

Town of Sterling
Final Plan Map & Report

Project #130165

for

Proposed Water District #1
Municipal Water System

in the

Town of Sterling
Cayuga County, New York

September 2013, Revised February 2014

Prepared by:



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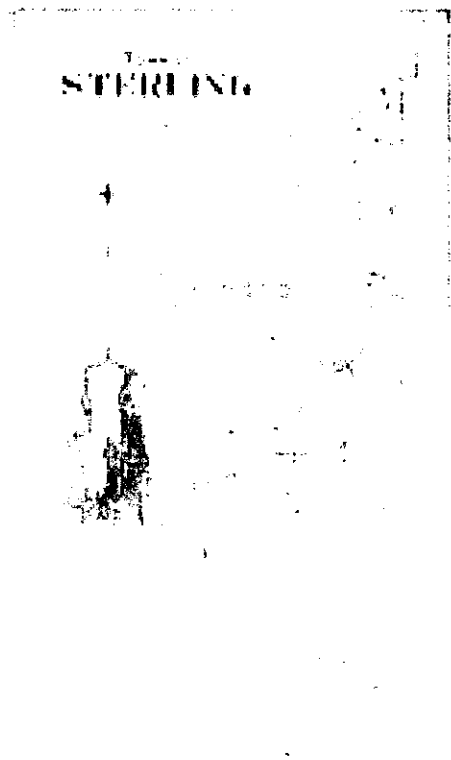


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I. INTRODUCTION

The Town of Sterling (the Town) has requested that Capital Consultants Architecture and Engineering (C2AE) work with the Town water committee to evaluate installation of a municipal drinking water system within the Town. Design and construction of the water system will be completed in a phased approach with the first area including the northern area of Town along Lake Ontario, the corridor along the northern section of Irwin Road, and other local side streets as shown on the General Plan, included as Appendix A. This area will provide potable water to a section of Town that is most in need of a public water supply. The selected area is a direct result of a recent questionnaire submitted to the property owners in the Town of Sterling and the input and recommendations of the Town of Sterling water committee. During this study numerous meetings were held with the committee to logically develop this project based on the needs of the Town property owners.

There are approximately 186 residential properties (136 EDUs) located in the northern area (Water District #1) that are presently served by individual dug or drilled wells or purchased water. Based on a town-wide survey, many of these wells are unproductive or produce low quality water.

The Town of Sterling is located in the northern section of Cayuga County and borders Lake Ontario to the north, Oswego County to the east and Wayne County to the west. The Town is sparsely populated with centers in and around the Village of Fair Haven and the Hamlet of Sterling. The population of the Town, based on the 2010 census data is 3,116, which is less than the 2000 population of 3,432. The 1990 Census listed a population of 3,210. Growth in the Town is only minor at best. Like many communities in upstate New York, Sterling is doing what is necessary to hold on to what is presently available.

II PURPOSE

The Town has authorized C2AE to evaluate the installation of a town-wide municipal water system to provide high-quality reliable drinking water to its residents. The purpose of this report is to provide a summary of the evaluation and includes the following:

- Description of Existing Conditions;
- Water Demand Evaluation;
- Municipal Drinking Water System Alternative Evaluation;
- Potential Funding Opportunities;
- Recommendations;
- Construction Cost Estimates; and
- Implementation Plan.

III. CONCLUSIONS & RECOMMENDATIONS

With the proposed construction of a new municipal water system in the selected area, including a distribution system with a connection to an existing system, it is apparent that the Town desires that residents have a safe and adequate water supply plus fire fighting capabilities. It is also evident that due to the costs of such an undertaking, the residents within the project area will require financial assistance to consider a water system project. Based on these considerations, C2AE recommends that the Town take the following steps when pursuing a phased improvement.

- Submit a USDA Rural Development final application to fund this project.

The intent of the proposed plan is to provide safe, reliable, and plentiful water for domestic use and fire protection. A brief description of the proposed plan to be accomplished includes the following:

- Install a new distribution system to the project area which will provide public water to the residents.
- The preliminary Opinions of Costs have been outlined for each of the proposed alternatives and are included in Appendix H.
- The distribution system will be designed to the latest engineering standards and to the standards of the reviewing agencies involved.
- The distribution system will be designed to meet the immediate needs of the project area and will consider the possible needs of the future.
- Connecting to the existing OCWA water system on the eastern side of Town along West Lake Road, Woodworth Road, and Parkhurst Road (see Figure GP for details – Appendix A).

IV. EXISTING CONDITIONS

Currently, most residents within the Town of Sterling have either a dug well, drilled well or both, and many purchase drinking water for their homes. Areas of the Town adjacent to the Village of Fair Haven have connected to the village water system. Based on a Town-Wide survey conducted in 2013, many of the existing individual wells yield low volumes of water and/or have low quality drinking water. In addition, the survey indicated that approximately 55% of the responding residents would support the pursuit of a municipal drinking water system within the Town, and 70% in the proposed project area. Most of these residents live in the northern and central sections of Town, primarily where this study is focused. Some of the survey results are included as Appendix I. Most of the southern sections of the town were not strongly interested in pursuing a public water system. The Town is in the process of submitting a Pre-Application for funding for proposed WD #2. The location of this project is in the central corridor section of the Town.

It is C2AE's understanding that based on the Town-Wide survey, the Town Water Committee (with the assistance of C2AE) intends on pursuing a project in the location shown on Figure GP. The proposed area includes the water distribution system components required for Water District No. 1 including water distribution system piping, hydrants, gate valves, and a pressure reducing valve station.

In the proposed project area, 45% of the respondents to the questionnaire said their water supply is from dug wells, 35% from drilled wells and 10% from both. Generally, dug wells are prone to contamination and their use is not recommended by Health Agencies unless installed by a registered water well contractor. Also, the health agencies recommend appropriate treatment (e.g. continuous disinfection) if using a dug well. In the project area, during the dry times of the year, 55% of the property owners said they occasionally or always purchase bulk water and 45% said they never have to. In addition, there are multiple wells within the proposed project area that have failed required water testing requirements for their wells. Copies of these questionnaires are included in Appendix I.

V. ALTERNATIVES

1. Do Nothing Alternative: This alternative would not address the existing problems currently facing the residents of the Town and the residents in the proposed project area, therefore this alternative was not considered.
2. Purchase Water From OCWA: Install a municipal water system in the areas shown on the General Plan included in Appendix A. This area includes, but is not limited to, parts of Irwin Road, Marsh Road, Parkhurst Road and other local side streets with a connection to the OWCA Water System on Irwin Road, Woodworth Road, and Parkhurst Road at the Cayuga/Oswego County line. The proposed project will include 86 residential/commercial connections with a total of 136 equivalent dwelling units (EDU's). The approximate average daily flow for this system will be 15,500 gallons per day (gpd), with a peak daily flow of 31,000 gpd, and an estimated peak hourly flow of 62,000 gpd (43 gpm).

This alternative includes installation of approximately 30,000± linear feet of 8" Class 50 Ductile Iron Pipe (DIP) water main. New fire hydrants and gate valves will be installed along the water main approximately 600 and 800 feet apart respectively, as required by Ten States Standards. Residents near the lake and all others with a pressure over 80 psi will be required to use a PRV valve before the water meter.

Based on the high water level of the existing OCWA tank (530' HWL), static water pressures within the system will range from 76 to 118 psi. OCWA has determined that this tank has sufficient capacity to serve the proposed water district. As per OCWA's requirements, all residents with homes at an elevation less than 345 mean sea level (MSL) will be required to install a pressure reducing valve to reduce the pressure within the home. The available fire flow for the proposed Water District No. 1 system will be approximately 1,400 to 2,500 gallons per minute. A copy of the hydraulic modeling map and associated data is included as Appendix B.

It should be noted that by purchasing water from OCWA, the Town will not be responsible for operation and maintenance of the proposed system. Based on discussions with OCWA during the planning phase of the proposed project, it was determined that an approximate operation and maintenance and water usage cost of \$314/year will be assessed to each EDU. This cost per quarter includes an annual Syracuse Metro Water Board fee, OCWA's Annual Base Rate, OCWA's Annual Hydrant Fee, and water use charges based on approximately 16,425 gallons of water per quarter. See Appendix H. Connecting to OCWA's existing system also promotes the concept of consolidation of utilities.

The projected cost for this alternative is as follows:

CAPITAL - \$2,004,000

O&M - \$ 314/year/EDU

Combing the estimated debt, assuming that the Town secures a USDA Rural Development Maximum Grant, the estimated total cost for water per EDU will be approximately \$701/EDU annually. Please note that a full breakdown of the capital and operation and maintenance costs for this alternative is included as Appendix H.

3. Install a Town Water Treatment Plant System: This alternative would include the installation of a water treatment plant at or near Lake Ontario. The Town would have to purchase land for the plant, install a new intake pipe, build the water treatment plant, install a water storage tank, and install approximately 2,500 linear feet of transmission main to the distribution system.

The projected costs for this alternative would be as follows:

Capital Costs:

-	Distribution System	\$1,637,000
-	Water Storage Tank	500,000
-	Land Purchase	10,000
-	Water Treatment Plant – 75,000 gpd	700,000
-	Transmission Main – 2,500 feet	<u>150,000</u>
		\$2,997,000
	Engineering, Legal & Administrative	<u>763,000</u>
		\$3,760,000

O&M Costs:

-	Electrical & Chemicals	\$10,000 per year
-	Labor	32,000 per year
-	Equipment & material	<u>5,000 per year</u>
		\$47,000 per year

This alternative would save the cost of purchasing bulk water at \$7,000/year but at a substantial cost to produce water. Alternative 2 promotes the concept of consolidation which is generally much less costly in the short and long term.

4. Consider using PVC distribution pipe, install meter pits at connection points with OCWA and start a Town Water Department:

The estimated savings in cost would be approximately \$4/foot, if plastic pipe is used in lieu of ductile iron pipe. The projected costs would be as follows:

Distribution System:	\$2,004,000 – (30,500 l.f. x \$4/ft.)	= \$1,882,400
4 Master Meter Pits @ \$50,000 each		= 200,000
	Capital Costs	= \$2,082,400

Projected O&M Costs: four 6" Master Meters @ \$458.33/month each

Estimated Usage = 472,000 gallons per month

Usage Costs:

OCWA 2014 Costs

$$= (200 \times \$2.77) + (272 \times \$2.24) + (\$458.33 \times 4) \text{ (6" meters)}$$

$$= \$554 + \$609 + \$1,833 = \$2,996/\text{month}$$

$$= \$2,996/\text{month} \times 12 = \$36,000/\text{year}$$

$$= 36,000/86 = \$418/\text{EDU}/\text{year}$$

Water Department Costs:

Hire two (2) part-time operators = \$20,000/year

Subcontracted services = 4,000/year

Fixed Asset Fund = 4,000/year

\$28,000/year

$$\$28,000 \div 86 = \$325.58/\text{year}$$

$$\text{Total O\&M} = \$418 + \$326 = \$744/\text{year}/\text{EDU}$$

For this alternate, the capital costs and O&M costs are both higher.

V. PROPOSED IMPROVEMENTS

Four alternatives were evaluated as part of this study. The alternative recommended is to connect to the existing OCWA water line at the three locations shown on the General Plan in Appendix A, all of which are located on the Cayuga/Oswego county line (Alternative No. 2). This project area consists of approximately 86 residential/commercial connections (136 EDU's) with an average daily flow of approximately 15,500± gpd.

Water will be provided from OCWA's 1-million gallon Tug Hill Road Tank which has a hydraulic grade of 530 feet. With this HWL, pressures within the distribution system will range from 76 psi to 118 psi. This HWL was determined based on a hydraulic model of the entire Town of Sterling to attempt to prevent future system issues. As required by OCWA, all residents with homes less than 345' MSL will need to install a pressure reducing valve to reduce water pressure within the home.

The proposed water distribution system will consist of 8" water main, hydrants every 600 feet and valves every 800 feet. One stream crossing is anticipated where we will propose directional drilling. The water mains will be Class 50 ductile iron pipe as required by OCWA. See Appendix E.

As discussed in the Section V, the operations and maintenance on the proposed system will be the responsibility of OCWA. Therefore, an annual breakdown of operation and maintenance costs have been included as part of this report and are enclosed in Appendix H.

Should the project bids come in under budget, the Town will consider purchasing residential pressure reducing valves (PRVs)

VII. PRELIMINARY ENVIRONMENTAL REVIEW

- A. Federal Wetlands – A preliminary review of records indicate that the project area may contain a few small federal wetlands. However, the proposed water main would be installed within the road and/or shoulder and therefore would have no impact on the wetlands. All Federal permits, including the Army Corps of Engineers, if required, would be secured prior to construction. Please refer to the attached Federal Wetland Map in Appendix D for additional details.
- B. New York State Wetlands - A preliminary review of records indicate that the project area may be adjacent to a few New York State wetlands. However, the proposed water main would be installed within the road and/or shoulder and will not impact the wetlands. All required State permits, including New York State DEC permits, would be secured prior to construction. Please refer to the attached New York State Wetland Map in Appendix D for additional details.
- C. Agricultural Districts - A preliminary review of records indicate that the project area does contain Ag District parcels. A Preliminary and Final Notice of Intent will be submitted to the NYS Department of Agriculture and Markets. (See Appendix F.)
- D. Flood Insurance Rate Maps - A preliminary review of records indicate that the project area is generally not in a flood hazard area. Several streams will be crossed by the water distribution piping, but these crossing should be accomplished using directional drilling methods. (See Appendix G.)

VIII POTENTIAL FUNDING SOURCES

Based on the 2010 Census data, the Town Median Household Income (MHI) is \$45,071. This MHI is used by state and federal funding agencies to calculate funding offers to communities deemed eligible for funding.

USDA Rural Development

This program provides loans and grants to communities with populations less than 10,000 people, however they have limited funding and the program is very competitive. At this moment in time, submission of a USDA RD grant application for the Water District No. 1 project is recommended.

The Town did receive a Preliminary Funding Estimate for this project. Based on that Preliminary Funding Estimate, the projected project costs are as follows:

Projected User Cost

Total Project Cost	\$2,004,000
USDA RD Grant	\$ 750,000
USDA RD Loan	\$1,254,000 @ 2 5/8% for 38 years

Fixed Annual Cost

USDA Loan \$1,254,000 @ 2-5/8% for 38 years (f = 41.91/\$1,000)

Estimated 1 st Year Debt = \$52,555 ÷ 136	= \$387/EDU/year
SMWB Fee – OCWA Hydrant Fee	= \$ 28/EDU/year
Estimated O&M	= <u>\$286/EDU/year</u>
Total Cost	= \$701/EDU/year

IX PROJECT APPROACH

This report has been prepared to outline the most practical method to install a municipal water system along the main corridor in the Town of Sterling. The Town has decided to pursue funding; therefore this engineering report, was submitted with the funding pre-applications.

The proposed project will require district formation as the Town does not currently have any water districts.

Throughout discussions with the various regulatory authorities; the following permits and approvals are anticipated as being necessary for project development:

ANTICIPATED REGULATORY APPROVAL REQUIREMENTS	
AGENCY/GROUP	APPROVAL REQUIRED
Town of Sterling	Acceptance of Plans and Constructed Works
New York State Department of Health – Regional Office	Plan Approval, Acceptance of Completed Works
NYSDEC – Syracuse Office	SEQR
Please note: All of the above agencies are entitled to comment on the environmental impacts of the proposed project in accordance with 6-NYCRR Part 617; State Environmental Quality Review Act (SEQR).	

Based on our assessment of the project and information contained in the “SEQR Handbook” (NYSDEC, 11/92), we believe the action (or project development) may be a Type “unlisted” action pursuant to 6NYCRR 617.13(d)(20).

The Town has addressed the environmental review and has issued a Negative Declaration.

The only potential negative environmental impact associated with the project would be the possibility of erosion during construction. The engineer will develop erosion control plans and specifications for incorporation into the construction process to mitigate any of these negative impacts.

X EXTENT OF PROPOSED WORK AND DESIGN APPROACH

All water mains will be constructed of Class 50 ductile iron pipe with cement lining and an asphalt seal coat as required by OCWA. These pipe materials were selected on the basis of their long design life, sufficient resistance to inadvertent damage and excellent hydraulic properties.

Residential water services will consist of a corporation valve at the main, type "K" copper tubing to the curb box.

The proposed design will be prepared in accordance with the requirements of Part 5 of the New York State Sanitary Code; the "Recommended Standards for Water Works", 1992 edition prepared by the Great Lakes Upper Mississippi River Board of State Public Health and Environmental Managers (aka Ten States Standards).

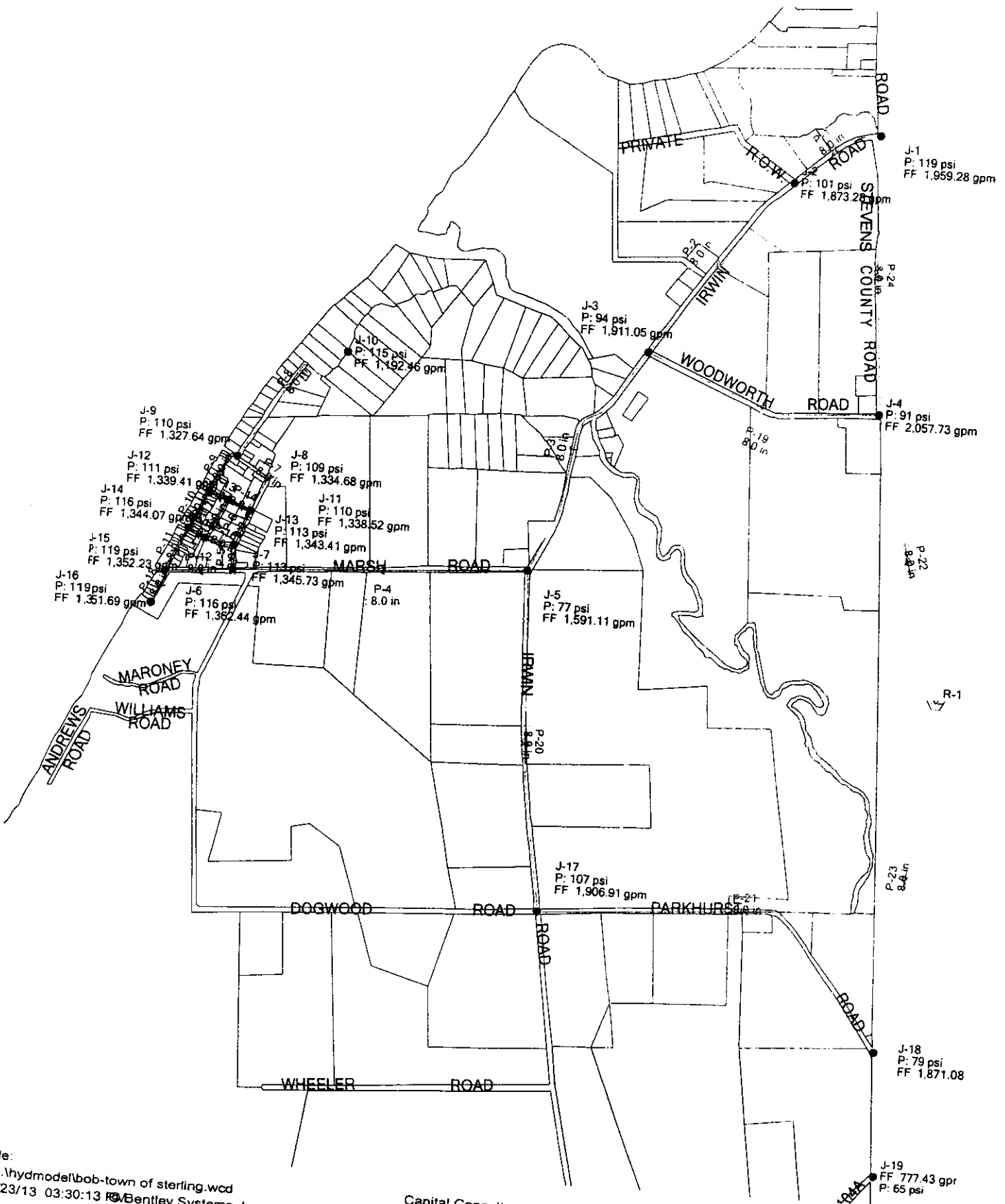
Appendix A
Drawing – General Plan
& Water District Map

Appendix B

Drawing – Hydraulic Model Area

2

Scenario: Base



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Capital Consultants
 Haestad Methods Solution Center
 Watertown, CT 06795 USA

WaterCAD v7.0 [07.00.061.00]
 +1-203-755-1666

Project Engineer:
 Page 1 of 1

Fire Flow Analysis Fire Flow Report

Label	Zone	Fire Flow Iterations	Fire Flow Balanced?	Satisfies Fire Flow Constraints?	Needed Fire Flow (gpm)	Available Fire Flow (gpm)	Total Flow Needed (gpm)	Total Flow Available (gpm)	Residual Pressure (psi)	Calculated Residual Pressure (psi)	Minimum Zone Pressure (psi)	Calculated Minimum Zone Pressure (psi)	Calculated Minimum System Pressure (psi)	Minimum System Junction
J-1	Zone-1	5	true	true	500.00	1,959.28	500.00	1,959.28	20	31	20	20	20	J-2
J-2	Zone-1	3	true	true	500.00	1,873.28	500.00	1,873.28	20	20	20	20	27	J-5
J-3	Zone-1	5	true	true	500.00	1,911.05	500.00	1,911.05	20	25	20	20	20	J-5
J-4	Zone-1	3	true	true	500.00	2,057.73	500.00	2,057.73	20	20	20	22	22	J-5
J-5	Zone-1	3	true	true	500.00	1,591.11	500.00	1,591.11	20	20	20	52	32	J-94
J-6	Zone-1	5	true	true	500.00	1,362.44	500.00	1,362.44	20	26	20	20	20	J-8
J-7	Zone-1	20	true	true	500.00	1,345.73	500.00	1,345.73	20	24	20	20	20	J-8
J-8	Zone-1	3	true	true	500.00	1,334.68	500.00	1,334.68	20	20	20	21	21	J-11
J-9	Zone-1	3	true	true	500.00	1,327.64	500.00	1,327.64	20	20	20	21	21	J-8
J-10	Zone-1	3	true	true	500.00	1,192.46	500.00	1,192.46	20	20	20	36	32	J-94
J-11	Zone-1	20	true	true	500.00	1,338.52	500.00	1,338.52	20	20	20	20	20	J-8
J-12	Zone-1	20	true	true	500.00	1,339.41	500.00	1,339.41	20	21	20	20	20	J-8
J-13	Zone-1	20	true	true	500.00	1,343.41	500.00	1,343.41	20	24	20	20	20	J-8
J-14	Zone-1	20	true	true	500.00	1,344.07	500.00	1,344.07	20	26	20	20	20	J-8
J-15	Zone-1	5	true	true	500.00	1,352.23	500.00	1,352.23	20	27	20	20	20	J-8
J-16	Zone-1	20	true	true	500.00	1,351.69	500.00	1,351.69	20	22	20	20	20	J-8
J-17	Zone-1	5	true	true	500.00	1,906.91	500.00	1,906.91	20	27	20	20	20	J-5
J-18	Zone-1	3	true	true	500.00	1,871.08	500.00	1,871.08	20	20	20	46	32	J-94

Scenario: Base
 Fire Flow Analysis
 Junction Report

Label	Elevation (ft)	Zone	Type	Base Flow (gpm)	Pattern	Demand Calculated (gpm)	Calculated Hydraulic Grade (ft)	Pressure (psi)
J-5	352.0	Zone-1	Demand	1.00	Fixed	1.00	529.97	77
J-18	347.0	Zone-1	Demand	1.00	Fixed	1.00	529.99	79
J-4	320.0	Zone-1	Demand	1.00	Fixed	1.00	529.98	91
J-3	313.0	Zone-1	Demand	1.00	Fixed	1.00	529.98	94
J-2	296.0	Zone-1	Demand	2.00	Fixed	2.00	529.98	101
J-17	283.0	Zone-1	Demand	1.00	Fixed	1.00	529.98	107
J-8	278.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	109
J-11	276.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	110
J-9	275.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	110
J-12	274.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	111
J-7	269.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	113
J-13	268.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	113
J-10	264.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	115
J-14	263.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	116
J-6	263.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	116
J-16	256.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	119
J-15	256.0	Zone-1	Demand	1.00	Fixed	1.00	529.96	119
J-1	254.0	Zone-1	Demand	1.00	Fixed	1.00	529.98	119

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Fire Flow Analysis Reservoir Report

Label	Elevation (ft)	Zone	Inflow (gpm)	Calculated Hydraulic Grade (ft)
R-1	530.0	Zone-1	19.00	530.00

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Capital Consultants

Appendix C
User Data

Town Of Sterling - Town Wide Water Survey

PRINT_KEY	PROP_C	EDU	Vac	LOC_ST_NBR	LOC_ST_NAM	MAIL	OWNER_NAME	PO_BO	STREET_ADD	CITY_STATE
1.00-1-12.2	210	1.00		16253	Barker	S	Munger, Carol	X	16253 Barker Rd	Oswego, NY 13126
1.00-1-12.122	314	1.00		16311	Barker	Rd	Slate, Lee			Snowflake, AZ 85937
1.00-1-12.3	210	1.00		16323	Barker	Rd	Martin, Warren A.	1077		Oswego, NY 13126
1.00-1-2.111	311				County Line	Rd	Palmitessa, Yvonne		180 West Lake Rd	Oswego, NY 13126
1.00-1-2.112	311				County Line	Rd	Bozeman, Gary		539 West Lake Rd	Oswego, NY 13126
2.06-1-55	260	1.00		16195	Ferazzoli	Rd	Melnick, Nicholas		504 Winged Elm Terr	Spartanburg SC 29306
2.06-1-88	210	1.00		16161	Ferazzoli	Rd	Motyka, James		53 County Route 7	Hannibal, NY 13074
2.06-1-89	260	1.00		16181	Ferazzoli	Rd	Flanders, Johnna		16209 Ferazzoli Rd	Sterling, NY 13156
2.06-1-1.1	311	0.5			Ferazzoli	Rd	Motyka, Matthew		16136 Ferazzoli Rd	Sterling, NY 13156
2.06-1-14.112	270	1.00		16191	Ferazzoli	Rd	Curran, George		11063 Armstrong Rd	North Rose, NY 10451-6
2.06-1-74	311	0.5		16195	Ferazzoli	Rd	Solazzo, Frances		2656 Johnson Rd	Oswego, NY 13126
2.06-1-77.1	210	1.00		16136	Ferazzoli	Rd	Flanders, Johnna		626 County Route 25	Oswego, NY 13126-6515
2.06-1-78	270	1.00		16138	Ferazzoli	Rd	Motyka, Frank		16136 Ferazzoli Rd	Sterling, NY 13156
2.06-1-80	311	0.5		16172	Ferazzoli	Rd	Motyka, Kenneth		16142 Ferazzoli Rd	Sterling, NY 13156
2.06-1-82	311	0.5		16142	Ferazzoli	Rd	Motyka, Frank		6767 Loucks Rd	E. Syracuse, NY 13057
2.06-1-83	311	0.5		16190	Ferazzoli	Rd	Motyka, Peter	334	16142 Ferazzoli Rd	Sterling, NY 13156
2.06-1-84	311	0.5		16192	Ferazzoli	Rd	Motyka, Peter	334		Oswego, NY 13126
2.06-1-85	311	0.5		16194	Ferazzoli	Rd	Motyka, Peter	334		Oswego, NY 13126
2.06-1-86	270	1.00		16150	Ferazzoli	Rd	Motyka, Peter	334		Oswego, NY 13126
2.06-1-87	311	0.5		16191	Ferazzoli	Rd	Neuman, William		5 Genesee	Oswego, NY 13031
2.06-1-94	311	0.5		16201	Ferazzoli	Rd	Thompson, James		16162 Sunset Dr	Sterling, NY 13156
2.06-1-97.1	311	0.5		16202	Ferazzoli	Rd	Motyka, Edward		663 Co Rte 25	Oswego, NY 13126
2.06-2-16	312	0.5		16188	Ferazzoli	Rd	Schmidt, Wayne		203 N Decatur St	Strasburg, PA 17579
2.06-2-95	210	1.00		16184	Ferazzoli	Rd	Schmidt, Wayne		203 N Decatur St	Strasburg, PA 17579
2.06-1-54	260	1.00		16188	Ford	Dr	Melnick, Nicholas	195	53 Co Rt 7	Hannibal, NY 13074
2.06-1-14.111	270	1.00		16180	Ford	Dr	Melnick, Nicholas S.		53 Co Rt 7	Hannibal, NY 13074-2254
2.06-1-52.1	260	1.00		16170	Ford	Dr	Kenyon, Richard A.		593 County Route 8	Fulton, NY 13069
2.06-1-28.2	260	1.00		16148	Ford	Dr	Harmon, Robert		210 W Fourth St South	Fulton, NY 13069
2.06-1-41	210	1.00		16130	Ford	Dr	Bateman, Robert		304 W Broadway	Oswego, NY 13126-0195
2.06-1-45	260	1.00		16142	Ford	Dr	Enos, John		1 E Edgewater Dr	Fulton, NY 13069
2.06-1-43	260	1.00		16136	Ford	Dr	Vannucci, Carolyn		53 County Route 7	Hannibal, NY 13074
2.06-1-15	311	0.5		16235	Ford	Dr	Melnick, Nicholas		53 Co Rt 7	Hannibal, NY 13074-2254
2.06-1-16	311	0.5		16233	Ford	Dr	Melnick, Nicholas S.		28 Floridaville Rd	Fulton, NY 13069-4755
2.06-1-17	210	1.00		16183	Ford	Dr	Donhauser, Kenyon E.		2715 Apulia Rd Box 449	Lafayette, NY 13084
2.06-1-18	312	0.5		16177	Ford	Dr	Russell, Robert		518 Plymouth Ave	Mattydale, NY 13211
2.06-1-19	312	0.5		16173	Ford	Dr	LaRue, Phillip		1077 Auburn St	Hannibal, NY 13074
2.06-1-21	260	1.00		16167	Ford	Dr	Karkruff, Timothy		16162 Sunset Dr	Sterling, NY 13156
2.06-1-22	312	0.5		16162	Ford	Dr	Thompson, James	118	16162 Sunset Dr	Hannibal, NY 13074
2.06-1-23	311	0.5		16215	Ford	Dr	Thompson, James		54 Creekside Dr	Fulton, NY 13069-4890
2.06-1-24	311	0.5		16211	Ford	Dr	Powell, Harry		54 Creekside Dr	Fulton, NY 13069
2.06-1-25	260	1.00		16155	Ford	Dr	Whittaker, William M.		210 W Fourth St South	Fulton, NY 13069
2.06-1-26	311	0.5		16203	Ford	Dr	Whittaker, William		204 Skyview Dr	Liverpool, NY 13088
2.06-1-27	311	0.5		16199	Ford	Dr	Harmon, Robert		4233 Peach Blossom Ave	Syracuse, NY 13215
2.06-1-29.1	260	1.00		16145	Ford	Dr	Gallagher, James		5 Genesee St	Camillus, NY 13031
2.06-1-30	260	1.00		16141	Ford	Dr	Jensen, Ronald			
2.06-1-32.1	260	1.00		16137	Ford	Dr	Neuman, William			

Town Of Sterling - Town Wide Water Survey

2.06-1-33	311			0.5	16181	Ford	Dr	Bateman, Robert	195	956 Middle Rd 20A Hilltop	Oswego, NY 13126-0195
2.06-1-34	311			0.5	16179	Ford	Dr	Bateman, Robert	195	224 W 2nd St	Oswego, NY 13126
2.06-1-35	323			0.5	16125	Ford	Dr	Wilber, Clifford		136 East Sixth St	Fulton, NY 13069
2.06-1-37	314			0.5	16172	Ford	Dr	Sugar, John		8 Greenvale Lane	Oswego, NY 13126
2.06-1-39	260		1.00		16126	Ford	Dr	Sugar, Robert M.		1 E Edgewater Dr	Fulton, NY 13069
2.06-1-40	260		1.00		16128	Ford	Dr	Abare, Everett		204 Skyview Dr	Fulton, NY 13069
2.06-1-44	311			0.5	16135	Ford	Dr	Vannucci, Carolyn		204 Skyview Dr	Liverpool, NY 13088
2.06-1-46	311			0.5	16138	Ford	Dr	Vannucci, Carolyn E.		54 Creekside Dr	Liverpool, NY 13088
2.06-1-47	312			0.5	16192	Ford	Dr	Gallagher, James J.		54 Creekside Dr	Fulton, NY 13069
2.06-1-48	210		1.00		16152	Ford	Dr	Gallagher, James J.		404 Ontario St	Fulton, NY 13069
2.06-1-49	311			0.5	16204	Ford	Dr	Whittaker, William		222 E 2nd St	Oswego, NY 13126
2.06-1-50	260		1.00		16156	Ford	Dr	Whittaker, William		28 Floridaville Rd	Fulton, NY 13069-4755
2.06-1-51	260		1.00		16166	Ford	Dr	Menter, James A.	195	136 East Sixth St	Oswego, NY 13126-0195
2.06-1-53.1	311			0.5	16184	Ford	Dr	Greeney, John Sr		16263 Irwin Rd	Oswego, NY 13126
2.06-1-64.1	312			0.5	16180	Ford	Dr	Donhauser, Kenyon E.		16262 Irwin Rd	Oswego, NY 13126
2.06-1-93	311			0.5	16177	Ford	Dr	Bateman, Robert		16221 Irwin Rd	Oswego, NY 13126
2.00-1-12.13	112		1.00		16263	Irwin	Rd	Sugar, Robert M.		16222 Irwin Rd	Oswego, NY 13126
1.00-1-14.1	270		1.00			Irwin	Rd	Woodworth, Robert J.		7730 State Route 104	Oswego, NY 13126
2.00-1-1-21	210		1.00		16221	Irwin	Rd	Woodworth, Robert		8236 Coconut Tree Dr	Liverpool, NY 13090-6806
2.00-1-7	210		1.00		16222	Irwin	Rd	Campbell, Douglas		16329 Irwin Rd	Oswego, NY 13126
1.00-1-11.1	210		1.00		16359	Irwin	Rd	Harmory, John		16373 Irwin Rd	Oswego, NY 13126
1.00-1-1	210		1.00		16239	Irwin	Rd	Malone, Douglas		16373 Irwin Rd	Oswego, NY 13126
1.00-1-17	210		1.00		16329	Irwin	Rd	O'Toole, Patrick		16373 Irwin Rd	Oswego, NY 13126
1.00-1-6.191	210		1.00		16373	Irwin	Rd	Peck, Lawrence I.		16373 Irwin Rd	Oswego, NY 13126
.00-1-9	210		1.00		16245	Irwin	Rd	Barney, Donald		16373 Irwin Rd	Oswego, NY 13126
.00-1-6.92	270		1.00		16393	Irwin	Rd	Knox, Rebecca		16373 Irwin Rd	Oswego, NY 13126
.00-1-13	210		1.00		16330	Irwin	Rd	Galloway, James R.		16393 Irwin Rd	Oswego, NY 13126
.00-1-15	210		1.00		16307	Irwin	Rd	Caster, Brian		16393 Irwin Rd	Oswego, NY 13126
.00-1-16	311		1.00	0.5		Irwin	Rd	Woodworth, Robert Jr		16307 Irwin Rd	Oswego, NY 13126
.00-1-17	270		1.00		16255	Irwin	Rd	Klein, Peter M.		464 W Lake Rd	Oswego, NY 13126
.00-1-5	311			0.5		Irwin	Rd	Scruton, Thomas		16255 Irwin Rd	Oswego, NY 13126
.00-1-6.171	322			0.5	16365	Irwin	Rd	Schiano, Jennie		1 E Main St Ste 315	Rochester, NY 14614-1880
.00-1-6.181	322			0.5		Irwin	Rd	Galloway, Claudia A.		2726 NE 20th Ct	Ft. Lauderdale, FL 33305
.00-1-6.91	314			0.5		Irwin	Rd	Galloway Rev. Living Trust, Claudia		2726 NE 20 Ct	Ft. Lauderdale, FL 33305
.00-1-6.93	314			0.5		Irwin	Rd	Balsley, Lisa Lynn		8345 SE 60th Dr	Okeechobee, FL 34974-1714
.00-1-10	270		1.00		16228	Irwin	Rd	Brown, Trust		221 El Camino Dr	Pittsburg, CA 94565
.00-1-11	695			0.0		Irwin	Rd	Emmons, Ronald M.		16228 Irwin Rd	Oswego, NY 13126
.00-1-3.13	311			0.5		Irwin	Rd	Woodworth Cemetery,		1290 State Route 104 A	Sterling, NY 13156
.00-1-3.16	311			0.5	16171	Irwin	Rd	Cullen, Donald T.		6505 Emille Ln	East Syracuse, NY 13057
.00-1-3.3	962			0.0	Off	Irwin	Rd	Dawnstar, William P.		42 E Oneida St	Oswego, NY 13126
.00-1-3.42	311			0.5		Irwin	Rd	Cayuga County Of,		160 Genesee St	Auburn, NY 13021
.00-1-3.442	311			0.5		Irwin	Rd	Mc Gough, John	13	Shell, WY 82441	
.00-1-3.443	311			0.5		Irwin	Rd	Trepasso, Venna J.	235	Hannibal, NY 13074	
.00-1-3.6	210		1.00		15865	Irwin	Rd	Kyser, Jeffery T.		15865 Irwin Rd	Oswego, NY 13126
.00-1-3.7	311			0.5	15990	Irwin	Rd	Moxley, Terence J. II	5111	585 Highland Rd	Mooresville, NC 28115-5755
.00-1-5	311			0.5		Irwin	Rd	Donnelly, Frank J.		16161 Irwin Rd	Sterling, NY 13156
.00-1-5	210		1.00		16161	Irwin	Rd	Johnson, Rosanna		244 E 8th St	Oswego, NY 13126-3336
.00-1-6	314			0.5		Irwin	Rd	Metcaif, James M.			

Town Of Sterling - Town Wide Water Survey

2.00-1-8	210	1.00	16224	Irwin	Rd	Greenlay, Mary Jo		20 Summit Cir	Somers, NY 10589
2.00-1-9.112	210	1.00	16226	Irwin	Rd	LaClair, Cyndy M		4000 Irwin Rd	Oswego, NY 13126
2.00-1-9.113			0.5	Irwin	Rd				
2.00-2-36	311		0.5 Lot #36	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-37	311		0.5 Lot #37	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-38	311		0.5 Lot #38	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-39	311		0.5 Lot #39	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-40	311		0.5 Lot #40	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-41	311		0.5 Lot #41	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-42	311		0.5 Lot #42	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-43	311		0.5 Lot #43	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-44	311		0.5 Lot #44	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-45	311		0.5 Lot #45	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-46	311		0.5 Lot #46	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-47	210		0.5 Lot #47	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-48	311		0.5 Lot #48	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-49	311		0.5 Lot #49	Irwin	Rd	Harvey, Raymond		287 West Rd	Clarksburg, MA 01247-9775
2.00-1-3.447	311		0.5	Irwin Rd	Rd	Wittmer, Lamar		287 West Rd	Clarksburg, MA 01247-9775
2.00-2-35	311		0.5 Lot #35	Irwin Road		Skolnik, Richard		3841 Melrose Rd	Auburn, NY 13021
1.00-1-2.31	311		0.5 16473	Lake	Rd	Mayer, Donald Jr		300 West Third St	Oswego, NY 13126
2.06-1-65.1	210	1.00	1457	Marsh	Rd	Blanchard, Gregory W.		16457 W Lake Rd	Oswego, NY 13126
2.00-1-3.416	210	1.00	1625	Marsh	Rd	McCleary, James R.		1457 Marsh Rd	Sterling, NY 13156
2.06-1-36	210	1.00	1449	Marsh	Rd	Clark, Robert J.		1625 Marsh Rd	Sterling, NY 13156
2.00-1-2.142	322		0.5 1549	Marsh	Rd	Middleton, Glenn		8235 Verbeck Dr	Manlius, NY 13104
2.00-1-3.2	962	1.00		Marsh	Rd	Cayuga County Of,		217 Ferndale Dr	Syracuse, NY 13205-2328
2.00-1-3.45	311		0.5 1566	Marsh	Rd	Luevano, Holly M.		160 Genesee St	Auburn, NY 13021
2.00-1-3.46	311		0.5	Marsh	Rd	Slobe Farms Real Estate, LLC,		917 Valley Dr	Syracuse, NY 13207
2.00-1-4.1	210	1.00	1665	Marsh	Rd	Britton, Joseph		1071 St Rt 370	Red Creek, NY 13143
2.06-1-66	260	1.00	1453	Marsh	Rd	Waite, Jason J.		1665 Marsh Rd	Sterling, NY 13156
2.06-1-72.1	311		0.5 1535	Marsh	Rd	Roth, William		28 Ridgewood Dr	McKean, PA 16426
2.06-1-76	210	1.00	1489	Marsh	Rd	Hohman, James		1480 Moon Beach Rd	Sterling, NY 13156
2.06-1-98	314		0.5	Marsh	Rd	Zeller, Victoria		1489 Marsh Rd	Sterling, NY 13156
2.00-1-3.413	311		0.5	Marsh	Rd	Harvey, Raymond		10661 Orange Ave	Fort Pierce, FL 34945
2.10-1-4.1	260	1.00	16101	Metcaiff Snyder	Rd	New Meadows Enterprises LLC		287 West Rd	Clarksburg, MA 01247-9775
2.10-1-2	260	1.00	16107	Metcaiff Snyder	Rd	Rose, James		15303 Green Rd	Sterling, NY 13156
2.10-1-1	260	1.00	16115	Metcaiff Snyder	Rd	Logan, Timothy		12260 Old State Rd	Cato, NY 13033
2.10-1-3	260	1.00	16105	Metcaiff Snyder	Rd	Lobb, Mary Jane		1556 Rathburn Rd	Oswego, NY 13126
2.06-1-62	312		0.5 1458	Moon Beach	Rd	Enos, John		454 Ridge Rd	Oswego, NY 13126
2.06-1-63.1	311		0.5 1540	Moon Beach	Rd	Roth, Norman		304 W Broadway	Fulton, NY 13069
2.06-1-70.1	280	2.00	1480	Moon Beach	Rd	Roth, Norman		1480 Moon Beach Rd	Sterling, NY 13156
2.06-1-75	311		0.5 1557	Moon Beach	Rd	Roth, Norman		1480 Moon Beach Rd	Sterling, NY 13156
2.06-1-99	311		0.5 Off	Moon Beach	Rd	Manuele Family Trust,		922 S Oakwood St	Rome, NY 13440
2.06-1-57	210	1.00	1484	Ontario	Dr	Abare, Everett		8 Greenvale Lane	Oswego, NY 13126
2.06-1-56	311		0.5 1553	Ontario	Dr	Crymer, John		1484 Ontario Dr	Sterling, NY 13156
2.00-2-7	210	1.00	16269	Ontario Shores	Dr	Wymann, Mary Beth		229 East 2nd St	Sterling, NY 13156
2.06-2-12.12	210	1.00	16200	Ontario Shores	Dr	Bishop, Vernon		16269 Ontario Shores Dr	Sterling, NY 13156
2.06-2-99	210	1.00	16203	Ontario Shores	Dr	Knopp, William		16200 Ontario Shores Dr	Sterling, NY 13156
2.00-2-1	210	1.00	16222	Ontario Shores	Dr	Woodhouse, Eric J.		4530 Kingsford Terr	Syracuse, NY 13215
					Dr	Kammer, Donald M.		16222 Ontario Shores Dr	Sterling, NY 13156

Town Of Sterling - Town Wide Water Survey

Property ID	Area	Address	Owner Name	Drainage	County	Acres	Water	Sanitary	Other	Notes	
2.06-2-3.1	210	16190	Ontario Shores	Dr	Oswego, NY	1.00					
2.06-2-4.1	210	16243	Ontario Shores	Dr	Oswego, NY	1.00					
2.00-2-4	311	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.00-2.4	311	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.00-2-8	210	16279	Ontario Shores	Dr	Oswego, NY	1.00					
2.00-2-26	311	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.00-2-27	311	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.00-2-28	311	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.06-2-10	312	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.06-2-11	311	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.06-2-12.11	210	16204	Ontario Shores	Dr	Oswego, NY	1.00					
2.06-2-13	311	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.06-2-15	210	16251	Ontario Shores	Dr	Oswego, NY	1.00					
2.06-2-5	260	16239	Ontario Shores	Dr	Oswego, NY	1.00					
2.06-2-6	312	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.06-2-7	210	16231	Ontario Shores	Dr	Oswego, NY	1.00					
2.06-2-8	210	16225	Ontario Shores	Dr	Oswego, NY	1.00					
2.06-2-9	312	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.06-2-9.1	311	0.5	Ontario Shores	Dr	Oswego, NY	0.5					
2.00-1-61.21	240	1845	Parkhurst	Rd	Oswego, NY	1.00					
2.00-1-15	210	1814	Parkhurst	Rd	Oswego, NY	1.00					
2.00-1-3.444	311	0.5	Parkhurst	Rd	Oswego, NY	0.5					
2.00-1-3.8	322	0.5	Parkhurst	Rd	Oswego, NY	0.5					
2.00-1-3.911	241	1773	Parkhurst	Rd	Oswego, NY	1.00					
2.00-1-3.5	962	0.5	Parkhurst	Rd	Oswego, NY	0.5					
2.06-1-67	210	16156	Sunset	Dr	Oswego, NY	1.00					
2.06-1-59	270	16151	Sunset	Dr	Oswego, NY	1.00					
2.06-1-58	270	16153	Sunset	Dr	Oswego, NY	1.00					
2.06-1-60	311	0.5	Sunset	Dr	Oswego, NY	0.5					
2.06-1-61	311	0.5	Sunset	Dr	Oswego, NY	0.5					
2.06-1-68	311	0.5	Sunset	Dr	Oswego, NY	0.5					
2.06-1-69	312	0.5	Sunset	Dr	Oswego, NY	0.5					
2.06-1-81	270	16162	Sunset	Dr	Oswego, NY	1.00					
1.00-1-3.2	210	16457	West Lake	Rd	Oswego, NY	1.00					
1.00-1-1	210	16531	West Lake	Rd	Oswego, NY	1.00					
1.00-1-2.12	210	16503	West Lake	Rd	Oswego, NY	1.00					
1.00-1-2.21	210	16481	West Lake	Rd	Oswego, NY	1.00					
1.00-1-3.11	210	16469	West Lake	Rd	Oswego, NY	1.00					
1.00-1-3.12	311	0.5	West Lake	Rd	Oswego, NY	0.5					
1.00-1-4.2	210	16449	West Lake	Rd	Oswego, NY	1.00					
1.00-1-12.421	240	1829	Woodworth	Rd	Oswego, NY	1.00					
2.00-1-13	210	1868	Woodworth	Rd	Oswego, NY	1.00					
2.00-1-14	311	0.5	Woodworth	Rd	Oswego, NY	0.5					
							87.0	48.5			
Total EDUs							135.50				

Appendix D
Federal & State Wetland Maps

Appendix F
Ag District Map

Town of Sterling (North)
Agricultural District Parcels

Pacel Number	Owner	Property Class Code	Address	Acres
1.0-1-2.31	Mayer, Donald Jr.	311	16473 Lake Rd	1.43
1.0-1-6.171	Galloway, Claudia A.	322	16365 Irwin Rd	5.94
1.0-1-6.181	Galloway Rev. Living Trust, Claudia	322	Irwin Rd	0.78
1.0-1-07	Peck, Lawrence I.	210	16329 Irwin Rd	7.47
1.0-1-8	Malone, Douglas	210	16359 Irwin Rd	1.12
1.0-1-9	Knox, Rebecca	210	16245 Irwin Rd	1.72
1.0-1-11.1	O'Toole, Patrick	210	16239 Irwin Rd	0.81
1.0-1-13	Caster, Brian	210	16330 Irwin Rd	11.87
1.0-1-14.1	Woodworth, Robert	270	Irwin Rd	13.07
1.0-1-15	Woodworth, Robert Jr.	210	16307 Irwin Rd	25.70
1.0-1-16	Klein, Peter M.	311	Irwin Rd	1.42
1.0-1-17	Sruton, Thomas	270	16255 Irwin Rd	10.99
2.0-1-3.416	McCleary, James R.	210	1625 Marsh Rd	0.38
2.0-1-7	Harmony, John	210	16222 Irwin Rd	1.12
2.0-1-8	Greenlay, Mary Jo	210	16224 Irwin Rd	0.09
2.0-1-9.111	LaClair, Cyndy M.	210	16226 Irwin Rd	61.88
2.0-1-10	Emmons, Ronald M.	270	16228 Irwin Rd	188.59
2.0-1-12.13	Woodworth, Robert J.	112	16263 Irwin Rd	13.25
2.0-1-14	Morgia, Lawrence A.	311	Woodworth Rd	0.56

Legend

Property Class Code	Definition
112	Dairy Products: milk, butter and cheese
210	One Family Year-Round Residence
270	Mobile Home
311	Residential Vacant Land
322	Residential Vacant Land Over 10 Acres

Appendix G
Floodplain Map

Appendix H

Cost Tables

Sterlin Water District #1

2013 OWA Rates: 5/8" Meter

180 gpc = 16,425 gallons/quarter

25.00 Base Rate

\$25.30 for 1st 10,000 gallons

10,000 gallons to 16,425 gallons @ 3.33/1000 = \$ 21.40

Hydrant fee \$61.61 per year per hydrant

\$25.00 + \$25.30 + \$21.40 =
= \$ 71.70/quarter

= \$286.80/year

SMWB Fee - estimated = \$ 6/year

Hydrant Fee: $49 \times 61.61 \div 136 \text{ EDU}$ = \$ 22/year

= \$314.80/year



Home FAQs News Links Contact

About Pay Your Bill Customer Service Water Quality
Governance Projects

Rate Calculator

Welcome to OCWA's Residential Rate Calculator. Use this page to estimate your residential quarterly water bill. This calculator will estimate your bill based on location, meter size, and water use. See how much you can save by using less water. *Please Note: OCWA charges per thousand (gallons), though this calculator will estimate to the gallon.*



Pay Your Bill

Customer Service Policies
Water Rates 2014
Rate Calculator

My county:

Meter size:

Water Use: (gallons)

Quarterly Bill:

About	Pay Your Bill	Customer Service	Water Quality	Governance	Projects
OCWA Executive Staff	Customer Service Policies	Customer Rules	2012 Water Quality Report	Board Items	Water Main Projects
OCWA Board	Water Rates 2014	New Home Hydrant Meter	2011 Water Quality Report	Financial Reports	Southern Branch Pump Stations
Serving CNY	Rate Calculator	Camp Meter	2009 and 2010 Water Quality Reports		East Hill Water Storage Tank
Code of Ethics		Water Service Line			
OCWA News					

Town of Sterling Water Study

PROBABLE CONSTRUCTION COSTS

Town of Sterling - Northern Water District

	Quantity	Unit	\$/Unit	Tot. Cost
Mobilization:	1	l.s.	\$50,000	\$50,000
8" D.I.P. Water Main:	30,500	l.f.	\$31	\$945,500
Connect to Existing Mains:	3	ea.	\$4,000	\$12,000
Hydrant w/Valve:	49	ea.	\$3,500	\$171,500
8" Gate Valve:	38	ea.	\$1,200	\$45,600
Service Taps:	87	ea.	\$350	\$30,450
1" Copper Pipe:	2,270	ft.	\$16	\$36,320
Rock Removal:	50	c.y.	\$100	\$5,000
Highway Pushes:	40	ea.	\$600	\$24,000
Water Meters:	87	ea.	\$200	\$17,400
Stream Crossing:	1	l.s.	\$15,000	\$15,000
Surface Restoration:	30,500	l.f.	\$5	\$152,500

Construction Subtotal:
 Contingency:
Construction Total:

\$1,505,270
 \$129,730
\$1,635,000

Legal and Administration
 Engineering Basic Services
 Survey & Borings:
 Construction Observation Services:

\$60,000
 \$212,000
 \$32,000
 \$65,000

Project Total:

\$2,004,000

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