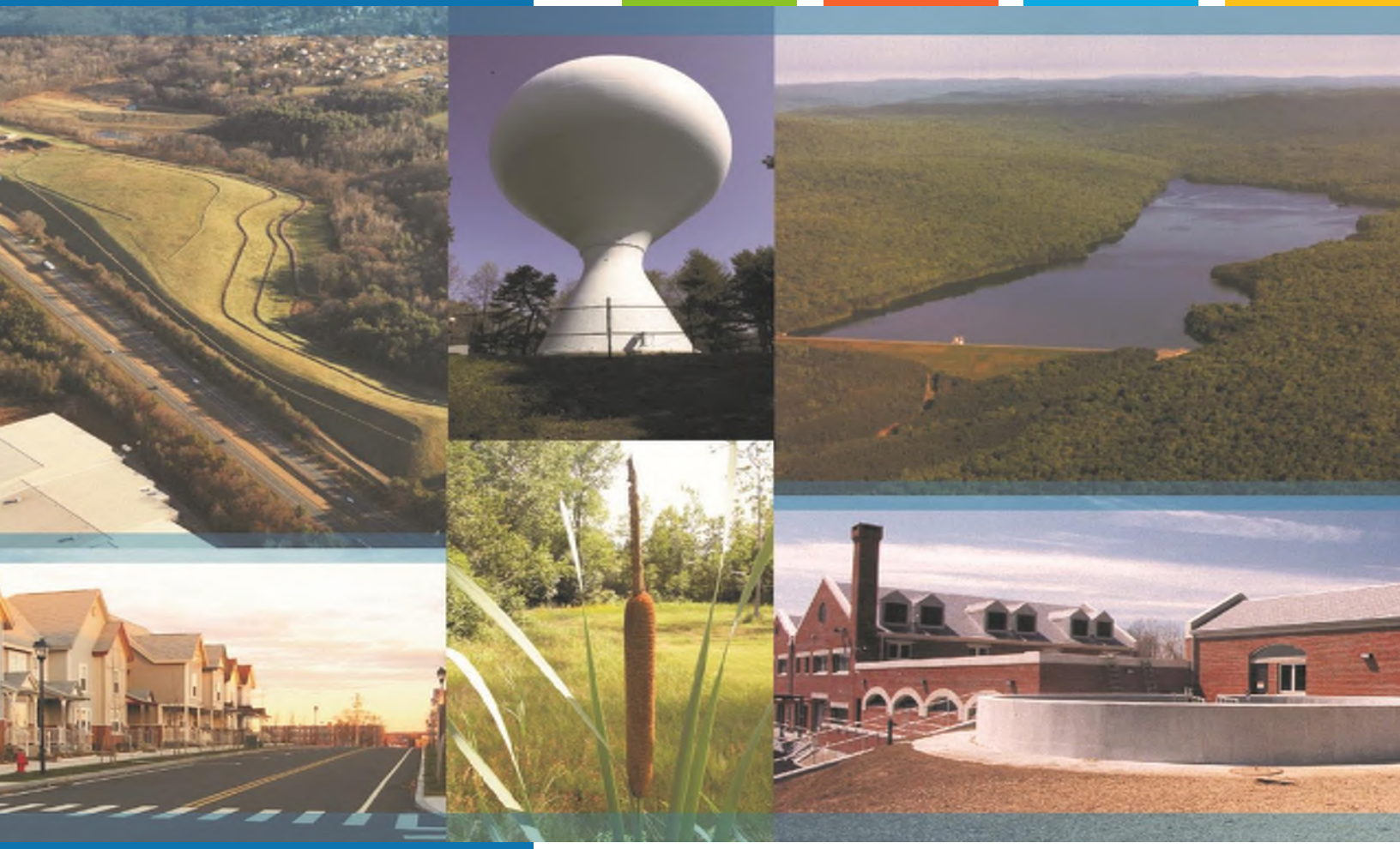

Harbor Trace PFAS Water Treatment Plant
Townsend, MA

ENVIRONMENTAL NOTIFICATION FORM

Prepared For:

Townsend Water Department
240 Main Street
Townsend, Massachusetts

September 2022

Tighe&Bond

100% Recyclable

T-0354-011
September 15, 2022

Attn: MEPA Office
100 Cambridge Street – Suite 900
Boston, MA 02114

Re: **Environmental Notification Form (ENF)**
Harbor Trace PFAS Water Treatment Plant
Townsend, Massachusetts

To Whom It May Concern:

On behalf of the Townsend Water Department (TWD), Tighe & Bond is submitting this Environmental Notification Form (ENF) for proposed water system improvements. The project consists of several independent components: the construction of a new PFAS water treatment facility, a raw water transmission main, and a finish water main extension within the town of Townsend, Massachusetts. The purpose of this project is to address significant deficiencies in the TWD drinking water supply infrastructure.

The project meets the Massachusetts Environmental Policy Act (MEPA) ENF review thresholds set forth at 301 CMR 11.03(4)(b)(4) for the construction of a new drinking water treatment plant with a capacity of 1,000,000 or more gpd, and at 301 CMR 11.03(11)(b) for any project within a designated ACEC, unless the project consists solely of one single family dwelling. Enclosed with this submittal are the Environmental Notification Form, a project description which includes an expanded project narrative and comprehensive alternatives analysis, project figures and preliminary plans, and other required materials.

This ENF is being submitted for publication in the September 23, 2022, edition of the *Environmental Monitor*. Public Notice will be published in *The Lowell Sun*. Should you have any questions or require additional information, please contact me at (207) 702-1993 or via email at MDanielson@TigheBond.com, or contact Louis Soracco at 508-304-6358 or via email at LSoracco@TigheBond.com

Very truly yours,

TIGHE & BOND, INC.

Mary Danielson
Project Engineer

Copy: David Vigeant, TWD

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Tighe&Bond

Environmental Notification Form

Attachments

Commonwealth of Massachusetts

Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Policy Act (MEPA) Office

Environmental Notification Form

For Office Use Only

EEA#: ———————————

MEPA Analyst:,_____

The information requested on this form must be completed in order to submit a document electronically for review under the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name: **Harbor Trace PFAS Water Treatment Plant**		
Street Address: **25 Harbor Trace Road**		
Municipality: **Townsend**	Watershed: **Nashua River**	
Universal Transverse Mercator Coordinates: **281011.80, 4725061.52**	Latitude: **42.646871151272435** Longitude: **-71.67136801039146**	
Estimated commencement date: **2023**	Estimated completion date: **2025**	
Project Type: **Water Supply**	Status of project design: **5 %complete**	
Proponent: **Townsend Water Department**		
Street Address: **540 Main Street**		
Municipality: **Townsend**	State: **MA**	Zip Code: **01474**
Name of Contact Person: **Mary Danielson**		
Firm/Agency: **Tighe & Bond**	Street Address: **120 Front Street, Suite 700**	
Municipality: **Worcester**	State: **MA**	Zip Code: **01608**
Phone: **(207) 702-1993**	Fax:	E-mail: **mdanielson@tighebond.com**

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☐Yes ☒No

If this is an Expanded Environmental Notification Form (ENF) (see 301 CMR 11.05(7)) or a Notice of Project Change (NPC), are you requesting:

a Single EIR? (see 301 CMR 11.06(8))	☐Yes ☒No
a Rollover EIR? (see 301 CMR 11.06(13))	☐Yes ☒No
a Special Review Procedure? (see 301CMR 11.09)	☐Yes ☒No
a Waiver of mandatory EIR? (see 301 CMR 11.11)	☐Yes ☒No
a Phase I Waiver? (see 301 CMR 11.11)	☐Yes ☒No

(Note: Greenhouse Gas Emissions analysis must be included in the Expanded ENF.)

Which MEPA review threshold(s) does the project meet or exceed (see 301 CMR 11.03)?

301 CMR 11.03(4)(b)4. – Construction of a New drinking water treatment plant with a Capacity of 1,000,000 or more gpd.

301 CMR 11.03(11)(b) – Any Project within a designated ACEC, unless the Project consists solely of one single family dwelling.

Which State Agency Permits will the project require?

This project requires the following State Agency Permits:

- **MassDEP Technical Review and Permitting for the WTP Process as follows:**
  - **Approval to Conduct Pilot Study (BRPWS 21D)**
  - **Pilot Study Report (BRPWS 22D)**
  - **Approval to Construct Treatment Plant (BRPWS 24)**
  - **Distribution System Modifications – Water Main Installation (BRPWS 32)**
  - **Water Supply Facility Checklist for Potassium Hydroxide (KOH)**
  - **Water Supply Facility Checklist for Chlorine (NaOCl)**
- **US EPA Clean Water Act – NPDES General Permit for Stormwater Discharge from Construction Activities**
- **MassDCR – Construction and Access Permit**
- **NHESP – Massachusetts Endangered Species Act Project Review Checklist**
- **Townsend Conservation Commission – Wetlands Protection Act Order of Conditions (MassDEP Superseding Order of Conditions only upon appeal of local permit)**

Identify any financial assistance or land transfer from an Agency of the Commonwealth, including the Agency name and the amount of funding or land area in acres:

Funding through the State Revolving Fund (SRF) of $14,900,000 is anticipated to be acquired for the proposed project.

Summary of Project Size & Environmental Impacts	**Existing**	**Change**	**Total**
LAND			
Total site acreage	**33.96**		
New acres of land altered		**0.69**	
Acres of impervious area	**0.89**	**0.58**	**1.47**
Square feet of new bordering vegetated wetlands alteration		**0**	
Square feet of new other wetland alteration		**0**	
Acres of new non-water dependent use of tidelands or waterways		**0**	
STRUCTURES			
Gross square footage	**950**	**10,000**	**10,950**
Number of housing units	**0**	**0**	**0**
Maximum height (feet)	**15**	**35**	**35**
TRANSPORTATION			
Vehicle trips per day	**2**	**12**	**14**
Parking spaces	**0**	**6**	**6**
WASTEWATER			
Water Use (Gallons per day)			
Water withdrawal (GPD)		**0**	
Wastewater generation/treatment (GPD)	**0**	**400**	**400**

Length of water mains (miles)		**2.9**	
Length of sewer mains (miles)			
Has this project been filed with MEPA before? ☐ Yes (EEA #_____) ☒No			
Has any project on this site been filed with MEPA before? ☐ Yes (EEA #_____) ☒No			

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

The Townsend Water Department's (Town) water supply includes the Main Street Well Field, Harbor Trace Well, Witch Brook Wells 1 and 2, and the Cross Street Well. On March 10, 2021 a PFAS sample was collected at the Harbor Trace Pump Station. The results indicated a detected concentration of 46 ppt for the sum of the concentration of six specified PFAS. The detected concentration exceeded the MCL of 20 ppt (quarterly average) and a confirmation sample was collected from the Harbor Trace Pump Station on April 13, 2021. The concentration of PFAS detected in the April 2021 sample was 68.6 ppt. A third PFAS sample was collected in May 2021 and the results indicated a detection of 96 ppt. The Harbor Trace Pump Station is the largest source of drinking water for the distribution system. In order to decrease the PFAS concentration throughout the distribution system, a PFAS treatment system is proposed at the Harbor Trace Pump Station to treat the combined raw water from the Harbor Trace Well and the Witch Brook Wells. Raw water from the Witch Brook Wells will be directed to Harbor Trace for treatment via a new 4,400 linear foot (LF) raw water transmission main. This project also includes an 11,000 LF water main extension from South Row Road to Emery Road to loop the distribution system.

Describe the existing conditions and land uses on the project site:

The site involved in this project includes two parcels at 25 Harbor Trace Road. These parcels have the following IDs: 33 79 18 and 33 79 0. Parcels 33 79 18 and 33 79 0 are 28.66 and 5.30 acres, respectively. This land is owned by the Town and is mainly forested, with several wetlands. These parcels contain the existing Harbor Trace Pump Station and paved access road and lie southeast of a residential cul-de-sac. The area surrounding the parcels is mainly suburban residential, with developed open space, forested areas, and wetlands. The Squannacook River is located northeast of the pumping station. The parcels are also within *Estimated Habitats of Rare Wildlife* and *Priority Habitats of Rare Species*. The proposed water mains are within several roadways including Harbor Trace Road, South Road, South Harbor Road, Ash Street, South Row Road, and Emery Road. These roadways are surrounded by residential neighborhoods, forested area, including the Squannacook Brook State Forest, and several wetland resource areas. A portion of the roadway on Ash Street and South Harbor Road, are within *Estimated Habitats of Rare Wildlife* and *Priority Habitats of Rare Species*. The entire project area is also within the Squannassit ACEC. All wetland resource areas and rare species habitat are described in Section 2 of the attached narrative. Figures 2 and 3 in Attachment B depict priority resources and an overview of the existing conditions on the project site.

Describe the proposed project and its programmatic and physical elements:

This project includes the construction of a water treatment plant (10,000 square feet) that will provide PFAS treatment for raw water from both the Harbor Trace Well and the Witch Brook Wells. The WTP will have a capacity of approximately 1.7 MGD. There is no proposed increase in water withdrawal. The new building will be designed to include a PFAS filtration system capable of treating the combined flow from the Harbor Trace and Witch Brook wells. New chemical feed systems will be installed at the Harbor Trace WTP and will also be used to treat water from Witch Brook. Raw water from Witch Brook will be directed to Harbor Trace (Ash Street to South Harbor Road to Harbor Trace Road) for treatment via a new raw water transmission main (4,400 LF). An 11,000 LF water main extension from South Row Road to Emery Road will also be installed to loop the distribution system, which will minimize dead ends and improve water age and quality and provide a second connection to the distribution system for resiliency. Currently, there is a single pipe that, if failed, would cause a loss in over half the system's sources of supply.

To avoid impacts to the surrounding natural resources and rare species habitat, construction mitigation measures will be implemented. The mitigation measures will include traffic management, noise control, stormwater runoff and sediment migration control, dust control to protect air quality, protection of public shade trees, and the appropriate management of excavated soils.

Construction of the entire project is anticipated to be completed within 2 years. Due to the type of

proposed infrastructure, it is anticipated that the proposed facility will be operated and maintained using existing staff.

Construction activities adjacent to the jurisdictional wetland resource areas, buffer zones, and rare species habitat will only be a minor part of the overall construction activities. As a municipal infrastructure improvement, the WTP is necessary to support the Town, its residents and businesses. Please refer to the project narrative for more detail regarding work near wetlands and rare species habitat.

Describe the on-site project alternatives (and alternative off-site locations, if applicable), considered by the proponent, including at least one feasible alternative that is allowed under current zoning, and the reasons(s) that they were not selected as the preferred alternative:

There are 4 alternatives considered for this project.

No Build Alternative – The No Build Alternative would involve no action to reduce PFAS concentrations at Witch Brook or Harbor Trace Pumping Stations. This would not allow the Town to provide safe drinking water. As such, this is not a feasible alternative.

Alternative 1 – Alternative 1 involves constructing two PFAS WTPs: one at Witch Brook and one at Harbor Trace. This option would ensure that water from both well sites would be treated for PFAS contamination. This would require construction of two separate WTPs. This alternative would have the most environmental impact and would also be the highest capital, operation and maintenance option. The total land disturbance of this alternative would be approximately 60,000 SF.

Alternative 2 – Alternative 2 involves constructing a centralized WTP at the Witch Brook Well Site. The Harbor Trace Well would be connected by a 4,400 LF transmission main to the Witch Brook Well Site. This alternative would involve construction within the Zone 1 of Witch Brook Well. This alternative also includes the construction of an 11,000 LF looping water main. The total land disturbance of this alternative would be approximately 30,000 SF.

Alternative 3 – Alternative 3 (or the "Preferred Alternative"), involves a centralized WTP at the Harbor Trace Well Site. Like Alternative 2, the Witch Brook Wells would be connected by a 4,400 LF transmission main to the Harbor Trace Well Site. This alternative also includes the construction of an 11,000 LF looping water main. The total land disturbance of this alternative would be approximately 30,000 SF.

The Preferred Alternative was selected as it has the least environmental impacts of the options assessed, as it has a similar total land disturbance to Alternative 2 but the WTP is situated out of Zone I. It also reduces the capital investment, operation, and maintenance costs, meets the growing water demands of the Town, and is in a more favorable location. The proposed water mains will be installed in existing paved roadways.

Summarize the mitigation measures proposed to offset the impacts of the preferred alternative:

The proposed location for the WTP was chosen because it is outside of the existing Harbor Trace Well's Zone I and is already an existing well/treatment site. Trees will only be cleared for the building location and associated pavement; the remaining trees will remain in place to provide natural vegetation to mitigate stormwater runoff. During construction, stormwater runoff will be managed using silt fence and straw wattles. After excavation, the disturbed land that is not comprised of building or pavement will be restored to previous conditions and stabilized with loam and seed.

The proposed WTP and stormwater management practices will be designed to comply with MA Stormwater Management Standards. Stormwater will be managed on-site. Most of the stormwater that is generated by the proposed project will be managed by a detention/infiltration basin. Due to the presence of well-draining soils, flows are rapidly infiltrated to recharge the aquifer. Therefore, the Preferred Alternative will not result in any adverse impact associated with stormwater discharges.

All construction-period Best Management Practices (BMPs) will be followed during the installation of

the proposed water mains to mitigate stormwater runoff including but not limited to silt fencing, straw wattles and bales, and silt sack inserts in areas of disturbance.

Due to the presence of Blanding's turtle (*Emydoidea blandingii*) habitat in the area of the proposed WTP all necessary precautions will be taken to avoid adverse effects to any individuals. This will include an approved Turtle Protection Plan that incorporates turtle barriers, daily site walks, and an assigned turtle biologist.

If the project is proposed to be constructed in phases, please describe each phase:
N/A

AREAS OF CRITICAL ENVIRONMENTAL CONCERN:
Is the project within or adjacent to an Area of Critical Environmental Concern?
☒Yes (Specify: **Squannassit**)
☐No

if yes, does the ACEC have an approved Resource Management Plan? ___ Yes _X__ No;
If yes, describe how the project complies with this plan.

Will there be stormwater runoff or discharge to the designated ACEC? _X_ Yes ___ No;
If yes, describe and assess the potential impacts of such stormwater runoff/discharge to the designated ACEC.

Stormwater runoff or discharge to the Squannassit ACEC could aversely impact significant sources of drinking water, and degrade important wildlife habitat, including vernal pools, and cold-water fisheries. To avoid these negative impacts, all Massachusetts Stormwater Management Standards will be followed during the course of the project. This will include, but is not limited to, treatment, infiltration, and storage of at least the first inch of stormwater runoff using detention basins equipped with sediment forebays, and deep sump catch basins. Construction-period erosion and sedimentation control measures will also be implemented, including the use of silt fencing, straw wattles and bales, and silt sack inserts.

RARE SPECIES:
Does the project site include Estimated and/or Priority Habitat of State-Listed Rare Species? (see http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/priority_habitat/priority_habitat_home.htm)
☒Yes (Specify **PH2035 and EH1300**) ☐No

The Blanding's turtle is a threatened turtle that inhabits both wetland and terrestrial habitats in Massachusetts including seasonal pools, marshes. scrub-shrub wetlands, and open uplands. The subject parcels on Harbor Trace Road are entirely within Blanding's turtle habitat. A portion of the proposed water mains within existing paved roadways are within Blanding's turtle habitat as well.

HISTORICAL /ARCHAEOLOGICAL RESOURCES:
Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?
☐Yes (Specify_____) ☒No
If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources? ☐Yes (Specify_____) ☐No

WATER RESOURCES:
Is there an Outstanding Resource Water (ORW) on or within a half-mile radius of the project site? _X_Yes ___No;
if yes, identify the ORW and its location. **Squannacook River, Harbor Pond, Trout Brook**

The Squannacook River, Harbor Pond, and Trout Brook are designated as ORWs within the Squannassit ACEC.

(NOTE: Outstanding Resource Waters include Class A public water supplies, their tributaries, and bordering wetlands; active and inactive reservoirs approved by MassDEP; certain waters within Areas of Critical Environmental Concern, and certified vernal pools. Outstanding resource waters are listed in the Surface Water Quality Standards, 314 CMR 4.00.)

Are there any impaired water bodies on or within a half-mile radius of the project site? _X_Yes ___No; if yes, identify the water body and pollutant(s) causing the impairment:_**Squannacook River: lack of a coldwater assemblage, low pH, temperature**_____.

Is the project within a medium or high stress basin, as established by the Massachusetts Water Resources Commission? ___Yes _X_No

STORMWATER MANAGEMENT:

Generally describe the project's stormwater impacts and measures that the project will take to comply with the standards found in MassDEP's Stormwater Management Regulations:

During final design, appropriate measures will be taken to meet existing stormwater regulations. Anticipated BMPs include a sediment forebay, a detention basin, and deep sump catch basins.

MASSACHUSETTS CONTINGENCY PLAN:
Has the project site been, or is it currently being, regulated under M.G.L.c.21E or the Massachusetts Contingency Plan? Yes __ No _X_ ; if yes, please describe the current status of the site (including Release Tracking Number (RTN), cleanup phase, and Response Action Outcome classification):_____

Is there an Activity and Use Limitation (AUL) on any portion of the project site? Yes ___ No _X_; if yes, describe which portion of the site and how the project will be consistent with the AUL: _____.

Are you aware of any Reportable Conditions at the property that have not yet been assigned an RTN? Yes ___ No _X_ ; if yes, please describe:_____

SOLID AND HAZARDOUS WASTE:

If the project will generate solid waste during demolition or construction, describe alternatives considered for re-use, recycling, and disposal of, e.g., asphalt, brick, concrete, gypsum, metal, wood:

Any solid waste that is produced during construction will be handled appropriately and disposed of properly depending on the exact contents (e.g., presence of hazardous building materials).

(NOTE: Asphalt pavement, brick, concrete and metal are banned from disposal at Massachusetts landfills and waste combustion facilities and wood is banned from disposal at Massachusetts landfills. See 310 CMR 19.017 for the complete list of banned materials.)

Will your project disturb asbestos containing materials? Yes ___ No _X_ ; if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

Describe anti-idling and other measures to limit emissions from construction equipment:

During construction, Townsend Water Department will require all contractors to comply with MassDEP's Diesel Retrofit Program and vehicle idling will be limited to the extent practicable. Construction-period BMPs will also include control of dust, appropriate maintenance and operation of vehicles and equipment, including limiting idling of vehicles or equipment when not in use, and the staging of vehicles, equipment, and materials in locations removed from the public and away from air intakes or windows to buildings and residences to minimize the effects of emissions on local air quality.

DESIGNATED WILD AND SCENIC RIVER:

Is this project site located wholly or partially within a defined river corridor of a federally designated Wild and Scenic River or a state designated Scenic River? Yes ___ No _X_ ;
if yes, specify name of river and designation:

If yes, does the project have the potential to impact any of the "outstandingly remarkable" resources of a federally Wild and Scenic River or the stated purpose of a state designated Scenic River? Yes ___ No ___ ; if yes, specify name of river and designation: _____;
if yes, will the project will result in any impacts to any of the designated "outstandingly remarkable" resources of the Wild and Scenic River or the stated purposes of a Scenic River.
Yes ___ No ___ ;
if yes,describe the potential impacts to one or more of the "outstandingly remarkable" resources or stated purposes and mitigation measures proposed.

ATTACHMENTS:

1. List of all attachments to this document.
2. U.S.G.S. map (good quality color copy, 8-½ x 11 inches or larger, at a scale of 1:24,000) indicating the project location and boundaries.
3.. Plan, at an appropriate scale, of existing conditions on the project site and its immediate environs, showing all known structures, roadways and parking lots, railroad rights-of-way, wetlands and water bodies, wooded areas, farmland, steep slopes, public open spaces, and major utilities.
4 Plan, at an appropriate scale, depicting environmental constraints on or adjacent to the project site such as Priority and/or Estimated Habitat of state-listed rare species, Areas of Critical Environmental Concern, Chapter 91 jurisdictional areas, Article 97 lands, wetland resource area delineations, water supply protection areas, and historic resources and/or districts.
5. Plan, at an appropriate scale, of proposed conditions upon completion of project (if construction of the project is proposed to be phased, there should be a site plan showing conditions upon the completion of each phase).
6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).
7. List of municipal and federal permits and reviews required by the project, as applicable.
8. Printout of output report from RMAT Climate Resilience Design Standards Tool, available here.
9. Printout from the EEA EJ Maps Viewer showing the project location relative to Environmental Justice (EJ) Populations located in whole or in part within a 1-mile and 5-mile radius of the project site.

LAND SECTION – all proponents must fill out this section

I. Thresholds / Permits

A. Does the project meet or exceed any review thresholds related to **land** (see 301 CMR 11.03(1)
___Yes _X_ No; if yes, specify each threshold:

II. Impacts and Permits

A. Describe, in acres, the current and proposed character of the project site, as follows:

	Existing	Change	Total
Footprint of buildings	0.02	0.22	0.24
Internal roadways	0.56	0.29	0.85
Parking and other paved areas	0	0.07	0.07
Other altered areas	0.31	0.09	0.40
Undeveloped areas	33.07	-0.67	32.40
Total: Project Site Acreage	33.96	0	33.96

B. Has any part of the project site been in active agricultural use in the last five years?
___ Yes _X_ No; if yes, how many acres of land in agricultural use (with prime state or locally important agricultural soils) will be converted to nonagricultural use?

C. Is any part of the project site currently or proposed to be in active forestry use?
___ Yes _X_ No; if yes, please describe current and proposed forestry activities and indicate whether any part of the site is the subject of a forest management plan approved by the Department of Conservation and Recreation:

D. Does any part of the project involve conversion of land held for natural resources purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to any purpose not in accordance with Article 97? ___ Yes _X_ No; if yes, describe:

E. Is any part of the project site currently subject to a conservation restriction, preservation restriction, agricultural preservation restriction or watershed preservation restriction? ___ Yes_X_ No; if yes, does the project involve the release or modification of such restriction? ___ Yes ___ No; if yes, describe:

F. Does the project require approval of a new urban redevelopment project or a fundamental change in an existing urban redevelopment project under M.G.L.c.121A? ___ Yes _X_ No; if yes, describe:

G. Does the project require approval of a new urban renewal plan or a major modification of an existing urban renewal plan under M.G.L.c.121B? Yes ___ No _X_; if yes, describe:

III. Consistency

A. Identify the current municipal comprehensive land use plan
Title:__Townsend Master Plan Update_____ Date_June 2001_____

B. Describe the project's consistency with that plan with regard to:
1) economic development

Townsend's Master Plan economic development goals are to create a strong economic tax base that benefits both citizens and businesses and to create a business-friendly environment. The Town aims to promote business development that is consistent with protecting water supply and preserving town character. This project will ensure that the Town will be able to meet water demands, thus, providing the Town's businesses, residents, and visitors with a reliable source of treated water to ensure continued residential and commercial growth.

2) adequacy of infrastructure

One of Townsend's land use goals is to protect water supply and infrastructure through careful and comprehensive land use planning. Constructing a PFAS WTP will improve the ability of the Town's wells to meet water supply demands. Thus, ensuring that the Town will be able to provide reliable, clean drinking water to residents and businesses.

3) open space impacts

Townsend's primary open space goal is to establish water protection. A PFAS WTP will reduce the concentration of PFAS pollutants in the Town's drinking water. The project also has minimal impacts on open space. Only a small portion of the parcels associated with this project will be built upon, and measures to mitigate environmental impacts will be taken. A stormwater management plan will be developed using Best Management Practices (BMPs) to control runoff and the WTP construction will include proper erosion control measures.

4) compatibility with adjacent land uses

The WTP will be constructed on a parcel adjacent to the parcel that contains the Harbor Trace Well. The surrounding residential area will benefit from the treated water. The WTP is consistent with the protection and treatment of water from the existing wells and compatible with the adjacent land uses.

C. Identify the current Regional Policy Plan of the applicable Regional Planning Agency (RPA)
RPA: _Montachusett Regional Planning Commission_____

Title:__Montachusett Regional Strategic Framework Plan_ Date_April 2011_____

D. Describe the project's consistency with that plan with regard to:
1) economic development

The Montachusett Regional Strategic Framework Plan's goal to strengthen the economy of the region includes promoting development that uses infrastructure efficiently and minimizes adverse impacts and promoting economic activity that attracts income and employment opportunities. The construction of a PFAS WTP will ensure that the Town has adequate infrastructure to provide clean, reliable drinking water to residents and businesses.

2) adequacy of infrastructure

The Montachusett Regional Strategic Framework Plan includes a goal of providing adequate capital facilities and infrastructure that meet community and regional needs. The proposed WTP will provide the necessary infrastructure to provide reliable, clean drinking water.

3) open space impacts

One of the goals regarding open space is to protect the region's natural resources and character. The project will protect the environment by treating water to ensure that the communities served have a safe and reliable drinking water source. The WTP will be built in a location outside of the Harbor Trace well's Zone I radius. Measures to mitigate the environmental impacts of construction will be taken to protect the area.

RARE SPECIES SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **rare species or habitat** (see 301 CMR 11.03(2))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

(NOTE: If you are uncertain, it is recommended that you consult with the Natural Heritage and Endangered Species Program (NHESP) prior to submitting the ENF.)

B. Does the project require any state permits related to **rare species or habitat**? _X_ Yes ___ No

C. Does the project site fall within mapped rare species habitat (Priority or Estimated Habitat?) in the current Massachusetts Natural Heritage Atlas (attach relevant page)? _X_ Yes ___ No.

D. If you answered "No" to all questions A, B and C, proceed to the **Wetlands, Waterways, and Tidelands Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Rare Species section below.

II. Impacts and Permits

A. Does the project site fall within Priority or Estimated Habitat in the current Massachusetts Natural Heritage Atlas (attach relevant page)? _X_ Yes ___ No. If yes,

1. Have you consulted with the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP)? _X_ Yes ___No; if yes, have you received a determination as to whether the project will result in the "take" of a rare species? ___ Yes _X_ No; if yes, attach the letter of determination to this submission.

NHESP File No. 09-27125 was assigned to the WTP site request for rare species information dated on May 17, 2022. NHESP identified the Harbor Trace Well Site and proposed WTP parcel, as well as adjacent areas, as habitat for Blanding's turtle (Emydoidea blangingii)

A MESA Project Review Checklist will be submitted to NHESP for review relative to the proposed water main design and WTP site. Water main replacement activities within ten feet of the edge of paved driveways and roadways, including within roadings, are exempt from MESA per 321 CMR 10.14(10).

2. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes _X_ No; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

The project will implement a Turtle Protection Plan for construction period activities. Turtle barriers, daily site walks, and an assigned turtle biologist will be implemented during construction.

3. Which rare species are known to occur within the Priority or Estimated Habitat?

Blanding's Turtle *(Emydoidea blandingii)*

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ___ Yes _X_ No

5. If your project is within Estimated Habitat, have you filed a Notice of Intent or received an Order of Conditions for this project? ___Yes _X_ No; if yes, did you send a copy of the Notice of Intent to the Natural Heritage and Endangered Species Program, in accordance with the Wetlands Protection Act regulations? ___Yes ___No

B. Will the project "take" an endangered, threatened, and/or species of special concern in accordance with M.G.L. c.131A (see also 321 CMR 10.04)? ___ Yes _X_ No; if yes,

provide a summary of proposed measures to minimize and mitigate impacts to significant habitat:

WETLANDS, WATERWAYS, AND TIDELANDS SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wetlands, waterways, and tidelands** (see 301 CMR 11.03(3))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits (or a local Order of Conditions) related to **wetlands, waterways, or tidelands**? _X_ Yes ___ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Water Supply Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wetlands, Waterways, and Tidelands Section below.

II. Wetlands Impacts and Permits

A. Does the project require a new or amended Order of Conditions under the Wetlands Protection Act (M.G.L. c.131A)? _X_ Yes ___ No; if yes, has a Notice of Intent been filed? ___ Yes _X_ No; if yes, list the date and MassDEP file number: _____; if yes, has a local Order of Conditions been issued? ___ Yes ___ No; Was the Order of Conditions appealed? ___ Yes ___ No. Will the project require a Variance from the Wetlands regulations? ___ Yes ___ No.

B. Describe any proposed permanent or temporary impacts to wetland resource areas located on the project site:

C. Estimate the extent and type of impact that the project will have on wetland resources, and indicate whether the impacts are temporary or permanent:

Coastal Wetlands	Area (square feet) or Length (linear feet)	Temporary or Permanent Impact?
Land Under the Ocean	**0**	**N/A**
Designated Port Areas	**0**	**N/A**
Coastal Beaches	**0**	**N/A**
Coastal Dunes	**0**	**N/A**
Barrier Beaches	**0**	**N/A**
Coastal Banks	**0**	**N/A**
Rocky Intertidal Shores	**0**	**N/A**
Salt Marshes	**0**	**N/A**
Land Under Salt Ponds	**0**	**N/A**
Land Containing Shellfish	**0**	**N/A**
Fish Runs	**0**	**N/A**
Land Subject to Coastal Storm Flowage	**0**	**N/A**
Inland Wetlands		
Bank (lf)	**0**	**N/A**
Bordering Vegetated Wetlands	**0**	**N/A**
Isolated Vegetated Wetlands	**0**	**N/A**
Land under Water	**0**	**N/A**
Isolated Land Subject to Flooding	**0**	**N/A**
Bordering Land Subject to Flooding	**365**	**T**
Riverfront Area	**1,110**	**T**

D. Is any part of the project:

1. proposed as a **limited project**? ___ Yes _X_ No; if yes, what is the area (in sf)?____
2. the construction or alteration of a **dam**? ___ Yes _X_ No; if yes, describe:
3. fill or structure in a **velocity zone** or **regulatory floodway**? ___ Yes _X_ No

4. dredging or disposal of dredged material? ___ Yes _X_ No; if yes, describe the volume of dredged material and the proposed disposal site:
5. a discharge to an **Outstanding Resource Water (ORW)** or an **Area of Critical Environmental Concern (ACEC)**? _X_ Yes ___ No
6. subject to a wetlands restriction order? ___ Yes _X_ No; if yes, identify the area (in sf):
7. located in buffer zones? _X_Yes ___No; if yes, how much (in sf) __3,445 sf (BVW), 415 sf (inland Bank), 730 sf (BLSF – local)____

E. Will the project:
1. be subject to a local wetlands ordinance or bylaw? _X_ Yes ___ No
2. alter any federally-protected wetlands not regulated under state law? ___ Yes _X_ No; if yes, what is the area (sf)?

III. Waterways and Tidelands Impacts and Permits

A. Does the project site contain waterways or tidelands (including filled former tidelands) that are subject to the Waterways Act, M.G.L.c.91? ___ Yes _X_ No; if yes, is there a current Chapter 91 License or Permit affecting the project site? ___ Yes _X_ No; if yes, list the date and license or permit number and provide a copy of the historic map used to determine extent of filled tidelands:

B. Does the project require a new or modified license or permit under M.G.L.c.91? ___ Yes _X_ No; if yes, how many acres of the project site subject to M.G.L.c.91 will be for non-water-dependent use? Current ___ Change ___ Total ___
If yes, how many square feet of solid fill or pile-supported structures (in sf)?

C. For non-water-dependent use projects, indicate the following:
Area of filled tidelands on the site:_____
Area of filled tidelands covered by buildings:_____
For portions of site on filled tidelands, list ground floor uses and area of each use:
_____
Does the project include new non-water-dependent uses located over flowed tidelands? Yes ___ No ___
Height of building on filled tidelands_____

Also show the following on a site plan: Mean High Water, Mean Low Water, Water-dependent Use Zone, location of uses within buildings on tidelands, and interior and exterior areas and facilities dedicated for public use, and historic high and historic low water marks.

D. Is the project located on landlocked tidelands? ___ Yes _X_ No; if yes, describe the project's impact on the public's right to access, use and enjoy jurisdictional tidelands and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

E. Is the project located in an area where low groundwater levels have been identified by a municipality or by a state or federal agency as a threat to building foundations? ___Yes _X_ No; if yes, describe the project's impact on groundwater levels and describe measures the project will implement to avoid, minimize or mitigate any adverse impact:

F. Is the project non-water-dependent **and** located on landlocked tidelands **or** waterways or tidelands subject to the Waterways Act **and** subject to a mandatory EIR? ___ Yes __X_ No;
(NOTE: If yes, then the project will be subject to Public Benefit Review and Determination.)

G. Does the project include dredging? ___ Yes __X_ No; if yes, answer the following questions:

What type of dredging? Improvement ___ Maintenance ___ Both ____
What is the proposed dredge volume, in cubic yards (cys) _____
What is the proposed dredge footprint ____length (ft) ___width (ft)____depth (ft);
Will dredging impact the following resource areas?

Intertidal Yes__ No__; if yes, ___ sq ft
Outstanding Resource Waters Yes__ No__; if yes, ___ sq ft
Other resource area (i.e. shellfish beds, eel grass beds) Yes__ No__; if yes __ sq ft
If yes to any of the above, have you evaluated appropriate and practicable steps to: 1) avoidance; 2) if avoidance is not possible, minimization; 3) if either avoidance or minimize is not possible, mitigation?
If no to any of the above, what information or documentation was used to support this determination?

Provide a comprehensive analysis of practicable alternatives for improvement dredging in accordance with 314 CMR 9.07(1)(b). Physical and chemical data of the sediment shall be included in the comprehensive analysis.

Sediment Characterization

Existing gradation analysis results? __Yes ___No: if yes, provide results.
Existing chemical results for parameters listed in 314 CMR 9.07(2)(b)6? ___Yes ____No; if yes, provide results.

Do you have sufficient information to evaluate feasibility of the following management options for dredged sediment? If yes, check the appropriate option.

Beach Nourishment ___
Unconfined Ocean Disposal ___
Confined Disposal:
Confined Aquatic Disposal (CAD) ___
Confined Disposal Facility (CDF) ___
Landfill Reuse in accordance with COMM-97-001 ___
Shoreline Placement ___
Upland Material Reuse____
In-State landfill disposal____
Out-of-state landfill disposal ____
(NOTE: This information is required for a 401 Water Quality Certification.)

IV. Consistency:

A. Does the project have effects on the coastal resources or uses, and/or is the project located within the Coastal Zone? ___ Yes _X_ No; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

B. Is the project located within an area subject to a Municipal Harbor Plan? ___ Yes _X_ No; if yes, identify the Municipal Harbor Plan and describe the project's consistency with that plan:

WATER SUPPLY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **water supply** (see 301 CMR 11.03(4))? _X_ Yes ___ No; if yes, specify, in quantitative terms: **Construction of a new drinking water treatment plant with a capacity of 1,180 gpm (1.7 MGD).**

B. Does the project require any state permits related to **water supply**? _X_ Yes ___ No; if yes, specify which permit:

- **Approval to Conduct Pilot Study (BRPWS 21D)**
- **Pilot Study Report (BRPWS 22D)**
- **Approval to Construct Treatment Plant (BRPWS 24)**
- **Distribution System Modifications – Water Main Work (BRPWS 32)**
- **Water Supply Facility Checklist for Potassium Hydroxide (KOH)**
- **Water Supply Facility Checklist for Chlorine (NaOCl)**

C. If you answered "No" to both questions A and B, proceed to the **Wastewater Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Water Supply Section below.

II. Impacts and Permits

A. Describe, in gallons per day (gpd), the volume and source of water use for existing and proposed activities at the project site:

	Existing	Change	Total
Municipal or regional water supply	**1,710,000***	**0**	**1,710,000**
Withdrawal from groundwater	**1,710,000***	**0**	**1,710,000**
Withdrawal from surface water	**0**	**0**	**0**
Interbasin transfer	**0**	**0**	**0**

***Values are the sum of authorized daily withdrawals for Harbor Trace Well (1.00 MGD), Witch Brook 1 Well (0.32 MGD), and Witch Brook 2 Well (0.39 MGD).**

(NOTE: Interbasin Transfer approval will be required if the basin and community where the proposed water supply source is located is different from the basin and community where the wastewater from the source will be discharged.)

B. If the source is a municipal or regional supply, has the municipality or region indicated that there is adequate capacity in the system to accommodate the project? _X_ Yes ___ No

C. If the project involves a new or expanded withdrawal from a groundwater or surface water source, has a pumping test been conducted? ___ Yes ___ No; if yes, attach a map of the drilling sites and a summary of the alternatives considered and the results. __N/A_____

D. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? 1,710,000 gpd Will the project require an increase in that withdrawal? ___Yes _X_No; if yes, then how much of an increase (gpd)? _____

E. Does the project site currently contain a water supply well, a drinking water treatment facility, water main, or other water supply facility, or will the project involve construction of a new facility? _X_ Yes ___No. If yes, describe existing and proposed water supply facilities at the project site:

	Permitted Flow	Existing Avg Daily Flow	Project Flow	Total
Capacity of water supply well(s) (gpd)	**1,710,000***	**465,000****	**1,710,000**	**1,710,000**
Capacity of water treatment plant (gpd)	**0**	**0**	**1,710,000**	**1,710,000**

***Value is the sum of authorized daily withdrawals for Harbor Trace Well (1.00 MGD), Witch Brook 1 Well (0.32 MGD), and Witch Brook 2 Well (0.39 MGD).**
****Value is the sum of the average daily output (based on 2018 ASR data) for Harbor Trace Well (0.237 MGD), Witch Brook 1 Well (0.127 MGD), and Witch Brook 2 Well (0.101 MGD).**

F. If the project involves a new interbasin transfer of water, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or proposed? **N/A**

G. Does the project involve:

1. new water service by the Massachusetts Water Resources Authority or other agency of the Commonwealth to a municipality or water district? ___ Yes _X_ No
2. a Watershed Protection Act variance? ___ Yes _X_ No; if yes, how many acres of alteration?
3. a non-bridged stream crossing 1,000 or less feet upstream of a public surface drinking water supply for purpose of forest harvesting activities? ___ Yes _X_ No

III. Consistency

Describe the project's consistency with water conservation plans or other plans to enhance water resources, quality, facilities and services:

The Townsend Master Plan Update includes a goal to protect water supply and infrastructure through careful and comprehensive land use planning. By constructing a PFAS WTP, the Town is ensuring that there is adequate infrastructure to treat the Town's water and provide a clean, reliable water supply.

WASTEWATER SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **wastewater** (see 301 CMR 11.03(5))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **wastewater**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Transportation -- Traffic Generation Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Wastewater Section below.

II. Impacts and Permits

A. Describe the volume (in gallons per day) and type of disposal of wastewater generation for existing and proposed activities at the project site (calculate according to 310 CMR 15.00 for septic systems or 314 CMR 7.00 for sewer systems):

	Existing	Change	Total
Discharge of sanitary wastewater	_____	_____	_____
Discharge of industrial wastewater	_____	_____	_____
TOTAL	_____	_____	_____

	Existing	Change	Total
Discharge to groundwater	_____	_____	_____
Discharge to outstanding resource water	_____	_____	_____
Discharge to surface water	_____	_____	_____
Discharge to municipal or regional wastewater facility	_____	_____	_____
TOTAL	_____	_____	_____

B. Is the existing collection system at or near its capacity? ___ Yes ___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

C. Is the existing wastewater disposal facility at or near its permitted capacity? ___ Yes___ No; if yes, then describe the measures to be undertaken to accommodate the project's wastewater flows:

D. Does the project site currently contain a wastewater treatment facility, sewer main, or other wastewater disposal facility, or will the project involve construction of a new facility? ___ Yes ___ No; if yes, describe as follows:

	Permitted	Existing Avg Daily Flow	Project Flow	Total
Wastewater treatment plant capacity (in gallons per day)	_____	_____	_____	_____

E. If the project requires an interbasin transfer of wastewater, which basins are involved, what is the direction of the transfer, and is the interbasin transfer existing or new?

(NOTE: Interbasin Transfer approval may be needed if the basin and community where wastewater will be discharged is different from the basin and community where the source of water supply is located.)

F. Does the project involve new sewer service by the Massachusetts Water Resources Authority (MWRA) or other Agency of the Commonwealth to a municipality or sewer district? ___ Yes ___ No

G. Is there an existing facility, or is a new facility proposed at the project site for the storage, treatment, processing, combustion or disposal of sewage sludge, sludge ash, grit, screenings, wastewater reuse (gray water) or other sewage residual materials? ___ Yes ___ No; if yes, what is the capacity (tons per day):

	Existing	Change	Total
Storage	_____	_____	_____
Treatment	_____	_____	_____
Processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

H. Describe the water conservation measures to be undertaken by the project, and other wastewater mitigation, such as infiltration and inflow removal.

III. Consistency

A. Describe measures that the proponent will take to comply with applicable state, regional, and local plans and policies related to wastewater management:

B. If the project requires a sewer extension permit, is that extension included in a comprehensive wastewater management plan? ___ Yes ___ No; if yes, indicate the EEA number for the plan and whether the project site is within a sewer service area recommended or approved in that plan:

TRANSPORTATION SECTION (TRAFFIC GENERATION)

I. Thresholds / Permit

A. Will the project meet or exceed any review thresholds related to **traffic generation** (see 301 CMR 11.03(6))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **state-controlled roadways**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Roadways and Other Transportation Facilities Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Traffic Generation Section below.

II. Traffic Impacts and Permits

A. Describe existing and proposed vehicular traffic generated by activities at the project site:

	Existing	Change	Total
Number of parking spaces	_____	_____	_____
Number of vehicle trips per day	_____	_____	_____
ITE Land Use Code(s):	_____	_____	_____

B. What is the estimated average daily traffic on roadways serving the site?

Roadway	Existing	Change	Total
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____

C. If applicable, describe proposed mitigation measures on state-controlled roadways that the project proponent will implement:

D. How will the project implement and/or promote the use of transit, pedestrian and bicycle facilities and services to provide access to and from the project site?

C. Is there a Transportation Management Association (TMA) that provides transportation demand management (TDM) services in the area of the project site? ____ Yes ____ No; if yes, describe if and how will the project will participate in the TMA:

D. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation facilities? ____ Yes ____ No; if yes, generally describe:

E. If the project will penetrate approach airspace of a nearby airport, has the proponent filed a Massachusetts Aeronautics Commission Airspace Review Form (780 CMR 111.7) and a Notice of Proposed Construction or Alteration with the Federal Aviation Administration (FAA) (CFR Title 14 Part 77.13, forms 7460-1 and 7460-2)?

III. Consistency

Describe measures that the proponent will take to comply with municipal, regional, state, and federal plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services:

TRANSPORTATION SECTION (ROADWAYS AND OTHER TRANSPORTATION FACILITIES)

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **roadways or other transportation facilities** (see 301 CMR 11.03(6))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **roadways or other transportation facilities**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Energy Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Roadways Section below.

II. Transportation Facility Impacts

A. Describe existing and proposed transportation facilities in the immediate vicinity of the project site:

B. Will the project involve any

1. Alteration of bank or terrain (in linear feet)? _____
2. Cutting of living public shade trees (number)? _____
3. Elimination of stone wall (in linear feet)? _____

III. Consistency -- Describe the project's consistency with other federal, state, regional, and local plans and policies related to traffic, transit, pedestrian and bicycle transportation facilities and services, including consistency with the applicable regional transportation plan and the Transportation Improvements Plan (TIP), the State Bicycle Plan, and the State Pedestrian Plan:

ENERGY SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **energy** (see 301 CMR 11.03(7))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **energy**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Air Quality Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Energy Section below.

II. Impacts and Permits

A. Describe existing and proposed energy generation and transmission facilities at the project site:

	Existing	Change	Total
Capacity of electric generating facility (megawatts)	_____	_____	_____
Length of fuel line (in miles)	_____	_____	_____
Length of transmission lines (in miles)	_____	_____	_____
Capacity of transmission lines (in kilovolts)	_____	_____	_____

B. If the project involves construction or expansion of an electric generating facility, what are:

1. the facility's current and proposed fuel source(s)?
2. the facility's current and proposed cooling source(s)?

C. If the project involves construction of an electrical transmission line, will it be located on a new, unused, or abandoned right of way? ___Yes ___No; if yes, please describe:

D. Describe the project's other impacts on energy facilities and services:

III. Consistency

Describe the project's consistency with state, municipal, regional, and federal plans and policies for enhancing energy facilities and services:

AIR QUALITY SECTION

I. Thresholds

A. Will the project meet or exceed any review thresholds related to **air quality** (see 301 CMR 11.03(8))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **air quality**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Solid and Hazardous Waste Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Air Quality Section below.

II. Impacts and Permits

A. Does the project involve construction or modification of a major stationary source (see 310 CMR 7.00, Appendix A)? ___ Yes ___ No; if yes, describe existing and proposed emissions (in tons per day) of:

	Existing	Change	Total
Particulate matter	_____	_____	_____
Carbon monoxide	_____	_____	_____
Sulfur dioxide	_____	_____	_____
Volatile organic compounds	_____	_____	_____
Oxides of nitrogen	_____	_____	_____
Lead	_____	_____	_____
Any hazardous air pollutant	_____	_____	_____
Carbon dioxide	_____	_____	_____

B. Describe the project's other impacts on air resources and air quality, including noise impacts:

III. Consistency

A. Describe the project's consistency with the State Implementation Plan:

B. Describe measures that the proponent will take to comply with other federal, state, regional, and local plans and policies related to air resources and air quality:

SOLID AND HAZARDOUS WASTE SECTION

I. Thresholds / Permits

A. Will the project meet or exceed any review thresholds related to **solid or hazardous waste** (see 301 CMR 11.03(9))? ___ Yes _X_ No; if yes, specify, in quantitative terms:

B. Does the project require any state permits related to **solid and hazardous waste**? ___ Yes _X_ No; if yes, specify which permit:

C. If you answered "No" to both questions A and B, proceed to the **Historical and Archaeological Resources Section**. If you answered "Yes" to either question A or question B, fill out the remainder of the Solid and Hazardous Waste Section below.

II. Impacts and Permits

A. Is there any current or proposed facility at the project site for the storage, treatment, processing, combustion or disposal of solid waste? ___ Yes ___ No; if yes, what is the volume (in tons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Treatment, processing	_____	_____	_____
Combustion	_____	_____	_____
Disposal	_____	_____	_____

B. Is there any current or proposed facility at the project site for the storage, recycling, treatment or disposal of hazardous waste? ___ Yes ___ No; if yes, what is the volume (in tons or gallons per day) of the capacity:

	Existing	Change	Total
Storage	_____	_____	_____
Recycling	_____	_____	_____
Treatment	_____	_____	_____
Disposal	_____	_____	_____

C. If the project will generate solid waste (for example, during demolition or construction), describe alternatives considered for re-use, recycling, and disposal:

D. If the project involves demolition, do any buildings to be demolished contain asbestos? ___ Yes ___ No

E. Describe the project's other solid and hazardous waste impacts (including indirect impacts):

III. Consistency

Describe measures that the proponent will take to comply with the State Solid Waste Master Plan:

HISTORICAL AND ARCHAEOLOGICAL RESOURCES SECTION

I. Thresholds / Impacts

A. Have you consulted with the Massachusetts Historical Commission? _X_ Yes ___ No; if yes, attach correspondence. For project sites involving lands under water, have you consulted with the Massachusetts Board of Underwater Archaeological Resources? ____Yes ___ No; if yes, attach correspondence **The project site does not include work in Land Under Water Bodies and/or Waterways.**

B. Is any part of the project site a historic structure, or a structure within a historic district, in either case listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes _X_ No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? ___ Yes ___ No; if yes, please describe: **There are no MHC-inventoried or State Register Historic Districts or Places within the proposed limits of work.**

C. Is any part of the project site an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth? ___ Yes _X_ No; if yes, does the project involve the destruction of all or any part of such archaeological site? ___ Yes ___ No; if yes, please describe: **There are no known archaeological sites within the proposed limits of work.**

D. If you answered "No" to all parts of both questions A, B and C, proceed to the **Attachments and Certifications** Sections. If you answered "Yes" to any part of either question A or question B, fill out the remainder of the Historical and Archaeological Resources Section below.

II. Impacts

Describe and assess the project's impacts, direct and indirect, on listed or inventoried historical and archaeological resources: **The Project is not anticipated to impact known historical and/or archaeological resources. Nether the Project Site no surrounding area contain archaeological and/or historic assets as noted above and documented in the Project Notification Form (PNF) included in Attachment F. Additionally, MHC reviewed the PNF for this project and issued a finding that the project is unlikely to affect significant historic or archaeological resources.**

III. Consistency

Describe measures that the proponent will take to comply with federal, state, regional, and local plans and policies related to preserving historical and archaeological resources: **As previously noted, there are no known historical and/or archaeological resources within the Project Site and limits of work. In the event previously unknown assets are discovered, the appropriate local, state, and/or federal agencies will be notified.**

CLIMATE CHANGE ADAPTATION AND RESILIENCY SECTION

This section of the Environmental Notification Form (ENF) solicits information and disclosures related to climate change adaptation and resiliency, in accordance with the MEPA Interim Protocol on Climate Change Adaptation and Resiliency (the "MEPA Interim Protocol"), effective October 1, 2021. The Interim Protocol builds on the analysis and recommendations of the 2018 Massachusetts Integrated State Hazard Mitigation and Climate Adaptation Plan (SHMCAP), and incorporates the efforts of the Resilient Massachusetts Action Team (RMAT), the inter-agency steering committee responsible for implementation, monitoring, and maintenance of the SHMCAP, including the "Climate Resilience Design Standards and Guidelines" project. The RMAT team recently released the RMAT Climate Resilience Design Standards Tool, which is available here.

The MEPA Interim Protocol is intended to gather project-level data in a standardized manner that will both inform the MEPA review process and assist the RMAT team in evaluating the accuracy and effectiveness of the RMAT Climate Resilience Design Standards Tool. Once this testing process is completed, the MEPA Office anticipates developing a formal Climate Change Adaptation and Resiliency Policy through a public stakeholder process. Questions about the RMAT Climate Resilience Design Standards Tool can be directed to rmat@mass.gov.

All Proponents must complete the following section, referencing as appropriate the results of the output report generated by the RMAT Climate Resilience Design Standards Tool and attached to the ENF. In completing this section, Proponents are encouraged, but not required at this time, to utilize the recommended design standards and associated Tier 1/2/3 methodologies outlined in the RMAT Climate Resilience Design Standards Tool to analyze the project design. However, Proponents are requested to respond to a respond to a user feedback survey on the RMAT website or to provide feedback to rmat@mass.gov, which will be used by the RMAT team to further refine the tool. Proponents are also encouraged to consult general guidance and best practices as described in the RMAT Climate Resilience Design Guidelines.

Climate Change Adaptation and Resiliency Strategies

I. Has the project taken measures to adapt to climate change for all of the climate parameters analyzed in the RMAT Climate Resilience Design Standards Tool (sea level rise/storm surge, extreme precipitation (urban or riverine flooding), extreme heat)? _X_Yes __ No

Note: Climate adaptation and resiliency strategies include actions that seek to reduce vulnerability to anticipated climate risks and improve resiliency for future climate conditions. Examples of climate adaptation and resiliency strategies include flood barriers, increased stormwater infiltration, living shorelines, elevated infrastructure, increased tree canopy, etc. Projects should address any planning priorities identified by the affected municipality through the Municipal Vulnerability Preparedness (MVP) program or other planning efforts, and should consider a flexible adaptive pathways approach, an adaptation best practice that encourages design strategies that adapt over time to respond to changing climate conditions. General guidance and best practices for designing for climate risk are described in the RMAT Climate Resilience Design Guidelines*.*

A. If no, explain why.

B. If yes, describe the measures the project will take, including identifying the planning horizon and climate data used in designing project components. If applicable, specify the return period and design storm used (e.g., 100-year, 24-hour storm).

The project will take measures to manage stormwater runoff from the Project Site. Appropriate construction-period pollution prevention measures will be used to protect wetland resource areas from non-point source pollution. Typical BMPs will include straw wattles and silt fence. Following the completion of construction, disturbed areas will be restored to its previous condition. During final design, appropriate measures will be taken

to meet existing stormwater regulations. Most of the stormwater that is generated by the proposed project will be managed by a detention/infiltration basin equipped with a sediment forebay.

C. Is the project contributing to regional adaptation strategies? _X_ Yes __ No; If yes, describe.

The MRPC's Regional Transportation Plan's climate change adaptation strategies includes the Montachusett Regional Stormwater Development Program to assess roadway drainage systems in environmentally sensitive areas. During construction, appropriate BMPs will be used to protect resource areas from stormwater runoff, including on-site management of stormwater.

II. Has the Proponent considered alternative locations for the project in light of climate change risks? _X_ Yes ___ No

A. If no, explain why.

B. If yes, describe alternatives considered.

The Witch Brook Well site was also considered as a project location. However, this location was not chosen because it is closer to a waterbody (Bixby Brook) and the 100-year flood zone, which could pose future risks to the proposed WTP. The majority of the Witch Brook parcel is within the Zone I of the wells. The Harbor Trace parcel is large enough to avoid construction of the WTP within the Zone I area.

III. Is the project located in Land Subject to Coastal Storm Flowage (LSCSF) or Bordering Land Subject to Flooding (BLSF) as defined in the Wetlands Protection Act? _X__Yes ___No

If yes, describe how/whether proposed changes to the site's topography (including the addition of fill) will result in changes to floodwater flow paths and/or velocities that could impact adjacent properties or the functioning of the floodplain. General guidance on providing this analysis can be found in the CZM/MassDEP Coastal Wetlands Manual, available here.

A portion of the proposed water main construction within existing roadways is within the limits of Bordering Land Subject to Flooding. No fill will be added to BLSF and all roadway areas will be returned to pre-construction conditions following installation of the water mains, to the extent practicable. As such, the general characteristics and topography of the area will not be changed and no impacts to flood storage capacity, flood stage and/or flood flows are anticipated.

ENVIRONMENTAL JUSTICE SECTION

I. Identifying Characteristics of EJ Populations

A. If an Environmental Justice (EJ) population has been identified as located in whole or in part within 5 miles of the project site, describe the characteristics of each EJ populations as identified in the EJ Maps Viewer (i.e., the census block group identification number and EJ characteristics of "Minority," "Minority and Income," etc.). Provide a breakdown of those EJ populations within 1 mile of the project site, and those within 5 miles of the site.

There are no EJ populations within 1 mile of the project site. Within 5 miles of the project site, Block Group 2, Census Tract 3271.03 is identified as an EJ population with the criteria "Income."

B. Identify all languages identified in the "Languages Spoken in Massachusetts" tab of the EJ Maps Viewer as spoken by 5 percent or more of the EJ population who also identify as not speaking English "very well." The languages should be identified for each census tract located in whole or in part within 1 mile and 5 miles of the project site, regardless of whether such census tract contains any designated EJ populations.

Within 1 mile of the project site, 6.3% of the population of Tract 3882 in Shirley speak Spanish or Spanish Creole. There are no other census tracts within 5 miles of the site where 5% or more of the population do not speak English very well. Project summaries will be developed and translated into the applicable languages. These summaries would then be posted to the Townsend Water Department website and links will be provided to the Town of Shirley, where the census tract is located. This approach is considered acceptable, as discussed with Tori Kim of the Executive Office of Energy and Environmental Affairs on May 10, 2022.

C. If the list of languages identified under Section I.B. has been modified with approval of the EEA EJ Director, provide a list of approved languages that the project will use to provide public involvement opportunities during the course of MEPA review. If the list has been expanded by the Proponent (without input from the EEA EJ Director), provide a list of the additional languages that will be used to provide public involvement opportunities during the course of MEPA review as required by Part II of the MEPA Public Involvement Protocol for Environmental Justice Populations ("MEPA EJ Public Involvement Protocol"). If the project is exempt from Part II of the protocol, please specify.

N/A, the list of languages identified under Section I.B. has not been modified.

II. Potential Effects on EJ Populations

A. If an EJ population has been identified using the EJ Maps Viewer within 1 mile of the project site, describe the likely effects of the project (both adverse and beneficial) on the identified EJ population(s).

N/A, no EJ populations mapped within 1 mile of the Project Site.

B. If an EJ population has been identified using the EJ Maps Viewer within 5 miles of the project site, will the project: (i) meet or exceed MEPA review thresholds under 301 CMR 11.03(8)(a)-(b) __ Yes _X_ No; or (ii) generate150 or more new average daily trips (adt) of diesel vehicle traffic, excluding public transit trips, over a duration of 1 year or more. ___ Yes _X_ No

C. If you answered “Yes” to either question in Section II.B., describe the likely effects of the project (both adverse and beneficial) on the identified EJ population(s).

III. Public Involvement Activities

A. Provide a description of activities conducted prior to filing to promote public involvement by EJ populations, in accordance with Part II of the MEPA EJ Public Involvement Protocol. In particular:

1. If advance notification was provided under Part II.A., attach a copy of the Environmental Justice Screening Form and provide list of CBOs/tribes contacted (with dates). Copies of email correspondence can be attached in lieu of a separate list.

2. State how CBOs and tribes were informed of ways to request a community meeting, and if any meeting was requested. If public meetings were held, describe any issues of concern that were raised at such meetings, and any steps taken (including modifications to the project design) to address such concerns.

3. If the project is exempt from Part II of the protocol, please specify.

There are no mapped EJ populations within 1 mile of the Project Site. Townsend’s website posts annual Water Quality Reports for residents to read. The most recent report (2021) indicated the need for the Harbor Trace and Witch Brook wells to be treated for PFAS. The Town’s Water Department page allows residents to send questions or comments to the Water Department. Residents can also sign up for email updates and announcements. As noted previously, project information and translations will be provided on the Town’s Water Department website as discussed with Tori Kim of MEPA on May 10, 2022.

B. Provide below (or attach) a distribution list (if different from the list in Section III.A. above) of CBOs and tribes, or other individuals or entities the Proponent intends to maintain for the notice of the MEPA Site Visit and circulation of other materials and notices during the course of MEPA review.

N/A

C. Describe (or submit as a separate document) the Proponent’s plan to maintain the same level of community engagement throughout the MEPA review process, as conducted prior to filing.

The Town will hold Town Meetings where the public can attend and present their comments and/or concerns. Community members can send questions or comments to the Water Department through the Town’s website and also sign up for email updates and announcements.

CERTIFICATIONS:

1. The Public Notice of Environmental Review has been/will be published in the following newspapers in accordance with 301 CMR 11.15(1):

   (Name) *The Lowell Sun* (Date) 9/15/2022

2. This form has been circulated to Agencies and Persons in accordance with 301 CMR 11.16(2).

Signatures:

Date	Signature of Responsible Officer or Proponent	Date	Signature of person preparing ENF (if different from above)
	David Vigeant		Louis Soracco
	Name (print or type)		Name (print or type)
	Townsend Water Department		Tighe & Bond
	Firm/Agency		Firm/Agency
	540 Main Street		120 Front Street, Suite 700
	Street		Street
	Townsend, MA 01474		Worcester, MA 01608
	Municipality/State/Zip		Municipality/State/Zip
	978-597-2212		508-304-6358
	Phone		Phone

Tighe&Bond

ATTACHMENT A

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Section 1
Introduction

The proposed project consists of the construction of a new per-and polyfluoroalkyl substances (PFAS) water treatment plant (WTP) at the Harbor Trace Pump Station in Townsend, Massachusetts. This WTP is necessary to treat raw water from both the Harbor Trace and Witch Brook Wells that has had historically high levels of PFAS detected, above regulatory levels. Raw water to be treated at this WTP will be transferred via a newly installed 4,400 linear foot (LF) raw water transmission main. An 11,000 LF looping water main extension is also proposed. As summarized below, the proposed project is located within two (2) parcels of land and the roadway rights-of-ways (ROWs) along Harbor Trace Road, South Street, South Harbor Road, Ash Street, South Row Road, and Emery Road in the Town of Townsend, Middlesex County, Massachusetts.

1.1 Project Location

Project Name: Harbor Trace Road PFAS WTP Project

Project Location: Proposed PFAS WTP

25 Harbor Trace Road, OFF Harbor Trace Road

(42.64608, -71.66984), (42.64677, -71.67148)

Proposed Raw Water Transmission Main

Harbor Trace Road, South Street, South Harbor Road and Ash Street

(42.64608, -71.66984 to 42.64482, -71.68216)

Proposed Looping Water Main

South Harbor Road, South Row Road, and Emery Road

(42.64746, -71.68304 to 42.64327, -71.70937)

1.2 Project Proponent

Project Proponent: Townsend Water Department

David Vigeant, Superintendent

540 Main Street

West Townsend, Massachusetts

1.3 Project Background/Purpose

The Harbor Trace Pump Station is the largest source of drinking water for the distribution system in Townsend, Massachusetts. In March 2021, PFAS levels detected at this station were 46 parts per trillion (ppt), which exceeds the Maximum Contaminant Level (MCL) of 20 ppt (quarterly average). Subsequent samples indicated PFAS levels of 68.6 ppt in April 2021, 96 ppt in May 2021, and 120 ppt most recently in May 2022. The Harbor Trace Pump Station will remain offline until a PFAS treatment system is installed.

Due to the reduced pumping at Harbor Trace, PFAS levels at Witch Brook Well No. 1 have increased. The Townsend Water Department proposes the construction of a new PFAS WTP to treat water at both Harbor Trace and Witch Brook and reduce PFAS concentrations. Raw water from Witch Brook will be directed to the new PFAS WTP via a newly constructed raw water transmission main along Harbor Trace Road, South Street, South Harbor Road, and Ash Street. Also proposed is a new water main extension on South Row Road and Emery Road to loop the system, minimizing dead ends and improving water age and quality.

1.4 MEPA Review

The Town is in process of applying to the Massachusetts Department of Environmental Protection (MassDEP) for Clean Water Act State Revolving Fund (SRF) funding for the construction of the PFAS WTP and installation of the water mains. The project is subject to environmental review pursuant to Section 11.01.2.a. of the MEPA regulations as it requires a State Agency action (i.e., a Permit and Financial Assistance). The project meets the following Environmental Notification Form (ENF) review thresholds:

- 301 CMR 11.03(4)(b)(4) – Construction of a new drinking water treatment plant with a capacity of 1,000,000 or more gpd.
- 301 CMR 11.03(11)(b) – Any project within a designated ACEC, unless the project consists solely of one single family dwelling.

The project does not meet any Environmental Impact Report (EIR) thresholds.

Notice of the Project will be published in the local paper, *The Lowell Sun* in accordance with 301 CMR 11.15(1), and in the *Environmental Monitor* on September 23, 2022.

Section 2
Existing Conditions

General descriptions of the project site and surrounding area are provided in the sections below. Figures included in Attachment B present existing conditions.

2.1 Project Locus

The project includes proposed work within two (2) parcels of land and several public roadway rights-of-way including Harbor Trace Road, South Road, South Harbor Road, Ash Street, South Row Road, and Emery Road, which comprise the Project Locus as summarized in Table 2-1 below.

TABLE 2-1
Summary of Parcels within the Project Locus[1]

Parcel ID	Property Owner	Acreage	Proposed Activities
Map 33, Lot 79_18	Town of Townsend/Water	28.66	Raw Water Transmission Main
Map 33, Lot 79_0	Town of Townsend	5.3	PFAS WTP, Raw Water Transmission Main

[1]As that term is defined in 310 CMR 10.04

2.2 Project Site

This section provides a general site description for the project area. Land use in the general vicinity of the project area was determined based on direct observations made during site visits, as well as a review of the information available through the Massachusetts Geographic Information System (MassGIS). A comprehensive discussion of on-site wetland resource areas is provided in Section 2.3 and maps of the Project Site are included in Attachment B.

The parcels where the proposed work will occur are mostly forested, with a large, forested wetland bordering on the Squannacook River. These parcels contain the existing Harbor Trace Pump Station and paved access road and lie southeast of a residential cul-de-sac. The area surrounding the parcels is mainly suburban residential, with developed open space, forested areas, and wetlands. The Squannacook River is located northeast of the pumping station.

The proposed raw water transmission main and looping water main routes are within the paved roadway footprint of several streets in Townsend, including Harbor Trace Road, South Road, South Harbor Road, Ash Street, South Row Road, and Emery Road. The areas surrounding the proposed route include suburban residential neighborhoods, undisturbed forested areas, several wetland resource areas, as well as the Squannacook Brook State Forest/Squannacook River Wildlife Management Area, Harbor Pond, Bixby Brook, Witch Brook, and Graves Pond.

2.3 Wetland Resource Areas

On March 25, 2022 and April 4, 2022, Tighe & Bond conducted wetland resource area delineations within the limits of the Project Locus and along the proposed water main route. The delineation were conducted in accordance with local, state and federal guidelines, including the Townsend Wetland Bylaw (Chapter 138) and its implementing Regulations (Chapter 150), the Massachusetts Wetlands Protection Act (MAWPA; M.G.L. c. 131 § 40) and associated Wetlands Protection regulations (310 CMR 10.00), as well as the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0, U.S. Army Corps of Engineers, January 2012).

Based on site observations and information available through MassGIS, wetland resource areas observed within the Project Locus include: Inland Bank, Bordering Vegetated Wetlands (BVW), Bordering Land Subject to Flooding (BLSF), and the 200-foot Riverfront Area of two (2) perennial streams. Additionally, the 100-foot Buffer Zone to inland Bank and BVW, as well as the locally regulated 100-foot Buffer Zone to BLSF, and 200-foot Buffer Zone to ponds and lakes 5,000 square feet (SF) or larger that have an inlet or outlet which is a perennial stream (Townsend Wetland Bylaw; § 138-7) were identified. Descriptions of wetland resource areas are provided in Section 2.2. Existing conditions are depicted on Figure 3 in Attachment B.

In addition to conducting field investigations, Tighe & Bond reviewed the FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM) for the general area within the Town of Townsend (Middlesex County), and other publicly available information (e.g., MassGIS).

2.3.1 Summary of Wetland Resource Areas

A summary of jurisdictional wetland resource areas is presented in Table 2-2 and the following section.

TABLE 2-2
Summary of Jurisdictional Wetland Resource Areas by Flag Series

Wetland Series ID	Jurisdictional Resource Area	Resource Area Description[1]	Nearest Proposed Activity
1A	BVW	PFO1/PSS1	PFAS WTP
2A	BVW	PEM1	Water Transmission Main[2]
3A	BVW	PEM1	Water Transmission Main[3]
3B	BVW	PSS1	Looping Water Main[3,4]
3C	BVW	PFO1/4	Looping Water Main[3,4]
3D	BVW	PEM1/PSS1	Looping Water Main[3,4]
3E	Bank	R5UBH (Bixby Brook)	Looping Water Main[3,4]
4A	BVW	PFO1	Looping Water Main[4]
4B	BVW	PFO1	Looping Water Main[4]
5A	BVW	PFO1	Looping Water Main[4]
6A	BVW	PEM1/PSS1	Looping Water Main[4,5]
6B	BVW	PFO1	Looping Water Main[4,5]

TABLE 2-2
Summary of Jurisdictional Wetland Resource Areas by Flag Series

Wetland Series ID	Jurisdictional Resource Area	Resource Area Description[1]	Nearest Proposed Activity
7A	BVW	PSS1	Looping Water Main[5]
8A	BVW	PFO1	Looping Water Main[5]
8B	BVW	PFO1	Looping Water Main[5]
8C	BVW	PFO1	Looping Water Main[5]
9A	Bank	R4SB4 (intermittent stream)	Looping Water Main[5]
9B	Bank	R4SB4 (intermittent stream)	Looping Water Main[5]
9C	BVW	PFO1	Looping Water Main[5]
9D	BVW	PFO1	Looping Water Main[5]
10A	BVW	PSS1	Looping Water Main[5]
11A	Bank	R4SB7 (intermittent stream)	Looping Water Main[5]
11B	Bank	PUBH (Graves Pond)	Looping Water Main[5]
11C	BVW	PFO1/PSS1	Looping Water Main[5]
11D	Bank	R5UBH (Bixby Brook)	Looping Water Main[5]
11E	Bank	R5UBH (Bixby Brook)	Looping Water Main[5]

[1] Classification of Wetlands and Deepwater Habitats of the United States, Cowardin *et al.* 1979

[2] Ash Street

[3] South Harbor Road

[4] South Row Road

[5] Emery Road

2.3.1.1 Inland Bank

Inland Bank is the portion of the land surface which normally abuts and confines a water body, as defined in 310 CMR 10.54(2)(a). Within the Project Locus, inland Bank is present in association with three (3) unnamed intermittent streams, Bixby Brook (a perennial stream), and Graves Pond.

The physical characteristics of inland Bank vary among these and throughout the Project Locus. Bank 3E represents a portion of Bixby Brook, which was observed to be approximately 10 to 30 feet in width and vegetated with summersweet (*Clethra alnifolia*; FAC). Banks 11D and 11E of Bixby Brook were vegetated by red maple (*Acer rubrum*; FAC), multiflora rose (*Rosa multiflora*, FACU), and highbush blueberry (*Vaccinium corymbosum*, FACW). This portion of Bixby Brook flows into Graves Pond and is approximately 4 to 8 feet wide. Water levels were noted as 6 to 12 inches deep during the time of delineation

Banks 9A and 9B define an intermittent stream along Emery Road, and are vegetated with sedges (*Carex spp.*), ferns, and spicebush (*Lindera benzoin*, FACW). Bank 11A defines the eastern side of an intermittent stream flowing from Graves Pond and is vegetated with sedges and multiflora rose. This bank is steeply sloped and joins into Bixby Brook to the northwest.

Bank 11B defines the steeply sloped western bank of Graves Pond and is vegetated with red-osier dogwood (*Cornus sericea*; FACW), speckled alder (*Alnus incana*; FACW), multiflora rose, sedges, and Oriental bittersweet (*Celastrus orbiculatus*; UPL).

2.3.1.2 Bordering Vegetated Wetlands

As defined in 310 CMR 10.55(2)(a), Bordering Vegetated Wetlands (BVW) are freshwater wetlands that border on creeks, rivers, streams, ponds and lakes. BVWs include wet meadows, marshes, swamps, and bogs. The soils of wetlands are saturated and/or inundated such that they support a predominance of wetland indicator plants.

Eleven (11) distinct areas of BVW were delineated within the Project Locus. The BVW areas are associated with multiple stream systems and include palustrine emergent (PEM), scrub-shrub (PSS), and forested (PFO) wetland systems situated within low-lying areas and floodplains. Common vegetation identified within the BVWs included highbush blueberry, speckled alder, cinnamon fern (*Osmunda cinnamomea*; FACW), red maple (*Acer rubrum*; FAC), sheep laurel (*Kalmia angustifolia*; FAC), eastern white pine (*Pinus strobus*; FACU), cattail (*Typha spp.*, OBL), winterberry holly (*Ilex verticillata*, FACW), eastern hemlock (*Tsuga canadensis*; FACU, but a wetland indicator species per the MAWPA if physiological adaptations to wetlands have occurred), red-osier dogwood, northern spicebush, common rush (*Juncus effusus*; OBL), willow (*Salix spp.*), sedges, and mosses. Indicators of wetland hydrology that were used during the resource area delineation included: standing water, saturation, water-stained leaves, buttressed roots, sulfurous soil odor, and geomorphic position. Typical hydric soil indicators observed included the presence of hydrogen sulfide, and dark organic soils underlain by a depleted matrix with redoximorphic concentrations.

2.3.1.3 Bordering Land Subject to Flooding

Bordering Land Subject to Flooding (BLSF) is defined in 310 CMR 10.57(2) as an area with low, flat topography adjacent to and inundated by flood waters rising from creeks, rivers, streams, ponds or lakes. It extends from the banks of these waterways and water bodies; where a BVW occurs, it extends from said wetland.

According to the FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRM Panels 25017C0068E and 25017C0064E, both effective on 6/4/2010), portions of the Project Locus on Ash Street, South Harbor Road, and South Row Road are situated within the limits of BLSF associated with Bixby Brook and the Squannacook River. The base flood elevation associated with Bixby Brook near South Harbor and South Row Road is 275 feet. There is no base flood elevation associated with Zone A on Ash Street.

Floodplain areas within the Project Locus consist of undisturbed forested land, paved surfaces, and residential areas.

2.3.1.4 Riverfront Area

Per 310 CMR 10.58(2), a Riverfront Area is the area of land between a river's mean annual high-water line as measured horizontally outward from the river (or perennial stream) and a parallel line located 200 feet away. The Riverfront Area does not have a buffer zone, but it may overlap with other resource areas or their associated buffer zones.

Bixby Brook and Witch Brook are considered perennial under the MAWPA. Riverfront Areas of these resources extend 200 feet horizontally from the MAHW. The Project Locus has approximately 429,835 SF of Riverfront Area associated with Bixby Brook, Witch Brook,

and an unnamed perennial stream. Of this area, approximately 35,165 SF (8.2 percent) is degraded due to the presence of paved, impervious areas. Within the Project Locus, Riverfront Area includes both vegetated wetland and upland forested areas, as well as paved roadways (South Harbor Road, South Row Road, and Emery Road) and residential areas.

2.4 Rare Species

The Natural Heritage and Endangered Species Program (NHESP) Atlas, 15th edition, effective August 2021, and MassGIS online mapping data were consulted during the design and planning stages of this project. According to these sources, the proposed PFAS WTP parcel and a portion of the proposed raw water transmission main are within the limits of mapped Estimated Habitat for Rare Wildlife (EH 1300) and Priority Habitat for Rare Species (PH 2035). According to NHESP's May 17, 2022 response to a request for information (Attachment D), this portion of the project is within Blanding's Turtle (*Emydoidea blandingii*) habitat, a threatened species.

2.5 Historical and Archaeological Resources

Review of the Inventory of Historic and Archaeological Assets of the Commonwealth by the Massachusetts Historical Commission (MHC) indicates that there are no inventoried historic properties within the proposed limits of work. A Project Notification Form (PNF) was submitted to MHC on June 3, 2022 and July 21, 2022 for the proposed WTP and water mains, respectively. In their responses, dated June 29, 2022 and August 22, 2022, MHC determined that the project is unlikely to affect significant historic or archaeological resources. A copy of MHC's response is provided in Attachment E.

2.6 Wellhead Protection Areas

Portions of the proposed project are located within a Zone II wellhead protection area. Impacts to wellhead protection areas are limited to the WTP site and a portion of the proposed water main within the paved roadway right-of-way. A portion of the proposed water transmission main on Ash Street is also partially located within the limits of the Zone I of the Witch Brook water supply wells. Figure 2 in Attachment B shows the extent of wellhead protection areas. As further described in Section 5, measures during construction and post-construction will be taken to protect water quality in these areas.

Section 3 Alternatives Analysis

As part of the project preliminary design, a siting analysis was performed to determine the preferred location of the proposed WTP, taking into account a number of variables that impact the project goals, environmental impact and capital cost. Additionally, new water main is required infrastructure in all site alternatives and associated temporary resource area impacts are limited to existing paved roadways. The construction location of a new PFAS WTP differed among alternatives. As such, resource area impacts were considered during the alternatives analysis.

3.1 Water Treatment Plant Alternatives

When selecting a site for a WTP several factors are considered. These factors include but are not necessarily limited to:

- Proximity to the water supplies it will treat and the distribution system it will discharge into
- Available area and topography for a proposed building and ancillary systems
- Accessibility
- Proximity to wetland resource areas, including land subject to flooding.

Section 2.19 of the Massachusetts Department of Environmental Protection (MassDEP) *Guidelines for Public Water Systems* requires that:

> *"Other than surface water intakes, all water supply facilities and water treatment plant access roads shall be elevated and/or protected for a minimum of two feet above the 100-year flood elevation or highest recorded flood elevation, whichever is higher, unless otherwise approved by MassDEP in writing. MassDEP recommends the station and access roads be elevated a minimum of three feet above the 100-year flood elevation to address potential climate change conditions."*

Table 3-1 summarizes each alternative and their associated impacts.

TABLE 3-1
Comparison of Harbor Trace PFAS WTP and Water Main Design Alternatives

	No Build	Alternative 1	Alternative 2	Alternative 3*
Description of Work Required	No action to reduce PFAS concentration at Harbor Trace or Witch Brook.	Construction of two PFAS WTPs.	Construction of PFAS WTP (Witch Brook Pump Station) • 4,400 LF raw water main • 11,000 LF looping water main.	Construction of PFAS WTP (Harbor Trace Pump Station) • 4,400 LF raw water main • 11,000 LF looping water main.

TABLE 3-1
Comparison of Harbor Trace PFAS WTP and Water Main Design Alternatives

	No Build	Alternative 1	Alternative 2	Alternative 3*
Location	N/A	Harbor Trace Pump Station and Witch Brook Pump Station	Harbor Trace Pump Station, Roadway Rights-of-Way	Harbor Trace Pump Station, Roadway Rights-of-Way
Property Ownership	N/A	Town of Townsend	Town of Townsend	Town of Townsend
Zone II	No	Yes	Yes	Yes
Zone I	No	Yes	Yes – WTP, water main (roadway)	Yes – water main (roadway)
Cost	None	$$$	$$	$$
Environmental Impacts Description	None	Two WTP footprints (Witch Brook and Harbor Trace Wells). No water main construction. Total land disturbance: 60,000 SF	One WTP footprint near Ash Street, in close proximity to BLSF and within Zone I, but outside of rare species habitat. Water main footprint limited to roadways. Total land disturbance: 45,400 SF	One WTP footprint near Harbor Trace Road, outside of BLSF and Zone I, but within rare species habitat. Water main footprint limited to roadways. Total land disturbance: 45,400 SF
Wetland Resource Area Impacts (SF)[1]	0	0	43,375 (water mains)	43,375 (water mains)
Rare Species Habitat	No	Yes – water main (roadways), Harbor Trace WTP	Yes – water main (roadways)	Yes – water main (roadways), Harbor Trace WTP
Feasibility	Unable to provide safe drinking water with reduced PFAS contamination.	Addresses PFAS contamination, but requires greater maintenance, operation, and build costs.	Addresses PFAS contamination, but site of WTP is less accessible and constrained to a smaller area than Harbor Trace due to elevation and location of land subject to flooding.	Addresses PFAS contamination, site accessibility is best and not constrained by elevation or size.

* Asterisk indicates the preferred alternative

[1] Representative of cumulative impacts to Riverfront Area, Bordering Land Subject to Flooding, 100-foot Buffer Zone, and local buffer zones.

Section 4
Project Description

The project consists of the construction of a new PFAS WTP to treat raw water at both the Harbor Trace and Witch Brook Pumping Stations, the installation of a new raw water transmission main between the two sites, and the installation of a new looping water main to loop the system and reduce dead ends. The Preferred Alternative, as previously described in Section 3, is discussed below. The purpose of the project is to provide safe drinking water to the public by reducing PFAS contaminant levels at both Harbor Trace and Witch Brook Wells.

4.1 PFAS Water Treatment Plant

4.1.1 Site Location and Design

The selected site is on a parcel owned by the Town of Townsend: Off Harbor Trace Road. This site has adequate space at an elevation above the 100-year flood zone, with access to the existing Harbor Trace Well. To prepare the site, existing trees and shrubs will be cleared and grubbed to construct the WTP.

The PFAS WTP will be a single-story structure with a reinforced concrete foundation and approximate side wall height of 35 feet. The floor plan will include four 12-foot diameter filter vessels, a potassium hydroxide (KOH) chemical feed system, a sodium hypochlorite (NaOCl) chemical feed system, and associated process piping. It will also hold garage space and office space for the Townsend Water Department.

The building will also include process support systems including heating and ventilation, plumbing, electrical, and instrumentation, as necessary. Fire suppression systems will be required as the proposed size is greater than 7,500 square feet. Floor drains and sanitary waste will be conveyed to a new septic system, which is proposed to the northwest of the WTP. A new generator will also be required to provide standby power to the WTP and existing pump station and will be fueled by natural gas.

The area will be accessed via the existing paved access road to the Harbor Trace Pumping Station, including for the delivery of chemicals. In addition to the footprint of the WTP, a paved driveway and parking area is proposed around the building. Please refer to Figure 4 in Attachment B for the proposed WTP Site Plan.

4.1.2 Wetland and Stormwater Considerations

The new WTP will result in an increase in impervious area at the Project Site. Stormwater will be managed using BMPs to control runoff and mitigate impacts of stormwater runoff. Since the project is within the limits of the Squannassit ACEC, all Massachusetts Stormwater Management Standards will be met to avoid adverse impacts to water quality. This will include, but is not limited to, the treatment, infiltration, and storage of at least the first inch of stormwater using detention basins equipped with sediment forebays, and deep sump catch basins. The WTP has been sited outside of wetland resource areas, but is within the limits of mapped NHESP Priority and Estimated Habitats.

4.2 Raw Water Transmission Main

4.2.1 Site Location and Design

The location of the proposed raw water transmission main is limited to existing paved roadway rights-of-way including Harbor Trace Road, South Road, South Harbor Road, and Ash Street.

The proposed main will be a 12-inch diameter high-density polyethylene (HDPE) pipe installed via open cut trenching throughout the existing paved roadways. Upon the completion of work, all surfaces in the roadway will be restored as needed. Work can be conducted by equipment parked on the existing roadway.

4.2.2 Wetland and Stormwater Considerations

The new water main will be installed adjacent to multiple wetland resource areas. All necessary BMPs will be followed, including but not limited to, straw wattles and bales, silt fencing, and silt sack inserts will be installed where necessary in disturbed areas to reduce polluted stormwater runoff. There are no stream crossings in this portion of the proposed water main.

4.3 Looping Water Main

4.3.1 Site Location and Design

The location of the proposed looping water main is limited to the existing paved roadway rights-of-way including South Harbor Road, South Row Road, and Emery Road.

The proposed water main will be a 12-inch diameter HDPE pipe installed via open cut trenching throughout the existing paved roadways. The water main will be installed above existing culverts. Upon the completion of work, all surfaces in the roadway will be restored as needed. Work can be conducted by equipment parked on the existing roadway.

4.3.2 Wetland and Stormwater Considerations

The new water main will be installed adjacent to multiple wetland resource areas. All necessary BMPs, including but not limited to, straw wattles and bales, silt fencing, and silt sack inserts will be utilized where necessary in disturbed areas to reduce polluted stormwater runoff.

There are several culverts within South Row Road and Emery Road. These locations are summarized in Table 4-1, below.

TABLE 4-1
Summary of Culvert Stream Crossings within the Project Site

Size and Material[1]	Wetland ID Series	Latitude / Longitude	Street Name
18” RCP	3B and 3C	42.64768, -71.68840	South Harbor Road
15” CMP	4A and 4B	42.64554, -71.69086	South Row Road
12” CMP	6A and 6B	42.63688, -71.69932	South Row Road/Emery Road

TABLE 4-1
Summary of Culvert Stream Crossings within the Project Site

Size and Material[1]	Wetland ID Series	Latitude / Longitude	Street Name
12" CMP	6A	42.63681, -71.69934	South Row Road/Emery Road
15" CMP	7A	42.63724, -71.70011	Emery Road
18" CMP	8A and 8B	42.63757, -71.70078	Emery Road
18" CMP	8A	42.63738, -71.70042	Emery Road
18" CMP	8A	42.63795, -71.70151	Emery Road
2x2 Box Culvert	8A and 8C	42.63805, -71.70172	Emery Road
30" CMP	9A, 9B, 9C, 9D, and 9E	42.63992, -71.70507	Emery Road
18" CMP	9D and 9E	42.64028, -71.70572	Emery Road
Two 48" RCPs	11B, 11C, 11D, and 11E	42.64326, -71.70935	Emery Road

[1] RCP = Reinforced Concrete Pipe, CMP = Corrugated Metal Pipe

These stream crossings will be achieved through open trench installation above the culverts to avoid impacts to inland Bank, BVW, and Land Under Waterbodies and Waterways.

4.4 Construction Sequencing

The following general anticipated sequence of construction applies to each component of the overall water system improvements. Please note that the following sequence is based on Tighe & Bond's experience with similar projects. Further, each of the improvements described in this ENF will be contracted and undertaken separately. As a result, this general (typical) sequence will be repeated for each.

1. Notify pertinent regulatory agencies of the construction schedule.
2. Mobilize to the site and install temporary sediment and erosion control measures, including perimeter barriers and other Best Management Practices (BMPs).
3. Schedule and conduct site walks with pertinent regulatory agencies to inspect construction-phase BMPs.
4. Prepare site for construction, e.g., clearing/cutting of vegetation.
5. Construct new PFAS WTP facility, install raw water transmission main, install looping water main.
6. Stabilize and restore the site.
7. Remove perimeter barriers, erosion and sedimentation control barriers once site has stabilized and regulatory agencies have authorized the actions.

Contractors will be required to submit project-specific construction sequences prior to commencement of work.

Section 5
Mitigation Measures

This section summarizes the mitigation, compliance and monitoring measures proposed to be implemented in order to minimize impacts during construction of the proposed projects.

5.1 Rare Species

As previously noted, the proposed PFAS WTP and a portion of the proposed water main are within Blanding's turtle habitat. All construction-period BMPs will be followed to mitigate adverse impacts to Blanding's turtle during the active period (April 15 through October 15). The Town also anticipates the implementation of a Massachusetts Division of Fisheries & Wildlife approved turtle protection plan, involving daily turtle sweeps of the site, installation and maintenance of turtle barriers, and designated turtle biologist.

5.2 Historical and Archeological Resources

There are no anticipated project impacts, direct or indirect, on any inventoried historic properties or archaeological resources. Though no adverse effects to archaeological, cultural and/or other historical assets are anticipated, the Town of Townsend will coordinate with MHC to incorporate mitigation measures if unanticipated archaeological, cultural and/or other historical assets are encountered and deemed necessary.

5.3 Wetlands

Construction related to the installation of the new water mains will occur within Bordering Land Subject to Flooding, Riverfront Area, and the 100-foot Buffer Zone to wetland resource areas (i.e., inland Bank, BVW, BLSF (local)). All work within these resource areas will occur within the limits of existing roadways. Areas disturbed within wetland resource areas as a result of the proposed work will be restored to preconstruction conditions. This project will comply with the applicable provisions and mitigation requirements under the Massachusetts Wetlands Protection Act regulations 310 CMR 10.00, and the Townsend Wetland Bylaw (Chapter 138). The proposed work will require the filing of a Notice of Intent (NOI) with the Townsend Conservation Commission.

Construction-period BMPs (e.g., the location where erosion and sedimentation control barriers will be installed and installation procedures) and post-construction stormwater management practices, both structural and non-structural, will be incorporated into the designs.

5.4 Stormwater

The contractor(s) will implement appropriate BMPs for the control of erosion and sedimentation in active work zones and until disturbed areas have been restored or otherwise stabilized. Erosion control barriers will consist of silt fence and straw wattles and bales as necessary staked in place along the limits of work to minimize the potential for migration of disturbed soil. The contractor(s) will be required to maintain the barriers

in good working order and to repair and replace sections as necessary. These barriers will be inspected daily during construction and until disturbed soils have become stabilized.

Stormwater generated by the proposed project will be treated, infiltrated, and stored in accordance with all Massachusetts Stormwater Management Standards utilizing detention basins equipped with a sediment forebay. Where necessary, deep sump catch basins may also be utilized.

In any location of in-street work where stormwater runoff discharges to a local storm drain or catch basin, catch basin inlet protection will be installed prior to construction. Catch basin inlet protection procedures will be site-specific but may consist of one or a combination of techniques, including the use of geotextile filter fabric "socks", filter bags, and straw or fiber rolls/blocks or bales, as appropriate, to filter or intercept sediment prior to discharging to the collection system. When the disturbed excavation area is stabilized, catch basin inlet protection will be removed and any accumulated sediment properly disposed.

5.5 Management of Fuels, Waste Oil, and Hazardous Wastes

Contractor(s) will be required to conduct work in an environmentally safe manner and in accordance with applicable regulations for the management of fuels, waste oils, and hazardous substances. Any hazardous materials will be transported, stored, and handled as recommended by the suppliers and/or manufacturers, and in compliance with applicable federal or state regulations.

No fuel storage or equipment refueling will be allowed within the Zone I Wellhead Protection Areas.

The contractor(s) will be required to maintain a spill kit available at all locations where work is taking place.

5.6 Dust and Air Quality Control

To minimize the potential for airborne dust from earth disturbing activities, contractors will be required to control dust (e.g., place water trucks with misters in or near the work areas during construction activities as necessary). In addition, excavated soils during the water main work will be directly transferred from the trench to a covered truck to minimize the potential for the release of dust and for soil migration from the work area.

Contractors will be required to comply with state law (G.L. c. 90, § l6A) and MassDEP regulations (310 CMR 7. 11 (1)(b)), which limit vehicle idling to no more than five minutes except for vehicles being serviced, vehicles making deliveries that need to keep their engines running, and vehicles that need to run their engines to operate accessories.

Section 6
Regulatory Compliance

The projects have been designed to avoid environmental impacts, when possible, minimize unavoidable impacts when practicable, and provide mitigation that is commensurate with the proposed alterations. Descriptions of compliance with the regulatory requirements of the Massachusetts Wetlands Protection Act (MAWPA), Townsend Wetland Bylaw (Chapter 138), and other pertinent state and federal regulatory programs are provided in the following sections. A list of required permits and approvals is provided in Attachment F.

6.1 Local Permits

6.1.1 Townsend Conservation Commission

Portions of the project will occur within areas subject to protection and jurisdiction under the Massachusetts Wetlands Protection Act (MAWPA: M.G.L. c. 131 § 40) and its implementing regulations set forth at 310 CMR 10.00, as well as the Town of Townsend Wetland Bylaw (Chapter 138) and Regulations (Chapter 150). All work within wetland resource areas (i.e., BLSF, Riverfront Area) is limited to the footprint of existing paved roadways. A Notice of Intent (NOI) will be filed with the Townsend Conservation Commission, the Issuing Authority. A copy of the NOI will also be submitted to MassDEP (Central Region) Division of Wetlands and Waterways and Natural Heritage & Endangered Species Program.

6.1.1.1 Minor Activities in Buffer Zone

The installation of underground utilities (e.g., water) within existing paved or unpaved roadways within Riverfront Area and/or Buffer Zone is exempt as a Minor Activity in Buffer Zone per 310 CMR 10.02(2)(b)(2)(i), provided that all work is conducted within the roadway and that all trenches are closed at the completion of each workday. This exemption applies to 3,515 LF of new water main installation within Ash Street, South Row Road, and Emery Road.

6.1.1.2 Limited Project Status

The underground portions of the project may qualify for consideration as a Limited Project per 310 CMR 10.53(3)(d):

The construction, reconstruction, operation and maintenance of underground and overhead public utilities, such as electrical distribution or transmission lines, or communication, sewer, water and natural gas lines, may be permitted, in accordance with the following general conditions and any additional conditions deemed necessary by the issuing authority:

> *1. the issuing authority may require a reasonable alternative route with fewer adverse effects for a local distribution or connecting line not reviewed by the Energy Facilities Siting Council;*
>
> *2. best available measures shall be used to minimize adverse effects during construction;*

3. the surface vegetation and contours of the area shall be substantially restored; and

4. all sewer lines shall be constructed to minimize inflow and leakage.

As the project meets the performance standards for BLSF and Riverfront Area (described in greater detail in Sections 6.1.1.4 and 6.1.1.5), it is not anticipated that Limited Project status will be invoked for this work.

6.1.1.3 Alternatives Analysis

Please refer to the discussion of alternatives in Section 3.

6.1.1.4 Bordering Land Subject to Flooding

The Performance Standards for Bordering Land Subject to Flooding are set forth at 310 CMR 10.57(4)(a). The proposed raw water transmission main and looping water main partially fall within the limits of BLSF. The total temporary impacts to BLSF from the installation of new water main totals approximately 4,275 square feet (SF).

1. *Compensatory flood storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within Bordering Land Subject to Flooding, when in the judgment of the issuing authority said loss will cause an increase or will contribute incrementally to an increase in the horizontal extent and level of flood water during peak flows.*

   Compensatory flood storage shall mean a volume not previously used for flood storage and shall be incrementally equal to the theoretical volume of flood water at each elevation, up to and including the 100-year flood elevation, which would be displaced by the proposed project. Such compensatory volume shall have an unrestricted hydraulic connection to the same waterway or water body. Further, with respect to waterways, such compensatory volume shall be provided within the same reach of the river, stream or creek.

   The proposed project will not result in any net fill of BLSF, as the proposed water main will be installed in the existing paved roadway via open cut trenches. All paved roadway areas will be restored to match existing grades, so no changes to BLSF are anticipated. As such, compensatory flood storage is not required.

2. *Work within Bordering Land Subject to Flooding, including work required to provide the above-specified compensatory flood storage, shall not restrict flows so as to cause an increase in flood stage or velocity.*

   As noted above, the project will not result in any fill or changes in grade in BLSF. As such, this standard has been met.

3. *Work in those portions of bordering land subject to flooding found to be significant to the protection of wildlife habitat shall not impair its capacity to provide important wildlife habitat functions. Except for work which would adversely affect vernal pool habitat, a project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the threshold, or altering vernal*

pool habitat, may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60

Work within BLSF totals approximately 4,275 SF. However, work proposed within BLSF is limited to existing paved roadways. Per 310 CMR 10.57(1)(a)(3), the important wildlife habitat functions of areas of BLSF that have been so extensively altered by human activity (e.g., roadways) have essentially had those functions eliminated. As such, this standard is not applicable to the proposed project.

6.1.1.5 Riverfront Area

The Project Locus has approximately 429,835 SF of Riverfront Area associated with Bixby Brook, Witch Brook, and an unnamed perennial stream. Of this area, approximately 35,165 SF (8.2 percent) is degraded due to the presence of paved, impervious areas. The project will result in approximately 6,625 SF of work within the 200-foot Riverfront Area of Bixby Brook and Witch Brook. Of this, approximately 2,450 SF will occur within the first 100 feet of Riverfront Area and the remaining 4,175 SF will occur in the outer 100 feet. Approximately 965 LF (4,825 SF) of the work within Riverfront Area is exempt as a Minor Activity in Buffer Zone per 310 CMR 10.02(2)(b)(2)(i), as noted previously. None of the work proposed in Riverfront Area will result in permanent changes, as the installation of water main will not permanently change the characteristics of the area following the completion of construction and site restoration. The general performance standards set forth at 310 CMR 10.58(5) are provided below in italics, while the details of project design follow.

(a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.

As noted above, approximately 35,165 SF of Riverfront Area is occupied by existing pavement and/or the absence of topsoil. The proposed work in Riverfront Area includes the looping water main along the existing roadways of South Row Road and Emery Road. This project will not result in the increase of degraded Riverfront Area as all work within this resource area will be limited to the paved footprint of existing roadway. Additionally, all roadway areas will be restored to previous conditions following water main installation. As such, the general characteristics of the area will not be changed.

(b) Stormwater management is provided according to standards established by the Department.

The proposed project meets the Massachusetts Stormwater Standards. Refer to Section 5.1.3 for additional details.

(c) Within 200-foot riverfront area, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25-foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).

The proposed activities will occur within 100 feet of Bixby Brook and Witch Brook, but will not encroach closer than existing site development, as all work is limited to previously degraded areas.

(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).

The proposed water mains are located within the existing paved roadways, away from the rivers. Due to the location of the roadways in proximity to the rivers, the water main cannot be installed outside of Riverfront Area.

(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).

The Project Locus contains approximately 429,835 SF of Riverfront Area. The proposed activities will result in approximately 6,625 SF of work within previously developed and degraded Riverfront Area. This represents an alteration of approximately 1.54 percent of the total Riverfront Area within the Project Locus.

(f) When an applicant proposed restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(c), (d) and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include

1. *removal of all debris, but retaining any trees or other mature vegetation;*
2. *grading to a topography which reduces runoff and increases infiltration;*
3. *coverage by topsoil at a depth consistent with natural conditions at the site; and*
4. *seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site.*

The proposed work is limited to the footprint of previously developed and degraded Riverfront Area and will not increase the amount of degraded Riverfront Area within the Project Locus.

(g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(c), (d), or (e) at a ratio in square feet of at least 2:1 mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184 §§ 31 to 33 to preserve undisturbed riverfront area that could otherwise be altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131 § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Environmental Affairs.

The proposed work is limited to the footprint of previously developed and degraded Riverfront Area and will not increase the amount of degraded Riverfront Area within the Project Locus.

(h) The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its restored or mitigated condition. Prior to requesting the issuance of the Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.

Not applicable. Mitigation not proposed.

6.1.1.6 Massachusetts Stormwater Management Standards

The stormwater management system described in Section 4.1.4 will collect and treat runoff from new impervious surfaces (i.e., paved access, pumping station building footprint) in accordance with each of the Massachusetts Stormwater Management Standards. The design utilizes existing stormwater discharges; no new point source discharges are proposed. Further, the design meets recharge volumes, and the system will not result in any increases in peak discharge rates. A complete Stormwater Checklist and Report will be submitted to the Town of Townsend Conservation Commission for review with the Notice of Intent (NOI) application.

6.1.2 Townsend Building Department

The contractors will be required to obtain building permits for the WTP in Townsend. The application for these permits will be filed after the award of the construction contract.

6.2 State Permits

6.2.1 MassDEP Technical Review

The design plans and specifications for the new WTP will be submitted to the MassDEP NERO for review and approval. The WTP has been designed to meet MassDEP Standards. Once the design is substantially completed, the following permit applications will be submitted to MassDEP for review and approval:

- MassDEP Technical Review and Permitting for the WTP Process as follows:
    - Approval to Conduct Pilot Study (BRPWS 21D)
    - Pilot Study Report (BRPWS 22D)
    - Approval to Construct Treatment Plant (BRPWS 24)
    - Distribution System Modifications – Water Main Installation (BRPWS 32)
    - Water Supply Facility Checklist for Potassium Hydroxide (KOH)
    - Water Supply Facility Checklist for Chlorine (NaOCl)

MassDEP will review these submittals to confirm that the design conforms to published MassDEP Policies and Guidelines. The duration of the review process is typically a 30-day Administrative Completeness review followed by a 90-day Technical Completeness review.

Once MassDEP issues their approval letter, the project can proceed with the bidding process.

6.2.2 Natural Heritage Endangered Species Program

Construction of the new WTP is within mapped Priority Habitat and is therefore subject to the Massachusetts Endangered Species Act (MESA) and its implementing regulations set forth at 321 CMR 10.00, as administered by NHESP. NHESP has verified the habitat of Blanding's Turtle (*Emydoidea blandingii*), a state-listed Threatened species in correspondence dated May 17, 2022, a copy of which is provided in Attachment D. A MESA Project Review Checklist will be submitted to NHESP for review relative to the construction of the WTP. As noted in Section 5.1, the Town anticipates the need for conditional approval and measures to avoid a "take" of this species. The proposed water main is exempt from MESA per 321 CMR 10.14(10) as the work is within ten feet of the edge of paved driveways and roadways.

6.2.3 Massachusetts Historical Commission

As previously noted, the proposed project is not within any inventoried historic districts, historic properties or archaeological resources. There will be no project impacts, direct or indirect, on any inventoried historic properties or archaeological resources. A PNF was submitted to MHC and it was determined that the project is unlikely to affect significant historic or archaeological resources. A copy of MHC response is provided in Attachment E.

6.2.4 MassDCR Construction and Access Permit

A Construction and Access Permit from the Massachusetts Department of Conservation and Recreation (DCR) will be required for this project, as a portion of the water main will be installed in parts of South Harbor Road and South Row Road, which are MassDCR access roads.

6.3 Federal Permits

6.3.1 NPDES Construction General Permit

Construction activities will result in the cumulative disturbance of one (1) or more acres of land. A Notice of Intent (NOI) will be submitted to EPA for coverage under the National Pollution Discharge Elimination System (NPDES) Construction General Permit (CGP). The selected contractor(s) will be required to prepare the Stormwater Pollution Prevention Plan (SWPPP) and prepare and submit the NOI for the project.

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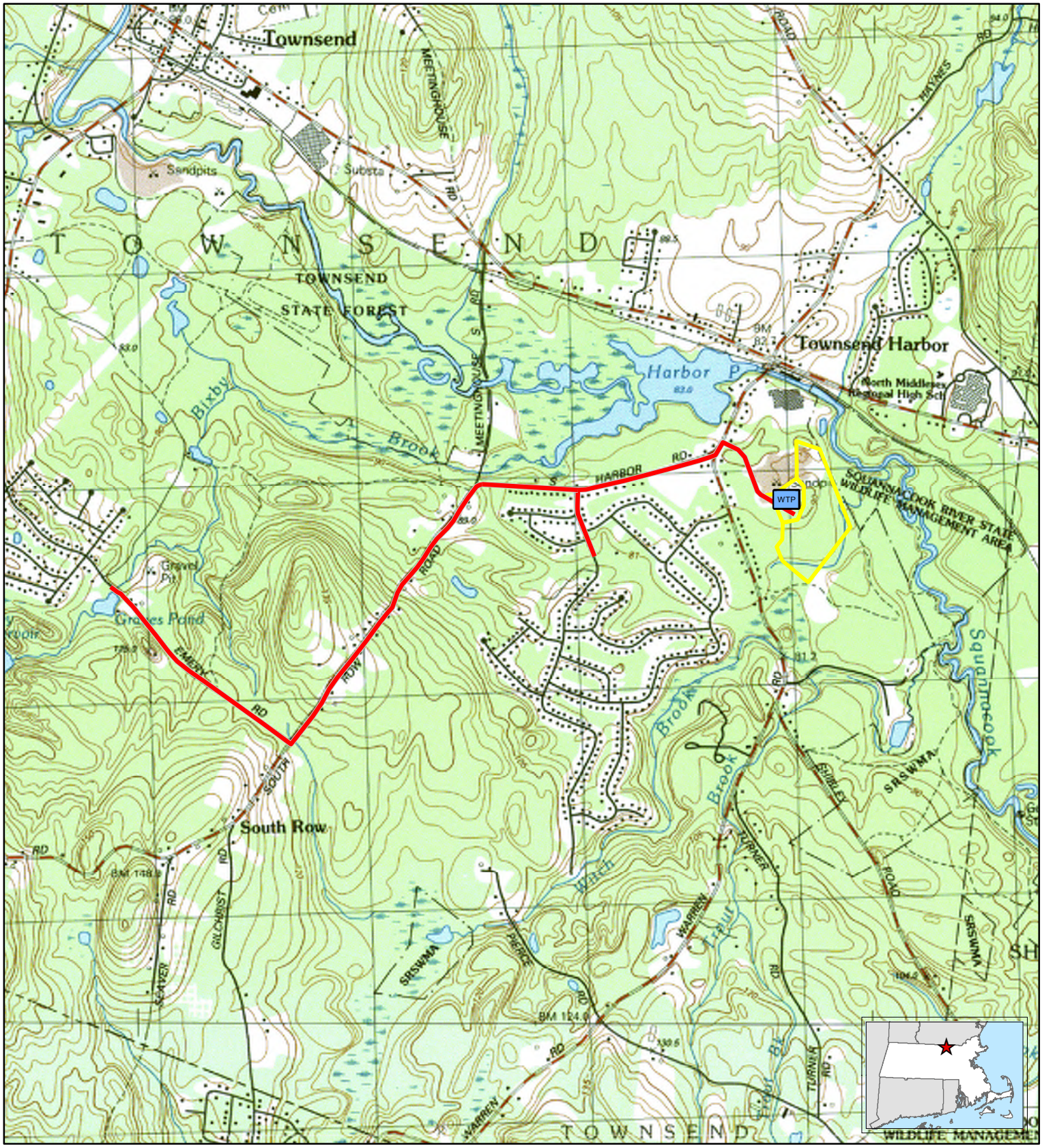
ATTACHMENT B



Legend

WTP Proposed WTP

Subject Parcels

Water Main Alignment

Tighe&Bond

Based on USGS Topographic Map for Townsend, MA Revised 1988. Contour Interval Equals 10 ft.

1:24,000

0 1,000 2,000

Feet

N

FIGURE 1
SITE LOCATION

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

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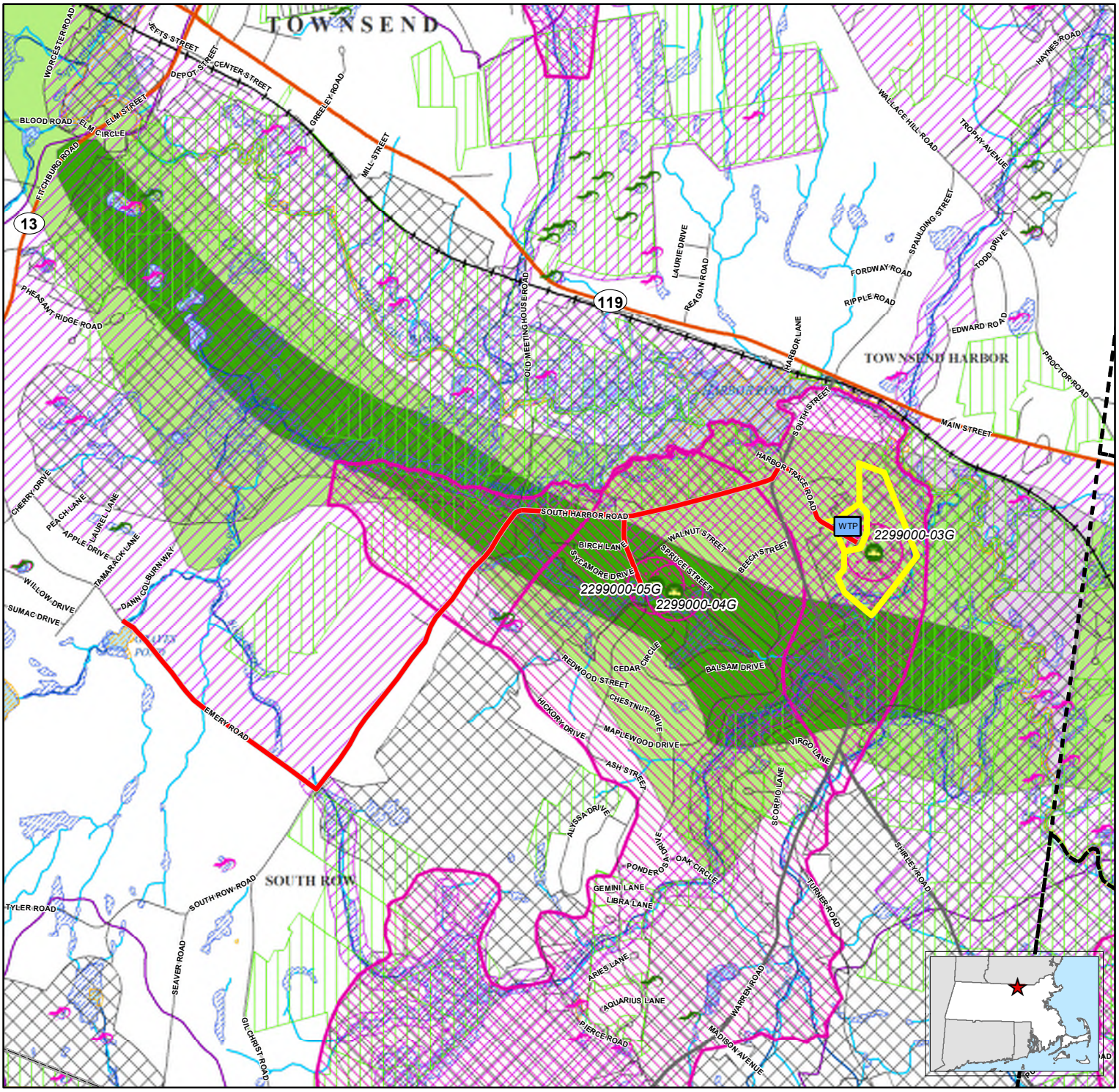

Legend

- NHESP Certified Vernal Pools
- NHESP Potential Vernal Pools
- Non-Landfill Solid Waste Sites
- Proposed Well
- Emergency Surface Water
- Community Public Water Supply - Surface Water
- Community Public Water Supply - Groundwater
- Non-Community Non-Transient Public Water Supply
- Non-Community Transient Public Water Supply
- Limited Access Highway
- Multi-Lane Highway, NOT Limited Access
- Other Numbered Route
- Major Road - Arterials and Collectors
- Minor Street or Road
- Aqueducts
- Hydrologic Connections
- Stream/Intermittent Stream
- Powerline
- Pipeline
- Track or Trail
- Trains
- Public Surface Water Supply Protection Area (Zone A)
- DEP Approved Wellhead Protection Area (Zone I)
- DEP Approved Wellhead Protection Area (Zone II)
- DEP Interim Wellhead Protection Area (IWPA)
- Protected and Recreational Open Space
- Solid Waste Landfill
- Area of Critical Environmental Concern (ACEC)
- NHESP Priority Habitats for Rare Species
- NHESP Estimated Habitats for Rare Wildlife
- EPA Designated Sole Source Aquifer
- Major Drainage Basin
- Sub Drainage Basin
- MassDEP Open Water
- MassDEP Inland Wetlands
- MassDEP Coastal Wetlands
- MassDEP Not Interpreted Wetlands
- Public Surface Water Supply (PSWS)
- Water Bodies
- Non-Potential Drinking Water Source Area - High Yield
- Non-Potential Drinking Water Source Area - Medium Yield
- Potentially Productive Medium Yield Aquifer
- Potentially Productive High Yield Aquifer
- County Boundary
- Municipal Boundary
- USGS Quadrangle Sheet Boundary
- WTP Proposed WTP
- Water Main Alignment
- Subject Parcels

1:24,000

0 1,000 2,000

Feet

N

FIGURE 2
PRIORITY RESOURCES

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

Data source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology Parcels provided by MassGIS (2022).
Data valid as of September 2022.

September 2022

Tighe&Bond

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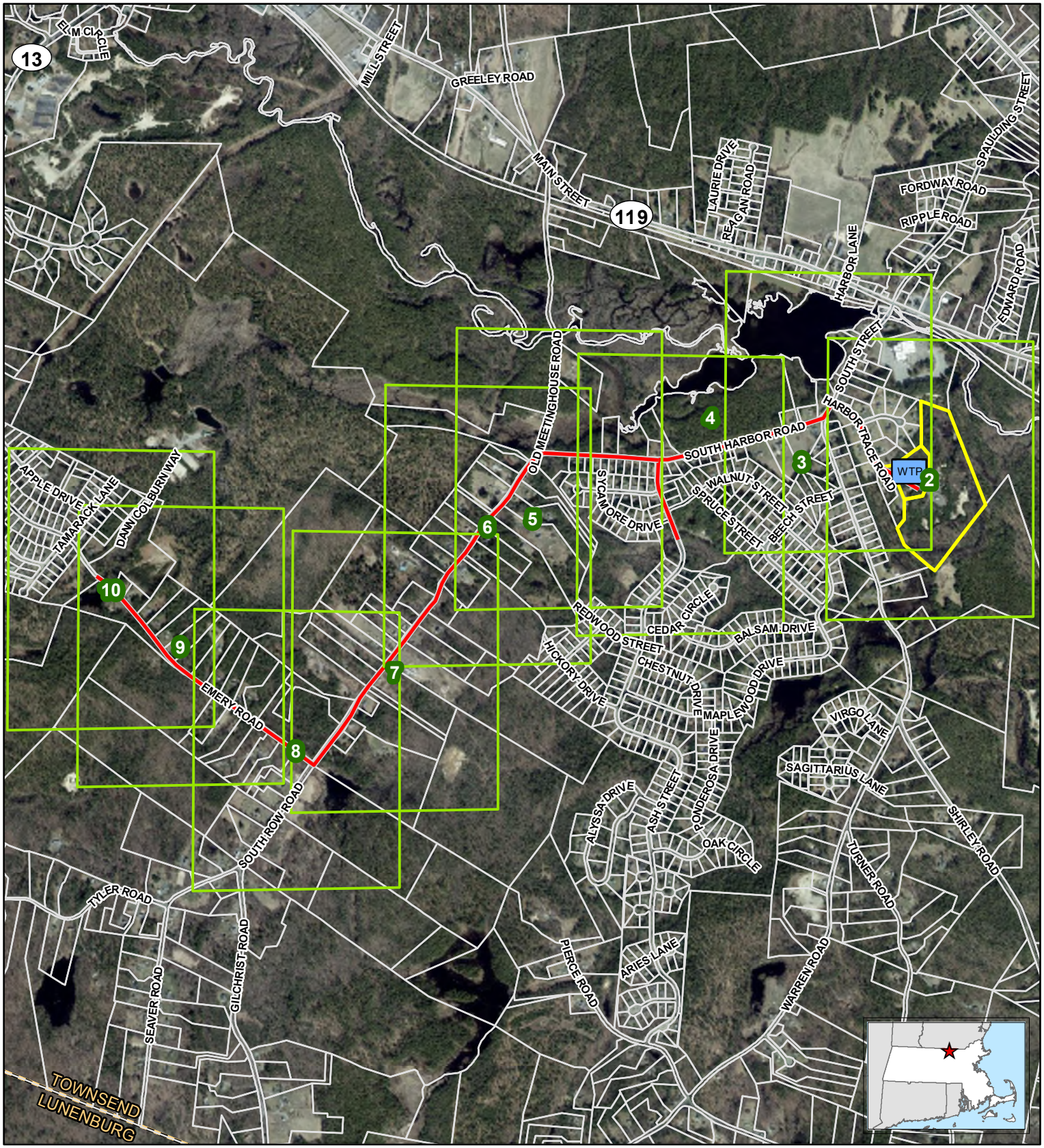

Legend

- WTP Proposed WTP
- Water Main Alignment
- Map Index
- Subject Parcels
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:20,000

0 500 1,000

Feet

N

FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

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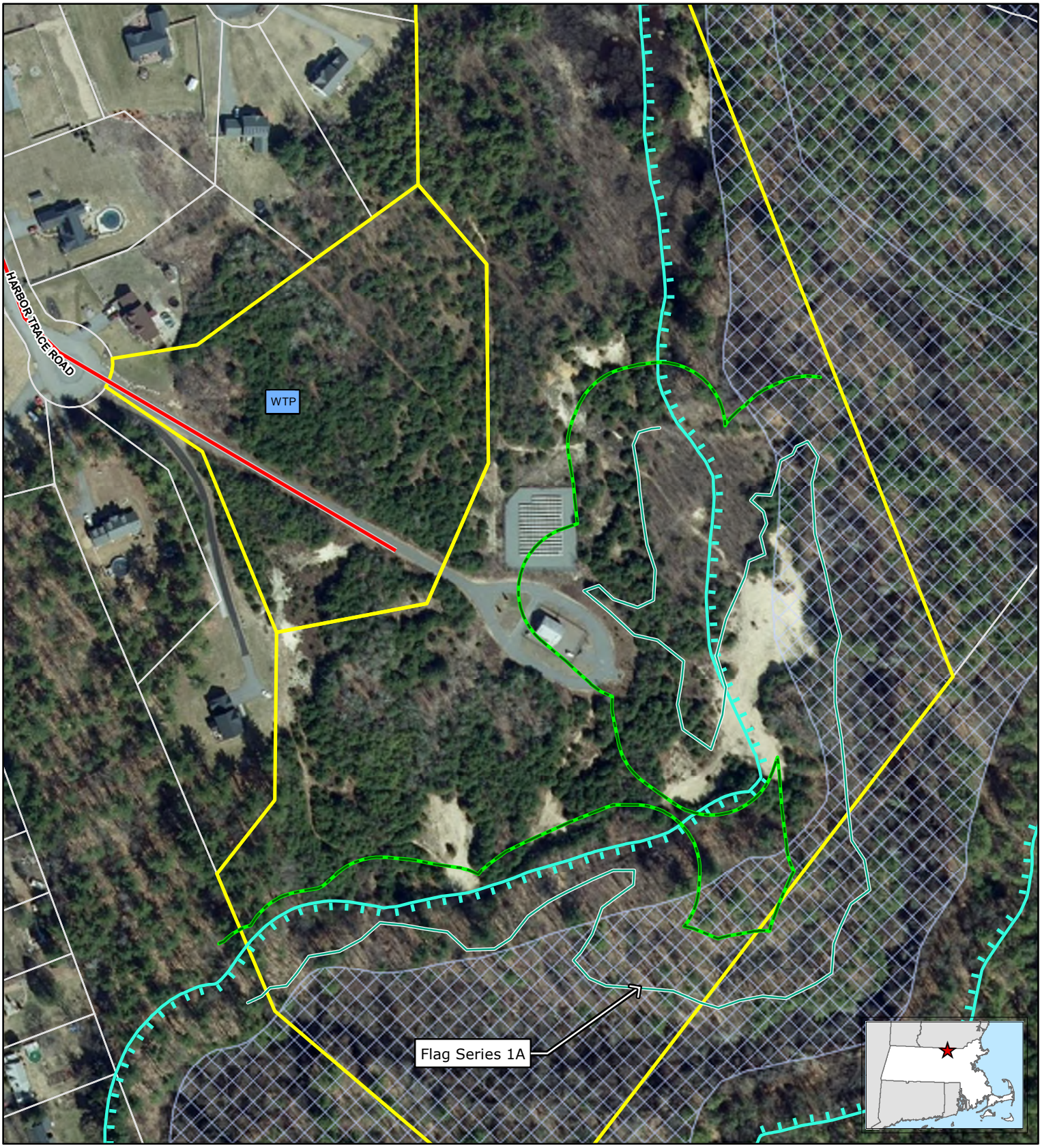

Legend

- WTP — Proposed WTP
- Water Main Alignment
- Delineated Wetland Boundary
- 100-foot Buffer Zone
- Buffer to BLSF (local)
- 100 Year Flood Zone
- Subject Parcels
- Approximate Parcel Boundary
- Municipal Boundary

1:2,400

0 65 130

Feet

N

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

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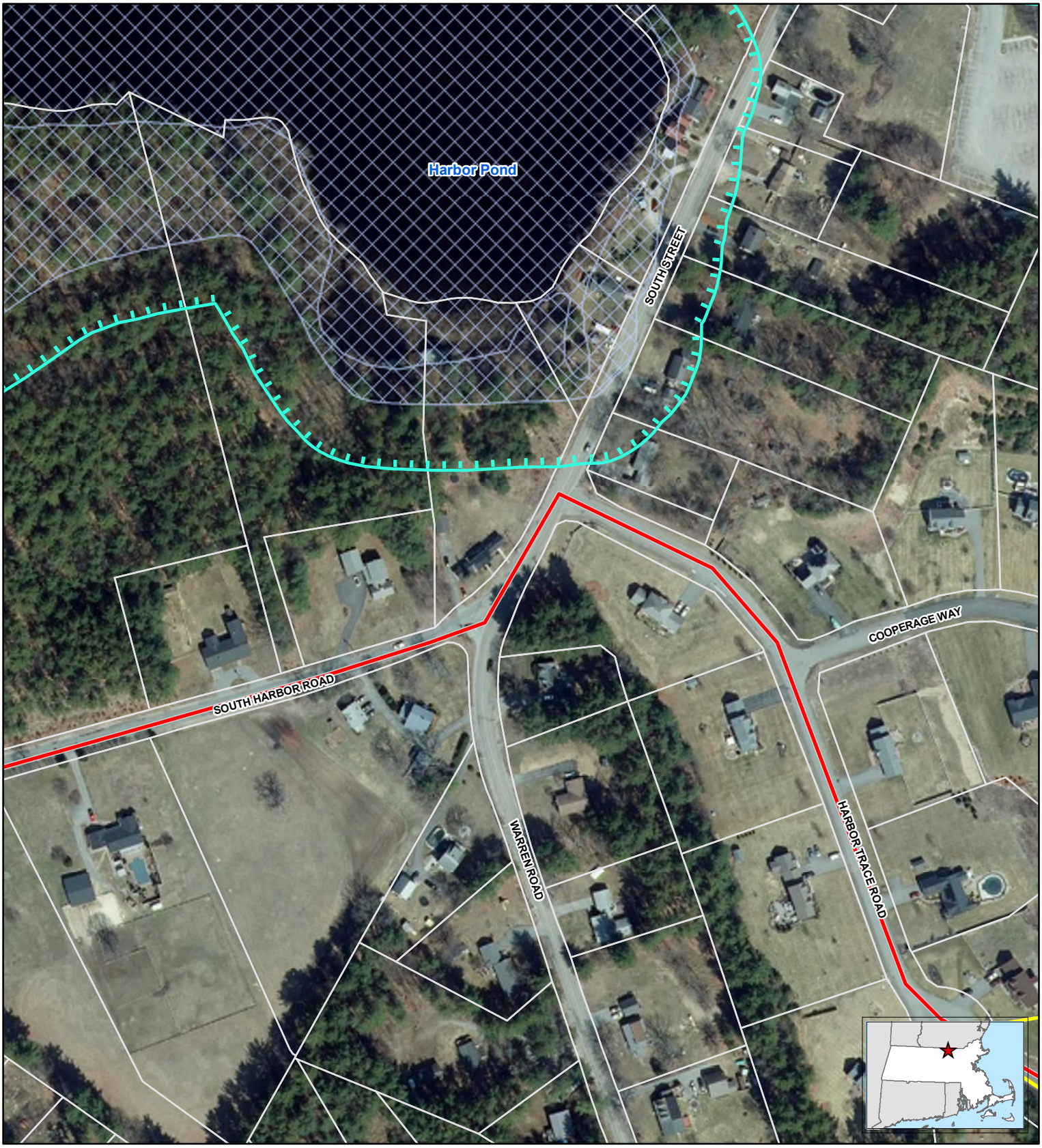

Legend

- Water Main Alignment
- Buffer to BLSF (local)
- 100 Year Flood Zone
- Subject Parcels
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:2,400
0 65 130
Feet

N

FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

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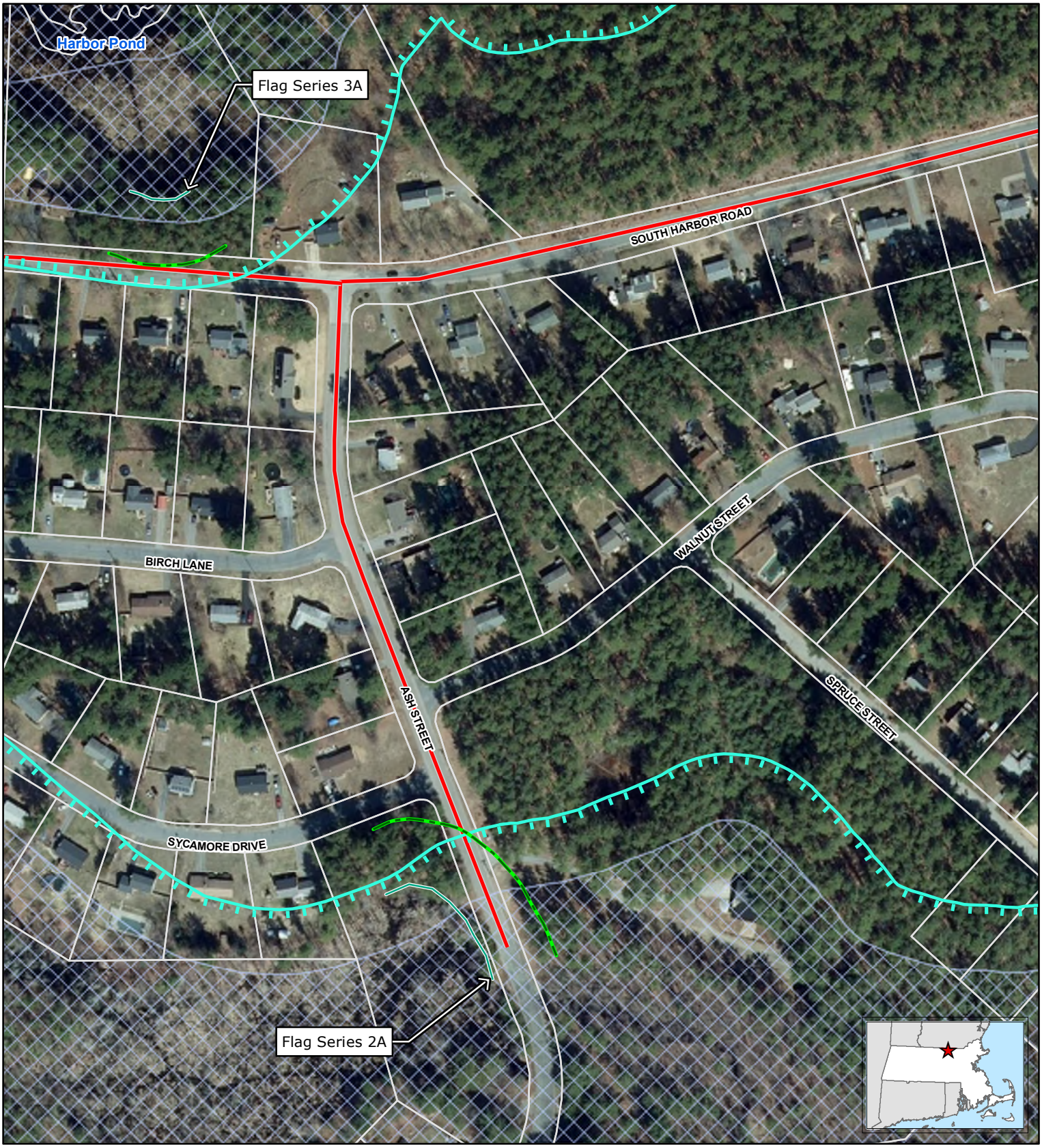


Legend

- Water Main Alignment
- Delineated Wetland Boundary
- 100-foot Buffer Zone
- Buffer to BLSF (local)
- 100 Year Flood Zone
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:2,400
0 65 130
Feet

N

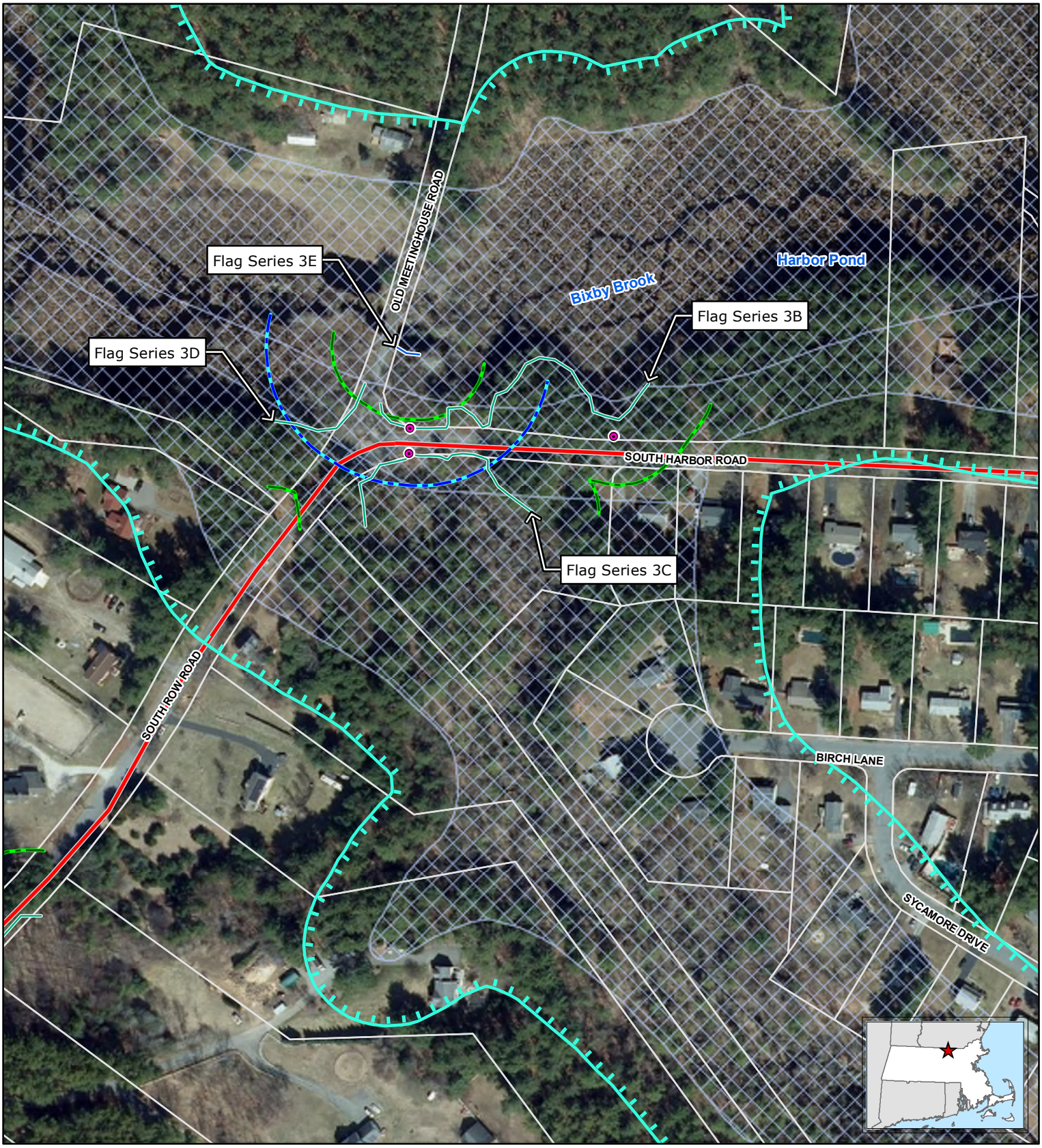
FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

V:\Projects\T\T0354\011 - Harbor Trace PFAS Water Treatment Plant\MXD\PFAS_TownsendMA_Aerial.mxd [Exported By: LFrassinelli, 9/15/2022, 2:09:28 PM]

T-0354



Legend

- Culvert
- Water Main Alignment
- Delineated Wetland Boundary
- Delineated Bank Boundary
- 100-foot Buffer Zone
- 200-foot Riverfront Area
- Buffer to BLSF (local)
- 100 Year Flood Zone
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:2,400
0 65 130
Feet

N

FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

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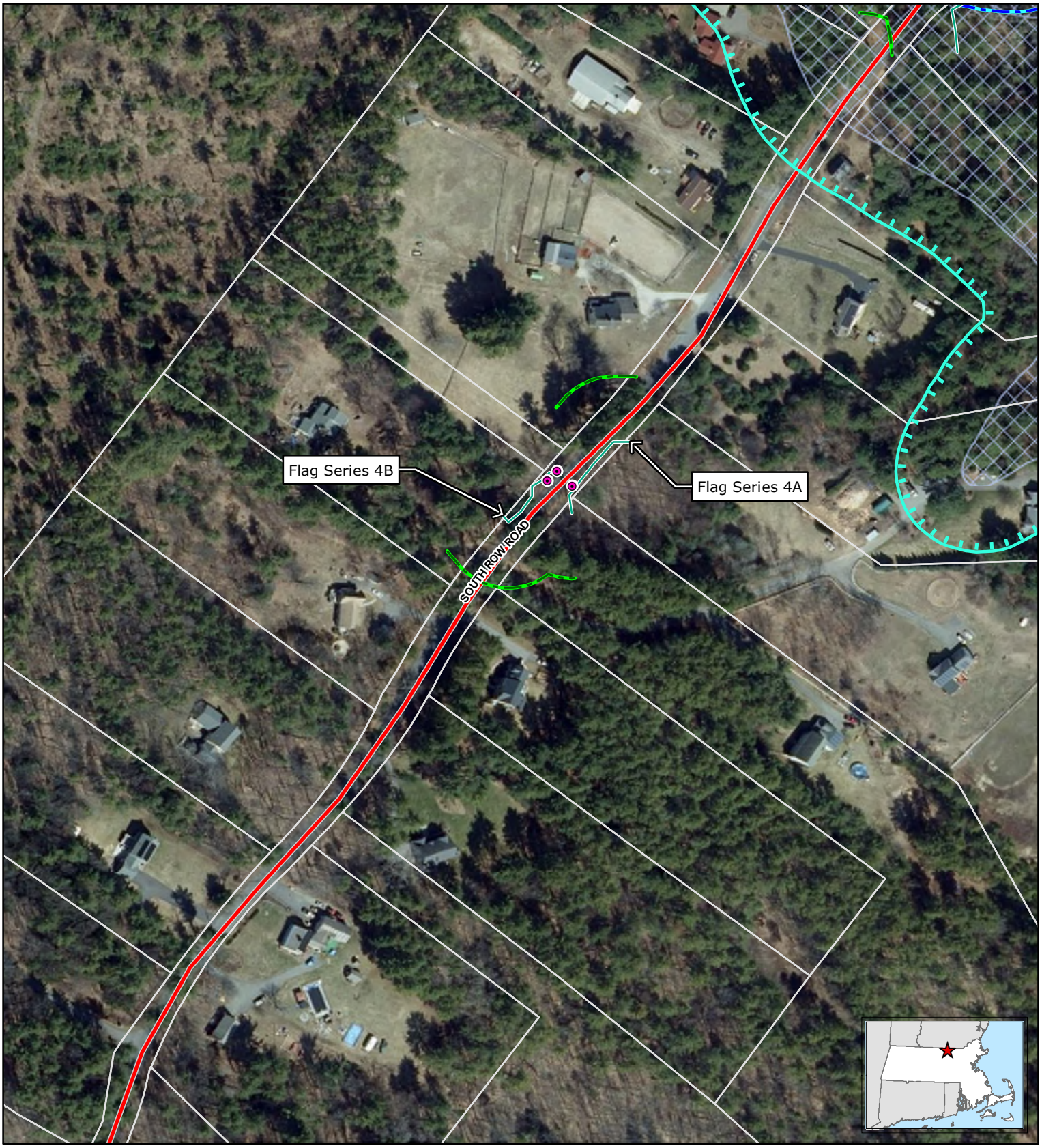
T-0354



Legend

- Culvert
- Water Main Alignment
- Delineated Wetland Boundary
- 100-foot Buffer Zone
- 200-foot Riverfront Area
- Buffer to BLSF (local)
- 100 Year Flood Zone
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:2,400
0 65 130
Feet

N

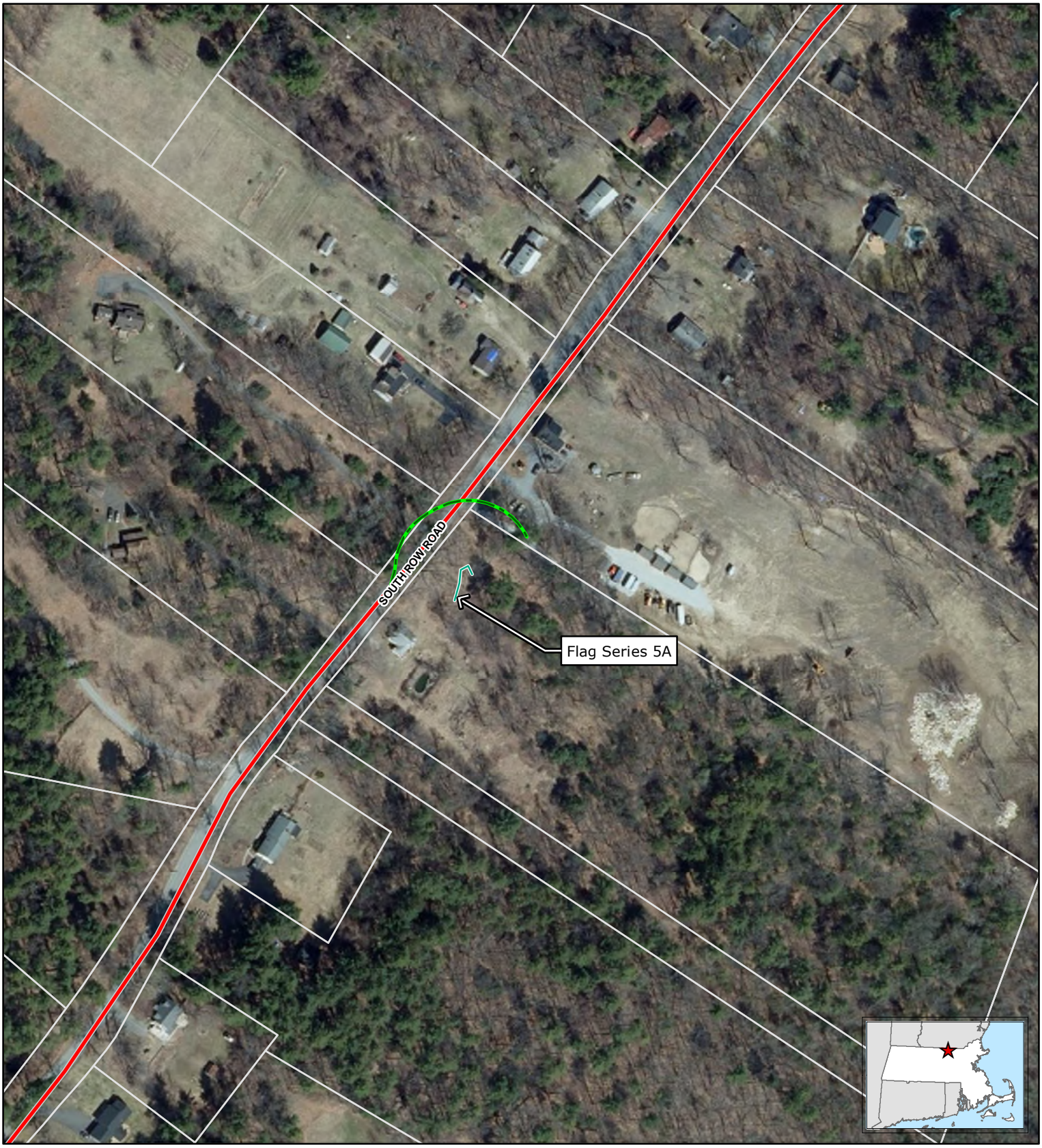
FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

V:\Projects\T\T0354\011 - Harbor Trace PFAS Water Treatment Plant\MXD\PFAS_TownsendMA_Aerial.mxd [Exported By: LFrassinelli, 9/15/2022, 1:00:38 PM]

T-0354



Legend

- Water Main Alignment
- Delineated Wetland Boundary
- 100-foot Buffer Zone
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:2,400

0 65 130

Feet

N

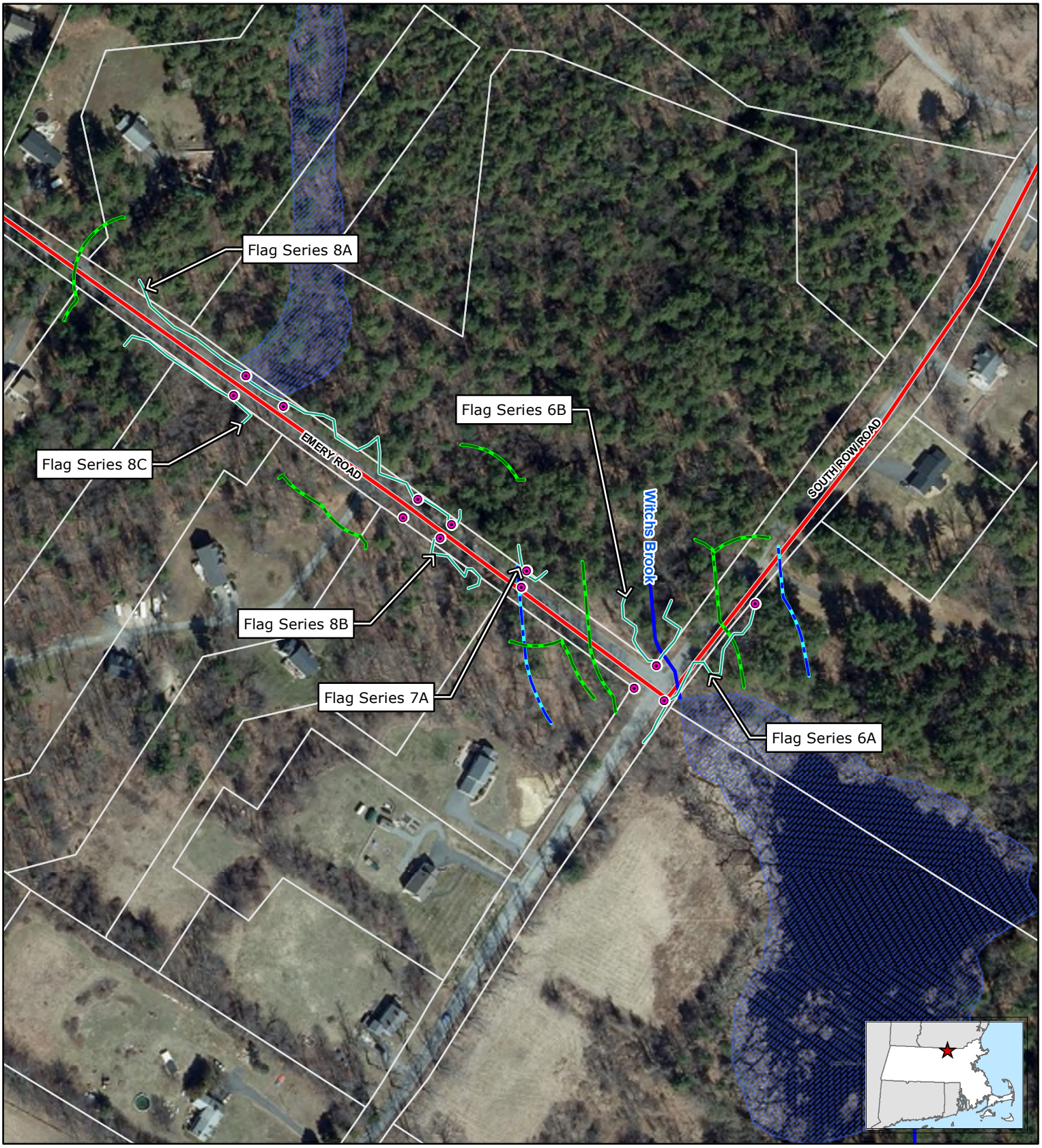
FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

V:\Projects\T\T0354\011 - Harbor Trace PFAS Water Treatment Plant\MXD\PFAS_TownsendMA_Aerial.mxd [Exported By: LFrassinelli, 9/15/2022, 1:03:44 PM]

T-0354



Legend

- Culvert
- Water Main Alignment
- Delineated Wetland Boundary
- 100-foot Buffer Zone
- 200-foot Riverfront Area
- Stream (Not Delineated)
- MassDEP Inland Wetlands
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:2,400
0 65 130
Feet

N

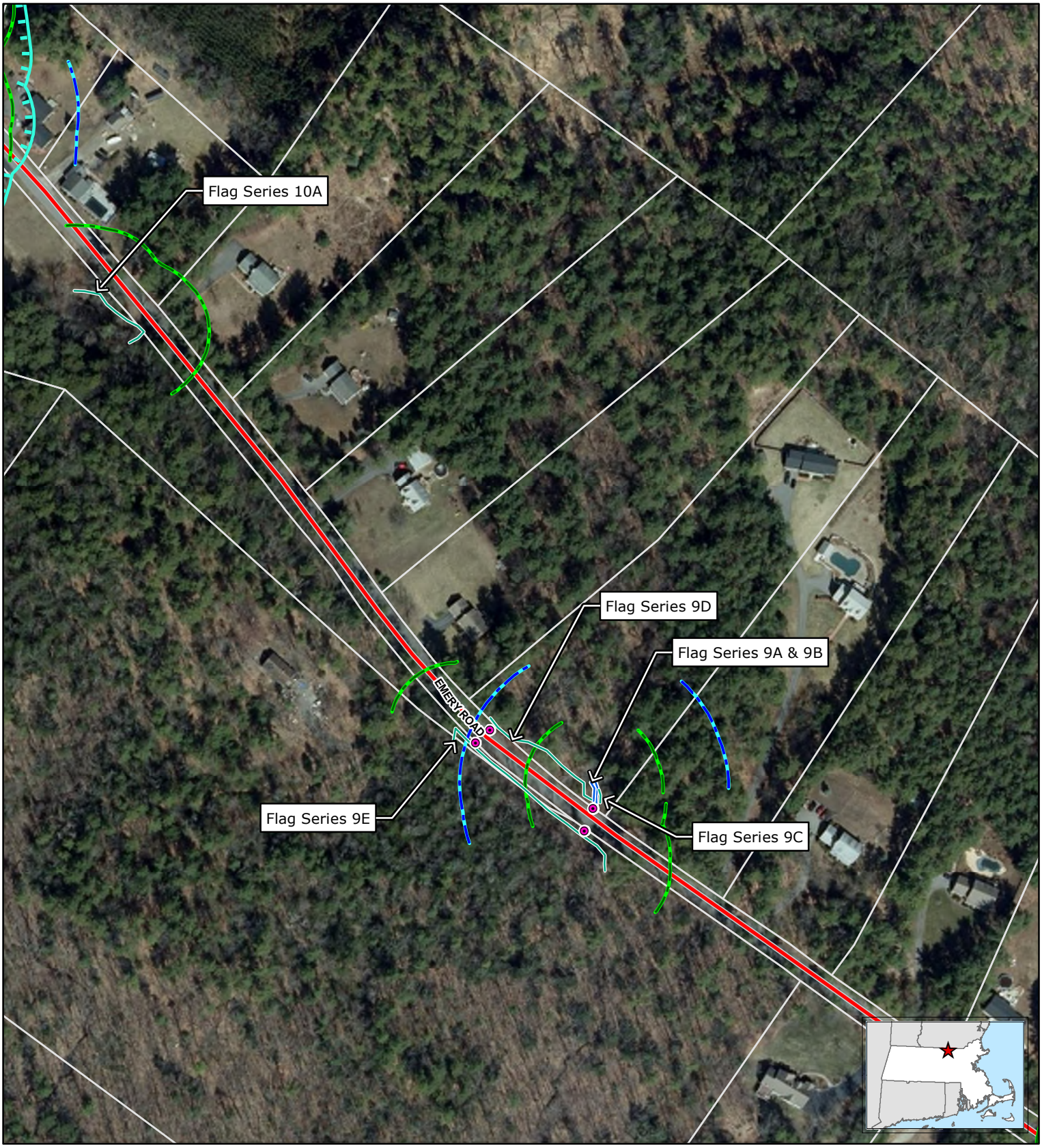
FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

V:\Projects\T\T0354\011 - Harbor Trace PFAS Water Treatment Plant\MXD\PFAS_TownsendMA_Aerial.mxd [Exported By: LFrassinelli, 9/15/2022, 1:10:33 PM]

T-0354



Legend

- Culvert
- Water Main Alignment
- Delineated Wetland Boundary
- Delineated Bank Boundary
- 100-foot Buffer Zone
- 200-foot Riverfront Area
- Buffer to BLSF (local)
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:2,400
0 65 130
Feet

N

FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

V:\Projects\T\T0354\011 - Harbor Trace PFAS Water Treatment Plant\MXD\PFAS_TownsendMA_Aerial.mxd [Exported By: LFrassinelli, 9/15/2022, 1:14:41 PM]

T-0354

Legend

- Culvert
- Water Main Alignment
- Delineated Wetland Boundary
- Delineated Bank Boundary
- 100-foot Buffer Zone
- 200-foot Riverfront Area
- Buffer to BLSF (local)
- 100 Year Flood Zone
- Approximate Parcel Boundary
- Municipal Boundary

Tighe&Bond

Based on MassGIS Color Orthophotography (2021)
Parcels from MassGIS (2022)
Data from Mass DEP and Flood Zones from FEMA.

1:2,400
0 65 130
Feet

N

FIGURE 3
SITE PLAN

PFAS Water Treatment Plant
Harbor Trace Road
Townsend, Massachusetts

September 2022

V:\Projects\T\T0354\011 - Harbor Trace PFAS Water Treatment Plant\MXD\PFAS_TownsendMA_Aerial.mxd [Exported By: LFrassinelli, 9/15/2022, 1:19:08 PM]

T-0354

Tighe&Bond

Harbor Trace Road PFAS WTP

Town of Townsend

Townsend, Massachusetts

MARK	DATE	DESCRIPTION

PROJECT NO:	T0354-011
DATE:	4/13/2022
FILE:	T-0354-011_Aerial.dwg
DRAWN BY:	BJL
DESIGNED/CHECKED BY:	DT/KC
APPROVED BY:	DT

CONCEPTUAL SITE PLAN

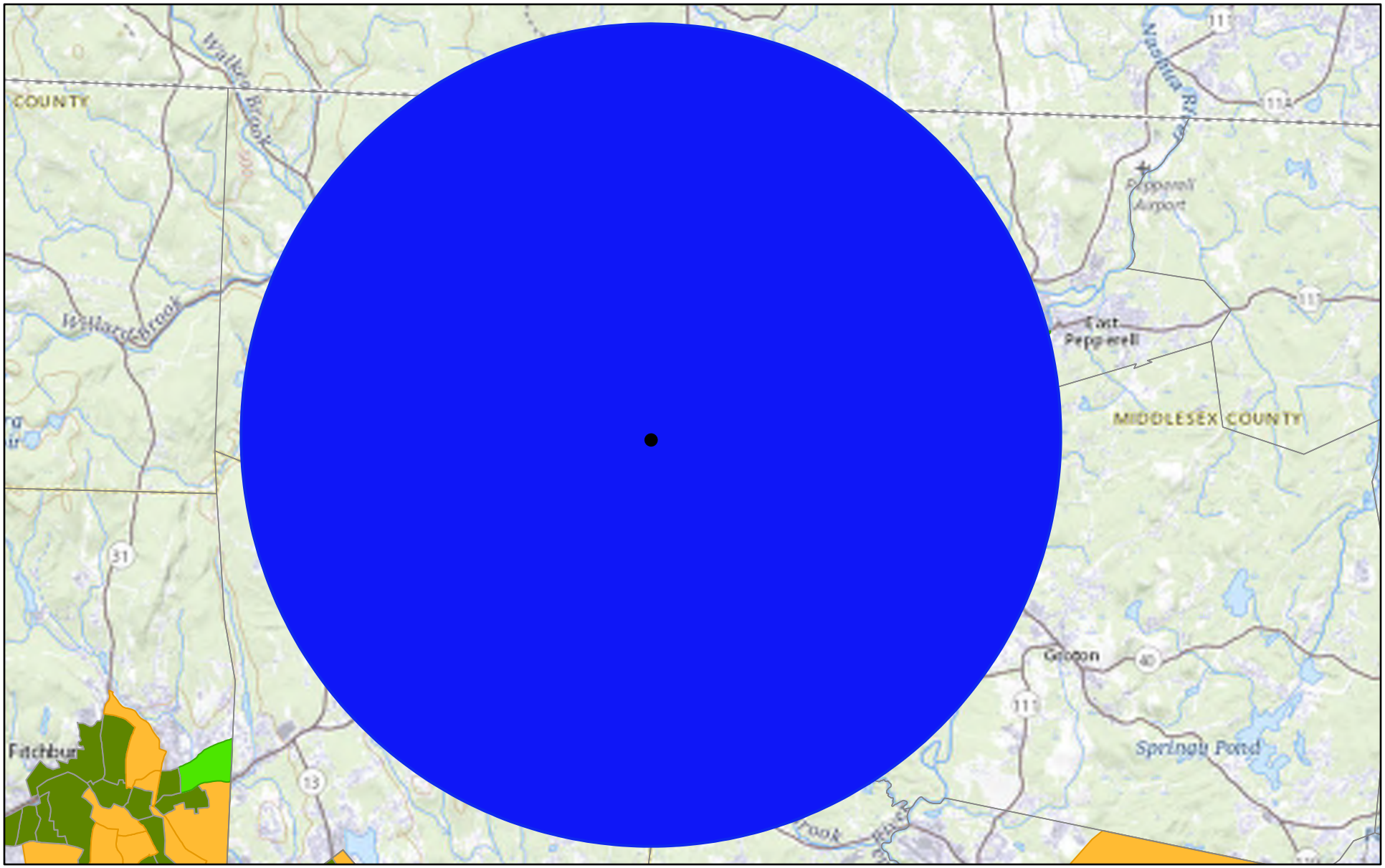
SCALE: AS SHOWN

C-101

FIGURE 5 Environmental Justice Populations

W L F H 3 R S X O D W L

2020 Environmental Justice Populations



3 0

'LVWDQFH 'LUHFWLRQ &LL H *UDSKLFV

- 1 Mile Radius
- 5 Mile Radius
- Project Location

Minority: the block group minority population is >= 40%, or the block group minority population is >= 25% and the median household income of the municipality the block group is in is < 150% of the Massachusetts median household income

Income: at least 25% of households have a median household income 65% or less than the state median household income

Minority and income

P L

N P

86*6 7KH 1DWLRQDO 0DS 1DWLRQDO %RXQGDULHV '
3URJUDP *HRJUDSKLF 1DPHV ,QIRUPDWLRQ 6\VWHP

0$ ([HFXWLYH 2IILFH RI (QHUJ\ DQG (QYLU

(($ *,6 _ 86*6 7KH 1DWLRQDO 0DS 1DWLRQDO %RXQGDULHV 'DWDVHW '(3 (OHYDWLRQ 3URJUDP *HRJUDSKLF 1DPHV ,QIRUPDWLRQ 6\VWHP 1DWLRQDO +\GURJUDSK

Tighe&Bond

ATTACHMENT C

Climate Resilience Design Standards Tool Project Report

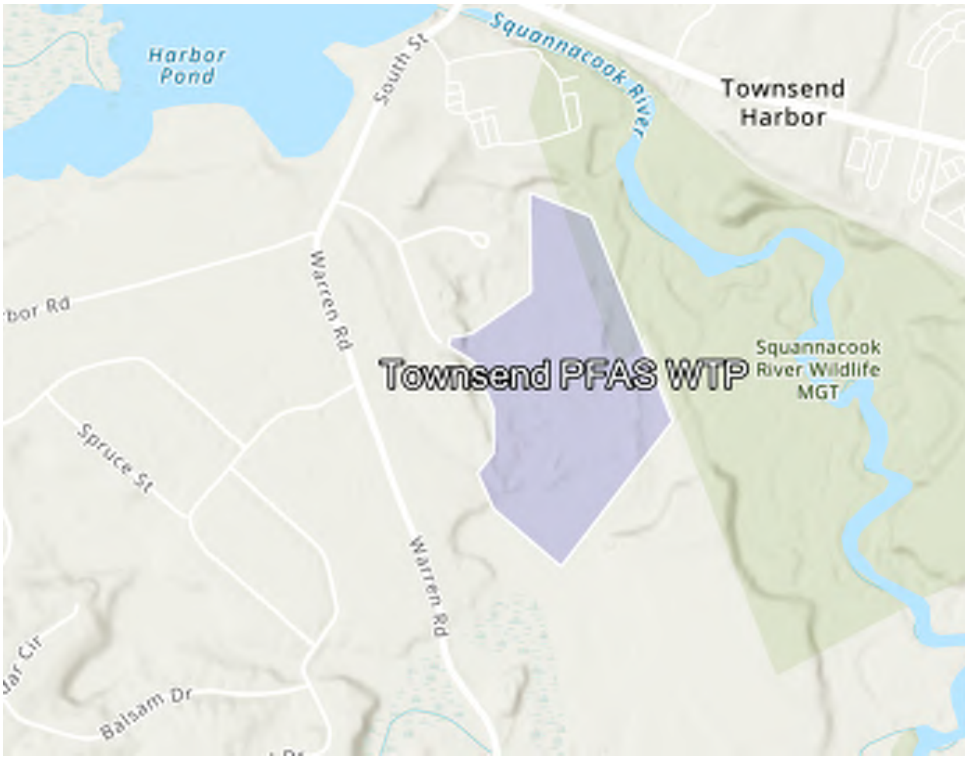
Townsend PFAS WTP
Date Created: 5/9/2022 12:39:24 PM
Date Report Generated: 9/15/2022 8:49:34 AM
Created By: kchan
Tool Version: Version 1.2
Project Contact Information: David Vigeant (dvigeant@townsendwater.org)

Project Summary

Link to Project

Estimated Capital Cost: $15000000.00
End of Useful Life Year: 2093
Project within mapped Environmental Justice neighborhood: No

Ecosystem Service Benefits	Scores
Project Score	Low
Exposure	**Scores**
Sea Level Rise/Storm Surge	Not Exposed
Extreme Precipitation - Urban Flooding	High Exposure
Extreme Precipitation - Riverine Flooding	High Exposure
Extreme Heat	High Exposure



Asset Preliminary Climate Risk Rating Summary

Number of Assets: 4

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Harbor Trace PFAS WTP	Low Risk	High Risk	High Risk	High Risk
Detention Basin	Low Risk	High Risk	High Risk	High Risk
Septic System	Low Risk	High Risk	High Risk	High Risk
Raw Water Transmission Main	Low Risk	High Risk	High Risk	High Risk

Climate Resilience Design Standards Summary

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Harbor Trace PFAS WTP					
Detention Basin					
Septic System					
Raw Water Transmission Main					
Extreme Precipitation					
Harbor Trace PFAS WTP	2070			50-yr (2%)	Tier 3
Detention Basin	2050			5-yr (20%)	Tier 2
Septic System	2050			10-yr (10%)	Tier 2

Raw Water Transmission Main	2070		50-yr (2%)	Tier 3
Extreme Heat				
Harbor Trace PFAS WTP	2070	90th		Tier 3
Detention Basin	2050	50th		Tier 2
Septic System	2050	50th		Tier 2
Raw Water Transmission Main	2070	90th		Tier 3

Scoring Rationale - Project Exposure Score

The purpose of the Exposure Score output is to provide a preliminary assessment of whether the overall project site and subsequent assets are exposed to impacts of natural hazard events and/or future impacts of climate change. For each climate parameter, the Tool will calculate one of the following exposure ratings: Not Exposed, Low Exposure, Moderate Exposure, or High Exposure. The rationale behind the exposure rating is provided below.

Sea Level Rise/Storm Surge

This project received a "Not Exposed" because of the following:

- Not located within the predicted mean high water shoreline by 2030
- No historic coastal flooding at project site
- Not located within the Massachusetts Coast Flood Risk Model (MC-FRM)

Extreme Precipitation - Urban Flooding

This project received a "High Exposure" because of the following:

- Increased impervious area
- Maximum annual daily rainfall exceeds 10 inches within the overall project's useful life
- No historic flooding at project site
- Existing impervious area of the project site is less than 10%

Extreme Precipitation - Riverine Flooding

This project received a "High Exposure" because of the following:

- Project site has a history of riverine flooding
- Part of the project is within a mapped FEMA floodplain, outside of the Massachusetts Coast Flood Risk Model (MC-FRM)
- Part of the project is within 500ft of a waterbody and less than 20ft above the waterbody
- Project is not likely susceptible to riverine erosion

Extreme Heat

This project received a "High Exposure" because of the following:

- 30+ days increase in days over 90 deg. F within project's useful life
- Increased impervious area
- Existing trees are being removed as part of the proposed project
- Between 10% and 40% of the existing project site has canopy cover
- Located within 100 ft of existing water body

Scoring Rationale - Asset Preliminary Climate Risk Rating

A Preliminary Climate Risk Rating is determined for each infrastructure and building asset by considering the overall project Exposure Score and responses to Step 4 questions provided by the user in the Tool. Natural Resource assets do not receive a risk rating. The following factors are what influenced the risk ratings for each asset.

Asset - Harbor Trace PFAS WTP
Primary asset criticality factors influencing risk ratings for this asset:

- Asset must be operable at all times, even during natural hazard event
- Less than 10,000 people would be directly affected by the loss/inoperability of the asset
- Inoperability of the asset would result in moderate or severe injuries or moderate or severe impacts to chronic illnesses

- Inoperability is likely to significantly impact other facilities, assets, or buildings and will likely affect their ability to operate
- Impact on natural resources will require remediation/rehabilitation with the inoperability of the asset

Asset - Detention Basin
Primary asset criticality factors influencing risk ratings for this asset:

- Asset can be inaccessible/inoperable more than a week after natural hazard event without consequences
- Loss/inoperability of the asset would have impacts limited to the location of infrastructure only
- Inoperability of the asset would not be expected to result in injuries
- Cost to replace is less than $10 million
- Impact on natural resources can be mitigated naturally with the inoperability of the asset

Asset - Septic System
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable for more than a day but less than a week after natural hazard event
- Loss/inoperability of the asset would have impacts limited to the location of infrastructure only
- Inoperability of the asset would be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses
- Cost to replace is less than $10 million
- Spills and/or releases of hazardous materials would be moderately difficult to clean up

Asset - Raw Water Transmission Main
Primary asset criticality factors influencing risk ratings for this asset:

- Asset may inaccessible/inoperable during natural hazard event, but must be accessible/operable within one day after natural hazard event
- Less than 100,000 people would be directly affected by the loss/inoperability of the asset
- Inoperability of the asset would be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses
- Inoperability is likely to significantly impact other facilities, assets, or buildings and will likely affect their ability to operate
- Impact on natural resources can be mitigated naturally with the inoperability of the asset

Project Climate Resilience Design Standards Output

Climate Resilience Design Standards and Guidance are recommended for each asset and climate parameter. The Design Standards for each climate parameter include the following: recommended planning horizon (target and/or intermediate), recommended return period (Sea Level Rise/Storm Surge and Precipitation) or percentile (Heat), and a list of applicable design criteria that are likely to be affected by climate change. Some design criteria have numerical values associated with the recommended return period and planning horizon, while others have tiered methodologies with step-by-step instructions on how to estimate design values given the other recommended design standards.

Asset: Harbor Trace PFAS WTP — Building/Facility

Sea Level Rise/Storm Surge — Low Risk

Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 50-yr (2%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

While Total Precipitation Depth & Peak Intensity for 24-hour Design Storms are useful to inform planning and design, it is recommended to also consider additional longer- and shorter-duration precipitation events and intensities in accordance with best practices. Longer-duration, lower-intensity storms allow time for infiltration and reduce the load on infrastructure over the duration of the storm. Shorter-duration, higher-intensity storms often have higher runoff volumes because the water does not have enough time to infiltrate infrastructure systems (e.g., catch basins) and may overflow or back up during such storms, resulting in flooding. In the Northeast, short-duration high intensity rain events are becoming more frequent, and there is often little early warning for these events, making it difficult to plan operationally. While the Tool does not provide recommended design standards for these scenarios, users should still consider both short- and long-duration precipitation events and how they may impact the asset.

The projected values, standards, and guidance provided within this Tool may be used to inform plans and designs, but they do not provide guarantees for future conditions or resilience. The projected values are not to be considered final or appropriate for construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Harbor Trace PFAS WTP	2070	50-Year (2%)	8.7	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Asset: Detention Basin — Infrastructure

Sea Level Rise/Storm Surge — Low Risk

Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation — High Risk

Target Planning Horizon: 2050
Return Period: 5-yr (20%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

While Total Precipitation Depth & Peak Intensity for 24-hour Design Storms are useful to inform planning and design, it is recommended to also consider additional longer- and shorter-duration precipitation events and intensities in accordance with best practices. Longer-duration, lower-intensity storms allow time for infiltration and reduce the load on infrastructure over the duration of the storm. Shorter-duration, higher-intensity storms often have higher runoff volumes because the water does not have enough time to infiltrate infrastructure systems (e.g., catch basins) and may overflow or back up during such storms, resulting in flooding. In the Northeast, short-duration high intensity rain events are becoming more frequent, and there is often little early warning for these events, making it difficult to plan operationally. While the Tool does not provide recommended design standards for these scenarios, users should still consider both short- and long-duration precipitation events and how they may impact the asset.

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construction documents without supporting engineering analyses. The guidance provided within this Tool is intended to be general and users are encouraged to do their own due diligence

Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Detention Basin	2050	5-Year (20%)	5.0	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Extreme Heat — High Risk

Target Planning Horizon: 2050
Percentile: 50th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Asset: Septic System — Infrastructure

Sea Level Rise/Storm Surge — Low Risk

Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation — High Risk

Target Planning Horizon: 2050
Return Period: 10-yr (10%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic

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Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Septic System	2050	10-Year (10%)	5.9	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Extreme Heat — High Risk

Target Planning Horizon: 2050
Percentile: 50th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 2

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 2

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Asset: Raw Water Transmission Main — Infrastructure

Sea Level Rise/Storm Surge — Low Risk

Applicable Design Criteria

Projected Tidal Datums: NOT APPLICABLE

Projected Water Surface Elevation: NOT APPLICABLE

Projected Wave Action Water Elevation: NOT APPLICABLE

Projected Wave Heights: NOT APPLICABLE

Projected Duration of Flooding: NOT APPLICABLE

Projected Design Flood Velocity: NOT APPLICABLE

Projected Scour & Erosion: NOT APPLICABLE

Extreme Precipitation — High Risk

Target Planning Horizon: 2070
Return Period: 50-yr (2%)

LIMITATIONS: The recommended Standards for Total Precipitation Depth & Peak Intensity are determined by the user drawn polygon and relationships as defined in the Supporting Documents. The projected Total Precipitation Depth values provided through the Tool are based on the climate projections developed by Cornell University as part of EEA's Massachusetts Climate and Hydrologic Risk Project, GIS-based data as of 10/15/21. For additional information on the methodology of these precipitation outputs, see Supporting Documents.

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Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Total Precipitation Depth & Peak Intensity for 24-hr Design Storms: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period (Design Storm)	Projected 24-hr Total Precipitation Depth (inches)	Step-by-Step Methodology for Peak Intensity
Raw Water Transmission Main	2070	50-Year (2%)	8.7	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Extreme Heat — High Risk

Target Planning Horizon: 2070
Percentile: 90th Percentile

Applicable Design Criteria

Tiered Methodology: Tier 3

Projected Annual/Summer/Winter Average Temperatures: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Heat Index: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Growing Degree Days: NOT APPLICABLE

Projected Days Per Year With Max Temp > 95°F, >90°F, <32°F: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Number of Heat Waves Per Year & Average Heat Wave Duration: APPLICABLE
Methodology to Estimate Projected Values : Tier 3

Projected Cooling Degree Days & Heating Degree Days (base = 65°F): NOT APPLICABLE

Project Inputs

Core Project Information

Name:	Townsend PFAS WTP
Given the expected useful life of the project, through what year do you estimate the project to last (i.e. before a major reconstruction/renovation)?	2093
Location of Project:	Townsend
Estimated Capital Cost:	$15,000,000
Who is the Submitting Entity?	City/Town Townsend David Vigeant (dvigeant@townsendwater.org)
Is this project identified as a priority project in the Municipal Vulnerability Preparedness (MVP) plan or the local or regional Hazard Mitigation Plan (HMP)?	No
Is this project being submitted as part of a state grant application?	No
Which grant program?	
What stage are you in your project lifecycle?	Planning
Is climate resiliency a core objective of this project?	Yes
Is this project being submitted as part of the state capital planning process?	No
Is this project being submitted as part of a regulatory review process or permitting?	Yes
Brief Project Description:	The Townsend Water Department's water supply includes the Harbor Trace Well and Witch's Brook Wells 1 &2. PFAS levels over the state MCL of 20 ppt were found at Harbor Trace Well, with a sample as high as 97 ppt. The Harbor Trace Pump Station is the distribution system's largest drinking water source. A PFAS treatment system will be constructed at the Harbor Trace Pump Station to treat the combined raw water from the Harbor Trace Well and the Witch's Brook Wells. Raw water from Witch's Brook will be directed to Harbor Trace via a new 5,000 LF raw water transmission main. An 11,000 LF water main extension from South Row Road to Emery Road will also be constructed to loop the distribution system. The PFAS WTP will ensure that the community's drinking water will be protected. The Witch's Brook Wells currently do not exceed the MCL but the raw water transmission main ensures that the Witch's Brook Wells water will be treated for PFAS in case of the need for future treatment.
Project Submission Comments:	The project meets MEPA review threshold 301 CMR 11.03(4)(b)4 and 301 CMR 11.03(11)(b). The following permits are required: BRPWS 21D, BRPWS 22D,BRPWS 24, BRPWS 29, BRPWS 32, Water Supply Facility Checklist for KOH, Water Supply Facility Checklist for Chlorine, local or state Plumbing Board Variance, NPDES General Permit for Stormwater Discharge from Construction Activities, Local Order of Conditions, & NHESP MESA Project Review.

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ Project protects public water supply
- ✓ Project recharges groundwater
- ✓ Project improves water quality
- ✓ Project remediates existing sources of pollution
- ✓ Project prevents pollution

Factors to Improve Output

- ✓ Incorporate nature-based solutions that may provide flood protection
- ✓ Incorporate nature-based solutions that may reduce storm damage
- ✓ Incorporate strategies that reduce carbon emissions
- ✓ Incorporate green infrastructure to filter stormwater
- ✓ Incorporate nature-based solutions that sequester carbon carbon
- ✓ Increase biodiversity, protect critical habitat for species, manage invasive populations, and/or provide connectivity to other habitats
- ✓ Preserve, enhance, and/or restore coastal shellfish habitats
- ✓ Incorporate vegetation that provides pollinator habitat
- ✓ Provide opportunities for passive and/or active recreation through open space
- ✓ Increase plants, trees, and/or other vegetation to provide oxygen production
- ✓ Mitigate atmospheric greenhouse gas concentrations and other toxic air pollutants through nature-based solutions
- ✓ Incorporate education and/or protect cultural resources as part of your project

Is the primary purpose of this project ecological restoration?	
No	
Project Benefits	
Provides flood protection through nature-based solutions	No
Reduces storm damage	No
Recharges groundwater	Yes
Protects public water supply	Yes
Filters stormwater using green infrastructure	No
Improves water quality	Yes
Promotes decarbonization	No
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	Yes
Remediates existing sources of pollution	Yes
Protects fisheries, wildlife, and plant habitat	No
Protects land containing shellfish	No
Provides pollinator habitat	No
Provides recreation	No
Provides cultural resources/education	No
Project Climate Exposure	
Is the primary purpose of this project ecological restoration?	No
Does the project site have a history of coastal flooding?	No
Does the project site have a history of flooding during extreme precipitation events (unrelated to water/sewer damages)?	Unsure
Does the project site have a history of riverine flooding?	Yes
Does the project result in a net increase in impervious area of the site?	Yes
Are existing trees being removed as part of the proposed project?	Yes

Project Assets

Asset: Harbor Trace PFAS WTP
Asset Type: Typically Unoccupied
Asset Sub-Type: Water treatment plant (potable water)
Construction Type: New Construction
Construction Year: 2023
Useful Life: 50

Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Building must be accessible/operable at all times, even during natural hazard event

Identify the geographic area directly affected by permanent loss or significant inoperability of the building/facility.
Impacts would be limited to local area and/or municipality

Identify the population directly served that would be affected by the permanent loss of use or inoperability of the building/facility.
Less than 10,000 people

Identify if the building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The building/facility does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

If the building/facility became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the building/facility would result in moderate or severe injuries or moderate or severe impacts to chronic illnesses

If there are hazardous materials in your building/facility, what are the extent of impacts related to spills/releases of these materials?
Spills and/or releases of hazardous materials would be relatively easy to clean up

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Significant – Inoperability is likely to impact other facilities, assets, or buildings and will likely affect their ability to operate

If this building/facility was damaged beyond repair, how much would it approximately cost to replace?
Between $10 million and $30 million

Is this a recreational facility which can be vacated during a natural hazard event?
No

If the building/facility became inoperable for longer than acceptable in Question 1, what are the public and/or social services impacts?
Few alternative programs and/or services are available to support the community

If the building/facility became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
Impact on natural resources will require remediation/rehabilitation

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the building is not able to serve or operate its intended users or function)?
Loss of building may reduce the ability to maintain some government services, while a majority of services will still exist.

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts to loss of confidence in government (i.e. the building is not able to serve or operate its intended users or function)?
Loss of confidence in government agency
Asset: Detention Basin
Asset Type: Green Infrastructure
Asset Sub-Type: Other Green Infrastructure
Construction Type: New Construction
Construction Year: 2023
Useful Life: 30
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure may be inaccessible/inoperable more than a week after natural hazard event without consequences.
Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts limited to location of infrastructure only
Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 5,000 people
Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
Will the infrastructure reduce the risk of flooding?
No
If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the infrastructure would not be expected to result in injuries
If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?
There are no hazardous materials in the infrastructure
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Minor – Inoperability will not likely affect other facilities, assets, or buildings
If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 million
Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.
No
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
Impact on natural resources can be mitigated naturally
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure is not expected to reduce the ability to maintain government services
What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
No Impact
Asset: Septic System
Asset Type: Utility Infrastructure
Asset Sub-Type: Wastewater
Construction Type: New Construction
Construction Year: 2023
Useful Life: 20
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure may be inaccessible/inoperable for more than a day, but less than a week after natural hazard without consequences.
Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts limited to location of infrastructure only
Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 5,000 people
Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
Will the infrastructure reduce the risk of flooding?
No
If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the infrastructure would be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses
If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?
Spills and/or releases of hazardous materials are expected with moderately difficult cleanup
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or

infrastructure?
Minor – Inoperability will not likely affect other facilities, assets, or buildings
If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 million
Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.
No
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
Impact on natural resources can be mitigated naturally
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure is not expected to reduce the ability to maintain government services
What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
No Impact
Asset: Raw Water Transmission Main
Asset Type: Utility Infrastructure
Asset Sub-Type: Water
Construction Type: New Construction
Construction Year: 2023
Useful Life: 70
Identify the length of time the asset can be inaccessible/inoperable without significant consequences.
Infrastructure may be inaccessible/inoperable during natural hazard event, but must be accessible/operable within one day after natural hazard event.
Identify the geographic area directly affected by permanent loss or significant inoperability of the infrastructure.
Impacts would be limited to local area and/or municipality
Identify the population directly served that would be affected by the permanent loss or significant inoperability of the infrastructure.
Less than 100,000 people
Identify if the infrastructure provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
The infrastructure does not provide services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
Will the infrastructure reduce the risk of flooding?
No
If the infrastructure became inoperable for longer than acceptable in Question 1, how, if at all, would it be expected to impact people's health and safety?
Inoperability of the infrastructure would be expected to result in minor impacts to people's health, including minor injuries or minor impacts to chronic illnesses
If there are hazardous materials in your infrastructure, what are the extents of impacts related to spills/releases of these materials?
There are no hazardous materials in the infrastructure
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Significant – Inoperability is likely to impact other facilities, assets, or buildings and result in cascading impacts that will likely affect their ability to operate
If the infrastructure was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 million
Does the infrastructure function as an evacuation route during emergencies? This question only applies to roadway projects.
No
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the environmental impacts related to natural resources?
Impact on natural resources can be mitigated naturally
If the infrastructure became inoperable for longer than acceptable in Question 1, what are the impacts to government services (i.e. the infrastructure is not able to serve or operate its intended users or function)?
Loss of infrastructure may reduce the ability to maintain some government services, while a majority of services will still exist
What are the impacts to loss of confidence in government resulting from loss of infrastructure functionality (i.e. the infrastructure asset is not able to serve or operate its intended users or function)?
Reduced morale and public support

Report Comments

N/A

Tighe&Bond

ATTACHMENT D

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

May 17, 2022

Mary Danielson
Tighe & Bond, Inc.
100 Front Street, Suite 700
Worcester MA 01608

RE: Project Location: 25 Harbor Trace Road
Town: TOWNSEND
NHESP Tracking No.: 09-27125

To Whom It May Concern:

Thank you for contacting the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for information regarding state-listed rare species in the vicinity of the above referenced site. Based on the information provided, this project site, or a portion thereof, is located **within** *Priority Habitat 2035* (PH 2035) and *Estimated Habitat 1300* (EH 1300) as indicated in the *Massachusetts Natural Heritage Atlas* (15th Edition) for the following state-listed rare species:

Scientific name	Common Name	Taxonomic Group	State Status
Emydoidea blandingii	Blanding's Turtle	Reptile	Threatened

The species listed above is protected under the Massachusetts Endangered Species Act (MESA) (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the state's Wetlands Protection Act (WPA) (M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.00). Fact sheets for most state-listed rare species can be found on our website (www.mass.gov/nhesp).

Please note that projects and activities located within Priority and/or Estimated Habitat **must** be reviewed by the Division for compliance with the state-listed rare species protection provisions of MESA (321 CMR 10.00) and/or the WPA (310 CMR 10.00).

Wetlands Protection Act (WPA)
If the project site is within Estimated Habitat and a Notice of Intent (NOI) is required, then a copy of the NOI must be submitted to the Division so that it is received at the same time as the local conservation commission. If the Division determines that the proposed project will adversely affect the actual Resource Area habitat of state-protected wildlife, then the proposed project may not be permitted (310 CMR 10.37, 10.58(4)(b) & 10.59). In such a case, the project proponent may request a consultation with the Division to discuss potential project design modifications that would avoid adverse effects to rare wildlife habitat.

A streamlined joint MESA/WPA review process is available. When filing a Notice of Intent (NOI), the applicant may file concurrently under the MESA on the same NOI form and qualify for a 30-day

streamlined joint review. For a copy of the NOI form, please visit the MA Department of Environmental Protection's website: https://www.mass.gov/how-to/wpa-form-3-wetlands-notice-of-intent.

MA Endangered Species Act (MESA)

If the proposed project is located within Priority Habitat and is not exempt from review (see 321 CMR 10.14), then project plans, a fee, and other required materials must be sent to Natural Heritage Regulatory Review to determine whether a probable Take under the MA Endangered Species Act would occur (321 CMR 10.18). Please note that all proposed and anticipated development must be disclosed, as MESA does not allow project segmentation (321 CMR 10.16). For a MESA filing checklist and additional information please see our website: https://www.mass.gov/regulatory-review.

We recommend that rare species habitat concerns be addressed during the project design phase prior to submission of a formal MESA filing, as avoidance and minimization of impacts to rare species and their habitats is likely to expedite endangered species regulatory review.

This evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. If the purpose of your inquiry is to generate a species list to fulfill the federal Endangered Species Act (16 U.S.C. 1531 et seq.) information requirements for a permit, proposal, or authorization of any kind from a federal agency, we recommend that you contact the National Marine Fisheries Service at (978)281-9328 and use the U.S. Fish and Wildlife Service's Information for Planning and Conservation website (https://ecos.fws.gov/ipac). If you have any questions regarding this letter please contact Melany Cheeseman, Endangered Species Review Assistant, at (508) 389-6357.

Sincerely,

Everose Schlüter

Everose Schlüter, Ph.D.
Assistant Director

Tighe&Bond

ATTACHMENT E

RC.71651

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.

MHC# RC. 71651

Edward L. Bell 29 June 2022 Date
Deputy State Historic Preservation Officer
Massachusetts Historical Commission

cc: Marie Pinaud, DEP
Danielle Teixeira, Tighe + Bond Worcester

Project Name: Harbor Trace Water Treatment Plant

Location / Address: 25 Harbor Trace Road

City / Town: Townsend

Project Proponent

Name: David Vigeant - Superintendent, Townsend Water Department

Address: 540 Main Street

City/Town/Zip/Telephone: West Townsend, Massachusetts 01474

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name	Type of License or funding (specify)
Massachusetts DEP	Drinking Water State Revolving Fund Technical Permits

Project Description (narrative):

1.7 MGD PFAS WTP for treatment of water from Harbor Trace Well and Witch's Brook Wells 1 and 2

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

No

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

Yes, see attached site plan and preliminary building floor plan.

APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

No, this site has been previously developed and is unlikely to have historic or archaeological impacts.

What is the total acreage of the project area?

Woodland	0.24	acres	Productive Resources:		
Wetland	0.0	acres	Agriculture	0	acres
Floodplain	0.0	acres	Forestry	0	acres
Open space	4.51	acres	Mining/Extraction	0	acres
Developed	0.55	acres	Total Project Acreage	5.3	acres

What is the acreage of the proposed new construction? 0.64 acres

What is the present land use of the project area?

The project site is located on existing water supply land for the Townsend Water Department. The site had previously been developed for use as a gravel yard. The existing well house was constructed in 2006 and plantings were added throughout the site. The majority of the parcel is woodland area (consisting of shrubs), forested wetlands, and deciduous forest. The proposed project will consist of a new treatment building and a parking area along the existing driveway.

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: Danielle Teixeira Date: 6/3/2022

Name: Danielle Teixeira, Project Manager Tighe + Bond

Address: 120 Front Street, Suite 700

City/Town/Zip: Worcester, MA 01608

Telephone: 508-471-9636

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

RC.71651

RECEIVED
JUL 25 2022
MASS. HIST. COMM

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

Project Name: Harbor Trace Raw Water Transmission Main & Water Main Loop

Location / Address: 25 Harbor Trace Road

City / Town: Townsend

Project Proponent

Name: David Vigeant - Superintendent, Townsend Water Department

Address: 540 Main Street

City/Town/Zip/Telephone: West Townsend, Massachusetts 01474

Agency license or funding for the project (list all licenses, permits, approvals, grants or other commitments being sought from state and federal agencies).

Agency Name	Type of License or funding (specify)
Massachusetts DEP	Drinking Water State Revolving Fund Technical Permits

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.

RC.71651

Edward L. Bell 22 August 2022
Edward L. Bell Date
Deputy State Historic Preservation Officer
Massachusetts Historical Commission

cc: Martin Pinaud, DEP-SERO Program
Danielle Teixeira, Tighe+Bond

Project Description (narrative):

5,000 LF raw water transmission main from Witch's Brook Well Site to Harbor Trace WTP.
8,300 LF water main to loop South Row Road and Emery Road.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

No

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

Yes, see Projects 2 and 3 on the attached site plan.

APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.
No, this site has been previously developed and is unlikely to have historic or archaeological impacts. There are no historic properties listed in the area on the MACRIS maps.
What is the total acreage of the project area?

Woodland	acres	Productive Resources:	
Wetland	acres	Agriculture	acres
Floodplain	acres	Forestry	acres
Open space	acres	Mining/Extraction	acres
Developed 1.53	acres	Total Project Acreage 1.53	acres

What is the acreage of the proposed new construction? 1.53 acres

What is the present land use of the project area?
The project area is located on roads in a residential area in Townsend. The project area has already been developed and paved as roads. The proposed project will consist of a new raw water transmission main from Witch's Brook Well Site to Harbor Trace WTP and a water main extension to loop South Row Road and Emery Road.

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: Danielle Teixeira Date: 7/21/2022

Name: Danielle Teixeira, Project Manager

Address: Tighe & Bond 120 Front Street, Suite 700

City/Town/Zip: Worcester, MA 01608

Telephone: 508-471-9636

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

		Townsend, MA 01469
Executive Office of Energy and Environmental Affairs (EEA) Environmental Justice (EJ) Director	MEPA-EJ@mass.gov	MEPA Office Attn: EEA EJ Director 100 Cambridge Street, Suite 900 Boston, MA 02144
Natural Heritage & Endangered Species Program	melany.cheeseman@mass.gov emily.holt@mass.gov	Natural Heritage and Endangered Species Program Division of Fisheries and Wildlife 1 Rabbit Hill Road Westborough, MA 01581
Massachusetts Department of Public Health	Alison.B.Cohen@MassMail.State.MA.US	Department of Public Health 250 Washington Street Boston, MA 02108
Massachusetts Department of Conservation and Recreation	Mass.parks@mass.gov	MassDCR Main Office 251 Causeway Street, 9th Floor, Boston, MA 02114

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ATTACHMENT F

List of Required Permits and Approvals

Agency	Permit/Approval
Federal	
U.S. Environmental Protection Agency	U.S. Clean Water Act - NPDES General Permit for Stormwater Discharge from Construction Activities
Commonwealth of Massachusetts	
Executive Office of Energy and Environmental Affairs (EEA)	Massachusetts Environmental Policy Act (MEPA) (MGL C. 30, s 61-62H) Review Environmental Notification Form
MassDEP	Massachusetts Wetlands Protection Act / Superseding Order of Conditions (only required upon appeal of local Order) Technical Review and Permitting for WTP Process including: • BRP WS 24 - Approval to Construct a Water Treatment Facility • Chemical Feed System Retrofit (BRPWS 29) • Distribution System Modifications – Water Main Work (BRPWS 32) • Water Supply Facility Checklist for Potassium Hydroxide (KOH) • Water Supply Facility Checklist for Hypochlorination Using Chlorine (NaOCl)
NHESP – MESA	MESA Project Review Checklist
MassDCR	Construction and Access Permit
Town of Townsend, Massachusetts	
Conservation Commission	Massachusetts Wetlands Protection Act (MGL C 131, s 40)/Local Wetlands Bylaw – Order of Conditions / Certificate of Compliance
Planning Board	Stormwater Management Permit
Building Department	Building Permit

Tighe&Bond

ATTACHMENT G

ENF Distribution and Circulation List
Townsend Water Department

Agency	Email Address	Address
Massachusetts Environmental Policy Act (MEPA) Office	MEPA@mass.gov	MEPA Office 100 Cambridge Street, Suite 900 Boston, MA 02114
Department of Environmental Protection, Boston Office	helena.boccadoro@mass.gov	Commissioner's Office One Winter Street Boston, MA 02108
Department of Environmental Protection, Regional Office	andrea.briggs@mass.gov	DEP/Central Regional Office Attn: MEPA Coordinator 8 New Bond Street Worcester, MA 01606
Massachusetts Department of Transportation – Boston	MassDOTPPDU@dot.state.ma.us	Public/Private Development Unit 10 Park Plaza, Suite #4150 Boston, MA 02116
Massachusetts Department of Transportation, District Office	jeffrey.r.gomes@dot.state.ma.us	District #3 Attn: MEPA Coordinator 499 Plantation Parkway Worcester, MA 01605
Massachusetts Historical Commission	Requires a hard copy	The MA Archives Building 220 Morrissey Boulevard Boston, MA 02125
Regional Planning Agency – Montachusett Regional Planning Commission (MRPC)	mrpc@mrpc.org	Montachusett Regional Planning Commission 464 Abbott Avenue Leominster, MA 01453
Municipality Affected by the Project – Townsend	vkell@townsendma.gov csexton-diranian@townsendma.gov tmorse@townsendma.gov	Townsend Board of Selectman 272 Main Street, Upper Level Townsend, MA 01469
	bfaxon@townsendma.gov	Townsend Planning Board Land Use Office 272 Main Street, 2nd Floor Townsend, MA 01469
	conservation@townsendma.gov	Townsend Conservation Commission Land Use Office 272 Main Street, 2nd Floor Townsend, MA 01469
	rmetcalf@nashoba.org cwalter@townsend.ma.us	Townsend Board of Health 272 Main Street, Lower Level

Tighe&Bond

ATTACHMENT H

Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs

MEPA Office

100 Cambridge St., Suite 900
Boston, MA 02114
Telephone 617-626-1020

The following should be completed and submitted to a local newspaper:

PUBLIC NOTICE OF ENVIRONMENTAL REVIEW

PROJECT: Harbor Trace PFAS Water Treatment Plant

LOCATION: 25 Harbor Trace Road, Townsend, MA 01469

PROPONENT: Townsend Water Department

The undersigned is submitting an Environmental Notification Form ("ENF") to the Secretary of Energy & Environmental Affairs on or before September 15, 2022

This will initiate review of the above project pursuant to the Massachusetts Environmental Policy Act ("MEPA", M.G.L. c. 30, s.s. 61-62I). Copies of the ENF may be obtained from:
Mary Danielson / (508) 471-9637
Tighe & Bond
120 Front Street, Suite 700
Worcester, MA 01608
(Name, address, phone number of proponent or proponent's agent)

Copies of the ENF are also being sent to the Conservation Commissions and Planning Boards of the Town of Townsend where they may be inspected.

The Secretary of Energy & Environmental Affairs will publish notice of the ENF in the Environmental Monitor, will receive public comments on the project for 20 days, and will then decide, within ten days, if an Environmental Impact Report is needed. A site visit and consultation session on the project may also be scheduled. All persons wishing to comment on the project, or to be notified of a site visit or consultation session, should write to the Secretary of Energy & Environmental Affairs, 100 Cambridge St., Suite 900, Boston, Massachusetts 02114, Attention: MEPA Office, referencing the above project.

By Townsend Water Department *(Proponent)*

www.tighebond.com

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