EXHIBIT A

Preliminary Map, Plan, and Report

For The

Town of Batavia
Batavia Southwest Water District

January 2016

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I. General

The Town of Batavia has received interest in establishing a water district. A water district is a special use district required by Town Law where a specific area of the town receives a specific benefit. The cost for receiving this benefit will be borne solely by those property owners in that specific area.

The purpose of this project is to provide safe and reliable potable water supply and fire protection to residences in the proposed Town of Batavia, Batavia Southwest Water District.

II. Project Planning Area

A. Location

The project area has been identified through public interest. The Town of Batavia, Batavia Southwest Water District will connect to an existing Town of Batavia water district and include approximately 20,400 linear feet of 12-inch and 8-inch diameter water main. The water main will be installed along Brown, Halstead, Wilkinson, Lear, and Upton Roads and serve approximately 40 units and is shown as the solid red line noted on Figure 1 at the end of this report.

B. Environmental Resources Present

There are farmlands present in the project area. All construction will be taking place in existing road right-of-ways and proper construction mitigation and restoration efforts will be implemented based on standard practices common to the industry.

C. Growth Areas and Population Trends

The project area is primarily residential and agricultural. The total census population of the Town of Batavia in 2010 was 6,809, increasing by 894 since 2000.

III. Existing Facilities

A. Location Map

The proposed facilities are shown in Figure 1.

B. History

The entire area of the proposed water district is presently served by private wells.

C. Condition of Facilities

The Town of Batavia has received several complaints about the quality, and at times, quantity of the private water supplies in the area. From public input it is known that many wells in this area are contaminated with high levels of sulfur, iron, and coliform and high hardness level. Many of these wells require expensive treatment systems to make the water acceptable for domestic use.

D. Financial Status of any Operating Facilities

The residents of the entire area have private wells and furnish the operation and maintenance costs themselves.

E. Existing and Future Water Demand

The existing demands for the proposed service area are as follows:

Average Day	7,080 gpd
Maximum Day	14,160 gpd
Peak Hour	28,320 gpd

The future demands for the proposed service area will utilize a 2% increase per year. This increase takes into account population projections and the land use of the area.

IV. Need For Project

A. Health and Safety

The proposed water main project will provide safe potable water to the residents of the proposed Batavia Southwest Water District and will eliminate the health risks associated with the quality and quantity of ground water.

The Genesee County Health Department began testing wells in the northeast area of the Town in March 2010 due to suspected manure contamination. The initial findings showed both bovine and human bacteria present in the wells. The results from the northeast area of the Town through April 28, 2010 include the following:

- 14 out of 38 tested positive for Bacteria
- 12 out of 13 test results showed nitrate levels between 0.05 and 9.99 ppm, with the remaining sample greater than 10 ppm.

As a result of the testing in the northeast area, the Town initiated well testing in other areas with the following results:

- 11 out of 52 tested positive for Bacteria
- 28 out of 47 test results showed nitrate levels between 0.05 and 9.99 ppm, and 3 out of 47 test results greater than 10 ppm.

A letter from the New York State Department of Health has been included as Appendix A.

B. System O & M

A water distribution network will replace highly expensive individual water treatment units; this will reduce the operation and maintenance costs borne by the residents at this time. The Town of Batavia will provide operation and maintenance of the system.

C. Growth

While economic development is viewed as a project benefit, balancing economic development and land protection is necessary, critical, and provided for. The Town intends to limit water service connections within the boundaries of Agricultural Districts to only agricultural structures or land and structures that have already been approved for development. Thus, there are no anticipated long-term impacts to the Agricultural Districts as a result of the proposed action including no change in use of agricultural/residential lands within the Agricultural District.

V. Alternatives Considered

A. Description

1. Alternative 1 – Null Alternative

This alternative proposes to "do nothing". This would mean continued health risks for the residents of the proposed District.

2. Alternative 2 – New Water Distribution System

This proposed action includes the installation of approximately 20,400 linear feet of 12-inch and 8-inch water main along Brown, Halstead, Wilkinson, Lear and Upton Roads in the Town of Batavia. The water main will be PVC as the Town of Batavia utilizes PVC for their standard material. Various water main diameters were analyzed and the selected sizes were chosen based on providing adequate fire flows and taking into account future service areas. The proposed water main will be installed in the right-of-way in order to provide services to the residents on each side of the roadways.

3. Alternative 3 – Residential Well Supply

This alternative includes the establishment of a local source or multiple sources. The capital and long-term costs make this alternative prohibitive.

B. Design Criteria

The proposed Batavia Southwest Water District has been designed in accordance with New York State Department of Health standards and Ten State Standards to provide safe potable water and fire protection to the District's residents.

C. Map

Figure 1 shows the map of the proposed water system. The legal map and description for the proposed District has been provided in Appendix B.

D. Environmental Impacts

There are no anticipated environmental impacts associated with any of the alternatives. However, an environmental review will be completed for Alternative 2. All construction will be done in existing road right-of-ways and proper construction mitigation and restoration efforts will be implemented.

E. Land Requirements

There are no additional land requirements for Alternative 2. All water main construction is anticipated to take place within existing road right-of-ways.

F. Construction Problems

There is no known construction problem for the new water system.

G. Cost Estimates

Detailed cost estimates for Alternatives 2 and 3 are included in Appendix C with the Total Capital Costs listed as follows:

Alternative 1	***Alternative 2***	***Alternative 3***
$0	$1,210,000	$2,814,000

H. Advantages/Disadvantages

Alternative 2 is the most viable alternative as it is consistent with the goals and needs of the Town of Batavia. The advantage of Alternative 2 is as follows:

1. It will eliminate the ongoing health problems and risks associated with the quality and quantity of ground water in the area.

2. It provides on-site access to water for fire protection.

VI. Recommended Alternative

The recommended alternative is Alternative 2: New Water Distribution System.

A. Project Design

1. Water Supply

The proposed Batavia Southwest Water District will receive water from Genesee County through the Monroe County Water Authority (MCWA) and City of Batavia source supplies.

2. Treatment

The City of Batavia Water Treatment Plant and the MCWA Shoremont Water Treatment Plant will provide treated water to the Batavia Southwest Water District. The treated water will meet all the state and federal drinking water standards.

3. Storage

Existing 1.5 and 1.25 million gallon water storage tanks will provide the water storage needs for this Proposed District. No additional storage is required for this service area.

4. Pumping Stations

Pumps located at the City of Batavia Water Treatment Plant and the MCWA's North Road Pump Station pump water to the storage tanks and the distribution network.

5. Distribution Layout

The distribution network is shown in Figure 1 at the end of this report for the project area. The Town of Batavia will be responsible for system operation and maintenance.

6. Services

The portion of the water service from the right-of-way to the main line will be installed under this project. The portion from the right-of-way to the home will be the responsibility of the homeowner.

7. Hydraulic Calculations

The hydraulic conditions of the proposed system were calculated using the WaterCad® V8i hydraulic modeling software. The hydraulic analysis of the system includes the evaluation of available pressures and flows for the proposed Water District.

Hydraulic analysis of the system included the evaluation of available pressures and flows during minimum day (average day ÷ 4), average day, maximum day (average day x 2), and peak hour (average day x 6) demand conditions. This analysis also evaluated the available fire flows under maximum day demands.

The hydraulic analysis of the system indicates that adequate flows and pressures are available in the proposed system during average demand. Pressures in the new system range from 50 psi to 62 psi during average demand periods.

The hydraulic analysis of the system indicates adequate flows and pressures in the system during fire flow conditions. A maximum fire flow was simulated individually on each road at the town line for Brown Road with 1,300 gpm at 20 psi, Wilkinson Road with 1,337 gpm at 20 psi, and Upton Road with 795 gpm at 20 psi, with residual pressures in the area at or above 20 psi.

Water System Models are included in Appendix D.

B. Cost Estimate

The estimated total capital cost for the proposed service area is summarized as follows:

Construction cost with 5% Contingency	$990,000
Legal & Administrative Costs	$50,000
Engineering Costs	$70,000
Services During Construction	$100,000
Total Estimated Project Cost	$1,210,000

C. Town of Batavia Water Rate Information

- The current water rate is $4.95 per 1,000 gallons of water used.

D. Definition of a Unit

The Town of Batavia Water District Benefit Basis Unit Definition is included in Appendix E.

The proposed district includes 40 units which may include single family houses, mobile homes, vacant land, manufactured homes, or non-residential properties.

E. Vacant Property Classification

Below is a list of vacant properties located within the proposed Town of Batavia, Batavia Southwest Water District and its classification.

Town Classification: Property classified as 'Not Developable' includes parcels within Agricultural Districts, outside of the Smart Growth Area, and those classified as such according to local ordinances (ie. located within a floodplain).

USDA Classification: Property classified as 'Not Developable' includes parcels within Agricultural Districts only.

Vacant Property	Town Classification	USDA Classification
14.-1-37.12	Not Developable	Developable
14.-1-41	Not Developable	Not Developable
14.-1-58	Not Developable	Not Developable
14.-1-61	Not Developable	Developable
14.-1-62	Not Developable	Developable
14.-1-63	Not Developable	Developable
14.-1-66	Not Developable	Developable
14.-1-67	Not Developable	Developable
14.-1-68	Not Developable	Developable
14.-1-69	Not Developable	Developable
14.-1-70	Not Developable	Developable
14.-1-71	Not Developable	Developable
16.-1-1.111	Not Developable	Not Developable
16.-1-1.12	Not Developable	Not Developable
16.-1-10	Not Developable	Not Developable
16.-1-12	Not Developable	Not Developable
16.-1-17.1	Not Developable	Not Developable
16.-1-28	Not Developable	Developable
16.-1-29.11	Not Developable	Developable
16.-1-30.1	Not Developable	Developable
16.-1-9	Not Developable	Developable
17.-1-1	Not Developable	Not Developable
17.-1-33.12	Not Developable	Not Developable
17.-1-33.21	Not Developable	Developable
17.-1-34.121	Not Developable	Developable

VII. Annual Operating Budget

A. Proposed Batavia Southwest Water District Unit Costs

The estimated average water district unit costs for the Town of Batavia are as follows:

Capital Project Cost	$1,210,000
Rural Development Grant	$500,000
Total Debt	$710,000
Annual Debt Service (38 years, 3.00%)	$31,566
Annual Debt Service/Unit (40 units)	$789
Average Annual Water Cost/Unit ($4.95/1,000 gallons @ 61,000 gal. /year)	$302
Total Estimated Average Unit Cost	**$1,091 per year**

B. Other Costs

Service line	$ 8-20/LF
Well abandonment or separation	$ 200-600

VIII. Miscellaneous Information

A. Options for property owner's well.

1. Abandon the well.
2. Keep well but separate it from public water plumbing.
3. Keep well and install backflow prevention.

B. Service line information

1. A service line (up to right-of-way line) will be installed to all residents.
2. There will be no future hook up charge for those that do not connect right away.

C. Optional Water District Enhancements with Remaining Funds

1. Upsize water main diameters to allow for future growth of the water system and maintain above average fire flows.
2. Extend water mains to the District Boundaries and through road intersections.
3. Installation of automatic flushing units in place of manual 2-inch blow-offs.
4. Consideration will also be given to meter reading improvements, computer hardware/software upgrades to maximize the efficiency of the operation and maintenance of the proposed Water District.

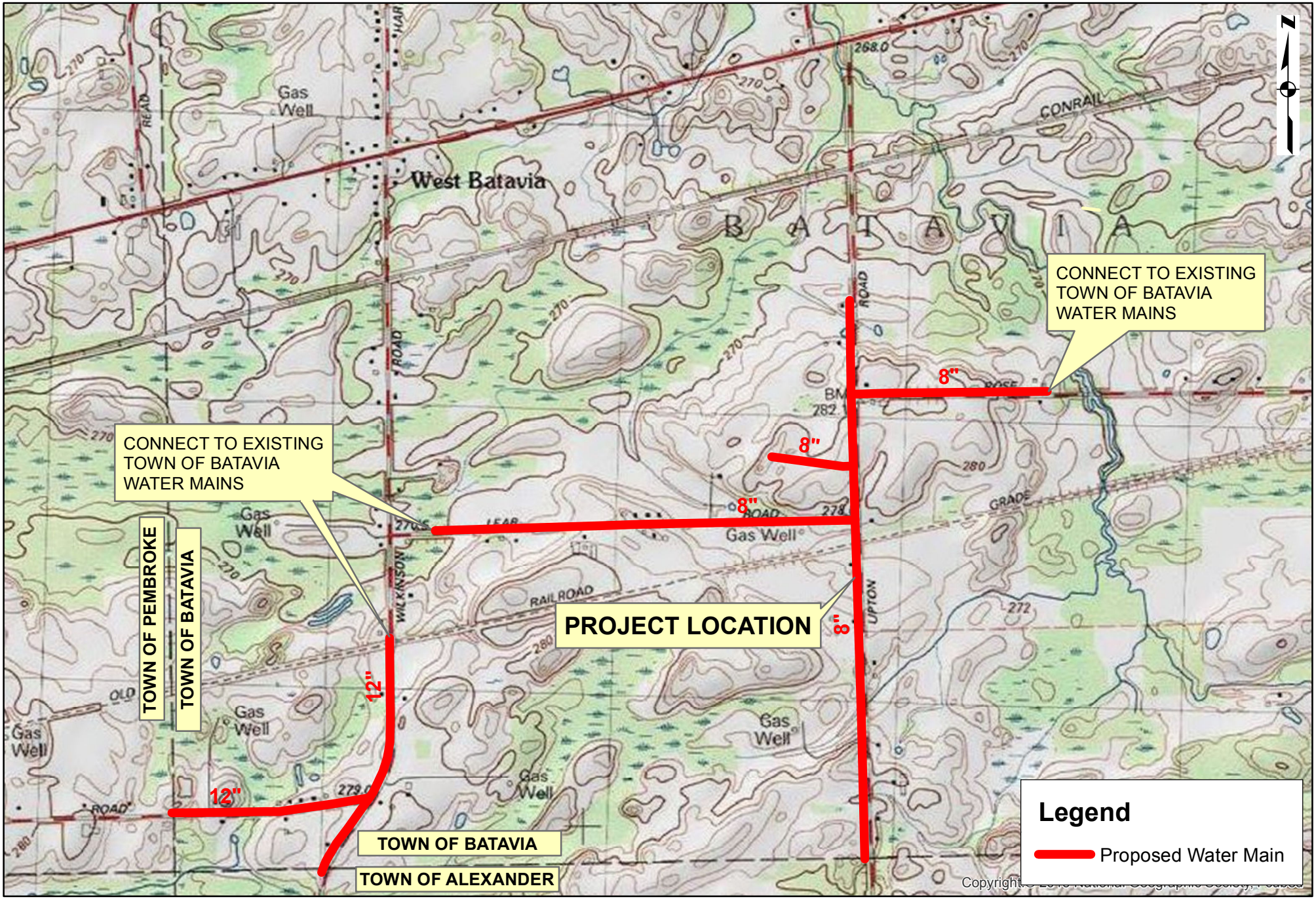
5. Purchase of replacement parts (hydrants, valves, water main, fittings and repair materials.)
6. Purchase of survey equipment for creating accurate as-built drawings to better manage and maintain the proposed Water District.
7. Purchase of Operation & Maintenance equipment.
8. Reimburse a portion of the costs of the water service installation between the Right-of-Way and house for the residents of the Water District.
9. Reimburse the costs of Town Water Service inspection fees.

IX. Conclusions

The Town of Batavia is committed to providing safe and reliable potable water supply and fire protection to the residents in the project area. This project will be instrumental in achieving that goal.

Figure 1

Project Location Map



TOWN OF BATAVIA

3833 West Main St. Rd. 14020

GENESEE COUNTY □ STATE OF NEW YORK

BATAVIA SOUTHWEST WATER DISTRICT LOCATION MAP

Map Printed: 12/29/2015

750 375 0 750 1,500 2,250 3,000

Feet

Appendix A

Health Department Correspondence

STATE OF NEW YORK
DEPARTMENT OF HEALTH
Western Region Rochester Office The Triangle Bldg. 335 East Main Street Rochester, NY 14604-2127

Richard F. Daines, M.D.
Commissioner

James W. Clyne, Jr.
Executive Deputy Commissioner

May 4, 2010

Gregory H. Post, Supervisor
Town of Batavia
3833 West Main Street
Batavia, NY 14020

RE: Town of Batavia Water Main Extensions
Batavia North East of Rte 98
Batavia North West of Rte 98
Pratt Road
Wortendyke Road
Creek and East Roads
Well Contamination concerns

Dear Supervisor Post,

This Department has been working in conjunction with the Genesee County Department of Health in response to the contamination of individual ground water supplies along Bank Street Road and State Street Road. In response to water quality complaints from residents on State Street Road, a large scale water quality sampling effort has been undertaken by Genesee County Health Department and the Town of Batavia. Bacteriological samples collected in March and April 2010 from 94 wells in the areas listed above by Genesee County Health Department staff have yielded the following results:

Test Result-	***# of samples***
Total Coliform Positive	22
E. coli Positive	20

The high occurrence of E. coli bacteria in the wells tested (21%) represents a serious risk to the health and well being of the residents in these areas. The presence of E. coli indicates that water is contaminated with animal or human waste, and likely contains disease-causing organisms. Such organisms may include bacteria known as E. coli O157:H7, cryptosporidium, or giardia. The complaints on State Street Road indicated the water was discolored, and actually smelled like manure, further supporting the contamination concerns. To date, special testing by NYSDOH's Wadsworth Labortatory has revealed evidence that the contamination on Bank Street Road (E-coli) is from both human and bovine sources.

Water quality sampling from the wells in this area also included testing for nitrates. Nitrate is a common chemical that occurs naturally in a number of foods, and is used in preservatives for meats. Nitrate is a major ingredient of lawn, garden and agricultural fertilizers, and is also present in sewage and wastes from farm animals. Infants, particularly those under six months of age, are sensitive to nitrate. High levels of nitrate in drinking water can cause an increase of nitrite (a closely related chemical) in blood, which in turn can impair the ability of the blood to carry oxygen. This can lead to a condition known as methemoglobinemia, or blue baby syndrome. Symptoms can develop rapidly and include shortness of breath and blueness of the skin. The NYSDOH and US Environmental Protection Agency have set the maximum contaminant level (MCL) for nitrates in public water supplies at 10 milligrams per liter (mg/L). Nitrate levels above 5 mg/L are also cause for concern, and require additional monitoring to ensure levels do not exceed the MCL throughout the year.

Nitrate samples collected from 44 wells in the area in March and April 2010 by Genesee County Health Department staff have yielded the following results:

Test Result-	*# of samples*
Nitrate above 10 mg/L (MCL)	4
Nitrate above 5 mg/l	13

These nitrate levels indicate that many of the wells tested are vulnerable to contamination from surface influence. Also of concern is the geology of the north Batavia area. Highly fractured and weathered bedrock, overlain by shallow, permeable soils allows runoff from fields, roadways, and other sources of contamination to travel through the ground quickly, with little treatment from soils. These conditions contribute to the vulnerability of the local private well supplies, and the likelihood of a contamination event occurring again.

The data summarized in this letter indicate that water quality from the wells tested represents a serious risk to public health in the Town of Batavia. NYSDOH Western Region strongly supports the proposal to extend public water service to these areas of Batavia. It is an effective long-term solution that is protective of public health. We commend your town for working to address this situation, and for asking for our input. In the interim, this Department will continue to work with the Genesee County Department of Health to assist and educate the community about water quality problems. Please contact me if I can be of any further assistance.

Sincerely,

David A. Rowley, PE
Western Region Water Supply Field Coordinator

Cc: Victor Pisani, NYS Department of Health, Bureau of Water Supply Protection
Ralph Van Houten, NYS Department of Health, Western Region
Randy Garney, Genesee County Department of Health

Appendix B

Proposed Batavia Southwest Water District Map & Description

N

HARTSHORN, HOPKINS, & PEARL WATER DISTRICT

WORTENDYKE & PIKE ROAD WATER DISTRICT

PEARL STREET ROAD WATER DISTRICT

ROSE ROAD WATER DISTRICT

WILKINSON ROAD WATER DISTRICT

WORTENDYKE & PIKE ROAD WATER DISTRICT

TOWN OF PEMBROKE

TOWN OF DARIEN

TOWN OF ALEXANDER

WILKINSON ROAD (49.5' ROW)

UPTON ROAD (49.5' ROW)

INSTY WALK DRIVE (60' ROW)

ROSE ROAD (66' ROW)

WINDFLOWER DRIVE (50' ROW)

LEAR ROAD (49.5' ROW)

BROWN ROAD (49.5'–66' ROW)

HALSTEAD ROAD (66' ROW)

WORTENDYKE ROAD (49.5' ROW)

14.–1–72
14.–1–35.11
14.–1–25.1
14.–1–58
14.–1–35.21
14.–1–21
14.–1–37.111
14.–1–47
14.–1–34
14.–1–63
14.–1–62
14.–1–45
14.–1–71
14.–1–36.2
14.–1–61
14.–1–64
14.–1–41
17.–1–1
14.–1–44
14.–1–67
14.–1–69
14.–1–65
14.–1–37.112
14.–1–66
14.–1–38
14.–1–68
14.–1–70
14.–1–37.12
14.–1–40.1
16.–1–20
16.–1–21.1
17.–1–2
16.–1–19.2
16.–1–18
17.–1–33.21
14.–1–39
17.–1–34.121
16.–1–19.11
17.–1–33.12
16.–1–13
16.–1–16
16.–1–30.1
16.–1–12
16.–1–22
17.–1–32
16.–1–11
16.–1–17.1
16.–1–1.111
16.–1–1.10
16.–1–17.2
16.–1–1.2
16.–1–29.12
17.–1–31
16.–1–26
16.–1–1.12
16.–1–8
16.–1–1.112
16.–1–29.11
17.–1–28.12
16.–1–2
16.–1–27
16.–1–3.2
16.–1–9
16.–1–7.2
16.–1–29.2
16.–1–7.1
16.–1–4
16.–1–6
16.–1–3.1
16.–1–5
16.–1–28
16.–1–23
17.–1–30
17.–1–28.211
14.–1–26

2,399'±
1,647'±
1,205'±
387'±
926'±
1,022'±
719'±
48'±
2,042'±
29'±
651'±
494'±
8'±
450'±
16'±
1,752'±
1,547'±
115'±
18'±
167'±
219'±
653'±
241'±
640'±
155'±
1,248'±
2,114'±
106'±
1,246'±
2,499'±
3,092'±
1,320'±
330'±
1,338'±
2,090'±
405'±
693'±
5,245'±
1,032'±
2,871'±

POINT OF BEGINNING

BATAVIA SOUTHWEST WATER DISTRICT
1,176.0± ACRES

REVISIONS					DATE 12/2015
NO.	DATE	BY	CHKED	DESCRIPTION	DRAWN: JDN
					DESIGNED: SJM
					SCALE: 1"=1000'

TOWN OF BATAVIA
3833 West Main St. Rd. 14020
GENESEE COUNTY STATE OF NEW YORK

BATAVIA SOUTHWEST WATER DISTRICT
WATER SYSTEM IMPROVEMENTS

500 0 1000 2000
1 INCH = 1000 FEET

DRAWING NAME
DIST MAP
DRAWING NUMBER
WD-01

TOWN OF BATAVIA
PROPOSED BATAVIA SOUTHWEST WATER DISTRICT

The boundary of the proposed Town of Batavia, Batavia Southwest Water District includes all that tract or parcel of land situated in the Town of Batavia, County of Genesee, State of New York, being described as follows:

Beginning at a point which is the intersection of the Batavia/Alexander Municipal Boundary and the centerline of Upton Road; thence,

1. Westerly, along the Batavia/Alexander Municipal Boundary, a distance of 1,032 feet, more or less, to the southwesterly corner of Tax Parcel number 16.-1-23; thence,
2. Northerly, along the westerly line of Tax Parcel number 16.-1-23, a distance of 693 feet, more or less, to the northwesterly corner of Tax Parcel number 16.-1-23; thence,
3. Westerly, along the southerly line of Tax Parcel number 16.-1-22, a distance of 405 feet, more or less, to the southwesterly corner of Tax Parcel number 16.-1-22; thence,
4. Northerly, along the westerly line of Tax Parcel number 16.-1-22, a distance of 2,664 feet, more or less, to the intersection of the westerly line of Tax Parcel number 16.-1-22 and a southerly line of Tax Parcel number 16.-1-19.11; thence,
5. Westerly, along a southerly line of Tax Parcel number 16.-1-19.11, a distance of 1,248 feet, more or less, to the intersection of the westerly line of Tax Parcel number 16.-1-20 and the southerly and easterly lines of Tax Parcel number 16.-1-19.11; thence,
6. Southerly, along the easterly line of Tax Parcel numbers 16.-1-19.11 and 16.-1-26, a distance of 3,092 feet, more or less, to the southeasterly corner of Tax Parcel number 16.-1-26; thence,
7. Westerly, along the Batavia/Alexander Municipal Boundary, a distance of 5,245 feet, more or less, to a southwesterly corner of the Batavia Municipal Boundary; thence,
8. Northerly, along the Batavia/Darien Municipal Boundary and the Batavia/Pembroke Municipal Boundary, a distance of 2,090 feet, more or less, to the southwesterly corner of Tax Parcel number 16.-1-30.1; thence,
9. Easterly, along the southerly line of Tax Parcel number 16.-1-30.1, a distance of 1,246 feet, more or less, to the northeasterly corner of Tax Parcel number 16.-1-1.111; thence,
10. Northerly, through the lands of Tax Parcel number 16.-1-30.1, a distance of 106 feet, more or less, to the southwesterly corner of Tax Parcel number 16.-1-13; thence,
11. Easterly, following the existing Wilkinson Road Water District along the northerly line of Tax Parcel number 16.-1-30.1, across Wilkinson Road (49.5 feet wide right-of-way), and along a northerly line of Tax Parcel number 16.-1-19.11, a distance of 2,114 feet, more or less, to the southeasterly corner of Tax Parcel number 16.-1-16; thence,
12. Northerly, following the existing Wilkinson Road Water District along a westerly line of Tax Parcel number 16.-1-19.11, across Lear Road (49.5 feet wide right-of-way), and along a westerly line of Tax Parcel number 14.-1-41, a distance of 1,752 feet, more or less, to a northwesterly corner of Tax Parcel number 14.-1-41; thence,
13. Easterly, following the existing Wilkinson Road Water District along the southerly line of Tax Parcel number 14.-1-44, a distance of 16 feet, more or less, to the southeasterly corner of Tax Parcel number 14.-1-44; thence,

14. Northerly, following the existing Wilkinson Road Water District along a westerly line of Tax Parcel number 14.-1-41, a distance of 450 feet, more or less, to the northeasterly corner of Tax Parcel number 14.-1-44; thence,
15. Easterly, following the existing Wilkinson Road Water District along the southerly line of Tax Parcel number 14.-1-45, a distance of 8 feet, more or less, to the southeasterly corner of Tax Parcel number 14.-1-45; thence,
16. Northerly, following the existing Wilkinson Road Water District along a westerly line of Tax Parcel number 14.-1-44, a distance of 494 feet, more or less, to a northwesterly corner of Tax Parcel number 14.-1-41; thence,
17. Easterly, following the existing Wilkinson Road Water District along a northerly line of Tax Parcel number 14.-1-41, a distance of 651 feet, more or less, to the southeasterly corner of Tax Parcel number 14.-1-47; thence,
18. Northerly, following the existing Wilkinson Road Water District along the easterly line of Tax Parcel number 14.-1-47, a distance of 29 feet, more or less, to a northwesterly corner of Tax Parcel number 14.-1-41; thence,
19. Easterly, along a northerly line of Tax Parcel numbers 14.-1-41 and 14.-1-37.111, a distance of 2,042 feet, more or less, to a southeasterly corner of Tax Parcel number 14.-1-21; thence,
20. Northerly, along a westerly line of Tax Parcel number 14.-1-37.111, a distance of 719 feet, more or less, to a northwesterly corner of Tax Parcel number 14.-1-37.111; thence,
21. Easterly, along a northerly line of Tax Parcel number 14.-1-37.111, a distance of 1,022 feet, more or less, to the southeasterly corner of Tax Parcel number 14.-1-72; thence,
22. Northerly, along the westerly line of Tax Parcel numbers 14.-1-35.11, a distance of 1,205 feet, more or less, to the northwesterly corner of Tax Parcel number 14.-1-35.11; thence,
23. Easterly, along the northerly line of Tax Parcel number 14.-1-35.11, across Upton Road (49.5 feet wide right-of-way), and continuing along a northerly line of Tax Parcel number 14.-1-58 a distance of 2,399 feet, more or less, to a northeasterly corner of Tax Parcel number 14.-1-58; thence,
24. Southerly, along an easterly line of Tax Parcel number 14.-1-58, a distance of 1,249 feet, more or less, to a southwesterly corner of Tax Parcel number 14.-1-25.1; thence,
25. Easterly, along a northerly line of Tax Parcel number 14.-1-58, a distance of 387 feet, more or less, to a northeasterly corner of Tax Parcel number 14.-1-58; thence,
26. Southerly, along an easterly line of Tax Parcel number 14.-1-58, a distance of 926 feet, more or less, to the southeasterly corner of Tax Parcel number 14.-1-58; thence,
27. Westerly, following the existing Rose Road Water District along the southerly line of Tax Parcel number 14.-1-58, a distance of 48 feet, more or less, to the northeasterly corner of Tax Parcel number 14.-1-34; thence,
28. Southerly, following the existing Rose Road Water District along the easterly line of Tax Parcel number 14.-1-34, across Rose Road (66 feet wide right-of-way), and continuing along the easterly line of Tax Parcel number 17.-1-1, a distance of 2,027 feet, more or less, to the southwesterly corner of Tax Parcel number 17.-1-3; thence,
29. Easterly, following the existing Rose Road Water District along the northerly line of Tax Parcel number 17.-1-34.121, a distance of 1,547 feet, more or less, to the northeasterly corner of Tax Parcel number 17.-1-34.121; thence,

30. Southerly, following the existing Rose Road Water District along the easterly line of Tax Parcel number 17.-1-34.121, a distance of 115 feet, more or less, to the southeasterly corner of Tax Parcel number 17.-1-34.121; thence,
31. Westerly, following the existing Rose Road Water District along the southerly line of Tax Parcel number 17.-1-34.121, a distance of 18 feet, more or less, to a northeasterly corner of Tax Parcel number 17.-1-33.12; thence,
32. Southerly, following the existing Rose Road Water District along an easterly line of Tax Parcel number 17.-1-33.12, a distance of 219 feet, more or less, to a southwesterly corner of Tax Parcel number 17.-1-3; thence,
33. Easterly, following the existing Rose Road Water District along a northerly line of Tax Parcel number 17.-1-33.12, a distance of 167 feet, more or less, to a northeasterly corner of Tax Parcel number 17.-1-33.12; thence,
34. Southerly, following the existing Rose Road Water District along an easterly line of Tax Parcel number 17.-1-33.12, a distance of 653 feet, more or less, to a southwesterly corner of Tax Parcel number 17.-1-3; thence,
35. Easterly, following the existing Rose Road Water District along a northerly line of Tax Parcel number 17.-1-33.12, a distance of 241 feet, more or less, to a northeasterly corner of Tax Parcel number 17.-1-33.12; thence,
36. Southerly, following the existing Rose Road Water District along an easterly line of Tax Parcel number 17.-1-33.12, a distance of 640 feet, more or less, to the southeasterly corner of Tax Parcel number 17.-1-33.12; thence,
37. Easterly, following the existing Rose Road Water District along a northerly line of Tax Parcel number 17.-1-28.12, a distance of 155 feet, more or less, to the northeasterly corner of Tax Parcel number 17.-1-28.12; thence,
38. Southerly, along an easterly line of Tax Parcel number 17.-1-28.12, a distance of 1,320 feet, more or less, to a southeasterly corner of Tax Parcel number 17.-1-28.12; thence,
39. Westerly, along a southerly line of Tax Parcel number 17.-1-28.12, a distance of 330 feet, more or less, to a northwesterly corner of Tax Parcel number 17.-1-26; thence,
40. Southerly, along an easterly line of Tax Parcel number 17.-1-28.12, a distance of 1,338 feet, more or less, to a southeasterly corner of Tax Parcel number 17.-1-28.12; thence,
41. Westerly, along the Batavia/Alexander Municipal Boundary, a distance of 2,871 feet, more or less, to the point of beginning.

All as shown on the maps prepared by the Town of Batavia entitled, “Batavia Southwest Water District – Water System Improvements,” dated 12/2015. The Town of Batavia, Batavia Southwest Water District, as described above, contains approximately 1,176.0 acres of land.

Appendix C

Opinion of Probable Cost

TOWN OF BATAVIA
PROPOSED BATAVIA SOUTHWEST WATER DISTRICT
OPINION OF PROBABLE COST
NEW WATER DISTRIBUTION SYSTEM

ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	ESTIMATED UNIT PRICE	ESTIMATED TOTAL
W-1a	Furnish and Install 8-Inch Diamter PVC Water Main Complete	LF	14,930	$28.00	$418,040
W-1b	Furnish and Install 12-Inch Diamter PVC Water Main Complete	LF	5,380	$36.00	$193,680
W-2a	Directional Drill with 8-Inch Diameter Water Main (HDPE)	LF	90	$100.00	$9,000
W-3a	Boring with 24-inch Casing Pipe including 8-Inch Carrier Pipe	LF	0	$300.00	$0
W-4a	Furnish and Install 8-Inch In-Line Gate Valves Complete	EA	19	$1,200.00	$22,800
W-4b	Furnish and Install 12-Inch In-Line Gate Valves Complete	EA	8	$2,200.00	$17,600
W-5a	8-Inch Dry Connections to Existing Water Mains Complete	EA	2	$3,000.00	$6,000
W-5b	12-Inch Dry Connections to Existing Water Main Complete	EA	1	$4,000.00	$4,000
W-6a	Wet Connection to Existing Water Main with 8-Inch Tapping Sleeve and Valve	EA	0	$6,000.00	$0
W-7	Furnish and Install Hydrant Assemblies Complete	EA	30	$4,500.00	$135,000
W-8	Furnish and Install New Short Side Water Service with Meter Pit Complete	EA	20	$1,800.00	$36,000
W-9	Furnish and Install New Long Side Water Service with Meter Pit Complete	EA	20	$2,300.00	$46,000
W-10	Rock Excavation	CY	200	$75.00	$15,000
W-11	Compaction Testing	LS	1	$1,000.00	$1,000
W-12	Maintenance and Protection of Traffic Including Signs and Flagperson Meeting NYSDOT Requirements	LS	1	2% of sum W-1:W-11	$18,082
W-13	Mobilization	LS	1	2% of sum W-1:W-11	$18,082

SUBTOTAL =	$940,285
CONTINGENCY (5%) =	$47,014
CONSTRUCTION SUBTOTAL =	$987,299
LEGAL & ADMINSTRATION (4.75%) =	$46,897
ENGINEERING (7%) =	$69,111
CONSTRUCTION OBSERVATION (10.4%) =	$102,679
TOTAL =	$1,205,986
TOTAL ESTIMATED CAPITAL COST	**$1,210,000**
GRANT	**$500,000**
LOAN	**$710,000**
LOAN TERM (years)	**38**
INTEREST RATE	**3.00%**
DEBT SERVICE	**$31,566**
NUMBER OF UNITS	**40**
ANNUAL DEBT SERVICE PER UNIT	**$789**
ANNUAL WATER COST ($4.95/1,000 gallons, 61,000 gallons/year)	**$302**
TOTAL ANNUAL UNIT COST	**$1,091**

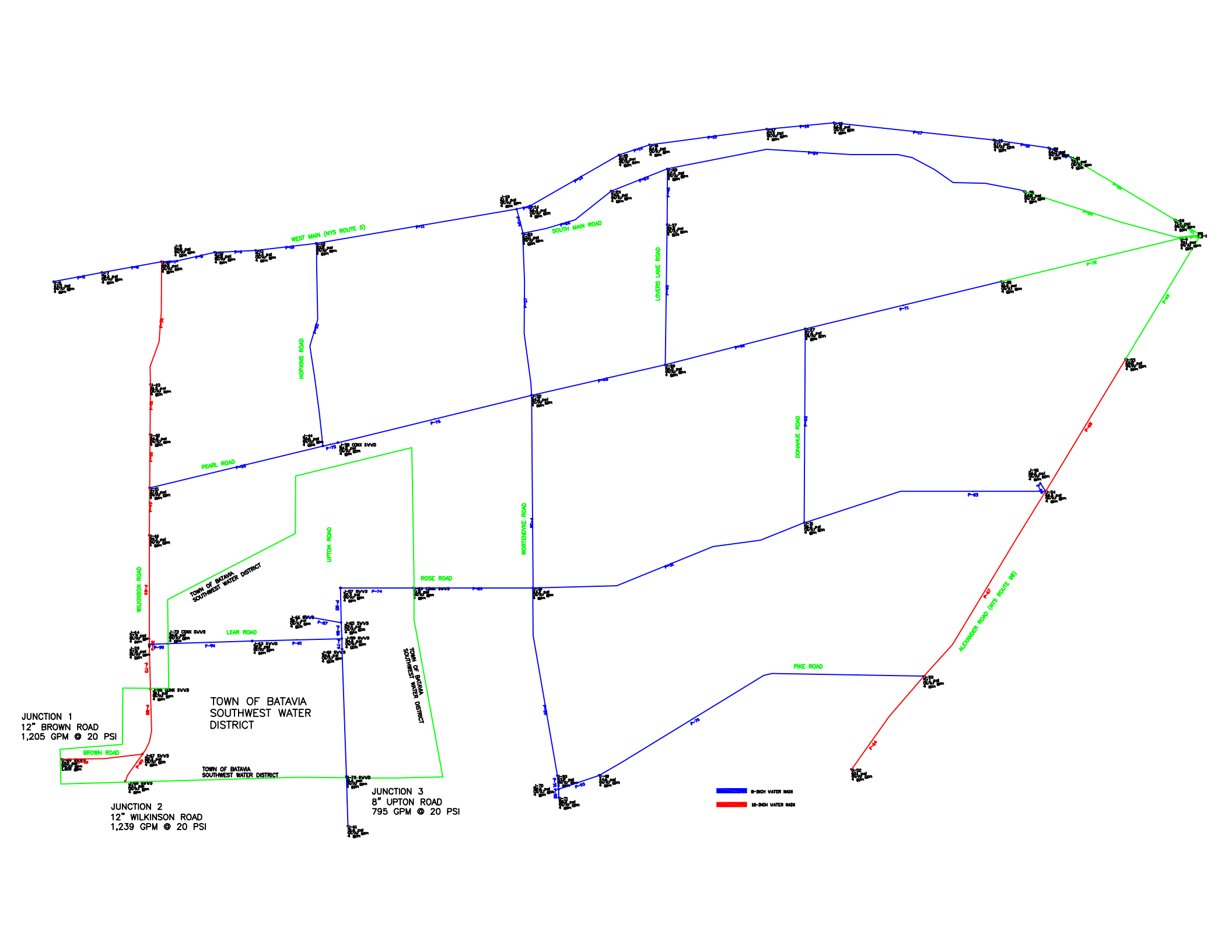
TOWN OF BATAVIA
PROPOSED BATAVIA SOUTHWEST WATER DISTRICT
OPINION OF PROBABLE COST
RESIDENTIAL WELL SUPPLY

ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	ESTIMATED UNIT PRICE	ESTIMATED TOTAL
W-00	Water Treatment Plant	LS	1	$1,205,000.00	$1,205,000
W-1a	Furnish and Install 8-Inch Diamter PVC Water Main Complete	LF	14,930	$28.00	$418,040
W-1b	Furnish and Install 12-Inch Diamter PVC Water Main Complete	LF	5,380	$36.00	$193,680
W-2a	Directional Drill with 8-Inch Diameter Water Main (HDPE)	LF	90	$100.00	$9,000
W-3a	Boring with 24-inch Casing Pipe including 8-Inch Carrier Pipe	LF	0	$300.00	$0
W-4a	Furnish and Install 8-Inch In-Line Gate Valves Complete	EA	19	$1,200.00	$22,800
W-4b	Furnish and Install 12-Inch In-Line Gate Valves Complete	EA	8	$2,200.00	$17,600
W-5a	8-Inch Dry Connections to Existing Water Mains Complete	EA	2	$3,000.00	$6,000
W-5b	12-Inch Dry Connections to Existing Water Main Complete	EA	1	$4,000.00	$4,000
W-6a	Wet Connection to Existing Water Main with 8-Inch Tapping Sleeve and Valve	EA	0	$6,000.00	$0
W-7	Furnish and Install Hydrant Assemblies Complete	EA	30	$4,500.00	$135,000
W-8	Furnish and Install New Short Side Water Service with Meter Pit Complete	EA	20	$1,800.00	$36,000
W-9	Furnish and Install New Long Side Water Service with Meter Pit Complete	EA	20	$2,300.00	$46,000
W-10	Rock Excavation	CY	200	$75.00	$15,000
W-11	Compaction Testing	LS	1	$1,000.00	$1,000
W-12	Maintenance and Protection of Traffic Including Signs and Flagperson Meeting NYSDOT Requirements	LS	1	2% of sum W-00:W-11	$42,182
W-13	Mobilization	LS	1	2% of sum W-00:W-11	$42,182.40

SUBTOTAL =	$2,193,485
CONTINGENCY (5%) =	$109,674
CONSTRUCTION SUBTOTAL =	$2,303,159
LEGAL & ADMINSTRATION (4.75%) =	$109,400
ENGINEERING (7%) =	$161,221
CONSTRUCTION OBSERVATION (10.4%) =	$239,529
TOTAL =	$2,813,309
TOTAL ESTIMATED CAPITAL COST	**$2,814,000**
GRANT	**$500,000**
LOAN	**$2,314,000**
LOAN TERM (years)	**38**
INTEREST RATE	**3.00%**
DEBT SERVICE	**$102,879**
NUMBER OF UNITS	**40**
ANNUAL DEBT SERVICE PER UNIT	**$2,572**
ANNUAL WATER COST ($4.95/1,000 gallons, 61,000 gallons/year)	**$302**
TOTAL ANNUAL UNIT COST	**$2,874**

Appendix D

Water System Models


WEST MAIN (NYS ROUTE 5)
SOUTH MAIN ROAD
LOVERS LANE ROAD
HOPKINS ROAD
PEARL ROAD
DONAHUE ROAD
WORTENDYKE ROAD
UPTON ROAD
ROSE ROAD
WILKINSON ROAD
LEAR ROAD
BROWN ROAD
PIKE ROAD
ALEXANDER ROAD (NYS ROUTE 98)
TOWN OF BATAVIA SOUTHWEST WATER DISTRICT
TOWN OF BATAVIA SOUTHWEST WATER DISTRICT
TOWN OF BATAVIA SOUTHWEST WATER DISTRICT
TOWN OF BATAVIA SOUTHWEST WATER DISTRICT
JUNCTION 1
12" BROWN ROAD
1,205 GPM @ 20 PSI
JUNCTION 2
12" WILKINSON ROAD
1,239 GPM @ 20 PSI
JUNCTION 3
8" UPTON ROAD
795 GPM @ 20 PSI
8-INCH WATER MAIN
10-INCH WATER MAIN

Scenario: Base
Current Time Step: 0.000Hr
FlexTable: Pipe Table

ID	Label	Length (Scaled) (ft)	Start Node	Stop Node	Diameter (in)	Material	Hazen-Williams C	Has Check Valve?	Minor Loss Coefficient (Local)	Flow (gpm)	Velocity (ft/s)	Headloss Gradient (ft/ft)	Has User Defined Length?
36	P-4	572	J-4	T-1	24.0	PVC	110.0	False	0.000	-330	0.23	0.000	False
39	P-5	1,376	J-6	J-7	8.0	PVC	110.0	False	0.000	-4	0.03	0.000	False
41	P-6	1,712	J-7	J-8	8.0	PVC	110.0	False	0.000	-8	0.05	0.000	False
43	P-7	437	J-8	J-9	8.0	PVC	100.0	False	0.000	-351	2.24	0.004	False
45	P-8	1,088	J-9	J-10	8.0	PVC	100.0	False	0.000	-355	2.27	0.004	False
47	P-9	1,153	J-10	J-11	8.0	PVC	110.0	False	0.000	-359	2.29	0.004	False
49	P-10	1,723	J-11	J-12	8.0	PVC	110.0	False	0.000	-363	2.32	0.004	False
51	P-11	5,728	J-12	J-13	8.0	PVC	130.0	False	0.000	-452	2.88	0.004	False
53	P-12	387	J-13	J-14	8.0	PVC	130.0	False	0.000	-253	1.61	0.001	False
55	P-13	2,893	J-14	J-15	8.0	PVC	130.0	False	0.000	-257	1.64	0.001	False
57	P-14	908	J-15	J-16	8.0	PVC	130.0	False	0.000	-261	1.66	0.002	False
59	P-15	3,336	J-16	J-17	8.0	PVC	130.0	False	0.000	-265	1.69	0.002	False
61	P-16	1,898	J-17	J-18	8.0	PVC	130.0	False	0.000	-269	1.72	0.002	False
63	P-17	4,537	J-18	J-19	8.0	PVC	120.0	False	0.000	-273	1.74	0.002	False
65	P-18	1,565	J-19	J-20	8.0	PVC	130.0	False	0.000	-277	1.77	0.002	False
67	P-19	690	J-20	J-21	8.0	PVC	130.0	False	0.000	-281	1.79	0.002	False
69	P-20	3,395	J-21	J-22	24.0	PVC	120.0	False	0.000	-285	0.20	0.000	False
70	P-21	852	J-22	T-1	24.0	PVC	130.0	False	0.000	-289	0.20	0.000	False
73	P-22	2,830	J-23	J-24	8.0	PVC	130.0	False	0.000	-252	1.61	0.001	False
75	P-23	1,706	J-24	J-25	8.0	PVC	130.0	False	0.000	-256	1.63	0.001	False
77	P-24	10,352	J-25	J-26	8.0	PVC	110.0	False	0.000	-250	1.59	0.002	False
78	P-25	5,157	J-26	T-1	24.0	PVC	120.0	False	0.000	-254	0.18	0.000	False
86	P-29	3,368	J-29 CONX SWWD	J-30	8.0	PVC	150.0	False	0.000	-522	3.33	0.004	False
89	P-31	7,977	J-30	J-31	8.0	PVC	150.0	False	0.000	-314	2.00	0.002	False
91	P-33	5,463	J-31	J-27	8.0	PVC	130.0	False	0.000	-41	0.26	0.000	False
92	P-34	712	J-13	J-23	8.0	PVC	130.0	False	0.000	-203	1.30	0.001	False
96	P-37	4,577	J-23	J-32	8.0	PVC	150.0	False	0.000	44	0.28	0.000	False
97	P-38	5,433	J-32	J-30	8.0	PVC	140.0	False	0.000	-47	0.30	0.000	False
99	P-39	5,351	J-30	J-33	8.0	PVC	150.0	False	0.000	-259	1.65	0.001	False
106	P-42	1,566	J-25	J-37	8.0	PVC	130.0	False	0.000	-10	0.06	0.000	False
108	P-43	3,865	J-32	J-38	8.0	PVC	120.0	False	0.000	-260	1.66	0.002	False
109	P-44	4,071	J-38	J-27	8.0	PVC	130.0	False	0.000	-277	1.77	0.002	False
110	P-45	3,959	J-37	J-38	8.0	PVC	130.0	False	0.000	-14	0.09	0.000	False
117	P-49	1,336	J-40	J-41	12.0	PVC	140.0	False	0.000	-778	2.21	0.001	False
119	P-50	1,501	J-41	J-42	12.0	PVC	140.0	False	0.000	-331	0.94	0.000	False
121	P-51	1,420	J-42	J-43	12.0	PVC	140.0	False	0.000	-335	0.95	0.000	False
122	P-52	3,519	J-43	J-8	12.0	PVC	140.0	False	0.000	-339	0.96	0.000	False
124	P-53	5,024	J-41	J-44	8.0	PVC	140.0	False	0.000	-451	2.88	0.004	False
126	P-55	5,783	J-44	J-12	8.0	PVC	130.0	False	0.000	-85	0.54	0.000	False
145	P-64	3,319	J-52	J-53	12.0	PVC	130.0	False	0.000	-4	0.01	0.000	False
147	P-65	6,955	J-31	J-54	8.0	PVC	145.0	False	0.000	-277	1.77	0.001	False
148	P-66	263	J-54	J-46	8.0	PVC	130.0	False	0.000	4	0.03	0.000	False
149	P-67	6,271	J-53	J-54	12.0	PVC	130.0	False	0.000	-283	0.80	0.000	False
151	P-68	4,354	J-54	J-55	12.0	PVC	140.0	False	0.000	-568	1.61	0.001	False
152	P-69	4,086	J-55	T-1	24.0	PVC	130.0	False	0.000	-572	0.41	0.000	False
153	P-70	9,953	J-48	J-53	8.0	PVC	150.0	False	0.000	-275	1.76	0.001	False
154	P-71	5,692	J-27	J-45	8.0	PVC	130.0	False	0.000	-322	2.06	0.002	False
155	P-72	5,192	J-45	J-4	24.0	PVC	130.0	False	0.000	-326	0.23	0.000	False
157	P-73	1,193	J-39	J-56 CONX SWWD	12.0	PVC	140.0	False	0.000	1,221	3.46	0.003	False
159	P-74	2,054	J-29 CONX SWWD	J-57 SWWD	8.0	PVC	140.0	False	0.000	518	3.30	0.005	False
161	P-75	432	J-44	J-58 CONX SWWD	8.0	PVC	100.0	False	0.000	-370	2.36	0.005	False
162	P-76	5,620	J-58 CONX SWWD	J-32	8.0	PVC	100.0	False	0.000	-348	2.22	0.004	False
167	P-79	295	J-59 SWWD	J-60 SWWD	8.0	PVC	130.0	False	0.000	12	0.08	0.000	False
172	P-81	2,529	J-59 SWWD	J-63 SWWD	8.0	PVC	140.0	False	0.000	463	2.96	0.004	False
174	P-82	61	J-39	J-64	12.0	PVC	140.0	False	0.000	-1,225	3.48	0.003	False
175	P-83	3,077	J-64	J-40	12.0	PVC	140.0	False	0.000	-774	2.20	0.001	False
178	P-85	973	J-57 SWWD	J-65 SWWD	8.0	PVC	140.0	False	0.000	487	3.11	0.004	False
179	P-86	453	J-65 SWWD	J-59 SWWD	8.0	PVC	140.0	False	0.000	479	3.06	0.004	False
181	P-87	1,022	J-65 SWWD	J-66 SWWD	8.0	PVC	140.0	False	0.000	4	0.03	0.000	False
183	P-88	1,899	J-56 CONX SWWD	J-67 SWWD	12.0	PVC	140.0	False	0.000	1,217	3.45	0.003	False
185	P-89	915	J-67 SWWD	J-68 SWWD	12.0	PVC	140.0	False	0.000	4	0.01	0.000	False
187	P-90	2,286	J-67 SWWD	J-69 SWWD	12.0	PVC	140.0	False	0.000	1,209	3.43	0.003	False
189	P-91	386	J-33	J-70	8.0	PVC	140.0	False	0.000	-263	1.68	0.001	False
191	P-92	240	J-70	J-71	8.0	PVC	140.0	False	0.000	4	0.03	0.000	False
192	P-93	1,211	J-48	J-70	8.0	PVC	140.0	False	0.000	271	1.73	0.001	False
194	P-94	2,365	J-63 SWWD	J-72 CONX SWWD	8.0	PVC	140.0	False	0.000	459	2.93	0.004	False
195	P-95	532	J-72 CONX SWWD	J-64	8.0	PVC	140.0	False	0.000	455	2.90	0.004	False
197	P-96	3,598	J-60 SWWD	J-73 SWWD	8.0	PVC	140.0	False	0.000	8	0.05	0.000	False
198	P-97	1,392	J-73 SWWD	J-61	8.0	PVC	140.0	False	0.000	4	0.03	0.000	False

Appendix E

Unit Definitions

Water District Benefit Basis
Unit Definition

Each single-family residential dwelling shall be considered one unit. Included in this category will be single-family houses, mobile homes, and manufactured homes. Multiple single-family dwellings on the same parcel of land will each be considered an individual unit. Each additional livable area for apartments, duplexes, triplexes, etc. will be assessed 0.5 units for each additional livable area above the base unit of one. Seasonal or non-continuous occupancy will not be taken into consideration when determining what constitutes a unit. Any facility will be considered as a minimum of one unit.

All vacant land currently in a certified agricultural district is exempt and will not be assessed.

All parcels of vacant land which are developable will each be assessed 0.1 units.

All vacant parcels that are classified as "not developable," as set forth in this Map, Plan, and Report, shall be assessed the sum of Ten and No More Dollars ($10.00 and No More), per year.

Non-residential, recreational, educational, commercial, industrial and agricultural facilities will be assigned an equivalent number of units based on **the greater of the two** methods as follows:

1. The average daily usage divided by 300 gpd
   (Average Daily Usage ÷ 300 = number of units).

2. Expected average daily usage (based on type of facility) divided by 300 gpd. Type of facility and expected flow rates (gals/day) are listed below. (1):

Type of Facility	Flow Rate Per Person (Gals./day)	Flow Rate Per Unit (Gals./day)
Campgrounds (Recreational Vehicle - Per site)		
Sewered sites		100
Central Facilities		
Served Sites, 300' Radius		100
Peripheral Sites, 500' Radius		75
Subtractions from above		
No Showers		25
Dual Service (Central Facilities and Sewered facilities overlapping the central)		25
Campgrounds (Summer Camp)		
Central Facilities	50	
Separate Facilities		
Toilet	10	
Shower	25	
Kitchen	10	
Camps, Day	13	
Add for lunch	3	
Add for showers	5	
Carwash, assuming no recycle		
Tunnel, Per Car		80
Rollover, per Car		40
Wandwash, per 5 minutes cycle		20
Churches - Per seat		3
(With Catering - add food service value)		

Type of Facility	Flow Rate Per Person (Gals./day)	Flow Rate Per Unit (Gals./day)
Clubs		
Country		
Per Resident Member		75
Per Non-Resident Member		25
Factories		
Per person/shift	25	
Add for showers	10	
Food Service Operations (Per Seat)		
Ordinary Restaurant		35
24-Hour Restaurant		50
Restaurant along Freeway		70
Tavern (little food service)		20
Curb service (Drive-in per car)		50
Catering, or Banquet Facilities	20	
Hair Dresser		
Per Station		170
Hospitals		
Per bed		175
Hotels		
Per Room		120
add for banquet Facilities,		
Theatre, night club, as applicable		
Institutions (other than hospitals)		
Per person	125	
Laundromats		
(Per machine)		580
Motels		
Per Living Unit		100
with Kitchen		150
Office Building (per use)		
Per Employee	15	
Per Square Foot		0.1
Dentist - Per chair/day		750
Parks (per picnicker)		
Restrooms only	5	
Showers and Restroom	10	
Service Stations		
Per toilet (not including car wash)		400
Shopping Centers		
(Per sq. ft. -food extra)		0.1
Per Employee	15	
Per Toilet		400

(1) Derived from Table 3. “Expected Hydraulic Loading Rates”, Design Standards for Wastewater Treatment Works Intermediate Size Sewage Facilities 1988.