

Town of Grafton
Wastewater Treatment Facility

PAUL F. COURNOYER
Superintendent of Sewers

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**PLANNING BOARD
GRAFTON, MA**

January 10, 2017

Grafton Planning Board
30 Providence Road
Grafton, MA.01519

Subject: Village at Institute Road

Dear Board Members:

The Grafton Board of Sewer Commissioners (BOSC) respectfully submits the following information with regard to the proposed sewer infrastructure required for the development of the Village at Institute Road subdivision.

A Comprehensive Wastewater Management Plan (CWMP) was required as part of the process for the town to secure State Revolving Fund (SRF) financing for the treatment plant upgrades. This plan was completed and its recommendations adopted by the BOSC at their meeting held on November 2, 2015. The purpose of the CWMP was to evaluate existing conditions, project likely future conditions, and choose the best alternative for the long term expansion and reliability of the wastewater collection and treatment system.

The CWMP broke the town up into several sub-areas that are the most likely to require sewer service in the next twenty years. The Village at Institute Road subdivision falls into sub-area 10. The CWMP recommends one (1) pump station for the entire sub-area. Attached is the description and location of sub-area 10 as described in the CWMP.

With these thoughts in mind, the BOSC requests that the developers of the proposed Village at Institute Road subdivision adjust their design to allow the future flow of wastewater by gravity from the area of 136 Westboro Road west to the proposed sewer pump station. This redesign will also follow the sewer department pump station standards minimizing the need for sewer pump stations.

If you require further information or clarification please contact Paul Cournoyer

Sincerely,



Paul F. Cournoyer
Superintendent of Sewers

If sewer is installed in this subarea, it will likely be able to flow by completely by gravity to the existing system adjacent to this subarea on Wesson Street at Magnolia Lane.

Subarea 9 - Old Westboro Road

This subarea encompasses Old Westboro Road from subarea 8 to the eastern border of the Town. It is bordered by the Town of Upton to the east and north, the Mass Pike to the south, and subarea 8 to the west. This is a densely populated subarea with about 200 existing houses. Each parcel averages about one acre. Several parcels in various subdivisions have not yet been built on. There are several large developable parcels that may have potential for housing developments in the future. However, some of these areas are not favorable for septic systems based on soil limitations and wetlands.

All flow within this subarea would likely be directed to a common pump station at the low point in Old Westboro Road near Glen Street. It would then be pumped up to the high point at the intersection of Old Westboro Road and Wesson Street where it would transition to a gravity system and flow west on Wesson Street until it reaches existing sewer. Note that for this subarea to receive sewer, a portion (Wesson St) of subarea 8 would also have to receive sewer infrastructure.

Subarea 10 – Millenium Drive Area

This subarea is located on the north side of town and is bisected by Westboro Road. This is an area of anticipated industrial/commercial growth over the next several years. Currently there exists a few developments but most parcels have not been built on yet. There are several small wetlands in this subarea and the western portion is located within a water supply protection area. Subarea 10a encompasses a portion of subarea 10 located within undeveloped Town owned land.

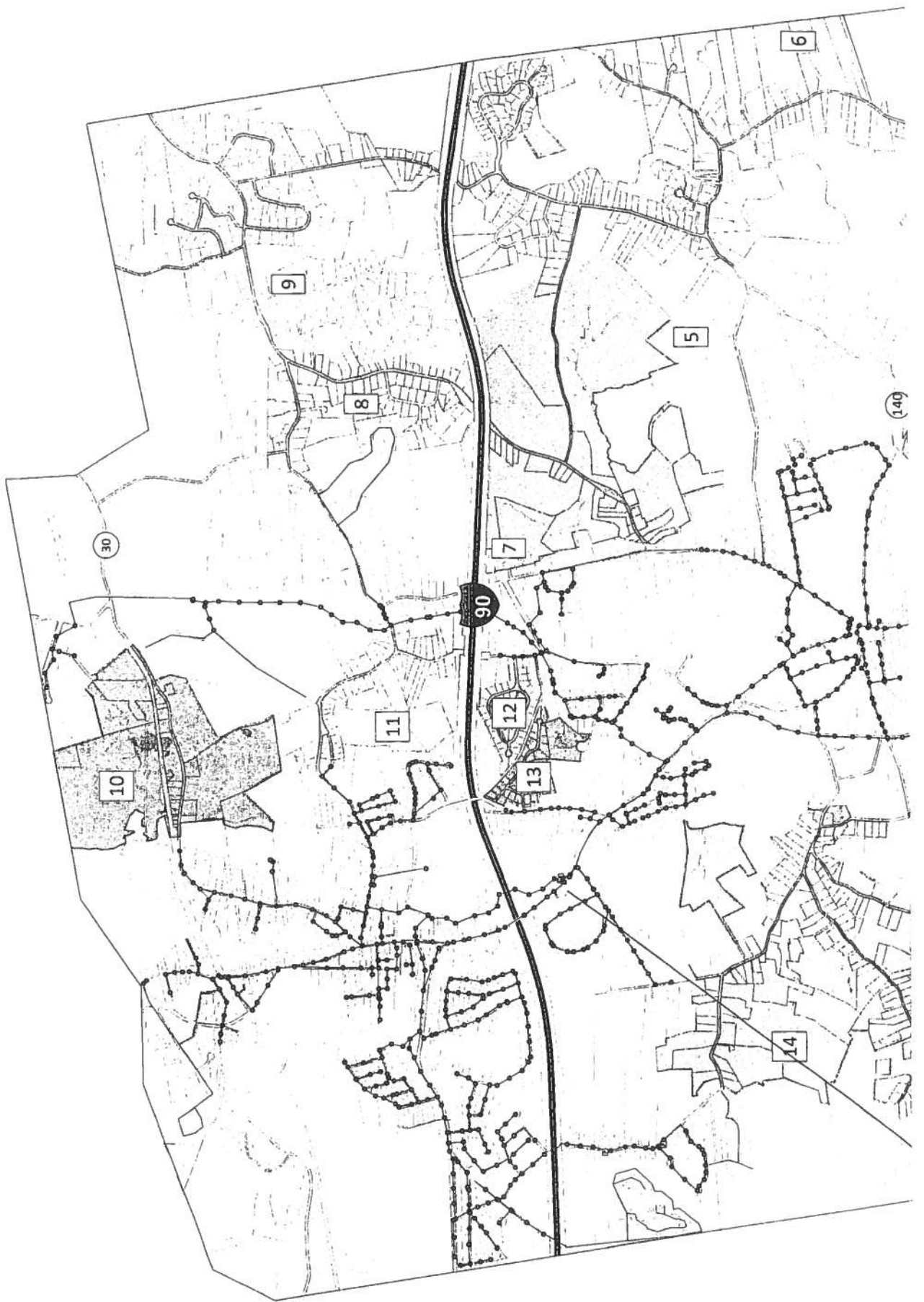
Depending on the depth of the existing sewer on Westboro Road west of this subarea, the sewer from this subarea may be able to flow entirely by gravity. However, as a precaution, it was assumed that a pump station will be required in this area. Also, an easement will have to be granted to cross the railroad with sewer.

Subarea 11 – East Street Area

This subarea encompasses a portion of East Street east to Wesson Road, and also Indian Path Road south to the Mass Pike. It is bordered by the Axtell Brook sewer trunk line to the east, subarea 16 to the north, and the Mass Pike to the south. Parcels in this subarea average about 0.75 to 1 acre each. This subarea is located partially in a water supply protection area. Subarea 11a within subarea 11 encompasses a large portion of Town owned land yet to be developed.

This subarea is bordered by sewer on both sides. A portion of sewer would be directed to the existing East Street sewer and the rest would be directed to the Axtell Brook Sewer. The entire subarea would likely be able to flow completely by gravity. There are one or two parcels that can potentially be subdivided in this subarea. However, any houses developed on these parcels would likely either need grinder stations, a common pump station, or gravity flow through a cross country easement to tie into potential sewer that would be installed in this subarea.

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Town of Grafton
Board of Sewer Commissioners

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SEWER USE ORDINANCE

ARTICLE III
BUILDING SEWERS AND CONNECTIONS

Any owner of a house, building or other structure used for human habitation, occupancy, employment or recreation shall install sanitary facilities thereon and may connect at his own expense to a public sanitary sewer of the Town based on the following sections.

Comprehensive Wastewater Management Plan

The Town of Grafton completed a Comprehensive Wastewater Management Plan (CWMP) in 2015 that outlines the existing and future wastewater needs of the Town.

The 2015 CWMP includes a plan entitled: Figure 4-4 2038 Wastewater Flow Areas that identifies three (3) Study Areas and accompanying subareas. This plan is made part of the Town of Grafton's Sewer Use Ordinance.

In addition, the CWMP evaluates and assesses Subareas within the study area with existing environmental issues that may require replacement of onsite sewers with connection to the Town's existing Sewer Service Area (SSA). The subareas potential flows, along with previously identified and Board of Sewer Commissioners approved allocations have been added to the existing Study Areas A, B and C, and are illustrated in Table 1.

Table 1 – Wastewater Flow Allocations for Study Areas in the Town of Grafton

Study Area	Study Area Name	Flow Allocation (gallons per day)
A	Worcester Street Pump Station	700,000
B	Arcadia Street Pump Station	1,500,000
C	Providence Road Pump Station	200,000
	Total Reserved Flow	2,400,000

Within the CWMP, Table 4-7 and Table 9-9 outline the specific subareas areas with allotted flows for future area growth and potential sewer system expansion within each of the three (3) Study Areas. In accordance with the findings of the 2015 CWMP, the permitted flow capacity of the Grafton WWTP is sufficient to serve the wastewater needs of the Town for the 20 year planning period.

Smart Growth Controls

The aforementioned wastewater flow allocations have been reserved to the named study areas, as outlined in the final approved 2015 CWMP. In no case shall flow be allocated in excess of the designated flows. This ordinance will effectively establish flow neutral growth controls and allow the Board of Sewer Commissioners to provide definite limits to uses of the wastewater system..

The Board of Sewer Commissioners reserves the right to reallocate flows within the study areas provided that the following provisions are met.

- Reallocation of flow occurs within the Table 1 Study Areas.
- Reallocation of flow amongst the Table 1 Study Areas does not result in an increase or exceedance of the Total Reserved Flow.

A reallocation of flow within the study areas may be approved by a majority vote of the Sewer Commissioner, provided that the Total Reserved Flow is not exceeded.

Connections and Extensions

All Connection and Extension Permits for sanitary sewers shall be issued in sole discretion of the Board of Sewer Commissioners or their authorized representative.

The Board of Sewer Commissioners will use information and recommendations included in the CWMP as a guide when considering applications for new Connection and Extension Permits and thereby manage the capacity within the sewer system to serve the needs of the Town for the 20 year planning period.

Connections Outside the Town's Borders

A property owner or project proponent may petition the Board of Sewer Commissioners to be included in the Town's sewer service area (SSA). Changes to the SSA may be approved by a unanimous vote of the Board of Sewer Commissioners, provided that the Total Reserved Flow shall not be exceeded.

Abandonment of Systems

Existing on site septic systems that are connected to the Town's sewer system shall comply with Commonwealth of Massachusetts –Department of Environmental Protection regulations 310 CMR 15.354 – Abandonment of Systems.

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Pump Stations

It is the policy of the Grafton Sewer Department to minimize the need for wastewater pumping stations and limit their construction and use within the system.

Pump stations may be allowed as part of the Town of Grafton wastewater collection system only where specifically authorized by the Town of Grafton Board of Sewer Commissioners or their representative. The Town of Grafton will prohibit the installation of pumping stations where in its opinion such installations would be injurious to the operation or future operation of the collection system.

Sewer pump stations are long term high maintenance items requiring daily inspections and significant resources to operate. Pump stations cause a disproportionate expense in order to provide service to a limited customer base and that the failure of a pump station poses significant environmental concerns and health risks.

It is recognized however that there are situations where pump stations are unavoidable. In this case a detailed engineering report documenting reasons for proposing a pump station shall be submitted for review. This report shall establish that there are no reasonable alternatives available. The report shall also include information regarding flows from adjacent unsewered areas in the proposed tributary area. The report should also detail that construction of a proposed pump station would facilitate progress toward current officially approved planning documents. The report must also demonstrate that the pump station is at an appropriate location and has the capacity to serve as a permanent long term facility. No pump station will be considered without this report.

A fee of \$30,000.00 per pump station will be paid to the Town of Grafton before a pump station will be accepted for use. This fee is to cover the operation and maintenance of the station for three (3) years.

All proposed pump stations shall be considered as a special feature and dealt with on an individual basis.

This policy shall go into effect July 1, 2013. Pump stations which have been previously approved and are not yet operational shall be subject to the new fee structure and standards adopted July 1, 2013.

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Pump Station Standards

The design engineer should note that the following are the minimum requirements for wastewater pump stations and specific sites may require additional equipment, design considerations or downstream improvements. All plans submitted will be reviewed and approved by the Sewer Department according to the following standards:

1. Submit completely scaled and dimensioned drawings in plan and cross section as required to provide a complete description of the entire system. Drawings shall be certified by a Professional Engineer and approved by the Town of Grafton. Drawings shall include at a minimum: site elevations, force main location and discharge point, on site equipment locations, wiring diagrams and all utility locations and requirements.
2. The pump station site and force main easements, as required, must be dedicated to the Town of Grafton.
3. The proposed development that the pump station will serve must generate a minimum average wastewater flow of 5,000 gallons per day.
4. Pump Station must be operational and construction must be completed within one (1) year of approval by the sewer dept.
5. Design Pump station for total drainage basin.
6. Design should include wet well for two (2) submersible non-clog pumps and a separate valve chamber. Valve chamber should include at minimum a separate shut off and check valve for each pump.
7. Pumps and control panel shall be furnished by the same manufacturer. Flygt Corp. will be the only acceptable manufacturer
8. Pumps shall be centrifugal type manufactured by Flygt Corp. Each shall have the same capacity and be able to handle the maximum design flow possible alone.
9. Grinder pumps will not be acceptable for installations designed for greater than twenty (20) units or average daily flow of greater than 8,000 gallons per day (gpd).
10. Pump motors may be constant speed or variable (provide explanation of choice).
11. Each pump shall be equipped with a stainless steel chain and two (2) inch stainless steel guide rails for easy removal of the pump from the wet well.
12. Wet well must be precast, wet well inside diameter must be a minimum of six (6) feet and floors shall have a slope of 1:1 towards a hopper bottom. Wall thickness shall not be less

- than seven (7) inches for six (6) foot inside diameter and not less than nine (9) inches for eight (8) foot inside diameter wet wells.
13. Wet well sizing must be such that there is at least sixty (60) minutes of capacity between high level alarm and any overflow.
 14. Wet well must be sized so that there is a minimum of one (1) foot between float switches.
 15. Wet well hatch shall be aluminum and sized accordingly so pumps can be easily removed with a minimum of 2 (two) inch clearance, and have a minimum H-20 load rating.
 16. If the weight of the pumps proposed exceeds the sewer dept. truck mounted crane capacity (1,600 lbs) a hoist-jib crane shall be provided. It shall be capable of lifting and removing the pumps from the wet well.
 17. Pump Station shall be a duplex system with alternating lead, lag or choice of lead.
 18. A spare pump of the same make and model must be provided to the dept. along with all spare parts recommended by the manufacturer.
 19. For each pump a spare complete set of mechanical seals, gasket set, wear rings, and impeller must be provided before acceptance.
 20. Pump control panel must be mounted inside a weather proof stainless steel cabinet.
 21. Five (5) float type liquid level controllers shall be provided. They shall be located as to not be affected by flows entering the station. The five (5) Float switches will be used for – low level alarm, off, lead, lag, high alarm. The five (5) float switches shall be mounted as to be easily removed for cleaning and replacement.
 22. Pump station shall be equipped with an emergency generator and automatic transfer switch capable of running all station equipment and with sufficient capacity to supply starting current required if the station is running at capacity. Generator must be diesel powered manufactured by Caterpillar or Kohler. A four (4) hour load bank test must be completed before acceptance. The generator fuel tank shall be sized to run the pump station for two (2) days at design flow. The fuel tank must be filled prior to acceptance. Automatic transfer switch must be mounted inside a stainless steel weather proof cabinet.
 23. All electrical equipment shall be designed to meet current Massachusetts Electrical Codes.
 24. Alarm and SCADA systems shall be provided for all pumping stations. Check with the dept. for current standard. A minimum of four (4) alarms will be required- high level, low level, pump failure, and generator running.
 25. Pump Stations shall be equipped with a suitable device for measuring, recording and totalizing flow.
 26. All force mains shall be cement lined ductile iron pipe. Force mains shall be designed for a minimum of three (3) feet per second and maximum of ten (10) feet per second.
 27. Separate air release manhole shall be installed as required.

28. Pump stations shall be sized to contain all equipment required and to allow for off street-
onsite parking of two (2) Dept. service vehicles (min size 40ft.x 40ft unless otherwise
approved)
29. Pump station shall be a minimum of 100 feet from any building unless otherwise
approved.
30. Pump station shall be accessible by an asphalt driveway solely dedicated to station access.
Driveway shall be minimum of 14ft wide with no slope over 5%.
31. Pump station and driveway shall be a minimum of two feet above the 100 year flood
elevation as shown on the most recent FEMA Flood Map.
32. Pump station shall be entirely enclosed with a minimum 7ft high chain link fence
constructed of galvanized steel, vinyl coated, and colored to be compatible with
surroundings. Minimum of 12ft wide gates and a 3ft pedestrian gate each equipped with
heavy duty padlock hasp. Fence webbing or screening may be required at the Dept.
discretion.
33. Entire fenced enclosure area shall be asphalt (no grass or shrubs).
34. A yard hydrant must be provided with adequate pressure and capacity for station wash
down. The hydrant shall be located inside the fenced enclosure.
35. A flood light must be provided minimum of 500 watts.
36. The contractor shall be responsible for performing all required operational tests. Tests
shall be done after all equipment has been installed and station construction has been
completed. Tests shall be completed by representatives of each piece of equipment and in
the presence of Sewer Dept. staff.
37. The contractor shall provide training to dept. staff for all equipment installed. Training
shall be by a manufacturer representative of each piece of equipment at no cost to the
town.
38. A permanent sign shall be provided at the pumping station stating at a minimum Town of
Grafton Sewer Dept., station name, street address, and emergency contact number.
39. If the above conditions cannot be met, then the operation and maintenance responsibility
for the pump station shall remain private. The Town of Grafton will accept no flow from
a private pump station until a full operation and maintenance plan is provided and
approved.