



WATER MANAGEMENT ACT PERMIT APPLICATION JANUARY 2019

Parker River Basin
Georgetown Water Department
Georgetown, Massachusetts

**Water Management Act Permit Application
Parker River Basin
PWSID No. 3105000
Georgetown Water Department**

January 2019

Prepared by





Mr. Duane LeVangie
Water Management Act Program
Massachusetts Department of Environmental Protection
One Winter Street, 5th Floor
Boston, MA 02108

Subject: Water Management Permit Application
Georgetown Water Department
Georgetown, Massachusetts
PWS ID No. 3105000
Permit No. 9P-3-16-105.01
T&H No. 5564

Dear Mr. LeVangie:

On behalf of the Georgetown Water Department (GWD), Tata & Howard, Inc. is pleased to submit the enclosed Water Management Act Permit Application (PWSID No. 3105000, Permit No. 9P-3-16-105.01), Transmittal No. X280640 to the Massachusetts Department of Environmental Protection (MassDEP). The submittal includes applicable BRP WM 03 Forms and associated attachments.

The Application includes a request for a permitted withdrawal volume consistent with the Department of Conservation and Recreation (DCR) water needs forecast projection for the Georgetown Water Department's existing groundwater sources in the Parker River Basin. The 2035 requested permitted volume of 0.92 million gallons per day (mgd) includes a five percent buffer of 0.04 mgd and is based on current MassDEP's performance standards of 65 residential gallons per capita per day and 10 percent unaccounted for water. The additional withdrawal volume will be pumped from the Georgetown Water Department's existing sources, and an additional withdrawal point will not be required. There are no detrimental impacts anticipated with the increased withdrawal. A 20-year permit renewal application was submitted by the GWD on February 6, 2018 for the current registered and permitted volume of 0.75 mgd. The DCR water needs forecast showed water demands increasing to volumes greater than 0.75 mgd over the next 20 years. This new permit application is being submitted for MassDEP approval to withdraw the additional 0.17 mgd. The additional withdrawal will increase the GWD's total authorized withdrawal volume to 0.92 mgd, including a registered volume of 0.43 mgd and a permitted volume of 0.49 mgd.

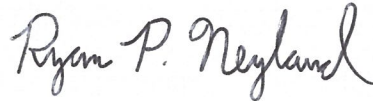
Mr. Duane LeVangie
Massachusetts Department of Environmental Protection

January 22, 2019
Page 2 of 2

We appreciate your assistance through the Water Management Act Permit process. Should you have any questions or comments, please do not hesitate to contact our office.

Sincerely,

TATA & HOWARD, INC.



Ryan P. Neyland, P.E.
Associate

Enclosure

cc: Mr. Bruce Trumbull, General Manager
Georgetown Water Department

Mr. Jeffrey McClure, Chairman
Georgetown Board of Water Commissioners

TABLE OF CONTENTS

Letter of Transmittal

Section	Description
SECTION 1 – Transmittal Form for Permit Application and Payment	
SECTION 2 – 20-Year Permit Renewal Application	
	WMA Form A – General Information
	WMA Form B – Ground Water Withdrawal
	WMA Form D1 – Consumption of Historic Withdrawal Volume
	WMA Form D2 – Projection of Withdrawal Volume: Years 1 – 20
	WMA Form F – Evaluation of Potential Effects of Proposed Withdrawal
	WMA Form G – Alternatives to Proposed Withdrawal
SECTION 3 – Narrative	
3.1	General
3.2	Form F – Evaluation of Potential Effects of Proposed Withdrawal
3.3	Form G – Alternative Analysis
SECTION 4 – Water Conservation Questionnaire for Public Water Suppliers	
Attachments	
1	Water Distribution System Map
2	Sections from Water System Emergency Response Plan and Procedures
3	Sections from Town Bylaws – Water Supply Conservation
4	Georgetown Water Department Rules and Regulations
5	Tables DS-1 and DS-2 from the 2017 Annual Statistical Report
6	Water Rate Structure

TABLE OF APPENDICES

Appendix	Description
A	Figures
B	Public Notice
C	DCR Water Needs Forecast (Demand Projections)
D	MassDEP Water Management Act Permit Renewal Summary Sheet

TABLE OF FIGURES

Figures	Description
1	Locus Map
2	Wetlands Buffer Zones and Riverfront Areas
3	Wildlife, Fisheries and Floral Habitat
4	Agriculture

Section 1



Enter your transmittal number

X280640

Transmittal Number

Your unique Transmittal Number can be accessed online:

<http://www.mass.gov/eea/agencies/massdep/service/approvals/transmittal-form-for-payment.html>

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: MassDEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

BRP WM 03

1. Permit Code: 4 to 7 character code from permit instructions

Increase in Permitted Withdrawal

3. Type of Project or Activity

Water Management Act Withdrawal Permit

2. Name of Permit Category

B. Applicant Information – Firm or Individual

Georgetown Water Department

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

Trumbull

Bruce

2. Last Name of Individual

3. First Name of Individual

4. MI

1 Moulton Street

5. Street Address

Georgetown

MA

01833

(978) 352-5750

6. City/Town

7. State

8. Zip Code

9. Telephone #

10. Ext. #

Mr. Bruce Trumbull

watergm@georgetownma.gov

11. Contact Person

12. e-mail address

C. Facility, Site or Individual Requiring Approval

1. Name of Facility, Site Or Individual

2. Street Address

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

Tata & Howard, Inc.

1. Name of Firm Or Individual

67 Forest Street

2. Address

Marlborough

MA

01752

(508) 232-6337

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

Ryan P. Neyland, P.E.

8. Contact Person

9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due

Special Provisions:

1. ☒ Fee Exempt (city, town or municipal housing authority)(state agency if fee is \$100 or less).
There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Check Number

Dollar Amount

Date



Section 2



WMA Form A - General Information

A. Facility Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Name of entity: water system, town, farm, company, or golf course

Georgetown Water Department

Name

1 Moulton Street

Street Address

Georgetown

MA

01833

City

State

Zip Code

Bruce Trumbull, General Manager

(978) 352-5750

Contact Person Name/Title

Phone Number

2. Consultant Contact:

Tata & Howard, Inc.

Consultant Company Name

Ryan P. Neyland, P.E.

Associate

Contact Person

Title

67 Forest Street

Mailing Address

Marlborough

MA

01752

City

State

Zip Code

(508) 232-6337

(508) 449-9400

rneyland@tataandhoward.com

Phone Number

Fax Number

Email

B. Water Withdrawal Information

(Use totals from Form D - subtract registered volume if applicable.)

1. Volume requested (in MGD) for: Days/year to be used Average day (mgd) # months to be pumped

Years 1-5: 365 0.32 12

Years 6-10: 365 0.41 12

Years 11-15: 365 0.44 12

Years 16-20: 365 0.49 12

2. Number of withdrawal points: Groundwater (G): 4 Surface Water (S): 0

Name and type of withdrawal points (G or S):

Name of Watershed

Location (Town/City)

(a) Tubular Wellfield (-01G)

☒ G

Parker River

Georgetown

☐ S

(b) William Marshall Well (-03G)

☒ G

Parker River

Georgetown

☐ S

(c) Commissioner's Well (-04G)

☒ G

Parker River

Georgetown

☐ S

(d) Ronald Marshall Well (-05G)

☒ G

Parker River

Georgetown

☐ S



WMA Form A - General Information

B. Water Withdrawal Information (cont.)

4. For what purpose will this water be used (in percent):

Agriculture:	<u>0.68%</u>	Cranberry:	<u>%</u>
Commercial:	<u>4.24%</u>	Industrial:	<u>1.99%</u>
Residential:	<u>89.82%</u>	Golf:	<u>%</u>
Other (please describe):	<u>Municipal/Institutional/Non-profit and Residential Commercial</u>		<u>3.27%</u>

5. Is this a public water supply? ☒ Yes ☐ No PWS ID No.: 3105000

6. For public water suppliers, are you using DCR Division of Water Supply Protection water needs forecast?

☒ Yes ☐ No

7. Permit time length requested: 20 Years
Months or Years

Please refer to Appendix B-Permit End Dates for permit end dates for the watershed of your withdrawal point(s) and refer to 310 CMR 36.34 for permit renewal information. Permits are renewable - refer to 310 CMR 36.24.

8. Do these withdrawal requests have new water withdrawals or construction which requires an Environmental Notification Form submittal to MEPA?

☐ Yes ☒ No

9. Name and address of the chief elected official or local water resources management official in the community(s) in which the withdrawal(s) are located and to whom a copy of this application will be forwarded:

Mr. Jeffrey McClure, Chairman, Board of Water Commissioners

Name

1 Moulton Street

Street Address

Georgetown

City

MA

State

01833

Zip Code

10. Which new and existing sources are included in this permit application?

<u>Tubular Wellfield,</u>	<u>3105000-01G,</u>	<u>Existing</u>	<u>0.29 (-01G); 1.00 (-03G)</u>
<u>William Marshall Well</u>	<u>3105000-03G</u>	<u>New or Proposed</u>	<u>Maximum Daily Vol. Requested (mgd)</u>
<u>Commissioner's Well,</u>	<u>3105000-04G,</u>	<u>Existing</u>	<u>0.58 (-04G); 1.51 (-05G)</u>
<u>Ronald Marshall Well</u>	<u>3105000-05G</u>	<u>New or Proposed</u>	<u>Maximum Daily Vol. Requested (mgd)</u>

Source Name and Number

Reg. No. (if applicable)

New or Proposed

Maximum Daily Vol. Requested (mgd)

11. Are any of these withdrawal points subject to DEP's Source Approval Process for public water suppliers?

☐ Yes ☒ No

If yes, list their name(s):

Name(s)



WMA Form A - General Information

B. Water Withdrawal Information (cont.)

12. Is some fraction of the water withdrawn to be discharged out of the basin (include ocean discharge if appropriate)?

☐ Yes ☒ No (check one)

a. If yes (to only one "out of the basin" destination), what fraction of the total discharge and to which basin?

_____ % will be discharged to the _____ basin

b. If yes, and to more than one "out of basin" destination, what fraction of your total discharge and to which basins?

1) _____ % will be discharged to the _____ basin

2) _____ % will be discharged to the _____ basin

3) _____ % will be discharged to the _____ basin

4) _____ % will be discharged to the _____ basin

c. What fraction of the water to be used will be discharged to this basin? 100%

1) _____ % discharged to a public sewer system?

2) 100% discharged to on-site sewage disposal systems?

3) _____ % discharged to another alternative (please describe)?

13. Is there an NPDES discharge permit? ☒ Y ☐ N
(If so, provide permit number)

MAG640048; MAR053598; MARI000M0

NPDES Permit Number

Provide volume and location of discharge point:

See Attached Permit Summary

Groundwater discharge permit? ☒ Y ☐ N
(If so, provide permit number)

649; 660; 734

Groundwater Discharge Permit Number

Provide volume and location of discharge point:

See Attached Permit Summary

14. What is the authorized NPDES daily discharge volume?

1,000,000
gallons per day

15. Is the discharge volume metered? ☒ Yes ☐ No

16. Is, or will, the demand for this withdrawal be supplemented by withdrawals from another river basin? ☐ Yes ☒ No

List withdrawals in other river basins, the location of each and average daily volumes (ADV) withdrawn from each:

Watershed _____ ADV _____

Watershed _____ ADV _____

Watershed _____ ADV _____



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form A - General Information

B. Water Withdrawal Information (cont.)

17. Does this request require an Interbasin Transfer Act application to the Water Resources Commission?

☐ Yes ☒ No

C. Certification

I certify, under penalty of law, that this application and all attachments were prepared under my supervision, in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted in this application, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Ryan P. Neyland
Signature of Applicant

Associate
Title

1/22/19
Date

**Water Management Act Permit Application
Georgetown Water Department, Georgetown, MA
PWS ID No. 3105000
Permit No. 9P-3-16-105.01
Transmittal No. X280640**

WMA Form A – General Information Form Supplemental Information

B.13: Volume and location of discharge point for NPDES permits and groundwater permits

NPDES Permits:

- Permit No. MAG640048 – 1.0 mgd; Georgetown Water Treatment Plant, 75 West Street, Georgetown, MA 01833
- Permit No. MAR053598 – unknown discharge volume; Cianbro Fabrication & Coating Corp. 3 Farm Lane, Georgetown, MA 01833
- Permit No. MARI000M0 – unknown discharge volume; Elm Street Roadway Improvements, Elm Street, Georgetown, MA 01833

Groundwater Discharge Permits:

- Permit No. 649 – 19,800 gpd; Littles Hills, Londonderry Lane, Georgetown, MA 01833
- Permit No. 660 – 18,900 gpd; Georgetown Housing Authority, 23 Trestle Way, Georgetown, MA 01833
- Permit No. 734 – 36,080 gpd; Georgetown Village STP, 9 Patriot Way, Georgetown, MA 01833



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form B

Groundwater Withdrawal Point

Please provide a separate Form B for each withdrawal point source. Please answer only if the requested information is known and reliable.

A. Withdrawal Point Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Name and Address of Withdrawal Point

Tubular Wellfield

Name of Withdrawal Point

West Street

Street Address

Georgetown

City

3105000-01G

Source Code (for public water supplies)

MA

State

01833

Zip Code

2. Has this well been registered?

☒ Yes ☐ No

Month and year put in operation or planned:

1935

3. Has this well been in regular operation at any time?

☒ Yes ☐ No

Month and year put in operation or planned:

1935

4. USGS quadrangle name:

South Groveland

5. Latitude and Longitude:

42.720001

Latitude

71.022926

Longitude

Please provide a locus map of the withdrawal and any associated reservoirs or ponds.

B. Geologic Information

1. Aquifer type: ☐ Bedrock ☐ Confined ☒ Unconfined

2. Depth to bedrock:

Unknown

feet

C. Well Information

1. Well type: ☐ Gravel pack ☐ Gravel developed ☒ Tubular well field ☐ Dug well

☐ Other (describe):

2. Year to be installed (if not already installed):

Withdrawal point is currently inactive

3. Well depth:

Unknown

4. Depth to water level when installed:

Unknown



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form B

Groundwater Withdrawal Point

C. Well Information (cont'd)

5. Name and address of well driller:

Name of Withdrawal Point

Unknown

Street Address

City

State

Zip Code

D. Pumping Information

1. Was a pump test conducted on this well? ☐ Yes ☐ No

If yes, provide date: Unknown

Firm conducting the test: Unknown

If no, is one planned? ☐ Yes ☐ No

Items 2-7 are for Public Water Supplies.

2. Has a Zone II delineation been performed for this well? ☒ Yes ☐ No

3. If yes, has this Zone II been approved by the Department? ☒ Yes ☐ No

4. Date of Zone II delineation Unknown

5. Firm conducting Zone II delineation Unknown

6. What is the maximum daily withdrawal rate? 0.29 MGD

7. Is this a DEP-approved withdrawal rate? ☒ Yes ☐ No

E. Meter Information

1. If in operation, is this well metered? ☐ Yes ☒ No

2. If proposed, when will meter(s) be installed? Withdrawal point is currently inactive

3. Type of flow measurement device installed or planned:
☐ weir ☐ flume ☐ venturi ☐ other meter ☐ other (describe): _____

4. Capacity of flow measurement device: _____

5. Recordings are: ☐ continuous ☐ manual

6. Last date of calibration, if in operation: N/A



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form B

Groundwater Withdrawal Point

Please provide a separate Form B for each withdrawal point source. Please answer only if the requested information is known and reliable.

A. Withdrawal Point Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Name and Address of Withdrawal Point

William Marshall Well

Name of Withdrawal Point

West Street

Street Address

Georgetown

City

MA

State

01833

Zip Code

3105000-03G

Source Code (for public water supplies)

2. Has this well been registered?

☒ Yes ☐ No

Month and year put in operation or planned:

July, 1963

3. Has this well been in regular operation at any time?

☒ Yes ☐ No

Month and year put in operation or planned:

July, 1963

4. USGS quadrangle name:

South Groveland

5. Latitude and Longitude:

42.721486

Latitude

-71.022738

Longitude

Please provide a locus map of the withdrawal and any associated reservoirs or ponds.

B. Geologic Information

1. Aquifer type: ☐ Bedrock ☐ Confined ☒ Unconfined

2. Depth to bedrock: Unknown
feet

C. Well Information

1. Well type: ☒ Gravel pack ☐ Gravel developed ☐ Tubular well field ☐ Dug well

☐ Other (describe): _____

2. Year to be installed (if not already installed): _____

3. Well depth: 53 ft

4. Depth to water level when installed: 10 ft (current)



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form B

Groundwater Withdrawal Point

C. Well Information (cont'd)

5. Name and address of well driller:

Name of Withdrawal Point

Unknown

Street Address

City

State

Zip Code

D. Pumping Information

1. Was a pump test conducted on this well? ☒ Yes ☐ No

If yes, provide date: July, 1963

Firm conducting the test: Unknown

If no, is one planned? ☐ Yes ☐ No

Items 2-7 are for Public Water Supplies.

2. Has a Zone II delineation been performed for this well? ☒ Yes ☐ No

3. If yes, has this Zone II been approved by the Department? ☒ Yes ☐ No

4. Date of Zone II delineation Unknown

5. Firm conducting Zone II delineation Unknown

6. What is the maximum daily withdrawal rate? 1.00 MGD

7. Is this a DEP-approved withdrawal rate? ☒ Yes ☐ No

E. Meter Information

1. If in operation, is this well metered? ☒ Yes ☐ No

2. If proposed, when will meter(s) be installed? Date

3. Type of flow measurement device installed or planned:
☐ weir ☐ flume ☐ venturi ☐ other meter ☒ other (describe): Magnetic

4. Capacity of flow measurement device: 0-1000 GPM

5. Recordings are: ☒ continuous ☐ manual

6. Last date of calibration, if in operation: 1/11/2018



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form B

Groundwater Withdrawal Point

Please provide a separate Form B for each withdrawal point source. Please answer only if the requested information is known and reliable.

A. Withdrawal Point Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Name and Address of Withdrawal Point

Commissioner's Well

Name of Withdrawal Point

Bailey Lane

Street Address

Georgetown

City

MA

State

01833

Zip Code

3105000-04G

Source Code (for public water supplies)

2. Has this well been registered?

☒ Yes ☐ No

Month and year put in operation or planned:

December, 1980

3. Has this well been in regular operation at any time?

☒ Yes ☐ No

Month and year put in operation or planned:

December 1980

4. USGS quadrangle name:

South Groveland

5. Latitude and Longitude:

42.730414

Latitude

-71.017156

Longitude

Please provide a locus map of the withdrawal and any associated reservoirs or ponds.

B. Geologic Information

1. Aquifer type: ☐ Bedrock ☐ Confined ☒ Unconfined

2. Depth to bedrock: Unknown
feet

C. Well Information

1. Well type: ☒ Gravel pack ☐ Gravel developed ☐ Tubular well field ☐ Dug well

☐ Other (describe): _____

2. Year to be installed (if not already installed): _____

3. Well depth: 35 ft

4. Depth to water level when installed: 12 ft (current)



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form B

Groundwater Withdrawal Point

C. Well Information (cont'd)

5. Name and address of well driller:

Name of Withdrawal Point

Unknown

Street Address

City

State

Zip Code

D. Pumping Information

1. Was a pump test conducted on this well? ☒ Yes ☐ No

If yes, provide date: December, 1980

Firm conducting the test: D.L. Maher, Co.

If no, is one planned? ☐ Yes ☐ No

Items 2-7 are for Public Water Supplies.

2. Has a Zone II delineation been performed for this well? ☒ Yes ☐ No

3. If yes, has this Zone II been approved by the Department? ☒ Yes ☐ No

4. Date of Zone II delineation Unknown

5. Firm conducting Zone II delineation Unknown

6. What is the maximum daily withdrawal rate? 0.58 MGD

7. Is this a DEP-approved withdrawal rate? ☒ Yes ☐ No

E. Meter Information

1. If in operation, is this well metered? ☒ Yes ☐ No

2. If proposed, when will meter(s) be installed? Date

3. Type of flow measurement device installed or planned:

☐ weir ☐ flume ☒ venturi ☐ other meter ☐ other (describe):

4. Capacity of flow measurement device: 0-600 GPM

5. Recordings are: ☒ continuous ☐ manual

6. Last date of calibration, if in operation: 10/15/2017



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form B

Groundwater Withdrawal Point

Please provide a separate Form B for each withdrawal point source. Please answer only if the requested information is known and reliable.

A. Withdrawal Point Information

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Name and Address of Withdrawal Point

Ronald Marshall Well (Duffy's Landing)

Name of Withdrawal Point

West Street

Street Address

Georgetown

City

MA

State

01833

Zip Code

3105000-05G

Source Code (for public water supplies)

2. Has this well been registered?

☒ Yes

☐ No

Month and year put in operation or planned:

1996

3. Has this well been in regular operation at any time?

☒ Yes

☐ No

Month and year put in operation or planned:

1996

4. USGS quadrangle name:

South Groveland

5. Latitude and Longitude:

42.723407

Latitude

-71.023531

Longitude

Please provide a locus map of the withdrawal and any associated reservoirs or ponds.

B. Geologic Information

1. Aquifer type: ☐ Bedrock ☐ Confined ☒ Unconfined

2. Depth to bedrock:

Unknown

feet

C. Well Information

1. Well type: ☒ Gravel pack ☐ Gravel developed ☐ Tubular well field ☐ Dug well

☐ Other (describe):

2. Year to be installed (if not already installed):

3. Well depth:

58 ft

4. Depth to water level when installed:

3 ft (current)



WMA Form B

Groundwater Withdrawal Point

C. Well Information (cont'd)

5. Name and address of well driller:

Name of Withdrawal Point

Unknown

Street Address

City

State

Zip Code

D. Pumping Information

1. Was a pump test conducted on this well? ☐ Yes ☐ No

If yes, provide date: Unknown

Firm conducting the test: Unknown

If no, is one planned? ☐ Yes ☐ No

Items 2-7 are for Public Water Supplies.

2. Has a Zone II delineation been performed for this well? ☒ Yes ☐ No

3. If yes, has this Zone II been approved by the Department? ☒ Yes ☐ No

4. Date of Zone II delineation Unknown

5. Firm conducting Zone II delineation Unknown

6. What is the maximum daily withdrawal rate? 1.51 MGD

7. Is this a DEP-approved withdrawal rate? ☒ Yes ☐ No

E. Meter Information

1. If in operation, is this well metered? ☒ Yes ☐ No

2. If proposed, when will meter(s) be installed? Date

3. Type of flow measurement device installed or planned:
☐ weir ☐ flume ☐ venturi ☐ other meter ☒ other (describe): Ultrasonic

4. Capacity of flow measurement device: 0-1500 GPM

5. Recordings are: ☒ continuous ☐ manual

6. Last date of calibration, if in operation: 10/4/2017



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

Form WMA-D1

Computation of Historic Withdrawal Volume

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Check applicable item:

☐ Combined grand total form

☒ Individual withdrawal point

Withdrawal point name:

Tubular Wellfield (-01G)

1. Even if the withdrawal point is registered, please complete the entire form for each withdrawal point.
2. For each withdrawal point in your application, fill out the charts below to show total monthly historic withdrawal volume in millions of gallons.
NOTE: 100,000 gallons = 0.10 MG
3. **Add** the individual withdrawal point volumes and enter onto a separate Form D1 (a Combined Grand Total form) to show the total monthly historic withdrawal volumes.

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2017	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	0	0	0	0	0	0	0	0	0	0	0	0	0

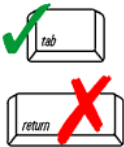


Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

Form WMA-D1

Computation of Historic Withdrawal Volume

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Check applicable item:

☐ Combined grand total form

☒ Individual withdrawal point

Withdrawal point name:

William Marshall Well (-03G)

1. Even if the withdrawal point is registered, please complete the entire form for each withdrawal point.
2. For each withdrawal point in your application, fill out the charts below to show total monthly historic withdrawal volume in millions of gallons.
NOTE: 100,000 gallons = 0.10 MG
3. **Add** the individual withdrawal point volumes and enter onto a separate Form D1 (a Combined Grand Total form) to show the total monthly historic withdrawal volumes.

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
<u>2017</u>	<u>8.416</u>	<u>7.421</u>	<u>8.735</u>	<u>5.769</u>	<u>7.083</u>	<u>7.818</u>	<u>8.040</u>	<u>9.374</u>	<u>7.762</u>	<u>7.093</u>	<u>6.838</u>	<u>2.211</u>	<u>86.560</u>
<u>2016</u>	<u>5.349</u>	<u>5.446</u>	<u>1.741</u>	<u>5.215</u>	<u>7.652</u>	<u>8.481</u>	<u>9.412</u>	<u>7.024</u>	<u>6.340</u>	<u>7.180</u>	<u>7.762</u>	<u>8.186</u>	<u>79.788</u>
<u>2015</u>	<u>5.536</u>	<u>5.047</u>	<u>5.719</u>	<u>6.231</u>	<u>9.613</u>	<u>8.387</u>	<u>8.017</u>	<u>9.471</u>	<u>8.658</u>	<u>6.790</u>	<u>5.443</u>	<u>5.427</u>	<u>84.339</u>
<u>2014</u>	<u>5.162</u>	<u>4.722</u>	<u>5.128</u>	<u>0.034</u>	<u>0.010</u>	<u>5.224</u>	<u>8.103</u>	<u>9.145</u>	<u>7.578</u>	<u>6.460</u>	<u>5.590</u>	<u>5.695</u>	<u>62.851</u>
<u>2013</u>	<u>5.088</u>	<u>4.310</u>	<u>5.128</u>	<u>5.271</u>	<u>6.850</u>	<u>2.168</u>	<u>7.066</u>	<u>6.805</u>	<u>5.474</u>	<u>5.402</u>	<u>4.733</u>	<u>5.484</u>	<u>63.779</u>
<u>2012</u>	<u>0.619</u>	<u>3.247</u>	<u>3.659</u>	<u>5.004</u>	<u>9.464</u>	<u>9.855</u>	<u>11.484</u>	<u>9.835</u>	<u>8.176</u>	<u>6.142</u>	<u>6.089</u>	<u>5.252</u>	<u>78.826</u>
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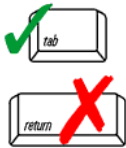


Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

Form WMA-D1

Computation of Historic Withdrawal Volume

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Check applicable item:

☐ Combined grand total form

☒ Individual withdrawal point

Withdrawal point name:

Commissioner's Well (-04G)

1. Even if the withdrawal point is registered, please complete the entire form for each withdrawal point.
2. For each withdrawal point in your application, fill out the charts below to show total monthly historic withdrawal volume in millions of gallons.
NOTE: 100,000 gallons = 0.10 MG
3. **Add** the individual withdrawal point volumes and enter onto a separate Form D1 (a Combined Grand Total form) to show the total monthly historic withdrawal volumes.

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
2017	<u>7.229</u>	<u>6.532</u>	<u>7.481</u>	<u>5.105</u>	<u>5.872</u>	<u>6.260</u>	<u>6.293</u>	<u>7.216</u>	<u>4.000</u>	<u>4.751</u>	<u>5.090</u>	<u>5.324</u>	<u>71.153</u>
2016	<u>3.209</u>	<u>2.592</u>	<u>4.313</u>	<u>5.527</u>	<u>6.337</u>	<u>6.071</u>	<u>6.886</u>	<u>6.174</u>	<u>1.075</u>	<u>4.387</u>	<u>7.508</u>	<u>7.777</u>	<u>61.854</u>
2015	<u>4.913</u>	<u>1.579</u>	<u>1.080</u>	<u>1.090</u>	<u>9.025</u>	<u>1.258</u>	<u>0.0239</u>	<u>1.726</u>	<u>8.560</u>	<u>6.768</u>	<u>5.569</u>	<u>4.643</u>	<u>46.233</u>
2014	<u>0</u>	<u>0.0242</u>	<u>4.925</u>	<u>5.362</u>	<u>6.381</u>	<u>3.042</u>	<u>2.534</u>	<u>0.023</u>	<u>0.159</u>	<u>0.294</u>	<u>0.0587</u>	<u>0.2346</u>	<u>23.038</u>
2013	<u>4.867</u>	<u>4.224</u>	<u>4.925</u>	<u>4.972</u>	<u>6.581</u>	<u>4.349</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>29.918</u>
2012	<u>3.108</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0.0159</u>	<u>0</u>	<u>0.0373</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>4.567</u>	<u>7.728</u>

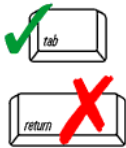


Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

Form WMA-D1

Computation of Historic Withdrawal Volume

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Check applicable item:

☐ Combined grand total form

☒ Individual withdrawal point

Withdrawal point name:

Ronald Marshall Well (Duffy's Landing) (-05G)

1. Even if the withdrawal point is registered, please complete the entire form for each withdrawal point.
2. For each withdrawal point in your application, fill out the charts below to show total monthly historic withdrawal volume in millions of gallons.
NOTE: 100,000 gallons = 0.10 MG
3. **Add** the individual withdrawal point volumes and enter onto a separate Form D1 (a Combined Grand Total form) to show the total monthly historic withdrawal volumes.

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
<u>2017</u>	<u>1.141</u>	<u>0</u>	<u>0.517</u>	<u>6.018</u>	<u>7.186</u>	<u>9.398</u>	<u>11.117</u>	<u>12.789</u>	<u>11.451</u>	<u>10.047</u>	<u>7.000</u>	<u>10.239</u>	<u>86.903</u>
<u>2016</u>	<u>8.290</u>	<u>8.253</u>	<u>11.256</u>	<u>8.022</u>	<u>8.675</u>	<u>16.475</u>	<u>18.837</u>	<u>16.783</u>	<u>13.781</u>	<u>8.819</u>	<u>0</u>	<u>0.337</u>	<u>119.53</u>
<u>2015</u>	<u>6.583</u>	<u>8.058</u>	<u>10.815</u>	<u>12.543</u>	<u>19.225</u>	<u>16.667</u>	<u>17.929</u>	<u>17.059</u>	<u>8.883</u>	<u>6.952</u>	<u>5.767</u>	<u>6.774</u>	<u>137.26</u>
<u>2014</u>	<u>12.598</u>	<u>11.749</u>	<u>7.169</u>	<u>12.690</u>	<u>15.187</u>	<u>18.989</u>	<u>18.440</u>	<u>19.261</u>	<u>16.621</u>	<u>13.421</u>	<u>11.264</u>	<u>11.516</u>	<u>168.91</u>
<u>2013</u>	<u>6.588</u>	<u>5.803</u>	<u>7.169</u>	<u>6.748</u>	<u>9.271</u>	<u>14.633</u>	<u>17.319</u>	<u>16.655</u>	<u>13.822</u>	<u>12.650</u>	<u>11.783</u>	<u>13.550</u>	<u>135.99</u>
<u>2012</u>	<u>13.524</u>	<u>11.708</u>	<u>13.330</u>	<u>17.131</u>	<u>13.260</u>	<u>14.002</u>	<u>19.222</u>	<u>15.729</u>	<u>14.201</u>	<u>11.449</u>	<u>11.542</u>	<u>7.531</u>	<u>162.63</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
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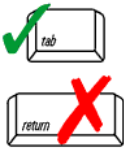


Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

Form WMA-D1

Computation of Historic Withdrawal Volume

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Check applicable item:

☒ Combined grand total form

☐ Individual withdrawal point

Withdrawal point name: Georgetown Water Department

1. Even if the withdrawal point is registered, please complete the entire form for each withdrawal point.
2. For each withdrawal point in your application, fill out the charts below to show total monthly historic withdrawal volume in millions of gallons.
NOTE: 100,000 gallons = 0.10 MG
3. **Add** the individual withdrawal point volumes and enter onto a separate Form D1 (a Combined Grand Total form) to show the total monthly historic withdrawal volumes.

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
<u>2017</u>	<u>17.055</u>	<u>13.953</u>	<u>16.733</u>	<u>16.892</u>	<u>20.141</u>	<u>23.476</u>	<u>25.450</u>	<u>29.379</u>	<u>23.213</u>	<u>21.891</u>	<u>18.928</u>	<u>17.774</u>	<u>244.89</u>
<u>2016</u>	<u>16.848</u>	<u>16.291</u>	<u>17.310</u>	<u>18.764</u>	<u>22.664</u>	<u>31.027</u>	<u>35.135</u>	<u>29.981</u>	<u>21.195</u>	<u>20.386</u>	<u>15.270</u>	<u>16.300</u>	<u>261.17</u>
<u>2015</u>	<u>17.387</u>	<u>15.009</u>	<u>16.839</u>	<u>18.067</u>	<u>30.264</u>	<u>25.702</u>	<u>29.529</u>	<u>31.761</u>	<u>28.304</u>	<u>22.141</u>	<u>19.253</u>	<u>19.564</u>	<u>273.82</u>
<u>2014</u>	<u>17.760</u>	<u>16.495</u>	<u>17.222</u>	<u>18.085</u>	<u>21.578</u>	<u>27.255</u>	<u>29.077</u>	<u>28.429</u>	<u>24.358</u>	<u>20.175</u>	<u>16.912</u>	<u>17.445</u>	<u>254.79</u>
<u>2013</u>	<u>16.523</u>	<u>14.337</u>	<u>17.222</u>	<u>16.991</u>	<u>22.702</u>	<u>21.150</u>	<u>24.385</u>	<u>23.460</u>	<u>19.296</u>	<u>18.052</u>	<u>16.516</u>	<u>19.034</u>	<u>229.67</u>
<u>2012</u>	<u>17.251</u>	<u>14.955</u>	<u>16.989</u>	<u>22.135</u>	<u>22.724</u>	<u>23.873</u>	<u>30.706</u>	<u>25.601</u>	<u>22.377</u>	<u>17.591</u>	<u>17.631</u>	<u>17.350</u>	<u>249.18</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
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Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

Form WMA-D2

Projection of Withdrawal Volume - Years 1-20

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. Fill in the projected daily average water withdrawal in millions of gallons in Column 1. NOTE: 100,000 gallons = 0.10 MG
2. In Column 2, fill in the number of days you expect to operate. For **year-round withdrawals**, enter 365 days. For **seasonal withdrawals**, multiply the number of months that you will operate each year by 30 to get the days of operation (e.g., a golf course that irrigates during April, May, June, July, August, September, and October would enter 7 months of operation x 30 days = 210 days of operation).
3. Multiply the average daily water withdrawal (Column 1) by the days of operation (Column 2) to get the total annual water withdrawal. Enter the number in Column 3.

	Year	Average Daily Withdrawal Volume	Days of Operation	Total Annual Water Withdrawal
Years 1-5	2016	0.75	366	274.50
	2017	0.75	365	273.75
	2018	0.75	365	273.75
	2019	0.75	365	273.75
	2020	0.75	366	274.50
Years 6-10	2021	0.84	365	306.60
	2022	0.84	365	306.60
	2023	0.84	365	306.60
	2024	0.84	366	307.44
	2025	0.84	365	306.60
Years 11-15	2026	0.87	365	317.55
	2027	0.87	365	317.55
	2028	0.87	366	318.42
	2029	0.87	365	317.55
	2030	0.87	365	317.55
Years 16-20	2031	0.92	365	335.80
	2032	0.92	366	336.72
	2033	0.92	365	335.80
	2034	0.92	365	335.80
	2035	0.92	365	335.80

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Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

Form WMA-D2

Projection of Withdrawal Volume - Years 1-20

4. The requested withdrawal volume during Years 1-5, Years 6-10, Years 11-15 and Years 16-20 of the permit period is shown in Column 1.

Average daily withdrawal volumes:	<u>0.75</u> Years 1-5	<u>0.84</u> Years 6-10	<u>0.87</u> Years 11-15	<u>0.92</u> Years 16-20
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5. If part of this volume is registered, subtract the registered volume from the average daily withdrawal volumes for Years 1-5, Years 6-10, Years 11-15 and Years 16-20 to get the requested permit volumes.

<u>0.75</u> Average daily withdrawal volume for Years 1-5	<u>0.43</u> Registered volume	=	<u>0.32</u> Requested permit volume for Years 1-5
<u>0.84</u> Average daily withdrawal volume for Years 6-10	<u>0.43</u> Registered volume	=	<u>0.41</u> Requested permit volume for Years 6-10
<u>0.87</u> Average daily withdrawal volume for Years 11-15	<u>0.43</u> Registered volume	=	<u>0.44</u> Requested permit volume for Years 11-15
<u>0.92</u> Average daily withdrawal volume for Years 16-20	<u>0.43</u> Registered volume	=	<u>0.49</u> Requested permit volume for Years 16-20

6. Enter these requested permit volumes on Form A, Number 5, Years 1-5, Years 6-10, Years 11-15, and Years 16-20.

For withdrawals with seasonal variation

7. Withdrawals are often made at varying rates over the course of the season or year. For example, golf courses typically irrigate for six or seven months per year, with peak irrigation taking place during the summer months; an industry might eliminate one shift during the summer; or a public water supplier might have a large summer population to supply.

If your withdrawal has large seasonal variations, please show the pattern of monthly withdrawals for a typical year in the space below. The numbers you use can be actual projections for one year during the permit period.

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
------	------	------	------	-----	------	------	------	------	------	------	------

Year _____

If you expect the seasonal variation in your withdrawal to change during the permit period, or if you feel that there is any unique aspect to the pattern of your withdrawal, please provide that information in the space below.

-- Continued on following page --



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

Form WMA-D2

Projection of Withdrawal Volume - Years 1-20

8. For each withdrawal point in your application provide the portion (percent) of the projected withdrawal that you expect to take from each withdrawal point, e.g., Well #1 = 25%, Well 2 = 25%, Well 3 = 50%.

Year	-01G Point Name	-03G Point Name	-04G Point Name	-05G Point Name	Point Name
2016	0%	30%	16%	54%	
2017	0%	30%	16%	54%	
2018	0%	30%	16%	54%	
2019	0%	30%	16%	54%	
2020	0%	30%	16%	54%	
2021	0%	30%	16%	54%	
2022	0%	30%	16%	54%	
2023	0%	30%	16%	54%	
2024	0%	30%	16%	54%	
2025	0%	30%	16%	54%	
2026	0%	30%	16%	54%	
2027	0%	30%	16%	54%	
2028	0%	30%	16%	54%	
2029	0%	30%	16%	54%	
2030	0%	30%	16%	54%	
2031	0%	30%	16%	54%	
2032	0%	30%	16%	54%	
2033	0%	30%	16%	54%	
2034	0%	30%	16%	54%	
2035	0%	30%	16%	54%	



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Please address these questions separately for each proposed withdrawal point, as well as the effect of your entire withdrawal. Please reference any tests, studies or reports you use to provide information here.

If this permit application includes an Interbasin Transfer Act request, use those forms to address these issues and include with the permit application.

1. Withdrawal point(s): Tubular Wellfield (-01G)

Wastewater Treatment or Assimilation:

Will the water be discharged to a stream ☐ pond ☐ reservoir ☐, individual septic system ☒?

If the water will not be discharged to a treatment system, please provide a map showing the points of withdrawal and discharge.

What pollutants will be added or removed in the discharge? _____

Will the treatment system have the capacity to process that volume of water? ☐ Yes ☐ No

How does the volume of the discharge compare with the volume of the receiving waters?

Wetlands:

Will work on any part of the property on which the withdrawal is to be made be covered by or require an Order of Conditions under M.G.L. c. 131, s. 40?

If yes, please attach a copy of the Order of Conditions. ☐ Yes ☒ No

If no, based upon a negative Determination of Applicability issued by the Department, please attach a copy of that determination.

Does this property have wetland restrictions recorded pursuant to M.G.L. c. 130, s. 105?

☐ Yes ☒ No

If yes, and if a negative Determination of Applicability or an Order of Conditions has not been issued, please attach a copy of the Restriction Order.

Wildlife, Fisheries and Floral Habitat:

DEP will conduct a review in conjunction with the MA Division of Fisheries & Wildlife and other State agencies that have information about environmental resources in the vicinity of your proposed withdrawal. To facilitate this review, please complete the following, based on the best information you have available.

Is this withdrawal in the vicinity of any known or designated aquatic habitats for fish and wildlife and flora, such as:

Rare/threatened or special concern species ☒ Yes ☐ No

Priority wildlife habitats ☒ Yes ☐ No

Priority natural communities ☐ Yes ☒ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points - Wildlife, Fisheries and Floral Habitat: (cont.)

Major coolwater/warmwater fisheries ☐ Yes ☒ No

Native and/or wild salmonid populations ☐ Yes ☒ No

Seasonally stocked trout waters ☒ Yes ☐ No

Agriculture:

Is the withdrawal within ¼ mile of any farming operation? ☐ Yes ☒ No

Describe the effect of the withdrawal on water supply or quality for any of these farming operations.

Navigation or Recreational User:

Is this withdrawal made directly from or adjacent to a navigable:

☐ river ☐ stream ☐ lake ☐ pond?

If so, describe how the withdrawal will affect water levels.

N/A

Might the withdrawal result in the surface water becoming unnavigable at any time? ☐ Yes ☐ No

If so, please describe how and when this might occur. If the surface water already becomes unnavigable during certain periods, to what extent would the proposed withdrawal lengthen these periods?

Water-Based Recreation:

Water-based recreation includes fishing, boating, swimming, wading, etc.

Is there any water-based recreation near your withdrawal, or downstream of it? ☒ Yes ☐ No

Please describe the type of activity, seasonal time periods for use, possible number of users, and approximate distance from the withdrawal points.

Please refer to Section 3, Narrative.

Would any existing or potential recreational activities be precluded or otherwise impacted due to the approval and implementation of the proposed withdrawal? If so, please describe the nature and extent of the impact.

No.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points (cont.)

Groundwater Withdrawals Only - Groundwater Recharge Areas:

Describe any studies that have been done of the recharge area to this well. (Attach a copy of the Form H - Groundwater Hydraulic Analyses for Non-Potable Wells or other studies.)

Source is existing and permitted. Please refer to Section 3, Narrative.

Will the project include any paving over of any aquifer recharge area?

☐ Yes

☒ No

Questions for Surface Water Withdrawals

Hydropower Resources:

Is this withdrawal upstream from an existing or proposed hydropower facility?

☐ Yes

☐ No

If so, how far? _____

What is the minimum volume needed for this hydropower facility? _____

Will this withdrawal impact the hydropower facility's ability to withdraw water?

☐ Yes

☐ No

Floodplains:

Is the withdrawal within the 100-year floodplain?

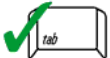
☐ Yes

☐ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Please address these questions separately for each proposed withdrawal point, as well as the effect of your entire withdrawal. Please reference any tests, studies or reports you use to provide information here.

If this permit application includes an Interbasin Transfer Act request, use those forms to address these issues and include with the permit application.

1. Withdrawal point(s): William Marshall Well (-03G)

Wastewater Treatment or Assimilation:

Will the water be discharged to a stream ☐ pond ☐ reservoir ☐, individual septic system ☒?

If the water will not be discharged to a treatment system, please provide a map showing the points of withdrawal and discharge.

What pollutants will be added or removed in the discharge? _____

Will the treatment system have the capacity to process that volume of water? ☐ Yes ☐ No

How does the volume of the discharge compare with the volume of the receiving waters?

Wetlands:

Will work on any part of the property on which the withdrawal is to be made be covered by or require an Order of Conditions under M.G.L. c. 131, s. 40?

If yes, please attach a copy of the Order of Conditions. ☐ Yes ☒ No

If no, based upon a negative Determination of Applicability issued by the Department, please attach a copy of that determination.

Does this property have wetland restrictions recorded pursuant to M.G.L. c. 130, s. 105?

☐ Yes ☒ No

If yes, and if a negative Determination of Applicability or an Order of Conditions has not been issued, please attach a copy of the Restriction Order.

Wildlife, Fisheries and Floral Habitat:

DEP will conduct a review in conjunction with the MA Division of Fisheries & Wildlife and other State agencies that have information about environmental resources in the vicinity of your proposed withdrawal. To facilitate this review, please complete the following, based on the best information you have available.

Is this withdrawal in the vicinity of any known or designated aquatic habitats for fish and wildlife and flora, such as:

Rare/threatened or special concern species ☒ Yes ☐ No

Priority wildlife habitats ☒ Yes ☐ No

Priority natural communities ☐ Yes ☒ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points - Wildlife, Fisheries and Floral Habitat: (cont.)

Major coolwater/warmwater fisheries ☐ Yes ☒ No

Native and/or wild salmonid populations ☐ Yes ☒ No

Seasonally stocked trout waters ☒ Yes ☐ No

Agriculture:

Is the withdrawal within ¼ mile of any farming operation? ☐ Yes ☒ No

Describe the effect of the withdrawal on water supply or quality for any of these farming operations.

Navigation or Recreational User:

Is this withdrawal made directly from or adjacent to a navigable:

☐ river ☐ stream ☐ lake ☐ pond?

If so, describe how the withdrawal will affect water levels.

N/A

Might the withdrawal result in the surface water becoming unnavigable at any time? ☐ Yes ☐ No

If so, please describe how and when this might occur. If the surface water already becomes unnavigable during certain periods, to what extent would the proposed withdrawal lengthen these periods?

Water-Based Recreation:

Water-based recreation includes fishing, boating, swimming, wading, etc.

Is there any water-based recreation near your withdrawal, or downstream of it? ☒ Yes ☐ No

Please describe the type of activity, seasonal time periods for use, possible number of users, and approximate distance from the withdrawal points.

Please refer to Section 3, Narrative.

Would any existing or potential recreational activities be precluded or otherwise impacted due to the approval and implementation of the proposed withdrawal? If so, please describe the nature and extent of the impact.

No.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points (cont.)

Groundwater Withdrawals Only - Groundwater Recharge Areas:

Describe any studies that have been done of the recharge area to this well. (Attach a copy of the Form H - Groundwater Hydraulic Analyses for Non-Potable Wells or other studies.)

Source is existing and permitted. Please refer to Section 3, Narrative.

Will the project include any paving over of any aquifer recharge area?

☐ Yes

☒ No

Questions for Surface Water Withdrawals

Hydropower Resources:

Is this withdrawal upstream from an existing or proposed hydropower facility?

☐ Yes

☐ No

If so, how far? _____

What is the minimum volume needed for this hydropower facility? _____

Will this withdrawal impact the hydropower facility's ability to withdraw water?

☐ Yes

☐ No

Floodplains:

Is the withdrawal within the 100-year floodplain?

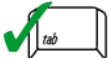
☐ Yes

☐ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Please address these questions separately for each proposed withdrawal point, as well as the effect of your entire withdrawal. Please reference any tests, studies or reports you use to provide information here.

If this permit application includes an Interbasin Transfer Act request, use those forms to address these issues and include with the permit application.

1. Withdrawal point(s): Commissioner's Well (-04G)

Wastewater Treatment or Assimilation:

Will the water be discharged to a stream ☐ pond ☐ reservoir ☐, individual septic system ☒?

If the water will not be discharged to a treatment system, please provide a map showing the points of withdrawal and discharge.

What pollutants will be added or removed in the discharge? _____

Will the treatment system have the capacity to process that volume of water? ☐ Yes ☐ No

How does the volume of the discharge compare with the volume of the receiving waters?

Wetlands:

Will work on any part of the property on which the withdrawal is to be made be covered by or require an Order of Conditions under M.G.L. c. 131, s. 40?

If yes, please attach a copy of the Order of Conditions. ☐ Yes ☒ No

If no, based upon a negative Determination of Applicability issued by the Department, please attach a copy of that determination.

Does this property have wetland restrictions recorded pursuant to M.G.L. c. 130, s. 105?

☐ Yes ☒ No

If yes, and if a negative Determination of Applicability or an Order of Conditions has not been issued, please attach a copy of the Restriction Order.

Wildlife, Fisheries and Floral Habitat:

DEP will conduct a review in conjunction with the MA Division of Fisheries & Wildlife and other State agencies that have information about environmental resources in the vicinity of your proposed withdrawal. To facilitate this review, please complete the following, based on the best information you have available.

Is this withdrawal in the vicinity of any known or designated aquatic habitats for fish and wildlife and flora, such as:

Rare/threatened or special concern species ☒ Yes ☐ No

Priority wildlife habitats ☒ Yes ☐ No

Priority natural communities ☐ Yes ☒ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points - Wildlife, Fisheries and Floral Habitat: (cont.)

Major coolwater/warmwater fisheries ☐ Yes ☒ No

Native and/or wild salmonid populations ☐ Yes ☒ No

Seasonally stocked trout waters ☒ Yes ☐ No

Agriculture:

Is the withdrawal within ¼ mile of any farming operation? ☐ Yes ☒ No

Describe the effect of the withdrawal on water supply or quality for any of these farming operations.

Navigation or Recreational User:

Is this withdrawal made directly from or adjacent to a navigable:

☐ river ☐ stream ☐ lake ☐ pond?

If so, describe how the withdrawal will affect water levels.

N/A

Might the withdrawal result in the surface water becoming unnavigable at any time? ☐ Yes ☐ No

If so, please describe how and when this might occur. If the surface water already becomes unnavigable during certain periods, to what extent would the proposed withdrawal lengthen these periods?

Water-Based Recreation:

Water-based recreation includes fishing, boating, swimming, wading, etc.

Is there any water-based recreation near your withdrawal, or downstream of it? ☒ Yes ☐ No

Please describe the type of activity, seasonal time periods for use, possible number of users, and approximate distance from the withdrawal points.

Please refer to Section 3, Narrative.

Would any existing or potential recreational activities be precluded or otherwise impacted due to the approval and implementation of the proposed withdrawal? If so, please describe the nature and extent of the impact.

No.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points (cont.)

Groundwater Withdrawals Only - Groundwater Recharge Areas:

Describe any studies that have been done of the recharge area to this well. (Attach a copy of the Form H - Groundwater Hydraulic Analyses for Non-Potable Wells or other studies.)

Source is existing and permitted. Please refer to Section 3, Narrative.

Will the project include any paving over of any aquifer recharge area?

☐ Yes

☒ No

Questions for Surface Water Withdrawals

Hydropower Resources:

Is this withdrawal upstream from an existing or proposed hydropower facility?

☐ Yes

☐ No

If so, how far? _____

What is the minimum volume needed for this hydropower facility? _____

Will this withdrawal impact the hydropower facility's ability to withdraw water?

☐ Yes

☐ No

Floodplains:

Is the withdrawal within the 100-year floodplain?

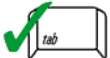
☐ Yes

☐ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

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Please address these questions separately for each proposed withdrawal point, as well as the effect of your entire withdrawal. Please reference any tests, studies or reports you use to provide information here.

If this permit application includes an Interbasin Transfer Act request, use those forms to address these issues and include with the permit application.

1. Withdrawal point(s): Ronald Marshall Well (Duffy's Landing) (-05G)

Wastewater Treatment or Assimilation:

Will the water be discharged to a stream ☐ pond ☐ reservoir ☐, individual septic system ☒?

If the water will not be discharged to a treatment system, please provide a map showing the points of withdrawal and discharge.

What pollutants will be added or removed in the discharge? _____

Will the treatment system have the capacity to process that volume of water? ☐ Yes ☐ No

How does the volume of the discharge compare with the volume of the receiving waters?

Wetlands:

Will work on any part of the property on which the withdrawal is to be made be covered by or require an Order of Conditions under M.G.L. c. 131, s. 40?

If yes, please attach a copy of the Order of Conditions. ☐ Yes ☒ No

If no, based upon a negative Determination of Applicability issued by the Department, please attach a copy of that determination.

Does this property have wetland restrictions recorded pursuant to M.G.L. c. 130, s. 105?

☐ Yes ☒ No

If yes, and if a negative Determination of Applicability or an Order of Conditions has not been issued, please attach a copy of the Restriction Order.

Wildlife, Fisheries and Floral Habitat:

DEP will conduct a review in conjunction with the MA Division of Fisheries & Wildlife and other State agencies that have information about environmental resources in the vicinity of your proposed withdrawal. To facilitate this review, please complete the following, based on the best information you have available.

Is this withdrawal in the vicinity of any known or designated aquatic habitats for fish and wildlife and flora, such as:

Rare/threatened or special concern species ☒ Yes ☐ No

Priority wildlife habitats ☒ Yes ☐ No

Priority natural communities ☐ Yes ☒ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points - Wildlife, Fisheries and Floral Habitat: (cont.)

Major coolwater/warmwater fisheries ☐ Yes ☒ No

Native and/or wild salmonid populations ☐ Yes ☒ No

Seasonally stocked trout waters ☒ Yes ☐ No

Agriculture:

Is the withdrawal within ¼ mile of any farming operation? ☐ Yes ☒ No

Describe the effect of the withdrawal on water supply or quality for any of these farming operations.

Navigation or Recreational User:

Is this withdrawal made directly from or adjacent to a navigable:

☐ river ☐ stream ☐ lake ☐ pond?

If so, describe how the withdrawal will affect water levels.

N/A

Might the withdrawal result in the surface water becoming unnavigable at any time? ☐ Yes ☐ No

If so, please describe how and when this might occur. If the surface water already becomes unnavigable during certain periods, to what extent would the proposed withdrawal lengthen these periods?

Water-Based Recreation:

Water-based recreation includes fishing, boating, swimming, wading, etc.

Is there any water-based recreation near your withdrawal, or downstream of it? ☒ Yes ☐ No

Please describe the type of activity, seasonal time periods for use, possible number of users, and approximate distance from the withdrawal points.

Please refer to Section 3, Narrative.

Would any existing or potential recreational activities be precluded or otherwise impacted due to the approval and implementation of the proposed withdrawal? If so, please describe the nature and extent of the impact.

No.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points (cont.)

Groundwater Withdrawals Only - Groundwater Recharge Areas:

Describe any studies that have been done of the recharge area to this well. (Attach a copy of the Form H - Groundwater Hydraulic Analyses for Non-Potable Wells or other studies.)

Source is existing and permitted. Please refer to Section 3, Narrative.

Will the project include any paving over of any aquifer recharge area?

☐ Yes

☒ No

Questions for Surface Water Withdrawals

Hydropower Resources:

Is this withdrawal upstream from an existing or proposed hydropower facility?

☐ Yes

☐ No

If so, how far? _____

What is the minimum volume needed for this hydropower facility? _____

Will this withdrawal impact the hydropower facility's ability to withdraw water?

☐ Yes

☐ No

Floodplains:

Is the withdrawal within the 100-year floodplain?

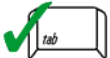
☐ Yes

☐ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Please address these questions separately for each proposed withdrawal point, as well as the effect of your entire withdrawal. Please reference any tests, studies or reports you use to provide information here.

If this permit application includes an Interbasin Transfer Act request, use those forms to address these issues and include with the permit application.

1. Withdrawal point(s): Combined Volume

Wastewater Treatment or Assimilation:

Will the water be discharged to a stream ☐ pond ☐ reservoir ☐, individual septic system ☒?

If the water will not be discharged to a treatment system, please provide a map showing the points of withdrawal and discharge.

What pollutants will be added or removed in the discharge? _____

Will the treatment system have the capacity to process that volume of water? ☐ Yes ☐ No

How does the volume of the discharge compare with the volume of the receiving waters?

Wetlands:

Will work on any part of the property on which the withdrawal is to be made be covered by or require an Order of Conditions under M.G.L. c. 131, s. 40?

If yes, please attach a copy of the Order of Conditions. ☐ Yes ☒ No

If no, based upon a negative Determination of Applicability issued by the Department, please attach a copy of that determination.

Does this property have wetland restrictions recorded pursuant to M.G.L. c. 130, s. 105?

☐ Yes ☒ No

If yes, and if a negative Determination of Applicability or an Order of Conditions has not been issued, please attach a copy of the Restriction Order.

Wildlife, Fisheries and Floral Habitat:

DEP will conduct a review in conjunction with the MA Division of Fisheries & Wildlife and other State agencies that have information about environmental resources in the vicinity of your proposed withdrawal. To facilitate this review, please complete the following, based on the best information you have available.

Is this withdrawal in the vicinity of any known or designated aquatic habitats for fish and wildlife and flora, such as:

Rare/threatened or special concern species ☒ Yes ☐ No

Priority wildlife habitats ☒ Yes ☐ No

Priority natural communities ☐ Yes ☒ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points - Wildlife, Fisheries and Floral Habitat: (cont.)

Major coolwater/warmwater fisheries ☐ Yes ☒ No

Native and/or wild salmonid populations ☐ Yes ☒ No

Seasonally stocked trout waters ☒ Yes ☐ No

Agriculture:

Is the withdrawal within ¼ mile of any farming operation? ☐ Yes ☒ No

Describe the effect of the withdrawal on water supply or quality for any of these farming operations.

Navigation or Recreational User:

Is this withdrawal made directly from or adjacent to a navigable:

☐ river ☐ stream ☐ lake ☐ pond?

If so, describe how the withdrawal will affect water levels.

N/A

Might the withdrawal result in the surface water becoming unnavigable at any time? ☐ Yes ☐ No

If so, please describe how and when this might occur. If the surface water already becomes unnavigable during certain periods, to what extent would the proposed withdrawal lengthen these periods?

Water-Based Recreation:

Water-based recreation includes fishing, boating, swimming, wading, etc.

Is there any water-based recreation near your withdrawal, or downstream of it? ☒ Yes ☐ No

Please describe the type of activity, seasonal time periods for use, possible number of users, and approximate distance from the withdrawal points.

Please refer to Section 3, Narrative.

Would any existing or potential recreational activities be precluded or otherwise impacted due to the approval and implementation of the proposed withdrawal? If so, please describe the nature and extent of the impact.

No.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program
WMA Form F- Evaluation of Potential Effects of Proposed Withdrawal

Withdrawal points (cont.)

Groundwater Withdrawals Only - Groundwater Recharge Areas:

Describe any studies that have been done of the recharge area to this well. (Attach a copy of the Form H - Groundwater Hydraulic Analyses for Non-Potable Wells or other studies.)

Source is existing and permitted. Please refer to Section 3, Narrative.

Will the project include any paving over of any aquifer recharge area?

☐ Yes

☒ No

Questions for Surface Water Withdrawals

Hydropower Resources:

Is this withdrawal upstream from an existing or proposed hydropower facility?

☐ Yes

☐ No

If so, how far? _____

What is the minimum volume needed for this hydropower facility? _____

Will this withdrawal impact the hydropower facility's ability to withdraw water?

☐ Yes

☐ No

Floodplains:

Is the withdrawal within the 100-year floodplain?

☐ Yes

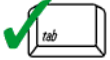
☐ No



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form G - Alternatives to Proposed Withdrawal

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



If this permit application includes an Interbasin Transfer Act request, use those forms to address these issues and include with the permit application.

1. The proposed withdrawal. (Use the information on the proposed withdrawal for comparison with any other alternatives available.)

Cost: _____

Feasibility: Please refer to Section 3, Narrative

Environmental effect (summarized):

Impact on others: _____

2. Leak detection alternative. Cost: _____

Feasibility: Please refer to Section 3, Narrative

Environmental effect (summarized):

Impact on others: _____

Reduction in volume withdrawn: _____

Other comments: _____

3. Increased conservation and demand management. Cost: _____

Feasibility: Please refer to Section 3, Narrative

Environmental effect (summarized):

Impact on others: _____

Reduction in volume withdrawn: _____

Other comments: _____

-- continue on next page --



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Water Management Act Program

WMA Form G - Alternatives to Proposed Withdrawal

4. Alternative Withdrawal Points.	Cost:	_____
Feasibility:	<u>N/A</u>	
Environmental effect (summarized):	_____	
N/A	_____	
Impact on others:	<u>N/A</u>	
Reduction in volume withdrawn:	<u>N/A</u>	
Other comments:	_____	
5. No action alternative.	Cost:	_____
Feasibility:	<u>Please refer to Section 3, Narrative</u>	
Environmental effect (summarized):	_____	
_____	_____	
Impact on others:	_____	
Reduction in volume withdrawn:	_____	
Other comments:	_____	
6. Alternative.	Cost:	_____
Feasibility:	<u>N/A</u>	
Environmental effect (summarized):	_____	
N/A	_____	
Impact on others:	<u>N/A</u>	
Reduction in volume withdrawn:	<u>N/A</u>	
Other comments:	_____	

-- Continue in this format for as many alternatives as you have. --



Section 3

SECTION 3 – Narrative A

3.1 General

The Georgetown Water Department (GWD), PWS ID No. 3105000, currently operates three active groundwater withdrawal points within the Parker River Basin: William Marshall Well (-03G), Commissioner's Well (-04G), and Ronald Marshall Well (-05G). One additional groundwater withdrawal point, the Tubular Wellfield (-01G), is currently inactive. The locations of these withdrawal points are shown on Figure No. 1 in Appendix A. In accordance with the GWD's Water Management Act (WMA) Permit (Permit No. 9P-3-16-105.01), the GWD is currently registered to withdraw 0.43 million gallons per day (mgd) and permitted to withdraw an additional 0.32 mgd, for a combined total authorized withdrawal of 0.75 mgd. The GWD has not exceeded its total authorized volume in the past five years. In 2017, the GWD's average daily demand was 0.67 mgd, which is below the total authorized withdrawal volume by 0.08 mgd.

The GWD is requesting an increase in its permitted withdrawal volume by 0.17 mgd, from 0.32 mgd to 0.49 mgd, for a combined total authorized registered and permitted withdrawal of 0.92 mgd. The requested permitted withdrawal volume is consistent with the Department of Conservation and Recreation (DCR) water needs forecast (demand projections) for the GWD. The 2035 requested withdrawal volume of 0.92 mgd includes a five percent buffer of 0.04 mgd, and is based on current MassDEP's performance standards of 65 residential gallons per capita per day and 10 percent unaccounted for water.

3.2 Form F: Evaluation of Potential Effects of Proposed Withdrawal

Table No. 1 shows the Massachusetts Department of Environmental Protection (MassDEP) permitted maximum daily withdrawal volumes for each source. The requested daily withdrawal volume increase to 0.92 mgd is less than the overall combined MassDEP permitted maximum daily withdrawal volume of 3.38 mgd, as shown in Table No. 1. All active sources will be used together to meet demands, and no source will be pumped in excess of its current approved withdrawal volume.

Table No. 1
Permitted Maximum Daily Withdrawal Volumes

Well	Permitted Maximum Daily Withdrawal Volume (mgd)	Installation Year
Tubular Wellfield (-01G)*	0.29	1935
Commissioner's Well (-03G)	0.58	1980
William Marshall Well (-04G)	1.00	1963
Ronald Marshall Well (Duffy's Landing) (-05G)	1.51	1996
Total:	3.38 mgd	

* The Tubular Wellfield is currently inactive.

The William Marshall Well, Commissioner's Well, and Ronald Marshall Well (Duffy's Landing) have been active supply sources for over 20 years, as shown in Table No. 1. Annual wetlands monitoring was previously a condition of the WMA permit, but MassDEP determined that no further monitoring was required as of the May 31, 2002 WMA Permit Modification when no adverse effects were documented. No additional monitoring is proposed at this time since the withdrawal is from existing sources and the developed total capacity of the wells is greater than the requested withdrawal volume.

As shown on Figure No. 2, all of the GWD's sources with the exception of the Commissioner's Well are located within the 100-foot wetlands buffer zone and/or 200-foot riverfront area. However, since all wells are existing sources and no requests are being made to pump the individual sources in excess of their current permitted maximum daily withdrawal volumes, it is anticipated that an Order of Conditions will not be required.

All of the GWD's sources are located within the limits of the National Heritage and Endangered Species Program (NHESP) estimated habitats of rare wildlife and priority habitats of rare species, as shown on Figure No. 3. The requested withdrawal volume will not require construction at the source locations and the permitted maximum daily pumping volume at each source will not be exceeded. None of the GWD's sources are located within a natural community.

All sources are adjacent to seasonal trout stocked waters, including the Parker River and Rock Pond, as shown on Figure No. 3. No salmonid populations or coldwater/warmwater fisheries resources are within the vicinity of the GWD's water supply sources. None of the GWD's wells are within one half mile of a body of water designated as navigable.

No sources are located within a quarter mile of an agricultural area, as shown on Figure No. 4. All sources are within approximately one mile of Rock Pond, a body of water with boating and fishing access. No adverse effects are anticipated on recreational water use as all sources will be used together to meet water demand, and withdrawals from these sources will not exceed their respective permitted maximum daily pumping volumes.

The GWD's requested registered and permitted volume of 0.92 mgd is above the baseline withdrawal of 0.70 mgd. Therefore, it is assumed that the GWD will be required to complete a Mitigation Plan for all withdrawals above the baseline. It is also assumed that the GWD will be required to complete a Minimization Plan because the August net groundwater depletion is greater than 25-percent for the subbasin in which the GWD's groundwater sources are located. The GWD intends to complete these plans consistent with MassDEP's Mitigation and Minimization Planning for Public Water Systems, and they will be forwarded to MassDEP upon completion.

3.3 Form G: Alternative Analysis

Several alternatives were investigated to address the GWD's requested increased water demands. The alternatives were evaluated with respect to cost, ease of implementation, environmental and cultural impacts, and ability to meet future demand projections. The alternatives identified include increasing the permitted withdrawal, leak detection, increased water conservation and demand

management, and taking no action. After evaluating the alternatives, the GWD is proposing to increase its total permitted withdrawal volume while continuing to incorporate conservation measures and demand management.

Alternative 1: Proposed Increase to Permitted Withdrawal

The GWD is proposing to increase its total authorized registered and permitted withdrawal from 0.75 mgd to 0.92 mgd through an increase in the permitted withdrawal volume of 0.17 mgd. The increased pumping volume will be distributed amongst the GWD's active sources while maintaining compliance with the limitations of each source. Withdrawals from all sources will not exceed the approved permitted daily pumping volumes. Each of the GWD's wells have been active water supply sources for over 20 years, and no adverse impacts to local resource areas were documented through annual wetlands monitoring conducted under the previous WMA permit. The pumping capacity and infrastructure at each source and the water treatment facility will be able to produce, treat, and sustain the requested increase of volume. The supplementary costs incurred by the GWD would be recovered by water service usage rates and fees.

Alternative 2: Leak Detection

The GWD currently conducts annual leak detection surveys and plans to continue this practice in future years as part of their water distribution system maintenance program. In conjunction with leak detection, the GWD also regularly repairs leaks, replaces meters and recalibrates meters to reduce their unaccounted for water (UAW). Between the years 2012 and 2017, the GWD's UAW has ranged from 9.5 percent to 15.4 percent. Leak detection surveys and continuing attempts to lower the UAW will not result in sufficient water conservation to meet the projected demands through 2035. Therefore, leak detection is not a feasible stand-alone option, but will continue to be part of the GWD's conservation and operation plan.

Alternative 3: Water Conservation and Demand Management

Currently, the GWD implements water conservation and demand management measures that include: a tiered rate billing structure, distributing educational materials with water bills, enforcing a water use restriction bylaw, providing rebates for replacing high water using appliances with more efficient products, performing annual leak detection surveys, and funding a meter calibration, replacement and repair program through an annual budget appropriation. Despite these water conservation and demand management programs, the GWD still needs additional withdrawal volume to meet projected water demands through 2035. Therefore, water conservation and demand management alone is not a feasible option. However, the GWD does plan to continue its water conservation efforts to minimize unnecessary increases in water demands in the future.

Alternative 4: No Action

Taking no action to address the deficit between the GWD's projected demands and current registered and permitted withdrawal is not a feasible alternative. If no action is taken based on DCR population and demand projections, the GWD will not be able to meet domestic and fire flow

needs of the water system or will exceed its permitted withdrawal and face potential enforcement action.



Section 4



THE COMMONWEALTH OF MASSACHUSETTS

WATER RESOURCES COMMISSION

Water Conservation Questionnaire for Public Water Suppliers

Effective date: July 13, 2000

Revised: March 12, 2008

This questionnaire is based on the *Water Conservation Standards* for the Commonwealth of Massachusetts, which were approved by the Water Resources Commission (July 2006, or latest version; see Reference No. 10). The water conservation standards outline key components of a successful water conservation and demand management program, and are intended to assist communities and public water suppliers in protecting and maintaining their water supplies. Each section of this form corresponds to one of the standards, and begins with a statement of the standard, followed by a series of questions. As part of the water needs forecasting and Water Management Act permitting processes, technical staff in the Office of Water Resources (Department of Conservation and Recreation) and the Department of Environmental Protection will review this questionnaire to assess success in meeting the Water Conservation Standards and opportunities for improving water system efficiencies.

Who should complete this questionnaire?

- Public Water Suppliers applying for a Water Management Act permit, permit amendment or permit transfer from the Department of Environmental Protection
- Permittees undergoing a five-year review of their existing Water Management Act permit by the Department of Environmental Protection
- Public Water Suppliers requesting new or updated water needs forecasts from the Department of Conservation and Recreation, Office of Water Resources¹
- Entities applying for Interbasin Transfer Approval with the Massachusetts Water Resources Commission
- Water suppliers interested in planning for demand management
- Water suppliers planning a new water source

When completing this form please note:

- See list of references at the end of this document.
- For specific information and background on the water conservation standards, see the latest version at http://www.mass.gov/envir/mwrc/pdf/Conservation_Standards.pdf (Reference No. 10).
- If necessary, expand responses beyond the space provided and/or reference or attach appropriate plans or responses.
- Projects requiring an Interbasin Transfer (IBT) approval are subject to specific water conservation performance standards that must be met prior to approval. IBT performance standards are available at <http://www.mass.gov/dcr/waterSupply/intbasin/download.htm> (Reference No. 13).

Questions? Contact:

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Office of Water Resources
Department of Conservation and Recreation
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(617) 292-5706

¹ See *Policy for Developing Water Needs Forecasts for Public Water Suppliers and Communities and Methodology for Implementation*, December 13, 2007, at http://www.mass.gov/envir/mwrc/pdf/121307_waterneedsforecast.pdf





THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

Note: Citations and links can be found in the list of references at the end of this document.

STANDARD 1.0: COMPREHENSIVE PLANNING

Develop a written drought management plan that follows American Water Works Association drought management planning guidance (AWWA 2002 or latest version; Reference No. 2). Develop strategies appropriate to the system to reduce daily and seasonal peak demands and develop contingency plans to ameliorate the impacts of drought, seasonal shortages, and other non-emergency water supply shortfalls

Develop emergency management plans.

Develop a written water conservation program to comply with the Water Conservation Standards (July 2006 or latest version, Reference No. 10) and, where possible, with the recommendations outlined in that document, in the operation and management of the water supply. MassDEP Water Management permit conservation requirements are based on the state Water Conservation Standards.

Make the above documents readily available to personnel from all municipal departments to facilitate compliance and, if necessary, enforcement.

1. Do you have a Drought Management Plan that follows AWWA planning guidance (Reference No. 2)?

☐ Yes ☒ No

If Yes, provide a copy of the cover, table of contents, and date of the plan: _____

If No, do you have a schedule and timetable for developing a Drought Management Plan? _____
Not at this time

2. Do you have an Emergency Management Plan describing procedures for handling water emergencies?

☒ Yes ☐ No

If Yes, provide a copy of the cover, table of contents, and date of the plan: _____

If No, do you have a schedule and timetable for developing an Emergency Management Plan? _____

3. Do the plans include written procedures outlining which users will be cut back, what emergency measures will be implemented which trigger points require action, and how much will be cut back in the event of a water emergency or drought?

☒ Yes ☐ No

If yes, please attach a summary or copy of the written procedures: _____

4. Do you have a written Conservation Program that meets the conditions of your Water Management Act permit (where applicable) or Massachusetts Water Conservation Standards (July 2006 or latest version, Reference No. 10)?

☒ Yes ☐ No

What is the approximate cost per year of your conservation efforts, including personnel costs: \$ 2,500

What is the funding source(s) for these efforts? Water Rates

If No, do you have a schedule and timetable for developing a written Conservation Program? _____



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

5. Are the above documents readily available to facilitate compliance and, if necessary, enforcement of restrictions in your plans?

☒ Yes ☐ No

STANDARD 2.0: SYSTEM WATER AUDITS AND LEAK DETECTION

Conduct a water audit on an annual basis using the MassDEP Water Audit Guidance Document (<http://www.mass.gov/dep/water/approvals/wmgforms.htm#audit> or latest version, Reference No. 9).

Conduct complete system-wide leak detection every two years (unless leakage constitutes a small portion of the system's unaccounted-for water; or the most current leak detection survey (conducted within the previous two years) indicates insignificant leakage (see Reference No. 3 for guidance).

Meet or demonstrate steady progress towards meeting 10% unaccounted-for water (UAW) as soon as practicable.

Conduct field surveys for leaks and repair programs in accordance with the AWWA Manual 36 (Reference No. 3 or latest version) and any MassDEP guidance documents (Reference No. 7 and other guidance documents available on DEP's web site, <http://www.mass.gov/dep/water/laws/policies.htm#dwguid>).

Repair all leaks found as expeditiously as possible. Establish a priority system to implement leak repairs. See specific guidance on timelines for repairing leaks in:

- MassDEP guidance (<http://www.mass.gov/dep/water/approvals/wmgforms.htm#audit>) (Reference Nos. 7 and 9)
- MWRA regulations, 360 CMR 12.09: Leak Repairs (Reference No. 16)
- MassDEP Water Management permits.

1. Do you conduct an annual water audit of your system?

☐ Yes. ☒ No

Water audit last performed by _____

Begin date: _____ End date: _____

Describe the tasks and results of your most recent audit (attach additional information if necessary):

2. Do you conduct a full leak detection program for your distribution system every two years?

☒ Yes. ☐ No

If Yes, leak detection last performed by Arthur Pyburn & Sons Inc on 11/1/16

Please attach Table G3 from your 2007 ASR OR list summary results of that survey which includes: miles of main surveyed, # of leaks found, estimated water loss for each leak, date the leak was (or is scheduled to be) repaired. Attach additional information as necessary.

4 small leaks totaling 10 GPM were discovered all leaks were repaired within 14 days

If No, when was the last time you performed system-wide leak detection? _____

How often is a 100% leak detection survey of the distribution system completed? Annual



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

3. Estimate how much is spent on leak detection and repairs annually or per survey: \$ 10,000

- ☒ Yes ☐ No Do you include leak detection/repair as an expense of the water system?
☒ Yes ☐ No Do you have funds set aside for regular maintenance?
☒ Yes ☐ No Do you have funds set aside for emergency repairs?

STANDARD 3.0: METERING

Ensure 100% metering of all water uses, including water use at all municipal facilities (schools, school athletic fields, etc.). Properly size the service lines and meters for all water distribution system users to meet AWWA performance standards (Reference No. 5).

Increase billing frequency. For domestic accounts, bill customers on actual, not estimated, meter readings. If billing frequency is less than quarterly (i.e. annual or biannual) move to quarterly billing as soon as possible.

Implement a water meter repair/replacement policy and program. Replace meters by size and time based on AWWA standards and guidelines (Reference Nos. 1 and 5) available on the MassDEP website (Reference No. 8 or latest version). Establish an annual budget line item for the calibration, replacement, and repair of all sources of supply and distribution network water metering systems.

Seal all water account metering systems against tampering and periodically inspect to ensure water works system integrity.

Calibrate any meter used to record quantity, according to its type and specification.

Properly size water service lines and meters to handle required water volumes and ensure a high level of metering accuracy.

Water Suppliers: Establish the necessary regulations and controls to **ensure that owners of large meters (1.5 inches or greater) calibrate the meters annually** and provide the results as part of an annual reporting requirement.

1. Is your system 100% metered?

- ☒ Yes ☐ No

If No, what is not metered? _____

What steps are you taking to complete metering of your system? _____

2. Do you use an automatic or radio-read meter reading system?

- ☒ Yes ☐ No

If No, do you plan to install one?

- ☐ Yes ☐ No When? _____ Projected cost? _____

3. Are all public-sector facilities billed for their water use?

- ☒ Yes ☐ No

4. Are any accounts not billed?

- ☐ Yes ☒ No

If Yes, what types of accounts are not billed? _____



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

5. Do you bill based on actual meter readings, not estimated use?

☒ Yes ☐ No

If No, what steps are you taking to bill based on actual meter readings? _____

6. Do you bill residential customers at least quarterly?

☒ Yes ☐ No

7. How often do you bill large users (1.5-inch meter or larger)?

☐ Annually ☐ Biannually

☒ Quarterly ☐ Monthly ☐ Other _____

8. Do the bills compare current use with use during the previous period?

☒ Yes ☐ No

9. Do the bills compare current use with use during the same period last year?

☐ Yes ☐ No

10. Is the volume of water used stated in gallons on the bill?

☐ Yes ☐ No

11. Do you have a meter repair/replacement program that services meters based on the AWWA standards (Reference Nos. 1 and 5)?

☐ Yes ☐ No

12. Is your meter repair/replacement program funded through an annual budget appropriation?

☒ Yes ☐ No

If Yes, what is your annual budget for meter calibration, replacement, and repair?

\$ 20,000 _____

Provide program details or attach policy/program or other supporting documentation: _____

Meters are being replaced and converted to radio reader as staff has time to change meters approx. 50% of system has been converted

If No, what steps are you taking to improve and fund your meter repair/replacement program? _____

13. Do you have the necessary regulations and controls to ensure that owners of large meters (1.5 inches or greater) calibrate the meters annually and provide the results as part of an annual reporting requirement.

☐ Yes ☒ No

14. How often do you calibrate your master meters (annually recommended)? annual



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

STANDARD 4.0: PRICING

Use Full-Cost Pricing. Establish a water pricing structure that includes the full cost of operating, maintaining, and protecting the water supply system. Full-cost pricing factors all costs, including operations, maintenance, capital, and indirect costs (such as environmental impacts and watershed protection) into prices. Perform a rate evaluation every three to five years to adjust costs as needed.

Prohibit decreasing block rates. Decreasing block rates, which charge lower prices as water use increases during the billing period, are not allowed by M.G.L. Chapter 40, Section 39L.

1. Are water supply system operations fully funded by water supply system revenues?

☒ Yes ☐ No

2. Is this an Enterprise Account?

☒ Yes ☐ No

3. When was your most recent rate evaluation? May 2015

4. Which of the following items are covered by the price of water charged to customers?

- | | |
|--|---|
| a. <input type="checkbox"/> Watershed purchase/protection | l. <input type="checkbox"/> Emergency repairs |
| b. <input type="checkbox"/> Well site purchase/protection | m. <input type="checkbox"/> Capital depreciation account |
| c. <input type="checkbox"/> Aquifer land acquisition | n. <input type="checkbox"/> Capital replacement/depreciation fund |
| d. <input type="checkbox"/> Distribution system operation | o. <input type="checkbox"/> Debt service |
| e. <input type="checkbox"/> Leak detection | p. <input type="checkbox"/> Staff training/professional development |
| f. <input type="checkbox"/> Pumping | q. <input type="checkbox"/> Staff benefits package |
| g. <input type="checkbox"/> Maintenance | r. <input type="checkbox"/> Hiring of staff |
| h. <input type="checkbox"/> Treatment and associated treatment plant costs | s. <input type="checkbox"/> Purchase/installation of water conservation devices |
| i. <input type="checkbox"/> Leak repairs | t. <input type="checkbox"/> Water conservation program, including staff |
| j. <input type="checkbox"/> Meter repair and replacement | u. <input type="checkbox"/> All aspects of the education program |
| k. <input type="checkbox"/> Electricity/fuel | v. <input checked="" type="checkbox"/> All of the above |

5. Please check the type of rate structure(s) your system uses:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Increasing block rate | <input type="checkbox"/> Flat rate |
| <input type="checkbox"/> Seasonal rate | <input type="checkbox"/> (Other rate (please explain) _____) |

Describe or attach a copy of your current pricing levels(s) for water and sewer: **See attached water rates**

<u>WATER</u>		<u>SEWER</u>	
Amount per	Volume	Amount per	Volume
\$		\$	
\$		\$	
\$		\$	
\$		\$	



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WATER RESOURCES COMMISSION

☐ Decreasing block rate

Decreasing block rates are prohibited by law. What steps are you taking to revise your rate structure?

6. Is your rate structure regularly evaluated?

☒ Yes ☐ No

How often? Annual

When was your rate structure last changed? May 2015

7. Was your rate structure developed to promote water conservation and/or control demand (that is, do you charge more for water when demand is higher – for example, in the summer)?

☒ Yes ☐ No

If Yes, describe its effectiveness _____

8. Do any of your customers have a second meter for outdoor water use?

☐ Yes ☒ No

If Yes, do you have a different rate structure for these meters?

☐ Yes ☒ No

If Yes, describe this rate structure _____

(Note: rate structures that encourage reduction of nonessential outdoor water use are preferable. See *Water Conservation Standards* (Reference No. 10, Sec. 4.0) Pricing Recommendations.)

STANDARD 5.0: RESIDENTIAL WATER USE

Install Water-Efficient Plumbing Fixtures. Meet the standards set forth in the Federal Energy Policy Act, 1992 (Reference No. 12 or most recent version) and the latest version of the Massachusetts Plumbing Code (Reference No. 15). Provide and/or promote toilet leak detection kits or services, and educational literature about installation of water-saving devices and water conservation savings (in gallons and dollars) in retrofit programs.

Use Residential Water Efficiently. Meet or demonstrate steady progress toward meeting residential water use of 65 gallons per capita per day (gpcd), including both indoor and outdoor use, as soon as practicable.

Implement a comprehensive residential water conservation program that seeks to reduce residential water use by implementing some or all of the applicable recommendations listed in Sections 5.0 and 9.0 of the *Water Conservation Standards* (Reference No. 10).

1. Do you provide educational literature about installation of water-saving devices and water conservation savings (in gallons and dollars)?

☒ Yes ☐ No

2. Do you provide retrofit or rebate services to your customers?

☒ Yes ☐ No

What does your program include?

☐ Toilet retrofit ☒ Toilet replacement rebates ☐ Faucet aerators retrofit ☐ Low-flow showerheads

☒ Clothes Washer rebates ☐ Dishwasher rebates ☐ Other _____



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

If Yes, describe your program for assisting residential customers in converting to more efficient plumbing fixtures: \$200 rebate for qualifying Toilets & \$100 rebate for qualifying Washing Machines

If No, and your system's residential water use exceeds 65 gpcd, describe any plans for implementation of such a residential retrofit or rebate program. (See Ref. No. 10, Sections 5.0 and 9.0.) The plan should include dates for implementation and the expected cost per year of the program: _____

STANDARD 6.0: PUBLIC SECTOR WATER USE

For all municipal and state buildings:

- Conduct indoor and outdoor audits and account for full use of water, based on full metering of public buildings, parks, irrigated playing fields, and other facilities.
- Analyze existing water-use data to spot trends, patterns, and unexplained increases that could indicate leaks or inefficient use of water.
- Identify measures where the greatest efficiencies and potential savings can be realized.
- In addition to complying with the plumbing code (Reference No. 15), build new public buildings with equipment that reduces water use. Water-saving devices and measures should be well identified to users of public buildings and facilities.
- Focus on replacing/retrofitting water-consuming equipment in buildings (e.g., bathrooms, boilers, chillers).
- Practice efficient lawn and landscape water-use techniques and meet the standards described in Section 9.0 of the *Water Conservation Standards* (Reference No. 10).

Meter or estimate use of water from fire hydrants for pipe flushing, construction, and other uses not related to fire fighting.

Strictly apply plumbing codes and incorporate other conservation measures in new and renovated buildings.

1. Does your water supply system provide assistance to your public-sector users in conducting water-use audits?

☐ Yes ☒ No

If Yes, describe how you provide assistance: _____

2. Have water-saving devices been installed in all public buildings?

☒ Yes ☐ No

If No, describe in detail a plan and schedule for installing such devices including the dates proposed for each facility. Attach additional sheets if necessary.

3. Do you meter water from hydrants used by contractors for pipe flushing and/or construction?

☒ Yes ☐ No

Do you bill for hydrant use?

☒ Yes ☐ No



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

4. Do you inspect, or coordinate with your municipality's building inspector, to ensure the plumbing codes are strictly applied in new and renovated buildings?

☒ Yes ☐ No

STANDARD 7.0: INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL (ICI) WATER USE

Carry out a water audit to determine the location and amount of water used for heating, cooling, processing, sanitary use, and outdoor use. Use the findings from the audit as the basis for actions to conserve water.²

Significant users (i.e., those using greater than 50,000 gpd) **install separate meters for process water** so that water can be accounted for and appreciated as a raw material in production, and for sanitary use.

Develop and implement a water-savings strategy, addressing, among other items, demand management, leak detection and repair, a program of preventive maintenance, and a program of employee education.

In new and renovated buildings, **comply with plumbing codes, use the best available technologies for water conservation, and reuse treated wastewater** within the facility to the extent possible.

Practice good lawn and landscape water-use techniques and meet the standards described in Section 9.0 of the *Water Conservation Standards* (Reference No. 10).

1. Does your water supply system assist ICI users in complying with the standards (above) of Section 7.0, Industrial, Commercial, and Institutional (ICI) water use?

☐ Yes ☒ No

If Yes, describe how you provide assistance _____

If No, what steps are you taking to provide assistance in the future? _____

STANDARD 8.0: AGRICULTURAL WATER USE

As part of the management of an agricultural operation, adopt a water conservation approach through which water is used in a planned and efficient manner with appropriate amounts and frequency to meet needs without excessive water loss.

1. Does your water supply system provide water to significant agricultural users?

☐ Yes ☒ No

If Yes, do you have a program to assist agricultural users in conserving water? _____

² See Appendix H of the *Water Conservation Standards* (Reference No. 10) for sample ICI water audit.



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

STANDARD 9.0: LAWN AND LANDSCAPE

Minimize watering of lawns or landscapes, especially in water-short communities and where the water source is in a stressed basin or sub-basin.

Develop and implement seasonal demand management plans as part of the drought management plan. These plans must identify water supply and environmental indicators (such as streamflow triggers) to serve as water-use restriction triggers and outline a set of increasingly stringent and effective water-use restrictions that are designed to protect public health and the environment.

Adopt and implement (as appropriate) a water-use-restriction bylaw, ordinance or regulation, which applies to both municipal and private wells.³

Fully enforce water-use restrictions. Empower authorities to issue warnings to first-time offenders and citations to repeat offenders

1. Do you assist those responsible for maintenance of municipal parks and athletic fields to minimize water use?

☐ Yes ☒ No

If Yes, provide details. _____

2. Do you have a written Seasonal Demand Management Plan?

☐ Yes ☒ No

If Yes, when was the plan approved? _____

Please provide either a copy of the plan, or a copy of the cover, table of contents and date of the plan.

3. Does the municipality served by your water system have a water-use-restriction bylaw, ordinance, or regulation?

☒ Yes ☐ No

If Yes, when was the bylaw, ordinance, or regulation adopted? May 2, 2011

When was the bylaw, ordinance, or regulation last implemented? From: _____ To: _____

4. Please check type of restrictions:

☒ ban on all non-essential outdoor water use

☒ hand-held hose only

☐ one day per week only

☐ two days per week only

☒ odd/even day watering only

☐ restricted hours (provide details): _____

☐ other (provide details): _____

5. Are your water-use restrictions triggered by:

☐ the calendar (e.g., May 1 – September 30 each year)

☒ Streamflow measured at a stream gage

☐ Drought Advisory declared by the Massachusetts Drought Task Force

☐ other (provide details): _____

6. Do you fully enforce water use restrictions?

☒ Yes ☐ No

³ See Appendix B of the *Water Conservation Standards* (Reference No. 10) for model water use restriction bylaws.



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

7. Do you have a bylaw or ordinance that restricts installation or operation of automatic sprinkler systems (for example, requiring a controller that prevents system operation during rainfall)?

☐ Yes ☒ No

If Yes, describe restriction _____

8. Do you have a bylaw or ordinance regulating the use of private wells for outdoor water use, particularly for landscape irrigation?

☐ Yes ☒ No

9. Do you have a conservation outreach program for private well owners?

☐ Yes ☒ No

STANDARD 10.0: PUBLIC EDUCATION AND OUTREACH

Develop and implement an education plan, which includes most, if not all, items listed in the *Water Conservation Standards*, page 29 (Reference no. 10).

Provide education and outreach to self-supplied water users (e.g., home or businesses on their own private wells) on their responsibility to conserve water.

1. Do you have a public education plan?

☒ Yes ☐ No

If Yes, check which items are included in your outreach program.

- ☐ Targeted outreach to the largest water users
☒ Bill stuffers. How often mailed? _____.

Does your program include:

- ☒ Information enabling customers to calculate their water use and compare it to the standard of 65 gpcd
☒ Usage history
☐ Free water audits
☒ Rebates on water-efficient plumbing fixtures and appliances
☒ Information on water-wise landscaping, gardening, efficient irrigation, and lawn care practices
☐ Targeted outreach to industrial, commercial, and institutional users
☐ Water conservation curriculum for schools
☐ Water conservation workshops for the general public
☐ Special events, such as Conservation Fairs, contests, and recognition programs
☐ Speakers for community organizations
☐ Water conservation information center
☐ Public service announcements or announcements in other media
☐ Multilingual materials
☐ Education and outreach to self-supplied users (i.e., home or businesses on their own private wells)

What public outreach and education efforts have you found most effective and why? _____



THE COMMONWEALTH OF MASSACHUSETTS
WATER RESOURCES COMMISSION

If No, what steps are you taking to develop a public education program? _____

Certification:

I certify, under penalty of law, that the responses provided and all attachments were prepared under my supervision, in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: _____

Date: 1/19/2018

Title: _____

General Manager



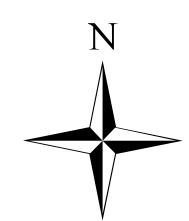
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Note: References from The American Water Works Association can be ordered through the AWWA web site: <http://www.awwa.org/index.cfm>.

Attachment 1

Georgetown, Massachusetts Water Distribution



0 500 1,000 2,000 Feet
1 inch = 1,000 feet



September 10, 2014

NEWBURY

GROVELAND

ROWLEY

BOXFORD

Georgetown Water Infrastructure

<6" Water Pipe	Water Gate
6" Water Pipe	Static
8" Water Pipe	Loop Pin
10" Water Pipe	
12" Water Pipe	

Attachment 2

ATTACHMENT 2

**WATER SYSTEM
EMERGENCY RESPONSE PLAN
for the
Georgetown, Massachusetts
Water Department**

PWSID 3105000

April 2014

WATER SYSTEM EMERGENCY RESPONSE PLAN

GEORGETOWN WATER DEPARTMENT

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE
1	PLAN OVERVIEW AND APPROVAL	
1.1	Introduction.....	1-1
1.2	Plan Management.....	1-1
1.3	Plan Approval	1-2
1.4	Plan Review	1-3
2	EMERGENCY RESPONSE MISSION AND GOALS	
2.1	Mission Statement for Emergency Response	2-1
2.2	Goals	2-1
2.3	General Steps	2-2
2.4	ERP Activation	2-2
3	SYSTEM INFORMATION	
3.1	System Information.....	3-1
3.2	System Description	3-2
3.2.1	William Marshall Well	3-2
3.2.2	Commissioners Well.....	3-3
3.2.3	Duffy's Landing Well.....	3-3
3.2.4	West Street Water Treatment Plant.....	3-3
3.2.5	Distribution System	3-4
3.2.6	Baldpate Road Elevated Tank.....	3-4
3.2.7	Concrete Reservoirs No. 1 & 2.....	3-5
3.2.8	Chemicals Used	3-5
3.3	System Operation.....	3-5
3.3.1	Normal Operation	3-5
3.3.2	Emergency Operation	3-6
3.3.3	Critical Components	3-6
3.4	SCADA System	3-6
3.5	Location of Pertinent Information	3-7
3.6	Location of Emergency Equipment	3-8

TABLE OF CONTENTS (CONT.)

SECTION	DESCRIPTION	PAGE
4	CHAIN OF COMMAND AND EMERGENCY NOTIFICATION	
4.1	Chain of Command – Lines of Authority	4-1
4.2	Notification Procedures	4-2
4.3	Local Notification List	4-3
4.4	State/Federal Notification List	4-4
4.5	Media	4-5
4.6	Service/Repair Notification List	4-6
4.7	Critical Customers	4-7
4.8	Notifying Water System Customers	4-8
4.8.1	Who Is Responsible	4-8
4.8.2	Procedures	4-8
4.9	Alerting Local Law Enforcement, State Drinking Water Officials, and Local Health	4-8
4.9.1	Who Is Responsible	4-8
4.9.2	Procedures	4-9
4.10	Contacting Service and Repair Contractors	4-9
4.10.1	Who Is Responsible	4-9
4.10.2	Procedures	4-9
4.11	Procedures for Issuing a Health Advisory	4-10
4.11.1	Who Is Responsible	4-10
4.11.2	Procedures	4-10
4.12	Procedures for Contacting MassDEP	4-10
4.12.1	Working Hours	4-11
4.12.2	Non-Working Hours	4-12
4.13	Procedures Involving Outside Agencies and Personnel	4-13
5	SEVERITY OF POTENTIAL EMERGENCIES	
5.1	Level I - Routine Problems	5-1
5.1.1	Initial Response	5-1
5.1.2	Response Procedures for Level I	5-1
5.1.3	Notes	5-2
5.2	Level II - Alert/Minor Emergencies	5-2
5.2.1	Initial Response	5-2
5.2.2	Response Procedures for Level II	5-2
5.2.3	Notes	5-3
5.3	Level III - Major Emergencies	5-3
5.3.1	Initial Response	5-4
5.3.2	Response Procedures for Level III - Bacterial Contamination	5-4
5.3.3	Response Procedures for Level III - Equipment/System Failure	5-5

TABLE OF CONTENTS (CONT.)

SECTION	DESCRIPTION	PAGE
5	5.3.4 Notes	5-6
5.4	Level IV - Natural Disasters	5-6
5.4.1	Initial Response.....	5-6
5.4.2	Response Procedures for Level IV - Chemical Contamination.....	5-7
5.4.3	Notes	5-8
5.5	Level V - Nuclear Disasters / Major Terrorist Acts.....	5-7
5.5.1	Initial Response.....	5-7
5.5.2	Response Procedures for Level V.....	5-8
5.5.3	Notes	5-9
6	WATER QUALITY SAMPLING	
6.1	Water Sampling and Monitoring Issues.....	6-1
6.2	Water Sampling	6-2
7	COMMUNICATION PLAN	
7.1	Designated Public Spokesperson(s).....	7-1
7.2	Key Messages	7-1
7.3	Notifications.....	7-2
7.3.1	Water System Users.....	7-2
7.3.2	Critical Customers	7-2
7.3.3	Service/Repair.....	7-2
7.3.4	Local and State Agencies.....	7-3
7.3.5	Mutual Aid.....	7-3
7.4	Health Advisories.....	7-3
8	RESPONSE ACTIONS FOR SPECIFIC EVENTS	
8.1	Basic Steps.....	8-1
8.2	Specific Emergencies.....	8-1
9	ALTERNATIVE WATER SOURCES	
9.1	Interconnections.....	9-1
9.2	Bottled/Bulk Water	9-1
10	RETURNING TO NORMAL OPERATIONS	
10.1	Introduction.....	10-1
10.2	Returning to Normal Operations.....	10-1
11	TRAINING AND REHEARSALS	
11.1	Training.....	11-1
11.2	Occurrence Evaluation.....	11-1
11.3	Staff Training.....	11-1
11.4	Emergency Response Training for Water Utility Personnel.....	11-2

TABLE OF CONTENTS (CONT.)

APPENDICES

A	FLUSHING PLAN
B	WHEN TO USE SPECIFIC PUBLIC HEALTH ORDERS
C	VIOLATION DETERMINATION FOR THE TOTAL COLIFORM RULE
D	COLIFORM VIOLATION EVALUATION SURVEY
E	PERSONAL SAFETY AND EMERGENCY OPERATIONS PROCEDURES
F	EMERGENCY RESPONSE CHECKLIST
G	GUIDELINES FOR PREPARING A NEWS RELEASE
H	ALARM TESTING
I	EQUIPMENT AND SUPPLIES
J	PUBLIC NOTICE TIER 1 TEMPLATES
K	PANDEMIC INFLUENZA FACT SHEET AND PLANNING GUIDES
L	GEORGETOWN COMMUNITY TELEVISION EMERGENCY PROTOCOL

LIST OF FIGURES

FIGURE	DESCRIPTION	PAGE
2-1	THREAT CONDITION LEVELS.....	2-2
8-1	WELL PIPING CONFIGURATION OVERVIEW	8-16
8-2	COMMISSIONERS LOOP AT COMMISSIONERS WELL.....	8-17
8-3	COMMISSIONERS LOOP AT WEST STREET WIP.....	8-18

LIST OF TABLES

TABLE	DESCRIPTION	PAGE
3-1	SYSTEM INFORMATION OVERVIEW	3-1
3-2	PERTINENT INFORMATION LOCATION SUMMARY.....	3-7
3-3	EMERGENCY/CRITICAL EQUIPMENT LOCATION SUMMARY	3-8
4-1	CHAIN OF COMMAND	4-1
4-2	LOCAL NOTIFICATION LIST.....	4-3
4-3	STATE/FEDERAL NOTIFICATION LIST	4-4
4-4	MEDIA NOTIFICATION LIST.....	4-5
4-5	SERVICE/REPAIR NOTIFICATION LIST.....	4-6
4-6	CRITICAL CUSTOMER NOTIFICATION LIST.....	4-7

TABLE OF CONTENTS (CONT.)

6-1	WATER SAMPLING TESTS TO PERFORM	6-3
7-1	DESIGNATED SPOKESPERSON	7-1

TABLE	DESCRIPTION	PAGE
8-1	POWER OUTAGE	8-3
8-2	DISTRIBUTION MAIN BREAK	8-9
8-3	CHLORINE TREATMENT EQUIPMENT FAILURE	8-10
8-4	TREATMENT EQUIPMENT FAILURE	8-11
8-5	POTASSIUM HYDROXIDE OVERDOSE	8-12
8-6	SOURCE PUMP FAILURE	8-19
8-7	MICROBIAL (COLIFORM, <i>E. COLI</i>) CONTAMINATION	8-20
8-8	CHEMICAL CONTAMINATION	8-24
8-9	VANDALISM OR TERRORIST ATTACK	8-25
8-10	REDUCTION OR LOSS OF WATER IN THE WELL	8-26
8-11	DROUGHT	8-27
8-12	HAZARDOUS MATERIALS SPILL IN VICINITY OF SOURCES OR SYSTEM LINES	8-28
8-13	ELECTRONIC EQUIPMENT FAILURE	8-28
8-14	CYBER ATTACK	8-29
8-15	NATURAL EVENT (HURRICANE OR WINTER STORM)	8-30
8-16	COLLAPSE OF PUMP HOUSE STRUCTURE	8-31
8-17	PANDEMIC INFLUENZA	8-32
9-1	INTERCONNECTIONS WITH ADJOINING TOWNS	9-2
9-2	BOTTLED/BULK WATER SOURCES	9-3
10-1	DISTRIBUTION SYSTEM	10-2
10-2	SUPPLY AND TREATMENT	10-5
11-1	TRAINING NEEDS AND EXPECTATIONS BY POSITION	11-1
11-2	TRAINING TYPES	11-2

SECTION 5

SEVERITY OF POTENTIAL EMERGENCIES

A decision on the severity of emergencies is made by the Director with collaborative input from system personnel. The information for making such a decision will accumulate over time, and may result in changes in the assessment of the severity. Communicate each assessment of severity immediately to all those dealing with the emergency.

5.1 LEVEL 1 - ROUTINE PROBLEMS

These incidents are minor disruptions to the water system that affect 10% or less of the system and are anticipated to be repaired/resolved in 24 hours or less.

Examples: Water main breaks and mechanical problems at pumping stations.

5.1.1 Initial Response

1. Begin documentation log (Refer to Emergency Response Checklist in **Appendix F**) at first report of the problem.
2. Investigate problem and evaluate the situation to determine the level of emergency.

5.1.2 Response Procedures for Level I

1. Activate emergency response team and respond in accordance with the Emergency Response Plan (ERP).
2. Maintain records of all activities throughout the incident. Retain records for future reference.
3. Monitor resolution of the emergency and take appropriate action if the level of the emergency changes.

5.1.3 Notes

1. If a violation requiring a Tier 1 Public Notice in accordance with 310 CMR 22.16 occurs, the Public Water Supply (PWS) must contact and consult with MassDEP staff within 24 hours of the PWS first learning of the violation. Refer to **Appendix J** for the MassDEP Notice Tier 1 Templates.
2. If a coliform bacteria violation has occurred, the PWS must file a Coliform Violation Evaluation Survey (included in **Appendix D**) with the local MassDEP regional office. This survey will not be used for compliance purposes but will provide MassDEP with valuable information on the cause and corrective actions for coliform bacteria violations.

5.2 LEVEL II - ALERT/MINOR EMERGENCIES

These incidents are more significant disruptions to the water system that affect 50% or less of the system and are anticipated to be repaired/resolved in 72 hours or less.

Examples: Local total coliform bacteria detection, major main breaks, multiple main breaks, major mechanical problems at pumping stations/treatment facility, or failure of chemical feed systems.

5.2.1 Initial Response

1. Begin documentation log (Refer to Emergency Response Checklist in **Appendix F**) at first report of the problem.
2. Investigate problem and evaluate the situation to determine the level of emergency.

5.2.2 Response Procedures for Level II

1. Activate emergency response team and respond in accordance with Emergency Response Plan.
2. Contact local responsible officials and authorities, including the MassDEP Regional Office, to inform them of conditions in the system and discuss any special actions that may be required. Such required actions may include, but are not limited to:

- Collect special water quality samples related to the nature of the emergency.
 - Collect appropriate water quality samples at sites throughout the distribution system where problems have occurred. These samples must be taken both during and after the incident. If the problem is determined to be coliform bacteria related, follow the Coliform MCL Violation Determination flow chart included within **Appendix C**.
 - Provide notification to parties affected by the incident.
 - Provide an alternate source of water to those affected by the incident, if needed.
 - Contact local news media to inform them of incident, if needed.
 - Provide Public Notification of any violations of MassDEP regulations, as needed.
3. Contact local responsible officials and authorities, including MassDEP Regional Office, to inform them of completion of repairs and results of all water quality testing.
 4. Maintain records of all activities throughout the incident. Retain records for future reference.
 5. Monitor resolution of the emergency and take appropriate action if the level of the emergency changes.

5.2.3 Notes

1. If a violation requiring a Tier 1 Public Notice in accordance with 310 CMR 22.16 occurs, the PWS must contact and consult with MassDEP staff within 24 hours of the PWS first learning of the violation. Refer to **Appendix J** for the MassDEP Notice Tier 1 Templates.
2. If a coliform bacteria violation has occurred, the PWS must file a Coliform Violation Evaluation Survey (included within **Appendix D**) with the local MassDEP regional office. This survey will not be used for compliance purposes but will provide MassDEP with valuable information on the cause and corrective actions for coliform bacteria violations.

5.3 LEVEL III - MAJOR EMERGENCIES

These incidents are very significant disruptions to the water system if they affect more than 50% of the system and/or are anticipated to require more than 72 hours to be repaired/resolved. Major emergencies may require a Declaration of State of Water Supply Emergency and/or a Boil Water

Order, Do Not Drink Order or Do Not Use Order. **MassDEP considers all incidents that result in a Boil Water Order, Do Not Drink Order or Do Not Use Order to be Level III incidents.**

Examples: Break in major transmission main, loss or failure of treatment facility, loss of source (dam break, water supply shortage, contamination, etc.), loss of pressure in system, widespread total coliform bacteria outbreak, fecal coliform or E. Coli detection, or acts of vandalism.

5.3.1 Initial Response

1. Begin documentation log (Refer to Emergency Response Checklist in **Appendix F**) at first report of the problem.
2. Investigate problem and evaluate the situation to determine the level of emergency.

5.3.2 Response Procedures for Level III - Bacterial Contamination

1. Initiate consultation with MassDEP and follow Public Notification requirements.
2. Activate emergency response team and respond in accordance with the Emergency Response Plan to collect samples and conduct preliminary analyses to determine potential contamination of the water supply. Use the data to follow the Coliform MCL Violation Determination flow chart included within **Appendix C**.
3. Contact local responsible officials and authorities, including MassDEP Regional Office, to inform them of conditions in the system and discuss any special actions that may be required. Such required actions may include, but are not limited to:
 - Collection of special water quality samples related to the nature of the emergency.
 - Collection of bacteria samples at sites throughout the distribution system where problems have occurred. These samples may be taken both during and after the incident. If the problem is determined to be coliform bacteria related, follow the Coliform MCL Violation Determination flow chart included within **Appendix C**.
 - Provide notification to parties affected by the incident.
 - With MassDEP approval, provide an alternate source of water if needed. Alternative water sources are identified in Section 9.

- Contact local news media to inform them of incident, if needed.
 - If MassDEP issues a Declaration of State of Water Supply Emergency, Boil Water Order, Do Not Drink Order or Do Not Use Order, follow necessary procedures.
4. Once problem is identified, initiate actions to resolve the problem.
 5. Contact local responsible officials and authorities, including MassDEP Regional Office, to inform them of completion of repairs and results of all water quality testing.
 6. Maintain records of all activities throughout the incident. Retain records for future reference.
 7. Monitor resolution of the emergency and take appropriate action if the level of the emergency changes.

5.3.3 Response Procedures for Level III - Equipment/System Failure

1. Activate emergency response team to evaluate the extent of the problem and determine the type and quantity of support needed to initiate corrective action.
2. Contact local responsible officials, including MassDEP Regional Office, to inform them of conditions in the system and discuss any special actions that may be required. Such required actions may include, but are not limited to:
 - Conduct preliminary water quality analyses to determine potential contamination of the water supply as a result of the equipment/system failure.
 - Provide notification to parties affected by the incident.
 - With MassDEP approval, provide an alternate source of water, if needed.
 - Contact local news media to inform them of the incident, if needed.
 - If MassDEP issues a Declaration of State of Water Supply Emergency or Boil Water Order or Do not Drink Order, follow necessary procedures.
3. Once problem is identified, initiate actions to resolve the problem.
4. Contact local responsible officials and authorities, including MassDEP Regional Office, to inform them of completion of repairs and results of all water quality testing.
5. Maintain records of all activities throughout the incident. Retain records for future reference.
6. Monitor resolution of the emergency and take appropriate action if the level of the emergency changes.

5.3.4 Notes

1. If a violation requiring a Tier 1 Public Notice in accordance with 310 CMR 22.16 occurs, the PWS must contact and consult with MassDEP staff within 24 hours of first learning of the violation. Refer to **Appendix J** for the MassDEP Notice Tier 1 Templates.
2. If a coliform bacteria violation has occurred, the PWS must file a Coliform Violation Evaluation Survey (included within **Appendix D**) with the local MassDEP regional office.

5.4 LEVEL IV - NATURAL DISASTERS

These incidents are generally caused by a widespread meteorological or geological event that disrupts the water system affecting more than 50% of the system and/or requiring more than one week for recovery of services. Such events may cause structural damage to a treatment facility or contaminate a source with untreated sewage, toxic chemical, or radioactive material. A Declaration of State of Water Supply Emergency and/or a Boil Water Order or Do Not Drink Order are likely to be required.

Examples: Hurricanes, tornadoes, earthquakes, or floods.

If the disruption of the system causes equipment failure and/or contamination caused by bacteriological activity, follow the emergency response procedures for Level III. If the contamination is caused by chemical compound(s), use the following procedure:

5.4.1 Initial Response

1. Begin documentation log (Refer to Emergency Response Checklist in **Appendix F**) at first report of the problem.
2. Investigate problem and evaluate the situation to determine the extent of impact on the water system. Collect water samples for analyses to determine if it is contaminated and the type of contamination.

5.4.2 Response Procedures for Level IV - Chemical Contamination

1. If possible, remove the affected water supply source or close the distribution system until it can be fully evaluated for contamination.
2. Contact MassDEP Regional Office for further instructions.
3. Inform proper local and state authorities/agencies, activate response team immediately and respond in accordance with the Emergency Response Plan. The responsible authority or authorities will issue the necessary "Orders".
4. Inform the public through the local/regional electronic media about the emergency, affected area, and alternative water supply. Keep the public informed about new developments through "special reports and public service news".
5. With MassDEP approval, activate alternative water supply.
6. Evaluate the situation to brief the authorities and inform the public. If necessary, take other precautionary measures to safeguard public health.
7. Collect new samples for analyses and put in place a monitoring system to ensure a safe water quality.
8. Maintain records of all activities throughout the incident. Retain records for future reference.
9. Monitor resolution of the emergency and take appropriate action if the level of the emergency changes.

5.4.3 Notes

1. If a violation requiring a Tier 1 Public Notice in accordance with 310 CMR 22.16 occurs, the PWS must contact and consult with MassDEP staff within 24 hours of first learning of the violation. Refer to **Appendix J** for the MassDEP Notice Tier 1 Templates.
2. If a coliform bacteria violation has occurred, the PWS must file a Coliform Violation Evaluation Survey (included within **Appendix D**) with the local MassDEP regional office.

5.5 LEVEL V - NUCLEAR DISASTERS / MAJOR TERRORIST ACTS

These incidents involve large and uncontrolled releases of radioactive material or compounds into the environment/water supply source or deliberate acts that impair a water system (i.e.,

terrorism). In the case of a nuclear disaster, surface water supplies within a 50-mile radius of a nuclear power plant experiencing such a release may be immediately contaminated. Groundwater supplies may remain safe for a period of time. A Declaration of Water Supply Emergency and/or a Do Not Drink Order are likely to be required.

Examples: Nuclear power plant release to the environment or deliberate release of highly toxic materials to a water supply.

5.5.1 Initial Response

1. Begin documentation log (Refer to Emergency Response Checklist in **Appendix F**) at first report of the problem.
2. Investigate problem and evaluate the situation to determine the extent of impact on the water system. Collect water samples for analyses to determine if it is contaminated and the type of contamination.

5.5.2 Response Procedures for Level V

1. If possible, remove the affected water supply source or close the distribution system until it can be fully evaluated for contamination.
2. Be prepared to follow the directives issued by the Massachusetts Emergency Management Agency on the Emergency Broadcast network; and provide the necessary assistance to this agency. At a minimum, the directives will advise the public:
 - a. Not to use surface or ground water until the source is analyzed and approved to be safe for human or animal consumption.
 - b. Limit the ingestion of water stored in closed containers or bottled water until after it has been tested and approved for consumption.
 - c. MassDEP and/or the Department of Public Health will provide technical assistance and provide information on testing water sources to ensure that they are safe for consumption.
 - d. Maintain records of all activities throughout the incident. Retain records for future reference.

- e. Monitor resolution of the emergency and take appropriate action if the level of the emergency changes.

5.5.3 Notes

1. All threats against a water system must be reported to the State Police and Federal Bureau of Investigation immediately.
2. Terrorist acts found to be minor in nature may be reduced to a lower level and follow the appropriate emergency response procedures.
3. If a violation requiring a Tier 1 Public Notice in accordance with 310 CMR 22.16 occurs, the PWS must contact and consult with MassDEP staff within 24 hours of the public water system first learning of the violation. Refer to **Appendix J** for the MassDEP Notice Tier 1 Templates.
4. If a coliform bacteria violation has occurred, the PWS must file a Coliform Violation Evaluation Survey (included within **Appendix D**) with the local MassDEP regional office.

SECTION 8

RESPONSE ACTIONS FOR SPECIFIC EVENTS

8.1 BASIC STEPS

In any event there are a series of general steps to take:

1. Confirm and analyze the type and severity of the emergency.
2. Take immediate actions to save lives.
3. Take action to reduce injuries and system damage.
4. Make repairs based on priority demand.
5. Return the system to normal operation.
6. Review the emergency response and update the ERP, as required.

8.2 SPECIFIC EMERGENCIES

The tables on the following pages identify the assessment; set forth the immediate actions; define what notifications need to be made; and describe important follow-up actions for the following specific emergencies:

1. Power outage
2. Distribution main break
3. Chlorine treatment equipment failure
4. Treatment equipment failure
5. Source pump failure
6. Potassium hydroxide overdose
7. Microbial (coliform, *e. Coli*) contamination
8. Chemical contamination / chemical overfeed
9. Vandalism or terrorist attack
10. Reduction or loss of water in the well
11. Drought
12. Hazardous materials spill in vicinity of sources or system lines

- 13. Electronic equipment failure
- 14. Cyber attack
- 15. Natural Event (Hurricane or Winter Storm)
- 16. Collapse of Pump House Structure
- 17. Pandemic Influenza

**TABLE 8-11
DROUGHT**

ASSESSMENT	<ol style="list-style-type: none"> 1. Water Superintendent reviews source production and system trends. 2. If static water level measurements show declines in water levels in the wells, implement the MassDEP approved Drought Management Plan which includes the following action levels. <ol style="list-style-type: none"> a. DROUGHT WATCH: A 15% reduction in normal pumping levels in the wells. b. DROUGHT WARNING: A 20% reduction in normal pumping levels in the wells. c. DROUGHT EMERGENCY: A 25% reduction in normal pumping levels in the wells. 3. If at any time a consistent rise in the water level in the storage tanks cannot be maintained during off-peak demand, declaration of a Drought Emergency should be considered.
IMMEDIATE ACTIONS	<p>The appropriate action for each level of severity shall be in place until the trigger for that level has not been met for at least seven consecutive days.</p> <p>DROUGHT WATCH: Public notification and a request for voluntary water conservation is made.</p> <p>DROUGHT WARNING: Public notification and a request for concerted voluntary conservation measures.</p> <p>DROUGHT EMERGENCY: Mandatory restrictions are ordered preventing all non-essential use of water.</p>
NOTIFICATIONS	<p>DROUGHT WATCH: Alert the public and other water users regarding the onset of conditions indicating the potential for future drought-related problems. The focus during this stage is on increased monitoring, awareness and preparation for response if conditions worsen.</p> <p>DROUGHT WARNING: Contact MassDEP for permission to use water restrictions. Coordinated response to imminent drought conditions and potential water supply shortages.</p> <p>DROUGHT EMERGENCY: Concentrated management phase of operations to assemble all available resources to respond to actual emergency conditions, to avoid depletion of water sources, to assure at least minimum water supplies to protect public health and safety, to support essential and high priority water uses. There shall be preparedness for use of interconnections at a moments notice.</p>
FOLLOW-UP ACTIONS	<p>System returns to normal by notifying residents. Update ERP as needed based on observations.</p>

Attachment 3

Town of Georgetown, MA
Friday, April 6, 2018

Chapter 156. WATER

[HISTORY: Adopted by the Town of Georgetown 5-2-2011 Annual Town Meeting, Art. 35. *Editor's Note: This article also repealed former Ch. 156, Water, comprised of Art. I, Water Supply Emergency, adopted 6-11-1990 ATM, Art. 29, and Art. II, Water Use Restrictions, adopted 6-26-1995 ATM, Art. 35.* Amendments noted where applicable.]

Article I. State of Water Supply Conservation

§ 156-1. Legislative authority.

This article is adopted by the Town under its powers to protect public health and welfare and its powers under MGL c. 40, § 21 et seq. This article implements the Town's authority to regulate water use pursuant to MGL c. 41, § 69B.

§ 156-2. Purpose.

The purpose of this article is to preserve and maintain the public health, safety and welfare whenever there is in force a state of water supply conservation by providing for enforcement of any duly imposed restriction, requirements, provisions or conditions imposed by the Town or by the Department of Environmental Protection.

§ 156-3. Definitions.

As used in this article, the following terms shall have the meanings indicated:

BOARD OF WATER COMMISSIONERS

The Board of Water Commissioners of the Town of Georgetown.

ENFORCING PERSON

The Town's Board of Water Commissioners, its duly appointed agents, employees and members, the Board of Health, the Town police, special police and any other person designated by the Town as having police powers.

NONESSENTIAL OUTDOOR WATER USE

A. Includes uses that are not required:

- (1) For health or safety reasons;
- (2) By regulation;
- (3) For the production of food and fiber;
- (4) For the maintenance of livestock; or
- (5) To meet the core functions of a business (for example, irrigation by golf courses as necessary to maintain tees and greens, or irrigation by plant nurseries or agricultural operations as necessary to maintain stock or establish new plantings).

B. Examples of nonessential outdoor uses of municipal water include:

- (1) Irrigation of lawns, except by means of a hand-held hose outside the hours of 9:00 a.m. to 5:00 p.m. All hand-held water hoses shall be controlled by a nozzle or other device used to regulate the flow of water leaving the hose.
- (2) Washing of vehicles other than by means of a commercial car wash, except as necessary for operator safety.
- (3) Washing of exterior building surfaces, parking lots, driveways or sidewalks, except as necessary to apply paint, preservatives, stucco, pavement or cement.

PERSON

Any individual, corporation, trust, partnership or association or other entity.

STATE OF WATER SUPPLY CONSERVATION

A state of water supply conservation declared by the Town pursuant to § 156-4 of this article. During a state of water supply conservation, the Board of Water Commissioners may impose mandatory restrictions on nonessential outdoor water use as described in § 156-5 of this article.

WATER USERS or WATER CONSUMERS

All public and private users of the Town's public water system, irrespective of any person's responsibility for billing purposes for water used at any particular facility.

§ 156-4. Declaration.

- A. The Town, through its Board of Water Commissioners, may declare a state of water supply conservation upon a determination by a majority vote of the Board that:
 - (1) The current daily use is 80% or more of the daily quantity of water available to the system; or
 - (2) A problem exists that would prevent the Board from supplying an adequate volume of water for the health and welfare of its customers; or
 - (3) A shortage of water exists or is anticipated, and conservation measures are appropriate to ensure an adequate supply of water to all water consumers; or
 - (4) Environmental impacts are unacceptable.
- B. Public notice of a state of water supply conservation shall be given under § 156-6 of this article before it may be enforced.

§ 156-5. Restricted uses.

A declaration of a state of water supply conservation issued by the Board of Water Commissioners may include one or more of the following restrictions, conditions or requirements restraining the use of water for nonessential purposes as necessary to protect the water supply, which shall be included in the public notice required under § 156-6:

- A. Nonessential outdoor water use restrictions. Nonessential outdoor water use may be restricted as deemed necessary by the Board of Water Commissioners. For example, nonessential outdoor water use may be restricted to certain days of the week for certain hours of the day outside the hours of 9:00 a.m. to 5:00 p.m.
- B. Nonessential outdoor water use ban. Nonessential outdoor water use may be entirely prohibited by the Board of Water Commissioners.

§ 156-6. Public notification.

Notification of any condition imposed by the Town as part of a state of water supply conservation shall be published in a newspaper of general circulation within the Town, or such other means reasonably calculated to reach and inform all users of water of the state of conservation. Any restriction imposed under § 156-5 shall not be effective until such notification is provided. Notification of the state of water supply conservation shall also be simultaneously provided to the Massachusetts Department of Environmental Protection.

§ 156-7. Termination; notice.

A state of water supply conservation may be terminated by a majority vote of the Board of Water Commissioners upon a determination that the condition or conditions set forth in § 156-4 no longer exist. Public notification of the termination of a state of water supply conservation shall be given in the same manner as for the notice of its imposition.

§ 156-8. Violations and penalties.

- A. The enforcing persons, as defined in § 156-3 of this article, may enforce the provisions of this article. Any person violating this article may be subject to civil or criminal enforcement.
- B. Criminal penalties. Any person who violates any provisions of this article or any regulation or order issued hereunder shall be punished by a fine of not more than \$300. Each day a violation occurs or continues shall constitute a separate violation.
- C. Noncriminal disposition. As an alternative to criminal prosecution or civil action, the Town may utilize the noncriminal disposition procedure set forth in MGL c. 40, § 21D, and §§ 1-4 through 1-8 of the Town Code, in which case any police officer of the Town of Georgetown, including any special police officer, the Board of Water Commissioners, and the Water Department Superintendent shall be the enforcing persons. If noncriminal disposition is used, any person who violates any provision of this article, regulation, order or permit issued thereunder shall be punished by a penalty of \$50. Each day or part thereof that a violation occurs or continues shall constitute a separate violation.

§ 156-9. Exemptions.

- A. Water users may apply, in writing, to the Georgetown Water Department for an exemption to restrictions on nonessential outdoor water usage during a state of water supply conservation. Exemptions shall only apply outside the hours of 9:00 a.m. to 5:00 p.m.
- B. Examples of outdoor water uses that may be eligible for an exemption outside the hours of 9:00 a.m. to 5:00 p.m. during a state of water supply conservation include:
 - (1) Irrigation to establish a new lawn during the months of May and September;
 - (2) Irrigation for the production of food and fiber or the maintenance of livestock;
 - (3) Irrigation by plant nurseries as necessary to maintain stock;
 - (4) Irrigation by golf courses as necessary to maintain tees and greens only; and
 - (5) Irrigation of public parks and recreational fields.

§ 156-10. Severability.

The invalidity of any portion or provision of this article shall not invalidate any other portion or provision thereof.

Article II. State of Water Supply Emergency

§ 156-11. Legislative authority.

This article is adopted by the Town of Georgetown under its home rule powers, its police powers to protect public health and welfare and its specific authorization under MGL c. 40, §§ 21 and 21D. This article also implements the Town's authority under MGL c. 40, § 41A, conditioned upon a declaration of water supply emergency issued by the Department of Environmental Protection under MGL c. 21G, §§ 15 through 17.

§ 156-12. Purpose.

The purpose of this article is to protect, preserve and maintain the public health, safety and welfare whenever there is in force a state of water supply emergency by providing for enforcement of any duly imposed restrictions, requirements, provisions or conditions imposed by the Town or by the Department of Environmental Protection and included in the Town's plan approved by the Department of Environmental Protection to abate the emergency.

§ 156-13. Definitions.

As used in this article, the following terms shall have the meanings indicated:

ENFORCEMENT AUTHORITY

The Town's Board of Water Commissioners, the Board of Health, the Police Department and any other officer having police powers.

NONESSENTIAL OUTDOOR WATER USE

Includes uses that are not required:

- A. For health or safety reasons;
- B. By regulation;
- C. For the production of food and fiber;
- D. For the maintenance of livestock; or
- E. To meet the core functions of a business (for example, irrigation by golf courses as necessary to maintain tees and greens, or irrigation by plant nurseries or agricultural operations as necessary to maintain stock or establish new plantings).

STATE OF WATER SUPPLY EMERGENCY

A state of water supply emergency declared by the Department of Environmental Protection pursuant to MGL c. 21G (§§ 15, 16 and 17). During a state of water supply emergency, the Board of Water Commissioners shall prohibit all nonessential outdoor water use as stated in § 156-15 of this article.

WATER USERS or WATER CONSUMERS

All public and private users of the Town's public water system, irrespective of any person's responsibility for billing purposes for water used at any particular facility.

§ 156-14. Public notification.

The following shall apply to all users of water supplies supplied by the Town.

- A. Following notification by the Town of the existence of a state of water supply emergency, no person shall violate any provision, condition, requirement or restriction included in a plan approved by the Board of Water Commissioners to abate a water supply emergency, or in an order approved or issued by the Department of Environmental Protection intended to bring about an end to the emergency.
- B. Notification of any provision, restriction, requirement or condition with which users of water supplied by the Town are required to comply to abate a situation of water emergency shall be sufficient for purposes of this article if it is published in a newspaper of general circulation within the Town or by such other notice as is reasonably calculated to reach and inform all users of the Town supply.
- C. Upon notification to the Board of Water Commissioners that the Department of Environmental Protection has terminated a declaration of a state of water supply emergency, public notification of the termination will be provided in the same manner as is provided in § 156-14B for notice of its imposition.

§ 156-15. Prohibited uses.

Lawn watering and all other forms of nonessential outdoor water use during a state of water supply emergency are prohibited, and other uses may be restricted or prohibited as provided in the plan of the Board of Water Commissioners or an order approved or issued by the Department of Environmental Protection, described in § 156-14A.

§ 156-16. Violations and penalties.

- A. The enforcing authority, as defined in § 156-13 of this article, may enforce the provisions of this article. Any person violating this article may be subject to civil or criminal enforcement.
- B. Criminal penalties. Any person who violates any provisions of this article or any regulation or order issued hereunder shall be punished by a fine of not more than \$300. Each day a violation occurs or continues shall constitute a separate violation.
- C. Noncriminal disposition. As an alternative to criminal prosecution or civil action, the Town may utilize the noncriminal disposition procedure set forth in MGL c. 40, § 21D, and §§ 1-4 through 1-8 of the Town Code, in which case any police officer of the Town of Georgetown, including any special police officer, the Board of Water Commissioners, and the Water Department Superintendent shall be the enforcing persons. If noncriminal disposition is used, any person who violates any provision of this article, regulation, order or permit issued thereunder, shall be punished by a penalty of \$50. Each day or part thereof that a violation occurs or continues shall constitute a separate violation.
- D. Shutoff of water service. If a state of water supply emergency has been declared, and a person or entity has been issued three or more notices of violation of this article, the Board of Water Commissioners may, in accordance with MGL c. 40, § 41A, and upon notice to said person or entity, shut off its water supply at the meter or the curb stop. In the event of shutoff, an additional fee of \$200 shall be assessed for restoring connection to the Town water supply.

§ 156-17. Right of entry.

To the extent permitted by law, or if authorized by the owner or other party in control of the property, agents of the enforcement authority may enter any property for the purpose of inspecting or investigating any violation of this article or enforcing against the same. Upon such lawful entry, and in the absence of the water user, the Enforcement Authority may shut off nonessential outdoor water systems.

§ 156-18. Severability.

The invalidity of any portion or provisions of this article shall not invalidate any other portion, provision or section thereof.



Attachment 4

TOWN OF GEORGETOWN WATER DEPARTMENT RULES AND REGULATIONS

Revised March 7, 2011 by the Board of Water Commissioners

By virtue of the statutory powers and all other powers, the Board of Water Commissioners of the Town of Georgetown (“Board” or “Town”) establishes the following Rules and Regulations for the conduct of the business of the Town of Georgetown Water Department (“Water Department”).

ARTICLE 1. The following Rules and Regulations and all subsequent changes, amendments and additions thereto shall constitute a part of the contract with every person, corporation and property owner supplied with water by the Water Department.

PERMIT FOR SERVICE CONNECTION

ARTICLE 2. All applications for the introduction of Town water to commercial or residential property (“Premises”) shall be made in writing on an application for water service provided at the Water Department Office, 1 Moulton Street. Only the customer, or a duly authorized agent, may apply for Town water. Approval of the application by the Water Department shall create a contract between the Water Department and the customer obligating the customer to pay the Water Department its established rates and to comply with the Rules and Regulations (“Service Permit Fee”).

PIPING WITHIN STREET LINES

ARTICLE 3. Water service piping up to and including 2” in diameter shall be installed and maintained by the Water Department from the water main to and including the curb stop. Services larger than 2” may be installed by the Water Department or, in the opinion of the Water Superintendent, by other qualified persons with the consent of and under the supervision of the Water Department. The cost of all labor, materials and roadway repairs shall be born by the applicant. This shall be in addition to the Service Permit Fee.

PIPING ON PRIVATE PROPERTY

ARTICLE 4. The customer shall be responsible for the installation of water service from the property line to the Premises serviced or other location approved by the Water Department.

The proposed service location, method of installation and materials to be installed must be approved by the Water Department before installation may commence. In general, pipes shall not be installed under paved areas or exposed locations subject to freezing. All piping shall have a minimum cover of five (5) feet. The piping shall be inspected by the Water Department before any backfilling takes place.

CURB BOX

ARTICLE 5. It shall be the responsibility of the customer to prevent damage to the curb box during construction on the Premises and to notify the Water Department if the top of the curb box is not finished at ground grade in order to allow easy access by employees of the Water Department.

CELLAR VALVE

ARTICLE 6. The Water Department shall install a valve, at the customer's expense, where water service enters the Premises inside the foundation or service entrance immediately adjacent to the water meter. The cellar valve is the property and maintenance responsibility of the customer.

WATER CONSERVATION

ARTICLE 7. Installation of plumbing fixtures and appliances shall meet the following water efficiency criteria as a prerequisite to water service connection and utilization:

Indoor

- Toilets shall meet the EPA WaterSense high-efficiency standard of 1.28 gallons per flush or less;
- Showerheads shall meet the EPA WaterSense standard of 2.0 gpm or less;
- Faucet flow in bathroom sinks shall not exceed 1.0 gpm;
- Faucet flow in kitchen sinks shall not exceed 1.5 gpm;
- Clothes washers shall have an EnergyStar Water Factor of 5.0 or less; and
- Dishwashers shall have an EnergyStar rating of 5.0 gallons per cycle or less.

Outdoor

- Irrigation systems using municipal water shall not be installed without the written consent of the Board of Water Commissioners.

Requests for waivers from the above-listed water efficiency requirements must be addressed in writing to the Board of Water Commissioners, 1 Moulton Street, Georgetown, MA 01833.

FINAL APPROVAL

ARTICLE 8. The water shall not be turned on until the installation has been approved by the Water Superintendent and all service charges are paid in full.

SPECIAL CONDITIONS

ARTICLE 9. Special conditions encountered at the Premises which may conflict with the Rules and Regulations shall be referred to the Water Superintendent or his agent, who shall decide whether an alternative method of installation should to be followed.

RESPONSIBILITY FOR MAINTENANCE

ARTICLE 10. The service pipe from the curb box to the Premises to the meter including the cellar valve shall be installed, owned and maintained by the consumer. In the event of a leak in this service pipe, the consumer shall be repaired the leak upon discovery as a condition of continued water supply. All repairs shall be carried out under the supervision of the Water Department. Failure to do so shall justify the shutting off of water to the Premises.

INSPECTION OF PREMISES

ARTICLE 11. Pursuant to M.G.L. Chapter 165, Section 11D, the Water Department its agent may, at any reasonable hours, be allowed access to the Premises to inspect plumbing and fixtures, to set, remove or read meters, to ascertain the amount of water used and manner of use, and to enforce the Rules and Regulations. After three (3) attempts to contact the customer, a registered notice of the time water service will be disconnected will be sent and water service will be turned off at that time.

INTERRUPTION OF SERVICE

ARTICLE 12. The Water Department may at any time, temporarily interrupt water service in order to make repairs or changes to its piping system, or for any other related purpose. It may also shut off water service for non-payment of rates or other charges, or for failure to observe the Rules and Regulations. No customer will be entitled to damages, or to have any portion of payment refunded, for any interruption of service occasioned either by accident to any portion of the works, or by shutting off for the purpose of additions or repairs to the works, or by stoppage or shortage of supply due to causes beyond the control of the Water Department, such as excessive drought, excessive use of and waste of water by other consumers, or by leaks or defects in the pipes or appliances owned by the customer or other consumers.

Whenever practical, consumers will be given advance notice of any interruption in service.

WATER PRESSURE

ARTICLE 13. The Water Department does not guarantee water pressure and assumes no responsibility for any fluctuations thereof.

RESPONSIBILITY FOR WATER CHARGES

ARTICLE 14. Upon the activation of water service, the customer will be charged with and held responsible for all water passing through the service pipe. A demand charge and interest will be rendered by the Town on delinquent bills, and continued delinquency will result in a lien on the Premises. Should ownership of the Premises change, the new name and address shall be given to the Water Department Office promptly so that bills may be properly rendered. Failure of the consumer to receive a bill does not relieve him or her from the obligation of its payment, nor from the consequences of its non-payment.

TURNING OFF AND ON

ARTICLE 15. Only Water Department personnel shall shut-off or turn on the water at the curb stop.

FIRE HYDRANTS

ARTICLE 16. Fire hydrants are under control of the Town's Fire Department for any firefighting situation (fires or necessary practice). In no other case shall anyone be allowed to draw water from, exercise or operate any fire hydrant within the water distribution system without permission from the Water Department. The Water Department must be notified as soon as practical after the use of a hydrant for the purpose of inspection of all hydrants used. Anyone with permission from the Water Department to extract water from a hydrant will pay a fee and all water usage will be metered by the Water Department.

WATER MAINS

ARTICLE 17. The Board shall approve the size and type of pipe, the number and location of all valves, hydrants and fittings, and the time and method of installation, pressure testing and the disinfection of all water mains in both public and private ways.

No connections shall be made to any existing main except by the Water Department or, with its specific approval and supervision, by other qualified workers.

All work in connection with the maintenance and repairs to privately-owned water mains shall be performed with the approval and supervision of the Water Department, and all costs shall be paid by the owner.

The Board reserves the right to withhold the supply of water to any main unless and until all of the above conditions have been met.

FIRE AND SPRINKLER SERVICE

ARTICLE 18. Any fire protection system supplied with water from the Water Department shall not be connected to any other source of water.

No water shall be drawn from the fire service pipes for any purpose except for the extinguishing of fires or necessary testing of the system.

CROSS CONNECTIONS

ARTICLE 19. No one shall install, or allow to exist, any physical connection between the water supply of the Town and any other private water supply.

No cross connection, as that term is referenced in 310 CMR 22.22 (Massachusetts Cross Connection Regulations), shall be allowed.

WATER METERS

ARTICLE 20. All new water service shall have an approved water meter with an electronic remote reading register installed at the owner's expense. All existing water service that is not so electronically metered shall have such a meter installed by the Water Department at its discretion. Size and make of the water meter and remote electronic reader shall be determined by the Water Department. The meter when installed shall become a permanent part of the water service and will be repaired and maintained by the Water Department.

Every new dwelling unit except those in apartment buildings with a centralized water system shall have its own dedicated water meter

The owner of the Premises shall furnish a Water Department-approved location for the meter and keep it accessible at all times. He shall protect it from freezing and all other external damage and shall be responsible for damage caused by failure to do so.

Any water service over 150 ft. from the street line, or where there may be an outlet between the street and the structure being provided service, or on service that has no other safe and convenient location, a meter pit shall be required. The location, size and type of construction of the meter pit shall be approved by the Board and its cost and installation shall be the responsibility of the customer.

All water meters, once installed, become the property of the Water Department, except that the Water Department may refuse to take ownership of a meter which is improperly installed or which is the wrong type or size for the Premises in question.

VIOLATIONS

ARTICLE 21. A violation of the Rules and Regulations may result in the shutting off of water to the Premises. Water shut off for violation of Rules and Regulations, nonpayment of charges, or other offense, will not be turned on again until the Water Department is satisfied that the violation has been properly addressed.

USE OF WATER DEPARTMENT LANDS

ARTICLE 22.

A. The following restrictions apply to the use of Water Department property by the general public:

- 1) Access between Sunset and Sunrise is prohibited.
- 2) Littering, dumping and polluting are prohibited.
- 3) Fires and camping are prohibited.
- 4) Alcoholic beverages and controlled substances (drugs) are prohibited.
- 5) Unauthorized motorized vehicles, except in designated parking areas are prohibited. (Any release of fluids, (oil, fuels, antifreeze, etc.) MUST be immediately reported to the EMERGENCY RESPONSE CENTER (978) 352-5700.)
- 6) The TAKING or DISTURBING of rare species is not allowed under the Massachusetts Endangered Species Act (MESA) and violators are subject to fines and/or imprisonment. Note that the Water Department routinely monitors these areas and will report violations to local and state environmental authorities.
- 7) Removal, destruction or damage to signs, fences, barriers, buildings, equipment or other real property under the control of the Water Department is strictly prohibited.
- 8) Unauthorized removal, relocation or deposition of trees, vegetation, water (surface or subsurface) or soils is strictly prohibited.
- 9) The use of fertilizers, pesticides, herbicides or any other chemical application or discharge is strictly prohibited.
- 10) Neither the Town nor the Water Department assumes any liability for injury sustained while on Water Department property.

B. Upon written request, and at the discretion of the Water Department, written permission may be granted for the following activities:

- 1) Removal, relocation or deposition of trees, vegetation, water (surface or subsurface) or soils for maintenance and improvement of trails, roadways, grounds or wildlife habitat.
- 2) Hunting in designated areas and at designated times during legal Massachusetts hunting seasons. In addition to the restrictions of the Water Department, ALL applicable laws for hunting on public lands in Massachusetts shall apply.
- 3) Other activities which the Water Commission determines will have no adverse impact to the public water supply and may have beneficial environmental impacts.

The Water Department may waive any restriction or adopt a different or additional or special restriction for individual parcels or groups of parcels within the Water Department property. The Water Department may enter into separate agreements with parties, organizations or individuals involved in long term activities on Water Department property. Such LONG TERM AGREEMENTS shall be reviewed annually and may be modified or revoked as the Water Department may deem necessary for the protection of the public water supply.

Attachment 5



Water Management Act Annual Report - Distribution

All public water suppliers distributing 100,000 gallons per day or more must complete Tables DS-1 through DS-5 and Tables DS-7 and DS-8. Tables DS-6 and DS-9 are optional. Instructions for completing Tables DS-1 through DS-8 are included in the ASR Instructions available at MassDEP's website. If you have any questions concerning completion of the Distribution System Report, please contact Richard Friend with the WMA Program at (617) 654-6522 or email him at richard.friend@state.ma.us

Table DS-1 Summary of Leak Detection Activities During the Reporting Year

1. Total miles of water mains	66	
2. Miles of mains surveyed this year	66	
3. Number of leaks found	5	
4. Number of leaks repaired	5	
5. Estimated volume lost (mg) if a reliable estimate can be made		
6. Date of last leak detection survey of entire system:	11/1/2017	
	(mm/dd/yyyy)	

Table DS-2 Water Conservation - Limits on Withdrawals

1. Did your PWS implement mandatory nonessential outdoor water use restrictions in the reporting year?

☒ Yes ☐ No

2. If yes, why did you institute mandatory restrictions (check all that apply)?

- a. ☒ Required by WMA permit

☐ Calendar trigger in permit

☒ Streamflow trigger in permit

☐ Other trigger in permit If "Other Trigger" then describe:

- b. ☐ Reason other than permit requirement

Describe:

3. Please characterize the type of mandatory restrictions that were in place (Check all that apply)

☐ Total outdoor ban

☐ Hand-held only

☒ Hourly Describe: WATERING BETWEEN 9AM-5PM.

Daily: ☐ Odd/Even ☐ Twice/Week ☐ Once/Week ☐ Other Daily If "Other Daily" then describe:



Massachusetts Department of Environmental Protection
Bureau of Water Resources (BWR) – Drinking Water Program
Public Water Supply Annual Statistical Report
Reporting Year 2017

PWSID#: 3105000
Name: GEORGETOWN WATER
DEPARTMENT
City: GEORGETOWN
PWS Class: COM

4. If you instituted mandatory restrictions, on what dates were restrictions in place?
(you may have had only one period of restriction)

	Start Date	End Date
Period 1	6/16/2017	11/2/2017
	(mm/dd/yyyy)	(mm/dd/yyyy)
Period 2		
	(mm/dd/yyyy)	(mm/dd/yyyy)
Period 3		
	(mm/dd/yyyy)	(mm/dd/yyyy)

5. Indicate if you plan or expect to institute nonessential outdoor water use restrictions in the upcoming summer. If you hold a WMA permit with Seasonal Limits on Nonessential Outdoor Water Use conditions, indicate whether you plan on instituting calendar-based or streamflow trigger-based outdoor water use restrictions. Remember that if you plan on instituting calendar restrictions, they must be in place by May 1. Streamflow-based restrictions must be in place once the trigger specified in your WMA permit has been reached for three consecutive days. Refer to your permit for specific nonessential outdoor water use requirements. Indicate if you plan on instituting restrictions even though you do not hold a WMA permit with outdoor water use restriction or do not hold a permit at all.

<input type="checkbox"/>	Planning to institute calendar-based nonessential outdoor water use restrictions per WMA permit.
<input type="checkbox"/>	Planning to institute streamflow-based nonessential outdoor water use restrictions per WMA permit.
<input type="checkbox"/>	Planning to institute nonessential outdoor water use restrictions for reasons other than WMA permit requirements.
<input checked="" type="checkbox"/>	Do not intend on instituting nonessential outdoor water use restrictions.

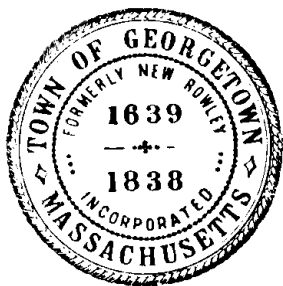
Please Note: Enter volumes in Tables DS-3, DS-4, DS-5 and DS-6 in million gallons per year (mgy).

Example 1: if a volume is 654,120,152 gallons, enter 645.120152 mgy.

Example 2: if a volume is 580,123 gallons, enter 0.580123 mgy.

Example 3: if a volume is 86,000 gallons, enter 0.086 mgy.

Attachment 6



Georgetown Water Department

Town of Georgetown, Massachusetts

One Moulton Street

Georgetown, MA 01833

Tel: (978) 352-5750

Fax: (978) 352-5706

Notice to Customers ***Rate Increase***

Effective Date: JUNE 2018

Effective June 2018, the Georgetown Water Department will increase water consumption rates. We strive to keep rates as low as possible while providing responsible and reliable service to our customers and continuing to provide water system improvement projects aimed at improving overall water quality. The rates are as follows:

Water Usage – Residential Accounts – NEW RATES

First	1,200 cubic feet of water:	\$4.10 / 100 cubic feet
Next	1,200 cubic feet of water:	\$4.80 / 100 cubic feet
Next	2,500 cubic feet of water:	\$6.00 / 100 cubic feet
Next	2,100 cubic feet of water:	\$7.43 / 100 cubic feet
Above	7,000 cubic feet of water:	\$9.20 / 100 cubic feet

Water Usage – Commercial Accounts – NEW RATES

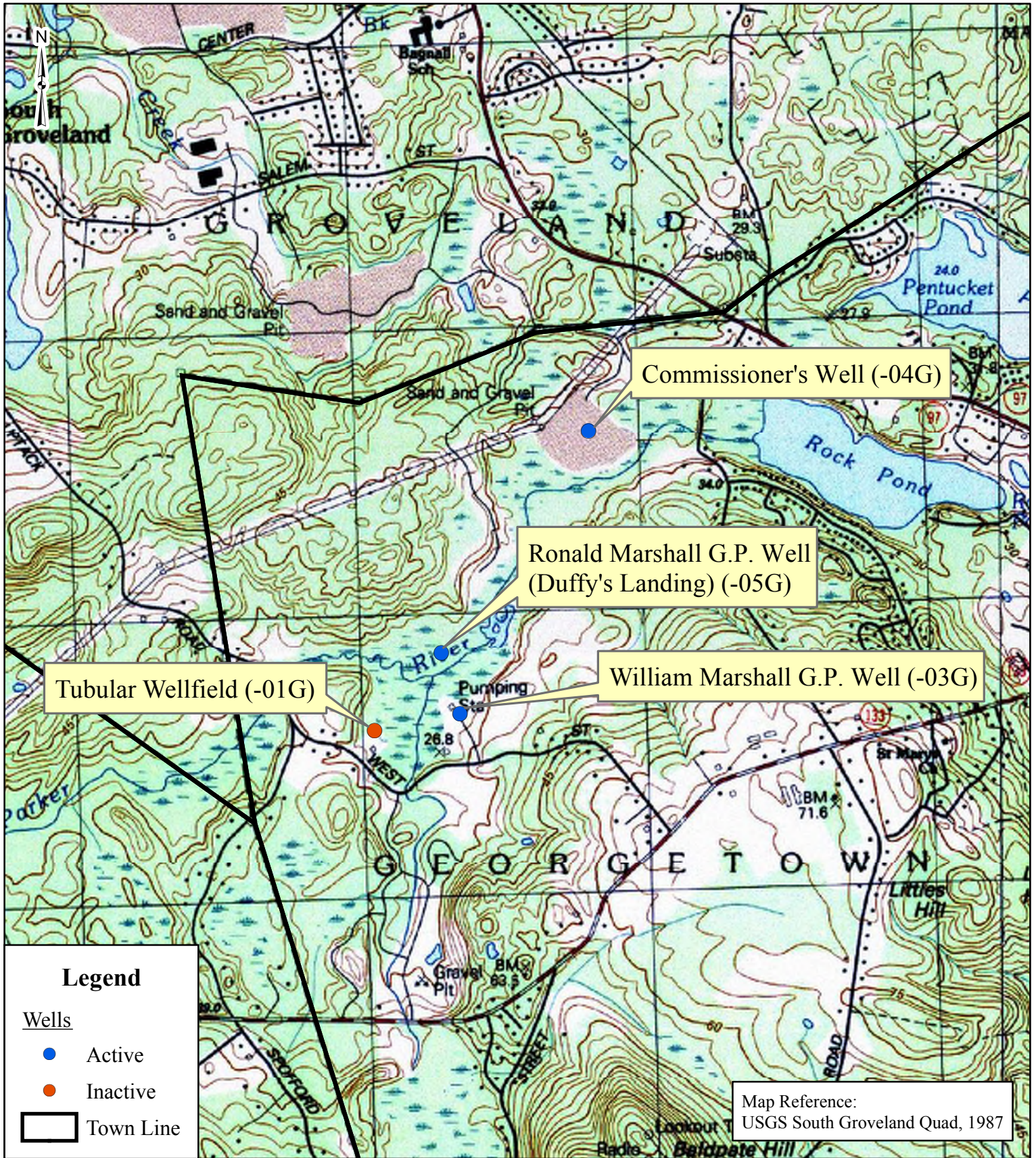
First	1,200 cubic feet of water:	\$4.27 / 100 cubic feet
Next	1,200 cubic feet of water:	\$5.06 / 100 cubic feet
Next	2,500 cubic feet of water:	\$6.44 / 100 cubic feet
Above	4,900 cubic feet of water:	\$7.76 / 100 cubic feet


Water Usage – All Accounts

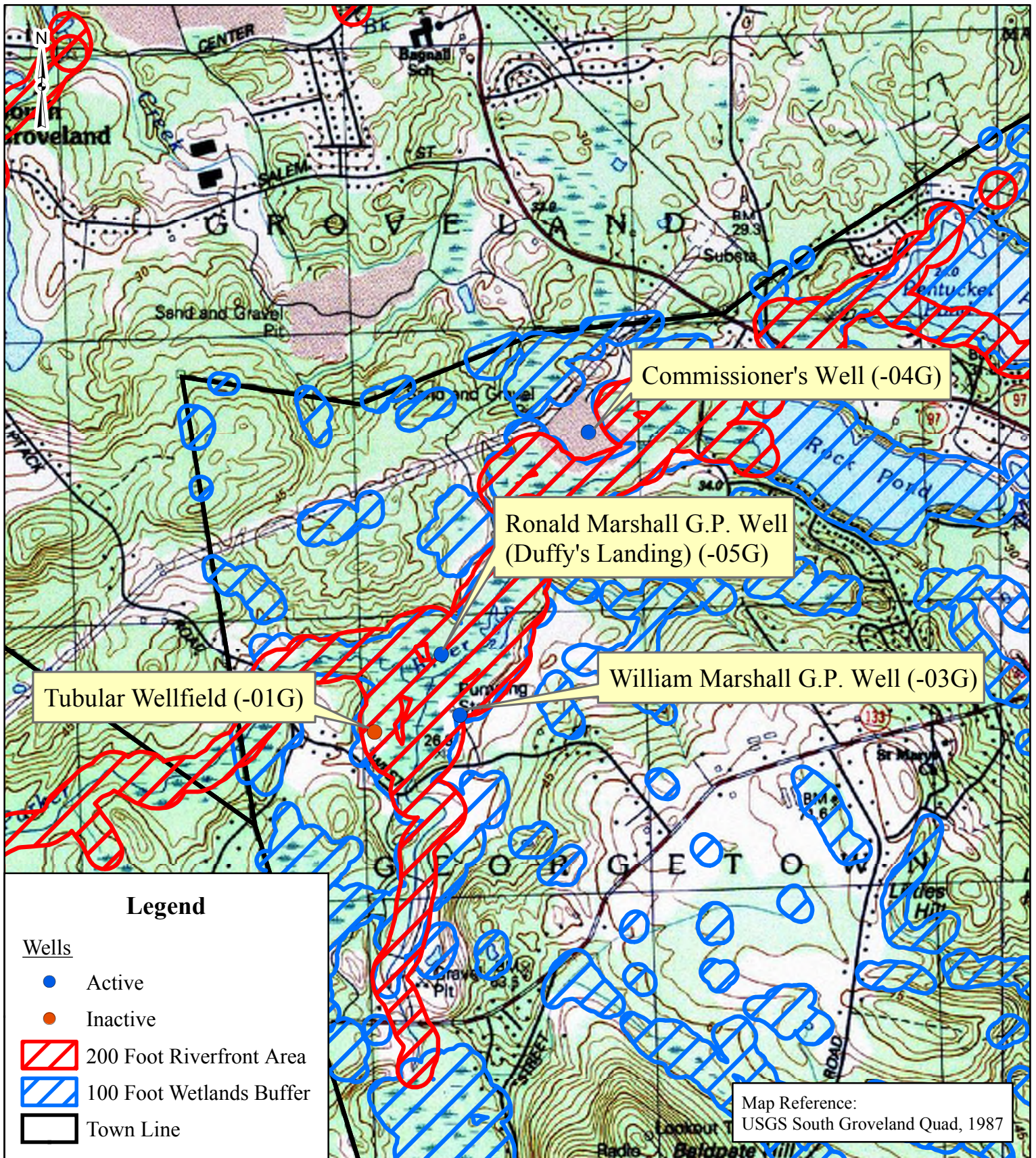
Water Service Charge, Quarterly:	\$40.00
Interest (overdue balance), Monthly	1.50%

Georgetown Water
Board of Commissioners

Appendix A



 <p>Date: January 2019 Approximate Scale: 1" = 1,500'</p>	<p>Locus Map</p> <p>Water Management Act Permit Application</p> <p>Georgetown, MA</p>	<p>Figure No.</p> <p>1</p>
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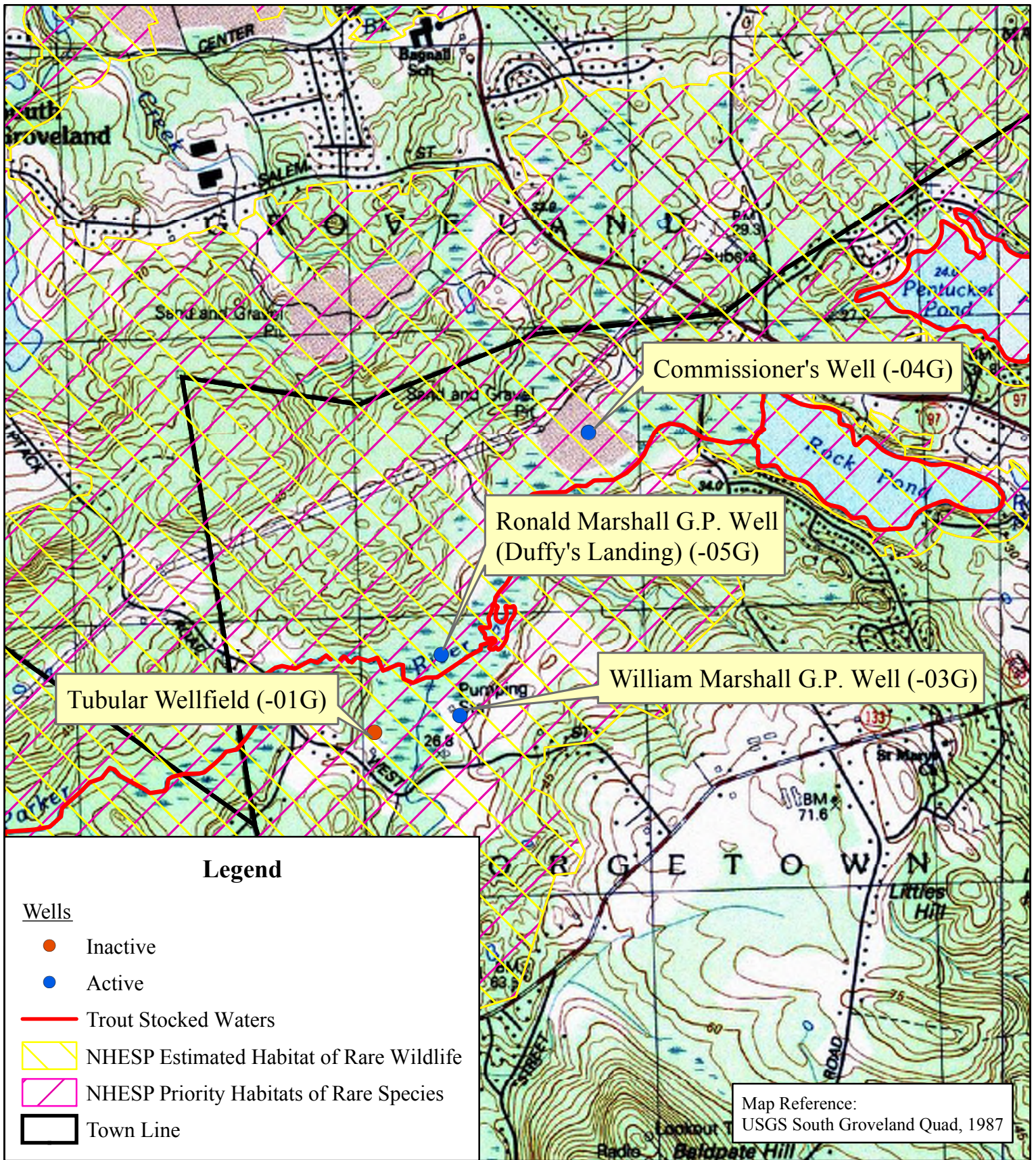
Date: January 2019
Approximate Scale: 1" = 1,500'

Wetlands Buffer Zones and Riverfront Areas
Water Management Act Permit Application

Georgetown, MA

Figure No.

2



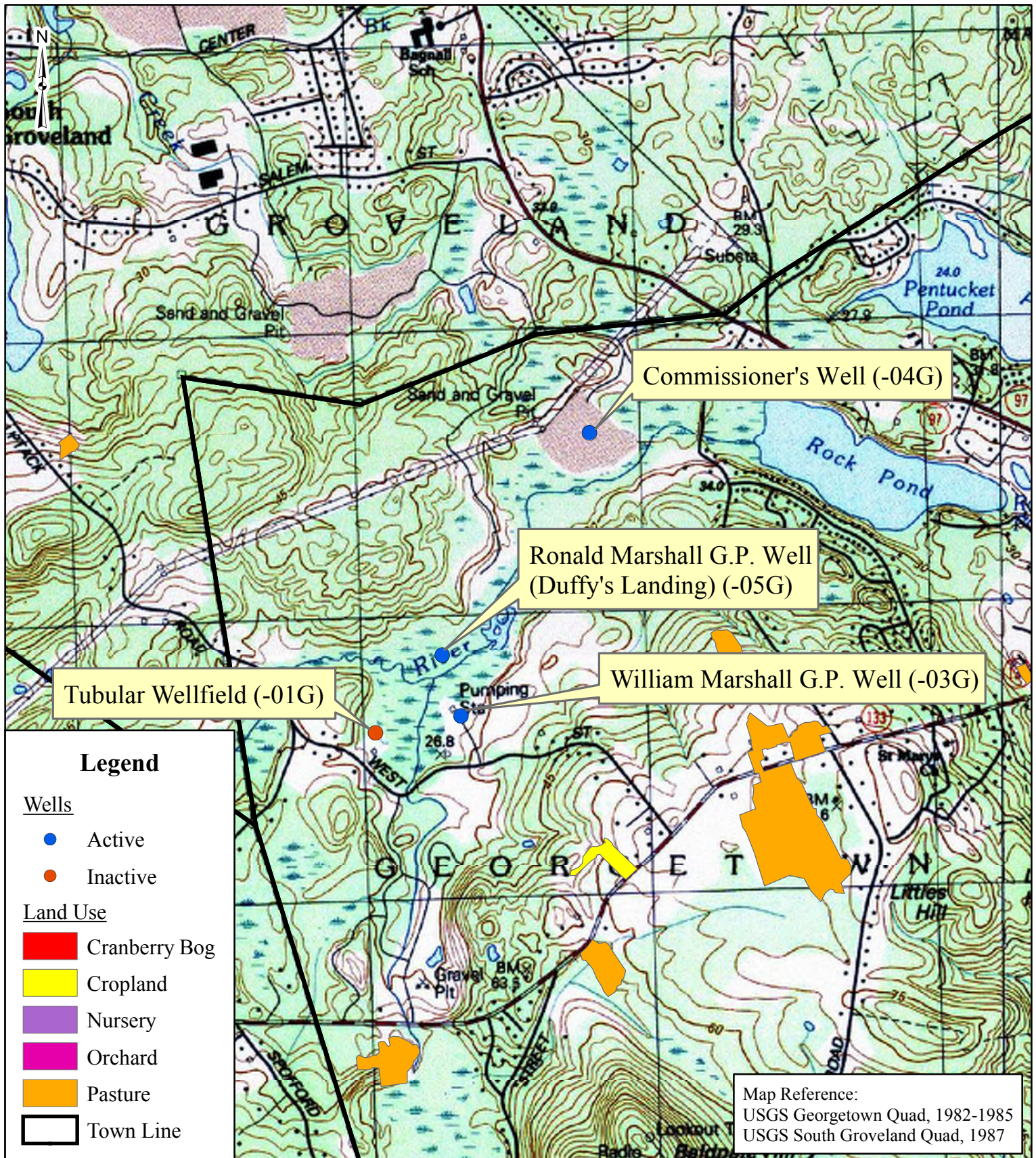
Date: January 2019
Approximate Scale: 1" = 1,500'

Wildlife, Fisheries, and Floral Habitat
Water Management Act Permit Application

Georgetown, MA

Figure No.

3



Date: January 2019
Approximate Scale: 1" = 1,500'

Agriculture

Water Management Act Permit Application

Georgetown, MA

Figure No.

4



Appendix B

PUBLIC NOTICE
MASSDEP – WATER MANAGEMENT ACT PROGRAM
WATER WITHDRAWAL PERMIT APPLICATION

The Georgetown Water Department (GWD) has applied to the Massachusetts Department of Environmental Protection (MassDEP) Water Management Act Program to increase its permitted withdrawal volume by 0.17 million gallons per day (mgd). The GWD is currently registered to withdraw 0.43 mgd and permitted to withdraw an additional 0.32 mgd, for a combined total authorized withdrawal of 0.75 mgd. The requested increase will result in a combined total authorized registered and permitted withdrawal of 0.92 mgd and is consistent with the Department of Conservation and Recreation's demand projections including a five percent buffer of 0.04 mgd. This volume will be withdrawn from the GWD's existing active water supply wells located within the Parker River watershed in Georgetown, Massachusetts, through the year 2035.

A copy of this application is available for review at the office of Mr. Bruce Trumbull, General Manager, Georgetown Water Department, 1 Moulton Street, Georgetown, MA 01833, 9:00 a.m. to 4:00 p.m. Monday through Friday.

Written comments on the granting of a MassDEP permit for this increase in withdrawal are to be filed within thirty (30) days of publication of this Legal Notice. The written comments are to be submitted to Mr. Bruce Trumbull, General Manager, at the above address and to the MassDEP Office of Watershed Management, One Winter Street, Boston, MA 02108, Attn: Water Management.



Appendix C



November 7, 2017

Jim Lavacchia
Georgetown Water Department
1 Moulton Street
Georgetown, MA 01833

Dear Mr. Lavacchia:

The Department of Conservation and Recreation's Office of Water Resources (OWR) has developed draft water needs forecasts (demand projections) for your water supply system, using the water needs forecasting methodology adopted by the Water Resources Commission. These projections are based on information contained in the annual statistical reports (ASR) filed with the Department of Environmental Protection (DEP) for the years 2012 through 2016, population and employment projections prepared by the Merrimack Valley Planning Commission (MVPC) and information concerning water use patterns and service area obtained through conversations with you.

Two sets of projections are provided in this letter. The first assumes that the residential water usage for your water supply system will be 65 gallons per capita per day (rgpcd) and that unaccounted-for water (uaw) will be 10% within five years. The second set of projections assumes that future water consumption will reflect current trends in residential usage and uaw. Working with you, DEP will select the appropriate projection scenarios to use in your Water Management Act (WMA) permit. In addition, the methodology allows for a buffer of 5% to accommodate for uncertainty in growth projections. DEP will use its permitting discretion during its five year review period to determine if the addition of the 5% buffer is warranted for your system.

Please review these projections, bearing in mind that these are drafts. If additional information has arisen since you spoke with OWR staff, or if you have questions about these projections, please contact Michele Drury at 617-626-1366 as soon as possible.

Using these key assumptions:

Base Service Population: 8,512
Base Employment for Town: 2,649
Base water use (2012-2016): 0.69 mgd
Base (2012-2016) rgpcd: 55
Base (2012-2016) uaw: 11%

Source: Calculated from the Annual Statistical Reports submitted to DEP and DEP accepted rgpcd and uaw amounts for 2012 – 2016

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Governor

Karyn E. Polito
Lt. Governor

Matthew A. Beaton, Secretary, Executive
Office of Energy & Environmental Affairs

Leo P. Roy, Commissioner
Department of Conservation & Recreation

	2025	2030	2035
Service Population Projections	9,366	9,648	9,845
Employment Projections	2,637	2,631	2,642

Source: Population projections and employment projections were developed by (MVPC). Service Population Projections are based on the percent of the community served by the Water Supply (100%).

The projections are as follows:

Assuming 65 rgpd and 10% unaccounted-for water:

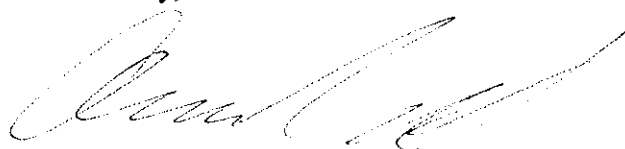
2025	2030	2035
0.84 mgd	0.87 mgd	0.88 mgd
Five Percent Buffer		0.04 mgd

Assuming water use continues at current rgpd (55) and unaccounted-for water levels (11%) during the permitting period:

2025	2030	2035
0.75 mgd	0.77 mgd	0.78 mgd
Five Percent Buffer		0.04 mgd

DEP will be initiating a permit renewal program for the Parker River Basin in November of this year and will contact you concerning a meeting to discuss the WMA permitting process and use of these projections in that permit. Thank you for your cooperation with Water Needs Forecasting process. As stated, if you have any questions concerning these projections, please contact Michele Drury.

Sincerely,



Anne Carroll
Director
Office of Water Resources

cc: Michele Drury, OWR
ecc: Duane LeVangie, DEP
Julia Blatt, Mass Rivers Alliance
(per request)
Carol Harris, (per request)

Elizabeth McCann, DEP
Vandana Rao, EEA

Jennifer Pederson, MAWWA (per request)



Appendix D

Permit Renewal Summary Sheet
Georgetown Water District, 9P-3-16-105.01 67 292-5901
 11/16/2017

Elizabeth.McCann@state.ma.us

Existing Total WMA Authorization (mgd)	0.75
Registration Volume (mgd)	0.43
Permitted Volume (mgd)	0.32

91-850056

Number of Sources	Ground	Surface
	4*	0

* Three wells are registered & four wells are permitted

Reported Use Summary	2012	2013	2014	2015	2016	2012-2016 Average
Actual Withdrawals own sources (mgd)	0.68	0.63	0.70	0.75	0.72	0.70

Performance Standard Summary	Base from DCR Forecast	2016 DEP Accepted	Statewide Standard
Residential gallons per capita/day (RGPCD)	55	56	65
Percent Unaccounted for Water (UAW)	11	12%	10%

Water Needs Forecast Summary

WNF Scenarios for Georgetown's Use.	2025	2030	2035	5% Buffer	2035 + buffer
Based on 65 RGPCD and 10% UAW (mgd)	0.84	0.87	0.88	0.04	0.92
Based on Current Trends (mgd)	0.75	0.77	0.78	0.04	0.82

Permit Data Summary

Permit Requirements Information		Comments
Estimated total allocation (reg + perm)	0.75	Maximum volume available for renewal. WNF will require new permit.
Baseline (BL) in mgd	0.70	2003-2005 average actual withdrawals plus 5%
Projected increase above BL	0.05	Difference between existing allocation and baseline.
Estimated Permit Tier	2	Estimated renewal may be above baseline and no change in GWC and BC
Mitigation Plan Required?	Yes	Existing allocation exceeds baseline
Coldwater Fishery Resource (CFR) Consult?	No	CFRs not identified in this subbasin.
Minimization Required?	Yes	Aug. NGD is above 25% (72.4%).

Subbasin Data Summary	subbasin
	21056
Percent August Net Groundwater Depletion	72.4%
MWI Affected Flow (for use in Source Optimization for Minimization Planning)	0.262
Groundwater Withdrawal Category (GWC)	5
Does increase above BL cause GWC change? (volume to change)	No
Biological Category (BC)	5
Does increase above BL cause BC change? (Volume to change)	No
Permitted Sources	01G, 03G, 04G, 05G
Coldwater Fishery Resource (CFR)?	No

Non-essential Outdoor Water Use Streamflow Trigger Information May 1 through Sept 30	
USGS Gage 01101000 - Parker River at Byfield, MA	
Time Period	Trigger Value
May - June	20
July - Sept	6
7 Day Low Flow	0.5



OFFICE LOCATIONS:
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