



Civil – Environmental – Mechanical – Structural – Surveying  
Site & Facility Development – Construction- Compliance – Regulatory Permitting  
Professional Engineering in Vermont – New Hampshire – New York

# **Preliminary Engineering Report**

**25 May 2016**  
**(Revised 5 July 2016)**

## **Bennington Water Distribution System Expansion Bennington, VT**

Prepared for:

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## **Project Purpose**

The Town of Bennington seeks to determine the feasibility of connecting areas of town whose wells are contaminated by PFOA to the municipal water system.

## **Need for Project**

The project's need is driven by the widespread contamination of wells by PFOA in the areas of the proposed expansion. Point of entry treatment systems have been installed in many of the impacted wells, but the individual treatment systems are not expected to be part of a long term economical solution. It is acknowledged that large scale development in any of the affected areas is not likely and runs counter to land use planning in Bennington, but it should be noted that without a non-contaminated source of potable water in these areas, even limited development will be restricted or prevented entirely. As it is not known how long the watershed will remain contaminated, the only solution for these areas is an extension of the municipal water system.

## **Project Planning**

### **Location of Proposed Improvements**

There are five areas of town for which improvements are proposed and shown on the plans in Appendix A-1.

**Zone A** – Zone A is located in the northwestern section of the contaminated area and will connect to the towns central and northwest pressure zones existing water network located at Fairview Street and Walloomsac Road. The Zone A extension will extend water from Fairview Street along Vail Road, down Austin Hill Road, east on Murphy Road, and loop back to an existing terminus of the distribution system on North Bennington Road. Eaton Road, Bard Road, Red Pine Road, Portions of Silk Road, Bridge Street, and Cardinal Lane will be connected.

**Zone B** - Zone B, directly to the south of Zone A, will loop water from Route 9 along Gypsy Lane to the terminus of the existing water main on Walloomsac Road. Service will also be extended to just past the intersection of Walloomsac Road and Pippin Knoll. Service will be extended to Pippin Knoll and Hill Shadow Farm Road. A new service loop will be installed on Jennings Drive.

**Zone C** – Zone C is located to the north of the center of town and will extend service down Houghton Lane to Michaels Drive, Apple Hill and its side roads. Service will also be extended down Willow Road and Beck's Drive.

**Zone D** – Zone D will be located immediately to the west of Zone C, and extend to the north of the existing Northwestern Zone. Service for this zone will extend along Harwood Hill and terminate at Beaudoin Lane.

**Zone E** – Zone E will create a new pressure zone that will be fed by a storage tank above Rocky Lane. This tank will serve the demand areas along Rock Lane and down East Road, terminating at Crossover Road. Chapel Road north of crossover road will also be included in the extension.

**Scattered Site Small Connections** - There are numerous individual wells that are located near or adjacent to existing municipal service. These areas include wells located on East Road, Harwood Hill, Northside Drive Waite Drive and Hicks Avenue.

## **Environmental Resource Present**

Environmental resources present in the proposed project area include several wetland areas as well as the Walloomsac River as noted on the plan in Appendix A-1.

## **Population Trends**

Bennington's general population has been stagnant or declining since 1990. The proposed system expansion areas are rural or suburban in nature. There are few undeveloped parcels. Population in these areas is expected to remain stable.

## **Community Engagement**

The Town of Bennington's Select Board believes strongly that providing municipal water to areas affected by PFOA contamination is essential. The extensions must be feasible and not negatively impact the existing or long term function of the community water system and must be funded by a source that does not obligate the Town to take on additional debt service to fund the project. If both of these conditions are met The Town Select Board is committed to pursuing a municipal water solution for the affected areas as quickly and as practically as possible.



## **Existing Facilities**

### **Source Capacity**

The Town of Bennington is served by two separate sources:

- Bolles Brook in Woodford which is treated by the Town's treatment plant on Route 9 in Woodford
- Morgan Springs, a groundwater source whose pump station is located near the intersection of Coolidge Avenue and Bradford Street in downtown Bennington

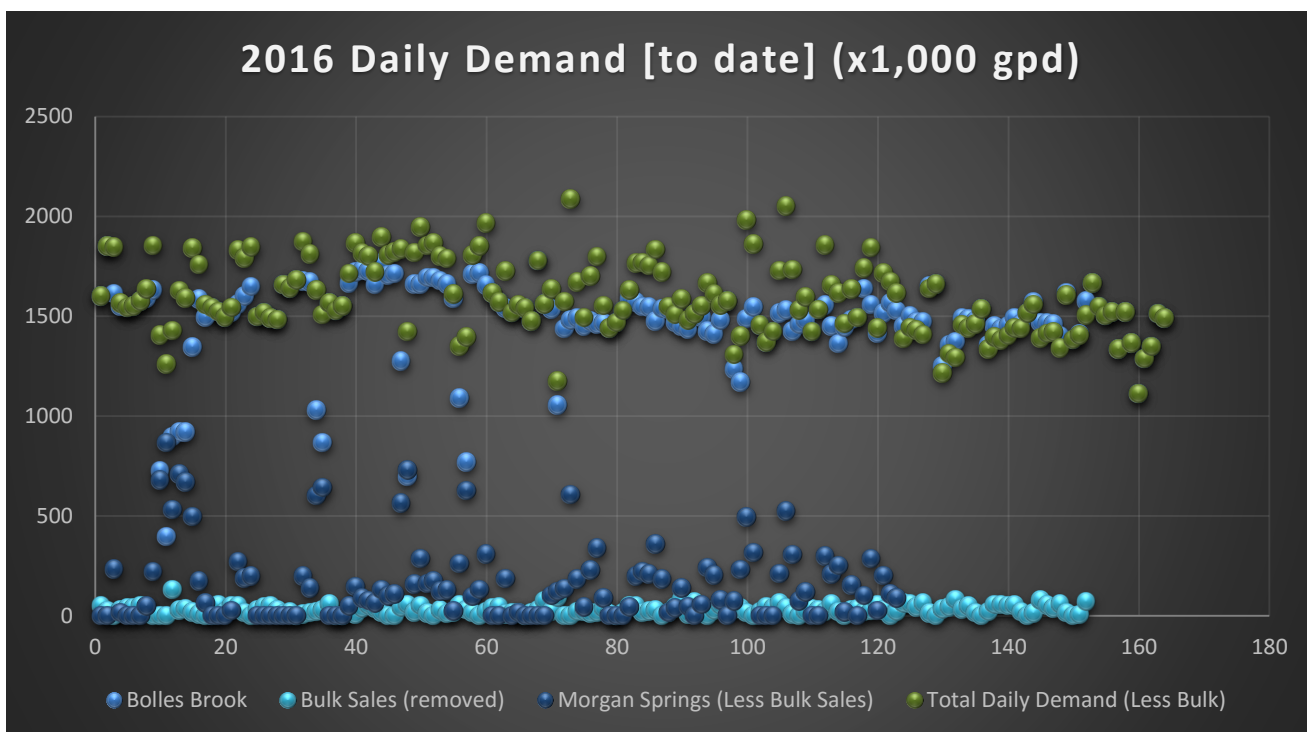
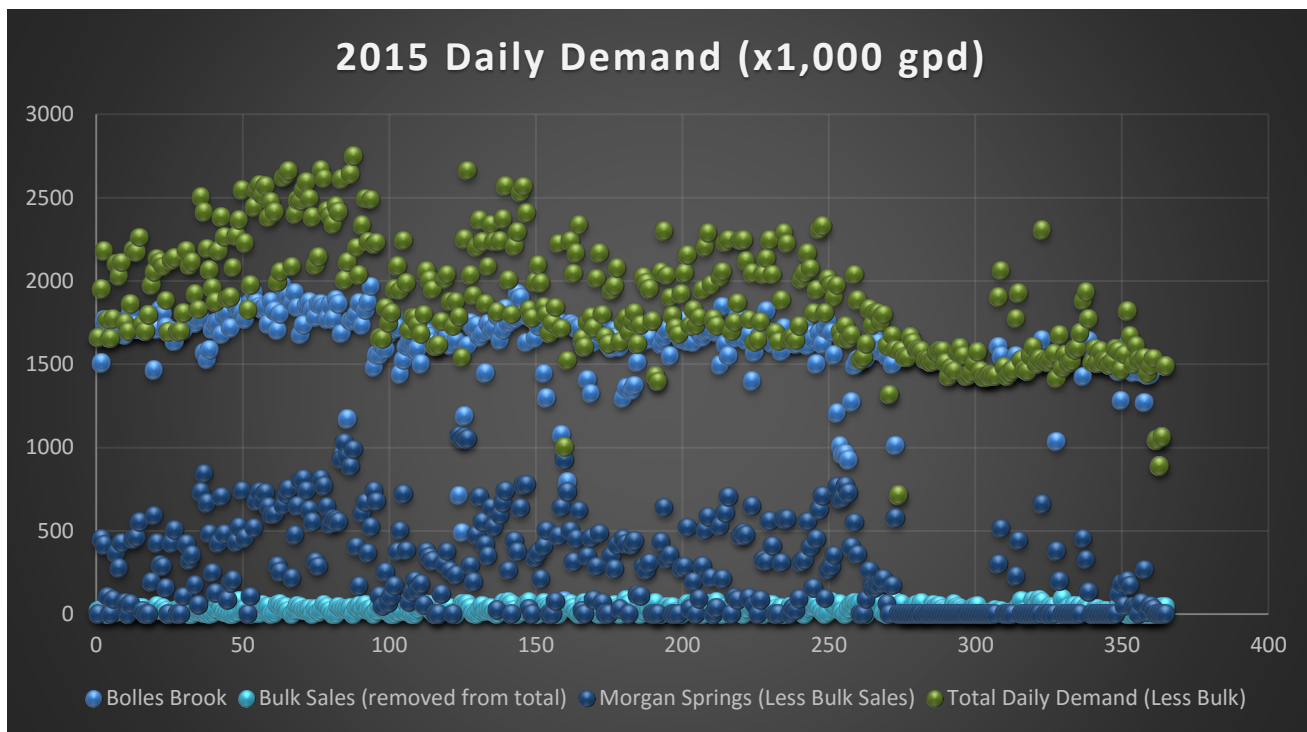
The authorized treatment capacity of the surface water treatment facility and Bolles Brook supply source is 3.0 million gallons per day (MGD). Additionally, the Morgan Spring groundwater supply source has a permitted safe yield equal to 1,200 gpm and is authorized for 630 gpm, or 907,200 gpd maximum daily use. The total combined system capacity is approximately 3.9 MGD.

### **Existing Demands**

The Town of Bennington's daily usage for all of 2015 and 2016 to date was evaluated to determine its existing average daily and maximum daily demand. The Town of Bennington sells some bulk water. For the purposes of the community assessment the bulk sales are removed from the total daily demand calculation. The average and maximum daily demand for 2015 was 1.9 and 2.8 MGD. Average and maximum daily demands for 2016 to date are 1.6 and 2.1 MGD. The 2015 peaking factor was 1.45. The 2016 peaking factor to date is 1.31. The aggregate results are shown in the two tables below.

The Town's highest demands are typically seen during the winter months when some residents begin running water continuously during cold weather to prevent pipes from freezing. Winter 2015 was very cold. Winter 2016 was not. This explains the significant difference in both average and maximum daily demands on the system during the two evaluation periods.

For the purposes of this study we will assume the more conservative peaking factor of 1.45 as there is no reason to believe that weather conditions in 2015 were so abnormal that the demand usage will not occur again in coming years.



## Distribution System

The municipal water system for the Town of Bennington is comprised of six zones, fed by five water storage tanks. Pressure reducing valves placed within the system ensure flow stability for the municipality during normal and fire flow conditions. The table below describes the water tanks for the town and their storage capacities.

Town of Bennington Municipal Water Supply Storage Tanks		
Tank	Location	Capacity (gal)
Westside Tank	Western Zone	250,000
SVC Tank	Southern Vermont College	750,000
WTF Clearwater	Eastern Zone	1,200,000
Chapel Road Tank	Chapel Road Tank	3,000,000
Burgess Road Tank	Eastern Zone	226,200

MSK previously calibrated an existing model of the Town's water supply network using KY Pipe hydraulic modeling software in December of 2010. This model contains up to date pipe lengths, diameters, materials and locations of existing water mains and supply sources. One major upgrade has been completed since the most recent calibration which includes the construction of the storage tank and pump station on Southern Vermont College property near Monument Avenue Extension.

For the purposes of this study, a full calibration of the system model was not completed. Rather, limited hydraulics testing and modeling in the areas of the proposed extensions were compared. The Town of Bennington Water Resources Department completed several fire flow tests. The testing included pressure readings at Houghton Lane and Harwood Hill hydrants under static and fire flow conditions. Fire flow conditions were conducted at Crossover Lane, 1152 East Road, and Orchard Road hydrants. During the fire flow tests, pressure gauges connected to the Houghton Lane and Harwood Hill hydrants provided readings that were tabulated. These tabulated values were averaged based on the time span and flow rates associated with those times.

Testing was also conducted for Zones A and B with fire flows being applied to the Bank Street and Convent intersection fire hydrant. Pressure readings were recorded at the Monument Circle hydrant and West End pump station locations.

The flow rates conducted in the field were applied to the hydraulic model for comparison. The test locations and measured pressures under normal conditions for both the physical testing and modeling can be viewed below in the proceeding tables.

Existing Conditions, Normal Flow		
Hydrant Location	Model (psi)	Measured (psi)
Houghton Lane	37.6	30.9
7a (Harwood)	133.7	130.2
Monument Circle	51.2	60
South End Pump Station	60.3	54.56

Fire Flow/Demand placed at Bank Street and Convent Avenue			
		Monument Circle (psi)	West End Pump (psi)
Normal	Model	51.2	40.87
	Measured	60	41
500 GPM	Model	44.8	34.4
	Measured	57.28	40.44
1000 GPM	Model	42.3	32.2
	Measured	55.35	38.4
1500 GPM	Model	40.1	30.4
	Measured	54.72	38.31
1590 GPM	Model	39.6	30
	Measured	55.13	35.23

Existing Conditions: Fire Flow/Demand placed at Crossover Rd Lane Hydrant		
	Hydrant Location	Houghton Lane (psi)
Static Level	Model	37.5
	Measured	30.9
530 GPM	Model	37.2
	Measured	30.1
730 GPM	Model	37
	Measured	28.4
1000 GPM	Model	36.8
	Measured	27.1
1130 GPM	Model	36.4
	Measured	26.5

Existing Conditions: Fire Flow/Demand placed at 1152 East Road Hydrant		
Hydrant Location		Houghton Lane (psi)
Static Level	Model	37.5
	Measured	30.9
530 GPM	Model	37
	Measured	29.3
1000 GPM	Model	35.8
	Measured	27.2
1325 GPM	Model	34.8
	Measured	26.2

Existing Conditions: Fire Flow/Demand placed at Orchard Road Hydrant		
Hydrant Location		Harwood Hill (psi)
Static Level	Model	125.2
	Measured	128.4
530 GPM	Model	122.1
	Measured	124.65
1000 GPM	Model	104.6
	Measured	123.4
1500 GPM	Model	80.8
	Measured	119.96
1680 GPM	Model	70.4
	Measured	104.55
1760 GPM	Model	65.9
	Measured	114.6

Comparison of the tested results against modeled values show favorable results. The measured flows and pressures generally agreed well with the corresponding modeled flows and pressures. The similarity between the modeled and tested values gives confidence that the model will predict reasonable results for the proposed extension performance. There were a few instances where the model did not exactly follow the physical test results.

Observed pressures at Houghton lane differed from the modeled pressures when high flows were applied to the test hydrant on Crossover road and East Road. While this discrepancy warrants further investigation at a later date, we believe that the following mitigating factors give us reasonable confidence that pressures on existing and future lines at Houghton Lane will not fall below 20 psi:

- Residual pressure on Houghton Lane did not fall below 20 psi during a flow of 1325 gpm on Crossover Road. This flow is greater than the maximum flow required for fire flow in a residential area of 500 gpm.
- Line diameters for East Road and Houghton Lane are comparatively large for the demands in the area.
- The Houghton Lane test hydrant is at the highest point in the existing and future demand zone.

There was also a difference between the modeled values and tested values for hydrants flowed on Harwood Hill. Both the modeled and the measured values showed a drop in system pressure. However, the modeled values decreased more than the measured values due to influence from the East Road reducing/sustaining valve opening during actual flow. The model does not reflect this valve opening and we could not create a condition in the model where this reducing valve would exert the same influence seen in reality. Thus the results show a greater drop of system pressure in the model.

When high flows are applied at the intersection of Convent and Bank Street, modeled pressure drops at Monument Circle while the measured results remained constant. The differences between the modeled results and measured results in this case and the case before are not significant enough to warrant further investigation

for the purposes of this study. Both are more conservative estimates of system performance than measured. The existing hydraulic model of the system should show reasonable design values and anticipated impacts for the future system expansions considered in this preliminary engineering report.

## **Alternatives Considered**

Proposed expanded coverage areas were determined based on the presence of any contaminated wells in areas or neighborhoods and is shown on the plan Appendix A-1. Several areas near the existing Village of North Bennington water supply were not considered for expansion to the Bennington Water System. These are those residences west of 1101 Murphy Road, Riverside Drive and Orebed Road, residences on Harrington Road and those located on Matteson Road. All of these locations are expected to be served by extensions to North Bennington's water system.

Two routing alternatives were considered for Zone A:

1. Utilize the former Red Pine Road ROW as an alternative running along Vail and Austin Hill Road: Red Pine Road is a legal trail that once connected Vail Road to Bard Road. The right of way is currently overgrown and impassible, however, since the Town owns the right-of-way, no easements would be required to install a water main in this location. Running a main in this location as an alternate would reduce the overall extension distance by 3,300 lf. Additional cost savings may be seen because there would be less road base disturbed and less paving required. However, municipal water would not be available for two wells with sampling results over 20 ppt. A small line extension would need to run south from the intersection of Bard Road and Austin Hill Road to serve one dwelling with results over 70 ppt. If this option is selected, the municipality should still coordinate with the existing landowner at the end of Red Pine Road even though an easement may not be required. Additionally, care should be taken in design and construction to ensure that after the waterline is installed, Red Pine Road is not made inviting for nuisance off road vehicles.
2. Run water to Silk Road from Vail Road as an alternative to a river crossing at the Silk Road covered bridge. This option may be considered only if the Silk Road Bridge crossing is deemed infeasible or more expensive than running an additional 3,500 lf down Silk Road from Vail Road.

## **Design Basis**

The basis of design for all the major components of the system are covered in the corresponding discussion below.

### **Design Flow**

The proposed project will cover an area which is predominantly residential in nature. Exceptions include the area along North Bennington Road and Route 7a, both of which contain a mix of commercial, multi-family and single family residences. Design flow quantities for proposed connections to the system were determined based the flows prescribed for the defined use under Appendix A, Part 2 of the Water Supply Rule, Chapter 21 with the exception of single family residential dwellings. The Water Supply Rule allows for the reduction of average day demand design flow calculations based on several different methods, including the use of existing metered data on the system. The Town of Bennington only meters non-single family residential accounts so there is no data available to assess the average single family usage on the existing system. Drinking Water and Ground Water Protection Division staff recommend the use of 360 gpd per single family dwelling based on information from other similarly sized systems and is the basis of design calculations below. Also, commercial users on Route 7a were not investigated fully due to time constraints for publishing this report. However, there are no known high water users in this area that would have a substantive impact on the system daily or peak demand.

The existing demands for each zone are shown in the table below. Future demands are not calculated as a part of this report because there are no major projects expected within the service area in the future. Noted average daily and maximum daily demands assume that all units within the proposed coverage area are tied on to the system. The total well count in each of the zones is approximate only and needs final field verification. Additional detail about demands and usages can be found in table 1 located in Appendix A-2.

<b>Service Area</b>	<b>Total Wells</b>	<b>Wells Not Tested</b>	<b>Wells Non-Detect</b>	<b>Wells &lt;20 ppt</b>	<b>Wells &gt;20 ppt</b>	<b>Wells &gt;70 ppt</b>	<b>Existing Average (gpd)</b>	<b>Existing Maximum (gpd)</b>
<b>Zone A</b>	141	10	37	6	12	76	54,967	79,702
<b>Zone B</b>	46	10	9	11	14	2	16,200	23,490
<b>Zone C</b>	80	16	7	3	14	40	29,705	43,072
<b>Zone D</b>	43	28	3	2	3	7	17,680	25,636
<b>Zone E</b>	45	30	6	3	6	0	16,200	23,490
<b>Total</b>	<b>358</b>	<b>97</b>	<b>62</b>	<b>25</b>	<b>50</b>	<b>124</b>	<b>134,754</b>	<b>195,390</b>

The current maximum daily demand of 2.7 MGD with the additional 0.2 MGD would total 2.9 MGD. This total daily demand would equal approximately 74% of existing total source capacity and thus would not create a need for additional source capacity.

## **Design Criteria**

The proposed expansion will follow the routes shown on the plan in Appendix A-1. The two alternatives noted above will be assessed during the final design process. Long lines and loops will be installed with 8" ductile iron pipe. Mains sized for the existing demand will be designed for shorter dead end lines with little or no potential for development. These areas include, Bard Road, Red Pine Road (if alternate is not selected), Bridge Street, Eaton Road, Pippin Knoll, Hill Shadow Farm Road, Becks Drive, short dead end streets on Apple Hill and sections of Willow Road. Fire hydrants will only be installed on distribution system lines with a diameter of 8" or greater. Flushing Hydrants will be installed at the ends of dead-end lines whose sizes are less than 8".

Loops will be created where feasible. This will include looping the long line from Vail to North Bennington Road at both the end of the municipal main on Fairview Street as well as the end of the municipal main on North Bennington Road. A reducing valve will be required near the overpass of Route 279. The route will become the primary source for the uses on Northside Drive in order to minimize residence time in the new line. Additionally, a loop will be created at Gypsy Lane and Walloomsac Road. The Willow Road line will be looped at Duffy Drive.

Service Lines to units will be sized for their needs. Copper will be run in the street between the corporation stop and the curb stop. HDPE will be run between the curb stop and the building. If petroleum contaminated soils are encountered during construction, service piping will be constructed entirely of copper.

The structural stability (including abutments) of the covered bridges on Murphy and Silk Road, where river crossings of the distribution pipe are planned, will be carefully considered. Both above-ground and under river crossings will be considered during final design and will be selected based on cost-effectiveness and level of protection.

Residence time within the proposed system will require further evaluation during the final design process in order to ensure that the formation of disinfection byproducts is minimized and minimum levels of free chlorine are maintained throughout the system. DBP sampling will be expanded during the summer of 2016 to include sampling the existing dead-end sections of the system where extensions are planned. The relative level of influence each source has in these same areas will be evaluated using the known source alkalinity as a trace. Both results will aid the development of a water quality model to guide the design process and ensure that water quality within the distribution can be maintained at optimal levels.

## **Environmental Impacts**

The proposed extension covers a large service area and will pass by several different wetland areas as well as make three different stream crossings. Impacts will be minimized near wetlands by the use of trenchless technology or limiting disturbance to the existing pavement structure. Stream crossing impacts will be mitigated by directional drilling if possible or hanging an aerial crossing within an existing span where possible. All other impacts will be minor or minimal and will occur largely in the traveled way or right of way of a road.



## Land Requirements

The majority of the extension will not require permanent or construction easements for the project. North Bennington Road and Route 7a may require easements, but will depend on negotiations with and requirements from VTrans. Land will be required for the construction of a new pump station near the intersection of Crossover Road and East Road. The Town of Bennington will also need to acquire rights to construct a storage tank on land owned by the State of Vermont and within the extents of the limited access highway on Route 7.

## Potential Construction Problems

The single largest driver of variation in installation cost of water main is the presence of ledge. USGS mapping estimates that ledge will be encountered on a section of Murphy Road, Apple Hill Road, possibly Pippin Knoll and possibly Cardinal Lane. Ledge probes along the proposed route should be verified after 25% design drawings are completed to determine a better estimate.

## Proposed Project

The proposed route of the project is shown generally on the plan in Appendix A-1.

## Project Schedule

Given the size of the project it would make sense to break the project into 3 or 4 separate contracts, whose construction value would total not less than 5 million dollars in order to ensure that economies of scale are maximized. Reducing the scale of the project to the proposed projected dollar value would give greater potential for several large contractors to work on separate areas simultaneously. This may also allow for parts of the system to go to bid and construction prior to others if funding is secured for one area before another. Given the aforementioned variable of the timing of funding it is difficult to develop a detailed schedule. If funding were secured for all portions of the project early in the summer the following general schedule would apply. Conservatively it is also assumed that the entire project would require two construction seasons to complete for all areas. It should be noted that this schedule would not apply for the individual connections near or adjacent to existing mains. These connections can and should be dealt with either through a series of small projects, or individually once funding is agreed to. This could happen during the 2016 season.

### Schedule All Areas

Phase	Begin	Complete
Existing Conditions	July 2016	August 2016
Design	September 2016	December 2016
Permitting	October 2016	December 2016
Bidding	December 2016	February 2017
Construction	April 2017	Winter 2018

## Permit Requirements

**Act 250:** Act 250 jurisdiction does not apply to this project. In a Jurisdictional Opinion by Warren Foster, District 8 Coordinator on June 2<sup>nd</sup>, 2016, he determined that the extension would not be considered a substantial or material change to the system or adjacent or affected permitted subdivisions.

**Wastewater Disposal and Potable Water Supply Permit:** A Wastewater Disposal and Potable Water Supply permit will be required for some residences and businesses connecting to the new municipal system. SS 1-303(a)(3) of Chapter 1 of the Environmental Protection Rules, Wastewater System and Potable Water Supply Rules, notes that a permit is required for the “modification or replacement of an existing potable water supply or wastewater system.” However, single-family residences on their own individual lots are exempt from permitting under SS1-304(a)(22) of the same rules provided they receive and pay for an allocation from the Town and the proper exemption form is completed by a licensed designer and filed in the land records. The remaining non-single family dwellings that plan to tie on to the system will require a permit. These include approximately 10 commercial and multi-family units. This will involve, receiving a water allocation from the Town and paying the allocation fee, the submission of a permit application, plan and State fee to Drinking Water and Groundwater Protection Division. The Agency will review the individual service lines for compliance with Chapter 1. Based on correspondence with the Agency, the regional office is open to either the submission of one blanket permit application or individual permits. We will follow up with the district office prior to the preparation of the permit application package(s) and will coordinate on the best and most efficient means of application for both the Agency and the applicant(s).

**Public Water System Construction Permit:** A construction permit will be required for the waterline extension. Prior to submission of the application, the design engineer will provide 25%, 60% and 85% review plans so that the division may have an opportunity to comment on the proposed plans.

**Army Corp:** The need for a Corp permit would only be required if the project involves the placement of fill below the ordinary high water mark of a jurisdictional water way or the placement of fill (including temporary fill) in wetlands. Jurisdiction for this project may arise around stream crossings and wetland areas. Permitting would require engaging with the regional office of the Army Corp, determining if a permit is required and if so what category the jurisdictional portion of the project might be.

**Stream Alteration Permit:** Approval from the Army Corp and Stream Alteration may be required depending on the final configuration of the stream crossings. Directional drilling is a non-reporting activity under the stream alteration general permit. Hanging a pipe off of an existing structure does not require a permit unless it reduces the size of the opening.

**Flood Hazard:** At a minimum, local and state authorities will have to review any proposed work in the flood hazard or river corridor areas and may require permitting depending on the design.

**VTrans Section 1111 Highway Work Permit:** A highway work permit will be required for any work along North Bennington Road, Route 7a and Route 7 which are State of Vermont owned Right of Way. Route 7 is a limited access highway and thus Federal Highway will also be involved in the project. Early communication with the

Agency will be required to determine the feasibility of receiving access and area for a water storage tank on Rocky Lane if necessary.

**Vermont Construction General Permit:** A construction general permit will be required for this project. It is assumed a that a moderate risk permit will be required at this time. A detailed risk assessment of the project will be required to confirm this during design. The size of the project may necessitate an individual permit given the extent of the proposed earth disturbance.

### **Total Project Cost Estimate**

The total project cost estimate per zone including contingency, engineering, construction administration, permitting, permitting and allocation fees are the following:

<b>Zone</b>	<b>Cost</b>
A	\$9,600,000
B	\$2,900,000
C	\$5,000,000
D	\$3,000,000
E	\$4,900,000
Other Areas	\$500,000
<b>Total</b>	<b>\$25,900,000</b>

### **Annual Operating Budget and Project O&M Costs**

The Town of Bennington's Annual Operating Budget for Fiscal Year 2017 is \$2,529,213.07. The existing operating budget and projected operation and maintenance related expenses will be developed once the final project extents are determined and will be forwarded to Drinking Water and Groundwater Protection Division and Waste Management Division under a separate report.

### **Conclusions and Recommendations**

The initial study shows that it is feasible to provide municipal water to the above noted areas affected by PFOA contamination.

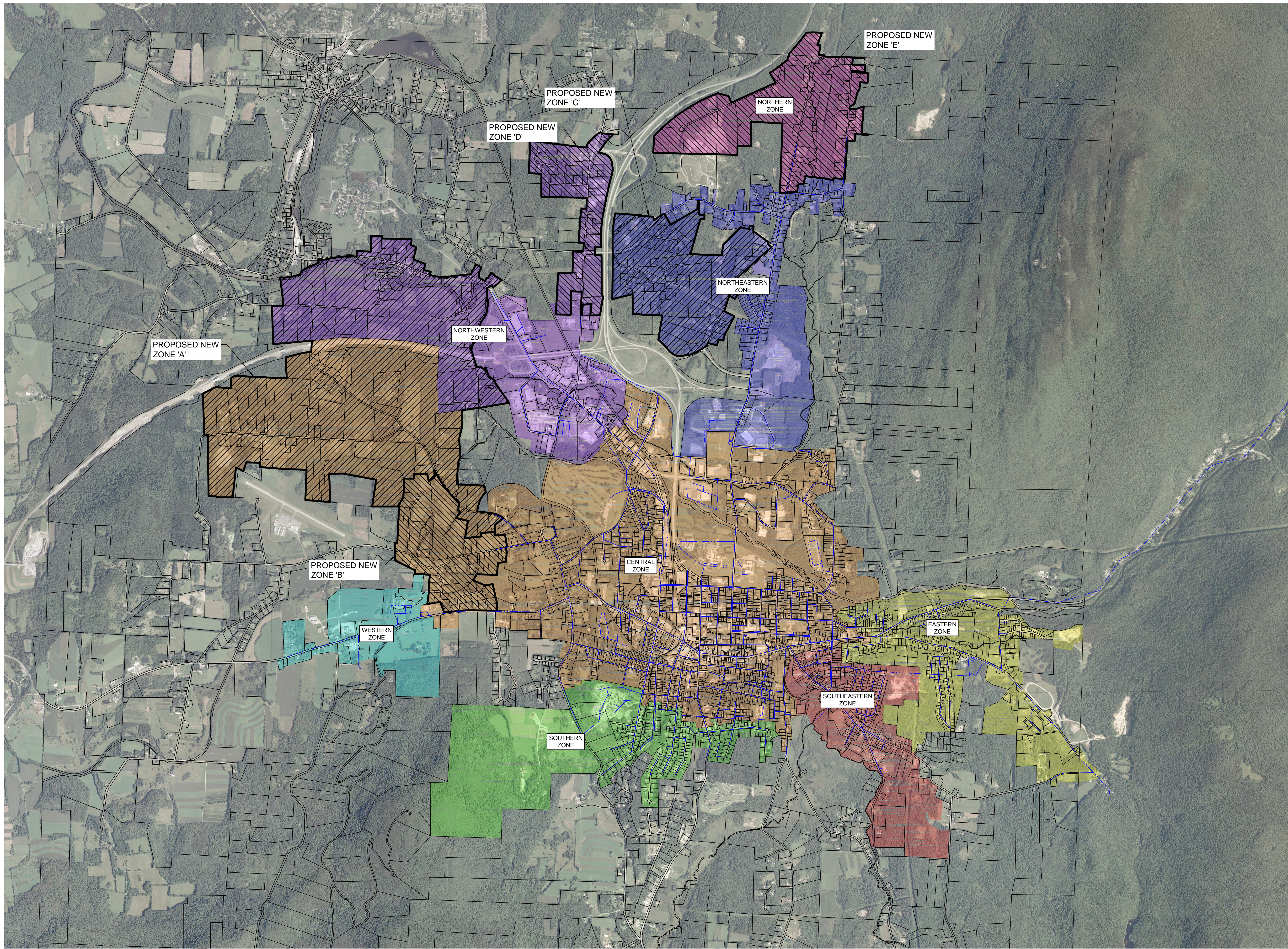
## **Appendices**

## **A-1 Plans**

Town of Bennington Pressures Zones

Town of Bennington Proposed Service Areas





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## TOWN OF BENNINGTON BENNINGTON, VERMONT

DRAWINGS THIS SHEET

MUNICIPAL WATER SUPPLY  
PRESSURE ZONES

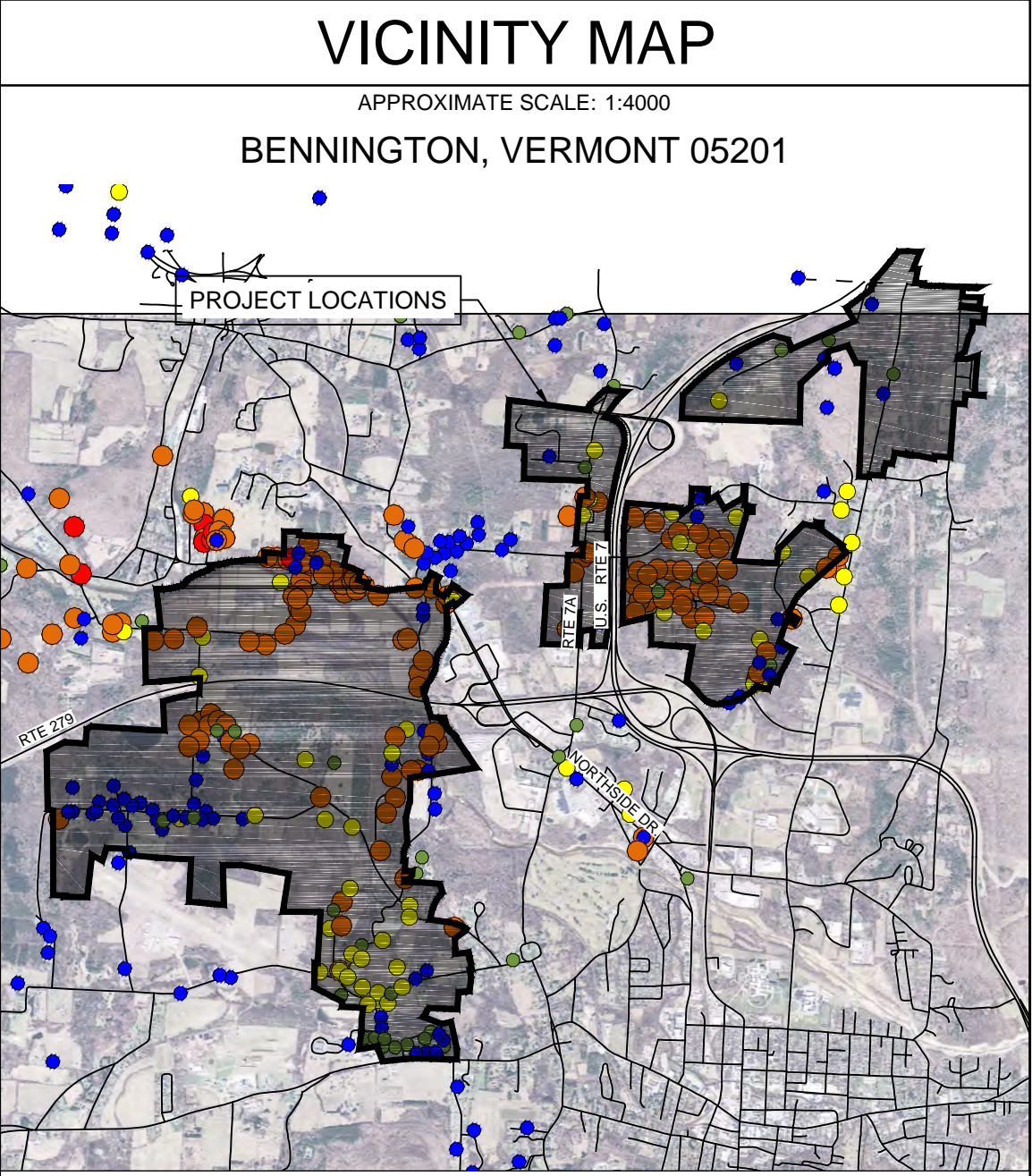
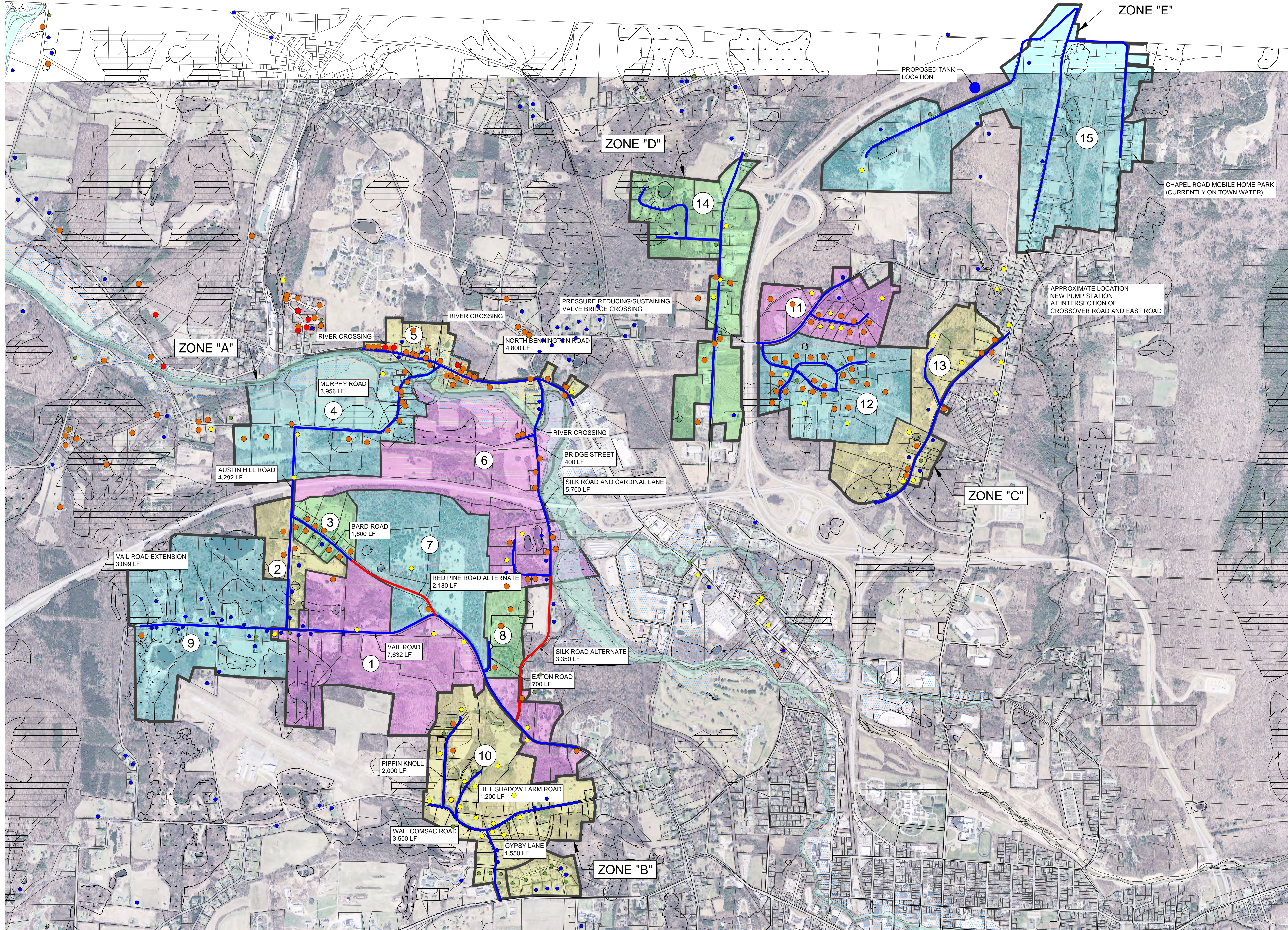


SCALE: NOT TO SCALE

NUMBER	DATE
----	07-18-2014
DRAWN	CHECKED
TJS	JMD


SHEET NUMBER





- ### GENERAL NOTES
1. VAIL ROAD BETWEEN THE END OF WATER SYSTEM AND AUSTIN HILL ROAD
  2. AUSTIN HILL ROAD TO BARD ROAD
  3. BARD ROAD
  4. MURPHY ROAD
  5. NORTH BENNINGTON ROAD
  6. SILK ROAD FROM THE COVERED BRIDGE TO AND INCLUDING CARDINAL LANE
  7. RED PINE ROAD
  8. EATON ROAD
  9. VAIL ROAD EXTENSION
  10. WALLOOMSAC ROAD AREA INCLUDING MINOR CONNECTED ROADWAYS
  11. MICHAELS DRIVE AND HOUGHTON LANE
  12. APPLE HILL SUBDIVISION
  13. WILLOW ROAD
  14. HARWOOD HILL AND SETTLERS ROAD
  15. CHAPEL ROAD, EAST ROAD, AND ROCKY LANE
- MAPS ARE BASED ON SAMPLING RESULTS ISSUED BY THE STATE OF VERMONT 25 MAY 2016

- ### LEGEND
- SIGNIFICANT WETLAND AREA
  - ADVERSE SOIL CONDITION: SHALLOW BEDROCK
  - FLOOD PLAIN
  - PFOA > 1000 ppt
  - PFOA 70-1000 ppt
  - PFOA 20-70 ppt
  - PFOA < 20 ppt (VDH ADVISORY)
  - PFOA NON-DETECT (ND)




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TOWN OF BENNINGTON  
BENNINGTON, VERMONT

DRAWINGS THIS SHEET

MUNICIPAL WATER SUPPLY  
PFOA REMEDIATION  
PROPOSED SERVICE AREAS



NUMBER	DATE
1001-000	06-17-2016
DRAWN	CHECKED
TJS	JMD

SHEET NUMBER



**A-2    Table 1 – Demand and Usage**



ZONE A					
User/Location	Unit type	# Units	gpd/unit	Subtotal	Notes
AREA 1					
	House	19	360	6840	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	3		0	
	# 1				Vail Road (40500200)
	# 2				744 Vail Road (34501402)
	# 3				
	Commercial	0		0	
	TOTAL			6840	
	NODES			10	
AREA 2					
	House	6	360	2160	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	1		0	Austin Hill Road (04014700)
	Commercial	0		0	
	TOTAL			2160	
	NODES			1	
AREA 3					
	House	11	360	3960	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	0		0	
	Commercial	0		0	
	TOTAL			3960	
	NODES			1	
AREA 4					
	House	20	360	7200	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	2		0	
	# 1				Murphy Rd (04013000)
	# 2				Murphy Rd (04014700)
	Commercial	0		0	
	TOTAL			7200	
	NODES			4	
AREA 5					
	House	32	360	11520	gpd/house based on town avg daily demand
	Multi Unit	2	360	720	1422 N. Benn Rd
	Multi Unit	3	360	1080	1575 N. Benn Rd
	Undeveloped Lot	0		0	
	Commercial	4		0	
	# 1	1	500	500	Gas/ Mini Mart/ Repair - 1414 N. Bennington Rd
	# 2	1	500	500	Big Boys Toys - 1477 N. Bennington Rd
	# 3	1	1227	1227	Carbon Zero - 1514 N. Bennington Rd - WW-8-1715
	# 4	1	500	500	Office, Storage Warehouses - 1505 N. Bennington Rd
	TOTAL			16047	
	NODES			5	
AREA 6					
	House	20	360	7200	gpd/house based on town avg daily demand
	Multi Unit	2	560	1120	747 Silk Rd
	Undeveloped Lot	2		0	

	# 1				Silk Rd (28502700)
	# 2				Silk Rd (35501100)
	Commercial	0		0	
	TOTAL			8320	
	NODES			3	
AREA 7					
	House	4	360	1440	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	0		0	
	Commercial	0		0	
	TOTAL			1440	
	NODES				
AREA 8					
	House	3	360	1080	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	0		0	
	Commercial	0		0	
	TOTAL			1080	
	NODES				
AREA 9 (Whipstock Rd)					
	House	22	360	7920	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	0		0	
	Commercial	0		0	
	TOTAL			7920	
	NODES				

**ZONE A Total Flow**

54967 GPD

ZONE C					
User/Location	Unit type	# Units	gpd/unit	Subtotal	Notes
AREA 11					
	House	18	360	6480	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	1		0	825 Houghton Ln (25502601)
	Commercial	2		0	
	# 1	1	700	700	Church of Latter Day Saints - 286 Houghton Ln -
	# 2	1	925	925	New England 7th Day Adventists - 404 Houghton Ln -
	TOTAL			8105	
	NODES			2	
AREA 12					
	House	36	360	12960	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	2		0	
	# 1				Astrachan Dr (30500400)
	# 2				241 Houghton Ln (24504100)
	Commercial	0		0	
	TOTAL			12960	
	NODES			4	
AREA 13					
	House	24	360	8640	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot	0		0	
	Commercial	0		0	
	TOTAL			8640	
	NODES			3	

**ZONE C Total Flow**

29705 GPD

ZONE D					
User/Location	Unit type	# Units	gpd/unit	Subtotal	Notes
AREA 14					
	House	38	360	13680	gpd/house based on town avg daily demand
	Multi Unit	0		0	
	Undeveloped Lot			0	825 Houghton Ln (25502601)
	Commercial	5	800	4000	
	TOTAL			17680	
	NODES			2	

**ZONE D Total Flow**

17680

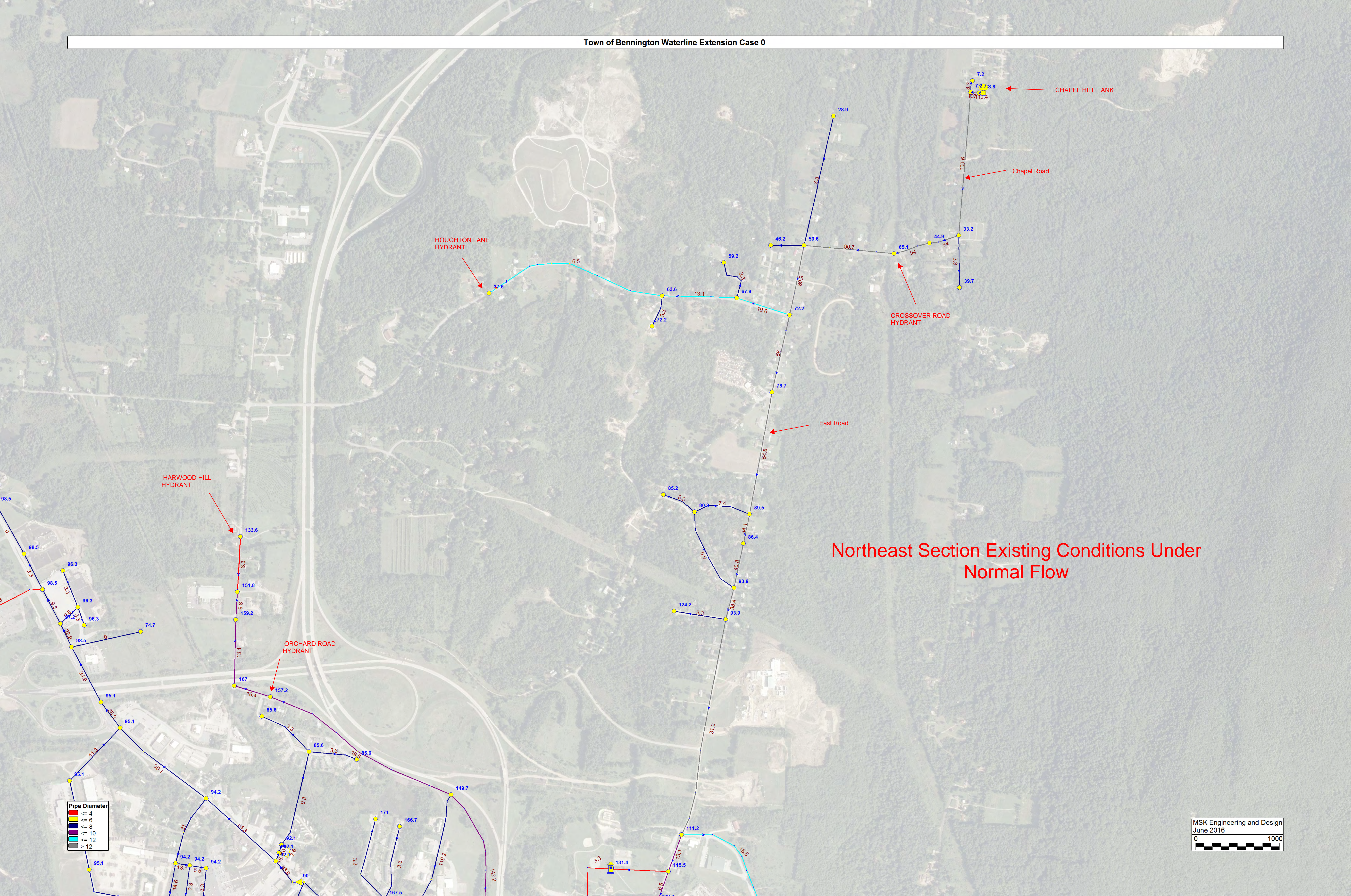
ZONE E					
User/Location	Unit type	# Units	gpd/unit	Subtotal	Notes
AREA 15					
	House	45	360	16200	
	Multi Unit	0		0	
	Undeveloped Lot	1		0	
	Commercial	0		0	
	TOTAL			16200	
	NODES			2	

**ZONE E Total Flow**

16200 GPD

## **A-3    Hydraulic Models**





Northeast Section Existing Conditions Under Normal Flow

Pipe Diameter

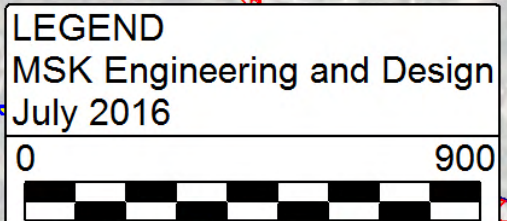
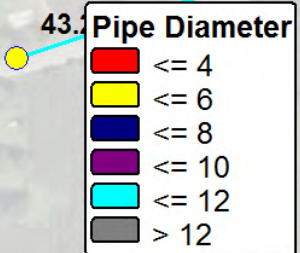
4"	≤ 4"
6"	≤ 6"
8"	≤ 8"
10"	≤ 10"
12"	≤ 12"
> 12"	> 12"

MSK Engineering and Design  
June 2016

0 1000

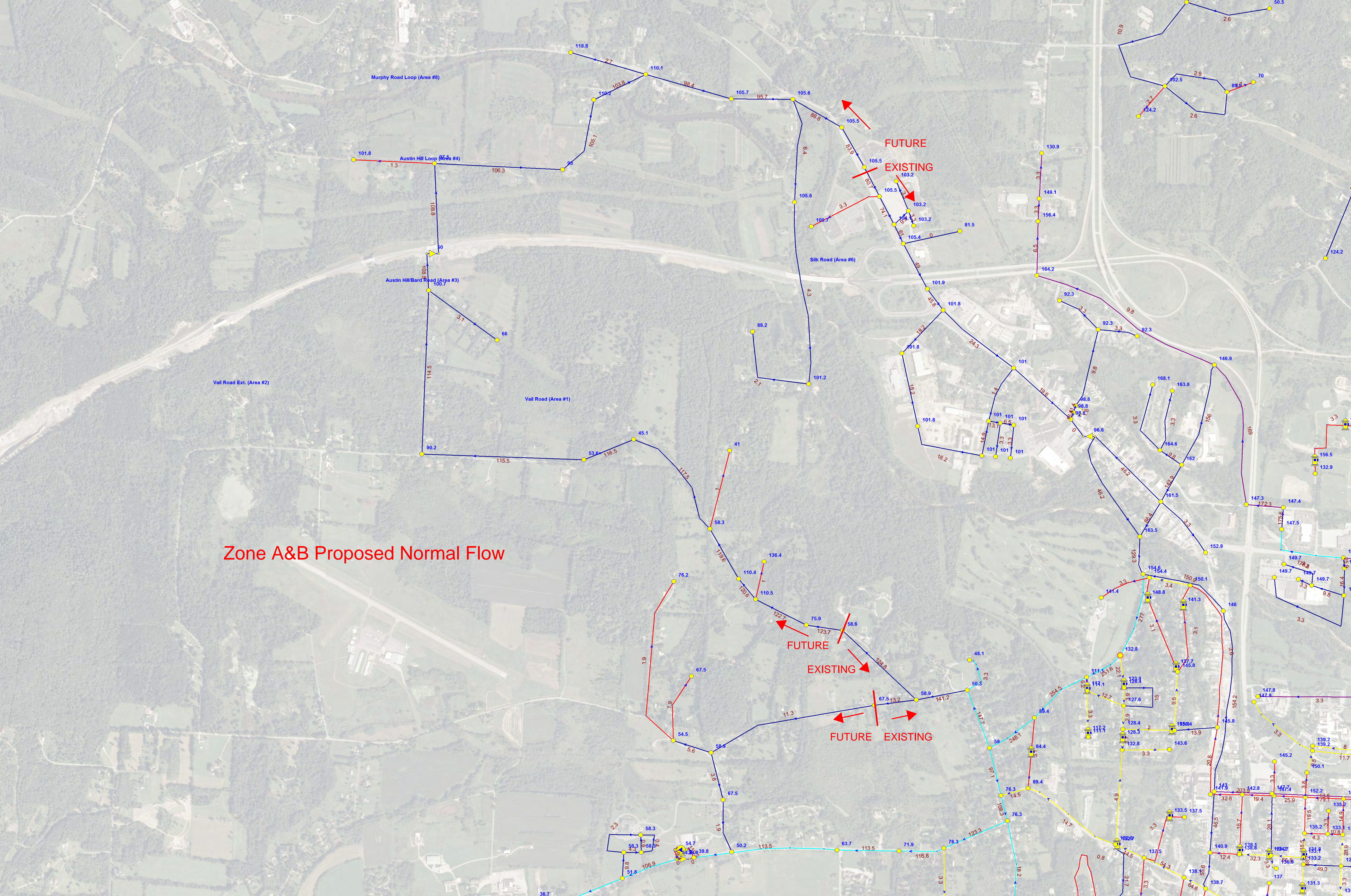


Monument Circle Under Normal Flow

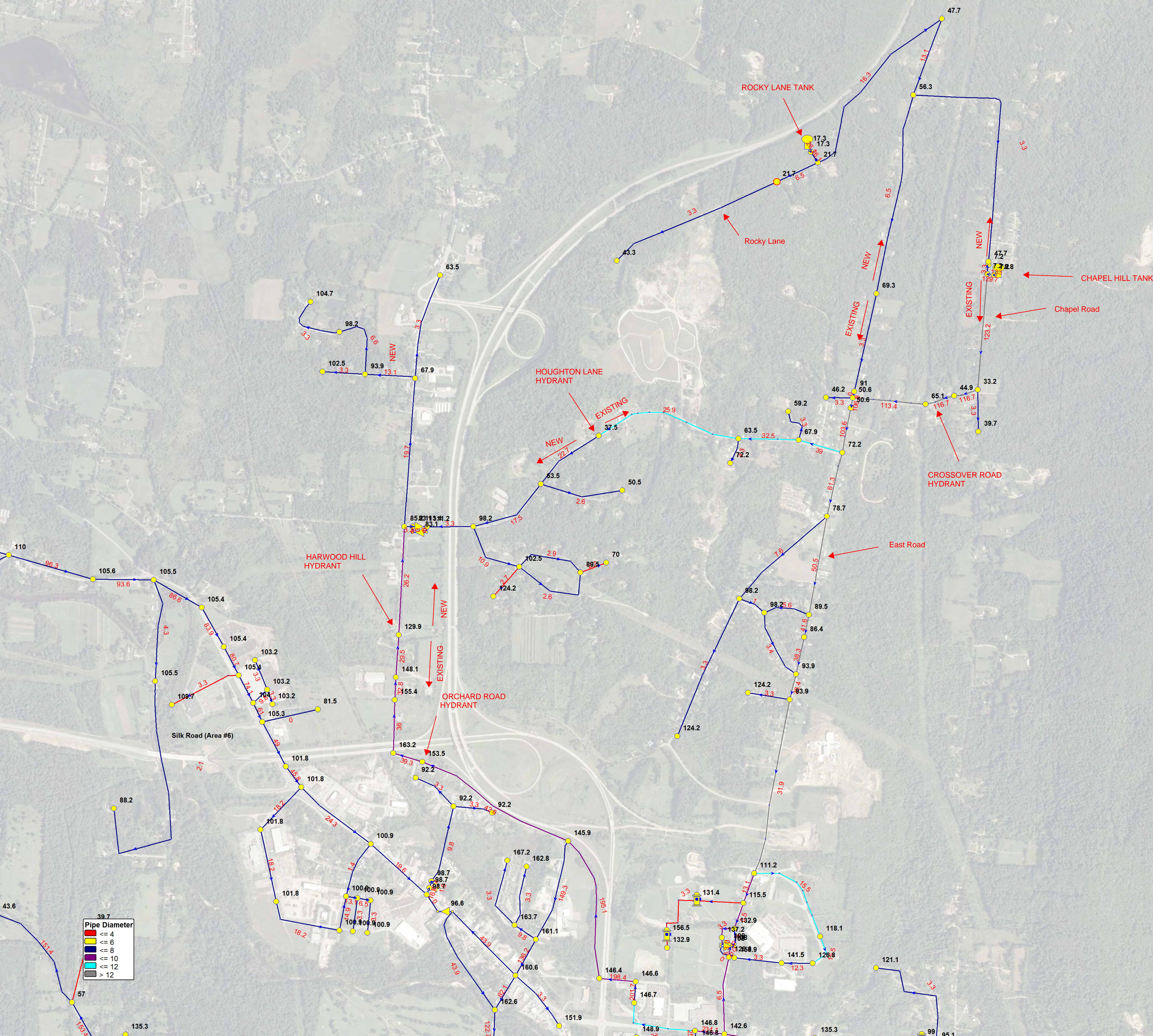




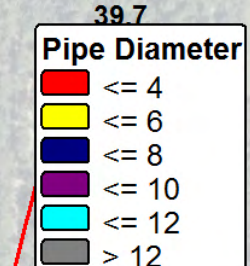
Zone A&B Proposed Normal Flow







## Zones C B & E Under Normal Flow





**A-4    Town of Bennington Allocation Fee and Current Rate Table**



## TOWN OF BENNINGTON

### **Water/Sewer Systems** ***Allocation Fee Policy***

Effective January 1, 2004, the Board hereby establishes an allocation fee for the water and sewer systems.

The fee is payable to the Town upon receipt of an allocation of capacity in either system by the Town. Requests for allocation shall be directed to the Water Resources Superintendent in writing.

The fee is based on \$1,000.00 for each 450gpd of proposed use. Annually, the Board shall review the proportionate split of the \$1,000.00 between the systems and shall establish said split based on system capacity issues. (In the first year, it shall be \$650.00 for water; \$350.00 for sewer.)

Allocation requests shall be required for all new developments after the effective date. For existing uses, only incremental increases in use (capacity demand) shall require an allocation. Fees charged shall be based on the incremental increase only. Allocations shall be valid for two years from date of issue. An allocation may be renewed, without fee, if the proposed development has not proceeded to completion within the two-year period. Where developments have received an allocation and no activity has occurred within the two years, the allocation shall be void, unless there exists a clear and verifiable reason for the inactivity, which is beyond the control of the developer.

# Single Family Residences

## Water - Sewer

### Allocation Fees Schedule

MAY 2015

#### WATER

	Estimated (gallons)	MINIMUM Fee	
3-Bedroom (up to)	450	\$ 650	(\$1.44 p/g)
4-Bedroom	600	\$ 865	
5-Bedroom	750	\$1,083	
6-Bedroom	900	\$1,300	
7-Bedroom	1050	\$1,517	

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#### Sewer

	(gallons)	MINIMUM Fee	
3-Bedroom (up to)	210 (state) / 420 (calc)	\$380	(\$1.81 p/g)
4-Bedroom	210 (state) / 490 (calc)	\$380	
5-Bedroom	560	\$1,008	
6-Bedroom	630	\$1,134	
7-Bedroom	700	\$1,260	

# FY2016

## WATER & SEWER RATE CALCULATION

### RATE PROPOSAL WATER & SEWER

Board approval: xx/xx/xx

WATER				
NUMBER OF UNITS	PROPOSED QUARTERLY RATES	FY15 Rates	DOLLARS GENERATED	
	FLAT: 114.87	111.53	3% Increase	
	PER 1,000 GALLONS: 4.25	4.12	3% Increase	
	METER SURCHARGE 69.05	67.04	3% Increase	
2776	N/A	459.48	Per Person Yrly Increase 13.36	1,275,516
1182	197,686,085	4.25	0.13	840,166
		276.20	8.04	326,468
				<b>\$ 2,442,151</b>
				\$ 2,443,650
				\$ (1,499)

ANNUALIZED FLAT RATE

UNITS X PER 1,000 GALLONS  
ANNUAL TOTAL SURCHARGE

TOTAL DOLLARS GENERATED

BUDGETED EXPENDITURES NET OF  
OTHER REVENUES

SURPLUS OVER BUDGET

SEWER				
NUMBER OF UNITS	PROPOSED QUARTERLY RATES	FY15 Rates	DOLLARS GENERATED	
	FLAT: 86.00	83.50	3% Increase	
	PER 1,000 GALLONS 2.99	2.91	3% Increase	
	METER SURCHARGE 53.44	51.88	3% Increase	
2830	N/A	344.02	Per Person Yrly Increase 10.02	973,570
1272	219,237,080	2.99	0.08	656,613
		213.76	6.24	271,904
				<b>\$ 1,902,086</b>
				\$ 1,906,430
				\$ (4,344)

FLAT: \$111	THE ANNUAL IMPACT OF INCREASING EACH RATE BY A PENNY WOULD INCREASE REVENUE BY THE AMOUNTS SHOWN FOR ← WATER AND SEWER →	FLAT: \$113
PER 1,000 GALLONS: \$1,977		PER 1,000 GALLONS: \$2,192
METER SURCHARGE \$12		METER SURCHARGE \$13

## **A-5    Opinion of Probable Cost**

Opinion of Probable Cost - Main Extensions

Unit Price	\$	175.00	\$/FT
Cost Per Connection	\$	7,000.00	\$/CONNECTION

Zone A												
Area #	Description	Length (FT)	Total Wells	W: NT	W:ND	W:<20	W: 20-70	W: >70	Cost	Add	Total	Notes
1	Vail Road	7,700	19	5	4	1	6	3	\$ 1,480,500.00		\$ 1,480,500.00	
2	Austin Hill Road	4,300	6	0	3	0	0	3	\$ 794,500.00	\$ 50,000.00	\$ 844,500.00	PRV needed
3	Bard Road	1,600	11	0	1	2	0	8	\$ 357,000.00		\$ 357,000.00	
4	Murphy Road	3,900	20	0	3	0	3	14	\$ 822,500.00	\$ 100,000.00	\$ 922,500.00	Murphy Road needs a river crossing, ledge present
5	North Bennington Rd	4,800	38	3	5	0	1	29	\$ 1,106,000.00		\$ 1,106,000.00	
6	Silk/Cardinal	6,100	20	2	4	0	2	12	\$ 1,207,500.00	\$ 150,000.00	\$ 1,357,500.00	Silk Road needs a river crossing
7	Red Pine Road	350	4	1	0	1	1	1	\$ 89,250.00		\$ 89,250.00	
8	Eaton Rd	700	3	0	0	0	0	3	\$ 143,500.00		\$ 143,500.00	
9	Vail Road Extension	3,100	22	0	20	1	0	1	\$ 696,500.00		\$ 696,500.00	
		32,550	143	11	40	5	13	74	Subtotal Construction Zone A		\$ 6,997,250.00	
		Contingency (20%)										\$ 1,399,450.00
		Allocation Fees (Town of Bennington)										\$ 79,152.48
		Final Engineering Design Services (State DWSRLF Fee Curve)										\$ 407,664.83
		Construction Administration Services (State DWSRLF Fee Curve)										\$ 747,385.52
		Total Zone A										\$ 9,630,902.83
Zone B												
Area #	Description	Length (FT)	Total Wells	W: NT	W:ND	W:<20	W: 20-70	W: >70	Cost	Add	Total	Notes
10	Walloomsac et. Al	10,100	45	10	6	12	14	3	\$ 2,082,500.00		\$ 2,082,500.00	
		10,100	45	10	6	12	14	3	Subtotal Construction Zone B		\$ 2,082,500.00	
		Contingency (20%)										\$ 416,500.00
		Allocation Fees (Town of Bennington)										\$ 23,328.00
		Final Engineering Design Services (State DWSRLF Fee Curve)										\$ 133,583.39
		Construction Administration Services (State DWSRLF Fee Curve)										\$ 244,902.87
		Total Zone B										\$ 2,900,814.26
Zone C												
Area #	Description	Length (FT)	Total Wells	W: NT	W:ND	W:<20	W: 20-70	W: >70	Cost	Add	Total	Notes
11	Houghton Ln/Michaels	3,900	20	3	2	0	6	9	\$ 822,500.00		\$ 822,500.00	
12	Apple Hill	4,900	36	7	0	2	3	24	\$ 1,109,500.00	\$ 25,000.00	\$ 1,134,500.00	ledge present
13	Willow Road	6,050	24	6	5	1	5	7	\$ 1,226,750.00		\$ 1,226,750.00	
		14,850	80	16		3	14	40	Subtotal Construction Zone C		\$ 3,183,750.00	
		Contingency (20%)										\$ 1,053,250.00
		Allocation Fees (Town of Bennington)										\$ 20,628.00
		Final Engineering Design Services (State DWSRLF Fee Curve)										\$ 197,455.25
		Construction Administration Services (State DWSRLF Fee Curve)										\$ 575,332.33
		Total Zone C										\$ 5,030,415.58
Zone D												
Area #	Description	Length (FT)	Total Wells	W: NT	W:ND	W:<20	W: 20-70	W: >70	Cost	Add	Total	Notes
14	Harwood Hill et al.	10,000	43	28	3	2	3	7	\$ 2,051,000.00	\$ 100,000.00	\$ 2,151,000.00	Pressure Reducing Sustaining Valve/Bridge Xing
		10,000	43	28	3	2	3	7	Subtotal Construction Zone D		\$ 2,151,000.00	
		Contingency (20%)										\$ 430,200.00
		Allocation Fees (Town of Bennington)										\$ 25,459.00
		Final Engineering Design Services (State DWSRLF Fee Curve)										\$ 137,623.26
		Construction Administration Services (State DWSRLF Fee Curve)										\$ 252,309.32
		Total Zone D										\$ 2,996,591.58
Zone E												
Area #	Description	Length (FT)	Total Wells	W: NT	W:ND	W:<20	W: 20-70	W: >70	Cost	Add	Total	Notes
15	East/Chapel/Rocky L.	14,100	45	30	6	3	6	0	\$ 2,782,500.00	\$ 750,000.00	\$ 3,532,500.00	Small Tank and Pump Station
		14,100	45	30	6	3	6	0	Subtotal Construction Zone E		\$ 3,532,500.00	
		Contingency (20%)										\$ 706,500.00
		Allocation Fees (Town of Bennington)										\$ 23,328.00
		Final Engineering Design Services (State DWSRLF Fee Curve)										\$ 217,283.89
		Construction Administration Services (State DWSRLF Fee Curve)										\$ 398,353.80
		Total Zone E										\$ 4,877,965.70

- Notes:
1. Test results are based on sampling results provided by VTDEC dated 5/25/16
  2. Number of connections shown per zone are estimated from information provided by Town of Bennington and verified by a manual count from aerial photographs. Actual totals may differ.
  3. Allocation Fees are calculated based on all users in the area connected to public water at \$1.44/gpd
  4. Construction Costs and Allocation Fees assume all wells in the vicinity are connected to public water at the time of construction.
  5. Permit Fees are not calculated and assumed to be a de minimus cost to the project.

Waite Drive (Waterline Extension Required)

Item	Item Description	Unit	Unit Cost	Qty.	Subtotal
1	Mob/Demob	LS	\$ 7,000.00	1.0	\$ 7,000.00
2	Removal and Replacement of Unsuitable Fill	CY	\$ 35.00	500.0	\$ 17,500.00
3	Bituminous Concrete Pavement	TON	\$ 130.00	20.0	\$ 2,600.00
4	Ductile Iron MJ Fittings	LBS	\$ 3.00	300	\$ 900.00
5	Flush Hydrant Assembly	EA	\$ 2,500.00	1	\$ 2,500.00
6	4" Ductile Iron Pipe	LF	\$ 75.00	400	\$ 30,000.00
7	Cast-in-Place Concrete Thrust Block	EA	\$ 150.00	3	\$ 450.00
8	3/4" Corporation Stop	EA	\$ 500.00	3	\$ 1,500.00
9	3/4" Curb Stop	EA	\$ 500.00	3	\$ 1,500.00
10	3/4" CU Pipe	LF	\$ 30.00	120	\$ 3,600.00
11	Core Drilling, interior plumbing, meter	EA	\$ 2,000.00	3	\$ 6,000.00
12	Water Crossing Under Sewer	EA	\$ 1,500.00	1	\$ 1,500.00
13	Buried Rigid Insulation Board	SF	\$ 2.50	300	\$ 750.00

Total \$ 75,800.00

101 Northside Drive Service Connection

2	Removal and Replacement of Unsuitable Fill	CY	\$ 35.00	67.0	\$ 2,345.00
3	Bituminous Concrete Pavement	TON	\$ 130.00	14.0	\$ 1,820.00
10	3/4" CU Pipe	LF	\$ 30.00	65.0	\$ 1,950.00
11	Core Drilling, Floor repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00

Total \$ 8,115.00

137 Northside Drive Service Connection (AutoMaster)

2	Removal and Replacement of Unsuitable Fill	CY	\$ 35.00	75.0	\$ 2,625.00
3	Bituminous Concrete Pavement	TON	\$ 130.00	15.0	\$ 1,950.00
10	1" HDPE	LF	\$ 30.00	110.0	\$ 3,300.00
11	Core Drilling, Floor repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00

Total \$ 9,875.00

228 Northside Drive Service Connection

2	Removal and Replacement of Unsuitable Fill	CY	\$ 35.00	85.0	\$ 2,975.00
3	Bituminous Concrete Pavement	TON	\$ 130.00	17.0	\$ 2,210.00
8	1" Curb Stop	EA	\$ 500.00	1.0	\$ 500.00
9	1" Corporation Stop	EA	\$ 500.00	1.0	\$ 500.00
10	1" HDPE/"K' CU	LF	\$ 30.00	200.0	\$ 6,000.00
11	Core Drilling, Floor repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00

Total \$ 14,185.00

301 North Bennington Road Service Connection

2	Removal and Replacement of Unsuitable Fill	CY	\$ 35.00	30.0	\$ 1,050.00
10	3/4" 'K' CU	LF	\$ 30.00	50.0	\$ 1,500.00
11	Core Drilling, Floor repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00

Total \$ 4,550.00

155 Harwood Rd - (Watermain Extension Required)

1	Mob/Demob	LS	\$ 7,800.00	1.0	\$ 7,800.00
2	Removal and Replacement of Unsuitable Fill	CY	\$ 35.00	500.0	\$ 17,500.00
3	Bituminous Concrete Pavement	TON	\$ 130.00	160.0	\$ 20,800.00
4	Ductile Iron MJ Fittings	LBS	\$ 3.00	300	\$ 900.00
5	Flush Hydrant Assembly	EA	\$ 2,500.00	1	\$ 2,500.00
6	4" Ductile Iron Pipe	LF	\$ 75.00	850	\$ 63,750.00
7	Cast-in-Place Concrete Thrust Block	EA	\$ 150.00	5	\$ 750.00
8	3/4" Curb Stop	EA	\$ 500.00	1.0	\$ 500.00
9	3/4" Corporation Stop	EA	\$ 500.00	1.0	\$ 500.00
10	3/4" 'K' CU	LF	\$ 30.00	50.0	\$ 1,500.00
11	Core Drilling, Floor Repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00
12	Auger Bore/Sleeve under Route 7	EA	\$ 20,000.00	1.0	\$ 20,000.00

Total \$ 138,500.00

107 Hicks Avenue Service Connection

8	3/4" Curb Stop	EA	\$ 500.00	1.0	\$ 500.00
9	3/4" Corporation Stop	EA	\$ 500.00	1.0	\$ 500.00
10	3/4" 'K' CU	LF	\$ 30.00	50.0	\$ 1,500.00
11	Core Drilling, Floor repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00
Total					\$ 4,500.00

584 Harwood Hill Road Service Connection (Curb stop at street)

10	3/4" 'K' CU	LF	\$ 30.00	200.0	\$ 6,000.00
11	Core Drilling, Floor repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00
Total					\$ 8,000.00

61/68 Autumn Acres Road - (Watermain Extension Required)

1	Mob/Demob	LS	\$ 4,000.00	1.0	\$ 4,000.00
2	Removal and Replacement of Unsuitable Fill	CY	\$ 35.00	50.0	\$ 1,750.00
3	Bituminous Concrete Pavement	TON	\$ 130.00	10.0	\$ 1,300.00
4	Ductile Iron MJ Fittings	LBS	\$ 3.00	150	\$ 450.00
6	4" Ductile Iron Pipe	LF	\$ 75.00	550	\$ 41,250.00
7	Cast-in-Place Concrete Thrust Block	EA	\$ 150.00	2	\$ 300.00
8	3/4" Curb Stop	EA	\$ 500.00	2.0	\$ 1,000.00
9	3/4" Corporation Stop	EA	\$ 500.00	2.0	\$ 1,000.00
10	3/4" 'K' CU	LF	\$ 30.00	50.0	\$ 1,500.00
11	Core Drilling, Floor Repair, interior plumbing, meter	EA	\$ 2,000.00	2.0	\$ 4,000.00
12	Auger Bore/Sleeve under Route 7	EA	\$ 20,000.00	1.0	\$ 20,000.00
Total					\$ 76,550.00

1366 East Road Service Extension

2	Removal and Replacement of Unsuitable Fill	CY	\$ 35.00	25.0	\$ 875.00
3	Bituminous Concrete Pavement	TON	\$ 130.00	5.0	\$ 650.00
8	3/4" Curb Stop	EA	\$ 500.00	1.0	\$ 500.00
9	3/4" Corporation Stop	EA	\$ 500.00	1.0	\$ 500.00
10	3/4" HDPE/'K' CU	LF	\$ 30.00	60.0	\$ 1,800.00
11	Core Drilling, Floor repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00
Total					\$ 6,325.00

1522 East Road Service Connection (Curb stop at street)

10	3/4" 'K' CU	LF	\$ 30.00	35.0	\$ 1,050.00
11	Core Drilling, Floor repair, interior plumbing, meter	EA	\$ 2,000.00	1.0	\$ 2,000.00
Total					\$ 3,050.00

Total Project	\$	349,450.00	
Contingency	\$	87,362.50	25%
Engineering Design and CA	\$	38,439.50	11%
<b>Total Construction</b>	<b>\$</b>	<b>475,252.00</b>	



**A-6 Letter from District 8 Act 250 Coordinator**



Nathan Stearns, Esq.  
Hershensen, Carter, Scott and McGee, P.C.  
P.O. Box 909  
Norwich, Vermont 05055-0909

**Subject: Jurisdictional Opinion #8-265; Saint-Gobain Perfluorooctanoic Acid ("PFOA") Remediation Project, Bennington and North Bennington, Vermont**

Dear Mr. Stearns:

I write in response to your request dated May 24, 2016 for a Jurisdictional Opinion as provided for in 10 V.S.A. § 6007 ("the request").

Summary of Opinion

In summary (and for reasons outlined in more detail below), it is my opinion that the project as described in the request does not trigger Act 250 jurisdiction and therefore does not require an Act 250 Land Use Permit. 10 V.S.A. § 6001 et seq. (Act 250).

**I. Facts and Documents**

In reaching my conclusion outlined above, I relied upon the facts and the law as outlined in the request which includes a proposed plan to provide municipal water connections to homes and businesses effected by PFOA contamination in Bennington and North Bennington.

The Project involves approximately 14,000 feet of new water main extending from the Village of North Bennington water system, and approximately 50,000 feet of water main extensions from the Town of Bennington water system. The water mains will be extended to provide service to all of the residences and businesses with detected PFOA contaminated water supplies as shown by the colored circles on the plan entitled "North Bennington PFOA Area of Interest," dated May 6, 2016, found in your request attachment.

The Project will extend the existing water mains, but involves a less than 10% expansion of the hydraulic capacity of the facilities, according to project engineer Youngstrom and confirmed by the Water Supply Division of ANR.

Water supplies that show as "Non-Detect" on the attached plan will be permitted to connect to the water mains, but are not part of the Project at this time.

ANR has determined, pursuant to its authority under 10 V.S.A. §§ 1283 and 6615b, that as part of Saint-Gobain's corrective action plan it is necessary to extend the public water mains to provide water to businesses and residences in the impacted area. ANR's determination can be found in a letter from Matt Chapman, General Counsel for the Department of Environmental Conservation, dated May 17, 2016.

Finally, some of the new water mains may be constructed in Act 250 permitted subdivisions and permitted developments.

## II. Analysis

The statutory provision relevant to Act 250 jurisdiction over the proposal can be found in 10 V.S.A. § 6081 which requires a permit prior to the commencement of construction of a "development". The definition of development in 10 V.S.A. § 6001(3)(A)(v) provides that for municipal projects, jurisdiction is only triggered for municipal projects for "[t]he construction of improvements on a tract of land involving more than 10 acres." This provision has been interpreted to apply only to the actual construction area itself and not based on the size of the entire involved tract of land. *Re: Town of Barre Millstone Hill West Bike Path*, DR #440, MOD at 3 (1/3/05) ("Involved land" for state, county and municipal projects means only land that is physically disturbed by the project.").

Given the length of the proposed water main extensions, and using a customary "disturbance" area of 10 feet in width, the project results in actual impacts to approximately 15 acres.

Notwithstanding the amount of disturbed acreage, 10 V.S.A. § 6001(3)(D)(vi)(dd), however, provides that the term "development" does not include "[t]he construction of improvements for . . . a corrective action authorized in a corrective action plan approved by the Secretary of Natural Resources under section 6615b of this title. Because this language is more specific than the 10 acre jurisdictional threshold, the more specific exemption language controls the Act 250 permitting jurisdiction if the exemption applies. See *In re Application of Lathrop L.P. I*, 2015 VT 49, ¶31, 121 A.3d 630 ("a commonly recognized method for reconciling conflicting statutory provisions is to hold the specific provision as an exception to the general."). ANR's determination, pursuant to 10 V.S.A. § 6615b, that the public water main extension to provide water in the impacted area is a required corrective action measure as part of a corrective action plan qualifies the project for the exemption from Act 250 permit requirements in 6001(3)(D)(vi)(dd). This is the same conclusion that ANR reached in its determination letter. Accordingly, the more specific provision of section 6001(3)(D)(vi)(dd) controls the more general provision of section 6001(3)(A)(v), and the Project is not "development" and is therefore not subject to the permit requirements of Act 250.

In addition, certain expansions of municipal water systems are also exempt from the Act 250 permit requirements. 10 V.S.A. § 6081(d) provides as follows:

For purposes of this section, the following construction of improvements to preexisting municipal, county, or State projects



shall not be considered to be substantial changes and shall not require a permit as provided under subsection (a) of this section:

\* \* \*

(2) municipal, county, or State water supply enhancements that do not expand the capacity of the facility by more than 10 percent.

Finally, since this proposal will improve drinking water quality in the permitted subdivisions/developments, and will follow existing streets and roadway at these locations, there is no material change to those permits.

### **III. Conclusion**

For reasons outlined above, I conclude that the water main project described in the request does not trigger Act 250 jurisdiction. Accordingly, no Act 250 Land Use Permit is required.

### **IV. Reconsideration or Appeal**

This is a jurisdictional opinion issued pursuant to 10 V.S.A. § 6007(c) and Act 250 Rule 3(A). A request for reconsideration by the district coordinator, pursuant to Act 250 Rule 3(B), must be sent to the district coordinator at the above address within 30 days of the mailing of this opinion.

Effective July 1, 2013, no appeal may be taken from a jurisdictional opinion or coordinator's decision on reconsideration without reconsideration by the Natural Resources Board. Requests for reconsideration by the Board must be submitted to the Board within 30 days of the mailing of this decision or a coordinator's decision on reconsideration in accordance with Act 250 Rule 3(C). The mailing address is: Natural Resources Board, Dewey Building, National Life Drive, Montpelier, VT 05620-3201. For additional information see Act 250 Rule 3(C)

[\[http://www.nrb.state.vt.us/lup/publications/rules/2015rules.pdf\]](http://www.nrb.state.vt.us/lup/publications/rules/2015rules.pdf).

Sincerely,



Warren E Foster  
District Coordinator

Attached: Exhibit List  
Certificate of Service

