



**STEARNS
MEADOW
WATER
TREATMENT
PLANT**

MAJOR SITE PLAN
APPLICATION –
SCITUATE
PLANNING BOARD

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Town of Scituate

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1. INTRODUCTION

The Town of Scituate, Massachusetts (the Applicant) is proposing the construction of a new water treatment plant (the project) on a site located at 453 Chief Justice Cushing Highway in Scituate, Massachusetts (the Site). The Site is located on a parcel identified by the Town Assessor as Map 47, Block 2, Lot 26, Extension J. The parcel is approximately 15.6 acres. The drawings provided in **Appendix I** depict the proposed project site.

1.1 Background

The Town of Scituate (Town) is situated on the south shore of Massachusetts, approximately 30 miles south of Boston, Massachusetts. The Town has a total area of approximately 31.8 square miles and serves water to approximately 7,900 customers. The Town of Scituate Water Division (Water Division) supplies approximately 1.553 million gallons per day (MGD) across all the following sources:

- Groundwater from Well #10, Well #11, Well #17A, Well #19, Well #22, and Well #18B;
- Surface water from the Old Oaken Bucket Water Treatment Plant (OOB WTP), and;
- A purchase agreement for the Humarock region from the Town of Marshfield.

The OOB WTP supplies up to 50% of the supply during the summer months and the Water Division could not meet existing system demands without the OOB WTP. The Water System Master Plan, issued in 2021 by Tighe and Bond, identified the disrepair of the existing OOB WTP and recommended that a new water treatment facility be constructed to replace the existing OOB WTP. In addition to the disrepair, the proposed new WTP is an element in Scituate's ongoing commitment to substantively improve their water and specifically reduce the dirty water complaints and address the total trihalomethanes (TTHM) exceedance that occurred in 2020, for which the Town is currently under an Administrative Consent Order (ACO). The current OOB WTP is unable to effectively manage the manganese levels in the raw waters of the OOB Pond.

The proposed Stearns Meadow Water Treatment Plant will be capable of a maximum daily flow of 3 MGD and will meet all U.S. Environmental Protection Agency (EPA) and Massachusetts Department of Environmental Protection (MassDEP) water quality standards. This includes meeting the Secondary Maximum Containment Level (SMCL) of 0.05 milligrams per liter (mg/L) for manganese and 0.3 mg/L for iron and reducing disinfection byproducts (DBP) formation potential to maintain distribution DBPs below the maximum containment levels (MCLs) without impacting the facilities compliance with corrosion control and the lead and copper rule (LCR). The proposed facility will also be designed with full redundancy, which will increase resiliency and ease of operation. The new water treatment plant will also incorporate adequate room for per- and polyfluoroalkyl substances (PFAS) removal if future regulations require further removal of these compounds.

1.2 Purpose of This Application

In July of 2021 the Town acquired the land located at 443-461 Chief Justice Cushing Highway with the plan to develop the site into a new water treatment plant better suited to fulfill the water needs of the residents of Scituate, Massachusetts. The land, consisting of 10 lots, was consolidated in March of 2022 to a single lot, in support of the planned development. The consolidated lot is now known as 453 Chief Justice Cushing Highway (Map 47, Block 2, Lot 26J). This report is provided in conjunction with the Major Site Plan Submission Application to the Scituate Planning Board required under the Town Zoning Bylaws.

The Stearns Meadow Site is located on the west side of Route 3A at 453 Chief Justice Cushing Highway. The lot is located just north of Tack Factory Pond and opposite the Lutheran Church. The Stearns Meadow Site is comprised of approximately 15.6 acres, is undeveloped, and the Site slopes in a southerly direction towards the adjacent residential property and Tack Factory Pond located to the south. A small burial ground is in the north-west portion of the site, near the western property line. Discontinuous stone walls are found along portions of the western and southern property lines.

2. EXISTING CONDITIONS

The Stearns Meadow Site is located on the west side of Route 3A at 453 Chief Justice Cushing Highway. The lot is located just north of Tack Factory Pond and opposite the Lutheran Church. The site is comprised of approximately 15.6 acres, is undeveloped, and the Site slopes in a southerly direction towards the adjacent residential property and Tack Factory Pond located to the south. A small burial ground is in the north-west portion of the site, near the western property line. Discontinuous stone walls are found along portions of the western and southern property lines.

2.1 Zoning

According to the most recent Scituate zoning map dated October 25, 2011 and revised August 11, 2021, the Stearns Meadow Site is located within the R-1 Zoning District, the Water Resource Protection, the Wireless Communication Overlay District, and Floodplain/Watershed Protection Overlay Districts.

2.2 Wetland and Environmental Areas

The site consists of primarily undeveloped forested uplands on a landscape of glacial till with numerous exposed boulders. Stone walls are present along the property line and interior of the site in some areas. Land disturbance associated with previous soil testing is also evident in some areas. The forested upland plant community consists of a moderately dense canopy of mature mixed hardwoods and evergreens. Some small Isolated Vegetated Wetlands (IVWs) protected under the Town of Scituate Wetlands Protection Rules and Regulations are located within the forested upland, primarily on the southern side of the site. Isolated Vegetated Wetlands are not protected under the MA Wetlands Protection Act. The site includes a narrow tract of land ending in a southerly direction down to Tack Factory Pond. Bordering Vegetated Wetland (BVW) associated with Tack Factory Pond extends across this extension and is regulated under state and local regulations.

Review of the available Massachusetts Geographic Information System (MassGIS) database indicates the site is not located in an Areas of Critical Environmental Concern (ACEC) or regulated Natural Heritage and Endangered Species Program (NHESP) area. The southernmost portion of the site wraps around the adjacent residential property and extends in a southerly direction to Tack Factory Pond. This portion of the site is within the Surface Water Protection Area, Zone A of a surface Water Supply protection area, as well as the Federal Emergency Management Agency (FEMA) Floodplain AE and Floodway. There are IVWs located in the southeast portion of the site and BVWs located on the southern end of the site, as previously noted. Please see **Appendix G** for more information regarding wetlands on the site.

3. PROPOSED WATER TREATMENT

The proposed Stearns Meadow Water Treatment Plant will be located on the west side of Route 3A at 453 Chief Justice Cushing Highway just north of Tack Factory Pond. The following sections include brief narratives of specific design features paramount to the planning board which are also included in both the plans and the attached appendices.

3.1 General Site Layout

The proposed site will include a 35,000 +/- square foot building, access and circulation driveway, associated parking areas, drinking water treatment sand drying beds, stormwater features, and landscape features. The building will house both the treatment process and the required infrastructure to maintain the Town's water distribution system.

The proposed facility has been sited in the northeast portion of the parcel providing for stormwater management and water treatment sand drying beds. The proposed development has been sited to maximize separation from Tack Factory Pond and its' resources as well as from abutting residential properties. The facility footprint is consolidated to minimize impervious area associated with the building itself as well as site circulation; to minimize overall land disturbance and clearing associated with the development. The proposed sanitary wastewater soil absorption system is located at the northern portion of the property maximizing separation from both resources as well as the drinking water treatment sand drying beds. Stormwater management is decentralized and distributed within the site to the maximum extent practical, while minimizing overall site disturbance. Stormwater management systems are located toward the southern end of the proposed development, primarily due to site topography.

3.2 Proposed Water Treatment Process

The Stearns Meadow Water Treatment Plant has been designed to treat the full range of permitted flows from the OOB Pond. Additionally, capacity has been included in the WTP design to incorporate flow from the Town's exiting wells in case of further treatment objectives. The new WTP will house both the treatment and distribution divisions of the Scituate Water Division. The facility is anticipated to be used by a maximum of 15 employees per day [four water treatment operators, two billing administrators, two superintendents, and seven distribution workers], with 10-14 employees anticipated to be using the facility during a single day/shift. Additionally, some public visitors are anticipated, estimated at 2/day. The new WTP will have a design capacity of 3 MGD with a full redundancy and a hydraulic capacity of 4.5 MGD. Additional information regarding the specifics of the design can be found in Appendix H – Water Treatment Narrative.

3.3 Architecture

The architecture for the proposed water treatment plant incorporates aspects to help the building blend with the adjacent residential neighborhood as well as provided safe and efficient access for both Town employees and visitors to the water treatment plant. More information regarding the specific architectural design and characteristics can be found in **Appendix K** – Architectural Narrative.

3.4 Security, Lighting, and Public Access

Since water treatment infrastructure is critical to the health and well-being of the community, security of the proposed water treatment plant was integral to the design process. The WTP is enclosed on three sides by an 8-foot chain link fence. Vehicles entering the site must enter the northern driveway as the southern driveway is exit only and will feature proper do-not-enter signage. Once a vehicle enters the northern driveway, they can either park in either of the two parking areas located in front of the WTP or continue forward to a locked sliding fence gate. If the visitor is a member of the public, they would park in the public parking area and then proceed into the administrative office to conduct their business; exiting the site through the northern curb cut. Currently proposed is a concrete walking path from the public parking area to the small burial site located on the western side of the site. Public access will be maintained to the burial site.

If an authorized person enters the northern driveway, they can drive straight to the motorized sliding fence gate where they will be able to badge into the secured portion of the facility. Authorized personnel will then proceed around the building to a parking area located on the southern side of the secured facility. All doors into the facility will require authorized access from an electronic badge system. Authorized personnel will be able to exit the site via the southern driveway. Between the employee parking area and the southern driveway there will be another electronic slide gate to ensure no unauthorized people enter the facility through the southern entrance. For more detailed information regarding the traffic flow and site security please refer to the design plans in **Appendix J**.

The facility will also incorporate closed circuit television (CCTV) cameras on the exterior of the facility for security purposes.

Woodard & Curran has incorporated exterior lighting fixtures on the layout plans. These lighting fixtures meet current Scituate Planning Board requirements while also ensuring the facility is adequately lit for safety and security purposes. For more information regarding site lighting please see the attached design plans **Appendix J**.

3.5 Conservation of Natural Site Characteristics

The Stearns Meadow Site includes natural features such as wetlands, trees, a burial site, stone walls, and other natural and man-made features.

The WTP was designed to reduce disturbance to locally jurisdictional wetland areas and reduce the amount of tree removal required. The proposed WTP layout will permanently alter two small IVWs protected solely under the Town of Scituate Bylaw. However, the combined area of these (2) IVWs will be replaced by expanding and connecting two IVWs on site, therefore improving the resource area quality by creating one larger system. Please see the wetlands summary located in **Appendix G** for more information.

The site includes a small burial ground located in the north-west portion of the site, along the western property line. An access path from the non-secured parking area to the burial site is proposed in the design. This path will not be located within the secured portion of the Site and will allow members of the public to visit the burial ground without interfering with WTP activities. The design plans located in **Appendix J** show the proposed path layout.

Discontinuous stone walls are found on the western property line of the site. There is also an interior stone wall which starts at a point on the western property line, continues in an easterly direction for approximately 200 feet and then turns to a northerly direction for another 200 feet, approximately. Currently, none of the walls on the western property line will be disturbed during construction of the facility. However, portions of the wall located on the interior of the site will need to be removed for the installation of both water infrastructure and stormwater management infrastructure. For more information, please see the design plans.

Per the current planning board regulations, a tree survey is currently being conducted at the site and will be made available to the board upon its completion. The survey will include all trees over 12-inches in caliper which will be disturbed during construction. Areas of the Site to be left undisturbed will not be surveyed.

**APPENDIX A: APPLICATION FOR APPROVAL OF A SITE PLAN
ADMINISTRATIVE REVIEW (MAJOR*)**

**APPENDIX B: DESIGN REVIEW FOR BUSINESS, COMMERCIAL, MIXED USE
 AND MULTI-FAMILY DEVELOPMENT**

**APPENDIX C: TRAFFIC STUDY PREPARED BY CHAPPELL ENGINEERING
ASSOCIATES**

APPENDIX D: STORMWATER MANAGEMENT PLAN

APPENDIX E: CERTIFIED ABUTTERS LIST

APPENDIX F: WETLANDS AND ENVIRONMENTAL PERMITTING SUMMARY

APPENDIX G: WATER TREATMENT PROCESS MEMORANDUM

APPENDIX H: CUT AND FILL ANALYSIS (TO BE PROVIDED UNDER SEPARATE COVER)

**APPENDIX I: SITE DESIGN PLANS – STEARNS MEADOW DRINKING WATER
TREATMENT PLANT (TO SCALE DRAWINGS BOUND
SEPARATELY)**

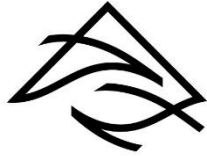
**APPENDIX J: ARCHITECTURE PLANS (TO SCALE DRAWINGS BOUND
SEPERATELY)**

APPENDIX K: ARCHITECTURE NARRATIVE

APPENDIX L: GREENHOUSE GAS EMISSIONS MEMORANDUM (TO BE PROVIDED UNDER SEPARATE COVER)

APPENDIX M: PROPERTY DEED AND TAX BILL

APPENDIX N: STORMWATER WAIVER REQUEST



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