

JOINT BOARD

WATER TREATMENT PLANT BACKGROUND

July 29th, 2021

ENVIRONMENTAL
 PARTNERS

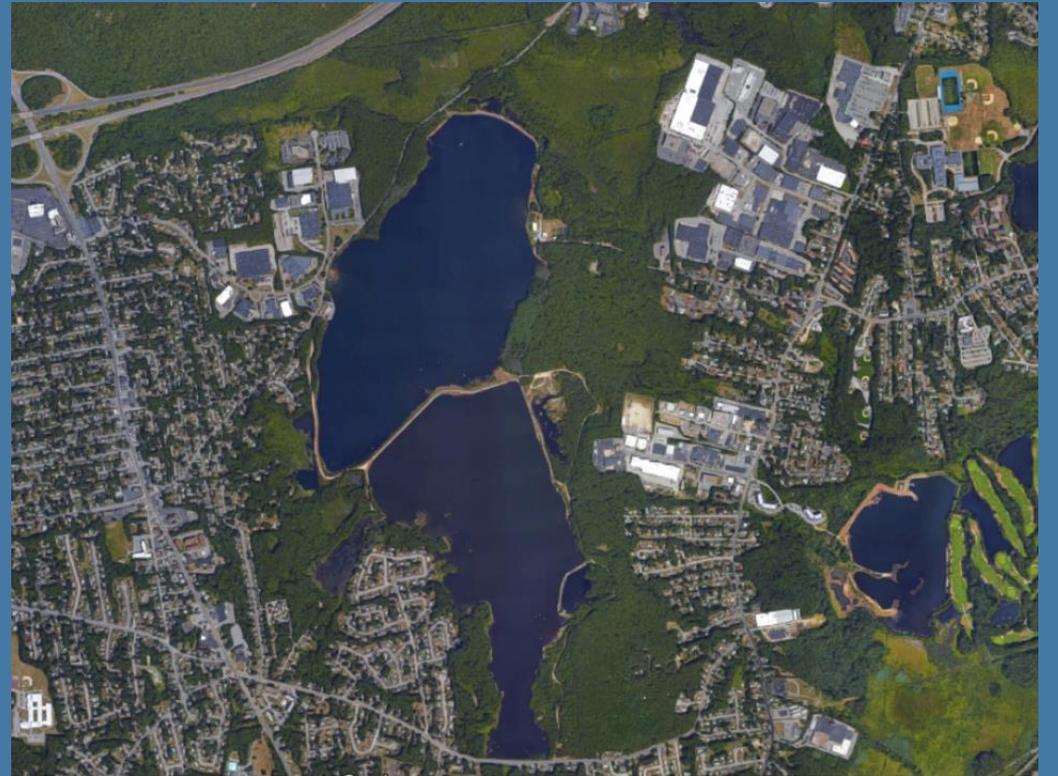
JOINT BOARD WTP STATISTICS

- Shared Water Supply with Randolph, Holbrook and Braintree 1885
- 1885 Direct Pumping
No Treatment
- Original WTP constructed in 1930's
- Over the years upgrades to the WTP (1963, 1973, 1991)
- Facilities Have Exceeded Life Expectancy

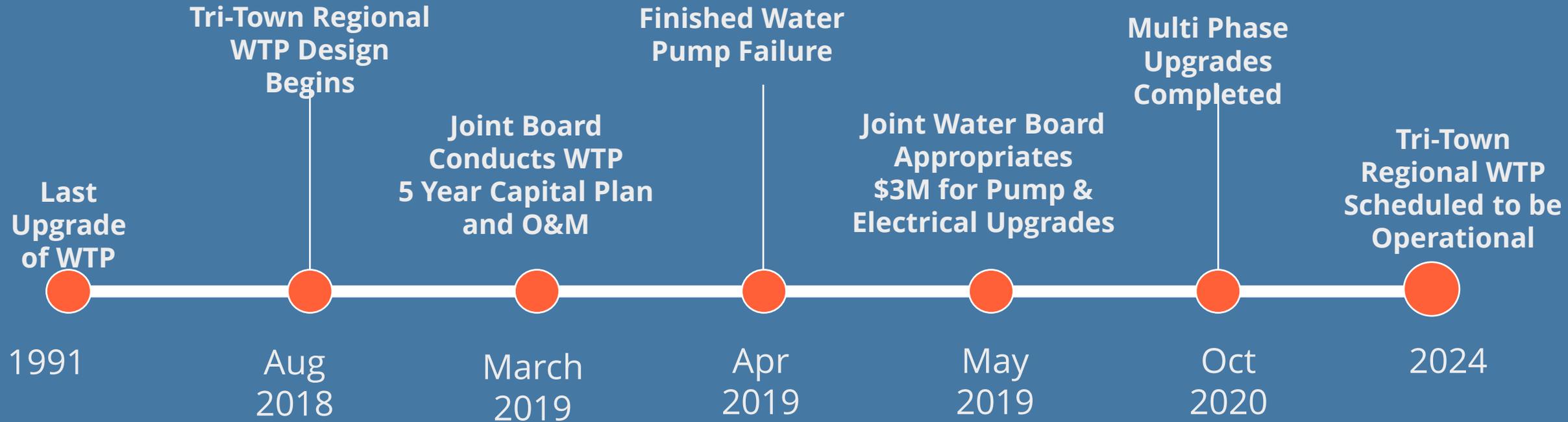


JOINT BOARD WTP STATISTICS

- Current Population Served:
 - 34,362 – Randolph
 - 10,791 – Holbrook
- Average Day Demand: 2.99 MGD
Maximum Day Demand: 4.22 MGD



JOINT BOARD WTP UPDATE

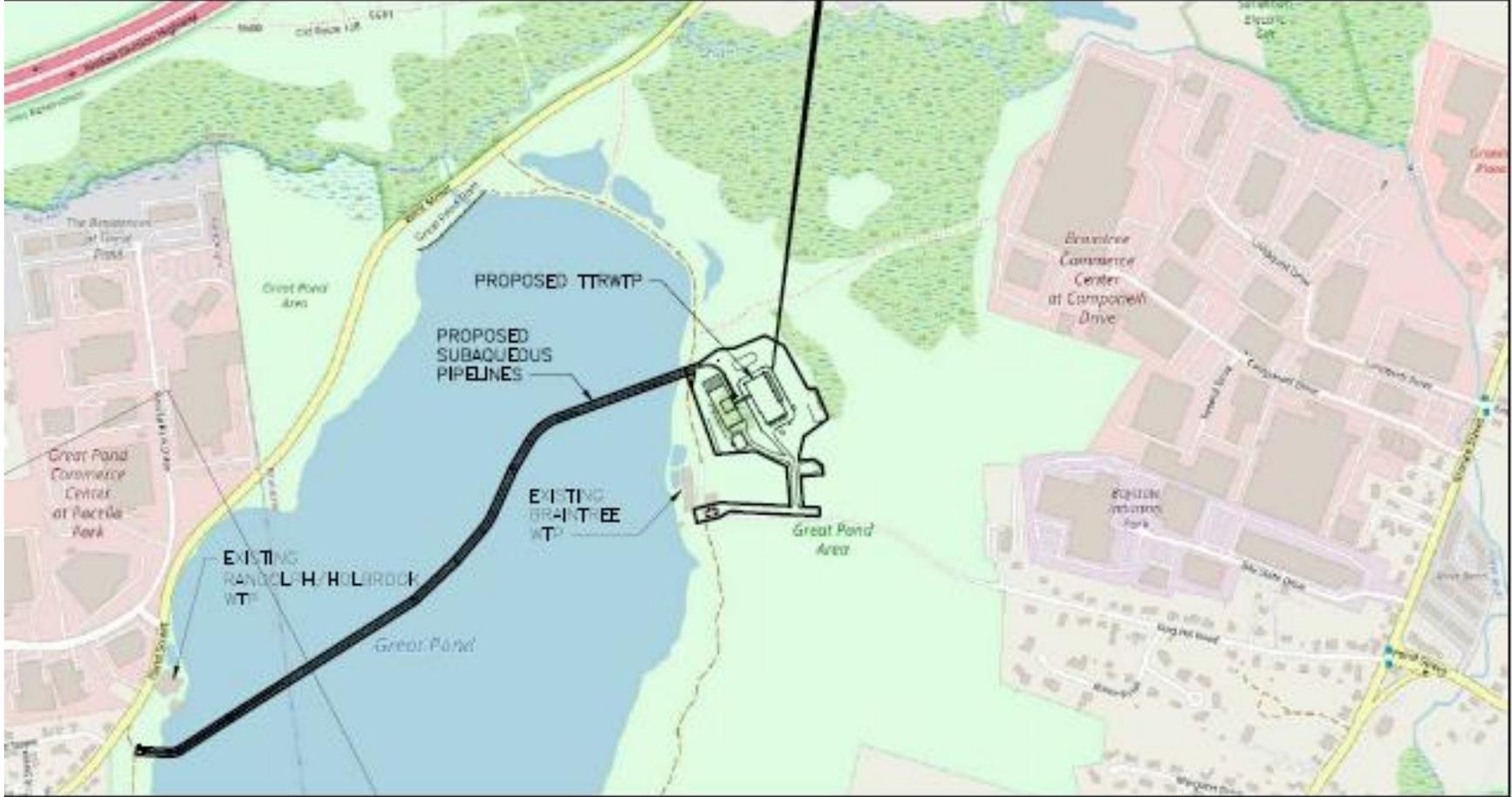


TRI-TOWN REGIONAL WATER TREATMENT PLANT UPATE

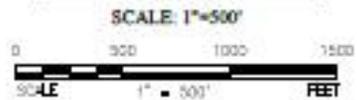
- Treatment Includes GAC Filtration for PFAS6 Removal
- Design Began 2019
- Currently at 60% Design
- Submission to State October 2021

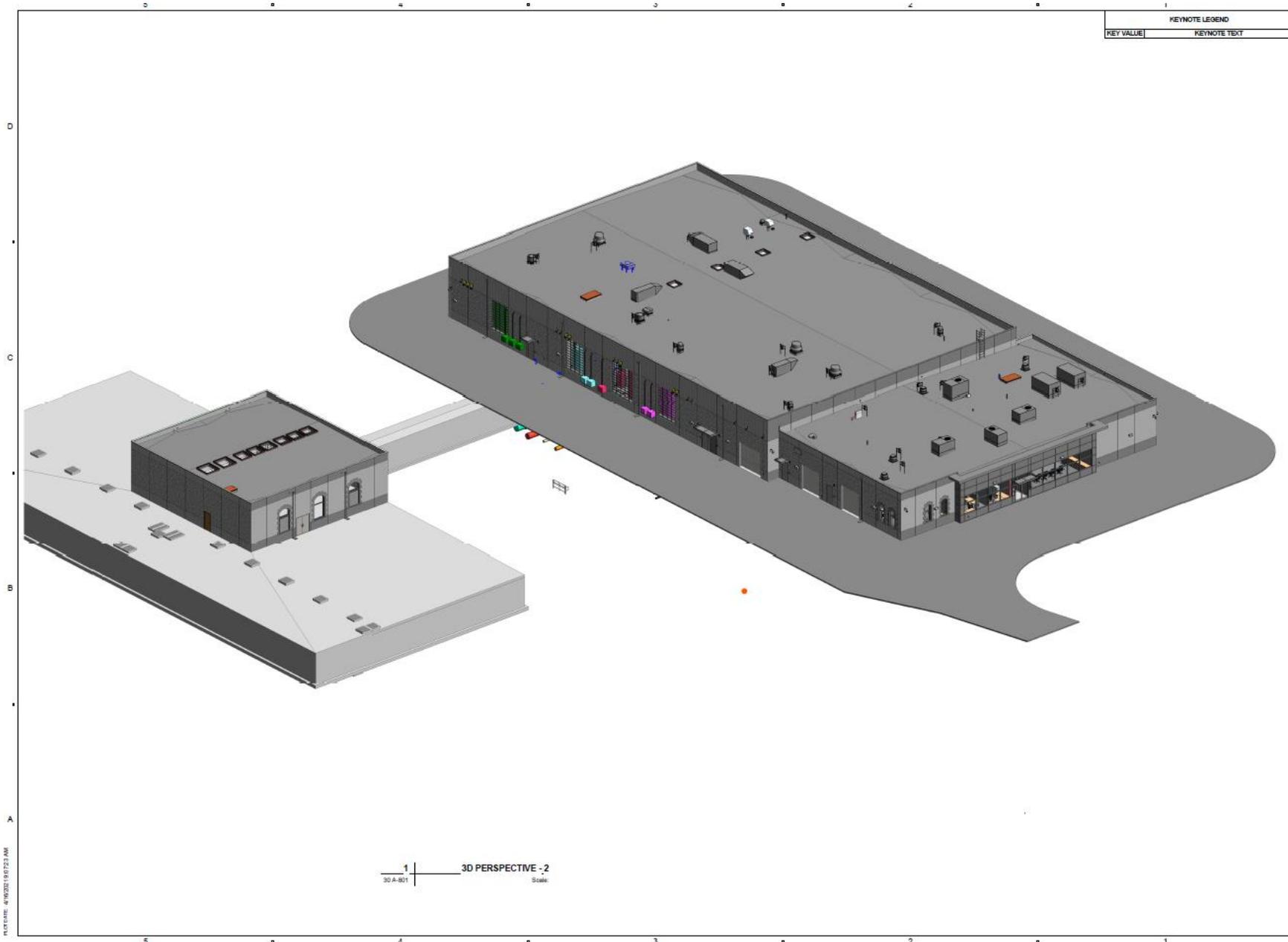


**PROJECT SITE
WATER TREATMENT PLANT**



LOCATION PLAN





KEYNOTE LEGEND	
KEY VALUE	KEYNOTE TEXT



PROJECT
 TRI-TOWN REGIONAL
 WATER TREATMENT
 PLANT
 King Hill Road,
 Braintree, MA 02154

CLIENT
 TRI-TOWN
 WATER DISTRICT
 1 JFK Memorial Drive
 Braintree, MA 02154

ENGINEER
 AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELSEA, MA 01924
 PHONE: (978) 952-1100
 www.aecom.com

OWNERS PROJECT MANAGER
 ENVIRONMENTAL PARTNERS, INC.
 1900 Crown Colony Drive, Suite 402
 Quincy, MA 02269

REGISTRATION

ISSUE
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ISSUE/REVISION

NO.	DATE	DESCRIPTION

PROJECT NUMBER
 60625625

Designed By:	M. PICONE
Drawn By:	S. MCFADDEN
Dept Check:	G. OTTERSON
Proj Check:	S. DEFRANCESCO
Date:	APRIL 2021
Scale:	

DISCIPLINE
 ARCHITECTURE
 SHEET TITLE
 WATER TREATMENT
 PLANT - 3D
 PERSPECTIVE
 SHEET NUMBER
 30 A-801



FILENAME: 6/16/2021 9:07:23 AM

PROJECT

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WATER TREATMENT
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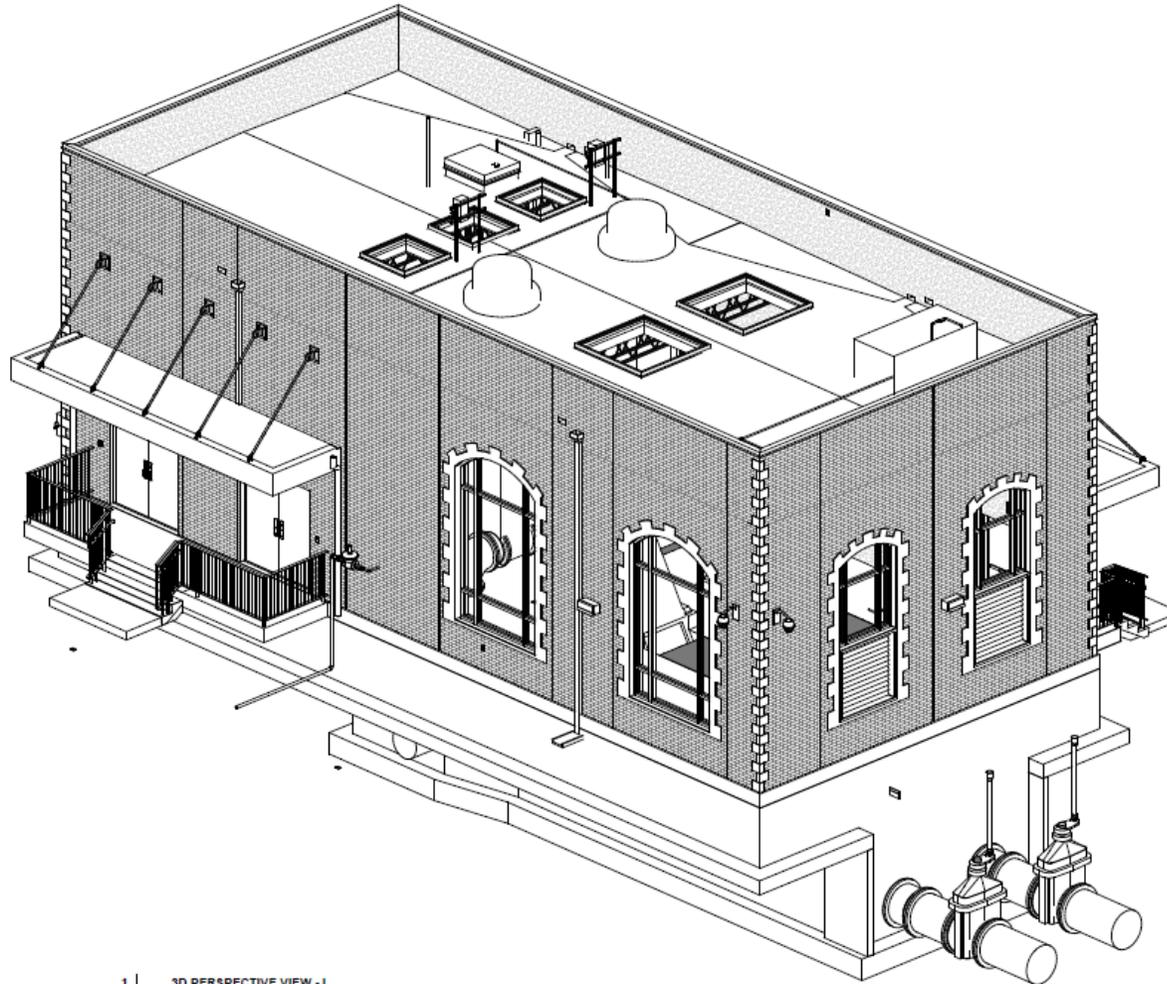
ARCHITECTURE

SHEET TITLE

RAW WATER PUMP
STATION - 3D
PERSPECTIVE - I

SHEET NUMBER

20 A-801



1 | 3D PERSPECTIVE VIEW - I
20 A-801 | Scale



TRI-TOWN REGIONAL WATER TREATMENT PLANT UPDATE

- Project Construction Start June 2022
- Project Construction Time Period 24 months
- Goal to be Operational 2024



TRI-TOWN REGIONAL WATER TREATMENT PLANT UPATE

- Funding Received under PFAS Design Grant (\$200,000) and on the Drinking Water State Revolving Loan Intended Use Plan
- Opinion of Probable Construction Cost at 60%
 - Water Treatment Plant: \$62.8 M
 - Subaqueous Transmission Mains: \$3.55M
 - OPM and Engineering: Prelim Design to Closeout \$8.6M
- Randolph Portion: \$26.3M (WTP, Transmission, Engineering)
- *7% Construction Cost Increases – Due to COVID Impacts*



JWB PFAS6 TIMELINE



PFAS ALTERNATIVES ANALYSIS

- Treatment Technologies
 - Operational Changes
 - Constructability
 - Capital Cost
 - O&M Costs



TREATMENT TECHNOLOGIES

- Activated Carbon
 - Granular
 - Powder
- Ion Exchange (IX)
 - Resins
- Membrane Filtration
 - Nanofiltration
 - Reverse Osmosis



SOURCE: [HTTP://WWW.CALGONCARBON.COM/](http://www.calgoncarbon.com/)



SOURCE: [HTTPS://WWW.RESINTECH.COM/](https://www.resintech.com/)

PFAS

OPERATIONAL INTEGRATION



Proposed Areas of Installation
Randolph/Holbrook Joint Water Board WTP
PFAS Investigation
March 2020



CONSTRUCTION AND O&M CHALLENGES

- Siting of PFAS treatment systems
 - Wetlands, clearing, crane access
 - Availability of Land
 - Winterizing systems for temporary/permanent use
- Timing of Startup
 - Design, Emergency Procurement, Delivery of equipment/materials and construction time 6 months minimum

CONSTRUCTION AND O&M CHALLENGES

- Commissioning GAC/IX Contactors
 - PFAS free washwater
 - Discharge of wash water – additional lagoon space required
- Water Treatment Residuals Management
 - Backwashing upstream filters with PFAS treatment effluent
 - Disposal options will be limited for PFAS impacted media and residuals
 - Sewer discharge permit modifications
 - Groundwater, surface water, and internal recycling of filter backwash



PFAS

MEMBRANE FILTRATION

Reverse Osmosis Kiosk Units

- Easy Installation
- No Additional WTP Operations & Maintenance Cost
- Minimal Construction Period
- Cost Effective and interim funding available will know by October 2021
- System comes Winterized
- Non-detect PFAS6 water supply
- Cost per year \$50,000

