STRAIGHTWAY AND HYANNISPORT WATER TREATMENT FACILITIES IMPROVEMENTS PROJECT
EXPANDED ENVIRONMENTAL NOTIFICATION FORM

TOWN OF BARNSTABLE DEPARTMENT OF PUBLIC WORKS
228 STRAIGHTWAY AND 132 SMITH STREET
BARNSTABLE, MA 02601
EEA FILE # TBD
KLF PROJECT # 24003062.001A

SEPTEMBER 03, 2024

KLEINFELDER
Bright People. Right Solutions.

September 3, 2024

Secretary Rebecca Tepper
Executive Office of Energy and Environmental Affairs
Att: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02108

And
Tori Kim, Director
Massachusetts Environmental Policy Act
100 Cambridge Steet, Suite 900
Boston, MA 02108

SUBJECT: **Straightway and Hyannisport Water Treatment Facilities Improvements Project**
MEPA Expanded Environmental Notification Form and
Proposed Environmental Impact Report

Dear Secretary Tepper and Director Kim:

The Expanded Environmental Notification Form (EENF) and proposed Rollover Environmental Impact Report (EIR) are submitted for your review on behalf of the Town of Barnstable (the Town). This project will provide an important public health benefit for the community served by the Town's Hyannis Water System (HWS) by constructing improvements to the HWS's existing water infrastructure located at 228 Straightway and 132 Smith Street in Barnstable. These improvements are needed to restore supply, pumping and treatment capacity as well as to improve resiliency for meeting current and future conditions.

The project triggers the MEPA threshold 301 CMR 11.03(4)(b)5 requiring an ENF for the expansion of an existing drinking water treatment facility by the greater of 1,000,000 gallons per day or 10% of existing capacity. As the project is located within one mile of an Environmental Justice (EJ) population, the project is also required to prepare an EIR in accordance with 301 CMR 11.06(7)(b).

As allowed by 301 CMR 11.06(13), the Town submits this dual Expanded ENF and Proposed EIR requesting that the Secretary allow a Rollover EIR. If any comments during the public comment period require additional consideration, the Town requests a Single EIR in accordance with 301 CMR 11.06(8).

These documents have been prepared with the intent to present a complete and definitive description and analysis of the project and its alternatives, along with an assessment of its potential environmental and public health impacts and mitigation measures.

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The documentation indicates that the project will not materially exacerbate any existing unfair or inequitable environmental burden impacting an EJ population, and will provide a public health benefit to the EJ populations served by HWS.

With the helpful guidance of the MEPA office and EJ Coordinator, the Town has provided meaningful opportunities for public involvement by EJ populations. The Town provided advance notice screening to community-based organizations and mailed notices of a virtual public meeting to the nearly 4,000 addresses located within a one-mile radius of the project. The Town hosted the virtual meeting in early August and provided Portuguese and Spanish translators, as well as provided a website for project information.

Thank you in advance for your consideration, and please contact me with any questions or clarification needed on this submittal.

Sincerely,

KLEINFELDER



Kirsten N. Ryan
Senior Project Manager
kryan@kleinfelder.com

Cc: Full Circulation list is provided in Appendix A

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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: **Straightway and Hyannisport Water Treatment Facility Improvements**		
Street Address: **228 Straightway and 132 Smith Street Barnstable, MA 02601**		
Municipality: **Barnstable**	Watershed: **Cape Cod**	
Universal Transverse Mercator Coordinates: **390929.73 Easting** **4611209.67 Northing** **Zone 19T**	Latitude: **41.645171** Longitude: **-70.309729**	
Estimated commencement date: **07/15/2025**	Estimated completion date: **05/10/2027**	
Project Type: **Water Supply**	Status of project design: **30% complete**	
Proponent: **Town of Barnstable, Department of Public Works**		
Street Address: **382 Falmouth Road**		
Municipality: **Barnstable**	State: **MA**	Zip Code: **02601**
Name of Contact Person: **Kirsten Ryan**		
Firm/Agency: **Kleinfelder**	Street Address: **1 Beacon St, Ste. 8100**	
Municipality: **Boston**	State: **MA**	Zip Code: **02108**
Phone: **+1 617-498-4778**	Fax: **N/A**	E-mail: **kryan@kleinfelder.com**

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
☐**Yes** ☒No **The Project meets or exceeds the ENF threshold for 301 CMR 11.03(4)(b)5 and its Designated Geographic Area includes an Environmental Justice Population. Pursuant to 301 CMR 11.06(7)(b), an EIR will be filed.**

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:
Note: Schedule is critical for maintaining SRF funding for this public health benefit project. If a Rollover EIR is not possible, a Single EIR is requested as a second choice.

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)5: Expansion of an existing drinking water treatment plant by the greater of 1,000,000 or more gpd, or 10% of existing capacity.

Which State Agency Permits will the project require?

- **Mass Historic Commission Project Notification Form**
- **MA Wetlands Protection Act Order of Conditions from Town of Barnstable**
- **Mass DEP Bureau of Water Resources Protection, Southeast Region**
    - **WS06 – Registration of a Class V UIC Well**
    - **WS20 – Approval to Construct a Source 70 gpm or greater (for Replacement Wells)**
    - **WS25 – Approval of Treatment Facility Modification**
    - **WS29 – Chemical Addition Retrofit of Water System Serving > 3,300 people**
- **Office of Coastal Zone Management Review**

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:
Drinking Water State Revolving Fund (DWSRF #16849, 2024 IUP) – $36,000,000
Additional funding was requested from the DWSRF 2025 IUP. The Proponent will know the outcome of these decisions in April.

Summary of Project Size & Environmental Impacts	Existing	Change	Total
LAND			
Total site acreage	4.77		
New acres of land altered		2.19	
Acres of impervious area	0.87	1.11	1.98
Square feet of new bordering vegetated wetlands alteration		~~18,756~~ **0**	
Square feet of new other wetland alteration		3,227 **200 ft RFA**	
Acres of new non-water dependent use of tidelands or waterways		0	
STRUCTURES			
Gross square footage	7,639	1,2438	20,077
Number of housing units	0	0	0
Maximum height (feet)	22	11.33	33.33
TRANSPORTATION			
Vehicle trips per day	2	0	2
Parking spaces	none marked but parking exists	9	9
WASTEWATER			
Water Use (Gallons per day)	2	0	2
Water withdrawal (GPD)	4,030,000 (permit limit)	0	4,030,000 (permit limit)
Wastewater generation/treatment (GPD)	2	0	2
Length of water mains (miles)	N/A	N/A	N/A
Length of sewer mains (miles)	N/A	N/A	N/A

Updated 09/18/2024. Correction of typo. Impact is to buffer zone only.

Has this project been filed with MEPA before?
☐ Yes (EEA #___) ☒**No**

Has any project on this site been filed with MEPA before?
☒ **Yes** (EEA # 9935) ☐No

GENERAL PROJECT INFORMATION – all proponents must fill out this section

PROJECT DESCRIPTION:

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

See attached Project Narrative, Section 1.0 Existing Conditions and Land Uses for Proposed Project.

NOTE: The project description should summarize both the project's direct and indirect impacts (including construction period impacts) in terms of their magnitude, geographic extent, duration and frequency, and reversibility, as applicable. It should also discuss the infrastructure requirements of the project and the capacity of the municipal and/or regional infrastructure to sustain these requirements into the future.

See attached Project Narrative, Section 2.0 Project Needs, Benefits and Impacts

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:

See attached Project Narrative, Section 3.0 Alternatives Analysis.

NOTE*: The purpose of the alternatives analysis is to consider what effect changing the parameters and/or siting of a project, or components thereof, will have on the environment, keeping in mind that the objective of the MEPA review process is to avoid or minimize damage to the environment to the greatest extent feasible. Examples of alternative projects include alternative site locations, alternative site uses, and alternative site configurations.*

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

See attached Project Narrative Section 4.0 Mitigation Measures.

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_____)

☒**No**

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

_____

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

_____

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_____) ☒**No**

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: **The MassHistoric Inventoried Area Hyannis Port Area (MHC# BRN.AS) overlaps with the existing and proposed replacement Hyannisport Well pump station. See Figure 2, Environmental Constraints)** ☐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?
___Yes **_X__No;**
if yes, identify the ORW and its location. _____

(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:_

Halls Creek (MA96-93) - Fecal coliform; Stewarts Creek (MA96-94) - Fecal coliform; unnamed tributary to Halls Creek (MA96-100) - E. Coli. See Figure 1, Resource Map.

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:

See attached Project Narrative, Section 2.2.2 Permanent Impacts and Section 4.3 Stormwater.

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:

This project will be publicly bid under M.G.L. Ch149. The design specification package will require the contractor to be responsible for managing solid waste in accordance with all applicable local, state, and federal, and local requirements, including 310 CMR 19.017. Waste materials are expected to include the building materials, interior piping, and treatment equipment from the demolition of the existing Hyannisport and Simmons Pond Well pump stations to remove them from wetland resource areas and floodplain. Buildings will be decommissioned, and interior piping and equipment will be salvaged as is feasible. Solid waste is expected to include metal fencing and water piping as well as brick and concrete. All waste generated during construction that is not subject to the Massachusetts Waste Bans (310 CMR 19.017) and cannot be recycled will be disposed of in accordance with local, state, and federal regulations.

(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 _X__** No ___ ;
if yes, please consult state asbestos requirements at http://mass.gov/MassDEP/air/asbhom01.htm

Hazardous building materials assessments will be completed prior to demolition and the contractor will be required to manage any asbestos-containing material identified in accordance with all applicable local, state, and federal requirements.

Describe anti-idling and other measures to limit emissions from construction equipment:
The bid specification package will include requirements for the contractor to comply with the Massachusetts Anti-Idling Law (MGL Ch.90, Section 16A; 301 CMR 7.11; and MGL Ch. 111, Sections 142A-142M). Engine idling on-site will be limited to period of 5 minutes or less, unless the engine is necessary to provide power to another device. For example, drilling of replacement wells relies on the drill rig engine to be running to power the drilling rods.

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.

Project Narrative attached to the end of this form.

FIGURES

1 Resource Map
2 Environmental Constraints
3 USGS Map
4 EJ Map
5 Site Plan
6 Project Area Land Use
7 Locus Map
8 Zoning Map
9 FEMA Flood Zone Map

APPENDICES

A. Circulation List
B. Preliminary Design Drawings
C. Federal and Municipal Permits
D. RMAT Report
E. Coastal Zone Management Letter
F. Massachusetts Historical Commission Documentation
G. EJ Screening Form and Distribution List
H. Fish and Wildlife Service Consultations

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.

See Figure 3.

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.

See Appendix B

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.

See Figure 2.

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).

See Appendix B.

6. List of all agencies and persons to whom the proponent circulated the ENF, in accordance with 301 CMR 11.16(2).

See Appendix A.

7. List of municipal and federal permits and reviews required by the project, as applicable.

See Appendix C.

8. Printout of output report from RMAT Climate Resilience Design Standards Tool, available here.

See Appendix D.

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.

See Figure 4.

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	0.17	+0.23	0.40
Internal roadways	0.70	+0.85	1.55
Parking and other paved areas	0	+0.03	0.03
Other altered areas	0.38	+1.08	1.47
Undeveloped areas	3.52	-2.19	1.32
Total: Project Site Acreage	4.77	0.0	4.74

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: **Town Of Barnstable Comprehensive Plan 2010 Seven Villages - One Community**
Date: **2010**

B. Describe the project's consistency with that plan with regard to:

1) economic development

Provides restoration of drinking water quality and resiliency which supports seasonal and year-round residents and businesses.

2) adequacy of infrastructure

Provides restoration of drinking water quality and resiliency which supports seasonal and year-round residents and businesses.

3) open space impacts

Provides restoration of drinking water quality and resiliency on an existing drinking water treatment complex with limited open space.

4) compatibility with adjacent land uses

Provides restoration of drinking water quality and resiliency without substantially modifying the current land use. The project will not produce significant noise, air, or other types of pollution.

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

RPA: **Cape Cod Commission**

Title: **Cape Cod Regional Policy Plan** Date: **March 2021**

Describe the project's consistency with that plan with regard to:

1) economic development

Provides restoration of drinking water quality and resiliency which supports seasonal and year-round residents and businesses, which contributes to the regional economic goal of sustainable economic growth for both seasonal and year-round activities.

2) adequacy of infrastructure

This project restores drinking water quality and resiliency. It has incorporated results from the Resilient Massachusetts Action Team (RMAT) report to ensure that these improvements can withstand the expected impacts of climate change. (See Appendix D.) This directly addresses the regional goal of improving infrastructure, specifically with projects designed to be resilient to climate change.

3) open space impacts

This project provides restoration of drinking water quality and resiliency on an existing drinking water treatment complex with limited open space. It aligns with the region's goals as it moves water infrastructure farther from delineated wetlands and restricts new building construction to existing water treatment complexes rather than building on undeveloped land.

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**? ___ Yes **_X_ 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)? ___ Yes **_X_ 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)? ___ Yes ___ No. If yes,

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

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 ___ No; if yes, provide a summary of proposed measures to minimize and mitigate rare species impacts

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

4. Has the site been surveyed for rare species in accordance with the Massachusetts Endangered Species Act? ___ Yes ___ 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 ___ 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 ___ 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: **Order of Conditions from Town of Barnstable.**

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 _X__ No.

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

There are four wetland areas whose buffers overlie a portion of the project area: Simmons Pond and surrounding wetlands, Halls Creek, Ben's Pond, and an unnamed marsh east of the Straightway Facility. All of these resources are within the Halls Creek Watershed. The locations of the wetlands and surface water bodies are depicted on Figure 1, Resource Map. Construction of this project will occur near wetlands, with some activities occurring within the 100-foot wetlands buffer zone and within 200-foot riverfront areas. All work will be conducted in accordance with the MassDEP Wetlands Protection Act Regulations (310 CMR 10.00), and the Town of Barnstable Conservation Commission Order of Conditions.

This project is expected to have number of beneficial impacts on the wetlands. The Simmons Pond Pump station will be moved outside of the 100-foot wetland buffer and the existing location will be seeded with native plants, returning that land to wetlands habitat. The Existing Hyannis Treatment Facility, which is within the 100-foot wetlands buffer and within 200 feet of a Riverfront Area will also be removed and seeded with native plants, returning the land to wetlands habitat.

The extent of the wetlands impact of the project are summarized in the table below.

Resource Area	Temporary Impact (square feet)	Permanent Impact (square feet)
100-foot Wetlands Buffer	76,592	18,756
200-foot Riverfront Area	20,645	3,227

At the Hyannisport Treatment Complex, temporary wetlands impacts within the 100-foot

wetlands buffer consist of repaving the existing road. Permanent impacts consist of installation of fencing, tree clearing, proposed paving work, the construction of the new Hyannisport and Simmons Pond Pump Stations, the demolition of the existing Simmons Pond Pump station and the existing Hyannisport treatment facility, and restoration of the demolition areas with native vegetation.

At the Straightway Treatment Complex, temporary work within the 100-foot buffer consists of the installation of repaving the existing roadway after utilities installation. Permanent work consists of utilities installation, access road re-configuration and paving, tree clearing, and stormwater management basin installation.

Potential negative construction phase impacts on surrounding wetlands include sedimentation from construction activities flowing into the resource areas. To mitigate sedimentation and erosion impacts, the project will implement sedimentation and erosion controls such as silt sacks or wattles as required by the local Conservation Commission. Following construction, temporarily disturbed areas will be restored with appropriate native seed mixes.

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	
Designated Port Areas	0	
Coastal Beaches	0	
Coastal Dunes	0	
Barrier Beaches	0	
Coastal Banks	0	
Rocky Intertidal Shores	0	
Salt Marshes	0	
Land Under Salt Ponds	0	
Land Containing Shellfish	0	
Fish Runs	0	
Land Subject to Coastal Storm Flowage	0	
Inland Wetlands		
Bank (lf)	0	
Bordering Vegetated Wetlands	~~76,592~~ **0**	Temporary
	~~18,756~~ **0**	Permanent
Isolated Vegetated Wetlands	0	
Land under Water	0	
Isolated Land Subject to Flooding	0	
Bordering Land Subject to Flooding	0	
Riverfront Area	20,645	Temporary
	3,227	Permanent

Updated 0918/2024. Correction of typo. Impact is to buffer zone only.

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)**? ___ Yes **_X__ 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) _____

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 ___ 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:

C. 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:__**__0**_____

Area of filled tidelands covered by buildings:**___0**_____

For portions of site on filled tidelands, list ground floor uses and area of each use:

_____N/A_____

Does the project include new non-water-dependent uses located over flowed tidelands? Yes ___ **No _X__**

Height of building on filled tidelands**____N/A_____**

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? **_X_ Yes** ___ No; if yes, describe these effects and the projects consistency with the policies of the Office of Coastal Zone Management:

The project is located within the Coastal Zone because Barnstable is located on Cape Cod which is included within the Coastal Zone. However, this project is proposed to take place

at least 3,000 feet from the coastline and will not affect the coastal resources of the region. The Office of Coastal Zone Management issued a letter confirming that this project does not exceed the threshold for federal consistency review. See Appendix E.

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:

According to 301 CMR 11.03(4)(b)5, an "expansion of an existing drinking water treatment plant by the greater of 1,000,000 gpd or 10% of existing Capacity" triggers a MEPA review. This project increases the capacity of the existing Straightway treatment facility by over 1,000,000 gpd. It does not increase the amount of authorized water withdrawal.

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

- **WS – Registration of a Class V UIC Well**
- **WS 20 - Approval to Construct a Source of 70 Gallons per Minute or Greater: Required to construct the Hyannisport and Simmons Pond replacement wells.**
- **WS 25 – Approval of Treatment Facility Modification: Required for construction of additional treatment at the Straightway Water Treatment Plant.**
- **WS 29 – Chemical Addition Retrofit of Water Systems Serving More than 3,300 People: Required for new chemical feed system at the Straightway Water Treatment Plant**

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:
Please note that the project simply restores the capability to utilize the existing wells' authorized withdrawals.

	Existing	Change	Total
Municipal or regional water supply	**4,030,000**	**0**	**4,030,000**
Withdrawal from groundwater	**4,030,000**	**0**	**4,030,000**
Withdrawal from surface water	0	0	0
Interbasin transfer	0	0	0

(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

This project restores the treatment capability of an existing source / treatment facility complex and is critical for restoring resiliency to the Hyannis Water System.

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.

E. What is the currently permitted withdrawal at the proposed water supply source (in gallons per day)? **4,030,000**

a. 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:

See Project Narrative, Section 2.0

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:

This project restores treated drinking water capacity, improves drinking water quality and resiliency of the Hyannis Water System (HWS) without substantially modifying the current land use. The restoration of water quality is in line with local, regional, state, and federal priorities. At a local level, Barnstable was one of the first municipalities to tackle per- and polyfluoroalkyl substances (PFAS) contamination in their water supply and this project continues their work to provide safe drinking water to residents. Furthermore, the Hyannisport and Simmons Pond wells will be relocated to higher elevations outside of the 500-yr floodplain. Treatment operations will be relocated and centralized at the Straightway site, providing more protection from flooding. These original buildings (approximately 1,400 square feet) will be decommissioned at the end of the project and demolished to restore the floodplain and portions of the wetland buffer zone. This work aligns with Town of Barnstable's Hazard Mitigation Plan, which recommends that the Town "identify, evaluate, and fund measures to reduce the vulnerability of critical facilities…to natural hazards."

At the state level, Massachusetts has also prioritized PFAS removal from water supplies. It was a leader among the states in setting maximum contaminant levels (MCLs) for PFAS in drinking water. Currently the state has prioritized PFAS drinking water projects in their Drinking Water State Revolving Fund (DWSRF) projects, as evidenced by the DWSRF loan this project received.

Finally, the federal government has also moved to regulate PFAS levels in drinking water

and passed legislation funding projects to remove PFAS. This project will enable Barnstable to meet the new stricter federal PFAS regulations. The Federal government has also recently re-instituted the Federal Flood Risk Management Standard (FFRMS), requiring that critical infrastructure is located outside of the 500-year floodplain and at least three vertical feet above the 100-year flood elevation. The existing structures at the Hyannisport Treatment Complex do not meet these requirements. However, the new building locations comply with FFRMS. It is funded in part by funding provided by the federal government.

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 _N/A___ No; if yes, attach correspondence

See Appendix F.

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? **_X__ Yes** ___ No; if yes, does the project involve the demolition of all or any exterior part of such historic structure? __ Yes **_X_** No; if yes, please describe:

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:

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 Hyannisport Treatment Complex at 132 Smith St is part of an inventoried area, MHC # BRN.AS Hyannis Port Area. (See Figure 2, Environmental Constraints.) The existing Simmons Pond and Hyannisport pump stations, which will be demolished, are within this area. However, the pump stations were constructed in 1995 and do not have historical significance. This information was included in the Project Notification Form (PNF) that was submitted to the Massachusetts Historical Commission (MHC), which is provided in Appendix F.

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:

A PNF was submitted to the MHC on June 06, 2024. As of August 10, 2024, the MHC chose not to comment on the submission, therefore clearing the project to continue. There are no known historic structures or archeological sites in the project area.

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).

Separate RMAT reports were generated for the Straightway and Hyannisport Complexes, since the locations differ due to the significant distance (~2000 feet) and elevation (~20 feet) between the sites. These differences led to slight changes in the risk factors for each site. The risk factors identified as "high" for this project were sea level rise/storm surge and flooding caused by extreme precipitation.

Only the Simmons Pond and Hyannisport site was found to be at high risk due to sea level rise/storm surge. As such, the RMAT report suggested that the 2050, 200-yr (0.5%) storm be used for planning purposes. The flood elevation for this storm is 16.6 feet above sea level. The project design incorporates this guidance as the proposed elevation of pump stations at this location, at the preliminary design phase, is 18 feet above sea level.

This project is designed to MassDEP and Barnstable DPW Stormwater Standards, which include managing peak rates and volumes up to the 100-yr storm. The following stormwater management measures will be taken to address the RMAT report's recommendations:

A combination of deep sump catch basins and infiltration practices will be used to manage stormwater peak rates and volumes. For extreme precipitation at the Simmons Pond and Hyannisport Complex, the RMAT tool recommends planning for a 2070, 50-year (2%) storm. This suggests that the stormwater management at the site should consider flooding from a 24-hour storm with 8.7" of rainfall. At the Straightway Complex, the RMAT report recommends planning for a 2070, 100-yr (1%) storm. This suggests that that stormwater management at that site should consider flooding from a 24-hour storm with 9.7" of rainfall. The project team will incorporate these suggestions to the greatest extent practicable.

Where required, additional pretreatment practices will be employed to meet the water quality standards set forth by the MassDEP Stormwater Manual and the Barnstable DPW Stormwater Standards, whichever is more restrictive. Low Impact Development (LID) practices will be employed to the maximum extent possible without interfering with the proposed facility's operation.

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

The Cape Cod Commission released the Cape Cod's Climate Action Plan in July 2021. This Plan details the region's adaptation strategies which include addressing vulnerabilities of public infrastructure and addressing vulnerable buildings and structures threatened by flooding. Their Adaptation Strategies Matrix includes retrofitting existing utilities for flood mitigation. This project directly addresses the vulnerabilities of the Hyannis Water System, which is currently operating close to capacity throughout the summer, by increasing the

system's treated capacity. It addresses structures threatened by flooding by moving both of the Simmons Pond and Hyannisport pump stations out of the 500-year flood zone to higher elevations and by providing adequately sized storm water management at both the Straightway and Hyannisport Complexes. By adapting this critical public infrastructure to be more resilient to climate change hazards, the resiliency of the region is increased.

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 two-plant solution detailed in the Project Narrative, Section 3.0 Alternatives Analysis was considered. This alternative would have proposed a new treatment plant on the Hyannisport Complex in addition to the new Straightway Water Treatment Facility. The two-plant alternative was eliminated because the Hyannisport plant would have been at a lower elevation and more vulnerable to sea level rise/storm surge. Off-site treatment locations were not considered as the installation of conveyance measures to the offsite plant would have unnecessarily increased project cost and environmental impacts. In light of the climate change risks, the selected alternative is the best possible location of a treatment plant, wells, and pump stations because it will prove more resilient to coastal flooding threats and improve water system resiliency.

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? ____Yes **__X__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.

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.

Within1 Mile of the project site (Block Group/Census Tract):
Minority (**4/125.02, 3/126.02, 2/126.01**)
Minority and Income (**1/126.02, 4/126.02, 2/153, 2/125.02**)
Minority and English Isolation (**3/125.02**)

Within 5 Miles of the project site (Block Group/Census Tract):
Minority (**4/125.02**, **1/126.01**, **2/126.02**, **1/120.02**, **4/121.01**, **4/121.02**, **2/121.01**, **3/126.02)**
Minority and Income (**1/153**, **3/153**, **2/153**, **2/125.02**, **4/126.02**, **1/126.02**)
Minority and English Isolation (**3/125.02**)
Minority, Income, and English Isolation (**2/126.02**)
Income (**1/121.02, 3/121.02**)

See Figure 4.

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:
Portuguese or Portuguese Creole: 8.3% (Tract 126.02)

Within 5 Miles of the project site:
Portuguese or Portuguese Creole: 8.3% and 7.1% (Tract 126.02, Tract 153)

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.

The Proponent has expanded the translations and interpretations to also include Spanish in addition to Portuguese.

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).

As described in the Project Narrative, Section 2.0, the primary impact of this project on EJ populations, is a long term <u>public health benefit</u> which increases the drinking water quality, reliability, and resiliency of the Town of Barnstable's HWS, the majority of which serves EJ populations.

As a part of the accompanying Environmental Impact Report, the impact on EJ populations was evaluated in detail. The only adverse effects on EJ populations is the temporary impact of noise and temporary lane closures which will impact abutters and road traffic near the project site during construction.

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.

The Environmental Justice Screening form, with accompanying Spanish and Portuguese translations, (See Appendix G) was emailed on July 1, 2024, to the list of all CBOs and tribes on the EEA EJ Reference List. To provide more targeted community outreach, this list was supplemented by conducting additional local research into additional CBOs. The EJ Screening form was also sent to those local organizations on that same day. Furthermore, the town posted the Environmental Justice screening form on the project page.

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.

The Environmental Justice Screening form (with accompanying Spanish and Portuguese translation) provided information on how CBOs and tribes can request a community meeting.

Despite not receiving any requests for a meeting, the Proponent proactively held a virtual informational community meeting on August 6, 2024, at 6 PM to give the public an introduction to the project, review proposed preliminary plans, and offer an opportunity for the public to ask questions and give feedback. This meeting included interpretation services by Spanish and Portugues translators. The meeting was recorded and the recording and materials provided on the project website.

In addition, the EENF Public Notice in English, Spanish, and Portuguese translation will be submitted for public notice publication in the Cape Cod Times.

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

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.

The same distribution list of CBOs and tribes as in Section III.A will be maintained for the notice of the MEPA Site Visit and circulation of other materials and notices during MEPA review.

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 Proponent plans to maintain timely email notifications of key documents, as has been conducted prior to filing, to the distribution list throughout the MEPA review process.

The Proponent has a project website that will be updated regularly as the project progresses.

Despite not receiving any requests for a meeting, the Proponent proactively held a virtual informational community meeting on August 6, 2024, at 6 PM to give the public an introduction to the project, review proposed preliminary plans, and offer an opportunity for the public to ask questions and give feedback. This meeting included interpretation services by Spanish and Portuguese translators. The meeting was recorded and the recording and materials provided on the project website.

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) Cape Cod Times (Date) 09/10/2024

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

Signatures:

8/29/24	8/29/24
Date	Date
Signature of Responsible Officer or Proponent	Signature of person preparing ENF
Daniel W. Santos, P.E.	Kirsten Ryan
Name (print or type)	Name (print or type)
Town of Barnstable DPW	Kleinfelder
Firm/Agency	Firm/Agency
382 Falmouth Road	One Beacon St., Suite 8100
Street	Street
Hyannis, MA 02601	Boston, MA 02108
Municipality/State/Zip	Municipality/State/Zip
508-790-6400	617-498-4778
Phone	Phone

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1 Existing Conditions and Land Uses for the Proposed Project

The Hyannis Water System (HWS) operates three drinking water treatment complexes with a total of 12 wells and serves a year-round population of approximately 18,000 people which surges to about 35,000 in the summer. Recent summer demand has hit record highs, and without the proposed improvements, all wells and treatment facilities must pump continuously in summer. This project will provide a public health benefit and improve the drinking water quality, reliability, and resiliency of the Town of Barnstable's HWS.

All of the HWS's wells are impacted by per- and poly-fluoroalkyl substances (PFAS) contamination and are treated to remove PFAS. However, some wells which lack winterized equipment must be turned off during winter. Beginning in 2016, when the US Environmental Protection Agency's (EPA's) PFAS Health Advisory was lowered from 300 to 70 nanograms per liter (ng/L), the Town voluntarily and rapidly implemented emergency seasonal PFAS treatment by installing unwinterized granular activated carbon (GAC) filter units. The PFAS removal system at the Maher water treatment facility has been fully winterized and the PFAS removal system at the Mary Dunn water treatment facility has been partially winterized to allow for year-round operation. However, the Straightway and Hyannisport Treatment Facilities (the project site – See Figure 3 USGS Map and Figure 7, Site Locus) need improvements to winterize existing PFAS units, as well as to increase well yield, pumping capacity, and treatment capacity, to improve overall system resiliency, resiliency to sea level rise, and reliably meet current and future drinking water regulations.

The Straightway and Hyannisport Treatment Complexes, located at 228 Straightway and 132 Smith Street, respectively, are a critical HWS component located on developed open space on approximately 48 acres of protected water supply land (see Figure 5, Site Plan and Figure 6, Project Area Land Use). The facilities consist of four wells, five pumping and/or treatment buildings (totaling 7,639 square feet), four unwinterized PFAS filters, and a 400,000-gallon storage tank. The existing facility structures are shown on Photographs 1 through 4.

Land use data obtained from the "2016 Land Cover/Use" layer in the Massachusetts Bureau of Geographic Information (MassGIS), MassMapper application. The project site is primarily deciduous forest (2.01 acres) and developed open space (1.51 acres). Additional land uses at the site include grassland (0.29 acres), palustrine forested wetland (0.15 acre), and evergreen forest (0.07 acre). The site currently includes 0.73 acres of impervious area within the developed open space. See Figure 6, Project Area Land Use for additional details on the land uses surrounding the project site.

The project parcel is located in Residence B District, which is zoned as single-family residential dwellings. See Figure 8, Zoning Map.



Photograph 1. Existing Straightway Treatment



Photograph 2. Straightway Complex Additional Infrastructure



Photograph 3. Hyannisport Existing Well and Treatment Facility



Photograph 4. Existing Simmons Pond Well Pump Station

2 Project Needs, Benefits, and Impacts

2.1 Project Needs and Benefits

Under the HWS's Water Management Act Permit, the four existing wells have a combined permitted withdrawal of 4.03 MGD (2,800 gallons per minute (gpm), representing one-third of HWS's total permitted supply. However, the existing treatment facilities only have a treated capacity of 2.16 million gallons per day (MGD) (1,500 gpm), greatly limiting the water supply available to the HWS. Reduced well yields at the Simmons Pond and Hyannisport wells further limit the capacity of the facility. The specific project needs, proposed improvements, and benefits are described below:

- Treatment – Raw water needs improved treatment for several contaminants of concern in all four wells. This project will winterize the existing PFAS units at 228 Straightway, and construct a new 10,660 square feet treatment facility at 228 Straightway to provide the following improvements:
    - Raw water is elevated above the Secondary Maximum Contaminant Level (SMCL) for iron (Straightway 2) and manganese (all wells). Pre-treatment filters in the new building will remove iron and manganese to improve the lifespan and operational efficiency of the GAC units, reduce down-time, and increase capacity and reliability of PFAS treatment.
    - Raw water is elevated above the Office of Research and Standards Guideline (ORSG) for 1,4-dioxane in Straightway 2 and Simmons Pond Wells. This project will include a new treatment technology, ultraviolet advanced oxidation process (UV-AOP), in the new Straightway building to remove 1,4-dioxane.
    - Raw water is above the Massachusetts PFAS drinking water limit in all four wells. Additional GAC units proposed for the new Straightway building will allow HWS to treat the full permitted combined withdrawal (4.03 MGD) of all four of the wells.
    - Straightway Well 2 has been taken offline for high levels of PFAS6 (the sum of the concentrations of PFOS, PFOA, PFHxS, PFNA, PFHpA, and PFDA), 1,4-dioxane, iron, and manganese. With the new building and improvements, Straightway Well 2 can be reactivated.
- Resiliency – The Hyannisport and Simmons Pond wells will be relocated to higher elevations above the 500-yr floodplain. (See Figure 9, FEMA Floodzone.) Treatment operations will be relocated and centralized at the Straightway site, providing more protection from flooding. The existing buildings (approximately 1,400 square feet) will be decommissioned at the end of the project and removed to restore the floodplain. The new Straightway Water Treatment Facility will have fully redundant backup generators, each of which will be capable of independently powering the facility. The project will also improve overall system resiliency by increasing the amount of treated water available to the system. This will provide additional flexibility if other wells or treatment facilities must be taken offline temporarily.
- Supply – Well yields for the Hyannisport and Simmons Pond Wells are significantly reduced, and the wells need replacement due to screen and aquifer plugging with iron and manganese. This project will replace them with new, more reliable, and productive wells of the same depths and with pumping stations with the same design capacities. In addition, Straightway Well 2 is offline due to water quality concerns. Treatment

improvements described above will allow the well to be reactivated, maximizing the availability of permitted supply.

- Pumping – The existing Booster Pump Station at 228 Straightway is undersized for the future needs of the site. The pumping capacity will be doubled by keeping the existing structure and upgrading the existing pumps to treat the proposed facility capacity. In addition, the pumps for the Straightway Wells 1 and 2 will be upgraded as necessary to account for the increased filtration at the new facility.
- Environmental Benefits - In addition, the project will benefit the environment by relocating two existing wells further away from wetland resources and out of the floodplain which helps protect both the wells and the environment. This will remove impervious surfaces and structures from the wetland buffer zones. The Project will also improve stormwater management infrastructure at both the Straightway and Hyannisport Complexes.

2.2 Project Direct and Indirect Impacts

2.2.1 Construction Period Temporary Impacts

Anticipated construction period impacts include construction noise and impacts to wetland resource areas, and potential introduction of invasive plant and animal species.

Construction Noise and Other Impacts: The loudest construction activities will be drilling the new Hyannisport and Simmons Pond wells as well as driving piles or sheeting at the Straightway sight for the ground stabilization near the existing tank. Each of these three tasks is expected to take under two weeks. To mitigate the impacts of noise pollution, all work will be completed during weekday, daytime hours. Construction contractors will also be required to adhere to anti-idling practices. No customer interruptions of utility services are anticipated for the duration of this project.

Wetlands Resource Areas: This project includes construction activities within the 100-foot wetlands buffer zone. (See Appendix B.) Activities include the construction of the new Hyannisport and Simmons Pond pump stations as well as the replacement of utilities and fencing. A Notice of Intent (NOI) for this project will be submitted to the Barnstable Conservation Commission in accordance with the Massachusetts Wetlands Protection Act to obtain an Order of Conditions for work within wetland resource areas subject to jurisdiction. All conditions included in the Order of Conditions will be adhered to throughout construction.

Traffic impact: This project will require delivery of large pieces of process equipment as well as construction materials. A small portion of the work includes capping and abandoning a connection from the Existing Hyannisport Treatment Facility to the water main on Smith Street. It also includes replacing the connection from the Straightway complex to the water main on Straightway. These activities will require temporary single lane closures on their respective roads. The closures are not expected to have major traffic impacts. To mitigate any impacts, the project team will coordinate closely with the local police department for traffic details.

2.2.2 Permanent Impacts

Permanent impacts of this project include tree clearing necessary for construction of new facilities, increased impervious surface required for the new facilities and access driveways, and the installation of fencing.

Tree Clearing: The construction of the proposed Hyannisport pump station, Simmons Pond pump station, and Straightway Treatment Water Treatment Facility will result in approximately 1.42 acres of tree clearing. These activities have the potential to impact federally listed species of migratory birds and the endangered northern long eared bat. To mitigate the impact of this work, trees will be cleared between October 1 and March 14, outside of the breeding season of birds and bats. The project has consulted with the United States Fish and Wildlife Service (FWS) to confirm that seasonal restrictions are an appropriate mitigation measure for this project. The “No Effect” determination for the northern long eared bat as well as correspondence with the FWS are included as Appendix H.

Impervious Surface: The Project proposes to increase the impervious area in the Straightway and Hyannisport Treatment Complexes by approximately 47,674 square feet, as a result of new treatment buildings and paved access roads. To mitigate the increase in impervious area, existing pump stations and access roads will be demolished and seeded with native plants. The increase in impervious area will increase stormwater volumes. This will be mitigated with a stormwater management system detailed in Section 4.0.

Fencing: Fencing will be installed around the perimeter of the Hyannisport Treatment Complex. Potions of this fencing will be installed within the wetlands buffer zone.

3 Alternatives Analysis

No locations outside of the current project site were considered for this project. Installation of water mains from the well locations to an off-site treatment plant is cost prohibitive, disruptive to local residents-including nearby Environmental Justice (EJ) populations, and greatly increases the project footprint. The following alternatives for treatment options onsite were evaluated as part of the alternatives analysis:

3.1 No Build Alternative

The “No Build” alternative included no well improvements or treatment facility construction. Without upgrades to the treatment at the existing facility, HWS capacity will remain severely limited due to PFAS contamination in all 12 of the system’s groundwater wells. Without additional treatment at the Straightway site, capacity has been reduced to 5.04 MGD. In 2022, the HWS had a maximum daily demand (MDD) of 5.3 MGD, a new historic maximum. As a result, all wells and treatment infrastructure must pump continuously in summer. If a treatment facility fails or experiences any issues, the system may not be able to meet demand. Operating so close to demand in the summer months is not an acceptable option and the No Build alternative was deemed unfeasible.

3.2 Two Plant Alternative

The two-plant alternative consisted of one new treatment facility at the Straightway Complex to treat water from Straightway 1 and Straightway 2 wells and one new treatment facility at the

Hyannisport Complex to treat water from the Hyannisport and Simmons Pond wells. In this alternative, both treatment facilities would include greensand filtration, UV-AOP treatment, GAC filtration, and chemical injection for pH, corrosion control, and chlorination.

The major draw of the two-plant alternative was that it provided additional resiliency in the case that one of the two treatment plants failed. Major downsides to the alternative included a much higher construction and operating cost and a larger environmental impact. Constructing two buildings increased the overall building footprint for the project and required additional tree clearing, including additional clearing within the wetlands buffer zones. Furthermore, the Hyannisport treatment facility would have been in close proximity to the nearby wetlands and the project aimed to minimize work in sensitive environments.

3.3 Selected Alternative - Single Plant at Straightway; Relocate Simmons and Hyannisport Buildings

The single plant alternative consists of a single treatment plant at the Straightway complex. Treatment at the plant includes greensand filtration, UV-AOP, GAC filtration, and chemical injection for pH, corrosion control, and chlorination. The plant design re-uses the existing GAC filters that are already onsite at the complex and adds additional GAC filtration to treat the entire permitted value for the four wells treated at the plant.

Major benefits of this design included a lower construction cost than the two plant alternative and a lower environmental impact, due to the smaller building footprint, reduced tree clearing, and minimized work in the wetlands. The single-plant design can also be constructed more quickly, reducing noise impact on nearby residents. Furthermore, this alternative provides greater protection from flooding. The Resilient Massachusetts Action Team (RMAT) analysis tool found that the Hyannisport Treatment Complex was at high risk of coastal and precipitation event flooding as a result of climate change. (See Appendix D.) Moving all treatment equipment to a higher elevation site protects the critical infrastructure from future threats.

4 Mitigation Measures

4.1 Overall

4.1.1 Well location

As described in Section 1, the proposed locations for the Simmons Pond and Hyannisport replacement wells were chosen to mitigate impacts on the nearby wetlands and protect critical infrastructure from climate change. Well locations were chosen as far from nearby wetlands as possible and at higher elevations to protect from future flood events, while staying within the 250-foot replacement well radius. Since this work will occur within the 100-foot wetlands buffer, the improvements have been designed to avoid, minimize, and mitigate impacts on nearby wetland resources. Temporary construction impacts will be mitigated by utilizing erosion and sedimentation controls and obtaining an Order of Conditions from the Barnstable Conservation Commission and following all mitigation measures specified therein.

4.1.2 Construction Practices

The project provides a long-term public health and environmental benefits to the EJ populations served by this water infrastructure, as described in Section 1. During construction, residents close to the project may notice some construction noise. Direct abutters close to construction areas may see land clearing activities and utility upgrade installations in the public right of way. As mitigation, the HWS will require contractors to work during normal weekday working hours, to control dust, and to limit vehicle idling.

4.2 Protected Species

A number of migratory birds and listed species have the potential to exist within the project area. According to the Information for Planning and Consultation (IPaC) report from the FWS, there are 27 migratory birds found in the area. Furthermore, the Official Species List includes the following five species:

- Endangered Species
  - Northern Long-eared Bat (*Myotis septentrionalis*)
  - American Chaffseed (*Schwalbea americana*)
  - Sandplain Gerardia (*Agalinis acuta*)
- Candidate Species
  - Monarch Butterfly (*Danaus Plexippus*)
- Proposed Species
  - Tricolored Bad (*Perimoyotis subflavus*)

In consultation with FWS, a “No Effect” determination was made for the American Chaffseed and Sandplain Gerardia because the site conditions are not suitable habitat for them. A time of year restriction was placed on tree clearing and building demolition to ensure that there is no accidental take of the endangered bat species. The Proponent is not required to mitigate impacts on candidate species; however, project scheduling requirements will also protect monarch butterflies from accidental take. See Section 4.2.1 for more detail on time of year restrictions. See Appendix H for documentation of FWS consultations.

To protect migratory birds and listed species, the following mitigation measures will be put in place:

4.2.1 Project Scheduling

Tree clearing and building demolition for the project will be restricted to October 1st through March 14th. This window of time is outside of the breeding period for migratory birds. It is also during the hibernation season of the Northern Long-eared and Tricolored bats, meaning that bats will not be present on site at this time. Furthermore, it is outside of the time that Monarch butterflies will be migrating through Massachusetts.

4.2.2 Site Restoration

The existing Hyannisport Treatment Facility and Simmons Pond Pump Station will be demolished as part of this project. Paved roads servicing this facility will also be removed. The land will be reseeded with native plants and allowed to grow wild to offset the impact of habitat reduction in other areas of the site.

4.3 Stormwater

The existing stormwater infrastructure at both the Straightway and Hyannisport Complexes is minimal. At the Straightway Complex, an infiltrating catch basin is located north of the existing pump station. Three 8-foot diameter leaching pits infiltrate stormwater at the center of the site. Rainfall falling directly into the existing backwash infiltration basin is infiltrated through the basin. During rainfall events that overwhelm existing infrastructure, stormwater may also flow overland into low-lying areas. There is no existing stormwater management at the Hyannisport Complex.

The Project proposes to increase the impervious area in the Straightway Treatment Complex by approximately 47,674 square feet, mandating the installation of stormwater management systems in accordance with the Town of Barnstable Stormwater Management Policies. Existing stormwater infrastructure at both sites is insufficient for precipitation levels predicted by the RMAT tool for the 2070 100-year storm, which was used as the design standard for this project.

The proposed stormwater system will be designed in accordance with the Massachusetts Stormwater Management Standards and Town of Barnstable regulations. The stormwater management system at the Straightway Complex will be sized to accommodate a rainfall event of 9.7 inches, which is the 2070 100-year storm predicted by the RMAT tool, to the extent practicable. The stormwater management system at the Hyannisport Complex will be sized to accommodate a rainfall event of 8.7 inches, which is the 2017 50-year storm predicted by the RMAT tool, to the extent practicable. Proposed systems will rely on stormwater infiltration, since the USDA NRC Service soil mapping data of the project site, and the geotechnical borings advanced, indicate the presence of predominantly sandy soils which are reported to be excessively drained. This project is expected to have a beneficial impact on stormwater management since the proposed systems are robust and existing stormwater infrastructure at both complexes is minimal. Proposed Stormwater management is shown on the site plans included in Appendix B.

Figure 1 - Resource Map

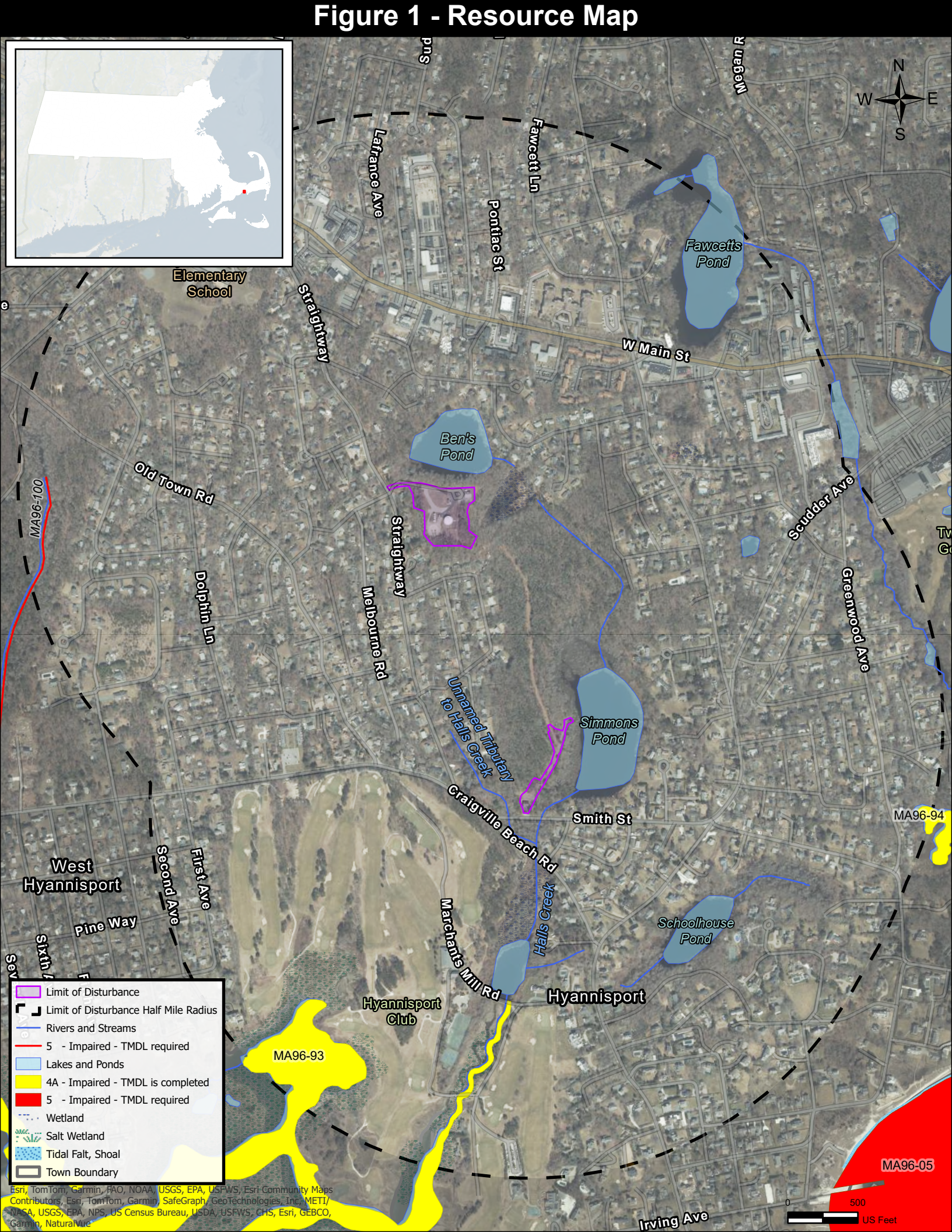
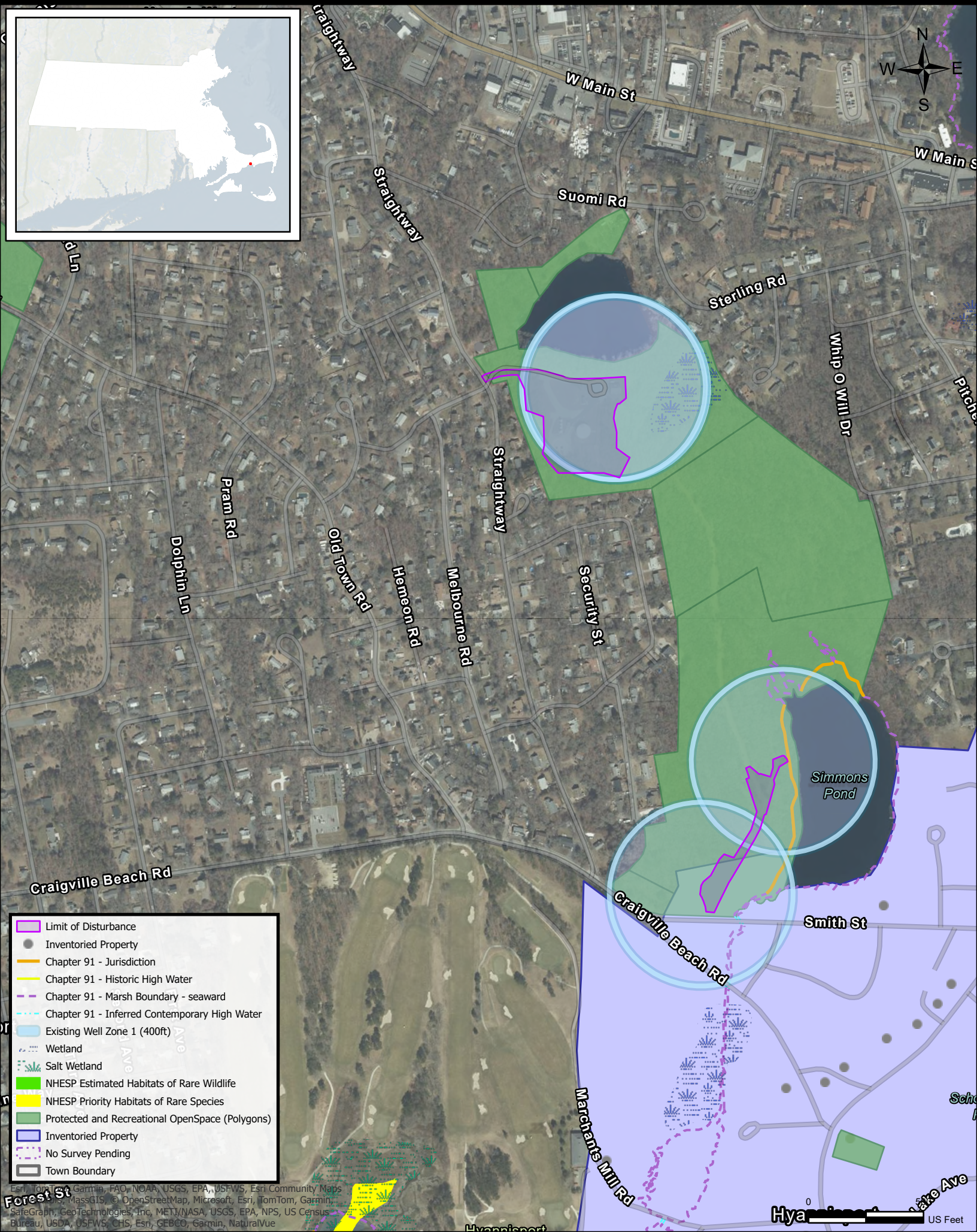


Figure 2 - Environmental Constraints



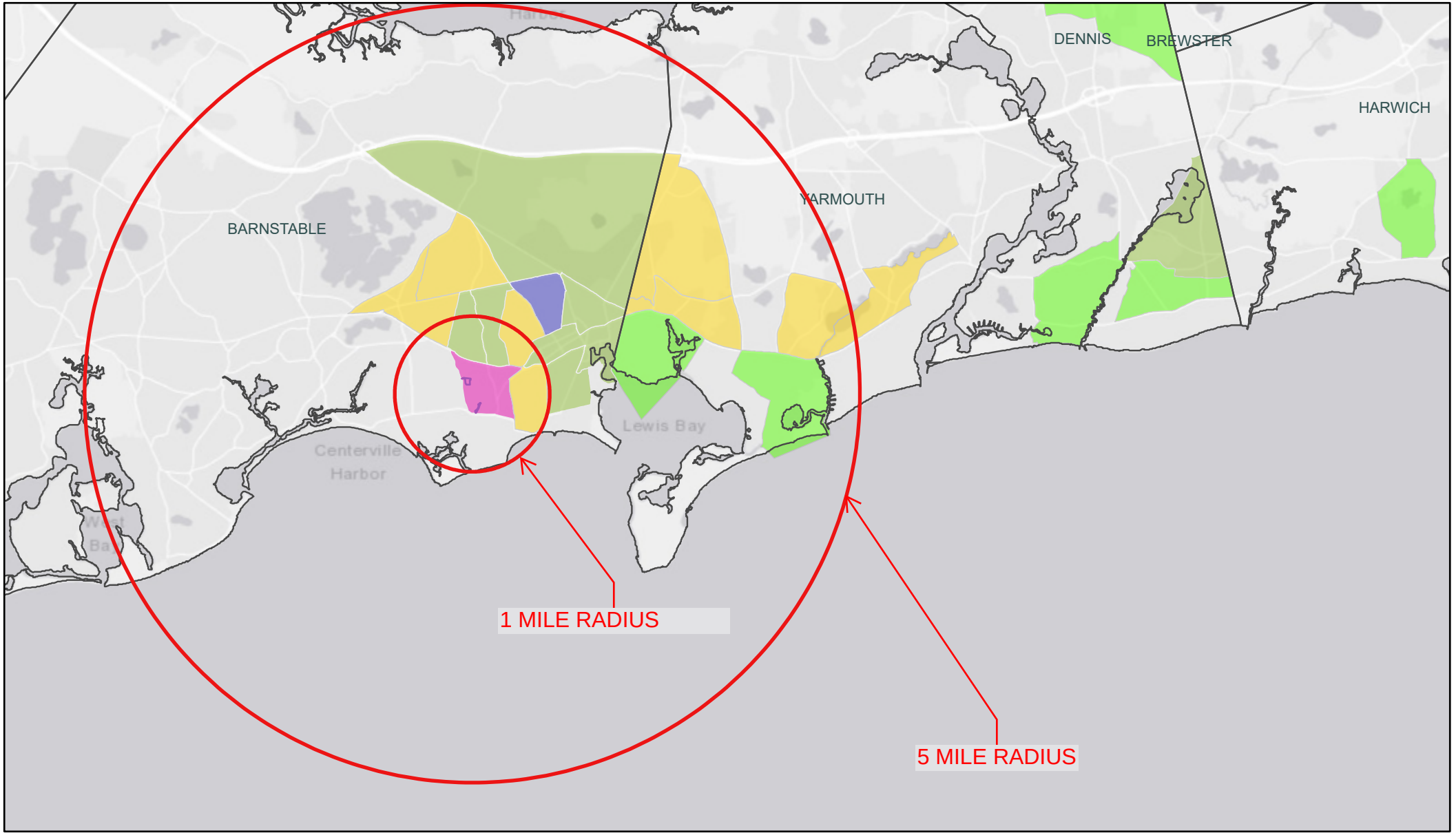
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

HYANNIS QUADRANGLE
MASSACHUSETTS - BARNSTABLE COUNTY
7.5-MINUTE SERIES


ATLANTIC OCEAN
White Hill
Great Island
Great Island Creek
Wicks Island
Fish Island
Jackson Island
Wells Creek
Sandy Neck
Sandy Neck Dunes
Beach Point
The Cove
Mussel Point
Bench Rock
Green Point
Horseshoe Shoal
Barnstable Harbor
High Island
Black Bank Channel
Great Marshes
Scorton Creek
Slough Point
Boat Cove Creek
Spring Creek
Duck Island
Eel Grass Cove
Huckins Island
Mollys Island
Jules Island
White Rock
Calves Pasture Point
Broad Sound
Hinckley Rock
Scudders Rock
Cone Rock
Red Rock
Tongue Rock
Moon Shoal
Church Rock
Channel Rock
Salten Point
Salten Rock
Flying Fish Rock
Blish Point
Blind Rock
Lobster Rock
Cobbs Village
YARMOUTH PORT
Short Wharf Creek
Mill Creek
West Barnstable
Bridge Creek
Briskyard Creek
Hinckley Pond
BARNSTABLE TOWN
West Barnstable
Lothrop Hill Cem
Pond Village
Barnstable County Superior Court House
Barnstable
Cobbs Hill
Cummaquid
Maraspin Creek
Flax Pond
Dennis Pond
Long Pond
Sandy Street Cem
Cummaquid Cem
Cape Cod Community College
No Bottom Pond
Garretts Pond
Sandy Hill Pond
Spruce Pond
Clay Hill
Shootflying Hill
Hathaway Ponds
Little Israel Pond
Israel Pond
Lamson Pond
Flintrock Pond
Cape Cod Gateway Airport
Mary Dunn Pond
Point Shirley
Wequaquet Lake
Nyes Point
Nyes Neck
Bearse Pond
Lewis Island
Stoney Point
Huckins Neck
Gooseberry Island
Lewis Point
Fuller Point
Hayes Point
Long Point
Little Point
Great Point
Fresh Pond
Duck Pond
Dunns Pond
Long Pond
Mill Pond Marshes
Mill Pond
Centerville
Centerville Ancient Cem
Saint Francis Xaviers Cem
Beechwood Cem
North Pond
Hyannis
Saint Patricks Cem
Universalist Cem
First Baptist Church Cem
Hyannis Inner Harbor
Lewis Bay Beach
Bay View Street Beach
Hyannis Park
Colonial Acres
Harbor Bluff
Fawcetts Pond
Ann Sherry Pond
Hyannis Ancient Cem
Oak Grove Cem
Oak Neck Cem
Simmons Pond
Schoolhouse Pond
Hyannis Port
Veterans Park Beach
Kalmus Park Beach
Fiddle Head Rock
Lewis Bay
Dunbar Point
Egg Island
Keyes Memorial Beach
Hyannis Port Beach
Hyannis Harbor
Craigville
Craigville Marshes
Red Lily Pond
Lake Elizabeth
Craigville Beach
West Hyannisport
Centerville River
Bumps River
Coleman Pond
North Pond
Spindle Rock
Long Beach
Halls Creek
Halls Island Marshes
Halls Island
Sunset Hill
Centerville Harbor
East Bay
Hyannis Point
PROJECT AREA
Chandler Gray Cem
WEST YARMOUTH
Little Sandy Pond
Mill Pond Marshes
Mill Pond
Lumber Mill Rd
Old Post Rd
Falmouth Rd
Main St
Route 6
Route 28
Route 132
Route 149
Yarmouth Rd
Old Colony Rd
Old Kings Hwy
Old Stage Rd
Ocean St
Bay St
Sea St
Willow St
Thacher Shore Rd
Harbor Point Rd
Stony Point Rd
Bone Hill Rd
Commerce Rd
Indian Trl
Hillway
Sunset Ln
Saddler Ln
Parker Rd
Church St
Pine St
Sandy Neck Rd
Wianno Ave
Craigville Beach Rd
Centerville Ave
Shootflying Hill Rd
Lakeview Dr
Pleasant Pines Ave
Huckins Neck Rd
Shallow Pond Dr
Hathaway Rd
Bearse Pond Dr
Holly Point Dr
Nyes Neck Rd
Lakeside Dr W
Stoney Point Rd
Gooseberry Island Rd
Lewis Point Rd
Fuller Point Rd
Hayes Point Rd
Long Point Rd
Little Point Rd
Great Point Rd
Point of Pines Ave
Commerce Rd
Monroe Rd
Bishop Ter
Kilkore Dr
Buckwood Dr
Schooner Ln
Corporation Dr
Enterprise Rd
Airport Rd
Airport Access Rd
Airport Way
Communication Way
Independence Dr
Breeds Hill Rd
Attucks Ln
Thornton Dr
Hidys Hill Rd
Old Yarmouth Rd
Camp St
Jefferson Ave
Goodspeed Rd
Adams St
Ridgewood Ave
Rockwood Ave
Chestnut St
Winter St
Grove St
Stevens St
Bristol Ave
Pleasant St
Bay View Ave
Wendmad Way
Baxter Ave
Cleveland Way
Main St
Ocean Ave
Keyes Ave
Este Ave
Gosnold St
Oak Neck Rd
Oak Grove Ave
Old Grandview Rd
Pine Ave
Grove Ave
Spring Ave
Sea Ave
Sturgis Rd
Edgerton Ave
Irving Ave
Yarmouth Ferry
Hyannis Ferry
Old Craigville Rd
Craigville Beach Rd
Centerville Ave
Straightway
Keeguknee Rd
Dolphin Ln
Clifton Ln
Lake Elizabeth Dr
Green Dunes Dr
Bridge Rd
Bumps River Rd
Old Mill Rd
Seabord Ln
Stuart Ave
Sturgis Rd
Edgerton Ave
Bay Ln
Ocean Ave
Keyes Ave
Este Ave
Gosnold St
Oak Neck Rd
Oak Grove Ave
Old Grandview Rd
Pine Ave
Grove Ave
Spring Ave
Sea Ave
Ocean St
Bay St
Old Colony Rd
Old Kings Hwy
Old Stage Rd
Yarmouth Rd
Old Yarmouth Rd
Camp St
Jefferson Ave
Goodspeed Rd
Adams St
Ridgewood Ave
Rockwood Ave
Chestnut St
Winter St
Grove St
Stevens St
Bristol Ave
Pleasant St
Bay View Ave
Wendmad Way
Baxter Ave
Cleveland Way
Main St

Figure 4 - EJ Map



7/10/2024, 7:26:43 PM

Override 1
Project Limit of Disturbance
MA Municipalities
MA 2020 Environmental Justice Block Groups
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
Minority and English isolation
Minority, Income and English isolation

1:144,448

0 0.75 1.5 3 mi

0 1.5 3 6 km

MassGIS, Esri, HERE, Garmin, USGS, EPA, NPS

MassGIS, Esri, HERE, Garmin, USGS, EPA, NPS | MassGIS, MassDOT - Highway Division, MassDEP, MWRA | EEA GIS |

Figure 5 - Site Plan



Figure 6 - Project Area Land Use



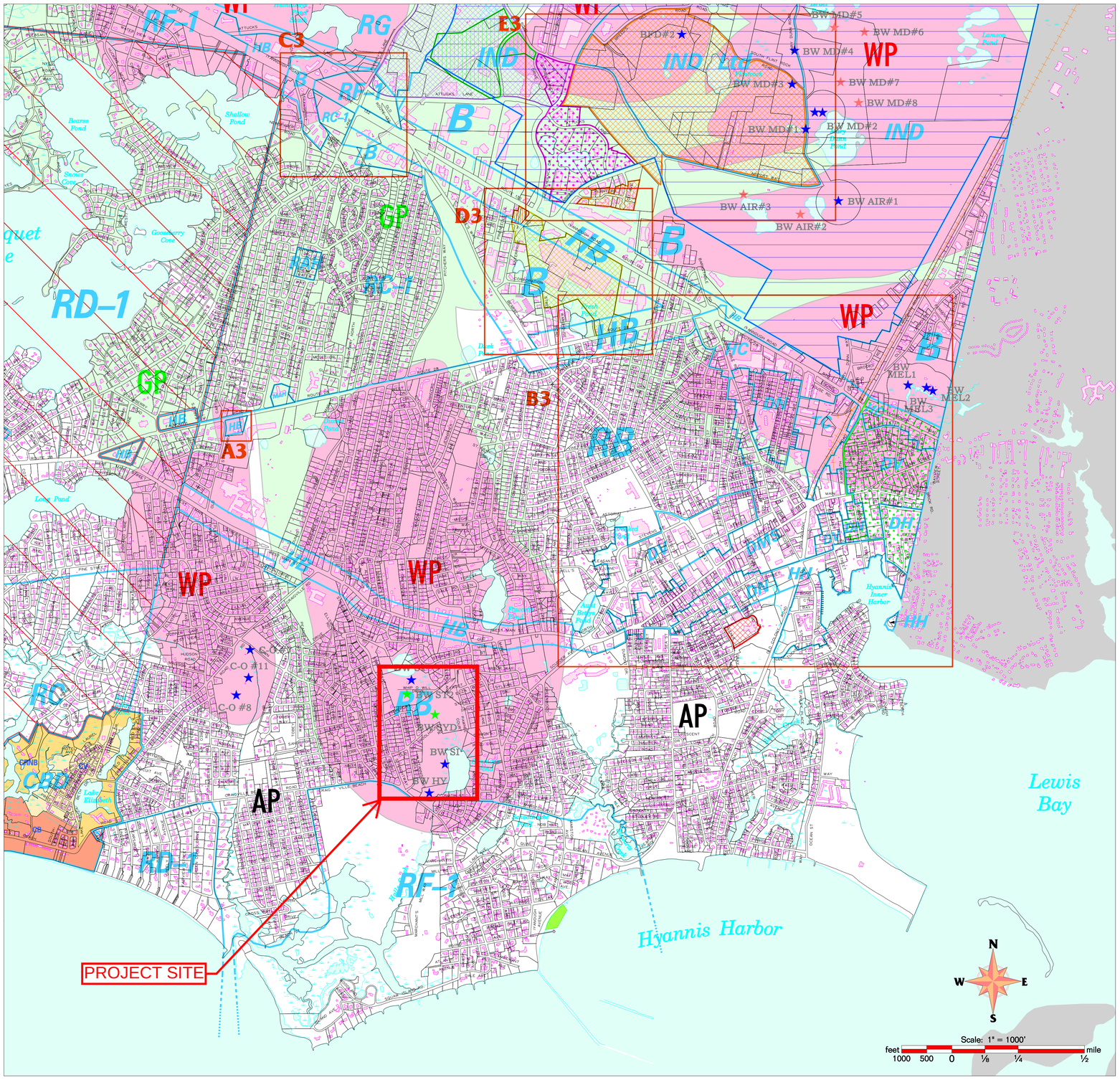
Figure 7 - Site Location



ZONING MAP of the TOWN OF BARNSTABLE, MASSACHUSETTS

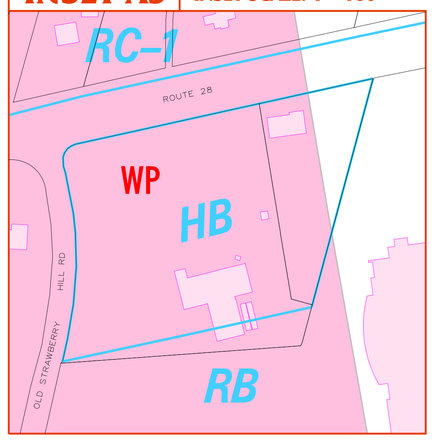
LAST AMENDED FEBRUARY 2, 2023

HYANNIS - SHEET 3 OF 7



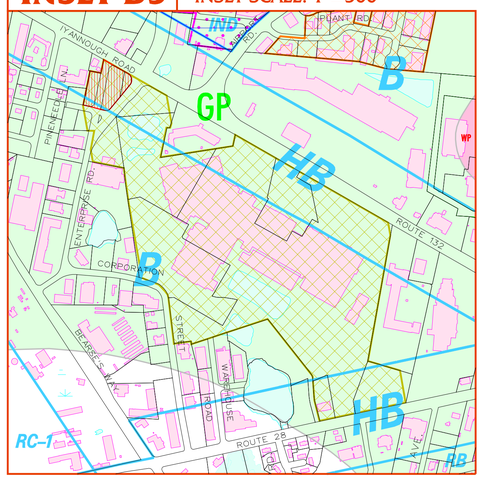
INSET A3

INSET SCALE: 1"=100'



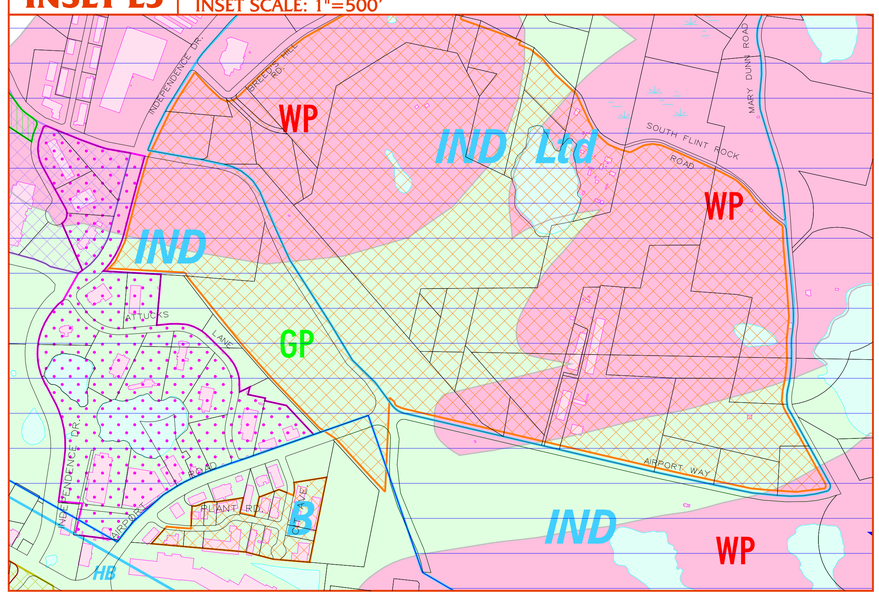
INSET D3

INSET SCALE: 1"=500'



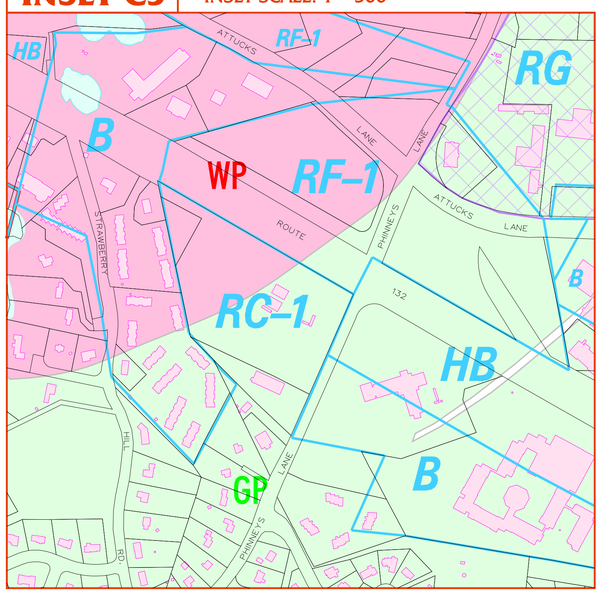
INSET E3

INSET SCALE: 1"=500'



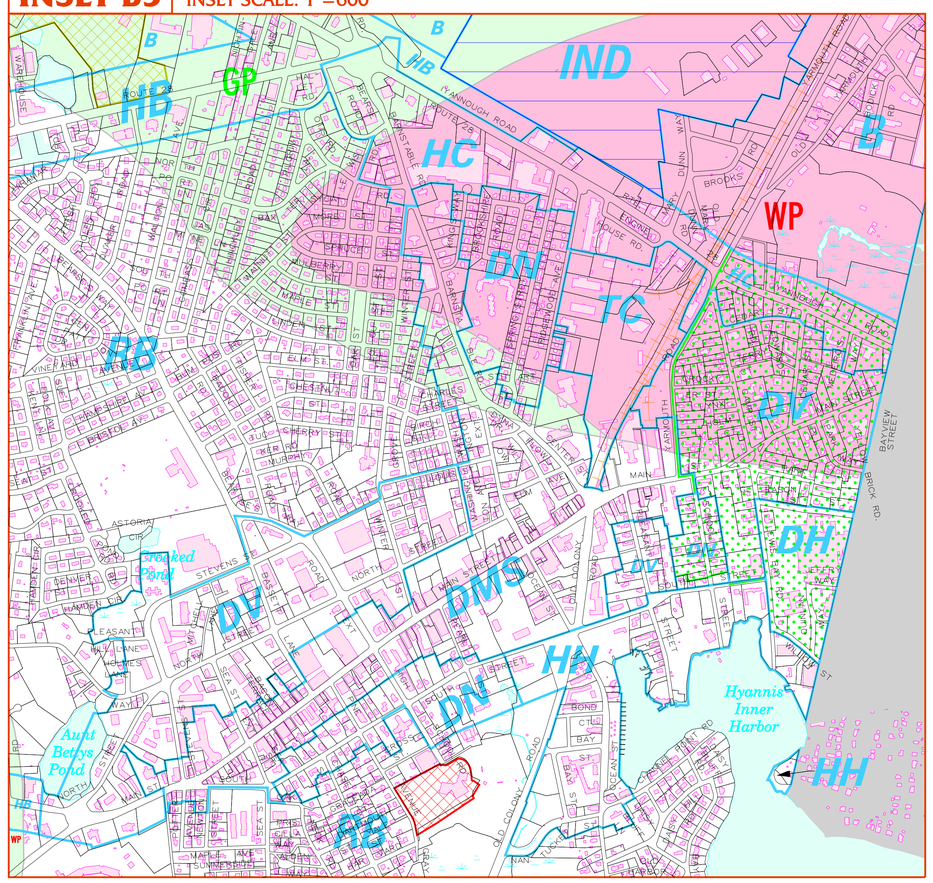
INSET C3

INSET SCALE: 1"=300'



INSET B3

INSET SCALE: 1"=600'



Map Legend

HB	Zoning District
WP	Wellhead Protection Overlay District
GP	Groundwater Protection Overlay District
AP	Aquifer Protection Overlay District
	Adult Use Overlay District All other areas not identified as Wellhead or Groundwater Protection Overlay Districts
	Dock and Pier Overlay District
	Former Grade 5 School Planned Unit Development Overlay District
	Medical Services Overlay District
	Mixed-Use Sub Zone of the Medical Services Overlay District
	Resource Protection Overlay District
	Shopping Center Redevelopment Overlay District
	Drive Through Restaurant Sub Zone of the Shopping Center Redevelopment Overlay Dist.
	Senior Continuing Care Retirement Community - SCCRCOD 2008-1
	Recreational Shellfish Area and Shellfish Relay Area Dock & Pier Overlay District
	Ground Mounted Solar Photovoltaic Overlay District
	Medical Marijuana Overlay District
	Registered Recreational Marijuana Cultivators, Research Facilities, and Testing Laboratories Overlay District
CV	Craigville Village Neighborhood Overlay
LBSB	Long / Short Beach Neighborhood Overlay
CB	Craigville Beach Neighborhood Overlay
CRNB	Centerville River North Bank Neighborhood Overlay
★ C-O #12	Existing Public Well Site
★ C-O #18	Proven Future Public Well Site
★ C-O #20	Proposed Future Public Well Site
	Parcel Lines (FY 2022)
	Buildings
	Railroad Track
	Town Boundary Line
	Marsh Area
	Stream / Edge of Water

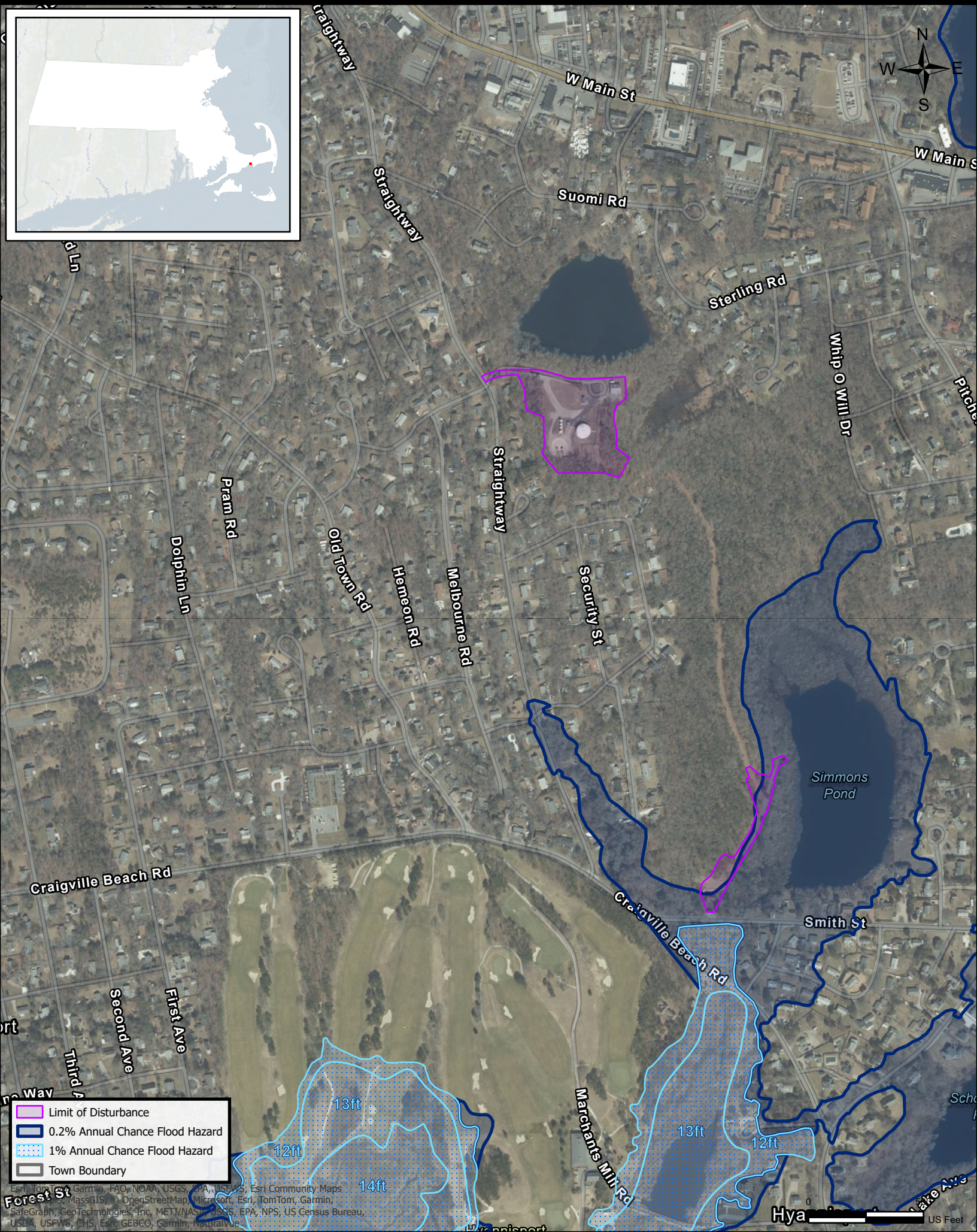
SEE TEXT OF ZONING ORDINANCE FOR COMPLETE INFORMATION ON BULK REGULATIONS.

Where a zoning district boundary is located at the edge of a water body, that zone that applies to the land shall apply to structures and uses such as piers and commercial boating operations to the extent of the territorial jurisdiction of the town.

Where zoning district boundaries are located along the edge of a roadway and a distance is shown from such point to another zoning boundary, such distance and points shall be from the edge of the road layout. The ultimate location of such point shall be determined by survey as the line shown on this map is considered an approximation.

TOWN OF BARNSTABLE G.I.S. UNIT FILE: hyanzone.dgn A.N.M. 3-21-2023

Figure 9 - FEMA Flood Zone Map



APPENDIX A

CIRCULATION LIST

MEPA Distribution List		
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, Appropriate Regional Office and to each program from which a permit will be sought	george.zoto@mass.gov jonathan.hobill@mass.gov	**DEP/Southeastern Regional Office** Attn: MEPA Coordinator 20 Riverside Drive Lakeville, MA 02347
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	Cindy.McConarty@dot.state.ma.us	**District #5** Attn: MEPA Coordinator 1000 County Street Taunton, MA 02780
Massachusetts Historical Commissoin	Mail a hard copy of the filing to MHC	**MA Archives Building** 220 Morrissey Boulevard Boston MA, 02111
Cape Cod Commission (CCC)	ksenatori@capecodcommission.org regulatory@capecodcommission.org	**Cape Cod Commission** 3225 Main St Barnstable, MA 02630
Town Council	cynthia.lovell@town.barnstable.ma.us	**Barnstable Town Council** 367 Main Street Hyannis, MA 02601
Barnstable Planning Board	james.kupfer@town.barnstable.ma.us james.kupfer@town.barnstable.ma.us karen.pina@town.barnstable.ma.us	**Planning and Development, 3rd Floor** 367 Main Street Hyannis, MA 02601
Barnstable Conservation Commission	conservation@town.barnstable.ma.us	**Conservation Commission** 230 South Street Hyannis, MA 02601
Barnstable Board of Health	health@town.barnstable.ma.us	**Board of Health** 200 Main Street Hyannis, MA 02601
MEPA Environmental Justice Director	MEPA-EJ@mass.gov	**MEPA Office** Attn: EEA EJ Director 100 Cambridge Street, Suite 900 Boston, MA 02144
Coastal Zone Management Office	sean.duffey@mass.gov patrice.bordonaro@mass.gov	**Coastal Zone Management** Attn: Project Review Coordinator 100 Cambridge Street, Suite 900 Boston, MA 02144

MEPA Distribution List (cont.)		
Agency	**Email Address**	**Address**
Energy Facilities Siting Board	andrew.greene@mass.gov smitha.divakar@mass.gov	**Energy Facilities Siting Board** Attn: MEPA Coordinator One South Station Boston, MA 02110
Department of Energy Resources	paul.ormond@mass.gov	**Department of Energy Resources** Attn: MEPA Coordinator 100 Cambridge Street, 10th floor Boston, MA 02114

APPENDIX B

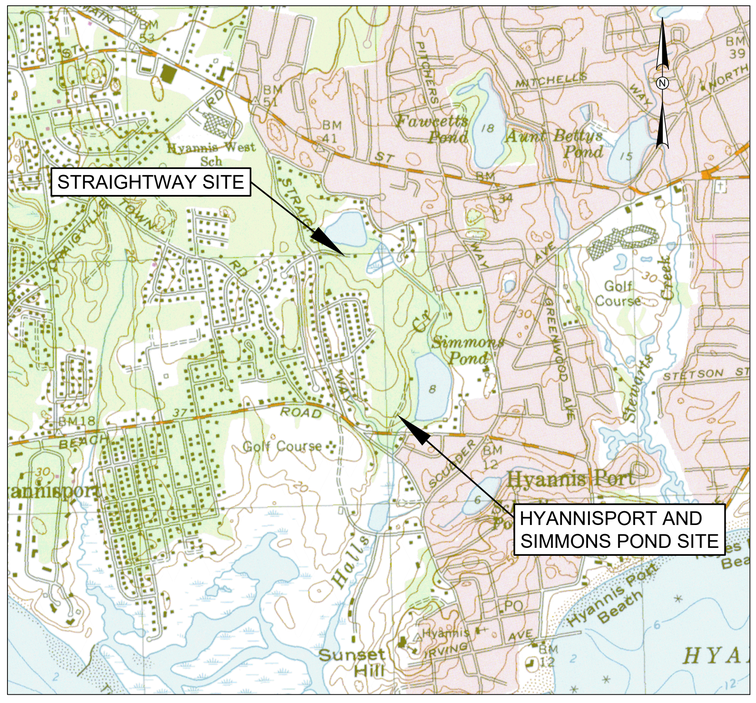
PRELIMINARY DESIGN DRAWINGS

TOWN OF BARNSTABLE, MASSACHUSETTS
STRAIGHTWAY WATER TREATMENT FACILITY

DWSRF-16849
CONTRACT NO. XX-XX-XX

JUNE 2024

HYANNIS WATER SYSTEM
BARNSTABLE DEPARTMENT OF PUBLIC WORKS - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601



LOCUS PLAN
SCALE: 1" = 1000'

PROJECT MILESTONES / REVISIONS

DATE	TYPE	DESCRIPTION
6/10/2024		30% DESIGN SUBMITTAL

KLEINFELDER
Bright People. Right Solutions.

NOT FOR CONSTRUCTION

CAD FILE: G:_clients\Barnstable MA\24002062.001A - W.Barnstable MA - Straightway Design\04 - Design Phase\09 - CAD\Production Drawings\0-COVER.dwg, 0-COVER, 6/10/2024 8:29 AM, BY: mckenna dunn

SHEET NUMBER	SHEET TITLE
G-000	COVER
G-001	SHEET INDEX
G-002	GENERAL NOTES
~~C-001~~	~~KEY PLAN & LEGEND~~
~~C-101~~	~~STRAIGHTWAY SITE PLAN - EXISTING CONDITIONS~~
~~C-102~~	~~STRAIGHTWAY SITE PLAN~~
~~C-201~~	~~HYNNISPORT AND SIMMONS POND SITE PLAN - EXISTING CONDITIONS~~
~~C-202~~	~~HYNNISPORT AND SIMMONS POND SITE PLAN~~
~~C-501~~	~~CIVIL DETAILS~~
M-001	PROCESS FLOW DIAGRAM I
M-002	PROCESS FLOW DIAGRAM II
M-101	STRAIGHTWAY WTF FIRST FLOOR PLAN
M-102	STRAIGHTWAY WTF BASEMENT PLAN
M-103	STRAIGHTWAY WTF PIPE SECTIONS I
M-104	STRAIGHTWAY WTF PIPE SECTIONS II
M-105	STRAIGHTWAY WTF PIPE SECTIONS III
M-106	BOOSTER PUMP STATION DEMOLITION AND MODIFICATION PLAN
M-107	EXISTING STRAIGHTWAY WTF DEMOLITION AND MODIFICATION PLAN
M-201	HYANNISORT AND SIMMONS POND PUMP STATIONS PLAN AND SECTIONS
M-501	PROCESS DETAILS
S-001	STRUCTURAL GENERAL NOTES I
S-002	STRUCUTRAL GENERAL NOTES II
S-003	STRUCUTRAL GENERAL NOTES & ABBREVIATIONS
S-101	STRAIGHWAY WTF BUILDING FOUNDATION PLAN
S-102	STRAIGHTWAY WTF BUILDING FOUNDATION SECTIONS
S-201	HYANNISPORT & SIMMONS POND BUILDINGS FOUNDATIONS & BUILDING SECTIONS
A-001	ARCHITECTURAL GENERAL NOTES, LEGEND, AND ABBREVIATIONS
A-002	STRAIGHTWAY WTF CODE SUMMARY
A-101	STRAIGHTWAY WTF BUILDING FLOOR PLAN
A-102	STRAIGHTWAY WTF BUILDING ELEVATIONS
A-103	STRAIGHTWAY WTF BUILDING SECTIONS
A-104	STRAIGHTWAY WTF BUILDING WALL SECTION & DETAILS
A-201	HYANNISPORT & SIMMONS POND PUMP STATIONS - PLANS, ELEVATIONS, AND SECTIONS
E-001	ELECTRICAL LEGEND
E-002	ELECTRICAL GENERAL NOTES
E-003	ELECTRICAL ONE LINE DIAGRAM
E-004	ELECTRICAL ONE LINE DIAGRAM
E-005	ELECTRICAL ONE LINE DIAGRAM
E-006	ELECTRICAL ONE LINE DIAGRAM
E-007	ELECTRICAL ONE LINE DIAGRAM
E-008	ELECTRICAL ONE LINE DIAGRAM
E-009	ELECTRICAL STRAIGHTWAY SITE PLAN
E-010	ELECTRICAL HYANNIS & SIMMONS WELL STATIONS SITE PLANS

SEE UPDATED C-SHEETS AT END OF SET

SHEET NUMBER	SHEET TITLE
E-100	ELECTRICAL WTP PLAN
E-101	ELECTRICAL STRAIGHTWAY WELL STATION PLANS
E-102	ELECTRICAL HYANNISPORT WELL STATION PLAN
E-103	ELECTRICAL SIMMONS WELL STATION PLAN
FP001	FIRE PROTECTION LEGEND AND GENERAL NOTES
FP101	FIRE PROTECTION LOWER LEVEL PLAN
FP102	FIRE PROTECTION UPPER LEVEL PLAN
H001	HVAC LEGEND
H002	HVAC GENERAL NOTES
H101	HVAC WTP LOWER LEVEL PLAN
H102	HVAC WTP UPPER LEVEL PLAN
H103	HVAC HYANNISPORT PLAN
H104	HVAC SIMMONS PLAN
P001	PLUMBING LEGEND AND GENERAL NOTES
P101	PLUMBING LOWER LEVEL PLAN
P102	PLUMBING UPPER LEVEL PLAN
P103	PLUMBING HYANNISORT PLAN

UPDATED C-SHEETS

C-501	KEY PLAN & LEGEND
C1-111	STRAIGHTWAY SITE PLAN EXISTING CONDITIONS
C1-112	STRAIGHTWAY SITE PREPARATION PLAN
C1-113	STRAIGHTWAY SITE PLAN
C1-114	STRAIGHTWAY GRADING PLAN
C1-115	STRAIGHTWAY UTILITIES PLAN
C1-116	STRAIGHTWAY SEWER PLAN
C1-151	STRAIGHTWAY SEWER DETAILS
C2-111	HYANNISPORT-SIMMONS POND EXISTING CONDITIONS
C2-112	HYANNISPORT-SIMMONS POND SITE PREPARATION PLAN
C2-113	HYANNISPORT-SIMMONS POND SITE PLAN
C2-114	HYANNISPORT-SIMMONS POND GRADING PLAN
C2-115	HYANNISPORT-SIMMONS POND UTILITIES PLAN
C2-116	HYANNISPORT-SIMMONS POND SEWER PLAN

NOT FOR CONSTRUCTION

KLEINFELDER
Bright People. Right Solutions.
One Beacon Street, Suite 8100
Boston, MA 02108
Phone: 617-497-7800
www.kleinfelder.com

REVISIONS

REV	DESCRIPTION	DSN DWN	CHK APP	DATE

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

SHEET INDEX

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	
DESIGNED BY	TB
DRAWN BY	MD
CHECKED BY	TB
APPROVED BY	MT

G-001

SHEET 2 of 60

CAD FILE: G:\...clients\Barnstable MA\24003062.001A - W-Barnstable MA - Straightway Design\04 - Design Phase\08 - CAD\Production Drawings\G-SHEET INDEX.dwg LAYOUT: G-001 PLOTTED: 6/10/2024 12:17 PM BY: mckenna dunn

GENERAL NOTES:

1. PRIOR TO BIDDING THE PROJECT, THE CONTRACTOR IS ENCOURAGED VISIT THE SITE TO VERIFY EXISTING CONDITIONS.
2. BASE MAP INFORMATION WAS PREPARED BY CHESS ENGINEERING, LLC DATED MAY 23, 2024. THE COORDINATES OF THE SURVEY ARE IN FEET AND ARE BASED UPON THE NORTH AMERICAN DATUM OF 1983 MASSACHUSETTS STATE PLANE (NAD '83 MASSACHUSETTS STATE PLANE, MAINLAND ZONE). THE ELEVATIONS OF THE SURVEYS ARE IN FEET AND REFER TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88).
3. FOR TEMPORARY BENCH MARKS:

   SEE SHEET C-101:
   TBM: WESTERLY HYDRANT FLANGE BOLT. ELEV. = 24.36'
   TBM: TOP OF CONCRETE BASE. ELEV. = 31.77'
   TBM: TOP OF CONCRETE PAD. ELEV. = 32.49'
   SEE SHEET C-201:
   TBM: SOUTH-EASTERLY HYDRANT FLANGE BOLT. ELEV. = 17.77'
   TBM: SOUTH-EASTERLY HYDRANT FLANGE BOLT. ELEV. = 13.61'
4. THE DATA ACCUMULATION AND BOUNDARY SURVEY DEPICTED HEREON WERE OBTAINED BY A FIELD SURVEY BETWEEN NOVEMBER 28 AND DECEMBER 6, 2023 BY CHESS ENGINEERING, LLC.
5. THIS PLAN AND SURVEY WERE PREPARED USING CONVENTIONAL & RTK SURVEY METHODS. A LEICA MS60 TOTAL STATION WAS USED HAVING A MINIMAL AT ACCURACY OF 1" AND 1 PPM. A LEICA GS-18 GNSS RECEIVER WAS UTILIZED THROUGHOUT THE PROJECT AREA FOR REDUNDANT MEASUREMENTS BETWEEN NOVEMBER 27-30, 2023 AND ADDITIONALLY BETWEEN FEBRUARY 26-27, 2024 TO CONFIRM PREVIOUS MEASUREMENTS.
6. THE WETLANDS WERE DELINEATED ON NOVEMBER 29, 2023 BY LUCAS ENVIRONMENTAL.
7. THE CONTRACTOR SHALL CALL THE DIG-SAFE CENTER AT 1-888-344-7233 A MINIMUM OF 72 HOURS PRIOR TO ANY EXCAVATION TO LOCATE UNDERGROUND UTILITIES IN THE FIELD AND NOTIFY UTILITIES OF CONSTRUCTION.
8. INFORMATION SHOWN ON THE DRAWINGS RELATING TO MATERIALS, CONDITIONS AND/OR LOCATIONS OF EXISTING STRUCTURES AND UTILITIES HAS BEEN COMPILED FROM AVAILABLE INFORMATION INCLUDING FIELD SURVEY, AERIAL PHOTOGRAPHY, RECORD MAPS AND DRAWINGS, AND UTILITY RECORD DRAWINGS AND IS NOT GUARANTEED CORRECT OR COMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EXISTING CONDITIONS AND DIMENSIONS INCLUDING THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION. LOCATIONS AND DEPTHS OF CRITICAL UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD BY TEST PITS AS APPROVED BY THE ENGINEER. ANY DAMAGE TO UTILITIES CAUSED BY THE CONTRACTOR SHALL BE THE CONTRACTOR'S RESPONSIBILITY, AND COSTS FOR THE REPAIR OR REPLACEMENT OF SUCH DAMAGED UTILITIES SHALL BE BORNE BY THE CONTRACTOR.
9. ACCORDING TO FEMA FIRM (FLOOD INSURANCE RATE MAP) COMMUNITY PANEL 250001; REVISION DATED 7/16/2014, THE APPROXIMATE 100-YEAR FLOODPLAIN ELEVATION ON THE SITE IS 12 FEET.

WORK OF GENERAL CONTRACTOR:

1. THE GENERAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO COMPLETE THE STRAIGHTWAY WATER TREATMENT FACILITY, COMPLETE AND READY FOR OPERATION AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS, INCLUDING ALL CONTRACT DOCUMENTS.
2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF SUBCONTRACTORS' WORK WITH EACH OTHER AND WITH THE WORK OF THE GENERAL CONTRACTOR.
3. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE OVERALL CONSTRUCTION SEQUENCE.
4. THE GENERAL CONTRACTOR SHALL NOT STORE EQUIPMENT OR STOCKPILE MATERIAL WITHIN WETLAND BUFFER ZONES.
5. SOME PIPE/EQUIPMENT CONNECTIONS MAY REQUIRE TRANSITION FITTING OR OTHER FITTINGS NOT SHOWN ON DRAWINGS, THE CONTRACTOR SHALL PROVIDE ADEQUATE FITTING TO MAKE COMPLETE CONNECTION.
6. WHERE BURIED DUCTILE IRON PIPE LEAVES/ENTERS A BUILDING OR STRUCTURE, THE GENERAL CONTRACTOR SHALL PROVIDE MULTIPLE MECHANICAL JOINT BELLS.
7. PROPOSED FIELD MODIFICATION, REVISIONS AND ADDITIONS TO THE DESIGN DRAWINGS MUST BE APPROVED BY THE ENGINEER, IN WRITING, BEFORE WORK BEGINS. ANY REQUEST TO DEVIATE FROM THE ENGINEER'S SPECIFIED DETAILS ON THE DESIGN DRAWINGS BY THE CONTRACTOR MUST BE SUBMITTED IN WRITING TO THE ENGINEER FOR APPROVAL.
8. GENERAL CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE PROJECT SITE AND OBSERVE CONDITIONS FOR THE PROPOSED CONSTRUCTION. ANY DISCREPANCY BETWEEN THE DESIGN DRAWINGS AND ACTUAL SITE CONDITIONS MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER, IN WRITING, FOR RESOLUTION PRIOR TO COMMENCEMENT OF THE WORK.
9. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, ELEVATIONS AND DIMENSIONS PRIOR TO FABRICATING NEW WORK THAT WILL BE CONNECTED TO EXISTING CONSTRUCTION.
10. ALL ITEMS OF CONSTRUCTION MUST BE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS APPLICABLE TO THE PROJECT.
11. THE CONTRACTOR IS RESPONSIBLE FOR SEGREGATING WORK AREAS FROM THE GENERAL PUBLIC USING TEMPORARY FENCES, SIGNS, CONES, CAUTION TAPE, ETC.
12. THE CONTRACTOR'S BID FOR THIS PROJECT MUST INCLUDE ALL LABOR, MOBILIZATION, PERMITTING, MATERIALS, TEMPORARY PROTECTION, ETC. NO ADDITIONAL COSTS WILL BE SUBMITTED TO THE ENGINEER IN ORDER TO COMPLETE THE INTENT OF THE WORK AS INDICATED ON THE DESIGN DRAWINGS.
13. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING WATER AND ELECTRICITY REQUIRED TO PERFORM THE WORK. SUBMIT PROPOSED MEANS AND METHODS TO THE ENGINEER FOR REVIEW.
14. ALL DIMENSIONS AND QUANTITIES MUST BE DETERMINED OR VERIFIED BY THE CONTRACTOR. QUANTITIES TO BE CARRIED UNDER THE BASE BID WORK HAVE BEEN INDICATED ON THE CONTRACT DRAWINGS. THE CONTRACT DRAWINGS HAVE BEEN COMPILED FROM VARIOUS SOURCES AND MAY NOT REFLECT THE ACTUAL CONDITION AT THE MOMENT OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS AND MAKE ALL INVESTIGATIONS NECESSARY TO INSTALL THE PROPOSED WORK.
15. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THEIR SUBCONTRACTORS TO REVIEW ALL DRAWINGS, PROJECT MANUAL, ADDENDA ETC. IN ORDER TO ASSURE THE COORDINATION OF ALL WORK AFFECTING EACH TRADE. FAILURE TO REVIEW AND COORDINATE ALL CONTRACTOR DOCUMENTS BY THE GENERAL WITH ALL THE SUBCONTRACTORS FOR APPLICABLE ITEMS OF THE WORK SHALL NOT RELIEVE THE RESPONSIBLE PARTY FROM PERFORMING ALL WORK SO REQUIRED AS PART OF THE CONTRACT.
16. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND THEIR SUBCONTRACTORS FOLLOWING THE REVIEW OF ALL THE DRAWINGS, PROJECT MANUAL, ADDENDA, ETC. TO INFORM THE ENGINEER OF ANY DISCREPANCIES IN THE DOCUMENTS AND TO OBTAIN CLARIFICATION ON ALL ITEMS AFFECTING CONSTRUCTION COST PRIOR TO THE SUBMISSION OF THE BID.

SOIL EROSION AND SEDIMENT CONTROL NOTES:

1. APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SOIL DISTURBANCE. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
2. CONTRACTOR SHALL MINIMIZE TOTAL AREA OF DISTURBANCE AND PROTECT NATURAL FEATURES AND SOIL.
3. INSTALL AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND/OR IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS, THE MORE STRINGENT REQUIREMENT SHALL APPLY. CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS IN ACCORDANCE WITH SPECIFICATION SECTION 01568 AND DETAILS PROVIDED ON SHEET C-101 THROUGH C-502.
4. CONTRACTOR TO COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS INCLUDING WASTE DISPOSAL.
5. CONTRACTOR SHALL PROPERLY MANAGE ON-SITE CONSTRUCTION AND WASTE MATERIALS.
6. CONTRACTOR SHALL IMPLEMENT APPROPRIATE DUST CONTROL MEASURES AT THE SITE.
7. STOCKPILE SIDE SLOPES SHALL NOT BE GREATER THAN 1:1. ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROLS.
8. A VEHICLE TRACKING PAD OR OTHER APPROVED STABILIZATION METHOD SHALL BE CONSTRUCTED AT ALL ENTRANCE/EXIT POINTS OF THE SITE TO PREVENT SOIL CARRIED ONTO ROADWAYS AND OFF THE SITE. CONTRACTOR SHALL FURNISH A MECHANICAL SWEEPER ON SITE FOR THE PURPOSE OF SWEEPING ALL PAVED AREAS ON A DAILY BASIS OR AS REQUIRED TO PREVENT SOIL TRACKING ON ROADWAYS.
9. ALL PREVIOUSLY DISTURBED LAND SHALL BE STABILIZED BY APPROVED METHODS WITHIN 14 DAYS IF LEFT UNDISTURBED. THIS INCLUDES STOCKPILES, CONSTRUCTION ENTRANCES, GRADED AREAS AND OTHER CONSTRUCTION ACTIVITY RELATED CLEARING
10. PERMANENT SEEDING SHALL BE UNDERTAKEN IN THE SPRING FROM APRIL 15 THROUGH JUNE 1, AND IN LATE SUMMER AND EARLY FALL FROM AUGUST 15 THROUGH OCTOBER 15. DURING THE PEAK SUMMER MONTHS AND IN THE FALL AFTER OCTOBER 15, WHEN SEEDING IS FOUND TO BE IMPRACTICAL, APPROPRIATE TEMPORARY STABILIZATION SHALL BE APPLIED. PERMANENT SEEDING MAY BE UNDERTAKEN DURING THE SUMMER IF PLANS PROVIDE FOR ADEQUATE MULCHING AND WATERING.
11. IF WORK IS HALTED OVER WINTER MONTHS THE CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZING THE AREA THROUGH GROUNDCOVER PRACTICES.

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

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IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

GENERAL NOTES

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED 3 MAY A.D. 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

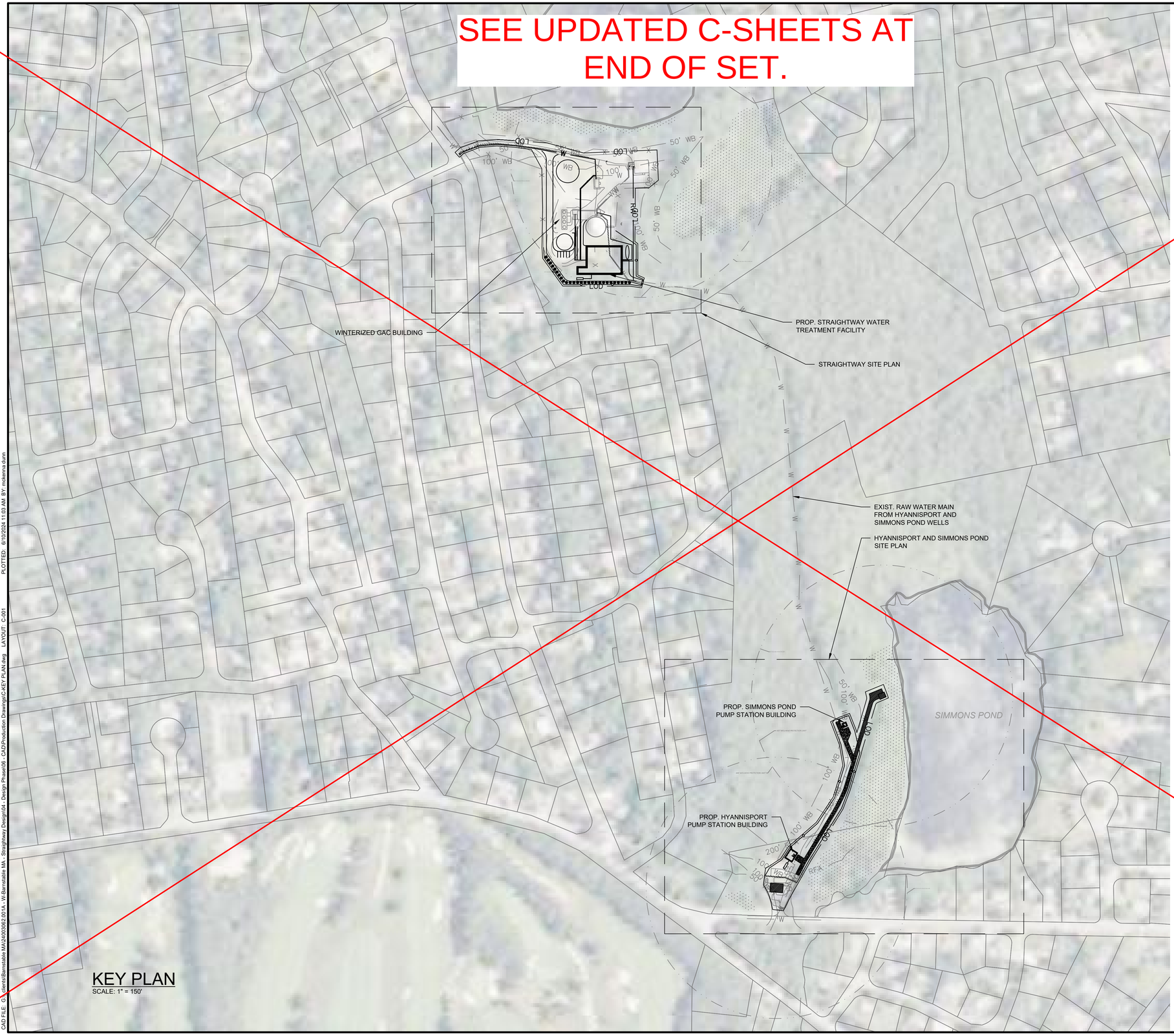
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G-002

SHEET 3 of 60

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SEE UPDATED C-SHEETS AT END OF SET.



KEY PLAN
SCALE: 1" = 150'

EXISTING LEGEND

- MINOR CONTOUR
- MAJOR CONTOUR
- SPOT ELEVATION
- 100-YR FLOOD ZONE
- RECORD WATER LINE
- ABANDONED/REMOVED WATER LINE
- HYDRANT
- WATER GATE
- WATER WELL
- STANDPIPE
- ELECTRIC LINE
- OVERHEAD WIRES
- UTILITY POLE
- GUY WIRE
- TRANSFORMER
- ELECTRIC MANHOLE
- RECORD GAS LINES
- GAS METER
- WETLAND LIMIT
- WETLAND FLAG
- WETLAND EDGE
- 100' WETLAND BUFFER
- 50' WETLAND BUFFER
- SOIL PROBE
- CHAINLINK FENCE
- TREELINE
- DRAIN LINE
- DRAIN MANHOLE
- SEWER LINE
- SEWER MANHOLE
- CHAIN LINK FENCE
- CONCRETE PAD
- DUCTILE IRON
- EDGE OF PAVEMENT
- EDGE OF PAVEMENT LINE
- EDGE OF WATER

PROPOSED LEGEND

- RAW WATER LINE
- WATER LINE
- PROPOSED WATER GATE
- CHAIN LINK FENCE
- PROPOSED TREELINE
- DRAIN LINE
- SEWER LINE
- VEHICULAR ACCESS GATE
- EXTENT OF CRUSHED STONE ACCESS DRIVE
- EXTENT OF ASPHALT/STRUCTURE REMOVAL
- PROPOSED BUILDING
- EXTENT OF STORMWATER FEATURE

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0 150 300 450

SCALE: 1" = 150' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

KEY PLAN & LEGNED

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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SEE UPDATED C-SHEETS AT END OF SET.

ENS POND

STRAIGHTWAY WELL BUILDING

BOOSTER PUMP STATION

WATER STORAGE TANK

WINTERIZED GAC BUILDING

CHLORINE BUILDING

LAGOON

B-1

B-2

B-3

B-4 OW

B-5

B-6

B-8 OW

B-7

GRAVEL

STRAIGHTWAY FACILITY BUILDING

WATER STORAGE TANK

EXISTING 6" DI

STRAIGHTWAY SITE PLAN - EXISTING CONDITIONS

SCALE: 1" = 30'

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SCALE VERIFICATION

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0 30 60 90

SCALE: 1" = 30' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY SITE PLAN - EXISTING CONDITIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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C-101

SHEET 5 of 60

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PROP. 16" WATER MAIN

PROP. STORMWATER MANAGEMENT AREA

POTABLE WATER SUPPLY

FIRE SERVICE LINE

BACKWASH SUPPLY

CHEMICAL INJECTION BUILDING TO BE DEMOLISHED

FINISHED WATER TO CONTACT TANK

EXIST. 10" AC WATER MAIN TO BE REMOVED AND DISPOSED

CUT AND CAP EXISTING 8" PIPE

CUT AND CAP EXISTING 8" PIPE

12" RAW WATER MAIN

WINTERIZED GAC BUILDING

PROP. PAVEMENT

EXISTING MAIN TO BE REMOVED AND DISPOSED

250' REPLACEMENT WELL RADIUS

PROP. STORMWATER MANAGEMENT AREA

12" RAW WATER MAIN

PROP. STORMWATER MANAGEMENT AREA

ARBORVITAE VEGETATIVE SCREENING

PROP. ACCESS GATE

8" BACKWASH WASTE

8" POST-GAC WATER

8" PRE-GAC WATER

PARKING

PROP. TIGHT TANK

PROP. STRAIGHTWAY WATER TREATMENT FACILITY

STRAIGHTWAY SITE PLAN

SCALE: 1" = 30'

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ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY SITE PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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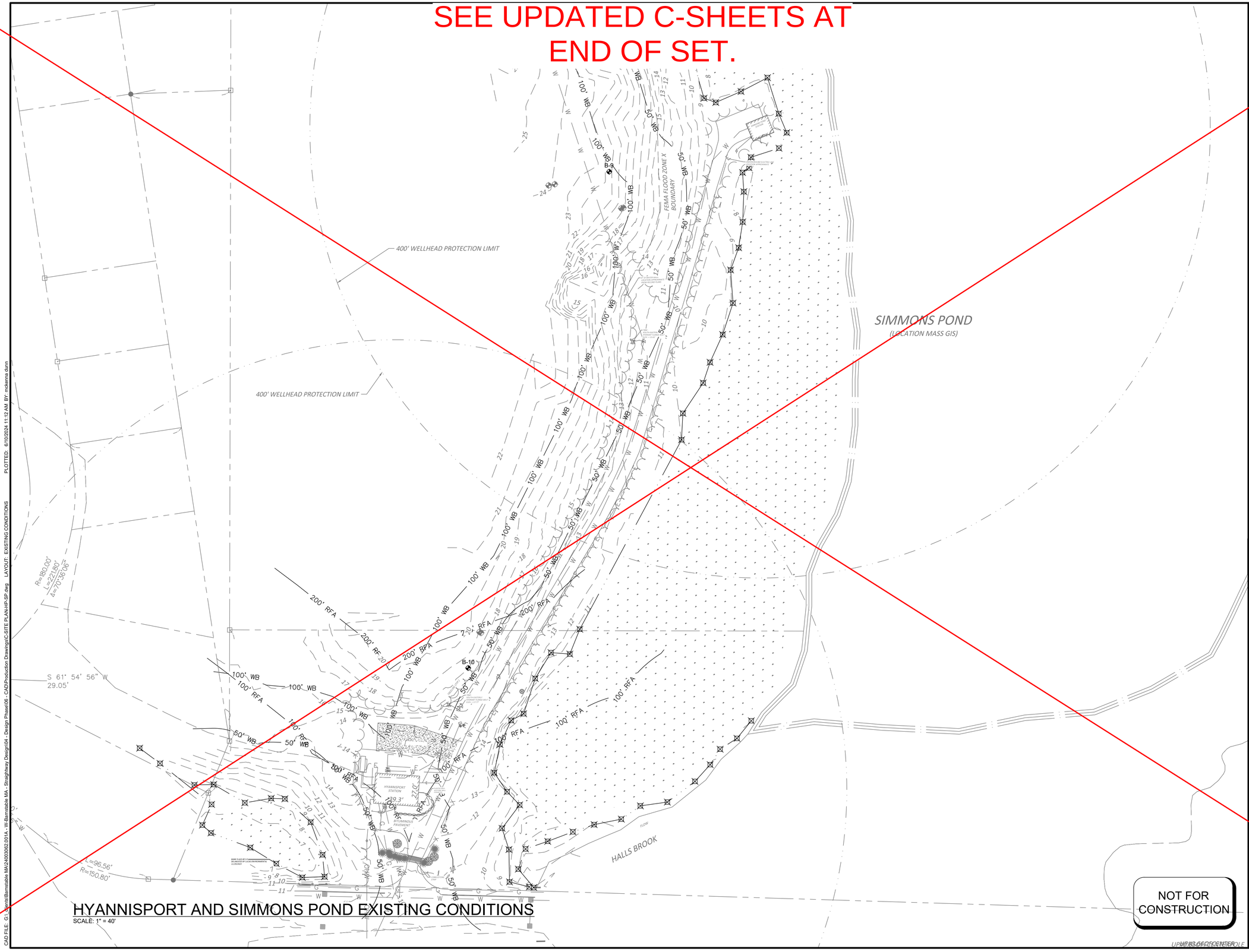
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SEE UPDATED C-SHEETS AT END OF SET.



HYANNISPORT AND SIMMONS POND EXISTING CONDITIONS

SCALE: 1" = 40'

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UPDATED C-SHEETS AT END OF SET.

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SCALE VERIFICATION

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IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 40 80 120

SCALE: 1" = 40' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISPORT AND SIMMONS POND SITE PLAN - EXISTING CONDITIONS

STRAIGHTWAY WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

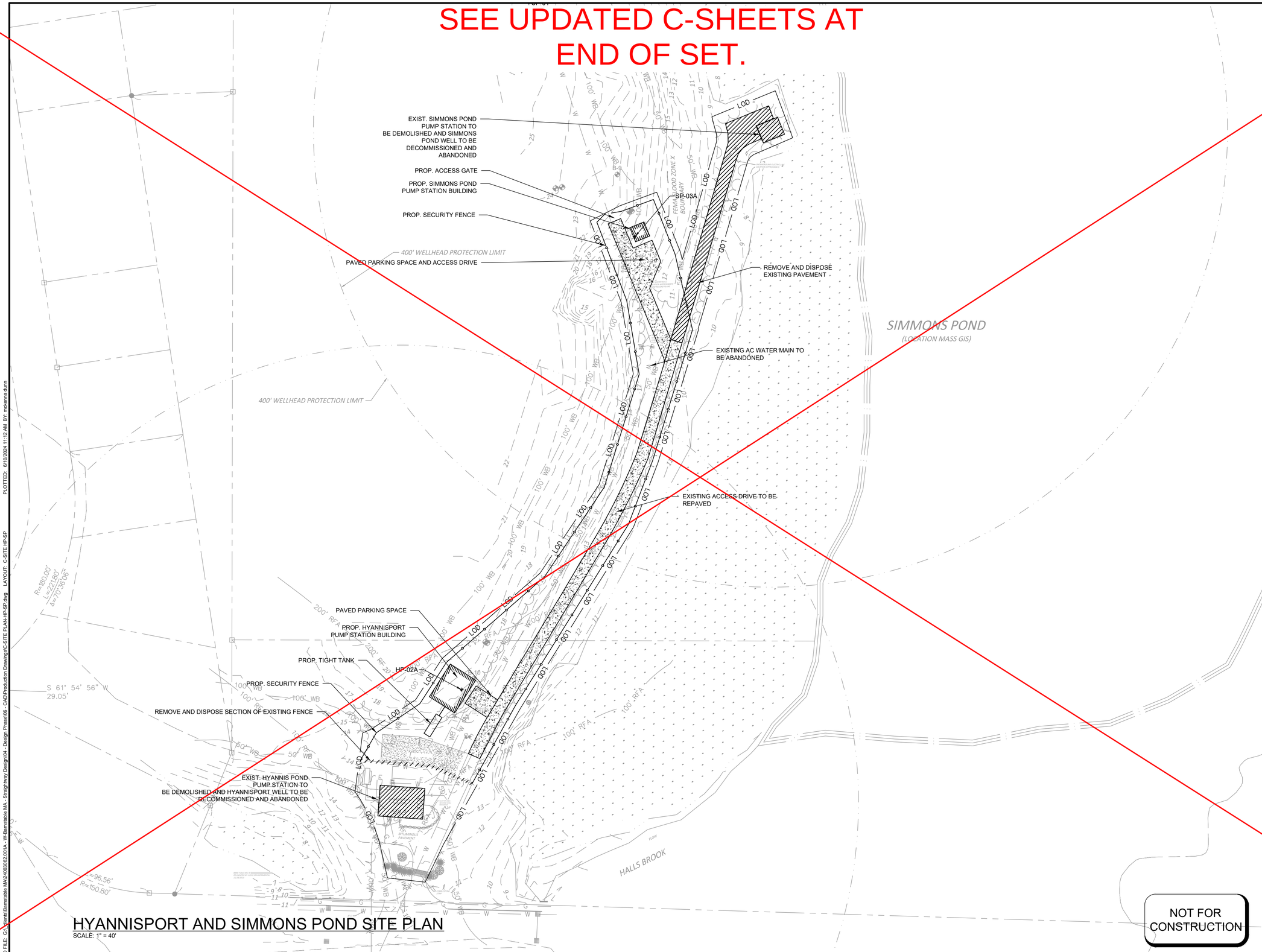
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SHEET 7 of 60

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HYANNISPORT AND SIMMONS POND SITE PLAN

SCALE: 1" = 40'

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0 40 80 120

SCALE: 1" = 40' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISPORT AND SIMMONS POND SITE PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
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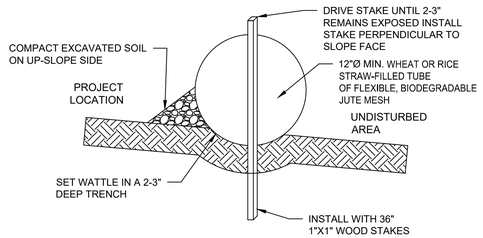
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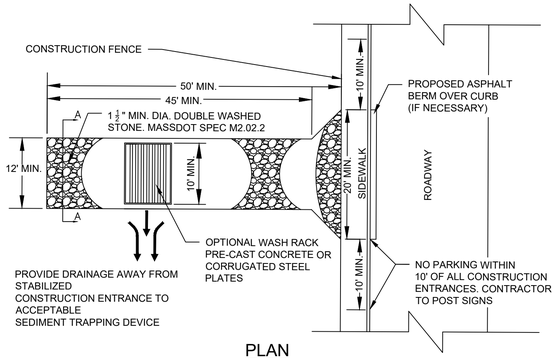
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SLOPE STEEPNESS	MAXIMUM LENGTH (FT)
2:1	25
3:1	50
4:1	75
5:1 OR FLATTER	100

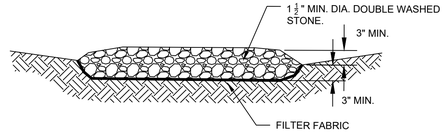


NOTES:
1. BEGIN AT THE LOCATION WHERE THE WATTLE IS TO BE INSTALLED BY EXCAVATING A 2-3" DEEP X 9" WIDE TRENCH ALONG THE CONTOUR OF THE SLOPE. EXCAVATED SOIL SHALL BE PLACED UP-SLOPE FROM THE ANCHOR TRENCH.
2. PLACE THE WATTLE IN THE TRENCH SO THAT IT CONTOURS TO THE SOIL SURFACE. COMPACT THE SOIL FROM THE EXCAVATED TRENCH AGAINST THE WATTLE ON THE UP-HILL SIDE. ADJACENT WATTLES SHOULD TIGHTLY ABUT.
3. SECURE THE WATTLE WITH 36" STAKES EVERY 3-4' WITH A STAKE ON EACH END. STAKES SHALL BE DRIVEN THROUGH THE MIDDLE OF THE WATTLES LEAVING AT LEAST SAMPLE LINE 2-3" OF STAKE EXTENDING ABOVE. THE WATTLE STAKES SHALL BE DRIVEN PERPENDICULAR TO SLOPE FACE.
4. MAX. DRAINAGE AREA ≤ 0.25 ACRES/100 LINEAR FEET.

STRAW WATTLE DETAIL
SCALE: N.T.S.

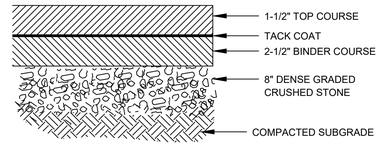


PLAN
NOT TO SCALE

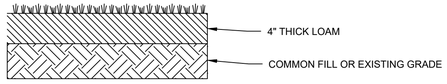


SECTION A-A

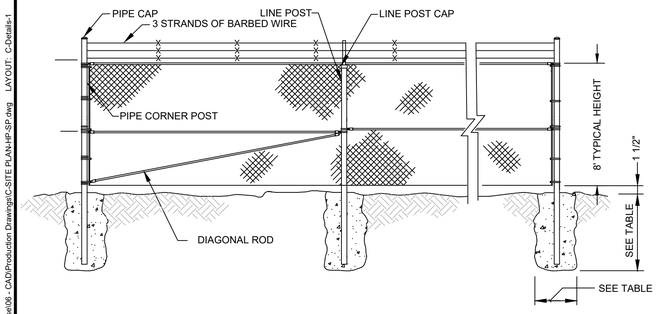
STABILIZED VEHICLE CONSTRUCTION EXIT
SCALE: N.T.S.



BITUMINOUS CONCRETE PAVEMENT ROAD SURFACE
N.T.S.



TYPICAL LOAM AND SEED SECTION
N.T.S.

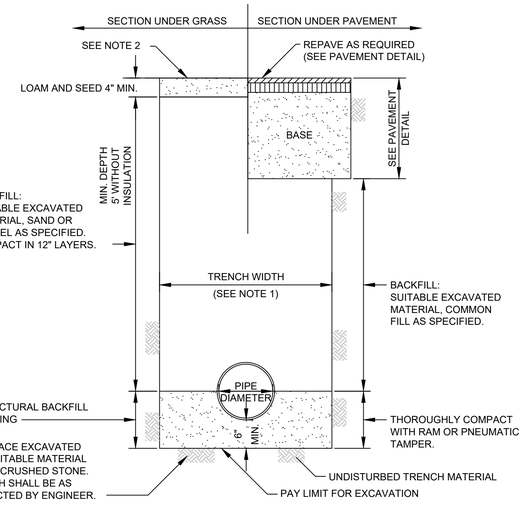


POST SETTING REQUIREMENT			
TYPE OF POST	HOLE DIA. AT TOP*	HOLE DEPTH	POST EMBEDMENT
LINE	9"	38"	36"
TERMINAL	12"	38"	36"

*MIN. HOLE DIAMETER IN SOFT OR LOOSE SOIL SHALL BE 18"

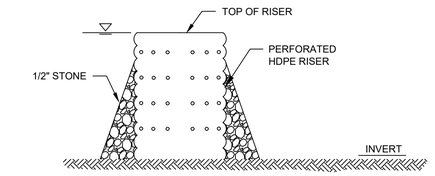
NOTES:
1. POST SPACING: LINE POSTS SHALL BE EVENLY SPACED, CENTER TO CENTER.
2. BARBED WIRE ARM WHERE REQUIRED SHALL BE PER SPECIFICATION SECTION 02444 - CHAIN LINK FENCE AND GATES.
3. POST FOOTING SHALL HAVE A 1" CROWN FINISH.
4. CONTRACTOR SHALL SUBMIT A COMPLETE SHOP DRAWING OF PROPOSED FENCE AND GATE TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

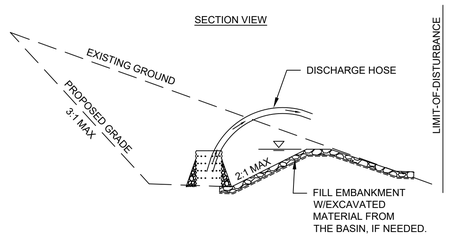
CHAIN LINK FENCE
SCALE: N.T.S.



NOTES:
1. IN TRENCH DIMENSIONS SHALL BE AS FOLLOWS:
   (a) FOR PIPE LESS THAN OR EQUAL TO 12 INCHES IN DIAMETER, ALLOWABLE TRENCH WIDTH AT PLANE 12 INCHES ABOVE PIPE SHALL BE NO MORE THAN 36 INCHES.
   (b) FOR PIPE GREATER THAN 12 INCHES IN DIAMETER THE ALLOWABLE TRENCH WIDTH SHALL BE EQUAL TO THE PIPE OUTSIDE DIAMETER PLUS 24 INCHES.
2. WHERE NO GRASS OCCURS, MATCH EXISTING MATERIALS AND DEPTHS. PLACE A MINIMUM OF 6" OF GRAVEL.
3. BEDDING SHALL BE WRAPPED WITH FILTER FABRIC IN LOCATIONS WHERE EXISTING SOIL IS CONSIDERED UNSUITABLE BY THE ENGINEER.

TYPICAL UTILITY TRENCH
SCALE: N.T.S.





LONGITUDINAL SECTION

NOTES:
1. TRAP CAPACITY: TEMPORARY SEDIMENT TRAP 134 CY/CONTRIBUTING ACRE AND 50% OF THIS VOLUME SHALL BE WET STORAGE.
2. TOTAL MIN. STORAGE VOLUME = 1* X CONTRIBUTING AREA.
3. SEDIMENT SHALL BE REMOVED WHEN THE BASIN IS 1/2 FULL AT A MINIMUM.
4. THE BASIN SHALL REMAIN IN PLACE UNTIL THE SITE HAS BEEN STABILIZED WITH BUILDINGS, PAVEMENT, OR ESTABLISHED VEGETATION, AS APPLICABLE.

TEMPORARY SEDIMENT TRAP (TYP.)
SCALE: N.T.S.

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CIVIL DETAILS

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WATER TREATMENT FACILITY

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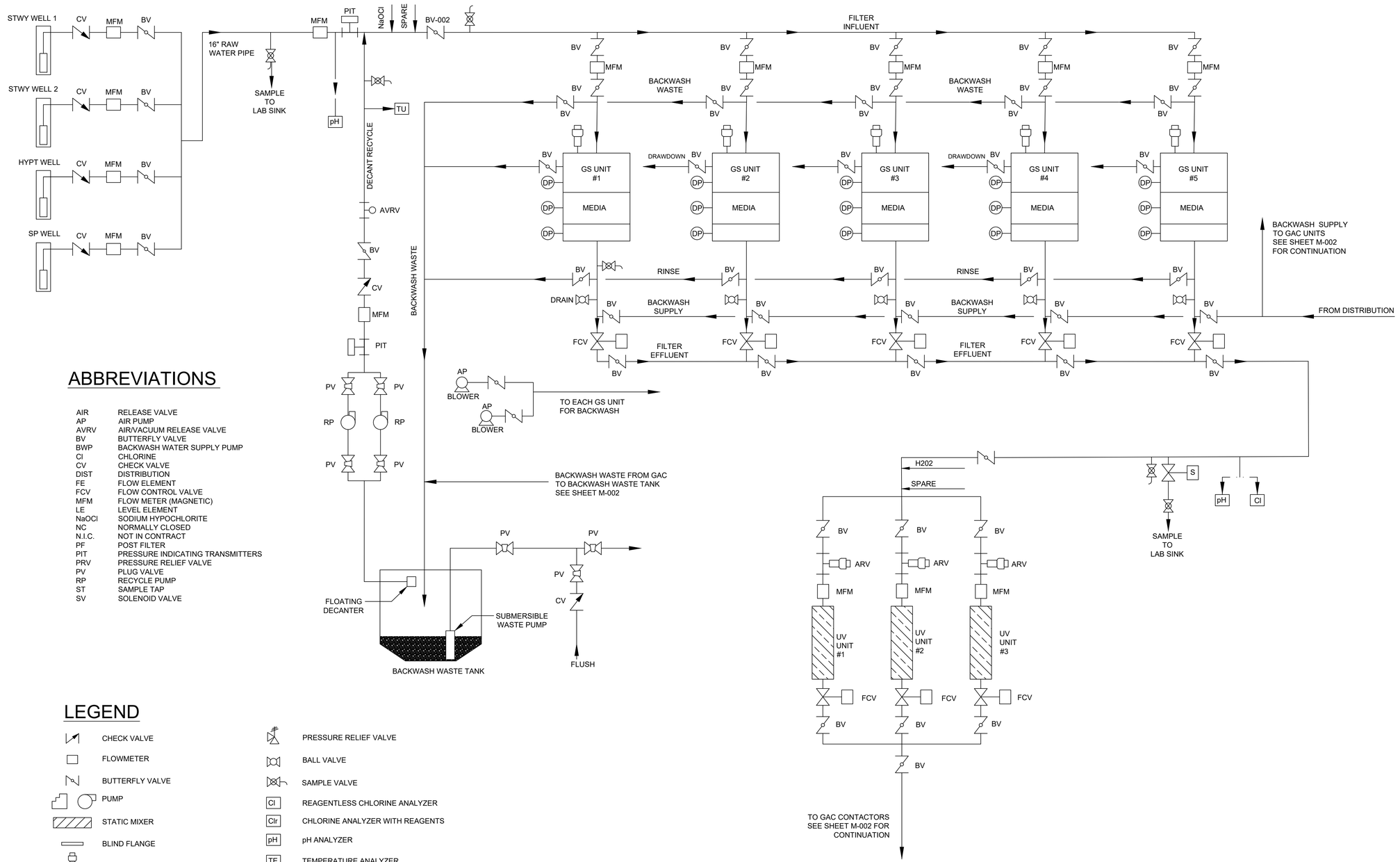
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C-501

SHEET 9 of 60

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ABBREVIATIONS

AIR	RELEASE VALVE
AP	AIR PUMP
AVRV	AIR/VACUUM RELEASE VALVE
BV	BUTTERFLY VALVE
BWP	BACKWASH WATER SUPPLY PUMP
Cl	CHLORINE
CV	CHECK VALVE
DIST	DISTRIBUTION
FE	FLOW ELEMENT
FCV	FLOW CONTROL VALVE
MFM	FLOW METER (MAGNETIC)
LE	LEVEL ELEMENT
NaOCl	SODIUM HYPOCHLORITE
NC	NORMALLY CLOSED
N.I.C.	NOT IN CONTRACT
PF	POST FILTER
PIT	PRESSURE INDICATING TRANSMITTERS
PRV	PRESSURE RELIEF VALVE
PV	PLUG VALVE
RP	RECYCLE PUMP
ST	SAMPLE TAP
SV	SOLENOID VALVE

LEGEND

- CHECK VALVE
- FLOWMETER
- BUTTERFLY VALVE
- PUMP
- STATIC MIXER
- BLIND FLANGE
- AIR RELEASE VALVE
- DIFFERENTIAL PRESSURE GAUGE
- MONITOR WASTE FLOW
- AIR/VACUUM RELEASE VALVE
- FLOW CONTROL VAVLE
- BLOWER
- PRESSURE RELIEF VALVE
- BALL VALVE
- SAMPLE VALVE
- REAGENTLESS CHLORINE ANALYZER
- CHLORINE ANALYZER WITH REAGENTS
- pH ANALYZER
- TEMPERATURE ANALYZER
- TURBIDITY ANALYZER
- SOLENOID VALVE
- FILTER MANUFACTURER TO SUPPLY
- PRESSURE INDICATING TRANSMITTER
- PLUG VALVE

PROCESS FLOW DIAGRAM I

SCALE: N.T.S.

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PROCESS FLOW DIAGRAM I

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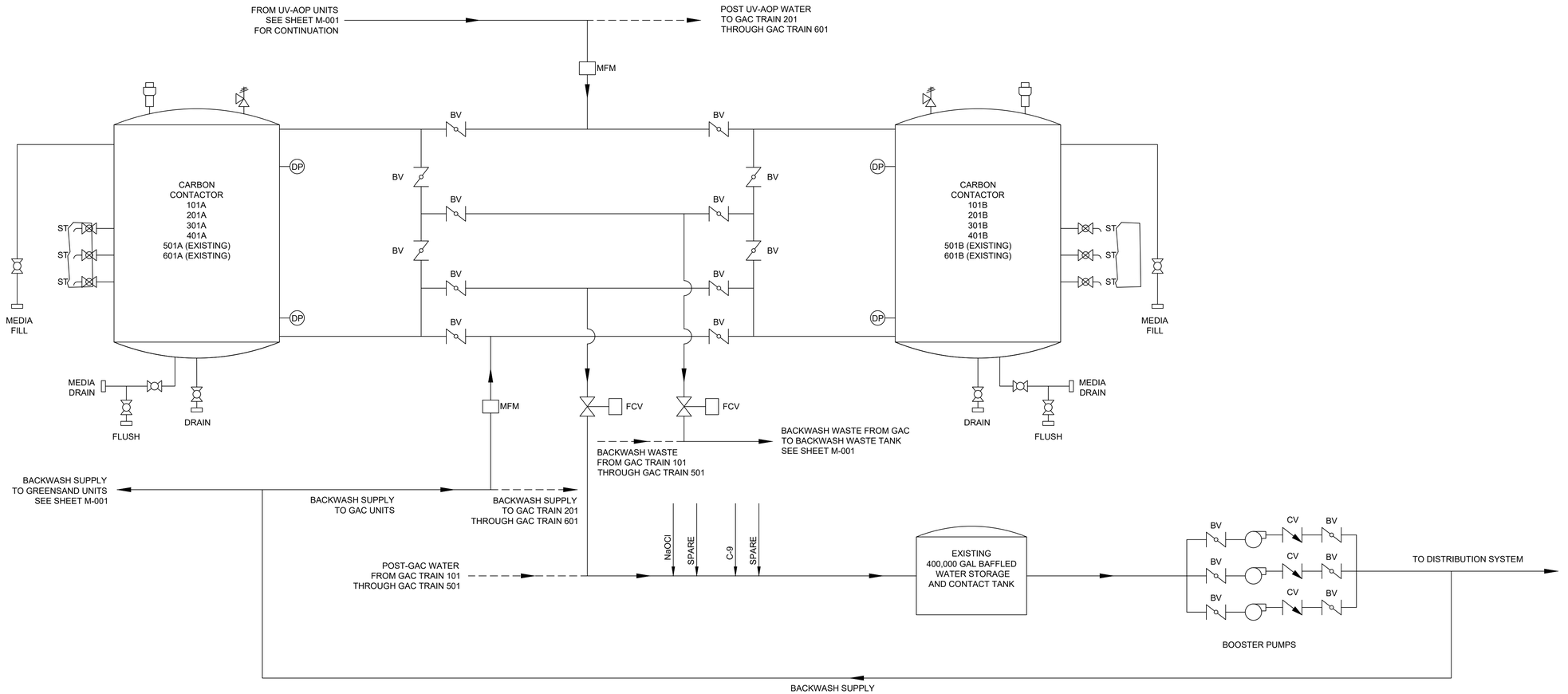
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PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	-
DESIGNED BY	TB
DRAWN BY	MD
CHECKED BY	PF
APPROVED BY	MT

M-001

SHEET 10 of 60

CAD FILE: G:\...clients\Barnstable MA\24003062.001A - W.Barnstable MA - Straightway Design\04 - Design Phase\09 - CAD\Production Drawings\M-STWY-PFD.dwg LAYOUT: M-001 PLOTTED: 6/10/2024 10:39 AM BY: mckenna dunn



PROCESS FLOW DIAGRAM II

SCALE: N.T.S.

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 — 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

PROCESS FLOW DIAGRAM II

STRAIGHTWAY
WATER TREATMENT FACILITY

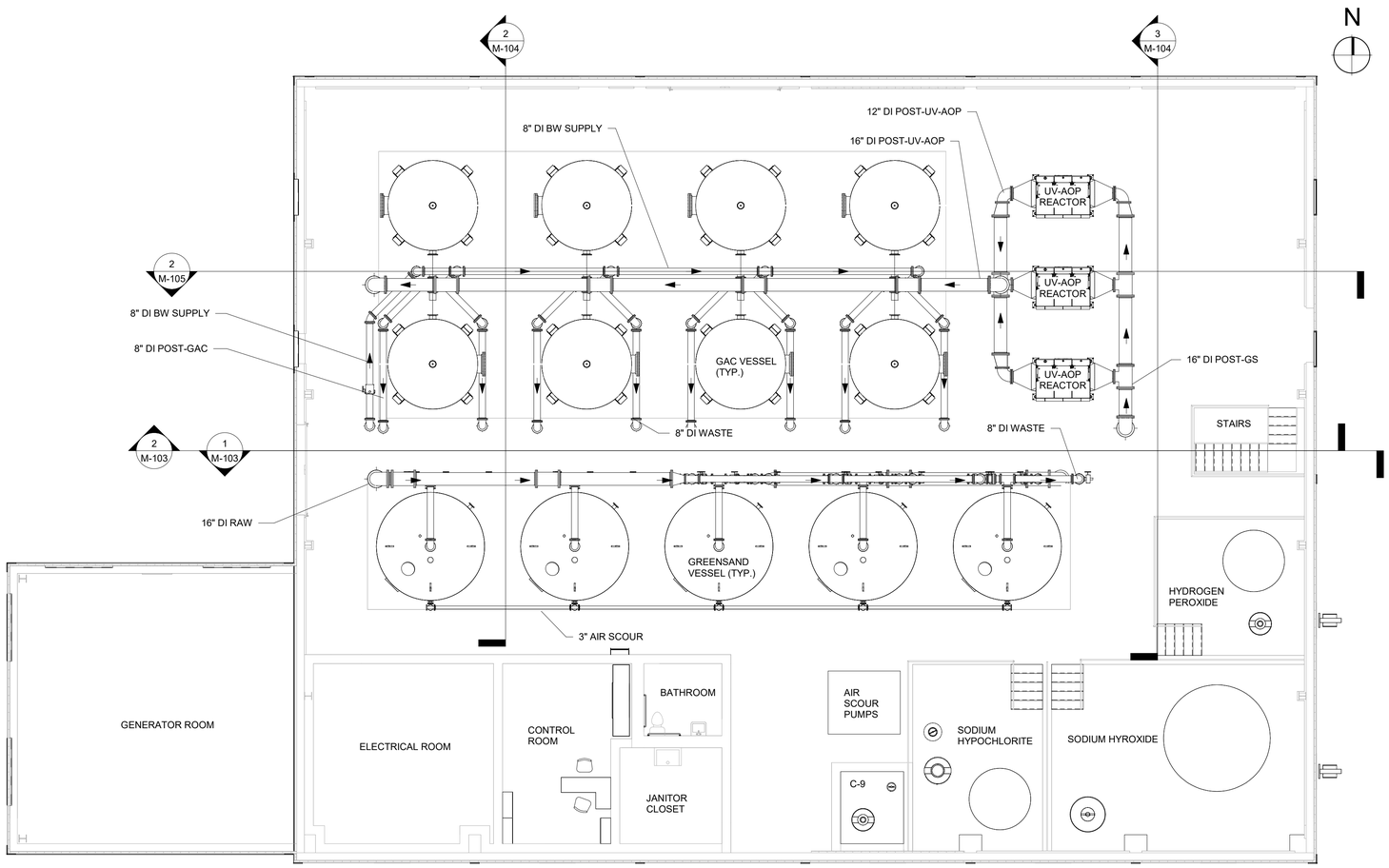
HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
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APPROVED BY	MT

M-002

CAD FILE: G:_clients\Barnstable MA\24003062.001A - W.Barnstable MA - Straightway Design\04 - Design Phase\06 - CAD\Production Drawings\M-STWY-PFD.dwg LAYOUT: M-002 PLOTTED: 6/10/2024 10:39 AM BY: mckenna dunn



FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

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SCALE VERIFICATION

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0 — 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY WTF FIRST FLOOR PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

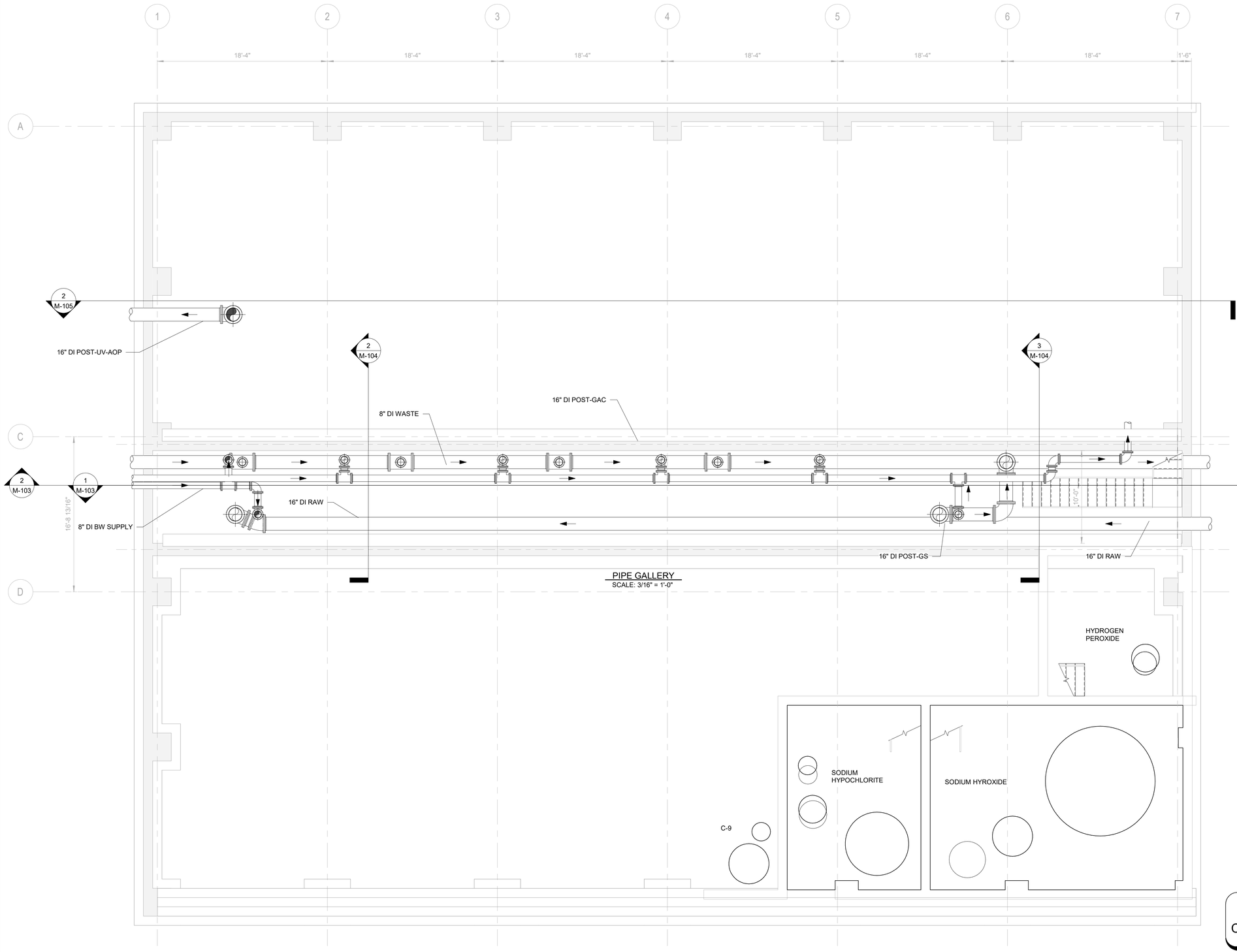
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PROJECT NO.	24003062.001A
ISSUE DATE	6/10/2024
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M-101

SHEET 12 of 60

PLOTTED: 6/10/2024 10:50:06 AM
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SCALE VERIFICATION

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0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY WTF BASEMENT PLAN

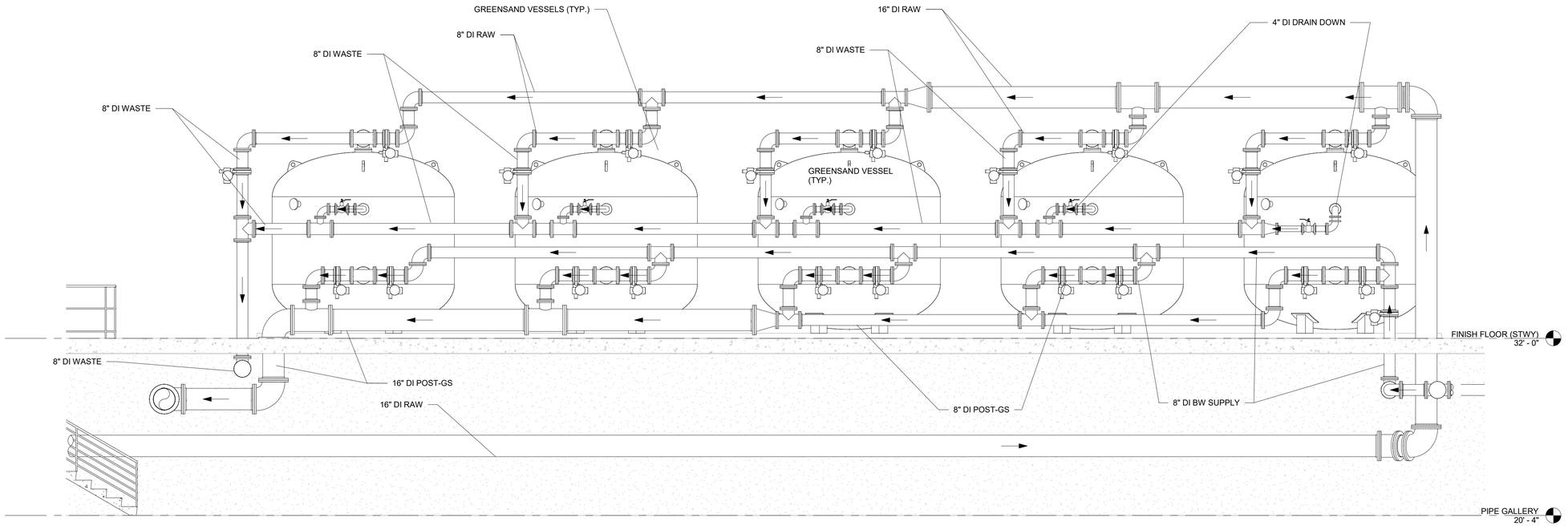
STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

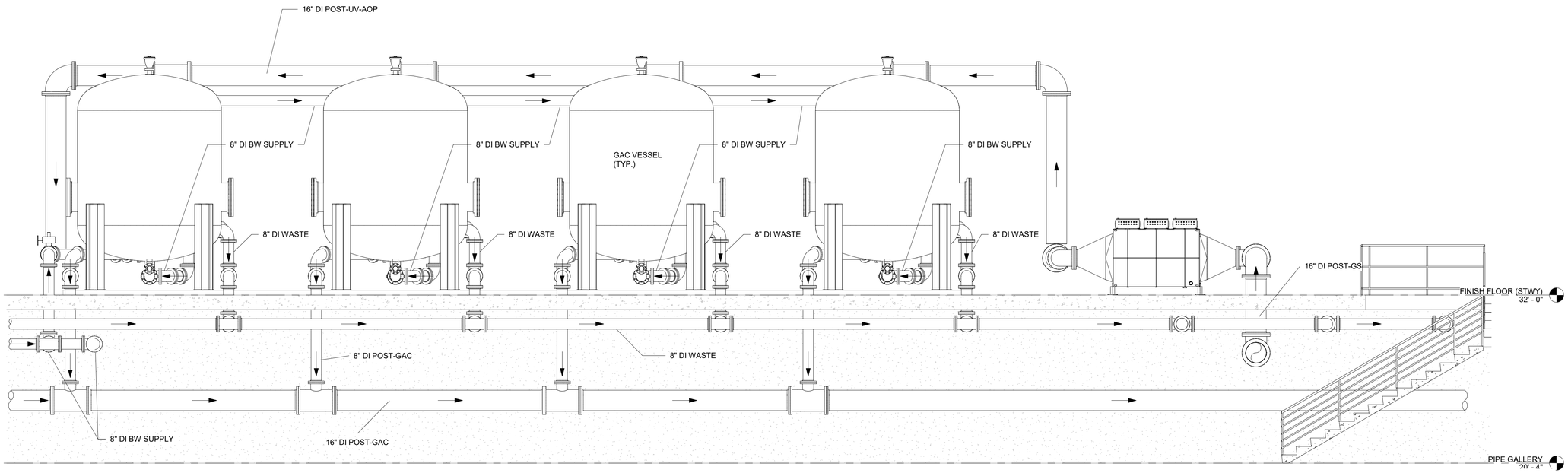
30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	6/10/2024
CURRENT REVISION	
DESIGNED BY	MD
DRAWN BY	MD
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M-102



1 M-101 SECTION 1
SCALE: 1/4" = 1'-0"



2 M-101 SECTION 2
SCALE: 1/4" = 1'-0"

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SCALE VERIFICATION

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0 — 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY WTF PIPE SECTIONS I

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 ISSUED & MAY A. 1685

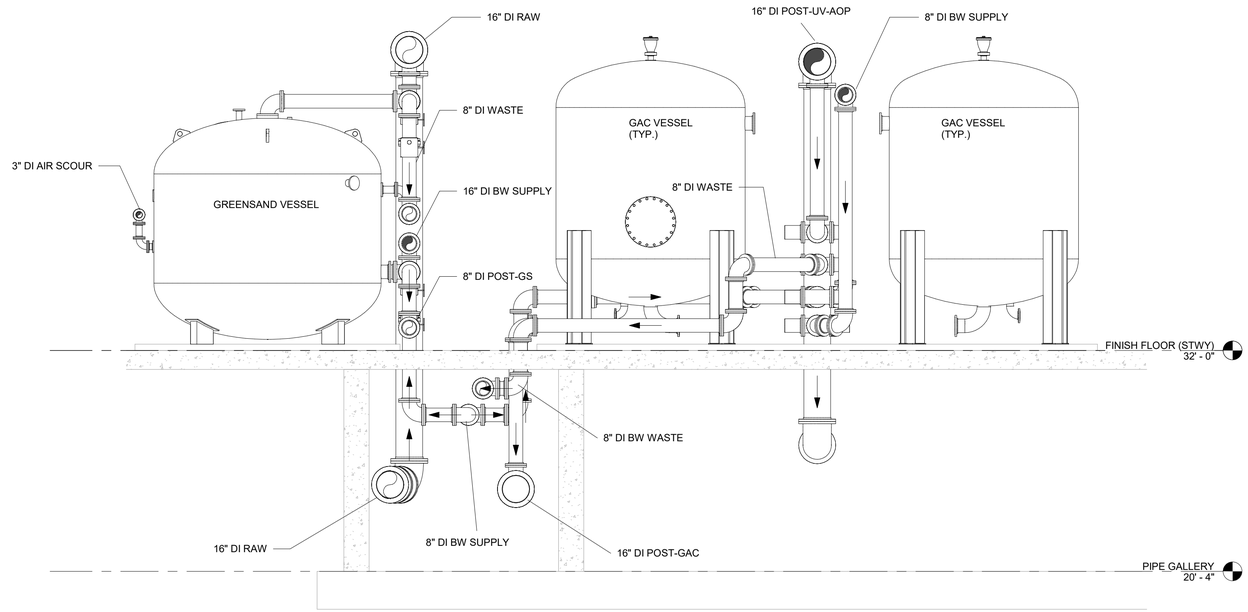
HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

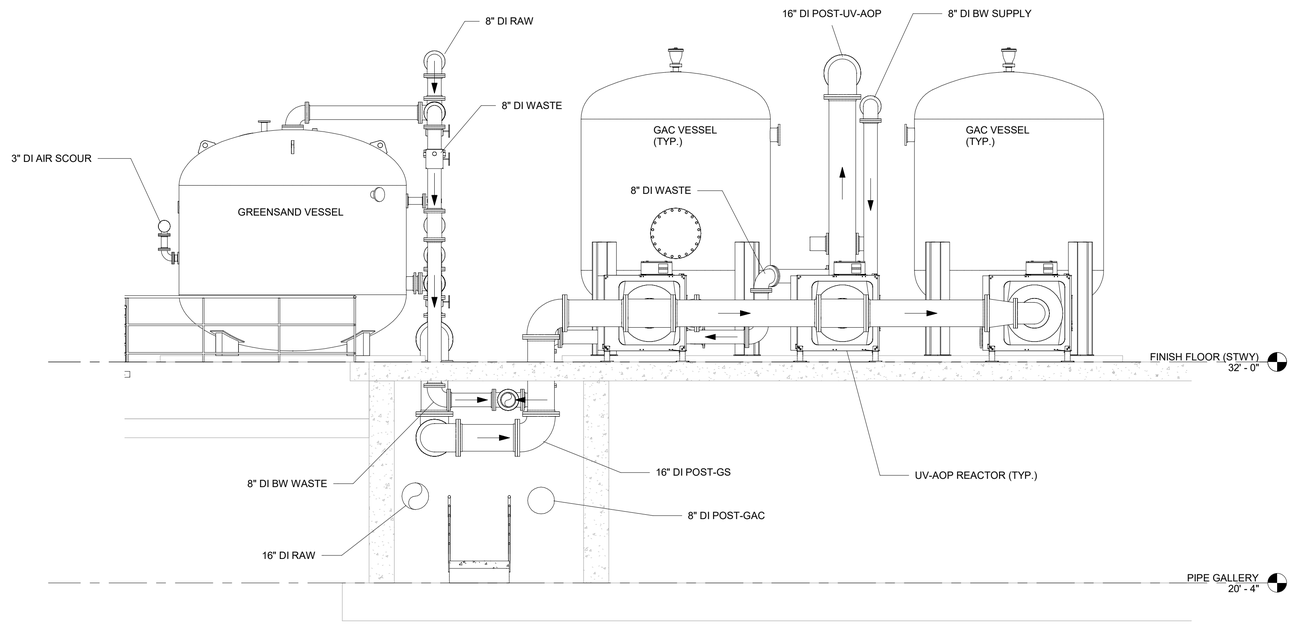
PROJECT NO.	24003062.001A
ISSUE DATE	6/10/2024
CURRENT REVISION	
DESIGNED BY	MD
DRAWN BY	MD
CHECKED BY	TB
APPROVED BY	MT

M-103

SHEET 14 of 60



2 M-101 SECTION 3
SCALE: 1/4" = 1'-0"



3 M-101 SECTION 4
SCALE: 1/4" = 1'-0"

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SCALE VERIFICATION

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0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY WTF PIPE SECTIONS II

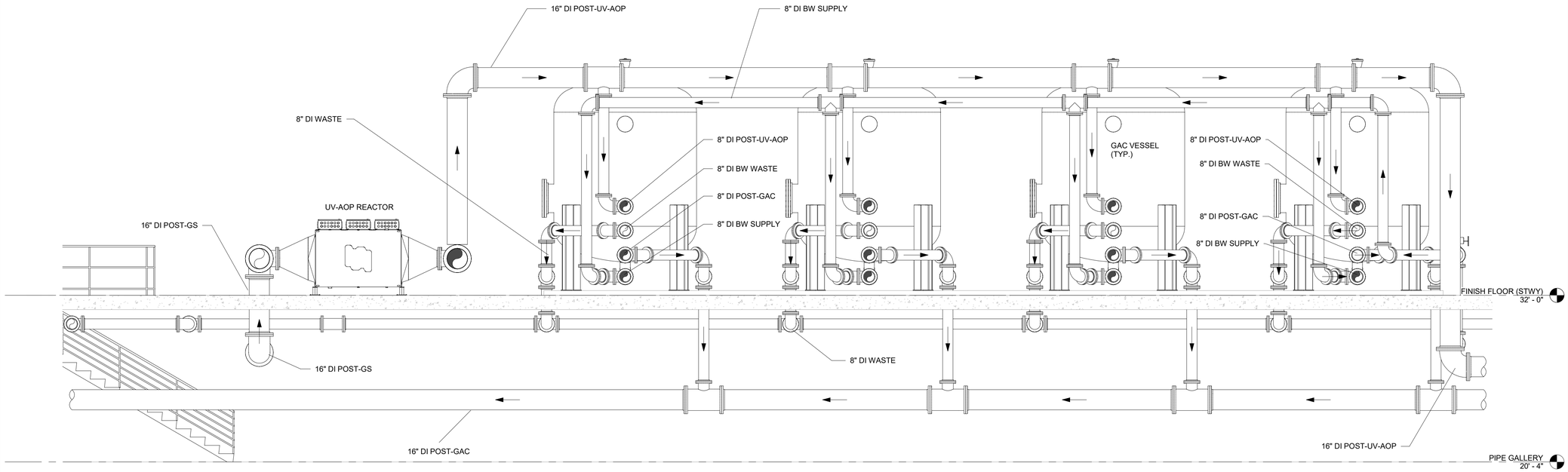
STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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ISSUE DATE	6/10/2024
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M-104



2 M-101 SECTION 5
SCALE: 1/4" = 1'-0"

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SCALE VERIFICATION

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0 — 1"

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ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY WTF PIPE SECTIONS III

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE, MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

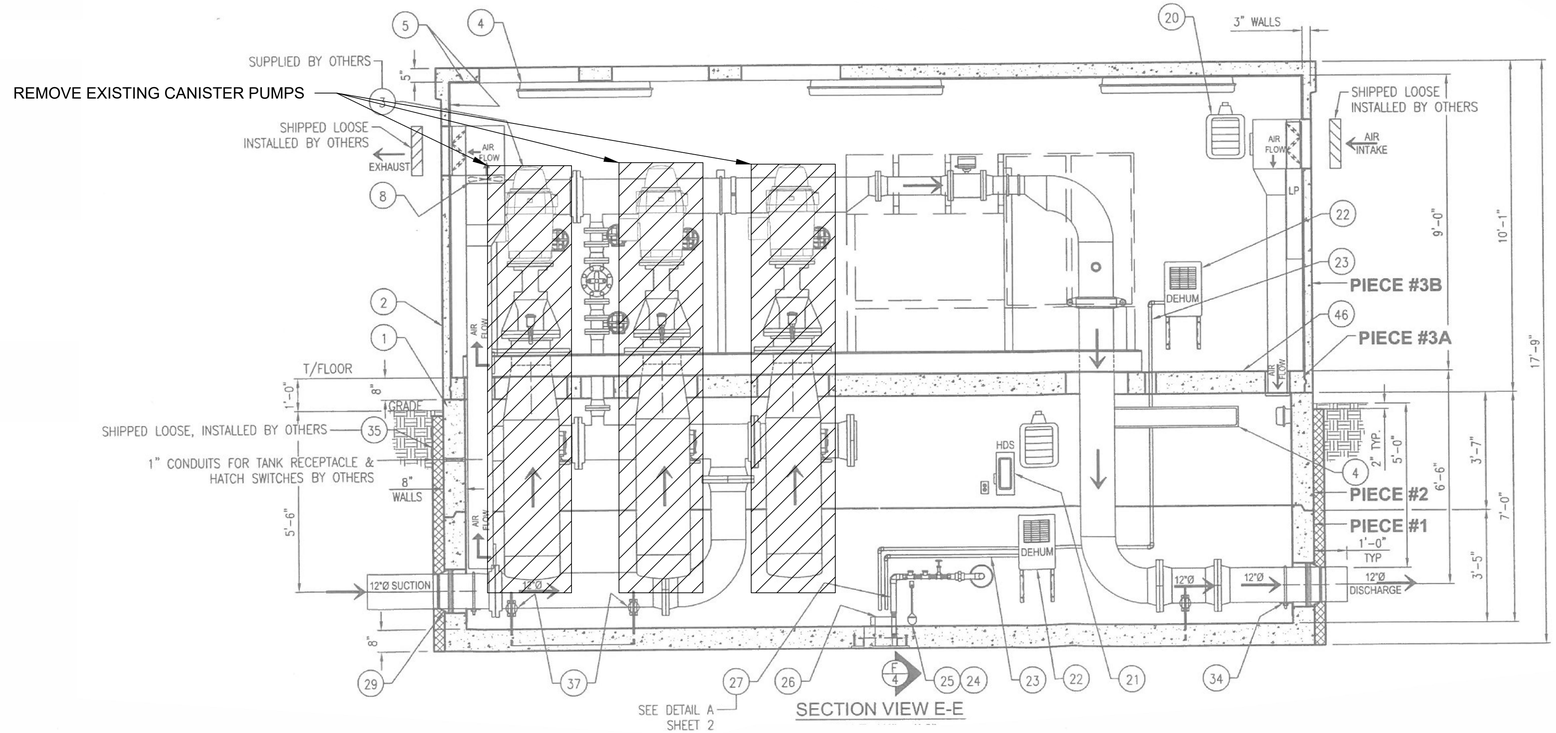
30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	6/10/2024
CURRENT REVISION	
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DRAWN BY	MD
CHECKED BY	TB
APPROVED BY	MT

M-105

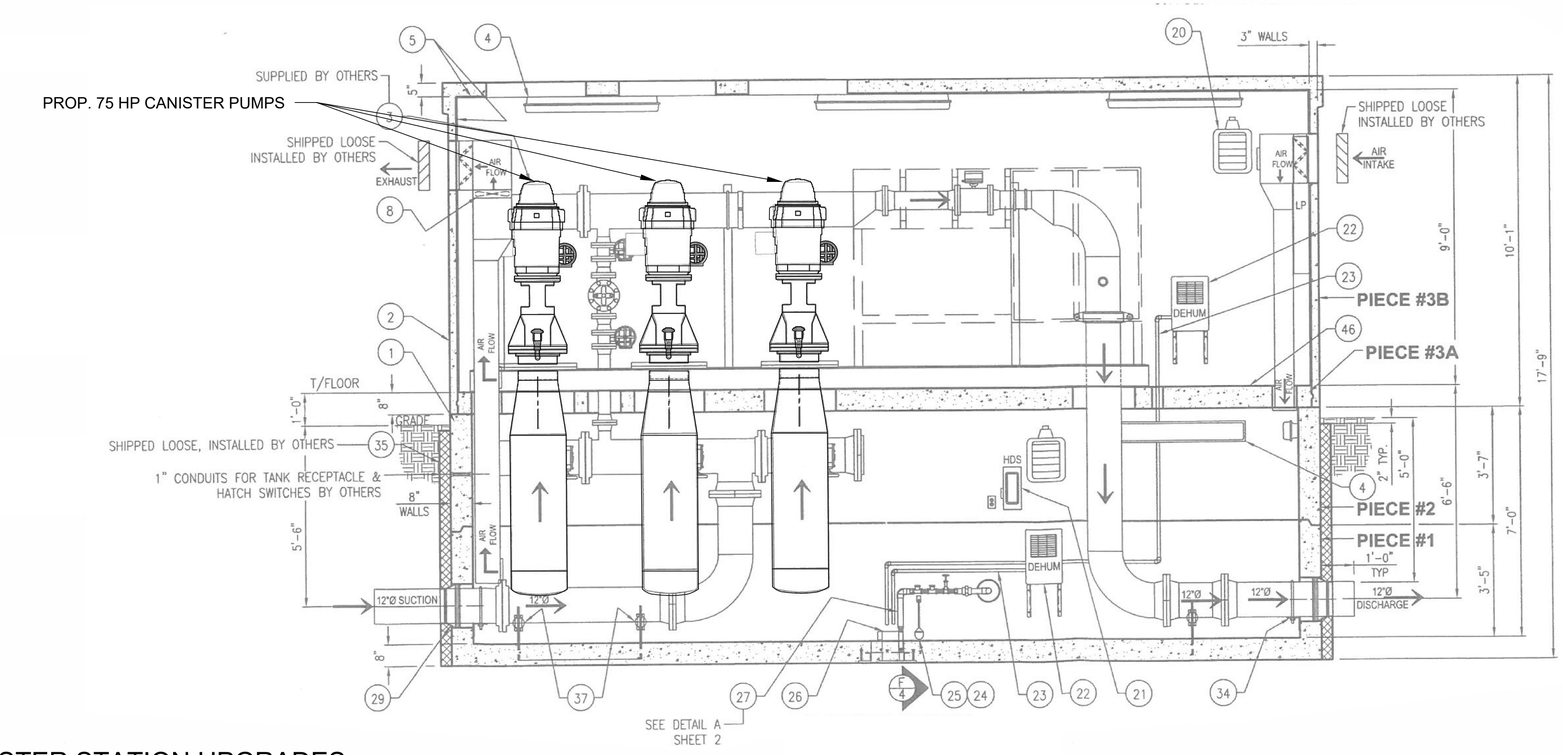
SHEET 16 of 60

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BOOSTER STATION DEMOLITION PLAN

SCALE: NTS



BOOSTER STATION UPGRADES

SCALE: NTS

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SCALE VERIFICATION

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0 — 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

THIS DRAWING IS NOT TO SCALE

ORIGINAL DRAWING SIZE IS 22 x 34

BOOSTER PUMP STATION

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

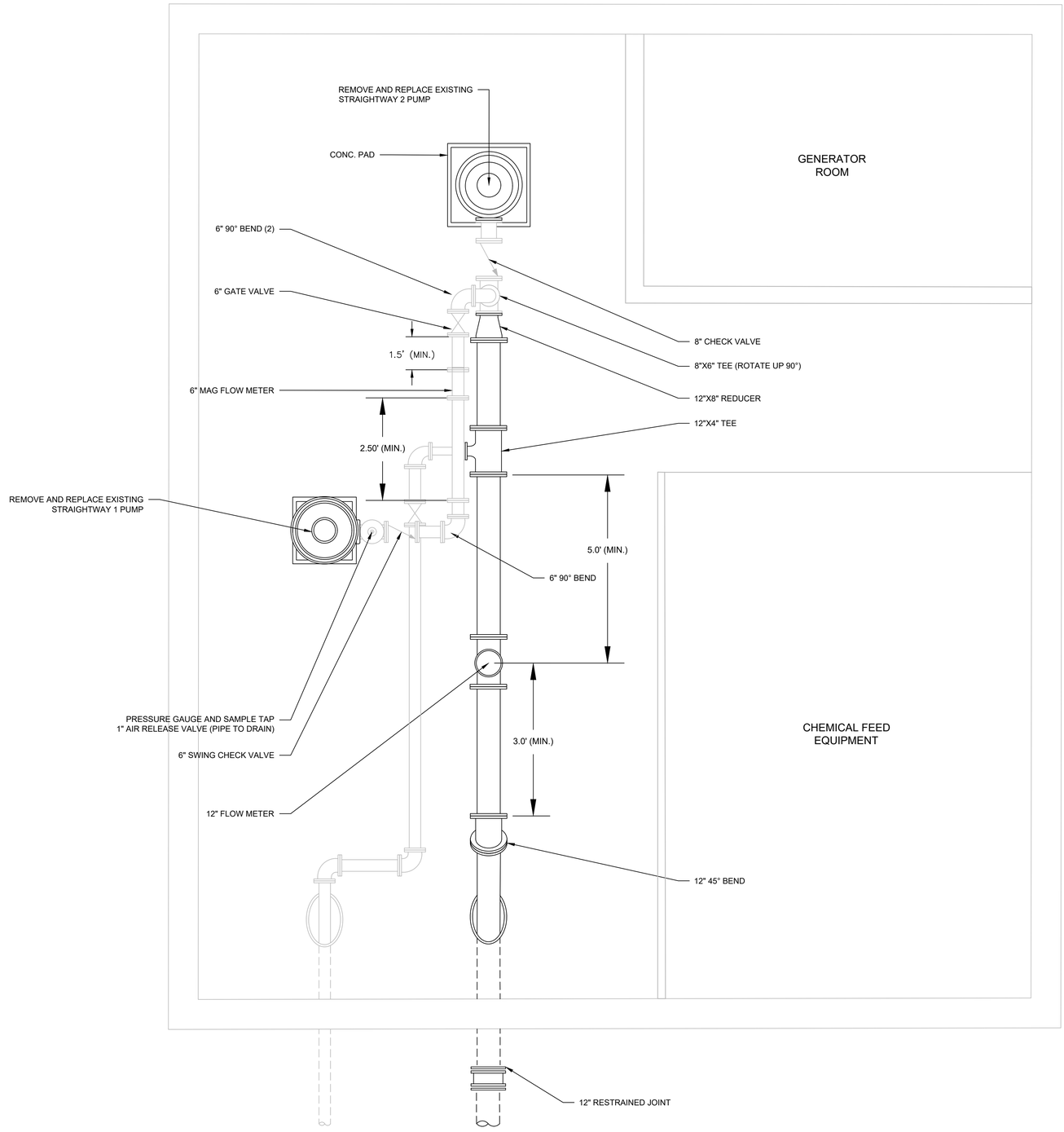
30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	-
DESIGNED BY	TB
DRAWN BY	MR
CHECKED BY	TB
APPROVED BY	MT

M-106

SHEET 17 of 60

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PLAN
SCALE: 3/8" = 1'-0"

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 32 64
SCALE: 1" = 32' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

EXISTING STRAIGHTWAY WTF DEMOLITION AND MODIFICATION PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED AUGUST 8 MAY 4 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

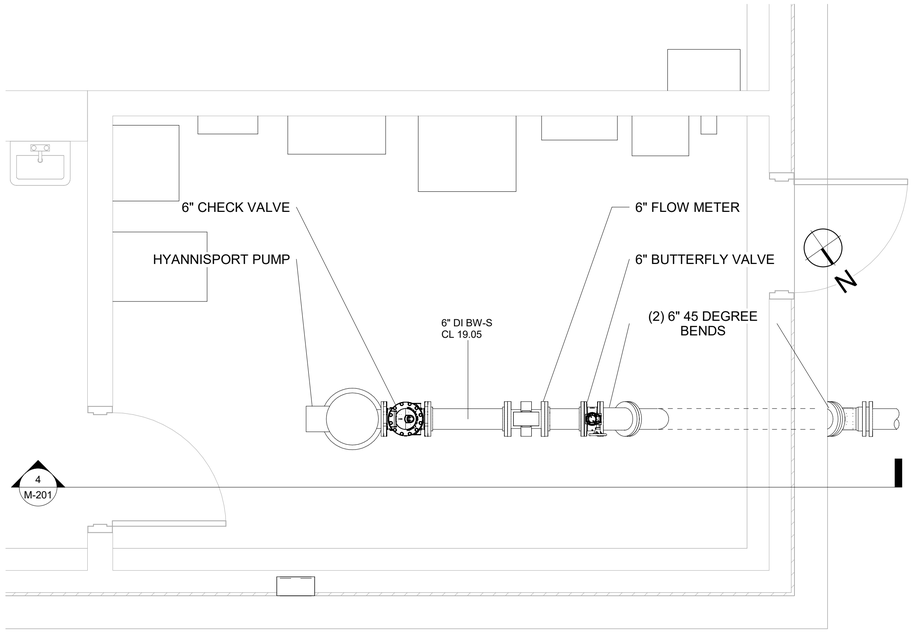
30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	-
DESIGNED BY	TB
DRAWN BY	MR
CHECKED BY	TB
APPROVED BY	MT

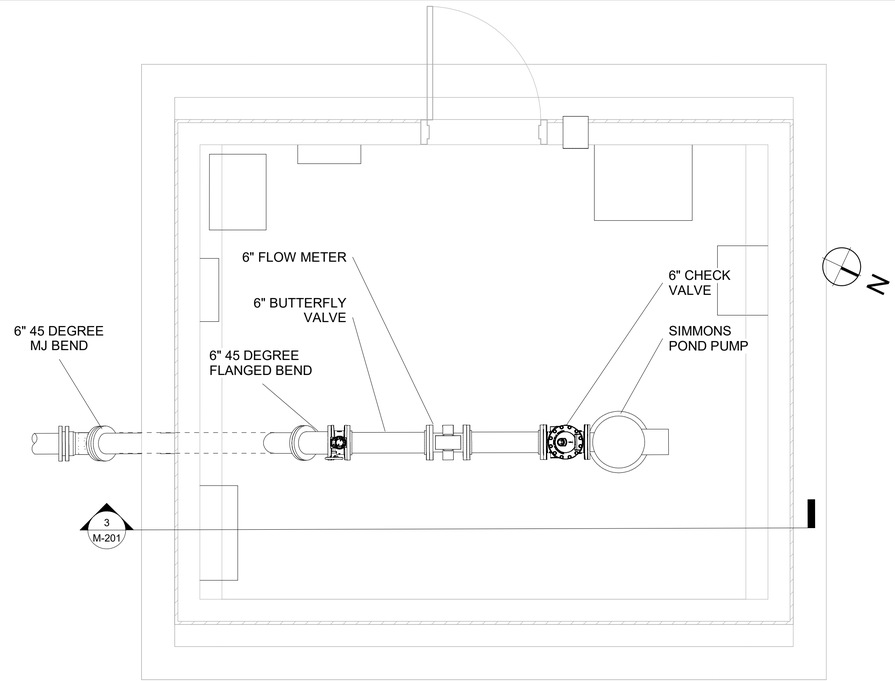
M-107

SHEET 18 of 60

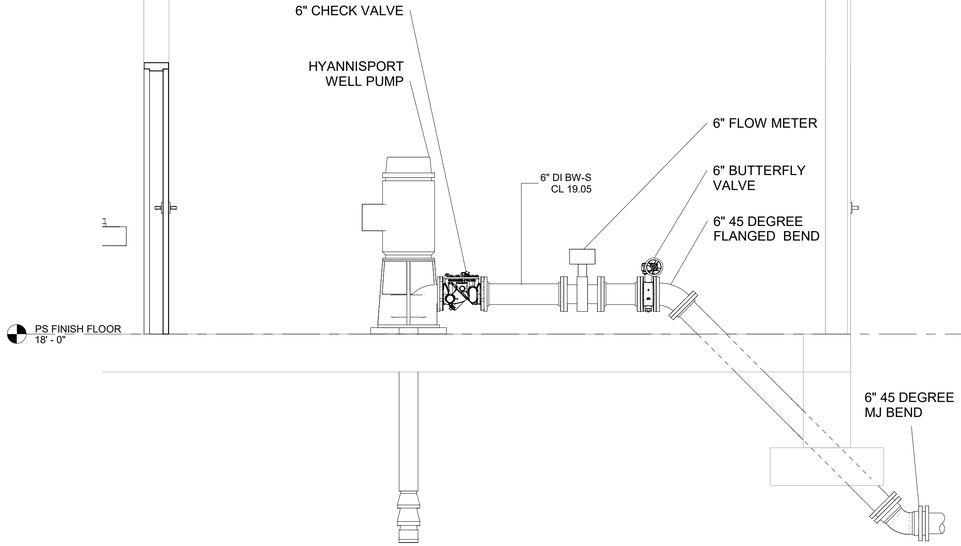
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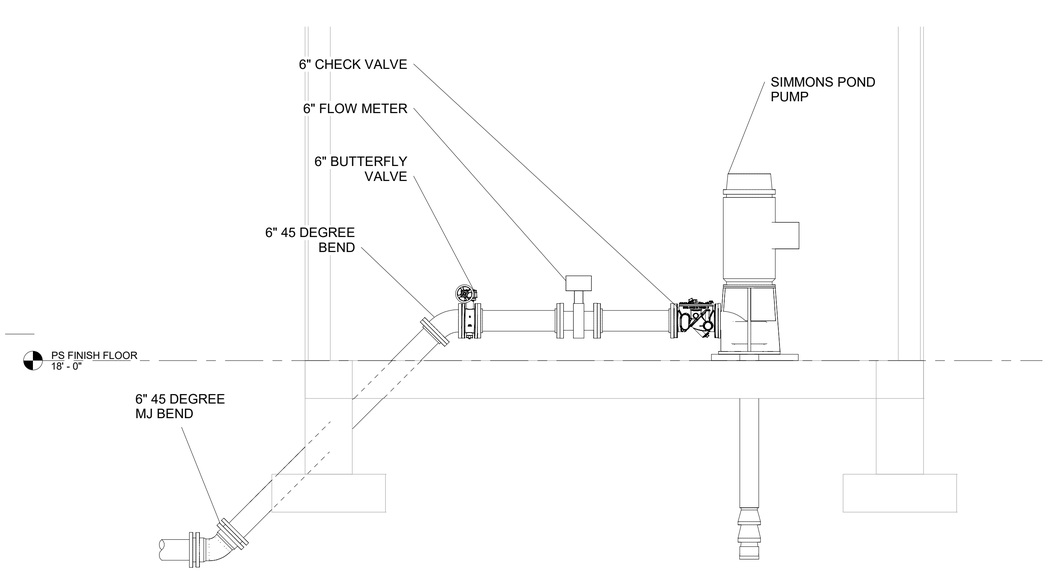
HYANNISPORT PUMP STATION PLAN
SCALE: 1/2" = 1'-0"



SIMMONS POND PUMP STATION PLAN
SCALE: 1/2" = 1'-0"



4 HYANNISPORT PUMP STATION SECTION
SCALE: 1/2" = 1'-0"



3 SIMMONS POND PUMP STATION SECTION VIEW
SCALE: 1/2" = 1'-0"

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ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISORT AND SIMMONS POND PUMP STATIONS PLAN AND SECTIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

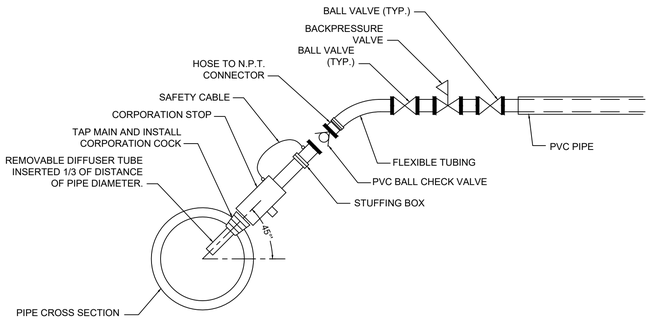
30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	6/10/2024
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DRAWN BY	MR
CHECKED BY	TB
APPROVED BY	MT

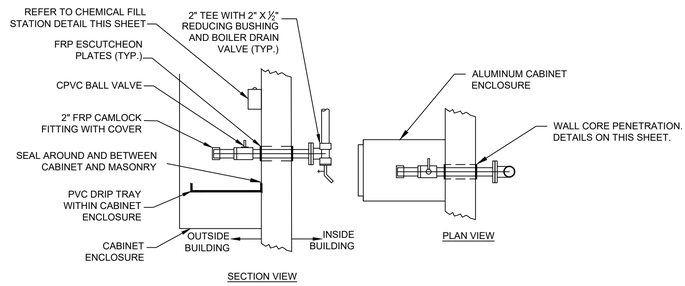
M-201

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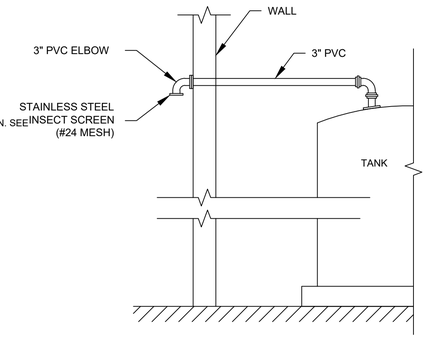


CHEMICAL INJECTION TAP DETAIL
SCALE: N.T.S.

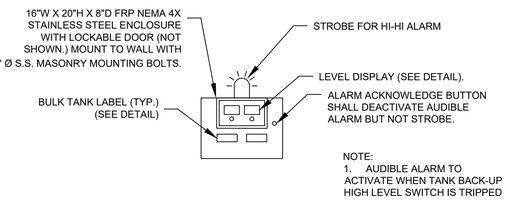


NOTES:
1. ONLY ONE FILL LINE SHALL BE INSTALLED FOR EACH CHEMICAL

CHEMICAL FILL LINE DETAILS
SCALE: N.T.S.

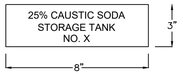


CHEMICAL TANK VENT
SCALE: N.T.S.



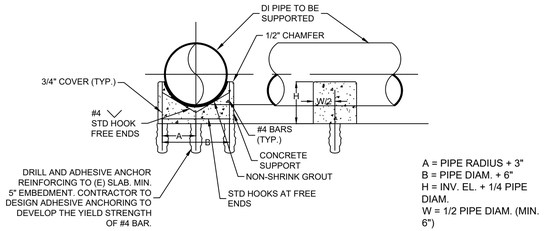
NOTE:
1. AUDIBLE ALARM TO ACTIVATE WHEN TANK BACK-UP HIGH LEVEL SWITCH IS TRIPPED

CHEMICAL FILL STATION DETAIL
SCALE: N.T.S.



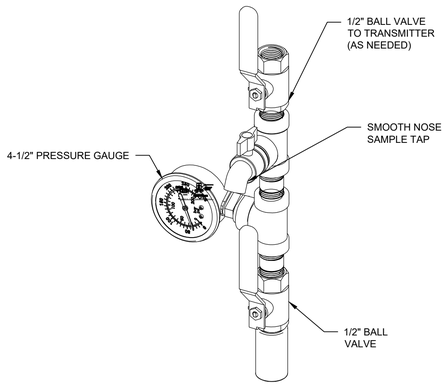
NOTES:
1. "X" SHALL BE REPLACED BY CORRESPONDING TANK NUMBER.
2. 25% CAUSTIC SODA SHALL BE REPLACED WITH APPROPRIATE CHEMICAL NAME AND STRENGTH. COORDINATE WITH ENGINEER.

BULK TANK LABEL DETAIL
SCALE: N.T.S.

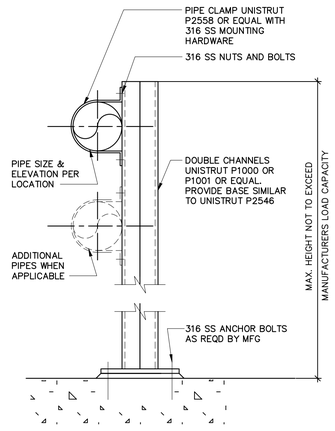


A = PIPE RADIUS + 3"
B = PIPE DIAM. + 6"
H = INV. EL. + 1/4 PIPE DIAM.
W = 1/2 PIPE DIAM. (MIN. 6")

CONCRETE PIPE SUPPORT DETAIL
SCALE: N.T.S.



PRESSURE/SAMPLE TAP DETAIL
SCALE: N.T.S.



METALLIC PIPE SUPPORT DETAIL
SCALE: N.T.S.

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SCALE VERIFICATION

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IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	-
DESIGNED BY	TB
DRAWN BY	MD
CHECKED BY	TB
APPROVED BY	MT

M-501

SHEET 20 of 60

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A. GENERAL NOTES

1. ALL WORK MUST CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS STATE BUILDING CODE 9TH EDITION.

2. PROPOSED FIELD MODIFICATION, REVISIONS AND ADDITIONS TO THE DESIGN DRAWING MUST BE APPROVED BY THE ENGINEER, IN WRITING, BEFORE WORK BEGINS. ANY REQUEST TO DEVIATE FROM THE ENGINEER'S SPECIFIED DETAILS ON THE DESIGN DRAWING BY THE CONTRACTOR MUST BE SUBMITTED IN WRITING TO THE ENGINEER FOR APPROVAL.

3. CONTRACTOR MUST PROVIDE ALL MATERIAL, LABOR, EQUIPMENT, CONSUMABLES, AND ALL OTHER ITEMS REQUIRED TO COMPLETE THE WORK AS SPECIFIED ON THE DESIGN DRAWINGS, PROJECT SPECIFICATIONS, AND AS NECESSARY TO COMPLETE THE WORK.

4. CONTRACTOR MUST VISIT THE PROJECT SITE AND OBSERVE CONDITIONS FOR THE PROPOSED CONSTRUCTION. ANY DISCREPANCY BETWEEN THE DESIGN DRAWINGS AND ACTUAL SITE CONDITIONS MUST BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER, IN WRITING, FOR RESOLUTION PRIOR TO COMMENCEMENT OF THE WORK.

5. COMPLETED SHOP DRAWINGS FOR ALL WORK MUST BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO THE START OF FABRICATION AND CONSTRUCTION ACTIVITIES.

6. UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS, ALL DESIGN, MATERIALS, FABRICATION, TESTING, AND CONSTRUCTION MUST COMPLY WITH THE FOLLOWING NOTES, REFERENCED CODES, SPECIFICATIONS AND STANDARDS. SHOULD THESE NOTES, CODES, SPECIFICATIONS OR STANDARDS CONFLICT, THE STRICTEST PROVISION MUST GOVERN UNTIL WRITTEN CLARIFICATION IS PROVIDED TO THE CONTRACTOR.

7. THE STRUCTURAL DRAWINGS MUST BE USED IN CONJUNCTION WITH ALL OTHER DESIGN DRAWINGS AND SPECIFICATIONS. REFER TO PROCESS EQUIPMENT, ARCHITECTURAL, CIVIL, MECHANICAL, HVAC, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR LOCATIONS, DIMENSIONS, AND DETAILS OF OPENINGS, SLEEVES, EMBEDMENTS, AND EQUIPMENT INSERTS, PADS, CURBS, DEPRESSIONS, ANCHOR BOLTS, EXTERIOR GRADING AND OTHER PROJECT REQUIREMENTS NOT SPECIFIED ON STRUCTURAL DRAWINGS.

8. THE CONTRACTOR SHALL OBTAIN HISTORICAL DRAWINGS, REPORTS, AND SPECIFICATIONS OF THE EXISTING STRUCTURES CONSTRUCTION FROM THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING IN THE FIELD THE ACCURACY OF ALL RELEVANT INFORMATION SPECIFIED ON THE HISTORIC DOCUMENTS, INCLUDING BUT NOT LIMITED, TO STRUCTURAL SUBSTRUCTURE AND SUPERSTRUCTURE CONDITIONS AND THE EXISTENCE OF OVERHEAD, BURIED AND/OR EMBEDDED UTILITIES. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, ELEVATIONS AND DIMENSIONS PRIOR TO FABRICATING NEW WORK THAT WILL BE CONNECTED TO EXISTING CONSTRUCTION.

B. PROTECTION OF EXISTING STRUCTURES NOTES

1. EXISTING STRUCTURES, CONDUITS, UTILITY LINES AND OTHER UTILITIES MUST BE IDENTIFIED BY THE OWNER AND CONTRACTOR AND CLEARLY MARKED ON-SITE PRIOR TO INITIATING CONSTRUCTION. IN THE EVENT THAT ANY UNMARKED OR UNKNOWN STRUCTURE/UTILITY ARE UNCOVERED BY THE CONTRACTOR, WORK MUST HALT AND THE CONTRACTOR MUST REPORT ITS FINDINGS TO THE OWNER'S SITE REPRESENTATIVE FOR INSTRUCTIONS BEFORE PROCEEDING FURTHER. THE EXISTING STRUCTURES AND UTILITIES WHICH ARE ADJACENT TO THE SITE AND THOSE TO REMAIN WITHIN THE LIMITS OF THE WORK MUST BE PROTECTED AGAINST DAMAGE. THE CONTRACTOR WILL BE FULLY RESPONSIBLE IN THE EVENT OF REMOVAL OF OR DAMAGE TO ANY EXISTING OBJECTS BY THE CONTRACTOR'S PERSONNEL WHICH ARE INTENDED BY THE OWNER TO REMAIN IN PLACE.

2. CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, SHEETING, ETC. REQUIRED FOR SAFETY AND PROPER EXECUTION OF THE WORK.

3. CONTRACTOR IS SOLELY RESPONSIBLE TO PREPARE SHOP DRAWINGS FOR BRACING OF STRUCTURE DURING CONSTRUCTION ENSURING MEMBERS DESIGNED AND STAMPED/SEALED BY A REGISTERED PROFESSIONAL ENGINEER (REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS) AND SUBMIT THEM TO THE ENGINEER FOR RECORD.

4. THE CONTRACTOR SHALL PROVIDE STAMPED/SIGNED CALCULATIONS, PLANS AND DETAILS FOR THE TEMPORARY SUPPORT OF NEW AND EXISTING CONSTRUCTION TO REMAIN PREPARED BY AN ENGINEER LICENSED TO PRACTICE IN THE COMMONWEALTH OF MASSACHUSETTS.

C. DESIGN CRITERIA NOTES

1. STRUCTURES ARE DESIGNED IN ACCORDANCE WITH THE MASSACHUSETTS STATE BUILDING CODE 9TH EDITION.

2. DEAD LOAD:
WEIGHT OF BUILDING COMPONENTS SPECIFIED ON THE DRAWINGS
MEP AND FP ..... 10 PSF

3. LIVE LOAD:
STAIR AND EXITWAYS ..... 100 PSF
SIDEWALKS AND DRIVEWAYS ..... 250 PSF
LIGHT STORAGE ..... 125 PSF
HEAVY STORAGE ..... 250 PSF
FLOOR PLATES AND GRATING ..... 100 PSF
WALKWAYS AND ELEVATED PLATFORMS ..... 60 PSF
MECHANICAL ROOM ..... 150 PSF

4. ROOF LIVE LOAD:
MAINTENANCE: ..... 20 PSF

5. SNOW LOAD:
GROUND SNOW ..... P_g = 30 PSF
FLAT-ROOF SNOW ..... P_f = 28 PSF
EXPOSURE FACTOR ..... C_e =
THERMAL FACTOR ..... C_t =
IMPORTANCE FACTOR ..... I_s =
SLOPE FACTOR ..... C_s =
DRIFT SURCHARGE ..... P_d =
DRIFT WIDTH ..... W =

6. WIND LOAD:
RISK CATEGORY III
ULTIMATE WIND SPEED ..... V_{ULT} = 124 MPH
NOMINAL WIND SPEED ..... V_{asd} = 96 MPH
EXPOSURE CATEGORY C
DIRECTIONALITY FACTOR ..... K_d = 0.85
GUST EFFECT FACTOR ..... G = 0.85
TOPOGRAPHIC FACTOR ..... K_{zt} = 1.00
INTERNAL PRESSURE COEFFICIENT ..... GC_{pi} = ±0.18

7. SEISMIC LOAD:
RISK CATEGORY III
IMPORTANCE FACTOR ..... I_E = 1.25
SITE CLASSIFICATION C
SEISMIC DESIGN CATEGORY ..... B
RESPONSE MODIFICATION FACTOR ..... R =
DESIGN SPECTRAL RESPONSES ..... S_s = 0.236
S_{D1} = 0.054
S_{DS} = 0.205
S_{D1} = 0.054
SEISMIC FORCE RESISTING SYSTEM ..... SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
SEISMIC FORCE RESISTING SYSTEM ..... CS =
ANALYSIS PROCEDURE ..... EQUIVALENT LATERAL FORCE

C. DESIGN CRITERIA NOTES (CONT.)

8. FLOOD:
DESIGN CLASS .....
LOWEST FLOOR ELEVATION .....
DRY FLOODPROOFED ELEVATION .....

9. RAIN:
INTENSITY ..... i = 9 3/4"/HR

D. STRUCTURAL STEEL NOTES

1. DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL AND MISCELLANEOUS STEEL MUST BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE FOLLOWING CODES & STANDARDS:
a. MASSACHUSETTS STATE BUILDING CODE 9TH EDITION
b. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (ANSI/AISC 360)
c. CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES (AISC 303)
d. SPECIFICATION FOR STRUCTURAL JOINT USING HIGH-STRENGTH BOLTS (RCSC)
e. STRUCTURAL WELDING CODE – STEEL (AWS D1.1)
f. STRUCTURAL WELDING CODE – ALUMINUM (AWS D1.2)
g. STRUCTURAL WELDING CODE – SHEET STEEL (AWS D1.3)
h. STRUCTURAL WELDING CODE – STAINLESS STEEL (AWS D1.6)
i. PROJECT SPECIFICATIONS
j. OSHA STANDARDS 1910 & 1926
k. DETAILING FOR STEEL CONSTRUCTION, 3RD EDITION (AISC)

2. ALL STRUCTURAL AND MISCELLANEOUS STEEL MUST BE NEW CONFORMING TO THE FOLLOWING SPECIFICATIONS AND STANDARDS UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS:
a. WIDE FLANGE & WT ..... ASTM A992
b. CHANNELS & ANGLES ..... ASTM A36
c. HSS ..... ASTM A500, GRADE B
d. STEEL PIPE ..... ASTM A53, GRADE B
e. STEEL PLATE ..... ASTM A36
f. HIGH-STRENGTH BOLTS ..... ASTM F3125, GRADE A325-N
g. COMMON BOLTS ..... ASTM A307
h. NUTS ..... ASTM A563
i. WASHERS ..... ASTM F436
j. LOAD INDICATING WASHERS ..... ASTM F959
k. ANCHOR BOLTS .....ASTM F1554, GRADE 55

3. THE CONTRACTOR MUST FIELD VERIFY EXISTING CONDITIONS, ELEVATIONS AND DIMENSIONS PRIOR TO FABRICATING NEW WORK THAT WILL BE CONNECTED TO EXISTING CONSTRUCTION.

4. CONTRACTOR IS RESPONSIBLE FOR STRUCTURAL STABILITY UNTIL ERECTION IS COMPLETE AND FINAL CONNECTION SECURED. CONTRACTOR MUST PROVIDE TEMPORARY BRACING OF STRUCTURAL FRAMING TO MAINTAIN STABILITY UNTIL PERMANENT BRACING, MOMENT CONNECTIONS AND FLOOR DECKS (DIAPHRAGMS) ARE INSTALLED.

5. ALL STRUCTURAL AND MISCELLANEOUS STEEL, UNLESS NOTED OTHERWISE, MUST BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. MONORAIL BEAMS MUST BE SHOP COATED SAFETY YELLOW, #389074, BASED ON FEDERAL STANDARD 595B COLORS WITH OSHA STRIPING. CAPACITY OF MONORAIL BEAMS MUST BE STENCILED IN 3" MIN. LETTERS (BLACK) ON EACH SIDE OF WEB IN A CLEARLY VISIBLE LOCATION.

6. WELDING MUST BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE STRUCTURAL WELDING CODE (AWS). ALL WELDING MUST BE PERFORMED BY CERTIFIED WELDERS. WELDED CONNECTION MUST BE MADE UTILIZING E70XX ELECTRODES UNLESS NOTED OTHERWISE.

7. ALL BUTT WELDS AND GROOVE WELDS MUST BE COMPLETE JOINT PENETRATION WELDS (CJP). FILLET WELDS MUST BE ¼" MINIMUM UNLESS NOTED OTHERWISE.

8. STEEL SURFACES TO BE WELDED MUST BE CLEAN AND FREE FROM OIL, SCALE, SLAG, GREASE, AND OTHER FOREIGN MATERIAL WHICH IS DETRIMENTAL TO WELDING. WHEN WELDING TO EXISTING STRUCTURAL STEEL, MATERIALS MUST BE REMOVED PER THE REQUIREMENTS OF SSPC SP-11 A MINIM OF 4" FROM THE SURFACE TO BE WELDED.

9. BEARING ENDS OF ALL COLUMNS AND STIFFENERS MUST BE FINISHED TO BEAR.

10. GUSSET AND STIFFENER PLATES MUST BE ⅜" THICK MINIMUM UNLESS NOTED OTHERWISE.

11. ALL ASSEMBLY, TIGHTENING AND INSPECTION FOR HIGH-STRENGTH BOLTS MUST BE IN ACCORDANCE WITH THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS (RCSC). TIGHTENING OF STRUCTURAL CONNECTIONS MUST BE DONE BY TURN-OF-NUT METHOD OR UTILIZING TORQUED-CONTROLLED (TC) BOLTS. ALL BOLTS FOR END CONNECTIONS OF BEAMS AND BRACING MUST BE FULLY TENSIONED IN ACCORDANCE WITH RCSC.

12. UNLESS NOTED OTHERWISE, FIELD CONNECTIONS MUST BE BEARING-TYPE BOLT CONNECTIONS USING ASTM F3125, GRADE A325 GALVANIZED HIGH-STRENGTH BOLTS. BOLT DIAMETER MUST BE ¾" DIAMETER, MINIMUM, IN STANDARD HOLES.

13. UNLESS NOTED OTHERWISE, SECONDARY CONNECTIONS (GIRTS, STAIR STRINGERS, LADDERS AND HANDRAILS) MAY BE MADE USING ⅝" DIAMETER ASTM A307 BOLTS WITH COMPATIBLE NUTS AND WASHERS.

14. ALL GRADE A325 BOLTS ARE TO BE INSTALLED FULLY PRE-TENSIONED AND INSTALLED WITH LOAD INDICATOR WASHERS (SQUIRTER TYPE) AND HARDENED F436 WASHER IN ACCORDANCE WITH TABLE 8.1 OF RCSC.

15. THE CONTRACTOR, OR DESIGNATED REPRESENTATIVE, MUST DESIGN AND PROVIDE FINAL STRUCTURAL CONNECTIONS FOR THE FOLLOWING INSTANCES:

A. FRAMED BEAM END CONNECTION NOT SPECIFICALLY DETAILED ON THE DESIGN DRAWINGS
B. RAILING AND RAILING CONNECTIONS TO STRUCTURAL MEMBERS
C. STAIRS AND STAIR CONNECTION TO STRUCTURAL MEMBERS
D. ALUMINUM, LADDERS AND SUPPORTS
E. COLD-FORMED METAL FRAMING.

ALL CONTRACTOR RESPONSIBLE DESIGNS MUST BE PERFORMED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE HAVING AUTHORITY OF THE PROJECT. SUBMITTED CALCULATIONS AND APPLICABLE DRAWING MUST BE SIGNED-AND-SEALED BY THE STRUCTURAL ENGINEER.

16. ALL DESIGN LOADS SPECIFIED IN THE DESIGN DRAWING ARE ALLOWABLE STRENGTH DESIGN (ASD) UNLESS NOTED OTHERWISE.

17. BEAM END CONNECTIONS MUST BE STANDARD FRAMED BEAM CONNECTIONS AS SHOWN IN THE AISC STEEL CONSTRUCTION MANUAL. THE CONNECTIONS MUST BE DESIGNED TO CARRY THE FOLLOWING CONCURRENT LOADS (SHEAR AND AXIAL):
a. SHEAR LOAD: THE SHEAR LOAD FOR BEAM END CONNECTION MUST BE EQUAL TO ONE-HALF OF THE ALLOWABLE UNIFORM LOADS FOR BEAMS LATERALLY SUPPORTED AS TABULATED IN PART 3 OF THE AISC MANUAL FOR STEEL CONSTRUCTION UNLESS NOTED OTHERWISE. WHERE A HIGHER OR LOWER SHEAR LOAD CAPACITY IS REQUIRED, IT IS SPECIFIED ON THE DESIGN DRAWING.
b. AXIAL LOAD: THE END CONNECTIONS OF THE BEAMS MUST BE DESIGNED FOR THE AXIAL TRANSFER FORCE (TF) IN COMBINATION WITH THE SHEAR LOAD. FOR TENSION TRANSFER FORCES, THE CONNECTION ANGLE AND BOLTS MUST SPECIFICALLY BE VERIFIED FOR PRYING ACTION. CONNECTION OF ALL GIRDERS TO COLUMNS MUST USE A MINIMUM ½" THICK CONNECTION ANGLES.

NOT FOR CONSTRUCTION

D. STRUCTURAL STEEL NOTES (CONT.)

18. MOMENT CONNECTIONS (MC) MUST DEVELOP THE FULL CAPACITY OF THE WEAKER SECTION OF THE CONNECTED MEMBERS UNLESS NOTED OTHERWISE OF SPECIFIED VALUES ARE PROVIDED. CONNECTION MUST BE DESIGNED TO INCLUDE CONCURRENT LOADS.

19. MOMENT SPLICES (MS) MUST DEVELOP THE FULL CAPACITY OF THE SPLICED MEMBER SECTION.

20. STRUCTURAL BRACING CONNECTIONS MUST BE DESIGNED FOR LOADS SPECIFIED ON THE DESIGN DRAWINGS AND MUST BE MADE WITH A MINIMUM OF 2 BOLTS IN DOUBLE SHEAR OR 4 BOLTS IN SINGLE SHEAR UNLESS NOTED OTHERWISE.

21. WORK POINT ELEVATIONS FOR VERTICAL BRACING MUST BE LOCATED AT THE CENTERLINE OF THE BEAMS OR COLUMNS THEY CONNECT TO UNLESS NOTED OTHERWISE.

22. CONNECTION DESIGN FORCES SPECIFIED ON THE DESIGN DRAWINGS ARE IN KIPS AND FOOT-KIPS. NO REDUCTION IN FORCE OR ALLOWABLE STRESS INCREASE IS TO BE USED IN CONNECTION DESIGN. SHEAR AND AXIAL CONNECTION DESIGN MUST CONSIDER BOTH FORCES ACTING AT THE SAME TIME. PRYING FORCES MUST BE CONSIDERED FOR ALL TENSION AXIAL FORCES.

23. UNLESS SPECIFIED ON THE DESIGN DRAWINGS, HIGH STRENGTH BOLTED JOINTS MUST BE BEARING TYPE CONNECTIONS WITH BOLTS THREADS INCLUDED IN THE SHEAR PLANE (N-TYPE), EXPECT THAT JOINTS SUBJECTED TO SIGNIFICANT STRESS REVERSAL (+/- LOADS) OR SEVER STRESS FLUCTUATIONS SHALL BE SLIP-CRITICAL TYPE CONNECTIONS. ALL HORIZONTAL AND VERTICAL TRUSS MEMBERS WHICH HAVE BOLTED CONNECTIONS MUST HAVE FULLY TENSIONED CONNECTIONS. LOCATIONS WHERE SLOPE CRITICAL CONNECTIONS ARE REQUIRED WILL BE SPECIFIED ON THE DESIGN DRAWINGS.

24. DIAGONAL HORIZONTAL BRACING CONNECTIONS WHERE FORCES ARE NOT SPECIFIED ON THE DESIGN DRAWINGS MUST BE DESIGNED FOR A MINIMUM OF 15 KIP AXIAL LOAD (TENSION AND COMPRESSION). VERTICAL BRACING CONNECTIONS WHERE FORCES ARE NOT SPECIFIED ON THE DESIGN DRAWINGS MUST BE DESIGNED FOR A MINIMUM OF 15 KIP AXIAL LOAD (TENSION AND COMPRESSION).

25. CONNECTIONS FOR POST AND HANGERS MUST BE DESIGNED FOR NOT LESS THAN 10 KIP (TENSION AND COMPRESSION) AXIAL LOAD.

26. BOLTS IN SLOTTED CONNECTIONS, WHERE MOVEMENT IS REQUIRED, MUST BE SNUGGED AND THE NUT TACK WELDED TO THE BOLT OR THE THREADS UPSET.

27. CONNECTION BOLTING SHOWN ON THE STANDARD DETAIL DRAWINGS IS FOR ILLUSTRATIVE PURPOSES ONLY.

MINIMUM NUMBER OF BOLT ROWS FOR FRAMED BEAM CONNECTIONS ARE AS FOLLOWS, UNLESS NOTED OTHERWISE:

MEMBER DEPTH	NO. ROWS (MIN.)
8	2
10	2
12	3
14	3
16	4
18	5
21	6
24	6
36	10

E. CAST-IN-PLACE CONCRETE NOTES

1. ALL CONCRETE WORK AND MATERIALS MUST BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE CURRENT EDITION OF THE FOLLOWING STANDARDS:
a. MASSACHUSETTS STATE BUILDING CODE 9TH EDITION
b. GUIDE TO MASS CONCRETE (ACI 207)
c. SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301)
d. HOT WEATHER CONCRETE REQUIREMENTS (ACI 305)
e. COLD WEATHER CONCRETE REQUIREMENTS (ACI 306)
f. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318)
g. BUILDING CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES (ACI 350)
h. RECOMMENDED PRACTICE FOR PLACING REINFORCING STEEL (CRSI)
i. STRUCTURAL WELDING CODE – REINFORCING STEEL (AWS D1.4)
j. PROJECT SPECIFICATIONS
k. OSHA STANDARDS 1910 & 1926
l. ACI DETAILING MANUAL (SP-66)

2. SHOP DRAWINGS, SHOWING ALL FABRICATION DIMENSIONS AND LOCATIONS FOR PLACING OF THE REINFORCING STEEL AND ACCESSORIES, MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY FABRICATION.

3. REINFORCING BARS MUST BE FABRICATED IN ACCORDANCE WITH THE STANDARD FABRICATED TOLERANCES SPECIFIED IN ACI 315, CHAPTER 4.

4. NO ALUMINUM EMBEDMENT IN THE CONCRETE IS PERMITTED.

5. ALL EXPOSED CONCRETE EDGES MUST HAVE A ¾" X ¾", 45° CHAMFER UNLESS NOTED OTHERWISE.

6. ALL PERMANENTLY EXPOSED VERTICAL AND HORIZONTAL CONCRETE SURFACES MUST BE TREATED OR SEALED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND CONCRETE FINISH REQUIREMENTS.

7. UNLESS NOTED OTHERWISE STEEL REINFORCEMENT MUST CONFORM TO THE FOLLOWING STANDARDS:
a. REINFORCING STEEL MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, GRADE 60.
b. WELDABLE REINFORCING STEEL MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM A706, GRADE 60.
c. EPOXY COATED REINFORCING STEEL MUST BE DEFORMED BILLET STEEL CONFORMING TO ASTM A775, GRADE 60.
d. WELD WIRE FABRIC (MESH) MUST CONFORM TO ASTM A185 AND MUST BE PROVIDED IN FLAT SHEETS (ROLLS NOT PERMITTED).
e. UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS ALL REINFORCING STEEL IS UNCOATED (PLAIN) DEFORMED BARS.
f. ALL REINFORCING STEEL AND EMBEDMENTS SECURELY IN PLACE PRIOR TO PLACING CONCRETE. PROVIDE SUPPORTS TO MAINTAIN THE POSITION OF REINFORCEMENT WITHIN SPECIFIED TOLERANCES DURING ALL CONSTRUCTION ACTIVITIES. WET "STICKING" DOWELS, ANCHORS, ETC. INTO CONCRETE IS NOT PERMITTED.
g. REINFORCING STEEL MUST BE DETAILED AND FABRICATED IN ACCORDANCE WITH ACI 315 "DETAILS AND DETAILING CONCRETE REINFORCEMENT".
h. UNDIMENSIONED HOOKS AT ENDS OF REINFORCEMENT AND STIRRUPS MUST BE STANDARD HOOKS IN ACCORDANCE WITH ACI 318 UNLESS NOTED OTHERWISE.
i. REINFORCING STEEL MUST BE SPLICED AS SPECIFIED ON THE DESIGN DRAWINGS OR AS APPROVED, IN WRITING, BY THE ENGINEER. WHEN SPLICE LENGTHS ARE NOT SPECIFIED ON THE DESIGN DRAWINGS THEY MUST BE THE MINIMUM LENGTHS DEFINED IN THE "TENSION LAP SPLICE LENGTH" TABLE. SPLICES NOT DEFINED ON THE DESIGN DRAWINGS MUST BE LAPPED IN ACCORDANCE WITH THE PROVISIONS OF ACI 318 FOR CLASS B SPLICES.
j. REINFORCING STEEL MUST BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS, CORNERS, AND INTERSECTIONS UNLESS NOTED OTHERWISE. REINFORCING STEEL MUST NOT BE CONTINUOUS THROUGH SLAB-ON-GRADE CONTROL JOINTS. REINFORCING STEEL MUST BE LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS END WITH ACI 318 STANDARD HOOKS UNLESS NOTED OTHERWISE.
k. FIELD WELDING OF CROSSING BARS BY TACK WELDING IS STRICTLY PROHIBITED.
l. ALL REINFORCING STEEL MUST BE FREE FROM LOSE RUST, SCALE OR ANY FOREIGN MATERIAL PRIOR TO PLACING ANY CONCRETE.

[E. CAST-IN-PLACE CONCRETE NOTES CONT. ON NEXT SHEET]

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REVISIONS

REV	DESCRIPTION	DSN	CHK	DATE
		DWN	APP	

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRUCTURAL GENERAL NOTES I

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	
DESIGNED BY	DF
DRAWN BY	JFC
CHECKED BY	Checker
APPROVED BY	Approver

S-001

SHEET 21 of 60

PLOTTED: 6/10/2024 4:12:24 PM
Autodesk Docs://24003062.001A - W-Barnstable MA Straightway Design T1_2Stru_W-Barnstable MA Straightway Design T1_2.rvt

E. CAST-IN-PLACE CONCRETE NOTES (CONT.)

8. PROVIDE ADDITIONAL REINFORCEMENT ALONG EACH SIDE OF OPENINGS AS SPECIFIED IN THE STANDARD DETAILS UNLESS NOTED OTHERWISE.

9. MECHANICAL REINFORCEMENT SPLICES SHALL BE PERMITTED SUBJECT TO THE CONTRACTOR PROPOSED LOCATIONS AND APPROVAL, IN WRITING, BY THE ENGINEER. IN ALL ENGINEER APPROVED INSTANCES, MECHANICAL SPLICES MUST DEVELOP AT A MINIMUM OF 125 PERCENT OF THE SPECIFIED YIELD STRENGTH OF THE REINFORCING BAR.

10. MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT SHALL BE AS FOLLOW, UNLESS NOTED OTHERWISE:
   a. CONCRETE CAST AGAINST EARTH (NOT FORMED) ..... 3"
   b. CONCRETE EXPOSED TO EARTH OR WEATHER ..... 2"
   c. CONCRETE NOT EXPOSED TO EARTH OF WEATHER ..... 1 1/2"
   d. CONCRETE OVER OR IN-CONTACT WITH LIQUID ..... 2"

11. UNLESS NOTED OTHERWISE CONSTRUCTION, EXPANSION, AND CONTROL JOINTS MUST CONFORM TO THE FOLLOWING STANDARDS:
   a. HORIZONTAL CONSTRUCTION JOINTS ARE PERMITTED ONLY WHERE SPECIFIED ON THE DESIGN DRAWINGS. ALL OTHERS DEEMED NECESSARY, BY THE CONTRACTOR, MUST BE APPROVED, IN WRITING, BY THE ENGINEER.
   b. THE LOCATION OF VERTICAL CONSTRUCTION JOINTS MUST BE APPROVED, IN WRITING, BY THE ENGINEER. CONSTRUCTION JOINTS MUST BE ROUGHENED TO ¼" AMPLITUDE IN ACCORDANCE WITH ICRI CSP STANDARDS.
   c. UNLESS NOTED OTHERWISE, PLACE VERTICAL CONTROL JOINTS IN RETAINING WALLS AT 20'-0" O.C. (MAX.), ¾" DEEP, V-CHAMFERED ON BOTH FACES. CONSTRUCTION JOINTS MUST COINCIDE WITH CONTROL JOINTS.
   d. THE DESIGNATION "C.J." INDICATES A CONSTRUCTION JOINT BETWEEN SUCCESSIVE CONCRETE PLACEMENTS.

12. A MINIMUM OF 72 HOURS MUST ELAPSE BETWEEN ADJACENT CONCRETE PLACEMENTS.

13. UNLESS NOTED OTHERWISE EMBEDDED ITEMS MUST CONFORM TO THE FOLLOWING STANDARDS:
   a. CONCRETE WORK MUST BE COORDINATED WITH ALL PROCESS, EQUIPMENT, WATERPROOFING, ARCHITECTURAL, MECHANICAL, HVAC, FIRE PROTECTION, CIVIL, PLUMBING, ELECTRICAL WORK AND VENDOR'S DRAWINGS FOR EMBEDDED ITEMS NOT SPECIFIED ON THE DESIGN DRAWINGS. THE CONTRACTOR IS FULLY RESPONSIBLE FOR COORDINATING AND PLACING ALL EMBEDDED ITEMS SPECIFIED ON THE DRAWINGS OR REQUIRED BY VARIOUS TRADES.
   b. PRIOR TO PLACEMENT OF ANY CONCRETE, ALL DESIGN DRAWINGS MUST BE REVIEWED TO ENSURE THAT ALL EMBEDDED ITEM ARE PROPERLY PLACED AND ANCHORED. THE CONTRACTOR MUST VERIFY INSTALLATION AND LOCATIONS OF ALL EMBEDDED ITEMS INCLUDING, BUT NOT NECESSARILY LIMITED TO, INSERTS, ANCHOR BOLTS, ANCHOR RODS, DOWELS, BLOCKOUTS, SLEEVES, EMBEDDED PIPING AND CONDUIT PRIOR TO CONCRETE PLACEMENT.
   c. ALL EMBEDDED PLATES MUST BE FLUSH WITH FINISH SURFACE OF CONCRETE.
   d. WATERSTOPS MUST BE OF SIZE AND TYPE AS SPECIFIED ON THE DESIGN DRAWINGS AND IN THE PROJECT SPECIFICATIONS AND MUST BE CONNECTED TO PROVIDE A CONTINUOUS WATERTIGHT SEAL.

14. CONCRETE FLOOR AND ROOF SLOPES MUST BE AN INTEGRAL PART OF FRAMED SLABS. SEPARATE CONCRETE FILL OR TOPPING SLABS ARE NOT PERMITTED UNLESS NOTED OTHERWISE ON THE DESIGN DRAWINGS.

15. CONCRETE SURFACES SPECIFIED TO BE ROUGHENED MUST BE ROUGHENED TO ¼" AMPLITUDE IN ACCORDANCE WITH ICRI CSP STANDARDS.

16. CONCRETE SLABS AND BEAMS MUST BE PLACED MONOLITHICALLY UNLESS NOTED OTHERWISE.

17. AIR-ENTRAIN ALL CONCRETE, EXCEPT FOR INTERIOR SLABS AND SLAB-ON-GRADE.

18. ALL CONCRETE MUST HAVE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C150.

19. ALL CONCRETE MUST BE NOMINAL WEIGHT AND HAVE THE FOLLOWING MINIMUM STRENGTH UNLESS NOTED OTHERWISE:
   a. LEAN CONCRETE FOR FILL__1000 PSI @ 28 DAYS
   b. SPREAD FOOTING AND FOUNDATION WALLS_4500 PSI @ 28 DAYS
   c. SLAB-ON-GRADE 4500 PSI @ 28 DAYS
   d. HOUSEKEEPING PADS 4500 PSI @ 28 DAYS
   e. LIQUID CONTAINMENT STRUCTURES_5000 PSI @ 28 DAYS

20. ADHESIVE ANCHORING SYSTEM FOR DRILLED-IN REINFORCING BARS MAY BE PERMITTED SUBJECT TO THE APPROVAL, IN WRITING, BY THE ENGINEER. WHEN APPLICATION IS APPROVED, THE ANCHORING SYSTEM MUST BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER REGISTERED IN THE STATE HAVING AUTHORITY OF THE PROJECT. THE ANCHORING SYSTEM MUST CONFORM TO THE REQUIREMENTS OF ICC-ES AC308 AND BE DESIGNED ACCORDING TO THE METHODS OUTLINES THEREIN AND BE CAPABLE DEVELOPING THE FULL YIELD STRENGTH OF THE BAR BASED ON THE RESULTS OF UNCONFINED PULL-OUT TESTING.

F. POST-INSTALLED ANCHORS

1. THE CONTRACTOR MUST BE RESPONSIBLE TO POSITION AND INSTALL ALL POST-INSTALLED ANCHOR BOLTS TO THE LOCATIONS AND ELEVATIONS SPECIFIED ON THE DESIGN DRAWINGS, IN ACCORDANCE WITH THE REQUIREMENTS AND TOLERANCES OF THE PROJECT SPECIFICATION AND MANUFACTURER RECOMMENDATIONS. POST-INSTALLED ANCHORS MUST BE INSTALLED ONLY IN HARDENED, CURE CONCRETE THAT IS 28 DAYS OR OLDER.

2. DRILLED-IN ADHESIVE ANCHOR SYSTEM MUST BE HILTI HIT-RE 500V3, DIAMETER AND ANCHOR MATERIAL AS SPECIFIED ON THE DESIGN DRAWINGS, COMPLETED WITH THREADED ROD, NUT AND WASHER AS MANUFACTURED BY HILTI, INC., OR EQUAL AS APPROVED, IN WRITING, BY THE ENGINEER. ANCHORS MUST BE INSTALLED IN PROPERLY PREPARED AND CLEANED DRY HOLES, FREE OF STANDING WATER, MOISTURE, ETC. IN STRICT ACCORDANCE WITH MANUFACTURERS REQUIREMENTS.

G. CAST-IN-PLACE ANCHOR BOLTS & EMBEDMENTS

1. THE CONTRACTOR IS RESPONSIBLE TO POSITION AND INSTALL ALL ANCHOR BOLTS AND EMBEDMENTS TO THE LOCATIONS AND ELEVATIONS SPECIFIED ON THE DESIGN DRAWINGS AND IN ACCORDANCE WITH THE REQUIREMENTS AND TOLERANCES OF THE PROJECT SPECIFICATIONS. ALL ANCHOR BOLTS AND EMBEDMENTS MUST BE RIGIDLY SECURED AND PROTECTED IN PLACE TO PREVENT MOVEMENT OR DAMAGE DURING CONCRETE PLACEMENT OPERATIONS WITH TEMPLATES. RIGID TEMPLATES MUST REMAIN IN PLACE A MINIMUM OF 24 HOURS AFTER CONCRETE PLACEMENT HAS CEASED.

2. THE CONTRACTOR IS RESPONSIBLE TO PROTECT ALL ANCHOR BOLTS AND EMBEDMENTS FROM DAMAGE OR RUST DURING SHIPMENT AND STORAGE.

3. ANCHOR BOLTS MUST BE SHOP FABRICATED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS TO THE MATERIALS, DIAMETERS AND DIMENSIONS SPECIFIED ON THE DESIGN DRAWINGS. ANCHOR BOLTS MUST BE COMPLETE WITH WASHERS AND HEAVY HEX NUTS. ALL ANCHOR BOLT ASSEMBLIES MUST BE TAGGED WITH MARK NUMBER, INCLUDING STEEL MATERIAL GRADE IDENTIFICATION.

4. STRUCTURAL STEEL EMBEDMENT PLATES, BARS, SHAPES, AND ASSEMBLIES MUST BE FABRICATED IN ACCORDANCE WITH THE PROJECT SPECIFICATION MATERIALS AS SPECIFIED ON THE DESIGN DRAWINGS AND MUST CONFORM TO THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC). ALL EMBEDMENT ASSEMBLIES MUST BE TAGGED WITH MARK NUMBER.

5. ANCHOR BOLT ASSEMBLIES AND STEEL EMBEDMENTS MUST BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123 AND ASTM A153, AS APPLICABLE.

H. TEMPORARY SHORING NOTES:

1. THE CONTRACTOR MUST PROVIDE TEMPORARY STRUCTURAL SHORING SUPPORT. ALL MEANS AND METHODS TO ACCOMPLISH THE REPAIR WORK IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. SUBMIT PROPOSED MEANS AND METHODS TO THE OWNER AND ENGINEER FOR REVIEW.

2. THE CONTRACTOR MUST SUBMIT SHOP DRAWINGS TO THE ENGINEER PRIOR TO THE PERFORMANCE OF ANY WORK SHOWING THE LOCATION, SIZE, DIMENSIONS, CAPACITY, DETAIL, WEIGHT, EQUIPMENT, ETC. OF ALL SUPPORTING MEMBERS AS WELL AS A TIME SCHEDULE AND SEQUENCE OF WORK INDICATING WHEN ALL THE PERTINENT ITEMS OF WORK WILL BE PERFORMED.

3. WHEN REQUIRED BY MGL 250 CMR, CHAPTER 5, THE CONTRACTOR MUST SUBMIT DESIGN CALCULATIONS, SIGNED-AND-SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF MASSACHUSETTS, TO THE ENGINEER FOR REVIEW PRIOR TO, OR INCLUSIVE WITH, SHOP DRAWINGS AS AN INSTRUMENT OF PROFESSIONAL PRATICE.

4. NO CONSTRUCTION WORK WILL COMMENCE UNTIL THE ENGINEER HAS REVIEWED THE SHORING SHOP DRAWINGS AND DESIGN CALCULATIONS, IF REQURIED.

5. CONTRACTOR MUST PROVIDE ADEQUATE LATERAL BRACING. ALL SHORING MUST BE CONTINUOUS THROUGH ALL LEVELS AND/OR SOLIDLY BLOCKED BETWEEN LEVELS. ALL SHORES MUST BE CARRIED DOWN TO FIRM BEARING MATERIAL AND THE LOAD MUST BE ADEQUATELY SPREAD OUT IF SUPPORTED ON THE EXISTING SLAB-ON-GRADE (I.E. GROUND LEVEL).

6. THE CONTRACTOR SHALL JACK ANY FLOORING OR FRAMING TO A TRUE AND LEVEL PLANE. ANY DEFICIENCIES OR DAMAGE AS A RESULT OF SHORING OR JACKING SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND MUST BE RESTORED TO THE ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.

I. DEMOLITION NOTES:

1. NO DEMOLITION WORK SHALL PROCEED UNTIL A PLAN HAS BEEN SUBMITTED TO AND APPROVED BY THE OWNER AND ENGINEER DETAILING THE METHODS AND EQUIPMENT TO BE USED TO DEMOLISH AND/OR SURFACE PREPARE STRUCTURES AND FEATURES.

2. ALL DEMOLISHED MATERIALS AND DEBRIS MUST BE LEGALLY DISPOSED OF OFF SITE IN A MANNER SATISFACTORY TO THE OWNER AND CURRENT DEP/EPA OF MASSACHUSETTS REQUIREMENTS. SUBMIT A CERTIFICATE OF DUMPING TO THE OWNER FOR RECORD, IF REQUESTED BY THE OWNER.

3. TEMPORARY SHORING MUST BE PROVIDED DURING ALL REPAIR PHASES OF CONSTRUCTION. REFER TO TEMPORARY SHORING NOTES.

4. DEMOLITION MUST COMPLY WITH GOVERNING COMMONWEALTH OF MASSACHUSETTS EPA NOTIFICATION REGULATIONS BEFORE STARTING SELECTIVE DEMOLITION. CONTRACTOR MUST COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.

5. THE OWNER MAY OCCUPY PORTIONS OF THE BUILDING IMMEDIATELY ADJACENT TO SELECTIVE DEMOLITION AREAS. CONDUCT SELECTIVE DEMOLITION SO THAT OWNERS'S OPERATIONS WILL NOT BE DISRUPTED. PROVIDE NOT LESS THAN 72 HOURS NOTICE TO OWNER OF ACTIVITIES (IF ANY) THAT MAY AFFECT THEIR OPERATIONS.

6. PROTECT AND/OR RELOCATE EXISTING UTILITIES WITHIN THE WORK AREA THAT MAY BE DAMAGED DURING THE DEMOLITION WORK. PROVIDE TEMPORARY SERVICE UNTIL AFFECTED UTILITIES ARE RESTORED, IF NECESSARY. INSTALL TEMPORARY PROTECTION AND OTHER SAFETY REQUIREMENTS PRIOR TO STARTING DEMOLITION. CONTRACTOR MUST ADEQUATELY SHIELD THE WORK AREA TO PREVENT DEBRIS RESULTING FROM DEMOLITION OPERATION FROM TRAVELING BEYOND THE BOUNDARIES OF THE WORK AREA.

7. A TRIAL AREA WILL BE DESIGNATED BY THE ENGINEER TO DEMONSTRATE THAT EQUIPMENT, PERSONNEL AND METHODS OF OPERATION ARE CAPABLE OF PRODUCING RESULTS SATISFACTORY TO THE ENGINEER. THE TRIAL AREA SHALL CONSIST OF TWO (2) SECTIONS OF APPROXIMATELY FOUR (4) SQUARE FEET EACH. THE CONTRACTOR MUST SUBMIT TEST RESULTS TO THE ENGINEER FOR APPROVAL PRIOR TO CONTINUING WITH THE WORK. ALL DETERIORATED CONCRETE MUST BE REMOVED.

8. CONCRETE REMOVAL MUST BE PERFORMED WITH ENGINEER APPROVED EQUIPMENT. EQUIPMENT MUST BE CAPABLE OF REMOVING EXISTING COATINGS, PREVIOUS FAILED REPAIRS AND DEFICIENT CONCRETE UNTIL SOUND CONCRETE IS REACHED. IN NO INSTANCE CAN DEMOLITION EQUIPMENT BE USED THAT WILL VIBRATE THE EXISTING CAST-IN-PLACE CONCRETE SLAB CONSTRUCTION.

9. DEMOLITION CONTRACTOR MUST SUPPLY ALL NECESSARY EQUIPMENT, PARTS AND MANPOWER TO MAINTAIN PRE-ESTABLISHED PRODUCTION RATES AND ASSURE ADHERENCE TO CONSTRUCTION SCHEDULE. CONTRACTOR MUST MAINTAIN, ON THE JOB SITE, AN INVENTORY OF COMMON WEAR PARTS AND REPLACEMENT ACCESSORIES FOR EQUIPMENT ADEQUATE TO ENSURE THAT ROUTINE MAINTENANCE TASKS CAN BE PERFORMED WITHOUT DELAY TO THE DEMOLITION SCHEDULE. ALL EQUIPMENT MUST OPERATE AT A NOISE LEVEL OF LESS THAN 90 DECIBELS AT A DISTANCE OF 50 FEET FROM EITHER THE POWER UNIT OR HEAD.

10. REMOVE THE DETERIORATED CONCRETE AND DELETERIOUS MATERIALS USING DEMOLITION, AS DEMONSTRATED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER IN THE DEMOLITION TEST CUT AREA. MAINTAIN THE QUALITY OF CONCRETE SUBSTRATE REMOVAL AS DEMONSTRATED IN THE TEST AREA THROUGHOUT THE PROJECT. DEMOLITION MUST CONTINUE UNTIL ALL UNSOUND AND DELAMINATED CONCRETE HAS BEEN REMOVED.

11. IN AREAS NOT DESIGNATED OR REQUIRING FULL-DEPTH REPAIR/REPLACEMENT, THE CONTRACTOR MUST TAKE ALL PRECAUTIONS TO AVOID FULL-DEPTH "BLOW-THROUGH" DURING THE DEMOLITION PROCESS. FULL DEPTH "BLOW-THROUGH" MUST BE COMPLETELY REPAIRED BY THE CONTRACTOR, AS DIRECTED BY THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

12. SURVEY THE CONDITION OF THE SITE TO DETERMINE WHETHER REMOVING ANY ELEMENT MIGHT RESULT IN UNDESIRABLE DAMAGE OF ANY PORTION OF ADJACENT FACILITIES DURING SELECTIVE DEMOLITION AND/OR IF HAZARDOUS MATERIALS ARE PRESENT WITHIN THE EXTENTS OF THE WORK. NOTIFY THE ENGINEER IF FOUND, PRIOR TO INITIATING THE WORK.

13. USE WATER MIST AND OTHER SUITABLE METHODS TO LIMIT THE SPREAD OF DUST AND DIRT. CONTRACTOR MUST COMPLY WITH COMMONWEALTH OF MASSACHUSETTS ENVIRONMENTAL PROTECTION REGULATIONS.

14. CLEAN ADJACENT STRUCTURES AND IMPROVEMENTS OF DUST, DIRT, AND DEBRIS CAUSED BY DEMOLITION OPERATIONS. RETURN ADJACENT AREAS TO CONDITION EXISTING BEFORE START OF DEMOLITION.

15. DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED. CONTRACTOR TO BE RESPONSIBLE FOR ANY CUTTING AND PATCHING THAT IS REQUIRED.

16. PROMPTLY DISPOSE OF DEMOLISHED MATERIALS. ACCUMULATION OF DEMOLISHED MATERIALS ON-SITE IS NOT PERMITTED AT ANY TIME.

17. THE CONTRACTOR MUST COORDINATE AND PERFORM A COMPLETE PRE-CONDITION STUDY OF THE STRUCTURES, COMPONENTS, AND SURROUNDING SITE COMPONENTS. THE PRE-CONDITION STUDY MUST INCLUDE VISUAL OBSERVATIONS, COMPREHENSIVE COMPILING OF PRE-DEMOLITION DEFECTS AND CONDITIONS, HAZARDOUS MATERIALS, AND DIGITAL PHOTOGRAPHY. SUBMIT THE DATED PRE-CONDITION SURVEY DOCUMENTATION TO THE OWNER AND ENGINEER A MINIMUM OF THREE (3) WEEKS PRIOR TO INITIATING DEMOLITION PROCEDURES.

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0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRUCTURAL GENERAL NOTES II

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCULCO MVY & LIBO

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	
DESIGNED BY	DF
DRAWN BY	JFC
CHECKED BY	Checker
APPROVED BY	Approver

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L. MISCELLANEOUS METALS

1. ALUMINUM CONSTRUCTION TO CONFORM TO ALLOY 6061-T6. DETAIL AND FABRICATE IN CONFORMANCE WITH THE LATEST ALUMINUM ASSOCIATION SPECIFICATIONS FOR STRUCTURES OF ALUMINUM.

2. DETAILING, FABRICATION AND ERECTION OF STRUCTURAL ALUMINUM SHALL COMPLY WITH ALL APPLICABLE OSHA REGULATIONS.

3. DESIGN IS IN ACCORDANCE WITH AISC ASD 335-89, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS- ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN", AND THE INTERNATIONAL BUILDING CODE 2009.

4. STEEL CONSTRUCTION SHALL COMPLY WITH AISC 303-05, "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES".

5. WELDING OF STEEL SHALL COMPLY WITH AWS D1.1, "STRUCTURAL WELDING CODE-STEEL".

6. WELDING OF ALUMINUM SHALL CONFORM TO THE STRUCTURAL WELDING CODE, AWS D1.2. WELDING SHALL BE BY THE METAL INERT GAS (MIG) OR THE TUNGSTEN INERT GAS (TIG) PROCESS USING 5356 FILLER ALLOY.

7. FIELD WELDING OF STRUCTURAL MEMBERS IS NOT PERMITTED UNLESS SPECIFICALLY INDICATED.

8. SHOP CONNECTIONS MAY BE BOLTED OR WELDED UNLESS THE CONNECTION METHOD IS INDICATED.

9. FIELD CONNECTIONS SHALL BE BOLTED UNLESS WELDING IS INDICATED.

10. PROVIDE ASTM F593 TYPE 316 STAINLESS STEEL BOLTS FOR BOLTED ALUMINUM CONNECTIONS. PROVIDE DRILLED HOLES 1/16" LARGER THAN THE BOLT DIAMETER UNLESS OTHERWISE INDICATED. PROVIDE ASTM F594 STAINLESS STEEL NUTS WITH STAINLESS STEEL WASHERS IN BOTH OUTER PLIES.

11. SIMPLY SUPPORTED BEAM-TO-COLUMN AND BEAM-TO-BEAM CONNECTIONS SHALL BE MADE WITH DOUBLE ANGLES IN CONFORMANCE WITH THE AISC MANUAL UNLESS OTHERWISE INDICATED.

12. PROVIDE TEMPORARY BRACING AND STAYS DURING ERECTION TO RESIST VERTICAL AND LATERAL LOADS UNTIL MEMBERS ARE PERMANENTLY FASTENED.

13. USE NON-SHRINK, NON-METALLIC GROUT AS INDICATED AND SPECIFIED UNDER BASE AND BEARING PLATES.

14. PROVIDE ALUMINUM RAILING WHERE INDICATED.

15. PROVIDED MOUNTINGS FOR REMOVABLE ALUMINUM RAILING AROUND OPENINGS WHERE INDICATED, COMPLETE WITH CAPS.

16. BOLTED STEEL CONNECTIONS SHALL COMPLY WITH RSCS, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". BOLTS SHALL BE ASTM A325 TYPE I, HEAVY-HEX.

17. STEEL W-SHAPES SHALL CONFORM TO ASTM A992 (50 KSI YIELD STRENGTH). STEEL CHANNELS SHALL CONFORM TO EITHER ASTM A36 OR ASTM A572 GRADE 50. OTHER STEEL SHAPES, PLATES AND BARS SHALL CONFORM TO ASTM A36.

18. WELDING ELECTRODES SHALL COMPLY WITH AWS REQUIREMENTS, WITH A TENSILE STRENGTH LEVEL OF 70 KSI.

19. ANCHOR BOLTS SHALL BE OF THE SIZES INDICATED, THREADED, HEADED, AND MADE OF ASTM F1554 GRADE 36 STEEL.

20. PAINT ALUMINUM IN CONTACT WITH CONCRETE WITH ASPHALTIC PAINT OR PROVIDE SHEET NEOPRENE BARRIER.

21. PROVIDE DISSIMILAR METAL PROTECTION AT LOCATIONS WHERE DISSIMILAR METALS ARE IN CONTACT. PROTECT WITH A MINIMUM 4-MIL DRY THICKNESS COAT OF ZINC CHROMATE PRIMER ON THE ALUMINUM SURFACES AND A MINIMUM 2-MIL DRY THICKNESS COAT OF ALL-METAL PRIMER FOLLOWED BY ONE COAT OF MINIMUM 3-MIL DRY THICKNESS ALUMINUM PAINT TO THE DISSIMILAR METAL.

STRUCTURAL ABBREVIATIONS

ADD'L.	ADDITIONAL
A.F.F.	ABOVE FINISHED FLOOR
ALT.	ALTERNATE
A.B.	ANCHOR BOLT
&	AND
L	ANGLE
APPROX.	APPROXIMATE(LY)
ARCH.	ARCHITECT(URAL)
@	AT
BSMT.	BASEMENT
B. PL.	BASE PLATE
BM.	BEAM
BRG.	BEARING
BTWN.	BETWEEN
BLK(G).	BLOCK(ING)
BD.	BOARD
BOT.	BOTTOM
B.C.X.	BOTTOM CHORD EXTENSION
B.O.	BOTTOM OF
B.O.F.	BOTTOM OF FOOTING
B.N.	BOUNDARY NAILING
BLDG.	BUILDING
BRKT.	BRACKET
CAMB.	CAMBER
CANT.	CANTILEVER
C.I.P.	CAST-IN-PLACE
℄ or CL.	CENTER LINE
C.C.D.	CITY CONSTRUCTION DIRECTIVE
CLR.	CLEAR(ANCE)
C.F.	COLD FORMED
COL.	COLUMN
CONC.	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONN.	CONNECT(ION)
CONSTR.	CONSTRUCTION
C.J.	CONSTRUCTION JOINT
CONT.	CONTINUE or CONTINUOUS
COORD.	COORDINATE
C.Y.	CUBIC YARD
DP.	DEEP
° or DEG.	DEGREE
DEMO.	DEMOL(ISH)(ITION)
DEPRESS.	DEPRESS(ED)(ION)
DIAG.	DIAGONAL
Ø or DIA.	DIAMETER
DBL.	DOUBLE
DWL(S.)	DOWEL(S)
DN.	DOWN
DWG.	DRAWING
EA.	EACH
E.E.	EACH END
E.F.	EACH FACE
E.G.	FOR EXAMPLE
E.S.	EACH SIDE
E.W.	EACH WAY
E	EAST
E.O.D.	EDGE OF DECK
E.O.S.	EDGE OF SLAB
E.N.	EDGE NAILING
EL.	ELEVATION
EMBED.	EMBEDMENT or EMBEDDED
EQ.	EQUAL
EQUIP.	EQUIPMENT
EQUIV.	EQUIVALENT
EST	ESTIMATE
EXIST. or (E)	EXISTING
EXP.	EXPANSION
E.J.	EXPANSION JOINT
EXT.	EXTERIOR
FAB.	FABRICATOR or FABRICATION
F.O.C.	FACE OF CONCRETE
F.O.M.	FACE OF MASONRY
F.O.S.	FACE OF STUD
F.O.W.	FACE OF WALL
F.S.	FAR SIDE
FRP.	FIBER REINFORCED PLASTIC
FIN.	FINISHED
F.F.	FINISHED FLOOR
FIN. GR.	FINISHED GRADE
F.P.	FIRE PROOF(ING) or PROTECTION
FLG.	FLANGE
F.D.	FLOOR DRAIN
FT.	FOOT or FEET
FTG.	FOOTING
F.S.	FOOTING STEP
FNDN.	FOUNDATION
F.W.C.J.	FOUNDATION WALL CONTROL JOINT
GALV.	GALVANIZE(D)
GA.	GAUGE, GAGE
GEN.	GENERAL
G.C.	GENERAL CONTRACT(OR)
G.L.	GLUE LAMINATED
GR.	GRADE
GRD.	GROUND
H.S.A.	HEADED STUD ANCHORS
HGT.	HEIGHT
H.P.	HIGH POINT
HSS	HOLLOW STRUCTURAL SECTIONS
HK.	HOOK(ED)
HORIZ.	HORIZONTAL
H.E.F.	HORIZONTAL EACH FACE
HDG	HOT-DIP GALVANIZE
IN	INCH(ES)
INFO.	INFORMATION
I.D.	INSIDE DIAMETER
I.F.	INSIDE FACE
INT.	INTERIOR
I.J.	ISOLATION JOINT
INV.	INVERT
JT.	JOINT
JST.	JOIST
K	KIPS
K.O.	KNOCKOUT
L.B.	LAG BOLT
LVL	LAMINATED VENEER LUMBER
L.F.	LINEAR FOOT
L.I.	LINEAR INCH
L.W.	LIGHTWEIGHT
L.L.	LIVE LOAD
LG.	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
L.S.H.	LONG SLOTTED HORIZONTAL
L.S.V.	LONG SLOTTED VERTICAL
L.W.	LONG WAY
L.P.	LOW POINT
MFR.	MANUFACTURE(R) (D)
MAS.	MASONRY
MAX.	MAXIMUM
MECH.	MECHANICAL
M.E.P.	MECHANICAL/ELECTRICAL/PLUMBING
MEZZ.	MEZZANINE
MID.	MIDDLE
M.O.	MASONRY OPENING
M.W.C.J.	MASONRY WALL CONTROL JOINT
MTL.	METAL
MIN.	MINIMUM
MISC.	MISCELLANEOUS
N.S.	NEAR SIDE
N.S.N.M.	NO SHRINK NON METALLIC
N	NORTH
N/A	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
# or NO.	NUMBER
O.C.	ON CENTER
OPNG.	OPENING
OPP.	OPPOSITE
O.H.	OPPOSITE HAND
O.S.B.	ORIENTED STRAND BOARD
O.D.	OUTSIDE DIAMETER
O.F.	OUTSIDE FACE
OH.	OVERHEAD
PARA.	PARALLEL
PART.	PARTITION
PVMT.	PAVEMENT
PEN.	PENETRATION
d	PENNY, NAIL
PERIM.	PERIMETER
PERP.	PERPENDICULAR
Pc.	PIECE
ℙ or PL.	PLATE
±	PLUS OR MINUS
PW.	PLYWOOD
PT.	POINT
PVC.	POLYVINYL CHLORIDE
LB(S).	POUND(S)
P.S.F.	POUNDS PER SQUARE FOOT
P.S.I.	POUNDS PER SQUARE INCH
P.A.F.	POWER ACTUATED FASTENERS
P.C.	PRECAST CONCRETE
P.J.F.	PREFORMED JOINT FILLER
P.T.	PRESSURE TREATED
R or RAD.	RADIUS
REF.	REFERENCE
REINF.	REINFORCE(D) (ING)
REQ'MTS.	REQUIREMENTS
REQ'D.	REQUIRED
RET.	RETAINING
REV.	REVIS(E) (ION)
R.D.	ROOF DRAIN
REG.	ROOFING
R.O.	ROUGH OPENING
RBL.	RUBBLE
S.C.C.J.	SAWCUT CONTROL JOINT
SECT.	SECTION
S.CONN.	SHEAR CONNECTOR
SW.	SHEARWALL
S.W.	SHORT WAY
SIM.	SIMILAR
S.O.G.	SLAB-ON-GRADE
S.C.	SLIP CRITICAL
S	SOUTH
SP(S).	SPACE(S)
SPEC.	SPECIFICATION
SQ.	SQUARE
S.F.	SQUARE FOOT or FEET
S.I.	SQUARE INCH(ES)
STD.	STANDARD
S.S.	STAINLESS STEEL
STL.	STEEL
STIFF.	STIFFENER
STRUCT.	STRUCTUR(E) (AL)
SYM.	SYMMETR(Y) (ICAL)
TEMP.	TEMPORARY or TEMPERATURE
THK.	THICK(EN) (ENED) (NESS)
THRU	THROUGH
T.J.	TIE JOIST
TOL.	TOLERANCE
T.&G.	TONGUE AND GROOVE
T.C.J.	TOOLED CONTROL JOINT
T&B	TOP AND BOTTOM
T.C.X.	TOP CHORD EXTENSION
T.O.	TOP OF
T.O.C.	TOP OF CONCRETE
T.O.S.	TOP OF STEEL
T.O.W.	TOP OF WALL
TOT.	TOTAL
T	TREAD or TON
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
V.I.F.	VERIFY IN FIELD
VERT.	VERTICAL
V.E.F.	VERTICAL EACH FACE
W.S.C.J.	WATERSTOPPED CONSTRUCTION JOINT
WT.	WEIGHT
W	WEST
W.	WIDE
WF	WIDE FLANGE
W.W.F.	WELDED WIRE FABRIC
W/	WITH
W/O	WITH OUT
W.P.	WORKING POINT
WD.	WOOD

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SCALE VERIFICATION

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IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRUCTURAL GENERAL NOTES & ABBREVIATIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

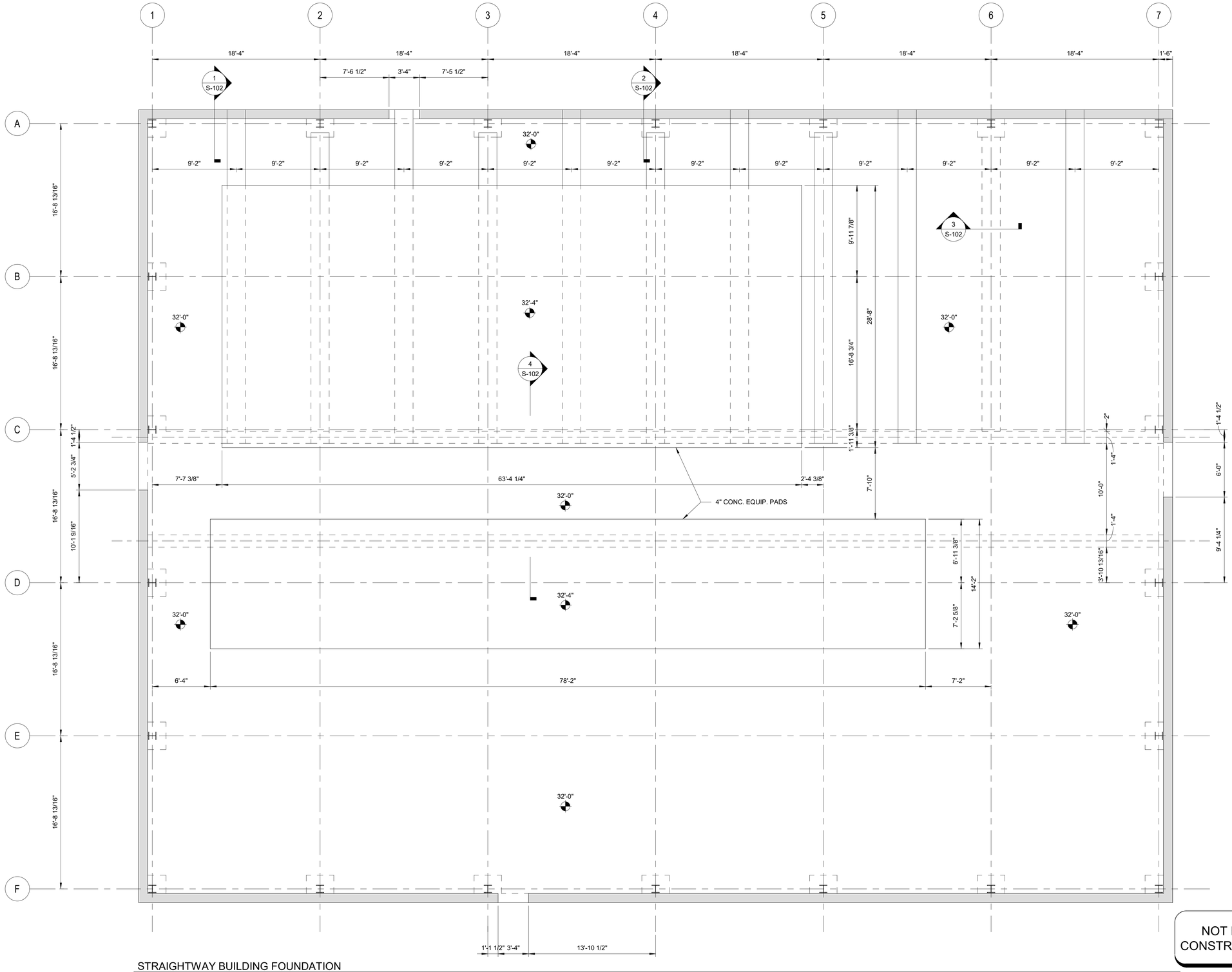
30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
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DESIGNED BY	DF
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APPROVED BY	Approver

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STRAIGHTWAY BUILDING FOUNDATION

SCALE: 3/16" = 1'-0"

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KLEINFELDER
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One Beacon Street, Suite 8100
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STRAIGHTWAY WTF BUILDING FOUNDATION PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

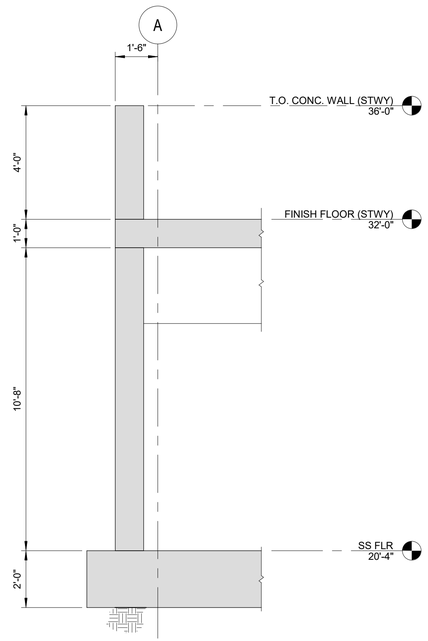
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DRAWN BY	JFC
CHECKED BY	Checker
APPROVED BY	Approver

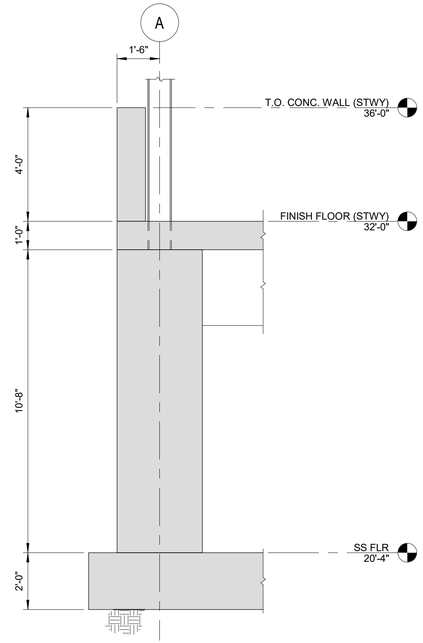
S-101

SHEET 24 of 60

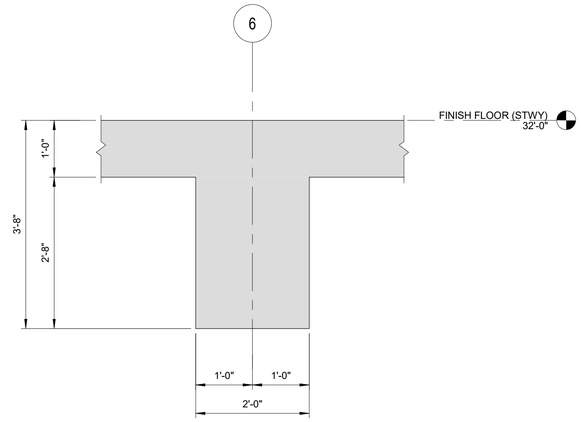
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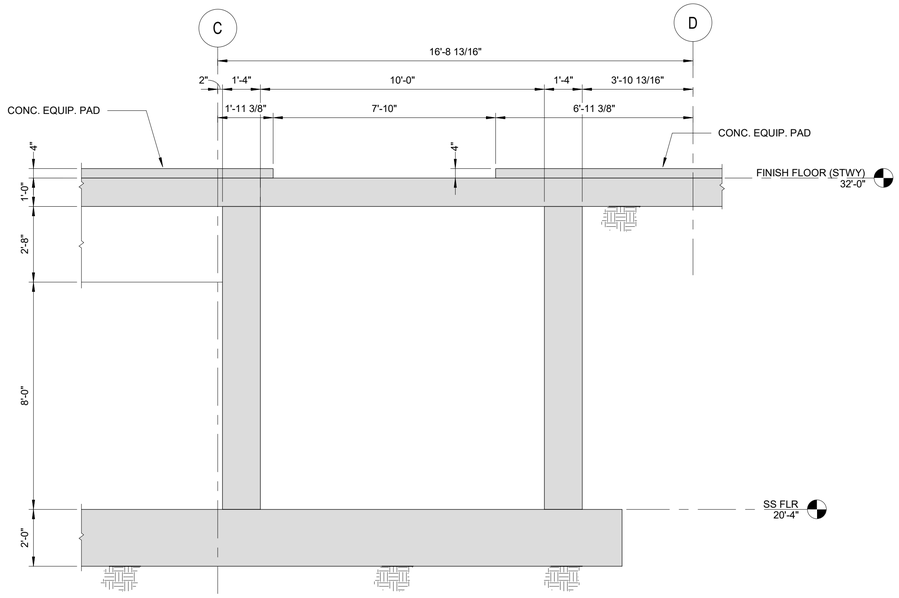
1 S-101 SECTION
SCALE: 3/8" = 1'-0"



2 S-101 SECTION
SCALE: 3/8" = 1'-0"



3 S-101 SECTION
SCALE: 3/4" = 1'-0"



4 S-101 SECTION
SCALE: 3/8" = 1'-0"

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ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY WTF BUILDING SECTIONS

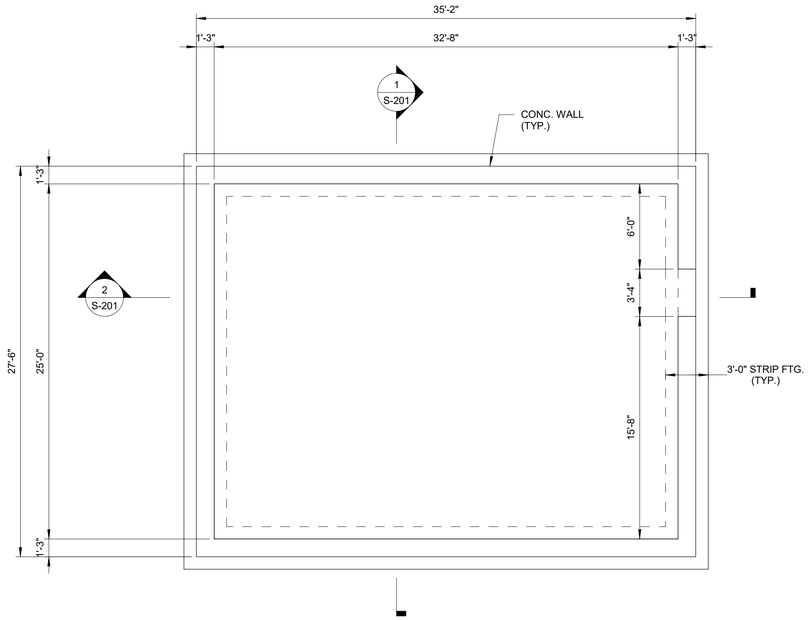
STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

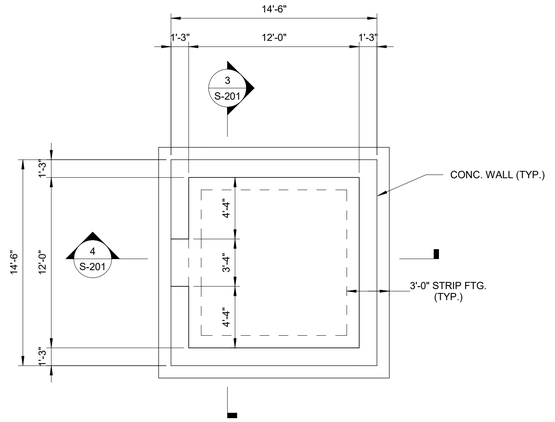
PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	
DESIGNED BY	DF
DRAWN BY	JFC
CHECKED BY	Checker
APPROVED BY	Approver

S-102



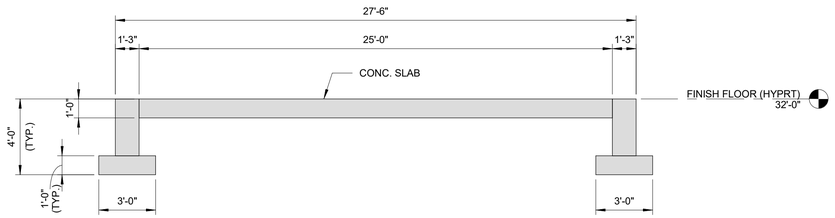
HYANNISPORT BUILDING FOUNDATION

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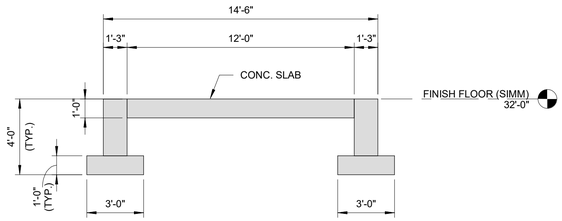
SIMMONS BUILDING FOUNDATION

SCALE: 3/16" = 1'-0"



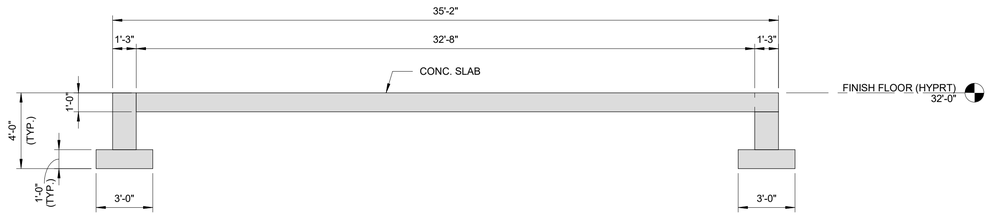
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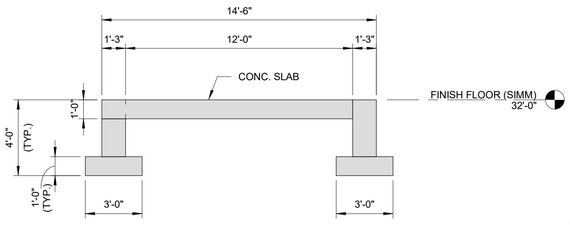
3 S-201 SECTION

SCALE: 1/4" = 1'-0"



2 S-201 SECTION

SCALE: 1/4" = 1'-0"



4 S-201 SECTION

SCALE: 1/4" = 1'-0"

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ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISPORT & SIMMONS BUILDINGS FOUNDATIONS & BUILDING SECTIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
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CURRENT REVISION	
DESIGNED BY	Designer
DRAWN BY	Author
CHECKED BY	Checker
APPROVED BY	Approver

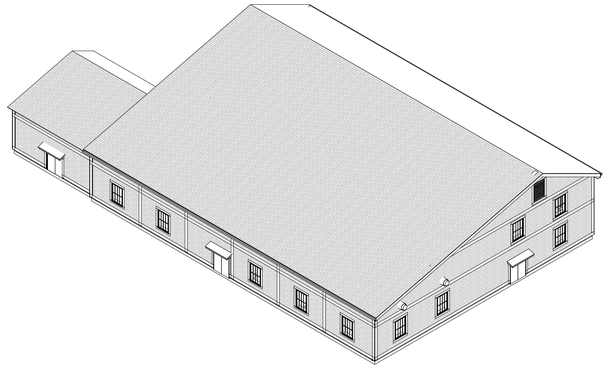
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SHEET 26 of 60

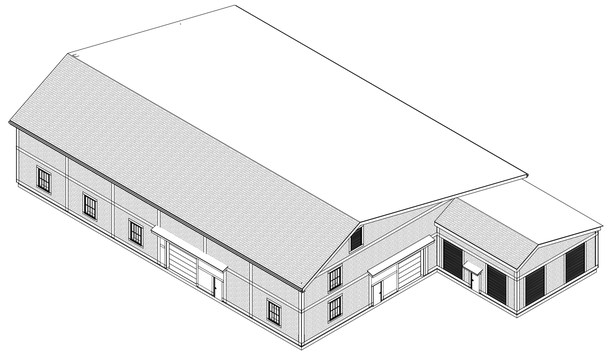
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ABBREVIATIONS

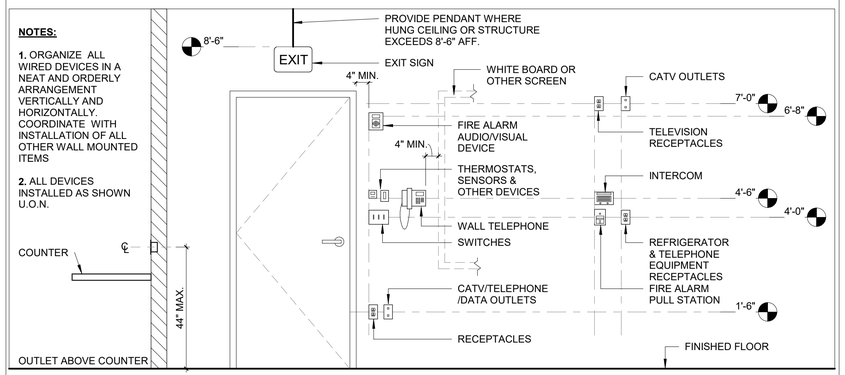
&	And	FV	Field Verify	QT	Quarry Tile
@	At	FWC	Fabric Wall Covering	QTY	Quantity
A/E	Architect / Engineer				
AB	Anchor Bolt	G	Gas	R	Radius or (Stair) Risers
AC	Air Conditioning	GA	Gauge	RAD	Radiator
ACT	Acoustic Ceiling Tile	GALV	Galvanized	RCP	Reflected Ceiling Plan
ACP	Acoustic Ceiling Panel	GB	Grab Bar	RD	Roof Drain
AD	Access Door	GC	General Contractor	REC	Recessed
ADH	Adhesive	GEN	Generator	REF	Reference
ADJ	Adjustable	GL	Glass	REFR	Refrigerator
ADJC	Adjacent	GLMU	Glass Masonry Unit	REINF	Reinforcing
AFF	Above Finished Floor	GND	Ground	REM	Removeable
AH	Air Handler	GR	Grade	REQD	Required
AL	Aluminum	GRL	Grille	REQMTS	Requirements
ALT	Alternate	GRTG	Grating	RESIL	Resilient
ANOD	Anodized	GSKT	Gasket	RFI	Rigid Foam Insualtion
APP	Approximately	GT	Grout	RFG	Roofing
ARCH	Architectural	GVL	Gravel	RH	Right Hand
ASPH	Asphalt	GWB	Gypsum Wall Board	RM	Room
				RO	Rough Opening
BD	Board	HB	Hose Bibb	RV	Roof Vent
BETW	Between	HC	Handicapped		
BIT	Bituminous	HDW	Hardware	S	South
BLDG	Building	HGT	Height	SAFB	Sound Attenuation Fiber Blanket
BLKG	Blocking	HM	Hollow Metal	SC	Sealed Concrete
BM	Beam	HMD	Hollow Metal Door	SCHED	Schedule
BO	By Others	HNDRL	Handrail	SCR	Screw
BOT	Bottom	HO	Hold Open	SCRN	Screen
BP	Building Paper	HORIZ	Horizontal	SD	Soap Dispenser
BR	Brass	HP	High Point	SECT	Section
BRZ	Bronze	HR	Hour	SF	Square Foot
BU	Built Up	HVAC	Heat, Ventilation & Air Conditioning	SGL	Single
				SHT	Sheet
C	Course	ID	Inside Diameter	SHTHG	Sheathing
C	Center Line	IF	Inside Face	SHV	Shelving
CAB	Cabinet	IN	Inch or Inches	SIM	Similar
CEM	Cement	INSUL	Insulation	SK	Sink
CG	Corner Guard	INT	Interior	SM	Sheet Metal
CPT	Carpet			SP	Spray Particle Paint
CHAN	Channel	JAN	Janitor	SPEC	Specifications
CHBD	Chalkboard	JNT	Joint	SQ	Square
CHFR	Chamfer			SS / ST STL	Stainless Steel
CHR	Chrome	KD	Knocked Down	STD	Standard
CI	Cast Iron	KIT	Kitchen	STL	Steel
CJ	Control Joint			STOR	Storage
CL	Closet	L	Left	STR	Structural
CLG	Ceiling	LF	Linear Foot	SUSP	Suspended
CLR	Clearance	LG	Length	SVF	Sheet Vinyl Flooring
CMPST	Composite	LAD	Ladder	SYM	Symbol
CMU	Concrete Masonry Unit	LAM	Laminate	SYMM	Symmetrical
CNTR	Counter	LAV	Lavatory	SYS	System
COL	Column	LB	Pound	S4S	Surface Four Sides
COMP	Compressible	LBL	Label		
CONC	Concrete	LCC	Lead Coated Copper	T	Treads (Stairs)
CONN	Connection	LH	Left Hand	T&G	Tongue and Groove
CONSTR	Construction	LHR	Left Hand Reverse	TB	Tobble Bolt
CONT	Continuous	LIN	Linear	TBD	To Be Determined
CONTR	Contractor	LKR	Locker	TDO	Thermoset Decorative Overlay (Melamine)
COP	Copper	LNTL	Lintel	TEMP	Tempered / Temporary
CORR	Corridor	LONG	Longitudinal	TEL	Telephone
CT	Ceramic Tile	LP	Low Point	TERR	Terrazzo
CW	Curtain Wall	LT	Light	THK	Thick
		LTWT	Lightweight	THRES	Threshold
Ø	Diameter	LTG	Lighting	THRU	Through
DBL	Double	LVR	Louver	T&G	Tongue and Groove
DEMO	Demolition			T.O.	Top Of
DIA	Diameter	MAINT	Maintenance	TOC	Top Of Concrete
DIV	Division	MANF	Manufacturer	TOM	Top Of Masonry
DIM	Dimension	MAS	Masonry	TOS	Top Of Steel
DMPF	Dampproofing	MATL	Material	TOW	Top Of Wall
DN	Down	MAX	Maximum	TRANS	Translucent
DOP	Door Opening	MDO	Medium Density Overlay	TYP	Typical
DR	Door	MECH	Mechanical		
DS	Downspout	MED	Medium	UL	Underwriters Laboratory
DSP	Dry Standpipe	MEMB	Membrane	UNFIN	Unfinished
DTL	Detail	MF	Metal Flashing	UNO / UON	Unless Otherwise Noted
DWG	Drawing	MFR	Manufacturer	UR	Urinal
		MH	Manhole	UV	Unit Ventilator
E	East	MIN	Minimum		
EA	Each	MIR	Mirror	VB	Vapor Barrier or Vinyl Base
EB	Expansion Bolt	MISC	Miscellaneous	VT / VCT	Vinyl Composition Tile
EF	Exhaust Fan	MLDG	Molding	VEN	Veneer
EJ	Expansion Joint	MO	Masonry Opening	VER	Verify
EL	Elevation	MS	Metal Stud	VERT	Vertical
ELEC	Electrical	MTD	Mounted	VEST	Vestibule
ENGR	Engineer	MTL	Metal	VIF	Verify In Field
ENTR	Entrance	MTR	Mortar	VNR	Veneer
EP	Electrical Panel	MULL	Mullion	VR	Vapor Retarder
EQ	Equal	MVBL	Movable	VWC	Vinyl Wall Covering
EQUIP	Equipment				
ESB	Exterior Soffit Board	N	North	W	West
ESMT	Easement	NA	Not Applicable	WC	Water Closet
ETR	Existing to Remain	NAT	Natural	WD	Wood
EWC	Electric Water Cooler	NIC	Not In Contract	W/	With
EX / EXST	Existing	NO	Number	W/O	Without
EXC	Excavate	NOM	Nominal	WGL	Wired Glass
EXH	Exhaust	NTS	Not To Scale	WLD	Welded
EXP	Expansion			WP	Working Point
EXT	Exterior	OA	Overall	WT	Weight
		OC	On Center	WTH	Width
FCO	Floor Clean Out	OD	Outside Diameter	WTRPRF	Waterproofing
FD	Floor Drain	OF	Outside Face	WWF	Welded Wire Fabric
FDN	Foundation	OFF	Office		
FE	Fire Extinguisher	OH	Overhead		
FEC	Fire Extinguisher Cabinet	OPNG	Opening		
FF	Fabric Flashing	OPHD	Opposite Hand		
FGL	Fiberglass	OPP	Opposite		
FHC	Fire Hose Cabinet				
FHY	Fire Hydrant	P&S	Power & Signal		
FIN	Finished	PAR	Parallel		
FL	Floor	PART	Partition		
FLUOR	Fluorescent	PC	Precast		
FOC	Face of Concrete	PERF	Perforated		
FOF	Face of Finish	PERP	Perpendicular		
FOM	Face of Masonry	PL	Plate		
FR	Fire Resistant	PLAM	Plastic Laminate		
FPRF	Fireproofing	PM	Pressed Metal		
FRP	Fiber Reinforced Plastic	PNL	Panel		
FS	Full Size	PRMT	Perimeter		
FT	Foot or Feet	PT	Pressure Treated		
FTG	Footing	PTD	Painted		
FTR	Fin Tube Radiation	PVG	Paving		
FURN	Furniture	PWD	Plywood		
FURR	Furring				



AXONOMETRIC - SOUTH EAST CORNER (STRIAGHTWAY)
SCALE: NTS



AXONOMETRIC - NORTH WEST CORNER (STRAIGHTWAY)
SCALE: NTS



MOUNTING HEIGHT, TYP. Copy 1
SCALE: 1/2" = 1'-0"

GENERAL NOTES

1. ALL WORK TO BE NEW U.O.N.
2. ALL WORK SHALL COMPLY WITH FEDERAL, STATE, AND LOCAL BUILDING REGULATIONS.
3. ANY CONFLICTS BETWEEN SITE CONDITIONS AND DRAWINGS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER AND ARCHITECT/DESIGNER.
4. ALL DOORS TO BE A MINIMUM OF 4" FROM NEAREST PERPENDICULAR PARTITION, U.O.N.
5. REVIEW LAYOUTS FOR PARTITIONS IN FIELD WITH THE OWNER AND ARCHITECT/DESIGNER PRIOR TO START OF CONSTRUCTION.
6. COORDINATE BLOCKING REQUIREMENTS AND LOCATIONS WITH ELEVATIONS AND DETAILS. ALL WOOD BLOCKING TO BE FIRE RETARDANT TREATED.
7. ALIGN CENTERLINES OF ALL WALL-MOUNTED FIRE EXTINGUISHERS AND MEP/FP DEVICES ON WALLS IN THE SAME LOCATION.
8. DISCLAIMER: MANUFACTURERS REFERENCES ARE INTENDED TO ESTABLISH COLOR AND FINISH ONLY AND ARE NOT INTENDED TO LIMIT SELECTIONS FROM OTHER MANUFACTURERS. WHEN ALTERNATE SELECTIONS ARE SUBMITTED, SUBMITTAL SHALL INCLUDE MATERIALS LISTED FOR COMPARISON.
9. DIMENSIONS:
   - A. ALL DIMENSIONS ARE TO FINISHED FACE OF WALL U.O.N.
   - B. DRAWINGS ARE NOT TO BE SCALED; VERIFY ANY MISSING OR CONFLICTING WRITTEN DIMENSIONS WITH THE ARCHITECT/ DESIGNER PRIOR TO CONSTRUCTION.
   - C. NOTIFY ARCHITECT OF CONDITIONS WHERE CLEAR OR CRITICAL DIMENSIONS ARE DESIGNATED BUT CANNOT BE MET OR WHERE CORRIDOR/AISLE WIDTH CANNOT MEET THE MINIMUM REQUIREMENTS (3'-8" U.O.N.)
   - D. MAINTAIN FINISH FLOOR BASE ELEVATION THROUGHOUT THE CONTRACT AREA SUCH THAT ALL DIMENSIONS INDICATED AS ABOVE FINISH FLOOR ARE AT THE SAME ELEVATION.

MATERIALS LEGEND

ALUMINUM	EARTH	SAND, CEMENT, GROUT
BATT INSULATION	GRATE	SHINGLE
BRICK	GRAVEL	SMOKE SEALANT
CERAMIC TILE	GWB	SPRAYED FIREPROOFING
CMU	PARTICLE BOARD	STEEL
COMMPRESSIBLE FILLER	PLYWOOD	WOOD
CONCRETE	RIGID INSULATION	

SYMBOLS LEGEND

0	COLUMN GRID LINE	11	WALL TAG
℄	CENTER LINE	11	WINDOW TAG
20	TOILET ACCESSORY TAG		
1 / A101	DETAIL MARKER		
101	DOOR TAG		
SIM 1 / A101	SECTION MARKER		
N	NORTH ARROW		
Room name 101 150 SF	ROOM IDENTIFICATION		

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ARCHITECTURAL GENERAL NOTES, LEGENDS & ABBREVIATIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

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CURRENT REVISION	
DESIGNED BY	EAB
DRAWN BY	JH
CHECKED BY	RB
APPROVED BY	-

A-001

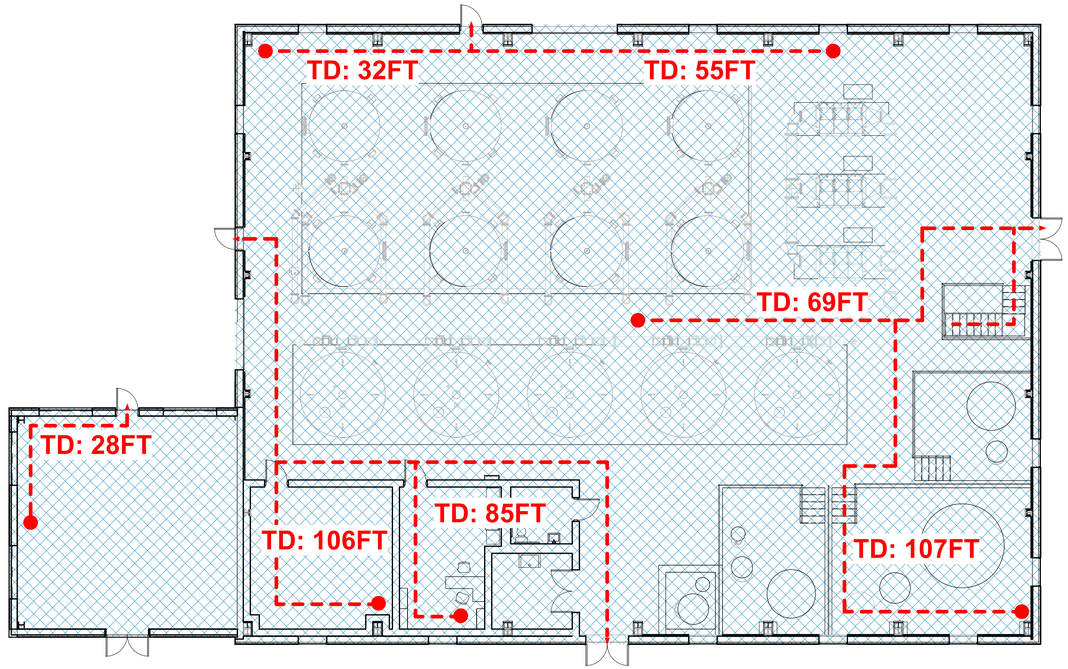
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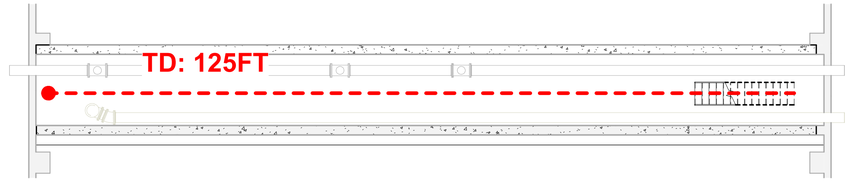
CODE SUMMARY: STRAIGHTWAY WATER TREATMENT FACILITY

OVERALL BUILDING AREA: 10,931 SF OVERALL BUILDING VOLUME: 275,884 CF

SECTION NO.	DESCRIPTION	PROVIDED
CHAPTER 3	USE AND OCCUPANCY SECTION 302.1 OCCUPANCY CLASSIFICATION	HIGH-HAZARD (SECTION 307): GROUP H-4 HEALTH HAZARD CORROSIVES AND TOXIC MATERIALS REFER TO TABLE CHEMICAL STORED ON SITE FOR STORAGE OF TOXIC AND HIGHLY TOXIC MATERIALS: HYDROGEN PEROXIDE, SODIUM HYDROCHLORITE, SODIUM HYDROXIDE, ZINC ORTHOPHOSPHATE
	SECTION 307.1 MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIALS POSING PHYSICAL HAZARD	OXIDIZER: HYDROGEN PEROXIDE QUANTITIES ARE LIMITED TO AN ACCEPTABLE QUANTITY--BELOW ALLOWABLE QUANTITY
CHAPTER 4	SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY SECTION 415.3 AUTOMATIC FIRE DETECTION SYSTEMS GROUP H OCCUPANCIES SHALL BE PROVIDED WITH AN AUTOMATIC FIRE DETECTION SYSTEM IN ACCORDANCE WITH SECTION 907.2	COMPLIES
	SECTION 415.4 AUTOMATIC SPRINKLER SYSTEM GROUP H OCCUPANCIES SHALL BE EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.2.5	COMPLIES
CHAPTER 5	GENERAL BUILDING HEIGHTS AND AREAS SECTION 505.3 EQUIPMENT PLATFORMS EQUIPMENT PLATFORMS IN BUILDINGS SHALL NOT BE CONSIDERED AS A PORTION OF THE FLOOR BELOW. EQUIPMENT PLATFORMS AND THE LADDER PROVIDING ACCESS TO AN EQUIPMENT SHALL NOT SERVE AS PART OF THE MEANS OF EGRESS FROM THE BUILDING.	COMPLIES
	SECTION 505.3.3 EQUIPMENT PLATFORM GUARDS EQUIPMENT PLATFORMS SHALL HAVE GUARDS	COMPLIES
	CONSTRUCTION TYPE: V-B	COMPLIES:
	TABLE 504.3 ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE 60 FEET (SPRINKLER)	33' - 4" (SPRINKLER)
	TABLE 504.4 ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE 3 STORY (SPRINKLER)	1 STORY (SPRINKLER)
	TABLE 506.2 ALLOWABLE AREA FACTOR IN SQUARE FEET 26,000 SQ FT (SPRINKLER)	10,931 SQ FT (SPRINKLER)
CHAPTER 6	TYPES OF CONSTRUCTION TABLE 601 FIRE RESISTANCE RATE REQUIREMENTS FOR BUILDING ELEMENTS (HOURS) CONSTRUCTION TYPE: V-B PRIMARY STRUCTURAL FRAME 0 HOURS BEARING WALLS EXTERIOR 0 HOURS INTERIOR 0 HOURS NON-BEARING WALLS AND PARTITIONS EXTERIOR 0 HOURS INTERIOR 0 HOURS FLOOR CONSTRUCTION AND SECONDARY MEMBERS 0 HOURS ROOF CONSTRUCTION AND SECONDARY MEMBERS 0 HOURS	COMPLIES
CHAPTER 8	INTERIOR FINISHES SECTION 803.1.1 INTERIOR WALL AND CEILING FINISH MATERIALS TESTED IN ACCORDANCE WITH NFPA 286 INTERIOR WALL AND CEILING FINISH MATERIALS SHALL BE CLASSIFIED IN ACCORDANCE WITH NFPA 286 AND SECTION 803.1.1.1. MATERIALS SHALL BE CONSIDERED TO COMPLY WITH REQUIREMENTS OF CLASS A. SECTION 803.1.2 INTERIOR WALL AND CEILING FINISH MATERIALS TESTED IN ACCORDANCE WITH ASTM E84 OR UL723 INTERIOR WALL AND CEILING FINISH MATERIALS TESTED IN ACCORDANCE WITH ASTM E84 OR UL723 CLASS A = FLAME SPREAD INDEX 0-25; SMOKE-DEVELOPED INDEX 0-450	COMPLIES
CHAPTER 9	FIRE PROTECTION AND LIFE SAFETY SYSTEMS SECTION 903.2.5 GROUP H AN AUTOMATIC SPRINKLER SYSTEM SHALL BE INSTALLED IN GROUP H OCCUPANCIES	COMPLIES
CHAPTER 10	MEANS OF EGRESS SECTION 1004: OCCUPANT LOAD LOCATION / FUNCTION OF SPACE / SQFT / O.L FACTOR INDUSTRIAL 1/100 GROSS GAC 8,679 SF ELECTRICAL 400 SF TOILET 260 SF JANITOR 70 SF CONTROL 121 SF GENERATOR 1,008 SF	CALCULATED OCCUPANCY LOAD INDUSTRIAL (TOTAL SF) / (O.L. FACTOR) = OCCUPANTS (10,538 SF) / (100 GROSS) = 106 OCCUPANTS
	SECTION 1005.3.2: OTHER EGRESS COMPONENTS THE CAPACITY, IN INCHES, OF MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH COMPONENTS BY A MEANS OF EGRESS FACTOR OF 0.2 INCHES PER OCCUPANT	COMPLIES
	TABLE 1006.2.1: SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY OCCUPANT LOAD PER STORY: 10 MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (SPRINKLER): 75 FEET	COMPLIES NOTE: PIPE GALLERY SERVICE ZONE TREATED AS "NON OCCUPIED" SERVICE SPACE
	TABLE 1006.3.3: MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS PER STORY OCCUPANT LOAD PER STORY: 1-500 MINIMUM NUMBER OF EXITS OR ACCESS TO EXITS FROM STORY: 2	COMPLIES
	TABLE 1017.2: EXIT ACCESS TRAVEL DISTANCE GROUP H-4: 175 FEET (SPRINKLER)	COMPLIES
CHAPTER 26	PLASTIC SECTION 2613.3 FIBER-REINFORCED POLYMER: INTERIOR FINISHES FIBER-REINFORCED POLYMER USED AS INTERIOR FINISHES, DECORATIVE MATERIALS OR TRIM COMPLY WITH CHAPTER 8: INTERIOR FINISHES	COMPLIES



1 STRAIGHTWAY FLOOR PLAN - CLASSIFICATION/TRAVEL DISTANCE
SCALE: 3/32" = 1'-0"



2 PIPE GALLERY SERVICE ZONE - CLASSIFICATION/TRAVEL DISTANCE
SCALE: 3/32" = 1'-0"

LEGEND

- TRAVEL DISTANCE
- USE GROUP H-4

APPLICABLE CODE STANDARDS AND REGULATIONS

BUILDING	2015 INTERNATIONAL BUILDING CODE (IBC) 780 CMR - MASSACHUSETTS STATE BUILDING CODE 9TH EDITION, WHICH IS AN AMENDED VERSION OF THE 2015 IBC
FIRE PROTECTION	527 CMR - BOARD OF FIRE PREVENTION REGULATIONS
PLUMBING	248 CMR - BOARD OF STATE EXAMINERS OF PLUMBERS AND GAS FITTERS
ELECTRICAL	527 CMR 12.00 - MASSACHUSETTS ELECTRICAL CODE, WHICH IS AN AMENDED VERSION OF THE 2017 EDITION OF NFPA 70, NATIONAL ELECTRICAL CODE
MECHANICAL	2015 INTERNATIONAL MECHANICAL CODE (IMC) 271 CMR SHALL APPLY TO ALL SHEET METAL WORK
ENERGY	780 CMR 13.00 - ENERGY EFFICIENCY, WHICH AMENDS 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
ACCESSIBILITY	521 CMR - ARCHITECTURAL ACCESS BOARD (AAB) RULES & REGULATIONS
OTHER	VARIOUS NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES AND STANDARDS AS REFERENCED BY THE CODES LISTED ABOVE

NOT FOR CONSTRUCTION

2021 INTERNATIONAL ENERGY CONSERVATION CODE

SECTION NO.	DESCRIPTION	CONTRACTOR TO PROVIDE, U. N. O.
CHAPTER 4	COMMERCIAL ENERGY EFFICIENCY TABLE C402.1.3: OPAQUE THERMAL ENVELOPE REQUIREMENTS (R-VALUE) ZONE 5A ROOF ATTIC: R-49 WALLS, ABOVE GRADE METAL FRAMED: R-13 + R-10CI WALLS, BELOW GRADE BELOW GRADE WALL: R-7.5CI FLOORS, SLAB ON GRADE UNHEATED SLAB: R-15 FOR 24" BELOW	COMPLIES

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REVISIONS

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY WTF CODE SUMMARY

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

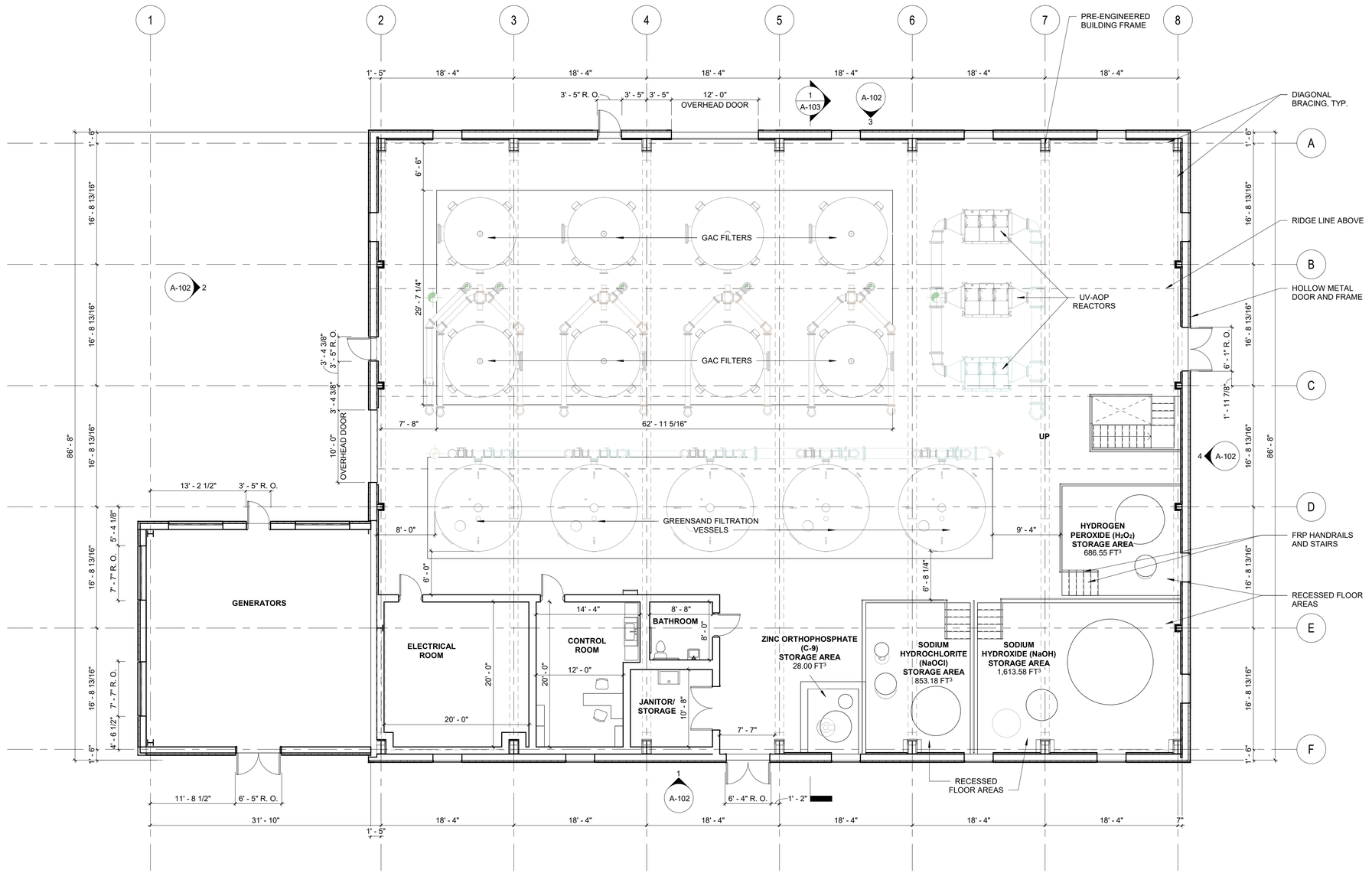
30% PRELIMINARY DESIGN

PROJECT NO.	24003062.001A
ISSUE DATE	06/10/2024
CURRENT REVISION	
DESIGNED BY	EAB
DRAWN BY	JH
CHECKED BY	RB
APPROVED BY	-

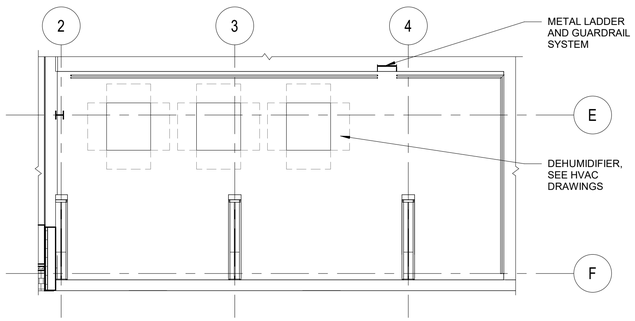
A-002

SHEET 28 of 60

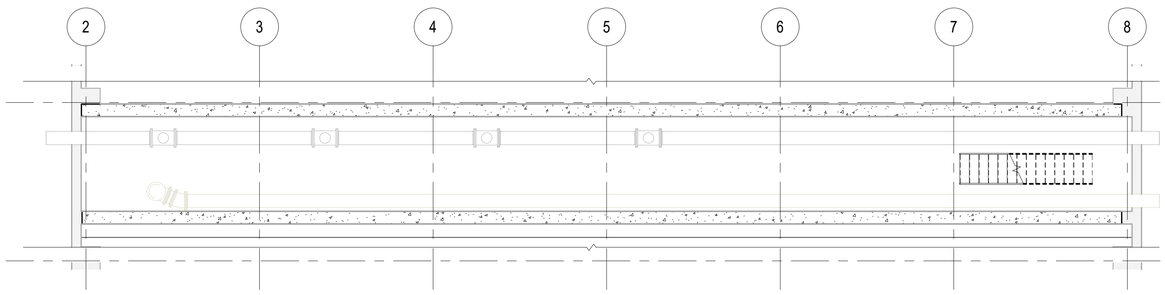
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1 STRAIGHTWAY - FLOOR PLAN
SCALE: 1/8" = 1'-0"



3 EQUIPMENT PLATFORM - FLOOR PLAN
SCALE: 1/8" = 1'-0"



2 PIPE GALLERY SERVICE ZONE - FLOOR PLAN
SCALE: 1/8" = 1'-0"

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STRAIGHTWAY WTF BUILDING FLOOR PLANS

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED 3 MAY A.D. 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

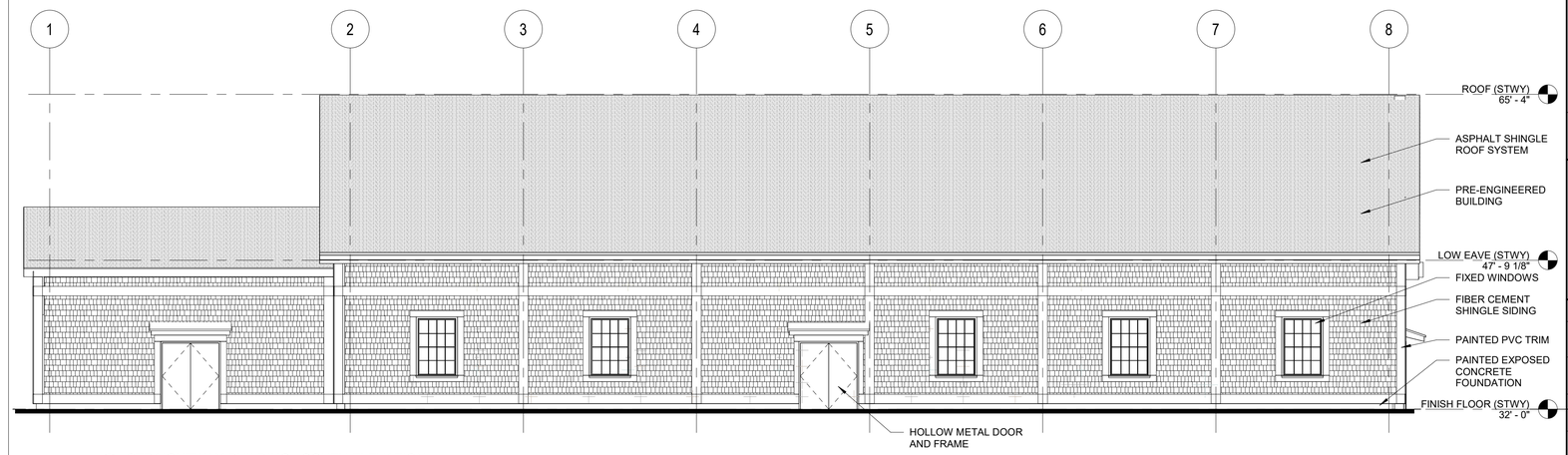
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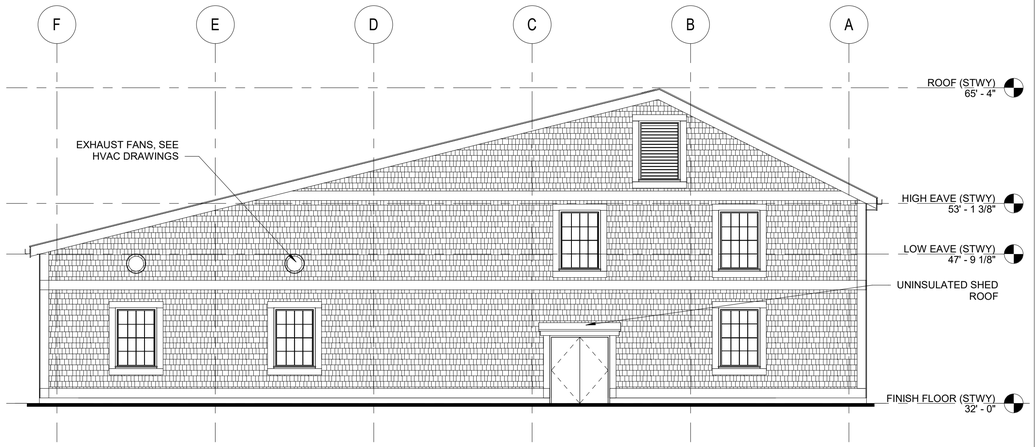
A-101

SHEET 29 of 60

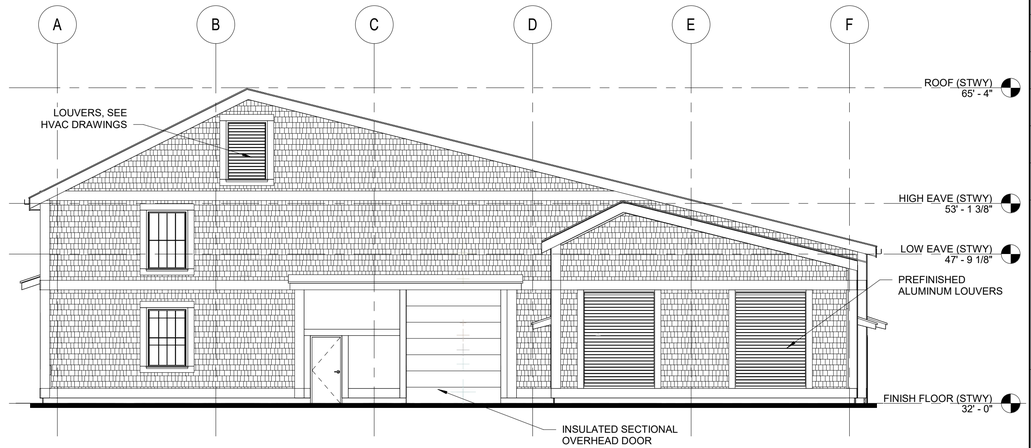
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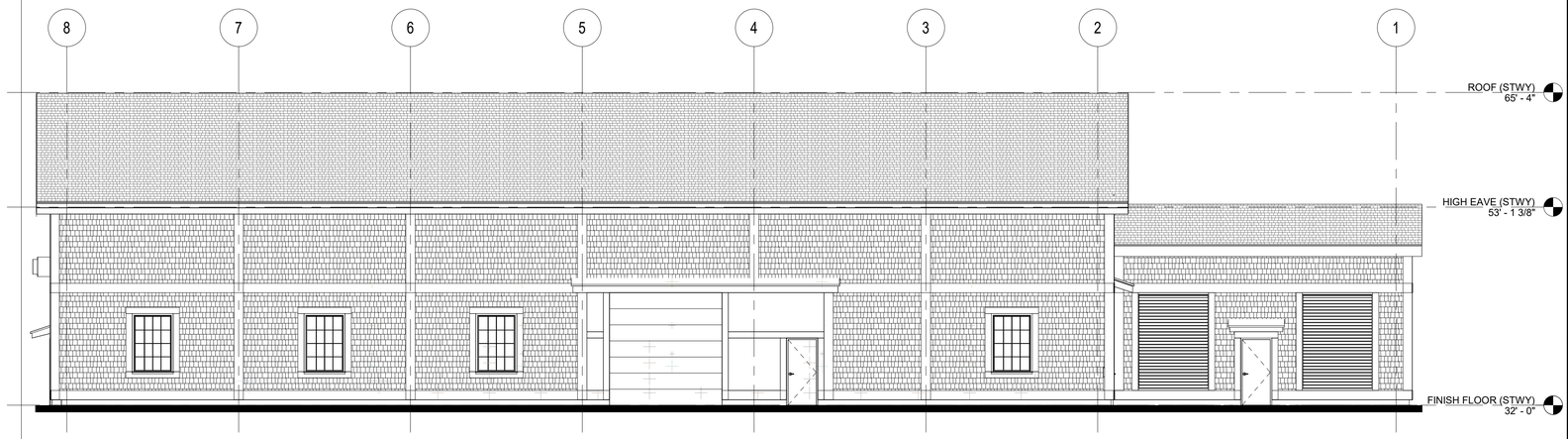
1 STRAIGHTWAY BUILDING - SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



4 STRAIGHTWAY BUILDING - EAST ELEVATION
SCALE: 1/8" = 1'-0"



2 STRAIGHTWAY BUILDING - WEST ELEVATION
SCALE: 1/8" = 1'-0"



3 STRAIGHTWAY BUILDING - NORTH ELEVATION
SCALE: 1/8" = 1'-0"

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STRAIGHTWAY WTF BUILDING ELEVATIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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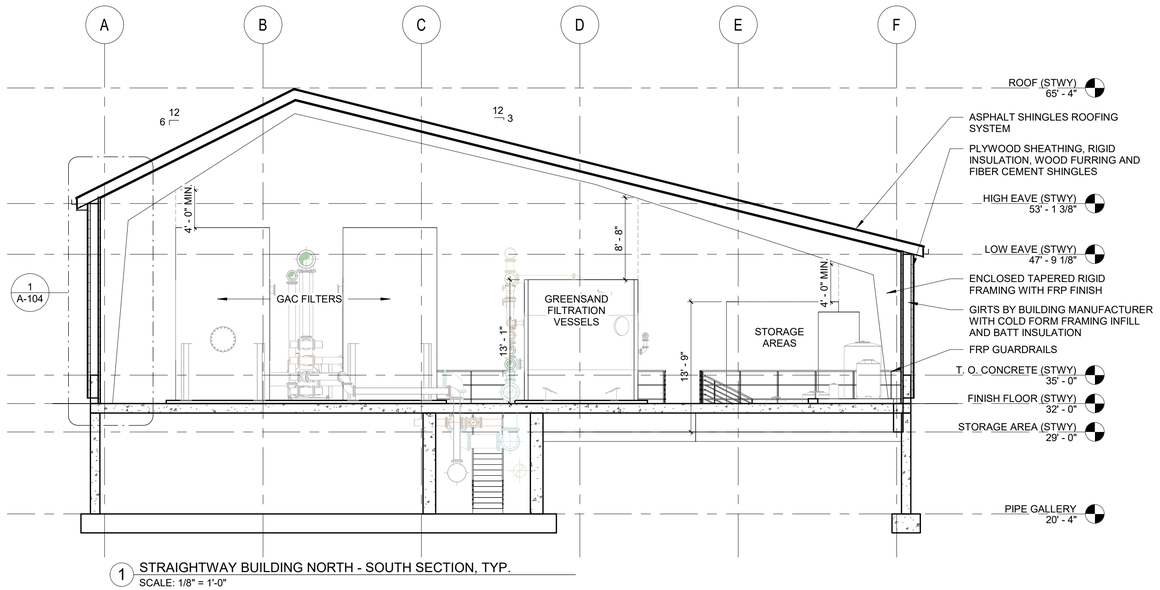
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APPROVED BY	--

A-102

SHEET 30 of 60

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1 STRAIGHTWAY BUILDING NORTH - SOUTH SECTION, TYP.
SCALE: 1/8" = 1'-0"

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STRAIGHTWAY WTF BUILDING SECTION

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

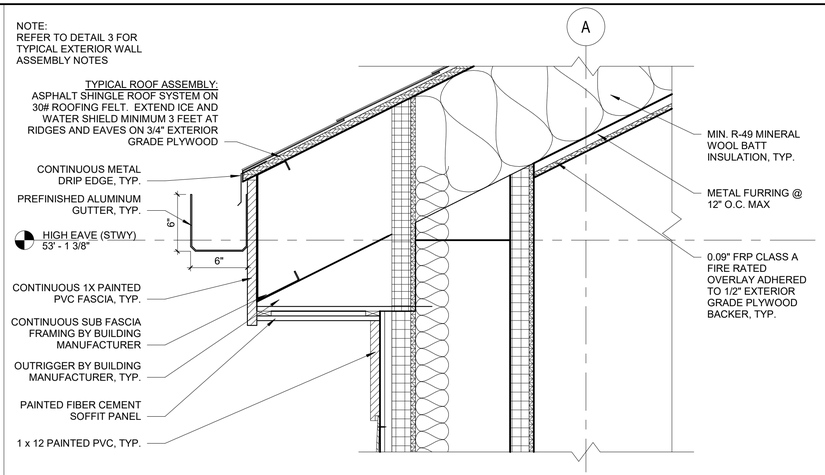
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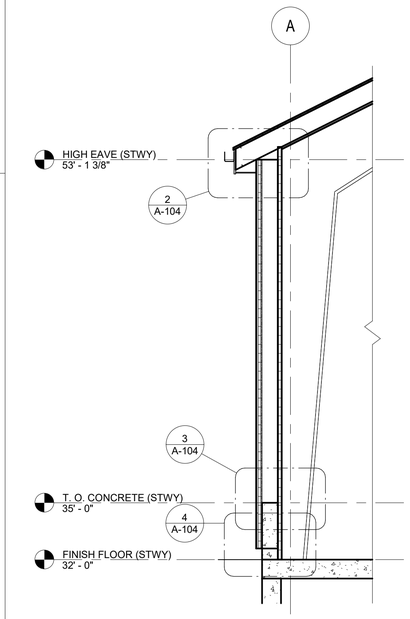
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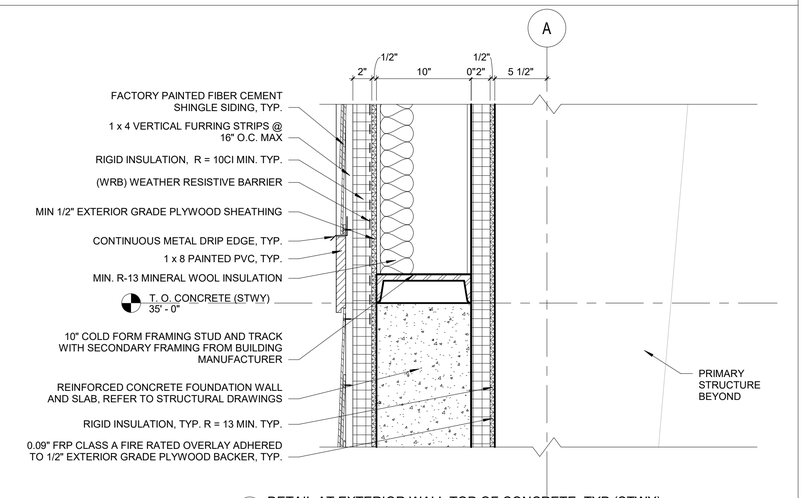
NOTE:
REFER TO DETAIL 3 FOR TYPICAL EXTERIOR WALL ASSEMBLY NOTES



2 DETAIL AT EXTERIOR WALL EAVE, TYP. (STWY)
SCALE: 1 1/2" = 1'-0"

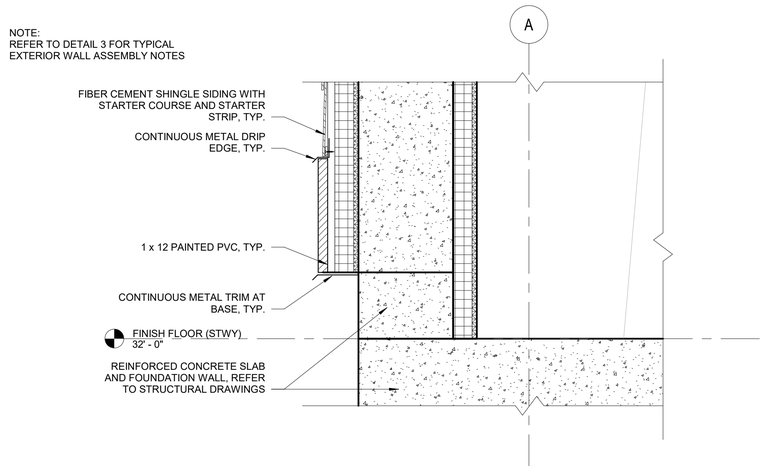


1 SECTION AT TYPICAL WALL
SCALE: 1/4" = 1'-0"



3 DETAIL AT EXTERIOR WALL TOP OF CONCRETE, TYP (STWY)
SCALE: 1 1/2" = 1'-0"

NOTE:
REFER TO DETAIL 3 FOR TYPICAL EXTERIOR WALL ASSEMBLY NOTES



4 DETAIL AT EXTERIOR WALL SLAB, TYP. (STWY)
SCALE: 1 1/2" = 1'-0"

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STRAIGHTWAY WTF BUILDING WALL SECTION & DETAILS

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

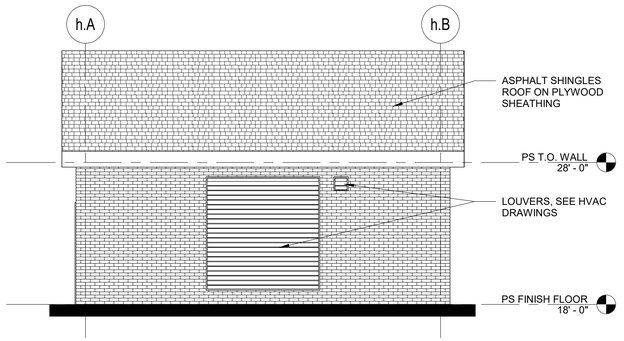
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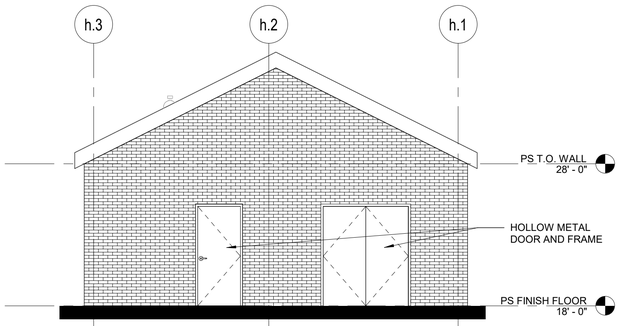
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SHEET 32 of 60

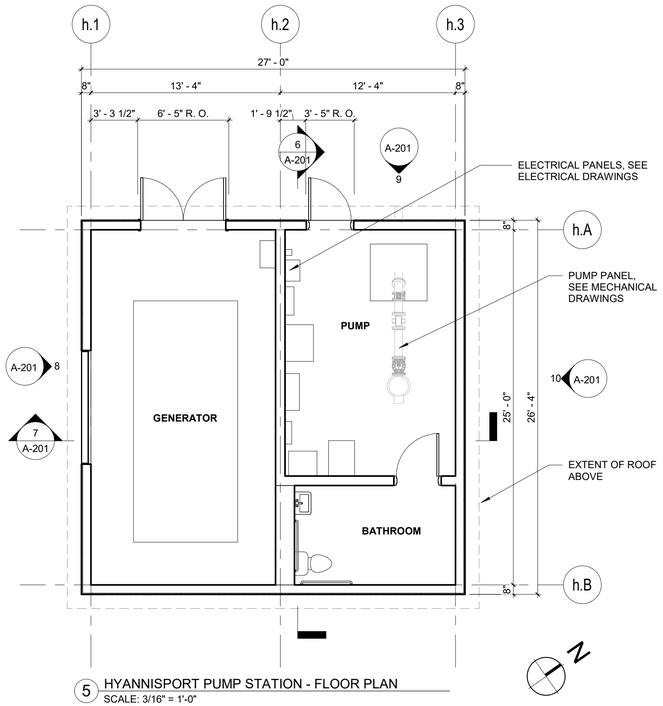
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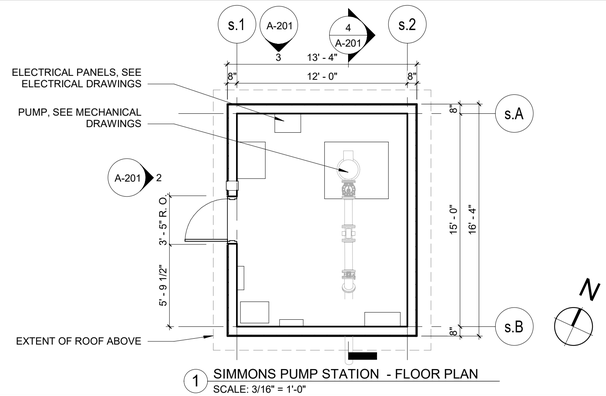
8 HYANNISPORT PUMP STATION - WEST ELEVATION
SCALE: 3/16" = 1'-0"



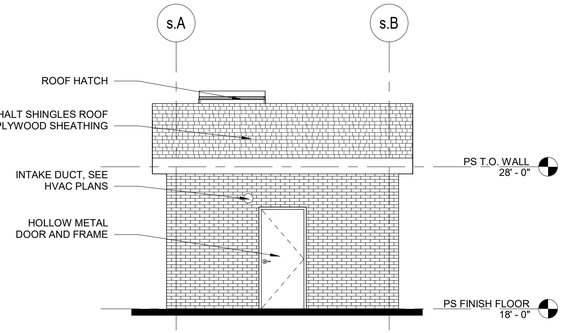
9 HYANNISPORT PUMP STATION - NORH ELEVATION
SCALE: 3/16" = 1'-0"



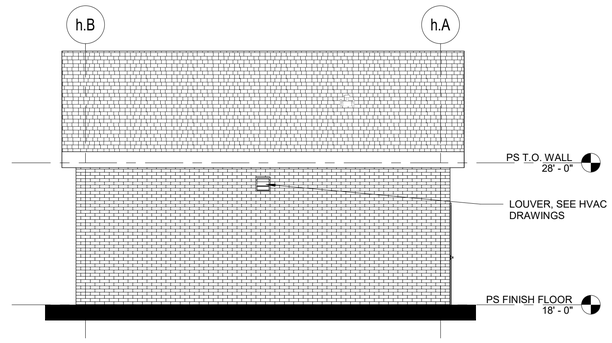
5 HYANNISPORT PUMP STATION - FLOOR PLAN
SCALE: 3/16" = 1'-0"



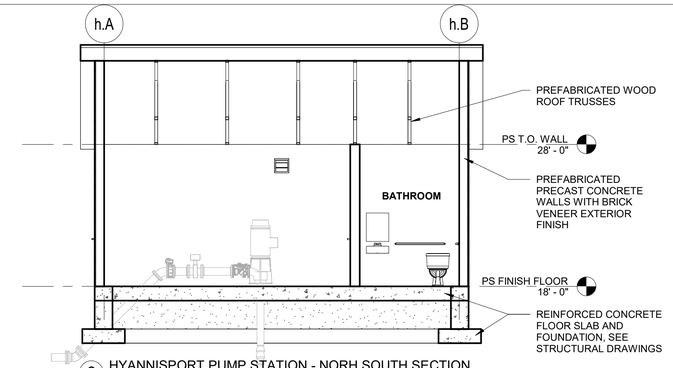
1 SIMMONS PUMP STATION - FLOOR PLAN
SCALE: 3/16" = 1'-0"



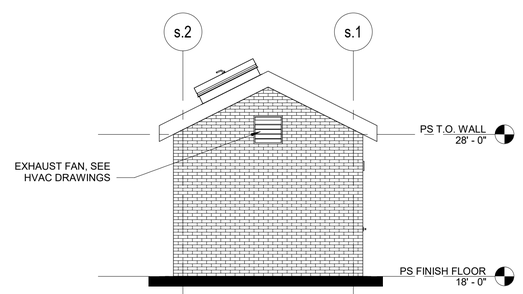
2 SIMMONS PUMP STATION - WEST ELEVATION
SCALE: 3/16" = 1'-0"



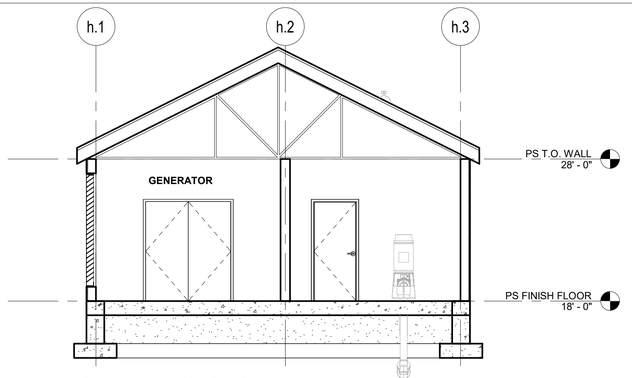
10 HYANNISPORT PUMP STATION - EAST ELEVATION
SCALE: 3/16" = 1'-0"



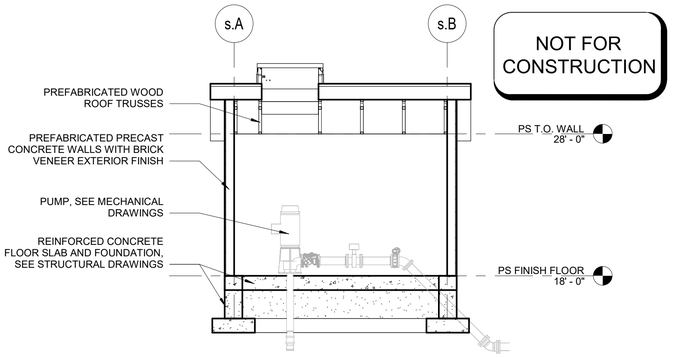
6 HYANNISPORT PUMP STATION - NORH SOUTH SECTION
SCALE: 3/16" = 1'-0"



3 SIMMONS PUMP STATION - NORTH ELEVATION
SCALE: 3/16" = 1'-0"



7 HYANNISPORT PUMP STATION - EAST WEST SECTION
SCALE: 3/16" = 1'-0"



4 SIMMONS PUMP STATION - NORTH SOUTH SECTION
SCALE: 3/16" = 1'-0"

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HYANNISPORT & SIMMONS POND PUMP STATIONS - PLANS, ELEVATIONS & SECTIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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ELECTRICAL SYMBOLS

F1 / 1 a	LINEAR LIGHTING FIXTURES "F1" INDICATES FIXTURE TYPE – TYPICAL FOR ALL FIXTURES "1" INDICATES CIRCUIT NUMBER – TYPICAL FOR ALL FIXTURE "a" INDICATES THE SWITCH CONTROL – TYPICAL FOR ALL FIXTURES
	WALL MOUNTED LIGHTING FIXTURE.
	SURFACE OR PENDANT MOUNTED FIXTURE.
	EMERGENCY EXIT SIGN
	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LIGHT HEADS
	REMOTE EMERGENCY LIGHTING UNIT WITH TWO LIGHTING HEADS PROVIDE 3/4", 2#10, 1#10GND TO NEAREST THE EMEGENCY LIGHTING BATTERY UNIT
S_a	SINGLE POLE SWITCH 120V, 20A "a" INDICATES THE SWITCH CONTROL
S_2	2–POLE SWITCH 120V, 20A 1 POLE FOR ROOM LIGHT FIXTURES, 1–POLE FOR EXHAUST FAN CONTROL
S_{3a}	3–WAY SWITCH 120V, 20A "a" INDICATES THE SWITCH CONTROL
S_{4a}	4–WAY SWITCH 120V, 20A "a" INDICATES THE SWITCH CONTROL
S^{BG}	BREAK GLASSS STATION
TC	DIGITAL TIME CLOCK SWITCH
TM	MECHANICAL TIMER SWITCH
OC	WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR/SWITCH
S	LOW VOLTAGE SWITCH
PM	COMBINATION PHOTOCELL/MOTION DETECTOR SENSOR
OC	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR
GF_1	DUPLEX RECEPTACLE, WEATHER–RESISTANT 120V, 20A WITH WEATHERPROOF COVER, "GF" INDICATES GROUND FAULT TYPE "1" INDICATES CIRCUIT NUMBER – TYPICAL FOR ALL RECEPTACLES
	DUPLEX RECEPTACLE 120V, 20A
WP	(2) DUPLEX (QUAD) RECEPTACLES, 120V, 20A "WP" INDICATES WITH WEATHERPROOF COVER
TL	SIMPLEX RECEPTACLE, WEATHER–RESISTANT 120V, 20A WITH WEATHERPROOF COVER "TL" INDICATES TWIST LOCK TYPE
30	UNFUSED DISCONNECT SWITCH, "30" INDICATES 30 AMP RATING, PROVIDE 3–POLE, UNLESS OTHERWISE INDICATED.
F 20	FUSED DISCONNECT SWITCH, "20" INDICATES 20 AMP FUSE RATING, PROVIDE 3–POLE UNLESS OTHERWISE INDICATED.
	3–PHASE RECEPTACLE
MCP / FVNR	WALL MOUNTED COMBINATION MOTOR STARTER WITH MOTOR CIRCUIT PROTECTOR, "FVNR" INDICATES TYPE OF MOTOR STARTER
MCP / FVNR	MOTOR STARTER WITH MOTOR CIRCUIT PROTECTOR, "FVNR" INDICATES TYPE OF MOTOR STARTER
	MOTOR CONTACTOR
VFD	ENCLOSED VARIABLE FREQUENCY DRIVE
Sm	MANUAL MOTOR STARTER 120V, 20A
J	JUNCTION BOX
HH	NON–UTILITY POLYMER CONCRETE HAND HOLE
AR1	ALARM RELAY, "AR1" REFERS TO RELAY NAME DESIGNATION
CR1	CONTROL RELAY, "CR1" REFERS TO RELAY NAME DESIGNATION
M	MOTOR START RELAY
TR1	TIMING RELAY, "TR1" REFERS TO RELAY NAME DESIGNATION

ELECTRICAL SYMBOLS

	NORMALY OPEN RELAY CONTACT
	NORMALLY CLOSED RELAY CONTACT
	OPERATOR PUSH BUTTON NORMALLY OPEN CONTACT
	OPERATOR PUSH BUTTON NORMALLY CLOSED CONTACT
	PRESSURE SWITCH – CLOSES ON HIGH PRESSURE
	PRESSURE SWITCH – CLOSES ON LOW PRESSURE
	UNDERGROUND CONDUIT DUCT BANK
LP1(1)	HOMERUN DESIGNATION TO PANEL LP1 CIRCUIT #1, WITH THE FOLOWING CONDUIT/WIRES UNLESS OTHERWISE NOTED: • 3/4"C WITH 2#12, 1#12GND FOR 20AMP SINGLE PHASE CIRCUITS AND ELECTRIC UNIT HEATER THERMOSTAT CONTROL • 3/4"C WITH 3#12, 1#12GND FOR 20AMP THREE PHASE CIRCUITS. • 3/4"C WITH 2#10, 1#10GND FOR 30AMP SINGLE PHASE CIRCUITS. • 3/4"C WITH 3#10, 1#10GND FOR 30AMP THREE PHASE CIRCUITS. • 3/4"C WITH 2#8, 1#10GND FOR 40AMP & 50AMP SINGLE PHASE CIRCUITS. • 3/4"C WITH 3#8, 1#10GND FOR 40AMP & 50AMP THREE PHASE CIRCUITS.
	EYS TYPE CONDUIT SEAL
SPD	SURGE PROTECTION DEVICE
	UTILITY POLE
E	UTILITY HANDHOLE, "E" REPRESENTS ELECTRICAL HANDHOLE, "C" REPRESENT COMMUNICATION HANDHOLE
20 / 100 / GFCI	MOLDED CASE CIRCUIT BREAKER, 3–POLE UNLESS OTHERWISE INDICATED, "20" INDICATES TRIP AMPERE RATING, "100" INDCATES FRAME SIZE, "GFCI" INDICATES CIRCUIT BREAKER TO HAVE GROUND FAULT CIRCUIT INTERRUPT
	DRY TYPE TRANSFORMER
	3/4"ø X 10'–0" COPPER CLAD GROUND ROD
	BUILDING GROUNDING SYSTEM
10	MOTOR, "10" INDICATES HORSEPOWER RATING
XX	CABLE/CONDUIT DESIGNATION, "XX" REFERS CABLE CONDUIT REFERENCE, REFER TO CABLE/CONDUIT AND DUCT/CABLE SCHEDULES.
OS–XXXX / YYY	OPERATOR STATION (SUPPLIED BY DIV. 16 UNO), "XXXX" REFERS TO TAGNAME ID, "YYY" REFERS TO THE TYPE OF OPERATOR STATION
XX–XXXX	UNLESS OTHERWISE NOTED INSTRUMENATION OR PROCESS EQUIPMENT (SUPPLIED BY OTHER DIVISIONS) "XX–XXXX" REFERS TO TAGNAME ID
E	GENERATOR EMERGENCY STOP
0	OCCUPIED/UNOCCUPIED SELECTOR SWITCH. (SUPPLIED BY DIV. 16)
T	THERMOSTAT (SUPPLIED BY DIV. 15)
M	MOTOR OPERATED DAMPER (SUPPLIED BY DIV. 15)
S	MANUAL WALL SWITCH (BY DIV. 15)
S	REFRIGERANT SENSOR (BY DIV. 15)
MPCP	METERING PUMP CONTROL PANEL (SUPPLIED BY DIV. 11)
CFS–XXX	CHEMICAL FILL STATION (SUPPLIED BY DIV. 13)
ISBP	INTRINSICALLY SAFE BARRIER PANEL (SUPPLIED BY DIV. 13)
F / XKW	ELECTRIC UNIT HEATER, "X" INDICATES UNIT ELECTRIC COIL RATING (SUPPLIED BY DIV. 15)
XXX / 1 / P11–LP (21)	EQUIPMENT CIRCUIT NUMBER DESIGNATION TO PANEL LP1–LP CIRCUIT #21,

FIRE ALARM / SECURITY SYSTEM SYMBOLS

F	MANUAL FIRE ALARM STATION
F	FIRE ALARM AUDIO/VISUAL DEVICE
F V	FIRE ALARM VISUAL ONLY DEVICE
FH	FIRE ALARM BEACON
S	SMOKE DETECTOR
S_D	DUCT SMOKE DETECTOR
	REMOTE TEST STATION AND ALARM FOR DUCT SMOKE DETECTOR
H	HEAT DETECTOR, COMBINATION RATE–OF–RISE AND FIXED TEMPERATURE
C	CARBON MONOXIDE DETECTOR
M	INPUT MONITORING MODULE
C	RELAY CONTROL MODULE
FACP	FIRE–SECURITY ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
DACT	CELLUAR DIGITAL ALARM COMMUNICATOR TRANSMITTER
	MASTER BOX
K	KEY DEPOSITORY – KNOX BOX
FS	FLOW SWITCH
TS	TAMPER SWITCH
B	24V ELECTRIC SPRINKLER BELL, PROVIDED BY FIRE PROTECTION FSB, PROVIDE AND MOUNT IN WEATHERPROOF BACKBOX
DS	MAGNETIC DOOR SWITCH
KP	KEY PAD
SH	SECURITY ALARM CONTROL PANEL

TELE/DATA & CCTV SYMBOLS

1T 2D	WALL MOUNTED DATA OUTLET, 2D INDICATES (2) CAT6 TERMINAL DATA CONNECTORS, 1T INDICATES (1) CAT6 TERMINAL TELEPHONE CONNECTOR
CCTV	CLOSED CIRCUIT TELEVISION CAMERA
DVRS	DIGITAL VIDEO RECORDING SERVER
POES	POWER OVER ETHERNET SWITCH
UPS	UNINTERRUPTIBLE POWER SUPPLY

CHEMICAL ALARM SYSTEM SYMBOLS

C	MANUAL CHEMICAL ALARM STATION
C	CHEMICAL ALARM AUDIO/VISUAL DEVICE
CACP	CHEMICAL ALARM CONTROL PANEL

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ELECTRICAL LEGEND

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

PROJECT NO.	20233667.002A
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GENERAL NOTES

1. GENERAL CONTRACTOR TO PROVIDE CONCRETE MOUNTING AND HOUSEKEEPING PADS ON ALL FLOOR OR GRADE MOUNTED ELECTRICAL EQUIPMENT, THE FOLLOWING EQUIPMENT IS THE MINIMUM REQUIREMENT FOR HOUSEKEEPING PADS. ADDITIONAL PADS MAYBE REQUIRED BASED ON THE ELECTRICAL CONTRACTORS MOUNTING METHODS, ELECTRICAL CONTRACTOR SHALL COORDINATE WITH GENERAL CONTRACTOR FOR ALL HOUSEKEEPING PAD SIZES AND LOCATIONS.
   1.1. DRY TYPE TRANSFORMERS
2. ALL CONDUIT AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
3. BONDING JUMPERS, CONDUIT CLAMPS AND POINTS OF ATTACHMENT ARE NOT SHOWN ON DRAWINGS. SIZE BONDING JUMPERS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. THE POINTS OF ATTACHMENT OF THE GROUND CLAMPS SHALL BE ACCESSIBLE LOCATIONS.
4. EQUIPMENT & CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. EXPOSED CONDUITS SHALL BE INSTALLED PARALLEL TO BEAMS AND WALLS.
5. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTIONS TO MOTORS AND OTHER EQUIPMENT.
6. NO CONDUIT SMALLER THAN 3/4" PIPE SIZE NOR WIRE SMALLER THAN NO. 12 A.W.G. SHALL BE USED UNLESS OTHERWISE NOTED.
7. RECEPTACLES AND SWITCHES SHALL BE MOUNTED 45" ABOVE FINISHED FLOOR.
8. THE WIRING AND BLOCK DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL AND PROCESS EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.

DEMOLITION NOTES

1. UNLESS OTHERWISE NOTED, ALL EXISTING ELECTRICAL SYSTEMS (POWER, LIGHTING, LOW VOLTAGE, CONTROLS, ETC) AND ASSOCIATED EQUIPMENT INDICATED WITH HATCH MARKS IS TO BE DEMOLISHED. DISCONNECT AND DE-ENERGIZE THE EQUIPMENT. REMOVE THE EQUIPMENT TO BE DEMOLISHED OR SALVAGED PER SECTION 02050. ALL CONTROL DEVICES, CONDUIT, CABLING, BOXES, SUPPORTS, ETC, ASSOCIATED WITH THE DEMOLISHED EQUIPMENT SHALL BE REMOVED. THE CONDUIT AND CABLING SHALL BE REMOVED BACK TO SOURCE.
2. NO DEVICE OR EQUIPMENT INDICATED FOR DEMOLITION WILL BE REUSED OR SALVAGED UNLESS SPECIFICALLY NOTED AS SUCH. ALL EQUIPMENT REMOVED SHALL BE REMOVED FROM SITE AND PROPERLY DISPOSED OF, PRIOR TO REMOVAL OF EQUIPMENT COORDINATE WITH OWNER FOR ANY EQUIPMENT THE OWNER WILL KEEP.
3. EXISTING EQUIPMENT INDICATED ON THE DEMOLITION PLANS ARE BASED ON SITE OBSERVATIONS AND IT IS NOT THE INTENTION OF THESE DRAWINGS TO SHOW ALL EQUIPMENT AND MATERIALS TO BE DISCONNECTED AND/OR REMOVED.
4. ALL UNDERGROUND CONDUIT SHALL BE CUT BELOW GRADE, CAPPED AND BACKFILLED WITH DIRT TO MATCH GRADE. ALL CONDUIT STUBBING UP FROM CONCRETE SLAB SHALL BE CUT AND CAPPED AND SLAB LEVEL. ALL WIRING SHALL BE REMOVED COMPLETELY.

ABBREVIATIONS

(2)1"C, 3#8, #10GND	2, 1-INCH CONDUITS EACH CONDUIT CONTAINING 3-#8 AWG WIRES AND 1-#10 GROUND CONDUCTOR
3/4" CE	EMPTY CONDUIT. NUMERAL DENOTES SIZE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AR	ALARM RELAY
ATS	AUTOMATIC TRANSFER SWITCH
CR	CONTROL RELAY
CP	CONTROL PANEL
DRG. DWG.	DRAWING
EAN	EXCEPT AS NOTED
EC	ELECTRICAL CONTRACTOR
ETM	ELAPSED TIME METER
FE	FLOW ELEMENT
FIT	FLOW INDICATOR TRANSMITTER
FS	FLOW SWITCH
FT	FLOW TRANSMITTER
FVNR	FULL VOLTAGE NON-REVERSING
GND, GRD	GROUNDING CONDUCTOR (EQUIPMENT)
HOA	HAND-OFF-AUTOMATIC
HH	HANDHOLE
J OR JB	JUNCTION BOX
JPB	JOG PUSHBUTTON
LE	LEVEL ELEMENT
LIT	LEVEL INDICATOR TRANSMITTER
LL	LOW LEVEL
LS	LEVEL SWITCH
LT	LEVEL TRANSMITTER
MC	MOTOR CONTROLLER (STARTER)
MCC	MOTOR CONTROL CENTER
MH	MANHOLE
MFR	MANUFACTURER
MS	MOTION OR MOISTURE SENSOR
NTS	NOT TO SCALE
OEM	ORIGINAL EQUIOPMENT MANUFACTURE SUPPLIED
OH	OVERHEAD
OL	MOTOR OVERLOAD HEATER
OS	OPERATOR STATION
PB	PUSHBUTTON CONTROL STATION MOMENTARY CONTACT TYPE, STOP START
PBE	PUSHBUTTON CONTROL STATION MAINTAINED EMERGENCY STOP TYPE, TWIST TO RELEASE
PBL	PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP-START
PBM	PUSHBUTTON CONTROL STATION MAINTAINED CONTACT TYPE, STOP START
PIT	PRESSURE INDICATOR TRANSMITTER
PL	PUSHBUTTON CONTROL STATION MOMENTARY TYPE WITH LOCK-OUT DEVICE, STOP
RGS	RIGID GALVANIZED STEEL
RVNR	REDUCED VOLTAGE NON-REVERSING
SPD	SURGE SUPPRESSOR DEVICE
SOV	SOLENOID VALVE
S/S	SOFT STARTER
TB	TERMINAL BOX
TD	MOTOR TEMPERATURE DETECTOR
TR	TIMING RELAY
TS	TEMPERATURE SWITCH
TSP	TWISTED SHEILDED PAIR
TSTW	TWO SPEED TWO WINDING
TYP	TYPICAL
UG	UNDERGROUND
UNO	UNLESS OTHERWISE NOTED
VFD	VARIABLE FREQUENCY DRIVE
WP	WATER PROOF
WHM	WATT HOUR UTILITY METER
XFMR	TRANSFORMER

POWER CABLE/CONDUIT SCHEDULE

SYMBOL	CONDUIT SIZE*	CONDUCTORS*	GND*
P22	3/4"	(2)#12	(1)#12
P23	3/4"	(3)#12	(1)#12
P26	3/4"	(6)#12	(1)#12
P32	3/4"	(2)#10	(1)#10
P33	3/4"	(3)#10	(1)#10
P53	3/4"	(3)#8	(1)#10
P54	3/4"	(4)#8	(1)#10
P63	1"	(3)#6	(1)#8
P64	1"	(4)#6	(1)#8
P83	1 1/4"	(3)#4	(1)#8
P84	1 1/4"	(4)#4	(1)#8
P103	1 1/2"	(3)#3	(1)#6
P104	1 1/2"	(4)#3	(1)#6
P113	1 1/2"	(3)#2	(1)#6
P114	1 1/2"	(4)#2	(1)#6
P133	2"	(3)#1	(1)#6
P134	2"	(4)#1	(1)#6
P153	2"	(3)#1/0	(1)#6
P154	2"	(4)#1/0	(1)#6
P173	2 1/2"	(3)#2/0	(1)#6
P174	2 1/2"	(4)#2/0	(1)#6
P203	2 1/2"	(3)#3/0	(1)#4
P204	2 1/2"	(4)#3/0	(1)#4
P233	3"	(3)#4/0	(1)#4
P234	3"	(4)#4/0	(1)#4
P253	3"	(3)250KCMIL	(1)#4
P254	3"	(4)250KCMIL	(1)#4
P404	4"	(4)500KCMIL	(1)#3
P604	(2)3"	(8)350KCMIL	(2)#2/0
P1604	(4)4"	(16)600KCMIL	(4)#4/0

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ELECTRICAL GENERAL NOTES

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 BOSTON MAY 6, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

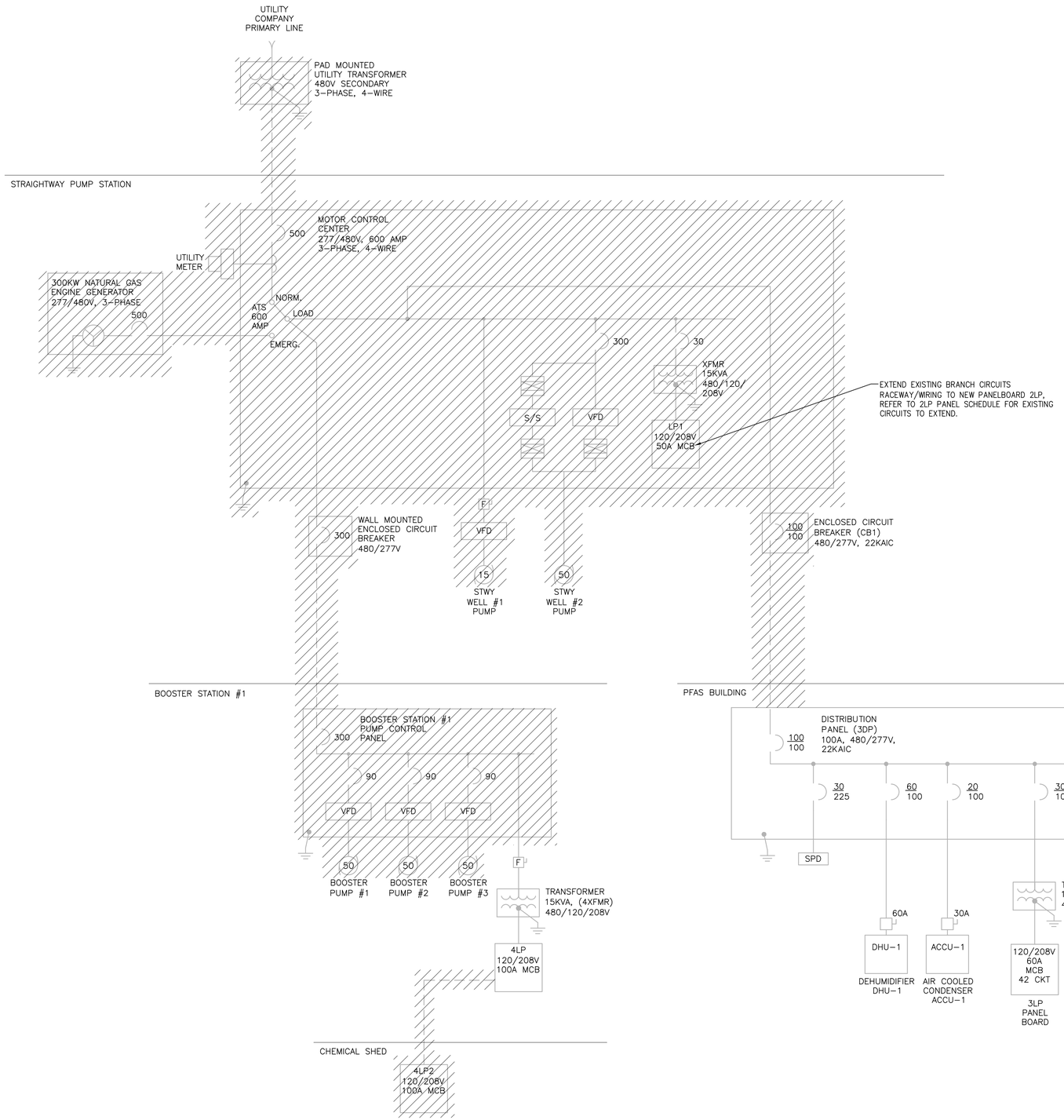
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STRAIGHTWAY PUMP STATION, BOOSTER STATION, AND PFAS BUILDING ONE LINE DIAGRAM

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ELECTRICAL ONE LINE DIAGRAM

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED 1685

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BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

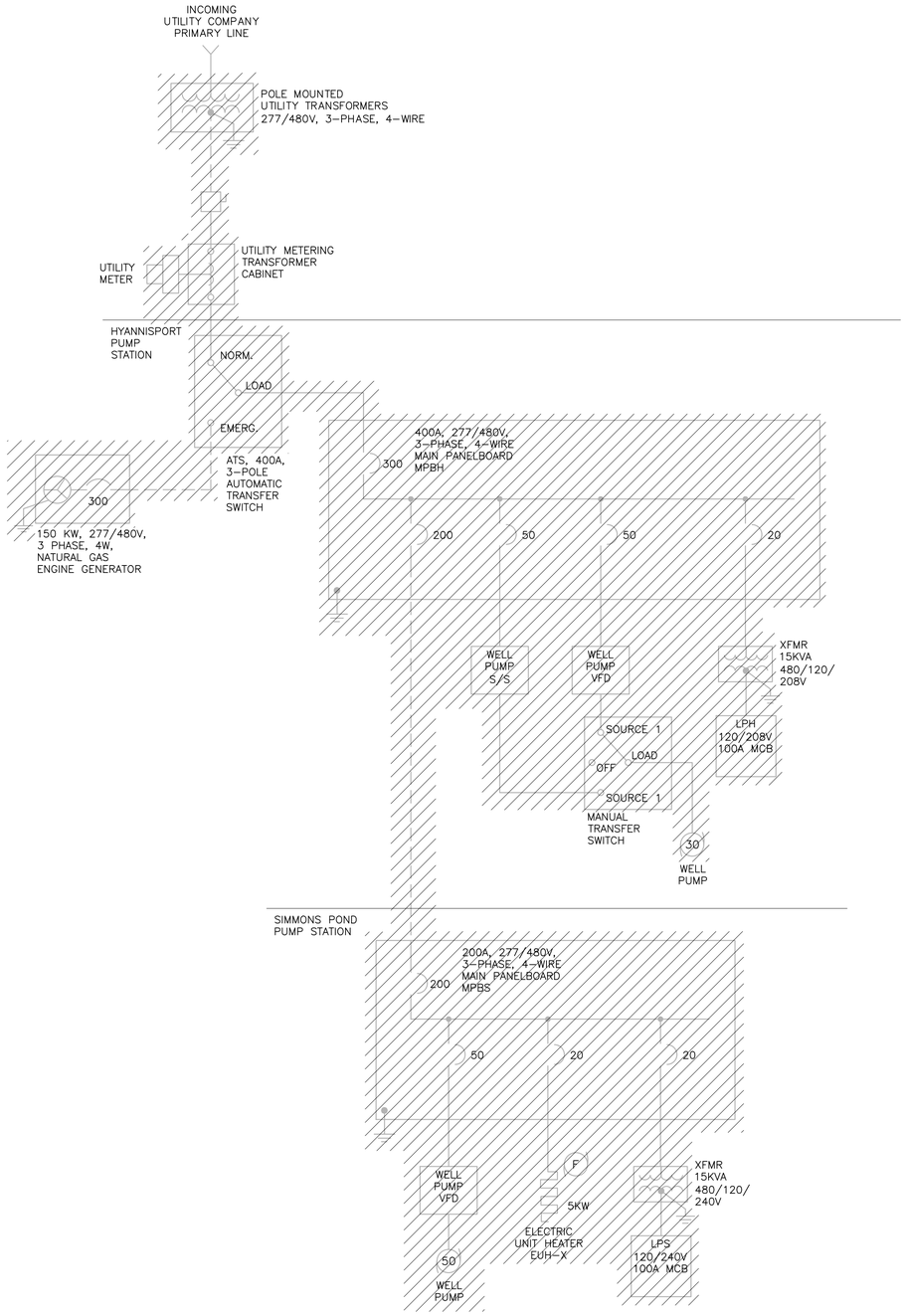
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STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

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BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

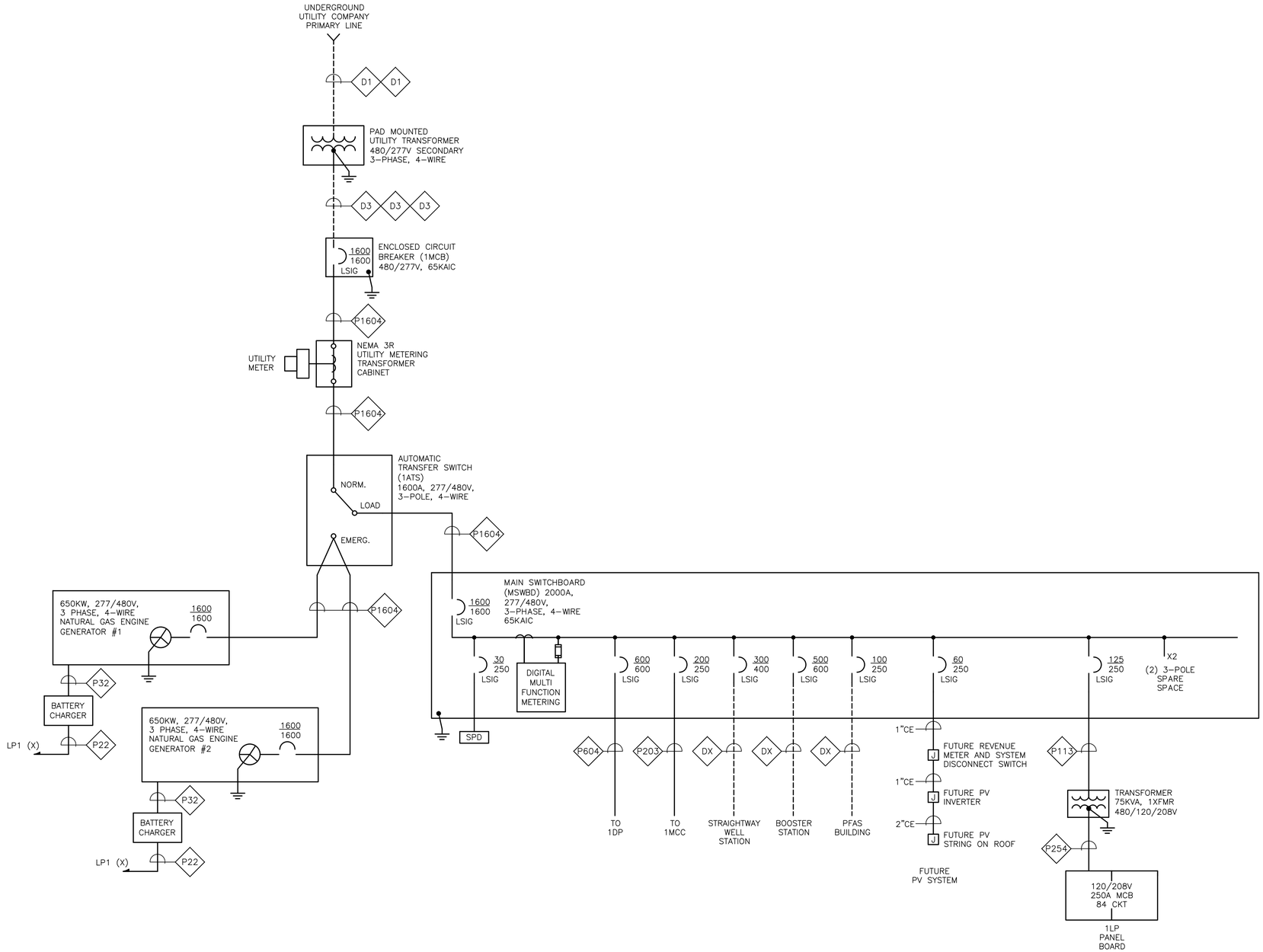
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ELECTRICAL ONE LINE DIAGRAM

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WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 4, 1685

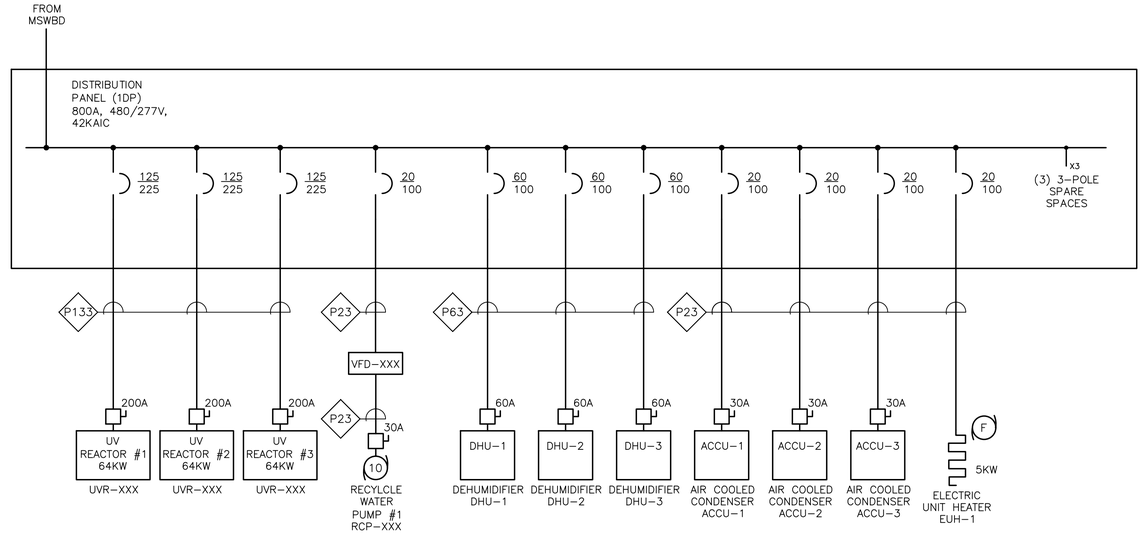
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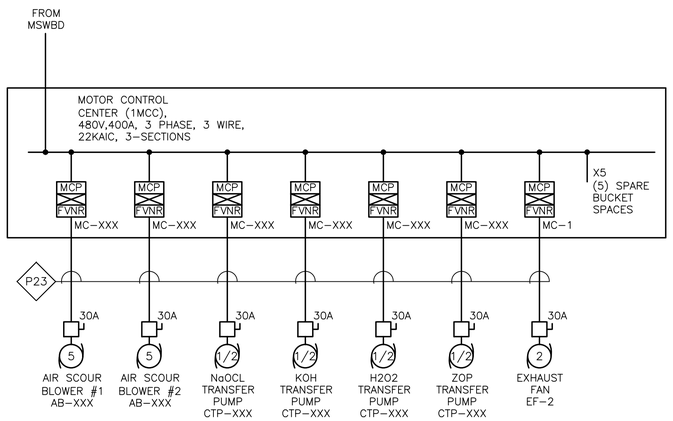
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WTP ONE LINE DIAGRAM - MCC1

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ELECTRICAL ONE LINE DIAGRAM

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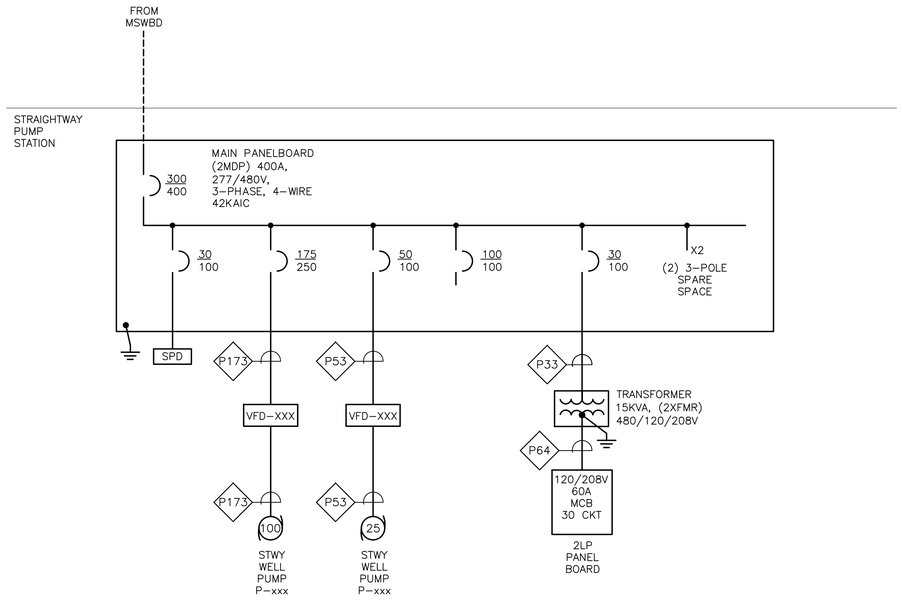
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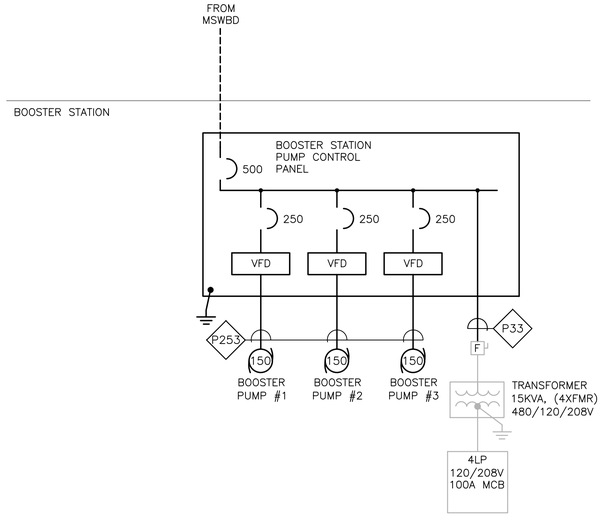
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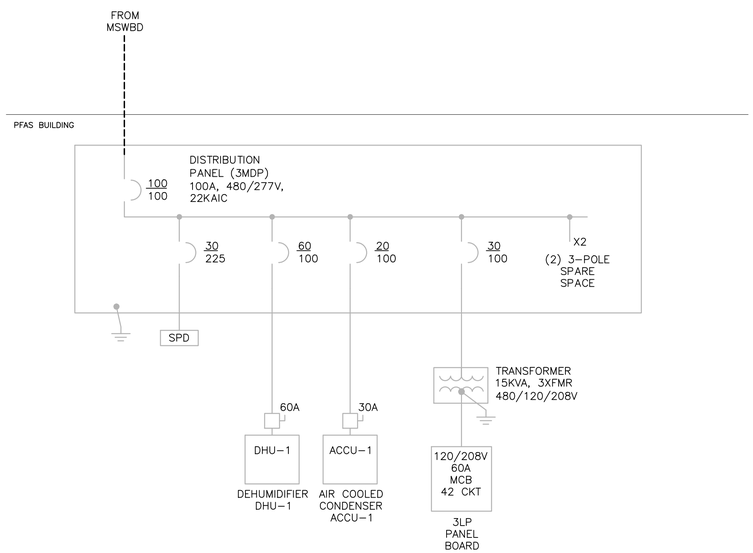
STRAIGHTWAY PUMP STATION ONE LINE DIAGRAM

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BOOSTER STATION ONE LINE DIAGRAM

NOT TO SCALE



PFAS BUILDING ONE LINE DIAGRAM

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ELECTRICAL ONE LINE DIAGRAM

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

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BARNSTABLE DPW - WATER DIVISION
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HYANNIS, MA 02601

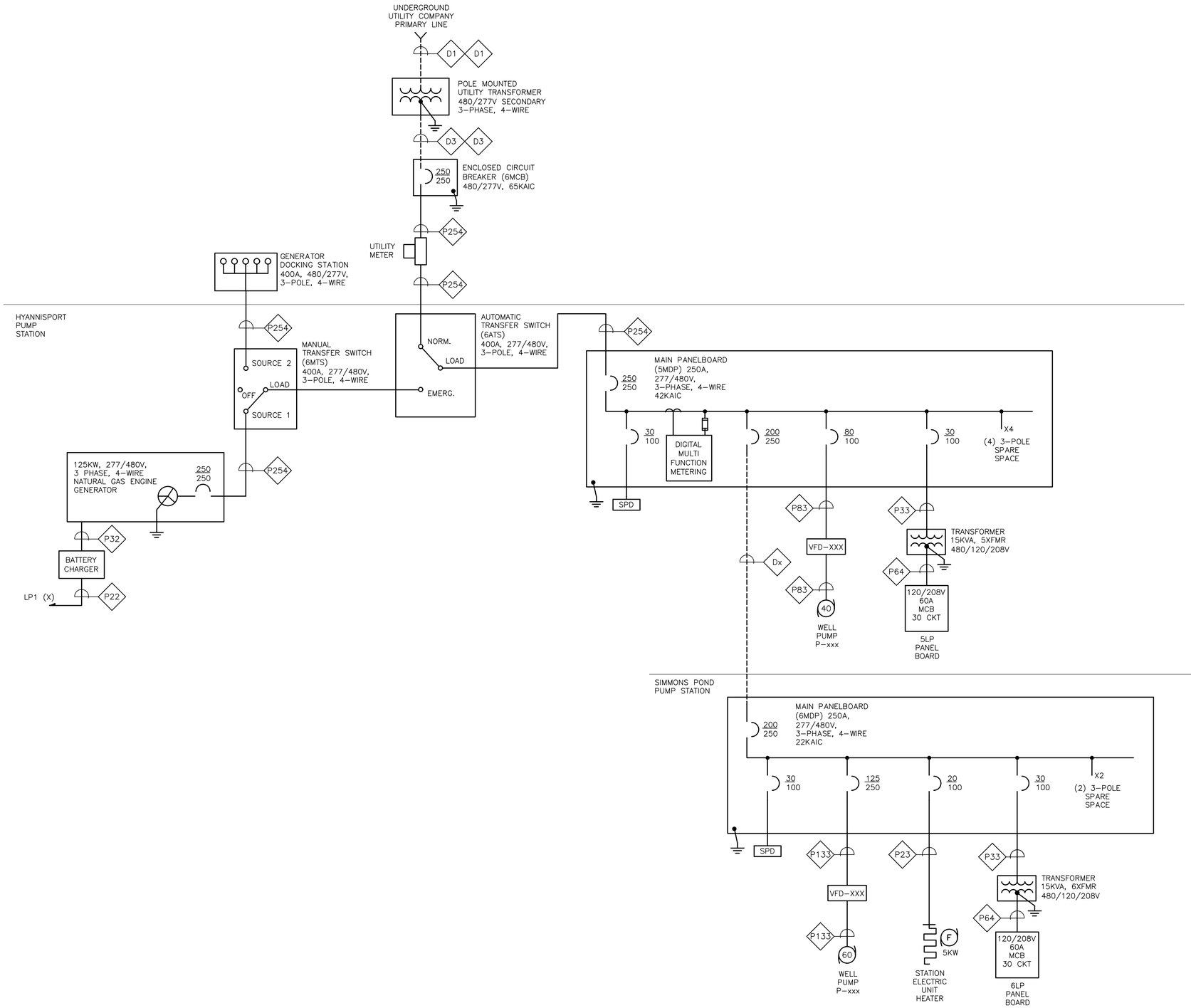
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HYANNISPORT AND SIMMONS POND PUMP STATIONS ONE LINE DIAGRAM

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ELECTRICAL ONE LINE DIAGRAM

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 SERVES & MAY BE HEARD

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

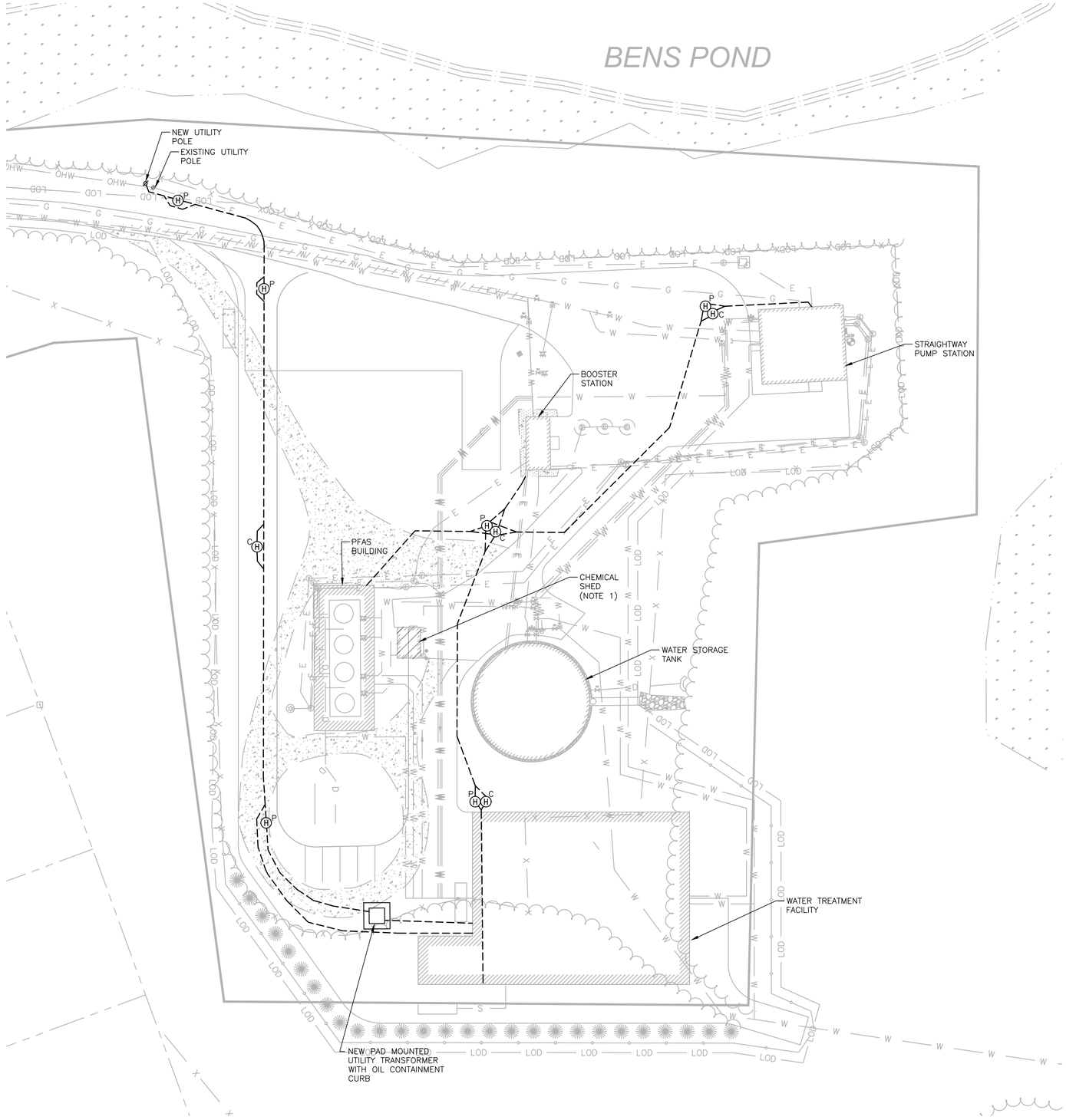
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ISSUE DATE	05/31/2024
CURRENT REVISION	
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E-008

SHEET 41 of 60

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STRAIGHTWAY SITE PLAN

1"=30'-0"

NOTES:

1. DISCONNECT POWER TO BUILDING AND MAKE SAFE FOR DEMOLITION.

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ORIGINAL DRAWING SIZE IS 22 x 34

ELECTRICAL STRAIGHTWAY SITE PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

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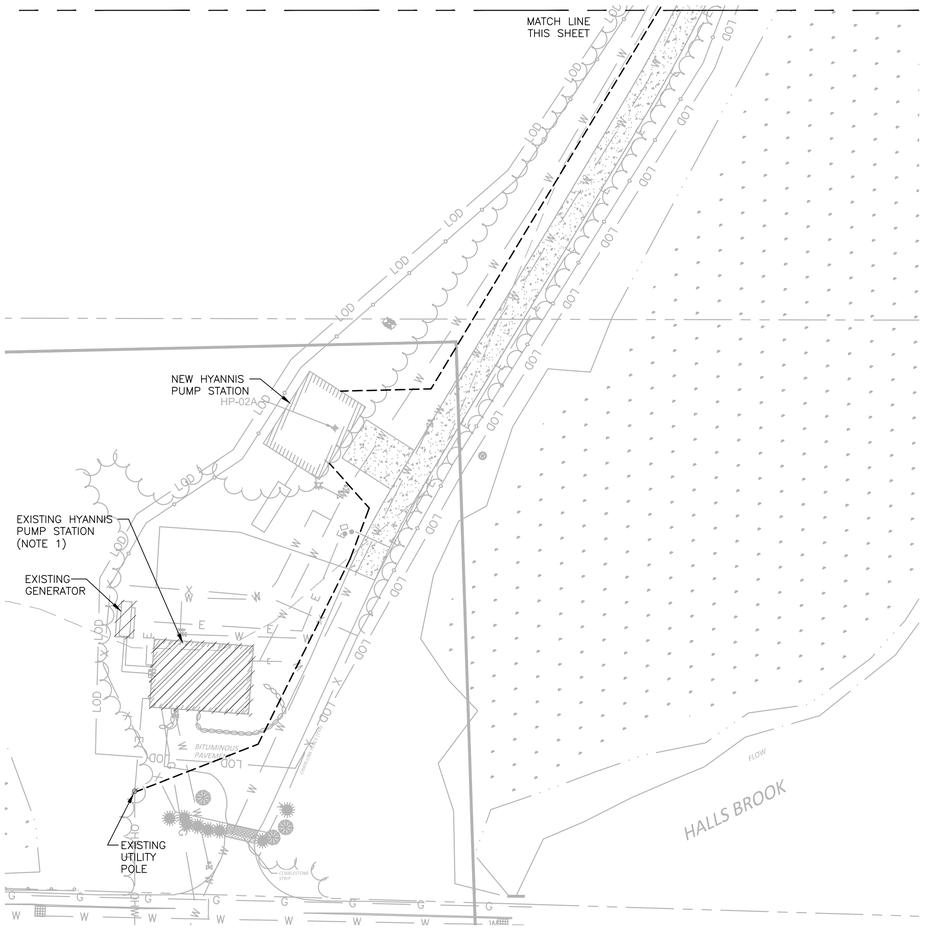
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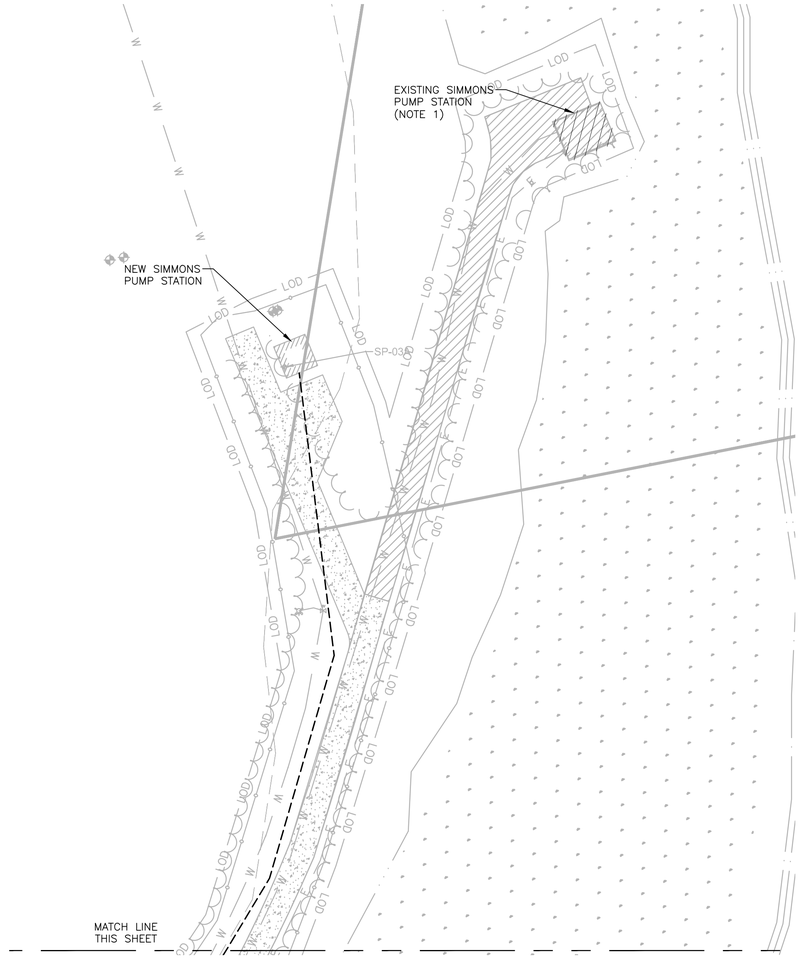
NOTES:

1. DISCONNECT POWER TO BUILDING AND MAKE SAFE FOR DEMOLITION.



HYANNISPORT WELL STATION SITE PLAN

1"=30'-0"



SIMMONS POND WELL STATION SITE PLAN

1"=30'-0"

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ELECTRICAL HYANNIS & SIMMONS WELL STATIONS SITE PLANS

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

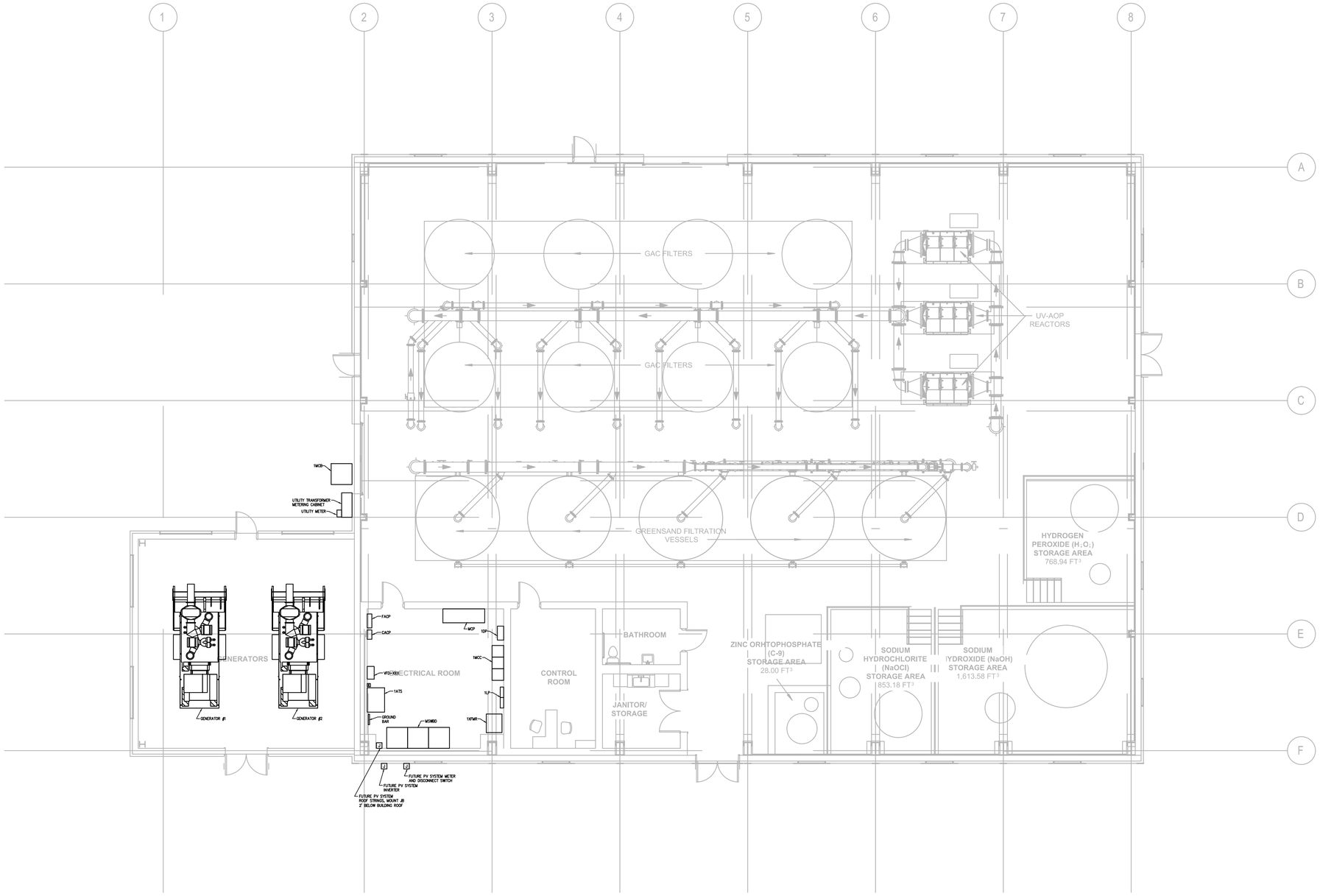
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ELECTRICAL WTP PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

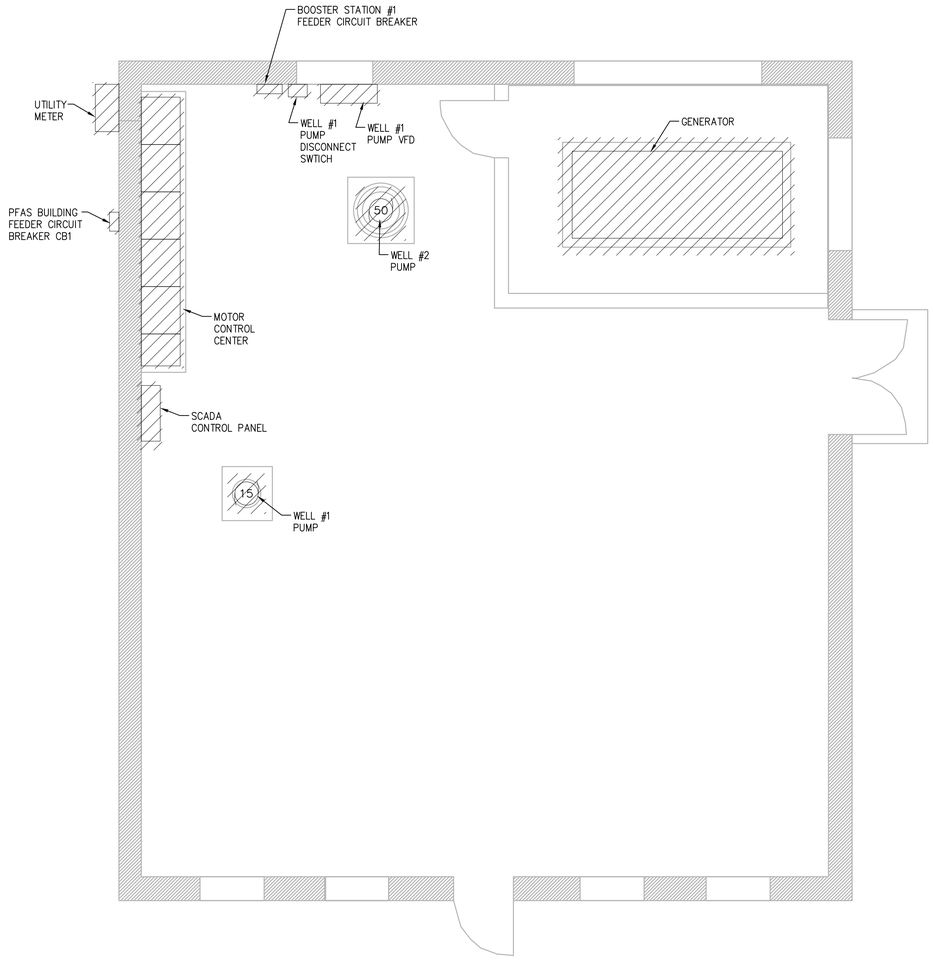
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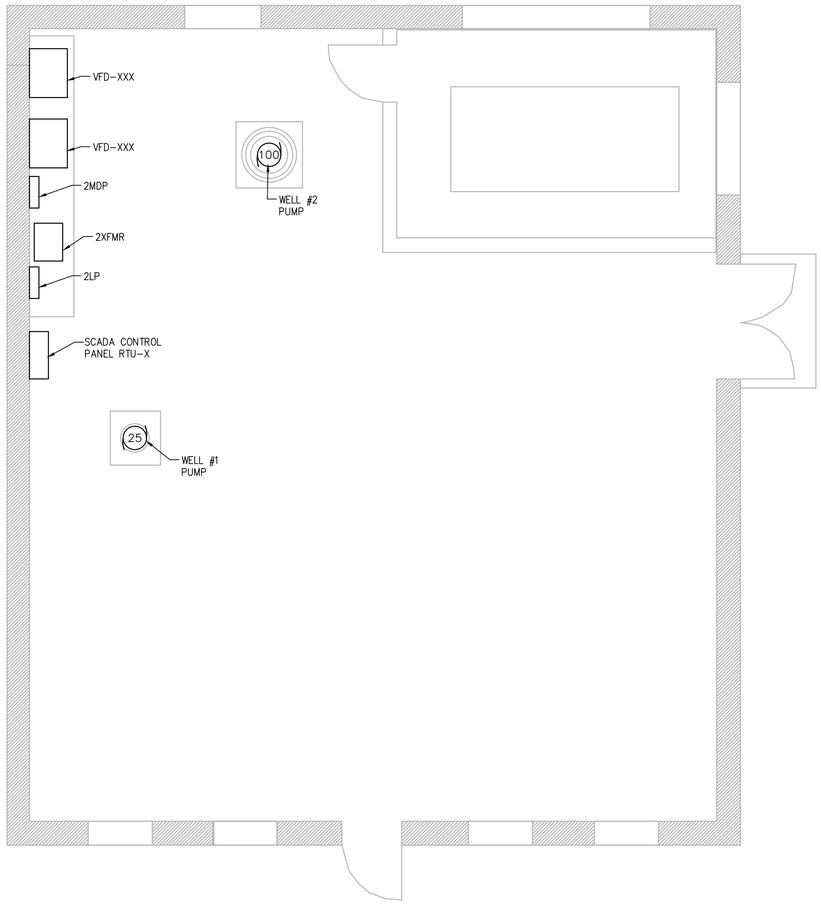
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1 STRAIGHTWAY WELL STATION DEMOLITION PLAN
SCALE: 1/4" = 1'-0"



2 STRAIGHTWAY WELL STATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"

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ELECTRICAL STRAIGHTWAY
WELL STATION PLANS

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
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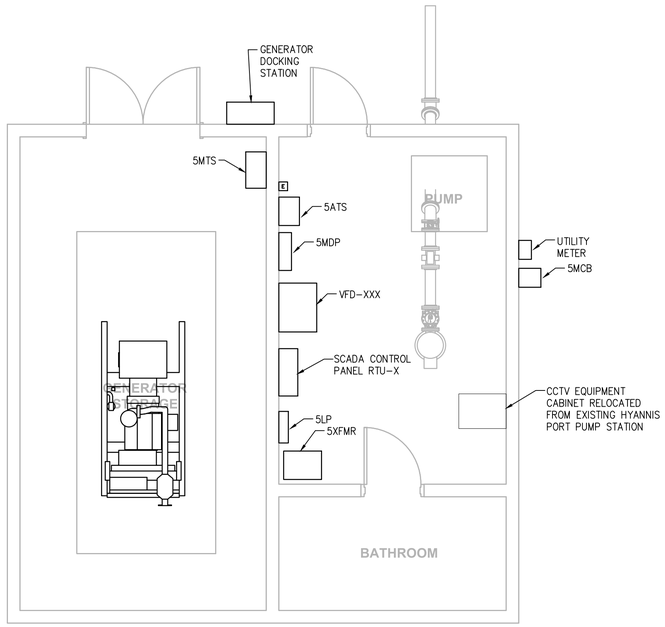
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1 HYANNISPORT WELL STATION NEW WORK PLAN
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ELECTRICAL HYANNISPORT
WELL STATION PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 BOROUGH OF MAY 6, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

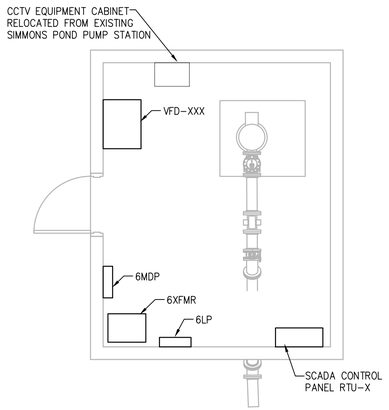
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1 SIMMONS WELL STATION NEW WORK PLAN
SCALE: 1/4" = 1'-0"

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ELECTRICAL SIMMONS WELL STATION PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

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FIRE PROTECTION NOTES

1. THE WORK COVERED CONSISTS OF FURNISHING ALL LABOR AND MATERIALS NECESSARY TO INSTALL, COMPLETE AND READY FOR CONTINUOUS OPERATION, THE FIRE PROTECTION SYSTEMS, APPARATUS AND EQUIPMENT FOR THIS PROJECT.
2. ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THE FIRE PROTECTION SUB-CONTRACT, LABOR AND TESTING PERFORMED HEREIN SHALL BE IN COMPLETE ACCORDANCE WITH THE STATE BUILDING CODE, ALL LOCAL CODES AND REGULATIONS, NATIONAL FIRE PROTECTION ASSOCIATION, INSURANCE REGULATIONS AND REQUIREMENTS GOVERNING SUCH WORK.
3. ANY AND ALL PERMITS REQUIRED FOR INSTALLATION OF ANY MATERIAL SHALL BE OBTAINED AS PART OF THE WORK OF THE SPECIFICATION, INCLUDING ALL FEES OR EXPENSES INCURRED.
4. IT IS THE INTENT OF THESE DOCUMENTS THAT THE ENTIRE BUILDING BE 100% SPRINKLED, INCLUDING ELECTRIC ROOMS.
5. PROVIDE A COMPLETE HYDRAULICALLY CALCULATED SPRINKLER SYSTEM THROUGHOUT THE BUILDING. ALL WORK SHALL BE IN STRICT CONFORMANCE WITH NFPA 13 (2013) AND INCLUDING ALL RULES AND REGULATIONS OF THE LOCAL FIRE DEPARTMENT.
6. SPRINKLERS, PIPING AND THEIR LAYOUT SHOWN ON THE DRAWINGS ARE SCHEMATIC AND ARE SHOWN ON THE DRAWINGS ONLY AS A GUIDE AND AID TO THE CONTRACTOR IN PREPARATION OF THE FABRICATION DRAWINGS. THE SPRINKLERS, PIPING AND THEIR LAYOUT ARE NOT INTENDED TO SHOW EVERY OFFSET AND FITTING. ADDITIONAL OFFSETS AND FITTINGS WILL BE REQUIRED TO BE INSTALLED WHEN COORDINATING WITH ALL TRADES TO AVOID WHERE CONFLICTS MAY OCCUR THAT MAY NOT BE INDICATED ON THE DRAWINGS, SUCH AS, BUT NOT LIMITED TO: BEAMS, COLUMNS, DUCTWORK, LIGHTING, OR PIPING. MODIFICATION TO THE SPRINKLER SPACING WILL BE ALLOWED AT NO COST TO THE PROJECT SUBJECT TO ARCHITECT'S/ENGINEER'S APPROVAL AND CONTINUED COMPLIANCE WITH NFPA 13 (2013).
7. THE FIRE PROTECTION CONTRACTOR SHALL PREPARE WORKING DRAWINGS OF THE SPRINKLER WORK AND OBTAIN APPROVALS FROM THE LOCAL FIRE DEPARTMENT PRIOR TO INSTALLATION.
8. ROUTING OF SPRINKLER MAINS, BRANCHES AND SPRINKLERS SHALL BE THOROUGHLY COORDINATED WITH OTHER TRADES AND THE BUILDING STRUCTURE PRIOR TO SUBMISSION OF COORDINATED SHOP DRAWINGS.
9. SPRINKLERS IN AREAS WITH NO FINISHED CEILING SHALL BE UPRIGHT TYPE, LOCATED AS HIGH AS POSSIBLE. SPRINKLERS SUBJECT TO POTENTIAL PHYSICAL DAMAGE SHALL BE INSTALLED WITH LISTED PROTECTIVE CAGES.
10. SPRINKLERS INSTALLED BELOW SLOPED CEILINGS OR ROOFS, SHALL BE INSTALLED IN STRICT ACCORDANCE TO NFPA 13 (2013) AND SPRINKLER MANUFACTURER'S INSTALLATION LISTING.
11. SPRINKLERS IN AREAS WITH FINISHED CEILING SHALL BE CONCEALED TYPE WITH FACTORY PAINTED COVER PLATES. COVER PLATE COLORS SHALL BE COORDINATED WITH ARCHITECT FOR FINAL APPROVAL OF THE COLOR SELECTION.
12. SPRINKLERS SHALL BE LOCATED ABOVE AND BELOW ALL DUCTWORK GREATER THAN 4'-0" IN WIDTH.
13. MISCELLANEOUS DISCREPANCIES OR OMISSIONS WHICH MIGHT APPEAR ON THE DRAWINGS OR IN THE SPECIFICATIONS WILL NOT RELIEVE THE FIRE PROTECTION SUB-CONTRACTOR OF CODE COMPLIANCE.
14. SPRINKLER PIPING SHALL NOT BE INSTALLED TO PASS OVER ELECTRIC PANELS. PROVIDE SHEET METAL PROTECTIVE SHIELDS OVER ELECTRIC PANELS.
15. SPRINKLERS SHALL BE INSTALLED BELOW ALL STAIRWELL LANDINGS.
16. BACKFLOW PREVENTION DEVICES SHALL BE PROVIDED WITH A HOSE VALVE TEST HEADER ASSEMBLY PIPED TO EXTERIOR OR OTHER ACCEPTED MEANS THAT ALLOWS FOR FULL FLOW TESTING OF SYSTEM DEMAND IN ACCORDANCE WITH NFPA 13 (2013).
17. REFER TO DESIGN NARRATIVE FOR SPRINKLER DENSITY AND AREA OF APPLICATION.
18. IN EXISTING AUTOMATIC SPRINKLER SYSTEMS, REPRESENTATIVE SAMPLES OF SPRINKLERS THROUGHOUT THE BUILDING SHALL BE TESTED AND REPLACED AS REQUIRED IN ACCORDANCE WITH NFPA 25 (2011).

FIRE PROTECTION DESIGN CRITERIA

1. FIRE SUPPRESSION CRITERIA

   A. THE FIRE PROTECTION CONTRACTOR SHALL MAKE PROVISIONS FOR OBTAINING UPDATED HYDRANT FLOW TEST INFORMATION FOR THIS PROJECT. ANY FLOW TEST INFORMATION NOTED IN THE CONTRACT DOCUMENTS ARE CONSIDERED PRELIMINARY. A NEW FLOW TEST SHALL BE REQUIRED AT THIS CONTRACTOR'S EXPENSE.

   B. THE FOLLOWING SPRINKLER DESIGN DENSITIES SHALL BE USED FOR SPRINKLER SYSTEM PIPE SIZING:

LIGHT HAZARD OCCUPANCIES (COMMON AREAS, OFFICES, CORRIDORS, AND BATHROOMS)

DESIGNED FOR 0.10 GPM OVER THE MOST REMOTE 1500 SQUARE FEET.
MAXIMUM SPACING OF 225 SQUARE FEET PER SPRINKLER, UNLESS NOTED OTHERWISE.

INCLUDE 100 GPM FOR INSIDE HOSE STREAM ALLOWANCE AS PART OF THE CALCULATION.
MAXIMUM VELOCITIES SHALL NOT EXCEED 20 FEET PER SECOND.

ORDINARY HAZARD OCCUPANCIES GROUP 1 (STORAGE)

DESIGNED FOR 0.15 GPM OVER THE MOST REMOTE 1500 SQUARE FEET.
MAXIMUM SPACING OF 130 SQUARE FEET PER SPRINKLER, UNLESS NOTED OTHERWISE.

INCLUDE 250 GPM FOR INSIDE HOSE STREAM ALLOWANCE AS PART OF THE CALCULATION.
MAXIMUM VELOCITIES SHALL NOT EXCEED 20 FEET PER SECOND.

ORDINARY HAZARD OCCUPANCIES GROUP 2 (MECHANICAL ROOMS AND STAGE)

DESIGNED FOR 0.20 GPM OVER THE MOST REMOTE 1500 SQUARE FEET.
MAXIMUM SPACING OF 130 SQUARE FEET PER SPRINKLER, UNLESS NOTED OTHERWISE.

INCLUDE 250 GPM FOR INSIDE HOSE STREAM ALLOWANCE AS PART OF THE CALCULATION.
MAXIMUM VELOCITIES SHALL NOT EXCEED 20 FEET PER SECOND.

C. FIRE PROTECTION SIGNALING SYSTEMS CONTROL EQUIPMENT AND ANNUNCIATOR PANEL ARE SHOWN ON THE ELECTRICAL DRAWINGS.

D. THE SPRINKLER LAYOUT SHOWN ON THESE DRAWINGS SHALL BE HYDRAULICALLY CALCULATED. THE RESULTS OF THE HYDRAULIC CALCULATION SHALL SHOW THAT THERE IS SUFFICIENT PRESSURE TO OPERATE THE REQUIRED NUMBER OF SPRINKLERS AT THE MOST REMOTE DESIGN AREAS. PIPE SIZES AND NODE LOCATIONS HAVE BEEN SHOWN ON THE DRAWINGS TO INDICATE DESIGN INTENT.

E. THE SPRINKLER CONTRACTOR SHALL FOLLOW THE DESIGN CRITERIA INDICATED ON THE DRAWINGS, BUT WILL BE ALLOWED TO VARY THE PIPE SIZES TO ALLOW FOR COORDINATION AND MINOR CHANGES IN THE PREPARATION.

2. SEQUENCE OF OPERATION

   A. WET SPRINKLER SYSTEM

   THE WET PIPE SYSTEM EMPLOYS AUTOMATIC (CLOSED FUSIBLE LINK) SPRINKLERS ATTACHED TO PIPING CONTAINING WATER UNDER PRESSURE AT ALL TIMES. WHEN A FIRE OCCURS, INDIVIDUAL SPRINKLERS ARE ACTIVATED BY HEAT AND WATER FLOWS IMMEDIATELY. THE FLOW OF WATER RAISES THE ALARM CHECK VALVE CLAPPER FROM ITS SEAT. THIS ALLOWS WATER TO ENTER THE ALARM LINE. THE FLOW SWITCH ON THE ALARM LINE ACTIVATES A LOCAL AUDIBLE ALARM PROVIDING AN ELECTRIC SIGNAL, WHICH IS SENT TO THE FIRE ALARM CONTROL PANEL, THIS SIGNAL IS FORWARDED TO THE LOCAL FIRE DEPARTMENT. A FIRE DEPARTMENT CONNECTION IS CONNECTED TO THE SUPPLY SIDE OF THE SYSTEM FOR USE BY THE LOCAL FIRE DEPARTMENT PUMPER TRUCK.

3. TESTING CRITERIA FOR FINAL ACCEPTANCE

   A. APPROVAL OF SPRINKLER SYSTEM

   THE INSTALLING SPRINKLER CONTRACTOR SHALL:

   a. NOTIFY THE AUTHORITY HAVING JURISDICTION AND OWNER'S REPRESENTATIVE OF THE TIME AND DATE TESTING WILL BE PERFORMED.
   b. PERFORM ALL REQUIRED ACCEPTANCE REQUIREMENTS LISTED IN NFPA 13 (2013) HYDROSTATIC TESTS.
   c. COMPLETE AND SIGN THE APPROPRIATE CONTRACTOR'S MATERIAL AND TEST CERTIFICATES.

   B. COMPLETE AS-BUILT DRAWINGS AS SPECIFIED.

FIRE PROTECTION LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
		NEW WORK PIPING (INDICATED AS HEAVY LINE)
F	F	FIRE SERVICE BELOW GRADE OR BURIED
F	F	FIRE SERVICE MAIN
WS	WS	WET SPRINKLER PIPE
SD	SD	SPRINKLER DRAIN
FDC	FDC	FIRE DEPARTMENT CONNECTION PIPE
		PIPE TEE LOOKING UP
		PIPE TEE LOOKING UP
	UP	PIPE ELBOW UP
	DN/DROP	PIPE ELBOW DOWN OR DROP
	CONT	CONTINUATION
		FLOW IN DIRECTION OF ARROW
	UN	UNION
	PG	PRESSURE GAUGE WITH PETCOCK
FS	FS	FLOW SWITCH
PS	PS	PRESSURE SWITCH
	CV	CHECK VALVE
	GV	GATE VALVE
TS	TS	GATE VALVE WITH TAMPER SWITCH
	PRV	PRESSURE REDUCING/REGULATING VALVE
TS	OS&Y W/TS	OS & Y GATE VALVE WITH TAMPER SWITCH
TS	BV W/TS	BALL VALVE WITH TAMPER SWITCH
	VIV	VALVE IN VERTICAL
TS	VIV W/TS	VALVE IN VERTICAL WITH TAMPER SWITCH
	WACV	ALARM CHECK VALVE (WET SYSTEM)
	DACV	ALARM CHECK VALVE (DRY SYSTEM)
P	PIV W/TS	POST INDICATOR VALVE W/TAMPER SWITCH
	DCVA	HORIZONTAL DOUBLE CHECK VALVE ASSEMBLY
	WTS	WATER TIGHT SLEEVE
	DV	DRAIN VALVE WITH HOSE END
	FDV	FIRE DEPARTMENT VALVE
	SCF	SIAMESE CONNECTION (FLUSH)
	SCE	SIAMESE CONNECTION (EXPOSED)
	SZC	STORZ CONNECTION
		UPRIGHT WET SPRINKLER
		PENDENT WET SPRINKLER
		CONCEALED WET SPRINKLER
		SIDEWALL WET SPRINKLER
D	DRY	UPRIGHT DRY SPRINKLER
D	DRY	PENDENT DRY SPRINKLER
D	DRY	CONCEALED DRY SPRINKLER
D	DRY	SIDEWALL DRY SPRINKLER
#		NODE NUMBER
#		SPRINKLER NUMBER
NAS	NAS	NO AUTOMATIC SPRINKLERS
- / FP-1		DIAGRAM NO. & DWG. NO. REFERENCE
DC	DC	DRESSER COUPLING
	EB	ELECTRIC BELL

FIRE PROTECTION LEGEND

ABBREVIATION	DESCRIPTION
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
LFPC	LIMIT OF FIRE PROTECTION CONTRACT
NFPC	NOT IN FIRE PROTECTION CONTRACT
GC	GENERAL CONTRACTOR
FPC	FIRE PROTECTION CONTRACTOR
PC	PLUMBING CONTRACTOR
EC	ELECTRICAL CONTRACTOR
HVAC	HVAC CONTRACTOR
FI	FURNISH & INSTALL
CFOI	CONTRACTOR FURNISHED / OWNER INSTALLED
OFCI	OWNER FURNISHED / CONTRACTOR INSTALLED
FFE	FINISHED FLOOR ELEVATION
WSE	WATER SERVICE ENTRANCE

NOTE- NOT ALL SYMBOLS APPEAR ON DRAWINGS

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FIRE PROTECTION LEGEND AND GENERAL NOTES

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

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BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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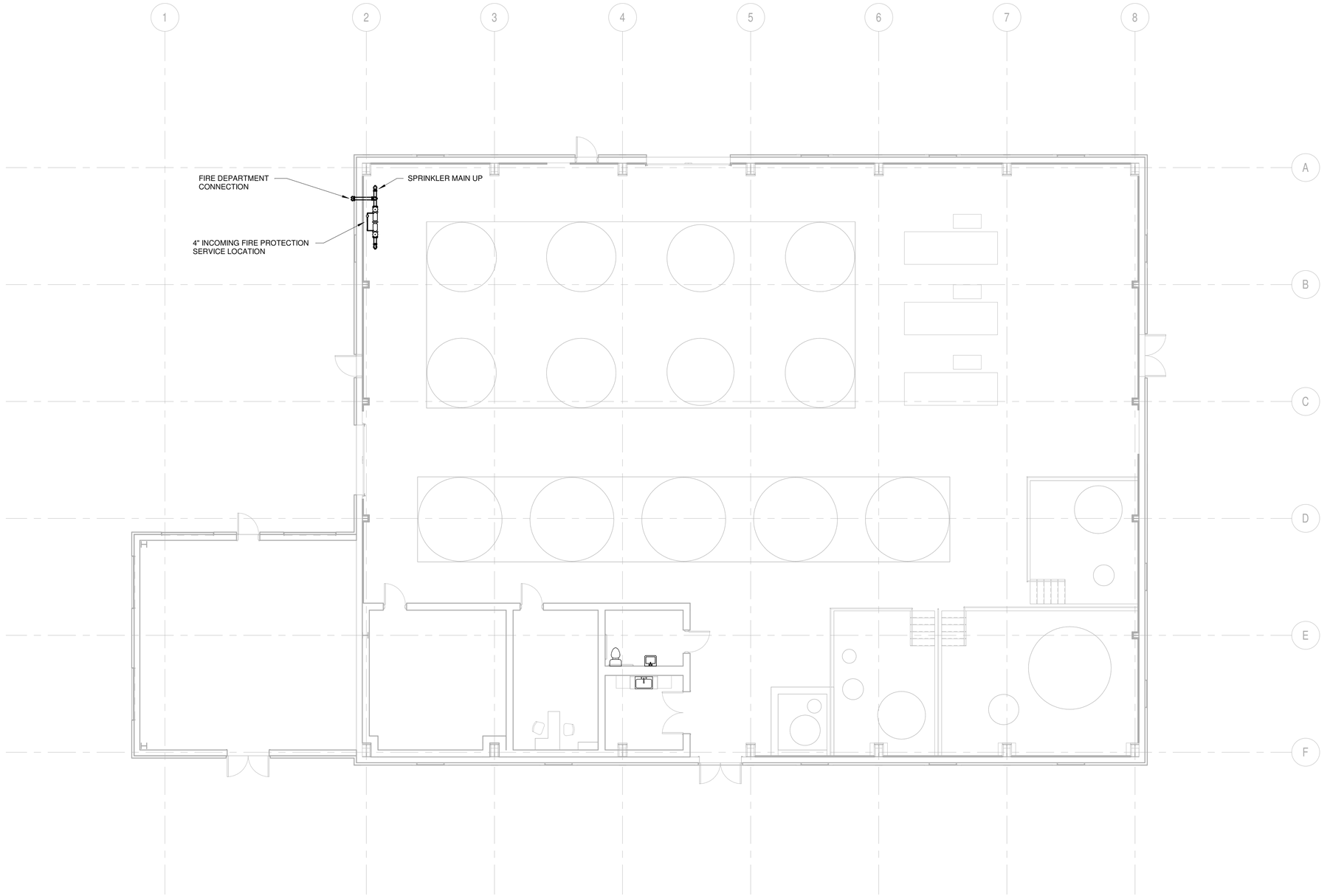
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CHECKED BY	RHB
APPROVED BY	MC

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1 LOWER LEVEL PLAN
1/8" = 1'-0"

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FIRE PROTECTION LOWER LEVEL PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 ESTD MAY 3, 1939

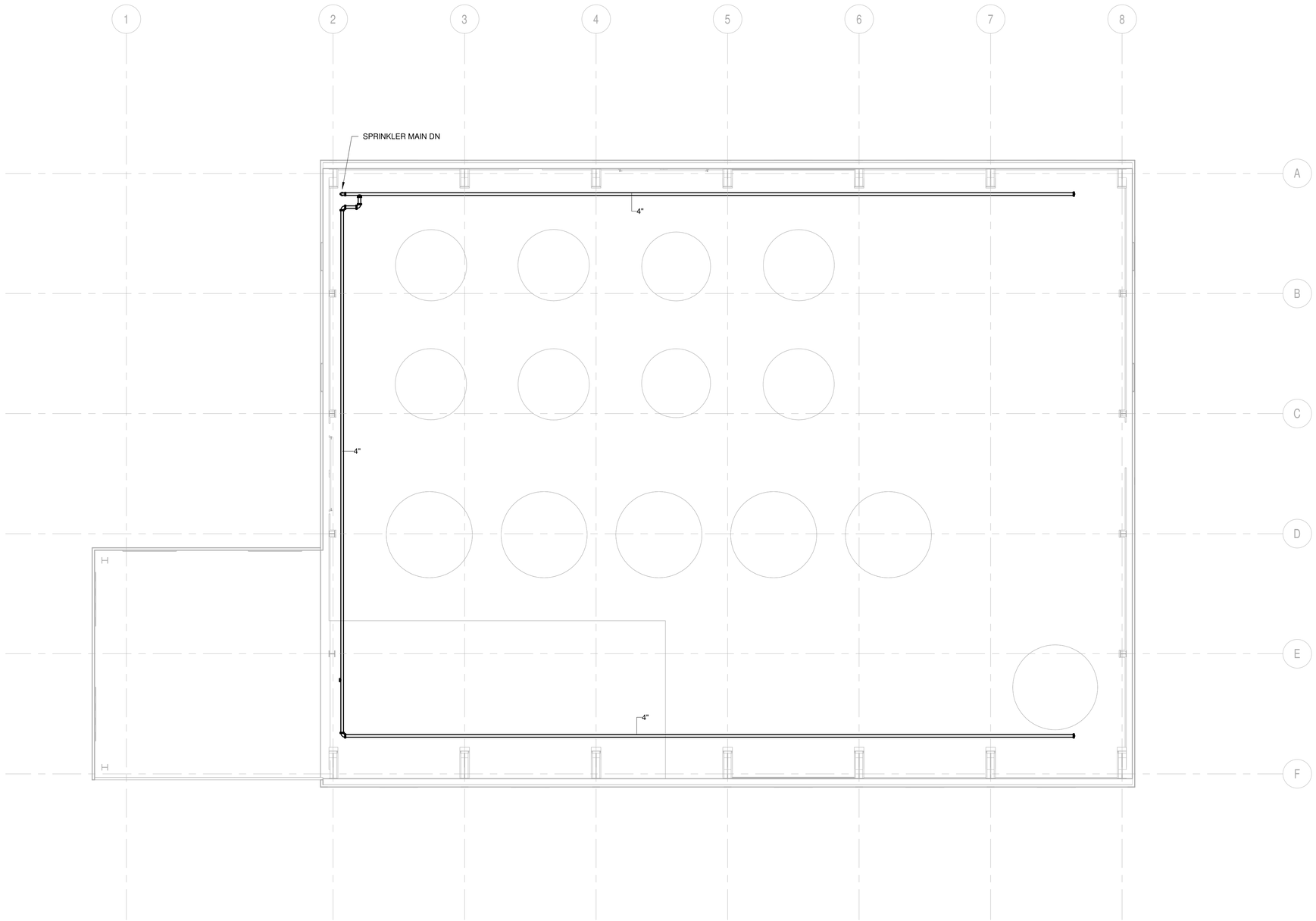
HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

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APPROVED BY	MC

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1 UPPER LEVEL PLAN
1/8" = 1'-0"

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PIPING LEGEND

CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
HWS	HOT WATER SUPPLY (HEATING)
HWR	HOT WATER RETURN (HEATING)
RL	REFRIGERANT - LIQUID
RS	REFRIGERANT - SUCTION
RD	REFRIGERANT - COMPRESSOR DISCHARGE
RV	REFRIGERANT - VENT
S-15	STEAM - PSIG
C-15	CONDENSATE RETURN - PSIG
PC-25	PUMPED CONDENSATE - PSIG
ATMOS V	ATMOSPHERIC VENT
SRV	SAFETY RELIEF VENT
DEE	DIESEL ENGINE EXHAUST
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
CF	CHEMICAL FEED
GWS	GLYCOL/WATER SOLUTION SUPPLY
GWR	GLYCOL/WATER SOLUTION RETURN
GCC	GRAVITY CONDENSATE FROM COOLING COILS
PCC	PUMPED CONDENSATE FROM COOLING COILS
AS	ATOMIZING STEAM
BO	BLOWOFF
CBD	CONTINUOUS BLOWDOWN

EQUIPMENT TAG SYMBOLS & ABBREVIATIONS

EQUIPMENT NOT REQUIRING ELECTRIC SERVICE — TAG NO — SEE SCHEDULE FOR PERFORMANCE REQUIREMENTS — TAG NO — EQUIPMENT REQUIRING ELECTRIC SERVICE

FTR-1 / MBH / LENGTH — FINNED TUBE RADIATION

ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
AF	AIR FILTER
AS	AIR SEPARATOR
B	BOILER
CC	COOLING COIL
CH	CHILLER
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
C	CONVECTOR
EF	EXHAUST FAN
ERV	EXHAUST ROOF VENT
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
FCU	FAN COIL UNIT
FMS	FLOW MEASURING STATION
FTR	FIN-TUBE RADIATION
HC	HEATING COIL
HP	HEAT PUMP
HRU	HEAT RECOVERY UNIT
HV	HEATING AND VENTILATING UNIT
IRV	INTAKE ROOF VENT
MAU	MAKEUP AIR UNIT
P	PUMP
PTAC	PACKAGED TERMINAL AIR CONDITIONER
REF	RETURN/EXHAUST FAN
RF	RETURN FAN
RTU	ROOFTOP UNIT
SA	SOUND ATTENUATOR
SF	SUPPLY FAN
TU	TERMINAL UNIT
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME UNIT

INSTRUMENTATION

DUCTWORK LEGEND/SYMBOLS

DOUBLE LINE	DESCRIPTION
	SUPPLY AIR FLOW
	OUTSIDE AIR FLOW
	RETURN/EXHAUST AIR FLOW
	SUPPLY/OUTSIDE AIR FLOW
	RETURN AIR FLOW
	EXHAUST AIR FLOW
	RECTANGULAR SUPPLY DUCT ELBOW (UP & DN)
	RECTANGULAR RETURN DUCT ELBOW (UP & DN)
	RECTANGULAR EXHAUST DUCT ELBOW (UP & DN)
	ROUND SUPPLY DUCT ELBOW (UP & DN)
	ROUND RETURN DUCT ELBOW (UP & DN)
	ROUND EXHAUST DUCT ELBOW (UP & DN)
	FLAT OVAL SUPPLY DUCT ELBOW (UP & DN)
	FLAT OVAL RETURN DUCT ELBOW (UP & DN)
	FLAT OVAL EXHAUST DUCT ELBOW (UP & DN)
12X10	DENOTES RECTANGULAR DUCT SIZE IN INCHES (DIMENSIONS INSIDE CLEAR)
10Ø	DENOTES ROUND DUCT SIZE IN INCHES (DIMENSIONS INSIDE CLEAR)
12X10	DENOTES FLAT OVAL DUCT SIZE IN INCHES (DIMENSIONS INSIDE CLEAR)
12X10 AL	ACOUSTICAL DUCT LINING - 1" UNLESS OTHERWISE NOTED. DUCT SIZE IS INSIDE CLEAR. TYP. ROUND & FLAT OVAL
	SUPPLY AIR TERMINALS CEILING OR DUCT MOUNTED (SQUARE, RECTANGULAR, CIRCULAR & SIDEWALL W/ AIR VOLUME EXTRACTOR) CFM, SIZE & TYPE AS NOTED.
	RETURN AIR TERMINAL CFM, SIZE & TYPE AS NOTED
	EXHAUST AIR TERMINAL CFM, SIZE & TYPE AS NOTED
	SUPPLY GRILLE W/ INSIDE COLLAR
UP	DUCT RISING IN DIRECTION OF ARROW
	TRANSITION DUCT CONCENTRIC & ECCENTRIC
	FLEXIBLE CONNECTION

DUCTWORK LEGEND/SYMBOLS

DOUBLE LINE	DESCRIPTION
FS	COMBINATION FIRE/SMOKE DAMPER W / ACCESS DOOR
	MANUAL VOLUME DAMPER
	MOTOR OPERATED DAMPER
SD	DUCT MOUNTED SMOKE DETECTOR
	SQUARE VANED ELBOW
	RADIUS TYPE ELBOW WITH OR WITHOUT VANES
	DUCT SPLIT WITH VANED ELBOW
	STRAIGHT TEE
	CONICAL TEE
	45° TEE
	DOOR UNDERCUT - SQUARE FEET SIZE AS PER PLANS
	DOOR LOUVER - SQUARE FEET SIZE AS PER PLANS
	HORIZONTAL AIR DELIVERY UNIT HEATER
	VERTICAL AIR DELIVERY UNIT HEATER
T	THERMOSTAT
H	HUMISTAT
	RISER UP
	RISER DOWN
	ELBOW - 90°
	ELBOW - 45°
	LATERAL CONNECTION
	TEE CONNECTION
	CROSS CONNECTION
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	DIRECTION OF FLOW
1 / A2222 SIM	SECTION OR DETAIL IDENTIFICATION

NOTE- NOT ALL SYMBOLS APPEAR ON DRAWINGS

ABBREVIATIONS

ACD	AUTOMATIC CONTROL DAMPER
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AP	ACCESS PANEL
ARCH	ARCHITECT
ATC	AUTOMATIC TEMPERATURE CONTROL
BDD	BACKDRAFT DAMPER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BOD	BOTTOM OF DUCT
CAP	CAPACITY
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
CONT	CONTROLLER
CP	CUT AND CAP
DIA	DIAMETER
DB	DRY BULB TEMPERATURE
DC	DUST COLLECTOR
DDC	DIRECT DIGITAL CONTROL
DN	DOWN
DWG	DRAWING
DX	DIRECT EXPANSION COOLING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EBB	ELECTRIC BASEBOARD RADIATION
ECH	ELECTRIC CABINET HEATER
ECON	AIR-SIDE ECONOMIZER
EF	EXHAUST FAN
EFF	EFFICIENCY
EG	ETHYLENE GLYCOL
ELV	ELEVATION
ER	EXHAUST REGISTER
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
FA	FREE AREA
FD	FIRE DAMPER
FLA	FULL LOAD AMPS
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FT	FEET
FTR	FINNED TUBE RADIATION
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GF	GLYCOL FEED
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HGRH	HOT GAS REHEAT
HW	HOT WATER
HZ	HERTZ
IN	INCHES
KE	KITCHEN EXHAUST
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LD	LINEAR DIFFUSER
LF	LINEAR FEET
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU'S PER HOUR
MCC	MOTOR CONTROL CENTER
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OBD	OPPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
POS	PROVIDED UNDER OTHER SECTIONS
PSI	POUNDS PER SQUARE INCH (GAUGE)
PD	PRESSURE DROP
PRV	PRESSURE REDUCING VALVE
R	RETURN
RA	RETURN AIR
RF	RETURN/EXHAUST FAN
RG	RETURN GRILLE
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
S	SUPPLY
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SF	SQUARE FEET, SUPPLY FAN
SP	STATIC PRESSURE
SR	SUPPLY REGISTER
SS	STAINLESS STEEL
STL	STEEL
TYP	TYPICAL
UC	UNDERCUT DOOR
V	VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
W/	WITH
W/O	WITHOUT
WB	WET BULB TEMPERATURE
WG	WATER GAUGE
WMS	WIRE MESH SCREEN

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HVAC LEGEND

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

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GENERAL NOTES

1. HVAC WORK IS INDICATED DIAGRAMMATICALLY. EXACT LOCATIONS OF ALL COMPONENTS ARE TO BE DETERMINED IN THE FIELD AND BY THE ACTUAL BUILDING CONDITIONS. DUCTS, PIPING OR EQUIPMENT INTERFERING WITH OTHER INSTALLATIONS SHALL BE RELOCATED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER. EXACT LOCATIONS MUST HAVE THE APPROVAL OF THE ENGINEER.
2. ALL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE ANY INSTALLATION IS MADE.
3. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH STATE CODES, MANUFACTURER'S APPROVED PUBLISHED LITERATURE, AND AUTHORITIES HAVING JURISDICTION.
4. INSTALLATION OF EQUIPMENT SHALL PERMIT ACCESSIBILITY FOR SERVICE AND/ REPAIR OR REPLACEMENT.
5. ALL CEILING MOUNTED EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY THAT LIGHTS, PIPING, AND DUCTWORK DO NOT BLOCK ACCESS TO UNITS AND RELATED ACCESSORIES.
6. HVAC CONTRACTOR SHALL COORDINATE ALL WALL, CEILING, FLOOR, ROOF AND BEAM PENETRATIONS WITH ENGINEER AND STRUCTURAL ENGINEER.
7. ALL DUCT SIZES SHOWN ARE NET INSIDE CLEAR DIMENSIONS.
8. PROVIDE INSTRUMENT TEST HOLES WITH CAPS IN AIR DISTRIBUTION SYSTEMS AS REQUIRED TO BALANCE SYSTEM.
9. HVAC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHEETMETAL TRANSITIONS AT FANS, COILS, AND OTHER SIMILAR HVAC EQUIPMENT.
10. ALL MISCELLANEOUS SUPPORTS REQUIRED FOR HVAC EQUIPMENT INSTALLATION SHALL BE PROVIDED BY HVAC SUBCONTRACTOR.
11. EXACT LOCATION OF THERMOSTAT TO BE COORDINATED WITH FINAL LOCATION OF WALL MOUNTED EQUIPMENT.
12. PROVIDE FLEXIBLE DUCT CONNECTIONS ON INTAKES AND DISCHARGES OF ALL AIR HANDLING UNITS.
13. COORDINATE DUCT MOUNTED SMOKE DETECTORS WITH ELECTRICAL HVAC CONTRACTOR. FURNISH AND WIRED BY ELECTRICAL CONTRATOR, INSTALLED BY THE HVAC CONTRACTOR.
14. COORDINATE THE DIMENSIONS AND EXACT LOCATION OF THE SUSPENDED STRUCTURAL FRAME WITH THE SUPPORT REQUIREMENTS AND SERVICE ACCESS FOR DH-1.
15. REFER TO ARCHITECTURAL SECTION AND ELEVATIONS FOR LOCATION OF EXTERIOR PENETRATIONS.

SEQUENCE OF OPERATION

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HVAC GENERAL NOTES

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE, MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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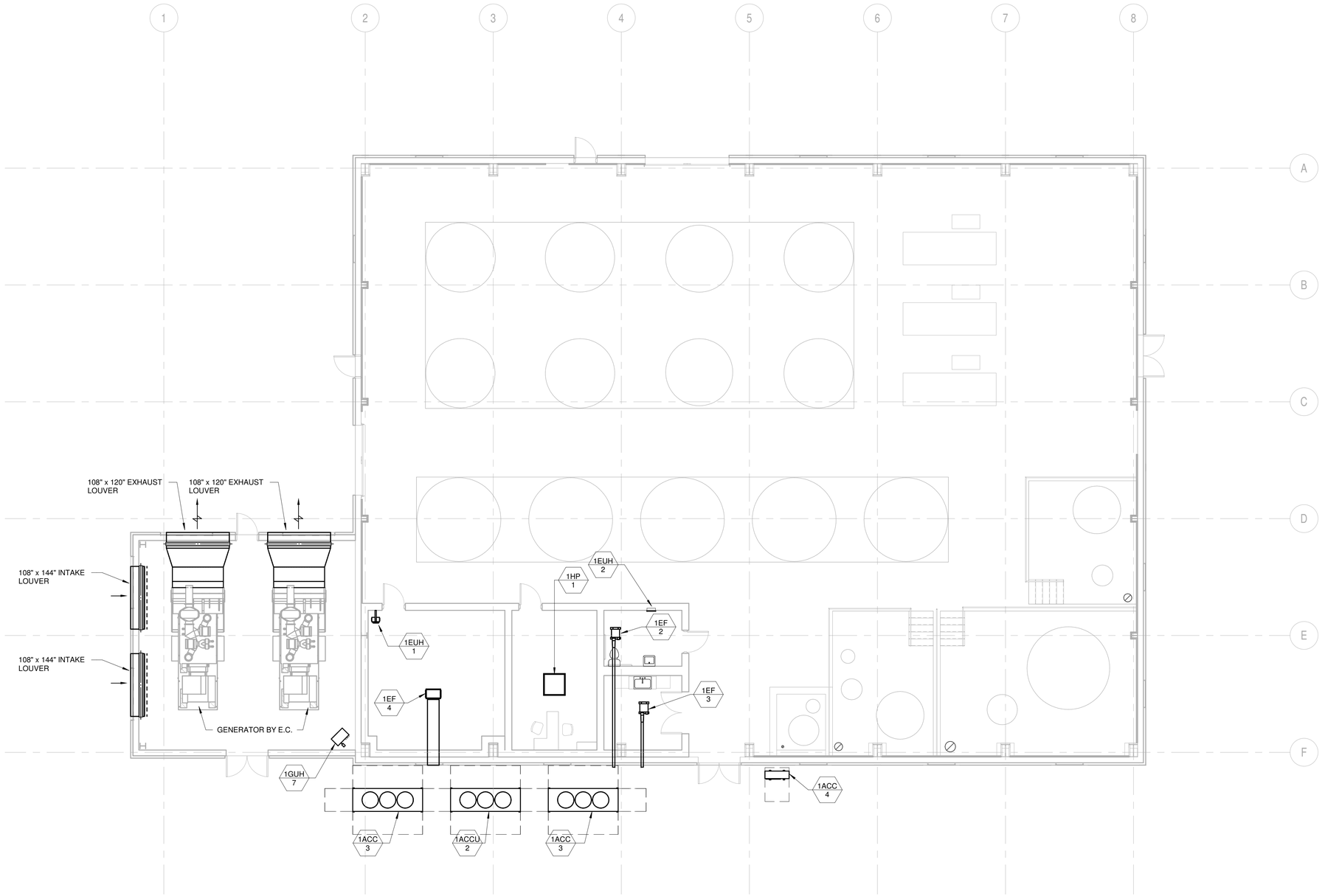
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1 1-HVAC-FINISH FLOOR WTP
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HVAC WTP LOWER LEVEL PLAN

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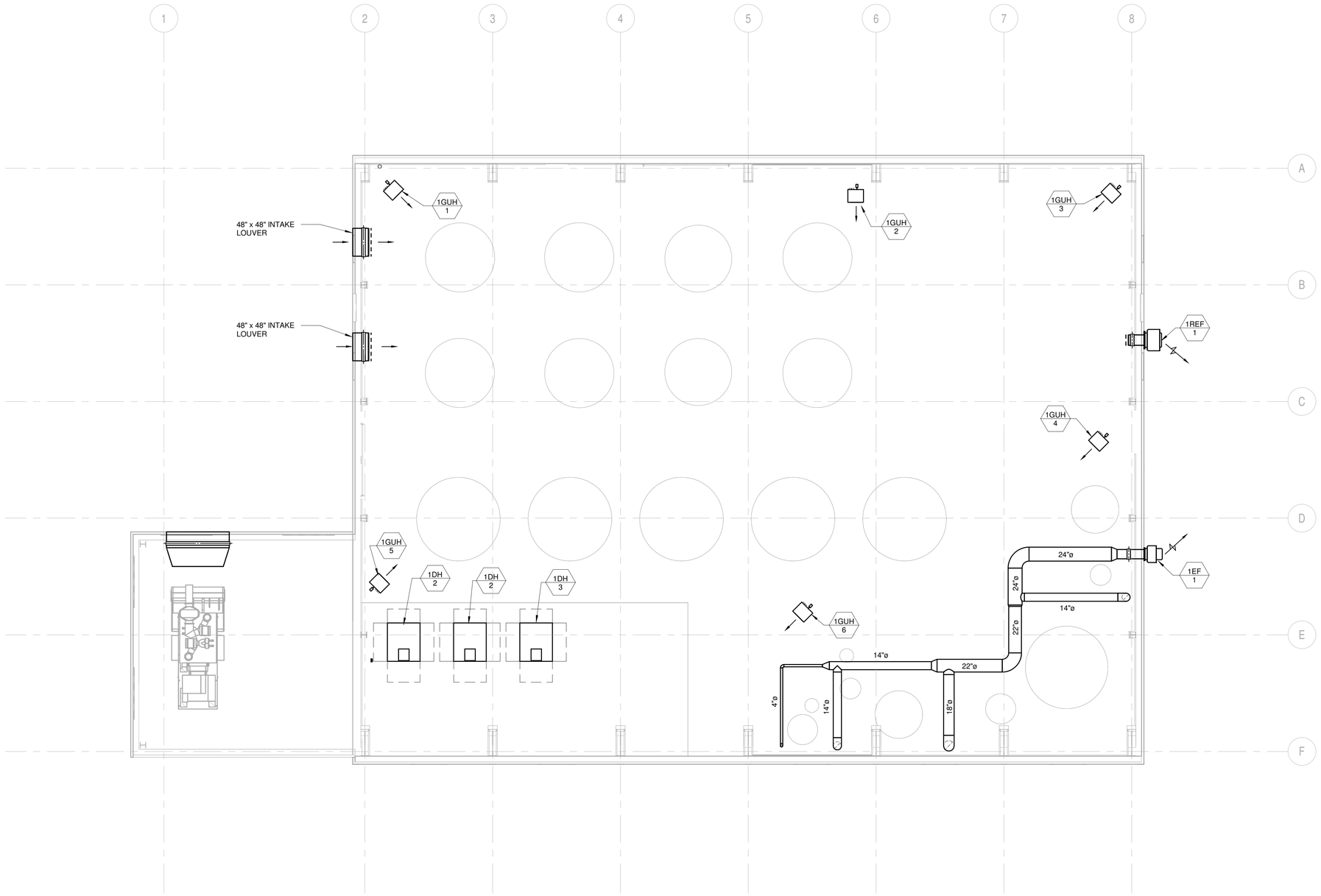
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1 2-HVAC-CLERESTORY (WTP)
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HVAC WTP UPPER LEVEL PLAN

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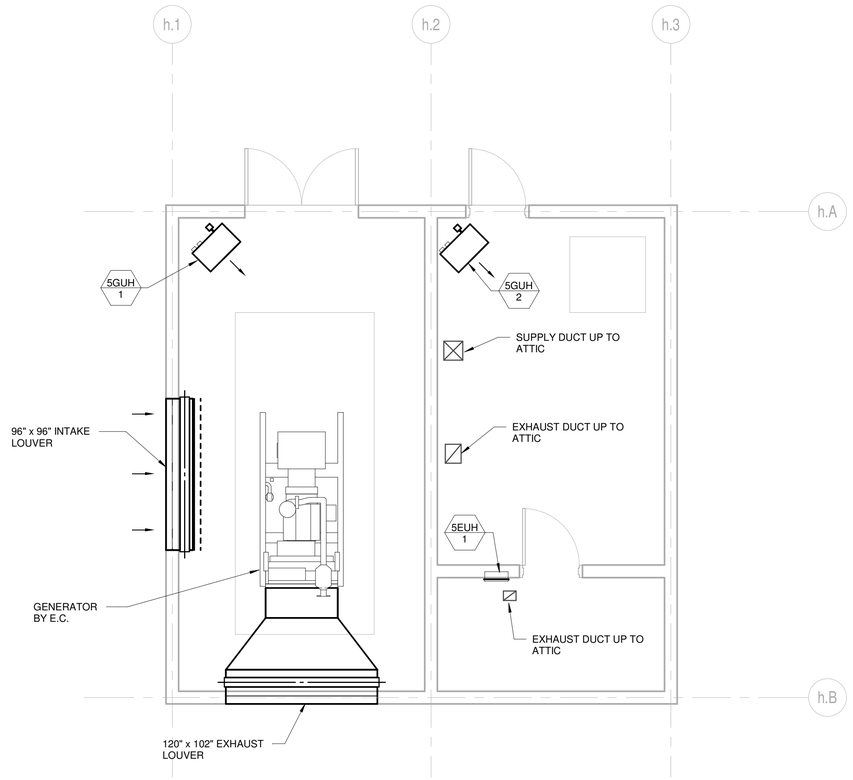
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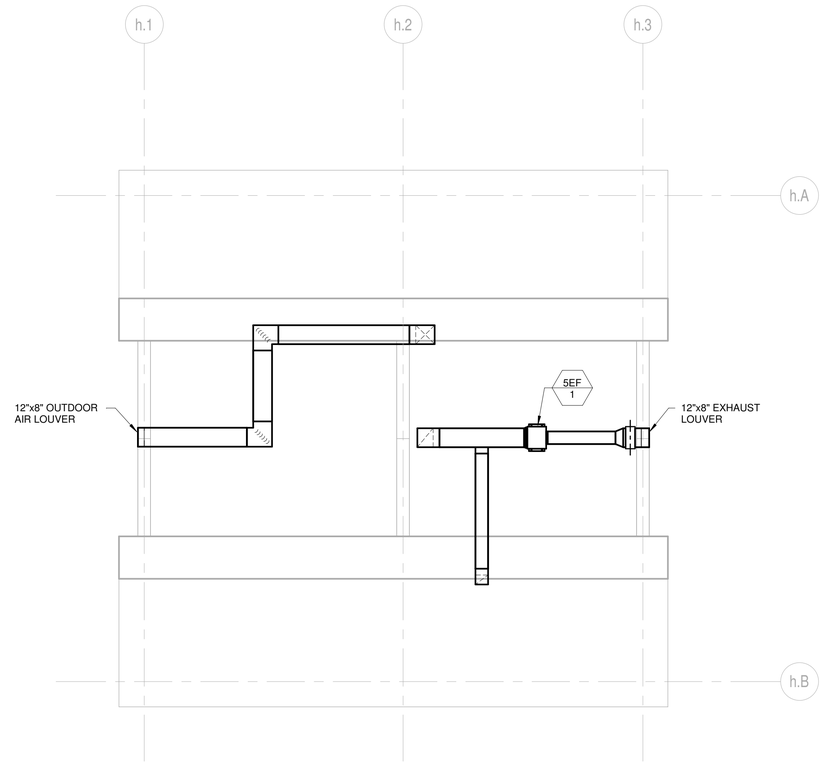
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1 FLOOR PLAN
1/4" = 1'-0"



2 ATTIC PLAN
1/4" = 1'-0"

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HVAC HYANNISPORT PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
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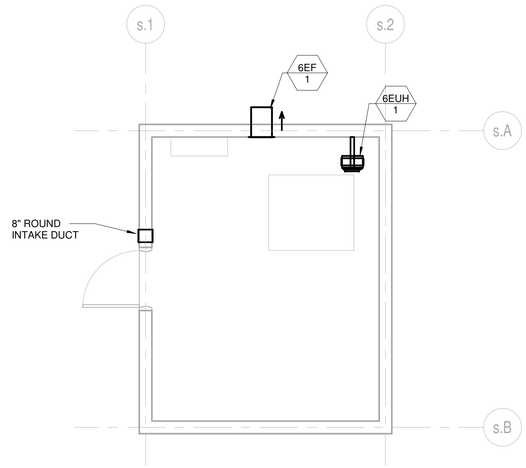
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1 PS FINISH FLOOR-SIMMONS
1/4" = 1'-0"

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PLUMBING NOTES

1. THE WORK COVERED CONSISTS OF FURNISHING ALL LABOR AND MATERIALS NECESSARY TO INSTALL, COMPLETE AND READY FOR CONTINUOUS OPERATION, THE PLUMBING SYSTEMS, APPARATUS AND EQUIPMENT FOR THIS PROJECT.
2. ALL EQUIPMENT AND MATERIALS FURNISHED UNDER THE PLUMBING SUB-CONTRACT, LABOR AND TESTING PERFORMED HEREIN SHALL BE IN COMPLETE ACCORDANCE WITH THE STATE BUILDING CODE, LOCAL FUEL GAS AND PLUMBING CODES, ALL LOCAL CODES AND REGULATIONS, NATIONAL FIRE PROTECTION ASSOCIATION, INSURANCE REGULATIONS AND REQUIREMENTS GOVERNING SUCH WORK.
3. ANY AND ALL PERMITS REQUIRED FOR INSTALLATION OF ANY MATERIAL SHALL BE OBTAINED AS PART OF THE WORK OF THE SPECIFICATION INCLUDING ALL FEES OR EXPENSES INCURRED.
4. ALL PRODUCTS USED AS PART OF THE POTABLE WATER SYSTEM WHERE THE INTENDED PURPOSE IS TO DELIVER OR CONVEY POTABLE WATER FOR HUMAN CONSUMPTION SHALL BE LEAD FREE AND CONFORM TO THE LATEST "LEAD FREE" LAW.
5. WHERE WATER PIPING IS SHOWN DROPPING INTO PLUMBING CHASES WITH SIZES NOTED, THAT SIZE SHALL BE CARRIED FULL LENGTH THROUGH THE CHASE. REFER TO PLUMBING FIXTURE SCHEDULE ON THIS DRAWING FOR INDIVIDUAL FIXTURE CONNECTION SIZES.
6. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND HEIGHT OF ALL PLUMBING FIXTURES.
7. MISCELLANEOUS DISCREPANCIES OR OMISSIONS WHICH MIGHT APPEAR ON THE PLANS OR SPECIFICATIONS WILL NOT RELIEVE THE PLUMBING SUB-CONTRACTOR OF CODE COMPLIANCE.
8. INTERIOR PLUMBING AND HVAC EQUIPMENT REQUIRING A GAS CONNECTION SHALL BE PROVIDED WITH AN EMERGENCY GAS RELIEF VENTS AT EACH GAS TRAIN IN ACCORDANCE WITH THE MASSACHUSETTS FUEL GAS CODE AND AS INDICATED WITH THE FOLLOWING CHART:

CFH	AMOUNT OF RELIEF VENT REQUIRED	SIZE OF EACH VENT		
		0' TO 40'	0' TO 100'	0' TO 200'
UNDER 1,000	1			
1,000 TO 2,500	3	3/4"	1"	1 1/4"
2,500 TO 12,500	3	3/4"	1"	1 1/4"
OVER 12,500	4	3/4"	1"	1 1/4"
		3/4"	1"	1 1/4"

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ETR	LIGHT LINE INDICATES EXISTING PIPING TO REMAIN
	RE	REMOVE EXISTING PIPING
	CTE	CONNECT TO EXISTING
	C&C	CUT & CAP
		BELOW FLOOR PIPING (INDICATED AS DOUBLE LINEWORK)
	CW	COLD WATER
	HW	HOT WATER
	HWR	HOT WATER RECIRCULATION
	S or W	SOIL OR WASTE
	V	VENT
	RW	RAIN WATER CONDUCTOR
OFD	OFD	STORM WATER OVER FLOW DRAINAGE
G	G	NATURAL GAS
	HTI / TMC	HEAT TRACE AND INSULATE
	CONT	CONTINUATION
	UP	PIPE RISE OR UP
	DN	PIPE DROP OR DOWN
	TEE	PIPE TEE
	SOV	SHUT-OFF VALVE
		GAS COCK
	PRV	PRESSURE REDUCING VALVE
	VIV	VALVE IN VERTICAL
	CV	CHECK VALVE
	BVA	BALANCING VALVE ASSEMBLY
	W & T	WASTE & TRAP
	CO	CLEANOUT PLUG
	FCO	FLUSH FLOOR CLEANOUT
	GCO	GRADE CLEANOUT
	DCO	DANDY CLEANOUT
		CAPPED PIPE
		ARROW INDICATES DIRECTION OF FLOW
.01		ARROW INDICATES DIRECTION OF SLOPE
		UNION
	WTS	WATERTIGHT SLEEVE
TP	TP	TRAP PRIMER
	HB	HOSE BIBB
	WH	WALL HYDRANT

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
1 / P-1		DIAGRAM NO. & DWG. NO. REFERENCE
	FD "A"	FLOOR DRAIN & TYPE
	RD "A"	ROOF DRAIN & TYPE
	DCVA	HORIZONTAL DOUBLE CHECK VALVE ASSEMBLY
WM	WM	WATER METER
GM	GM	GAS METER
	T	THERMOMETER
	PG	PRESSURE GAUGE WITH PETCOCK
	T&P	TEMPERATURE AND PRESSURE RELIEF VALVE
	SA	SHOCK ABSORBER
		VACUUM RELIEF VALVE
	WH-1	WATER HEATER & NUMBER
	SS	SOIL STACK
	VS	VENT STACK
	VTR	VENT THRU ROOF
	INV	INVERT
	TYP	TYPICAL
	NTS	NOT TO SCALE
	AFF	ABOVE FINISHED FLOOR
	LPC	LIMIT OF PLUMBING CONTRACT
	GC	GENERAL CONTRACTOR
	FPC	FIRE PROTECTION CONTRACTOR
	PC	PLUMBING CONTRACTOR
	EC	ELECTRICAL CONTRACTOR
	HVAC	HVAC CONTRACTOR
	WC	WATER CLOSET
	UR	URINAL
	LAV	LAVATORY
	MR	MOP RECEPTOR
	SHR	SHOWER
	DF	DRINKING FOUNTAIN
	SK	SINK
	F & I	FURNISH & INSTALL
	S=.01	SLOPE = 1/8" PER FOOT
	S=.02	SLOPE = 1/4" PER FOOT
	NO	NORMALLY OPEN
	NC	NORMALLY CLOSED
	F.F.E.	FINISHED FLOOR ELEVATION

NOTE- NOT ALL SYMBOLS APPEAR ON DRAWINGS

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

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ORIGINAL DRAWING SIZE IS 22 x 34

PLUMBING LEGEND AND GENERAL NOTES

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE, MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

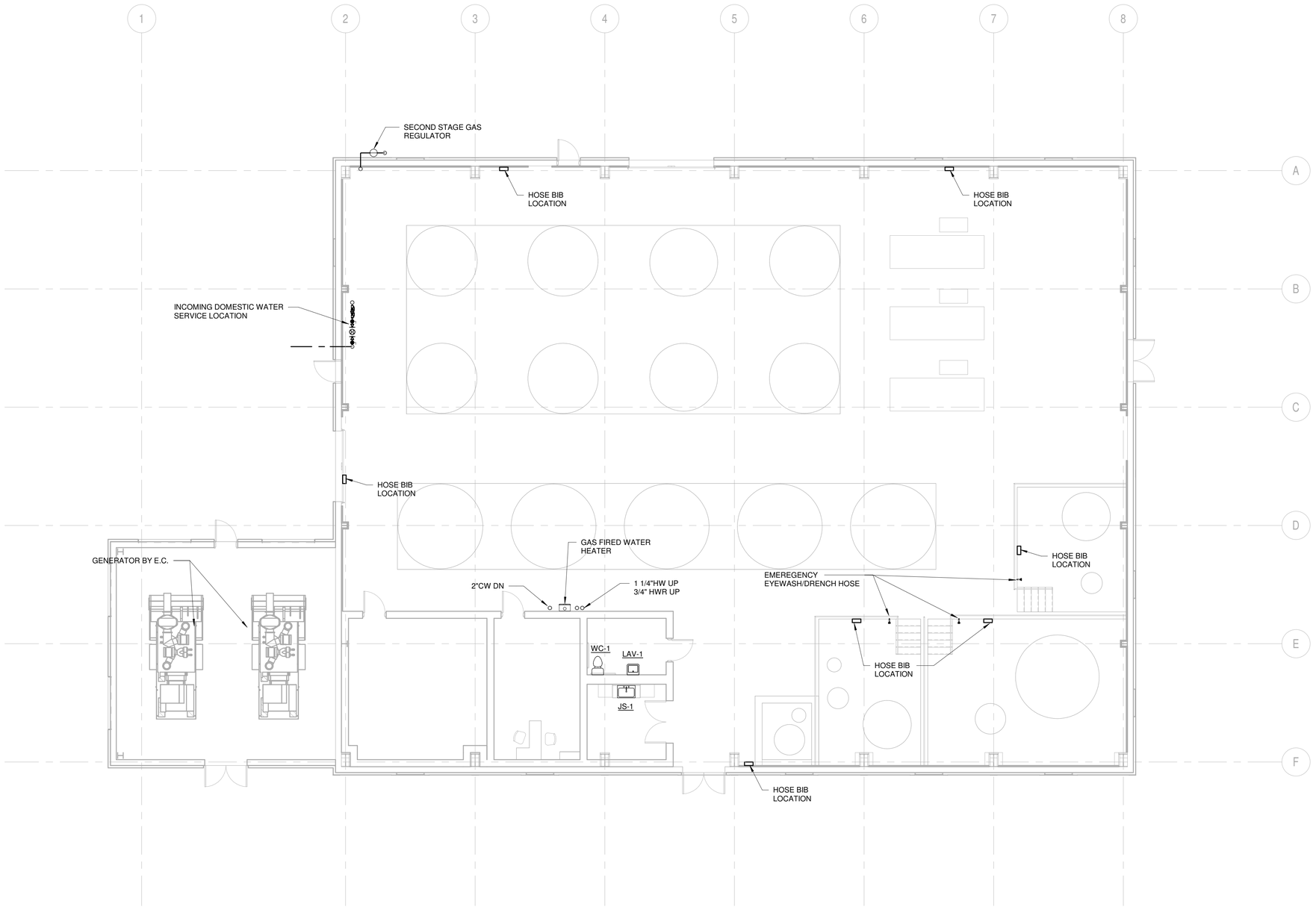
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P001

SHEET 57 of 60

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1 LOWER LEVEL PLAN
1/8" = 1'-0"

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PLUMBING LOWER LEVEL PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

SEAL OF THE TOWN OF BARNSTABLE, MASS. 1639 INCORPORATED MAY 4, 1685

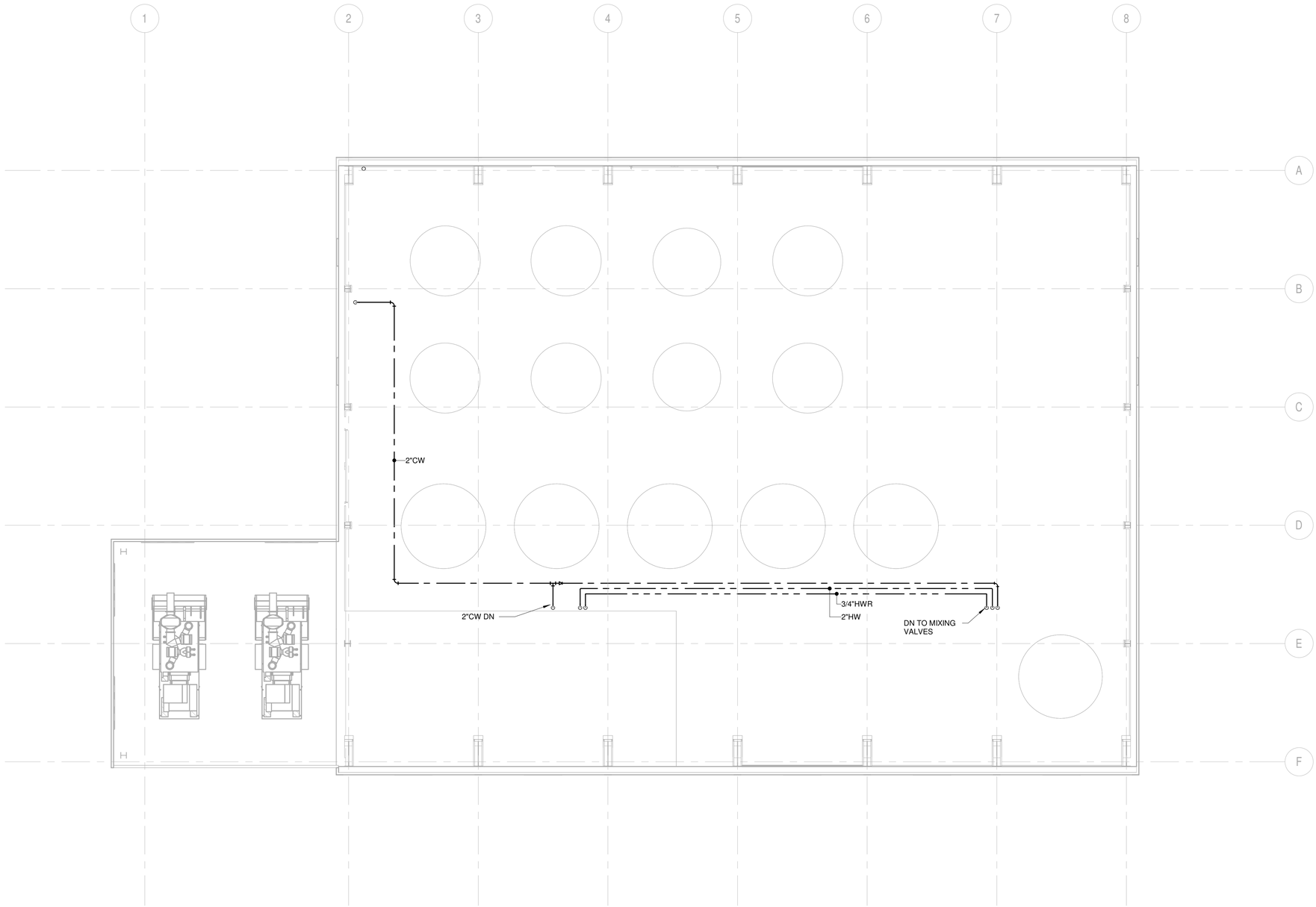
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1 2-PLUMB-CLERESTORY (WTP)
1/8" = 1'-0"

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PLUMBING UPPER LEVEL PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

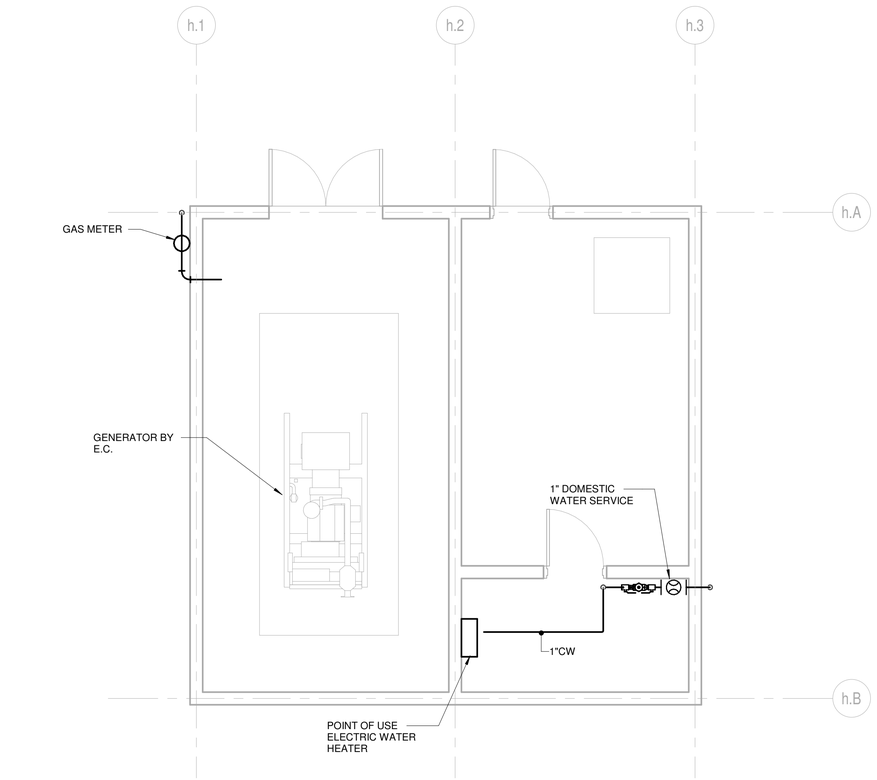
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1 FLOOR PLAN
1/4" = 1'-0"

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PLUMBING HYANNISPORT PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY
DESIGN

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
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KEY PLAN
SCALE: 1" = 150'

EXISTING LEGEND

- MINOR CONTOUR
- MAJOR CONTOUR
- SPOT ELEVATION
- 100-YR FLOOD ZONE
- RECORD WATER LINE
- ABANDONED/REMOVED WATER LINE
- HYDRANT
- WATER GATE
- WATER WELL
- STANDPIPE
- ELECTRIC LINE
- OVERHEAD WIRES
- UTILITY POLE
- GUY WIRE
- TRANSFORMER
- ELECTRIC MANHOLE
- RECORD GAS LINES
- GAS METER
- WETLAND LIMIT
- WETLAND FLAG
- WETLAND EDGE
- 100' WETLAND BUFFER
- 50' WETLAND BUFFER
- SOIL PROBE
- CHAINLINK FENCE
- TREELINE
- DRAIN LINE
- DRAIN MANHOLE
- SEWER LINE
- SEWER MANHOLE
- CHAIN LINK FENCE
- CONCRETE PAD
- DUCTILE IRON
- EDGE OF PAVEMENT
- EDGE OF PAVEMENT LINE
- EDGE OF WATER

PROPOSED LEGEND

- PROPOSED CONTOUR
- RAW WATER LINE
- WATER LINE
- PROPOSED WATER GATE
- CHAIN LINK FENCE
- PROPOSED TREELINE
- DRAIN LINE
- SEWER LINE
- ELECTRIC LINE
- GAS LINE
- VEHICULAR ACCESS GATE
- DRAIN MANHOLE
- CATCH BASIN
- CONCRETE
- RIPRAP
- EXTENT OF ASPHALT/STRUCTURE REMOVAL
- EXTENT OF PAVED ACCESS DRIVE
- EXTENT OF ASPHALT/STRUCTURE REMOVAL
- PROPOSED BUILDING
- AREA OF STORMWATER FEATURE
- EXTENT OF STORMWATER FEATURE
- ARBORVITAE PLANTING

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0 150 300 450

SCALE: 1" = 150' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

KEY PLAN & LEGNED

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

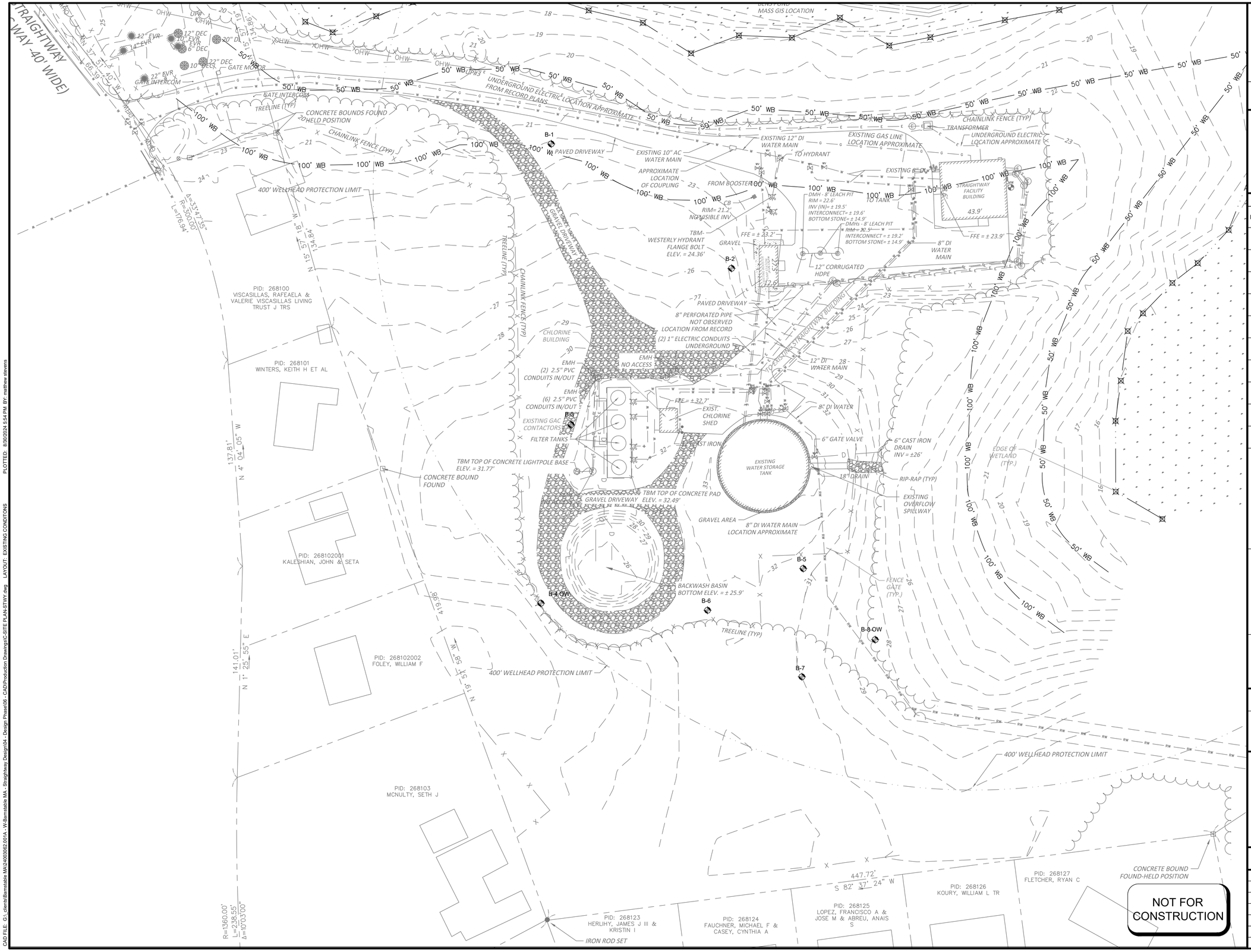
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SCALE: 1" = 30' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY SITE PLAN EXISTING CONDITIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS 1639 INCORPORATED A.D. 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
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CONSTRUCTION VEHICLE EXIT

TEMPORARY SEDIMENT BASIN

EXTENT OF TREE CLEARING AND GRUBBING

LIMIT OF DISTURBANCE (TYP.)

REMOVE AND REUSE EXISTING HYDRANT. HYDRANTS NOT USED UNDER THE CONTRACT SHALL BE RETURNED TO THE OWNER (TYP.)

STRAW WATTLE (TYP.)

REMOVE EXISTING PIPING

EXIST. 10" AC WATER MAIN TO BE ABANDONED IN PLACE

CUT AND CAP EXISTING 8" PIPE

CUT AND CAP EXISTING 8" PIPE

TEMPORARY SEDIMENT BASIN

EXISTING STRAIGHWAY FACILITY AND WELL TO REMAIN

GRAVEL DRIVEWAY TO BE REMOVED

EXISTING CHLORINE SHED TO REMAIN FOR STORAGE CHEMICAL FEED EQUIPMENT AND PIPING TO BE REMOVED

EXISTING WATER STORAGE TANK TO REMAIN

TEMPORARY SEDIMENT BASIN

EXTENT OF TREE CLEARING AND GRUBBING

EDGE OF WETLAND (TYP.)

EXISTING MAIN TO BE REMOVED AND DISPOSED

TEMPORARY SEDIMENT BASIN

EXTENT OF TREE CLEARING AND GRUBBING

IRON ROD SET

CONCRETE BOUND FOUND-HELD POSITION

CONCRETE BOUND FOUND

LEGEND:

- LIMITS OF TREE CLEARING AND GRUBBING
- REMOVAL OF EXISTING GRAVEL DRIVE

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SCALE: 1" = 30' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY SITE PREPARATION PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

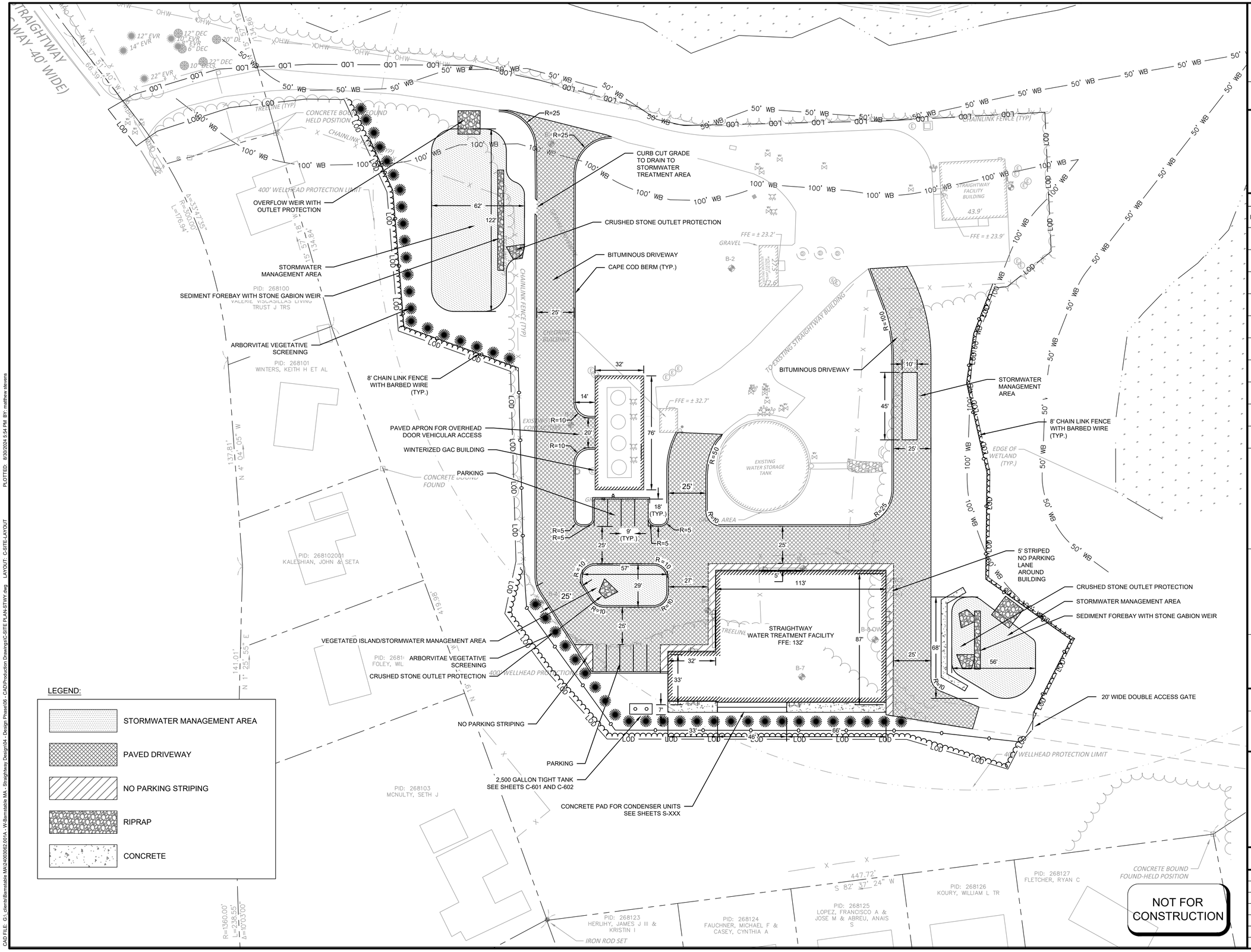
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HYANNIS, MA 02601

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STRAIGHTWAY SITE PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

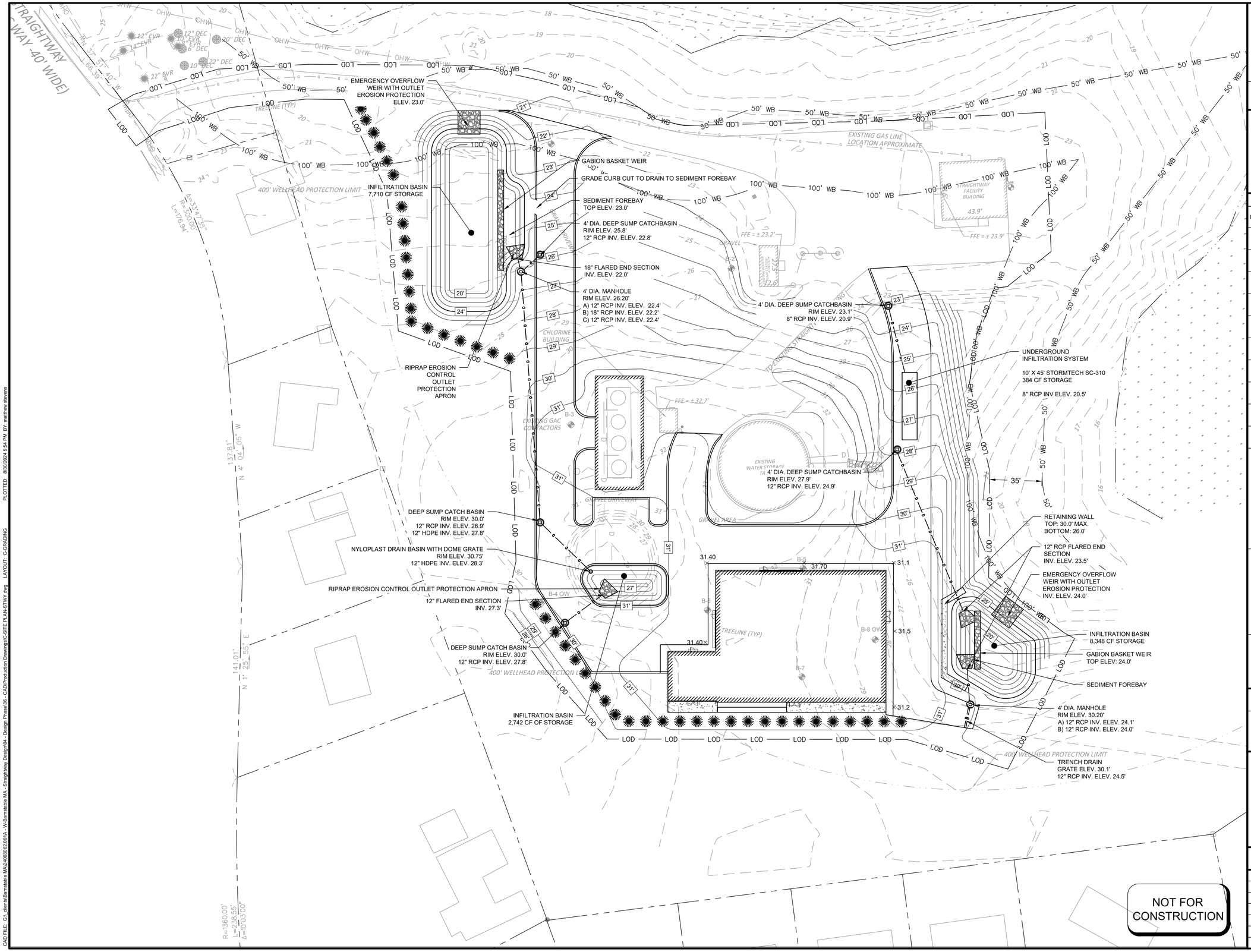
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ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY GRADING PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 3, 1939

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
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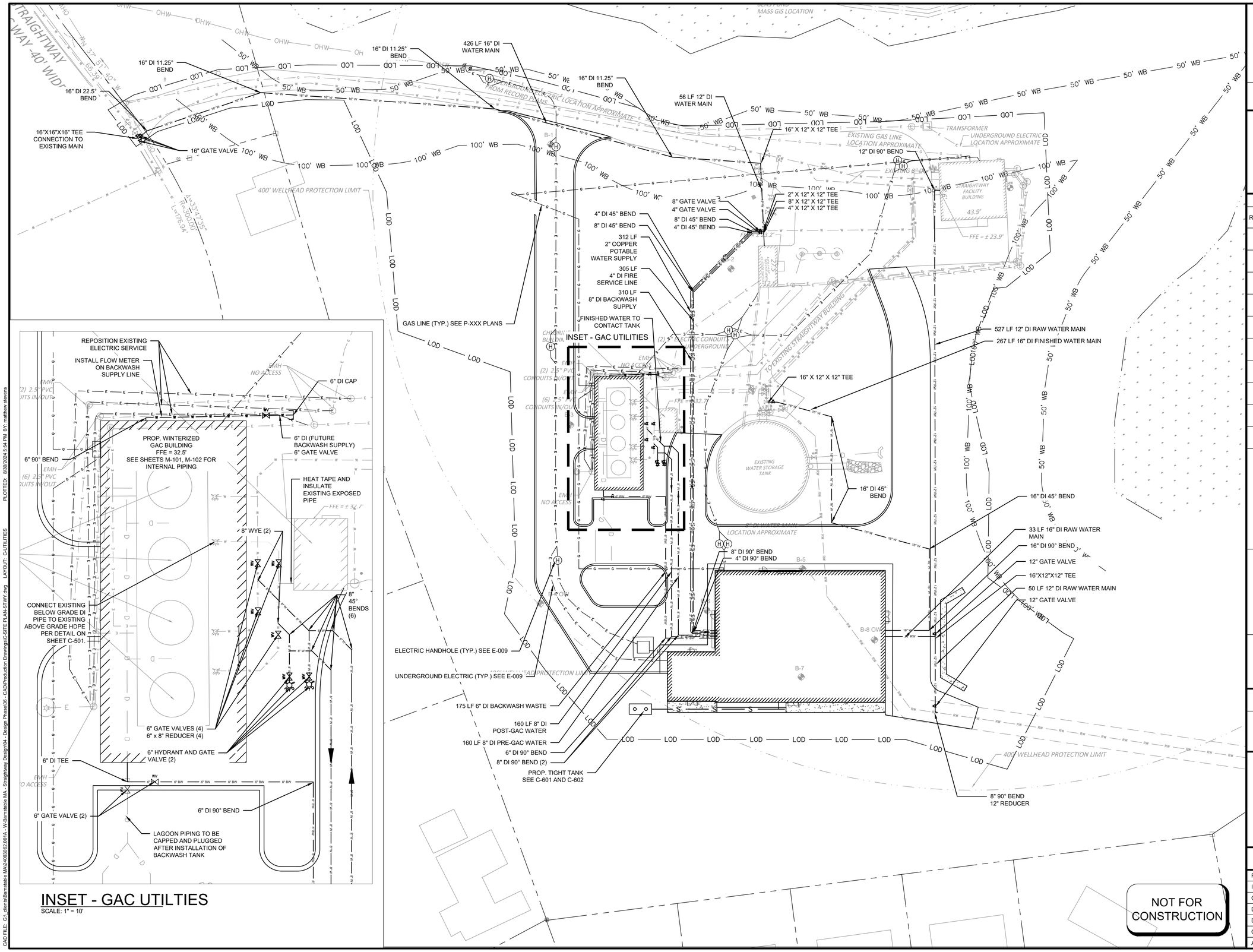
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INSET - GAC UTILTIES

SCALE: 1" = 10'

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0 30 60 90

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STRAIGHTWAY UTILITIES PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

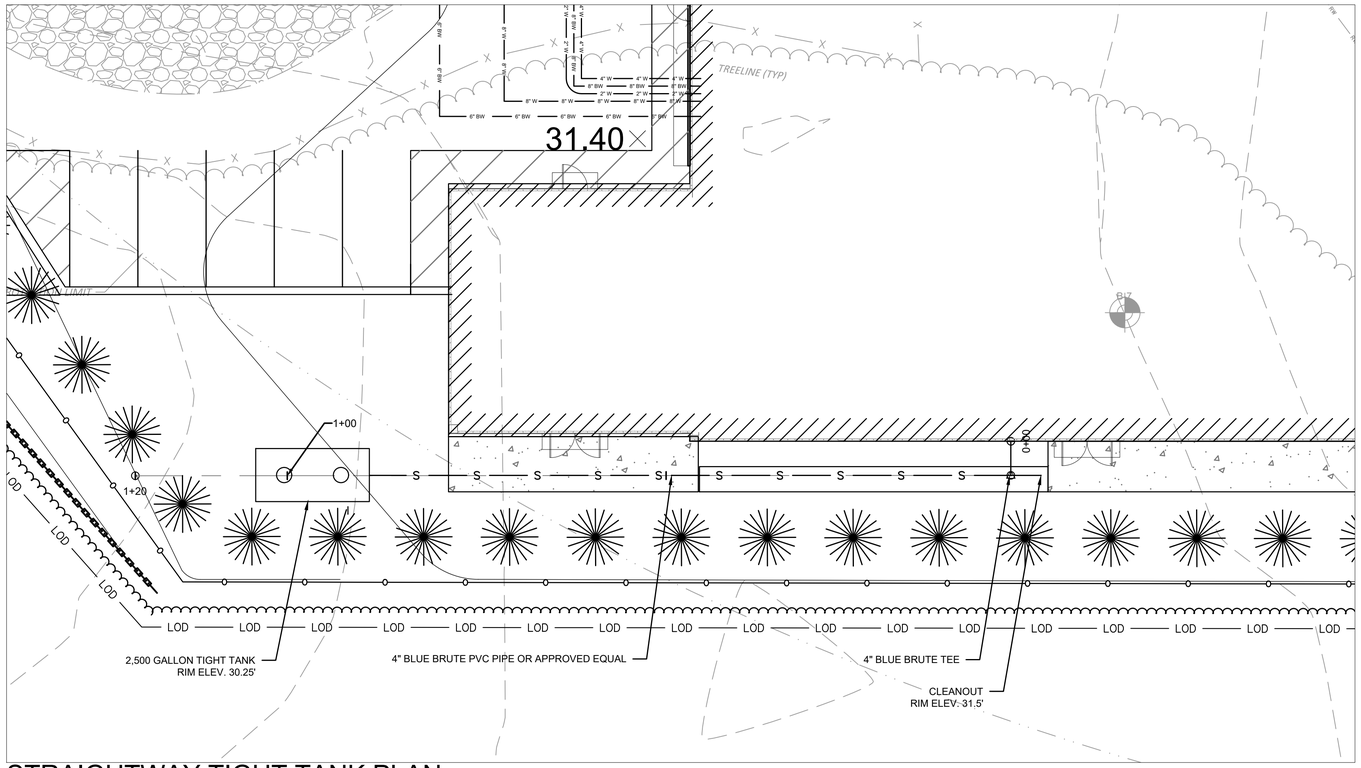
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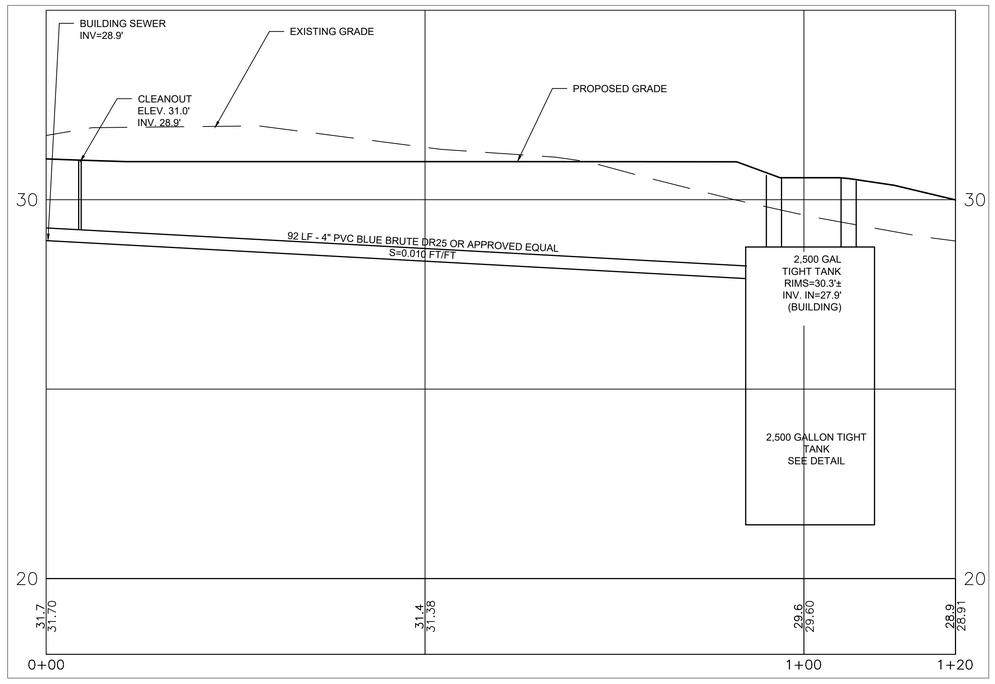
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STRAIGHTWAY TIGHT TANK PLAN

SCALE: 1" = 10'



STRAIGHTWAY TIGHT TANK PROFILE

VERTICAL SCALE: 1" = 2'
HORIZONTAL SCALE: 1" = 10'

NOTES:

1. THE PROPOSED DESIGN COMPLIES WITH TITLE 5 REQUIREMENTS AND SHALL BE INSTALLED AS SHOWN.
2. THE PROPOSED SYSTEM SHALL BE INSTALLED BY A TITLE V LICENSED SEPTIC INSTALLER LISTED ON THE TOWN OF BARNSTABLE' MOST CURRENT LIST OF LICENSED SEPTIC INSTALLERS.
3. THE BARNSTABLE ELECTRICAL INSPECTOR SHALL BE NOTIFIED AT LEAST 36 HOURS PRIOR TO INSTALLATION OF THE ALARM SYSTEM AND ASSOCIATED ELECTRICAL COMPONENTS.
4. THE BARNSTABLE STRAIGHTWAY WELL IS 403 FEET FROM THE TIGHT TANK.
5. THE TIGHT TANK IS OUTSIDE OF THE 400-FOOT RADIUS OF THE MASSDEP ZONE I PROTECTIVE AREA SURROUNDING THE WELL.
6. THERE ARE NO WETLANDS WITHIN 100 FEET OF THE TIGHT TANK.
7. THE PROPOSED TIGHT TANK WILL SERVE A PUBLIC WATER SUPPLY FACILITY WHERE IT IS NOT FEASIBLE TO CONNECT TO A PUBLIC SEWER.
8. THE PROJECT HAS NOT YET BEEN REVIEWED AND GRANTED AN ORDER OF CONDITIONS BY THE BARNSTABLE CONSERVATION COMMISSION.

THE SIZING OF THE TANK WAS DETERMINED IN ACCORDANCE WITH TITLE 5. THE ASSOCIATED CALCULATIONS ARE BELOW:

DAILY SEWAGE FLOW

USE: FACTORY, INDUSTRIAL PLANT, NO CAFETERIA

DAILY DESIGN FLOW = 15 GPD PER EMPLOYEE

DAILY FLOW (REQUIRED) 15 GPD X 2 EMPLOYEES

TOTAL DAILY FLOW WELL 3 TREATMENT FACILITY = 30 GPD

TIGHT TANK

2,500 GALLON TANK

MUST CONTAIN 500% OF SEPTIC REQUIREMENTS PER 310 CMR 15.203

48-HOUR STORAGE CAPACITY IN COMPARTMENT 30 GPD X 2 DAYS = 60 GALLONS STORAGE REQUIRED

500% OF 60 GALLONS = 300 GALLONS

2000-GALLON MINIMUM TANK SIZE PER 310 CMR 15.260

TOTAL STORAGE: 2,500 GALLONS > 2,000 GALLONS

NOT FOR CONSTRUCTION

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 10 20 30

SCALE: 1" = 10' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY SEWER PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

60% DESIGN PROGRESS PRINT

PROJECT NO.	24003062.001A
ISSUE DATE	8/2/2024
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C1-116

SHEET 9 of 60

CAD FILE: G:\ clients\Barnstable MA\24003062.001A - W-Barnstable MA - Straightway Design\04 - Design Phase\06 - CAD\Production Drawings\C-SITE PLAN-STWY.dwg LAYOUT: C-SEWER PLOTTED: 8/30/2024 5:54 PM BY: matthew stevens

TIGHT TANK SPECIFICATIONS

1. TIGHT TANKS SHALL BE CONSTRUCTED OF SOUND AND DURABLE WATERTIGHT MATERIALS NOT SUBJECT TO EXCESSIVE CORROSION, DECAY, OR FROST DAMAGE, OR CRACKING OR BUCKLING DUE TO SETTLEMENT OR BACKFILLING. TIGHT TANKS MAY BE CONSTRUCTED OF PRECAST REINFORCED CONCRETE (OTHER MATERIALS AS APPROVED IN WRITING BY THE DEPARTMENT, METAL TIGHT TANKS ARE PROHIBITED.)

2. TANK CONSTRUCTION MATERIALS SHALL MEET THE FOLLOWING MINIMUM SPECIFICATIONS OR AN ASTM EQUIVALENT STANDARD:
   (A) CONCRETE
   1. CONCRETE STRENGTH F'c 4,000 PSI @ 28 DAYS. DENSITY 140 PCF
   2. CEMENT, PORTLAND TYPE I OR III PER ASTM C150-96
   3. ADMIXTURES PER ASTM C233-95
   4. REINFORCING PER ASTM A615 FOR WIRE FABRIC. GRADE 40/60 R'D OR EQUIVALENT.
   5. DESIGN LOADING HS-20
   6. MINIMUM WALL THICKNESS: FOUR INCHES
   7. THE TANK SHALL BE WATERTIGHT

3. TANK, COVERS, CONNECTIONS AND PIPING SHALL BE DESIGNED AND CONSTRUCTED SO AS TO WITHSTAND AN ANTICIPATED MINIMUM HS-20 LOADING.

4. TIGHT TANK SHALL BE MANUFACTURED IN ACCORDANCE WITH A QUALITY CONTROL/QUALITY ASSURANCE PROGRAM. THE PROGRAM FOR CONCRETE TANKS SHALL BE IN CONFORMITY WITH ASTM STANDARD C 1227-96OR AN ASTM EQUIVALENT STANDARD. CONCRETE TANKS SHALL BE EMBOSSED WITH A SEAL STATING THAT THIS ASTM STANDARD HAS BEEN MET.

BUILDING SEWERS SPECIFICATIONS

1. THE BUILDING SEWER SHALL BE SUFFICIENT TO SERVE THE CONNECTED FIXTURES. IN NO CASE SHALL THE BUILDING SEWER BE LESS THAN FOUR INCHES IN DIAMETER.

2. THE BUILDING SEWER SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIAL AND EQUIPPED WITH WATER TIGHT JOINTS; BLUE BRUTE PVC PIPE OR THE EQUIVALENT.

3. ALL PIPE JOINTS OF THE BUILDING SEWER SHALL BE MADE WATER-TIGHT AND PROTECTED AGAINST DAMAGE BY ROOTS. POURED-TYPE JOINTS SHALL BE PROPERLY WIPED ON THE INSIDE TO ELIMINATE OBSTRUCTION OF FLOW.

4. THE BUILDING SEWER SHALL BE LAID ON A COMPACTED FIRM BASE.

5. THE BUILDING SEWER SHALL BE VENTED THROUGH THE VENT STACK OR MAIN VENT OF THE BUILDING SERVED BY IT. NO TRAP SHALL BE INSTALLED IN THE BUILDING SEWER OR BUILDING DRAIN.

6. ALL BUILDING SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STATE PLUMBING CODE, 248 CMR2.00

GENERAL CONSTRUCTION REQUIREMENTS FOR ALL SYSTEM COMPONENTS

1. TIGHT TANK:

   (A) WATERTIGHT THROUGH MANUFACTURER'S SPECIFICATION AND WARRANTY; OR

   (B) MADE WATERTIGHT BY THE MANUFACTURER, EQUIPMENT SUPPLIER OR INSTALLER USING ASPHALT OR SYNTHETIC POLYMER SEALER SPECIFIED BY THE CONCRETE OR SYNTHETIC MATERIAL MANUFACTURER.

2. TIGHT TANK SHALL BE CONSTRUCTED OR SET LEVEL AND TRUE TO GRADE ON A LEVEL STABLE BASE WHICH HAS BEEN MECHANICALLY COMPACTED. IF THE COMPONENT IS PLACED IN FILL, PROPER COMPACTION IS REQUIRED TO ENSURE STABILITY AND TO PREVENT SETTLING; NATIVE GROUND WITH A SIX INCH AGGREGATE BASE IS OTHERWISE ADEQUATE.

3. TIGHT TANK SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS MANHOLE(S) WITH A MINIMUM DIAMETER OF 20 INCHES AND CONSTRUCTED OF DURABLE MATERIAL.

4. ALL SYSTEM COMPONENTS SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIALS.

5. ALL PRESSURIZED PIPES SHALL BE DESIGNED AND INSTALLED TO MEET THE FOLLOWING REQUIREMENTS:

   (A) TO PREVENT FREEZING BY BEING INSTALLED BELOW THE FROST LINE, BY BEING ADEQUATELY INSULATED IF INSTALLED ABOVE THE FROST LINE, OR BE SELF-DRAINING;

   (B) TO SPECIFY THE APPROPRIATE CLASS OR SCHEDULE OF PIPE TO WITHSTAND MAXIMUM PRESSURE AND/OR ANTICIPATED VEHICULAR LOADS; AND

   (C) TO SPECIFY APPROPRIATE THRUST BLOCKING AT ALL ANGLES, BENDS, BRANCHES, PLUGS AND WHEREVER ELSE NECESSARY TO PREVENT DISRUPTION OF PROPER FUNCTIONING OF THE LINE.

6. THE TOP OF ALL SYSTEM COMPONENTS, INCLUDING THE TIGHT TANK SHALL BE INSTALLED NO MORE THAN 36" BELOW FINISH GRADE.

7. WHERE ANY PORTION OF ANY COMPONENT IS TO BE PLACED AT OR BELOW THE GROUND-WATER TABLE, ALL SYSTEM TANKAGE, INCLUDING THE TIGHT TANK, SHALL BE DESIGNED WITH COUNTER WEIGHTS, ANCHORS OR BALLAST AND A BUOYANCY CALCULATION FOR THE ENTIRE VOLUME OF EACH COMPONENT, WHEN EMPTY, SHALL BE PERFORMED AND SUBMITTED WITH THE SYSTEM PLANS AND SPECIFICATIONS.

8. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED.

SEPTIC SYSTEM GENERAL NOTES

1. THE SANITARY SEWAGE SYSTEM SHOWN SHALL BE INSTALLED IN ACCORDANCE WITH THE COMMONWEALTH OF MASSACHUSETTS STATE ENVIRONMENTAL CODE 310 CMR 15.00 (TITLE V) AND ANY LOCAL BOARD OF HEALTH REGULATIONS.

2. ANY MODIFICATION TO THE WORK SHALL BE APPROVED IN WRITING BY THE ENGINEER AND THE LOCAL BOARD OF HEALTH PRIOR TO PERFORMANCE.

3. THE TIGHT TANK SHALL BE H-20 DESIGN REINFORCED CONCRETE PRECAST MANUFACTURED BY OLDCASTLE PRECAST OR APPROVED EQUAL.

4. WHEREVER SEWER LINES CROSS WATER SUPPLY LINES, BOTH PIPES SHALL BE CONSTRUCTED OF CLASS 150 (MIN.) PRESSURE PIPE TO 10' ON EITHER SIDE OF CROSSING. PIPES SHALL ALSO BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS.

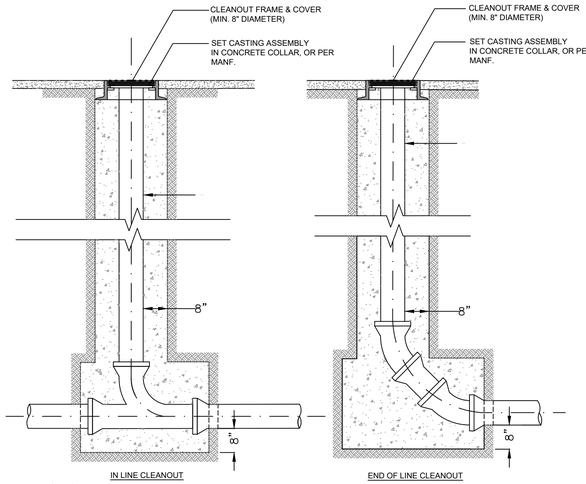
5. NOTIFY THE LOCAL BOARD OF HEALTH AGENT AND ENGINEER AT THE TIME OF EXCAVATION, PRIOR TO INSTALLATION.

6. NOTIFY LOCAL BOARD OF HEALTH AGENT AND ENGINEER WHEN SYSTEM IS COMPLETED AND READY FOR INSPECTION.

7. SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO THE START OF INSTALLATION:
   - ALL UNDERGROUND STRUCTURES (TANKS, STEPS)
   - FRAMES AND COVERS
   - PIPES, FITTINGS
   - WATERPROOFING & PIPE GASKETS

STRUCTURE TESTING NOTES:

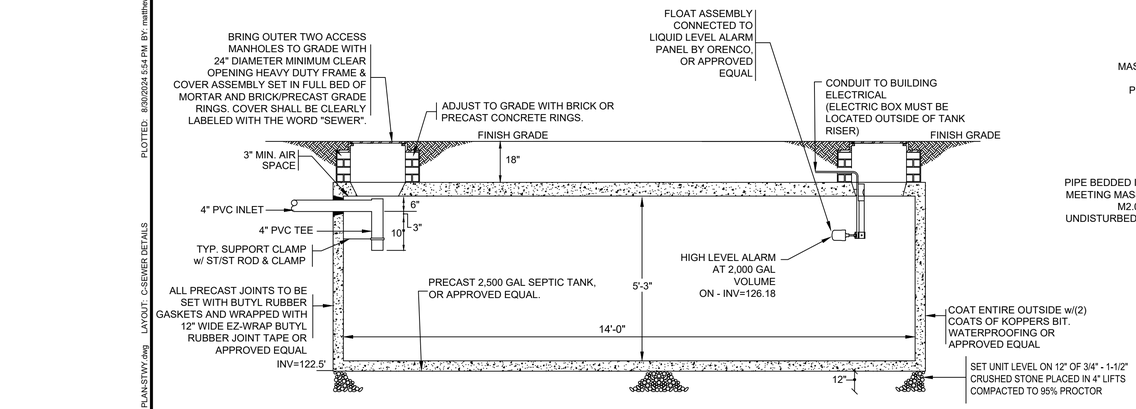
TIGHT TANK SHALL BE VACUUM TESTED FOR WATER TIGHTNESS AFTER INSTALLATION IN ACCORDANCE WITH ASTM C 1227. ALL TANKS MUST PASS TESTING PRIOR TO USE.



NOTES:
1. CLEANOUT FRAME AND COVER SHALL BE ONE OF THE FOLLOWING:
   A. PRODUCT NUMBER 00157324C01 AS MANUFACTURED BY EAST JORDAN IRON WORKS, FABRICATED FROM GRAY IRON AND CONFORMING TO ASTM A48 CLASS 35B;
   B. 8-INCH NYLOPLAST INLINE DRAIN WITH SOLID COVER (PRODUCT NUMBERS 2708AG AND 0899CGC, AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC.;
   C. OR APPROVED EQUAL.

SEWER CLEANOUT TYPICAL DETAIL

N.T.S.



THE REQUIRED BUOYANCY CALCULATIONS IN ACCORDANCE WITH TITLE 5 ARE BELOW:

ASSUMPTIONS/INITIAL INFORMATION:

GROUNDWATER AT ELEVATION 118 PER SHGWT
EARTH COVER DEPTH = 18 INCHES

WEIGHT OF EARTH = 110 PCF

WEIGHT OF WATER = 62.4 PCF

OUTER TANK DIMENSIONS (L X W X H) = (15' X 7' X 6.25')

INNER TANK DIMENSIONS (L X W X H) = (14' X 6' X 5.25')

WEIGHT OF TANK (2,500-GALLON TANK EMPTY PER MANUFACTURER) = 31,800 LBS

BUOYANCY CALCULATION

USING OUTER TANK DIMENSIONS

WEIGHT OF EARTH ON TANK = (L X W X EARTH COVER) * (WEIGHT OF EARTH)
= (15' X 7' X 1.5') * (110 PCF)
= 17,280 LBS

WEIGHT OF TANK + WEIGHT OF EARTH ON TANK = 49,080 LBS.

HYDROSTATIC PRESSURE = (L X W X SHGW HEIGHT) * (WEIGHT OF WATER)
= (15' X 7' X 0') * (62.4 PCF)
= 0 LBS

HYDROSTATIC PRESSURE =0 LBS < 66,450 LBS
<= WEIGHT OF TANK + WEIGHT OF EARTH (OK)

THE ALARM HEIGHT WAS SET AT THE VOLUME AT WHICH THE TANK WILL CONTAIN 2,000 GALLONS OF WASTEWATER AS CALCULATED BELOW:

ALARM HEIGHT

USING INNER TANK DIMENSIONS

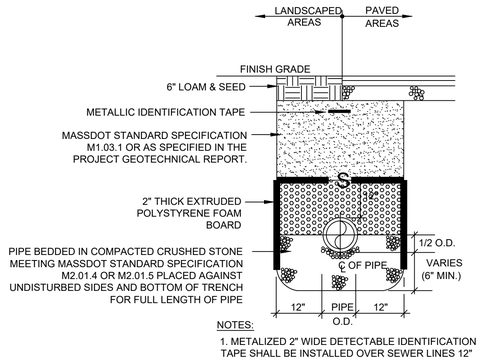
VOLUME BELOW ALARM = 2,000 GALLONS OR 267.361 CF = (L X W X ALARM HEIGHT)

ALARM HEIGHT = 267.361 CF/(L X W)
= 267.361 CF/(14' X 6')

ALARM HEIGHT = 3.18 FEET

TIGHT TANK TYPICAL DETAIL

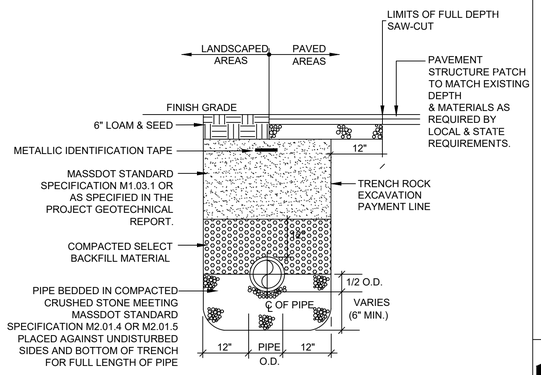
N.T.S.



NOTES:
1. METALIZED 2" WIDE DETECTABLE IDENTIFICATION TAPE SHALL BE INSTALLED OVER SEWER LINES 12" BELOW FINISH GRADE.
2. SEWER SHALL BE INSULATED IN ALL LOCATIONS WHERE FINAL COVER IS 36" OR LESS.

SEWER INSULATION DETAIL

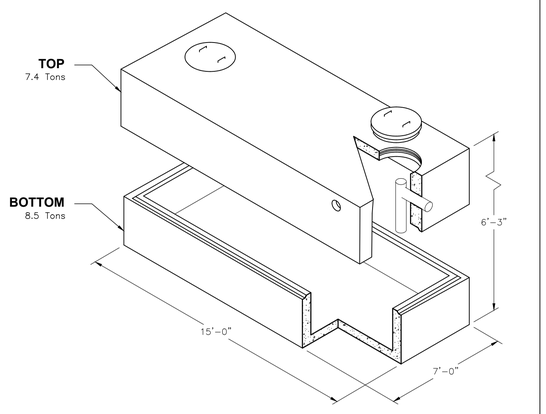
N.T.S.



NOTES:
1. METALIZED 2" WIDE DETECTABLE IDENTIFICATION TAPE SHALL BE INSTALLED OVER SEWER LINES 12" BELOW FINISH GRADE.

PVC SEWER PIPE TRENCH SECTION

N.T.S.



Oldcastle Precast®

CST-2500-2	6'-0" x 14'-0" x 5'-3" I.D. Septic Tank 2,500 Gallon Capacity
FILE NAME: 324ESCCST2500_ISO.DWG	
ISSUE DATE: January, 2008	
www.oldcastleprecast.com	Copyright ©2008

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING
0 — 1"
IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 ## ## ##
SCALE: 1" = ##' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY SEWER DETAILS

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

60% DESIGN PROGRESS PRINT

PROJECT NO.	24003062.001A
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C1-151

SHEET 11 of 60

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CAD FILE: G:_clients\Barnstable MA\24003062.001A - W-Barnstable MA - Straightway Design\04 - Design Phase\06 - CAD\Production Drawings\C-SITE PLAN-STWY.dwg LAYOUT: C-SEWER DETAILS

CAD FILE: G:_clients\Barnstable MA\24003062.001A - W-Barnstable MA - Straightway Design\04 - Design Phase\06 - CAD\Production Drawings\C-SITE PLAN-SP-HP.dwg LAYOUT: EXISTING CONDITIONS PLOTTED: 8/30/2024 5:55 PM BY: matthew stevens

400' WELLHEAD PROTECTION LIMIT

400' WELLHEAD PROTECTION LIMIT

200' RFA

100' WB

50' WB

100' RFA

200' RFA

FEMA FLOOD ZONE X BOUNDARY

TBM - SOUTH-EASTERLY HYDRANT FLANGE BOLT ELEV. = 13.61'

TBM - SOUTH-EASTERLY HYDRANT FLANGE BOLT ELEV. = 17.77'

8" DI WATER MAIN LOCATION APPROXIMATE FROM RECORD PLANS

TREELINE (TYP.)

BITUMINOUS PAVEMENT

FFE = ± 9.7'

20.0'

UNDERGROUND ELECTRIC LINE LOCATION APPROXIMATE

EXISTING 10" AC WATER MAIN

EXISTING 10" DI WATER MAIN

EXISTING 10" AC WATER MAIN

EXTERNAL GENERATOR

GRAVEL PARKING AREA

UNDERGROUND ELECTRIC LINE

PLANTER AREA W/STONE WALL PERIMETER

1" WATER SAMPLE PIPE

BENCHMARK ELEVATION = 14.7 (NAVD88) ESTABLISHED BY LUCAS ENVIRONMENTAL 11/29/2021

FFE = 14.7'

UP#34-3A

39.3'

7.0'

CB INV = ± 8.0'

CB INV = ± 6.8'

8" CI

SMITHS

(PUBLIC)

FLOW

CONCRETE HEADWALL

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REVISIONS

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SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 30 60 90

SCALE: 1" = 30' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISPORT - SIMMONS POND EXISTING CONDITIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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SHEET 12 of 60

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400' WELLHEAD PROTECTION LIMIT

400' WELLHEAD PROTECTION LIMIT

TREE CLEARING AND GRUBBING AREA

EXISTING HYDRANT TO REMAIN (TYP.)

EXISTING GRAVEL PARKING AREA TO BE REMOVED

REMOVE AND DISPOSE SECTION OF EXISTING FENCE

EXIST. HYANNIS POND PUMP STATION TO BE DEMOLISHED AND HYANNISPORT WELL TO BE DECOMMISSIONED AND ABANDONED

EXIST. SIMMONS POND PUMP STATION TO BE DEMOLISHED AND SIMMONS POND WELL TO BE DECOMMISSIONED AND ABANDONED

REMOVE AND DISPOSE EXISTING PAVEMENT

ABANDON EXISTING AC WATER MAIN IN PLACE.

CUT AND CAP

TBM - SOUTH-EASTERLY HYDRANT FLANGE BOLT ELEV. = 13.61

TBM - SOUTH-EASTERLY HYDRANT FLANGE BOLT ELEV. = 17.2

FEMA FLOOD ZONE X BOUNDARY

BITUMINOUS PAVEMENT

EXTERNAL GENERATOR

UNDERGROUND ELECTRIC LINE

1" WATER SAMPLE PIPE

SMITH STREET (PUBLIC)

FLOW

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HYANNISPORT - SIMMONS POND SITE PREPARATION PLAN

STRAIGHTWAY WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 SERVICE & MAY A. 1939

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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SHEET 13 of 60

18' DOUBLE ACCESS GATE
SIMMONS POND PUMP STATION BUILDING
8' CHAIN LINK FENCE WITH BARBED WIRE (TYP.)
400' WELLHEAD PROTECTION LIMIT
BITUMINOUS ACCESS DRIVE AND TURNAROUND
BITUMINOUS PARKING SPACE
HYANNISPORT PUMP STATION BUILDING
2,500 GALLON TIGHT TANK
8' CHAIN LINK FENCE WITH BARBED WIRE (TYP.)
TBM SOUTH-EASTERLY HYDRANT FLANGE BOLT ELEV. = 17.77
FEMA FLOOD ZONE X BOUNDARY
BITUMINOUS PAVEMENT
UNDERGROUND ELECTRIC LINE LOCATION APPROXIMATE
MILL AND OVERLAY EXISTING DRIVEWAY
SMITH
(PUB
FLOW
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HYANNISPORT - SIMMONS POND SITE PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
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SHEET 14 of 60

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400' WELLHEAD PROTECTION LIMIT

400' WELLHEAD PROTECTION LIMIT

200' RFA

100' RFA

100' WB

50' WB

LOD

BITUMINOUS PAVEMENT

FEMA FLOOD ZONE X BOUNDARY

19.00'

18.00'

17.00'

16.00'

15.00'

14.00'

13.00'

12.00'

11.00'

10.00'

20.00'

CONCRETE HEADWALL

FLOW

SMITH CT (PUBLIC)

INV = ± 8.0'

INV = ± 6.8'

NOT FOR CONSTRUCTION

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ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISPORT - SIMMONS POND GRADING PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED MAY 4, 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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400' WELLHEAD PROTECTION LIMIT

400' WELLHEAD PROTECTION LIMIT

(2) 8" SOLID SLEEVE
8"X6" DI WYE
HYDRANT
8" 45° BEND
6" GATE VALVE
8"X8"X6" TEE
LOD
BITUMINOUS PAVEMENT
16.6'
20.0'
UNDERGROUND ELECTRIC LINE LOCATION APPROXIMATE
FEMA FLOOD ZONE X
800 YEAR
EXISTING 10" AC WATER MAIN
8" DI WATER MAIN LOCATION APPROXIMATE FROM RECORD PLANS
TBM - SOUTH-EASTERLY HYDRANT FLANGE BOLT ELEV. = 13.61'
100' WB
50' WB
200' RFA
100' RFA

6" GATE VALVE
HYDRANT
TBM - SOUTH-EASTERLY HYDRANT FLANGE BOLT ELEV. = 17.87'
8" GATE VALVE
8"x8"x6" TEE
8" 45° BEND (2)
EXTERNAL GENERATOR
EXISTING 10" WATER MAIN
EXISTING 10" AC WATER MAIN
UNDERGROUND ELECTRIC LINE
1" WATER SAMPLE PIPE
UPH34-3A
INV = ±8.0'
INV = ±6.8'
8" CI
CONCRETE HEADWALL
FLOW
SMITH ST (PUBLIC)

NOT FOR CONSTRUCTION

KLEINFELDER
Bright People. Right Solutions.
One Beacon Street, Suite 8100
Boston, MA 02108
Phone: 617-497-7800
www.kleinfelder.com

REVISIONS

REV	DESCRIPTION	DSN / DWN	CHK / APP	DATE

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 30 60 90

SCALE: 1" = 30' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISPORT - SIMMONS POND UTILITIES PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

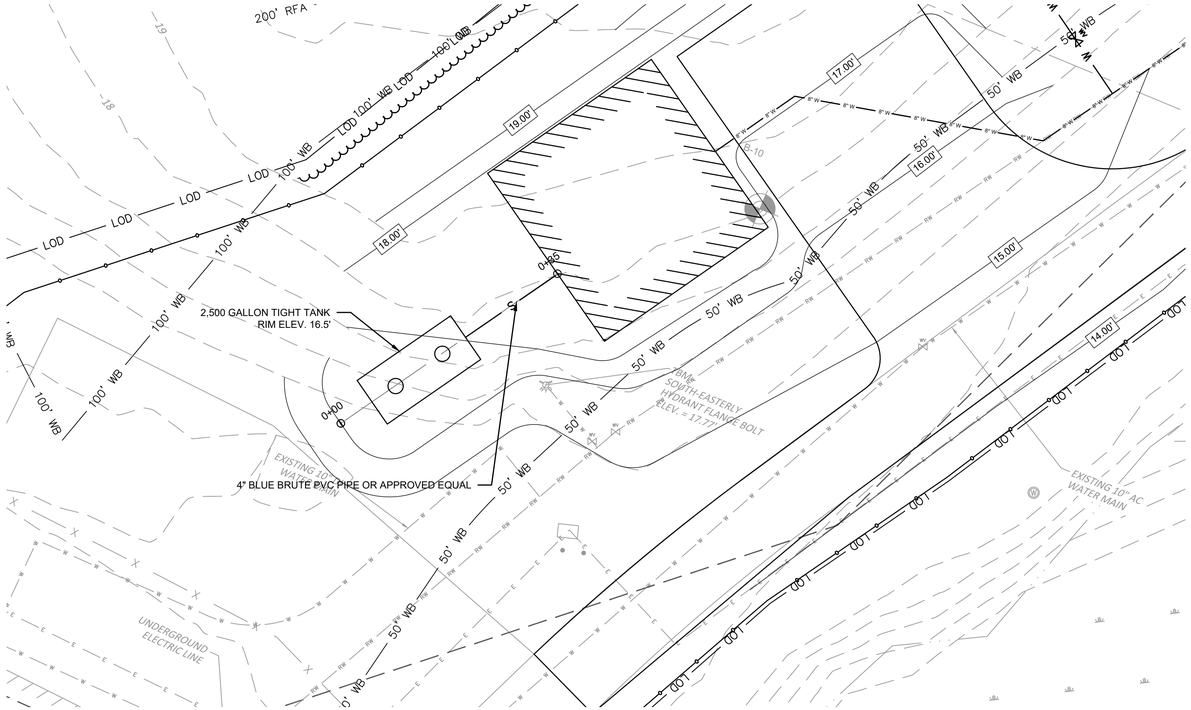
HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

60% DESIGN PROGRESS PRINT

PROJECT NO.	24003062.001A
ISSUE DATE	8/2/2024
CURRENT REVISION	
DESIGNED BY	TB
DRAWN BY	MD/MPS
CHECKED BY	TB/GAA
APPROVED BY	GAA

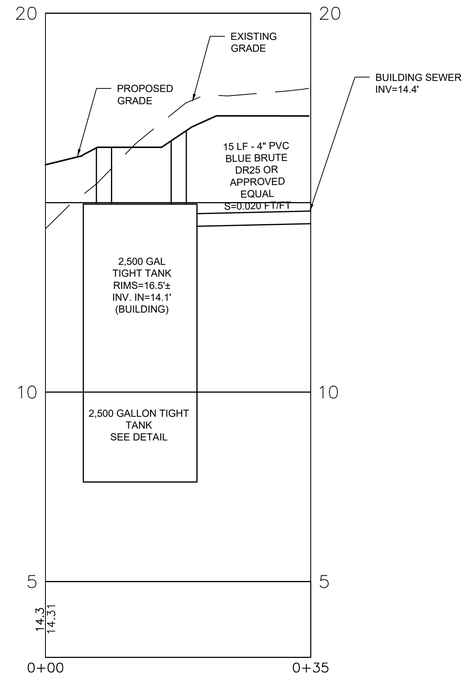
C2-115

SHEET 16 of 60



SIMMONS POND/HYANNISPORT WELLS TIGHT TANK PLAN

SCALE: 1" = 10'



SIMMONS POND/HYANNISPORT TIGHT TANK PROFILE

VERTICAL SCALE: 1" = 2'
HORIZONTAL SCALE: 1" = 10'

NOTES:

1. THE PROPOSED DESIGN COMPLIES WITH TITLE 5 REQUIREMENTS AND SHALL BE INSTALLED AS SHOWN.
2. THE PROPOSED SYSTEM SHALL BE INSTALLED BY A TITLE V LICENSED SEPTIC INSTALLER LISTED ON THE TOWN OF BARNSTABLE'S MOST CURRENT LIST OF LICENSED SEPTIC INSTALLERS.
3. THE BARNSTABLE ELECTRICAL INSPECTOR SHALL BE NOTIFIED AT LEAST 36 HOURS PRIOR TO INSTALLATION OF THE ALARM SYSTEM AND ASSOCIATED ELECTRICAL COMPONENTS.
4. THE SIMMONS POND WELL IS 450 FEET FROM THE TIGHT TANK.
5. THE HYANNISPORT WELL IS 30 FEET FROM THE TIGHT TANK.
6. THE TIGHT TANK IS WITHIN THE 400-FOOT RADIUS OF THE MASSDEP ZONE I PROTECTIVE AREA SURROUNDING THE WELL.
7. THERE ARE WITHIN 75 FEET OF THE TIGHT TANK.
8. THE PROPOSED TIGHT TANK WILL SERVE A PUBLIC WATER SUPPLY FACILITY WHERE IT IS NOT FEASIBLE TO CONNECT TO A PUBLIC SEWER.
9. THE PROJECT HAS NOT YET BEEN REVIEWED AND GRANTED AN ORDER OF CONDITIONS BY THE BARNSTABLE CONSERVATION COMMISSION.

THE SIZING OF THE TANK WAS DETERMINED IN ACCORDANCE WITH TITLE 5. THE ASSOCIATED CALCULATIONS ARE BELOW.

DAILY SEWAGE FLOW

USE: FACTORY, INDUSTRIAL PLANT, NO CAFETERIA

DAILY DESIGN FLOW = 15 GPD PER EMPLOYEE

DAILY FLOW (REQUIRED): 15 GPD X 2 EMPLOYEES

TOTAL DAILY FLOW WELL TREATMENT FACILITY = 30 GPD

TIGHT TANK

2,500 GALLON TANK

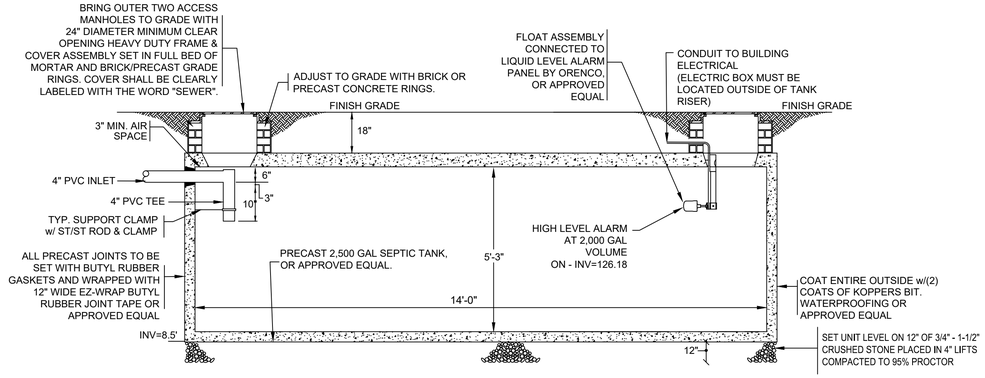
MUST CONTAIN 500% OF SEPTIC REQUIREMENTS PER 310 CMR 15.203

48-HOUR STORAGE CAPACITY IN COMPARTMENT 30 GPD X 2 DAYS = 60 GALLONS STORAGE REQUIRED

500% OF 60 GALLONS = 300 GALLONS

2000-GALLON MINIMUM TANK SIZE PER 310 CMR 15.260

TOTAL STORAGE: 2,500 GALLONS > 2,000 GALLONS



TIGHT TANK TYPICAL DETAIL

THE REQUIRED BUOYANCY CALCULATIONS IN ACCORDANCE WITH TITLE 5 ARE BELOW:

ASSUMPTIONS/INITIAL INFORMATION:

GROUNDWATER AT ELEVATION 110 PER SHGWT
EARTH COVER DEPTH = 18 INCHES

WEIGHT OF EARTH = 110 PCF

WEIGHT OF WATER = 62.4 PCF

OUTER TANK DIMENSIONS (L X W X H) = (15' X 7' X 6.25')

INNER TANK DIMENSIONS (L X W X H) = (14' X 6' X 5.25')

WEIGHT OF TANK (2,500-GALLON TANK EMPTY PER MANUFACTURER) = 31,800 LBS

BUOYANCY CALCULATION

USING OUTER TANK DIMENSIONS

WEIGHT OF EARTH ON TANK = (L X W X EARTH COVER) * (WEIGHT OF EARTH)
= (15' X 7' X 1.5') * (110 PCF)
= 17,280 LBS

WEIGHT OF TANK + WEIGHT OF EARTH ON TANK = 49,080 LBS.

HYDROSTATIC PRESSURE = (L X W X SHGW HEIGHT) * (WEIGHT OF WATER)
= (15' X 7' X 1.5') * (62.4 PCF)
= 9,828 LBS

HYDROSTATIC PRESSURE =9,828 LBS < 66,450 LBS
<= WEIGHT OF TANK + WEIGHT OF EARTH (OK)

THE ALARM HEIGHT WAS SET AT THE VOLUME AT WHICH THE TANK WILL CONTAIN 2,000 GALLONS OF WASTEWATER AS CALCULATED BELOW:

ALARM HEIGHT

USING INNER TANK DIMENSIONS

VOLUME BELOW ALARM = 2,000 GALLONS OR 267.361 CF = (L X W X ALARM HEIGHT)

ALARM HEIGHT = 267.361 CF/(L X W)
= 267.361 CF/(14' X 6')

ALARM HEIGHT = 3.18 FEET

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0 10 20 30
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HYANNISPORT - SIMMONS POND SEWER PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER SUPPLY DIVISION
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C2-116

SHEET 17 of 60

CAD FILE: G:_clients\Barnstable MA\24003062.001A - W.Barnstable MA - Straightway Design\04 - Design Phase\09 - CAD\Production Drawings\C-SITE PLAN-SP-HP.dwg LAYOUT: C-SEWER PLOTTED: 8/30/2024 5:05 PM BY: matthew stevens

APPENDIX C

FEDERAL AND MUNICIPAL PERMITS

Agency	Permit/Approval/Standard	Status
FEDERAL		
US Fish and Wildlife Service	Endangered Species Act Consultation	Completed
US Fish and Wildlife Service	Migratory Birds Treaty Act Consultation	Completed
US Fish and Wildlife Service	Bald and Golden Eagles Consultation	Completed
Massachusetts Coastal Zone Management (CZM) Office	Federal Consistency Review	Completed
Federal Emergency Management Agency/MassDEP	Federal Flood Risk Management Standard	Completed
LOCAL		
Barnstable Conservation Commission	Wetlands Order of Conditions	To be obtained
Barnstable DPW	Stormwater Management Permit	To be obtained
Barnstable Site Plan Review Committee	Site Plan Review	To be obtained
Barnstable DPW	Road Opening/Trench Permit	To be obtained
Building Division	Building Permit	To be obtained

APPENDIX D

RMAT REPORT

Climate Resilience Design Standards Tool Project Report

Hyannisport Water Treatment Facilities
Date Created: 6/7/2024 1:40:08 PM
Created By: MSchultz
Date Report Generated: 8/2/2024 12:49:08 PM
Tool Version: Version 1.2
Project Contact Information: Meryl Schultz (meschultz@kleinfelder.com)

Project Summary

Link to Project

Estimated Capital Cost: $3000000.00
End of Useful Life Year: 2065
Project within mapped Environmental Justice neighborhood: Yes

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



Asset Preliminary Climate Risk Rating Summary

Number of Assets: 2

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Simmons Pond Well and Pump Station	High Risk	High Risk	Low Risk	High Risk
Hyannisport Well and Pump Station	High Risk	High Risk	Low Risk	High Risk

Climate Resilience Design Standards Summary

	Target Planning Horizon	Intermediate Planning Horizon	Percentile	Return Period	Tier
Sea Level Rise/Storm Surge					
Simmons Pond Well and Pump Station	2070	2050		200-yr (0.5%)	
Hyannisport Well and Pump Station	2070	2050		200-yr (0.5%)	
Extreme Precipitation					
Simmons Pond Well and Pump Station	2070			50-yr (2%)	Tier 3
Hyannisport Well and Pump Station	2070			50-yr (2%)	Tier 3
Extreme Heat					
Simmons Pond Well and Pump Station	2070		90th		Tier 3
Hyannisport Well and Pump Station	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 "Moderate Exposure" because of the following:

- Exposed to the 1% annual coastal flood event as early as 2030
- Located within the 0.1% annual coastal flood event within the project's useful life
- Not located within the predicted mean high water shoreline by 2030

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 "Not Exposed" because of the following:

- No historic riverine flooding at project site
- The project is not within a mapped FEMA floodplain [outside of the Massachusetts Coast Flood Risk Model (MC-FRM)]
- Project is more than 500ft from a waterbody
- Project is not likely susceptible to riverine erosion

Extreme Heat

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

- Increased impervious area
- Existing trees are being removed as part of the proposed project
- Existing impervious area of the project site is less than 10%
- 10 to 30 day increase in days over 90 deg. F within project's useful life
- 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 - Simmons Pond Well and Pump Station
Primary asset criticality factors influencing risk ratings for this asset:

- Asset must be operable at all times, even during natural hazard event
- Greater than 10,000 people would be directly affected by the loss/inoperability of the asset
- The building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
- Inoperability of the asset would result in moderate or severe injuries or moderate or severe impacts to chronic illnesses
- Inoperability may moderately impact other facilities, assets, or buildings, but is not expected to affect their ability to operate
- There are no hazardous materials in the asset

Asset - Hyannisport Well and Pump Station
Primary asset criticality factors influencing risk ratings for this asset:

- Asset must be operable at all times, even during natural hazard event
- Greater than 10,000 people would be directly affected by the loss/inoperability of the asset
- The building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.

- Inoperability of the asset would result in moderate or severe injuries or moderate or severe impacts to chronic illnesses
- Inoperability may moderately impact other facilities, assets, or buildings, but is not expected to affect their ability to operate
- There are no hazardous materials in 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: Simmons Pond Well and Pump Station — Building/Facility

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 200-yr (0.5%)

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

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

Projected Tidal Datums: APPLICABLE
Note: The site is exposed to Sea Level Rise/Storm Surge, but projected Tidal Datums are not available within the site. Additional site-specific analyses are recommended to identify projected Tidal Datums for the recommended planning horizon. Consult a professional coastal engineer or modeler to estimate projected Tidal Datums based on the recommended Standards and additional outputs provided through this Tool.

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Simmons Pond Well and Pump Station	2050	0.5% (200-Year)	16.3	14.9	15.3
	2070		17.3	16.2	16.6

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Simmons Pond Well and Pump Station	2050	0.5% (200-Year)	17.5	15.6	16.7
	2070		19.2	16.8	18.2

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(Feet)		
Simmons Pond Well and Pump Station	2050	0.5% (200-Year)	3.0	0.0	1.8
	2070		3.0	0.0	2.1

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

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.

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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
Simmons Pond Well and Pump Station	2070	50-Year (2%)	8.7	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

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: Hyannisport Well and Pump Station Building/Facility

Sea Level Rise/Storm Surge — High Risk

Target Planning Horizon: 2070
Intermediate Planning Horizon: 2050
Return Period: 200-yr (0.5%)

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

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Applicable Design Criteria

Projected Tidal Datums: APPLICABLE
Note: The site is exposed to Sea Level Rise/Storm Surge, but projected Tidal Datums are not available within the site. Additional site-specific analyses are recommended to identify projected Tidal Datums for the recommended planning horizon. Consult a professional coastal engineer or modeler to estimate projected Tidal Datums based on the recommended Standards and additional outputs provided through this Tool.

Projected Water Surface Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Hyannisport Well and Pump Station	2050	0.5% (200-Year)	16.3	14.9	15.3
	2070		17.3	16.2	16.6

Projected Wave Action Water Elevation: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(ft - NAVD88)		
Hyannisport Well and Pump Station	2050	0.5% (200-Year)	17.5	15.6	16.7
	2070		19.2	16.8	18.2

Projected Wave Heights: APPLICABLE

Asset Name	Recommended Planning Horizon	Recommended Return Period	Max	Min	Area Weighted Average
			(Feet)		
Hyannisport Well and Pump Station	2050	0.5% (200-Year)	3.0	0.0	1.8
	2070		3.0	0.0	2.1

Projected Duration of Flooding: APPLICABLE
Methodology to Estimate Projected Values

Projected Design Flood Velocity: APPLICABLE
Methodology to Estimate Projected Values

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

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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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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
Hyannisport Well and Pump Station	2070	50-Year (2%)	8.7	Downloadable Methodology PDF

Projected Riverine Peak Discharge & Peak Flood Elevation: NOT APPLICABLE

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

Sea Level Rise/Storm Surge Project Maps

The following three maps illustrate the Projected Water Surface Elevation for the 2030, 2050, and 2070 planning horizons corresponding to the lowest return period (largest design storm) recommended across the assets identified for this project in the Tool. For projects that only have Natural Resource assets, the maps will show the Projected Water Surface Elevations corresponding to the 5% (20-year) return period. Refer to the Climate Resilience Design Standards Output - Sea Level Rise/Storm Surge Section for additional values associated with other assets. The maps include the project area as drawn by the user with a 0.1 mile minimum buffer, but do not reflect the location of specific assets on the site.

LIMITATIONS: The recommended Climate Resilience Design Standards for the Sea Level Rise / Storm Surge Design Criteria are based on the user drawn polygon and relationships as defined in the Supporting Documents. The projected values and maps provided through the Tool are based on the Massachusetts Coast Flood Risk Model (MC-FRM) outputs as of 9/13/2021, which included GIS-based data for three planning horizons (2030, 2050, 2070) and six return periods (0.1%, 0.2%, 0.5%, 1%, 2%, 5%). These values are projections based on assumptions as defined in the model and the LiDAR used at the time. For additional information on the MC-FRM, review the additional resources provided on the Start Here page.

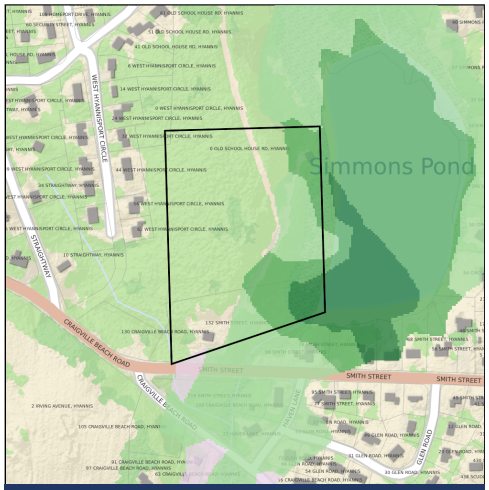
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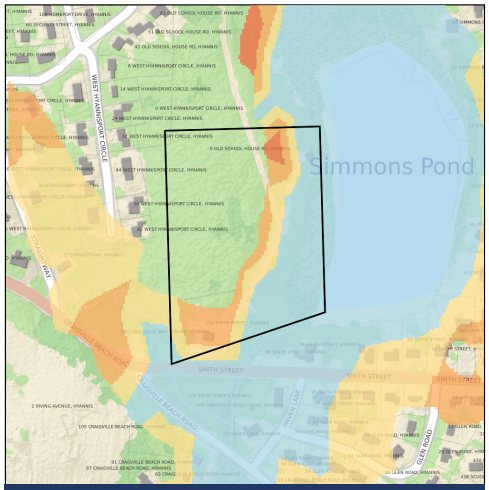
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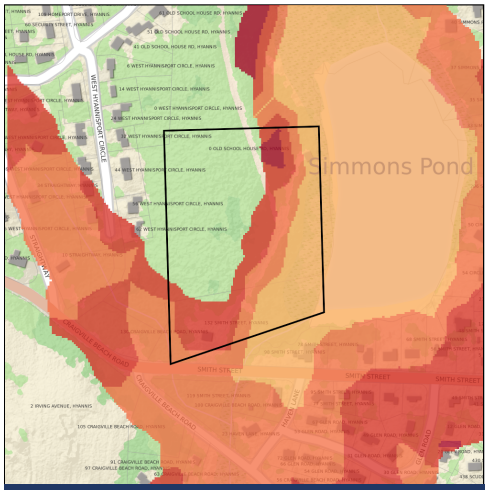
- Project Boundary

Projected Water Surface Elevation (ft-NAVD88)

- ≤ 10.0
- 10.0 - 10.3
- 10.3 - 10.8
- 10.8 - 11.3
- 11.3 - 11.8
- 11.8 - 12.3
- 12.3 - 12.8
- 12.8 - 13.3
- 13.3 - 13.8
- 13.8 - 14.3
- 14.3 - 14.8
- 14.8 - 15.3
- 15.3 - 15.8
- 15.8 - 16.3
- 16.3 - 16.8
- 16.8 - 17.3
- ≥ 17.3







Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 0.5% (200-yr)

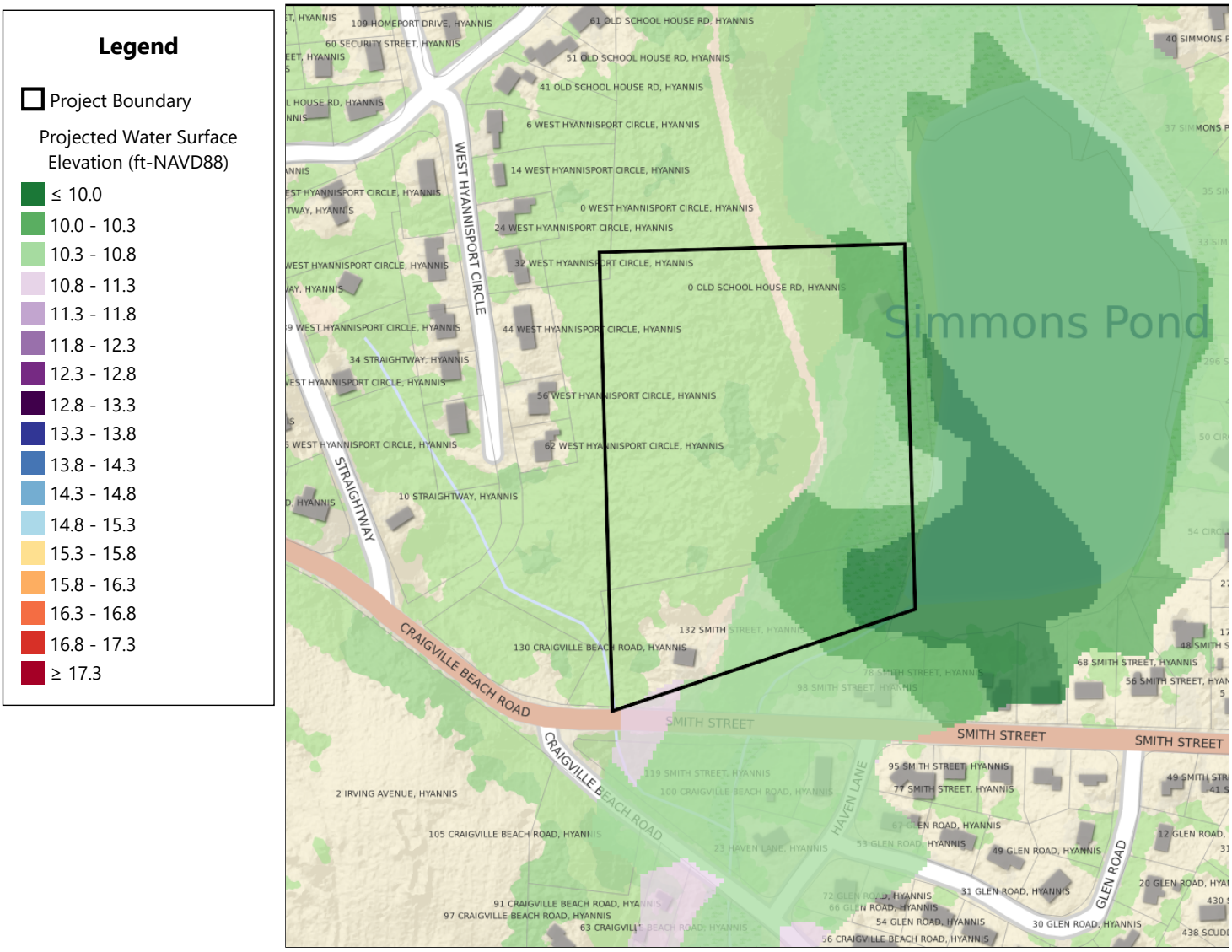
Project Name: Hyannisport Water Treatment Facilities
Location (Town): Barnstable

0.25 0.5 1.0 Miles

Created by: MSchultz
Date Created: 6/7/2024
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average
			(ft-NAVD88)		
Simmons Pond Well and Pump Station, Hyannisport Well and Pump Station	2030	0.5% (200-yr)	10.8	10.0	10.2
	2050	0.5% (200-yr)	16.3	14.9	15.3
	2070	0.5% (200-yr)	17.3	16.2	16.6



Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2030, 0.5% (200-yr)

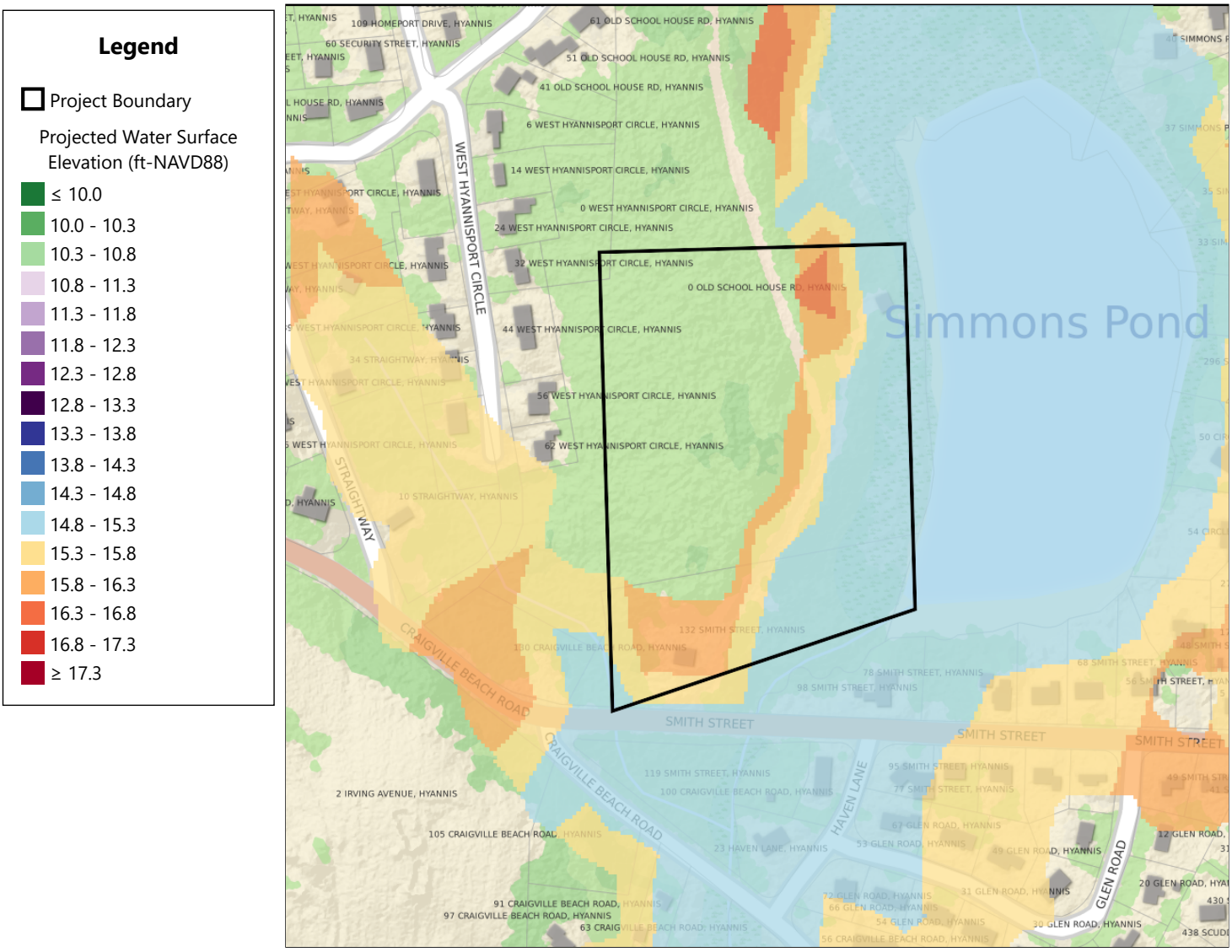
Project Name: Hyannisport Water Treatment Facilities
Location (Town): Barnstable

0.05 0.1 0.25 Miles

Created by: MSchultz
Date Created: 6/7/2024
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Simmons Pond Well and Pump Station, Hyannisport Well and Pump Station	2030	0.5% (200-yr)	10.8	10.0	10.2



Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2050, 0.5% (200-yr)

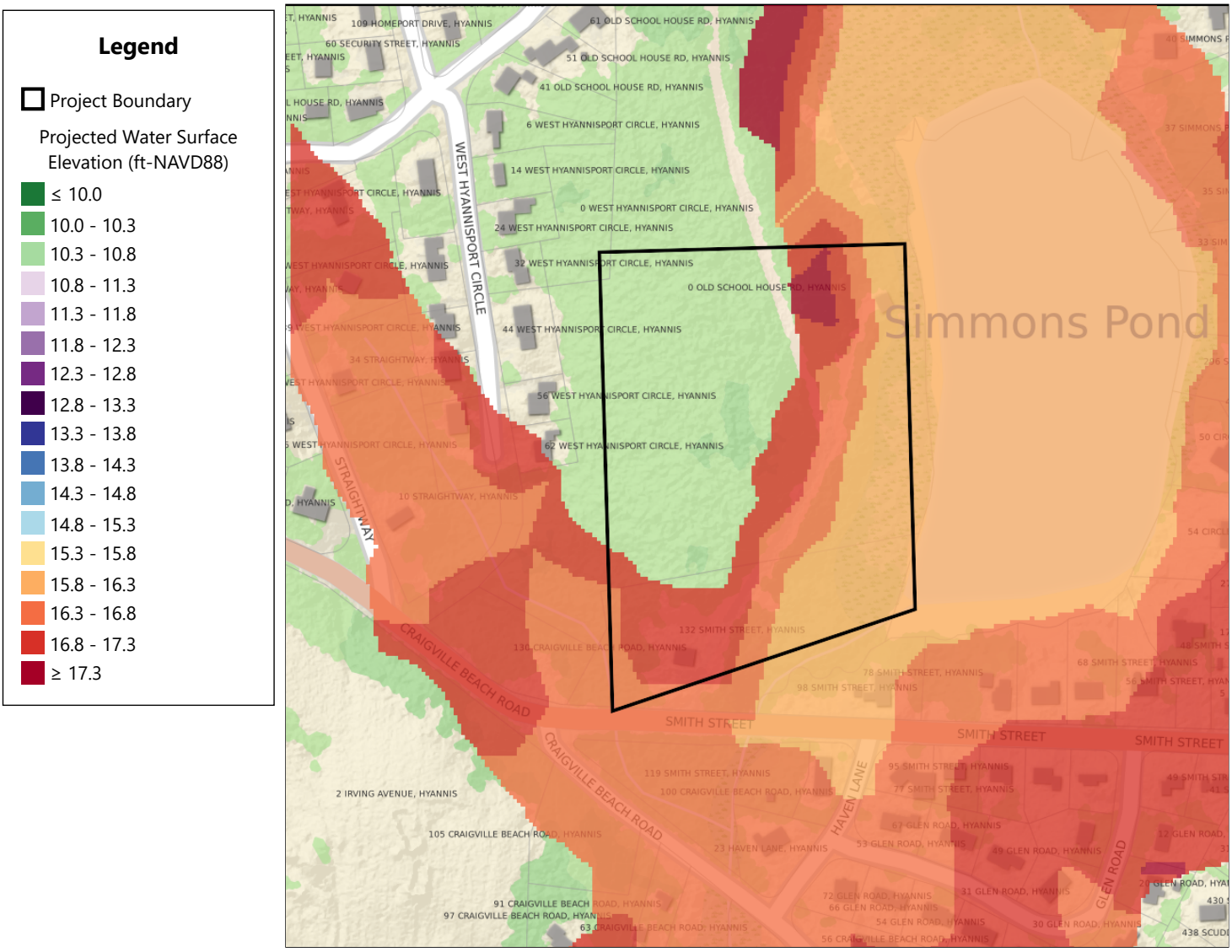
Project Name: Hyannisport Water Treatment Facilities
Location (Town): Barnstable

0.05 0.1 0.25 Miles

Created by: MSchultz
Date Created: 6/7/2024
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average (ft-NAVD88)
Simmons Pond Well and Pump Station, Hyannisport Well and Pump Station	2050	0.5% (200-yr)	16.3	14.9	15.3



Climate Resilience Design Standards Tool:
Sea Level Rise/Storm Surge Design Criteria
Projected Water Surface Elevation Map: 2070, 0.5% (200-yr)

Project Name: Hyannisport Water Treatment Facilities
Location (Town): Barnstable

0.05 0.1 0.25 Miles

Created by: MSchultz
Date Created: 6/7/2024
Tool Version: 1.3

N

Asset Name	Planning Horizon	Return Period	Max	Min	Area Weighted Average
			(ft-NAVD88)		
Simmons Pond Well and Pump Station, Hyannisport Well and Pump Station	2070	0.5% (200-yr)	17.3	16.2	16.6

Project Inputs

Core Project Information

Name:	Hyannisport Water Treatment Facilities
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)?	2065
Location of Project:	Barnstable
Estimated Capital Cost:	$3,000,000
Who is the Submitting Entity?	Private Other Kleinfelder Meryl Schultz (meschultz@kleinfelder.com)
Is this project being submitted as part of a state grant application?	Yes
What stage are you in your project lifecycle?	Design
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:	Improvements to the Hyannisport Water treatment facilities by Simmon's Pond to be able to: 1) reliably and continually meet existing and anticipated future water quality regulations, 2) to optimize the performance and efficiency water treatment, and 3) to allow for maximum flexibility and reliability to protect against disruption to its system at any single location. This includes relocating two pump stations to a nearby location out of the 500-year floodplain. This report is being submitted as part of a MEPA submission.
Project Submission Comments:	

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ Project reduces storm damage
- ✓ Project protects public water supply
- ✓ Project improves water quality

Factors to Improve Output

- ✓ Incorporate nature-based solutions that may provide flood protection
- ✓ Incorporate green infrastructure to filter stormwater

Is the primary purpose of this project ecological restoration?

No

Project Benefits

Provides flood protection through nature-based solutions	Maybe
Reduces storm damage	Yes
Recharges groundwater	No
Protects public water supply	Yes
Filters stormwater using green infrastructure	Maybe
Improves water quality	Yes
Promotes decarbonization	No
Enables carbon sequestration	No
Provides oxygen production	No
Improves air quality	No
Prevents pollution	No
Remediates existing sources of pollution	No
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?	No
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: Simmons Pond Well and Pump Station
Asset Type: Typically Unoccupied
Asset Sub-Type: Pump Station - Sanitary
Construction Type: New Construction
Construction Year: 2025
Useful Life: 40

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.
Greater 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 provides 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?
There are no hazardous materials in the building/facility

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but is not expected to affect their ability to operate

If this building/facility was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 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?
Some 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?
No impact on surrounding natural resources is expected

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)?
No Impact

Asset: Hyannisport Well and Pump Station
Asset Type: Typically Unoccupied
Asset Sub-Type: Pump Station - Sanitary
Construction Type: New Construction
Construction Year: 2025
Useful Life: 40

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.
Greater 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 provides 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?
There are no hazardous materials in the building/facility

If the building/facility became inoperable for longer than acceptable in Question 1, what are the impacts on other facilities, assets, and/or infrastructure?
Moderate – Inoperability may impact other facilities, assets, or buildings, but is not expected to affect their ability to operate

If this building/facility was damaged beyond repair, how much would it approximately cost to replace?
Less than $10 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?
Some 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?
No impact on surrounding natural resources is expected
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)?
No Impact

Report Comments

N/A

Climate Resilience Design Standards Tool Project Report

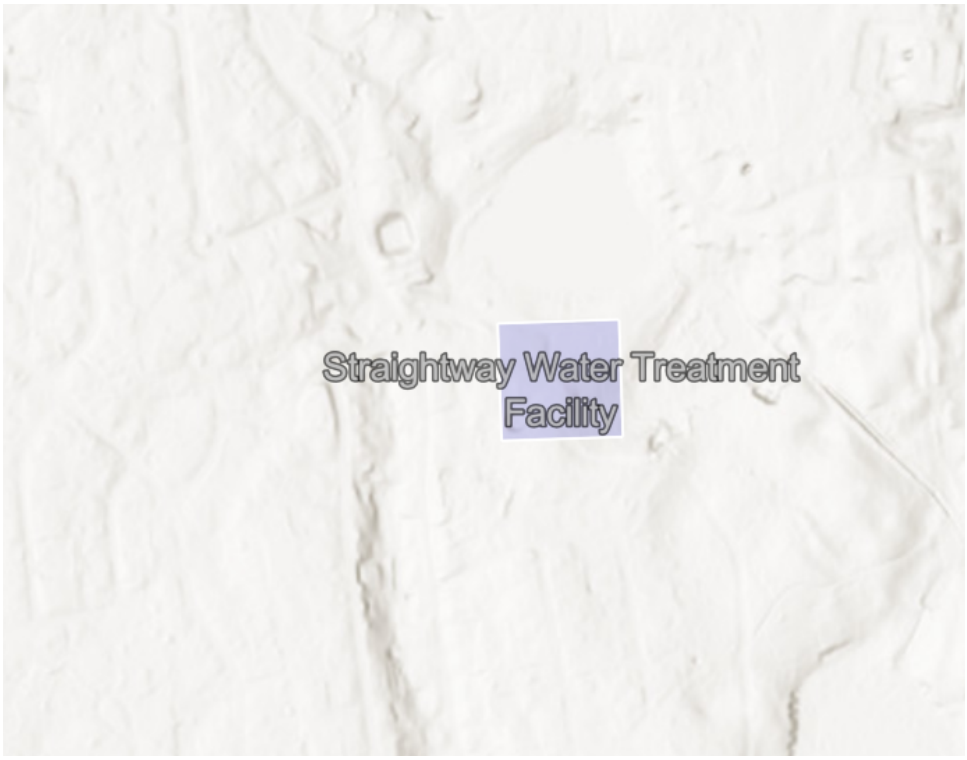
Straightway Water Treatment Facility
Date Created: 6/7/2024 1:06:38 PM
Created By: MSchultz
Date Report Generated: 8/2/2024 12:42:43 PM
Tool Version: Version 1.2
Project Contact Information: Meryl Schultz (meschultz@kleinfelder.com)

Project Summary

Link to Project

Estimated Capital Cost: $36000000.00
End of Useful Life Year: 2085
Project within mapped Environmental Justice neighborhood: Yes

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	Moderate Exposure
Extreme Heat	High Exposure



Asset Preliminary Climate Risk Rating Summary

Number of Assets: 1

Asset Risk	Sea Level Rise/Storm Surge	Extreme Precipitation - Urban Flooding	Extreme Precipitation - Riverine Flooding	Extreme Heat
Proposed Straightway Water Treatment Facility	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					
Proposed Straightway Water Treatment Facility					
Extreme Precipitation					
Proposed Straightway Water Treatment Facility	2070			100-yr (1%)	Tier 3
Extreme Heat					
Proposed Straightway Water Treatment Facility	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 between 10% and 50%

Extreme Precipitation - Riverine Flooding

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

- Part of the project is within 500ft of a waterbody and less than 20ft above the waterbody
- No historic riverine flooding at project site
- The project is not within a mapped FEMA floodplain [outside of the Massachusetts Coast Flood Risk Model (MC-FRM)]
- Project is not likely susceptible to riverine erosion

Extreme Heat

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

- Increased impervious area
- Existing trees are being removed as part of the proposed project
- Existing impervious area of the project site is between 10% and 50%
- 10 to 30 day increase in days over 90 deg. F within project's useful life
- 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 - Proposed Straightway Water Treatment Facility
Primary asset criticality factors influencing risk ratings for this asset:

- Asset must be operable at all times, even during natural hazard event
- Greater than 10,000 people would be directly affected by the loss/inoperability of the asset
- The building/facility provides services to populations that reside within Environmental Justice neighborhoods or climate vulnerable populations.
- Few alternative programs and/or services are available to support the community
- Cost to replace is between $30 million and $100 million
- Spills and/or releases of hazardous materials would be relatively easy to clean up

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: Proposed Straightway Water Treatment Facility — 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: 100-yr (1%)

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
Proposed Straightway Water Treatment Facility	2070	100-Year (1%)	9.7	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

Project Inputs

Core Project Information

Name:	Straightway Water Treatment Facility
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)?	2085
Location of Project:	Barnstable
Estimated Capital Cost:	$36,000,000
Who is the Submitting Entity?	Private Other Kleinfelder Meryl Schultz (meschultz@kleinfelder.com)
Is this project being submitted as part of a state grant application?	No
Which grant program?	
What stage are you in your project lifecycle?	Design
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:	This project will improve the Straightway Water Treatment facility to be able to: 1) reliably and continually meet existing and anticipated future water quality regulations, 2) to optimize the performance and efficiency water treatment, and 3) to allow for maximum flexibility and reliability to protect against disruption to its system at any single location. This includes winterizing the facility, increasing treatment capacity, and improving the removal of PFAs to meet regulation. This report is being used for a MEPA submission.
Project Submission Comments:	

Project Ecosystem Service Benefits

Factors Influencing Output

- ✓ Project reduces storm damage
- ✓ Project protects public water supply
- ✓ Project improves water quality

Factors to Improve Output

- ✓ Incorporate nature-based solutions that may provide flood protection

Is the primary purpose of this project ecological restoration?

No

Project Benefits

Provides flood protection through nature-based solutions	Maybe
Reduces storm damage	Yes
Recharges groundwater	No
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	No
Remediates existing sources of pollution	No
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?	No
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: Proposed Straightway Water Treatment Facility
Asset Type: Typically Unoccupied
Asset Sub-Type: Water treatment plant (potable water)
Construction Type: New Construction
Construction Year: 2025
Useful Life: 60

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.
Greater 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 provides 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 not be expected to result in injuries

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?
Moderate – Inoperability may impact other facilities, assets, or buildings, but is not expected to affect their ability to operate

If this building/facility was damaged beyond repair, how much would it approximately cost to replace?
Between $30 million and $100 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?
No impact on surrounding natural resources is expected

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)?
No Impact

Report Comments

N/A

APPENDIX E

COASTAL ZONE MANAGEMENT LETTER

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 Cambridge Street, Suite 900, Boston, MA 02114 ◦ (617) 626-1200

July 23, 2024

McKenna Roberts, EIT
Staff Engineer
Kleinfelder
One Beacon St.
Suite 8100
Boston, MA 02108

RE: Federal Consistency Certification: Straightway Water Treatment Facility Construction Project; Barnstable

Dear Ms. Roberts:

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the proposed project which consists of construction at the Straightway Water Treatment Facility to winterize existing PFAS units, as well as to increase supply, pumping, and treatment capacity, to improve resiliency to sea level rise, and to improve system reliability for meeting current and future drinking water regulations.

- The project consists of improved treatment for several contaminants of concern, winterization of the existing PFAS units at 228 Straightway, and construction of a new 10,660 square feet treatment facility at 228 Straightway. These improvements will remove iron and manganese to improve the lifespan and operational efficiency of the GAC units, reduce downtime, and increase the capacity and reliability of PFAS treatment. The project will also implement a new treatment technology (UV-AOP) in the new Straightway building to remove 1,4-Dioxane. Straightway Well 2 will also be reactivated with the proposed improvements.

Although the activities associated with this project are located within the defined Massachusetts Coastal Zone, they fall below the thresholds that CZM generally uses to require review under our federal consistency provisions. Consequently, a formal decision from this office regarding consistency with our enforceable program policies is not necessary. Any federal licenses or permits for the work performed may be subject to CZM's federal consistency review. It is incumbent upon the proponent to notify CZM, submit an explanation of the nature of the work, and submit necessary data and information. CZM will use this information to determine if further federal consistency review is required.

Thank you for submitting the information to CZM. If you have any questions regarding our review process, feel free to contact me at sean.duffey@mass.gov.

Sincerely,

Sean Duffey
CZM Project Review and Dredging Coordinator

APPENDIX F

MASSACHUSETTS HISTORICAL COMMISSION DOCUMENTATION

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

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

PROJECT NOTIFICATION FORM

Project Name: **Straightway & Hyannisport Water Treatment Facility Improvements**

Location / Address: **228 Straightway / 132 Smith Street, Barnstable MA**

City / Town: **Barnstable**

Project Proponent

Name: **Town of Barnstable, Department of Public Works**

Address: **382 Falmouth Road**

City/Town/Zip/Telephone: **Hyannis, MA 02601, Town of Barnstable, Project Manager Matt Wrobel, 508-790-6400**

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)
See Attachment 1.	**See Attachment 1.**

Project Description (narrative):

See Attachment 2 for narrative and photographs of existing conditions.

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

Yes, this project includes demolition of the existing Hyannisport and Simmons Pond well buildings located at 132 Smith Street in order to relocate the wells at higher elevations out of the floodplain. These are both masonry buildings constructed after 1975.

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.

There will be minor modifications to the existing building at 228 Straightway, in order to make the water works compatible with proposed new treatment facility construction. Modifications will include exterior and interior piping. 228 Straightway is a 1998 masonry building.

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

Yes, this project includes the new construction of a water treatment plant to provide enhanced water quality treatment and improved resiliency for the Town of Barnstable Hyannis Water System. See Attachment 3, Conceptual Design Plans.

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. ***Yes. MACRIS was reviewed and 132 Smith St is part of an inventoried, MHC # BRN.AS Hyannis Port Area. The existing Simmons Pond and Hyannisport pump stations, which will be demolished, are within this area. However, the pump stations were constructed after 1975 and are not expected to have historical significance. (See Attachment 2).***

What is the total acreage of the project area?

* Note- calculated from 2016 Land Use. Floodplain acreage is 1% annual chance (100-yr) floodzone.

Woodland	1.4 acres	Productive Resources:	n/a
Wetland	0.11 acres	Agriculture	acres
Floodplain	0.00* acres	Forestry	acres
Open space	0.29 acres	Mining/Extraction	acres
Developed	2.10 acres	Total Project Acreage	3.90 acres

What is the acreage of the proposed new construction? 0.32 acres ***See also, Attachment 3, Conceptual Design Plans***

What is the present land use of the project area?

At present the project area is used as a drinking water treatment facility campus. The majority of the area is developed open space. The southern portion of the project site borders a wetland. Both the northern and southern portions of the project site include wooded areas. Approximately 0.5 acres of woodlands will be cleared as a result of the project.

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

See Attachment 5 for USGS Quadrangle map of project location. Limits of disturbance for the work are included in the Attachment 3, Conceptual Design Plans.

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

Signature of Person submitting this form: Kirsten N. Ryan Date: ***June 6, 2024***

Name: ***Kirsten Ryan, Project Manager***

Address: ***Kleinfelder, 1 Beacon Street, Suite 8100***

City/Town/Zip: ***Boston, MA 02108***

Telephone: ***617-498-4778***

REGULATORY AUTHORITY

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

Attachment 1

List of Agency Licenses and Funding for the Project

Attachment 1. List of Agency Licenses and Funding for the Project

Barnstable Straightway - Hyannisport WTP Project Environmental Permitting Matrix		
Regulation or Permit	Agency	Filing or Application
State Permits		
Massachusetts Environmental Policy Act (MEPA) (301 CMR 11.00)	Executive Office of Energy and Environmental Affair's MEPA Office	Expanded Environmental Notification Form (EENF), Environmental Impact Report (EIR)
Massachusetts Wetlands Protection Act (WPA) (310 CMR 10.00)	Barnstable Conservation Commission	Notice of Intent (NOI) for issuance of Order of Conditions (OOC)
Massachusetts State Register of Historic Places Review (950 CMR 71.00)	Massachusetts Historical Commission (MHC)	Project Notification Form (PNF)
Water Supply Permits - Approval to Construct a Source >70GPM	MassDEP	BRP WS20
Approval of Treatment Facility Modification	MassDEP	BRP WS25
Federal Permits		
Endangered Species Act (ESA) Review	US Fish and Wildlife Service (USFWS)	IPaC Official Species List and programmatic key(s)
Coastal Zone Management (CZM) Act	MA CZM Office	Application for Certificate
Federal Flood Risk Management Standard (FFRMS)	EPA/MassDEP	Application for approval
US EPA NPDES Construction General Permit (CGP)	US EPA	Notice of Intent (NOI) and Stormwater Pollution Prevention Plan (SWPPP)
US EPA NPDES Dewatering and Remediation General Permit (DRGP)	US EPA	NOI and SWPPP
Local Permits		
Town of Barnstable Wetlands Ordinances	Barnstable Conservation Commission	NOI local requirements (same submittal as state WPA)
Site Plan Review	Building Dept.	Submit application and drawings online
Funding		
Drinking Water State Revolving Fund 2024 IUP	MassDEP	Project Financial Assistance Applicatiom

Attachment 2

Project Narrative

Attachment 2. Project Narrative and Schedule

The proposed project to expand and improve the Straightway and Hyannisport Water Treatment Facilities is critical to public health and water system resiliency. It will receive Drinking Water State Revolving Fund (DWSRF) funding as part of the 2024 Final SRF Intended Use Plan to address per- and poly-fluoroalkyl substances (PFAS) contamination. The Town of Barnstable's Hyannis Water System (HWS) operates three water treatment campuses with a total of 12 wells and serves a year-round population of approximately 18,000 which surges to about 35,000 in the summer. All of the HWS wells have been impacted by PFAS contamination. When the EPA's Health Advisory was lowered to 70 ppt in 2016, the Town voluntarily moved quickly to implement seasonal treatment using unwinterized granular activated carbon (GAC) units at each location, at a cost of tens of millions of unanticipated capital dollars. The Straightway and Hyannisport Treatment Facilities are a critical campus, representing 30% of HWS's total potential supply. The property's four wells: Straightway 1 (STWY-1), Straightway 2 (STWY-2), Hyannisport (HP), and Simmons Pond (SP) have the potential to supply up to 4 million gallons per day (MGD) of water. However, the campus is currently only providing about 1.15 MGD. This project consists of improvements required to increase supply, pumping and treatment capacity, improve resiliency to sea level rise, and meet current and future drinking water regulations.

The Hyannisport Treatment Facility consists of the Simmons Pond and Hyannisport Pump Stations, at 132 Smith Street. Each of the pump stations treats the raw water from their respective wells for iron and manganese sequestration. Water from the Simmons Pond Well is then pumped to the Hyannisport Pump station for treatment to adjust pH and provide corrosion control. The treated water is then pumped north to the Straightway Treatment plant at 228 Straightway, where it is combined with water from Straightway Wells 1 & 2.

The Straightway Treatment Facility houses Straightway Wells 1 & 2. It also houses chemical feed systems to treat raw water for iron and manganese sequestration, pH adjustment, and corrosion control. Water exiting the Straightway Treatment Facility combines with water from the Hyannisport Treatment Facility and then flows through GAC filtration for PFAS removal and is dosed with sodium hypochlorite. It then flows into a 400,000 gallon storage tank to achieve 4-log disinfection. A booster pump station downstream of the tank pumps water from the tank into the distribution system.

Existing PFAS treatment at the Straightway site was installed quickly to meet summer demand and as such is non-optimized (without prefiltration for removal of elevated iron and manganese), and, non-winterized (the GAC units are on a slab with no shelter or climate-control and must be drained each fall). HWS requires treatment improvements to the Straightway and Hyannisport facilities to be able to: 1) reliably and continually meet existing and anticipated future water quality regulations, 2) to optimize the performance and efficiency water treatment, and 3) to allow for maximum flexibility and reliability to protect against disruption to its system at any single location. The proposed project consists of the following elements required to achieve these goals:

1. Winterize the existing GAC PFAS treatment units at 228 Straightway to keep them operational year- round for increased system resiliency. (See Photo 2) This portion of the project consists of constructing a pre-engineered metal building around the existing units. It requires no demolition.
2. At 132 Smith Street, install replacement wells and pump stations for the Hyannisport Well and the Simmons Pond Well to restore lost yield due to formation plugging and to relocate these functions at elevations above the 500-year floodplain. The Hyannisport Pump Station and Simmons Pond Pump station will be demolished after the new ones are operational. (See Photos 3 and 4.) Piping between the existing pump stations will be abandoned. New piping will be installed to connect the proposed pump stations to the existing main.
3. Construct a new Straightway Water Treatment Facility at the existing facility at 228 Straightway to provide enhanced treatment and expanded treatment capacity. The facility will consist of a single pre-engineered metal building which will house GAC filters for PFAS filtration, green sand filters for iron and manganese removal, and UVAOP equipment for 1-4 Dioxane removal.

Anticipated Project Schedule

Project Phase	Start Date	End Date
Design Contract Executed/Notice to Proceed	**January 2024**	**--**
Survey, Geotech, Conceptual Design; Preliminary Design	**January 2024**	**June 2024**
60% Design & Permitting	**June 2024**	**October 2024**
90% - 100% Design	**November 2024**	**March 2025**
Bidding; Contract Award	**April 2025**	**June 2025**
Construction	**July 2025**	**July 2027**

The existing facilities to be modified or demolished were constructed after 1975. Photographs are provided below in Attachment 2A. The property at 132 Smith Street is part of MHC inventoried area, BRN.AS. One MHC Inventoried Property, the John Hopper Smith House (BRN.549), is located about 700 feet southeast of the project site at 56 Smith Street, as shown below in Attachment 2B. The property is a single-family dwelling built in 1820. This project will not effect the 132 Smith Street property. To see the limits of disturbance for this project refer to Attachment 3, Conceptual Design Plans.

Attachment 2A: Photographs of Existing Site Facilities



Photo 1: Existing Straightway Water Treatment Facility (ca 1998) – minor piping modifications proposed.



Photo 2: 228 Straightway campus view to the southwest. Proposed facility to be constructed to the south of the Tank.

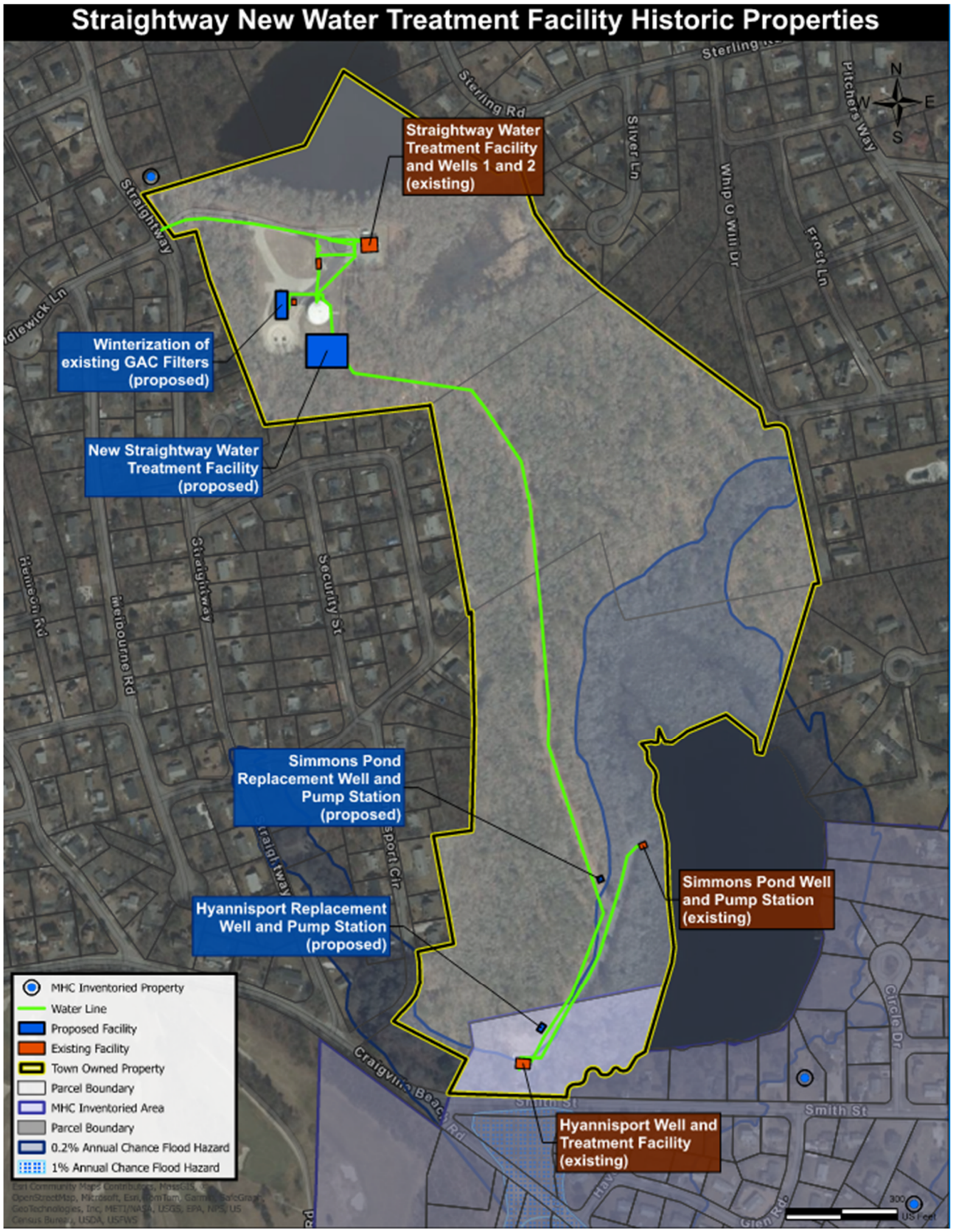


Photo 3: Existing Hyannisport Pump Station (circa 1995 construction) to be demolished after new facilities are placed online.



Photo 4: Existing Simmons Pond Pump Station (circa 1975) to be demolished after new station online.

Attachment 2B: MACRIS Massachusetts Historical Commission Inventory near Project Site



Attachment 3

Conceptual Design Plans



KEY PLAN
SCALE: 1" = 150'

EXISTING LEGEND

- MINOR CONTOUR
- MAJOR CONTOUR
- SPOT ELEVATION
- 100-YR FLOOD ZONE
- RECORD WATER LINE
- ABANDONED/REMOVED WATER LINE
- HYDRANT
- WATER GATE
- WATER WELL
- STANDPIPE
- ELECTRIC LINE
- OVERHEAD WIRES
- UTILITY POLE
- GUY WIRE
- TRANSFORMER
- ELECTRIC MANHOLE
- RECORD GAS LINES
- GAS METER
- WETLAND LIMIT
- WETLAND FLAG
- WETLAND EDGE
- 100' WETLAND BUFFER
- 50' WETLAND BUFFER
- SOIL PROBE
- CHAINLINK FENCE
- TREELINE
- DRAIN LINE
- DRAIN MANHOLE
- SEWER LINE
- SEWER MANHOLE
- CHAIN LINK FENCE
- CONCRETE PAD
- DUCTILE IRON
- EDGE OF PAVEMENT
- EDGE OF PAVEMENT LINE

PROPOSED LEGEND

- WATER LINE
- PROPOSED WATER GATE
- CHAIN LINK FENCE
- PROPOSED TREELINE
- DRAIN LINE
- SEWER LINE
- VEHICULAR ACCESS GATE
- EXTENT OF CRUSHED STONE ACCESS DRIVE
- EXTENT OF ASPHALT/STRUCTURE REMOVAL
- PROPOSED BUILDING
- EXTENT OF STORMWATER FEATURE

GENERAL NOTES:

1. WETLAND FLAGS SHOWN WERE DELINEATED BY LUCAS ENVIRONMENTAL ON NOVEMBER 29, 2023.
2. EXISTING CONDITIONS SURVEY SHOWN WAS CONDUCTED BY CHESS ENGINEERING, DATED APRIL 6,2024

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REV	DESCRIPTION	DSN / DWN	CHK / APP	DATE

SCALE VERIFICATION

THIS BAR IS 1 INCH IN LENGTH ON ORIGINAL DRAWING

0 — 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 150 300 450

SCALE: 1" = 150' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

KEY PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

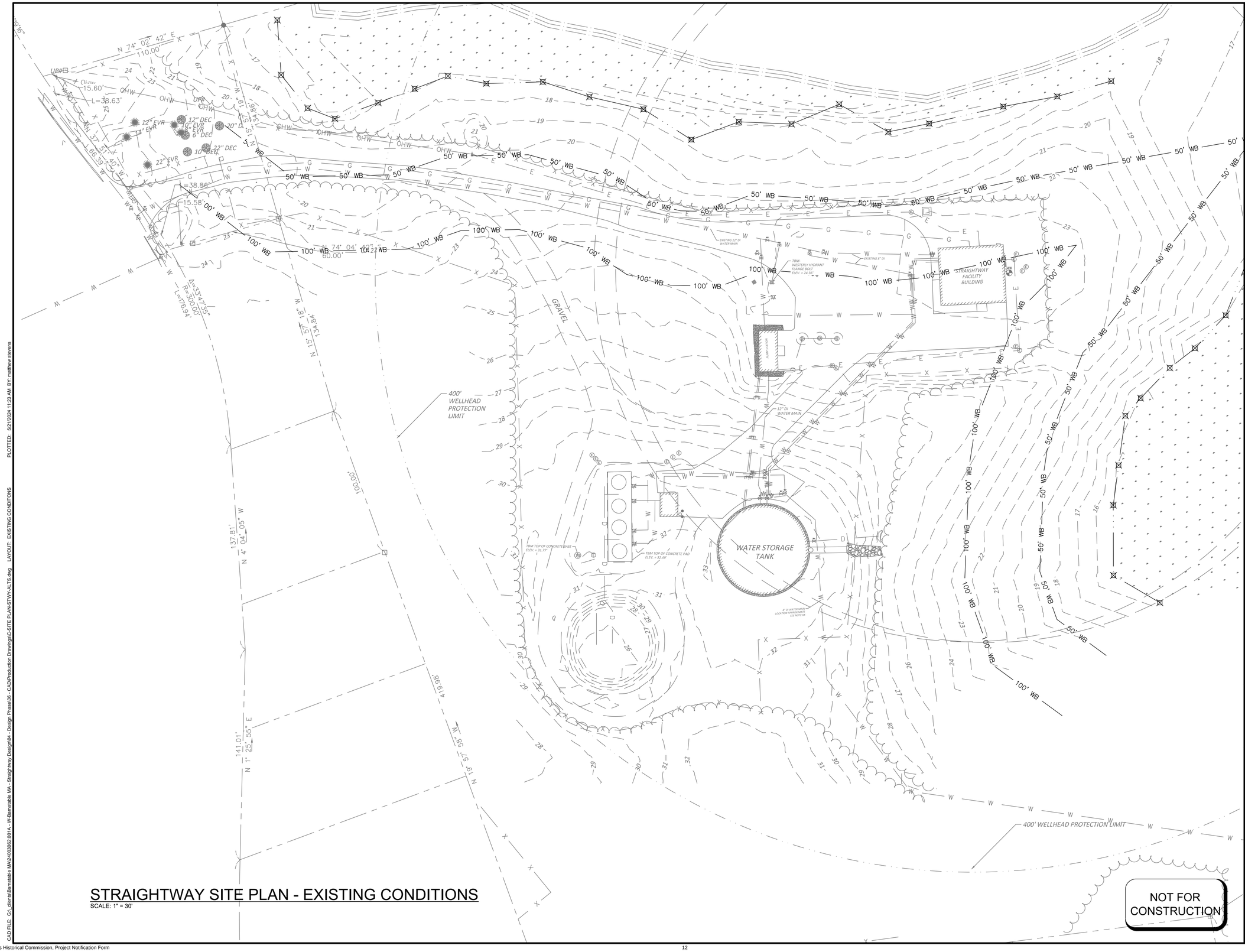
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PROJECT NO.	24003062.001A
ISSUE DATE	05/21/2024
CURRENT REVISION	
DESIGNED BY	
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CHECKED BY	TB/GAA
APPROVED BY	GAA

C-001

SHEET 1 of 9

CAD FILE: G:_clients\Barnstable MA\24003062.001A - W.Barnstable MA - Straightway Design\04 - Design Phase\09 - CAD\Production Drawings\C-KEY PLAN.dwg LAYOUT: C-KEY PLAN PLOTTED: 5/21/2024 11:23 AM BY: matthew stevens



STRAIGHTWAY SITE PLAN - EXISTING CONDITIONS

SCALE: 1" = 30'

NOT FOR CONSTRUCTION

PLOTTED: 5/21/2024 11:23 AM BY: matthew stevens

CAD FILE: G:_clients\Barnstable MA\24003062.001A - W.Barnstable MA - Straightway Design\04 - Design Phase\08 - CAD\Production Drawings\C-SITE PLAN-STWY-ALTS.dwg LAYOUT: EXISTING CONDITIONS

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SCALE VERIFICATION

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0 1"

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0 30 60 90

SCALE: 1" = 30' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY SITE PLAN - EXISTING CONDITIONS

STRAIGHTWAY
WATER TREATMENT FACILITY

SEAL OF THE TOWN OF BARNSTABLE MASS. 1639 INCORPORATED A.D. 1685

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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C-002

SHEET 2 of 9

CAD FILE: G:_clients\Barnstable MA\24003062.001A - W-Barnstable MA - Straightway Design\04 - Design Phase\08 - CAD\Production Drawings\C-SITE PLAN-STWY-ALTS.dwg LAYOUT: C-SITE-ALT1 PLOTTED: 5/21/2024 11:23 AM BY: matthew stevens

STRAIGHTWAY SITE PLAN

SCALE: 1" = 30'

BENS POND

EXIST. 10" AC WATER MAIN TO BE REMOVED AND DISPOSED

CUT AND CAP EXISTING 8" PIPE

CUT AND CAP EXISTING 8" PIPE

PROP. 16" WATER MAIN

PROP. STORMWATER MANAGEMENT AREA

400' WELLHEAD PROTECTION LIMIT

POTABLE WATER SUPPLY

FIRE SERVICE LINE

BACKWASH SUPPLY

FINISHED WATER TO CONTACT TANK

COMBINED RAW WATER SUPPLY

COMBINED FINISHED WATER SUPPLY

CHEMICAL INJECTION BUILDING TO BE DEMOLISHED

PROP. WINTERIZED GAC BUILDING

PROP. PAVEMENT

WATER STORAGE TANK

250' REPLACEMENT WELL RADIUS

PROP. STORMWATER MANAGEMENT AREA

COMBINED FINISH WATER OUTFLOW

COMBINED RAW WATER FROM HYANNIS POND, SIMMONS POND, AND STRAIGHTWAY WELLS

PROP. STORMWATER MANAGEMENT AREA

ARBORVITAE VEGETATIVE SCREENING

BACKWASH WASTE

PROP. ACCESS GATE

POST-GAC WATER

PARKING

PRE-GAC WATER

PROP. TIGHT TANK

PROP. STRAIGHTWAY WATER TREATMENT FACILITY

400' WELLHEAD PROTECTION LIMIT

STRAIGHTWAY FACILITY BUILDING

GRAVEL

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SCALE VERIFICATION

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0 — 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 30 60 90

SCALE: 1" = 30' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

STRAIGHTWAY SITE PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

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C-003

SHEET 3 of 9

SIMMONS POND

(LOCATION MASS GIS)

400' WELLHEAD PROTECTION LIMIT

400' WELLHEAD PROTECTION LIMIT

FEMA FLOOD ZONE X BOUNDARY

FEMA FLOOD ZONE X BOUNDARY

BITUMINOUS PAVEMENT

HYANNISPORT STATION

39.3'

BITUMINOUS DRIVEWAY

EXISTING GENERATOR

FLOW

HALLS BROOK

R=180.00'
L=221.80'
Δ=70°36'05"

S 61° 54' 56" W
29.05'

L=96.56'
R=150.80'

HYANNISPORT AND SIMMONS POND EXISTING CONDITIONS

SCALE: 1" = 40'

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SCALE VERIFICATION

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0 — 1"

IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 40 80 120

SCALE: 1" = 40' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISPORT AND SIMMONS POND SITE PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

30% PRELIMINARY DESIGN

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SHEET 4 of 9

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SIMMONS POND

(LOCATION MASS GIS)

EXIST. SIMMONS POND PUMP STATION TO BE DEMOLISHED

PROP. ACCESS GATE

PROP. SIMMONS POND PUMP STATION BUILDING

PROP. SECURITY FENCE

PROP. ACCESS GATE

400' WELLHEAD PROTECTION LIMIT

CRUSHED STONE PARKING SPACE AND ACCESS DRIVE

SP-03A

REMOVE AND DISPOSE EXISTING PAVEMENT

FEMA FLOOD ZONE X BOUNDARY

400' WELLHEAD PROTECTION LIMIT

PAVED PARKING SPACE

PROP. HYANNISPORT PUMP STATION BUILDING

TIGHT TANK

HP-02A

PROP. SECURITY FENCE

EXIST. HYANNIS POND PUMP STATION TO BE DEMOLISHED

HALLS BROOK

FEMA FLOOD ZONE X BOUNDARY

R=180.00'
L=221.80'
Δ=70°30'05"

S 61° 54' 56" W
29.05'

L=96.56'
R=150.80'

HYANNISPORT AND SIMMONS POND SITE PLAN

SCALE: 1" = 40'

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SCALE VERIFICATION

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IF IT'S NOT 1 INCH ON THIS SHEET ADJUST YOUR SCALES ACCORDINGLY

0 — 40 — 80 — 120

SCALE: 1" = 40' SCALE IN FEET

ORIGINAL DRAWING SIZE IS 22 x 34

HYANNISPORT AND SIMMONS POND SITE PLAN

STRAIGHTWAY
WATER TREATMENT FACILITY

HYANNIS WATER SYSTEM
BARNSTABLE DPW - WATER DIVISION
47 OLD YARMOUTH ROAD
HYANNIS, MA 02601

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SHEET 5 of 9

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Attachment 4

USGS Quadrangle

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

HYANNIS QUADRANGLE
MASSACHUSETTS - BARNSTABLE COUNTY
7.5-MINUTE SERIES


ATLANTIC OCEAN
White Hill
Great Island
Great Island Creek
Wicks Island
Fish Island
Jackson Island
Wells Creek
Sandy Neck
Sandy Neck Dunes
Beach Point
The Cove
Mussel Point
Bench Rock
Green Point
Horseshoe Shoal
Barnstable Harbor
High Island
Black Bank Channel
Great Marshes
Scorton Creek
Slough Point
Boat Cove Creek
Spring Creek
Duck Island
Eel Grass Cove
Huckins Island
Mollys Island
Jules Island
White Rock
Calves Pasture Point
Broad Sound
Hinckley Rock
Scudders Rock
Cone Rock
Red Rock
Tongue Rock
Moon Shoal
Church Rock
Channel Rock
Salten Point
Salten Rock
Flying Fish Rock
Blish Point
Blind Rock
Lobster Rock
Cobbs Village
YARMOUTH PORT
Short Wharf Creek
Mill Creek
West Barnstable
Bridge Creek
Briskyard Creek
Hinckley Pond
BARNSTABLE TOWN
West Barnstable
Lothrop Hill Cem
Pond Village
Barnstable County Superior Court House
Barnstable
Cobbs Hill
Cummaquid
Maraspin Creek
Flax Pond
Dennis Pond
Long Pond
Sandy Street Cem
Cape Cod Community College
No Bottom Pond
Garretts Pond
Sandy Hill Pond
Spruce Pond
Clay Hill
Shootflying Hill
Hathaway Ponds
Little Israel Pond
Israel Pond
Lamson Pond
Flintrock Pond
Cape Cod Gateway Airport
Mary Dunn Pond
Point Shirley
Wequaquet Lake
Nyes Point
Nyes Neck
Bearse Pond
Lewis Island
Stoney Point
Huckins Neck
Gooseberry Island
Lewis Point
Fuller Point
Hayes Point
Long Point
Little Point
Great Point
Fresh Pond
Duck Pond
Dunns Pond
Long Pond
Mill Pond Marshes
Mill Pond
Centerville
Centerville Ancient Cem
Saint Francis Xaviers Cem
Beechwood Cem
North Pond
Hyannis
Saint Patricks Cem
Universalist Cem
First Baptist Church Cem
Hyannis Inner Harbor
Lewis Bay Beach
Bay View Street Beach
Hyannis Park
Colonial Acres
Harbor Bluff
Fawcetts Pond
Ann Sbetty Pond
Hyannis Ancient Cem
Oak Grove Cem
Oak Neck Cem
Simmons Pond
Schoolhouse Pond
Hyannis Port
Veterans Park Beach
Kalmus Park Beach
Fiddle Head Rock
Lewis Bay
Dunbar Point
Egg Island
Keyes Memorial Beach
Hyannis Port Beach
Hyannis Harbor
Craigville Marshes
Red Lily Pond
Craigville
Lake Elizabeth
Craigville Beach
Centerville River
Coleman Pond
North Pond
Craigville Beach
Spindle Rock
Long Beach
West Hyannisport
Halls Creek
Sunset Hill
Halls Island Marshes
Halls Island
Centerville Harbor
East Bay
Hyannis Point
ATLANTIC OCEAN
PROJECT AREA
WEST YARMOUTH
Chandler Gray Cem
Little Sandy Pond
Mill Pond Marshes
Mill Pond
Lumber Mill Rd
Bumps River
Bumps River Rd
Old Stage Rd
Main St
Yarmouth Rd
Falmouth Rd
Ocean St
Ocean Ave
Irving Ave
Sea View Ave
Gosnold St
Old Colony Rd
Old Craigville Rd
Centerville Ave
Craigville Beach Rd
Shootflying Hill Rd
Pleasant Pines Ave
Lakeview Dr
Shallow Pond Dr
Huckins Neck Rd
Nyes Neck Rd
Holly Point Rd
Lakeside Dr W
Gooseberry Island Rd
Goosefort Rd
Bearse's Way
Airport Rd
Airport Access Rd
Airport Way
Enterprise Rd
Corporation Rd
Attucks Ln
Communication Way
Hidden Hill Rd
Breeds Hill Rd
Independence Dr
Thornton Dr
Ridgewood Dr
Old Stable Rd
Old Post Rd
Lumber Mill Rd
Bumps River Rd
Ames Way
Donegal Cir
Taramac Rd
Highland Dr
Stoney Hill Rd
Old Stage Rd
Old Craigville Rd
Old Colony Rd
Old Yarmouth Rd
Old Stable Rd
Old Post Rd
Old Barnstable Rd
Old Kings Hwy
Old Gosnold St
Old Grist Mill Rd
Navigation Rd
Packet Landing Way
Parker Rd
Church St
Pine St
Saddle Ln
Minton Ln
Joe Thompson Rd
Great Hill Dr
Sand Hill Rd
Capn Cross Rd
Service Rd
Phinneys Ln
Bearses Way
Wianno Ave
Lewis Bay Rd
Sea View Ave
Seapuit River
Seapuit Rd
Stuart Ave
Sturgis Edge Dr
Bay Ln
Skyline Dr
Meadow Ln
Sunset Ln
Commerce Rd
Stevens St
Chestnut St
Winter St
Grove St
Ridgewood Ave
Bristol Ave
Hickory Rd
Hamden Ct
Hitchells Way
Woodland Ave
Pawtucket Rd
Lincoln Rd
Bunkhead Rd
Jeremiah Dr
Straightway
Keeffe Turnell Rd
Dolphin Ln
Clifton Ln
Lake Elizabeth Dr
Green Dunes Dr
Rodgers Ave
Ocean Ave
Keyes Ave
Sea View Ave
Sea Ave
Sunset Ave
Irving Ave
Ocean St
Gosnold St
Oak Neck Rd
Oak Grove Ave
Pine Ave
Grace St
South St
Bassett Ln
Hawes Ave
Spooner Rd
Old Colony Rd
Old Craigville

APPENDIX G

EJ SCREENING FORM AND DISTRIBUTION LIST

Environmental Justice Screening Form

Project Name	Straightway Water Treatment Facilities Improvements
Anticipated Date of MEPA Filing	8/15/2024
Proponent Name	Town of Barnstable, Department of Public Works
Contact Information (e.g., consultant)	Kleinfelder, 1 Beacon St. Boston, MA 02108; Kate Riley, kariley@kleinfelder.com
Public website for project or other physical location where project materials can be obtained (if available)	https://townofbarnstable.us/Departments/watersupply/Straightway-Water-Treatment-Plant.asp
Municipality and Zip Code for Project (if known)	Barnstable, MA 02601
Project Type* (list all that apply)	Water Supply, Treatment / Conveyance
Is the project site within a mapped 100-year FEMA flood plain? Y/N/ unknown	No
Estimated GHG emissions of conditioned spaces (click **here** for GHG Estimation tool)	n/a improvement / expansion of a drinking water treatment facility

Project Description

1. **Provide a brief project description, including overall size of the project site and square footage of proposed buildings and structures if known.**

This project will provide a public health benefit and increase the drinking water quality, reliability, and resiliency of the Town of Barnstable's Hyannis Water System (HWS). HWS operates three drinking water treatment complexes with a total of 12 wells and serves a year-round population of approximately 18,000 people which surges to about 35,000 in the summer. Recent summer demand has hit record highs, and without the proposed improvements, all wells and treatment facilities must pump continuously in summer. All the HWS's wells are impacted by per- and poly-fluoroalkyl substances (PFAS) contamination and are treated to remove PFAS. However, some of the equipment is unwinterized and wells must be turned off during winter. Beginning in 2016, when the EPA's PFAS Health Advisory was lowered from 300 to 70 nanograms per liter (ng/L), the Town voluntarily moved quickly to implement emergency seasonal PFAS treatment by installing unwinterized granular activated carbon (GAC) filter units. The PFAS removal at the Mary Dunn and Maher water treatment facilities have been winterized and can operate year-round to meet demand. However, the Straightway and Hyannisport Treatment Facilities (the project site) need improvements to winterize existing PFAS units, as well as to increase supply, pumping, and treatment capacity, to improve resiliency to sea level rise, and to improve system reliability for meeting current and future drinking water regulations.

The Straightway and Hyannisport Treatment Facilities, located at 228 Straightway and 132 Smith Street, respectively, are a critical HWS component located on approximately 48 acres of protected water supply land. The facility consists of four wells, five pumping and/or treatment buildings (totaling

about 3,630 square feet), four unwinterized PFAS filters, and a storage tank. Combined, they have the potential to supply one-third of HWS's total supply. However, when operational, the facility is currently only providing 30% of what it is capable of producing and can only operate from March to October due to the PFAS filters lack of winterization. The specific project improvements will include the following:

- Supply – Well yields for the Hyannisport and Simmons Pond Wells are significantly reduced, and the wells need replacement due to screen and aquifer plugging with iron and manganese. This project will replace them with new, more reliable, and productive wells. The Straightway Well 2 is offline due to water quality concerns. Treatment improvements (described below) will allow the well to be reactivated, increasing available supply.
- Resiliency – The Hyannisport and Simmons Pond wells will be relocated to higher elevations above the 500-yr floodplain. Treatment operations will be relocated and centralized at the Straightway site, providing more protection from flooding. These original buildings (approximately 1,400 sqft) will be decommissioned at the end of the project and demolished to restore the floodplain. The new Straightway Treatment Facility will have fully redundant backup generators, each of which will be capable of independently powering the facility.
- Treatment – Raw water needs improved treatment for several contaminants of concern. This project will winterize the existing PFAS units, and construct a new 10,660 sqft treatment facility to provide the following improvements:
    - Raw water is elevated above the Secondary Maximum Contaminant Level (SMCL) for iron (Straightway 2) and manganese (all wells). Pre-treatment filters in the new building will remove iron and manganese to improve the lifespan and operational efficiency of the GAC units, reduce down-time, and increase capacity and reliability of PFAS treatment.
    - Raw water is elevated above the Office of Research and Standards Guideline (ORSG) for 1,4- Dioxane in Straightway 2 and Simmons Pond Wells. This project will include a new treatment technology (UV-AOP) in the new Straightway building to remove 1,4-Dioxane.
    - Raw water is above the Massachusetts PFAS drinking water limit in all four wells. Additional GAC units proposed for the new Straightway building will be able to treat the full flow of the wells.
    - Straightway Well 2 has been taken offline for high levels of PFAS6, 1,4-Dioxane, and Manganese. With the new building and improvements, Straightway Well 2 can be reactivated.
- Pumping – The existing Booster Pump Station is undersized for the future needs of the site. The pumping capacity will be doubled to treat the proposed facility capacity. In addition, the pumps for the Straightway Wells 1 and 2 will be upgraded.
- Environmental Benefits - In addition, the project will benefit the environment by relocating two existing wells further away from wetland resources and out of the floodplain which helps protect both the wells and the environment.

2. List anticipated MEPA review thresholds (301 CMR 11.03) (if known)

4) Water, subsection b), criteria 5: Expansion of an existing drinking water treatment plant by the greater of 1,000,000 or more gpd or 10% of existing capacity.

3. List all anticipated state, local and federal permits needed for the project (if known)

State:

- Massachusetts Historical Commission Approval
- Massachusetts Environmental Policy Act Approval (Environmental Notification Form; Environmental Impact Report; Environmental Justice Protocols)
- Coastal Zone Management review
- Massachusetts Department of Environmental Protection, Southeast Region Approvals (WS20,

WS25, WS29)

Local:

- Town of Barnstable
  - Conservation Commission, Order of Conditions
  - Site Plan Review
  - Stormwater Management Permit
  - Board of Health review
  - Building Permit; Fire Department review

Federal:

- US Fish & Wildlife Services review
- Federal Flood Risk Management Standard review

4. **Identify EJ populations and characteristics (Minority, Income, English Isolation) within 5 miles of project site (can attach map identifying 5-mile radius from EJ Maps Viewer in lieu of narrative)**

https://arcg.is/HinOu0 - link to map. Populations are identified as:

- Minority
- Minority and Income
- Minority and English Isolation
- Minority, Income, and English Isolation

5. Identify any municipality or census tract meeting the definition of "vulnerable health EJ criteria" in the DPH EJ Tool located in whole or in part within a 1 mile radius of the project site

Barnstable does not meet the Vulnerable Health EJ Criteria for heart attack, childhood blood lead, low birth weight, or childhood asthma.

6. **Identify potential short-term and long-term environmental and public health impacts that may affect EJ Populations and any anticipated mitigation**

The project provides a long-term public health and environmental benefits, as described in item 1. During the short term, during construction of the improved infrastructure, residents close to the project may notice some construction noise. Direct abutters close to construction areas may see land clearing activities and utility upgrade installations in the public right of way. As mitigation, the HWS will require contractors to work during normal weekday working hours, to control dust, and to limit vehicle idling. Work areas upgradient (uphill) from wetland resources will have sedimentation and erosion control installed to protect environmental resources.

7**. Identify project benefits, including "Environmental Benefits" as defined in 301 CMR 11.02, that may improve environmental conditions or public health of the EJ population**

This project will provide a public health benefit and increase the drinking water quality, reliability, and resiliency of the Town of Barnstable's Hyannis Water System (HWS).

In addition, the project will benefit the environment by relocating the existing Hyannisport and Simmons Pond wells further away from wetland resources and out of the floodplain which helps protect both the wells and the environment. The original Hyannisport and Simmons Pond well buildings and paving will be removed to allow some revegetation in the wetland buffer zone.

8. **Describe how the community can request a meeting to discuss the project, and how the community can request oral language interpretation services at the meeting. Specify how to request other accommodations, including meetings after business hours and at locations near public transportation.**

The EJ community can request a meeting to discuss the project and request oral language interpretation services at the meeting or other accomodations by contacting The Hyannis Water Systems email: hyanniswater@town.barnstable.ma.us

Matthew Wrobel at 774-487-5330 or Kelly Collopy at 774-487-5782

Formulário de triagem da Justiça Ambiental

Nome do projeto	Melhorias nas instalações de tratamento de água de Straightway
Data prevista para arquivamento da Lei de Política Ambiental de Massachusetts (MEPA)	15/8/2024
Nome do Proponente	Prefeitura de Barnstable, Departamento de Obras Públicas
Informações de contato (por exemplo, consultor)	Kleinfelder, 1 Beacon St. Boston, MA 02108; Kate Riley, kariley@kleinfelder.com
Site público do projeto ou outro local físico onde os materiais do projeto podem ser obtidos (se disponível)	https://townofbarnstable.us/Departments/watersupply/Straightway-Water-Treatment-Plant.asp
Município e CEP do projeto (se conhecido)	Barnstable, MA 02601
Tipo de projeto* (liste todos que se aplicam)	Abastecimento de água, tratamento/transporte
O local do projeto está dentro de uma planície de inundação de 100 anos mapeada pela Agência Federal de Gerenciamento de Emergências (FEMA)? S/N/desconhecido	Não
Emissões estimadas de GEE de espaços condicionados (clique **aqui** para a ferramenta de estimativa de GEE)	n/a melhoria/expansão de uma instalação de tratamento de água potável

Descrição do projeto

1. **Fornecer um resumo da descrição do projeto, incluindo o tamanho total do local do projeto e a metragem quadrada dos edifícios e estruturas propostos, se conhecida.**

Este projeto proporcionará um benefício à saúde pública e aumentará a qualidade, confiabilidade e resiliência da água potável do Sistema de Água de Hyannis (HWS) da Cidade de Barnstable. O HWS opera três complexos de tratamento de água potável com um total de 12 poços, atendendo a uma população permanente de aproximadamente 18.000 pessoas, que aumenta para cerca de 35.000 no verão. A demanda de verão recente atingiu níveis recordes e, sem as melhorias propostas, todos os poços e instalações de tratamento precisarão operar continuamente no verão. Todos os poços do HWS são impactados pela contaminação por substâncias per e polifluoroalquílicas (PFAS) e são tratados para remoção de PFAS. No entanto, parte do equipamento não está preparado para o inverno, e os poços precisam ser desligados durante o inverno. A partir de 2016, quando o Informativo de Saúde da Agência de Proteção Ambiental (EPA) sobre PFAS foi reduzido de 300 para 70 nanogramas por litro (ng/L), a prefeitura voluntariamente agiu rapidamente para implementar o tratamento sazonal emergencial de PFAS, instalando unidades de filtro de carvão ativado granular (GAC) não preparadas para o inverno. A remoção de PFAS nas instalações de tratamento de água Mary Dunn e Maher foi preparada para o inverno e pode operar o ano todo para atender à demanda. No entanto, as instalações de tratamento de Straightway e Hyannisport (o local do projeto) necessitam de melhorias para a adaptação das unidades existentes de Substâncias Per e Polifluoroalquílicas (PFAS) ao inverno,

bem como para aumentar a capacidade de fornecimento, bombeamento e tratamento, melhorar a resiliência à elevação do nível do mar e aumentar a confiabilidade do sistema para atender às regulamentações atuais e futuras de água potável.

As instalações de tratamento de Straightway e Hyannisport, localizadas em 228 Straightway e 132 Smith Street, respectivamente, são um componente crítico do HWS localizado em aproximadamente 48 acres de terra protegida para abastecimento de água. A instalação é composta por quatro poços, cinco edifícios de bombeamento e/ou tratamento (totalizando cerca de 3.630 pés quadrados), quatro filtros de PFAS não preparados para o inverno e um tanque de armazenamento. Combinadas, elas têm o potencial de fornecer um terço do suprimento total do HWS. No entanto, quando operacional, a instalação atualmente fornece apenas 30% do que é capaz de produzir e só pode operar de março a outubro devido à falta de preparação para o inverno dos filtros de PFAS. As melhorias específicas do projeto incluirão o seguinte:

- Fornecimento: as produções dos poços de Hyannisport e Simmons Pond estão significativamente reduzidas, e os poços precisam ser substituídos devido ao entupimento das telas e aquíferos com ferro e manganês. Este projeto substituirá esses poços por novos poços, mais confiáveis e produtivos. O Poço 2 de Straightway está desativado devido a problemas de qualidade da água. Melhorias no tratamento (descritas abaixo) permitirão a reativação do poço, aumentando o fornecimento disponível.
- Resiliência: os poços de Hyannisport e Simmons Pond serão realocados para elevações mais altas, acima da planície de inundação de 500 anos. As operações de tratamento serão realocadas e centralizadas no local de Straightway, proporcionando mais proteção contra inundações. Esses edifícios originais (aproximadamente 1.400 pés quadrados) serão desativados ao final do projeto e demolidos para restaurar a planície de inundação. A nova instalação de tratamento de Straightway terá geradores de reserva totalmente redundantes, cada um capaz de alimentar independente a instalação.
- Tratamento: a água não tratada precisa de tratamento aprimorado para vários contaminantes preocupantes. Este projeto irá preparar para o inverno as unidades existentes de PFAS e construirá uma nova instalação de tratamento de 10.660 pés quadrados para fornecer as seguintes melhorias:
    - A água não tratada será elevada acima do Nível Máximo de Contaminantes Secundários (SMCL) para ferro (Straightway 2) e manganês (todos os poços). Os filtros de pré-tratamento no novo edifício removerão ferro e manganês para melhorar a vida útil e a eficiência operacional das unidades de GAC, reduzir o tempo de inatividade e aumentar a capacidade e a confiabilidade do tratamento de PFAS.
    - A água não tratada está elevada acima das diretrizes do Departamento de Pesquisa e Normas (Office of Research and Standards Guideline, ORSG) para 1,4-Dioxano nos poços Straightway 2 e Simmons Pond. Este projeto incluirá uma nova tecnologia de tratamento (UV-AOP) no novo edifício de Straightway para remover o 1,4-Dioxano.
    - A água não tratada está acima do limite de PFAS para água potável de Massachusetts em todos os quatro poços. Unidades adicionais de GAC propostas para o novo edifício de Straightway serão capazes de tratar todo o fluxo dos poços.
    - O Poço 2 de Straightway foi desativado devido a altos níveis de PFAS6, 1,4-Dioxano e Manganês. Com o novo edifício e melhorias, o Poço 2 de Straightway poderá ser reativado.
- Bombeamento: a Estação de Bombeamento de Reforço existente é subdimensionada para as necessidades futuras do local. A capacidade de bombeamento será duplicada para atender à capacidade proposta da instalação. Além disso, as bombas dos poços Straightway 1 e 2 serão modernizadas.

- Benefícios Ambientais: além disso, o projeto beneficiará o meio ambiente ao realocar dois poços existentes para mais longe dos recursos de áreas úmidas e fora da planície de inundação, o que ajuda a proteger tanto os poços quanto o meio ambiente.

2. Listar os limites previstos de revisão da MEPA (301 CMR 11.03) (se conhecidos)

4) Água, subseção b), critério 5: Expansão de uma estação de tratamento de água potável existente no que for maior entre 1.000.000 galões por dia ou mais ou 10% da capacidade existente.

3. Listar todas as licenças estaduais, locais e federais necessárias para o projeto (se conhecidas)

Estadual:

- Aprovação da comissão histórica de Massachusetts
- Aprovação da lei de política ambiental de Massachusetts (Formulário de notificação ambiental; Relatório de impacto ambiental; Protocolos de justiça ambiental)
- Revisão do gerenciamento da zona costeira
- Aprovações da Região Sudeste do Departamento de Proteção Ambiental de Massachusetts (WS20, WS25, WS29)

Local:

- Prefeitura de Barnstable
  - Comissão de conservação, ordem de condições
  - Revisão do plano do local
  - Licença de gestão de águas pluviais
  - Revisão do conselho de saúde
  - Alvará de construção; revisão do Corpo de Bombeiros

Federal:

- Revisão da Agência de Pesca e Vida Selvagem (US Fish & Wildlife Services)
- Revisão da norma federal de gerenciamento de risco de inundação

4. **Identificar populações e características de justiça ambiental (minoria, renda, isolamento linguístico referente ao inglês) dentro de um raio de 5 milhas do local do projeto (pode anexar um mapa identificando o raio de 5 milhas do Visualizador de mapas de EJ em vez de uma narrativa)**

https://arcg.is/HinOu0 - link para o mapa. As populações são identificadas como:

- Minoria
- Minoria e renda
- Minoria e isolamento linguístico referente ao inglês
- Minoria, renda e isolamento linguístico referente ao inglês

5. Identificar qualquer município ou setor censitário que atenda à definição de "critérios de EJ de saúde vulnerável" no Ferramenta do Departamento de Saúde Pública (DPH) de EJ localizada no todo ou em parte dentro de um raio de 1 milha do local do projeto

Barnstable não atende aos Critérios de Justiça Ambiental de Saúde Vulnerável para ataque cardíaco, chumbo no sangue na infância, baixo peso ao nascer ou asma infantil.

6. **Identificar impactos ambientais e de saúde pública potenciais de curto e longo prazo que possam afetar populações de EJ, bem como quaisquer medidas de mitigação previstas.**

O projeto proporciona benefícios de saúde pública e ambientais a longo prazo, conforme descrito no item 1. No curto prazo, durante a construção da infraestrutura aprimorada, os moradores próximos ao projeto podem notar algum ruído de construção. Os vizinhos diretos próximos às áreas de construção podem observar atividades de desmatamento e instalações de melhorias de serviços públicos no direito de passagem público. Como medida de mitigação, o HWS exigirá que os empreiteiros trabalhem durante o horário normal de trabalho nos dias úteis, controlem

a poeira e limitem o tempo de marcha lenta dos veículos. Áreas de trabalho íngremes (em subida) dos recursos de áreas úmidas terão controle de sedimentação e erosão instalado para proteger os recursos ambientais.

7.**Identificar os benefícios do projeto, incluindo "Benefícios Ambientais", conforme definido no 301 CMR 11.02, que podem melhorar as condições ambientais ou a saúde pública da população de EJ**

Este projeto proporcionará um benefício à saúde pública e aumentará a qualidade, confiabilidade e resiliência da água potável do Sistema de Água de Hyannis (HWS) da Cidade de Barnstable.

Além disso, o projeto beneficiará o meio ambiente ao realocar os poços existentes de Hyannisport e Simmons Pond para mais longe dos recursos de áreas úmidas e fora da planície de inundação, o que ajuda a proteger tanto os poços quanto o meio ambiente. Os edifícios originais dos poços de Hyannisport e Simmons Pond e a pavimentação serão removidos para permitir a revegetação na zona de proteção das áreas úmidas.

8. **Descrever como a comunidade pode solicitar uma reunião para discutir o projeto e como a comunidade pode solicitar serviços de interpretação oral durante a reunião. Especificar como solicitar outros encaixes, incluindo reuniões após o horário comercial e em locais próximos ao transporte público.**

A comunidade de EJ pode solicitar uma reunião para discutir o projeto e solicitar serviços de interpretação oral na reunião ou outros encaixes entrando em contato através do e-mail dos Sistemas de Água de Hyannis: hyanniswater@town.barnstable.ma.us

Matthew Wrobel, pelo telefone 774-487-5330, ou Kelly Collopy, pelo telefone 774-487-5782

Formulario de Evaluación de la Justicia Ambiental

Nombre del proyecto	Mejoras de las plantas de tratamiento de aguas de Straightway
Fecha prevista de presentación de acuerdo con la Ley de Política Ambiental de Massachusetts (MEPA)	8/15/2024
Nombre del promotor	Ciudad de Barnstable, Departamento de Obras Públicas
Información de contacto (por ejemplo, consultor)	Kleinfelder, 1 Beacon St. Boston, MA 02108; Kate Riley, kariley@kleinfelder.com
Sitio web público del proyecto u otro lugar físico en el que se puedan obtener materiales para el proyecto (si está disponible)	https://townofbarnstable.us/Departments/watersupply/Straightway-Water-Treatment-Plant.asp
Municipio y código postal del proyecto (si se conocen)	Barnstable, MA 02601
Tipo de proyecto* (indique todos los que procedan)	Tratamiento/Transporte, suministro de agua
¿Se encuentra el sitio del proyecto dentro de una llanura aluvial de 100 años de la Agencia Federal para el Manejo de Emergencias (FEMA)? Sí/No/Se desconoce	No
Emisiones estimadas de gases de efecto invernadero (GHG) de los espacios acondicionados (haga clic **aquí** para ver la herramienta de cálculo de GHG)	N/C Mejora/Ampliación de una planta de tratamiento de agua potable

Descripción del proyecto

1. **Describa brevemente el proyecto, incluido el tamaño total del sitio del proyecto y la superficie en pies cuadrados de las estructuras y los edificios propuestos, si se conocen.**

Este proyecto proporcionará un beneficio para la salud pública y mejorará la resistencia, la fiabilidad y la calidad del agua potable del Sistema de Agua de Hyannis (HWS) de la ciudad de Barnstable. El HWS opera tres complejos de tratamiento de agua potable con un total de 12 pozos y abastece a una población durante todo el año de aproximadamente 18,000 personas que se eleva a cerca de 35,000 en el verano. La reciente demanda de verano ha alcanzado un récord sin precedentes y, sin las mejoras propuestas, todos los pozos y las plantas de tratamiento deben bombear continuamente en verano. Todos los pozos del HWS están contaminados por sustancias perfluoroalquiladas y polifluoroalquiladas (PFAS) y reciben tratamiento para eliminarlas. Sin embargo, algunos de los equipos no están acondicionados para el invierno y los pozos deben ponerse fuera de servicio durante esta época del año. A partir de 2016, cuando la advertencia de salud sobre PFAS de la Agencia de Protección Ambiental (EPA) se redujo de 300 a 70 nanogramos por litro (ng/L), la ciudad actuó de forma voluntaria y rápida a fin de implementar el tratamiento estacional de emergencia de PFAS mediante la instalación de unidades de filtro de carbón granular activado (GAC) no acondicionadas para el invierno. La eliminación de PFAS en las plantas de tratamiento de aguas de Mary Dunn y Maher se ha preparado para el invierno y puede funcionar todo el año a fin de satisfacer la demanda. Sin embargo, las plantas

de tratamiento de Straightway y Hyannisport (el sitio del proyecto) necesitan mejoras a fin de acondicionar para el invierno las unidades de PFAS existentes, así como aumentar la capacidad de suministro, bombeo y tratamiento, mejorar la resistencia al aumento del nivel del mar y mejorar la fiabilidad del sistema con el objetivo de cumplir con las reglamentaciones actuales y futuras sobre agua potable.

Las plantas de tratamiento de Straightway y Hyannisport, situadas en 228 Straightway y 132 Smith Street, respectivamente, son un componente crítico del HWS situado en aproximadamente 48 acres de terreno protegido para el suministro de agua. La planta está compuesta de cuatro pozos, cinco edificios de bombeo o tratamiento (con un total de unos 3,630 pies cuadrados), cuatro filtros de PFAS no acondicionados para el invierno y un depósito de almacenamiento. Cuando se combinan, tienen el potencial de suministrar un tercio del suministro total del HWS. Sin embargo, cuando se pone en marcha, la planta solo suministra actualmente el 30 % de lo que es capaz de producir y solo puede funcionar de marzo a octubre debido a que los filtros de PFAS no están acondicionados para el invierno. Las mejoras específicas del proyecto incluirán lo siguiente:

- Suministro: el rendimiento de los pozos de Hyannisport y Simmons Pond se ha reducido significativamente y es necesario sustituirlos debido a la obstrucción de los filtros y del acuífero con hierro y manganeso. Este proyecto los sustituirá por pozos nuevos, más fiables y productivos. El pozo Straightway 2 está fuera de servicio debido a problemas de calidad del agua. Las mejoras de tratamiento (descritas a continuación) permitirán reactivar el pozo, lo que aumentará el suministro disponible.
- Resistencia: los pozos de Hyannisport y Simmons Pond se trasladarán a zonas más elevadas por encima de la llanura aluvial de 500 años. Las operaciones de tratamiento se trasladarán y centralizarán en el sitio de Straightway, lo que proporcionará una mayor protección frente a las inundaciones. Los edificios originales (de unos 1,400 pies cuadrados) se clausurarán al final del proyecto y se demolerán para restaurar la llanura aluvial. La nueva planta de tratamiento de Straightway dispondrá de generadores de reserva totalmente redundantes, cada uno de los cuales podrá alimentar la planta de forma independiente.
- Tratamiento: el agua sin tratar necesita un tratamiento mejorado para varios contaminantes que generan preocupación. Gracias a este proyecto, se acondicionarán para el invierno las unidades de PFAS existentes y se construirá una nueva planta de tratamiento de 10,660 pies cuadrados a fin de proporcionar las siguientes mejoras:
    - El agua sin tratar supera el nivel de contaminante máximo secundario (SMCL) de hierro (Straightway 2) y manganeso (todos los pozos). Los filtros de pretratamiento del nuevo edificio eliminarán el hierro y el manganeso para mejorar la vida útil y la eficiencia operativa de las unidades de GAC, reducir el tiempo de inactividad y aumentar la capacidad y la fiabilidad del tratamiento de PFAS.
    - El agua sin tratar supera la Directriz de la Oficina de Investigación y Normas (ORSG) para el 1,4-dioxano en los pozos Straightway 2 y Simmons Pond. Este proyecto incluirá una nueva tecnología de tratamiento (UV-AOP) en el nuevo edificio de Straightway para eliminar el 1,4-dioxano.
    - El agua sin tratar está por encima del límite de agua potable con PFAS de Massachusetts en los cuatro pozos. Las unidades adicionales de GAC propuestas para el nuevo edificio de Straightway podrán tratar el flujo total de los pozos.
    - El pozo Straightway 2 se ha puesto fuera de servicio debido a sus altos niveles de PFAS6, 1,4-dioxano y manganeso. Gracias al nuevo edificio y a las mejoras, el pozo Straightway 2 puede reactivarse.
- Bombeo: la estación de bombeo de refuerzo existente es más pequeña de lo normal para las necesidades futuras del sitio. La capacidad de bombeo se duplicará para tratar la capacidad de la planta propuesta. Además, se modernizarán las bombas de los pozos Straightway 1 y 2.

- Beneficios ambientales: además, el proyecto beneficiará al medioambiente mediante el traslado de dos pozos existentes más lejos de los recursos de los humedales y fuera de la llanura aluvial, lo que ayuda a proteger tanto los pozos como el medioambiente.

2. Enumere los límites de revisión previstos de la MEPA (301 CMR 11.03) (si se conocen).

4) Agua, subsección b), criterios 5: Ampliación de una planta de tratamiento de agua potable existente en 1,000,000 o más de GPD o en un 10 % de la capacidad existente, lo que sea mayor.

3. Enumere todos los permisos estatales, locales y federales previstos necesarios para el proyecto (si se conocen).

Estatales:

- Aprobación de la Comisión Histórica de Massachusetts
- Aprobación de la Ley de Política Ambiental de Massachusetts (Formulario de Notificación Ambiental; Informe de Impacto Ambiental; Protocolos de Justicia Ambiental)
- Revisión de la Gestión de Zonas Costeras
- Aprobación del Departamento de Protección Ambiental de Massachusetts, Región Sudeste (WS20, WS25, WS29)

Locales:

- Ciudad de Barnstable
  - Comisión de Conservación, Orden de Condiciones
  - Revisión del plan del sitio
  - Permiso de Gestión de Aguas Pluviales
  - Revisión de la Junta de Salud
  - Revisión del Departamento de Bomberos; Permiso de Construcción

Federales:

- Revisión del Servicio de Pesca y Vida Silvestre de EE. UU.
- Revisión de los Estándares Federales para el Manejo del Riesgo de Inundación

4. **Identifique las poblaciones y características de Justicia Ambiental (EJ) (minorías, ingresos, aislamiento por el idioma inglés) en un radio de 5 millas del sitio del proyecto (puede adjuntar un mapa que identifique el radio de 5 millas del Visualizador de mapas de EJ en lugar de una descripción).**

https://arcg.is/HinOu0 - enlace al mapa. Las poblaciones se identifican de la siguiente manera:

- Minorías
- Minorías e ingresos
- Minorías y aislamiento por el idioma inglés
- Minorías, ingresos y aislamiento por el idioma inglés

5. Identifique cualquier municipio o tramo censal que cumpla con la definición de "criterios de vulnerabilidad sanitaria según la EJ" en la Herramienta de EJ del Departamento de Salud Pública (DPH) ubicada en su totalidad o en parte en un radio de 1 milla del sitio del proyecto.

Barnstable no cumple con los criterios de vulnerabilidad sanitaria según la EJ para ataques cardíacos, niveles de plomo en la sangre de los niños, bajo peso al nacer o asma infantil.

6. **Identifique los posibles impactos ambientales y de salud pública a corto y largo plazo que puedan afectar a las poblaciones de EJ y cualquier mitigación prevista.**

El proyecto proporciona beneficios para la salud pública y el medioambiente a largo plazo, como se describe en el punto 1. A corto plazo, durante la construcción de la infraestructura mejorada, es posible que los residentes cercanos al proyecto noten algo de ruido procedente de la construcción. Es posible que los dueños de propiedades colindantes cercanas a las zonas de construcción vean actividades de limpieza del terreno e instalaciones de mejora de los servicios

públicos en el derecho de paso público. Como medida de mitigación, el HWS exigirá a los contratistas que trabajen durante las horas normales de trabajo entre semana, que controlen el polvo y que limiten los vehículos detenidos con el motor encendido. Se instalarán sistemas de control de la sedimentación y la erosión en las zonas de trabajo situadas cuesta arriba de los humedales para proteger los recursos ambientales.

7**. Identifique los beneficios del proyecto, incluidos los "Beneficios ambientales" según se definen en 301 CMR 11.02, que puedan mejorar las condiciones ambientales o la salud pública de la población de EJ.**

Este proyecto proporcionará un beneficio para la salud pública y mejorará la resistencia, la fiabilidad y la calidad del agua potable del Sistema de Agua de Hyannis (HWS) de la ciudad de Barnstable.

Además, el proyecto beneficiará al medioambiente mediante el traslado de los pozos existentes de Hyannisport y Simmons Pond más lejos de los recursos de los humedales y fuera de la llanura aluvial, lo que ayuda a proteger tanto los pozos como el medioambiente. El pavimento y los edificios de los pozos originales de Hyannisport y Simmons Pond se retirarán para permitir la revegetación de la zona de amortiguación del humedal.

8. **Describa cómo la comunidad puede solicitar una reunión para debatir el proyecto, así como servicios de interpretación oral en la reunión. Especifique cómo solicitar otras adaptaciones, incluidas reuniones fuera del horario laboral y en lugares cercanos al transporte público.**

La comunidad de EJ puede solicitar una reunión para debatir el proyecto y solicitar servicios de interpretación oral en la reunión u otras adaptaciones; para ello, debe enviar un correo electrónico al Sistema de Agua de Hyannis a: hyanniswater@town.barnstable.ma.us

También puede ponerse en contacto por teléfono con Matthew Wrobel al 774-487-5330 o con Kelly Collopy al 774-487-5782.

Distribution List for Environmental Justice Screening Forms

Statewide Environmental Justice Community Based Organizations					
First Name	**Last Name**	**Title**	**Phone**	**Email**	**Affiliation**
Ben	Hellerstein	MA State Director	617-747-4368	ben@environmentmassachusetts.org	Environment Massachusetts
Cindy	Luppi	New England Director	617-338-8131 x208	cluppi@cleanwater.org	Clean Water Action
Deb	Pasternak	Director, MA Chapter	617-423-5775	deb.pasternak@sierraclub.org	Sierra Club MA
Elvis	Mendez	Organizing Director	508 904-5359	elvis@n2nma.org	Neighbor to Neighbor
Emily	Myron	Policy Manager	617-532-8311 240-372-0792	emily.myron@tnc.org	The Nature Conservancy
Heather	Clish	Director of Conservation & Recreation Policy	(617) 523-0655	hclish@outdoors.org	Appalachian Mountain Club
Heidi	Ricci	Director of Policy	781-259-2172	hricci@massaudubon.org	Mass Audubon
Julia	Blatt	Executive Director	(617) 714-4272	juliablatt@massriversalliance.org	Mass Rivers Alliance
Kelly	Boling	MA & RI State Director	(617) 367-6200	kelly.boling@tpl.org	The Trust for Public Land
Kerry	Bowie	Board President	Not Provided	kerry@msaadapartners.com	Browning the GreenSpace
Linda	Orel	Director of Policy	617-360-1857	lorel@thetrustees.org	The Trustees of Reservations
Nancy	Goodman	Vice President for Policy	Not Provided	ngoodman@environmentalleague.org	Environmental League of MA
Pat	Stanton	Project Manager	Not Provided	pstanton@e4thefuture.org	E4TheFuture
Rob	Moir	Executive Director	978 621-6657	rob@oceanriver.org	Ocean River Institute
Robb	Johnson	Executive Director	(978) 443-2233	robb@massland.org	Mass Land Trust Coalition

Sarah	Dooling	Executive Director	Not Provided	sarah@massclimateaction.net	Mass Climate Action Network (MCAN)
Staci	Rubin	Senior Attorney	617 350-0990	srubin@clf.org	Conservation Law Foundation
Sylvia	Broude	Executive Director	617 292-4821	sylvia@communityactionworks.org	Community Action Works
Tali	Smookler	Organizing Director	508 308-9261	tsmookler@uumassaction.org	Unitarian Universalist Mass Action Network
Winston	Vaughan	Director of Climate Solutions	Not Provided	wvaughan@hcwh.org	Healthcare without Harm
Winton	Pitcoff	The Director of the Collaborative	Not Provided	winton@mafoodsystem.org	Mass Food System Collaborative
Kai	Salem		(401) 861-6111	kai@greenenergyconsumers.org	Green Energy Consumers Alliance

Indigenous Organizations

First Name	Last Name	Title	Phone	Email	Affiliation
Alma	Gordon	President	Not Provided	tribalcouncil@chappaquiddick-wampanoag.org	Chappaquiddick Tribe of the Wampanoag Nation
Bettina	Washington	Tribal Historic Preservation Officer	508-560-9014	thpo@wampanoagtribe-nsn.gov	Wampanoag Tribe of Gay Head (Aquinnah)
Cheryll	Toney Holley	Chair	774-317-9138	crwritings@aol.com	Nipmuc Nation (Hassanamisco Nipmucs)
John	Peters, Jr.	Executive Director	617-573-1292	john.peters@mass.gov	Massachusetts Commission on Indian Affairs (MCIA)
Kenneth	White	Council Chairman	508-347-7829	acw1213@verizon.net	Chaubunagungamaug Nipmuck Indian Council

Melissa	Ferretti	Chair	(508) 304-5023	melissa@herringpondtribe.org	Herring Pond Wampanoag Tribe
Patricia	D. Rocker	Council Chair	Not Provided	rockerpatriciad@verizon.net	Chappaquiddick Tribe of the Wampanoag Nation, Whale Clan
Raquel	Halsey	Executive Director	(617) 232-0343	rhalsey@naicob.org	North American Indian Center of Boston

Federally Recognized Tribes					
First	**Last**	**Title**	**Phone**	**Email**	**Affiliation**
Bettina	Washington	Tribal Historic Preservation Officer	508-560-9014	thpo@wampanoagtribe-nsn.gov	Wampanoag Tribe of Gay Head (Aquinnah)
Bonney	Hartley	Historic Preservation Manager	413-884-6048	bonney.hartley@mohican-nsn.gov	Stockbridge-Munsee Tribe
Brian	Weeden	Chair	774-413-0520	Brian.Weeden@mwtribe-nsn.gov	Mashpee Wampanoag Tribe

Local Community Based Organizations					
First Name	**Last Name**	**Title**	**Phone**	**Email**	**Affiliation**
Kristina	Dower	Executive Director	508-771-1727	Info@cacci.cc	Cape Cod Collaborative
Paul	Hilton	Executive Director	508-420-6950	paulhilton@capecodcollaborative.org	Community Action Committee of Cape Cod
Kristy	Senatori		508-362-3828	ksenatori@capecodcommission.org	Cape Cod Commission
Jill	Talladay	Executive Director	508-760-8187	info@careforthecapeandislands.org	CARE for the Cape & Islands
Brian	McGurk	Co-Chair		FCEN@capecodclimate.org	Faith Community Environmental Network
				350Cape@gmail.com	350 Cape Cod

Tammy	Leone	Executive Director	508-419-1734	tammyleoneckm@gmail.com	Cape Kids Meals
Michael	Mecenas	Founder/President	774-470-4946	healthministryusa@gmail.com	Health Ministry USA
Lenita	Reason	Executive Director	617-783-8001	info@braziliancenter.org	Brazilian Worker Center Hyannis
Melissa	H Farretti	Chairwoman	774-205-2933	melissa@herringpondtribe.org	Herring Pond Wampanoag Tribe

APPENDIX H

FISH AND WILDLIFE SERVICE CONSULTATIONS

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
https://www.fws.gov/office/new-england-ecological-services

August 14, 2024

McKenna Roberts
Kleinfelder
One Beacon St., Suite 8100
Boston, MA 02108

RE: Straightway and Hyannisport PFAS Treatment Facility, Barnstable, MA (In reply refer to Project Code 2024-0078878)

Dear McKenna Roberts:

This responds to your request, dated August 13, 2024, and received in our office on the same date, for our concurrence with your determination that the Town of Barnstable's proposed installation of the Straightway and Hyannisport PFAS Treatment Facility in Barnstable, MA, funded through the U.S. Environmental Protection Agency's (EPA) Drinking Water State Revolving Fund (Project), may affect, but is not likely to adversely affect, the federally endangered northern long-eared bat (*Myotis septentrionalis*) and proposed endangered tricolored bat (*Perimyotis subflavus*). Your request and our response are made pursuant to section 7 of the Endangered Species Act of 1973, as amended (87 Stat. 884, as amended; 16 U.S.C 1531, et seq.) (ESA). We understand the Town of Barnstable is acting as a non-Federal representative of the EPA for the purpose of consultation under section 7.

Based on our knowledge, expertise, and review of the information and analysis included with your consultation request, we concur with your determination because any effects from the proposed action on the subject species would be insignificant and/or discountable.

The Town of Barnstable has made a no effect determination for the federally endangered American chaffseed (*Schwalbea americana*) and endangered sandplain gerardia (*Agalinis acuta*).

Further consultation under section 7 of the ESA is not required at this time. If any of the criteria at 50 CFR 402.16(a) are met, reinitiation of consultation is required, and the Town of Barnstable or the EPA should contact us immediately and suspend activities that may affect those species until the appropriate level of consultation is completed with our office. Thank you for your

cooperation, and please contact Eliese Dykstra of this office at 603-568-4652 or Eliese_Dykstra@fws.gov if you have questions or need further assistance.

Sincerely yours,

AUDREY MAYER

Digitally signed by AUDREY MAYER
Date: 2024.08.14 14:28:22 -04'00'

Audrey Mayer
Supervisor
New England Field Office

cc: mroberts@kleinfelder.com
kryan@kleinfelder.com
bmong@kleinfelder.com

Re: [EXTERNAL] Re: Eagles and MBTA Consultation

Ladin, Zachary S <zachary_ladin@fws.gov>
Thu 7/11/2024 9:46 AM
To:McKenna Roberts <MRoberts@kleinfelder.com>
Cc:Bethany Mong <BMong@kleinfelder.com>;Kirsten Ryan <KRyan@kleinfelder.com>

External Email

Hi there,

Thank you for your patience in our review and feedback on the Barnstable Water Treatment project. After reviewing the proposed project scope, activities, and timing, we do not see any adverse impacts to migratory birds listed under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act (BGEPA). If the project is able to adhere to the proposed time-of-year restriction for clearing trees outside of the primary breeding season of birds (April-May) and there are no active bald eagle nests within 660 feet of the project area, then we see no adverse effects at this time.

If in the event an active bald eagle nest is detected during the course of the project, please reach out to our office, and we can help recommend best practices, and suggest any permits to avoid violations under BGEPA.

Best wishes,
Zach

Zachary Ladin
Supervisory Wildlife Biologist
Migratory Bird Program
Northeast Region
US Fish & Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035
Email: zachary_ladin@fws.gov
Web: https://fws.gov/ePermits
Office Phone: (413) 253-8541
Mobile Phone: (413) 244-2307

From: Permits R5MB, FW5 <permitsr5MB@fws.gov>
Sent: Wednesday, July 3, 2024 4:11 PM
To: Ladin, Zachary S <zachary_ladin@fws.gov>; Sanchez, Arthur <arthur_sanchez@fws.gov>
Subject: Fw: [EXTERNAL] Re: Eagles and MBTA Consultation

From: McKenna Roberts <MRoberts@kleinfelder.com>
Sent: Wednesday, July 3, 2024 1:51 PM
To: Permits R5MB, FW5 <permitsr5MB@fws.gov>
Cc: Kirsten Ryan <KRyan@kleinfelder.com>; Bethany Mong <BMong@kleinfelder.com>
Subject: [EXTERNAL] Re: Eagles and MBTA Consultation

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hello,

I wanted to reach out again to inquire if our water treatment plant construction project would be expected to affect migratory birds or bald and golden eagles. Please find more information on the projects below. If you need any additional information, please do not hesitate to reach out!

Best,

McKenna Roberts, EIT
Staff Engineer

One Beacon St.
Ste 8100
Boston, MA 02108
o| 617.497.7800
m| 989.350.5960

KLEINFELDER
Bright People. Right Solutions.

From: McKenna Roberts
Sent: Tuesday, June 4, 2024 8:51 AM
To: permitsR5MB@fws.gov <permitsR5MB@fws.gov>
Cc: Kirsten Ryan <KRyan@kleinfelder.com>; Bethany Mong <BMong@kleinfelder.com>
Subject: Eagles and MBTA Consultation

Hello,

I am working on permitting for the Barnstable PFAS Upgrades - Straightway project, a water treatment plant construction project in Barnstable, Mass. We have generated a species list and migratory birds list for our project. We were hoping that you could confirm that our project will not have an effect on migratory birds or bald and golden eagles. There are no known bald eagle nests at the project site. The project includes approximately 0.5 acres of tree clearing, which will be completed outside of the months of April - September.

I have included a full project summary below and attached our species list for the project, our site plans, and the USGS quadrangle showing our project location.

Summary:
The Town of Barnstable is currently receiving State Revolving Fund (SRF) funding via the federal Bipartisan Infrastructure Law (BIL), for the proposed installation of a new water treatment facility at its existing Straightway Water Treatment Plant on Cape Cod. The existing project site includes four production wells, two water treatment facilities, a booster water pump station, a water storage tank, and associated yard piping. The existing Straightway Water Treatment Facility receives and treats raw water from Straightway Wells No. 1 & No. 2. A seasonally-operated interim granular activated carbon (GAC) filtration system and backwash lagoon were installed at this location during spring 2020 for removing PFAS contaminants. In addition, the Plant's existing Hyannisport Water Treatment Facility receives and treats raw water from the on-site Hyannisport and Simmons Pond Wells. Finished water from both treatment facilities is pumped to a 400,000-

gallon baffled contact storage tank (the Straightway Tank), which provides 4-log disinfection credits for virus inactivation to meet the requirements of the Groundwater Rule. Water from the tank is pumped into the distribution system on Straightway by a 1,500-gpm booster pumping station. This provides a single entry point to the municipal water distribution system from the two water treatment facilities.

The proposed treatment facility will centralize all raw water treatment for these four wells into a single new building, capable of providing year-round treatment for up to 2,800 gpm of water. The proposed plant will include pH adjustment, corrosion control, greensand filtration for manganese removal, UVAOP treatment for 1-4 Dioxane, and GAC filtration for PFAS6 removal. The construction of the new building will require approximately 0.4 acres of tree removal.

The project also includes the relocation of two existing groundwater wells: the Hyannisport and Simmons Pond Wells. The new well locations will move the well at least 3 vertical feet outside of the FEMA Zone AE National Flood Hazard Layer, as well as outside of the 500-year floodplain. This will require approximately 0.1 acres of tree clearing. Existing pumping stations for the Simmons Pond and Hyannisport wells, which are located within bordering vegetated wetland, will be demolished and the areas reseeded with native plants. The attached site plans show the existing site layout and the proposed site layout.

If you have any further questions about our project, please do not hesitate to reach out!

Best,

McKenna Roberts, EIT
Staff Engineer

One Beacon St.
Ste 8100
Boston, MA 02108
o| 617.497.7800
m| 989.350.5960

KLEINFELDER
Bright People. Right Solutions.