Local Alternative. The flows and loads data was used to facilitate the comparison of a Local and Regional Alternatives. WLSD residents use very little water as compared to State-wide usage patterns, and these conservative use patterns are expected to continue in the future. For example, the sanitary flow is estimated at 63,000 gpd. That is equivalent to 91 gpd per connection, based on the 691 existing sewer connections.

d) Description of the Methods to Document Existing and Potential Wastewater Disposal Needs

The Facilities Plan evaluation tasks for each element of WLSD's wastewater infrastructure are summarized as follows:

- Collection System: In order to combat excessive I/I, the Wastewater Facilities Plan incorporated several I/I tasks and investigations, including flow monitoring, flow isolation, physical site inspection, building inspections, smoke and dye testing, manhole inspections and CCTV inspections. The results of the CCTV work and manhole inspections suggest that the primary I/I sources relate to service lateral connections to sewer mains, sewer main penetrations at manholes, and a limited number of mainline truss-pipe joint problems. Several pipe-manhole joint leaks, numerous service connection leaks and pipe-to-pipe joint leaks were observed. A few cracks and breaks were also detected that contribute I/I to the sewer system. WLSD implemented the I/I Removal Project in 2015, including grouting and lining of the pipes and manholes in the system, to significantly reduce I/I in the collection system. Based on the results of the 2015 I/I Removal Project, system flows have dropped considerably.
- Pump Stations: The primary emphasis in the evaluation of WLSD's eight pump stations was improving emergency readiness, remote connectivity, and flow monitoring capabilities. These concerns were addressed in 2015 as part of the Pump Stations/SCADA Upgrades Project, which included emergency bypass headers, magnetic flow meters and valve upgrades at WLSD's two primary pump stations (Pump Station 6 and Plant Pump Station), as well as SCADA provisions to all eight pump stations, including the six smaller/satellite pump stations around Woodridge Lake.

- Water Pollution Control Facility: The entire WPCF was evaluated during the Facilities Plan. Other than the buildings, very few elements of the WPCF are in sufficient condition to be reused under a Local Alternative upgrade scenario. Therefore, the planning process included the evaluation of several permit conditions, based primarily on the anticipated effluent disposal system needs. For example, WPCF needs under the current permit discharge conditions were evaluated, which resulted in a typical secondary treatment system. In addition, WPCF permit conditions centered on reuse quality effluent were also considered, to simulate the limits-of-technology option for near re-use quality effluent.

- Effluent Disposal System: During the Facilities Planning Process, we estimated that average annual flows, including current connections, future (previously approved) connections and I/I flows would be approximately 125,000 gpd at design conditions, which is in excess of the permitted disposal system capacity. This preceded the 2015 I/I Removal Project, which resulted in an updated design flow projection of 110,000 gpd. During the Facilities Plan we: reviewed existing data and original design criteria; interviewed WLSD operations staff; conducted hydraulic conductivity testing; performed flow testing; monitored groundwater and surface water levels; analyzed and summarized field data; and prepared summary observations. In addition, flow testing of the existing disposal beds was conducted in Spring 2012. Groundwater monitoring was performed before, during and after flow testing. During this testing, a series of data analyses was conducted on: groundwater level responses to flow testing; hydraulic conductivity; groundwater contour mapping and gradient; surficial hydrogeologic mapping; travel time; and site loading rates. Several challenges occurred during the testing including: leaking distribution system pipes; maintaining a consistent flow rate to the test beds; groundwater level monitoring; and site drainage. Although the 2015 I/I Removal Project reduced system flows, the long-term reduction of system flows below the 100,000 gpd permitted capacity of the effluent disposal system may not be possible. Therefore, a key component of the Wastewater Facilities Plan included evaluation of the current disposal site to determine current/actual capacity.

e) Description of Alternatives to be Considered Including a Cost-Effectiveness Analysis on a Present Worth Basis

In general, Local and Regional Alternatives were developed, evaluated and compared during the Facilities Planning process. Following are brief paragraphs regarding our approach to how the wastewater management and treatment elements were considered in these Alternatives. In addition, a detailed summary of the Local Alternatives and Regional Alternatives, together with a comparison of the Alternatives and subsequent Recommended Alternative, are summarized in this section of the FPSR.

i) Biological or Physical-Chemical Treatment

Primary, secondary (biological), and tertiary (physical-chemical) treatment alternatives were evaluated as part of the Local Alternative. These considerations are summarized below under the Local Alternative write-up. For the Regional Alternative, treatment would occur at the Torrington WPCF. The impacts associated with the existing treatment process and the pending phosphorus removal upgrade project were evaluated by the

City and its engineering consultant. Such costs and impacts are incorporated in the lifecycle cost evaluation for the Regional Alternative (also summary below).

ii) Treatment and Potential for Reuse

Based on the permitted capacity of the existing WLSD effluent disposal system, and the projected future flow condition design flows, we evaluated advanced treatment system alternatives for the Local Alternative. For example, a treatment system consisting of a membrane system, ultraviolet disinfection and reverse osmosis to provide re-use quality effluent, was evaluated, with the hope of reaching an acceptable effluent disposal system arrangement with DEEP. However, despite achieving a 4-log disinfection goal within the treatment system, regulatory challenges associated with separation to groundwater and travel time remained.

iii) Community Systems

In addition to collection system needs, significant time and resources were dedicated to testing of the existing effluent disposal system during the Wastewater Facilities Plan. This testing, approved by DEEP, incorporated a number of considerations from DEEP's "Guidance for Design of Large-Scale On-Site Wastewater Renovation Systems" (2006 Guidance Manual) for the Field Flow Testing Plan. Because the 2006 Guidance Manual is based on development of new systems versus renovation of existing ones, WLSD performed large-scale testing to demonstrate site capacity in lieu of small-scale and laboratory testing criteria. The key testing and evaluation criteria included separation distance under seasonal high groundwater conditions, unit flow rate and travel time. The 2006 Guidance Manual requires an unsaturated separation distance of three feet between the top of mounded groundwater and the bottom of the loading facility. For the purpose of the testing, WLSD used a distance of 1.5 feet from the bottom of the existing beds to the top of mounded groundwater under seasonal high groundwater conditions. The reduction in separation distance to groundwater is similar to other facilities in the State where variances were granted, or in those cases where advanced treatment systems are in use to provide advanced pathogen reduction prior to discharge of the effluent to disposal systems. Separation distance must be maintained under seasonal high groundwater conditions. However, these conditions did not exist in Spring 2012 when the testing was conducted. Therefore, WLSD modified its approach to account for the conditions at the time of testing by increasing the separation maintained during the testing based on well elevations in both on-site and USGS reference wells. The 2006 Guidance Manual allows a maximum unit flow rate of 1.2 gallons per day per square foot (gpd/sf) of bed bottom area for tertiary treated wastewater effluent. The 2006 Guidance Manual requires a minimum travel time from the point of effluent discharge of a bed to the closest point of concern (surface water or property line) of 21 days. The capacity of the existing beds considered, provided an estimated capacity ranging from 125,000 to 195,000 gpd under seasonal high groundwater conditions, depending on design and operational features. However, DEEP disagreed with the results of the testing and contends that the existing effluent disposal system does not have sufficient capacity for the

current or proposed system flows.

iv) Rehabilitation of Individual On-Site Systems

The WLSD Planning Area is within a sensitive environmental area and tributary to a potential drinking water supply area. Therefore, all of the homes in WLSD were originally constructed with sewer service. Transition to individual on-site septic systems is not feasible. In addition, the WLSD homes are served by on-site wells for drinking water, making the siting of septic systems on these lots impractical due to siting limitations.

Local Alternative

For the Local Alternative, we focused on a new treatment plant utilizing the membrane bioreactor (MBR) process adjacent to the existing WPCF. The replacement WPCF would include preliminary treatment (including an equalization tank), an MBR process building, disinfection using ultraviolet (UV) light, sludge storage and processing equipment, a building addition for plant superintendent and administrative staff and new effluent distribution piping and valves. The proposed WPCF would include a raw sludge storage tank, sludge thickening equipment, and a thickened sludge storage tank. These tanks would be sized to provide adequate sludge storage for weekly removal off site. Following treatment and disinfection, effluent would be conveyed and distributed to the disposal beds. Modifications to the beds are also incorporated in the local alternative including: influent equalization; supplemental treatment to achieve drinking water quality effluent; site piping between beds and flow controls; fill in beds; low permeability cover over beds and stormwater controls; groundwater monitoring systems; and effluent equalization.

The design criteria used for the Local Alternative are based on TR-16 guidelines. The upgraded WPCF would consist of a membrane bioreactor (MBR) followed by UV disinfection. The MBR will significantly reduce effluent solids to protect the disposal system, and improve effluent dispersal efficiency. The UV disinfections system will be designed to remove pathogens to a much higher level (4-log removal) than conventional on-site systems, thus providing far higher pathogen reduction, even before discharge to the effluent disposal system. Although we believe the on-site local wastewater management alternative is viable, and that the disposal beds have adequate capacity for current and future flows, concurrence is needed from DEEP on separation to groundwater, travel time and the average annual permitted flow limit. We believe the Local Alternative, as was developed, meets the objectives and the DEEP Guidance Manual, especially when the proposed level of treatment far exceeds DEEP Guidelines for similar facilities, creating near reuse quality effluent, dramatically improving the quality of effluent discharged from the WPCF. However, DEEP has not demonstrated a willingness to approve this concept without advanced full-scale testing and potential/subsequent input from the Department of Public Health, which would be challenging to execute and monitor, as well as cost prohibitive.

The site layout for the Local Alternative is shown in Appendix H. The figure includes the location of the existing WPCF and unit processes, as well as the location of the proposed unit processes associated with the Local Alternative.

The Local Alternative would drastically improve the level of wastewater treatment to reuse quality. The improved water quality, together with advanced disinfection, will result in state-of-the-art effluent prior to discharge to the on-site disposal system. This would improve groundwater quality, protect the Class GAA groundwater designation, and promote positive impacts to the environment. In addition, abandonment of on-site sludge disposal will result in improved site, groundwater and stormwater control measures.

The Local Alternative includes use of the existing site. No new land acquisitions are needed to construct the local alternative. WLSD owns the entire treatment and disposal site.

Since the treatment system associated with the Local Alternative can be constructed adjacent to the existing WPCF, there are no anticipated construction coordination limitations. Upgrades to the effluent disposal system can also occur in a phased approach.

Based on the size of the 90-acre site, and the anticipated closed-bed approach to effluent disposal, the Local Alternative lends itself to exploration of renewable energy opportunities (i.e. solar) to help offset future operation and maintenance costs.

Our opinion of probable project cost for the local alternative is $18,393,000. The anticipated annual O&M cost (2015 costs) for the local alternative is $744,800. Following are the financing alternatives that were evaluated:

- Local Financing: Based on a locally-financed 20-year 100% loan at an interest rate of 3.8%, the estimated "Year 1" annual cost (annual capital payment and O&M costs) for the local alternative following construction is $2,059,150. This represents an average annual cost per WLSD homeowner that is 5.9 times the average State sewer rate. The annual sewer rate would be 3.1% of median household income.
- CWF Funding: Based on a 20-year loan from the State's Clean Water Fund (CWF) Program at an interest rate of 2.0%, with a grant of 25%, the estimated "Year 1" annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,582,224. This represents an average annual cost per WLSD homeowner that is 4.5 times the average State sewer rate. The annual sewer rate would be 2.4% of median household income.
- USDA-RD Funding: Based on a 40-year loan from USDA-RD at an interest rate of 2.25%, with a grant of $2,825,000, the estimated "Year 1" annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,335,404. This represents an average annual cost per WLSD homeowner that is 3.8 times the average State sewer rate. The annual sewer rate would be 2.0% of median household income.

Regional Alternatives

As an alternative to on-site wastewater disposal, the options of connecting to nearby communities with treatment at their respective WPCFs was also evaluated. In terms of proximity to the existing WLSD WPCF, the likeliest communities for connections are the City of Torrington and the Town of Litchfield. Following is a brief description of each of the routes considered for the Regional Alternatives:

- Alternative 1: Alternative 1 involves a route along Brush Hill Road, Old Middle Street, Pie Hill Road, East Street South and Goshen Road, with interconnection to the Torrington sewer system at Lover's Lane.
- Alternative 2: Alternative 2 involves a route along Brush Hill Road, Old Middle Street, through Litchfield, to Weed Road and Highland Avenue, with interconnection to the Torrington sewer system west of Birney Brook Road.
- Alternative 3: The Alternative 3 route to Litchfield involves less significant elevation differences, but is twice the distance as the Torrington alternatives.

For the Regional Alternatives, we assumed the following basis of design conditions for each of the three regional alternatives (Alternatives 1, 2 and 3):

- Original average annual flow rate of 125,000 gallons per day (gpd), or 87 gallons per minute (gpm); These estimates preceded the 2015 I/I Removal Project, and the updated average annual flow rate projection is 110,000 gpd (76 gpm)
- Future peak hourly flow rate of 540,000 gpd, or 375 gpm;
- One or two pumping stations, as required, due to hydraulic requirements.
- 8-inch diameter force main(s).
- Design pumping rate of approximately 500 gpm (needed to maintain adequate force main velocity of three feet per second); and
- All pumping units (minimum of two at each pump station) on variable frequency drives (VFDs).
- Regional Alternative 1 is shown in Appendix I.
- Regional Alternative 2 is shown in Appendix I.
- Regional Alternative 3 is shown in Appendix I.

Similar to the Local Alternative, the Regional Alternatives will result in improved effluent discharge and surrounding water quality. However, the Regional Alternatives involve pumping the wastewater to nearby existing WPCFs for treatment and disposal. By no longer applying treated effluent at the existing WPCF site, this will protect the Class GAA groundwater designation, and similarly promote positive impacts to the environment. Abandonment of on-site sludge disposal will also result in improved site, groundwater and stormwater control measures.

The Regional Alternatives include abandonment of the existing WLSD WPCF. Thee existing WPCF will be used as a proposed pump station site, and offices for administrative and operational staff will remain. WLSD owns the entire treatment and disposal site.

In order to better determine soil, groundwater and ledge/rock conditions along the pipe corridor, WLSD advanced soil borings and geoprobes at 100-foot increments along the Alternative 1 pipe corridor during Summer 2015. The results indicated the presence of less rock/ledge than originally expected. This contributed to the refinement of the cost estimate for Regional Alternative 1 during the planning phase.

Based on the size of the 90-acre site, and the proposed abandonment of the effluent disposal system at the existing WPCF, the Regional Alternative also lends itself to exploration of renewable energy opportunities (i.e. solar) to help offset future operation and maintenance costs. These considerations will be explored in greater detail during the preliminary design phase for the regional alternative.

- Alternative 1: Our opinion of probable project cost for Alternative 1 of the regional alternative is $15,612,000, based on anticipated construction in 2017 through 2019. The anticipated annual O&M cost (2015 costs) for the Alternative 1 of the regional alternative is $590,485.
- Alternative 2: Our opinion of probable project cost for Alternative 2 of the regional alternative is $18,312,000, based on 2015 costs. Adjusted by 3% per year to 2017 costs, this equates to $19,427,000. The anticipated annual O&M cost (2015 costs) for the Alternative 2 of the regional alternative is approximately $590,485.
- Alternative 3: Our opinion of probable project cost for Alternative 3 of the regional alternative is $27,700,000, based on 2015 costs. Adjusted by 3% per year to 2017 costs, this equates to $29,387,000. The anticipated annual O&M cost (2015 costs) for the Alternative 3 of the regional alternative is approximately $700,000.

Our opinion of probable project cost for Alternative 1 of the Regional Alternative is $15,612,000. The anticipated annual O&M cost (2015 costs) for the Alternative 1 of the regional alternative is $590,485.

- Local Financing: Based on a locally-financed 20-year 100% loan at an interest rate of 3.8%, the estimated “Year 1” annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,706,107. This represents an average annual cost per WLSD homeowner that is 4.9 times the average State sewer rate. The annual sewer rate would be 2.6% of median household income.
- CWF Funding: Based on a 20-year loan from the State’s Clean Water Fund (CWF) Program at an interest rate of 2.0%, with a grant of 25%, the estimated “Year 1” annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,301,292. This represents an average annual cost per WLSD homeowner that is 3.7 times the average State sewer rate. The annual sewer rate would be 2.0% of median household income.
- USDA-RD Funding: Based on a 40-year loan from USDA-RD at an interest rate of 2.25%, with a grant of $2,825,000, the estimated “Year 1” annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,075,586. This represents an average annual cost per WLSD homeowner that is 3.1 times the average State sewer rate. The annual sewer rate would be 1.6% of median household income.

Our opinion of probable project cost for Alternative 2 of the Regional Alternative is $19,427,000. The anticipated annual O&M cost (2015 costs) for the Alternative 2 of the Regional Alternative is approximately $590,485.

- Local Financing: Based on a locally-financed 20-year 100% loan at an interest rate of 3.8%, the estimated “Year 1” annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,978,724. This

represents an average annual cost per WLSD homeowner that is 5.7 times the average State sewer rate. The annual sewer rate would be 3.0% of median household income.

- CWF Funding: Based on a 20-year loan from the State's Clean Water Fund (CWF) Program at an interest rate of 2.0%, with a grant of 25%, the estimated "Year 1" annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,474,987. This represents an average annual cost per WLSD homeowner that is 4.2 times the average State sewer rate. The annual sewer rate would be 2.2% of median household income.
- USDA-RD Funding: Based on a 40-year loan from USDA-RD at an interest rate of 2.25%, with a grant of $2,825,000, the estimated "Year 1" annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,220,316. This represents an average annual cost per WLSD homeowner that is 3.5 times the average State sewer rate. The annual sewer rate would be 1.8% of median household income.

Our opinion of probable project cost for Alternative 3 of the Regional Alternative is $29,387,000. The anticipated annual O&M cost (2015 costs) for the Alternative 3 of the Regional Alternative is approximately $700,000.

- Local Financing: Based on a locally-financed 20-year 100% loan at an interest rate of 3.8%, the estimated "Year 1" annual cost (annual capital payment and O&M costs) for the local alternative following construction is $2,799,973. This represents an average annual cost per WLSD homeowner that is 8.0 times the average State sewer rate. The annual sewer rate would be 4.2% of median household income.
- CWF Funding: Based on a 20-year loan from the State's Clean Water Fund (CWF) Program at an interest rate of 2.0%, with a grant of 25%, the estimated "Year 1" annual cost (annual capital payment and O&M costs) for the local alternative following construction is $2,037,975. This represents an average annual cost per WLSD homeowner that is 5.8 times the average State sewer rate. The annual sewer rate would be 3.1% of median household income.
- USDA-RD Funding: Based on a 40-year loan from USDA-RD at an interest rate of 2.25%, with a grant of $2,825,000, the estimated "Year 1" annual cost (annual capital payment and O&M costs) for the local alternative following construction is $1,707,684. This represents an average annual cost per WLSD homeowner that is 4.9 times the average State sewer rate. The annual sewer rate would be 2.6% of median household income.

Comparison of Alternatives

For the alternatives presented above, Regional Alternative 1 has the lowest capital cost, as well as the lowest annual O&M cost. Therefore, Regional Alternative 1 has the lowest life cycle costs. Since the alternatives are limited, a detailed life cycle cost analysis would not provide any meaningful insight for the selection of the preferred alternative.

The opinion of probable cost for each alternative includes past planning phase engineering costs, in the amount of $709,464. These costs were associated with the evaluation of Local and Regional Alternatives from 2010 through 2015, including testing of the existing on-site wastewater disposal system, a Wastewater Facilities Plan, and extensive coordination with DEEP regarding the existing

permit and an attempt to develop a cost-effective and permittable local solution.

Although WLSD has a strong operations team that maintains its current WPCF and collection system systems, the Local Alternative includes complex treatment and disposal systems, which are maintenance intensive. There will also be additional levels of monitoring and compliance associated with the local alternative, if it were approved by DEEP/DPH. The Regional Alternative, on the other hand, includes a simple pumping system and countenance pipeline, leaving the details associated with treatment to the City of Torrington and their robust O&M staff. Therefore, the long-term simplicity of the Regional Alternative is superior to the Local Alternative relative to non-monetary considerations.

Selection of Recommended Alternative

The Regional Alternative (Alternative 1) was selected for the cost and non-cost factors described above.

WLSD upgraded its entire collection system as part of the recently completed 2015 I/I Removal and Pump Stations/SCADA Upgrade Projects. The proposed Regional Alternative does not include any additional/proposed upgrades to the existing sanitary sewer collection system. An 8-inch diameter force main (ductile iron and PVC based on system pressures) will be used to convey untreated wastewater from the existing WPCF site (pump stations) to the City's existing collection system at Lover's Lane on Route 4.

The Regional Alternative includes a proposed pump station for conveyance of untreated wastewater from the WLSD WPCF to the Torrington sewer system.

The proposed Regional Alternative will incorporate use of the existing Torrington WPCF for wastewater treatment and disposal. Therefore, there are no new treatment systems being constructed as part of the proposed Project.

WLSD and the City of Torrington are in the process of developing an inter-municipal agreement where WLSD will discharge wastewater to the City of Torrington's municipal wastewater system for conveyance to its WPCF, where it will be treated. This is similar to existing agreements between the City of Torrington and the Towns of Harwinton and Litchfield. Please note that the proposed WLSD 8-inch force main will discharge to the existing sewer system at Lover's Lane on Route 4. The existing 8-inch diameter gravity sewer will be reconstructed with a 12-inch diameter gravity sewer along Route 4 from Lover's Lane to Riverside Avenue, where it discharges to an existing 20-inch large diameter interceptor sewer.

As part of the discussions related to the development of an inter-municipal agreement, the City's engineering consultant, Wright-Pierce developed an evaluation memo that concluded that the proposed WLSD discharge has minimal impact on the City's wastewater collection, treatment and disposal systems, and that capacity exists for the proposed discharge in the City's existing 7,000,000 gpd NPDES permit. A copy of the above memo is included in Appending J. It should be noted that the memo was based on an earlier potential average design flow of 162,000 gpd, including potential sewer needs areas in the Town of Goshen. The Town of Goshen has since reiterated its sewer avoidance policies, and there are no proposed flows from any areas in Goshen outside the limits of the WLSD sewer service area. The current proposed flow of 110,000 gpd is even lower, based on the successful results of the 2015 I/I Removal Project, and will

still have no impacts on downstream wastewater infrastructure.

The framework for the IMA includes facility connection charges (FCC) for capital allocation of the WLSD flows. For example, Torrington assesses FCCs based on $3,500 per 65,000 gallons per year of wastewater. WLSD proposes an average design flow capacity of110,000 gpd, which equates to approximately $2,161,915 in FCCs. WLSD will be assessed its fair share of future annual capital costs based on wastewater capacities (i.e. 110,000 / 7,000,000 gpd x annual capital debt service costs). Similarly, O&M costs will be allocated based on actual flows for each calendar year (i.e. 105,000 gpd / 5,700,000 gpd x annual O&M costs).

The pump station will be equipped with an emergency generator odor control (Bioxide) provisions, quick connect piping and bypass headers to facilitate proactive measures during extreme weather conditions and extended power outages.

The Regional Alternative represents the lowest capital, O&M and annualized costs of the alternatives considered. It also has the clearest permitting and construction path leading to implementation.

f) Delineation of Future Sewer Service Area As Well As On-Site Management Plan

The future sewer service area for WLSD is identical to the existing sewer service area. There are no changes proposed. There is no on-site management plan, since there are no septic systems, and there are no proposed septic systems within the sewer service area.

g) Development of On-Site Management Plan

There are no septic systems in WLSD. Therefore, this item is not applicable.

h) Infiltration/Inflow Documentation

For all wastewater treatment and disposal alternatives (Local and Regional), maintaining low I/I conditions is important. As such, WLSD implemented an ongoing I/I removal program and maintenance program to minimize future I/I flow contributions, which continued beyond the 2015 I/I Removal Project, with system flow monitoring during Spring 2016. Based on the results of these efforts, WLSD is annually monitoring and adjusting I/I removal goals considering seasonal flow, groundwater and precipitation factors, and the rate at which new sewer users are connected to the system.

i) Evaluation of Ultimate Sludge Disposal

For the existing WPCF, sludge is currently disposed on-site. For the Local Alternative, future sludge disposal would be via an off-site site. For the preferred Regional Alternative (Torrington), sludge disposal would be through the City's current sludge management practices, which include dewatering and off-site disposal.

j) Identification of Effluent Discharge Limits and Discharge

For the Local Alternative, the proposed WPCF upgrade included re-use quality effluent to meet the anticipated needs of the effluent disposal system. However, a path to regulatory approval did not appear possible. For the Regional Alternative, effluent discharge limits will be in accordance with Torrington's NPDES permit, which includes new phosphorus removal requirements and on-going nitrogen removal through the State's General Permit.

k) Description of Public Participation Plan

During this process, there have been regular Planning Committee meetings, Finance Committee meetings, WLSD Board meetings, informational workshops with residents, and Annual District meetings. In addition, WLSD is familiar with capital planning efforts, having recently implemented the I/I Removal and Pump Station Upgrades Projects, both of which were funded by USDA Rural Development.

l) Review of Consistency of Recommended Plan with Municipal Plan of Development

The proposed Regional Sewer Connection Project is consistent with the Plans of Conservation and Development within both the Town of Goshen and the City of Torrington. There are no changes to either sewer service area. The proposed wastewater transmission main will traverse areas outside the sewer service areas, but no connections will be allowed. In December 2015, WLSD met with the Torrington Planning & Zoning Commission to present the proposed Project. The City issued a positive 8-24 Referral supporting the concept. WLSD similarly met with the Town of Goshen and its Planning & Zoning Commission in January 2016, and obtained a similar positive 8-24 referral. Copies of this correspondence are included in Appendix K.

m) Review of Consistency of Recommended Plan with State Policies Plan for Conservation and Development

The proposed Regional Sewer Connection Project is consistent with the State's preference to regionalize wastewater infrastructure, when feasible. Based on the limitations of WLSD's existing effluent disposal system, constraints related to the GAA groundwater designation in the vicinity of the WLSD system, Regional Alternatives became the only feasible alternative. Maintaining sewer avoidance areas in the portions of Goshen and Torrington that are outside the Sewer Service Areas is also consistent with the State's overall Plan of Conservation and Development program.

n) Review of Relationships to Any "Approved" Water Supply Plan Prepared Pursuant to Section 25-32d-1 (Population Projections, Future Service Areas, Existing and Future Sources of Supply)

The proposed Project is not directly related to Approved Water Supply Plans. However, removal of the effluent disposal system from the GAA groundwater supply area will result in positive water quality improvements following decommissioning of the existing WLSD WPCF.

o) An Analysis of Operation and Maintenance Costs Including Primary Energy Consumption and Facility Staffing

Energy efficiency and renewable energy projects are critical to the sustainability of any utility system. Although much of the Wastewater Facilities Plan Project focused on upgrades to address permitting requirements, the proposed Project design phase will include an evaluation of these cost saving measures, including renewable energy at the proposed pump station, high efficiency motors, variable frequency drives to decrease power costs, and energy rebates to mitigate capital costs.

p) Environmental Assessment Including, as Necessary, an Evaluation of:

In early 2016, WLSD completed an Environmental Report for USDA Rural Development. The Environmental Report evaluated potential impacts to environmental resources, as well as mitigation efforts to project these resources. Following is a summary as it relates to the proposed Regional Sewer Connection Project.

i) Direct Impacts to:

- Air Quality

  The proposed Project will not have any long-term impacts on air quality. However, during construction, construction equipment will result in temporary nuisance conditions. Incorporation of provisions for the use of low-sulfur emitting construction equipment will be included in the Contract Documents.

- Water Quality

  The proposed Project consists of a wastewater conveyance and transmission system from WLSD's existing WPCF to the City of Torrington's existing sanitary sewer collection system. The proposed force main will be constructed in existing roadway rights-of-way. Decommissioning of the existing WPCF is the only Project element that will impact water quality, and it will result in the elimination of a wastewater effluent discharge to a GAA groundwater supply area.

- Floodplains

  The proposed Project will be constructed in existing roadways along the alignment shown in Appendix I, and will traverse three 100-year floodplain areas (Exhibits included in Appendix L) as follows: a Zone A area on Old Middle Road (Route 63) in Goshen, associated with an unnamed brook, north of Brush Hill Road, as shown on Exhibit 6-3 (Flood Map 2 of 8); a Zone A area on Pie Hill Road in Goshen, associated with Ivy Mountain Brook, as shown on Exhibit 6-3 (Flood Map 3 of 8); and a Zone A area on Goshen Road in Torrington, associated with Lovers Lane Brook, as shown on Exhibit 6-3 (Flood Map 8 of 8). The proposed force main will be constructed within the existing roadway limits. Further, the above areas are associated with existing stream crossings through existing culverts and there will be no impact on existing streams and/or the three Zone A floodplain areas. The proposed force main will be excavated beneath the existing culverts without impact to the streams or the Zone A floodplain areas. The roadway will be restored to existing conditions.

- Wetlands

  The proposed pipe route for the wastewater transmission and conveyance system from WLSD's existing WPCF on Brush Hill Road in Goshen to the existing sanitary sewer system in the City of Torrington is shown in Appendix G. Areas of Alluvial and Floodplain Soils and Poorly Drained and Very Poorly Drained Soils

are summarized in Exhibit 6-2 in Appendix M, together with the proposed pipe route. There are a number of both Alluvial and Floodplain Soils and Poorly Drained and Very Poorly Drained Soils along the proposed pipe alignment. None of the Alluvial and Floodplain Soils and Poorly Drained and Very Poorly Drained Soils will be impacted as a result of the proposed Project. The proposed pipe route lies within existing road right-of-ways in the Town of Goshen and the City of Torrington. This includes Brush Hill Road, Old Middle Street, Pie Hill Road, East Street South and Goshen/Torrington Road. No work is to be conducted in wetlands areas. Proper best management practices, including erosion control (haybales and siltation fencing) and dewatering measures will be utilized to prevent sedimentation of nearby water bodies and/or wetland resource areas. The existing roadway will be restored to existing conditions in those areas where it is disturbed for excavation activities.

- Farmlands

  The proposed pipe route for the wastewater transmission and conveyance system from WLSD's existing WPCF on Brush Hill Road in Goshen to the existing sanitary sewer system in the City of Torrington is shown in Appendix G. Areas of Prime Farmland Soils and Statewide Important Farmland Soils are summarized on Exhibit 6-4 in Appendix N, together with the proposed pipe route. There are a number of both Prime Farmland Soils and Statewide Important Farmland Soils along the proposed pipe alignment. None of the Prime Farmland Soils and Statewide Important Farmland Soils will be impacted as a result of the proposed Project. The proposed pipe route lies within existing road right-of-ways in the Town of Goshen and the City of Torrington. This includes Brush Hill Road, Old Middle Street, Pie Hill Road, East Street South and Goshen/Torrington Road. All of these road right-of-ways were established prior to August 4, 1984, and therefore we do not believe the proposed is subject to the Farmland Protection Policy Act. The proposed project will utilize best management practices for construction and stormwater mitigation, including haybales and siltation fencing, to protect adjacent Prime Farmland Soils and Statewide Important Farmland Soils.

- Environmentally Sensitive or Significant Areas

  The WLSD community surrounds Woodridge Lake, which is a man-made waterbody. Central sewer service to each property was constructed when the residential development was constructed. This assured protection of the groundwater in the Project Area, as well as the abundance of wildlife and natural resources at Woodridge Lake, which is a Class A surface water resource.

- Water Supply Including Availability of Supply

  The proposed Project includes continued wastewater treatment and disposal outside the direct confines of the WLSD sewer service

area. Instead of providing treatment and disposal at the WLSD WPCF, treatment will occur at the Torrington WPCF, which includes more robust treatment requirements, including nitrogen and phosphorus removal. This will ensure continued protection of water supply to the WLSD residents, which occurs via individual on-site wells at each property.

- Impacts on Aquifer Protection Areas

  The existing WLSD Water Pollution Control Facility (WPCF) is located on a 90-acre site to the east of the WLSD sewer service area (see Figures 2 and 6 for location of WPCF relative to WLSD sewer system). Treated effluent from the WPCF is discharged back to the ground via infiltration beds. Since the WPCF is located in a GAA groundwater supply area, maintaining superior groundwater quality within WLSD is a critical element of the Project goals.

- Shellfishing

  There are no coastal areas, and thus no shellfishing areas, in or adjacent to the proposed Project Area.

- Endangered Species

  The proposed pipe route for the wastewater transmission and conveyance system is shown in Appendix O. Natural Diversity Areas are shown in Appendix O, together with the proposed pipe route. There are several Natural Diversity Areas along the proposed pipe alignment. We reviewed the United States Fish and Wildlife Service and their Federally Listed Endangered and Threatened Species in Connecticut. With the exception of the Northern Long-Eared Bat, the list (included in Appendix O) confirms that there are no federally threatened and endangered species or their habitats within Litchfield County and the Project area. Since the Project is planned to be constructed within the existing roadway right-of-ways, it is unlikely that any tree cutting/trimming/clearing will be required. Therefore, we do not believe that there will the potential for impacts to the Northern Long-Eared Bat. A copy of the U.S. Fish & Wildlife's letter of January 22, 2016 is included in Appendix O. The proposed Project will utilize best management practices for construction and stormwater mitigation, including haybales and siltation fencing, to protect adjacent Natural Diversity Areas. If any work is proposed outside the existing roadway right-of-ways, or if trees need to be removed and/or trimmed as part of the Project, we will coordinate this work with a wildlife biologist to ensure that there are no impacts to the Northern Long-Eared Bat or its habitat.

- Historical and Archaeological Sites

  As part of the Environmental Report, USDA Rural Development contacted the State's Historic Preservation Officer on February 9, 2016. A copy of the letter is included in Appendix P. The proposed Project will be constructed within existing roadway right-of-ways,

and we do not believe there will be any impacts to areas that could be historic or historically sensitive. Project provisions will be updated upon receipt of any comments from the State's Historic Preservation Officer. Based on USDA Rural Development's coordination with the Connecticut State Historic Preservation Officer (copy of February 9, 2016 letter from USDA-RD to Connecticut's State Historic Preservation Officer included in Appendix P), via the Section 106 process, we will follow-up with any additional coordination and evaluation processes, and update the Environmental Report, as necessary.

- Wild and Scenic Rivers

  Only the Eightmile and Farmington Rivers are designated at Wild and Scenic Rivers in the State of Connecticut. Neither River is within or adjacent to the proposed Project Area.

- Coastal Zone Management

  The proposed Project is not near any coastal resource areas. Therefore, there are no impacts or environmental consequences associated with coastal resources. Since there are no coastal resources, there will be no mitigation necessary.

ii) Indirect Impacts

We do not believe there will be any negative indirect impacts associated with the proposed Project. Through the permitting process (Inland Wetlands, Planning and Zoning, Department of Transportation, etc.), we will identify any short-term construction mitigation efforts that may be required, and incorporate such provisions in the Contract Documents.

iii) Unavoidable Adverse Impacts Including Mitigation

We do not believe there will be any unavoidable adverse impacts associated with the proposed Project.

iv) Socio-Economic Impacts

There are no changes to the WLSD sewer service area, nor zoning or proposed developments, as a result of this proposed Project. No adverse human health issues are anticipated from this Project work. The proposed Project will take place at the WLSD WPCF site and along the proposed force main transmission route. No sewer service will be provided along the transmission main, which will serve strictly as a conveyance and transmission system, therefore there no anticipated socio-economic impacts outside the WLSD sewer service area in either Goshen or Torrington. However, it should be noted that the allocation of the $15,612.000 project cost among the 691 residences in WLSD is a major financial burden on the residents.

q) Listing of Other Agencies Including Local, State and/or Federal That May Need to be Contacted During Facilities Planning

Several agencies were contacted and consulted during the Project. These include DEEP, other State offices per the above environmental/social resources, USDA Rural Development, the Town of Goshen (First Selectman, WPCA, Inland

Wetlands and Planning/Zoning), the City of Torrington (WPCA, Inland Wetlands, Planning/Zoning, Department Heads, Mayor's Office), WLSD residents, local, State and Federal elected officials.

r) Identification of Need for Inter-Municipal Agreements as Relates to Planning Information and Future Funding

The proposed Project includes transmission of WLSD's wastewater to the City of Torrington. This is a similar arrangement to those that already exist between the City of Torrington and Towns of Litchfield and Harwinton. Over the past six months, WLSD and the City of Torrington have been actively developing and negotiating an Inter-Municipal Agreement (IMA) to facilitate the Project. We anticipate that the Draft IMA will be presented by the City by the end of May 2016, with subsequent execution of a Final IMA by the end of July 2016.

s) A Description of the Manner in Which Local Costs will be Financed (Benefit Assessments, Mill Rate)

WLSD currently uses Ad Valorem taxing, based on assessed property values, to apportion capital and annual operation and maintenance (O&M) costs to the parcels within the sewer service area. Therefore, WLSD does not use a sewer user fee system based on a fixed fee or fixed rate basis. WLSD will continue to use this revenue collection method for the proposed Project.

The current annual budget for fiscal year 2015-16 is $1,042,954, which includes payment of the annual debt service for the recently completed I/I Removal and Pump Station/SCADA Upgrade Projects, as funded by USDA-RD. Given the limited number of parcels served by the WLSD sewer system, including 691 current connections, current unit annual costs are high. The average annual sewer charge per WLSD property is $1,211, as compared to the estimated 2013 Connecticut State-wide average of $406, as published by Tighe & Bond in its 2013 Connecticut Sewer Rates Survey Summary Report. Following is the detailed operating budget for FY2016.

Revenue	
Taxpayer Assessment	$1,042,954
Other Income	46,000
Total Revenue	$1,088,954
O&M Expenditures	
Personnel	440,146
Equipment Repair & Maintenance	45,000
Power	60,000
Insurance	85,215
Professional, Legal and Computer	118,200
Other	79,000
Contingency	25,000
Total O&M Expenditures	$852,961

The projected Year 1 (Post-Construction of Regional Sewer Connection Project) operation and maintenance costs are as follows:

Personnel	228,468
Equipment Repair & Maintenance	45,000
Power	57,000
Insurance	52,001
Professional, Legal and Computer	40,000
Other	89,157
Contingency	17,000
Torrington O&M	61,860
Total O&M Expenditures	$590,485

t) Identification of Environmentally Sensitive or Significant Areas for Further Evaluation During Project Development Including Floodplains, Wetlands, Watercourses, Farmlands, Water Supply Watershed Lands, Aquifer Protection Areas, and Coastal Zones, Natural Areas and Critical Habitats.

Based on the development of the Environmental Report with USDA Rural Development, the inter-agency notification process, and the subsequent Approval by USDA Rural Development, we do not anticipate further evaluation of environmental sensitive resources. However, should such requests and provisions arise during the permitting process (i.e. Inland Wetlands), we will accommodate and address such resources, as necessary.

u) Listing of Permits, Licenses or Certificates Necessary to Implement the Project.

Several permits are anticipated for the proposed Regional Sewer Connection Project. These include Planning and Zoning (Goshen and Torrington) and Inland Wetlands (Goshen and Torrington). Permits from the Department of Transportation will be required for work in Route 63 and 4. In addition, CT-DEEP will review this Facilities Planning Summary Report. However, since sewer connections along the proposed force main in both Torrington and Goshen will be strictly prohibited, there will be no changes to the Plans of Conservation and Development.

v) Compliance with Long Island Sound Planning Policy.

The proposed Regional Sewer Connection Project is consistent with the State's Long Island Sound Planning Policy, since treatment will occur at the Torrington WPCF. The City incorporates nitrogen removal in its process, so treated effluent from WLSD's tributary area will result in a lower effluent nitrogen load to the environment, as compared to current conditions.

5) SCHEDULE:

The Schedule for Completion of the Facilities Plan is Reasonable and Reflects the Abatement Order

WLSD commenced preliminary design phase activities beginning in Summer 2015, to advance the "shovel readiness" of this Project. Initial efforts included soil borings at 100-foot increments along the proposed pipe route, aerial mapping for survey data, and preliminary easement survey work. Both planning phase approval and a loan/grant

commitment were received from USDA Rural Development in March 2016. The design phase is underway, and is expected to be completed by August 2016. Pending completion of the planning phase with DEEP following this FPSR, together with a draft (May 2016) and a final (July 2016) inter-municipal agreement with Torrington, WLSD expects to begin the bidding phase in Fall 2016. We anticipate that the Project may be constructed as two separate construction contracts to align with funding program requirements. Construction is expected to start in Spring 2017, with final paving and punchlist work to be completed by Spring 2019. The proposed Project schedule, which is based on DEEP approval by June 2016, as well as a signed inter-municipal agreement by July 2016, is included in Appendix Q.

6) EXCEPTIONS

Not applicable to this FPSR. This section is reserved for comments for DEEP staff.

APPENDIX A

Past Facilities Plan Reports Submitted to DEEP

Woodridge Lake Sewer District

Preliminary Summary Report

800.426.4262
W&C Contact

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

226304.00
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July 2013

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Woodridge Lake Sewer District

Groundwater Disposal Investigation Report

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Reports Submitted to USDA Rural Development

PRELIMINARY ENGINEERING REPORT
PROPOSED REGIONAL SEWER CONNECTION PROJECT
WOODRIDGE LAKE SEWER DISTRICT (GOSHEN, CT)
ISSUED ON DECEMBER 22, 2015
REVISED ON MARCH 16, 2016

This Preliminary Engineering Report (PER) was developed in accordance with USDA-RD's guidelines for preparing the PER. We presented this PER in outline format to facilitate review by USDA-RD's Engineering Staff. The guidelines are shown in black font. Our proposed PER text, as it related to WLSD's Project, is shown in blue font. Attached are Figure 1 through 6, as well as Table 1G, which are referenced throughout this PER. The PER was issued on December 22, 2015, and revised on February 5, 2016 in response to comments from USDA-RD's State Engineer/Architect/Environmental Coordinator (MA/CT/RI).

1) PROJECT PLANNING

Describe the area under consideration. Service may be provided by a combination of central, cluster, and/or centrally managed individual facilities. The description should include information on the following:

a) Location: Provide scale maps and photographs of the project planning area and any existing service areas. Include legal and natural boundaries and a topographical map of the service area.

The Woodridge Lake Sewer District (WLSD) is an existing, private residential development around 385-acre Woodridge Lake in the Town of Goshen, Connecticut. The Project Planning Area, including the existing sewer service area, parcels comprising WLSD and Woodridge Lake itself are shown in Figure 1.

b) Environmental Resources Present: Provide maps, photographs, and/or a narrative description of environmental resources present in the project planning area that affect design of the project. Environmental review information that has already been developed to meet requirements of NEPA or a state equivalent review process can be used here.

The WLSD community surrounds Woodridge Lake, which is a man-made waterbody. Central sewer service to each property was constructed when the residential development was constructed. This assured protection of the groundwater in the Project Planning Area, as well as the abundance of wildlife and natural resources at Woodridge Lake, which is a Class A surface water resource. The existing WLSD Water Pollution Control Facility (WPCF) is located on a 90-acre site to the east of the WLSD sewer service area (see Figures 2 and 6 for location of WPCF relative to WLSD sewer system). Treated effluent from the WPCF is discharged back to the ground via infiltration beds. Since the WPCF is located in a GAA groundwater supply area, maintaining superior groundwater quality within WLSD is a critical element of the Project goals.

c) Population Trends: Provide U.S. Census or other population data (including references) for the service area for at least the past two decades if available. Population projections for the project planning area and concentrated growth areas should be provided for the project design period. Base projections on historical records with justification from recognized sources.

As of 2015, there are 691 existing residential developments connected to the WLSD sanitary sewer system. Based on 2010 Census data, the unit population per home in Goshen is 2.54. This results in an estimated current population of approximately 1,755. Over the past several years, there have been approximately six new sewer connections per year. WLSD includes 877 buildable

Woodridge Lake Sewer District (WLSD) Regional Sewer Extension Project

Phases 1 and 2

Environmental Report

Woodard & Curran, Inc.
1699 King Street, Suite 406
Enfield, CT 06082
860.627.0314 / 855.347.6788

David Prickett Consulting, LLC
107 King Philip Drive
Longmeadow, MA 01106
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F: 413-451-1030
www.DPCengineering.com

progressive solutions for municipal infrastructure

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

0223604.09
Woodridge Lake Sewer District
Issued on December 26, 2015
Updated on February 10, 2016

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Recently Completed I/I and Pump Stations Projects

WOODARD &CURRAN

WOODRIDGE LAKE SEWER DISTRICT

I/I Rehabilitation Project

CONTRACT DOCUMENTS

STATE OF CONNECTICUT
DAVID R. PRICKETT
No. 25831
LICENSED
PROFESSIONAL ENGINEER

11/13/14

STATE OF CONNECTICUT
JERRY G. SHEEHAN
No. 23305
LICENSED
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1699 King Street | Suite 406
Enfield, CT 06082
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woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

223604.04
Goshen, CT
November 2014

WOODRIDGE LAKE SEWER DISTRICT
TOWN OF GOSHEN, CT

I/I REHABILITATION PROJECT

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Appendix B – Manhole and Pipe Inspections – Photos and Reports

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Appendix F – RD Temporary Construction Sign Template

Appendix G – OMITTED

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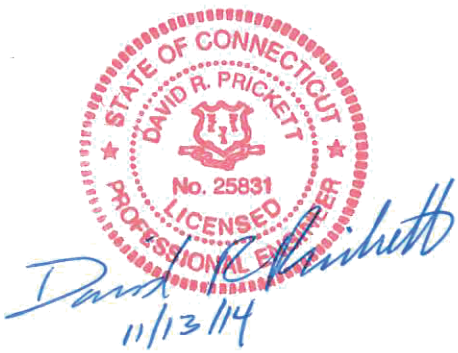
Appendix I – CT Prevailing Wage Rate Documentation and Forms

WOODARD &CURRAN

WOODRIDGE LAKE SEWER DISTRICT

Pump Stations Upgrades Project

CONTRACT DOCUMENTS



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223604.04
Goshen, CT
November 2014

WOODRIDGE LAKE SEWER DISTRICT
TOWN OF GOSHEN, CT

PUMP STATION UPGRADES PROJECT

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Appendix B - Pump Stations Location Map and Erosion Control Plans

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Appendix E – Tax Exemption Form

Appendix F – Temporary Construction Sign Template for Rural Development Projects

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Appendix I – CT Prevailing Wage Rate Documentation and Forms

APPENDIX D

Recent Correspondence with DEEP

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

November 2, 2015

Raymond Turri, President
Woodridge Lake Sewer District
113 Brush Hill Road
P.O. Box 258
Goshen, CT 06756

Re: Woodridge Lake Sewer District, Wastewaters Facilities Plan

Dear Mr. Turri:

This letter serves to summarize the Departments view of the Woodridge Lake Sewer District's (WLSD) status in regard to engineering report finalization and facilities planning necessary to resolve the community wastewater issues facing WLSD.

More than a year has passed since the Department's last letter to WLSD dated April 10, 2014 concerning the review of WLSD Preliminary Summary Report dated July 2013 ("July 2013 Report") and the Groundwater Disposal Investigation Report dated October 2013 ("October 2013 Report"). The letter requested a response to the comments contained in the letter by May 16, 2014. To date no formal response has been received from WLSD.

Therefore, on or before January 31, 2016, WLSD must provide a finalized facilities plan that meets the internal "*PLAN OF STUDY CHECKLIST*" attached. Items contained in previous submissions do not need to be resubmitted. If you have questions regarding the checklist or I/I study, please contact Ann Straut at 860-424-3137. If you have questions or wish to schedule a meeting to discuss any of these comments besides the checklist, please contact Joseph Wettemann at 860-424-3803.

Fundamentally WLSD has not demonstrated to the Department's satisfaction that the ridge and furrow beds can be a viable long term wastewater disposal option. The Department considers the alternative analysis which is part of the engineering reports to be essential. In order to resolve this matter, WLSD must address the Departments review comments on the July 2013 Report and the October 2013 Report pertaining to the hydraulic loading rates of the ridge and furrow beds intended to prove the discharge from the wastewater treatment plant will stay in the ground until it reaches the down gradient wetlands. It is important that WLSD determines and demonstrates the hydraulic capacity of the A and G beds so that it can size and propose an equalization structure and provide reliable cost estimates.

Secondly, there has been no submittal of an advanced water purification system with multi-barrier treatment for the Department to review and concur with to be included in a cost estimate of alternative solutions.

As no definitive information has been provided to date by WLSD in support of an on-site solution, the Department's view is that connection to the Torrington WPCA is a viable long term wastewater management option.

We do note that at our technical meeting of May 15, 2014 with WLSD, its counsel and engineers, and subsequent technical meetings in July 2014 with WLSD's engineers, a consensus was reached on various points related to an on-site solution. Please see the attached technical summary.

You are reminded that the interim ridge and furrow disposal system operational measures approved on October 22, 2015, in response to the May 21, 2014 Notice of Violation, must be continued to minimize water quality impacts while WLSD moves forward with selecting and realizing a wastewater management option.

We understand that a meeting with DEEP technical staff is being arranged. We look forward to resolution of these outstanding matters.

Sincerely,

Denise Ruzicka, Director
Planning and Standards Division
Bureau of Water Protection and Land Reuse

Oswald Inglese, Jr., Director
Water Permitting and Enforcement Division
Bureau of Materials Management and
Compliance Assurance

cc: Jay Sheehan, Woodward & Curran
David Prickett, David Prickett Consulting, LLC
Attachment

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION
79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity Employer

Memo

Bureau of Materials Management & Compliance Assurance
Water Permitting & Enforcement Division

To: Michael Hart, Supervising Sanitary Engineer

From: Joe Wettemann, Senior Sanitary Engineer

Date: October 29, 2015

Re: Woodridge Lake Sewer District
Points Related to an On-site Solution

More than a year has passed since the Department's last letter to Woodridge Lake Sewer District (WLSD) dated April 10, 2014 concerning the review of WLSD Preliminary Summary Report dated July 2013 ("July 2013 Report") and the Groundwater Disposal Investigation Report dated October 2013 ("October 2013 Report"). The letter requested a response to the comments contained in the letter by May 16, 2014.

To date no response has been received. At our meeting of May 15, 2014 with WLSD, its counsel and engineers, and subsequent technical meetings in July 2014 with WLSD's Engineers, a consensus was reached on the following points related to an on-site solution:

- The site lacks sufficient hydraulic capacity for current peak flows of 400,000 gpd and; therefore, would require substantial storage capacity for equalization.

- One of the design criteria for the on-site wastewater absorption system is that the system convey and maintain fully renovated effluent in the ground before reaching downgradient wetlands or watercourse. Since WLSD cannot meet the minimum 21 day bacteria travel time and 3 foot vertical separating distance to mounded groundwater for pathogen renovation it must demonstrate complete pretreatment and capacity for effluent to remain in the ground until it reaches the down gradient wetlands or watercourses.

- A new on-site wastewater distribution system is needed and the Department may allow an application rate that exceeds 1.2 gpd/sf as long as the site has adequate hydraulic capacity and the effluent does not break out of the ground or create overland flow to

surface waters. The D-Beds can no longer be dosed with effluent as historically there have been breakouts on the bedrock to grade.

- Equalization or distribution components that are open to precipitation will need to be designed to retain at a minimum a 25-year, 24-hour rainfall event.

- The wastewater treatment plant will need to provide a high degree of treatment that meets state water quality requirements. Discharge monitoring and reporting will need to be adequate to reliably demonstrate effective system performance.

- Completion of an I/I study leading to a Sanitary Sewer Evaluation Study to reduce fluctuation in flows in the sanitary sewer collection system would be required no matter which option was chosen.

To date WLSD has not addressed the Departments review comments on the July 2013 Report and the October 2013 Report pertaining to the hydraulic loading rates of the ridge and furrow beds intended to prove the discharge from the wastewater treatment plant will stay in the ground until it reaches the down gradient wetlands.

PLAN OF STUDY CHECKLIST

Applicant: _____

Project Name: _____

CWF Project Number: _____

Date of Receipt: _____

Consulting Engineer: _____

The undersigned DEEP project engineer certifies that the plan of study has been reviewed and meets all applicable requirements established by the CT DEEP for a thorough engineering and environmental study.

		Initial/Not Applicable
1.	Project Need: The plan of study briefly delineates the need for conducting facilities planning from a water quality, public health and environmental viewpoint.	(1) _____
2.	Planning Area: The planning area has been carefully evaluated and defined. It should be large enough to include all feasible regional treatment schemes.	(2) _____
3.	Planning Entity: The local planning entity is defined.	(3) _____
4.	Specific Tasks: The following specific tasks to be addressed in the facilities plan are delineated in the plan of study:	
	a) Description of the existing of facilities and performance	(4a) _____
	b) Description of population projections.	(4b) _____
	c) Description of the methods to generate future flow figures.	(4c) _____
	d) Description of methods to document existing and potential Wastewater disposal needs.	(4d) _____

e) Description of alternatives to be considered including a cost-effective analysis on a present worth basis.
The alternatives shall include:

1) Biological or physical-chemical treatment.
2) Treatment and potential for reuse.
3) Community systems.
4) Rehabilitation of individual on-site systems. (4e) _____

f) Delineation of future sewer service area as well as on-site management plan. (4f) _____

g) Development of on-site management plan. (4g) _____

h) Infiltration/inflow documentation. (4h) _____

i) Evaluation of ultimate sludge disposal. (4i) _____

j) Identification of effluent discharge limits and discharge. (4j) _____

k) Description of public participation plan. (4k) _____

l) Review of consistency of recommended plan with municipal plan of development. (4l) _____

m) Review of consistency of recommended plan with State Policies Plan for Conservation and Development. (4m) _____

n) Review of relationships to any "approved" Water Supply Plan prepared pursuant to Section 25-32d-1 (population projections future service areas, existing and future sources of supply). (4n) _____

o) An analysis of operation and maintenance costs including primary energy consumption and facility staffing. (4o) _____

p) Environmental assessment including as necessary an evaluation of 1) direct impacts on air quality, water quality, floodplains, wetlands, farmlands, other environmentally sensitive or significant areas, water supply including availability of supply, impacts on aquifer protection areas, shellfishing, endangered species historical and archaeological sites, wild and scenic rivers, coastal zone management; 2) indirect impacts; 3) unavoidable adverse impacts including mitigation;

4) and socio-economic impacts. (4p) _____

q) Listing of other agencies including local, state and/or federal that may need to be contacted during facilities planning. (4q)_____

r) Identification of need for intermunicipal agreements as relates to planning information and future funding. (4r) _____

s) A description of the manner in which local costs will be financed (benefit assessments, mill rate) (4s) _____

t) Identification of environmentally sensitive or significant areas for further evaluation during project development including floodplains, wetlands, watercourses, farmlands, water supply watershed lands, aquifer protection areas, and coastal zones, natural areas and critical habitats. (4t) _____

u) Listing of permits, licenses or certificate necessary to implement the project. (4u) _____

v) Compliance with Long Island Sound planning policy. (4v) _____

5. Schedule: The schedule for completion of the facilities plan is reasonable and reflects the Abatement Order. (5) _____

6. Exceptions: _____

_____

_____

_____ (6) _____

DATE _____ _____

DEEP Project Engineer

WOODRIDGE LAKE SEWER DISTRICT

113 Brush Hill Road
Goshen, CT 06756

November 12, 2015

Denise Ruzicka, Director, Planning and Standards Division
CT Department of Energy and Environmental Protection
Bureau of Water Protection & Land Use
79 Elm Street
Hartford, CT 06106-5127

And

Oswald Inglese, Jr., Director, Water Permitting & Enforcement Div.
CT Department of Energy and Environmental Protection
Bureau of Materials Management and Compliance Assistance
79 Elm Street
Hartford, CT 06106-5127

RE: Woodridge Lake Sewer District

Dear Denise and Oswald:

Regarding your letter of November 2, 2015 in which you suggest that the Woodridge Lake Sewer District ("WLSD") has been inactive in assessing alternatives to manage its wastewater since our meeting with the Department on May 15, 2014: On the contrary, WLSD and its representatives have met on numerous occasions with DEEP staff and USDA representatives to evaluate its options. Indeed, we believe DEEP staff was fully aware of our plan to focus on evaluating the regional alternative while maintaining the onsite treatment system in good working order. That strategy included suspending additional and expensive studies to evaluate the onsite alternative.

We have prepared for the Department a timeline of the extensive efforts and contacts with DEEP we have undertaken since the May 15 meeting, and can provide it to you upon request. However, we believed we had the Department's consent to focus on the viability of the regional alternative, and believe our efforts have resulted in substantial clarity on how best to proceed with this project. We agree that a Facilities Plan is now appropriate, and a meeting with DEEP staff to begin the substantial effort of preparing such a plan will be arranged, with our prior work allowing us to realistically compare the available options to manage WLSD's wastewater. We will continue to defer evaluating the

onsite alternative until we have a clear view of the regional alternative, including DEEP's and the City of Torrington's cooperation in developing an acceptable Intermunicipal Agreement and financing options.

Given the significant task of preparing a draft Facilities Plan, we believe it is unrealistic to present one to the Department by January 31, 2016. We therefore propose submitting the draft plan by March 31, 2016, subject to the outcome of meetings we will have with DEEP staff. We look forward to working with the Department to develop the best alternative for this very small community.

Should you have any questions, please do not hesitate to contact me.

Very truly yours,

Raymond Turri, President
Woodridge Lake Sewer District

Cc: WLSD Board
Jay Sheehan, Woodard & Curran
David Prickett, David Prickett Consulting, LLC
John E. Wertam, Esq., Shipman & Goodwin LLP
Ann Straut-Esden, DEEP
Joe Wettemann, DEEP
Dennis Greci, DEEP

WOODRIDGE LAKE SEWER DISTRICT

113 Brush Hill Road
Goshen, CT 06756

December 14, 2015

Michael J. Hart
CT Department of Energy and Environmental Protection
Bureau of Water Protection & Land Use
79 Elm Street
Hartford, CT 06106-5127

RE: Woodridge Lake Sewer District

Dear Mike:

You have requested a letter from Woodridge Lake Sewer District regarding the status of developing an on-site solution for managing wastewater from the District. As you know, we are also considering a regional approach that involves conveying wastewater to Torrington for treatment. We recently met with you, DEEP staff and management, Torrington WPCA and WLSD to determine what is required by all entities to implement such a plan, allowing WLSD to abandon its onsite treatment system. The meeting was constructive and informative in laying out the requirements by all parties to achieve the long term solution through the regional alternative. It is our intention to diligently work through those requirements to find a solution that works for all parties.

Some of the issues raised that need resolution and completion include dealing with the concerns about odor and addition of new connections expressed by Torrington, the requirement for a completed Facilities Plan by DEEP and a satisfactory financing package required by WLSD. Also, there remains a number of issues to be worked out between Torrington and WLSD on the terms of an Inter Municipal Agreement. As I presented at the beginning of the meeting, we have not been idle over the past 18 months in pursuing this regional solution with numerous meetings, actions taken and funds expended to work out solutions to the various issues and requirements associated with the pipeline alternative. We have made substantial progress but much remains to be done.

We appreciate the time, attention and support you have given us on this long, involved and costly exercise and would like to assure you we are doing all we can to find a satisfactory solution. We trust all parties are working to that same goal.

Should you have any questions, please do not hesitate to contact me.

Very truly yours,

Raymond Turri, President
Woodridge Lake Sewer District

Cc: WLSD Board
Jay Sheehan, Woodard & Curran
David Prickett, David Prickett Consulting, LLC
John E. Wertam, Esq., Shipman & Goodwin LLP
Ann Straut-Esden, DEEP
Joe Wettemann, DEEP
Dennis Greci, DEEP

WOODRIDGE LAKE SEWER DISTRICT

113 Brush Hill Road
Goshen, CT 06756

February 12, 2016

Ms. Ann A. Straut, Sanitary Engineer III
CT Department of Energy and Environmental Protection
Bureau of Water Protection & Land Use
79 Elm Street
Hartford, CT 06106-5127

RE: Woodridge Lake Sewer District

Dear Ann:

You requested a letter from Woodridge Lake Sewer District regarding the anticipated status of funding for the design and construction phases of a regional approach that involves conveying wastewater to Torrington for treatment. As you know from our letter to Michael Hart dated December 14, 2015, our ability to execute this solution requires that we are able to secure a satisfactory grant and financing package required by WLSD's Board and which can be accepted by our taxpayers. Our Board has reviewed a number of funding alternatives and the most favorable terms are being offered by the USDA, through its Rural Development Water & Waste Program. As such, we made an application for Federal assistance for the entire project and they have indicated their interest in funding the project over a two year period. We are now working our way through their review process which we expect will result in their written commitment for the entire project. If that occurs, we will not be requesting Connecticut Clean Water funding for the design and construction phases. Upon receipt of the commitment letter from the USDA, I will forward it to you.

In parallel with the above grant and loan applications, we are continuing to work to complete the requirement for a completed Facilities Plan for your review. We expect to submit the Facilities Plan Report on or before April 30, 2016 for your review and approval. As I understand it, absent Clean Water Funding, we will no longer be required to go through the Connecticut Environmental Policy Act (CEPA) process, including a Scoping Notice or subsequent Environmental Impact Evaluation ("EIE"). We also understand that you will not be reviewing nor approving our final design nor proposed bidding documents

as they will be reviewed by the USDA. Please confirm that my assumptions are correct in writing, so that we may update our Board, as well as the City of Torrington, as we continue discussions related to the pending Inter-Municipal Agreement.

I have included the current timeline for our project dated January 18, 2016 for your review. This plan is contingent on negotiating an acceptable Inter-Municipal Agreement with Torrington, DEEP approval our Facilities Plan and taxpayer approval of our financing package. If these events or others do not occur as planned the project will move out an additional year to year and one-half.

We appreciate the time, attention and support you have given us on this long, involved and costly planning phase exercise and would like to assure you we are doing all we can to find a satisfactory solution. We trust all parties are working to that same goal.

Should you have any questions, please do not hesitate to contact me.

Very truly yours,

James L. Mersfelder, Vice President &
Treasurer Woodridge Lake Sewer District

Cc: WLSD Board
Jay Sheehan, Woodard & Curran
David Prickett, David Prickett Consulting, LLC
John E. Wertam, Esq., Shipman & Goodwin LLP
Dennis Greci, DEEP

Opinion of Project Schedule
Regional Sewer Connection Project
Woodridge Lake Sewer District
Prepared on January 18, 2016
Draft and subject to change based on a variety of factors beyond our control

Phase & Tasks	Estimated Start Date	Estimated Completion Date	Estimated Duration (days)	J-15	A-15	S-15	O-15	N-15	D-15	J-16	F-16	M-16	A-16	M-16	J-16	J-16	A-16	S-16	O-16
Planning	**10/01/15**	**05/30/16**	**242**																
Inter-Municipal Agreement	10/01/15	03/31/16	182																
USDA-RD Funding Applications	12/01/15	02/28/16	89																
USDA-RD Funding Commitment	03/01/16	03/31/16	30																
CT-DEEP Planning Document	01/01/16	04/30/16	120																
CT-DEEP Approval	05/01/16	05/30/16	29																
Informational Meeting with Residents	03/01/16	03/31/16	30																
Vote/Appropriation	04/01/16	05/30/16	59																
Design & Permitting	**07/01/15**	**07/30/16**	**395**																
Borings	07/01/15	08/30/15	60																
15% Design	09/01/15	10/31/15	60																
Aerial Mapping	11/01/15	01/31/16	91																
Preliminary Property Surveys	11/01/15	01/01/16	61																
Torrington P&Z (Phase 1)	12/01/15	01/31/16	61																
Goshen P&Z (Phase 1)	12/01/15	01/31/16	61																
30% Design	02/01/16	02/28/16	27																
Field Survey	02/01/16	02/28/16	27																
Additional Property Surveys	03/01/16	03/30/16	29																
60% Design	03/01/16	03/31/16	30																
Torrington P&Z (Phase 2)	04/01/16	05/30/16	59																
Goshen P&Z (Phase 2)	04/01/16	05/30/16	59																
ConnDOT	04/01/16	05/30/16	59																
90% Design	04/01/16	05/30/16	59																
Easements	06/01/16	07/30/16	59																
100% Design	06/01/16	06/30/16	29																
Bidding & Construction	**07/01/16**	**06/30/19**	**1094**																
Phase 1 Bidding	07/01/16	08/30/16	60																
Phase 1 Construction	09/01/16	10/30/17	424																
Phase 1 Closeout	04/01/18	06/30/18	90																
Phase 2 Bidding	11/01/17	12/30/17	59																
Phase 2 Construction	01/01/18	12/30/18	363																
Phase 2 Closeout	04/01/19	06/30/19	90																

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Woodridge Lake Sewer District
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Phase & Tasks	Estimated Start Date	Estimated Completion Date	Estimated Duration (days)	N-16	D-16	J-17	F-17	M-17	A-17	M-17	J-17	J-17	A-17	S-17	O-17	N-17	D-17	J-18	F-18
Planning	**10/01/15**	**05/30/16**	**242**																
Inter-Municipal Agreement	10/01/15	03/31/16	182																
USDA-RD Funding Applications	12/01/15	02/28/16	89																
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Regional Sewer Connection Project
Woodridge Lake Sewer District
Prepared on January 18, 2016
Draft and subject to change based on a variety of factors beyond our control

Phase & Tasks	Estimated Start Date	Estimated Completion Date	Estimated Duration (days)	M-18	A-18	M-18	J-18	J-18	A-18	S-18	O-18	N-18	D-18	J-19	F-19	M-19	A-19	M-19	J-19
Planning	**10/01/15**	**05/30/16**	**242**																
Inter-Municipal Agreement	10/01/15	03/31/16	182																
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Phase 2 Construction	01/01/18	12/30/18	363																
Phase 2 Closeout	04/01/19	06/30/19	90																

APPENDIX E

1989 Consent Order

COPY

STATE OF CONNECTICUT
VS.
WOODRIDGE LAKE SEWER DISTRICT

IN THE MATTER OF A CONSENT ORDER BETWEEN WOODRIDGE LAKE SEWER DISTRICT AND THE COMMISSIONER OF ENVIRONMENTAL PROTECTION

CONSENT ORDER

WHEREAS, the Commissioner of Environmental Protection (hereinafter, "the Commissioner") is charged with the responsibility of protecting the environment of the State from pollution.

WHEREAS, Woodridge Lake Sewer District maintains and operates a sewage treatment facility and owns land off Route 63 in the Town of Goshen, Connecticut.

WHEREAS, the agreement to this Consent Order and to undertake the activities herein shall not be construed as an admission of any alleged pollution by Woodridge Lake Sewer District or by its officers, directors, employees or agents.

WHEREAS, the Commissioner and Woodridge Lake Sewer District desire to protect the environment and avoid prolonged litigation.

NOW THEREFORE, it is hereby agreed that:

1) The Commissioner has jurisdiction of the subject matter herein and of the parties consenting hereto under Sections 22a-6, 22a-424, 22a-427, 22a-430, 22a-431, 22a-432 of the Connecticut General Statutes.

2) Woodridge Lake Sewer District by agreeing to the issuance of this Consent Order waives any further right it may have for an appeal on the subject of this Consent Order.

3) Woodridge Lake Sewer District agrees to implement the following to the satisfaction of the Commissioner:

   A) Establish and implement a groundwater quality monitoring program by redeveloping existing wells and installing additional monitoring wells.

   B) Develop and install a distribution system that will uniformly distribute effluent from the Woodridge Lake Sewer District treatment plant to the ridge and furrow land application system.

   C) Develop an Operation and Maintenance manual for the land application of effluent.

D) Investigate the hydraulic capacity of the ridge and furrow system.

4) Woodridge Lake Sewer District agrees to undertake the actions described in paragraph 3 above in accordance with the following schedule:

A) On or before June 30, 1989 submit for the review and approval of the Commissioner of Environmental Protection an engineering report which describes the proposed location and depths of groundwater monitoring wells to comply with paragraph 3(A).

B) On or before June 30, 1989 submit for the review and approval of the Commissioner of Environmental Protection a scope of study report which describes the investigations necessary to comply with paragraphs 3(B) and (D).

C) On or before August 31, 1989 verify to the Commissioner of Environmental Protection that the sampling program approved under paragraph (A) above has begun.

D) On or before September 30, 1989 submit for review and approval of the Commissioner of Environmental Protection an engineering report with plans and specifications describing the design of the distribution system to comply with paragraph 3(B).

E) On or before October 31, 1989 verify to the Commissioner of Environmental Protection that construction of the facilities approved under paragraph (D) above has begun.

F) On or before December 31, 1989 verify to the Commissioner of Environmental Protection that the construction approved under paragraph (D) has been completed and the facility is in operation.

G) On or before December 31, 1989 submit for review and approval of the Commissioner of Environmental Protection an Operation and Maintenance Manual.

H) On or before August 31, 1990 submit for review and approval of the Commissioner of Environmental Protection an engineering report detailing the hydraulic capacity of the land application system.

5) Until such time as the directives of paragraph 3(A),(B), and (C) are completed and put into service, the Woodridge Lake Sewer District shall operate and maintain the existing water pollution control facility in full compliance with Permit No. SP0000179 issued December 22, 1977 with the exception that paragraph 2 and 5 are further modified to read:

2) The discharge described in this permit shall not exceed and shall otherwise conform to the specific terms and general conditions specified herein:

A) Discharge Serial No. 001
Groundwaters in the Watershed of Bantam River
Average Daily Flow - 100,000 gallons per day

Parameter	Monthly Average Quantity	Monthly Average Concentration	Minimum Percentage Removal Efficiency
Biochemical Oxygen Demand$_5$	3.03 kg/day	20mg/l	90%
Suspended Solids	1.52 kg/day	10mg/l	90%

1) The discharge shall be required to meet the more stringent of the monthly average-concentrations or minimum removal efficiency requirements for each parameter.

2) The monthly average quantities and monthly average concentrations specified above shall not be exceeded by a factor of 1.5 during any week.

3) The pH of the discharge shall not be less than 6.5 nor greater than 8.0 at any time.

4) The discharge shall not contain more that 0.1 milliliters per liter settleable solids.

5) The above limitations shall apply to the filtered wastewater prior to discharge to the groundwaters.

5) Two groundwater monitoring wells in the vicinity of the disposal beds in use during the month shall be monitored and the results reported to the Director before the 10th of March, June, September, and December according to the following schedule:

Parameter	Minimum Frequency of Sampling	Sample Type
Depth to Groundwater	Quarterly	Instantaneous Measurement
pH	Quarterly	Grab
Total Phosphate as P	Quarterly	Grab
Organic Nitrogen as N	Quarterly	Grab
Ammonia Nitrogen as N	Quarterly	Grab
Nitrite-Nitrate as N	Quarterly	Grab

6) If any document required to be submitted to the Commissioner pursuant to this Consent Order is disapproved by the Commissioner, it shall be

6) If any document required to be submitted to the Commissioner pursuant to this Consent Order is disapproved by the Commissioner, it shall be resubmitted, with the deficiencies corrected, within 30 days of receipt of notice of disapproval.

7) Nothing herein shall at any time preclude the Commissioner from instituting any other legal proceeding to address any violation of law or to prevent or abate pollution, and nothing herein shall relieve Woodbridge Lake Sewer District of its obligations under federal, state and local law.

8) In the event that Woodridge Lake Sewer District becomes aware that it may not comply, or may not comply on time, with any requirement of this order or any document approved hereunder, Woodridge Lake Sewer District, shall immediately inform the Commissioner, and shall take all reasonable steps to ensure that any noncompliance or delay is avoided, or, if unavoidable, is minimized to the greatest extent possible. Notification shall not excuse noncompliance or delay. In so notifying the Commissioner, Woodridge Lake Sewer District, shall state the reasons for the noncompliance or delay and propose, for the review and written approval of the Commissioner, dates by which compliance will be achieved, and Woodridge Lake Sewer District shall comply with the dates approved by the Commissioner.

9) This Consent Order may be modified for cause upon the written consent of the parties, except that the Commissioner may allow additional time for compliance in accordance with paragraph 8.

10) The undersigned certify that they are fully authorized by the party or parties they represent to enter into the terms and conditions of this Consent Order and to bind legally the party or parties accordingly.

11) The terms of this Consent Order shall apply to and be binding upon the parties hereto and their successors and assigns.

12) Woodridge Lake Sewer District agrees to pay to the Department of Environmental Protection a penalty of $2,250 for failure to submit fifteen groundwater monitoring reports between 1985 and 1988, as required by the permit. Said penalty shall be paid by bank or certified check payable to the Connecticut Department of Environmental Protection, and shall reference the Consent Order No. found below and delivered to:

Joseph Wettemann
Sanitary Engineer
Department of Environmental Protection
122 Washington Street
Hartford, CT 06106

13) Any document required to be submitted to the Commissioner under this order shall be signed by a duly authorized officer of Woodridge Lake District and by the person who is responsible for preparing such document for the consultant, who shall certify as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments and certify under penalty of law that based on reasonable investigation, including my inquiry of those individuals immediately responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief."

Failure to comply with this order shall subject Woodridge Lake Sewer District to an injunction and penalties under Chapters 439 and 446k of the Connecticut General Statutes. In addition, any false statement made to the Commissioner in any information submitted pursuant to this order shall be punishable as a criminal offense under Section 22a-438 of the Connecticut General Statutes or, in accordance with Section 22a-6, under Section 53a-157 of the Connecticut General Statutes.

Entered as a Consent Order of the Commissioner of Environmental Protection on this 27th day of July, 1989.

for Leslie Carothers
Commissioner

Woodridge Lake District hereby consents to the entry of this Consent Order without further notice.

BY William L. Donaldson
Its duly authorized agent

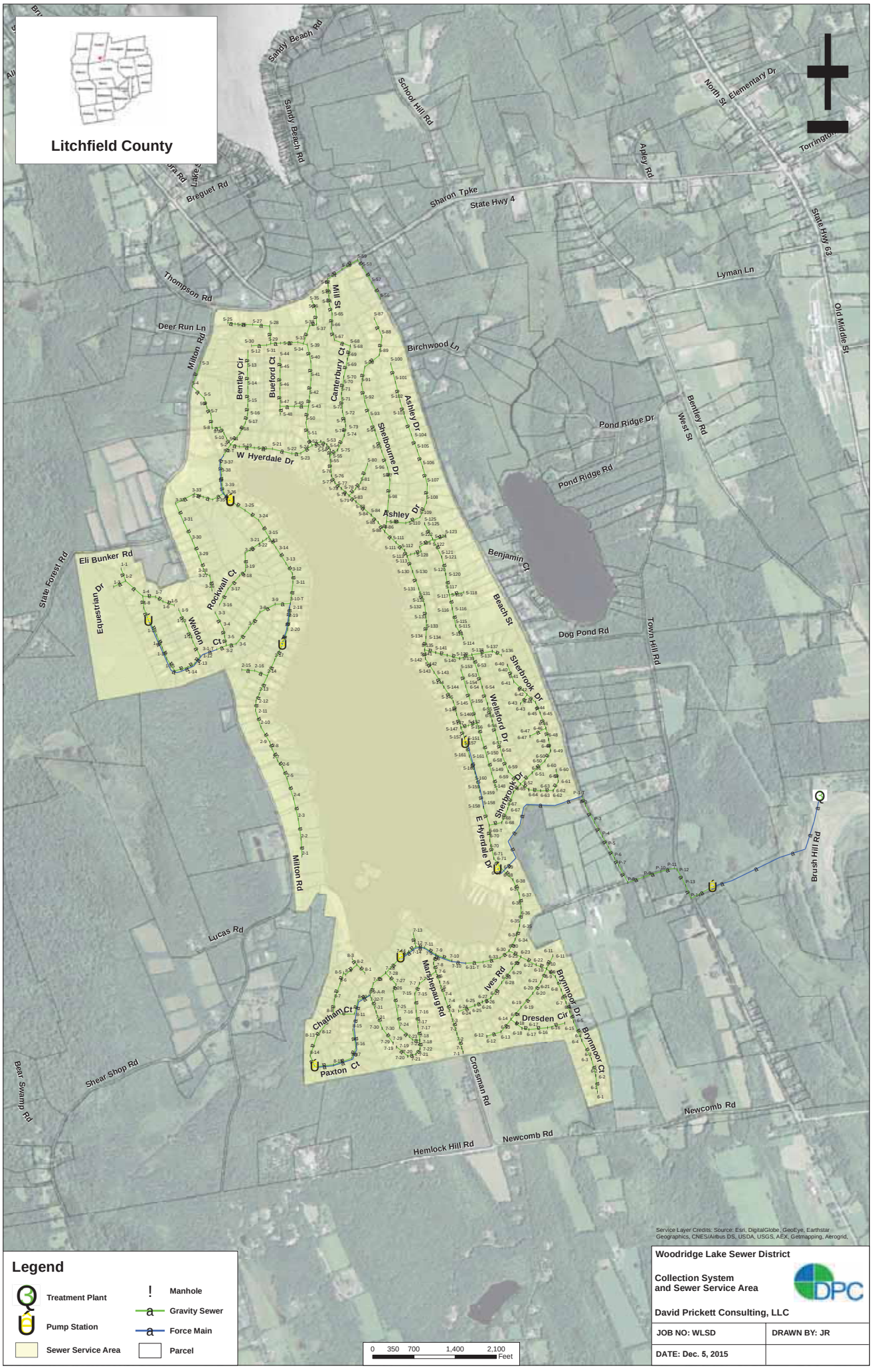
CONSENT ORDER NO. WC4856
DEP/WPC-055-002
TOWN OF GOSHEN
SENT CERTIFIED MAIL-RRR
DISCHARGE CODE Z
LAND RECORDS

MAILED TO:
WOODRIDGE LAKE SEWER DISTRICT
P.O. BOX 248
GOSHEN, CT 06756

CC: THOMAS C. WHITE
HIRAM A. TUTTLE, P.E.

APPENDIX F

WLSD Sewer Service Area


Litchfield County
Sandy Beach Rd
School Hill Rd
North St
Elementary Dr
Torrington
Apley Rd
Breguet Rd
Sharon Tpke
State Hwy 4
State Hwy 63
Lyman Ln
Old Middle St
Thompson Rd
Deer Run Ln
Milton Rd
Mill St
Birchwood Ln
Bentley Cir
Bueford Ct
Canterbury Ct
Ashley Dr
Shelbourne Dr
W Hyerdale Dr
Pond Ridge Dr
Bentley Rd
West St
Pond Ridge Rd
Ashley Dr
Benjamin Ct
Eli Bunker Rd
State Forest Rd
Equestrian Dr
Rockwall Ct
Weldon Ct
Beach St
Dog Pond Rd
Town Hill Rd
Shelbrook Dr
Wellsford Dr
Sherbrook Dr
E Hyerdale Dr
Brush Hill Rd
Milton Rd
Lucas Rd
Marshepaug Rd
Ives Rd
Brymmoor Dr
Chatham Ct
Dresden Ct
Paxton Ct
Brymmoor Ct
Shear Shop Rd
Bear Swamp Rd
Crossman Rd
Newcomb Rd
Hemlock Hill Rd
Newcomb Rd
Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid,
Legend
Treatment Plant
Pump Station
Sewer Service Area
Manhole
Gravity Sewer
Force Main
Parcel
0 350 700 1,400 2,100 Feet
Woodridge Lake Sewer District
Collection System and Sewer Service Area
David Prickett Consulting, LLC
JOB NO: WLSD
DRAWN BY: JR
DATE: Dec. 5, 2015

APPENDIX G

Figure - Regional Sewer Connection Project

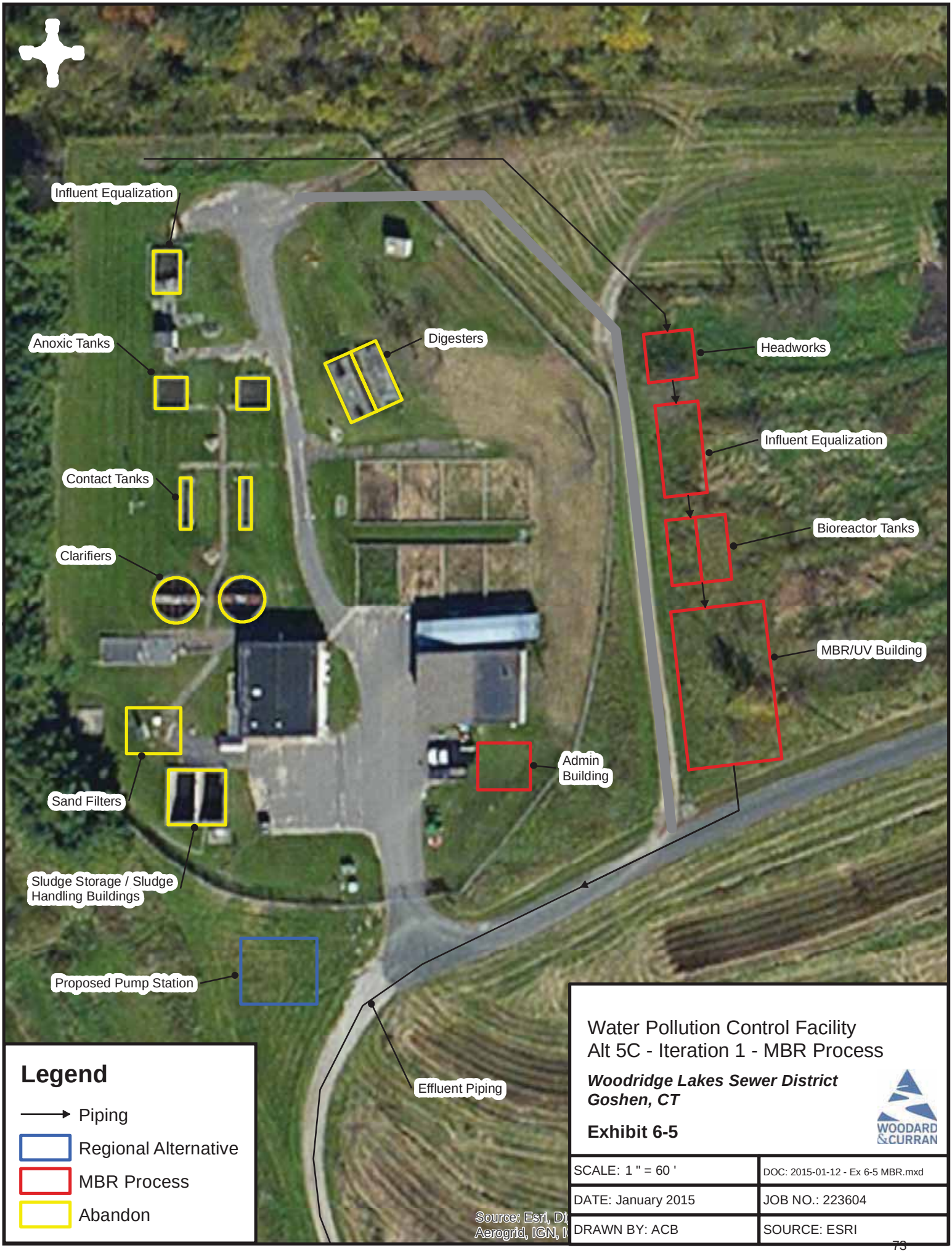

Litchfield County
Goshen/Torrington Town Line
Legend
Proposed Pump Station
Existing Pump Station
WLSD Sewer Service Area
Proposed 8" Force Main
Existing Gravity Sewer
Torrington Sewer Service Area
Proposed 12" Replacement Gravity Sewer
Exitsting Force Main
Parcel
0 1,200 2,400 4,800 7,200 Feet
Woodridge Lake Sewer District
Figure 1
Proposed Regional Sewer Extension Alternative
Woodard and Curran
David Prickett Consulting, LLC
JOB NO: WLSD
DRAWN BY: JR
DATE: April 23, 2016

Opinion of Probable Construction Costs (Updated on May 9, 2016)
Regional Sewer Connection Project (Woodridge Lake Sewer District)

Item #	Description	Quantity	Units	Estimated Unit Cost	Sub-Total
1	General Conditions	1	LS	$ 540,000	$ 540,000
2	8" CL52 DI Force Main Piping	20,200	LF	$ 80	$ 1,616,000
3	8" PVC C900 DR18 Force Main Piping	11,125	LF	$ 72	$ 801,000
4	Force Main Cleanout & Air Release Vaults	25	EA	$ 12,000	$ 300,000
5	Pump Station (Two-Stage; Integrated at Existing Bldg)	1	EA	$ 1,100,000	$ 1,100,000
6	Decommission Existing WPCF	1	LS	$ 250,000	$ 250,000
7	Erosion Control Measures	6,915	LF	$ 10	$ 69,150
8	Culvert Crossings/Repairs	27	EA	$ 5,000	$ 135,000
9	HDD Across River	1	LS	$ 200,000	$ 200,000
10	Replacement 12" PVC Gravity Sewer In Torrington (Main Only)	3,250	LF	$ 150	$ 487,500
11	Trench Dewatering Adjacent to Wetlands	2,400	LF	$ 30	$ 72,000
12	Gravity Sewer Manholes	21	EA	$ 6,000	$ 126,000
13	Non-Rock Trench Excavation	44,819	CY	$ 8	$ 358,556
14	Rock Trench Excavation & Rock Disposal	470	CY	$ 150	$ 70,481
15	Loam & Seed Repair (Off Road Alignment)	15,607	SY	$ 10	$ 156,069
16	Town Road Trench Repair (12" Gravel & 4" Pavement)	4,044	SY	$ 60	$ 243,065
17	Permanent Town Road Repair (2' Wider, 1.5" Milling & 1.5" Pavement)	5,289	SY	$ 36	$ 190,212
18	State Road Temporary Trench Repair (19" Gravel & 2" Cold Patch)	8,992	SY	$ 30	$ 268,035
19	State Road Permanent Trench Repair (9" Pavement)	8,992	SY	$ 122	$ 1,094,106
20	Permanent State Road Repair (18' Wide, 2" Milling & 2" Pavement)	24,900	SY	$ 47	$ 1,162,664
21	Police Details (State Road Only, 2 Officers, 8 Hours/Day)	307	DAYS	$ 1,040	$ 319,271
				Construction Sub-Total =	**$ 9,560,000**
				Contingency =	**$ 1,243,000**
				Engineering Design =	**$ 642,000**
				Engineering Bidding & Construction =	**$ 769,000**
				Legal, Admin., Closing & Financing Costs =	**$ 219,000**
				FCCs =	**$ 2,162,000**
				Engineering: Past Planning Costs =	**$ 709,000**
				Escalation Costs for Anticipated Bid Schedule =	**$ 308,000**
				Estimated Total OPC =	**$ 15,612,000**

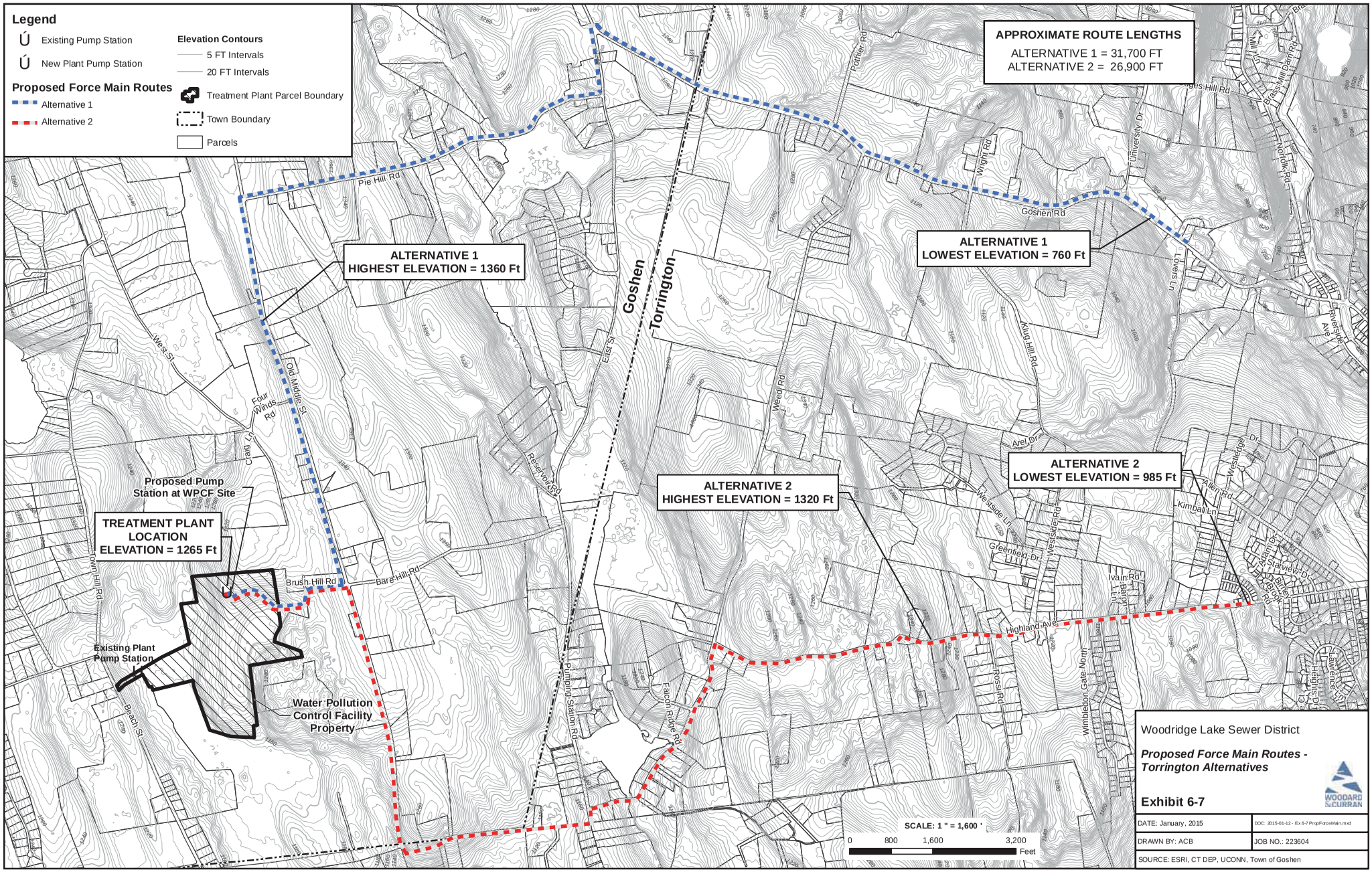
APPENDIX H

Existing WLSD WPCF Site & Proposed WPCF Upgrade for Local Alternative


Influent Equalization
Anoxic Tanks
Digesters
Headworks
Influent Equalization
Contact Tanks
Bioreactor Tanks
Clarifiers
MBR/UV Building
Admin Building
Sand Filters
Sludge Storage / Sludge Handling Buildings
Proposed Pump Station
Effluent Piping
Legend
Piping
Regional Alternative
MBR Process
Abandon
Water Pollution Control Facility
Alt 5C - Iteration 1 - MBR Process
Woodridge Lakes Sewer District
Goshen, CT
Exhibit 6-5
WOODARD &CURRAN
SCALE: 1 " = 60 '
DOC: 2015-01-12 - Ex 6-5 MBR.mxd
DATE: January 2015
JOB NO.: 223604
DRAWN BY: ACB
SOURCE: ESRI
Source: Esri, Di
Aerogrid, IGN, I

APPENDIX I

Pipe Route Paths for Regional Alternatives


Legend
Existing Pump Station
New Plant Pump Station
Proposed Force Main Routes
Alternative 1
Alternative 2
Elevation Contours
5 FT Intervals
20 FT Intervals
Treatment Plant Parcel Boundary
Town Boundary
Parcels
APPROXIMATE ROUTE LENGTHS
ALTERNATIVE 1 = 31,700 FT
ALTERNATIVE 2 = 26,900 FT
ALTERNATIVE 1
HIGHEST ELEVATION = 1360 Ft
ALTERNATIVE 1
LOWEST ELEVATION = 760 Ft
ALTERNATIVE 2
HIGHEST ELEVATION = 1320 Ft
ALTERNATIVE 2
LOWEST ELEVATION = 985 Ft
TREATMENT PLANT
LOCATION
ELEVATION = 1265 Ft
Proposed Pump
Station at WPCF Site
Existing Plant
Pump Station
Water Pollution
Control Facility
Property
Goshen
Torrington
Pie Hill Rd
Goshen Rd
Wright Rd
Pothier Rd
University Dr
Norfolk Rd
Loves Hill Rd
Lovers Ln
Riverside Ave
Klug Hill Rd
West St
Four Winds Rd
Craig Ln
Old Middle St
East St
Weed Rd
Reservoir Rd
Arel Dr
Westledge Dr
Allen Rd
Kimball Ln
Westside Ln
Westside Rd
Greenfield Dr
Ivain Rd
Highland Ave
Rossi Rd
Wimbledon Gate North
Falcon Ridge Rd
Pumping Station Rd
Brush Hill Rd
Bare Hill Rd
Town Hill Rd
Beach St
SCALE: 1 " = 1,600 '
0 800 1,600 3,200
Feet
Woodridge Lake Sewer District
Proposed Force Main Routes -
Torrington Alternatives
Exhibit 6-7
DATE: January, 2015
DOC: 2015-01-12 - Ex 6-7 PropForceMain.mxd
DRAWN BY: ACB
JOB NO.: 223604
SOURCE: ESRI, CT DEP, UCONN, Town of Goshen

APPENDIX J

Correspondence Regarding Wastewater Treatment Capacity at Torrington WPCF

WRIGHT-PIERCE
Engineering a Better Environment

MEMORANDUM

TO:	Jerry Rollett, Public Works Director, City of Torrington, CT	DATE:	September 18, 2015
FROM:	Doug Hankins, Wright-Pierce	PROJECT No.:	13164E
SUBJECT:	Evaluation of the Impacts Additional Flows from Goshen on Torrington WPCF Design		

1 INTRODUCTION

The purpose of this memorandum is to evaluate the ability of the Torrington Water Pollution Control Facility (WPCF) to treat potential future flows from Woodridge Lake Sewer District (WLSD) in Goshen, CT. Wright-Pierce is preparing a design for the comprehensive upgrade to the Torrington WPCF and is nearing the completion of the 30% design phase.

2 FLOWS AND LOADS

The report entitled "Facilities Plan for the City of Torrington, CT Water Pollution Control Facility (WPCF)" (Wright-Pierce, October 2012) summarized the design year flows and loads for the Torrington WPCF based on expected growth projections (year 2035) over the planning horizon. These projections were less than the current permitted flow rate of 7.0 mgd.

Subsequent to the 2012 Facilities Plan, the preliminary design of the secondary treatment process has been modified to reflect a design year flow rate of 7.0 mgd. The preliminary design reflects a "base" design of 7.0 mgd, excluding WLSD and Goshen flow. The design year influent flows and loads are summarized for the following conditions:

1. Annual Average flow of 7.0 MGD plus additional flows from all potential areas in Goshen.
2. Maximum month cold-weather loadings based on 11.0 MGD plus additional flows from all potential areas in Goshen. To accurately predict the secondary treatment system's response to a maximum month loading conditions, the maximum month flows for Goshen were estimated assuming the same peaking factor utilized to model the Torrington flows.

3. Future peak hour flows are based on the estimated peak hour flow from Torrington plus future peak hour flows as obtained from Goshen.

The additional flows and loads from WLSD and other potential areas within Goshen are summarized in Table 1 below. The flows and loads from Table 1 were combined with the Torrington WPCF Upgrade design flows and loads; the resulting combined sanitary flows and loads (City of Torrington plus WLSD and Goshen) are summarized in Table 2.

TABLE 1
PROJECTED INFLUENT FLOWS AND LOADS SUMMARY
WLSD & GOSHEN

	FLOW	BOD		TSS		TKN		TP	
PARAMETER	**MGD**	**mg/L**	**lb./day**	**mg/L**	**lb./day**	**mg/L**	**lb./day**	**mg/L**	**lb./day**
Current Average	0.162	124	168	121	164	44	60	10	13
Maximum Month[1]	0.255	111	235	112	238	49	105	10	20
Maximum Day	0.362								
Hydraulic Peak	0.842								
Peaking Factor[2]	1.57	1.40		1.45		1.75		1.52	

1 Maximum Month Flows and Loads based on Torrington's historical Peaking Factors

2 Peaking Factor from Torrington Flows and Loads (Wright-Pierce 2012 Facilities Plan)

TABLE 2
PROJECTED INFLUENT FLOWS AND LOADS SUMMARY
CITY OF TORRIGNTON, WLSD AND GOSHEN

	FLOW	BOD		TSS		TKN		TP	
PARAMETER	**MGD**	**mg/L**	**lb./day**	**mg/L**	**lb./day**	**mg/L**	**lb./day**	**mg/L**	**lb./day**
Current Average	7.162	148	8,808	151	9,038	26	1,578	3.4	206
Maximum Month	11.255	132	12,345	140	13,122	30	2,675	3.3	314
Maximum Day[1]	16.29								
Hydraulic Peak[1]	19.60								

1 Based on the 98th percentile flows

3 CURRENT AND PROPOSED EFFLUENT LIMITS

Table 3 presents the NPDES effluent limits for the Torrington WPCF. The plant is currently subject to seasonal restrictions on Total Phosphorus, Total Nitrogen (via the General Nitrogen Permit) as well as reduced Ammonia concentrations during the period of April 1 through October 31.

TABLE 3
EFFLUENT PERMIT LIMITS

PARAMETER	MONTHLY AVERAGE	DAILY MAXIMUM
Flow, MGD	7	
BOD_5, mg/l (lb./d)	30 (1,791)	50 (10,688)
TSS, mg/l (lb./d)	30 (1,791)	50 (10,688)
pH, Std. Units	6-9	
Dissolved Oxygen, mg/l	>5.0 (Instantaneously)	
E. Coli, cfu/100 ml	<200	<400 (7-Day)
Copper, kg/d	0.487	0.898
Total Nitrogen, (lb./d)	248	
Total Phosphorus, (lb./d)	17.29	

4 PROPOSED SECONDARY SYSTEM PROCESS

System Description

The Torrington WPCF will utilize an activated sludge system to employ either a Five-Stage Barenpho process or a Modified Ludzack-Ettinger (MLE) process for biological nutrient removal. The plant will generally operate with the Bardenpho process throughout the year. In the future, during periods of heaving influent loading; it may switch to the MLE process for short periods. The two aeration tanks (with 2 trains each) are subdivided into 5 zones with a combined total volume of 3.12 million gallons (4 equal sized aeration tanks). Anaerobic and anoxic mixing will be provided by submersible or top mounted mixers, while denitrified recycle pumping will provided by propeller pumps. Sludge will be wasted from the bottom of the secondary clarifiers to the sludge holding tanks. The proposed aeration system will consist of variable speed, positive-displacement blowers with membrane disk diffusers for fine-bubble aeration. Mixed liquor suspended solids concentrations (MLSS) will range from 2,500 to 4,000 mg/L with an aerobic solids residence time (SRT) of 11 days.

The aeration tanks will be followed by three 80 ft. diameter secondary clarifiers each with 14 feet sidewater depth. Settled mixed liquor is recycled back to the head of the aeration tanks via recycled activated sludge (RAS) pumps consisting of three variable-speed centrifugal units. Magnesium Hydroxide will be added, on occasion, to the RAS flow for alkalinity adjustments. Tertiary treatment for solids/phosphorus removal will be provided by a Ballasted Flocculation process, followed by disinfection and post-aeration.

5 PROCESS MODEL CONFIGURATION AND RESULTS

A steady-state process model of the Torrington liquid treatment system was developed in BioWIN 4.1™ in order to evaluate various process alternatives for nitrogen removal. For this study, the model was developed using model-default kinetic and stoichiometric process parameters.

The temperature of the wastewater was modeled at minimum temperatures observed at the plant of 50°F (10°C) to check the plant performance at critical conditions. The following assumptions were used:

- 50% primary clarifier total suspended solids removal
- 11 day aerobic SRT (to maintain nitrification)

The process model utilized for this design analysis was originally developed by Wright-Pierce in 2012 based on the existing facilities. The proposed design includes additional aeration tank volume configured as a 5-Stage Bardenpho process. The overall accuracy of the model has been checked over the years with good correlation between actual operating conditions at the plant and design modeling results. A summary of the model results, with and without the additional flows and loads from WLSD and Goshen, are provided in Table 4.

TABLE 4

PROCESS MODELLING RESULTS	Proposed Design (City of Torrington Flows and Loads)		Proposed Design (City of Torrington, GLSD and Goshen Flows and Loads)	
	Design Year Annual Average Loading	Design Year Max Month Loading	Design Year Annual Average Loading	Design Year Max Month Loading
Design Configuration	5-Stage Bardenpho	MLE	5-Stage Bardenpho	MLE
Influent (Raw)				
Flow Rate, mgd	7.0	11.0	7.162	11.255
Peak Hour Flow Rate, mgd[1]	16.5	16.5	16.5	16.5
Temperature, C	10	10	10	10
Anaerobic Zone				
Volume, mgal	0.13	0	0.13	0
Hydraulic Residence Time, hrs	0.4	0	0.4	0
Pre-Anoxic Zone				
Volume, mgal	0.73	0.86	0.73	0.86
Hydraulic Residence Time, hrs	2.5	1.9	2.4	1.8
Volume of Methanol, gpd	6	0	6	0
Aerobic Zone				
Volume, mgal	1.73	2.26	1.73	2.18
MLSS, mg/l	3,680	3,833	3,730	3,880
Hydraulic Residence Time, hrs	5.9	4.9	5.8	4.6
Sludge Residence Time, days	11.0	11.0	11.0	11.0
Oxygen Demand, (lb./d)	8,075	13,181	9,000	14,500
Internal Recycle Rate, mgd	28	28	28	28
Post-Anoxic Zone		(operated aerobically)		(operated aerobically)
Volume, mgal	0.45	0	0.45	0
Hydraulic Residence Time, hrs	1.5	N/A	1.5	N/A
Volume of Methanol, gpd	54	0	54	0
Total Volume (includes re-aeration zone), Mgal	3.12		3.12	
System SRT, days	18.0	14.3	18.0	15
Final Effluent TN, mg/l (lb./d)	3.5 (204)	7.0 (642)	3.5 (209)	7.2 (679)
Permitted Effluent TN, (lb./d)	248		248	
Final Phosphorus TP, mg/l (lb./d)	0.5 (29.2)	1.11 (101.8)	0.5 (29.9)	1.2 (112)
Permitted Phosphorus TP, (lb./d)	17.29		17.29	
Primary Sludge, (lb./d)	5,719	8,052	5,815	8,192
Waste Activated Sludge, (lb./d)	5,015	6,567	5,110	6,640

1. The design year 98th percentile peak day flow was estimated to be 15.93 mgd (2012 Facility Plan) and 16.29 mgd (herein). The proposed design includes three secondary clarifiers which have a design capacity of 16.5 mgd, assuming the MLSS concentration is held below 4,000 mg/l.

Process modeling indicates that the proposed design includes sufficient aeration tank volume to ensure complete nitrification during the critical design conditions while maintaining the MLSS concentrations below the ultimate settling capacity of the clarifiers. The additional flows and loads from GLSD and Goshen elevates the operating MLSS concentrations, but not to a level that would impact treatment performance. Effluent performance (nitrogen and phosphorus removal) was maintained while accounting for the additional flows and loads from GLSD and Goshen. As such, the proposed process design reduced effluent total nitrogen concentrations to below 3.5 mg/l for annual average and 8 mg/L for maximum month conditions.

The additional flows and loads from GLSD and Goshen will increase the overall process operation and maintenance costs of the Torrington WPCF. The two largest increases will be associated with sludge production and oxygen demand as outlined below (refer to Table 4):

1. Increased sludge production
    - Primary Sludge in the order of 100-200 lb/d
    - Secondary Sludge in the order of 50-100 lb/d
2. Increased Oxygen Demand
    - Increased aeration energy costs to handle the additional BOD_5 and TKN/ammonia, as oxygen demand increased by an order of 8-10% (about 1000 lb/d; airflow requirements increased by 200-300 cfm).

6 PROCESS TREATMENT CONCLUSIONS

In conclusion, the proposed Five-Stage Bardenpho process can handle the additional flows from GLSD and Goshen without adverse impacts to the ongoing design for the upgrade to the Torrington Facility. The proposed activated sludge process (in combination with the proposed tertiary process) will be able to meet all permit conditions (based on the loading assumptions identified herein).

7 OTHER CONSIDERATIONS

Note that an evaluation of the impact to the hydraulics as a result of the addition of Goshen's flow to the infrastructure inside the WPCF has not performed. If any flow from Goshen was to

be considered at the WPCF for any time in the near future, an evaluation of any potential impacts to changes in pipe sizes, infrastructure or related equipment should be performed as part of the ongoing design efforts.

Likewise, an addition of 0.126 mgd of average daily flow from Goshen to Torrington's current 7.0 mgd permitted flow will potentially impact future NPDES permit applications and approvals. Torrington will need to consider how they will manage the impact of Goshen's flow utilizing Torrington's future flow reserve currently held in the 7.0 mgd permit limit.

Lastly, the direct impact of Goshen's flow to some of the specific operational costs related to treatment systems analyzed was identified above. A separate evaluation needs to be done to determine the overall impact to capital and operational costs based on Goshen's proportional increase in flow to the total WPCF capacity and flow.

APPENDIX K

Coordination with Torrington and Goshen Planning & Zoning Commissions Regarding 8-24 Referrals

WOODRIDGE LAKE SEWER DISTRICT

113 Brush Hill Road
Goshen, CT 06756

January 7, 2016

Richard Calkins PE
Chairman
Planning & Zoning Commission
Torrington City Hall
140 Main Street, Room 324
Torrington, CT 06790

Dear Mr. Calkins,

The Woodridge Lake Sewer District ("WLSD") hereby is requesting to be added to the agenda of your January 20th meeting so that the Planning & Zoning Commission may conduct an 8-24 review of a proposed wastewater transmission system from WLSD's Water Pollution Control Facility (WPCF) to the existing Torrington municipal sewer system. We are proposing this transmission system to resolve a long standing Consent Order issued by the Connecticut Department of Energy and Environmental Protection (CT DEEP). Other alternatives to this proposed wastewater transmission system were evaluated extensively, but CT DEEP prefers and supports this project.

The WLSD is an independent municipal district operating within the Town of Goshen which has been providing wastewater collection, treatment and disposal since the early 1970s. Our customer base consists of 693 connected single family homes. The CT DEEP determined in 1989 that our wastewater disposal system is not capable of accommodating the original designed flow and limited the discharge of wastewater. Our disposal site is located in the watershed of Bantam River which flows downstream into the boundary of the Town of Litchfield Aquifer Protection Agency. The CT DEEP believes that failure to abide by this Consent Order could result in deterioration of the drinking water supply taken from the downstream aquifer in Litchfield. As such, the proposed wastewater transmission system eliminates these concerns.

Over the last five years and at a cost in excess of one million dollars, with the help of our contracted engineering firm, we attempted to develop a cost effective and environmentally acceptable solution by upgrading our current water pollution control facility. However, the CT DEEP continues to have concerns. The wastewater transmission system to Torrington's collection system for subsequent wastewater treatment and disposal is the only practical solution supported by CT DEEP.

Over the last several months the WLSD has had several informational meetings with representatives of the City to discuss several potential routes. The proposed route of the wastewater transmission pipe would enter Torrington from Goshen along Route 4 and terminate at the existing 24 inch interceptor sewer line on Route 4 near Riverside Avenue. All proposed pipes in Torrington will be within existing roadway rights-of-way, as discussed with the City and

the State's Department of Transportation. The proposed transmission system includes two pump stations constructed in Goshen (see the attached figure). This transmission system **will not expand nor modify** the existing sewer service areas for Torrington or Goshen. At the request of Jerry Rollett, the City's engineering firm, Wright-Pierce, completed an impact study of the potential effects of a daily flow of an increase of 162,000 gallons of wastewater per day. Their conclusion was that that level of flows were "without adverse impacts to the ongoing design for the upgrade to the Torrington Facility" and that the facility would be able to meet all permit conditions. Since that evaluation, WLSD's proposed flow rate was reduced, and we anticipated a proposed flow rate of approximately 120,000 gallons per day or less.

I will be traveling for the next several weeks so if we are added to the agenda for the January 20th our Vice President and Treasurer for the district Jim Mersfelder will be at the meeting along with an engineer from the firm supporting our proposed project.

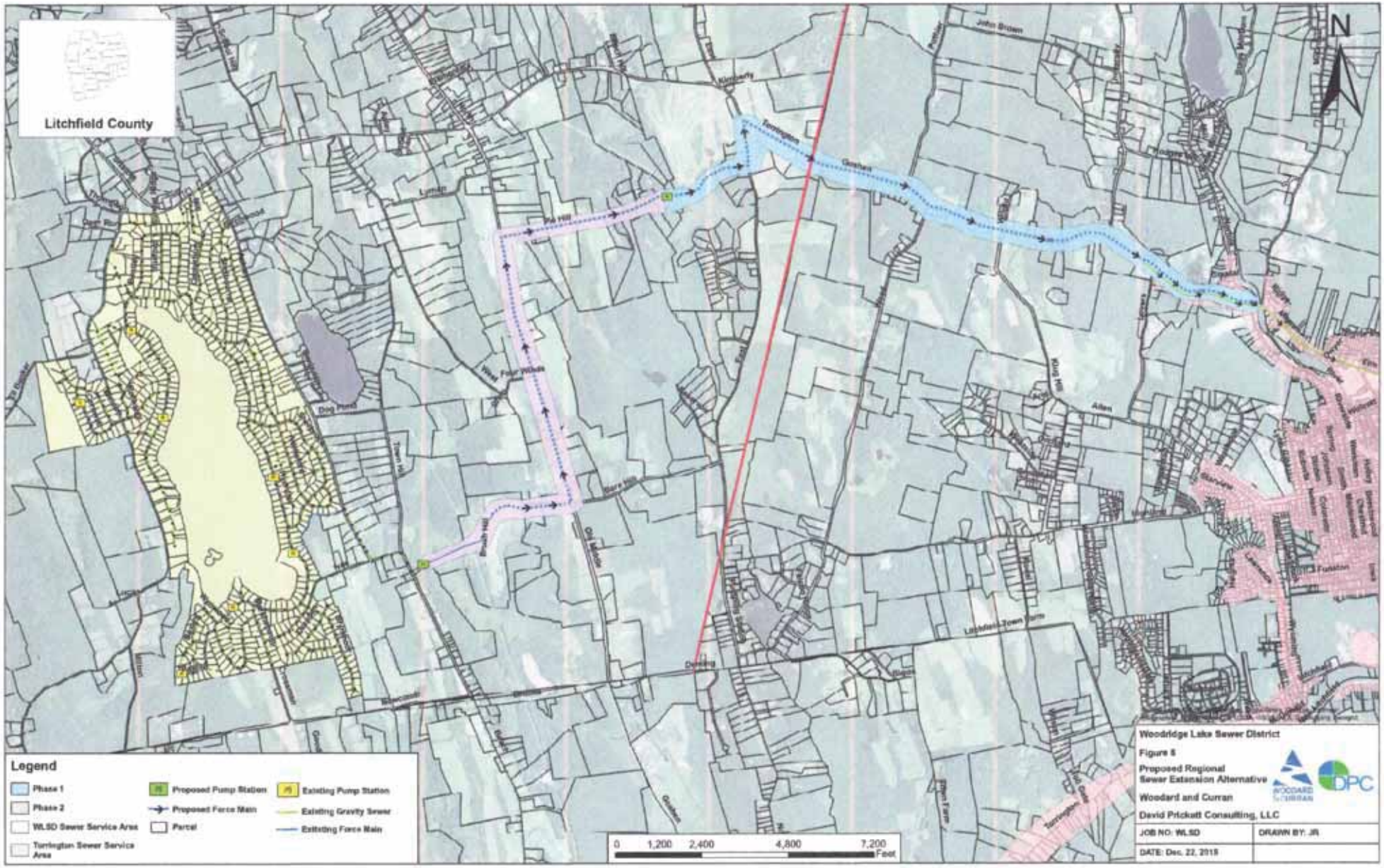
If you have additional questions in advance of the meeting please contact Jim at jim.mersfelder@wlsd-goshen.org.

Thank you.

Raymond A. Turri

Raymond A. Turri
President

cc Marty Connor
Ray Drew
Jim Mersfelder
Dave Prickett
Jerry Rollett


Litchfield County
N
Legend
Phase 1
Phase 2
WLSD Sewer Service Area
Torrington Sewer Service Area
Proposed Pump Station
Proposed Force Main
Parcel
Existing Pump Station
Existing Gravity Sewer
Existing Force Main
0 1,200 2,400 4,800 7,200 Feet
Woodridge Lake Sewer District
Figure 8
Proposed Regional Sewer Extension Alternative
Woodard and Curran
David Prickett Consulting, LLC
JOB NO: WLSD
DRAWN BY: JR
DATE: Dec. 22, 2015

City Of Torrington

Land Use Office
Martin J. Connor, AICP, City Planner
140 Main Street • City Hall
Torrington, CT 06790-5245
E-mail: Martin_Connor@torringtonct.org

Phone: (860) 489-2221
Fax: (860) 496-5928
City of Torrington website: www.torringtonct.org

To: Planning & Zoning Commission
From: Martin J. Connor, AICP, City Planner
Date: January 20, 2016
RE: Woodridge Lake Sewer District 8-24 Review

Raymond A. Turri, President, Woodridge Lake Sewer District ("WLSD"), has submitted a letter requesting an 8-24 recommendation for their proposed wastewater transmission system from WLSD's Water Pollution Control Facility to the existing Torrington Municipal sewer system. This transmission system will resolve The Connecticut Department of Energy and Environmental Protection's ("CT DEEP") long standing consent order with the WLSD. The WLSD is an independent municipal district operating within the Town of Goshen and has been providing wastewater collection, treatment and disposal since the 1970's. CT DEEP has determined that their current system is not capable of accommodating the design flow and discharge of wastewater. Because the WLSD treatment facility is located within the Bantam River Watershed that flows downstream into the boundary of the Town of Litchfield Aquifer Protection Zone, action is required. They currently service 693 homes within the district. They have spent a considerable sum of money seeking an acceptable solution to upgrading their current facility, however, the only practical solution supported by CT DEEP is the proposed wastewater transmission system to Torrington's collection system for subsequent wastewater treatment and disposal.

The proposed route of the wastewater transmission pipe in Torrington will go from the Goshen/Torrington Town line along Route 4, Goshen Road, and terminate at the existing 24 inch interceptor sewer line on Torrington Road near Riverside Avenue. All proposed pipes in Torrington will be within the existing roadway right-of-way of CT DOT. The transmission system is not designed to expand or modify the existing sewer service areas for either Goshen or Torrington.

The "Utilities Water and Sewer Map" in Chapter 11 of the 2010 Torrington Plan of Conservation & Development ("POCD") designates Torrington's Sewer Service Area. This area is in-line with the State of CT Conservation & Development Policies Plan, 2013-2018. Our POCD goals outlined in Chapter 11 are to continue a policy of sewer avoidance. The POCD states, "Torrington's WPCA has established that sewer avoidance is a desirable policy in rural areas where sewers do not currently exist outside the boundaries of the Sewer Service Area as Decentralized Wastewater Management Areas." The Future Land-Use Plan outlined in Chapter 14 of the POCD designates the areas in Torrington along the route of the wastewater transmission pipe outside of our Sewer Service Area as rural densities with environmental

constraints. These areas are Zoned R-WP. To remain consistent with the POCD, the construction of the proposed wastewater transmission pipe must not result in a change to the Zoning designation of the properties outside the Sewer Service Area along Goshen Road (Route 4.)

It is my understanding that the City's Consulting Engineering Firm, Wright Pierce, has completed an impact study and concluded that accepting the anticipated flow from the WLSD would not adversely affect the ongoing design and upgrade to the Torrington Wastewater Facility. The WLSD will be required to pay the costs of installing the line, meter their flows, pay their share of capital costs associated with construction or improvement of Torrington's WPCA Facility and pay their share of associated operating and maintenance costs of Torrington's WPCA Facility.

Conclusion

With the provision that Torrington's Sewer Service Area remains the same, the Zoning designations for properties along the proposed wastewater transmission pipe route are not changed, WLSD pays its fair share of capital costs and associated operating and maintenance expenses and Torrington and the WPCA agrees that there is adequate capacity to accept the flow at Torrington's WPCA Facility, I recommend that the Planning & Zoning make a favorable recommendation to the Mayor and the Water Pollution Control Authority on this 8-24 request for the proposed wastewater transmission system from WLSD's Water Pollution Control Facility to the existing Torrington Municipal sewer system.

WOODRIDGE LAKE SEWER DISTRICT

113 Brush Hill Road
Goshen, CT 06756

January 6, 2016

Don W. Wilkes
Chairman
Planning & Zoning Commission
Goshen Town Hall
42 North Street
Goshen, CT 06756

Dear Mr. Wilkes,

The Woodridge Lake Sewer District ("WLSD") hereby is requesting to be added to the agenda of your January 26th meeting so that the Planning & Zoning Commission may conduct an 8-24 review of a proposed wastewater transmission system from WLSD's Water Pollution Control Facility ("WPCF") to the existing Torrington municipal sewer system. We are proposing this transmission system to resolve a long standing Consent Order issued by the Connecticut Department of Energy and Environmental Protection ("CT DEEP"). Other alternatives to this proposed wastewater transmission system were evaluated extensively, but CT DEEP prefers and supports this project.

The WLSD is an independent municipal district operating within the Town of Goshen which has been providing wastewater collection, treatment and disposal since the early 1970s. Our customer base consists of 693 connected single family homes. The CT DEEP determined in 1989 that our wastewater disposal system is not capable of accommodating the original designed flow and limited the discharge of wastewater. Our disposal site is located in the watershed of Bantam River which flows downstream into the boundary of the Town of Litchfield Aquifer Protection Agency. The CT DEEP believes that failure to abide by this Consent Order could result in deterioration of the drinking water supply taken from the downstream aquifer in Litchfield. As such, the proposed wastewater transmission system eliminates these concerns.

Over the last five years and at a cost in excess of one million dollars, with the help of our contracted engineering firm, we attempted to develop a cost effective and environmentally acceptable solution by upgrading our current water pollution control facility. However, the CT DEEP continues to have concerns. The wastewater transmission system to Torrington's collection system for subsequent wastewater treatment and disposal is the only practical solution supported by CT DEEP.

Over the last several months the WLSD has had several informational meetings with representatives of the Town to discuss several potential routes. The proposed route would leave our WPCF on Brush Hill Road, then north on Old Middle Street to Pie Hill Road, then north on East Street South and then east on Route 4 and crossing into Torrington. All proposed pipes in Goshen will be within existing roadway rights-of-way, as discussed with the Town and the

State's Department of Transportation. The proposed transmission system includes two pump stations constructed in Goshen (see the attached figure). This transmission system **will not expand nor modify** the existing sewer service areas for Torrington or Goshen.

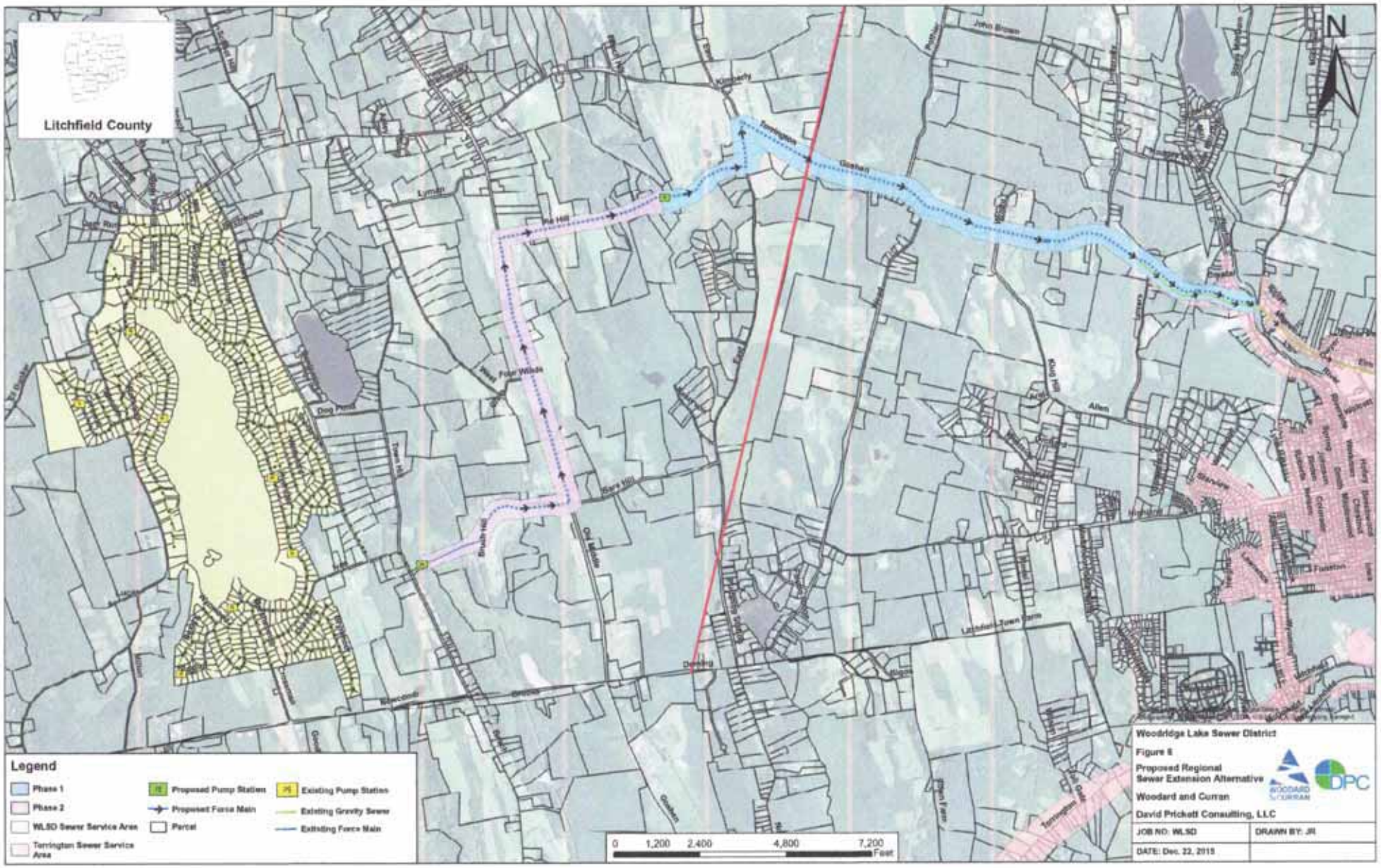
I will be traveling for the next several weeks so if we are added to the agenda for the January 26th our Finance Chair of the district Richard Reis will be at the meeting along with an engineer from the firm supporting our proposed project.

If you have additional questions in advance of the meeting please contact Jim Mersfelder at jim.mersfelder@wlsd-goshen.org.

Thank you.

Raymond A. Turri
President

cc Marty Connor
Jim Mersfelder
Dave Prickett
Richard Reis
Bob Valentine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Feet
Woodridge Lake Sewer District
Figure 8
Proposed Regional Sewer Extension Alternative
Woodard and Curran
David Prickett Consulting, LLC
JOB NO: WLSD
DRAWN BY: JR
DATE: Dec. 22, 2015

TOWN OF GOSHEN

42A NORTH STREET GOSHEN, CT 06756-0187
PHONE 860 491-2308 x 232 FAX 860 491-6028

Martin J Connor, AICP, Town Planner/Zoning and Inland Wetlands Enforcement Officer

To: Planning & Zoning Commission
From: Martin J. Connor, AICP, Town Planner
Date: January 21, 2016
RE: Woodridge Lake Sewer District 8-24 Review

Raymond A. Turri, President, Woodridge Lake Sewer District ("WLSD"), has submitted a letter requesting an 8-24 recommendation for their proposed wastewater transmission system from WLSD's Water Pollution Control Facility to the existing Torrington Municipal sewer system. This transmission system will resolve The Connecticut Department of Energy and Environmental Protection's ("CT DEEP") long standing consent order with the WLSD. The WLSD is an independent municipal district operating within the Town of Goshen and has been providing wastewater collection, treatment and disposal since the 1970's. CT DEEP has determined that their current system is not capable of accommodating the design flow and discharge of wastewater. Because the WLSD treatment facility is located within the Bantam River Watershed that flows downstream into the boundary of the Town of Litchfield Aquifer Protection Zone, action is required. They currently service 693 homes within the district. They have spent a considerable sum of money seeking an acceptable solution to upgrading their current facility, however, the only practical solution supported by CT DEEP is the proposed wastewater transmission system to Torrington's collection system for subsequent wastewater treatment and disposal.

The proposed route of the wastewater transmission pipe in Goshen will go from their facility on Brush Hill Road, then north on Old Middle Street to Pie Hill Road, then north on East Street South, and then east on Torrington Rd (Route 4) to Goshen/Torrington Town line. All proposed pipes in Goshen will be within the existing roadway right-of-ways of the Town or CT DOT. The transmission system is not designed to expand or modify the existing sewer service areas for either Goshen or Torrington.

The Natural Resource Section of Goshen's 2006 Plan of Conservation & Development ("POCD") recommends a sewer avoidance policy to avoid the need for additional development served by a sewage treatment plant and sewer lines outside the Woodridge Lake Sewer District. This is in-line with the State of CT Conservation & Development Policies Plan, 2013-2018. A map titled "Woodridge Lake Sewer District Office of Policy and Management Draft Conservation & Development Policies Plan, 2013-2018," dated September 2012, was submitted to the State of CT and accepted as the Sewer Service area by the State of CT. Our POCD goals outlined in the Natural Resource Section are to continue a policy of sewer avoidance. The POCD states, "Declare the entire Town (outside the Woodridge Lake Sewer District) to be a "Sewer Avoidance" Area. The Land-Use Plan outlined in Chapter 9 of the POCD designates areas

outside the Woodridge Lake Sewer District zoned RA-2 and RA-5 requiring on-site septic systems.

The WLSD will be required to pay the costs of installing the line, metering their flows, pay their share of capital costs associated with construction or improvement of Torrington's WPCA Facility and pay their share of associated operating and maintenance costs of Torrington's WPCA Facility. There will be no expenses to be paid by the Town of Goshen in connection with this proposed wastewater transmission system from WLSD's Water Pollution Control Facility to the existing Torrington Municipal sewer system.

Conclusion

With the provision that Goshen's Sewer Service Area remains the same, the Zoning designations for properties along the proposed wastewater transmission pipe route are not changed, there are no costs associated with the proposed wastewater transmission system from WLSD's Water Pollution Control Facility to the existing Torrington Municipal sewer system to be paid for by the Town of Goshen, I recommend that the Planning & Zoning Commission make a favorable recommendation to the Goshen Selectmen and Goshen's Water Pollution Control Authority on this 8-24 request for the proposed wastewater transmission system from WLSD's Water Pollution Control Facility to the existing Torrington Municipal sewer system.

APPENDIX L

Floodplain Areas Adjacent to Proposed Pipe Route

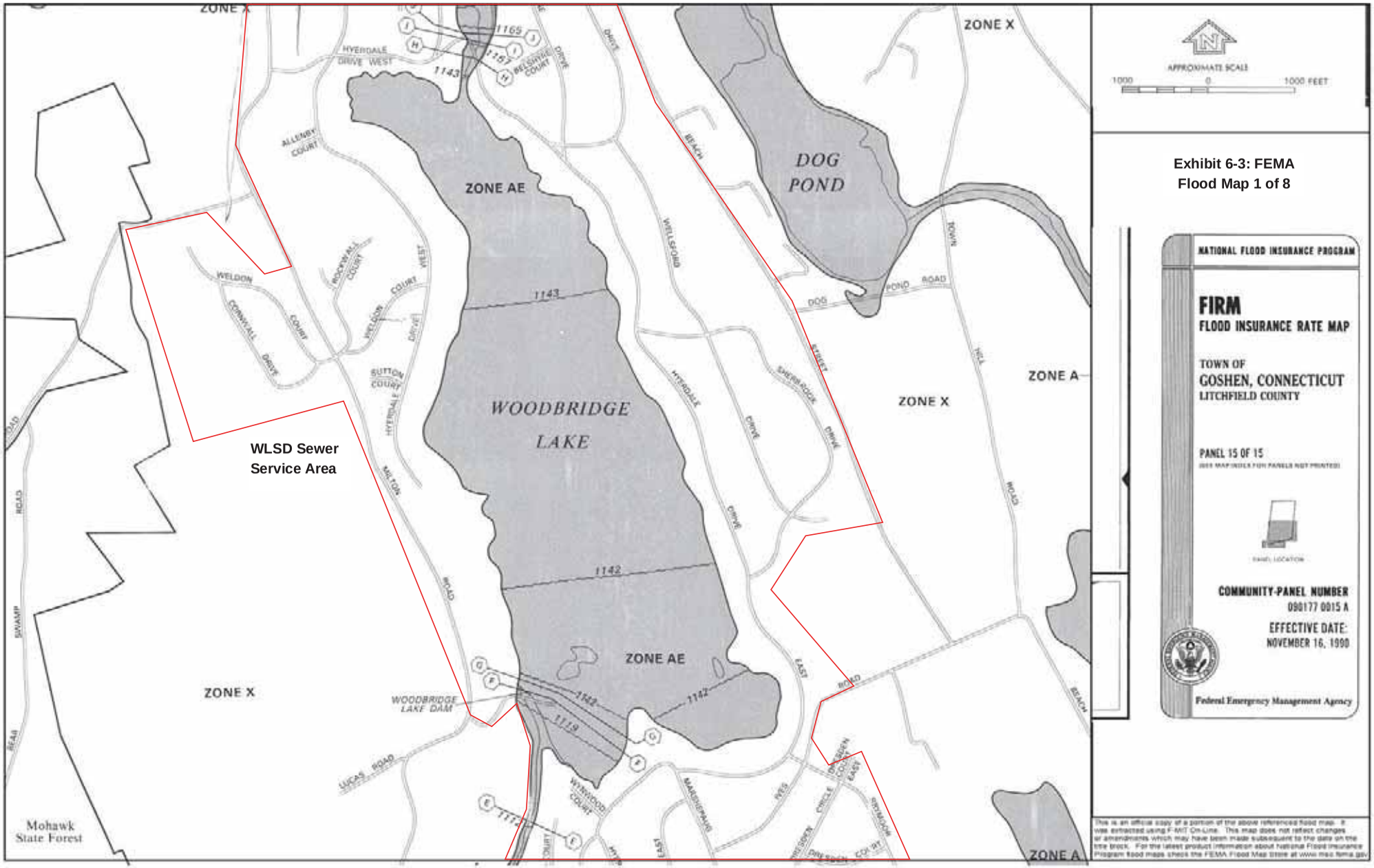
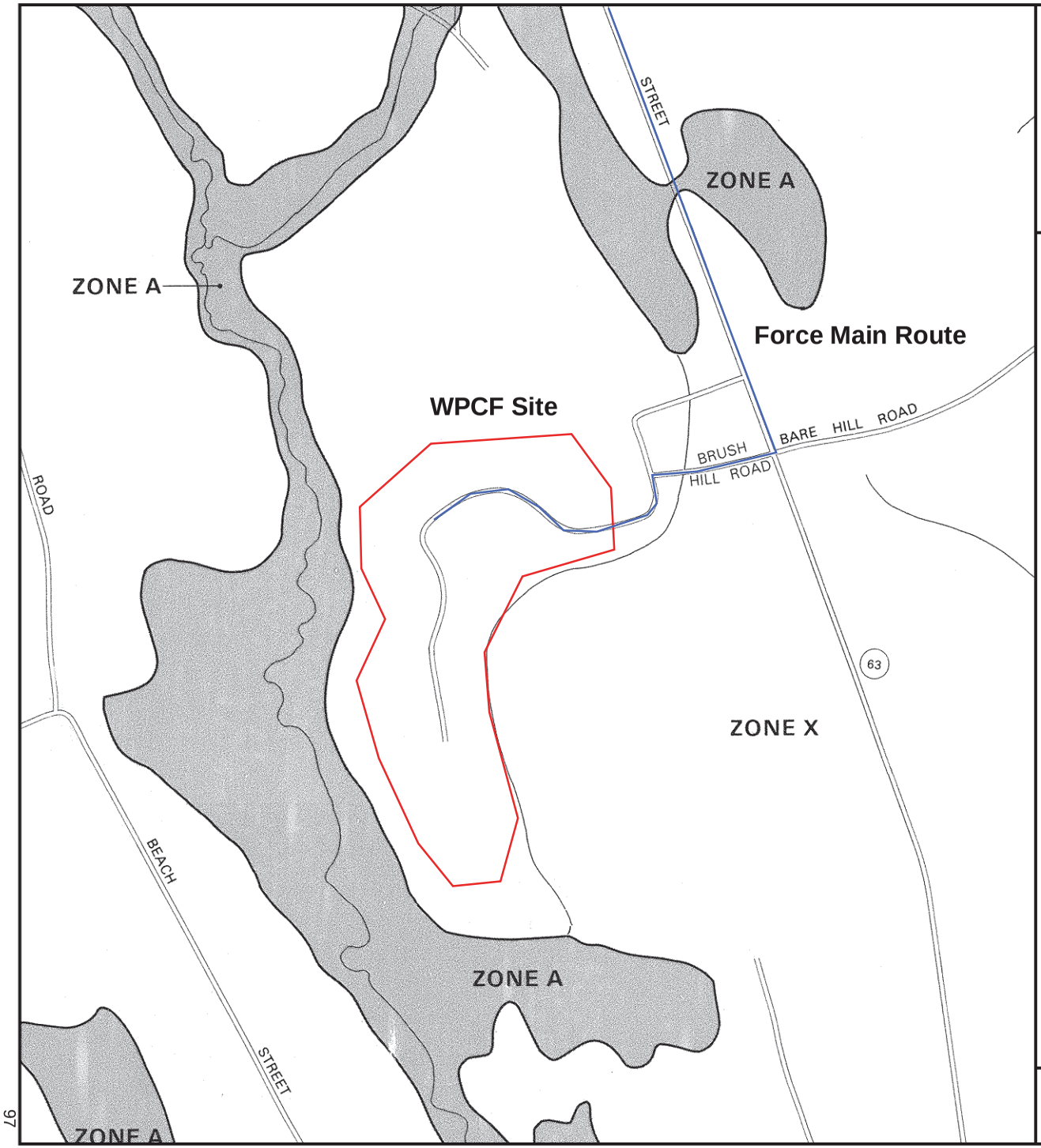


Exhibit 6-3: FEMA Flood Map 1 of 8



N

APPROXIMATE SCALE

1000 0 1000 FEET

Exhibit 6-3: FEMA Flood Map 2 of 8

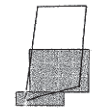
NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

TOWN OF
GOSHEN, CONNECTICUT
LITCHFIELD COUNTY

PANEL 15 OF 15
(SEE MAP INDEX FOR PANELS NOT PRINTED)



PANEL LOCATION

COMMUNITY-PANEL NUMBER
090177 0015 A

EFFECTIVE DATE:
NOVEMBER 16, 1990

Federal Emergency Management Agency

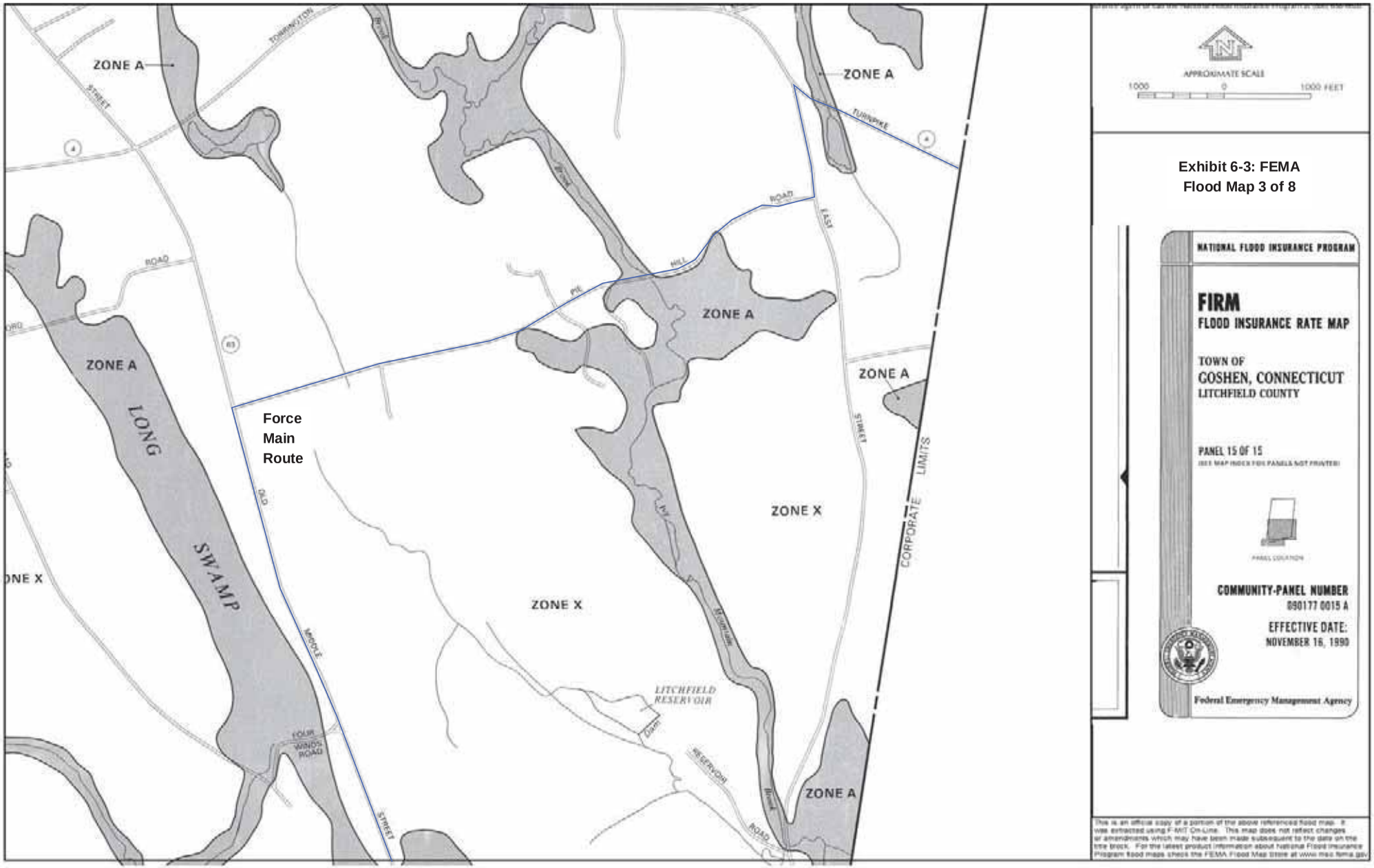
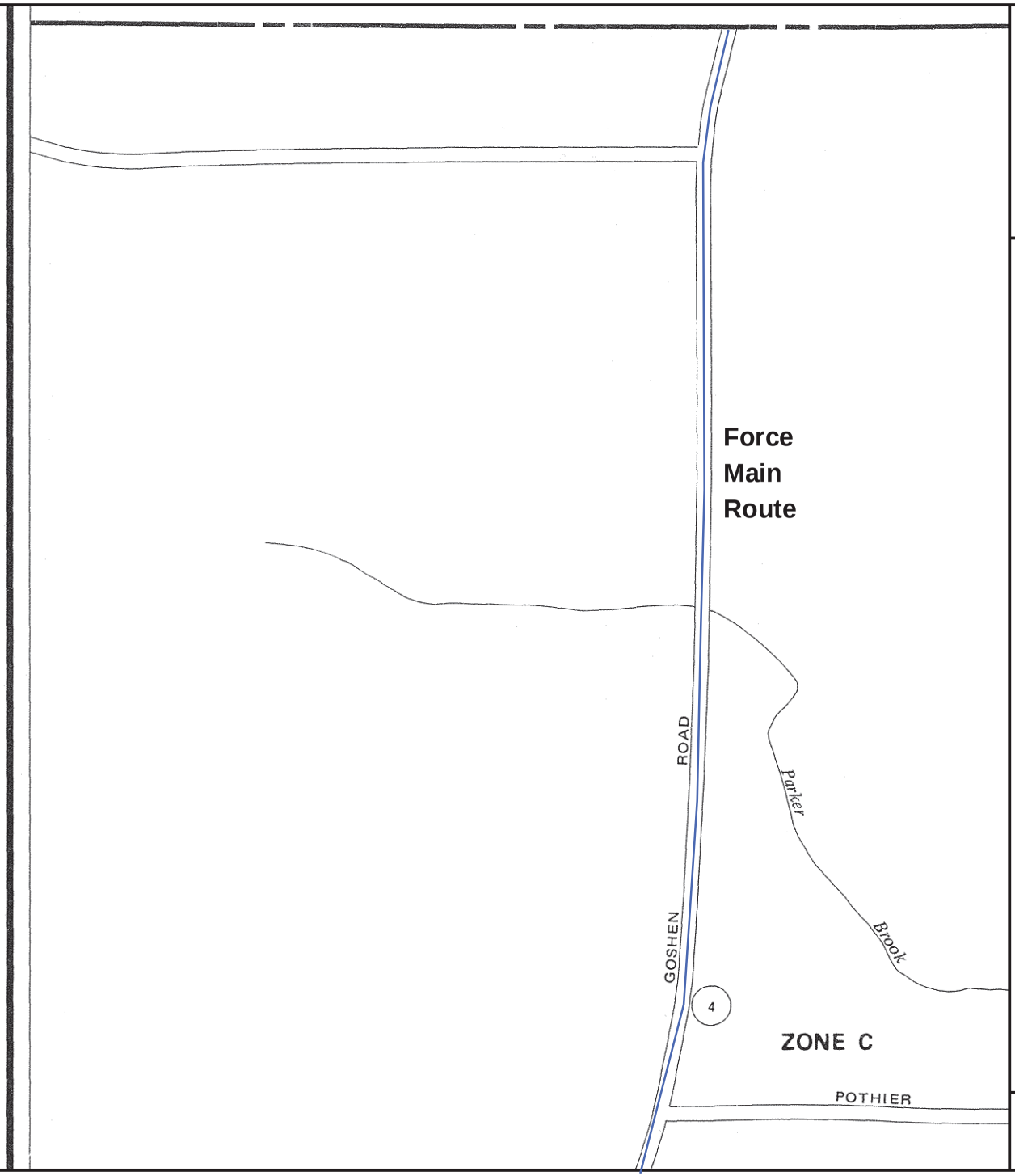


Exhibit 6-3: FEMA Flood Map 3 of 8



APPROXIMATE SCALE

400 0 400 FEET

Exhibit 6-3: FEMA Flood Map 4 of 8

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
TORRINGTON,
CONNECTICUT
LITCHFIELD COUNTY

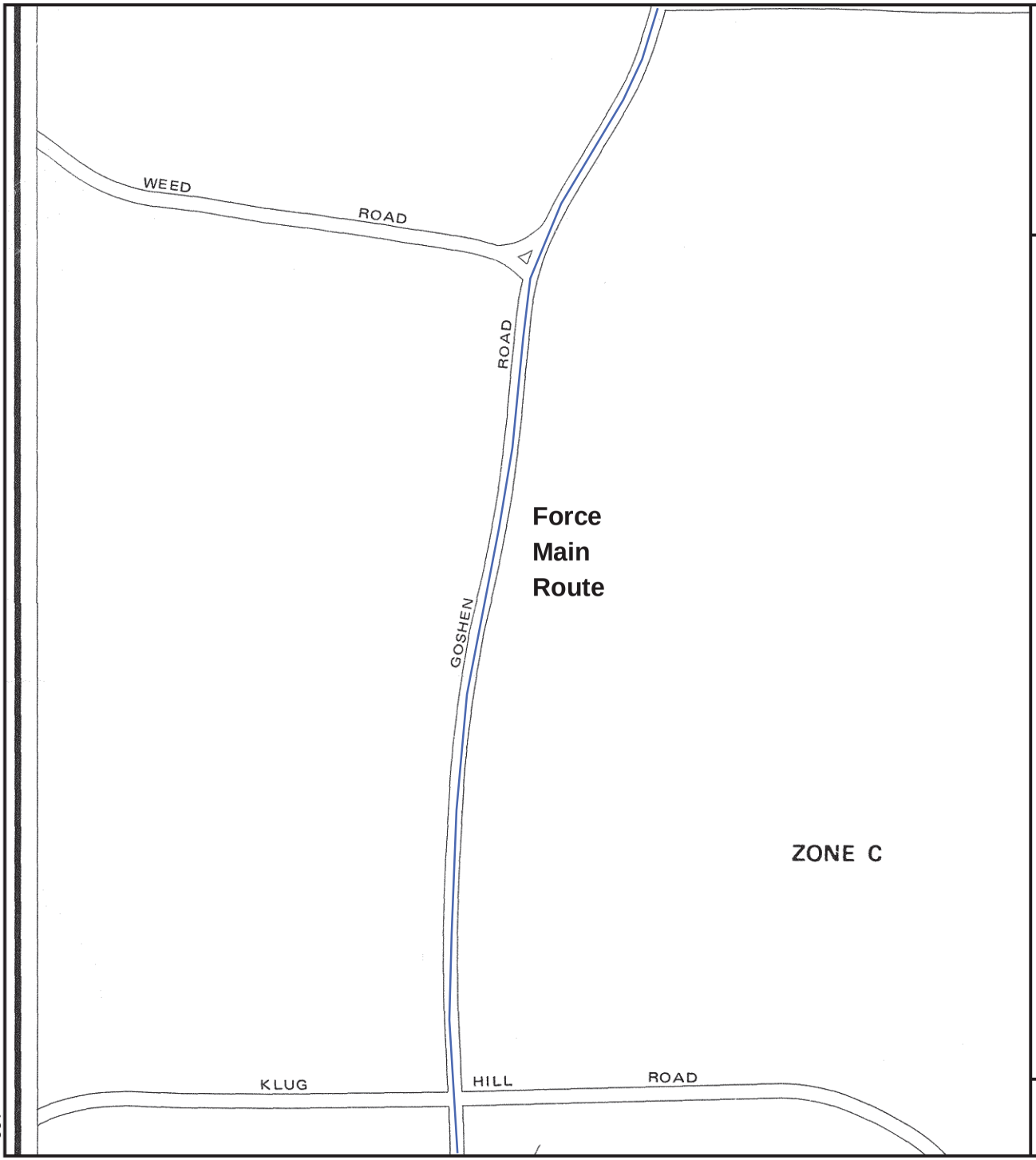
PANEL 2 OF 14
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
095081 0002 B

MAP REVISED:
APRIL 4, 1983

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



APPROXIMATE SCALE

400 0 400 FEET

Exhibit 6-3: FEMA Flood Map 5 of 8

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

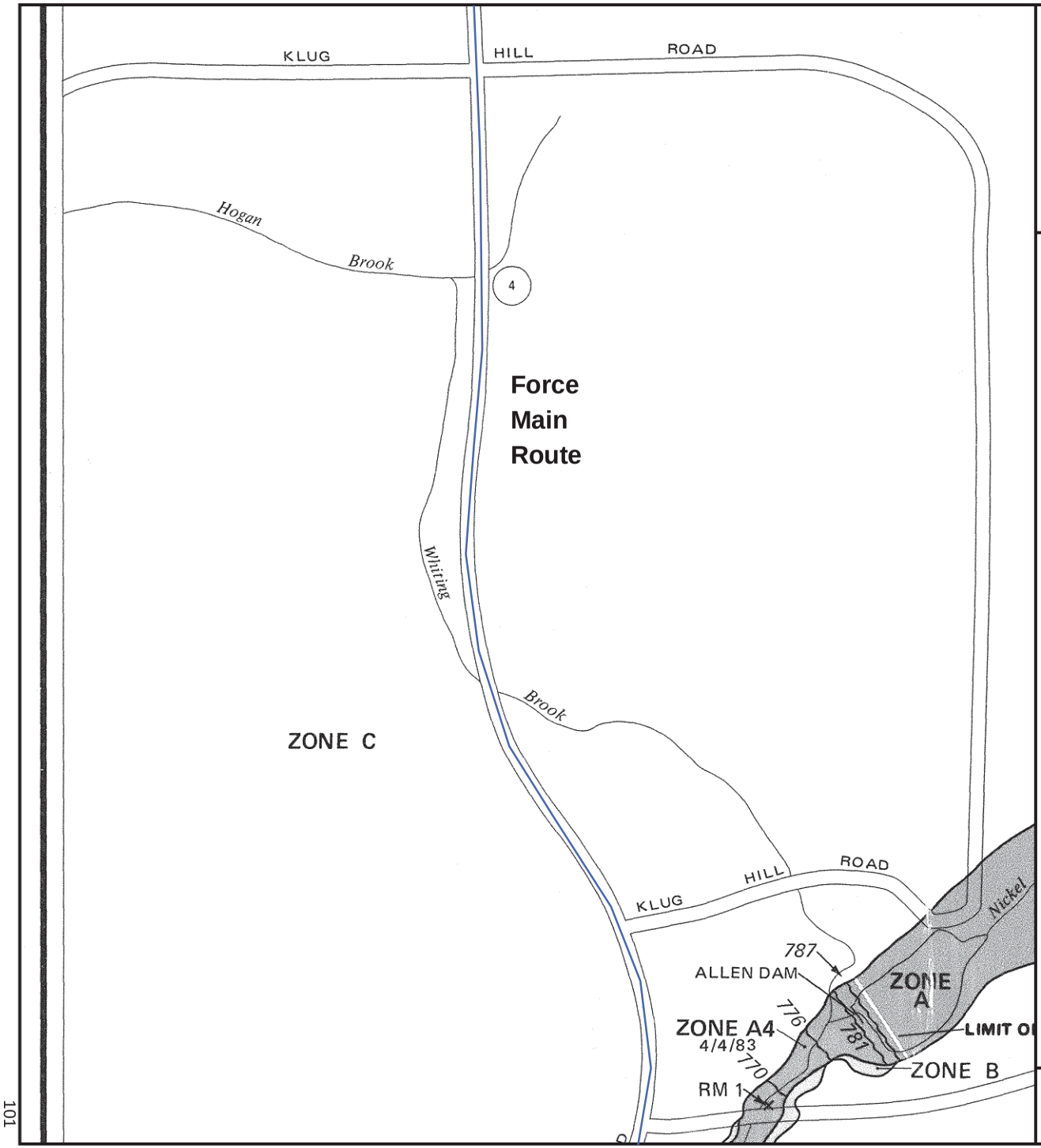
CITY OF
TORRINGTON,
CONNECTICUT
LITCHFIELD COUNTY

PANEL 2 OF 14
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
095081 0002 B

MAP REVISED:
APRIL 4, 1983

Federal Emergency Management Agency



APPROXIMATE SCALE

400 0 400 FEET

Exhibit 6-3: FEMA Flood Map 6 of 8

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
TORRINGTON,
CONNECTICUT
LITCHFIELD COUNTY

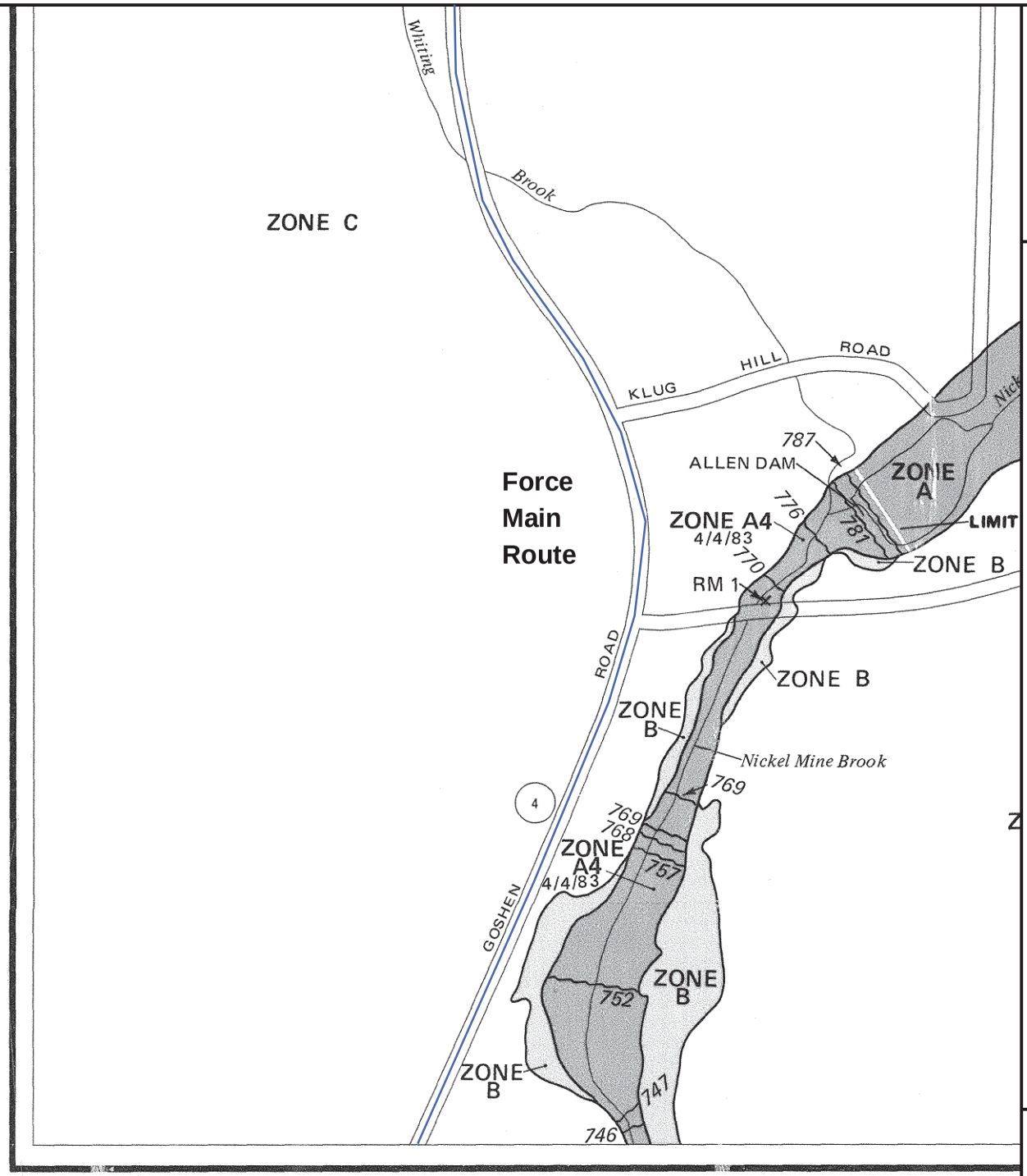
PANEL 2 OF 14
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
095081 0002 B

MAP REVISED:
APRIL 4, 1983

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



APPROXIMATE SCALE

400 0 400 FEET

Exhibit 6-3: FEMA Flood Map 7 of 8

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
TORRINGTON,
CONNECTICUT
LITCHFIELD COUNTY

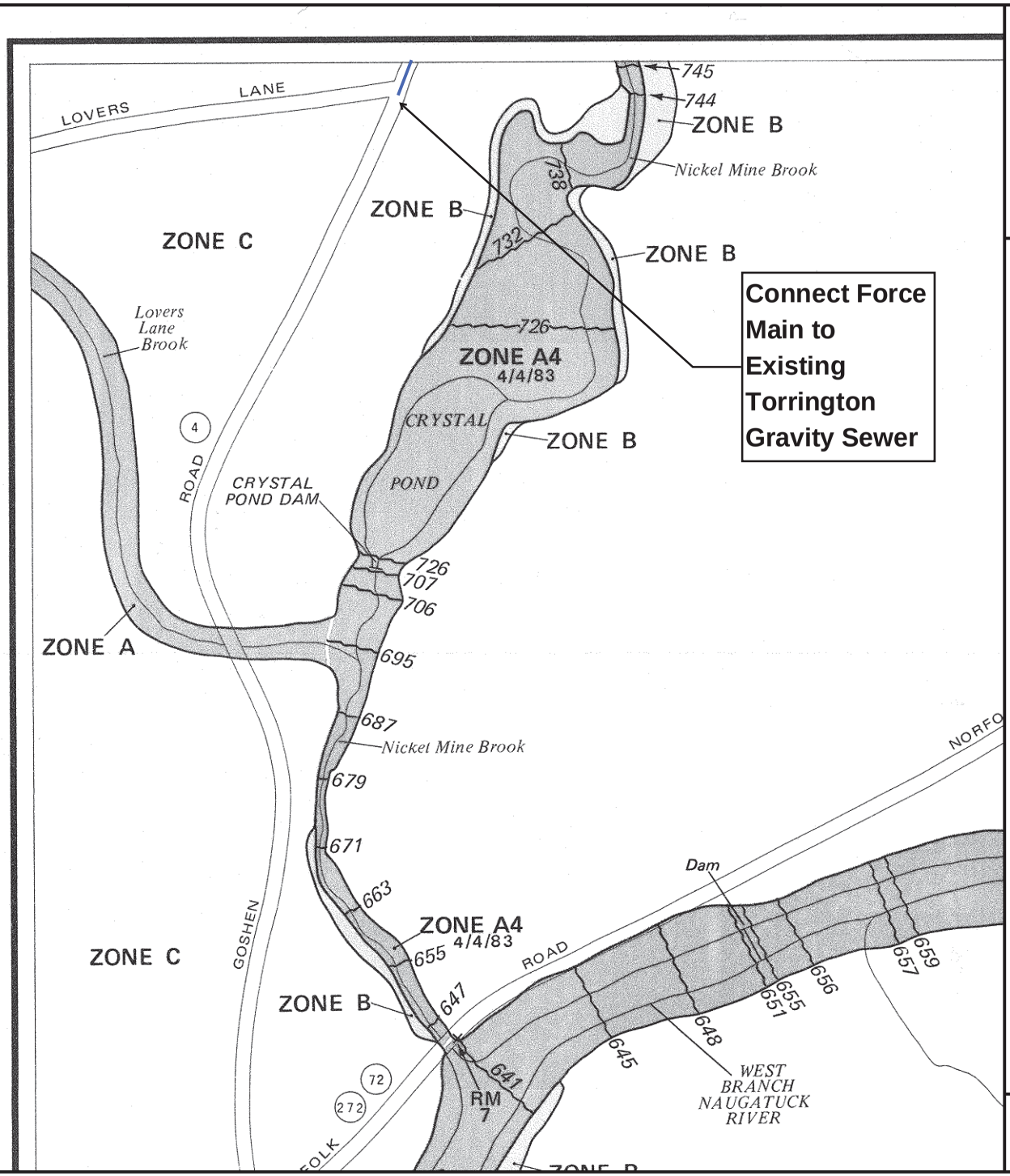
PANEL 2 OF 14
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
095081 0002 B

MAP REVISED:
APRIL 4, 1983

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



APPROXIMATE SCALE

400 0 400 FEET

Exhibit 6-3: FEMA Flood Map 8 of 8

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
TORRINGTON,
CONNECTICUT
LITCHFIELD COUNTY

PANEL 5 OF 14
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
095081 0005 B

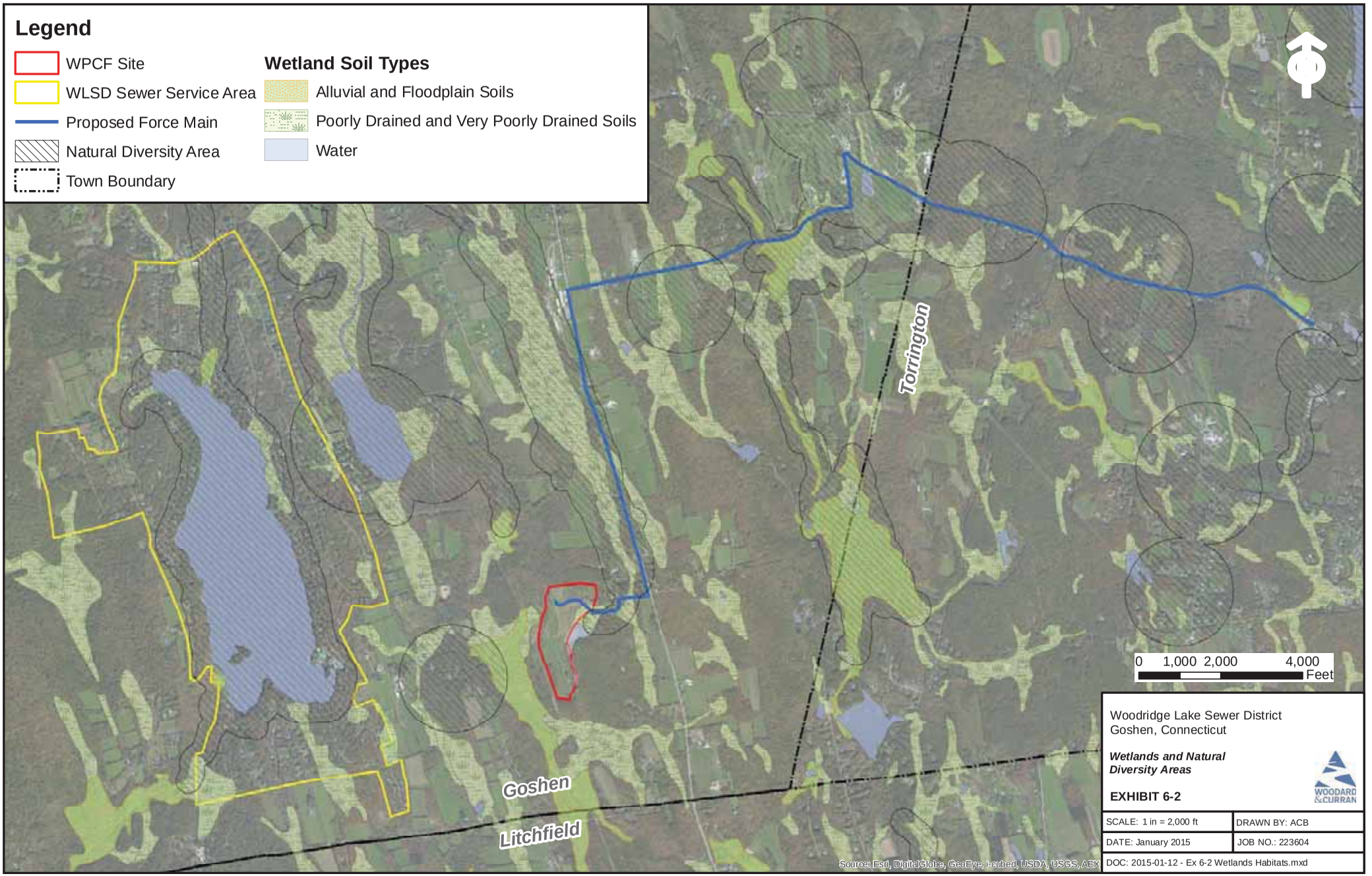
MAP REVISED:
APRIL 4, 1983

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

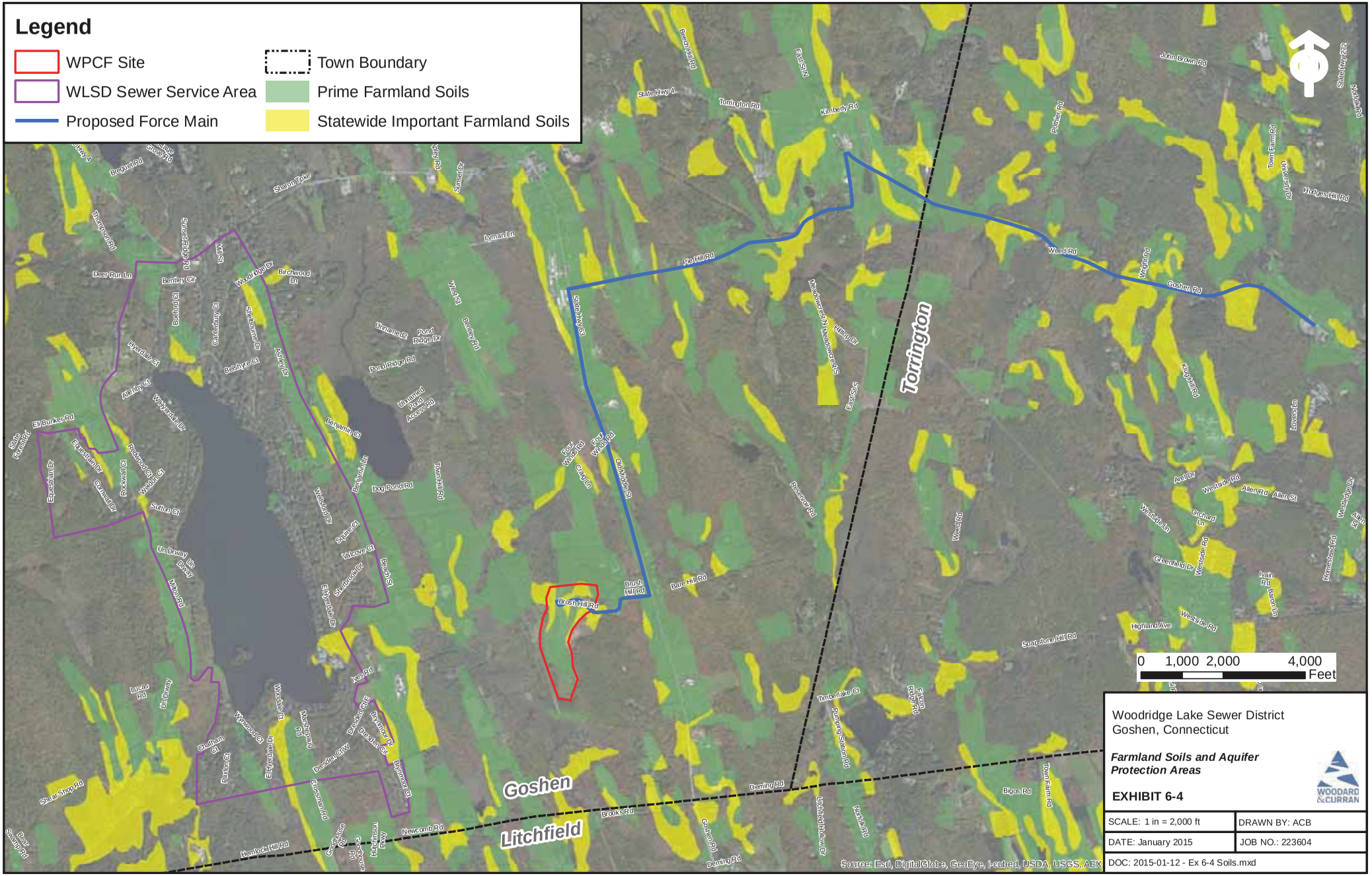
APPENDIX M

Soils Mapping Along Proposed Pipe Route


Legend
WPCF Site
WLSD Sewer Service Area
Proposed Force Main
Natural Diversity Area
Town Boundary
Wetland Soil Types
Alluvial and Floodplain Soils
Poorly Drained and Very Poorly Drained Soils
Water
Torrington
Goshen
Litchfield
0 1,000 2,000 4,000
Feet
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX
Woodridge Lake Sewer District
Goshen, Connecticut
Wetlands and Natural Diversity Areas
EXHIBIT 6-2
SCALE: 1 in = 2,000 ft
DRAWN BY: ACB
DATE: January 2015
JOB NO.: 223604
DOC: 2015-01-12 - Ex 6-2 Wetlands Habitats.mxd

APPENDIX N

Farmlands Along Proposed Pipe Route


Legend
WPCF Site
WLSD Sewer Service Area
Proposed Force Main
Town Boundary
Prime Farmland Soils
Statewide Important Farmland Soils
Torrington
Goshen
Litchfield
0 1,000 2,000 4,000 Feet
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX
Woodridge Lake Sewer District
Goshen, Connecticut
Farmland Soils and Aquifer Protection Areas
EXHIBIT 6-4
SCALE: 1 in = 2,000 ft
DRAWN BY: ACB
DATE: January 2015
JOB NO.: 223604
DOC: 2015-01-12 - Ex 6-4 Soils.mxd

APPENDIX O

Correspondence Regarding Endangered Species Along Pipe Route

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

January 22, 2016

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm (accessed January 2016)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Maria Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN CONNECTICUT

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
Fairfield	Piping Plover	Threatened	Coastal Beaches	Westport, Bridgeport and Stratford
	Roseate Tern	Endangered	Coastal beaches, Islands and the Atlantic Ocean	Westport and Stratford
	Bog Turtle	Threatened	Wetlands	Ridgefield and Danbury.
	Red knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Hartford	Dwarf wedgemussel	Endangered	Farmington and Podunk Rivers, Muddy Brook, Philo Brook, Stony Brook	South Windsor, East Granby, Suffield, Simsbury, Avon and Bloomfield.
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Litchfield	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Sharon.
	Bog Turtle	Threatened	Wetlands	Sharon and Salisbury.
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Middlesex	Roseate Tern	Endangered	Coastal beaches, islands and the Atlantic Ocean	Westbrook and New London.
	Piping Plover	Threatened	Coastal Beaches	Clinton, Westbrook, Old Saybrook.
	Puritan Tiger Beetle	Threatened	Sandy beaches along the Connecticut River	Cromwell, Portland
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
New Haven	Bog Turtle	Threatened	Wetlands	Southbury
	Piping Plover	Threatened	Coastal Beaches	Milford, Madison and West Haven
	Roseate Tern	Endangered	Coastal beaches, Islands and the Atlantic Ocean	Branford, Guilford and Madison
	Indiana Bat	Endangered	Mines, Caves	
	Red knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

Updated 02/05/2016

COUNTY	SPECIES	FEDERAL STATUS	GENERAL LOCATION/HABITAT	TOWNS
New London	Piping Plover	Threatened	Coastal Beaches	Old Lyme, Waterford, Groton and Stonington.
	Roseate Tern	Endangered	Coastal beaches, Islands and the Atlantic Ocean	East Lyme and Waterford.
	Small whorled Pogonia	Threatened	Forests with somewhat poorly drained soils and/or a seasonally high water table	Waterford
	Red knot[1]	Threatened	Coastal Beaches and Rocky Shores, sand and mud flats	Coastal towns
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Tolland	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide
Windham	Sandplain Gerardia	Endangered	Dry, sandy-loam, nutrient-poor soils of sandplain grasslands	Plainfield
	Northern Long-eared Bat	Threatened Final 4(d) Rule	Winter- mines and caves, Summer – wide variety of forested habitats	Statewide

[1]Migratory only, scattered along the coast in small numbers

- Eastern cougar, gray wolf, Indiana bat, Seabeach amaranth and American burying beetle are considered extirpated in Connecticut.
- There is no federally-designated Critical Habitat in Connecticut.

APPENDIX P

Correspondence Regarding Historical and Archaeological Sites

USDA
United States Department of Agriculture

9 February 2016
(LSC/16-002)

Ms. Catherine Labadia
Deputy State Historic Preservation Officer
Connecticut Department of Economic & Community Development
One Constitution Plaza, 2nd Floor
Hartford, CT 06103

RE: Woodridge Lake Sewer District, Sewer Extension Project
Various Streets, Goshen & Torrington, CT

Dear Ms. Labadia:

USDA Rural Development is considering providing financial assistance to the Woodridge Lake Sewer District (the "Applicant") for the installation of approximately 34,000 lf of sewer force main piping and two (2) sewer pump stations along various streets in Goshen and Torrington. The project will essentially disconnect the Applicant's sewer collection system from their existing, outdated waste water treatment plant and associated leaching beds and connect it to Torrington's existing collection system and treatment plant. The sewer force main piping is planned to be installed within existing, previously disturbed right-of-ways of various streets in Goshen and Torrington, including Brush Hill Road, Old Middle Street, Pie Hill Road, East Street South, and Goshen Road. The force main will begin at the Applicant's waste water treatment plant off of Brush Hill Road in Goshen and will terminate at the intersection of Goshen and Norfolk Roads in Torrington. Following the completion of the project, the Applicant's waste water treatment plant and associated leaching beds will be decommissioned. Two (2) sewer pump stations will be required; one installed at the existing waste water treatment plant and the other installed along Pie Hill Road. The project will also involve pavement repair. An aerial photograph and preliminary engineered site plans have been attached. The proposed project is eligible for financial assistance under Rural Development's Water and Waste Water Loan and Grant Program. Rural Development has determined the Applicant's proposal meets the definition of an undertaking per 36 CFR Part 800.16(y) and therefore is subject to Section 106 review in accordance with the National Historic Preservation Act of 1966, as amended.

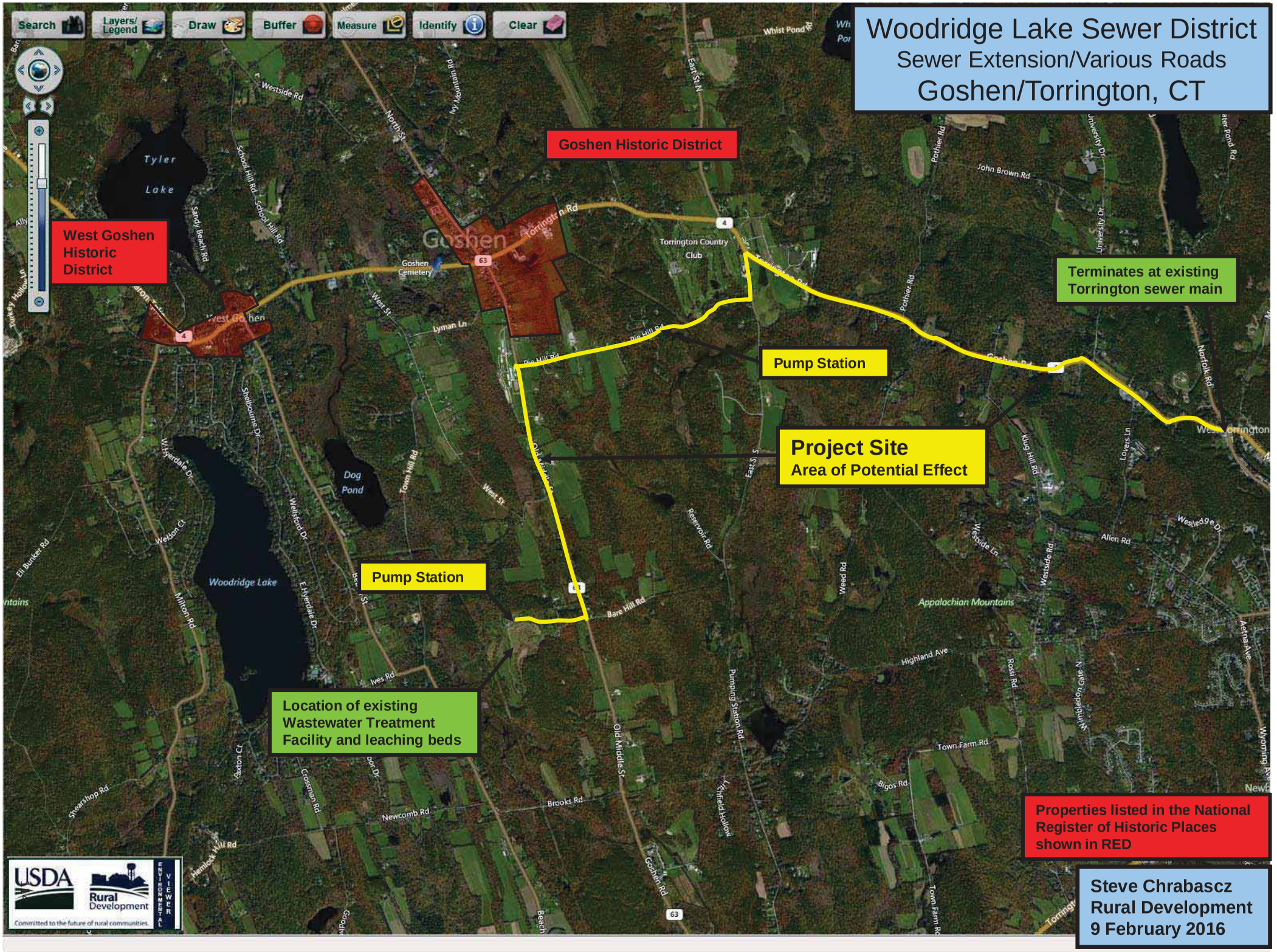
We have identified an Area of Potential Effect (APE) as to be limited to the areas within the existing roadway right-of-ways; see attached maps. In accordance with 36 CFR Part 800.3(f), we have not identified any other consulting parties.

Rural Development has checked the National Register of Historic Places and has identified several listed properties and historic districts in Goshen and Torrington, all located outside the established APE. Based on the information gathered, we have made a determination that there are no historic properties affected by our proposed project pursuant to 36 CFR Part 800.4(d)(1) and seek your concurrence pursuant to 36 CFR 800.4(d)(1)(i). An expedited review is requested and appreciated. If you have any questions or require additional information, please contact me at 413-253-4334.

Respectfully,

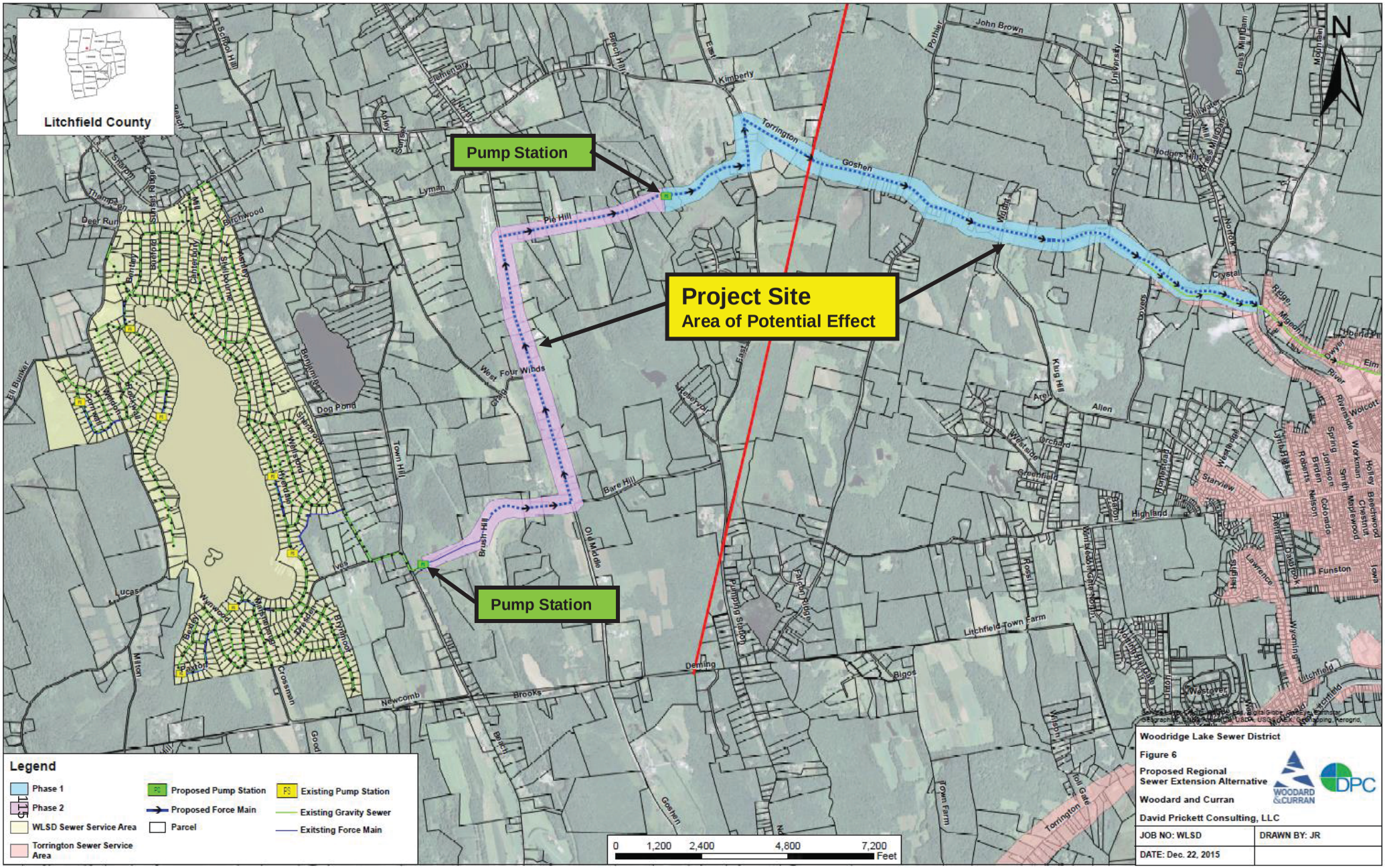
Steven Chrabascz
State Environmental Coordinator

Rural Development • Amherst State Office
451 West Street, Suite 2 • Amherst MA 01002
Voice (413) 253-4302 • Fax (855) 596-7673
TDD (413)253-4590


Search
Layers/ Legend
Draw
Buffer
Measure
Identify
Clear
Woodridge Lake Sewer District
Sewer Extension/Various Roads
Goshen/Torrington, CT
Goshen Historic District
West Goshen Historic District
Terminates at existing Torrington sewer main
Pump Station
Project Site
Area of Potential Effect
Pump Station
Location of existing Wastewater Treatment Facility and leaching beds
Properties listed in the National Register of Historic Places shown in RED
Steve Chrabascz
Rural Development
9 February 2016
Tyler Lake
Dog Pond
Woodridge Lake
Goshen
West Goshen
Torrington Country Club
Goshen Cemetery
Appalachian Mountains
Westside Rd
North St
School Hill Rd
Sandy Beach Rd
Torrington Rd
West St
Lyman Ln
Pine Hill Rd
Pothier Rd
John Brown Rd
Norfolk Rd
Old Middle St
Town Hill Rd
Shelbourne Dr
Wellford Dr
Milton Rd
Bare Hill Rd
Reservoir Rd
Weed Rd
Allen Rd
Highland Ave
Town Farm Rd
Brooks Rd
Newcomb Rd
Goshen Rd
Ives Rd
Shearshop Rd
Hemlock Hill Rd
Pumping Station Rd
Rossi Rd
Aetna Ave
Wyoming Ave
USDA
Rural Development
Committed to the future of rural communities.
ENVIRONMENTAL VIEWER

Steve Chrabascz
Rural Development
9 February 2016

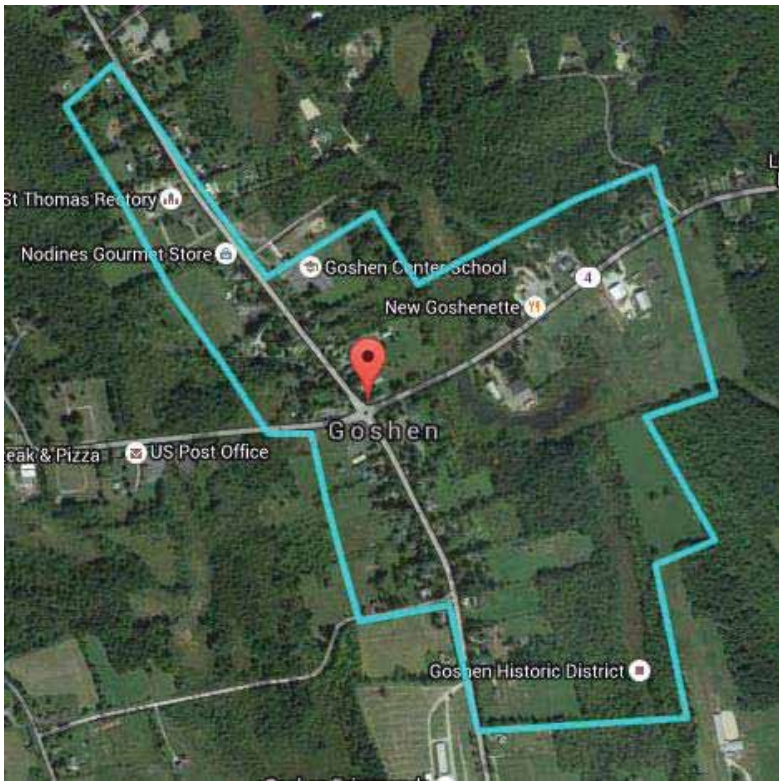
Woodridge Lake Sewer District
Sewer Extension/Various Roads
Goshen/Torrington, CT



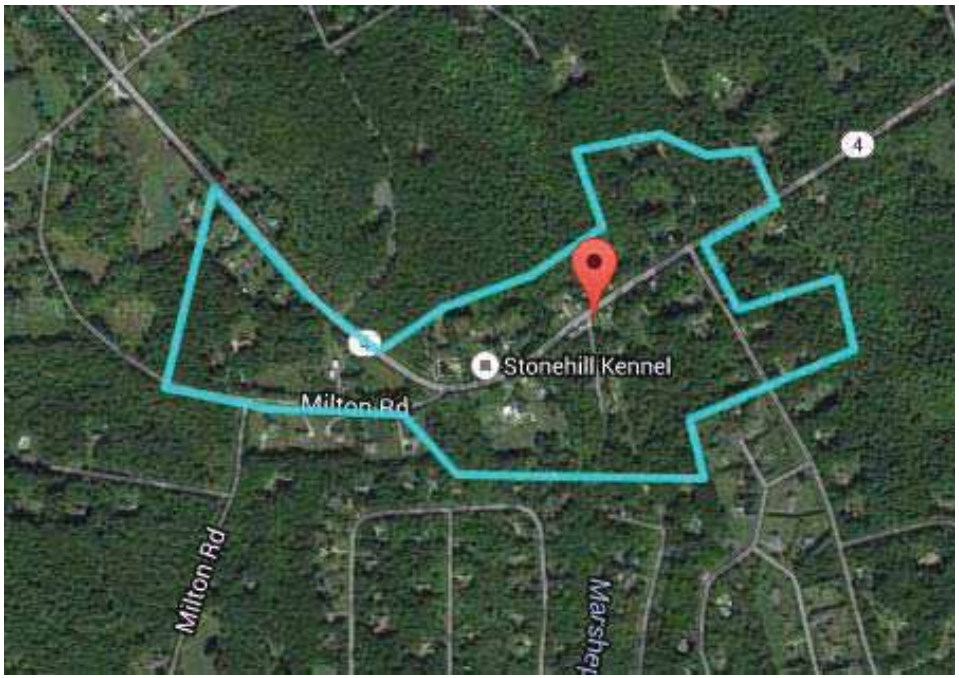
Woodridge Lake Sewer District
Sewer Extension/Various Roads
Goshen/Torrington, CT

National Register of Historic Places

754	93001362	CONNECTICUT	Litchfield	Goshen	Brooks, Hervey, Pottery Shop and Kiln Site	Address Restricted	19931210	SITE
755	82000996	CONNECTICUT	Litchfield	Goshen	Goshen Historic District	CT 63 and 4, and Gifford Rd.	19821227	DISTRICT
756	87000982	CONNECTICUT	Litchfield	Goshen	West Goshen Historic District	Roughly bounded by CT 4, Beach, Mill and Milton Sts., and Thompson Rd.	19871023	DISTRICT
849	82004480	CONNECTICUT	Litchfield	Torrington	Alldis, James, House	355 Prospect St.		
850	88002978	CONNECTICUT	Litchfield	Torrington	Downtown Torrington Historic District	Roughly bounded by Church and Alvord Sts., Center Cemetery, Willow St., E. Main St., Litchfield St., ar		
851	87000129	CONNECTICUT	Litchfield	Torrington	Fyler--Hotchkiss Estate	192 Main St.		
852	77001403	CONNECTICUT	Litchfield	Torrington	Gillette's Grist Mill	E of Torrington on Maple Hollow Rd.		
853	02000913	CONNECTICUT	Litchfield	Torrington	Migeon Avenue Historic District	Roughly along Migeon Ave. and parts of Forest St.		
854	86001736	CONNECTICUT	Litchfield	Torrington	Paugnut Forest Administration Building	385 Burr Mountain Rd.		
855	02000912	CONNECTICUT	Litchfield	Torrington	Skee's Diner	589 Main St.		
856	86000522	CONNECTICUT	Litchfield	Torrington	South School	362 S. Main St.		
857	91000991	CONNECTICUT	Litchfield	Torrington	Torringford Street Historic District	Torringford St. from Main St. N to W. Hill Rd.		
858	87002185	CONNECTICUT	Litchfield	Torrington	Torrington Fire Department Headquarters	117 Water St.		
859	91000349	CONNECTICUT	Litchfield	Torrington	Villa Friuli	58 High St.		
860	84001098	CONNECTICUT	Litchfield	Torrington	Warner Theatre	68-82 Main St.		
861	87000115	CONNECTICUT	Litchfield	Torrington	Warrenton Woolen Mill	839 Main St.		



Goshen Historic District



West Goshen Historic District

Steve Chrabascz
Rural Development
9 February 2016

APPENDIX Q

Project Schedule for Implementation Plan

Opinion of Project Schedule
Regional Sewer Connection Project
Woodridge Lake Sewer District
Updated on May 9, 2016

Phase & Tasks	Estimated Start Date	Estimated Completion Date	Estimated Duration (days)	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17
Planning	**10/01/15**	**07/31/16**	**304**																								
Inter-Municipal Agreement	10/01/15	07/31/16	304																								
USDA-RD Funding Applications	12/01/15	03/31/16	121																								
USDA-RD Funding Commitment	03/01/16	03/31/16	30																								
CT-DEEP Planning Document	02/01/16	04/30/16	89																								
CT-DEEP Approval	05/01/16	06/30/16	60																								
Informational Meeting with Residents	04/01/16	05/31/16	60																								
Vote/Appropriation	04/01/16	05/31/16	60																								
Preliminary Design	**07/01/15**	**04/30/16**	**304**																								
15% Design - Borings	07/01/15	08/30/15	60																								
15% Design - Updated Cost Estimates	09/01/15	10/31/15	60																								
15% Design - Aerial Mapping	11/01/15	01/31/16	91																								
15% Design - Preliminary Property Surveys	11/01/15	01/01/16	61																								
15% Design - Torrington P&Z (Phase 1)	12/01/15	01/31/16	61																								
15% Design - Goshen P&Z (Phase 1)	12/01/15	01/31/16	61																								
30% Design - Preliminary Force Main Plans	02/01/16	03/31/16	59																								
30% Design - Pump Station Hydraulics	04/01/16	04/30/16	29																								
30% Design - Basis of Design Memo	03/01/16	04/30/16	60																								
30% Design - Meetings	02/01/16	04/30/16	89																								
Final Design	**03/01/16**	**08/31/16**	**183**																								
60% Design - Supplemental Survey	04/01/16	05/31/16	60																								
60% Design - Wetlands Mapping	04/01/16	05/31/16	60																								
60% Design - Borings & Geotechnical Rpt.	04/01/16	05/31/16	60																								
60% Design - Updated FM Plans	03/01/16	05/31/16	91																								
60% Design - Preliminary PS Drawings	04/01/16	05/31/16	60																								
60% Design - Meetings	04/01/16	06/30/16	90																								
60% Design - Permitting	05/01/16	06/30/16	60																								
90% Design - Detailed PS Design	06/01/16	06/30/16	29																								
90% Design - Final Force Main Plans	06/01/16	06/30/16	29																								
90% Design - Updated PS Plans	06/01/16	06/30/16	29																								
90% Design - Draft Bidding Docs.	05/01/16	06/30/16	60																								
90% Design - Permitting	06/01/16	07/31/16	60																								
90% Design - Meetings	05/01/16	06/30/16	60																								
100% Design - Final PS Plans	07/01/16	07/31/16	30																								
100% Design - Final Bidding Docs.	08/01/16	08/31/16	30																								
100% Design - Meetings	07/01/16	08/31/16	61																								
Bidding & Construction	**08/01/16**	**09/30/18**	**790**																								
Contract 1 Bidding	08/01/16	09/30/16	60																								
Contract 1 Construction	12/01/16	02/28/18	454																								
Contract 1 Closeout	03/01/18	05/31/18	91																								
Contract 2 Bidding	01/01/17	02/28/17	58																								
Contract 2 Construction	04/01/17	06/30/18	455																								
Contract 2 Closeout	07/01/18	09/30/18	91																								

Opinion of Project Schedule
Regional Sewer Connection Project
Woodridge Lake Sewer District
Updated on May 9, 2016

Phase & Tasks	Estimated Start Date	Estimated Completion Date	Estimated Duration (days)	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19
Planning	**10/01/15**	**07/31/16**	**304**																								
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15% Design - Goshen P&Z (Phase 1)	12/01/15	01/31/16	61																								
30% Design - Preliminary Force Main Plans	02/01/16	03/31/16	59																								
30% Design - Pump Station Hydraulics	04/01/16	04/30/16	29																								
30% Design - Basis of Design Memo	03/01/16	04/30/16	60																								
30% Design - Meetings	02/01/16	04/30/16	89																								
Final Design	**03/01/16**	**08/31/16**	**183**																								
60% Design - Supplemental Survey	04/01/16	05/31/16	60																								
60% Design - Wetlands Mapping	04/01/16	05/31/16	60																								
60% Design - Borings & Geotechnical Rpt.	04/01/16	05/31/16	60																								
60% Design - Updated FM Plans	03/01/16	05/31/16	91																								
60% Design - Preliminary PS Drawings	04/01/16	05/31/16	60																								
60% Design - Meetings	04/01/16	06/30/16	90																								
60% Design - Permitting	05/01/16	06/30/16	60																								
90% Design - Detailed PS Design	06/01/16	06/30/16	29																								
90% Design - Final Force Main Plans	06/01/16	06/30/16	29																								
90% Design - Updated PS Plans	06/01/16	06/30/16	29																								
90% Design - Draft Bidding Docs.	05/01/16	06/30/16	60																								
90% Design - Permitting	06/01/16	07/31/16	60																								
90% Design - Meetings	05/01/16	06/30/16	60																								
100% Design - Final PS Plans	07/01/16	07/31/16	30																								
100% Design - Final Bidding Docs.	08/01/16	08/31/16	30																								
100% Design - Meetings	07/01/16	08/31/16	61																								
Bidding & Construction	**08/01/16**	**09/30/18**	**790**																								
Contract 1 Bidding	08/01/16	09/30/16	60																								
Contract 1 Construction	12/01/16	02/28/18	454																								
Contract 1 Closeout	03/01/18	05/31/18	91																								
Contract 2 Bidding	01/01/17	02/28/17	58																								
Contract 2 Construction	04/01/17	06/30/18	455																								
Contract 2 Closeout	07/01/18	09/30/18	91																								