



City of Bristol
Conservation Commission/ Inland Wetlands and Watercourses Agency

SPECIAL MEETING - WEDNESDAY, MAY 22, 2024
CITY HALL COUNCIL CHAMBERS
111 NORTH MAIN STREET
7:00 P.M.

INFORMATION FOR THE PUBLIC TO ACCESS THIS MEETING

Zoom Meeting Link:

<https://bristolct-gov.zoom.us/j/86765091230?pwd=Ae8VUQwayF3UGHiuoLbvsM2JqPeczJ.1>

Meeting ID:

867 6509 1230

Meeting Passcode:

556383

Join by phone:

1-929-205-6099

AGENDA

1. Pledge of Allegiance
2. Call to Order
3. Old Business
 - a. Application #2019 – Wetlands boundary change application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant (Public Hearing Closed at May 6, 2024 Regular Meeting).
 - b. Application #2020 – Wetlands application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant (Public Hearing Closed at May 6, 2024 Regular Meeting).
 - c. Application #23-458F-305 – Floodplain application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon

Esponda, Deputy Director, applicant (Public Hearing Closed at May 6, 2024 Regular Meeting).

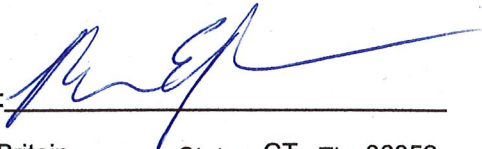
4. Adjournment

REMINDER: The next Regular Meeting of the Inland Wetland Agency is Monday, June 3, 2024

APPLICATION NO. 2019
DATE FILED: 12-28-23
APPROVED: _____
DENIED: _____

**BRISTOL CONSERVATION COMMISSION
INLAND WETLANDS AGENCY
FORM IW-2 (Application for a Wetlands Boundary Change)**

1. APPLICANT:

Name: New Britain Water Department Ramon Esponda Signature: 
Address: 1000 Shuttle Meadow Ave. City: New Britain State: CT Zip 06052
Telephone No.: (860) 826-3535 [] home [x] work

2. PROPERTY OWNER(S):

Name: New Britain Water Department Ramon Esponda Signature: 
Address: 1000 Shuttle Meadow Ave. City: New Britain State: CT Zip 06052
Telephone No.: (860) 826-3535 [] home [x] work

3. DESCRIBE THE SUBJECT PROPERTY:

Address or Location: Parcels North and South of Maltby Street, Bristol, CT.

Assessor's Map No.: 52, 53 Assessor's Lot No.(s): 11, 15, 16B16A, 17, 145, 147, 149, 150, 151

Description of wetlands (see instructions):

Freshwater Forested/Shrub, Freshwater Emergent, Freshwater Pond & Riverine wetlands. Wetlands are located centrally within the property parcels. The wetlands have been delineated by Ian Cole, Soil Scientist #2006.

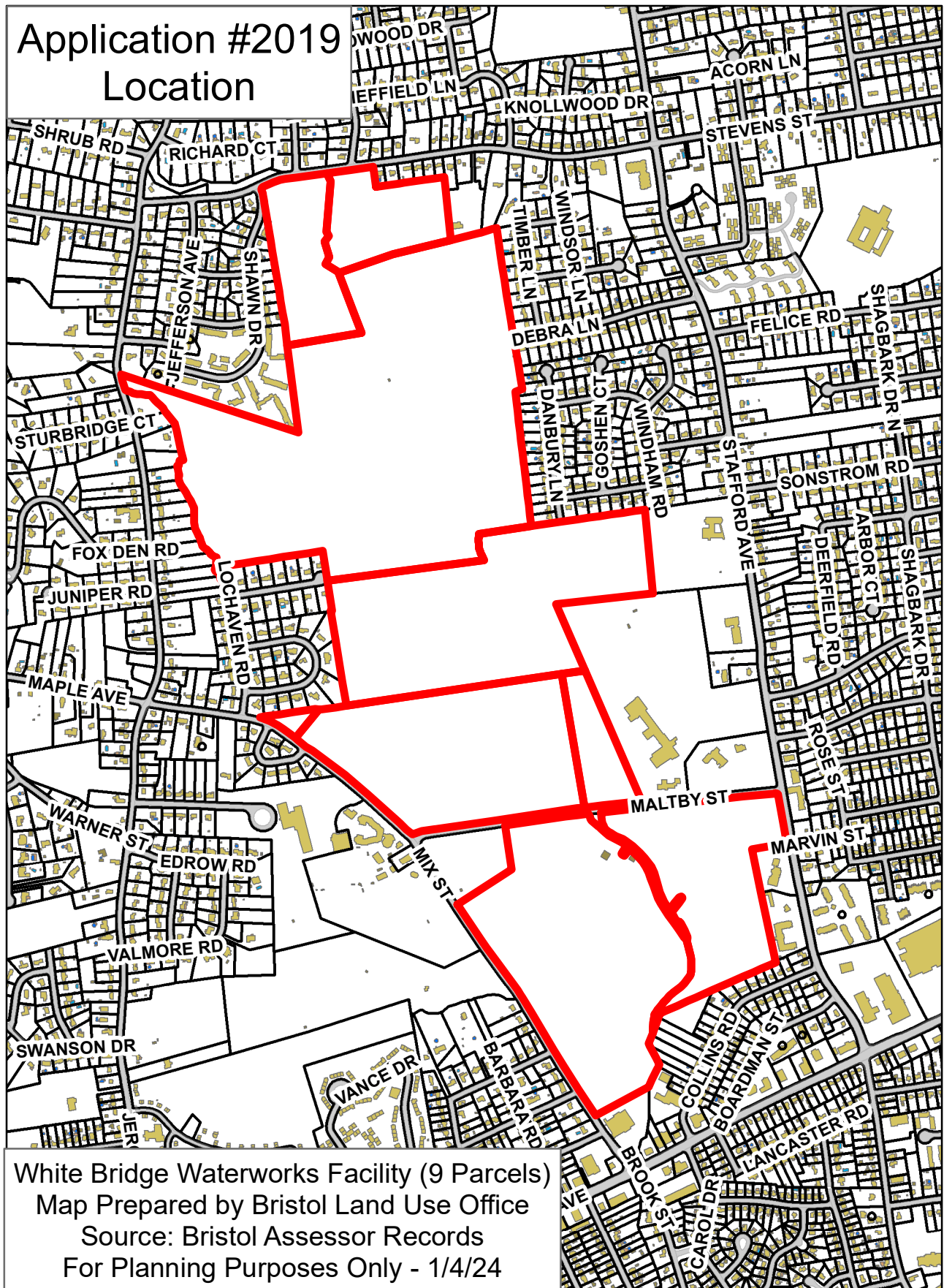
4. DESCRIBE THE REASON FOR THE PROPOSED BOUNDARY CHANGE:

As part of the proposed project, portions of project site will be cut to provide for compensatory storage. Many of these portions are located contiguously with the current wetland marker flags. Since the cuts will bring the elevations of those areas down (see attached maps) these areas will become wetlands and the boundary of the wetlands will change. The compensatory storage is necessary to prevent current flood elevation levels from increasing.

5. AUTHORIZATIONS AND CERTIFICATIONS:

- a. I/we hereby authorize the commissioners and agents of the Bristol Inland Wetlands Agency to inspect the subject property at reasonable times, both before and after a final decision has been made regarding this application.
- b. I/we hereby certify that I/we am/are familiar with the information included in this application and am/are aware that the law provides that any person who commits, takes part in, or assists in any violation of any provision of Sections 22a-36 through 22a-45, inclusive, of the Connecticut General Statutes, including regulations adopted by the Commissioner of Environmental Protection and ordinances and regulations of the City of Bristol through its Inland Wetlands Agency, shall be assessed a civil penalty of not more than one thousand dollars for each offense. I/we further certify that I/we am/are aware that it is a violation of law to obtain a wetlands ruling through deception or through inaccurate or misleading information.

Application #2019 Location



White Bridge Waterworks Facility (9 Parcels)
Map Prepared by Bristol Land Use Office
Source: Bristol Assessor Records
For Planning Purposes Only - 1/4/24

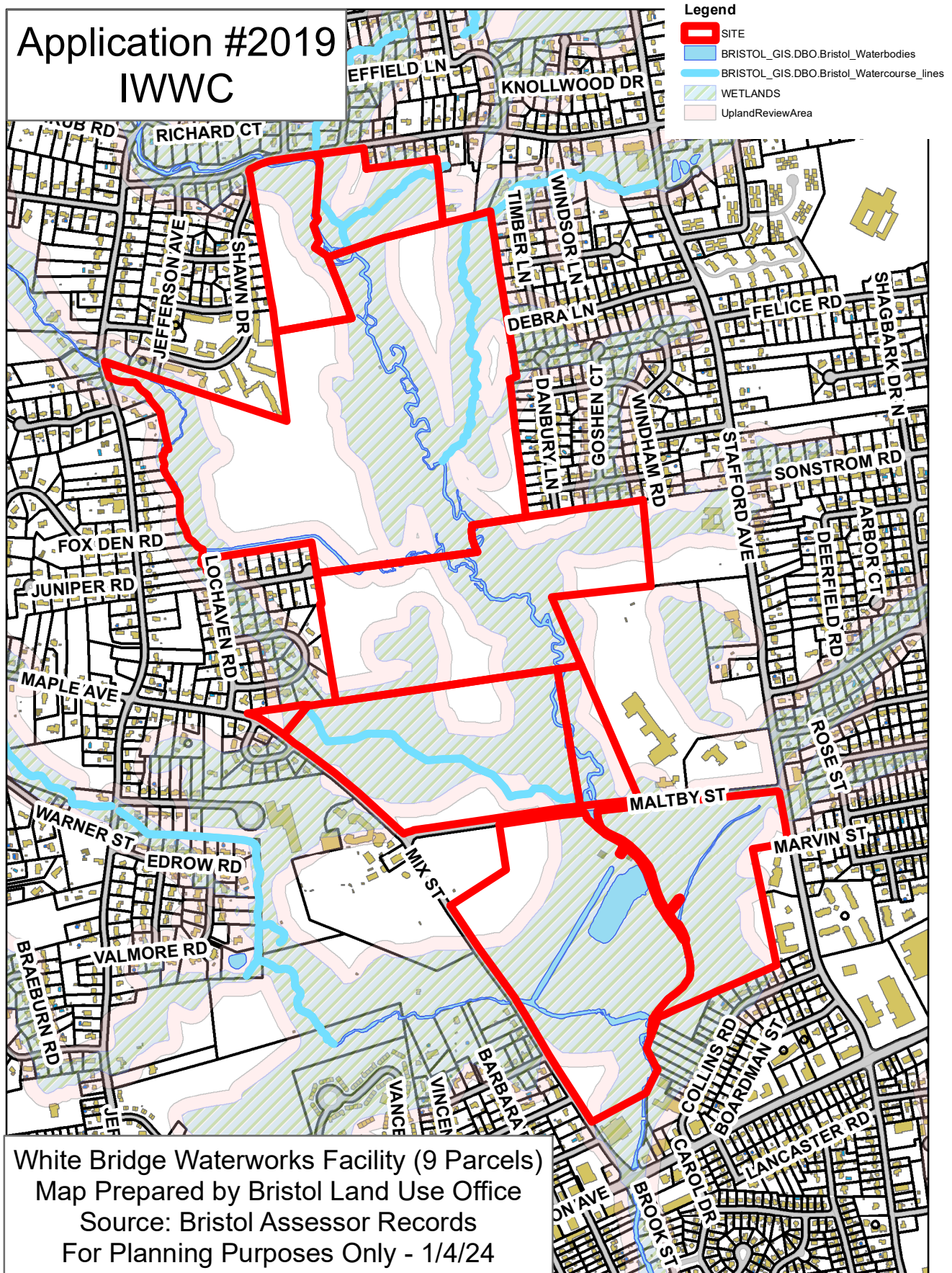
Application #2019
Aerial

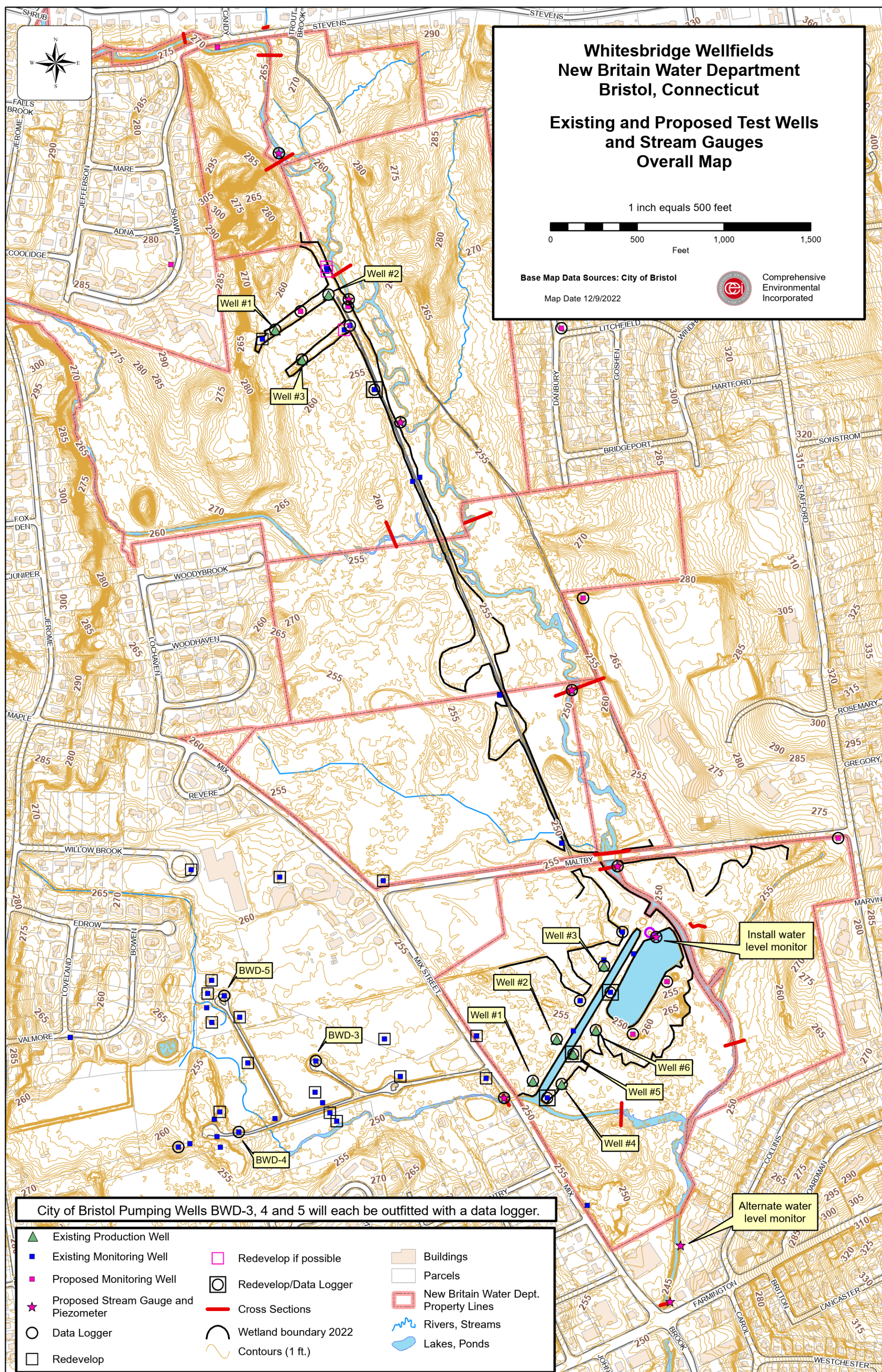
White Bridge Waterworks Facility (9 Parcels)
Map Prepared by Bristol Land Use Office
Source: Bristol Assessor Records
For Planning Purposes Only - 1/4/24

Application #2019
Aerial

White Bridge Waterworks Facility (9 Parcels)
Map Prepared by Bristol Land Use Office
Source: Bristol Assessor Records
For Planning Purposes Only - 1/4/24

Application #2019 IWWC





Wetlands Permit Application – IW-2

This attachment to the IW-2 application serves to provide the additional information required for changes to wetlands boundaries application submittals, including:

- Site plans
- Proposed project activities related to changes in wetlands boundaries
- Description and delineation of wetlands

Proposed Project Activities:

A rehabilitative/restorative project will be conducted at the Upper and Lower Wellfields of the White Bridge Waterworks Facility owned by the New Britain Water Department (NBWD). The purpose of this project is to redevelop the existing Upper and Lower Wellfields, which were constructed in 1955 and 1921, respectively. This will allow the NBWD to optimize the volume of water collected from this resource and potentially utilize it as a backup source of potable water since the NBWD only has one water treatment plant and no other wells. Presently, these wellfields serve as a raw water supply only and cannot serve as a backup in their present condition. In order to become a potable water supply, any new wells must be located 50 feet from any water bodies or wetland limits per Department of Public Health (DPH) requirements. In addition, the wells must be raised 2' above the one-hundred-year flood elevation. Because of these requirements, the existing wells cannot be redrilled or rehabilitated in their present location. All currently existing wells will be abandoned in accordance with DPH requirements.

Compensatory flood storage areas will be created so as to not increase the current flood elevation levels as given by FEMA guidelines. These compensatory storage areas will also create additional wetland areas and, as such, will change relatively small portions of the wetlands boundaries as were mapped and flagged by professional soil and wetlands scientists in August/September 2022. See the attached maps for further information on the extent of the boundary flagging as well as the areas of interest with respect to changes in wetlands boundaries.

Category of Proposed Activity:

The proposed activity, which will occur in a wetlands area, is requested to be permitted as an “as of right” use. This activity falls under Subsection 4.1.e of the Inland Wetlands and Watercourses Regulations of the Conservation Commission of the City of Bristol, CT, because it involves the operation by a municipal water supply system of facilities necessary for the withdrawal of water in connection with public water supplies.

Significant Activity:

The proposed activity constitutes a “significant activity” because it has the potential to have a major effect or substantial impact to a wetlands regulated area, due to the deposit of material in a regulated area. Erosion control cautionary measures will be in place to reduce the impact of the project.

Description of Property and Wetlands:

This property spans a total of 303.7 acres, which includes the following parcels (by Map/Lot number): 52-15, 52-16B16A, 52-17, 52-11, 53-149, 53-150, 53-151, 53-145 and 53-147. Copper Mine Brook travels through the entirety of the property from north to south. The Upper Wellfield is located on parcel 52-17, which is 104.6 acres and has PFO1E and PEM1E wetland areas. PFO1E areas are seasonally flooded/saturated broad-leaved deciduous wetlands. PEM1E areas are seasonally flood/saturated persistent emergent wetlands. Soils in this project area consist mostly of Scarboro muck, with some Saco silt loam located closer to Copper Mine Brook. Soil scientist Ian Cole located all the wetland boundaries in the vicinity of the test well explorations. These boundaries are shown on the plans provided.

The Lower Wellfield is located on parcel 53-145, which is 50.3 acres and also has PFO1E and PEM1E wetland areas. Polkville Brook travels west to east, then southerly through this parcel before flowing into Copper Mine Brook. Onsite vehicular transport, between the Upper and Lower Wellfield areas will use existing travel ways on the site not within any wetland boundaries. Soils in the Lower Wellfield project area consist mostly of Raypol silt loam, with some Hinckley loamy sand located closer to Polkville Brook. Detailed wetlands mapping is provided on the plans.



COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

Gateway Crossing
1 Hartford Square East, Suite 227
New Britain, CT 06052
860.224.0442

May 1, 2024

Mr. Robert Flanagan, City Planner
City Hall
111 North Main Street
Bristol, CT 06010

**RE: Wetlands and Flood Commission Permits- Applications #2019, #2020 & #23-458F-305
Submission of Response to Staff Comments and Supplemental Information**

Dear Mr. Flanagan,

On behalf of the Applicant, the New Britain Water Department, Comprehensive Environmental Inc. (CEI) is providing in this document responses to comments and supplemental information regarding the above referenced applications.

Responses to City Staff Comments:

Comment #1. *Proposed construction wetland “replication” appears to consist of excavation adjacent to existing wetland and installation of 3 inches of hydrophilic soil. Provide additional information associated with the hydrophilic soil specification and post development groundwater depth to support wetland “replication” areas. DPW Engineering Division proposes a min of 12-inch depth of hydrophilic soil within wetland “replication” area. On adjacent 2:1 slopes 6 inches of hydrophilic soil is sufficient. Detail/document short and long term monitoring and wetland “replication” area management plan to ensure long-term viability of area.*

Response #1. The wetland replication and compensatory storage plans and sections have been revised to address the above comments. Please note that due to the presence of a vernal pool in the upper wellfield area the compensatory storage and wetland replication area was moved further north. In addition, the United States Army Corp of Engineers (USACE) has requested a 3:1 wetlands replication as part of their permit review. These changes are reflected in revised sheets WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 and C-14A which are attached herein as **Attachment 1.A**. Also attached as **Attachment 1.B**. are the calculations for the compensatory storage. More information about the vernal pool can be found in the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is also attached to this document as **Attachment 1.C**. Sheet XS-5 and Section 4 of the NBWD Supplemental Environmental/Wetlands Permit Information detail the short term and long term monitoring for wetland replication.

Comment #2. *Plan indicates dewater sedimentation basin, however provide anticipated/ proposed discharge rates with sizing of sedimentation basins. In addition, indicate controls / monitoring of turbidity discharge from sedimentation basin.*

Response #2. Temporary dewatering sedimentation basins are intended to be used in the event high groundwater is encountered during excavation activities. Anticipated/proposed discharges will vary depending on the required amount of excavation dewatering but typically can range from 20-50 gpm, intermittently. As shown in Detail J of Drawing Sheet C-24 (included herein as **Attachment 2**), the dewatering sedimentation basin size may vary depending on necessity with a 5-foot diameter being the minimum diameter of the basin. Sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. The Contractor may also elect to install permeable geotextile dewatering bags in addition to the dewatering sedimentation basins for sediment filtration.

Comment #3. *Provide construction sequence with durations along with staging plan, areas of stockpile storage and refueling areas.*

Response #3. See the Proposed Construction Sequence Memorandum included in **Attachment 3.A.** for more information, and the associated Drawing Sheets C-20, C-21, and C-22 in Attachment 3.B. Additionally, see Sheet C-1 and C-7 of **Attachment 3.B.** for notes and depiction of Contractor staging, stockpiling, and refueling areas.

Comment #4. *Clarify proposed location of floating turbidity curtain.*

Response #4. Floating turbidity curtains are to be located within the canal, east and west of the proposed sediment removal areas. See revised Sheet C-23 in **Attachment 4.**

Comment #5. *Include installation line of silt fence along the toe of ALL proposed slopes. Silt fence shall be installed prior to construction, be monitored during construction and removed once slopes are stabilized.*

Response #5. Notes requiring the installation of silt fence has been included throughout drawings. See revised sheets C-1, C-6, C-7, C-8, C-13, C-14, C-14A in **Attachment 5.**

Comment #6. *Provide additional detail associated with compensation storage area 3. The plans indicate excavation to elevation 252, however indicate proposed access to area, erosion control and restoration.*

Response #6. The revised plans referenced in Comment Response #1 address these comments.

Comment #7. *Provide additional detail associated with compensation area 4, including additional elevation east of the area between the compensation area and the Coppermine. Detail cross section AA-1 and indicate erosion control measures and proposed access to area.*

Response #7. The revised plans referenced in Comment Response #1 address this comment.

Comment #8. *The Storm Water Management Report is prepared in accordance with the CT Storm Water Quality Manual. As indicated in your report the manual requires maintaining the pre-*

development annual groundwater recharge volume. The report indicates recharge is achieved through reduction in impervious area; however, please indicate impact of additional well withdrawal will have on wetlands.

Response #8. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is included in **Attachment 1.C.**

Comment #9. *Proposed plans indicate flood plain mitigation measures (excavation within flood plain to offset the placement of fill within flood plain). However, Bristol DPW recommends a CLOMR prior to work and will require a LOMR as condition of approval (if approved).*

Response #9. See No Rise Certification included in **Attachment 9.** No objection to coordinating with FEMA for CLOMR/LOMR as a condition of approval.

Responses to North Central Conservation District (Letter Dated March 28, 2024):

1. See the Letter from CT DEEP in **Attachment 10**, which confirms the continued applicability of the Diversion Registration to the facilities and that no diversion permit is required for continued operation of the facilities as proposed with this project.
2. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information, included in **Attachment 1.C.**, concluding no permanent impacts from withdrawals.
3. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information and the related Supplemental Alternatives Evaluation contained therein, detailing alternatives considered for this project. There are no feasible and prudent alternatives to the proposed plan.
4. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information concluding no permanent impacts to wetlands functions and values.

Additional Information Submitted:

1. Detailed Groundwater and Stream Flow Monitoring Plan, as required by CT DPH, is included in **Attachment 11.**
2. Letter confirming hydrogeologic information for project site remains valid. See **Attachment 12.**
3. Proposed wetlands boundary line change map is submitted for consideration. See **Attachment 13.**
4. Resumes of Engineers and Soil Scientist are included in **Attachment 14.**

Attachments Includes:

- Response 1 – Attachments
 - 1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A
 - 1.B. Calculations: Compensatory Storage
 - 1.C. NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC
- Response 2 – Attachment
 - 2. Drawing: C-24
- Response 3 – Attachments
 - 3.A. Proposed Construction Sequence Memorandum
 - 3.B. Drawings: C-1 and C-7; C-20, C-21, and C-22
- Response 4 – Attachment

- 4. Drawing: C-23
- Response 5 – Attachment
 - 5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A
- Response 9 – Attachment
 - 9. No Rise Certification
- Attachment 10
 - 10. CT DEEP Permit Need Determination
- Attachment 11
 - 11. Detailed Groundwater and Stream Flow Monitoring Plan
- Attachment 12
 - 12. Letter confirming hydrogeologic information for project site remains valid
- Attachment 13
 - 13. Proposed wetlands boundary line change map
- Attachment 14
 - 14. Resumes of Engineers and Soil Scientist
 - Sebastian Amenta, P.E.
 - Ian T. Cole - Professional Soil Scientist
 - Joseph L. Laliberte, PE, BCEE, PM
 - Clinton L. Webb Jr. – Senior Environmental Scientist/Ecologist

If you have any questions or require any additional information, please do not hesitate to contact me at 860.224.0442 or samenta@ceiengineers.com.

Sincerely,
Comprehensive Environmental Inc.



Sebastian Amenta, PE
Regional Program Director

Ray Rogozinski Review Comments

April 22, 2024

&

Applicant Responses

May 2, 2024

Bristol Department of Public Works has completed the review of the following materials submitted as part of Applications #2019, #2020 & #23-458F-305.

- i. Central Conservation District review letter, dated March 28, 2024.
- ii. CDM Smith Stormwater Management Report for the White Bridge Waterworks Facilities Pond Pumping Station.
- iii. C. Webb & Associates, LLC Wetland Delineation Report, dated September 29, 2022. iv. CDM Smith Plan Set, dated December 2022: Existing Conditions sheets 1-3, Wetlands replication areas sheets 1-3, Cross-Sections sheets 1-4.
- v. Freeman Companies Existing Conditions Survey Upper & Lower Wellfield, topography survey.
- vi. CDM Smith Plan Set: C-2,6-10, 10B, 11-17, 18A, 18B, 2, 19, 23-29, 9, 11-14, 18 A, 18 B. vii. CDM Smith Plan Set: Attachment 4: Floodway & Flood Fringe Encroachment Areas 60% Submittal C9, 5, 11, 13, 14, 9, 9, 9, 9, 11 (10 sheets), 5 (8 sheets), CS1-CS4. Based on the review the following comments are provided:

1. Proposed construction wetland “replication” appears to consist of excavation adjacent to existing wetland and installation of 3 inches of hydrophic soil. Provide additional information associated with the hydrophic soil specification and post development groundwater depth to support wetland “replication” areas. DPW Engineering Division proposes a min of 12 inch depth of hydrophic soil within wetland “replication” area. On adjacent 2:1 slopes 6 inches of hydrophic soil is sufficient. Detail/document short and long term monitoring and wetland “replication” area management plan to ensure long-term viability of area.

4/22/24 Applicant Response: The wetland replication and compensatory storage plans and sections have been revised to address the above comments. Please note that due to the presence of a vernal pool in the upper wellfield area the compensatory storage and wetland replication area was moved further north. In addition, the United States Army Corp of Engineers (USACE) has requested a 3:1 wetlands replication as part of their permit review. These changes are reflected in revised sheets WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 and C-14A which are attached herein as Attachment 1.A. Also attached as Attachment 1.B. are the calculations for the compensatory storage. More information about the vernal pool can be found in the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is also attached to this document as Attachment 1.C. Sheet XS-5 and Section 4 of the NBWD Supplemental Environmental/Wetlands Permit Information detail the short term and long term monitoring for wetland replication.

5/2/24 City Response: Depth of hydrophilic soil revised in wetland “replication” detail”. Please have the Cert Soil Scientist available to address the Commission with the post development groundwater depth to support the wetland “replication”, the additional wetland replication requested by the USACE and specification for the hydrophilic soil.

2. Plan indicates dewater sedimentation basin, however provide anticipated/ proposed discharge rates with sizing of sedimentation basins. In addition, indicate controls / monitoring of turbidity discharge from sedimentation basin.

4/22/24 Applicant Response: Temporary dewatering sedimentation basins are intended to be used in the event high groundwater is encountered during excavation activities. Anticipated/proposed discharges will vary depending on the required amount of excavation dewatering but typically can range from 20-50 gpm, intermittently. As shown in Detail J of Drawing Sheet C-24 (included herein as Attachment 2), the dewatering sedimentation basin size may vary depending on necessity with a 5-foot diameter being the minimum diameter of the basin. Sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. The Contractor may also elect to install permeable geotextile dewatering bags in addition to the dewatering sedimentation basins for sediment filtration.

5/2/24 City Response: Please provide additional details/procedures to prevent sediment/ discharge of dewatering water from being discharges with a high turbidity.

3. Provide construction sequence with durations along with staging plan, areas of stockpile storage and refueling areas.

4/22/24 Applicant Response: See the Proposed Construction Sequence Memorandum included in Attachment 3.A. for more information, and the associated Drawing Sheets C-20, C-21, and C-22 in Attachment 3.B. Additionally, see Sheet C-1 and C-7 of Attachment 3.B. for notes and depiction of Contractor staging, stockpiling, and refueling areas.

5/2/24 City Response: Construction sequence provided. Please have a representative available to review the sequence and anticipated duration of construction with the Commission.

4. Clarify proposed location of floating turbidity curtain.

4/22/24 Applicant Response: Floating turbidity curtains are to be located within the canal, east and west of the proposed sediment removal areas. See revised Sheet C-23 in Attachment 4.

5/2/24 City Response: Turbidity curtain location clarified.

5. Include installation line of silt fence along the toe of ALL proposed slopes. Silt fence shall be installed prior to construction, be monitored during construction and removed once slopes are stabilized.

4/22/24 Applicant Response: Notes requiring the installation of silt fence has been included throughout drawings. See revised sheets C-1, C-6, C-7, C-8, C-13, C-14, C-14A in Attachment 5.

5/2/24 City Response: No additional comments.

6. Provide additional detail associated with compensation storage area 3. The plans indicate excavation to elevation 252, however indicate proposed access to area, erosion control and restoration.

4/22/24 Applicant Response: The revised plans referenced in Comment Response #1 address these comments.

5/2/24 City Response: No additional comments, please be prepared to address any questions the commission may have at the meeting.

7. Provide additional detail associated with compensation area 4, including additional elevation east of the area between the compensation area and the Coppermine. Detail cross section AA-1 and indicate erosion control measures and proposed access to area.

4/22/24 Applicant Response: The revised plans referenced in Comment Response #1 address this comment.

5/2/24 City Response: 9. No additional comments, please be prepared to address any questions the commission may have at the meeting.

8. The Storm Water Management Report is prepared in accordance with the CT Storm Water Quality Manual. As indicated in your report the manual requires maintaining the pre- development annual groundwater recharge volume. The report indicates recharge is achieved through reduction in impervious area, however please indicate impact of additional well withdrawal will have a wetlands.

4/22/24 Applicant Response: See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is included in Attachment 1.C.

5/2/24 City Response: Please have a representative available address any questions the Commission may have regarding section 3 and 4 (Impact to Wetlands Associated with Well Drawdown & Wetland Creation) of the Supplemental Env/Wetland Permit Information.

9. Proposed plans indicate flood plain mitigation measures (excavation within flood plain to offset the placement of fill within flood plain). However, Bristol DPW recommends a CLOMR prior to work and will require a LOMR as condition of approval (if approved).

4/22/24 Applicant Response: See No Rise Certification included in **Attachment 9**. No objection to coordinating with FEMA for CLOMR/LOMR as a condition of approval.

5/2/24 City Response: Comment received, please plan on submitting a LOMAR to FEMA.

Responses to North Central Conservation District (Letter Dated March 28, 2024):

1. See the Letter from CT DEEP in **Attachment 10**, which confirms the continued applicability of the Diversion Registration to the facilities and that no diversion permit is required for continued operation of the facilities as proposed with this project.
2. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information, included in **Attachment 1.C.**, concluding no permanent impacts from withdrawals.
3. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information and the related Supplemental Alternatives Evaluation contained therein, detailing alternatives considered for this project. There are no feasible and prudent alternatives to the proposed plan.
4. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information concluding no permanent impacts to wetlands functions and values.

Additional Information Submitted:

1. Detailed Groundwater and Stream Flow Monitoring Plan, as required by CT DPH, is included in **Attachment 11**.
2. Letter confirming hydrogeologic information for project site remains valid. See **Attachment 12**.
3. Proposed wetlands boundary line change map is submitted for consideration. See **Attachment 13**.
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Attachments Includes:

Response 1 – Attachments

- 1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A
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- 4. Drawing: C-23

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- 5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A

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- 10. CT DEEP Permit Need Determination

Attachment 11

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- 13. Proposed wetlands boundary line change map

Attachment 14

- 14. Resumes of Engineers and Soil Scientist
 - Sebastian Amenta, P.E.
 - Ian T. Cole - Professional Soil Scientist
 - Joseph L. Laliberte, PE, BCEE, PM
 - Clinton L. Webb Jr. – Senior Environmental Scientist/Ecologist

If you have any questions or require any additional information, please do not hesitate to contact me at 860.224.0442 or samenta@ceiengineers.com.

May 6, 2024

Zach Fisk, Chair
Bristol Inland Wetland Commission
c/o Bristol Land Use Division via email

RE: **Application #2019, Application #2020, Application #23-458F-305** Application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessors Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Dear Chair Fisk and Bristol IWW Commissioners:

This letter is written in response to the recent submittal (dated May 1, 2024) of additional information regarding subject applications. This additional submittal information includes revisions made to the proposed plans in response to the discovery of a vernal pool at the north wellfield site, as well as revisions made to address staff comments, and revisions made to the plans as a result of the comments from the Army Corps of Engineers to address the federal requirements for wetland mitigation for the impacts to wetlands as a result of the proposed improvements. Also, the Streamflow monitoring plan, prepared for the Department of Public Health, was presented in Attachment 11.

Additionally, since the last public hearing, third party review letter from the North Central Conservation District desktop review (dated March 28, 2024, 3 pp) has been available. Further third party review for wetland/floodplain environmental services has not yet been made available.

The following comments are made in response to the May 1, 2024 additional information submittal.

1. Regarding the Supplemental information/vernal pool discovery in the vicinity of the north wellfield:
 - a. Was the Commission able to review the vernal pool extents during the site walk to confirm limits and conditions? (According to sheet WR-1, the proposed access road to the modified mitigation area north of the pool impacts the 100' review area of the vernal pool.)
 - b. Where is the vernal pool location compared to the well drawdown contours presented in the hydrogeologic report? These contours appear to extend into the vernal pool protection area, and the drawdown contours were presented for operations at Well 5A, (pumping at approximately 1/7 of the north wellfield proposed rate). What drawdown data was provided to the wetland scientists to respond to the surface water drawdown impacts to the ecological systems? What protections will be proposed to protect the existing natural systems (wetlands and stream) from impact due to increase well water withdrawals?
2. Regarding the revised wetland mitigation / floodplain compensation areas:
 - a. Sheet WR-1 shows a wetland replication area (represented by section A1-1) to excavate up to 8' in depth from an area of approximately 28,726 SF in size (to el 261). This area is located immediately adjacent to brook. The proposed transition slope areas to the north and west of this area add additional significant area of

disturbance. How close is the proposed replication area to the brook and what riparian impacts will result from the clearing? What is the total disturbance of the mitigation area, including the transition slope areas and haul road? What portions of the disturbed areas are located in regulated wetlands/upland review areas? What is the existing land cover in the proposed impacted areas, i.e. what kind of land cover will be cleared to accommodate the wetland replication area (and how much is considered brook riparian area)? What is the estimated time period for the mitigation area to restore to land cover conditions similar to the mature conditions (similar to the existing condition)? Will the perimeter fringe areas be more subject to invasive species (and if managed, chemical treatment) than the existing conditions (presumably with no current chemical use and less potential for introduction of invasives)? Are there seasonal restrictions in specifications to help minimize impacts related to clearing, dewatering and removal of the substantial proposed excavation materials? What is the proposed time period required and any seasonal restrictions for the proposed grading and planting? Will mitigation work be completed before the proposed impacts? Have any borings been performed to determine the need for access road stabilization and wetland material reuse? Will the haul/access road remain through Growing Seasons 2-5. Quantify the areas of haul/access road for clearing, grading, and stabilization and whether these areas occur in regulated wetlands or regulated floodplain. Has any road fill been computed in the floodplain impacts? Will any stabilized road work be removed and restored?

- b. On sheet WR-2, will any grading and stabilization be done for the haul/construction/access road? (The south road shows “dips” of 3’ - 4’ in the vicinity of the road narrowing for the south longitudinal section of mitigation). What is the tabulated area of impact for wetlands/upland review for these areas, including slope transitions, with a discussion of the existing land cover? Please discuss periods for invasive management and any proposed chemical use that may be needed to manage invasives in these proposed mitigation area. Due to the proximity of the wells, will chemical use be restricted? The plan calls for wetland replication of 3,057 SF to el 257 and 2,008 SF to el 256. The third area of impact/replication is not called out. What is the quantity of temporary impacts in regulated wetlands for each area’s construction? What is the anticipated surface water fluctuation to the adjacent wetlands and brook resulting from the new wells?

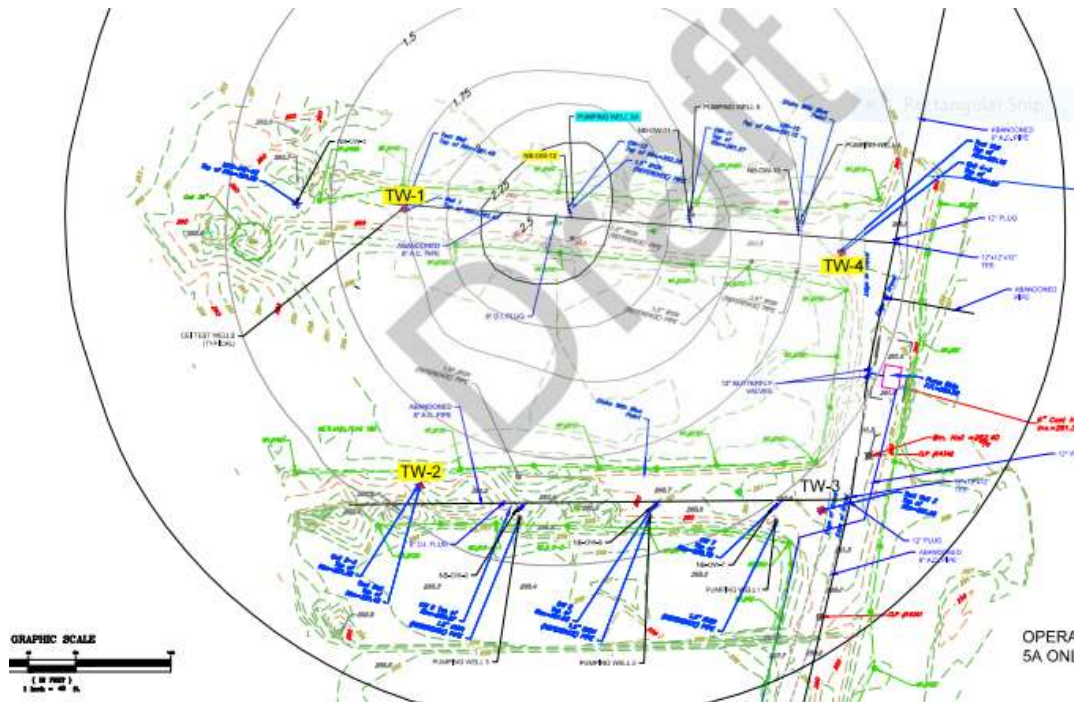


Exhibit taken from Hydrogeologic report, Figure 2

- c. On sheet WR-3, the wetland replication area (represented by Section A3-1) is tabulated at 31,146 SF by excavating the area immediately adjacent to the Coppermine to depths up to 10' (to el 247). This area is shown to be located immediately adjacent to brook. Contours on the northwest of the proposed replication area indicate an existing adjacent area of bottom contour 248. Was this area investigated as a potential pool or wetland? Where are the wetland limits in this area? The proposed transition slope areas to the north and west and southwest of this area add additional significant area of disturbance to this area. What is the total disturbance of this mitigation area construction, including the transition slopes and haul/access road areas? What portions of these areas are located in regulated wetlands/upland review areas? What is the land cover in the proposed impacted areas, i.e. how much and what kind of land cover will be cleared to accommodate the wetland replication area, slope and access road areas? What is the estimated time period for the mitigation area to restore to land cover conditions similar to the existing conditions? Will the perimeter fringe areas be more subject to invasive species (and if managed, chemical treatment) than the existing conditions? What is the proposed time period required and any seasonal restrictions for removal of the substantial proposed excavation materials to minimize disturbance? What is the proposed time period required and any seasonal restrictions for the proposed grading and planting? How long will the silt fences and haul/access road remain for management of the wetland replication area? Will it be removed/restored? Have any borings been performed to determine the need for haul road stabilization and wetland material reuse?

- d. On Sheet WR-4, the proposed replication area 7,000 SF graded to el 249 with an unidentified quantity of area graded to 252 and grassed (represented by Section A4-1). Please describe the existing and replacement land covers, label contours and tabulate the impacted areas, including slopes and access road, in the regulated wetland areas.
 - e. On Sheet WR-5, the proposed replication area, excavated up to 10' in depth is proposed to be graded to el 250 (represented by Section A5-1), immediately adjacent to the Coppermine. Similarly, please similarly address land use cover, identify contours and slope transitions, limits of impact, similar to previous comments.
3. With respect to investigation into project alternatives with less wetland/watercourse impact, the applicant can consider; **propose less pump capacity withdrawals for each of the wellfields and the pond.** This request is further supported by past studies that indicate the state registration withdrawal quantities cannot be supported. It's obvious from past and more recent pump testing that the shallow aquifer is of limited capacity and influenced by infiltration (and therefore drawdown) of the adjacent surface waters and wetlands. The well testing report by S.B Church (Sept 2019), based on test wells approved in the previous wetland application), suggests 2 wells in the south wellfield, and (report summary as clipped below) estimates yields considerably below the proposed six wells at 470 gpm in the south wellfield.

yields do not reflect the influence that the wells may have on each other and they do not reflect the influence of the drainage basin supplying water to each well throughout the year.

Well Number	Estimated Yield GPM
5	400
6	68
7	250
8	80
9	148
10	220
11	374
12	180
Estimated Total 1721 GPM of 1.54 MGD	

Handwritten notes:
 - Assume 8' drawdown?
 2 45
 5, 7, 9, 10, 11, 12

We suggest that two 30 inch large diameter wells be constructed at the sites of 5 and 11. We suggest that these wells be constructed as 30 inch diameter by 24 inch diameter gravel packed wells. The wells may be drilled a permanent production wells or as test wells with the plan to later permit them as permanent production wells.

We suggest that 72 hour pump tests be conducted on each of the wells to determine their influence on the other potential well sites. We also suggest that both wells be pumped simultaneously at approximately one million gallons per day to determine their influence on other potential well sites. This data could be used to determine where other future production wells should be drilled.

The applicant has not addressed the drawdown impacts for the proposed well withdrawals and for the adjacent south wellfield pond/surface water pump withdrawals, **except to recognize that brook impacts have and will occur.** Portions of the current Hydrogeology report states:

- Surface water elevations recorded by Lenard both before and during pump testing revealed a total water surface elevation decrease of 1 ft. for both the Copper Mine and Polkville Brook, strongly implying a hydraulic connection between surface water bodies within the wellfield. CEI observed a decrease in canal water levels of 1 ft, with near complete dewatering and drying of the canal observed within approximately 7 days of wellfield operation (primarily impact do to operation of the pond pump), implying the canal and unconsolidated wellfield formation are hydraulically well connected.
- The 2007 Lenard report implied that several brooks, including The Copper Mine, Polkville, Negro Hill, Wildcat, Whigville, and several unnamed tributaries are part of the Copper Mine drainage basin, and directly supply both the upper and Lower Wellfields with significant amounts of surface water, with the Upper Wellfield likely receiving the most recharge.
- Following observations made of historic data collected by Maguire during the Summer 1985 Lower Wellfield performance evaluation, it appears that operation of the 1985 wellfield at 2 MGD was unsustainable due to limitations imposed by the close proximity of installed wells and the unaccounted-for principal of well interference. 1 MGD was reported to be sustainable but is significantly lower than the permitted 4 MGD pumping limit. It is the opinion of CEI that due to this unaccounted-for phenomenon, the Lower Wellfield will be able to sustainably produce approximately 2 MGD should a more optimal wellfield configuration be installed accounting for the phenomena of well interference and nearby vertical recharge sources.

Recall that these statements were observations after the most recent pump test monitoring of pump discharges that were much, much lower than the proposed application pump rates. No clear documentation has been provided on the influence of the proposed simultaneous pond surface water pumps and well pumps on regulated wetlands and watercourses.

The applicant has the capability and the responsibility to test, model, and evaluate safe sub-surface and surface withdrawals to reduce impact to the adjacent wetlands/surface waters. Further evaluation, considering simultaneous well withdrawals and surface water withdrawals, is needed to realize a practical solution.

The applicant should also consider options to increase redundancy of its existing treatment system, located central to its main customer base. Considering that the proposed water capacity upgrades are presented as emergency supply for New Britain Water customers, it's hard to understand why these substantial upgrades are proposed in mapped floodplain and regulated wetland areas in the City of Bristol, making them subject to natural disaster and potentially unavailable.

4. The Streamflow monitoring plan (Attachment 11 of the May 1, 2024 submittal materials) was prepared for the Department of Public Health and does not address wetlands protections. It's noted that while monitoring is crucial, but it does not protect wetlands and streamflow unless protective management measures are developed and implemented.

5. The proposed re-fueling area located in the floodplain/regulated wetlands adjacent to Coppermine should be examined.
6. The Bristol Inland Wetland Commission follows local and state guidelines for wetlands and watercourse protections that differ from state health or federal requirements. Clear tabulation of the Bristol regulated wetland areas needs to be presented.
7. Due to review time constraints, portions of past comments are repeated below.

How can the Bristol Inland Wetland Commission protect the flow-impaired Coppermine and surrounding wetlands? Please consider the following:

- a. North wellfield: Applicant should model the effects of the groundwater and surface water drawdown resulting from proposed wells' pump rate capacities, operating simultaneously. Clearly show the extents of the estimated drawdown relative to regulated wetlands and surface waters and evaluate protective pump rates. Tabulate the impacted area and provide a flora and fauna assessment of the impacts. Address surface water fluctuations relative to operational and seasonal changes. Address operational management protocols to protect Copper Mine and associated wetland areas. Address mitigation plan, including monitoring, for all unavoidable impacts.
- b. South wellfield/pond: Applicant should model the effects of the groundwater and surface water withdrawal capacities simultaneously to clearly show the extents of the drawdown relative to regulated wetlands and surface waters. Evaluate protective pump rates. Tabulate the impacted area and provide a flora and fauna assessment of the impacts. Address surface water fluctuations relative to operational and seasonal changes. Address operational protocols to protect Coppermine and associated wetland areas. Address mitigation plan, including monitoring, for all unavoidable impacts.

The well and pond withdrawals have been documented to affect and to rely on the adjacent surface water natural system. These surface water sources and wetland storage areas serve valuable water quality, quantity and wildlife functions. Thank you for your consideration.

Carol Noble, P.E., CFM (ret)

Attachment 1:

Tables of the rates and the study references are compiled below for informational purposes.

White Bridge Upper Wellfield:

	DEEP Diversion Registration (2)	Existing Withdrawal (3)	Proposed Withdrawal (2)	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (2, 3)
gpm	1,500	~200	3@470=1,400	840	694	600	200 (Well 5A)
MGD (1)	2.16	~0.3	2.0	1.2	1.0	0.86	0.3

Notes:

(1) Conversion 1 MGD = 694.44 gpm

(2) Preliminary Engineering Study, CEI CDE Smith, Feb 2021

(3) Existing withdrawal assumed from the April 2020 CEI Hydrogeologic report estimating the most current working well pump

(4) Level A Study Withdrawal taken from Dec 2007 Lenard Hydrogeologic Level A Study Executive Summary. Note the Lenard Study states ““It was determined that the aquifer could not support the maximum registered diversion of the New Britain upper, lower and Bristol Mix Street wellfields”. The study reassigned “agreed upon” reduced flow rates to simulate a safe yield for each of the wellfields.

White Bridge Lower Wellfield:

	DEEP Diversion Registration (2)	Existing Withdrawal (3)	Proposed Withdrawal (2)	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (2, 3)
gpm	4,333	700 - 1250	6@470=2,800	2,190	1,958	611	850-1080 (meas at caisson (3,4))
MGD ⁽¹⁾	6.24	1 - 1.8	4.0	3.15	2.82	0.88	1.2 – 1.6 (meas at caisson ^(3,4))

Notes:

(1) Conversion 1 MGD = 694.44 gpm

(2) Preliminary Engineering Study, CEI CDE Smith, Feb 2021

(3) Existing withdrawal taken from the April 2020 CEI Hydrogeologic report inferring test well pump rates based on 1985 pump test.

(4) Level A Study Withdrawal taken from Dec 2007 Lenard Hydrogeologic Level A Study Executive Summary. Note the Lenard Study states ““It was determined that the aquifer could not support the maximum registered diversion of the New Britain upper, lower and Bristol Mix Street wellfields”. The study reassigned “agreed upon” reduced flow rates to simulate a safe yield for each of the wellfields. No pond pump withdrawal was considered in the evaluation.

White Bridge Pond System:

	DEEP Diversion Registration (2)	Existing Withdrawal	Proposed Withdrawal	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (4)
gpm	10,400	~2,000	3@3,500=10,500	NSE	NSE	NSE	NSE
MGD ⁽¹⁾	15	~3	20.2 (4 pumps) 15 (3 pumps)	NSE	NSE	NSE	NSE

Notes:

(1) 1 MGD = 694.44 gpm

(2) Preliminary Engineering Study, CEI CDE Smith, Feb 2021

(3) Existing withdrawal assumed from the April 2020 CEI Hydrogeologic report reference

(4) NSE = Not Specifically evaluated

Although the engineering reports document the influence of the pond pumping on the lower wellfield pump tests, simultaneous pond pumping influence was not evaluated.

Link to City of Bristol 3rd Party Environmental Review Agreement:

[https://www.bristolct.gov/DocumentCenter/View/46665
/N-PRP-2401017-City-of-Bristol-WhiteBridge-Well-Field-
Review--04162024](https://www.bristolct.gov/DocumentCenter/View/46665/N-PRP-2401017-City-of-Bristol-WhiteBridge-Well-Field-Review--04162024)

Link to Response 1 - Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46659/Response-1-Attachments>

Response 1 – Attachments

1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A

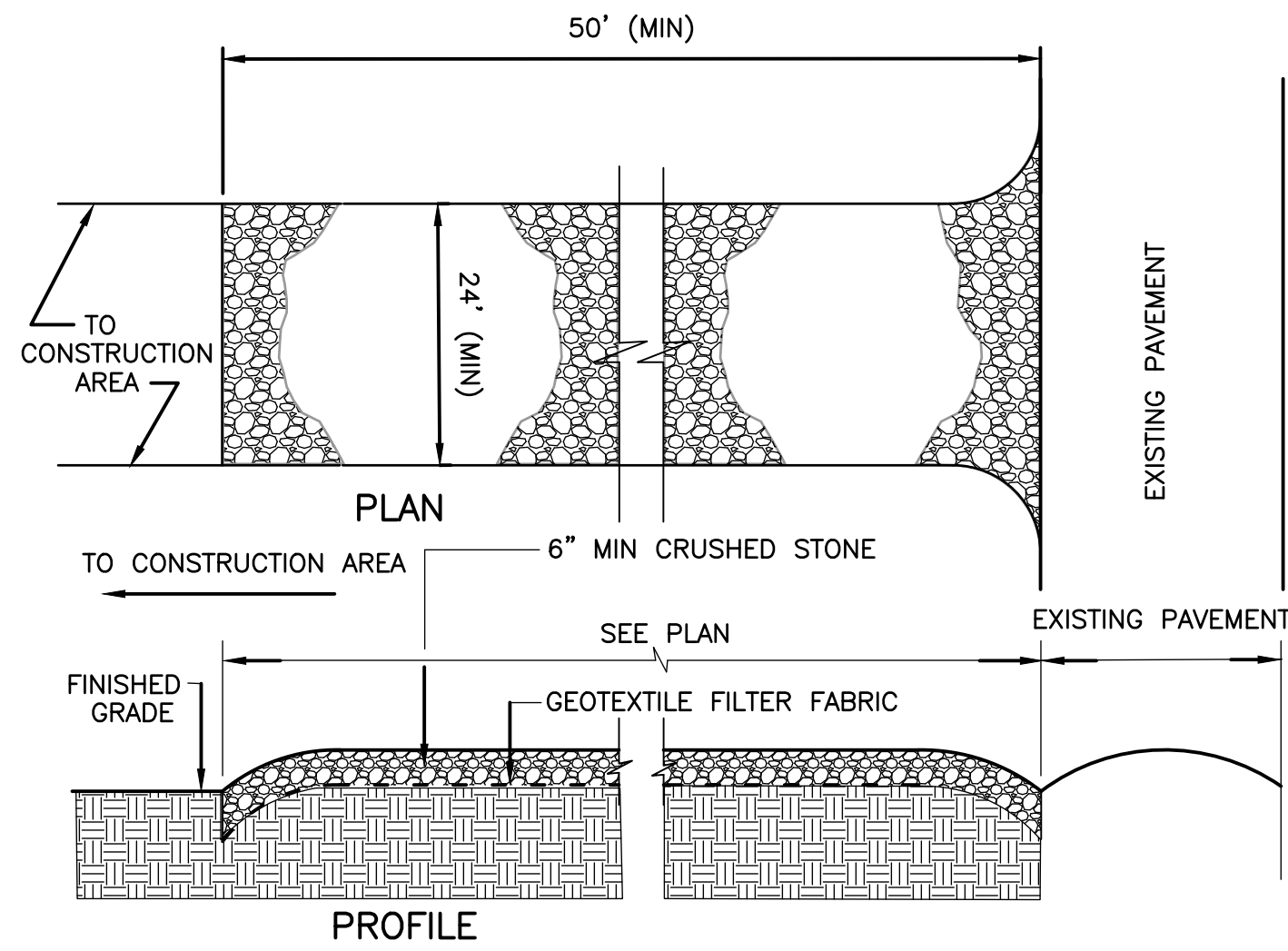
1.B. Calculations: Compensatory Storage

1.C. NBWD Supplemental Environmental/Wetlands Permit Information prepared by C.Webb and Associates, LLC

Response 2 – Attachment

2. Drawing: C-24

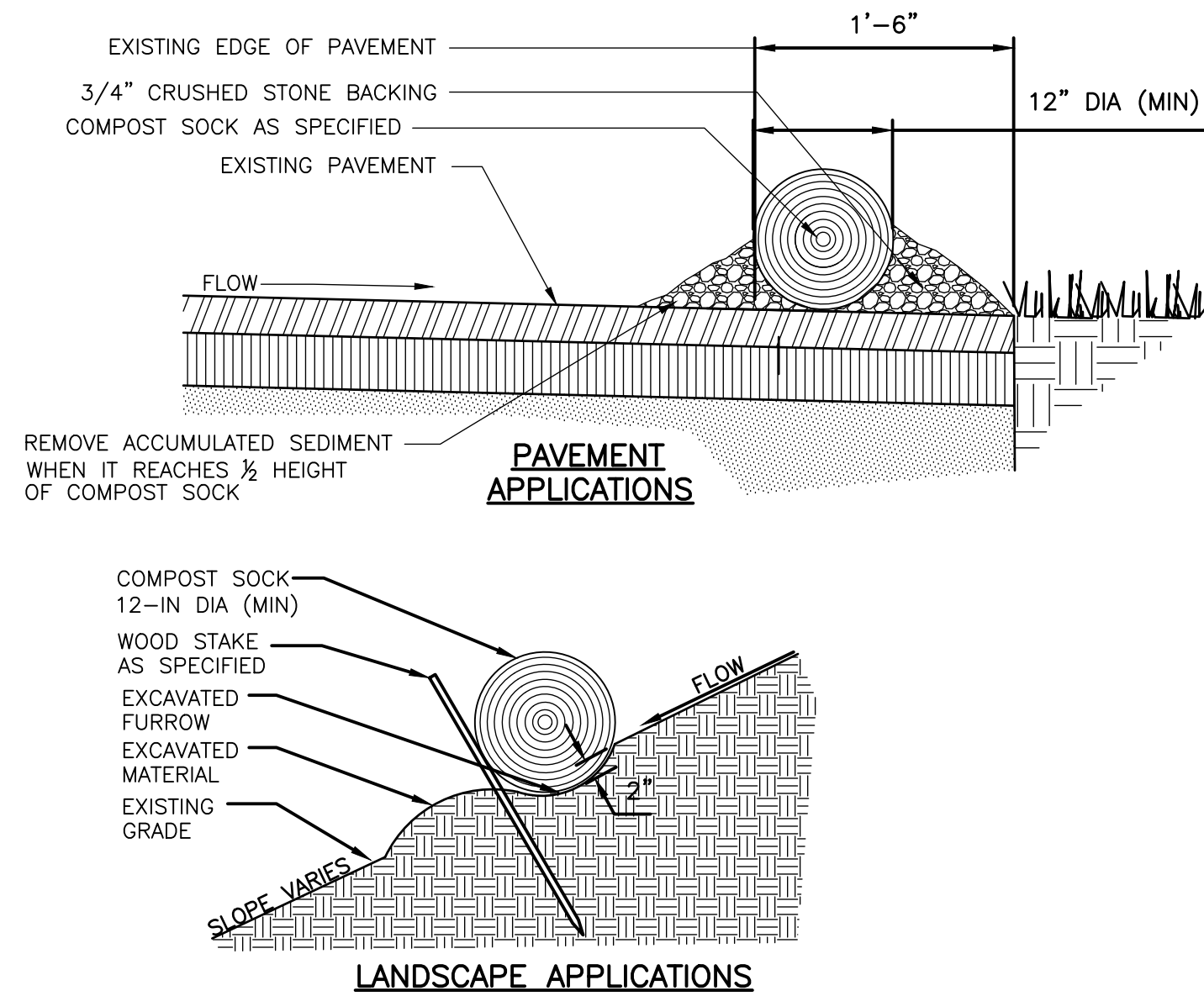
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C:\Users\engelsb\Documents\CDM Smith Inc\10739-264571 - New Britain CT White Bridge Well Fields and PS\Project Files\02 Civil (C)\10 CAD\CD001CSDT.dwg
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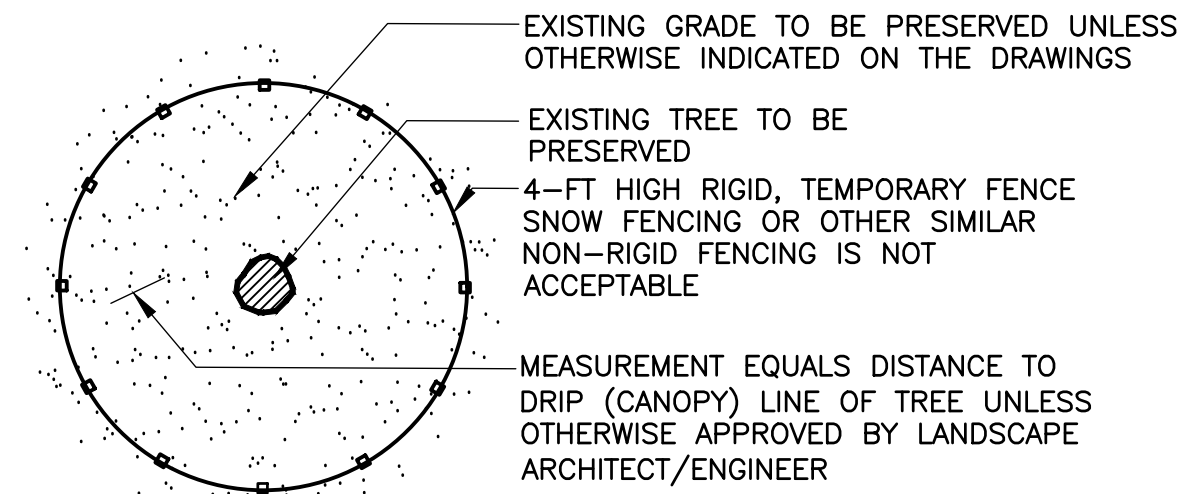
STABILIZED CONSTRUCTION ENTRANCE
DETAIL A
NOT TO SCALE

NOTES:

- 1.) PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND EXISTING PAVEMENT.
- 2.) LIMITS OF STABILIZED CONSTRUCTION ENTRANCE SHALL BE AS DIRECTED BY THE ENGINEER.
- 3.) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDING STONE TO THE LENGTH OF THE ENTRANCE.
- 4.) REPAIR AND CLEANOUT MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO EXISTING PAVEMENT SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.



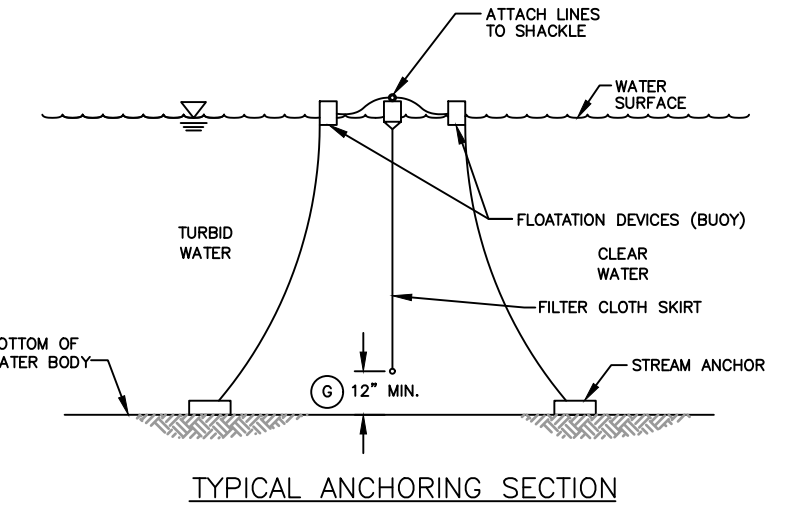
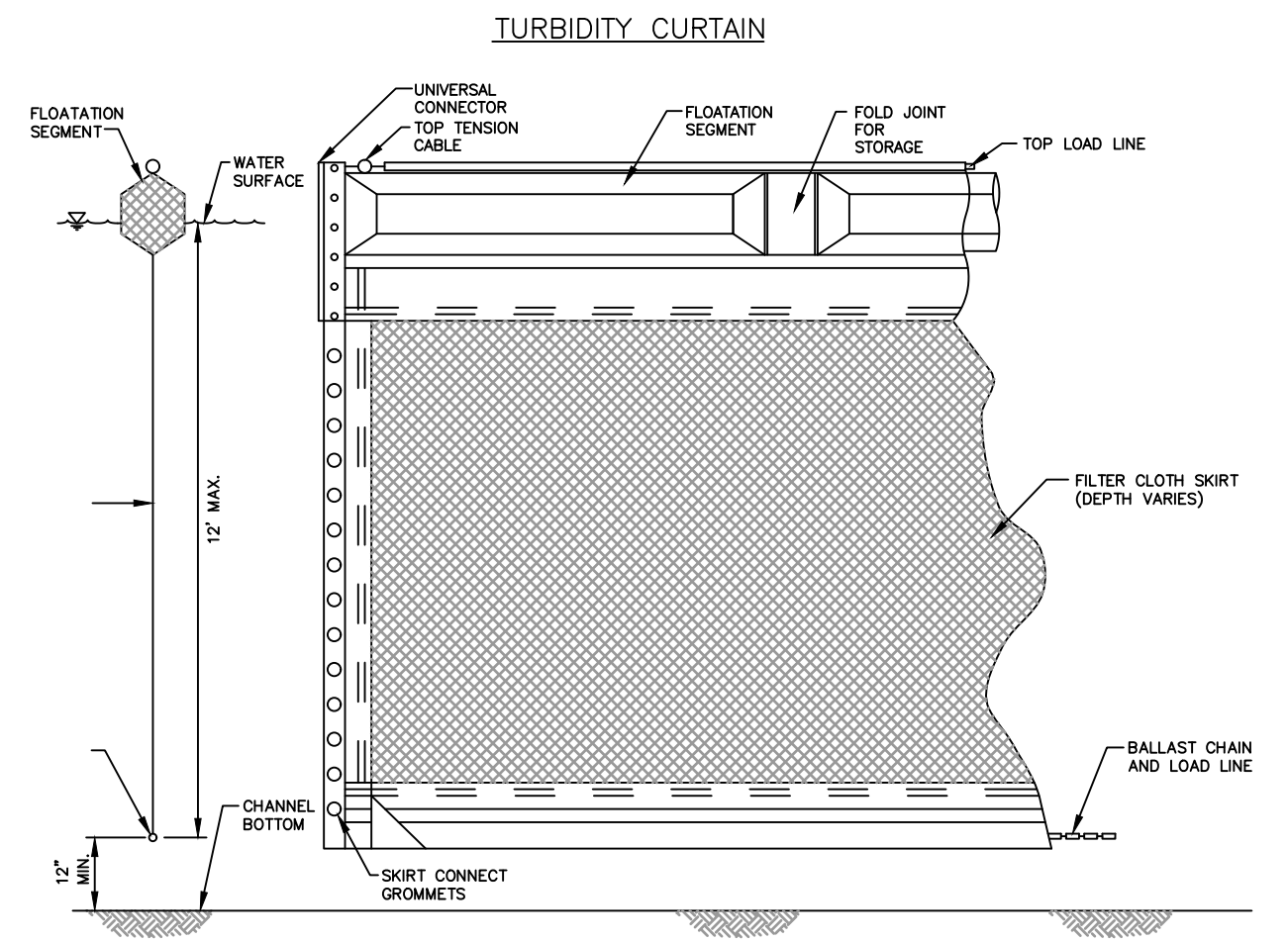
COMPOST SOCK
DETAIL B
SCALE: NTS



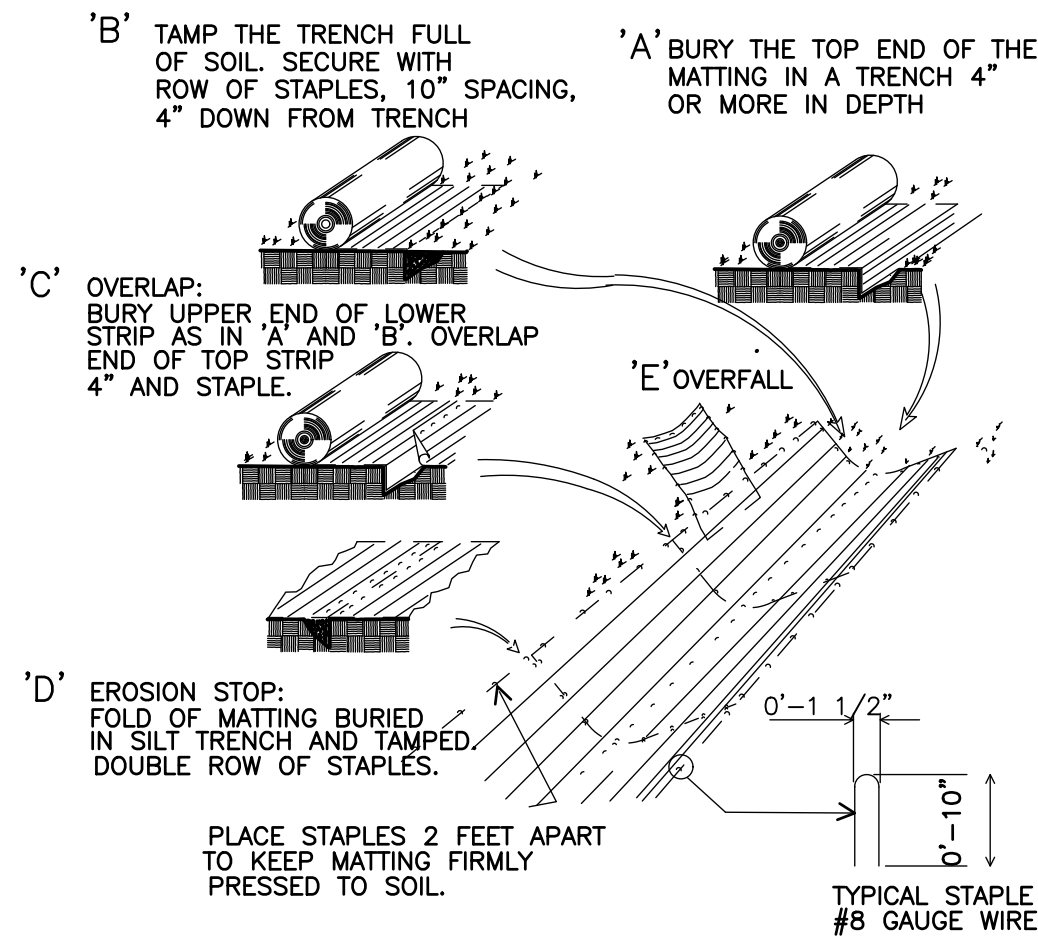
NOTES:

1. FENCING SHALL BE INSTALLED AROUND PERIMETER OF ALL EXISTING TREES TO BE PRESERVED WITHIN THE LIMIT OF WORK.
2. FENCING MAY BE REMOVED TEMPORARILY, ONLY AS REQUIRED TO PERFORM THE WORK SHOWN ON THE DRAWINGS.
3. FENCING SHALL REMAIN IN PLACE & BE MAINTAINED THROUGHOUT CONSTRUCTION AND THEN REMOVED COMPLETELY.

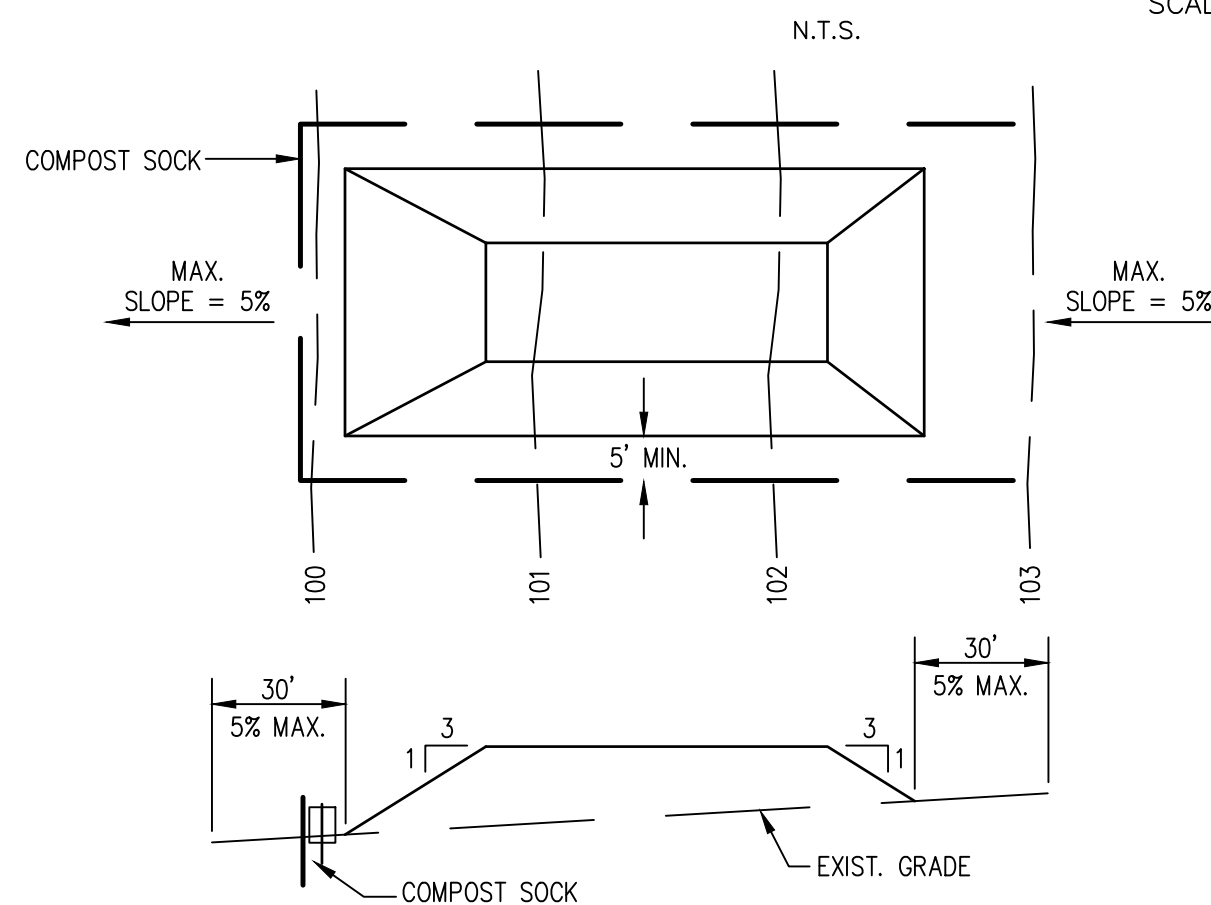
TREE PROTECTION
DETAIL C
NOT TO SCALE



TURBIDITY CURTAIN
DETAIL D
NOT TO SCALE



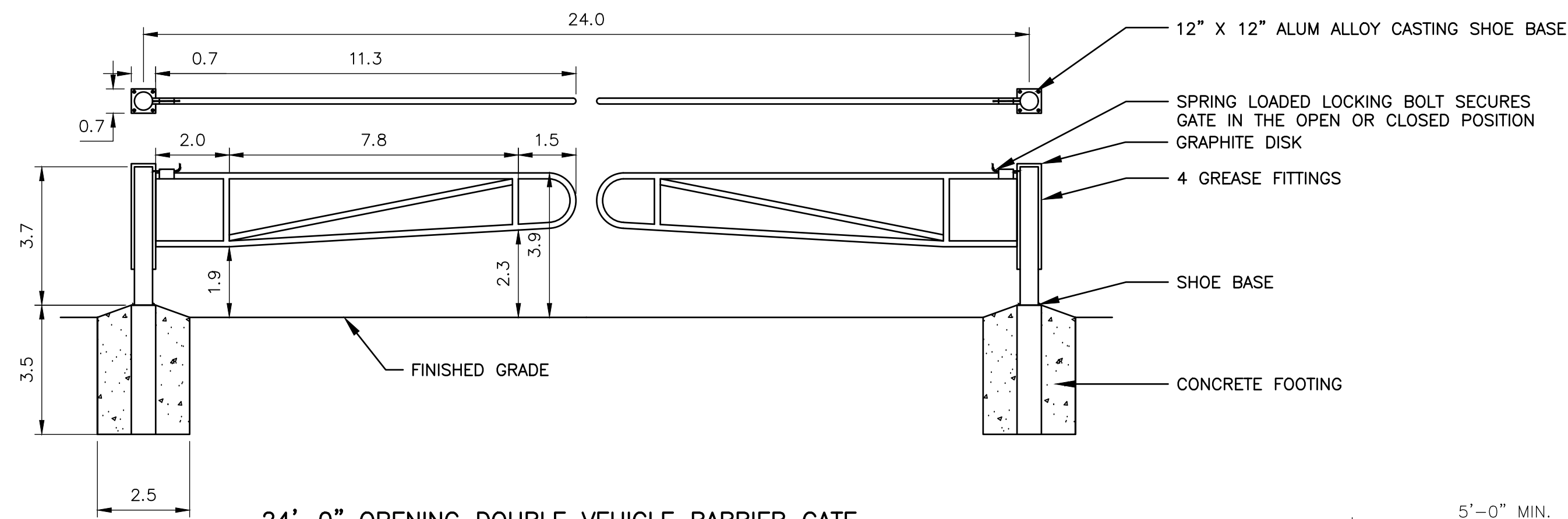
EROSION CONTROL BLANKET
DETAIL E
NOT TO SCALE



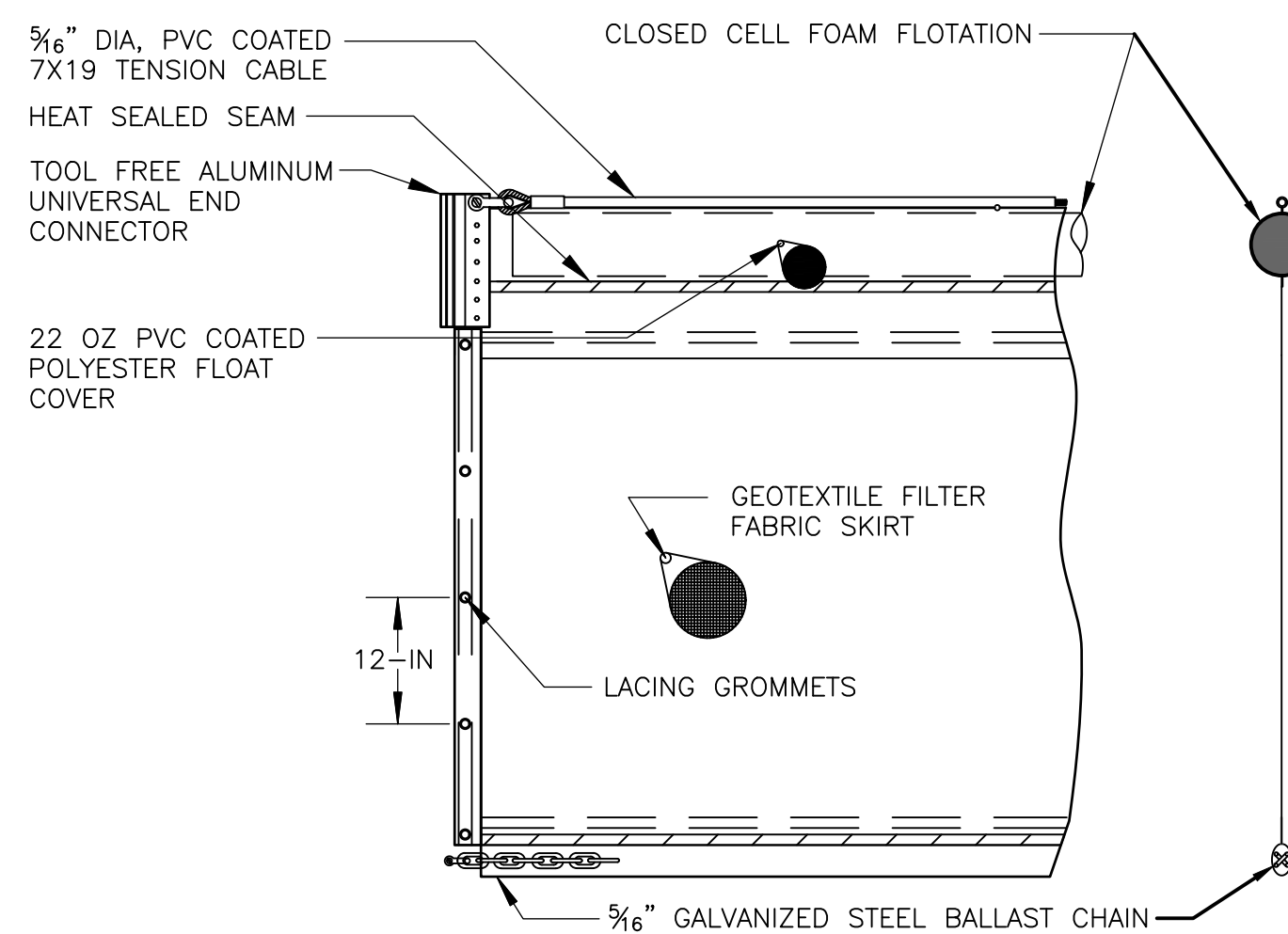
NOTES:

1. PLACE STOCKPILES AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
2. ALL SIDE SLOPES SHALL BE 3 TO 1 OR FLATTER.
3. STOCKPILE SHALL RECEIVE A VEGETATIVE COVER IN ACCORDANCE WITH MINIMUM STABILIZATION REQ.
4. COMPOST SHALL BE INSTALLED AS DETAILED HEREON.

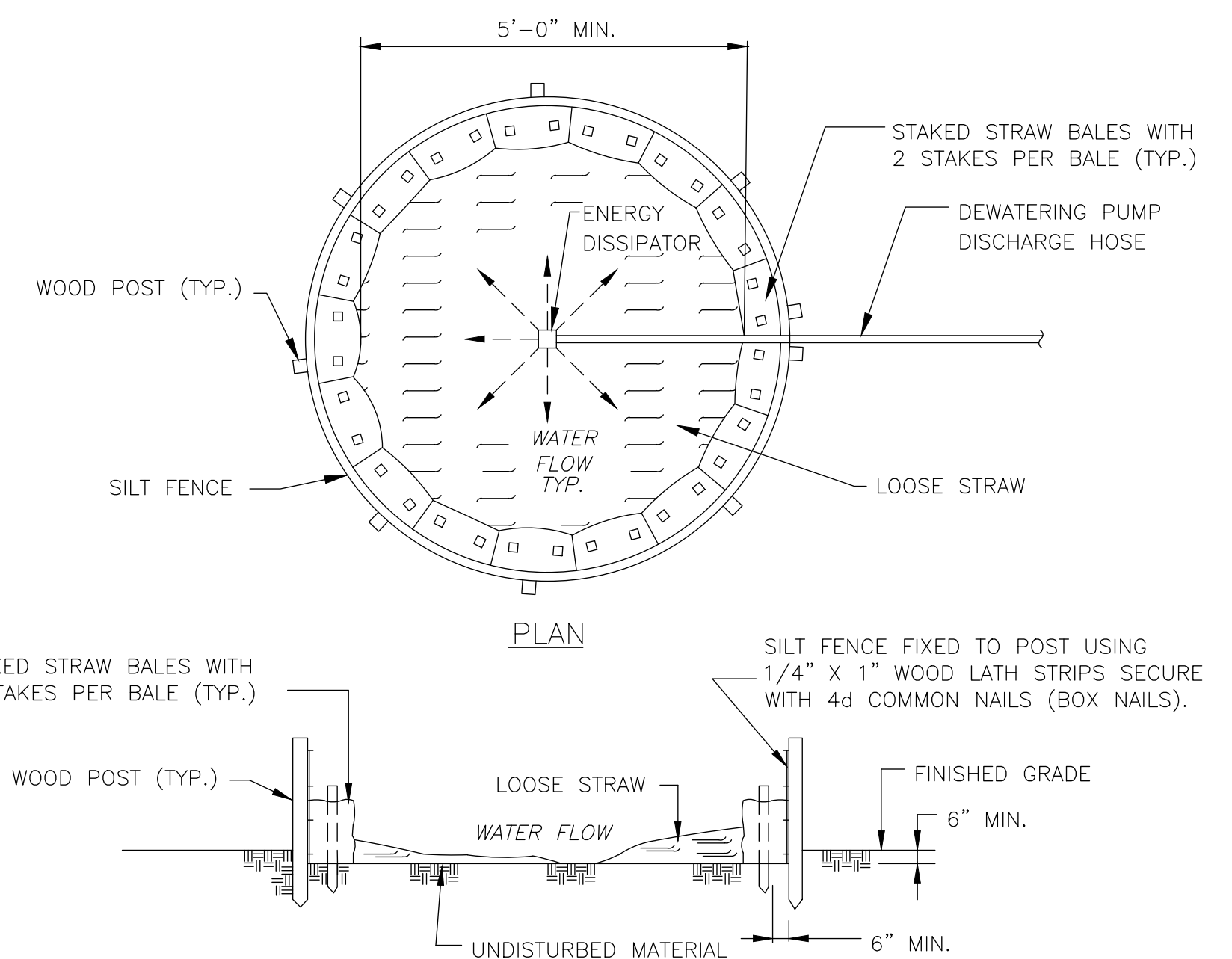
SOIL STOCKPILE
DETAIL F
NOT TO SCALE



24'-0" OPENING DOUBLE VEHICLE BARRIER GATE
DETAIL G
NOT TO SCALE



FLOATING TURBIDITY BARRIER
DETAIL I
NOT TO SCALE



DEWATERING SEDIMENTATION BASIN
DETAIL J
NOT TO SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	K. GERLACH
DRAWN BY:	J. BRONENKANT
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	K. GERLACH
APPROVED BY:	K. WAGNER
DATE:	APRIL 2023

CDM Smith
77 Hartland Street, Suite 200
East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

CIVIL DETAILS I

PROJECT NO.	10739-264571
FILE NAME:	CD001CSDT.DWG
SHEET NO.	C-24

Link to Response 3 Attachments:

<https://www.bristolct.gov/DocumentCenter/View/46660/Response-3-Attachments>

Response 3 – Attachments

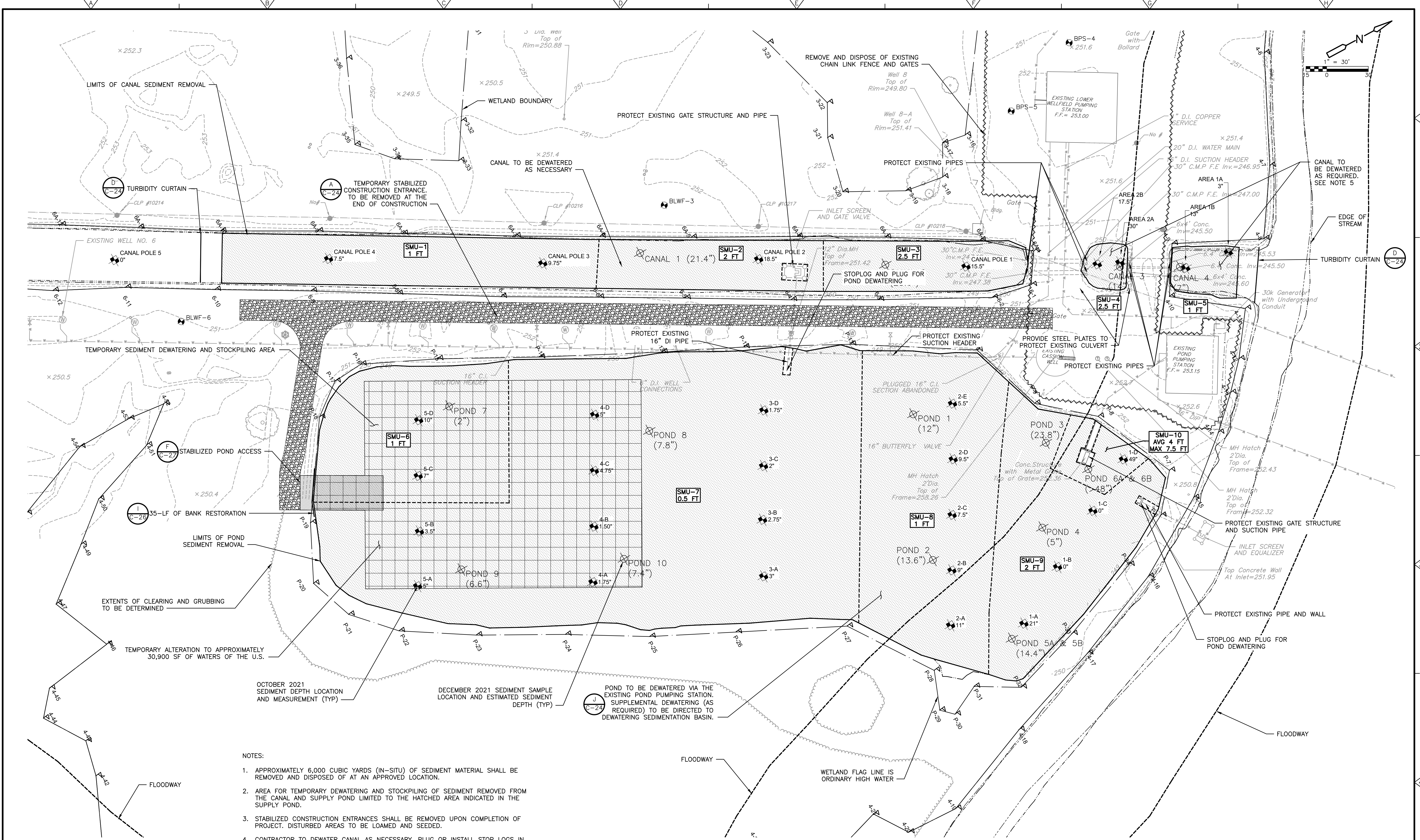
3.A. Proposed Construction Sequence Memorandum

3.B. Drawings: C-1 and C-7; C-20, C-21, and C-22

Response 4 – Attachment

4. Drawing: C-23

XREFs: [TEST HOLE POINTS, CDMS 2436, XSVRLO40, 2022-17, BORING LOCATIONS, Floodway_Floodplain] Images: []
Last saved by: ENGELS.B, Time: 3/1/2024 3:37:31 PM
C:\Users\engelsb\Documents\CDM Smith Inc\10739-264571 - New Britain CT White Bridge Well Fields and PS\Project Files\02 Civil (C)\10 CADD\C023SDRM.dwg
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PLAN
1" = 30'

- NOTES:
- APPROXIMATELY 6,000 CUBIC YARDS (IN-SITU) OF SEDIMENT MATERIAL SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION.
 - AREA FOR TEMPORARY DEWATERING AND STOCKPILING OF SEDIMENT REMOVED FROM THE CANAL AND SUPPLY POND LIMITED TO THE HATCHED AREA INDICATED IN THE SUPPLY POND.
 - STABILIZED CONSTRUCTION ENTRANCES SHALL BE REMOVED UPON COMPLETION OF PROJECT. DISTURBED AREAS TO BE LOAMED AND SEEDED.
 - CONTRACTOR TO DEWATER CANAL AS NECESSARY. PLUG OR INSTALL STOP LOGS IN EXISTING CULVERTS OR INSTALL COFFERDAM. SUPPLEMENTAL DEWATERING (AS REQUIRED) TO BE DIRECTED TO DEWATERING SEDIMENTATION BASINS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. BURKE
DRAWN BY: S. ENGEL
SHEET CHK'D BY: K. GERLACH
CROSS CHK'D BY: T. BURKE
APPROVED BY: K. WAGNER
DATE: JANUARY 2024

CDM Smith
101 East River Drive, Suite 1A
East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

SUPPLY POND AND CANAL
SEDIMENT REMOVAL PLAN

PROJECT NO. 10739-264571
FILE NAME: C023SDRM.DWG
SHEET NO.
C-23

Link to Response 5 Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46664/Response-5-Attachments>

Response 5 – Attachment

5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A

Link to Response 9 Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46661/Response-9-Attachments>

Response 9 – Attachment

9. No Rise Certification

Attachment 10

10. CT DEEP Permit Need Determination



Mr. Sebastian Amenta, P.E.
Comprehensive Environmental, Inc.
1 Hartford Square, Suite 227
New Britain, CT 06052
samenta@ceiengineers.com

RE: Request for Diversion Permit Need Determination
Whites Bridge Wellfield Improvements
New Britain Water Department
Bristol, CT

Dear Mr. Amenta:

This letter is in response to your November 8, 2023 request for Water Diversion permit need determination regarding your proposal to modify certain registered water diversions. The proposed activities are documented in the report you submitted on behalf of the New Britain Water Department (NBWD) entitled “Negative Declaration of Diversion / White Bridge Wellfield Improvements / Bristol, Connecticut,” dated November 2023 (“the report”), as well as other information provided in a subsequent email dated December 5, 2023. The project involves the replacement of several public water supply wells that make up two separate, but nearby wellfields registered to the NBWD pursuant to Section 22a-368 Connecticut General Statutes (CGS) as described in the table below.

REGISTRATION NUMBER	NAME OF DIVERSION	REGISTERED WITHDRAWAL (million gallons per day)	BASIN NAME
4314-007-PWS-GR	Upper White Bridge Wells	2.1600	Copper Mine River
4314-008-PWS-GR	Lower White Bridge Wells	6.6240	Copper Mine River

The report states that these “wellfields are unable to be used in accordance with their original design intent and drastic improvements are needed due to poor groundwater well performance caused by clogged well screens and an antiquated suction withdrawal system.” The proposed redevelopment includes the abandonment of all existing wells in these two wellfields, replacing them with new wells, all within the extent of the existing wellfields as registered. The proposed wells, as described in the report, will be withdrawing from the same stratified drift aquifer wherein the existing wells are located.

Based on our review of your submittal, it has been determined that this proposal as presented in the submitted materials conforms with Section 22a-377(c)-1(c)(1) of the Regulations of Connecticut State Agencies (RCSA) included below in its entirety:

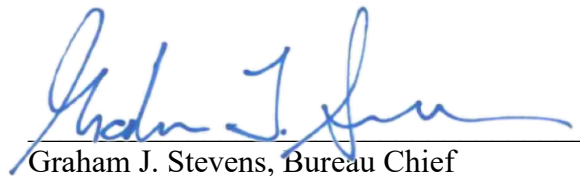
Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may maintain such diversion only in accordance with the information provided in the registration form filed with the Commissioner. Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may not cause or allow any modification of such diversion, including but not limited to an increase in withdrawal capacity, without having first obtained a permit under sections 22a-365 to 22a-378, inclusive, of the General Statutes and 22a-377(c)-2 of the Regulations of Connecticut State Agencies, unless such modification is exempt under section 22a-377 of the General Statutes or section 22a-377 (b)-1 of the Regulations of Connecticut State Agencies.

As such, this department finds that the proposed diversion modifications, comprising of the wellfields identified on page 1 of this determination, **will not** require a water diversion permit pursuant to Section 22a-368(a) CGS, provided the total combined withdrawal from the respective wellfields does not exceed the registered withdrawal as indicated in the above table. However, it is requested that you keep us informed as the project develops, particularly on matters relating to aquifer response modeling and induced infiltration studies.

If you should have any additional questions regarding this matter, please contact Doug Hoskins at 860-424-4192 or douglas.hoskins@ct.gov.

February 21, 2024

Date



Graham J. Stevens, Bureau Chief
Water Protection and Land Resources

GS/dh

Cc:

Ray Esponda, New Britain Water Dept., Ray.Esponds@NewBritainCT.gov

Raul Tejada, CT DPH, raul.tejada@ct.gov

Lori Mathieu, CT DPH, Lori.Mathieu@ct.gov

Brendan Schain, CT DEEP brendan.schain@ct.gov

Shalyn Zappulla, CT DEEP shalyn.zappulla@ct.org

Alicia Charamut, Rivers Alliance, alicea@riversalliance.org

Link to Attachment 11:

<https://www.bristolct.gov/DocumentCenter/View/46662/Response-11-Attachments>

Attachment 11

11. Detailed Groundwater and Stream Flow Monitoring Plan

Attachment 12

12. Letter confirming hydrogeologic information for project site remains valid



COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

Gateway Crossing
1 Hartford Square East, Suite 227
New Britain, CT 06052
860.224.0442

April 30, 2024

Robert Flanigan, City Planner
City Hall
111 North Main Street
Bristol, CT 06010

**RE: White Bridge Wellfield Improvements -Applications #2019, #2020 & #23-458F-305
Confirmation of Hydrogeologic Report**

Pursuant to City Staff request Comprehensive Environmental Inc. is confirming by way of this letter that the hydrogeologic studies and report (*Hydrogeology Report of Upper and Lower White Bridge Wellfield Bristol, Connecticut* dated April 6, 2020) submitted to CT DPH for the above project site is still valid and relevant for the intended use.

Feel free to contact me with any questions or comments at 860-620-3673 or samenta@ceiengineers.com.

Sincerely,

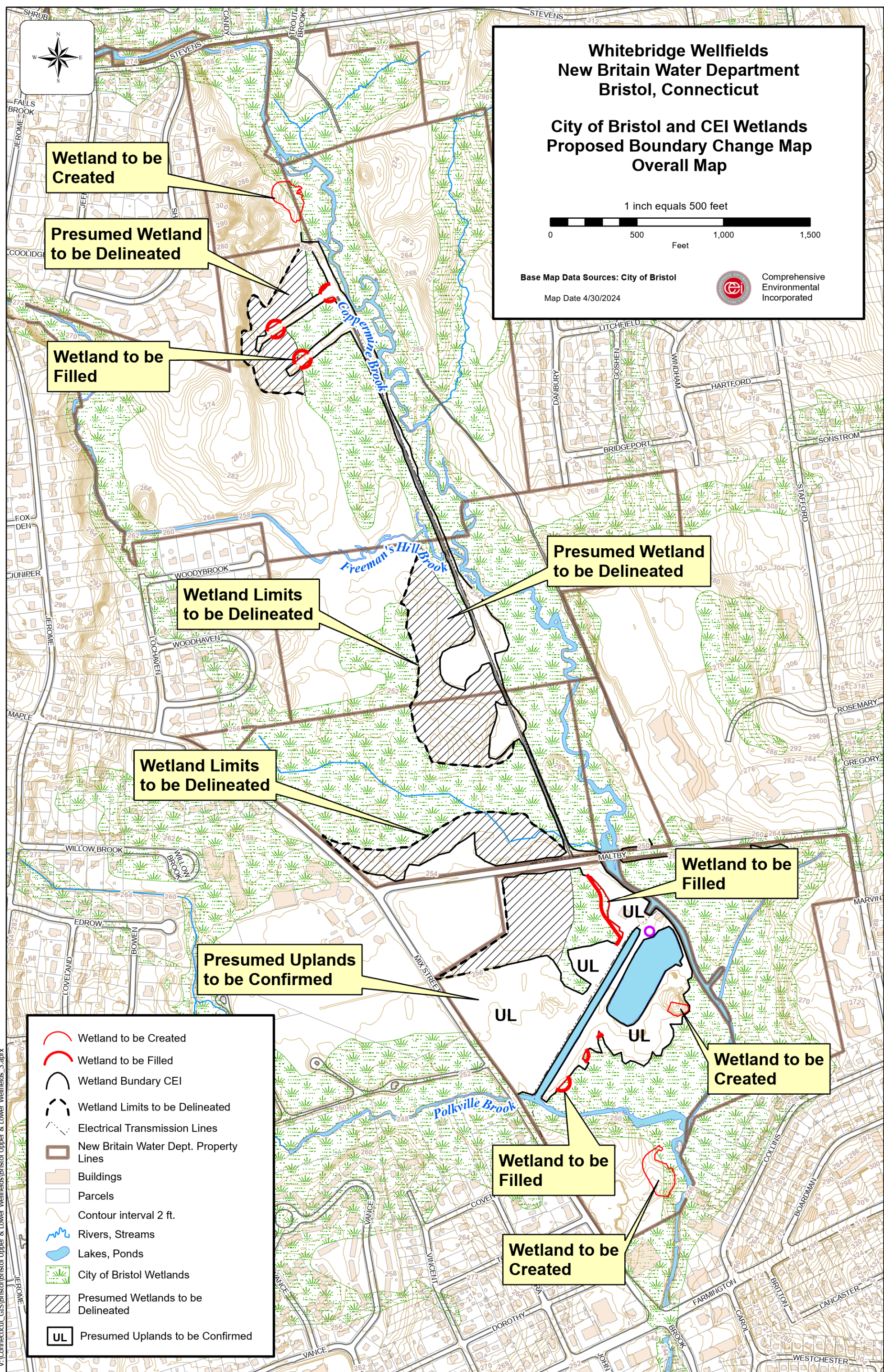
COMPREHENSIVE ENVIRONMENTAL INC.

A handwritten signature in blue ink, reading "Sebastian A. Amenta".

Sebastian A Amenta, P.E.
Northeast Program Manager

Attachment 13

13. Proposed wetlands boundary line change map



Link to Attachment 14:

<https://www.bristolct.gov/DocumentCenter/View/46663/Response-14-Attachments>

Attachment 14

14. Resumes of Engineers and Soil Scientist



AVON ▪ BLOOMFIELD ▪ BOLTON ▪ BRISTOL ▪ BURLINGTON ▪ CANTON ▪ COVENTRY ▪ EAST GRANBY ▪ EAST WINDSOR ▪ EAST HARTFORD ▪ ELLINGTON
ENFIELD ▪ FARMINGTON ▪ GLASTONBURY ▪ GRANBY ▪ HARTFORD ▪ MANCHESTER ▪ PLAINVILLE ▪ SIMSBURY ▪ SOMERS ▪ SOUTH WINDSOR
STAFFORD ▪ SUFFIELD ▪ WEST HARTFORD ▪ WETHERSFIELD ▪ TOLLAND ▪ VERNON ▪ WILLINGTON ▪ WINDSOR ▪ WINDSOR LOCKS

Date: March 28, 2024

To: Nancy Levesque, Bristol City Engineer
Bristol Inland Wetlands and Watercourses Commission

From: Covill, Natural Resources Specialist *Cameron J. Covill*
Joanna Shapiro, Executive Director *Joanna Shapiro*

Re: Review of Wetland Application, New Britain Water

This review is limited to a desktop review of the wetland application and related materials, with general recommendations based on the proposed activities. A site walk and wetland boundary review were not completed within the given timeframe.

If the Commission still deems it necessary following their site walk, a limited wetland boundary review can be performed before a subsequent meeting. Based on the size of the site and time limitations, a field review of all wetland boundaries on site by our staff is not feasible, but rather the Commission can direct the District to specific areas they feel require further review.

Background

District staff reviewed the 10-sheet site plan entitled “White Bridge Waterworks Facilities Upper and Lower Wellfields and Pond Pumping Station” prepared by CDM Smith dated December 2022, as well as Attachment 3, “Project Drawings” and Attachment 4, “Floodway and Flood Fringe Encroachment Areas” (hereto forth referred to as “the Plans”). Staff also reviewed the materials submitted for applications #23-458F-305, #2019 and #2020 along with previous meeting minutes, relevant imagery, topographic, soil, and other maps.

The Plans propose construction of a new single building to house surface water pumping facilities with space for future groundwater treatment facilities, well replacement at Lower and Upper Wellfields, dewatering and sediment removal from the existing pond and canal, new utility connections, culvert replacement, paving an existing gravel access road, and associated work to ultimately bring an aging facility up to current requirements. In order to become a potable water supply, any new wells must be located 50 feet from any water bodies or wetland limits per CT Department of Public Health requirements. The wells must be raised 2’ above the one-hundred-year flood elevation. Due to these requirements, existing wells cannot be used and the new wells are proposed. Wetland resources are proposed to be filled in order to comply with these DPH regulations. Wetland replication, replacement, and enhancements are proposed to mitigate or offset the loss of these wetland areas, and compensatory flood storage areas are proposed to offset the activities which may raise the flood elevation, per FEMA requirements.

Comments/Recommendations

Withdrawals/Flow Calculations

Discussion on the record has included concern related to groundwater withdrawals. While groundwater withdrawals are regulated by CT DEEP and are not explicitly in the purview of the Inland Wetlands and Watercourses Commission, they may be considered if the Commission has reason to believe that such withdrawal may impact wetlands or watercourses. Review of aquifer withdrawals, resiliency, and recharge, and their impacts to wetlands and watercourses are outside the area of expertise of the North Central Conservation District.

- The Commission may request additional information from the applicant or intervenor regarding the potential impact of withdrawals on wetlands and watercourses, including their functions and values, if deemed a concern of the Commission necessary to render a decision and/or to rule on the claims of the petition to intervene.
- If additional information from the applicant or intervenor is deemed insufficient to make these rulings, the Town may consider further 3rd party review from a hydrogeologist or similarly qualified individual or firm, to review the proposed withdrawals from the aquifer as it pertains to impacts to the wetlands and watercourses in the project area.

In the comments submitted by Rivers Alliance on February 5th, 2024, they note that for diversions registered prior to 1983, registrants have rights to divert the amount of water originally registered in perpetuity, and that they were never and are not currently subject to any environmental review.

- Recommend that the Town request information from the applicant and CT DEEP on the accuracy of this statement, and whether any environmental review or impact analysis has ever been completed for this project location.

In Application #2020, the applicant states in the Additional Comments/Information section, “No flow calculations are provided due to zero impact as a result of the proposed work”.

- If the Commission has concerns about potential wetland/watercourse impacts related to potential flow alteration as a result of this application, recommend requesting flow calculations from the applicant to determine the average and seasonal flows of the brook, the average and/or seasonal withdrawals proposed, and any historical withdrawal information the applicant can provide.
- Recommend that the Commission require the applicant to develop an action plan to be submitted to and approved by the Commission, outlining under which circumstances withdrawals would be limited or stopped to ensure adequate flows, both for the benefit of future withdrawals and to reduce or prevent negative impacts to wetlands, watercourses, and dependent flora and fauna. To develop this action plan, recommend that the applicant use historical flow data from stream gauges or similar methods, predicted future flow calculations, and average rainfall data, contrasted with proposed withdrawal amounts and frequencies. This action plan can be required as part of the application, or this can potentially be a condition of approval of a Wetland Permit.

Functions and Values Assessment

Functions and values were assessed within the applicant’s soil scientist’s report, and replication/replacement of wetlands is proposed. However, it was not made clear in the application materials or the meeting minutes whether those functions and values of the existing wetlands will be preserved or replicated.

- Recommend that the Commission request testimony from the project soil scientist regarding whether functions and values assessed for existing wetlands will be preserved and/or replicated through proposed wetland replications, replacements, or enhancements.

Alternatives Analysis

Per section 10.3 of the Bristol Inland Wetlands and Watercourses Regulations, “In the case of an application which received a public hearing pursuant to a finding by the Inland Wetlands Agency that the proposed activity may have a significant impact on wetlands or watercourses, a permit shall not be issued unless the Agency finds on the basis of the record that a feasible and prudent alternative does not exist. In making the finding, the Agency shall consider the facts and circumstances set forth in subsection 10.2. The finding and the reasons therefore shall be stated on the record in writing”. Section 10.2 outlines the considerations for assessment by the Commission of Prudent and Feasible alternatives.

- While alternatives assessments were discussed upon the record of the March 4, 2024 meeting minutes, the District recommends that the Commissioners review Sections 10.2 and 10.3 of the Bristol Inland Wetlands and Watercourses Regulations, and state upon the record in their decision whether alternatives were adequately assessed to the extent required by the regulations.

Thank you for the opportunity to comment.

Link to Hydrology Report:

<https://www.bristolct.gov/DocumentCenter/View/46559/Hydrology-Report-Extracted>

HYDROGEOLOGIC STUDY

**UPPER AND LOWER WHITE BRIDGE
WELL FIELDS CITY OF NEW BRITAIN
WATER DEPARTMENT AND MIX STREET
WELL FIELD (WELLS 3, 4, & 5) CITY OF
BRISTOL WATER DEPARTMENT**

PREPARED FOR:

**CITY OF NEW BRITAIN WATER
DEPARTMENT AND CITY OF BRISTOL
WATER DEPARTMENT**

DECEMBER 2007

Prepared by:

LENARD ENGINEERING, INC.

CIVIL, ENVIRONMENTAL & HYDROGEOLOGICAL CONSULTANTS

1768 STORRS ROAD, P.O. BOX 580

STORRS, CT 06268-0580

Link to Application #2019

Letters, Emails & Correspondence:

<https://www.bristolct.gov/DocumentCenter/View/46560/Extracted-Correspondence-041224>

Summary of Updates
to
Applications #2019, #2020 and #23-458F-305

#2019-1) Please add the attached map to Attachment 4. It is an overlay of scientist wetlands flagging on the City's wetlands map for the project area.

#2020-1) Please insert the corrected page and substitute it for the page on file.

2) Please add the NDDB and SHPO documents to the filing

3) Map showing Monitor well locations and stream gauge locations.

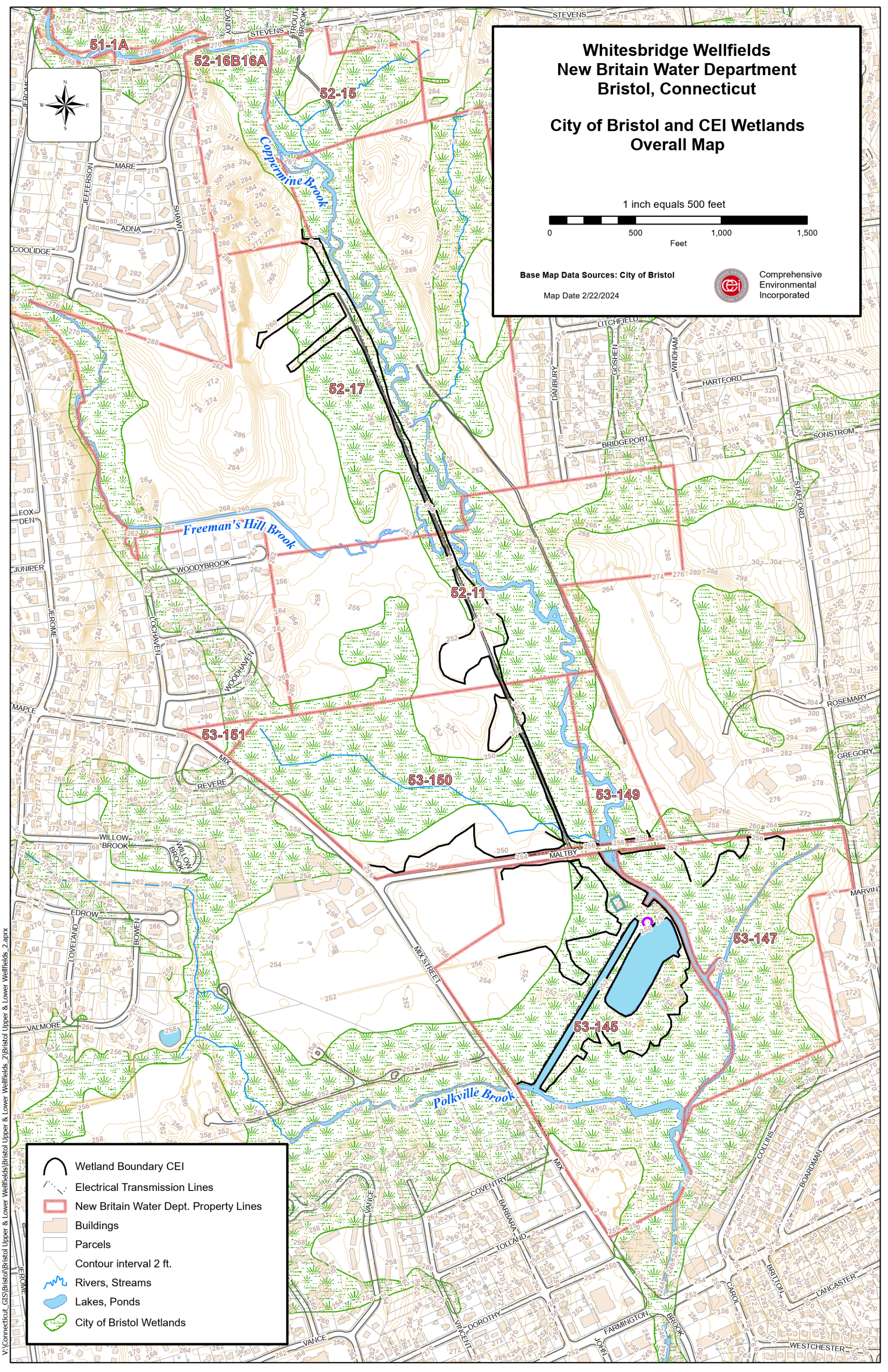
4) Please add the CT DEEP letter which confirms the Diversion Registrations will remain in force and no permit is required.

#23-458F-305-1) Please insert substitute page 2 of the Application PDF which indicates updated volumes for fill and compensatory storage.

2) Please insert page 9 of the PDF which indicates the revised volumes.

3) Please add the attached spreadsheet summary for cut/fill and compensatory storage volume.

#2019 Update



Whitesbridge Wellfields
New Britain Water Department
Bristol, Connecticut
City of Bristol and CEI Wetlands
Overall Map

1 inch equals 500 feet

0 500 1,000 1,500

Feet

Base Map Data Sources: City of Bristol

Map Date 2/22/2024



- Wetland Boundary CEI
- Electrical Transmission Lines
- New Britain Water Dept. Property Lines
- Buildings
- Parcels
- Contour interval 2 ft.
- Rivers, Streams
- Lakes, Ponds
- City of Bristol Wetlands



Mr. Sebastian Amenta, P.E.
Comprehensive Environmental, Inc.
1 Hartford Square, Suite 227
New Britain, CT 06052
samenta@ceiengineers.com

RE: Request for Diversion Permit Need Determination
Whites Bridge Wellfield Improvements
New Britain Water Department
Bristol, CT

Dear Mr. Amenta:

This letter is in response to your November 8, 2023 request for Water Diversion permit need determination regarding your proposal to modify certain registered water diversions. The proposed activities are documented in the report you submitted on behalf of the New Britain Water Department (NBWD) entitled “Negative Declaration of Diversion / White Bridge Wellfield Improvements / Bristol, Connecticut,” dated November 2023 (“the report”), as well as other information provided in a subsequent email dated December 5, 2023. The project involves the replacement of several public water supply wells that make up two separate, but nearby wellfields registered to the NBWD pursuant to Section 22a-368 Connecticut General Statutes (CGS) as described in the table below.

REGISTRATION NUMBER	NAME OF DIVERSION	REGISTERED WITHDRAWAL (million gallons per day)	BASIN NAME
4314-007-PWS-GR	Upper White Bridge Wells	2.1600	Copper Mine River
4314-008-PWS-GR	Lower White Bridge Wells	6.6240	Copper Mine River

The report states that these “wellfields are unable to be used in accordance with their original design intent and drastic improvements are needed due to poor groundwater well performance caused by clogged well screens and an antiquated suction withdrawal system.” The proposed redevelopment includes the abandonment of all existing wells in these two wellfields, replacing them with new wells, all within the extent of the existing wellfields as registered. The proposed wells, as described in the report, will be withdrawing from the same stratified drift aquifer wherein the existing wells are located.

Based on our review of your submittal, it has been determined that this proposal as presented in the submitted materials conforms with Section 22a-377(c)-1(c)(1) of the Regulations of Connecticut State Agencies (RCSA) included below in its entirety:

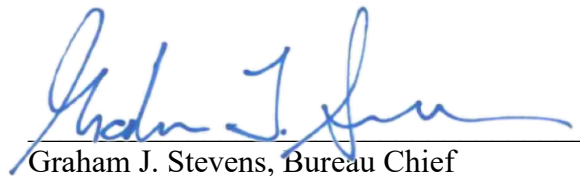
Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may maintain such diversion only in accordance with the information provided in the registration form filed with the Commissioner. Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may not cause or allow any modification of such diversion, including but not limited to an increase in withdrawal capacity, without having first obtained a permit under sections 22a-365 to 22a-378, inclusive, of the General Statutes and 22a-377(c)-2 of the Regulations of Connecticut State Agencies, unless such modification is exempt under section 22a-377 of the General Statutes or section 22a-377 (b)-1 of the Regulations of Connecticut State Agencies.

As such, this department finds that the proposed diversion modifications, comprising of the wellfields identified on page 1 of this determination, **will not** require a water diversion permit pursuant to Section 22a-368(a) CGS, provided the total combined withdrawal from the respective wellfields does not exceed the registered withdrawal as indicated in the above table. However, it is requested that you keep us informed as the project develops, particularly on matters relating to aquifer response modeling and induced infiltration studies.

If you should have any additional questions regarding this matter, please contact Doug Hoskins at 860-424-4192 or douglas.hoskins@ct.gov.

February 21, 2024

Date



Graham J. Stevens, Bureau Chief
Water Protection and Land Resources

GS/dh

Cc:

Ray Esponda, New Britain Water Dept., Ray.Esponds@NewBritainCT.gov

Raul Tejada, CT DPH, raul.tejada@ct.gov

Lori Mathieu, CT DPH, Lori.Mathieu@ct.gov

Brendan Schain, CT DEEP brendan.schain@ct.gov

Shalyn Zappulla, CT DEEP shalyn.zappulla@ct.org

Alicia Charamut, Rivers Alliance, alicea@riversalliance.org

CT DEEP Letter

May 6, 2022

May 6, 2022

Magdalena Lofstedt
CDM Smith Inc
77 Hartland St, Suite 201
East Hartford, CT 06108
LOFSTEDTMH@CDMSMITH.COM

NDDB DETERMINATION NUMBER: 202205409

Project: (City of New Britain) Replace existing groundwater wells, Upper & Lower Wellfields, White Bridge Waterworks Facility, off Maltby St, Bristol

Expiration: May 6, 2024

I have reviewed Natural Diversity Database (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) documented nearby and within the watershed of your project area. Recommendations to minimize impacts are included below.

- **Spotted turtle (*Clemmys guttata*) State Special Concern**
- **Wood turtle (*Glyptemys insculpta*) State Special Concern**

Spotted turtle: Individuals of this species are associated with wetlands and vernal pools. Over the course of a season and lifetime, individuals will travel large distances (up to 1km) over upland forest and fields between multiple wetlands. They overwinter burrowed into the mud in wetlands between Nov 1-March 15. They do not begin to reproduce until 7-10 years old and adults can live at least 30 years. This species is threatened most by any activities that reduce adult survivorship including road kills, commercial and casual collection, increased predation in areas around commercial and residential development, mortality and injury from agricultural equipment or other mechanical equipment.

Wood turtle: Individuals of this species are riverine and riparian obligates, overwintering and mating in clear, cold, primarily sand-gravel and rock bottomed streams and foraging in riparian zones, fields and upland forests during the late spring and summer. They hibernate in the banks of the river in submerged tree roots between November 1 and March 31. Their summer habitat focuses within 90m (300ft of rivers) and they regularly travel 300m (0.2 mile) from rivers during this time. During summer they seek out early successional habitat: pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. Their habitat in Connecticut is already severely threatened by fragmentation of riverine, instream, riparian, and upland habitats, but is exacerbated by heavy adult mortality from machinery, cars, and collection. This is compounded by the species late maturity, low reproductive potential, and high nest and hatchling depredation rates.

Land disturbance activities that will crush active turtles or unearth/or crush hibernating turtles or nests need to consider local habitat features and apply fencing and/or time of year restrictions as appropriate. We recommend you consult with a herpetologist familiar with preferred habitats to assist you with proper techniques to ensure the best protection strategies are employed for your site.

- Land disturbance and excavation confined to the upland (greater than 10 meters from a wetland) can be done without risk for impact if it is restricted to the dormant season (November 1- March 15).

If land disturbance activity will include significant areas within and around wetlands, you will need to take precautions to avoid crushing or killing hibernating adults.

- Do not conduct land disturbance activities within a wetland during the turtle's dormant period (November 1- March 15).

Additionally, when working in the upland between March 15- November 1:

- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- Exclusionary fencing be at least 20 inches tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through.
- Prior to construction, all turtles occurring within fencing work area will be relocated to suitable habitat outside disturbance area. This should be performed by a qualified professional familiar with habitat requirements and behavior of the species.
- The Contractor must search the work area each morning prior to any work being done.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point. These animals are protected by law and no turtles should be relocated from the site.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal vernal pools.

Natural Diversity Database information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Bureau of Natural Resources and cooperating units of DEEP, independent conservation groups, and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated in the NDDB as it becomes available.

Please contact me if you have any questions (shannon.kearney@ct.gov). Thank you for consulting with the Natural Diversity Database and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist

Verified Petition to Intervene
February 5, 2024

**BRISTOL INLAND WETLANDS AND WATERCOURSES AGENCY/CONSERVATION
COMMISSION**

Application #2019 - Wetlands boundary change application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Application #2020 – Wetlands application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Application #23-458F-305 – Floodplain application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

February 5, 2024

VERIFIED PETITION TO INTERVENE UNDER CGS §22a-19

Rivers Alliance of Connecticut, Inc. (RA) requests that the Bristol Inland Wetlands and Watercourses Agency/Conservation Commission (Agency) grant it intervenor status in the above captioned proceedings, pursuant to the Connecticut Environmental Protection Act, CGS section 22a-19(a)(1) (CEPA). RA does not oppose the work that is proposed by New Britain Water Department (NBWD) in the above-referenced applications to purportedly rehabilitate its wellfields and to come into compliance with Connecticut Department of Public Health (DPH) and Federal Emergency Management Agency (FEMA) requirements, so long as the reasonably foreseeable environmental threats posed by these activities are appropriately conditioned to protect the important natural resources comprised of waters of the State under the stewardship of

the City of Bristol. RA's participation in this matter is in the interests of justice and will not impair the orderly conduct of the proceedings.

In support of its petition, RA represents the following:

1. CEPA provides in pertinent part at General Statutes Section 22a-19(a) that

In any administrative, . . . proceeding, and in any judicial review thereof made available by law, . . . any person, . . . corporation . . . or other legal entity may intervene as a party on the filing of a verified pleading asserting that the proceeding or action for judicial review involves conduct which has, or which is reasonably likely to have, the effect of unreasonably polluting, impairing or destroying the public trust in the air, water or other natural resources of the state.

2. The Agency is the town agency authorized to administer the statutory provisions regulating the use of inland wetlands and watercourses pursuant to General Statutes Section 22a-36, et seq., and of its own duly enacted Inland Wetlands and Watercourses Regulations of the City of Bristol (Regulations).

3. RA is a 501(c)(3) non-profit environmental organization, founded in 1992, and dedicated to the protection and preservation of the water resources of the State. Its membership includes, primarily, river and watershed groups in the state, civic and business groups, municipal commissions, and individuals concerned with water health, thus representing a network of thousands of members statewide. RA's mission is to protect the quality and availability of surface and ground waters of Connecticut and Long Island Sound and associated recreational uses and habitat values. RA advocates for the protection of ample, healthy sources of water for drinking and other vital societal uses. RA brings expertise in policy, law, and science to participation in policy-making entities and to its extensive educational program. RA's goal is to bring people together to protect our state waters for current and future generations. Numerous

RA members are residents of Bristol or customers of NBWD. RA's offices are located at 28 Russel Street, P.O. Box 1797, Litchfield, Connecticut, 06759.

4. The Agency's decision in this matter will specifically affect RA, its members, and important natural resources of the State. NBWD owns or manages water supply facilities in the City of Bristol. Pursuant to CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies, NBWD is authorized to divert 23.78 million gallons of water per day (mgd) in perpetuity.

5. Bristol Water Department (BWD) also owns or manages water supply facilities within the same drainage basin as the White Bridge Waterworks Facility. Pursuant to CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies, BWD is authorized to divert 3.87 million gallons of water per day (mgd) in perpetuity.

6. Coppermine Brook is listed in Connecticut Department of Energy and Environmental Protection's (DEEP) 2022 Integrated Water Quality Report to Congress under Nonpollutant Impairments (EPA Category 4c) for Flow Regime Modification. DEEP has developed a methodology for assessing flow impairments when sufficient information is available. The term "flow regime modification" is used to reflect the impairments which are predominantly due to flow alterations that serve public needs and safety.

7. Sections of Coppermine Brook below and adjacent to the NBWD and BWD were effectively dry during the 2016-2017 drought and DEEP has documented impairment due to low flow for periods following the 2016-2017 drought. Due to decreased well performance, NBWD has been able to withdraw only a portion of the 23.78 mgd it is authorized pursuant to

CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies.

8. NBWD has stated in Application #2020 that “The NBWD has registered diversions and those withdrawals will be increased.” It also stated that “The proposed wetland disturbances activity will not affect the nearby watercourse flow rate.”

9. RA seeks to intervene in this proceeding for the purposes of assuring that Coppermine Brook is not further impaired for regime flow modification due to an increase in withdrawals by the NBWD. The potential for such further impairment is not adequately addressed in the Application. RA further seeks to ensure that the Agency has a complete record on which to make an informed decision on all aspects of this complicated proceeding. As DEEP cannot intervene on impairments from low flow (as this activity is purportedly in compliance with CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies), it is reasonable for the Agency to inquire into potential impacts to downstream flow from NBWD withdrawals. In addition, impacts on streams from groundwater withdrawals are not included in DEEP’s Streamflow Standards and Regulations pursuant to CGS §26-141(a) and (b) and §26-141b-7(a) of the Regulations of Connecticut State Agencies. Appropriate regulation and oversight of potential impacts to downstream flow can be accomplished by requiring monitoring of streamflow above and below the wellfields and requiring that NBWD work with DEEP to determine a threshold at which NBWD would have to work with DEEP to find an operational mode that would not impair Coppermine Brook, as per the NBWD agreement with DPH for funds procured through DPH’s Drinking Water State Revolving Fund for the project. This regulation and oversight clearly falls

within the Agency's jurisdiction in this proceeding pursuant to CGS section 22a-41, 22a-42, and the city's Inland Wetlands and Watercourses Regulations.

10. It is RA's position that prudent conditions to protect critical natural resources of the State, which are threatened by the increased uncertainty of climate change, are necessary and appropriate. RA is focused on a narrow but important set of natural resources that receive limited, but critical, protections under state statute. RA's intervention in this matter is in the interests of justice and will not impair the orderly conduct of the proceedings.

11. RA is not aware of any other intervening party to this proceeding whose focus is to ensure that the water resources of the state under the care of the City of Bristol are protected from undue impairment.

12. RA intends to offer brief and pertinent direct testimony from Connecticut water conservation experts with personal knowledge of wetlands and hydrology, as it applies to the Applications.

13. RA requests that the following individuals be listed on the Service List in this proceeding:

Alicea Charamut, Executive Director
Rivers Alliance of Connecticut, Inc.
28 Russel Street, P.O. Box 1797
Litchfield, CT 06759
(860) 416-7859
alicea@riversalliance.org

and

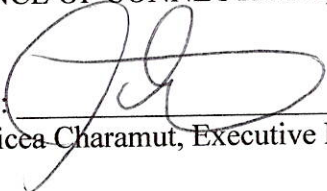
Mary Ridingsward, Executive Director
Pequabuck River Watershed Association
PO Box 1461
Bristol, CT 06011-1461
pequabuckriverct@gmail.com

Copies of filings and notices should be sent to alicea@riversalliance.org.

WHEREFORE, Rivers Alliance of Connecticut, Inc. respectfully requests intervention status in this proceeding pursuant to CEPA upon the filing of this verified pleading for intervention.

Respectfully submitted,

INTERVENOR
RIVERS ALLIANCE OF CONNECTICUT, INC.

By: 
Alicea Charamut, Executive Director

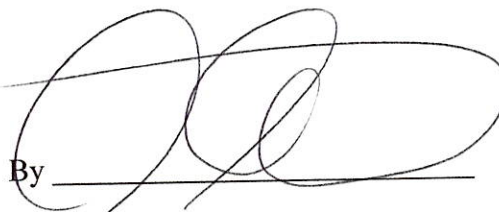
VERIFICATION OF PETITION FOR INTERVENTION
UNDER GENERAL STATUTES SECTION 22a-19(a)

I, the undersigned, being duly sworn, depose and say that (i) I am the Executive Director of Rivers Alliance of Connecticut; (ii) I have the authority to execute this Petition for Intervention on behalf of Rivers Alliance of Connecticut; and (iii) I have read the foregoing Petition for Intervention and verify that the facts stated therein are true and correct to the best of my knowledge, information and belief based on my personal knowledge, and the records which I have reviewed in this matter.

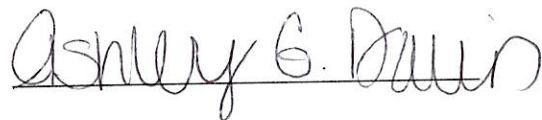
Dated at Newington Connecticut, this 5th day of February, 2024.

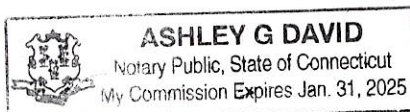
INTERVENOR

RIVERS ALLIANCE OF CONNECTICUT

By 
Alicea Charamut, Executive Director

Subscribed and sworn to before me the undersigned this 5th day of February, 2024.





Notary Public: Ashley G. David
My Commission Expires: 01/31/2025

Link to State Historic Preservation Office Application, Letter, Response (April 2022)

Link to Document:

https://www.bristolct.gov/DocumentCenter/View/45992/NBWD-SHPO_Letter_Response-and-Application-April-27-2022



Photos submitted by Daniel Sutula - 3/11/24

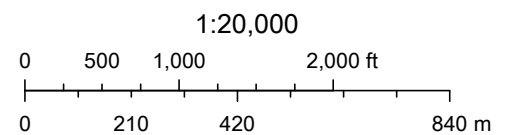
ATTACHMENT 1

PROJECT SITE MAP

White Bridge Waterworks Facility



2/22/2023, 3:28:12 PM



USGS The National Map: Orthoimagery and US Topo. Data refreshed December, 2022.

ATTACHMENT 2

ADDITIONAL INFORMATION

Wetlands Permit Application – IW-2

This attachment to the IW-2 application serves to provide the additional information required for changes to wetlands boundaries application submittals, including:

- Site plans
- Proposed project activities related to changes in wetlands boundaries
- Description and delineation of wetlands

Proposed Project Activities:

A rehabilitative/restorative project will be conducted at the Upper and Lower Wellfields of the White Bridge Waterworks Facility owned by the New Britain Water Department (NBWD). The purpose of this project is to redevelop the existing Upper and Lower Wellfields, which were constructed in 1955 and 1921, respectively. This will allow the NBWD to optimize the volume of water collected from this resource and potentially utilize it as a backup source of potable water since the NBWD only has one water treatment plant and no other wells. Presently, these wellfields serve as a raw water supply only and cannot serve as a backup in their present condition. In order to become a potable water supply, any new wells must be located 50 feet from any water bodies or wetland limits per Department of Public Health (DPH) requirements. In addition, the wells must be raised 2' above the one-hundred-year flood elevation. Because of these requirements, the existing wells cannot be redrilled or rehabilitated in their present location. All currently existing wells will be abandoned in accordance with DPH requirements.

Compensatory flood storage areas will be created so as to not increase the current flood elevation levels as given by FEMA guidelines. These compensatory storage areas will also create additional wetland areas and, as such, will change relatively small portions of the wetlands boundaries as were mapped and flagged by professional soil and wetlands scientists in August/September 2022. See the attached maps for further information on the extent of the boundary flagging as well as the areas of interest with respect to changes in wetlands boundaries.

Category of Proposed Activity:

The proposed activity, which will occur in a wetlands area, is requested to be permitted as an “as of right” use. This activity falls under Subsection 4.1.e of the Inland Wetlands and Watercourses Regulations of the Conservation Commission of the City of Bristol, CT, because it involves the operation by a municipal water supply system of facilities necessary for the withdrawal of water in connection with public water supplies.

Significant Activity:

The proposed activity constitutes a “significant activity” because it has the potential to have a major effect or substantial impact to a wetlands regulated area, due to the deposit of material in a regulated area. Erosion control cautionary measures will be in place to reduce the impact of the project.

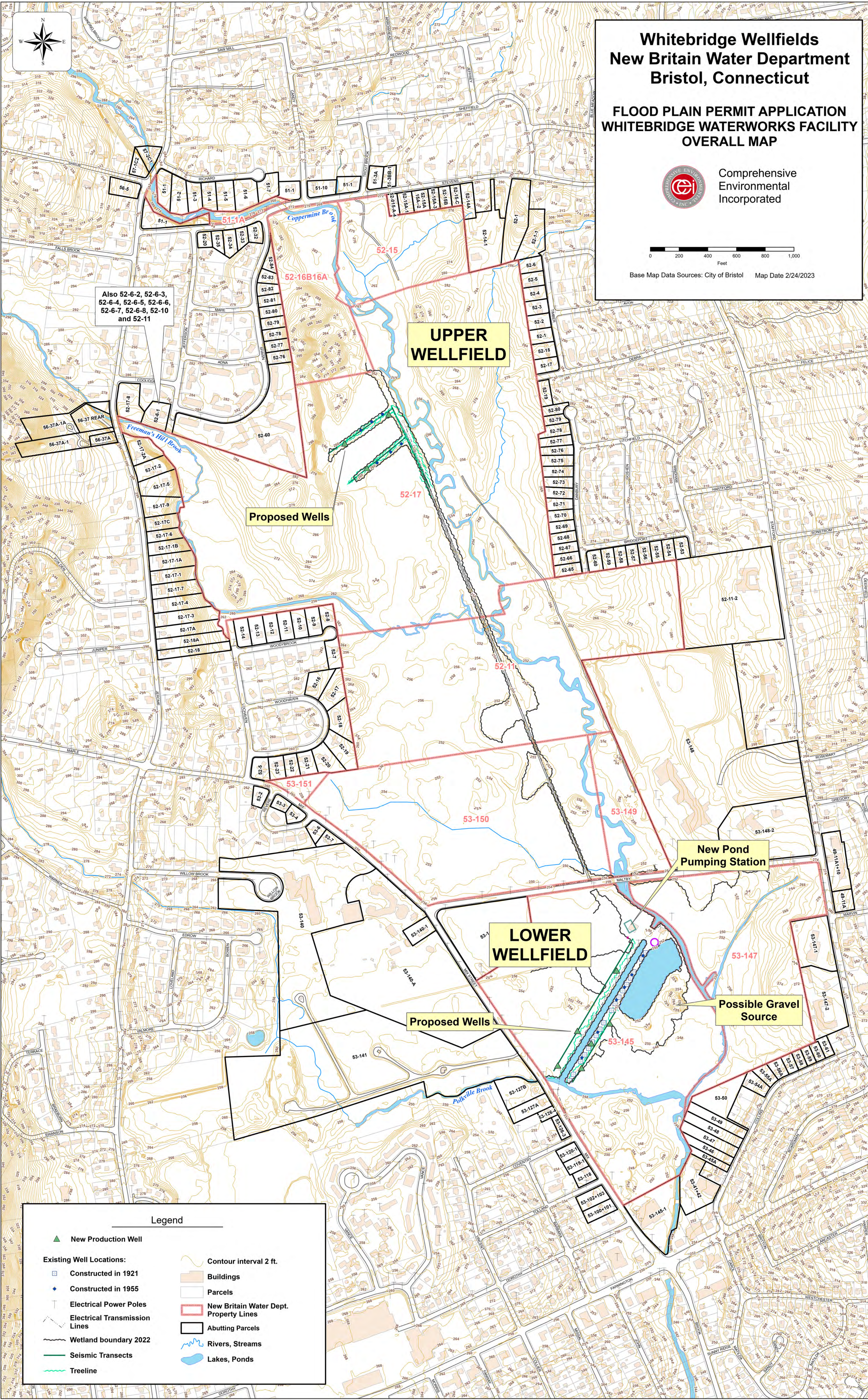
Description of Property and Wetlands:

This property spans a total of 303.7 acres, which includes the following parcels (by Map/Lot number): 52-15, 52-16B16A, 52-17, 52-11, 53-149, 53-150, 53-151, 53-145 and 53-147. Copper Mine Brook travels through the entirety of the property from north to south. The Upper Wellfield is located on parcel 52-17, which is 104.6 acres and has PFO1E and PEM1E wetland areas. PFO1E areas are seasonally flooded/saturated broad-leaved deciduous wetlands. PEM1E areas are seasonally flood/saturated persistent emergent wetlands. Soils in this project area consist mostly of Scarboro muck, with some Saco silt loam located closer to Copper Mine Brook. Soil scientist Ian Cole located all the wetland boundaries in the vicinity of the test well explorations. These boundaries are shown on the plans provided.

The Lower Wellfield is located on parcel 53-145, which is 50.3 acres and also has PFO1E and PEM1E wetland areas. Polkville Brook travels west to east, then southerly through this parcel before flowing into Copper Mine Brook. Onsite vehicular transport, between the Upper and Lower Wellfield areas will use existing travel ways on the site not within any wetland boundaries. Soils in the Lower Wellfield project area consist mostly of Raypol silt loam, with some Hinckley loamy sand located closer to Polkville Brook. Detailed wetlands mapping is provided on the plans.

ATTACHMENT 3

ABUTTING PROPERTY AND OWNERS

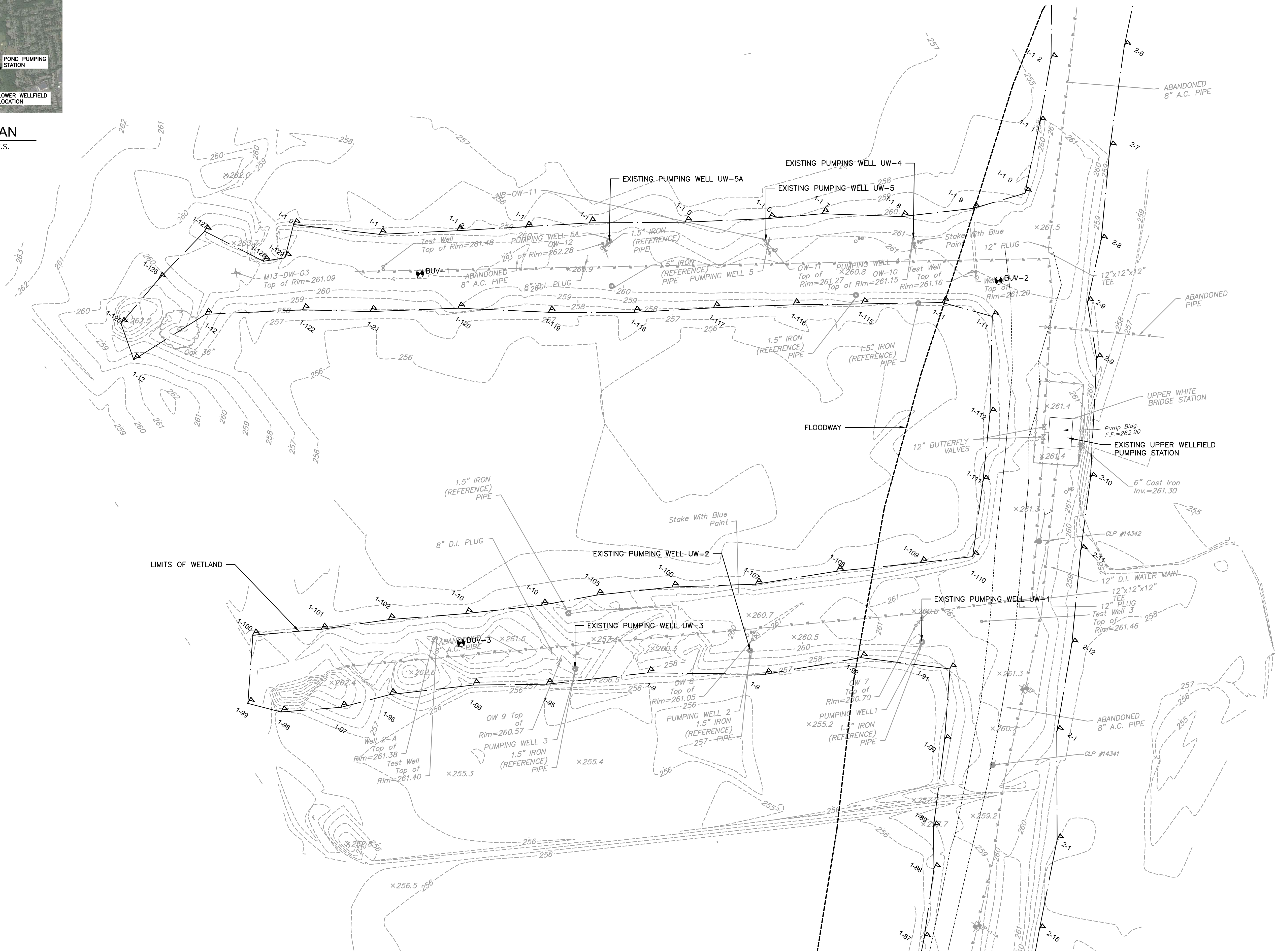
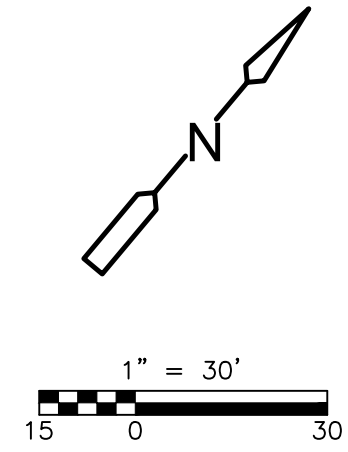
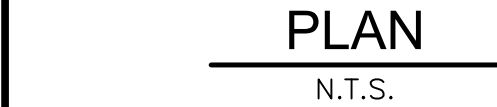


ABUTTING PROPERTY OWNERS

Parcel ID	MAP	BLOCK	LOT	UNIT	OWNER NAME	LOCATION	MUNI	ACRES	ZONING	LAND USE	COMMENT	MAIL_ADDR	MAIL_CITY	MAIL_STATE	MAIL_ZIP
49-11A	49	11A+10	1		STARFORD COMMONS LLC	916 STARFORD AVE	BRISTOL	0.32 R 15		Appt	1253 BURLINGTON AVE	BRISTOL	CT	06010	
49-11A+10	49	11A+10	1		STARFORD COMMONS LLC	916 STARFORD AVE	BRISTOL	1.33 Bn		Multi Ctr	200 SUMNER ST	BRISTOL	CT	06010	
51-1	51	1			ORRIN CRISTAL	3 STEVENS ST	BRISTOL	0.72 R 15		Single Family	3 STEVENS ST	BRISTOL	CT	06010	
51-1	51	1			ROCKON RICHARD	108 CANDY LA	BRISTOL	0.28 R 15		Single Family	108 CANDY LA	BRISTOL	CT	06010	
51-1	51	1			BENSTON JANICE	135 STEVENS ST	BRISTOL	0.39 R 15		Single Family	135 STEVENS ST	BRISTOL	CT	06010	
51-1	51	1			HARRIS BIRECCA C	8 RICHARD CT	BRISTOL	0.34 R 15		Single Family	8 RICHARD CT	BRISTOL	CT	06010	
51-10	51	10			STUART WILLIAM G + RITA M INT TENANTS	107 CANDY LA	BRISTOL	0.49 R 15		Single Family	107 CANDY LA	BRISTOL	CT	06010	
51-2	51	2			DONAHOWA FRANK G + CARRIE M	16 RICHARD CT	BRISTOL	0.66 R 15		Single Family	16 RICHARD CT	BRISTOL	CT	06010	
51-3	51	3			BARTLEY DAVID + ANANDA SURV	26 RICHARD CT	BRISTOL	0.46 R 15		Single Family	26 RICHARD CT	BRISTOL	CT	06010	
51-3A	51	3A			CALLAHAN JOSHUA	165 STEVENS ST	BRISTOL	0.37 R 15		Single Family	15 PINNACLE RIDGE FARM CANTON	BRISTOL	CT	06019	
51-3B+1	51	3B+1			COMBS CAMERON	167 STEVENS ST	BRISTOL	0.35 R 15		Single Family	167 STEVENS ST	BRISTOL	CT	06010	
51-4	51	4			REBEZ JESSY + WIOLETA	36 RICHARD CT	BRISTOL	0.43 R 15		Single Family	36 RICHARD CT	BRISTOL	CT	06010	
51-5	51	5			HARVEY BEATA + MATTHEW J	46 RICHARD CT	BRISTOL	0.6 R 15		Single Family	46 RICHARD CT	BRISTOL	CT	06010	
51-6	51	6			LAPLANTE ZACHARY C	60 RICHARD CT	BRISTOL	0.76 R 15		Single Family	60 RICHARD CT	BRISTOL	CT	06010	
51-7	51	7			MCGLOULIN WILLIAM E + GRACE	72 RICHARD CT	BRISTOL	0.49 R 15		Single Family	72 RICHARD CT	BRISTOL	CT	06010	
51-015-A-4	52	015-A-4			D'AMATO MICHAEL + LISA SURV	176 STEVENS ST	BRISTOL	0.25 R 15		Single Family	176 STEVENS ST	BRISTOL	CT	06010	
52-1	52	1			SIMONE JOSEPH WILLIAM	25 TIMBER LA	BRISTOL	0.39 R 15		Single Family	25 TIMBER LA	BRISTOL	CT	06010	
52-1	52	1			CONTINUUM OF CARE INC	276 STEVENS ST	BRISTOL	2.1 R 15		Single Family	109 LEGION AVE	NEW HAVEN	CT	06519	
52-10	52	10			DEFLUO SHERI L	45 WOODBROOK RD	BRISTOL	0.46 R 15		Single Family	45 WOODBROOK RD	BRISTOL	CT	06010	
52-10	52	10			CURRENT OWNER	76 JEFFERSON AVE	BRISTOL	0.32							
52-11	52	11			MORELLI MICHAEL + MICHELLE L	35 WOODBROOK RD	BRISTOL	0.46 R 15		Single Family	35 WOODBROOK RD	BRISTOL	CT	06010	
52-11	52	11			CURRENT OWNER	68 JEFFERSON AVE	BRISTOL	0.31							
52-1-1	52	1-1			NEWMAN KAREN E	87 TIMBER LA	BRISTOL	1 R 15		Single Family	87 TIMBER LA	BRISTOL	CT	06010	
52-1-2	52	1-2			ST ANDREW EVANGALICAL LUTHERAN	1125 STARFORD AVE	BRISTOL	10 R 40		Church B4	1125 STARFORD AVE	BRISTOL	CT	06010	
52-12	52	12			AKADOWN ESSE	25 WOODBROOK RD	BRISTOL	0.46 R 15		Single Family	25 WOODBROOK RD	BRISTOL	CT	06010	
52-13	52	13			MADSEN ALLEN E AND CATHERINE M	15 WOODBROOK RD	BRISTOL	0.46 R 15		Single Family	15 WOODBROOK RD	BRISTOL	CT	06010	
52-14	52	14			RUGHTON SUSAN M	5 WOODBROOK RD	BRISTOL	0.44 R 15		Single Family	5 WOODBROOK RD	BRISTOL	CT	06010	
52-14-1	52	14-1			RAMSEY JASON M + STEPHANIE	250 STEVENS ST	BRISTOL	2.41 R 15		Single Family	250 STEVENS ST	BRISTOL	CT	06010	
52-14A	52	14A			LOHME AARON S + JESSICA L	236 STEVENS ST	BRISTOL	0.5 R 15		Single Family	236 STEVENS ST	BRISTOL	CT	06010	
52-15A-10A-2	52	15A-10A-2			SCHMIDT ERNEST W JR	186 STEVENS ST	BRISTOL	0.39 R 15		Single Family	186 STEVENS ST	BRISTOL	CT	06010	
52-15A-1	52	15A-1			BYRNE SABRINA	186 STEVENS ST	BRISTOL	0.35 R 15		Single Family	186 STEVENS ST	BRISTOL	CT	06010	
52-15A-3	52	15A-3			CASTONGIAY BERNARD D	206 STEVENS ST	BRISTOL	0.26 R 15		Single Family	206 STEVENS ST	BRISTOL	CT	06010	
52-15B	52	15B			BROUSAL DAVID R	154 STEVENS ST	BRISTOL	0.28 R 15		Single Family	154 STEVENS ST	BRISTOL	CT	06010	
52-15-C	52	15-C			WASKO PAMELA D	222 STEVENS ST	BRISTOL	0.28 R 15		Single Family	222 STEVENS ST	BRISTOL	CT	06010	
52-16	52	16			WHEELER MARGARET R + JOHN H SR	84 WOODHAVEN RD	BRISTOL	0.61 R 15		Single Family	84 WOODHAVEN RD	BRISTOL	CT	06010	
52-17	52	17			JANE STEVEN + SHARON M	100 WOODHAVEN RD	BRISTOL	0.71 R 15		Single Family	100 WOODHAVEN RD	BRISTOL	CT	06010	
52-17	52	17			ZIGLE ANDREW + LUMLEY LISA TRUSTEES	5 TIMBER LA	BRISTOL	0.37 R 15		Single Family	112 MADISON DR	BRISTOL	CT	06010	
52-17-1	52	17-1			NEUMANN DAVID LIFE USE	634 JEROME AVE	BRISTOL	0.56 R 15		Single Family	634 JEROME AVE	BRISTOL	CT	06010	
52-17-1A	52	17-1A			BENTLEY HENRY G JR + TAFFIE A SURV LIFE	624 JEROME AVE	BRISTOL	0.46 R 15		Single Family	624 JEROME AVE	BRISTOL	CT	06010	
52-17-1B	52	17-1B			RUCHAS JESOP A + JOAN M	636 JEROME AVE	BRISTOL	0.38 R 15		Single Family	636 JEROME AVE	BRISTOL	CT	06010	
52-17-2	52	17-2			BAILEY BARBARA L	602 JEROME AVE	BRISTOL	0.19 R 15		Single Family	602 JEROME AVE	BRISTOL	CT	06010	
52-17-2A	52	17-2A			OLSON DIANE M	690 JEROME AVE	BRISTOL	0.5 R 15		Single Family	690 JEROME AVE	BRISTOL	CT	06010	
52-17-3	52	17-3			JOHNSON JEREMIAH R + ROY LINDA L	136 JEROME AVE	BRISTOL	0.32 R 15		Single Family	136 JEROME AVE	BRISTOL	CT	06010	
52-17-4	52	17-4			HATCHCOCK CHARLES + MARISA L SURV	588 JEROME AVE	BRISTOL	0.48 R 15		Single Family	588 JEROME AVE	BRISTOL	CT	06010	
52-17-5	52	17-5			LOMBARD ANTHONY G + MARCIA M	682 JEROME AVE	BRISTOL	0.88 R 15		Single Family	682 JEROME AVE	BRISTOL	CT	06010	
52-17-6	52	17-6			WILLIAMS THOMAS D + KASE	644 JEROME AVE	BRISTOL	0.21 R 15		Single Family	644 JEROME AVE	BRISTOL	CT	06010	
52-17-7	52	17-7			KIRSCHNER JAMES R +	606 JEROME AVE	BRISTOL	0.78 R 15		Single Family	606 JEROME AVE	BRISTOL	CT	06010	
52-17-8	52	17-8			PALMSAND CORY JAMES + ABRAMS EDEN P +	746 JEROME AVE	BRISTOL	0.5 R 15		Single Family	746 JEROME AVE	BRISTOL	CT	06010	
52-17-9	52	17-9			LOMBARD ANTHONY G + MARCIA M SURV	636 JEROME AVE	BRISTOL	0.71 R 15		Single Family	636 JEROME AVE	BRISTOL	CT	06010	
52-17A	52	17A			RICH VICTOR SEAN B	578 JEROME AVE	BRISTOL	0.41 R 15		Single Family	578 JEROME AVE	BRISTOL	CT	06010	
52-17C	52	17C			MURPHY MICHAEL	556 JEROME AVE	BRISTOL	0.26 R 15		Single Family	556 JEROME AVE	BRISTOL	CT	06010	
52-18	52	18			BICK JENNIFER J	56 WOODHAVEN RD	BRISTOL	0.72 R 15		Single Family	56 WOODHAVEN RD	BRISTOL	CT	06010	
52-18	52	18			HUGHES LILLIAN F	562 JEROME AVE	BRISTOL	0.41 R 15		Single Family	562 JEROME AVE	BRISTOL	CT	06010	
52-18	52	18			MICCICI BARBARA	15 TIMBER LA	BRISTOL	0.26 R 15		Single Family	154 STEVENS ST	BRISTOL	CT	06010	
52-18A	52	18A			568 JEROME AVE LLC	568 JEROME AVE	BRISTOL	0.41 R 15		Retail	135 CHESTNUT RD	NEWINGTON	CT	06111	
52-19	52	19			MCDONOUGH JEFFREY T + MARCIA B SURV	48 WOODHAVEN RD	BRISTOL	0.81 R 15		Single Family	48 WOODHAVEN RD	BRISTOL	CT	06010	
52-19	52	19			SUTULA DANIEL P	135 DEBRA LA	BRISTOL	0.71 R 15		Single Family	135 DEBRA LA	BRISTOL	CT	06010	
52-2	52	2			GIANNINI JOHN D JR	35 TIMBER LA	BRISTOL	0.35 R 15		Single Family	35 TIMBER LA	BRISTOL	CT	06010	
52-20	52	20			MARRAS SAM J	42 WOODHAVEN RD	BRISTOL	0.21 R 15		Single Family	42 WOODHAVEN RD	BRISTOL	CT	06010	
52-21	52	21			SLEDONIA BRIAN J + JENNIFER J	44 STEVENS ST	BRISTOL	0.28 R 10		Single Family	44 STEVENS ST	BRISTOL	CT	06010	
52-21	52	21			NORMAN JOHN + ANNE SURV	34 WOODHAVEN RD	BRISTOL	0.4 R 15		Single Family	34 WOODHAVEN RD	BRISTOL	CT	06010	
52-22	52	22			LEWANDOWSKI EDWARD +	24 WOODHAVEN RD	BRISTOL	0.35 R 15		Single Family	24 WOODHAVEN RD	BRISTOL	CT	06010	
52-23	52	23			BEATON STEPHEN W	14 WOODHAVEN RD	BRISTOL	0.38 R 15		Single Family	14 WOODHAVEN RD	BRISTOL	CT	06010	
52-3	52	3			CURRENT RESIDENT	45 TIMBER LA	BRISTOL	0.34 R 15		Single Family	45 TIMBER LA	BRISTOL	CT	06010	
52-32	52	32			DOODY MAREE B	6 SHAWN DR	BRISTOL	0.22 R 10		Single Family	6 SHAWN DR	BRISTOL	CT	06010	
52-33	52	33			TRUDEL KEVIN F	68 STEVENS ST	BRISTOL	0.24 R 10		Single Family	68 STEVENS ST	BRISTOL	CT	06010	
52-34	52	34			ARCHAMBAULT RYAN + TABARA	60 STEVENS ST	BRISTOL	0.22 R 10		Single Family	60 STEVENS ST	BRISTOL	CT	06010	
52-35	52	35			VARRONE JOSEPH L	52 STEVENS ST	BRISTOL	0.27 R 10		Single Family	52 STEVENS ST	BRISTOL	CT	06010	
52-4	52	4			DECARDO MARY L	55 TIMBER LA	BRISTOL	0.34 R 15		Single Family	55 TIMBER LA	BRISTOL	CT	06010	
52-5	52	5			MARTINELLI LINDA S	81 WOODHAVEN RD	BRISTOL	0.36 R 15		Single Family	81 WOODHAVEN RD	BRISTOL	CT	06010	
52-5	52	5			ANGELLO DAVID + MOTTASAMANTHA JOINT	165 TIMBER LA	BRISTOL	0.34 R 15		Single Family	165 TIMBER LA	BRISTOL	CT	06010	
52-5	52	5			HARRINGTON CAROLE D	5 BRIDGEPORT AVE	BRISTOL	0.29 R 15		Single Family	5 BRIDGEPORT AVE	BRISTOL	CT	06010	
52-54	52	54			CLARK DA + TODD R	13 BRIDGEPORT AVE	BRISTOL	0.29 R 15		SFR w/ACC Apt	13 BRIDGEPORT AVE	BRISTOL	CT	06010	
52-55	52	55			RAVIA JOSEPH + ELIZABETH W TRUSTEES UTY	21 BRIDGEPORT AVE	BRISTOL	0.29 R 15		Single Family	21 BRIDGEPORT AVE	BRISTOL	CT	06010	
52-56	52	56			COSTELLO GREGORY	31 BRIDGEPORT AVE	BRISTOL	0.29 R 15		Single Family	31 BRIDGEPORT AVE	BRISTOL	CT	06010	
52-57	52	57			CARPENTER NANCY P	39 BRIDGEPORT AVE	BRISTOL	0.29 R 15		Single Family	39 BRIDGEPORT AVE	BRISTOL	CT	06010	
52-58	52	58			DAKES VERNIE A JR ESTATE OF + BETTY L	47 BRIDGEPORT AVE	BRISTOL	0.28 R 15		Single Family	47 BRIDGEPORT AVE	BRISTOL	CT	06010	
52-59	52	59			WIMAN JEFFREY + KATHLEEN M SURV	67 BRIDGEPORT AVE	BRISTOL	0.28 R 15		Single Family	67 BRIDGEPORT AVE	BRISTOL	CT	06010	
52-6	52	6			ANDERSON DAVID G + SHARON S SURV	75 TIMBER LA	BRISTOL	0.34 R 15		Single Family	75 TIMBER LA	BRISTOL	CT	06010	
52-60	52	60			AUGUSTO RENEE	67 BRIDGEPORT AVE	BRISTOL	0.28 R 15		Single Family	67 BRIDGEPORT AVE	BRISTOL	CT	06010	
52-60	52	60			COPPERHINE HOUSING ASSOCIATES LLC	135 SHAWN DR	BRISTOL	7.1 A		Apartments	2 CENTER PLAZA SUITE 700 BOSTON	MA	02108		
52-61	52	61		1	CURRENT OWNER	130 JEFFERSON AVE #1	BRISTOL	0 A		Condo Res.					
52-62	52	62		2	CURRENT OWNER	130 JEFFERSON AVE #2	BRISTOL	0 A							
52-63	52	63		3	CURRENT OWNER	130 JEFFERSON AVE #3	BRISTOL	0							
52-64	52	64		4	CURRENT OWNER	130 JEFFERSON AVE #4	BRISTOL	0							
52-65	52	65		5	CURRENT OWNER	102 DANBURY LA	BRISTOL	0.27 R 15		Single Family	102 DANBURY LA	BRISTOL	CT	06010	
52-65	52	65		6	CURRENT OWNER	130 JEFFERSON AVE #5	BRISTOL	0							
52-66	52	66		5	CURRENT OWNER	92 DANBURY LA	BRISTOL	0.28 R 15		Single Family	92 DANBURY LA	BRISTOL	CT	06010	
52-66	52	66		6	CURRENT OWNER	130 JEFFERSON AVE #6	BRISTOL	0							
52-67	52	67		7	CURRENT OWNER	84 DANBURY LA	BRISTOL	0.28 R 15		Single Family	84 DANBURY LA	BRISTOL	CT	06010	
52-67	52	67		8	CURRENT OWNER	130 JEFFERSON AVE #7	BRISTOL	0							
52-68	52	68		8	CURRENT OWNER	76 DANBURY LA	BRISTOL	0.29 R 15		Single Family	76 DANBURY LA	BRISTOL	CT	06010	
52-69	52	69		9	CURRENT OWNER	130 JEFFERSON AVE #8	BRISTOL	0							
52-7	52	7			MULLER ELEANOR	68 DANBURY LA	BRISTOL	0.31 R 15		Single Family	68 DANBURY LA	BRISTOL	CT	06010	
52-72	52	72			WINIARCZYK LIZABEL H + MARKS SURV	64 WOODBROOK RD	BRISTOL	0.41 R 15		Single Family	64 WOODBROOK RD	BRISTOL	CT	06010	
52-73	52	73			ARIEL MICHAEL A AND	62 DANBURY LA	BRISTOL	0.31 R 15		Single Family	62 DANBURY LA	BRISTOL	CT	06010	
52-71	52	71													

ATTACHMENT 4

**PROJECT DRAWINGS-EXISTING AND PROPOSED WETLAND
BOUNDARIES.**



REV. NO.	DATE	DRWN	CHKD	REMARKS

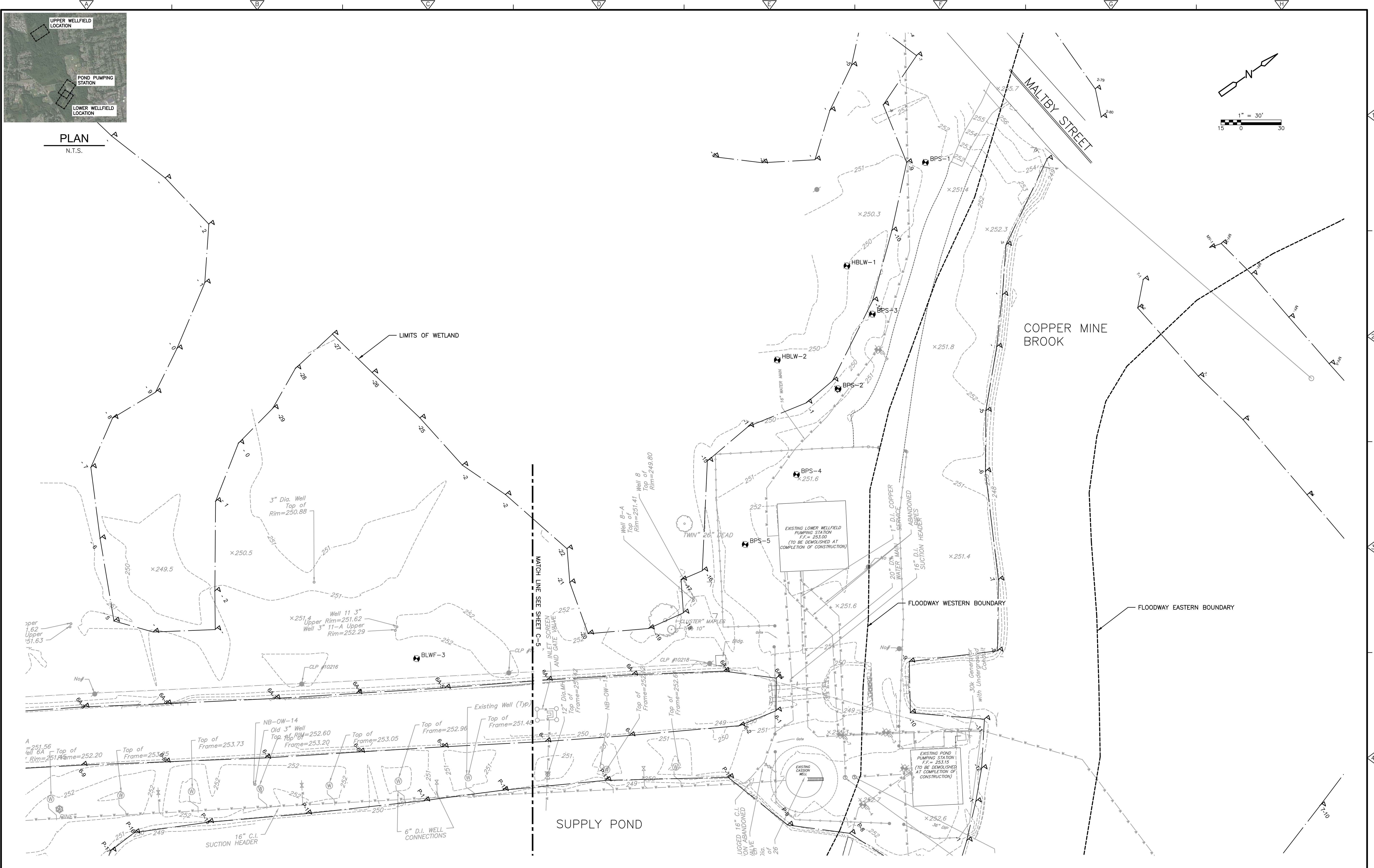
DESIGNED BY: _____ G. HOWARD
DRAWN BY: _____ J. BRONENKANT
SHEET CHK'D BY: _____
CROSS CHK'D BY: _____
APPROVED BY: _____
DATE: _____ DECEMBER 2022



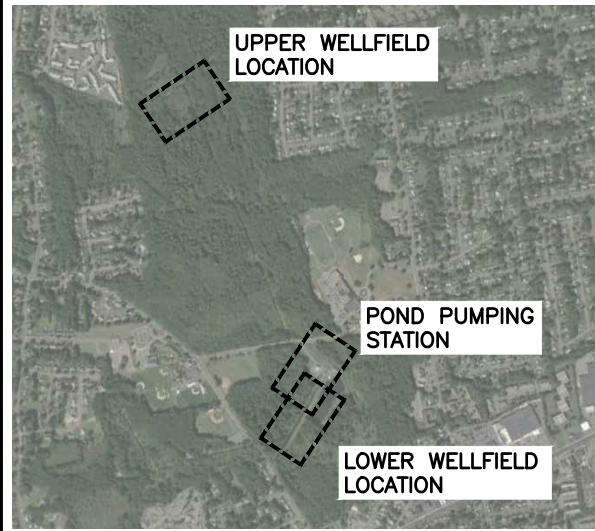
CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

UPPER WELLFIELD EXISTING CONDITIONS PLAN

PROJECT NO.	10739-264571
FILE NAME:	C003STPL.DWG
SHEET NO. 1 of 3	

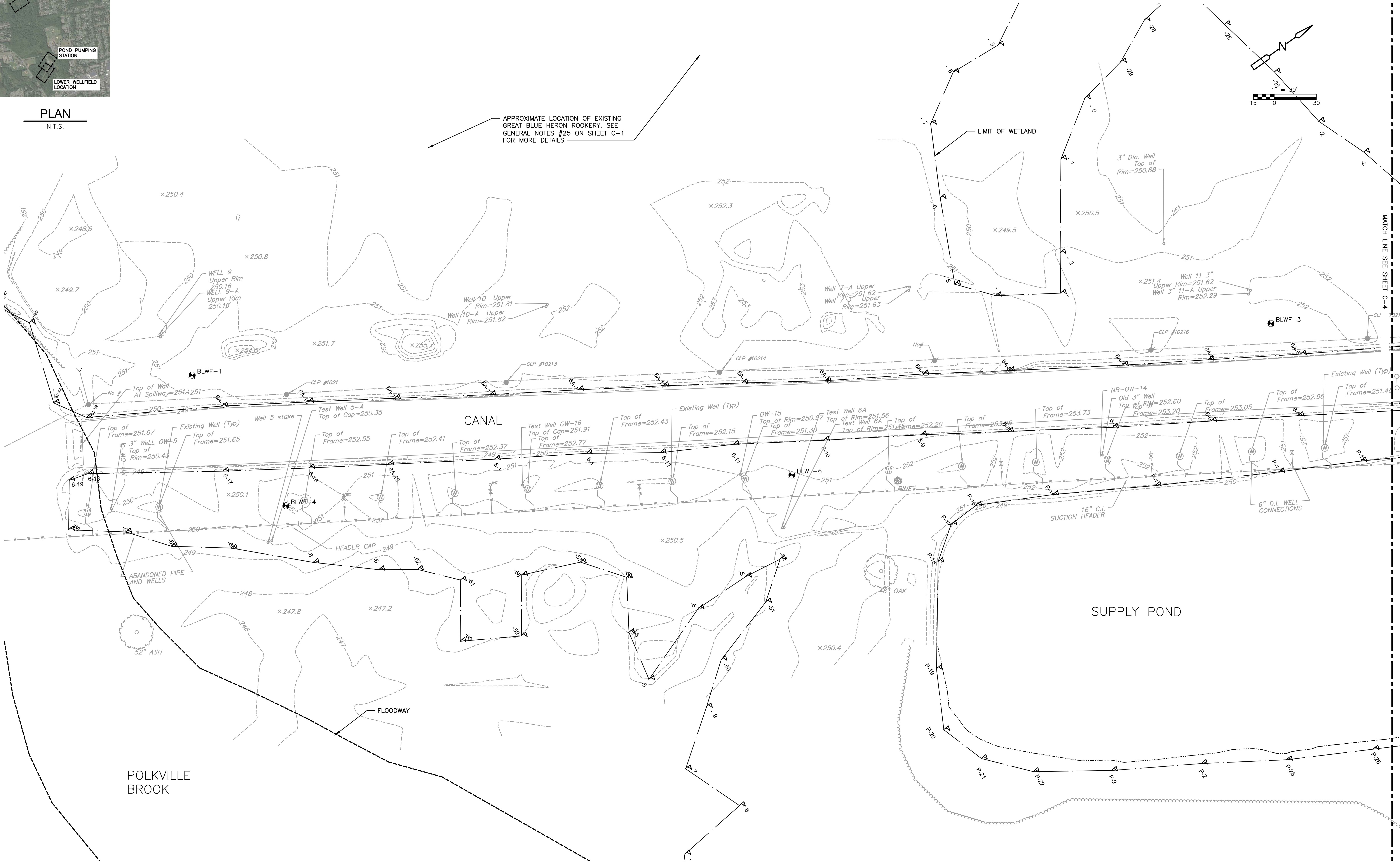
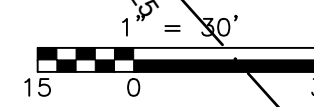
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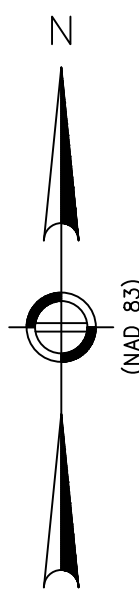
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Last saved by: BRONENKANTUL Time: 12/15/2022 9:51:02 AM
C:\Users\Bronenkantul\ACDData\CDM Smith Inc\10739-264571 - New Britain CT White Bridge Well Fields and PS\Project Files\02 Civil (C)\10 CADD\CO05GDPL.dwg
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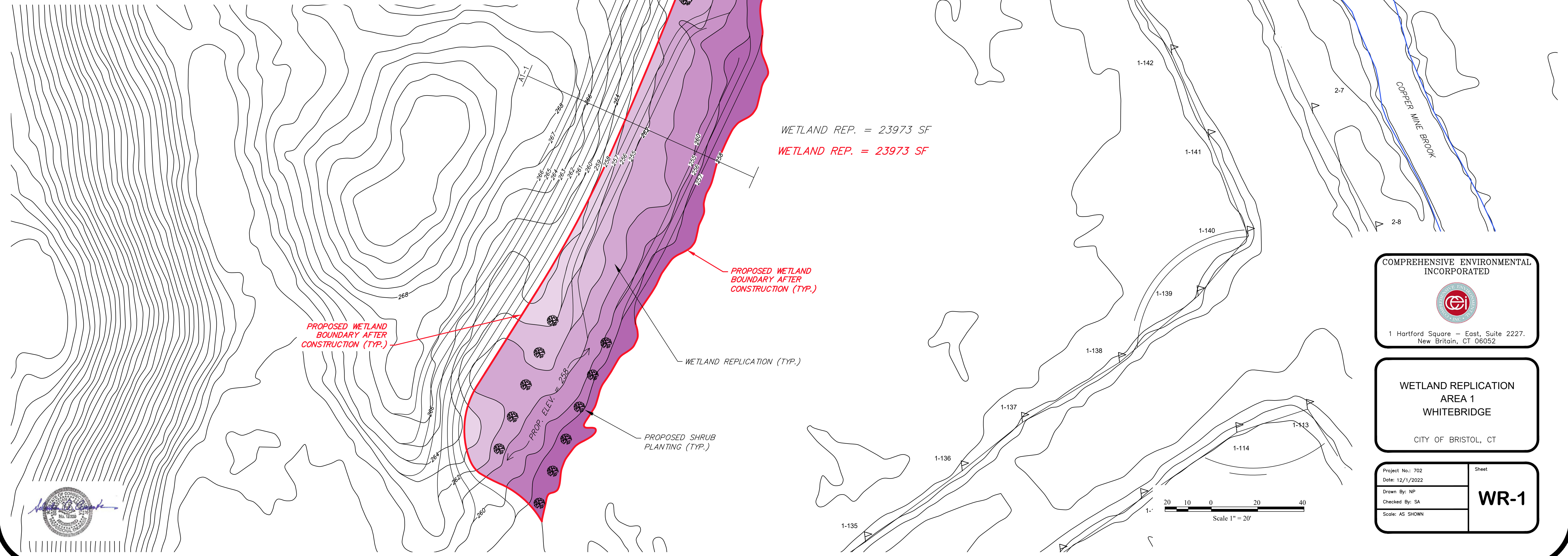
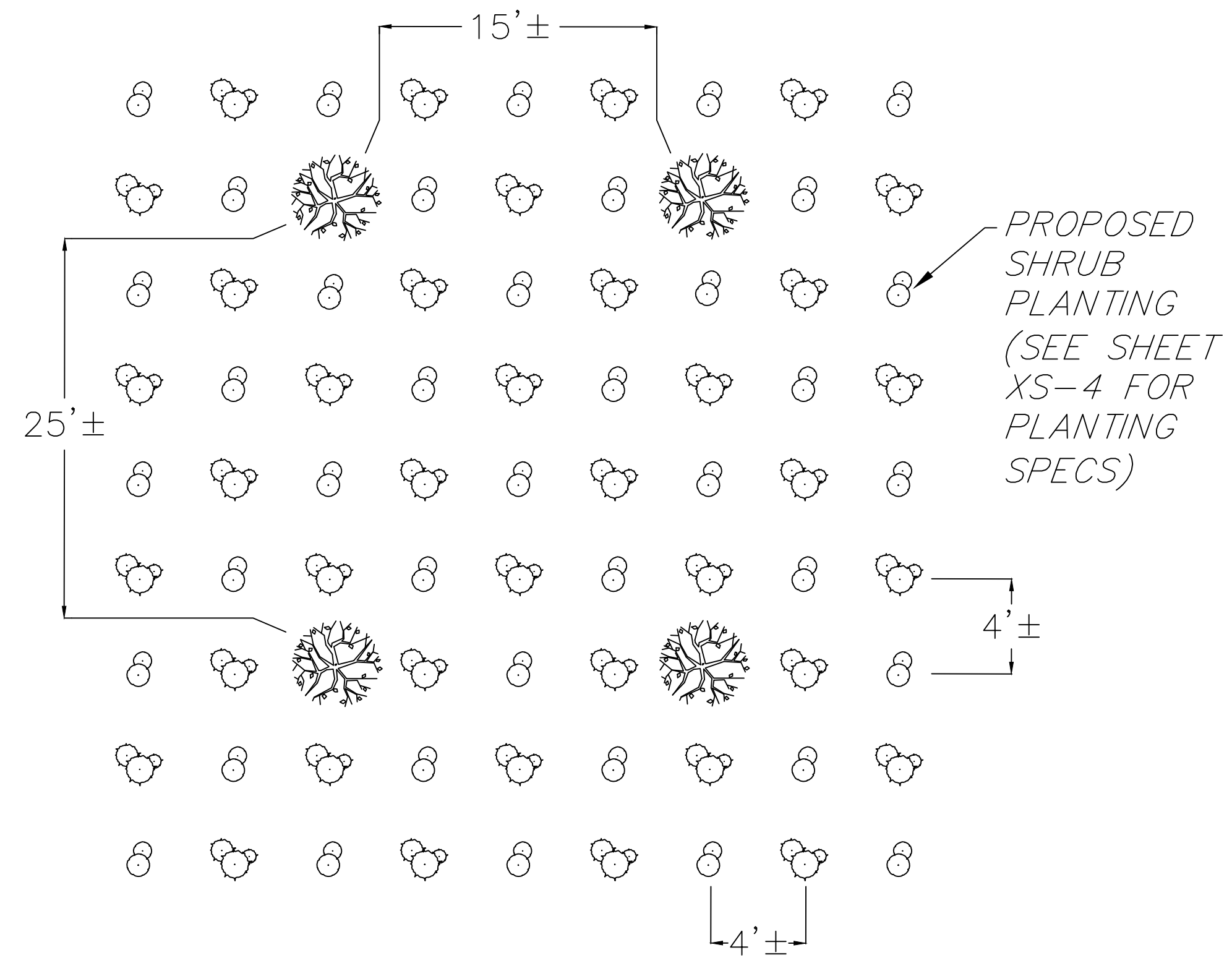
PLAN
N.T.S.

APPROXIMATE LOCATION OF EXISTING
GREAT BLUE HERON ROOKERY. SEE
GENERAL NOTES #25 ON SHEET C-1
FOR MORE DETAILS





PLANTING PLAN



COMPREHENSIVE ENVIRONMENTAL
INCORPORATED

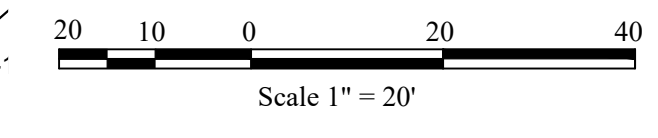


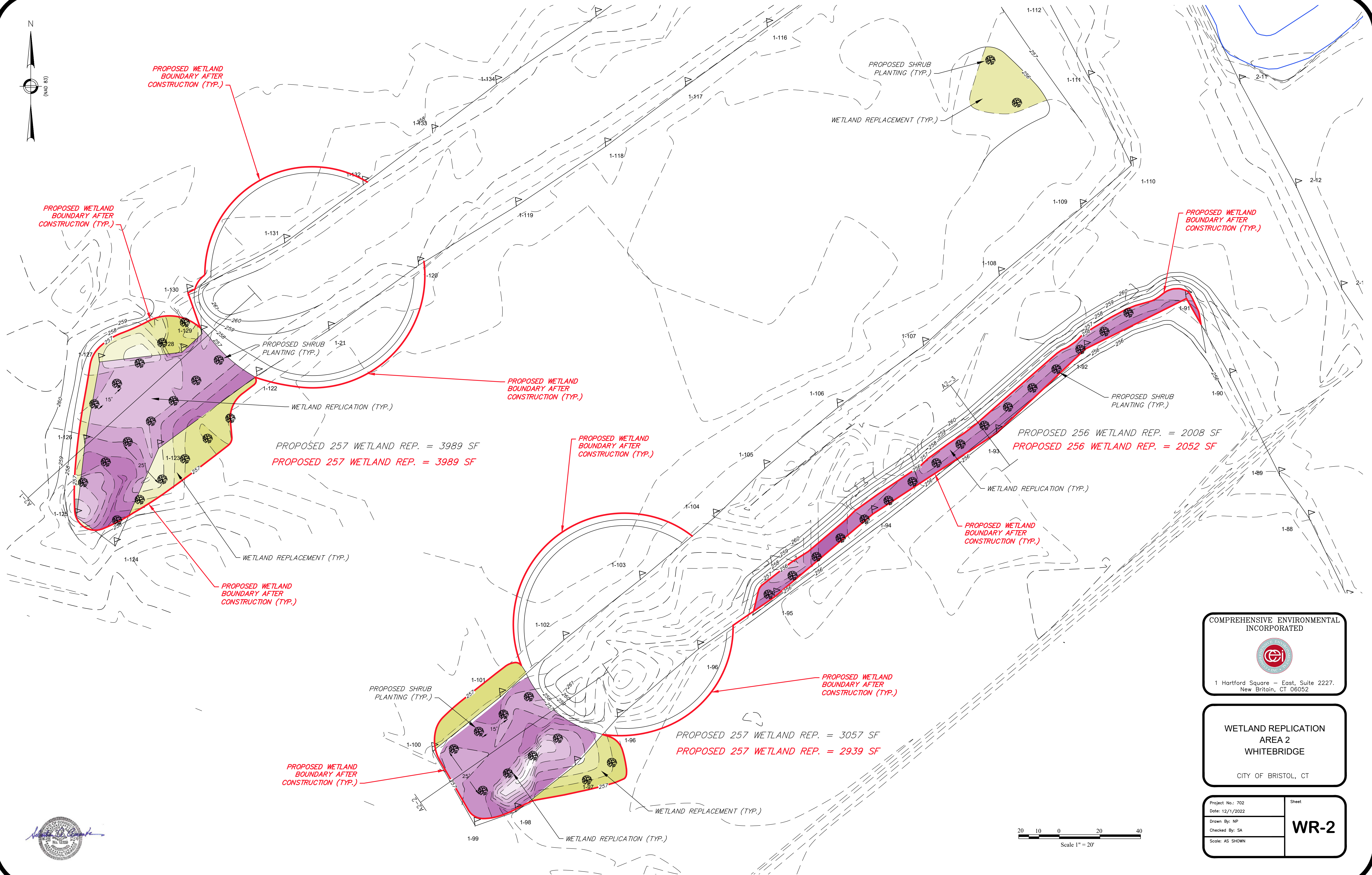
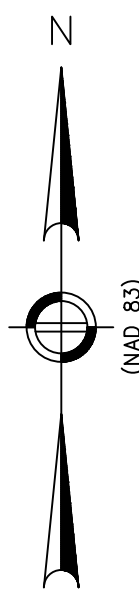
1 Hartford Square - East, Suite 2227.
New Britain, CT 06052

WETLAND REPLICATION
AREA 1
WHITEBRIDGE

CITY OF BRISTOL, CT

Project No.: 702	Sheet
Date: 12/1/2022	WR-1
Drawn By: NP	
Checked By: SA	
Scale: AS SHOWN	





COMPREHENSIVE ENVIRONMENTAL
INCORPORATED

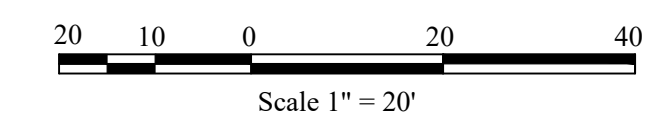


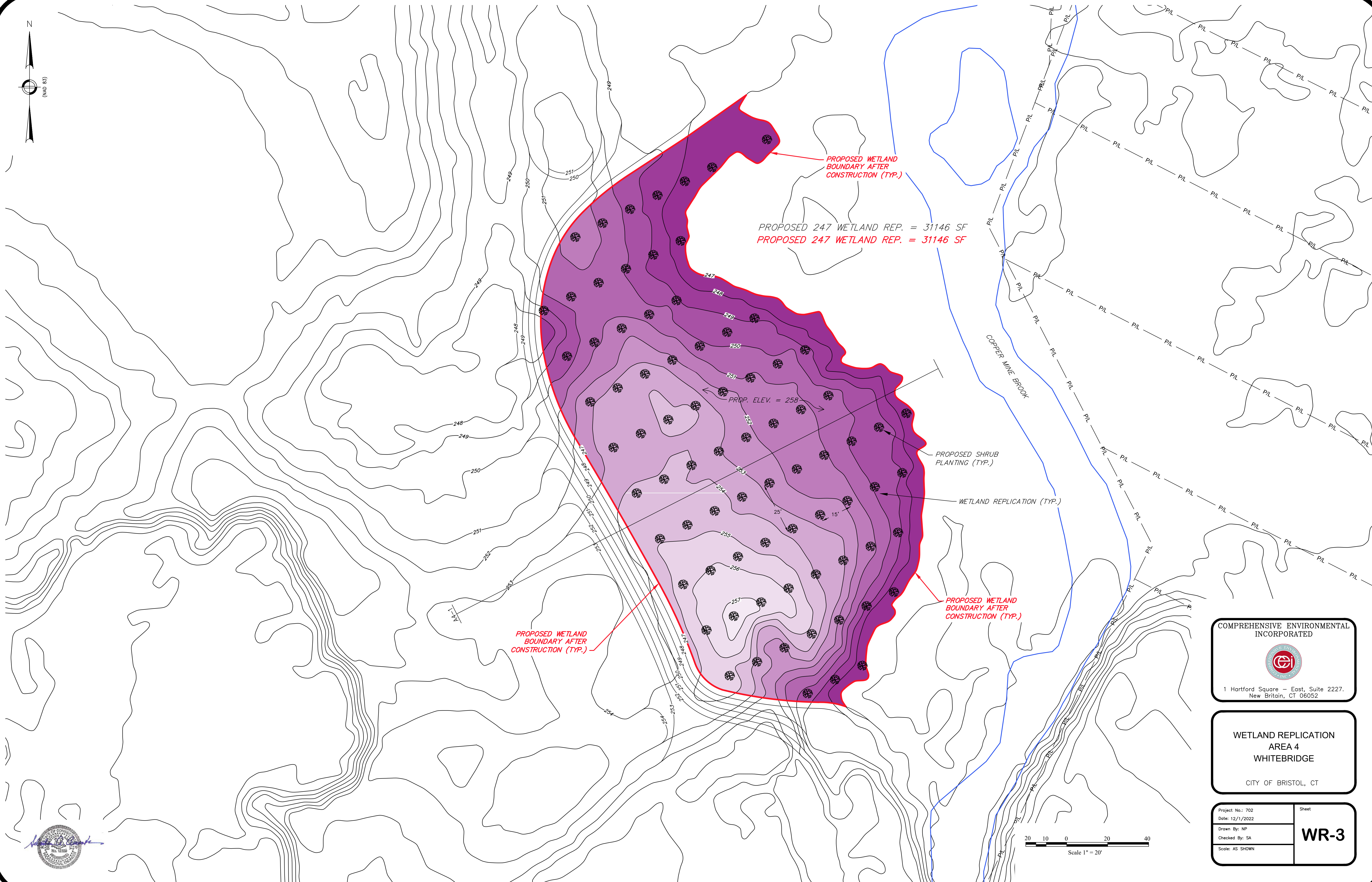
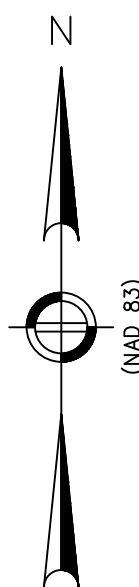
1 Hartford Square — East, Suite 2227.
New Britain, CT 06052

WETLAND REPLICATION
AREA 2
WHITEBRIDGE

CITY OF BRISTOL, CT

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Checked By: SA	
Scale: AS SHOWN	





COMPREHENSIVE ENVIRONMENTAL
INCORPORATED



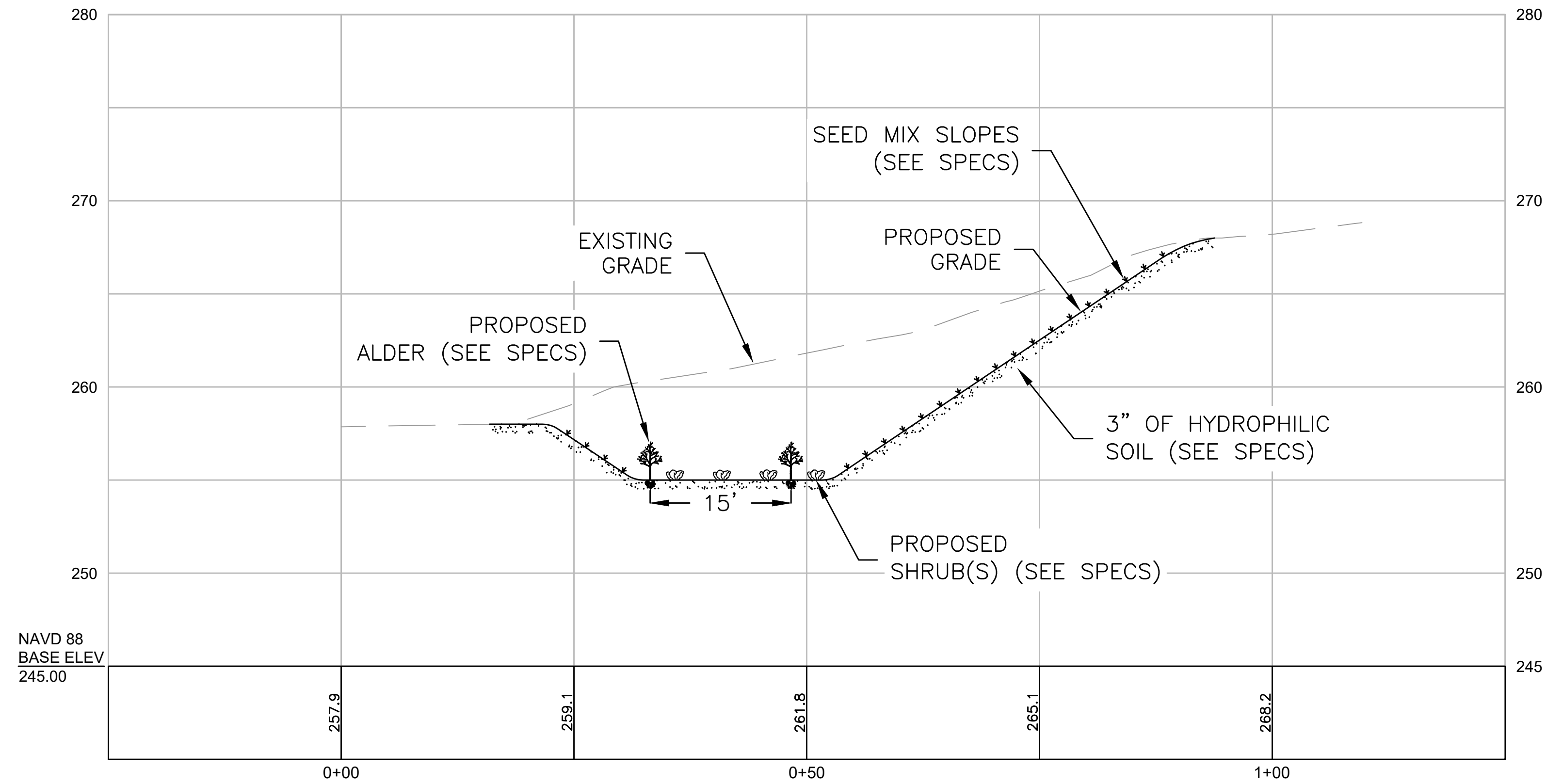
1 Hartford Square - East, Suite 2227.
New Britain, CT 06052

WETLAND REPLICATION
AREA 4
WHITEBRIDGE

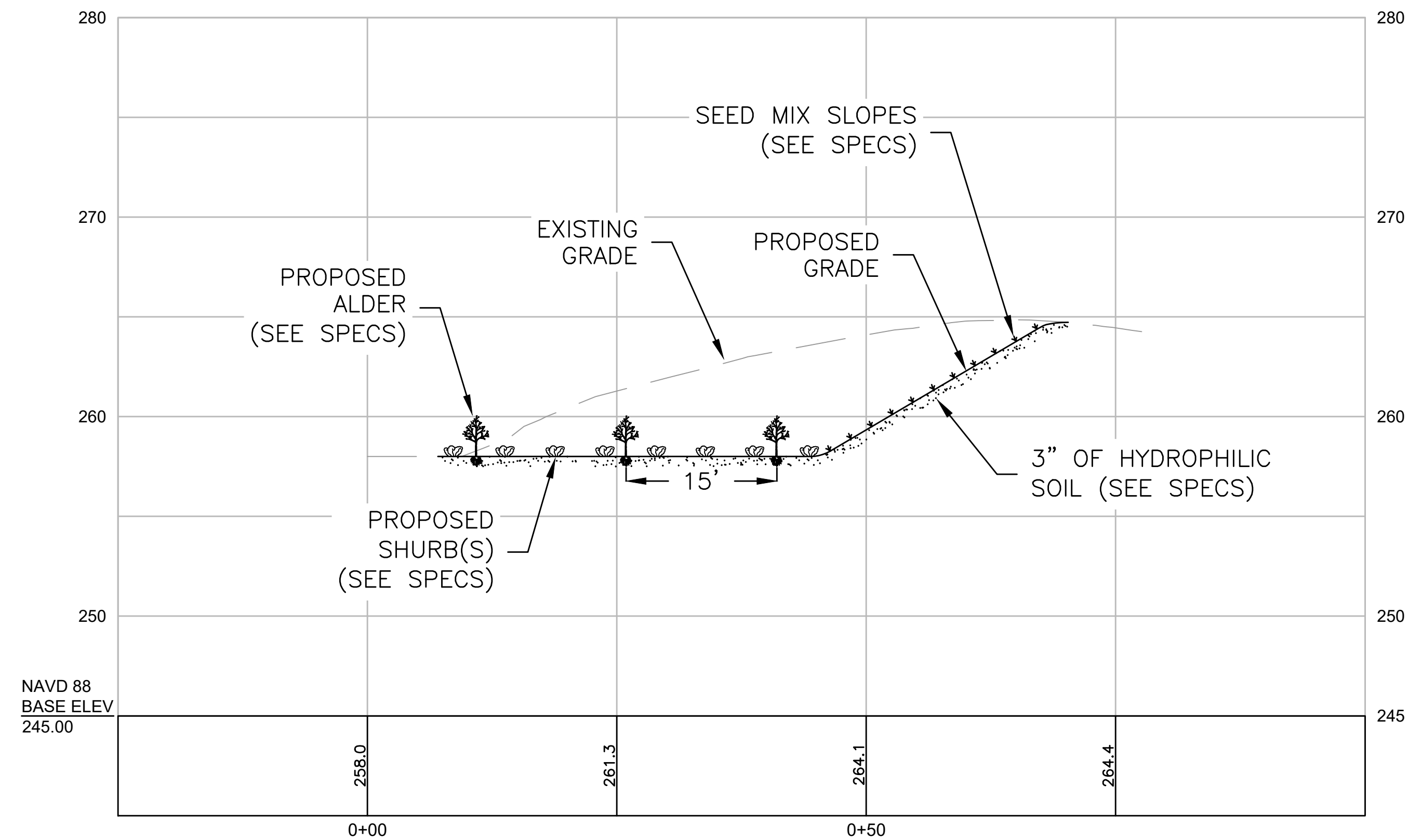
CITY OF BRISTOL, CT

Project No.: 702	Sheet
Date: 12/1/2022	WR-3
Drawn By: NP	
Checked By: SA	
Scale: AS SHOWN	





A1-1
SHEET WR-1
SCALE: 1' = 10'



A1-2
SHEET WR-1
SCALE: 1' = 10'

NOTE: ALL SLOPES SHALL BE SEEDED WITH THE 'NEW ENGLAND EROSION CONTROL/RESTORATION MIX', AS DESCRIBED ON SHEET XS-4.

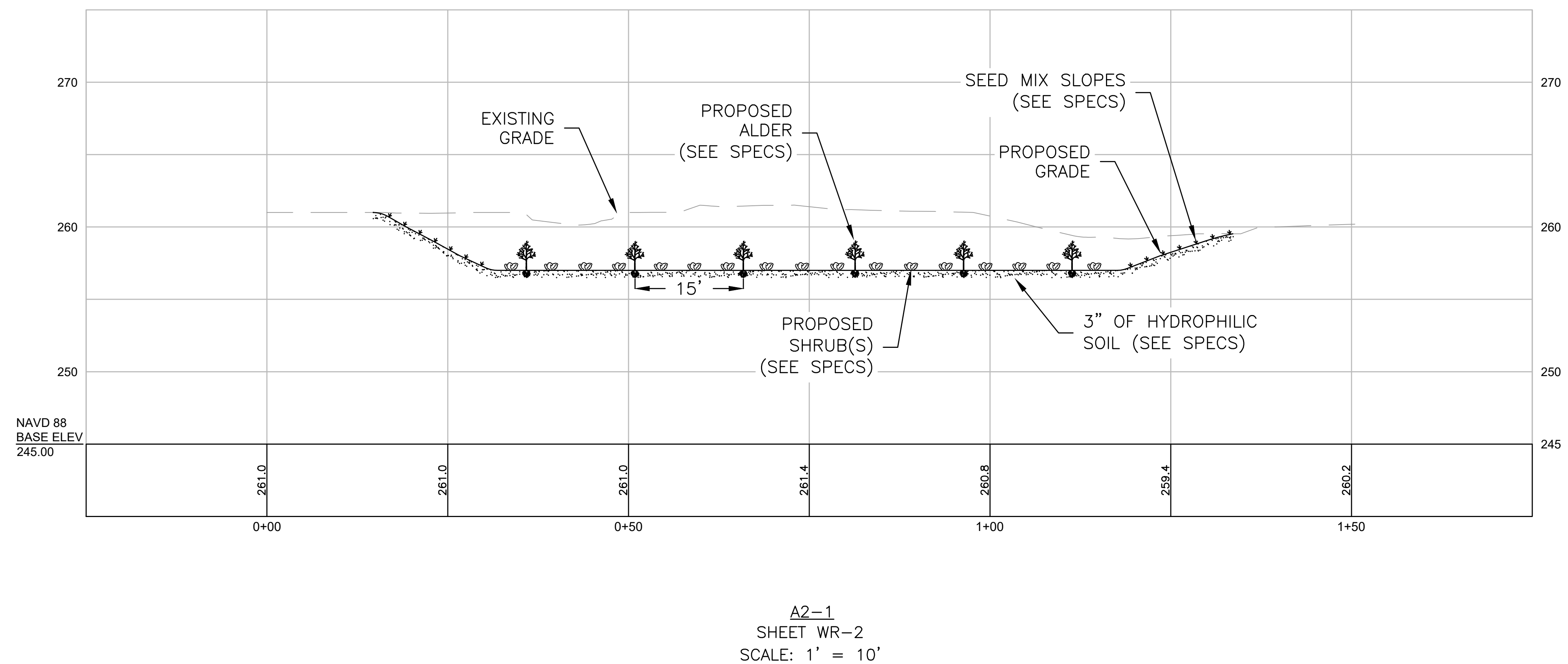
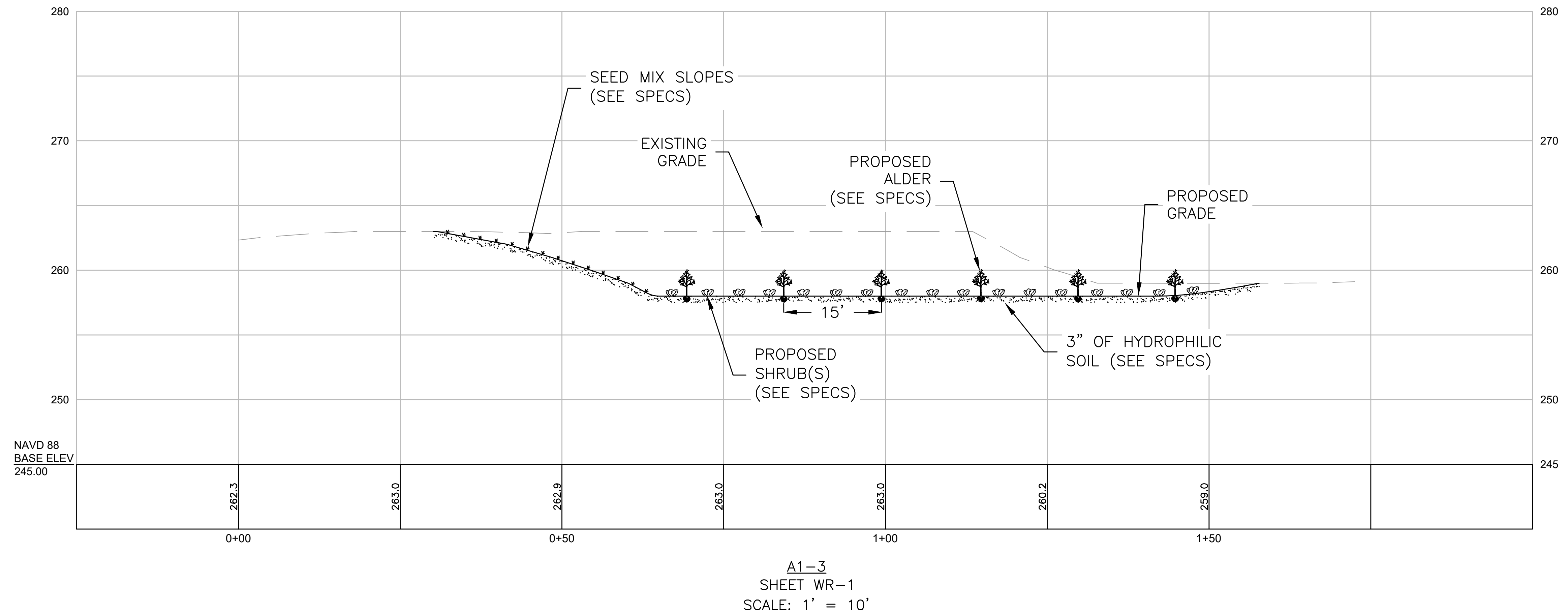


CROSS-SECTIONS
WHITEBRIDGE

CITY OF BRISTOL, CT

Project No.: 702	Sheet
Date: 12/1/2022	
Drawn By: NP	
Checked By: SA	
Scale: AS SHOWN	XS-1





NOTE: ALL SLOPES SHALL BE SEEDED WITH THE 'NEW ENGLAND EROSION CONTROL/RESTORATION MIX', AS DESCRIBED ON SHEET XS-4.

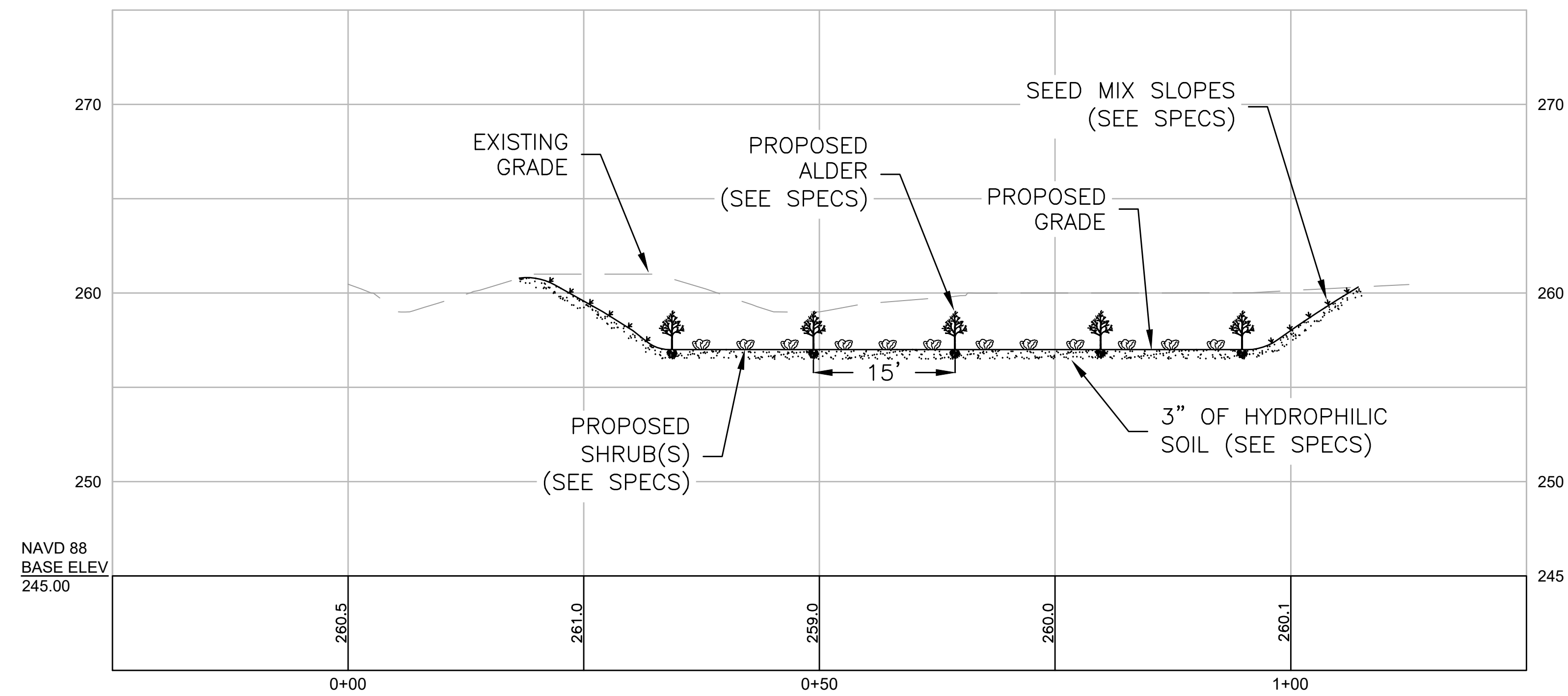


CROSS-SECTIONS
WHITEBRIDGE

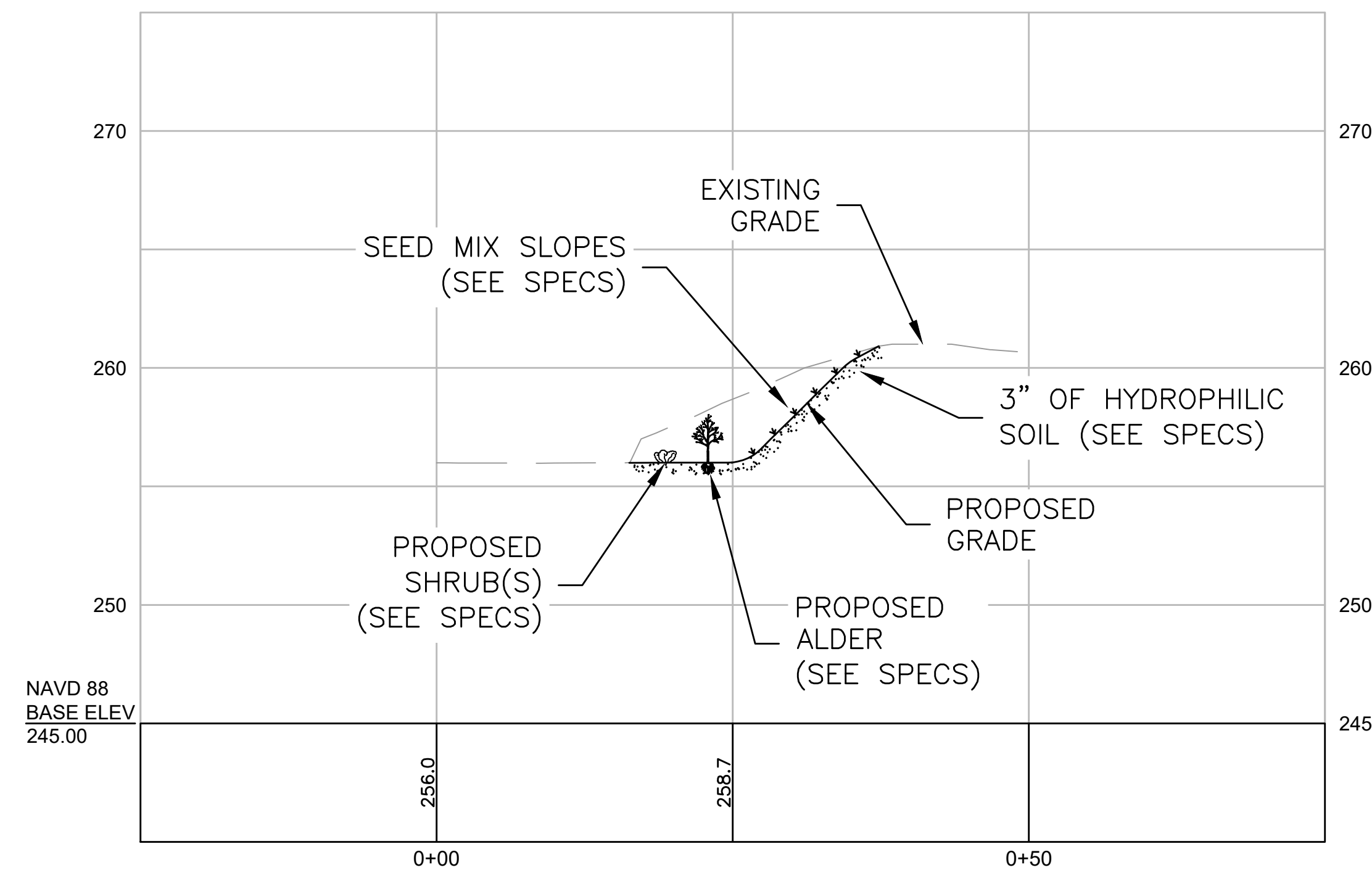
CITY OF BRISTOL, CT

Project No.: 702	Sheet
Date: 12/1/2022	
Drawn By: NP	
Checked By: SA	
Scale: AS SHOWN	XS-2





A2-2
SHEET WR-2
SCALE: 1' = 10'



A2-3
SHEET WR-2
SCALE: 1' = 10'

NOTE: ALL SLOPES SHALL BE SEEDED WITH THE 'NEW ENGLAND EROSION CONTROL/RESTORATION MIX', AS DESCRIBED ON SHEET XS-4.



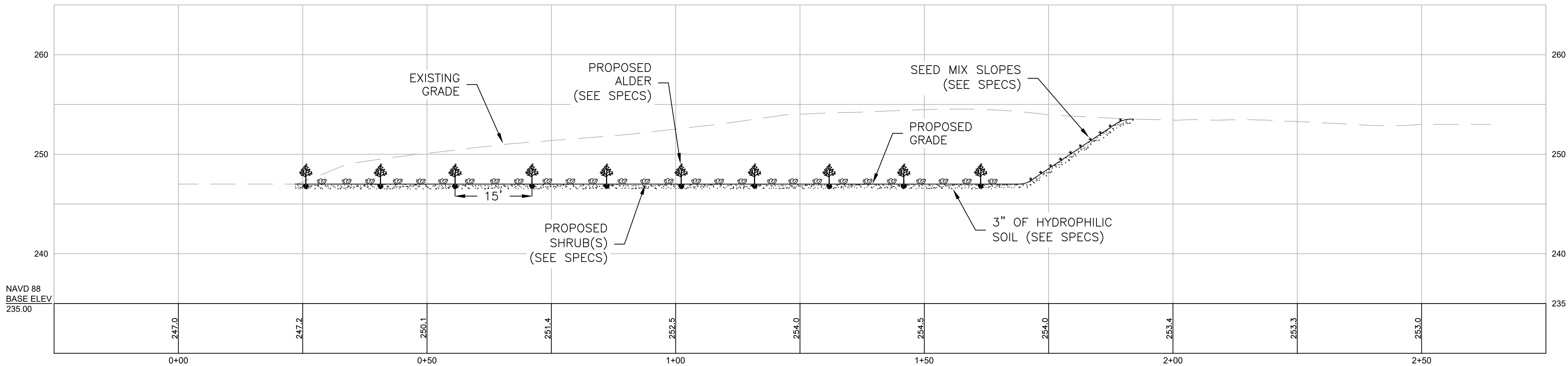
CROSS-SECTIONS
WHITEBRIDGE

CITY OF BRISTOL, CT

Project No.: 702	Sheet
Date: 12/1/2022	
Drawn By: NP	
Checked By: SA	
Scale: AS SHOWN	

XS-3





A4-1
SHEET WR-4
SCALE: 1' = 10'

THE FOLLOWING LIST OF SHRUB AND HERBACEOUS PLANTS IS PROPOSED FOR THE RESTORATION OF DISTURBED AREAS ON THE SUBJECT PROJECT. THIS LIST CONTAINS A VARIETY OF SPECIES SO THAT THE APPLICANT HAS SOME FLEXIBILITY WHEN PURCHASING THEM. ANY PROPOSED CHANGES TO THE PLANT LIST SHOULD BE APPROVED BY THE TOWN.

RECOMMENDED SHRUB PLANT LIST

THE SHRUBS SHOULD BE CONTAINER PLANTS (NO BAREROOT PLANTS), APPROXIMATELY 3 TO 4 FEET TALL, THAT INCLUDE A MIX OF THESE SPECIES, TY AFTER THE FILL MATERIAL IS REMOVED. THE SHRUBS SHOULD BE INSTALLED IN CLUMPS OF THREE (3) TO FIVE (5) PLANTS TO CREATE A "THICKET" TYPE OF WILDLIFE HABITAT. SPACING BETWEEN THE ROOT BALLS CAN BE APPROXIMATELY 4+/- FEET APART AT THE LOCATIONS IDENTIFIED ON THE ATTACHED LAYOUT PLAN.

ALNUS INCANA (RUGOSA) – SPECKLED ALDER

A LARGE SHRUB (15') THAT GROWS ALONG STREAM EDGES AND SWAMPS. HAS ABILITY TO FIX NITROGEN. CLUMPS OF ALDER FORM EXCELLENT WILDLIFE COVER. GOOD FOR BANK STABILIZATION. ONE OF THE MOST ADAPTABLE SHRUBS FOR DIFFICULT SITES. GOOD FOR SHORES, WET MEADOWS AND WETLAND FORESTS. RECOMMENDED PLANT SIZE 3 TO 4 FEET.

ARONIA ARBUTIFOLIA/PHOTINIA PYRIFOLIA – RED CHOKEBERRY

A MEDIUM-SIZED SHRUB (6-10') WITH SMALL WHITE TO PINKISH FLOWERS IN THE SPRING. PERSISTENT RED BERRIES ARE EATEN BY WILDLIFE IN WINTER. VERY SOIL ADAPTABLE. GOOD FOR SHORES, WET MEADOWS AND WETLAND FORESTS. RECOMMENDED PLANT SIZE 3 TO 4 FEET.

CORNUS AMOMUM – SILKY DOGWOOD

A FAST-GROWING, CLUMP-FORMING, MEDIUM SHRUB (5-8'). REDDISH WINTER COLOR ON YOUNG STEMS. BLUE FRUIT IN THE FALL EATEN BY MANY ANIMALS. PROVIDES NESTING AND COVER FOR BIRDS. GOOD FOR SHORES, WET MEADOWS AND WETLAND FORESTS. RECOMMENDED PLANT SIZE 3 TO 4 FEET.

CORNUS SERICEA – RED-OSIER DOGWOOD

FORMERLY C. STOLONIFERA, THIS RAPIDLY GROWING, SPREADING SHRUB REACHES 6-10'. SHOWY RED STEMS IN WINTER. BERRIES AND TWIGS PROVIDE FOOD FOR A WIDE VARIETY OF WILDLIFE. GOOD FOR STREAM BANK STABILIZATION. RECOMMENDED PLANT SIZE 3 TO 4 FEET.

ILEX VERTICILLATA – WINTERBERRY HOLLY

MEDIUM TO TALL SHRUB FOUND IN A VARIETY OF WETLANDS. SHADE TO FULL SUN. BRIGHT RED BERRIES PERSIST INTO WINTER AND ARE IMPORTANT WILDLIFE FOOD. GOOD FOR SHORES, WET OPEN AREAS AND WETLAND FORESTS. RECOMMENDED PLANT SIZE 3 TO 4 FEET.

LINDERA BENZOIN – COMMON SPICEBUSH

MEDIUM SHRUB FOUND IN SEASONAL WETLANDS AND MOIST WOODS. RED FRUIT IMPORTANT FOOD SOURCE FOR MANY BIRDS. THE PRIMARY FOOD OF LARVAL SPICEBUSH SWALLOWTAIL BUTTERFLIES. FALL FOLIAGE. GOOD FOR SHORES AND WET OPEN AREAS. RECOMMENDED PLANT SIZE 3 TO 4 FEET.

NEMOPANTHUS (ILEX) MUCRONATUS – MOUNTAIN HOLLY

A MEDIUM-SIZED SHRUB (5-10'). VELVETY RED BERRIES PROVIDE EXCELLENT WILDLIFE FOOD. FRUIT RIPENS JULY-AUGUST AND MAY PERSIST UNTIL OCTOBER. GOOD FOR SHORES AND WETLAND FORESTS. RECOMMENDED PLANT SIZE 3 TO 4 FEET.

RESTORATION SEED MIXES

THE FOLLOWING SEED MIXES SHOULD BE PLANTED ON THE OPEN AREAS BETWEEN THE SHRUB THICKETS AFTER ALL THE SHRUBS HAVE BEEN INSTALLED.

NEW ENGLAND WETMIX (WETLAND SEED MIX)

THE NEW ENGLAND WETMIX (WETLAND SEED MIX) CONTAINS A WIDE VARIETY OF NATIVE SEEDS WHICH ARE SUITABLE FOR MOST WETLAND RESTORATION SITES THAT ARE NOT PERMANENTLY FLOODED. ALL SPECIES ARE BEST SUITED TO MOIST GROUND AS FOUND IN MOST WET MEADOWS, SCRUB SHRUB, OR FORESTED WETLAND RESTORATION AREAS. THE MIX IS WELL SUITED FOR DETENTION BASIN BORDERS AND THE BOTTOM OF DETENTION BASINS NOT FREQUENTLY UNDER STANDING WATER. THE SEEDS WILL NOT GERMINATE UNDER INUNDATED CONDITIONS. IF PLANTED DURING THE FALL MONTHS, THE SEED MIX WILL GERMINATE THE FOLLOWING SPRING. DURING THE FIRST SEASON OF GROWTH, SEVERAL SPECIES WILL PRODUCE SEEDS WHILE OTHER SPECIES WILL PRODUCE SEEDS AFTER THE SECOND GROWING SEASON. NOT ALL SPECIES WILL GROW IN ALL WETLAND SITUATIONS. THIS MIX IS COMPRISED OF THE WETLAND SPECIES MOST LIKELY TO GROW IN CREATED/RESTORED WETLANDS. PLANT SPECIES CONTAINED IN THIS MIX INCLUDE THE FOLLOWING:

LURID SEDGE, (CAREX LURIDA), BLUNT BROOM SEDGE, (CAREX SCOPARIA), BLUE VERVAIN, (VERBENA HASTATA), HOP SEDGE, (CAREX LUPULINA), GREEN BULRUSH, (SCIRPUS ATROVIRENS), REDTOP PANIC GRASS, (PANICUM RIGIDULUM), TUFTED HAIRGRASS, (DESCHAMPSIA CESPITOSA), TICKSEED SUNFLOWER/BUR MARIGOLD, (BIDENS ARISTOSA), CREEPING SPIKE RUSH, (ELEOCHARIS PALUSTRIS), SOFT RUSH, (JUNCUS EFFUSUS), FRINGED SEDGE, (CAREX CRINITA), SQUARE STEMMED MONKEY FLOWER, (MIMULUS RINGENS), SWAMP ASTER, (ASTER PUNICEUS), BONESET, (EUPATORIUM PERFOLIATUM), RATTLESNAKE GRASS, (GLYCERIA CANADENSIS), SWAMP MILKWEED, (ASCLEPIAS INCARNATA), COMMON SNEEZEWEED, (HELENIUM AUTUMNALE), DITCH STONECROP, (PENTHURUM SEDOIDES).

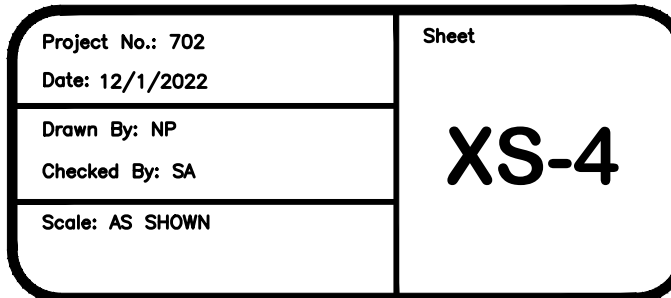
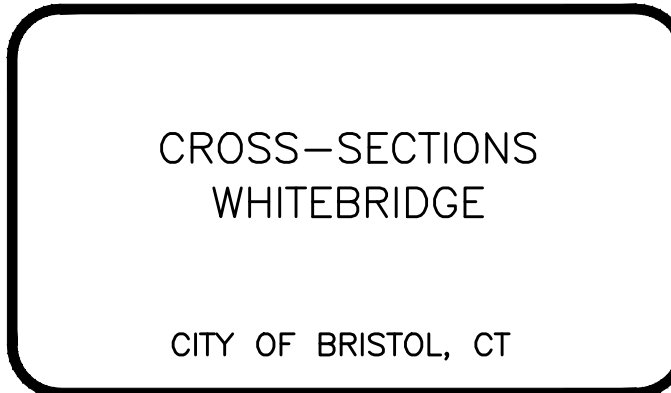
NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR THE DETENTION BASINS AND MOIST SITES

THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES CONTAINS A SELECTION OF NATIVE GRASSES AND WILDFLOWERS DESIGNED TO COLONIZE GENERALLY MOIST, RECENTLY DISTURBED SITES WHERE QUICK GROWTH OF VEGETATION IS DESIRED TO STABILIZE THE SOIL SURFACE. IT IS AN APPROPRIATE SEED MIX FOR ECOLOGICALLY SENSITIVE RESTORATIONS THAT REQUIRE STABILIZATION AS WELL AS LONG-TERM ESTABLISHMENT OF NATIVE VEGETATION. THIS MIX IS PARTICULARLY APPROPRIATE FOR DETENTION BASINS THAT DO NOT HOLD STANDING WATER. MANY OF THE PLANTS IN THIS MIX CAN TOLERATE INFREQUENT INUNDATION, BUT NOT CONSTANT FLOODING. THE MIX MAY BE APPLIED BY HAND, BY MECHANICAL SPREADER, OR BY HYDRO-SEEDER. AFTER SOWING THE SEED, LIGHTLY RAKE, ROLL OR CULTIPACK INTO THE SOIL TO INSURE GOOD SEED-TO-SOIL CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. SOWING SEED IN THE LATE FALL AND/OR WINTER DORMANT SEEDING REQUIRES AN INCREASE IN THE APPLICATION RATE. A LIGHT MULCHING OF CLEAN, WEED-FREE STRAW IS RECOMMENDED. PLANT SPECIES CONTAINED IN THIS MIX INCLUDE THE FOLLOWING:

VIRGINIA WILD RYE, (ELYMUS VIRGINICUS), CREEPING RED FESCUE, (FESTUCA RUBRA), LITTLE BLUESTEM, (SCHIZACHYRIUM SCOPARIUM), BIG BLUESTEM, (ANDROPOGON GERARDII), FOX SEDGE, (CAREX VULPINOIDEA), SWITCH GRASS, (PANICUM VIRGATUM), ROUGH BENTGRASS, (AGROSTIS SCABRA), NEW ENGLAND ASTER, (ASTER NOVAE-ANGLIAE), BONESET, (EUPATORIUM PERFOLIATUM), GRASS LEAVED GOLDENROD, (EUTHAMIA GRAMINIFOLIA), GREEN BULRUSH, (SCIRPUS ATROVIRENS), BLUE VERVAIN, (VERBENA HASTATA), SOFT RUSH, (JUNCUS EFFUSUS), WOOL GRASS, (SCIRPUS CYPERINUS).



NOTE: ALL SLOPES SHALL BE SEEDED WITH THE 'NEW ENGLAND EROSION CONTROL/RESTORATION MIX'



ATTACHMENT 5

SITE SURVEY

	CHAIN LINK FENCE
	EDGE OF WETLANDS
	EDGE OF WATER
	OVERHEAD WIRES
	DRAINAGE PIPE
	UTILITY POLE
	WATER GATE/VALVE
	SIGN
	DRAINAGE MANHOLE
	SANITARY MANHOLE
	BUSH
	DECIDUOUS TREE
	BOLLARD
	SPOTGRADE

1. THIS SURVEY HAS BEEN PREPARED BY FREEMAN COMPANIES, LLC, IN ACCORDANCE WITH THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTIONS 20-300b-1 THRU 20-300b-20 AND THE "STANDARDS FOR SURVEYING AND MAPS IN THE STATE OF CONNECTICUT" ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996

1.1. THIS PLAN CONFORMS TO HORIZONTAL ACCURACY CLASS A-2 AND TOPOGRAPHIC ACCURACY CLASS 1-2.

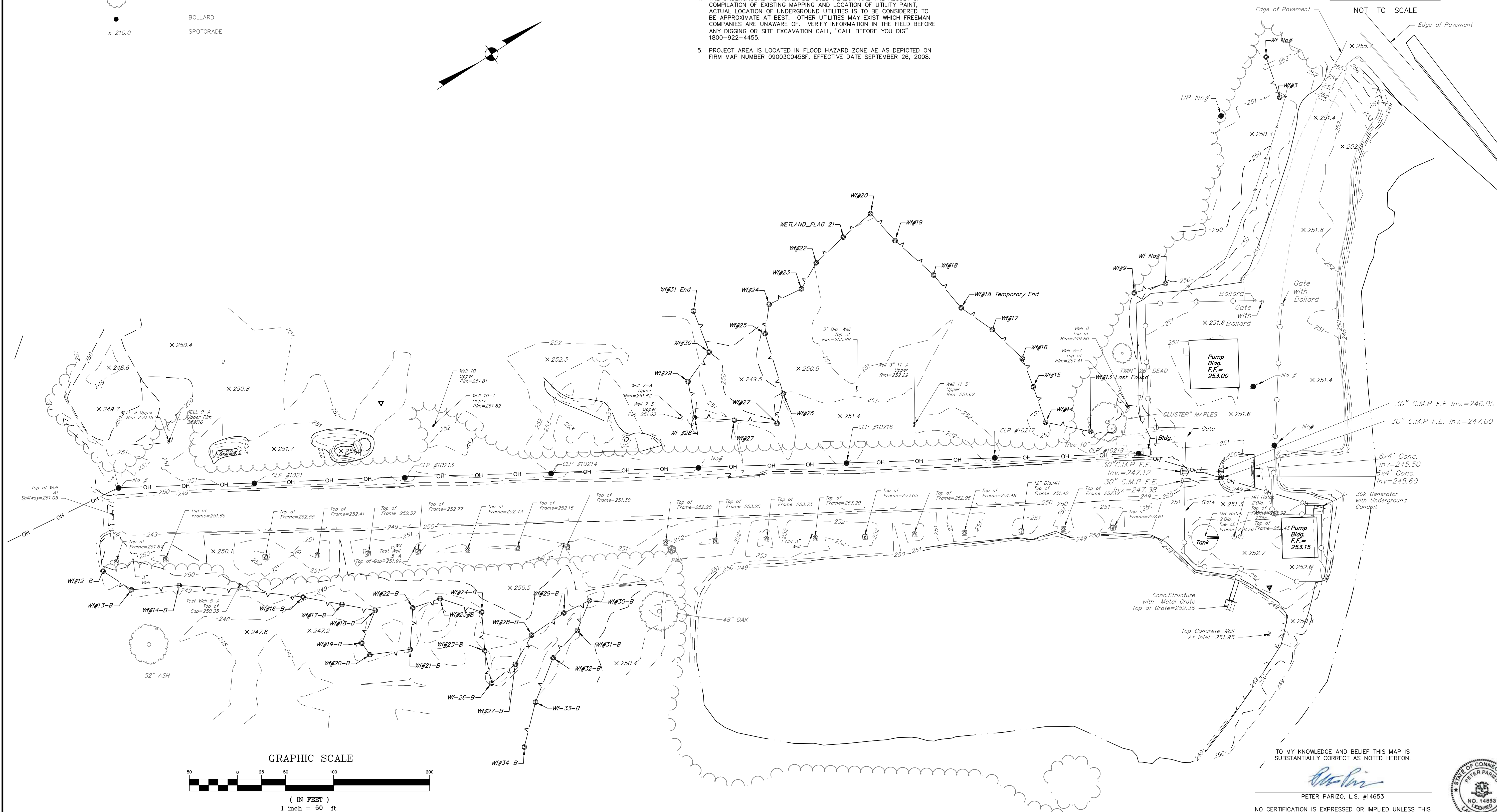
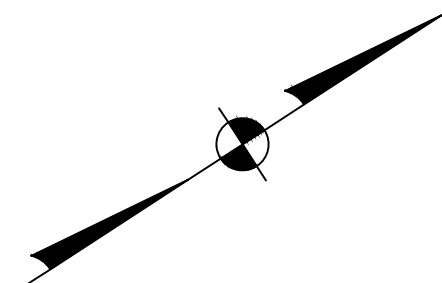
1.2. THE TYPE OF SURVEY PERFORMED IS A TOPOGRAPHIC SURVEY.

2. NORTH ARROW AND BEARINGS REFER TO THE CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD83) AND IS BASED UPON GPS OBSERVATIONS PERFORMED BY FREEMAN COMPANIES).

3. ELEVATIONS REFER TO NAVD88 AND ARE BASED ON GPS OBSERVATIONS PERFORMED BY FREEMAN COMPANIES).

4. THE UNDERGROUND FEATURES DEPICTED HEREON ARE THE RESULT OF COMPIATION OF EXISTING MAPING AND LOCATION OF UTILITY PAINT, RECORDATION AND RECORDS. THE UTILITIES IS TO BE CONSIDERED TO BE APPROXIMATE AT BEST. OTHER UTILITIES MAY EXIST WHICH FREEMAN COMPANIES ARE UNAWARE OF. VERIFY INFORMATION IN THE FIELD BEFORE ANY BOREHOLE OR SITE EXCAVATION CALL, "CALL BEFORE YOU DIG" 1800-922-4455.

5. PROJECT AREA IS LOCATED IN FLOOD HAZARD ZONE AE AS DEPICTED ON FIRM MAP NUMBER 0903C0458F, EFFECTIVE DATE SEPTEMBER 26, 2008.



TO MY KNOWLEDGE AND BELIEF THIS MAP IS
SUBSTANTIALLY CORRECT AS NOTED HEREON.

PETER PARIZO, L.S. #14653

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS
MAP BEARS THE ORIGINAL SIGNATURE AND EMBOSSED
SEAL OF THE ABOVE NAMED LAND SURVEYOR.

[illegible]

FREEMAN
COMPANIES
LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES
DBE | SBE | MBE | SBA (8)(a) CERTIFIED
LAND DEVELOPMENT
ENGINEERING DESIGN
CONSTRUCTION SERVICES

FREEMAN COMPANIES, LLC
36 JOHN STREET
HARTFORD, CT 06106
WWW.FREEMANCOS.COM
(860)251-9550
FAX:(860)986-7161

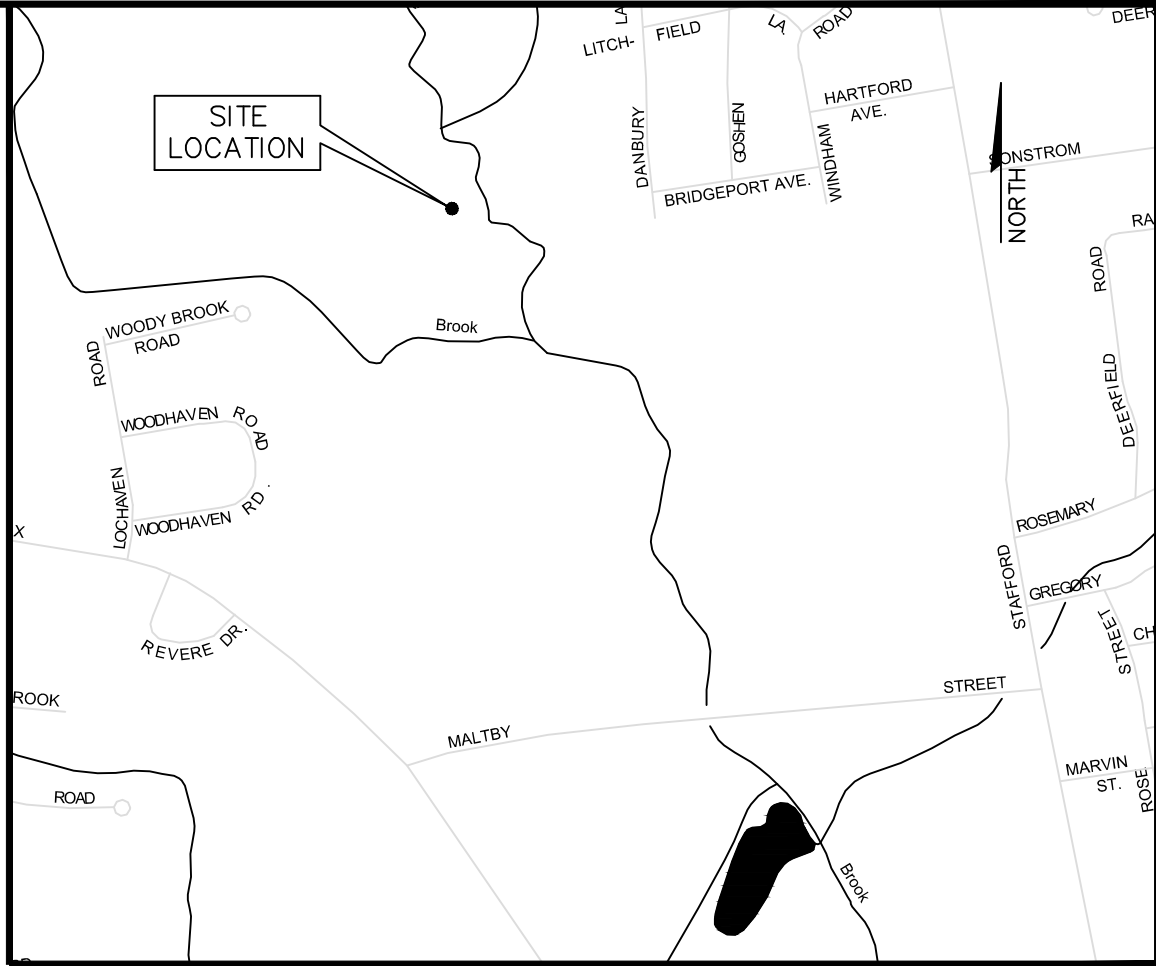
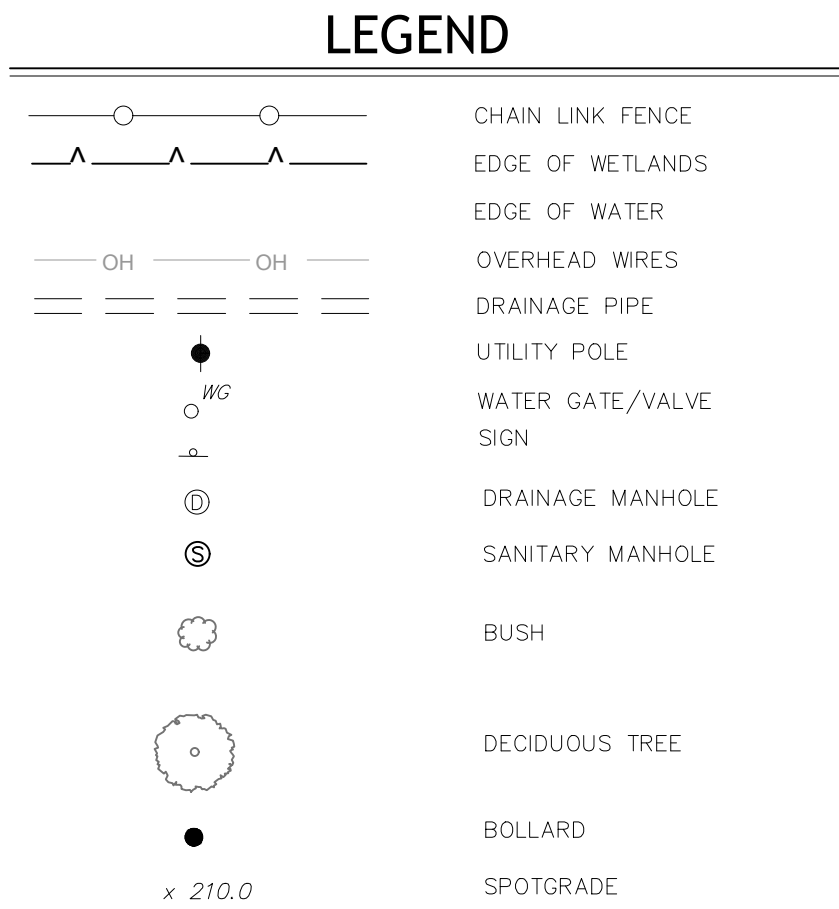
LAND OF
NEW BRITAIN WATER DEPARTMENT
LOWER WELL FIELD
MIX STREET
BRISTOL, CONNECTICUT

SURVEYED: R.A.C
DRAFTED: R.L.C
APPROVED: L.K
SCALE: 1" = 50'
PROJECT NO.: 2019-0901
DATE: 08/20/2019
CAD FILE: 2018-0901-SRV

EXISTING
CONDITIONS
SURVEY

SHEET NUMBER:

EX-1



GENERAL NOTES

1. THIS SURVEY HAS BEEN PREPARED BY FREEMAN COMPANIES, LLC, IN ACCORDANCE WITH THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTION 20-302a OF THE CONN. GEN. STAT. AND THE STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.
- 1.1. THIS PLAN CONFORMS TO HORIZONTAL ACCURACY CLASS A-2 AND TOPOGRAPHIC ACCURACY CLASS T-2.
- 1.2. THE TYPE OF SURVEY PERFORMED IS A TOPOGRAPHIC SURVEY.
2. NORTH ARROW AND BEARINGS REFER TO THE CONNECTICUT STATE PLANE COORDINATE SYSTEM (NAD83) AND IS BASED UPON GPS OBSERVATIONS PERFORMED BY FREEMAN COMPANIES).
3. ELEVATIONS REFER TO NAVD83 AND ARE BASED ON GPS OBSERVATIONS PERFORMED BY FREEMAN COMPANIES).
4. THE UNDERGROUND FEATURES DEPICTED HEREON ARE THE RESULT OF COMPILATION OF EXISTING MAPPING AND LOCATION OF UTILITY PAINT, AND ARE NOT A REPRESENTATION OF THE UTILITIES TO BE CONSIDERED TO BE APPROXIMATE AT BEST. OTHER UTILITIES MAY EXIST WHICH FREEMAN COMPANIES ARE UNAWARE OF. VERIFY INFORMATION IN THE FIELD BEFORE ANY DIGGING OR SITE EXCAVATION CALL, "CALL BEFORE YOU DIG 1800-922-4455."
5. PROJECT AREA IS LOCATED IN FLOOD HAZARD ZONE AE AS DEPICTED ON FIRM MAP NUMBER 0903C0458F, EFFECTIVE DATE SEPTEMBER 26, 2009.

[illegible]

FREEMAN
COMPANIES
LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES
DBE | SBE | MBE | SBA (8)(a) CERTIFIED
LAND DEVELOPMENT
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FREEMAN COMPANIES, LLC
36 JOHN STREET
HARTFORD, CT 06106
WWW.FREEMANCOS.COM
(860)251-9550
FAX:(860)986-7161

LAND OF
NEW BRITAIN WATER DEPARTMENT
UPPER WELL FIELD
JEROME AVENUE
BRISTOL, CONNECTICUT

SURVEYED: R.A.C.
DRAFTED: R.L.C.
APPROVED: L.K.
SCALE: 1" = 50'
PROJECT NO.: 2019-0901
DATE: 08/20/2019
CAD FILE: 2018-0901-SRV

TITLE:
EXISTING
CONDITIONS
SURVEY

EX-1

TO MY KNOWLEDGE AND BELIEF THIS MAP IS
SUBSTANTIALLY CORRECT AS NOTED HEREON.

PETER PARIZO, L.S. #14653

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS
MAP BEARS THE ORIGINAL SIGNATURE AND EMBOSSED
SEAL OF THE ABOVE NAMED LAND SURVEYOR.



Link to Soil Scientist Report

<https://www.bristolct.gov/DocumentCenter/View/45995/Soil-Scientist-Report-Extracted-2019>

ATTACHMENT 6
SOIL SCIENTIST
REPORT

ATTACHMENT 7

CITY OF BRISTOL GIS WETLAND BOUNDARY

A map of the Lower Wellfield area. The wellfield is indicated by a red arrow pointing to a green hatched area. Surrounding streets include Woodhaven Road, Revere Drive, Edgewood School Access, Maltby Street, Mix Street, Barbara Road, Vance Drive, Coventry Road, Vincent Road, Tolland Road, Dorothy Road, John Avenue, Missal Avenue, Collier Avenue, Fanway Avenue, Norris Avenue, Adeline Avenue, Columbus Avenue, Dallas Avenue, Hebern Road, Vance Road, Davis Drive, Brook Street, Sunnyridge Drive, Westchester Drive, Sandy Drive, Matilda Drive, Pine Court, Droberge Road, Mountain View Avenue, Elizabeth Road, Boardman Avenue, Boardman Access Drive, Boardman East, Boardman West, Lancaster Road, Farmington Avenue, Morning Side Drive, Morning Side Avenue, Collins Road, Stafford Avenue, Marvin Street, Ruth Street, Sandra Street, Hannah Street, Hornside Drive, Christine Road, Gregory Road, Ben Street, Shagbark Drive, Ivy Drive, Rose Lane, Deenfield Road, and Wood Avenue.

0 800 Feet

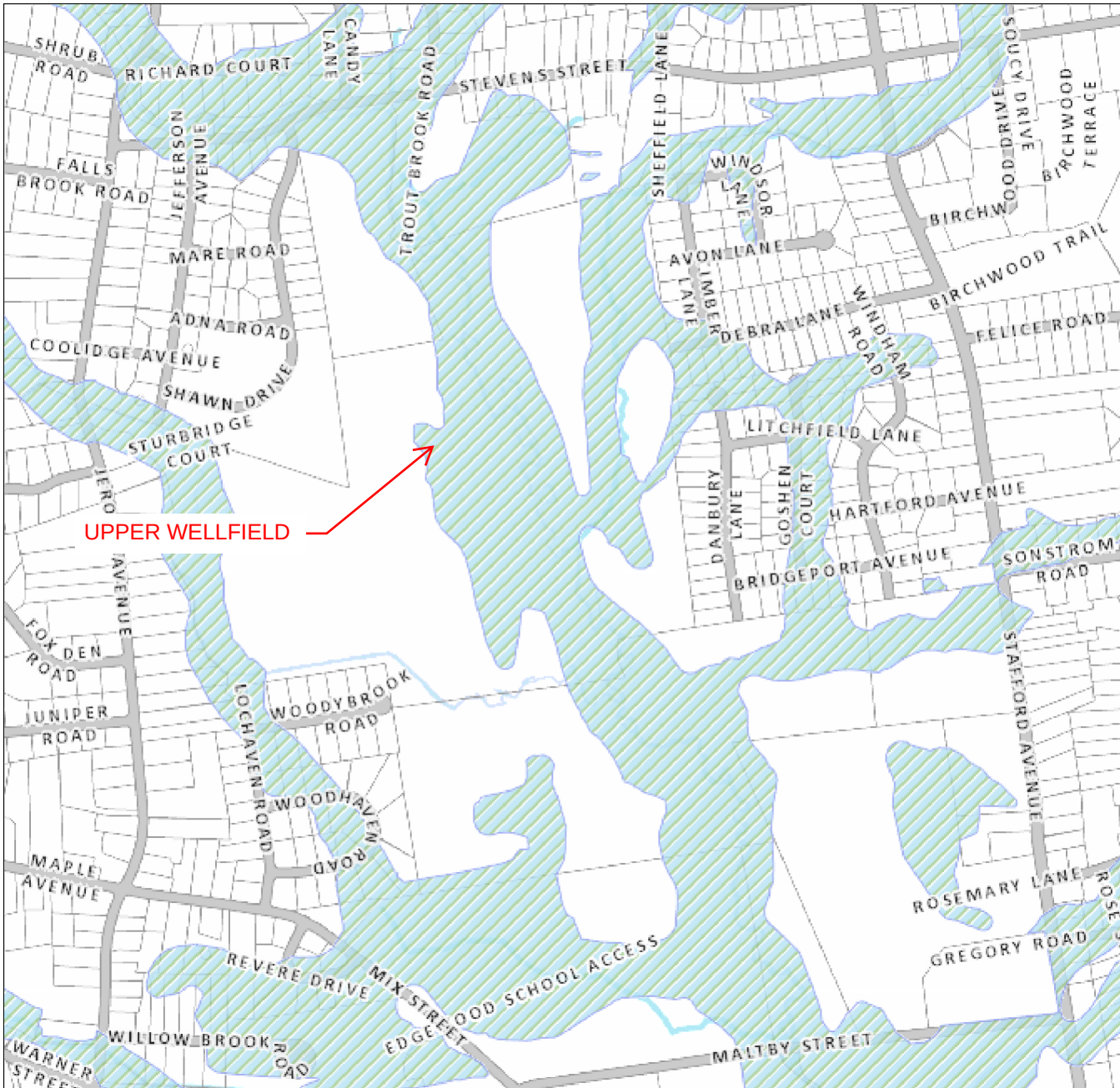


City of Bristol

Geographic Information System (GIS)



Date Printed: 12/20/2023



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The City of Bristol and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 800 feet



**BRISTOL CONSERVATION COMMISSION
INLAND WETLANDS AGENCY
FORM IW-1 (Application for a Wetlands Permit)**

For Office Use Only	
APPLICATION NO.	<u>2020</u>
DATE FILED:	<u>12-28-23</u>
DECISION DATE:	_____
DECISION:	_____

1. APPLICANT:

Name: New Britain Water Department, Ramon Esponda

Address: 1000 Shuttle Meadow Ave. City: New Britain State: CT Zip 06052

Telephone No.: (860) 826-3535 [] home [x] work E-Mail: Ray.Esponda@NewBritainCT.gov

Signature: [Signature] Signature – (Printed/Typed) Ramon Esponda

CHECK ONE: [x] owner [] other (specify): _____

2. PROPERTY OWNER(S):

Name: New Britain Water Department, Ramon Esponda

Address: 1000 Shuttle Meadow Ave. City: New Britain State: CT Zip 06052

Telephone No.: (860) 826-3535 [] home [x] work E-Mail: Ray.Esponda@NewBritainCT.gov

Signature: [Signature] Signature – (Printed/Typed) Ray Esponda

3. DESCRIBE THE SUBJECT PROPERTY:

Address or Location: Maltby Street, Bristol CT

Assessor's Map No.: 52, 53 Assessor's Lot No.(s): 11, 15, 16B16A, 17, 145, 147, 149, 150, 151

Description of wetlands (location, approximate area to be disturbed, vegetation, etc.): Freshwater Forested/Shrub, Freshwater Emergent, Freshwater Pond & Riverine wetlands. Wetlands are located centrally within the property parcels.

Approximate area to be disturbed = 31,291 SQ. FT. (0.72 Acres).

4. DESCRIBE THE PROPOSED ACTIVITY AND ITS PURPOSE: Restoration of the White Bridge Waterworks Facility.

Proposed activities include the demolition of existing structures in addition to the construction of new groundwater wells, a pump house and underground piping. Project will provide a potable backup water supply to New Britain and update the facilities.

5. CHECK THE STATEMENT WHICH APPLIES TO THE PROPOSED ACTIVITY:

[] a. The proposed activity is either a use permitted as of right or a non-regulated use, under subsection _____ of Section 4 of the Inland Wetlands Regulations. See instructions for submission requirements.

[] b. The proposed activity is not regulated because it is greater than 100 feet from a wetlands or watercourse or will not adversely affect the wetlands or watercourse. See instructions for submission requirements.

[x] c. The proposed activity is a regulated activity and will occur:

[x] in a wetlands or watercourse

area: 31,291 SQ. FT.

[x] within the upland review area

area: 177,924 SQ. FT.

6. FLOW CALCULATIONS:

Does a watercourse flow through the subject property?

[x] yes [] no

If "yes", see instructions for submission requirements.

**CITY OF BRISTOL, CONNECTICUT
SUPPLEMENTARY INFORMATION**

For Office Use Only
APPLICATION NO. _____

Address or location of property: Maltby Street, Bristol CT

ADDITIONAL INFORMATION/COMMENTS (click inside the box below and begin typing)

Permanent and temporary wetland impact areas have been broken down and are included on the attached maps. Temporarily impacted wetlands will be cared for according to a predetermined plan provided by the contractor (TBD). Matted areas may be necessary to reach some of the compensatory storage areas for the purposes of cutting the terrain at those locations to create the compensatory storage. By creating compensatory storage areas new wetland areas will also be created at a ratio of more than 2:1. Due to the creation of wetlands, an IW-2 form has been filed with the City concurrently with this application. The flood elevation will not be increased as a result of this work but may decrease due to the compensatory storage areas. See attached documents for further information.

No flow calculations are provided due the zero impact to flow as a result of the proposed work. All water drawn by the wells and other utilities are part of a registered diversion, which will not be exceeded as a result of this project.

ADDITIONAL APPLICANT

Name: _____ CHECK ONE: ☐ owner ☐ other: _____

Address: _____ City: _____ State: _____ Zip: _____

Telephone No.: _____ E-Mail: _____

Signature: _____ Signature – (Printed/Typed) _____

ADDITIONAL OWNER(S) OF RECORD

Name: _____

Address: _____ City: _____ State: _____ Zip: _____

Telephone No.: _____ E-Mail: _____

Signature: _____ Signature – (Printed/Typed) _____

Name: _____

Address: _____ City: _____ State: _____ Zip: _____

Telephone No.: _____ E-Mail: _____

Signature: _____ Signature – (Printed/Typed) _____

(OPTIONAL) SEND COPIES OF ALL CORRESPONDENCE TO:

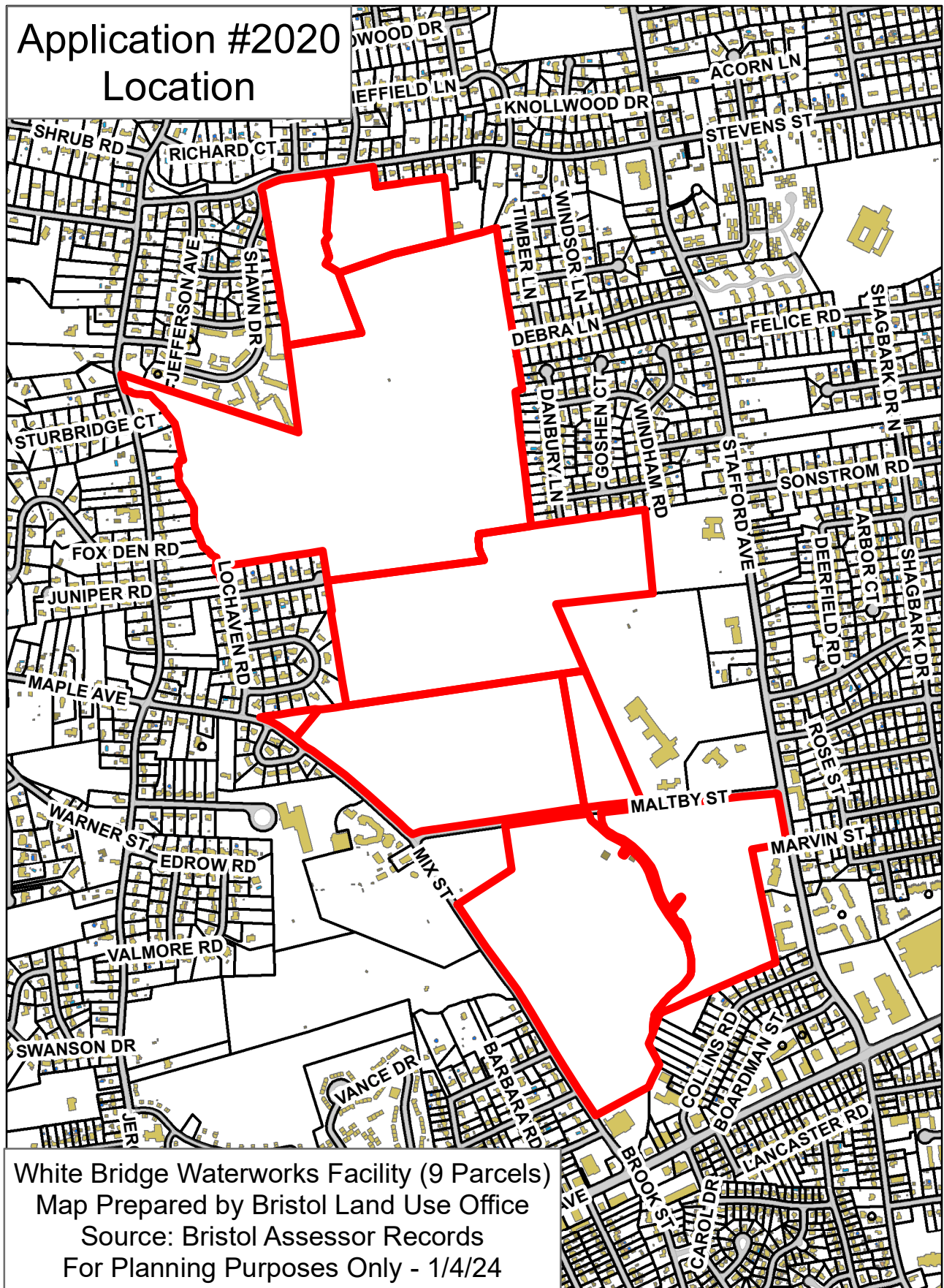
Name: Sebastian Amenta, PE

Address: 1 Hartford Square, Suite 227 City: New Britain State: CT Zip: 06052

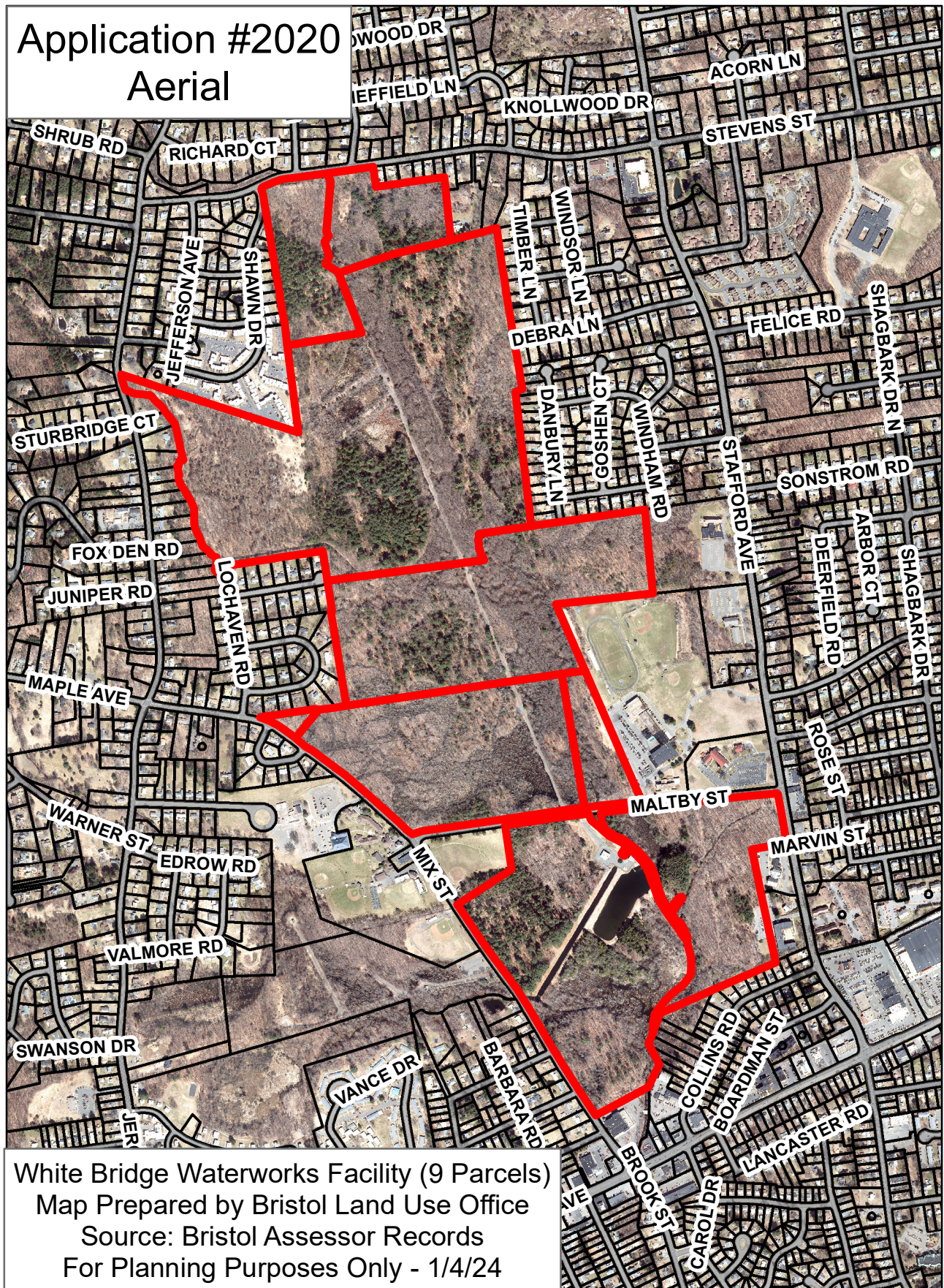
Telephone No.: (860) 224-0442/860 620 3673 E-Mail: samenta@ceiengineers.com

08/17 - LUO

Application #2020 Location

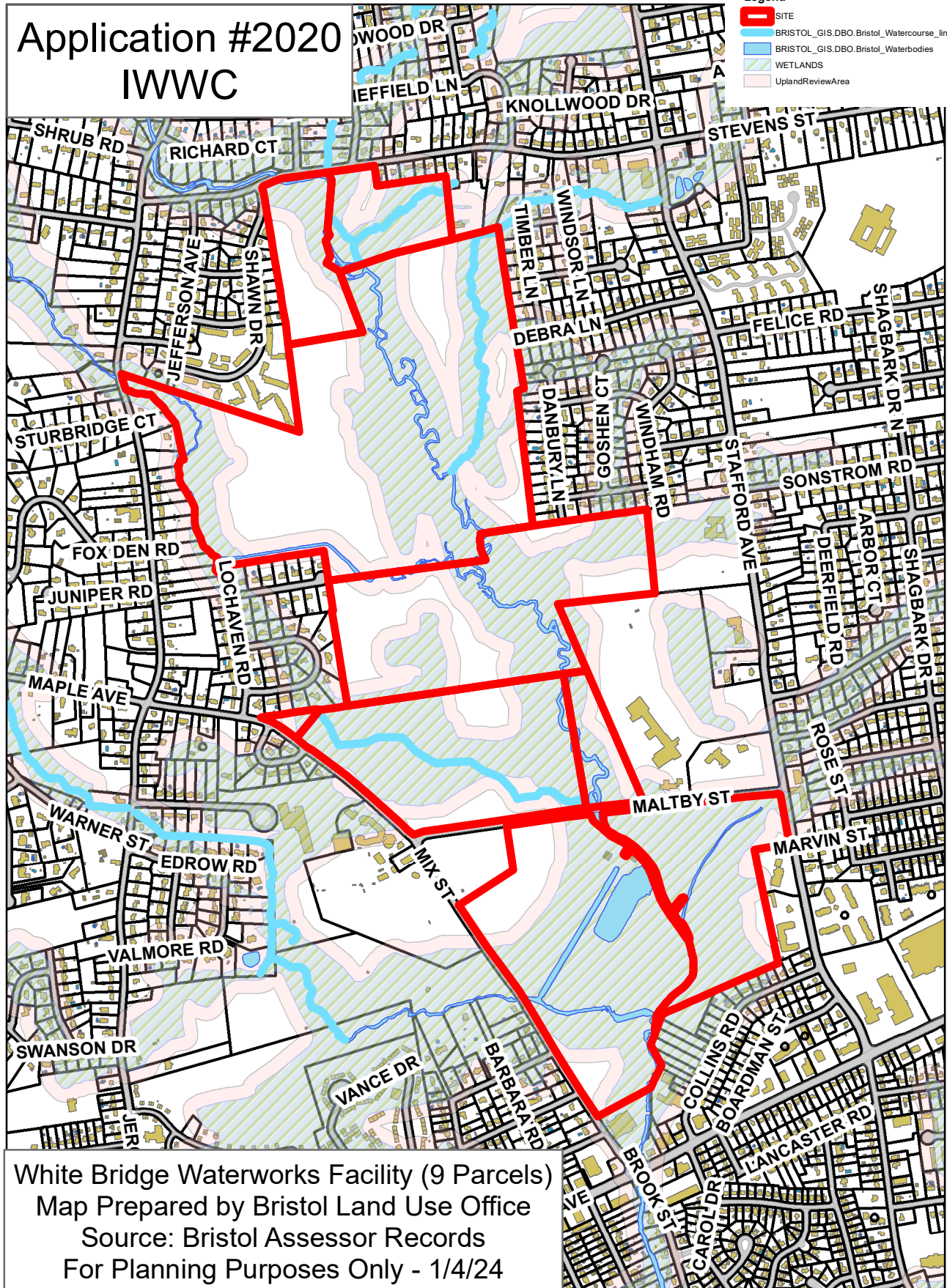


Application #2020 Aerial

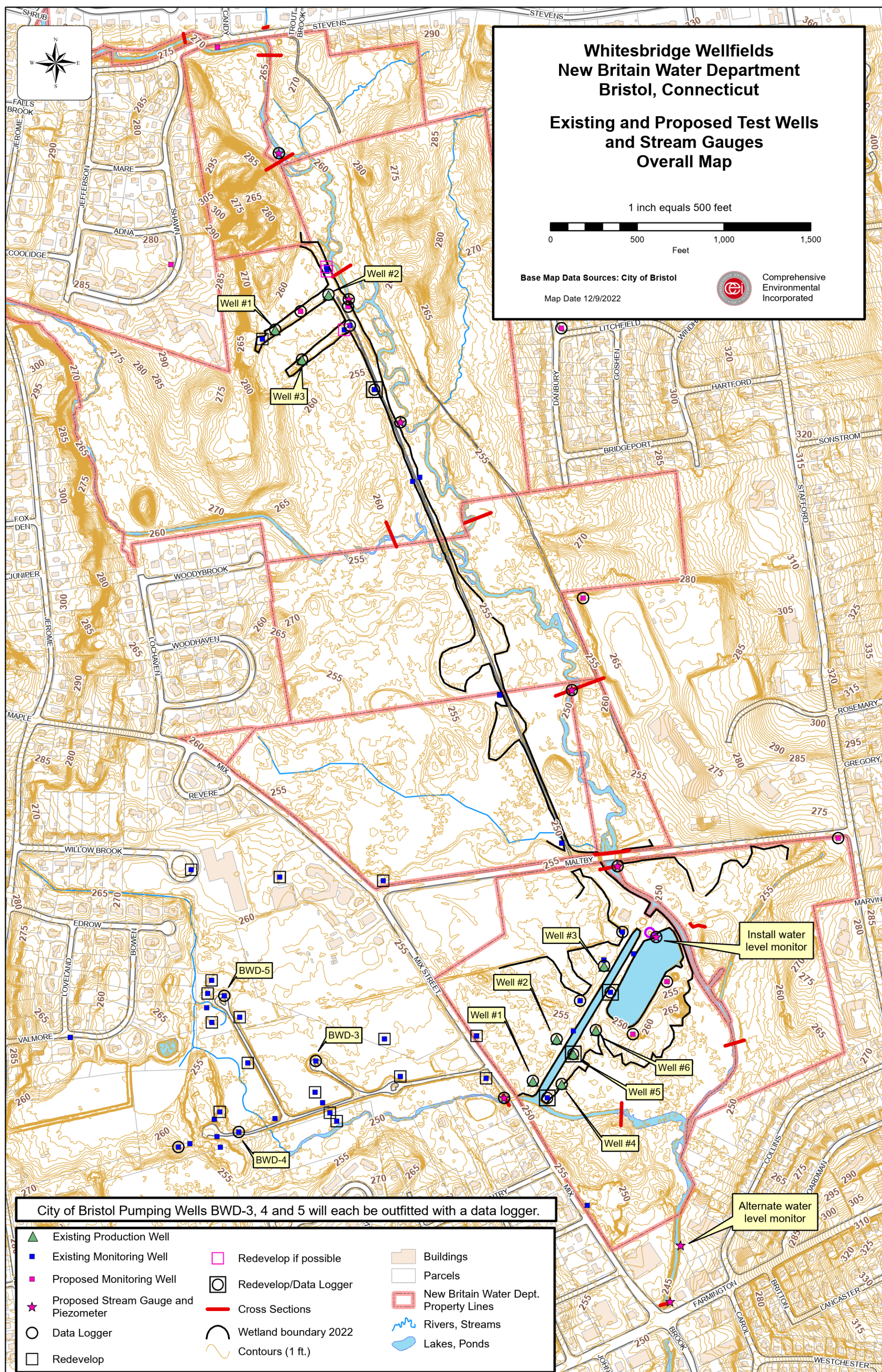


Application #2020 IWWC

- Legend**
- SITE
 - BRISTOL_GIS.DBO.Bristol_Watercourse_lines
 - BRISTOL_GIS.DBO.Bristol_Waterbodies
 - WETLANDS
 - UplandReviewArea



White Bridge Waterworks Facility (9 Parcels)
Map Prepared by Bristol Land Use Office
Source: Bristol Assessor Records
For Planning Purposes Only - 1/4/24



Wetlands Permit Application – IW-1

This attachment to the IW-1 application serves to provide the additional information required for significant activity application submittals, including:

- Site plans
- Proposed project activities
- Description and delineation of wetlands (Wetland Delineation Report)
- Impact on watercourse & flowrate
- Project alternatives
- Measures to mitigate the impact of the proposed activity

Proposed Project Activities:

A rehabilitative project will be conducted at the Upper and Lower Wellfields of the White Bridge Waterworks Facility owned by the New Britain Water Department (NBWD) accessed via Maltby Street. The purpose of this project is to redevelop the existing Upper and Lower Wellfields, which were constructed in the 1940s and 1921, respectively. Presently, these wellfields serve as a raw water supply only and cannot serve as a backup in their present condition. The age of the wellfields is such that they have come to the end of their useful life and repair and replacement equipment is no longer available. The NBWD needs to upgrade the facilities and modernize the equipment.

To become a potable water supply, any new wells must be located 50 feet from any water bodies or wetland limits per Department of Public Health (DPH) requirements. In addition, the wells must be raised 2' above the one-hundred-year flood plain elevation. Because of these requirements, the existing wells cannot be redrilled or rehabilitated in their present location. All currently existing wells will be abandoned in accordance with DPH requirements. The Lower Wellfield may but suitable as a public water supply subject to the ground water under the direct influence of surface water testing which will be done once the project is completed in a future phase of construction.

Numerous studies have been performed in preparation for this project including:

- A detailed test well program
- A seismic refraction study
- Wetlands mapping

The project will be executed according to a predetermined schedule prepared by the design consultant (CDM Smith) in coordination with the contractor (TBD). A 2-year duration from start of construction to completion is anticipated. A total of nine wells will be installed at the Upper and Lower Wellfields (three at the Upper Wellfield and six at the Lower Wellfield). A new pumphouse will be constructed at the Lower Wellfield along with all the necessary underground piping related to the new wells and pump house. The new pump house will house chemical treatment facilities. The pump house will be constructed 2' above the 100-year flood elevation per DPH regulation.

Compensatory flood storage areas will be created so as to not increase the current flood elevation levels as given by FEMA guidelines. These compensatory storage areas will also create additional wetland

areas and, as such, an IW-2 permit application has been submitted for review. See the attached maps for further information on the locations of these affected areas.

The proposed project also includes the removal of sediment from both the existing supply pond and canal located to the north. See a detailed drawing of the sediment removal attached. Over the years sediment has accumulated significantly in these water bodies and has decreased the capacity of both. The benefit of sediment removal will be an increased capacity of readily available surface water.

Description of Property and Wetlands:

This property spans a total of 303.7 acres, which includes the following parcels (by Map/Lot number): 52-15, 52-16B16A, 52-17, 52-11, 53-149, 53-150, 53-151, 53-145 and 53-147. Copper Mine Brook travels through the entirety of the property from north to south. The Upper Wellfield is located on parcel 52-17, which is 104.6 acres and has PFO1E and PEM1E wetland areas. PFO1E areas are seasonally flooded/saturated broad-leaved deciduous wetlands. PEM1E areas are seasonally flood/saturated persistent emergent wetlands. Soils in this project area consist mostly of Scarboro muck, with some Saco silt loam located closer to Copper Mine Brook. Soil scientist Ian Cole located all the wetland boundaries in the vicinity of the test well explorations. These boundaries are shown on the plans provided.

The Lower Wellfield is located on parcel 53-145, which is 50.3 acres and also has PFO1E and PEM1E wetland areas. Polkville Brook travels west to east, then southerly through this parcel before flowing into Copper Mine Brook. Onsite vehicular transport, between the Upper and Lower Wellfield areas will use existing travel ways on the site not within any wetland boundaries. Soils in the Lower Wellfield project area consist mostly of Raypol silt loam, with some Hinckley loamy sand located closer to Polkville Brook. Detailed wetlands mapping is provided on the plans.

Impact on Watercourse & Flowrate:

The proposed wetland disturbances activity will not affect the nearby watercourse flow rate.

The subject project includes the following watercourses that flow through the project site:

- Copper Mine Brook
- Polkville Ave Brook
- Freeman's Brook

The NBWD has registered diversions and those withdrawals will be increased.

Project Alternatives:

The following project alternatives were considered in selecting the preferred option for this project:

- Alternative 1 – No Action – The City would continue to run the existing White Bridge facilities at their current capacity without capital improvements.
- Alternative 2 – Purchasing water from The Metropolitan District (MDC) supply – Multiple alternatives were established to purchase raw or finished water from the MDC.
 - Alternative 2A – Raw Water to WTP/Shuttle Meadow Reservoir – Through existing agreements with MDC, the City has the ability to pump up to 7.5 mgd of raw water from MDC's Nepaug Reservoir, through the City's Nepaug pumping station, to the City's WTP or Shuttle Meadow Reservoir.
 - Alternative 2B – Raw Water to a new treatment plant – This alternative is similar to 2A, but would pump raw water to a new treatment facility near the existing White Bridge facilities to provide a redundant finished water source for New Britain customers.
 - Alternative 2C – Finished Water - There are also two existing interconnections with MDC's potable water distribution system. At the intersection of Fienemann and Farm Springs Road in Farmington, there is a hydrant-to-hydrant connection and at Hartford Road, just south of Westfarms Mall, there is a 12-inch meter pit connection. These are emergency-only interconnections and would need to be upgraded to become regularly-utilized sources. Once upgraded, these interconnections would provide up to 3 mgd of finished water to the City's distribution system.
- Alternative 3 – New Pond Pump Station Phased Approach – A new Pond Pump Station providing pumping of the surface water and Upper Wellfield water to the Shuttle Meadow Reservoir as raw water, as is currently the case for those supply sources. The facility will also include space for chemical addition, installed under a subsequent phase, to treat the Lower Wellfield water. A conceptual plan for the chemical addition would be included in this alternative. All wells would be replaced, and new pumps installed. The foregoing work constitutes Phase 1. Design and construction of the chemical addition for the subsequent Phase 2 would be dependent on the results of GWUDI (groundwater under the direct influence of surface water) testing.
- Alternative 4 - New Pond Pump Station / Lower Wellfield Chemical Addition Building - A combined facility providing pumping of the surface water and Upper Wellfield water to the Shuttle Meadow Reservoir as raw water, as is currently the case for those supply sources. The facility would also include chemical treatment facilities for sequestering manganese in the Lower Wellfield water. The finished Lower Wellfield water would be pumped directly to the City's water distribution system. Treatment of the Lower Wellfield water is dependent on the results of a GWUDI study. All wells would be replaced, and new pumps installed. Alternative 4 differs from Alternative 3 only in the timing of construction of the chemical addition facilities. In Alternative 4, they would be built at the same time as the rest of the facilities, not in a subsequent phase.

The following improvements were identified to be common to Alternatives 3 and 4:

- New wells at the Lower and Upper Wellfields to increase their production to levels closer to the Diversion Registrations.
- Supply Pond and Canal Restoration to remove sediment and restore these facilities back to their original intent.
- Intake Upgrade to replace the existing screens and piping up to the intake structure. The bridge from the bank of the supply pond to the intake structure would be repaired as well.
- Abandonment of the existing wells, caisson, and associated piping.

An initial screening of alternatives was performed, which eliminated Alternatives 1, 2A, 2B, and 2C as these alternatives did not meet the needs of the project or had high capital cost. Alternatives 3 and 4 were carried forward to additional evaluation and represent the proposed activity for this permit application.

Measures to Mitigate Project Impact – Erosion Control Measures:

The erosion and sedimentation control measures at the White Bridge facility focus on the protection of wetlands and waterways during and following construction since the work includes land disturbances, excavation dewatering, supply pond and canal sediment removal activities, and other associated construction activities. Several methods are included on the Drawings to slow the flow of runoff and protect disturbed land during construction activities. Please refer to the project plans for typical details of measures to protect wetlands and waterways during and after construction. The following summary presents typical mitigation measures that will be implemented to avoid and minimize wetland impacts during construction.

Construction Period

- During construction, the limit of land disturbances will be kept to a minimum, where possible, and the construction will be sequenced so the entire site will not be disturbed at the same time.
- Clearing and grubbing will be limited to only the areas necessary for work to be performed, specifically in areas at the Upper and Lower Wellfields (Sheet C-9 and C-11) where wells and piping will be installed, at the Maltby Street 16" pipe crossing (Sheet C-18), at areas where wetlands and compensatory storage will be created (Sheet C-13 and C-14), and areas around the Supply Pond for access during sediment removal activities (Sheet C-23).
- Sedimentation barriers (i.e., silt fence and/or compost logs/straw wattles installed per industry standards) will be installed at the down gradient limits of work and construction access roadways prior to the commencement of work to prevent the transport of sediment to the downgradient wetlands and waterways during construction (see Sheets C-6 thru C-8). Specifically, at the Upper Wellfield this includes compost logs/straw wattles along the facility driveway from Maltby Street to the existing Pumping Station and down each of the well field laterals. At the Lower Wellfield, this includes along the wetlands to the north and west of proposed work, along the Coppermine

Brook to the east, around the Supply Pond, and along both sides of the Canal to the Polkville Avenue Brook. These barriers will be inspected at least once per week and within 24 hours of rainfall events ½-inch or greater and repaired as needed. These barriers will remain in place until all disturbed soils are stabilized. A stockpile of compost logs/straw wattles and silt fence will be maintained on site for routine maintenance and emergency repairs. Barriers will be replaced as necessary due to sediment build-up and degradation.

- Sedimentation barriers (i.e., silt fence and/or compost logs/straw wattles installed per industry standards) will be installed surrounding temporary stockpile areas.
- For all slopes 4:1 or steeper, an erosion control blanket will be required, including at the Upper and Lower Wellfield wells (see Sheet C-9 and C-11). Temporary erosion control blankets will be inspected at least once per week and within 24 hours of rainfall events.
- A turbidity curtain will be installed to prevent sedimentation and turbidity disturbances in the Coppermine Brook during canal and supply pond sediment removal activities (see Sheet C-23 and Detail Sheet C-24). Turbidity curtains will be inspected daily during Supply Pond and canal sediment removal activities. The turbidity curtain will not be removed before sediment removal activities have ended and clarity of water has returned.
- Catch basin filters will be installed on catch basins near all excavation work on Maltby Street, Stafford Avenue, and Mix Street (See Sheet C-18 and Detail Sheet C-24).
- In the event that excavation dewatering is necessary, water will be pumped and discharged to one of the temporary sedimentation basins in designated areas of the site (see Sheet C-6 thru C-8 and Detail Sheet C-24). Temporary sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. Temporary portable sediment tanks may also be used to handle significant amounts of excavation dewatering. All water to be discharged from dewatering activities will be filtered or otherwise treated prior to discharge to prevent siltation to adjacent areas. Best management practices will be used by the Contractor in order to prevent siltation to adjacent areas during dewatering activities.
- A temporary sediment dewatering and stockpiling area has been designated within the Supply Pond to dewater removed sediments during restoration activities (see Sheet C-23 and Detail Sheet C-24). Stockpiled materials and containment area will be inspected daily during dewatering activities, weekly during non-dewatering activities, and within 24 hours of rainfall events of ½-inch or greater.
- A stabilized construction entrance is also being required for the site to prevent tire tracked soils to onsite and offsite locations (see Sheet C-23 and Detail Sheet C-24). The stabilized construction entrance will be inspected periodically and additional top dressing or length will be added, as necessary, to continue capturing sediment tracked on vehicles.
- The silt fence and/or compost log/straw wattle barrier will not be removed until the site areas are vegetated, paved or otherwise permanently stabilized to prevent erosion of exposed soils. Work

will proceed as rapidly as possible, limiting the exposure time of disturbed soils to wind and precipitation.

- The sedimentation barriers will not be removed until the site areas are vegetated, paved or otherwise permanently stabilized to prevent erosion of exposed soils. Work will proceed as rapidly as possible, limiting the exposure time of disturbed soils to wind and precipitation.
- Periodic inspections will be made by the applicant to ensure compliance with the permit conditions.

Spill Control Measures

- Spill containment equipment (e.g. oil absorbent pads, oil absorbent materials, containment booms, shovels, etc.) will be stored in the equipment storage and refueling area in an easily accessible manner for use in the clean-up of accidental releases of fuel or other hazardous materials. Should there be an accidental release the proper authorities will be notified in accordance with all applicable federal, state, and local laws; and
- To minimize the possibility of leakage of hydraulic fluid, all hydraulic lines on all construction equipment and vehicles will be inspected at the end of each workday. If any excessive wear or leakage is observed, the line will be repaired prior to further use. In addition, a supply of oil absorbent materials (i.e. pads, "speedy dry," and/or booms) will be maintained with the equipment at the work area for immediate deployment in the event of an accidental release of fuel, hydraulic fluid, oil, etc.

Post-Construction Period

The following summary of mitigation measures will be implemented to restore any areas affected by short-term impacts that occur in or adjacent to wetlands.

- The final site is designed to have a 3-foot wide gravel infiltration trench with 1.5"-3" diameter washed aggregate covered with 6" pea gravel running along the facility driveway to collect and slow the flow of runoff from impervious surfaces (see Sheet C-10 and Detail Sheet C-26).
- All areas disturbed during construction activities are to be loamed and seeded to provide vegetated soil cover protection against sheet runoff and wind erosion (see Sheet C-9 thru C-12). Seeded areas will be inspected at least once per week and within 24 hours of rainfall events of ½-inch or greater.
- Once established, seeded areas will be mowed and maintained as appropriate.
- The Pond Pumping Station building roof drain leader will outlet to a riprap apron (See Sheet C-10 and Detail Sheet C-26). Riprap used in the roof drain apron will be inspected periodically to determine if high flows have caused scour beneath riprap or if vegetation removal is required. On the northeast side of the Pond Pumping Station building, a retaining wall will be utilized to prevent steep slopes.

- The wetland replication and restoration areas will be planted with trees and shrubs per the planting plans, and seeded with a wetland seed mixture.
- If seeding occurs outside of the growing season, temporary stabilization measures (i.e., mulching or erosion control blankets) will be used to prevent erosion until the area can be seeded during the following growing season.
- Reseeding and mulching disturbed areas. These areas will be maintained and re-seeded to ensure that grass cover is adequate to stabilize the exposed soil, and
- Sedimentation and erosion control barriers will not be removed until a vegetative cover dense enough to prevent erosion is established.

Selections from Figure 3-2 of the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control:

Figure 3-2 Measure Selection Matrix						
Identify Problem Areas	Identify Control Problems	Identify Strategy	Select Specific Measure		Plan Key	
			Functional Group	Measure		
Disturbed Areas	Control Soil Detachment	Preserve and Conserve Existing Site Resources	Protect Vegetation	Tree Protection	TP	
			Preserve and Conserve Soil	Topsoiling	TO	
				Land Grading	LG	
Short or Shallow Slopes	Raindrop Splash	Protect Surface	Vegetative Soil Cover	Surface Roughening	SR	
	Sheet & Rill Erosion			Dust Control	DC	
	Wind Erosion			Temporary Seeding	TS	
Steep Slopes				Permanent Seeding	PS	
				Sodding	SO	
				Landscape Planting	LP	
Long Slopes			Non-Living Soil Protection	Temporary Soil Protection	TSP	
				Mulch for Seed	MS	
				Landscape Mulch	LM	
Stockpile Areas		Protect Surface and/or Convey Runoff	Stabilization Structures	Temporary Erosion Control Blanket	ECB	
				Permanent Turf Reinforcement Mat	TRM	
				Stone Slope Protection	SSP	
Borrow Areas	Control Water Movement			Retaining Walls	RW	
				Riprap	RR	
				Coirlogs	G	
Drainage Ways	Gully Erosion	Convey Runoff	Drainageways and Watercourses	Permanent Slope Drain	PSD	
	Channel & Stream Erosion			Channel Grade Stabilization Structure	CSS	
				Temporary Lined Chute	TC	
Wetlands and Watercourses		Direct Runoff	Diversions	Temporary Pipe Slope Drain	TSD	
				Vegetated Waterway	VW	
				Temporary Lined Channel	TLC	
Waterbodies		Intercept Grnd Water	Subsurface Drains	Permanent Lined Waterway	PW	
				Temporary Stream Crossing	TSC	
				Temporary Fill Berm	TFB	
Areas of Flooding and Existing Erosion	Natural Resource Degradation	Diffuse Runoff	Energy Dissipators	Water Bar	WB	
				Temporary Diversion	TD	
				Permanent Diversion	PD	
Drainage Outlets	Control Sediment Deposition	Detain Sediments	Sediment Impoundments, Barriers, and Filters	Subsurface Drain	SD	
				Detention Structures	Detention Basin	DB
				Level Spreader	LS	
Travel Areas		Control Mechanically Moved Waters and Soils	Dewatering	Outlet Protection	OP	
				Stone Check Dam	SCD	
				Temporary Sediment Basin	SB	
Dewatering				Temporary Sediment Trap	TST	
				Hay Bale Barrier	HB	
				Geotextile Silt Fence	GSF	
				Turbidity Curtain	TC	
				Vegetative Filter	VF	
				Construction Entrance	CE	
				Pump Intake and Outlet Protection	PuP	
				Pumping Settling Basin	PSB	
				Portable Sediment Tank	PST	
				Dewatering of Earth Materials	DWM	



COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

Gateway Crossing
1 Hartford Square East, Suite 227
New Britain, CT 06052
860.224.0442

May 1, 2024

Mr. Robert Flanagan, City Planner
City Hall
111 North Main Street
Bristol, CT 06010

**RE: Wetlands and Flood Commission Permits- Applications #2019, #2020 & #23-458F-305
Submission of Response to Staff Comments and Supplemental Information**

Dear Mr. Flanagan,

On behalf of the Applicant, the New Britain Water Department, Comprehensive Environmental Inc. (CEI) is providing in this document responses to comments and supplemental information regarding the above referenced applications.

Responses to City Staff Comments:

Comment #1. *Proposed construction wetland “replication” appears to consist of excavation adjacent to existing wetland and installation of 3 inches of hydrophilic soil. Provide additional information associated with the hydrophilic soil specification and post development groundwater depth to support wetland “replication” areas. DPW Engineering Division proposes a min of 12-inch depth of hydrophilic soil within wetland “replication” area. On adjacent 2:1 slopes 6 inches of hydrophilic soil is sufficient. Detail/document short and long term monitoring and wetland “replication” area management plan to ensure long-term viability of area.*

Response #1. The wetland replication and compensatory storage plans and sections have been revised to address the above comments. Please note that due to the presence of a vernal pool in the upper wellfield area the compensatory storage and wetland replication area was moved further north. In addition, the United States Army Corp of Engineers (USACE) has requested a 3:1 wetlands replication as part of their permit review. These changes are reflected in revised sheets WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 and C-14A which are attached herein as **Attachment 1.A**. Also attached as **Attachment 1.B**. are the calculations for the compensatory storage. More information about the vernal pool can be found in the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is also attached to this document as **Attachment 1.C**. Sheet XS-5 and Section 4 of the NBWD Supplemental Environmental/Wetlands Permit Information detail the short term and long term monitoring for wetland replication.

Comment #2. *Plan indicates dewater sedimentation basin, however provide anticipated/ proposed discharge rates with sizing of sedimentation basins. In addition, indicate controls / monitoring of turbidity discharge from sedimentation basin.*

Response #2. Temporary dewatering sedimentation basins are intended to be used in the event high groundwater is encountered during excavation activities. Anticipated/proposed discharges will vary depending on the required amount of excavation dewatering but typically can range from 20-50 gpm, intermittently. As shown in Detail J of Drawing Sheet C-24 (included herein as **Attachment 2**), the dewatering sedimentation basin size may vary depending on necessity with a 5-foot diameter being the minimum diameter of the basin. Sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. The Contractor may also elect to install permeable geotextile dewatering bags in addition to the dewatering sedimentation basins for sediment filtration.

Comment #3. *Provide construction sequence with durations along with staging plan, areas of stockpile storage and refueling areas.*

Response #3. See the Proposed Construction Sequence Memorandum included in **Attachment 3.A.** for more information, and the associated Drawing Sheets C-20, C-21, and C-22 in Attachment 3.B. Additionally, see Sheet C-1 and C-7 of **Attachment 3.B.** for notes and depiction of Contractor staging, stockpiling, and refueling areas.

Comment #4. *Clarify proposed location of floating turbidity curtain.*

Response #4. Floating turbidity curtains are to be located within the canal, east and west of the proposed sediment removal areas. See revised Sheet C-23 in **Attachment 4.**

Comment #5. *Include installation line of silt fence along the toe of ALL proposed slopes. Silt fence shall be installed prior to construction, be monitored during construction and removed once slopes are stabilized.*

Response #5. Notes requiring the installation of silt fence has been included throughout drawings. See revised sheets C-1, C-6, C-7, C-8, C-13, C-14, C-14A in **Attachment 5.**

Comment #6. *Provide additional detail associated with compensation storage area 3. The plans indicate excavation to elevation 252, however indicate proposed access to area, erosion control and restoration.*

Response #6. The revised plans referenced in Comment Response #1 address these comments.

Comment #7. *Provide additional detail associated with compensation area 4, including additional elevation east of the area between the compensation area and the Coppermine. Detail cross section AA-1 and indicate erosion control measures and proposed access to area.*

Response #7. The revised plans referenced in Comment Response #1 address this comment.

Comment #8. *The Storm Water Management Report is prepared in accordance with the CT Storm Water Quality Manual. As indicated in your report the manual requires maintaining the pre-*

development annual groundwater recharge volume. The report indicates recharge is achieved through reduction in impervious area; however, please indicate impact of additional well withdrawal will have on wetlands.

Response #8. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is included in **Attachment 1.C.**

Comment #9. *Proposed plans indicate flood plain mitigation measures (excavation within flood plain to offset the placement of fill within flood plain). However, Bristol DPW recommends a CLOMR prior to work and will require a LOMR as condition of approval (if approved).*

Response #9. See No Rise Certification included in **Attachment 9.** No objection to coordinating with FEMA for CLOMR/LOMR as a condition of approval.

Responses to North Central Conservation District (Letter Dated March 28, 2024):

1. See the Letter from CT DEEP in **Attachment 10**, which confirms the continued applicability of the Diversion Registration to the facilities and that no diversion permit is required for continued operation of the facilities as proposed with this project.
2. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information, included in **Attachment 1.C.**, concluding no permanent impacts from withdrawals.
3. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information and the related Supplemental Alternatives Evaluation contained therein, detailing alternatives considered for this project. There are no feasible and prudent alternatives to the proposed plan.
4. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information concluding no permanent impacts to wetlands functions and values.

Additional Information Submitted:

1. Detailed Groundwater and Stream Flow Monitoring Plan, as required by CT DPH, is included in **Attachment 11.**
2. Letter confirming hydrogeologic information for project site remains valid. See **Attachment 12.**
3. Proposed wetlands boundary line change map is submitted for consideration. See **Attachment 13.**
4. Resumes of Engineers and Soil Scientist are included in **Attachment 14.**

Attachments Includes:

- Response 1 – Attachments
 - 1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A
 - 1.B. Calculations: Compensatory Storage
 - 1.C. NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC
- Response 2 – Attachment
 - 2. Drawing: C-24
- Response 3 – Attachments
 - 3.A. Proposed Construction Sequence Memorandum
 - 3.B. Drawings: C-1 and C-7; C-20, C-21, and C-22
- Response 4 – Attachment

- 4. Drawing: C-23
- Response 5 – Attachment
 - 5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A
- Response 9 – Attachment
 - 9. No Rise Certification
- Attachment 10
 - 10. CT DEEP Permit Need Determination
- Attachment 11
 - 11. Detailed Groundwater and Stream Flow Monitoring Plan
- Attachment 12
 - 12. Letter confirming hydrogeologic information for project site remains valid
- Attachment 13
 - 13. Proposed wetlands boundary line change map
- Attachment 14
 - 14. Resumes of Engineers and Soil Scientist
 - Sebastian Amenta, P.E.
 - Ian T. Cole - Professional Soil Scientist
 - Joseph L. Laliberte, PE, BCEE, PM
 - Clinton L. Webb Jr. – Senior Environmental Scientist/Ecologist

If you have any questions or require any additional information, please do not hesitate to contact me at 860.224.0442 or samenta@ceiengineers.com.

Sincerely,
Comprehensive Environmental Inc.



Sebastian Amenta, PE
Regional Program Director

May 6, 2024

Zach Fisk, Chair
Bristol Inland Wetland Commission
c/o Bristol Land Use Division via email

RE: **Application #2019, Application #2020, Application #23-458F-305** Application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessors Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Dear Chair Fisk and Bristol IWW Commissioners:

This letter is written in response to the recent submittal (dated May 1, 2024) of additional information regarding subject applications. This additional submittal information includes revisions made to the proposed plans in response to the discovery of a vernal pool at the north wellfield site, as well as revisions made to address staff comments, and revisions made to the plans as a result of the comments from the Army Corps of Engineers to address the federal requirements for wetland mitigation for the impacts to wetlands as a result of the proposed improvements. Also, the Streamflow monitoring plan, prepared for the Department of Public Health, was presented in Attachment 11.

Additionally, since the last public hearing, third party review letter from the North Central Conservation District desktop review (dated March 28, 2024, 3 pp) has been available. Further third party review for wetland/floodplain environmental services has not yet been made available.

The following comments are made in response to the May 1, 2024 additional information submittal.

1. Regarding the Supplemental information/vernal pool discovery in the vicinity of the north wellfield:
 - a. Was the Commission able to review the vernal pool extents during the site walk to confirm limits and conditions? (According to sheet WR-1, the proposed access road to the modified mitigation area north of the pool impacts the 100' review area of the vernal pool.)
 - b. Where is the vernal pool location compared to the well drawdown contours presented in the hydrogeologic report? These contours appear to extend into the vernal pool protection area, and the drawdown contours were presented for operations at Well 5A, (pumping at approximately 1/7 of the north wellfield proposed rate). What drawdown data was provided to the wetland scientists to respond to the surface water drawdown impacts to the ecological systems? What protections will be proposed to protect the existing natural systems (wetlands and stream) from impact due to increase well water withdrawals?
2. Regarding the revised wetland mitigation / floodplain compensation areas:
 - a. Sheet WR-1 shows a wetland replication area (represented by section A1-1) to excavate up to 8' in depth from an area of approximately 28,726 SF in size (to el 261). This area is located immediately adjacent to brook. The proposed transition slope areas to the north and west of this area add additional significant area of

disturbance. How close is the proposed replication area to the brook and what riparian impacts will result from the clearing? What is the total disturbance of the mitigation area, including the transition slope areas and haul road? What portions of the disturbed areas are located in regulated wetlands/upland review areas? What is the existing land cover in the proposed impacted areas, i.e. what kind of land cover will be cleared to accommodate the wetland replication area (and how much is considered brook riparian area)? What is the estimated time period for the mitigation area to restore to land cover conditions similar to the mature conditions (similar to the existing condition)? Will the perimeter fringe areas be more subject to invasive species (and if managed, chemical treatment) than the existing conditions (presumably with no current chemical use and less potential for introduction of invasives)? Are there seasonal restrictions in specifications to help minimize impacts related to clearing, dewatering and removal of the substantial proposed excavation materials? What is the proposed time period required and any seasonal restrictions for the proposed grading and planting? Will mitigation work be completed before the proposed impacts? Have any borings been performed to determine the need for access road stabilization and wetland material reuse? Will the haul/access road remain through Growing Seasons 2-5. Quantify the areas of haul/access road for clearing, grading, and stabilization and whether these areas occur in regulated wetlands or regulated floodplain. Has any road fill been computed in the floodplain impacts? Will any stabilized road work be removed and restored?

- b. On sheet WR-2, will any grading and stabilization be done for the haul/construction/access road? (The south road shows “dips” of 3’ - 4’ in the vicinity of the road narrowing for the south longitudinal section of mitigation). What is the tabulated area of impact for wetlands/upland review for these areas, including slope transitions, with a discussion of the existing land cover? Please discuss periods for invasive management and any proposed chemical use that may be needed to manage invasives in these proposed mitigation area. Due to the proximity of the wells, will chemical use be restricted? The plan calls for wetland replication of 3,057 SF to el 257 and 2,008 SF to el 256. The third area of impact/replication is not called out. What is the quantity of temporary impacts in regulated wetlands for each area’s construction? What is the anticipated surface water fluctuation to the adjacent wetlands and brook resulting from the new wells?

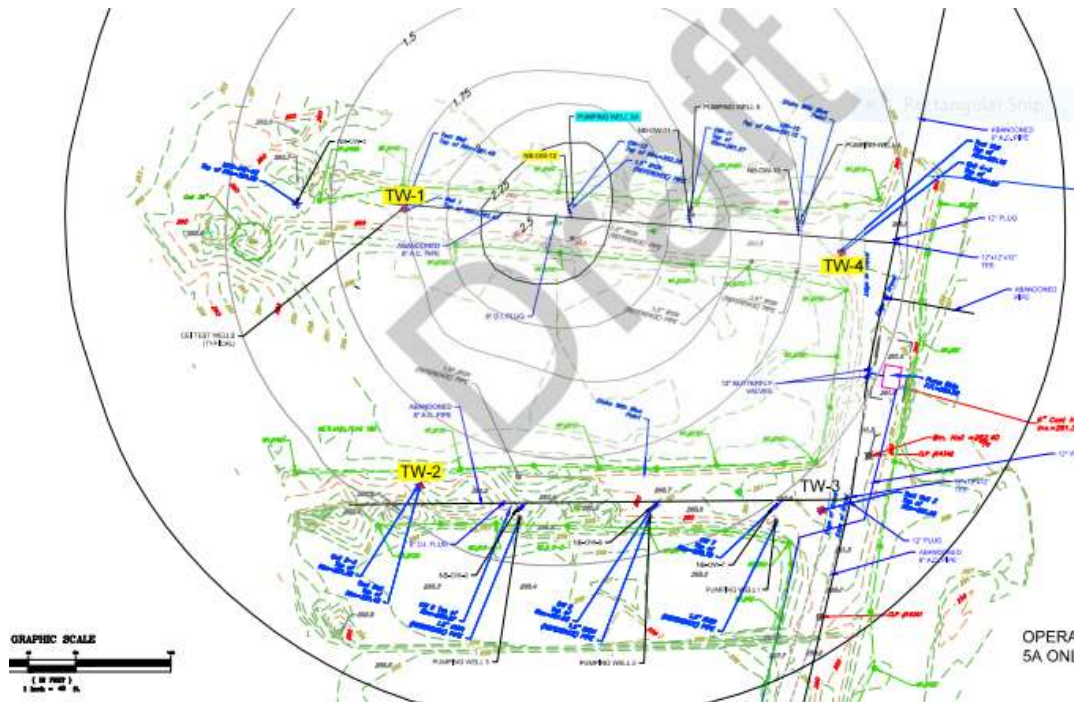


Exhibit taken from Hydrogeologic report, Figure 2

- c. On sheet WR-3, the wetland replication area (represented by Section A3-1) is tabulated at 31,146 SF by excavating the area immediately adjacent to the Coppermine to depths up to 10' (to el 247). This area is shown to be located immediately adjacent to brook. Contours on the northwest of the proposed replication area indicate an existing adjacent area of bottom contour 248. Was this area investigated as a potential pool or wetland? Where are the wetland limits in this area? The proposed transition slope areas to the north and west and southwest of this area add additional significant area of disturbance to this area. What is the total disturbance of this mitigation area construction, including the transition slopes and haul/access road areas? What portions of these areas are located in regulated wetlands/upland review areas? What is the land cover in the proposed impacted areas, i.e. how much and what kind of land cover will be cleared to accommodate the wetland replication area, slope and access road areas? What is the estimated time period for the mitigation area to restore to land cover conditions similar to the existing conditions? Will the perimeter fringe areas be more subject to invasive species (and if managed, chemical treatment) than the existing conditions? What is the proposed time period required and any seasonal restrictions for removal of the substantial proposed excavation materials to minimize disturbance? What is the proposed time period required and any seasonal restrictions for the proposed grading and planting? How long will the silt fences and haul/access road remain for management of the wetland replication area? Will it be removed/restored? Have any borings been performed to determine the need for haul road stabilization and wetland material reuse?

- d. On Sheet WR-4, the proposed replication area 7,000 SF graded to el 249 with an unidentified quantity of area graded to 252 and grassed (represented by Section A4-1). Please describe the existing and replacement land covers, label contours and tabulate the impacted areas, including slopes and access road, in the regulated wetland areas.
 - e. On Sheet WR-5, the proposed replication area, excavated up to 10' in depth is proposed to be graded to el 250 (represented by Section A5-1), immediately adjacent to the Coppermine. Similarly, please similarly address land use cover, identify contours and slope transitions, limits of impact, similar to previous comments.
3. With respect to investigation into project alternatives with less wetland/watercourse impact, the applicant can consider; **propose less pump capacity withdrawals for each of the wellfields and the pond.** This request is further supported by past studies that indicate the state registration withdrawal quantities cannot be supported. It's obvious from past and more recent pump testing that the shallow aquifer is of limited capacity and influenced by infiltration (and therefore drawdown) of the adjacent surface waters and wetlands. The well testing report by S.B Church (Sept 2019), based on test wells approved in the previous wetland application), suggests 2 wells in the south wellfield, and (report summary as clipped below) estimates yields considerably below the proposed six wells at 470 gpm in the south wellfield.

yields do not reflect the influence that the wells may have on each other and they do not reflect the influence of the drainage basin supplying water to each well throughout the year.

Well Number	Estimated Yield GPM
5	400
6	68
7	250
8	80
9	148
10	220
11	374
12	180
Estimated Total 1721 GPM of 1.54 MGD	

Handwritten notes:
 - Assume 8' drawdown?
 2 45
 5, 7, 9, 10, 11, 12

We suggest that two 30 inch large diameter wells be constructed at the sites of 5 and 11. We suggest that these wells be constructed as 30 inch diameter by 24 inch diameter gravel packed wells. The wells may be drilled a permanent production wells or as test wells with the plan to later permit them as permanent production wells.

We suggest that 72 hour pump tests be conducted on each of the wells to determine their influence on the other potential well sites. We also suggest that both wells be pumped simultaneously at approximately one million gallons per day to determine their influence on other potential well sites. This data could be used to determine where other future production wells should be drilled.

The applicant has not addressed the drawdown impacts for the proposed well withdrawals and for the adjacent south wellfield pond/surface water pump withdrawals, **except to recognize that brook impacts have and will occur.** Portions of the current Hydrogeology report states:

- Surface water elevations recorded by Lenard both before and during pump testing revealed a total water surface elevation decrease of 1 ft. for both the Copper Mine and Polkville Brook, strongly implying a hydraulic connection between surface water bodies within the wellfield. CEI observed a decrease in canal water levels of 1 ft, with near complete dewatering and drying of the canal observed within approximately 7 days of wellfield operation (primarily impact do to operation of the pond pump), implying the canal and unconsolidated wellfield formation are hydraulically well connected.
- The 2007 Lenard report implied that several brooks, including The Copper Mine, Polkville, Negro Hill, Wildcat, Whigville, and several unnamed tributaries are part of the Copper Mine drainage basin, and directly supply both the upper and Lower Wellfields with significant amounts of surface water, with the Upper Wellfield likely receiving the most recharge.
- Following observations made of historic data collected by Maguire during the Summer 1985 Lower Wellfield performance evaluation, it appears that operation of the 1985 wellfield at 2 MGD was unsustainable due to limitations imposed by the close proximity of installed wells and the unaccounted-for principal of well interference. 1 MGD was reported to be sustainable but is significantly lower than the permitted 4 MGD pumping limit. It is the opinion of CEI that due to this unaccounted-for phenomenon, the Lower Wellfield will be able to sustainably produce approximately 2 MGD should a more optimal wellfield configuration be installed accounting for the phenomena of well interference and nearby vertical recharge sources.

Recall that these statements were observations after the most recent pump test monitoring of pump discharges that were much, much lower than the proposed application pump rates. No clear documentation has been provided on the influence of the proposed simultaneous pond surface water pumps and well pumps on regulated wetlands and watercourses.

The applicant has the capability and the responsibility to test, model, and evaluate safe sub-surface and surface withdrawals to reduce impact to the adjacent wetlands/surface waters. Further evaluation, considering simultaneous well withdrawals and surface water withdrawals, is needed to realize a practical solution.

The applicant should also consider options to increase redundancy of its existing treatment system, located central to its main customer base. Considering that the proposed water capacity upgrades are presented as emergency supply for New Britain Water customers, it's hard to understand why these substantial upgrades are proposed in mapped floodplain and regulated wetland areas in the City of Bristol, making them subject to natural disaster and potentially unavailable.

4. The Streamflow monitoring plan (Attachment 11 of the May 1, 2024 submittal materials) was prepared for the Department of Public Health and does not address wetlands protections. It's noted that while monitoring is crucial, but it does not protect wetlands and streamflow unless protective management measures are developed and implemented.

5. The proposed re-fueling area located in the floodplain/regulated wetlands adjacent to Coppermine should be examined.
6. The Bristol Inland Wetland Commission follows local and state guidelines for wetlands and watercourse protections that differ from state health or federal requirements. Clear tabulation of the Bristol regulated wetland areas needs to be presented.
7. Due to review time constraints, portions of past comments are repeated below.

How can the Bristol Inland Wetland Commission protect the flow-impaired Coppermine and surrounding wetlands? Please consider the following:

- a. North wellfield: Applicant should model the effects of the groundwater and surface water drawdown resulting from proposed wells' pump rate capacities, operating simultaneously. Clearly show the extents of the estimated drawdown relative to regulated wetlands and surface waters and evaluate protective pump rates. Tabulate the impacted area and provide a flora and fauna assessment of the impacts. Address surface water fluctuations relative to operational and seasonal changes. Address operational management protocols to protect Copper Mine and associated wetland areas. Address mitigation plan, including monitoring, for all unavoidable impacts.
- b. South wellfield/pond: Applicant should model the effects of the groundwater and surface water withdrawal capacities simultaneously to clearly show the extents of the drawdown relative to regulated wetlands and surface waters. Evaluate protective pump rates. Tabulate the impacted area and provide a flora and fauna assessment of the impacts. Address surface water fluctuations relative to operational and seasonal changes. Address operational protocols to protect Coppermine and associated wetland areas. Address mitigation plan, including monitoring, for all unavoidable impacts.

The well and pond withdrawals have been documented to affect and to rely on the adjacent surface water natural system. These surface water sources and wetland storage areas serve valuable water quality, quantity and wildlife functions. Thank you for your consideration.

Carol Noble, P.E., CFM (ret)

Attachment 1:

Tables of the rates and the study references are compiled below for informational purposes.

White Bridge Upper Wellfield:

	DEEP Diversion Registration (2)	Existing Withdrawal (3)	Proposed Withdrawal (2)	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (2, 3)
gpm	1,500	~200	3@470=1,400	840	694	600	200 (Well 5A)
MGD (1)	2.16	~0.3	2.0	1.2	1.0	0.86	0.3

Notes:

(1) Conversion 1 MGD = 694.44 gpm

(2) Preliminary Engineering Study, CEI CDE Smith, Feb 2021

(3) Existing withdrawal assumed from the April 2020 CEI Hydrogeologic report estimating the most current working well pump

(4) Level A Study Withdrawal taken from Dec 2007 Lenard Hydrogeologic Level A Study Executive Summary. Note the Lenard Study states ““It was determined that the aquifer could not support the maximum registered diversion of the New Britain upper, lower and Bristol Mix Street wellfields”. The study reassigned “agreed upon” reduced flow rates to simulate a safe yield for each of the wellfields.

White Bridge Lower Wellfield:

	DEEP Diversion Registration (2)	Existing Withdrawal (3)	Proposed Withdrawal (2)	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (2, 3)
gpm	4,333	700 - 1250	6@470=2,800	2,190	1,958	611	850-1080 (meas at caisson (3,4))
MGD ⁽¹⁾	6.24	1 - 1.8	4.0	3.15	2.82	0.88	1.2 – 1.6 (meas at caisson ^(3,4))

Notes:

(1) Conversion 1 MGD = 694.44 gpm

(2) Preliminary Engineering Study, CEI CDE Smith, Feb 2021

(3) Existing withdrawal taken from the April 2020 CEI Hydrogeologic report inferring test well pump rates based on 1985 pump test.

(4) Level A Study Withdrawal taken from Dec 2007 Lenard Hydrogeologic Level A Study Executive Summary. Note the Lenard Study states ““It was determined that the aquifer could not support the maximum registered diversion of the New Britain upper, lower and Bristol Mix Street wellfields”. The study reassigned “agreed upon” reduced flow rates to simulate a safe yield for each of the wellfields. No pond pump withdrawal was considered in the evaluation.

White Bridge Pond System:

	DEEP Diversion Registration (2)	Existing Withdrawal	Proposed Withdrawal	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (4)
gpm	10,400	~2,000	3@3,500=10,500	NSE	NSE	NSE	NSE
MGD ⁽¹⁾	15	~3	20.2 (4 pumps) 15 (3 pumps)	NSE	NSE	NSE	NSE

Notes:

(1) 1 MGD = 694.44 gpm

(2) Preliminary Engineering Study, CEI CDE Smith, Feb 2021

(3) Existing withdrawal assumed from the April 2020 CEI Hydrogeologic report reference

(4) NSE = Not Specifically evaluated

Although the engineering reports document the influence of the pond pumping on the lower wellfield pump tests, simultaneous pond pumping influence was not evaluated.

Ray Rogozinski Review Comments

April 22, 2024

&

Applicant Responses

May 2, 2024

Bristol Department of Public Works has completed the review of the following materials submitted as part of Applications #2019, #2020 & #23-458F-305.

- i. Central Conservation District review letter, dated March 28, 2024.
- ii. CDM Smith Stormwater Management Report for the White Bridge Waterworks Facilities Pond Pumping Station.
- iii. C. Webb & Associates, LLC Wetland Delineation Report, dated September 29, 2022. iv. CDM Smith Plan Set, dated December 2022: Existing Conditions sheets 1-3, Wetlands replication areas sheets 1-3, Cross-Sections sheets 1-4.
- v. Freeman Companies Existing Conditions Survey Upper & Lower Wellfield, topography survey.
- vi. CDM Smith Plan Set: C-2,6-10, 10B, 11-17, 18A, 18B, 2, 19, 23-29, 9, 11-14, 18 A, 18 B. vii. CDM Smith Plan Set: Attachment 4: Floodway & Flood Fringe Encroachment Areas 60% Submittal C9, 5, 11, 13, 14, 9, 9, 9, 9, 11 (10 sheets), 5 (8 sheets), CS1-CS4. Based on the review the following comments are provided:

1. Proposed construction wetland “replication” appears to consist of excavation adjacent to existing wetland and installation of 3 inches of hydrophic soil. Provide additional information associated with the hydrophic soil specification and post development groundwater depth to support wetland “replication” areas. DPW Engineering Division proposes a min of 12 inch depth of hydrophic soil within wetland “replication” area. On adjacent 2:1 slopes 6 inches of hydrophic soil is sufficient. Detail/document short and long term monitoring and wetland “replication” area management plan to ensure long-term viability of area.

4/22/24 Applicant Response: The wetland replication and compensatory storage plans and sections have been revised to address the above comments. Please note that due to the presence of a vernal pool in the upper wellfield area the compensatory storage and wetland replication area was moved further north. In addition, the United States Army Corp of Engineers (USACE) has requested a 3:1 wetlands replication as part of their permit review. These changes are reflected in revised sheets WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 and C-14A which are attached herein as Attachment 1.A. Also attached as Attachment 1.B. are the calculations for the compensatory storage. More information about the vernal pool can be found in the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is also attached to this document as Attachment 1.C. Sheet XS-5 and Section 4 of the NBWD Supplemental Environmental/Wetlands Permit Information detail the short term and long term monitoring for wetland replication.

5/2/24 City Response: Depth of hydrophilic soil revised in wetland “replication” detail”. Please have the Cert Soil Scientist available to address the Commission with the post development groundwater depth to support the wetland “replication”, the additional wetland replication requested by the USACE and specification for the hydrophilic soil.

2. Plan indicates dewater sedimentation basin, however provide anticipated/ proposed discharge rates with sizing of sedimentation basins. In addition, indicate controls / monitoring of turbidity discharge from sedimentation basin.

4/22/24 Applicant Response: Temporary dewatering sedimentation basins are intended to be used in the event high groundwater is encountered during excavation activities. Anticipated/proposed discharges will vary depending on the required amount of excavation dewatering but typically can range from 20-50 gpm, intermittently. As shown in Detail J of Drawing Sheet C-24 (included herein as Attachment 2), the dewatering sedimentation basin size may vary depending on necessity with a 5-foot diameter being the minimum diameter of the basin. Sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. The Contractor may also elect to install permeable geotextile dewatering bags in addition to the dewatering sedimentation basins for sediment filtration.

5/2/24 City Response: Please provide additional details/procedures to prevent sediment/ discharge of dewatering water from being discharges with a high turbidity.

3. Provide construction sequence with durations along with staging plan, areas of stockpile storage and refueling areas.

4/22/24 Applicant Response: See the Proposed Construction Sequence Memorandum included in Attachment 3.A. for more information, and the associated Drawing Sheets C-20, C-21, and C-22 in Attachment 3.B. Additionally, see Sheet C-1 and C-7 of Attachment 3.B. for notes and depiction of Contractor staging, stockpiling, and refueling areas.

5/2/24 City Response: Construction sequence provided. Please have a representative available to review the sequence and anticipated duration of construction with the Commission.

4. Clarify proposed location of floating turbidity curtain.

4/22/24 Applicant Response: Floating turbidity curtains are to be located within the canal, east and west of the proposed sediment removal areas. See revised Sheet C-23 in Attachment 4.

5/2/24 City Response: Turbidity curtain location clarified.

5. Include installation line of silt fence along the toe of ALL proposed slopes. Silt fence shall be installed prior to construction, be monitored during construction and removed once slopes are stabilized.

4/22/24 Applicant Response: Notes requiring the installation of silt fence has been included throughout drawings. See revised sheets C-1, C-6, C-7, C-8, C-13, C-14, C-14A in Attachment 5.

5/2/24 City Response: No additional comments.

6. Provide additional detail associated with compensation storage area 3. The plans indicate excavation to elevation 252, however indicate proposed access to area, erosion control and restoration.

4/22/24 Applicant Response: The revised plans referenced in Comment Response #1 address these comments.

5/2/24 City Response: No additional comments, please be prepared to address any questions the commission may have at the meeting.

7. Provide additional detail associated with compensation area 4, including additional elevation east of the area between the compensation area and the Coppermine. Detail cross section AA-1 and indicate erosion control measures and proposed access to area.

4/22/24 Applicant Response: The revised plans referenced in Comment Response #1 address this comment.

5/2/24 City Response: 9. No additional comments, please be prepared to address any questions the commission may have at the meeting.

8. The Storm Water Management Report is prepared in accordance with the CT Storm Water Quality Manual. As indicated in your report the manual requires maintaining the pre- development annual groundwater recharge volume. The report indicates recharge is achieved through reduction in impervious area, however please indicate impact of additional well withdrawal will have a wetlands.

4/22/24 Applicant Response: See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is included in Attachment 1.C.

5/2/24 City Response: Please have a representative available address any questions the Commission may have regarding section 3 and 4 (Impact to Wetlands Associated with Well Drawdown & Wetland Creation) of the Supplemental Env/Wetland Permit Information.

9. Proposed plans indicate flood plain mitigation measures (excavation within flood plain to offset the placement of fill within flood plain). However, Bristol DPW recommends a CLOMR prior to work and will require a LOMR as condition of approval (if approved).

4/22/24 Applicant Response: See No Rise Certification included in **Attachment 9**. No objection to coordinating with FEMA for CLOMR/LOMR as a condition of approval.

5/2/24 City Response: Comment received, please plan on submitting a LOMAR to FEMA.

Responses to North Central Conservation District (Letter Dated March 28, 2024):

1. See the Letter from CT DEEP in **Attachment 10**, which confirms the continued applicability of the Diversion Registration to the facilities and that no diversion permit is required for continued operation of the facilities as proposed with this project.
2. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information, included in **Attachment 1.C.**, concluding no permanent impacts from withdrawals.
3. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information and the related Supplemental Alternatives Evaluation contained therein, detailing alternatives considered for this project. There are no feasible and prudent alternatives to the proposed plan.
4. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information concluding no permanent impacts to wetlands functions and values.

Additional Information Submitted:

1. Detailed Groundwater and Stream Flow Monitoring Plan, as required by CT DPH, is included in **Attachment 11**.
2. Letter confirming hydrogeologic information for project site remains valid. See **Attachment 12**.
3. Proposed wetlands boundary line change map is submitted for consideration. See **Attachment 13**.
4. Resumes of Engineers and Soil Scientist are included in **Attachment 14**.

Attachments Includes:

Response 1 – Attachments

- 1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A
- 1.B. Calculations: Compensatory Storage
- 1.C. NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC

Response 2 – Attachment

- 2. Drawing: C-24

Response 3 – Attachments

- 3.A. Proposed Construction Sequence Memorandum
- 3.B. Drawings: C-1 and C-7; C-20, C-21, and C-22

Response 4 – Attachment

- 4. Drawing: C-23

Response 5 – Attachment

- 5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A

Response 9 – Attachment

- 9. No Rise Certification

Attachment 10

- 10. CT DEEP Permit Need Determination

Attachment 11

- 11. Detailed Groundwater and Stream Flow Monitoring Plan

Attachment 12

- 12. Letter confirming hydrogeologic information for project site remains valid

Attachment 13

- 13. Proposed wetlands boundary line change map

Attachment 14

- 14. Resumes of Engineers and Soil Scientist
 - Sebastian Amenta, P.E.
 - Ian T. Cole - Professional Soil Scientist
 - Joseph L. Laliberte, PE, BCEE, PM
 - Clinton L. Webb Jr. – Senior Environmental Scientist/Ecologist

If you have any questions or require any additional information, please do not hesitate to contact me at 860.224.0442 or samenta@ceiengineers.com.

Link to City of Bristol 3rd Party Environmental Review Agreement:

[https://www.bristolct.gov/DocumentCenter/View/46665
/N-PRP-2401017-City-of-Bristol-WhiteBridge-Well-Field-
Review--04162024](https://www.bristolct.gov/DocumentCenter/View/46665/N-PRP-2401017-City-of-Bristol-WhiteBridge-Well-Field-Review--04162024)

Link to Response 1 - Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46659/Response-1-Attachments>

Response 1 – Attachments

1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A

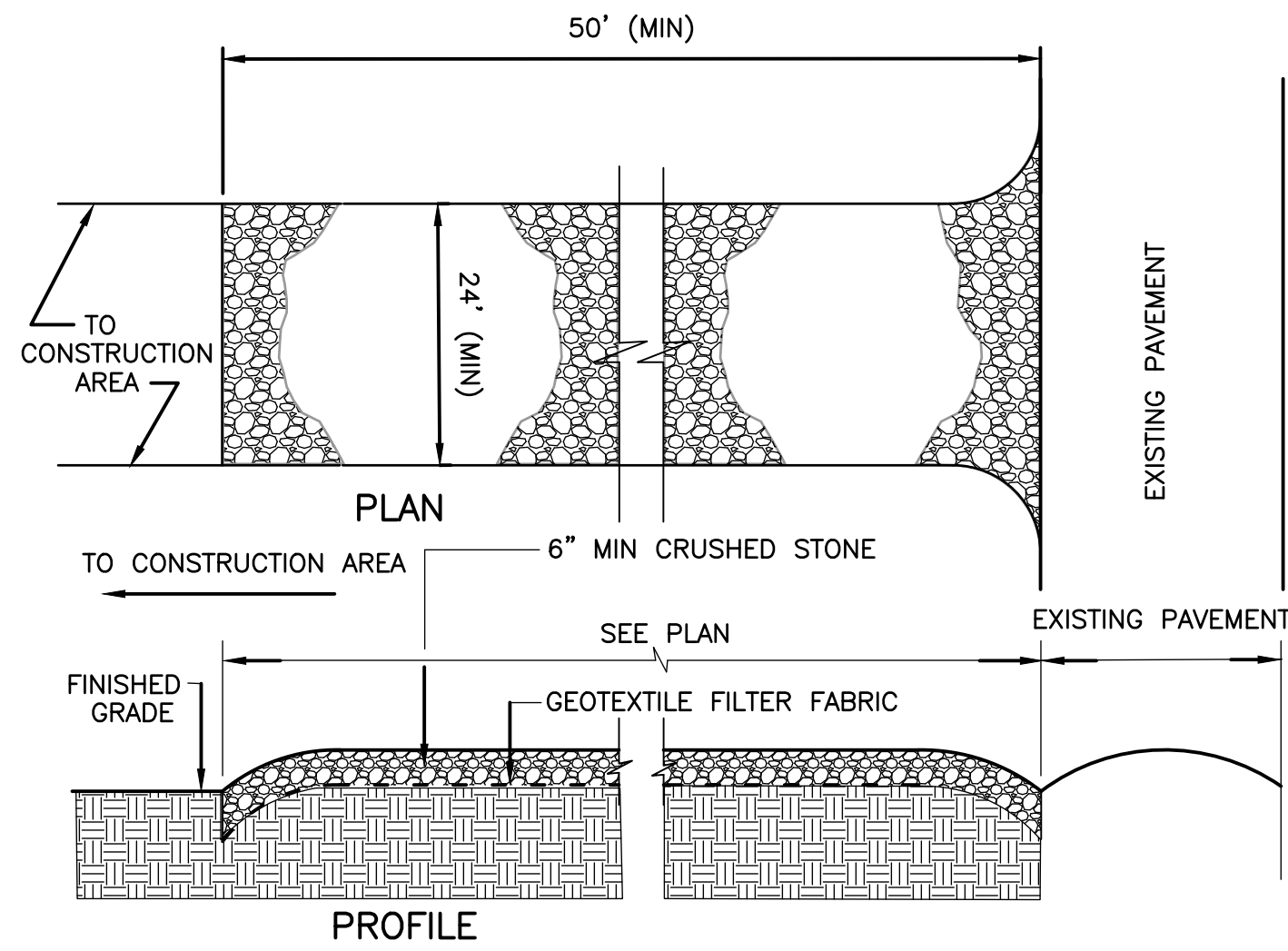
1.B. Calculations: Compensatory Storage

1.C. NBWD Supplemental Environmental/Wetlands Permit Information prepared by C.Webb and Associates, LLC

Response 2 – Attachment

2. Drawing: C-24

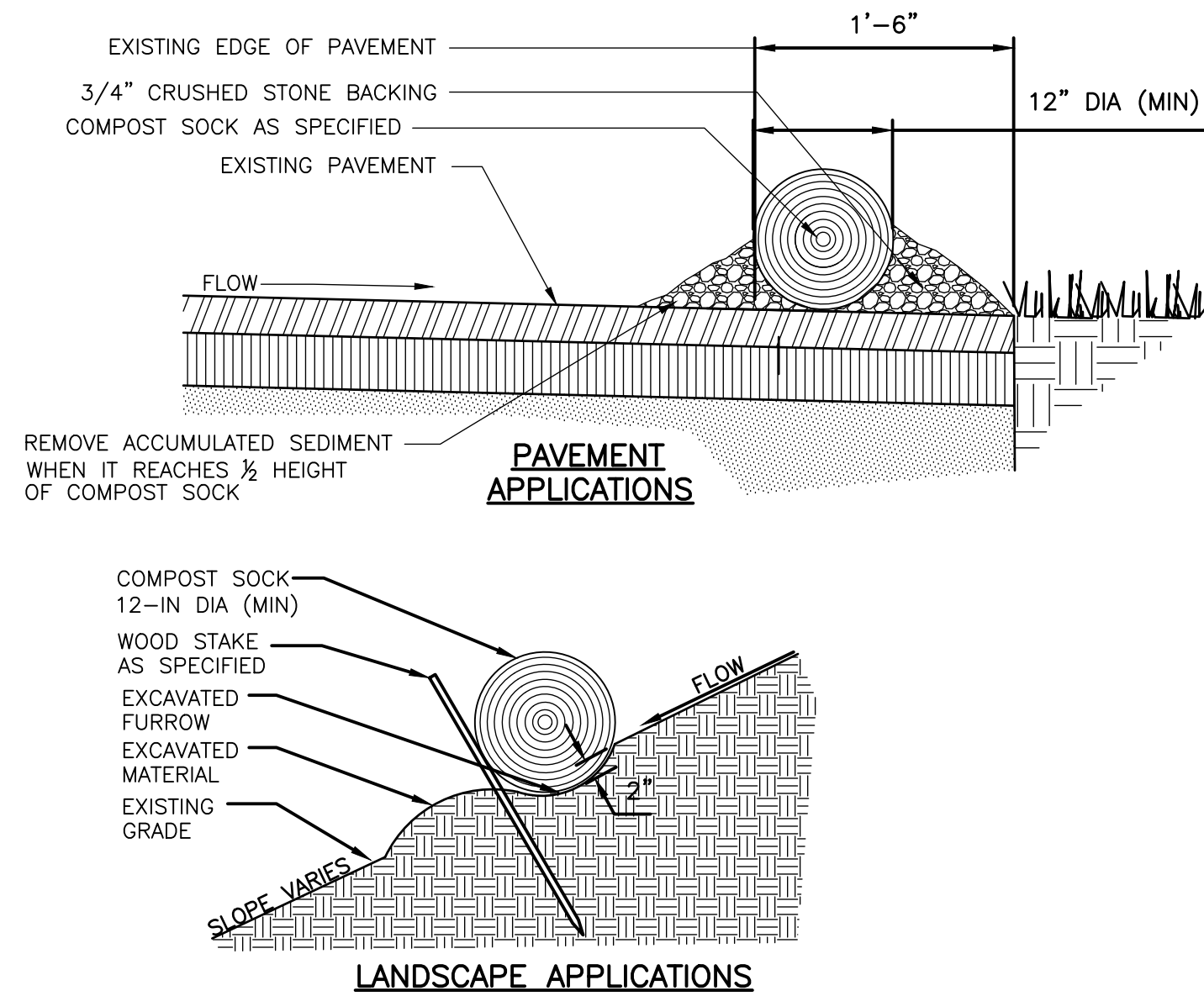
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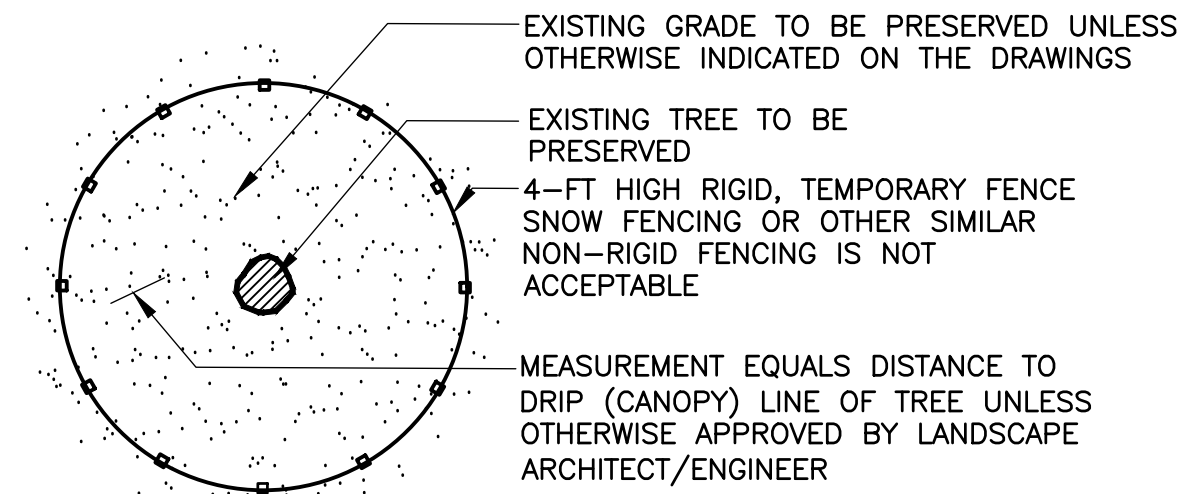
STABILIZED CONSTRUCTION ENTRANCE
DETAIL A
NOT TO SCALE

NOTES:

- 1.) PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND EXISTING PAVEMENT.
- 2.) LIMITS OF STABILIZED CONSTRUCTION ENTRANCE SHALL BE AS DIRECTED BY THE ENGINEER.
- 3.) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDING STONE TO THE LENGTH OF THE ENTRANCE.
- 4.) REPAIR AND CLEANOUT MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO EXISTING PAVEMENT SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.



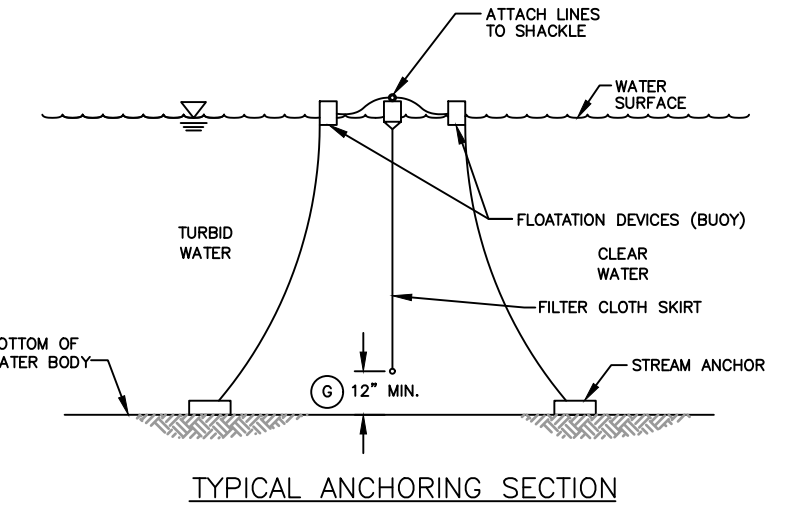
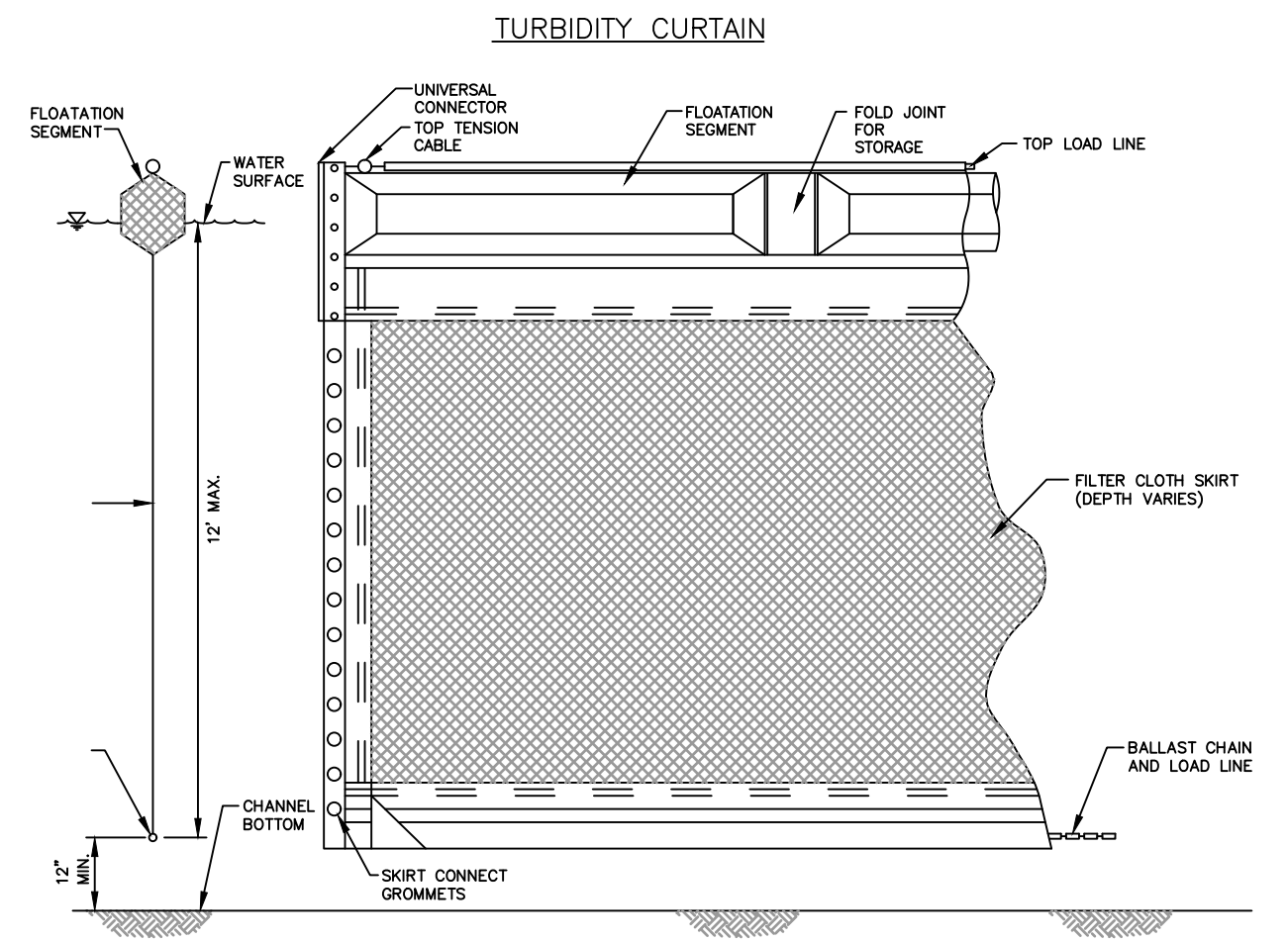
COMPOST SOCK
DETAIL B
SCALE: NTS



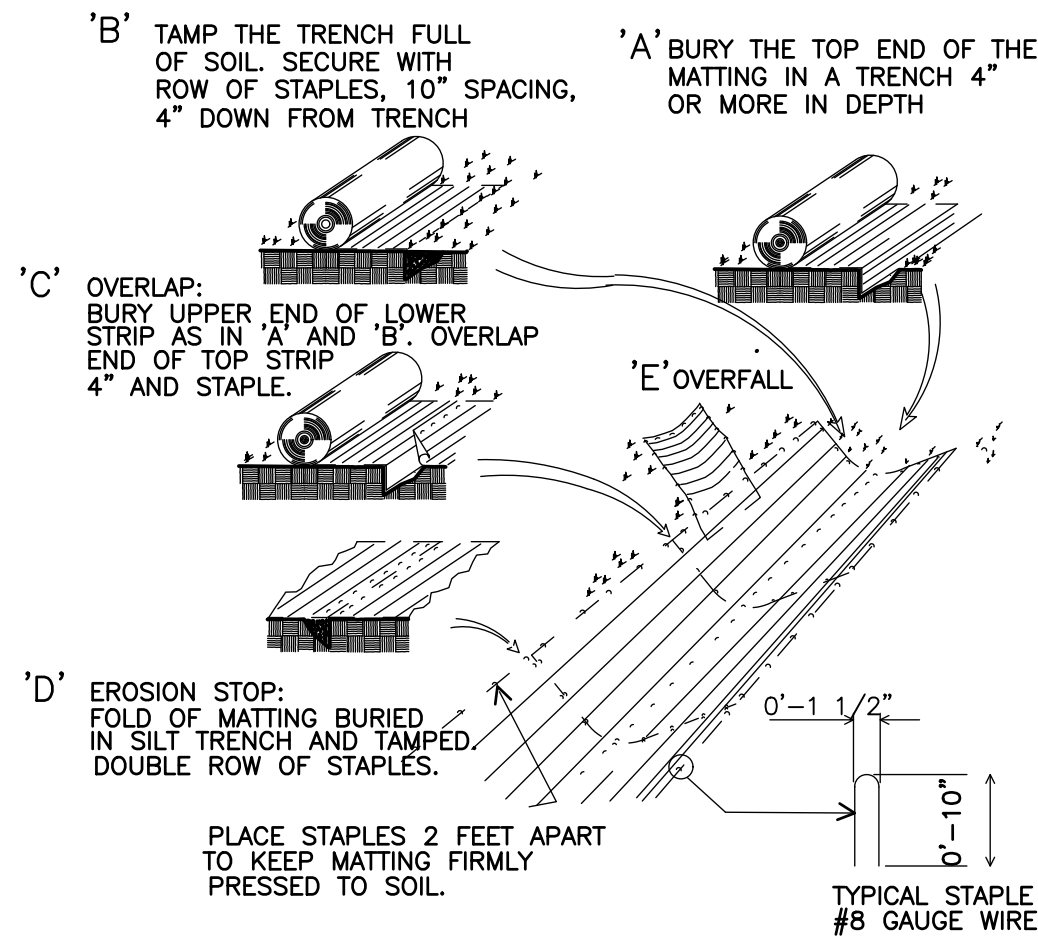
NOTES:

1. FENCING SHALL BE INSTALLED AROUND PERIMETER OF ALL EXISTING TREES TO BE PRESERVED WITHIN THE LIMIT OF WORK.
2. FENCING MAY BE REMOVED TEMPORARILY, ONLY AS REQUIRED TO PERFORM THE WORK SHOWN ON THE DRAWINGS.
3. FENCING SHALL REMAIN IN PLACE & BE MAINTAINED THROUGHOUT CONSTRUCTION AND THEN REMOVED COMPLETELY.

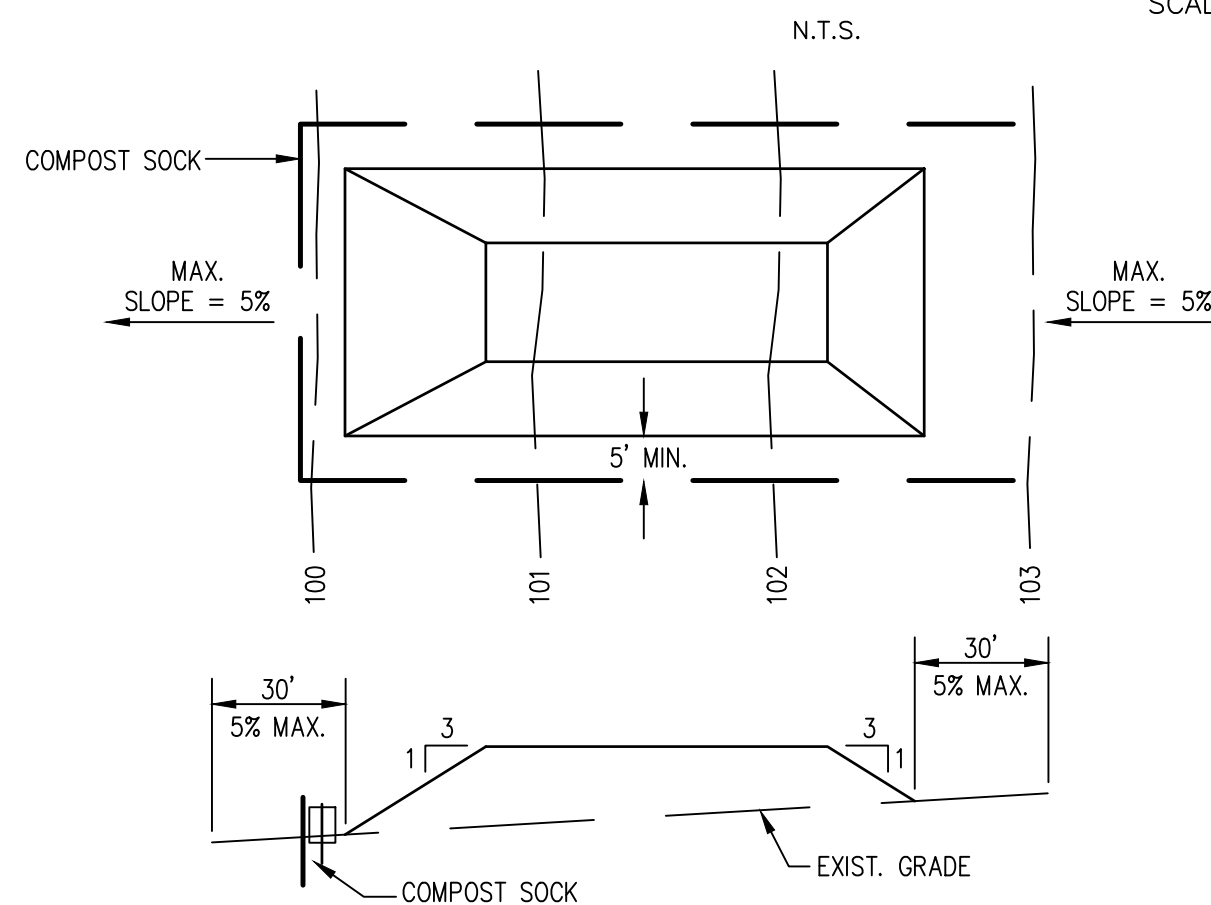
TREE PROTECTION
DETAIL C
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TURBIDITY CURTAIN
DETAIL D
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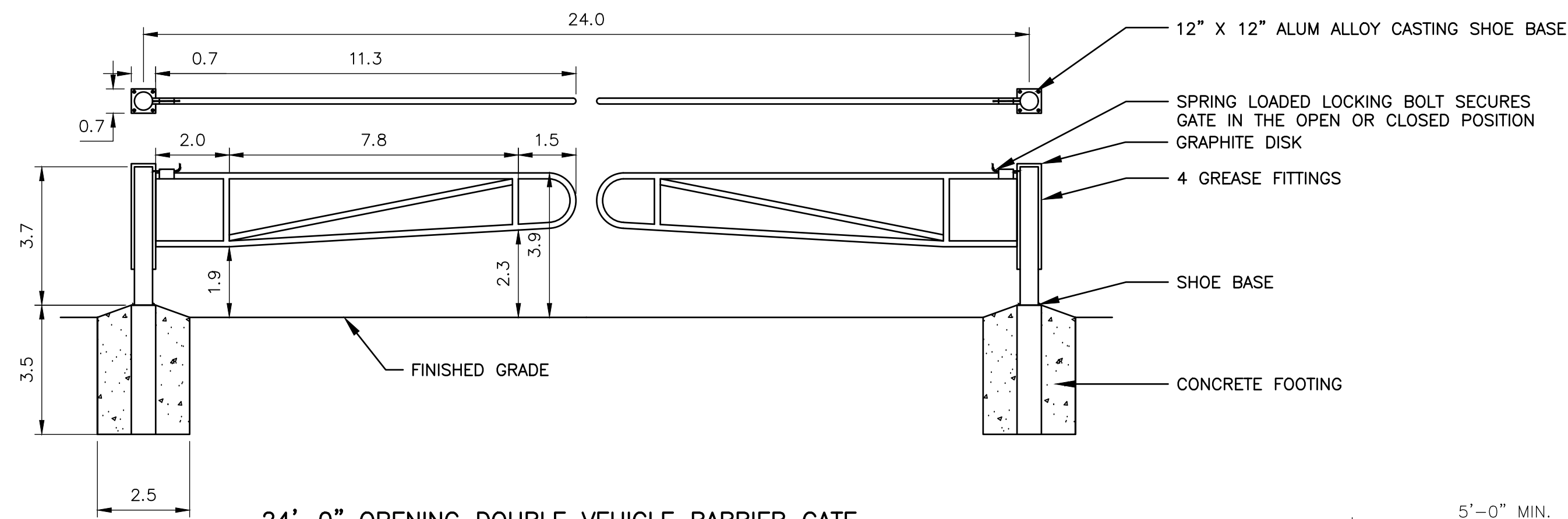
EROSION CONTROL BLANKET
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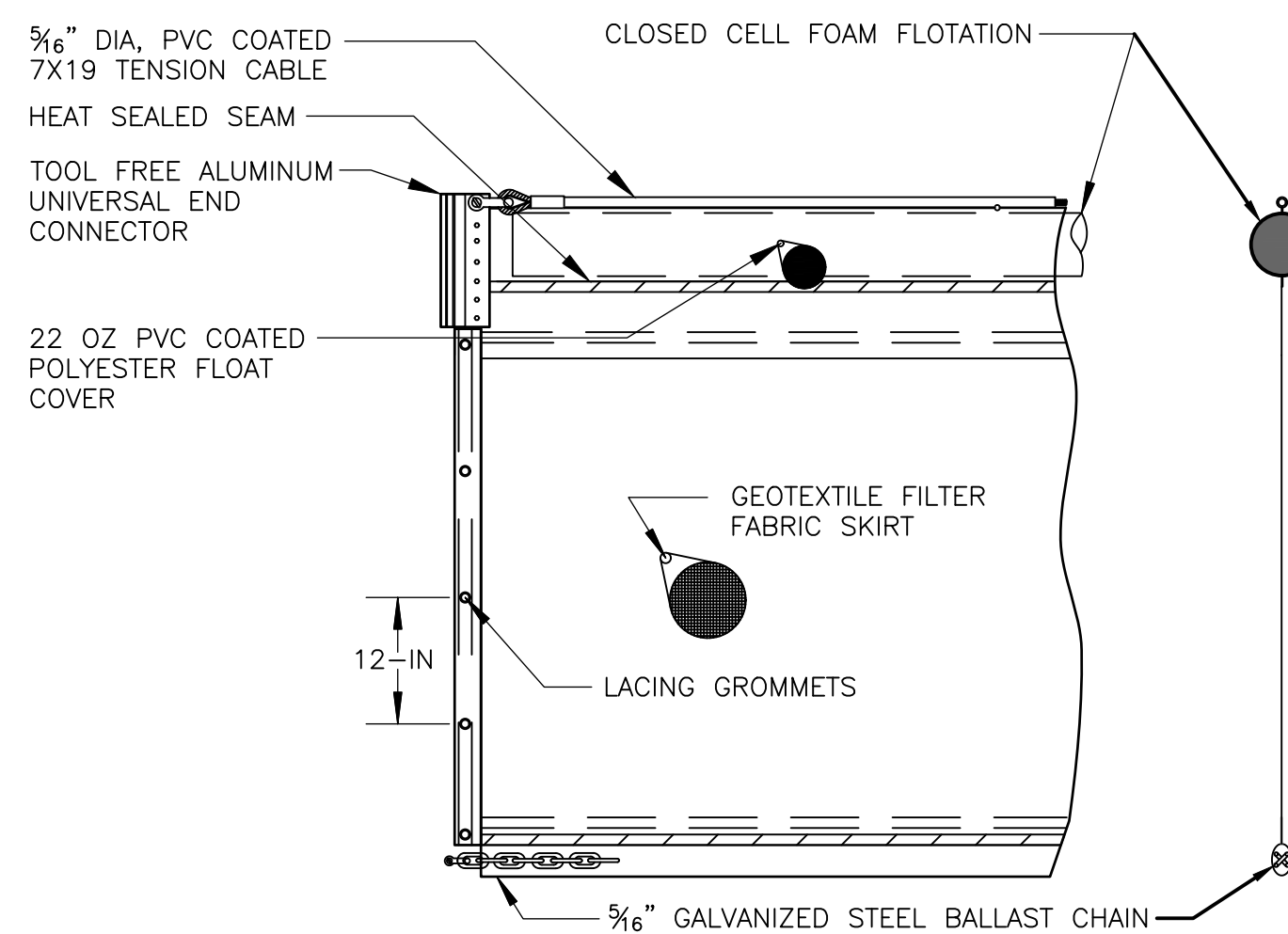
NOTES:

1. PLACE STOCKPILES AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
2. ALL SIDE SLOPES SHALL BE 3 TO 1 OR FLATTER.
3. STOCKPILE SHALL RECEIVE A VEGETATIVE COVER IN ACCORDANCE WITH MINIMUM STABILIZATION REQ.
4. COMPOST SHALL BE INSTALLED AS DETAILED HEREON.

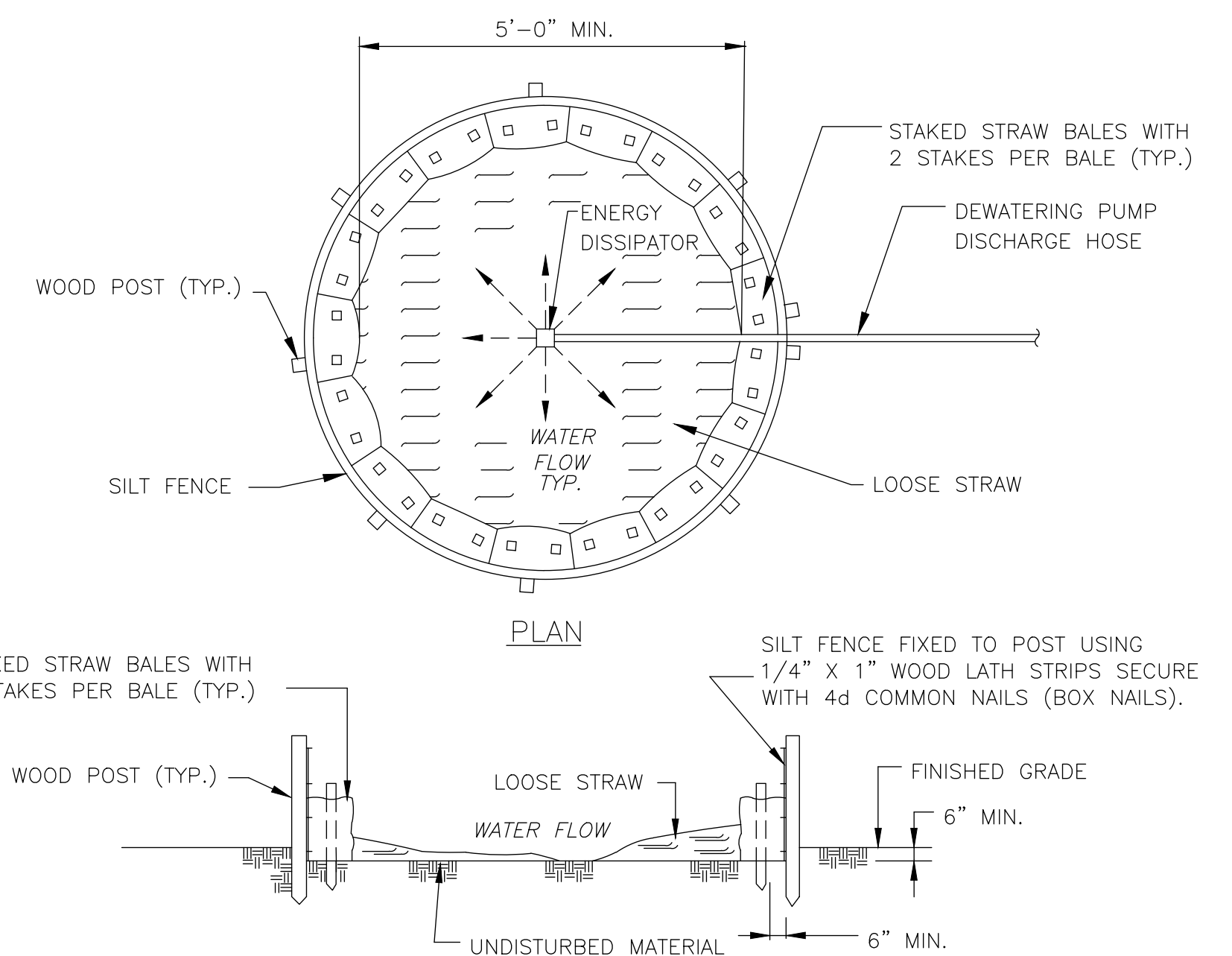
SOIL STOCKPILE
DETAIL F
NOT TO SCALE



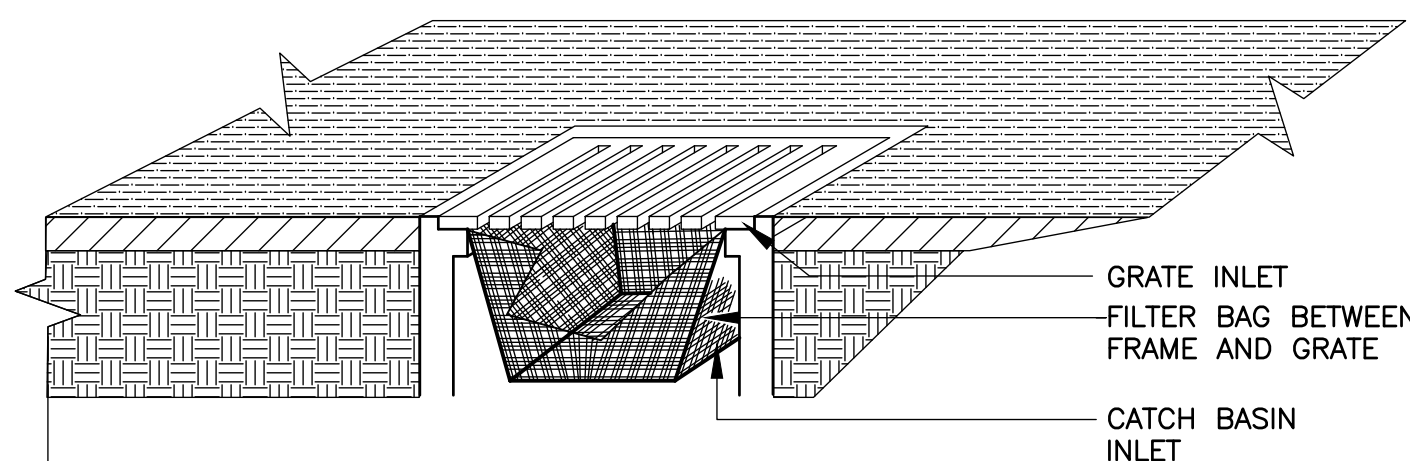
24'-0" OPENING DOUBLE VEHICLE BARRIER GATE
DETAIL G
NOT TO SCALE



FLOATING TURBIDITY BARRIER
DETAIL I
NOT TO SCALE



DEWATERING SEDIMENTATION BASIN
DETAIL J
NOT TO SCALE



CATCH BASIN FILTER
DETAIL H
NOT TO SCALE

DESIGNED BY: K. GERLACH
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: K. GERLACH
APPROVED BY: K. WAGNER
DATE: APRIL 2023

CDM Smith
77 Hartland Street, Suite 200
East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

CIVIL DETAILS I

PROJECT NO. 10739-264571
FILE NAME: CD001CSDT.DWG
SHEET NO.
C-24

Link to Response 3 Attachments:

<https://www.bristolct.gov/DocumentCenter/View/46660/Response-3-Attachments>

Response 3 – Attachments

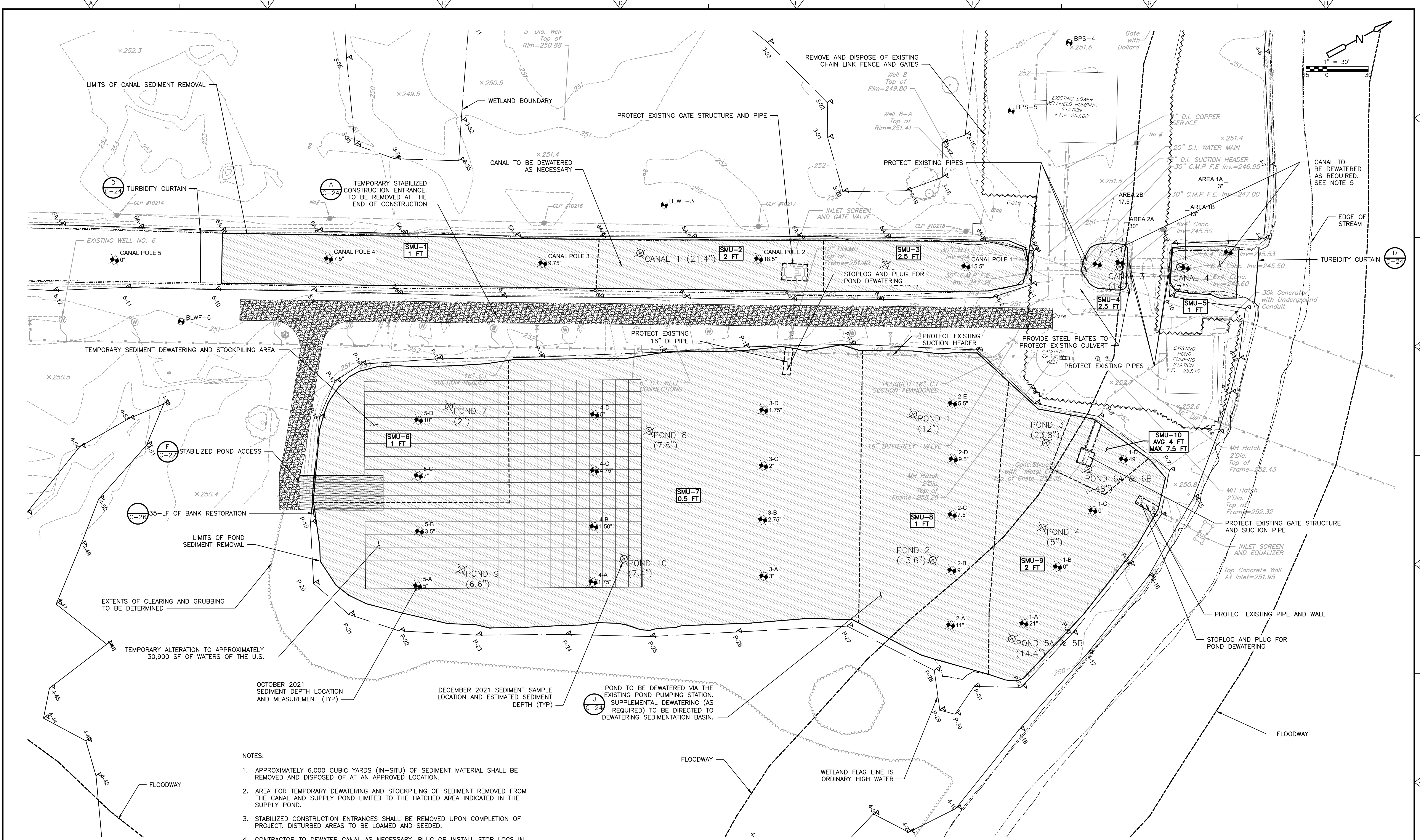
3.A. Proposed Construction Sequence Memorandum

3.B. Drawings: C-1 and C-7; C-20, C-21, and C-22

Response 4 – Attachment

4. Drawing: C-23

XREFs: [TEST HOLE POINTS, CDMS 2436, XSYRLO40, 2022-17, BORING LOCATIONS, Floodway_Floodplain] Images: []
Last saved by: ENGELS.B, Time: 3/1/2024 3:37:31 PM
C:\Users\engelsb\Documents\CDM Smith Inc\10739-264571 - New Britain CT White Bridge Well Fields and PS\Project Files\02 Civil (C)\10 CADD\C023SDRM.dwg
© 2024 CDM SMITH. ALL RIGHTS RESERVED. THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



- NOTES:
- APPROXIMATELY 6,000 CUBIC YARDS (IN-SITU) OF SEDIMENT MATERIAL SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION.
 - AREA FOR TEMPORARY DEWATERING AND STOCKPILING OF SEDIMENT REMOVED FROM THE CANAL AND SUPPLY POND LIMITED TO THE HATCHED AREA INDICATED IN THE SUPPLY POND.
 - STABILIZED CONSTRUCTION ENTRANCES SHALL BE REMOVED UPON COMPLETION OF PROJECT. DISTURBED AREAS TO BE LOAMED AND SEEDED.
 - CONTRACTOR TO DEWATER CANAL AS NECESSARY. PLUG OR INSTALL STOP LOGS IN EXISTING CULVERTS OR INSTALL COFFERDAM. SUPPLEMENTAL DEWATERING (AS REQUIRED) TO BE DIRECTED TO DEWATERING SEDIMENTATION BASINS.

PLAN
1" = 30'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. BURKE
DRAWN BY: S. ENGEL
SHEET CHK'D BY: K. GERLACH
CROSS CHK'D BY: T. BURKE
APPROVED BY: K. WAGNER
DATE: JANUARY 2024



CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

SUPPLY POND AND CANAL
SEDIMENT REMOVAL PLAN

PROJECT NO. 10739-264571
FILE NAME: C023SDRM.DWG
SHEET NO. C-23

Link to Response 5 Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46664/Response-5-Attachments>

Response 5 – Attachment

5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A

Link to Response 9 Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46661/Response-9-Attachments>

Response 9 – Attachment

9. No Rise Certification

Attachment 10

10. CT DEEP Permit Need Determination



Mr. Sebastian Amenta, P.E.
Comprehensive Environmental, Inc.
1 Hartford Square, Suite 227
New Britain, CT 06052
samenta@ceiengineers.com

RE: Request for Diversion Permit Need Determination
Whites Bridge Wellfield Improvements
New Britain Water Department
Bristol, CT

Dear Mr. Amenta:

This letter is in response to your November 8, 2023 request for Water Diversion permit need determination regarding your proposal to modify certain registered water diversions. The proposed activities are documented in the report you submitted on behalf of the New Britain Water Department (NBWD) entitled “Negative Declaration of Diversion / White Bridge Wellfield Improvements / Bristol, Connecticut,” dated November 2023 (“the report”), as well as other information provided in a subsequent email dated December 5, 2023. The project involves the replacement of several public water supply wells that make up two separate, but nearby wellfields registered to the NBWD pursuant to Section 22a-368 Connecticut General Statutes (CGS) as described in the table below.

REGISTRATION NUMBER	NAME OF DIVERSION	REGISTERED WITHDRAWAL (million gallons per day)	BASIN NAME
4314-007-PWS-GR	Upper White Bridge Wells	2.1600	Copper Mine River
4314-008-PWS-GR	Lower White Bridge Wells	6.6240	Copper Mine River

The report states that these “wellfields are unable to be used in accordance with their original design intent and drastic improvements are needed due to poor groundwater well performance caused by clogged well screens and an antiquated suction withdrawal system.” The proposed redevelopment includes the abandonment of all existing wells in these two wellfields, replacing them with new wells, all within the extent of the existing wellfields as registered. The proposed wells, as described in the report, will be withdrawing from the same stratified drift aquifer wherein the existing wells are located.

Based on our review of your submittal, it has been determined that this proposal as presented in the submitted materials conforms with Section 22a-377(c)-1(c)(1) of the Regulations of Connecticut State Agencies (RCSA) included below in its entirety:

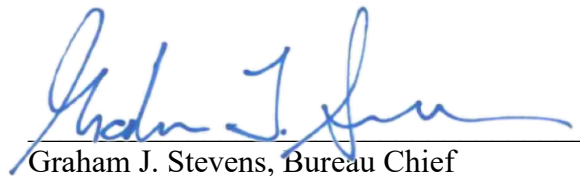
Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may maintain such diversion only in accordance with the information provided in the registration form filed with the Commissioner. Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may not cause or allow any modification of such diversion, including but not limited to an increase in withdrawal capacity, without having first obtained a permit under sections 22a-365 to 22a-378, inclusive, of the General Statutes and 22a-377(c)-2 of the Regulations of Connecticut State Agencies, unless such modification is exempt under section 22a-377 of the General Statutes or section 22a-377 (b)-1 of the Regulations of Connecticut State Agencies.

As such, this department finds that the proposed diversion modifications, comprising of the wellfields identified on page 1 of this determination, **will not** require a water diversion permit pursuant to Section 22a-368(a) CGS, provided the total combined withdrawal from the respective wellfields does not exceed the registered withdrawal as indicated in the above table. However, it is requested that you keep us informed as the project develops, particularly on matters relating to aquifer response modeling and induced infiltration studies.

If you should have any additional questions regarding this matter, please contact Doug Hoskins at 860-424-4192 or douglas.hoskins@ct.gov.

February 21, 2024

Date



Graham J. Stevens, Bureau Chief
Water Protection and Land Resources

GS/dh

Cc:

Ray Esponda, New Britain Water Dept., Ray.Esponds@NewBritainCT.gov

Raul Tejada, CT DPH, raul.tejada@ct.gov

Lori Mathieu, CT DPH, Lori.Mathieu@ct.gov

Brendan Schain, CT DEEP brendan.schain@ct.gov

Shalyn Zappulla, CT DEEP shalyn.zappulla@ct.org

Alicia Charamut, Rivers Alliance, alicea@riversalliance.org

Link to Attachment 11:

<https://www.bristolct.gov/DocumentCenter/View/46662/Response-11-Attachments>

Attachment 11

11. Detailed Groundwater and Stream Flow Monitoring Plan

Attachment 12

12. Letter confirming hydrogeologic information for project site remains valid



COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

Gateway Crossing
1 Hartford Square East, Suite 227
New Britain, CT 06052
860.224.0442

April 30, 2024

Robert Flanigan, City Planner
City Hall
111 North Main Street
Bristol, CT 06010

**RE: White Bridge Wellfield Improvements -Applications #2019, #2020 & #23-458F-305
Confirmation of Hydrogeologic Report**

Pursuant to City Staff request Comprehensive Environmental Inc. is confirming by way of this letter that the hydrogeologic studies and report (*Hydrogeology Report of Upper and Lower White Bridge Wellfield Bristol, Connecticut* dated April 6, 2020) submitted to CT DPH for the above project site is still valid and relevant for the intended use.

Feel free to contact me with any questions or comments at 860-620-3673 or samenta@ceiengineers.com.

Sincerely,

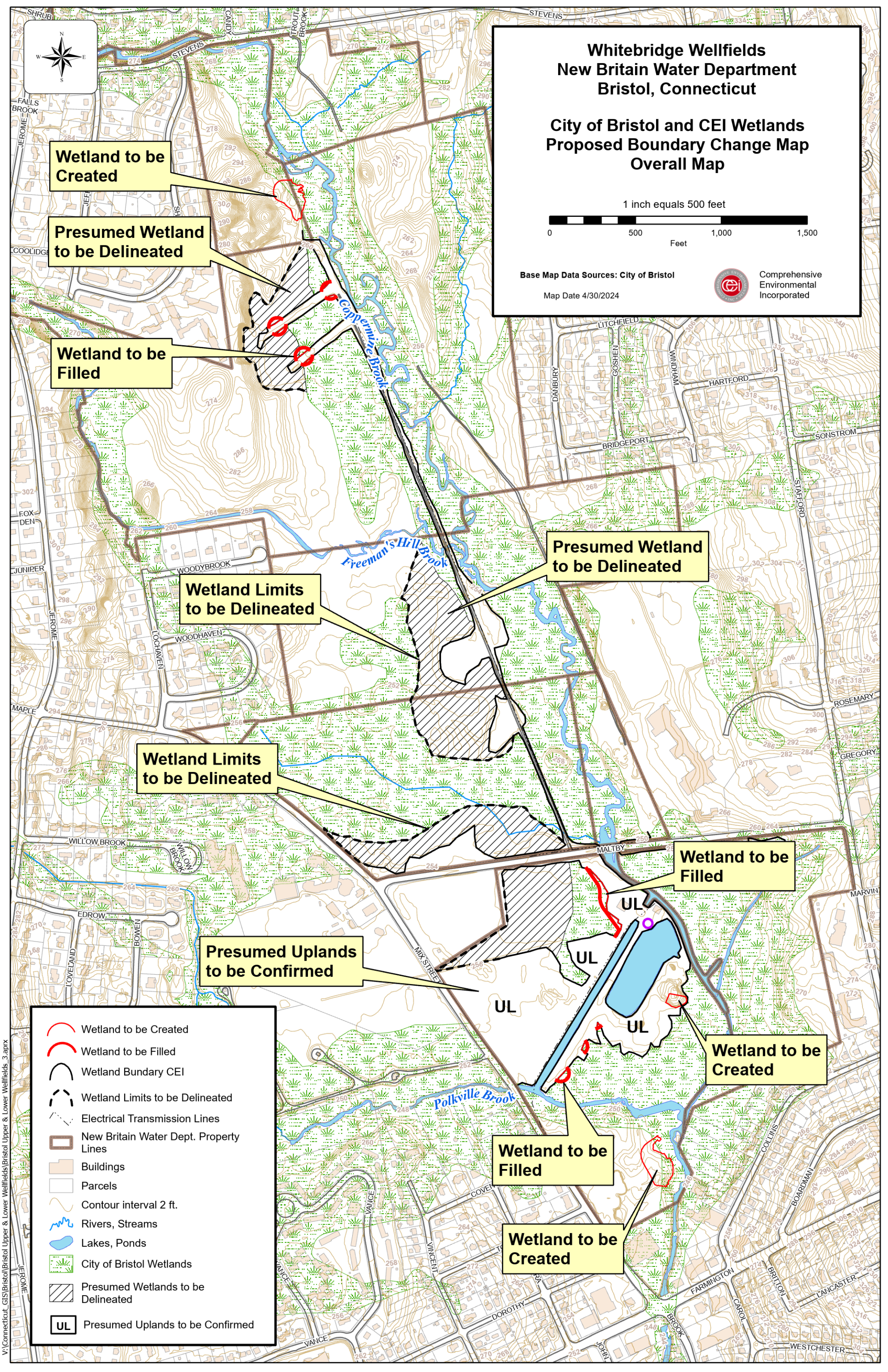
COMPREHENSIVE ENVIRONMENTAL INC.

A handwritten signature in blue ink that reads "Sebastian A. Amenta". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Sebastian A Amenta, P.E.
Northeast Program Manager

Attachment 13

13. Proposed wetlands boundary line change map



V:\Connecticut_GIS\Bristol\Bristol Upper & Lower Wellfields\Bristol Upper & Lower Wellfields_3.aprx

Link to Attachment 14:

<https://www.bristolct.gov/DocumentCenter/View/46663/Response-14-Attachments>

Attachment 14

14. Resumes of Engineers and Soil Scientist



AVON ▪ BLOOMFIELD ▪ BOLTON ▪ BRISTOL ▪ BURLINGTON ▪ CANTON ▪ COVENTRY ▪ EAST GRANBY ▪ EAST WINDSOR ▪ EAST HARTFORD ▪ ELLINGTON
ENFIELD ▪ FARMINGTON ▪ GLASTONBURY ▪ GRANBY ▪ HARTFORD ▪ MANCHESTER ▪ PLAINVILLE ▪ SIMSBURY ▪ SOMERS ▪ SOUTH WINDSOR
STAFFORD ▪ SUFFIELD ▪ WEST HARTFORD ▪ WETHERSFIELD ▪ TOLLAND ▪ VERNON ▪ WILLINGTON ▪ WINDSOR ▪ WINDSOR LOCKS

Date: March 28, 2024

To: Nancy Levesque, Bristol City Engineer
Bristol Inland Wetlands and Watercourses Commission

From: Covill, Natural Resources Specialist *Cameron J. Covill*
Joanna Shapiro, Executive Director *Joanna Shapiro*

Re: Review of Wetland Application, New Britain Water

This review is limited to a desktop review of the wetland application and related materials, with general recommendations based on the proposed activities. A site walk and wetland boundary review were not completed within the given timeframe.

If the Commission still deems it necessary following their site walk, a limited wetland boundary review can be performed before a subsequent meeting. Based on the size of the site and time limitations, a field review of all wetland boundaries on site by our staff is not feasible, but rather the Commission can direct the District to specific areas they feel require further review.

Background

District staff reviewed the 10-sheet site plan entitled “White Bridge Waterworks Facilities Upper and Lower Wellfields and Pond Pumping Station” prepared by CDM Smith dated December 2022, as well as Attachment 3, “Project Drawings” and Attachment 4, “Floodway and Flood Fringe Encroachment Areas” (hereto forth referred to as “the Plans”). Staff also reviewed the materials submitted for applications #23-458F-305, #2019 and #2020 along with previous meeting minutes, relevant imagery, topographic, soil, and other maps.

The Plans propose construction of a new single building to house surface water pumping facilities with space for future groundwater treatment facilities, well replacement at Lower and Upper Wellfields, dewatering and sediment removal from the existing pond and canal, new utility connections, culvert replacement, paving an existing gravel access road, and associated work to ultimately bring an aging facility up to current requirements. In order to become a potable water supply, any new wells must be located 50 feet from any water bodies or wetland limits per CT Department of Public Health requirements. The wells must be raised 2’ above the one-hundred-year flood elevation. Due to these requirements, existing wells cannot be used and the new wells are proposed. Wetland resources are proposed to be filled in order to comply with these DPH regulations. Wetland replication, replacement, and enhancements are proposed to mitigate or offset the loss of these wetland areas, and compensatory flood storage areas are proposed to offset the activities which may raise the flood elevation, per FEMA requirements.

Comments/Recommendations

Withdrawals/Flow Calculations

Discussion on the record has included concern related to groundwater withdrawals. While groundwater withdrawals are regulated by CT DEEP and are not explicitly in the purview of the Inland Wetlands and Watercourses Commission, they may be considered if the Commission has reason to believe that such withdrawal may impact wetlands or watercourses. Review of aquifer withdrawals, resiliency, and recharge, and their impacts to wetlands and watercourses are outside the area of expertise of the North Central Conservation District.

- The Commission may request additional information from the applicant or intervenor regarding the potential impact of withdrawals on wetlands and watercourses, including their functions and values, if deemed a concern of the Commission necessary to render a decision and/or to rule on the claims of the petition to intervene.
- If additional information from the applicant or intervenor is deemed insufficient to make these rulings, the Town may consider further 3rd party review from a hydrogeologist or similarly qualified individual or firm, to review the proposed withdrawals from the aquifer as it pertains to impacts to the wetlands and watercourses in the project area.

In the comments submitted by Rivers Alliance on February 5th, 2024, they note that for diversions registered prior to 1983, registrants have rights to divert the amount of water originally registered in perpetuity, and that they were never and are not currently subject to any environmental review.

- Recommend that the Town request information from the applicant and CT DEEP on the accuracy of this statement, and whether any environmental review or impact analysis has ever been completed for this project location.

In Application #2020, the applicant states in the Additional Comments/Information section, “No flow calculations are provided due to zero impact as a result of the proposed work”.

- If the Commission has concerns about potential wetland/watercourse impacts related to potential flow alteration as a result of this application, recommend requesting flow calculations from the applicant to determine the average and seasonal flows of the brook, the average and/or seasonal withdrawals proposed, and any historical withdrawal information the applicant can provide.
- Recommend that the Commission require the applicant to develop an action plan to be submitted to and approved by the Commission, outlining under which circumstances withdrawals would be limited or stopped to ensure adequate flows, both for the benefit of future withdrawals and to reduce or prevent negative impacts to wetlands, watercourses, and dependent flora and fauna. To develop this action plan, recommend that the applicant use historical flow data from stream gauges or similar methods, predicted future flow calculations, and average rainfall data, contrasted with proposed withdrawal amounts and frequencies. This action plan can be required as part of the application, or this can potentially be a condition of approval of a Wetland Permit.

Functions and Values Assessment

Functions and values were assessed within the applicant’s soil scientist’s report, and replication/replacement of wetlands is proposed. However, it was not made clear in the application materials or the meeting minutes whether those functions and values of the existing wetlands will be preserved or replicated.

- Recommend that the Commission request testimony from the project soil scientist regarding whether functions and values assessed for existing wetlands will be preserved and/or replicated through proposed wetland replications, replacements, or enhancements.

Alternatives Analysis

Per section 10.3 of the Bristol Inland Wetlands and Watercourses Regulations, “In the case of an application which received a public hearing pursuant to a finding by the Inland Wetlands Agency that the proposed activity may have a significant impact on wetlands or watercourses, a permit shall not be issued unless the Agency finds on the basis of the record that a feasible and prudent alternative does not exist. In making the finding, the Agency shall consider the facts and circumstances set forth in subsection 10.2. The finding and the reasons therefore shall be stated on the record in writing”. Section 10.2 outlines the considerations for assessment by the Commission of Prudent and Feasible alternatives.

- While alternatives assessments were discussed upon the record of the March 4, 2024 meeting minutes, the District recommends that the Commissioners review Sections 10.2 and 10.3 of the Bristol Inland Wetlands and Watercourses Regulations, and state upon the record in their decision whether alternatives were adequately assessed to the extent required by the regulations.

Thank you for the opportunity to comment.

HYDROGEOLOGIC STUDY

**UPPER AND LOWER WHITE BRIDGE
WELL FIELDS CITY OF NEW BRITAIN
WATER DEPARTMENT AND MIX STREET
WELL FIELD (WELLS 3, 4, & 5) CITY OF
BRISTOL WATER DEPARTMENT**

PREPARED FOR:

**CITY OF NEW BRITAIN WATER
DEPARTMENT AND CITY OF BRISTOL
WATER DEPARTMENT**

DECEMBER 2007

Prepared by:

LENARD ENGINEERING, INC.

CIVIL, ENVIRONMENTAL & HYDROGEOLOGICAL CONSULTANTS

1768 STORRS ROAD, P.O. BOX 580

STORRS, CT 06268-0580

Executive Summary

In accordance with Level "A" Mapping Regulations, Lenard Engineering, Inc. (LEI) conducted a Level "A" study of The City of New Britain's Lower White Bridge and Upper White Bridge, and The City Bristol's Mix Street well fields, the purpose of delineating the aquifer protection area. The White Bridge Upper well field consists of six well points which travel to a common pump station in the Upper well field. The White Bridge Lower well field consists of 17 gravel packed wells and a caisson well. All of the Lower well field well points travel to a common pump station located in the Lower well field. The Mix Street well field consists of three gravel packed wells (#3, #4, and #5).

Prior to initiating the Level "A" study, LEI prepared a Plan for Data Collection detailing the methodologies to be used during the aquifer testing and ground water modeling portions of the study. The Plan for Data Collection was submitted to and subsequently approved by the DEP.

Between October 21 and October 24, 2004, LEI conducted a 3 day aquifer parameter pump test on the New Britain Upper White Bridge well field. New Britain's Upper White Bridge well field was pumped at 400 gpm. During this test, Bristol's Mix Street well field was pumped at 850 gpm, and New Britain's Lower White Bridge and surface water pumping station (the pond station) were turned off during this pumping test.

Between November 1 and November 8, 2004, LEI conducted a 7 day induced infiltration pump test of the New Britain Upper and Lower White Bridge well fields and on Bristol's Mix Street well field. New Britain's Upper White Bridge and Lower White Bridge well fields were pumped at 400 gpm and 600 gpm, respectively. While, Bristol's Mix Street well field was pumped at 1,240 gpm. New Britain's White Bridge surface water pumping station (the pond station) was turned off during the pumping test.

The above information was reduced, and input to create a 3-D aquifer model. Waterloo Hydrogeologic, Inc. Visual Modflow Version 4.1 software was used to create a 3-D model of the aquifer. The information collected from the pump tests conducted in the fall of 2004 was used to create and calibrate the aquifer model for transient flow conditions. Ground water and surface water elevations and stream flows were entered, and the model calibrated to Level "A" aquifer mapping standards. A sensitivity analysis was conducted on the resulting data.

To verify the accuracy of our aquifer model two previous pump tests were simulated.

The first verification test was a pump test conducted by LEI between June 24 and June 27, 2002, simultaneously pumping the New Britain Upper and Lower White Bridge well field, and the White Bridge surface water pumping station (the pond station). New Britain's Upper White Bridge well field, Lower White Bridge well field and Lower White Bridge pond station were pumped at 600 gpm, 400 gpm and 5.0 MGD, respectively.

White Bridge pond station were pumped at 600 gpm, 400 gpm and 5.0 MGD, respectively.

The second verification test was a pump test conducted by the Center for Engineering between September 11, 1992 and September 18, 1992, pumping the Bristol Mix Street well field well field.

The calibrated model was then used to delineate the aquifer protection area to the well fields. A steady state aquifer model simulation was created using fifty percent duration stream flow rates and mean annual recharge rates for the drainage basin. During the steady state simulation it was determined that the aquifer could not support the maximum registered diversions of the New Britain Upper White Bridge, New Britain Lower White Bridge and Bristol Mix Street well fields. Lenard Engineering, Inc., the City of New Britain Water Department and the City of Bristol Water Department agreed upon pumping rates which would best suit the needs of both water departments. Based on this it was determined to model the aquifer using the maximum pumping rates of the New Britain Upper White Bridge, New Britain Lower White Bridge and Bristol Mix Street well fields as follows:

New Britain Upper White Bridge well field: 840 gpm

New Britain Lower White Bridge well field: 2,190 gpm

Bristol Mix Street well field: 900 gpm

Using these pumping rates, a particle tracking simulation was applied to the aquifer model and groundwater contours were generated. The particle tracking simulation helped to delineate the area of contributions and the groundwater contours were used to determine the recharge areas of the well fields. Based upon these results **Figures 1-3** were generated which depict the area of contributions, recharge areas and indirect recharge areas within a 5 mile radius of the well fields.

Link to Application #2020

Letters, Emails & Correspondence:

<https://www.bristolct.gov/DocumentCenter/View/46561/App-2020-Correspondence-Extracted>



February 26, 2024

Mr. Robert M. Flanagan, AICP-City Planner
City Hall
111 North Main Street
Bristol, CT 06010

RE: UPDATES TO PERMIT APPLICATIONS
#2019, #2020, AND #23-458F-305
FOR THE NEW BRITAIN WATER DEPARTMENT

Dear Mr. Flanagan

The following correspondence is provided to make corrections to the above applications and provide supplemental information for each application.

The attached summary details the documents submitted and the relative application location for submitted correction. Some of this information was previously submitted, but we wish to formally send it for clarity.

- The major items include correcting the text in Application #2020 to make clear that water withdrawals will remain within the registered diversion volumes. In addition CT DEEP has confirmed the registrations will remain in effect and no diversion permits are required. A letter from CT DEEP is included in the information.
- The Flood Plain permit application has been revised to reflect the updated fill and compensatory storage numbers presented at the February 5th hearing, along with a supporting spreadsheet.

We are working with the NBWD to formalize an operations and maintenance plan for canal/pond and related activities which will be submitted shortly.

We will also be contacting FEMA as to the protocol in submitting a certificate of no rise in flood elevation to the commission.

Please contact me if you have any questions at 860 224 0442 or 860 620 3673.

Sincerely,

COMPREHENSIVE ENVIRONMENTAL INC

Sebastian A Amenta, P.E.
Regional Program Director

CC. Nancy Levesque, City Engineer
Andrew Armstrong, Assistant Planner
Ray Esponda, Deputy Director NBWD
Joseph Hammer, Esquire
Vinta Varghese, CDM Smith

Enclosures: Summary of Attachments-#2019, #2020, and #23-458F-305

Summary of Updates
to
Applications #2019, #2020 and #23-458F-305

#2019-1) Please add the attached map to Attachment 4. It is an overlay of scientist wetlands flagging on the City's wetlands map for the project area.

#2020-1) Please insert the corrected page and substitute it for the page on file.

2) Please add the NDDB and SHPO documents to the filing

3) Map showing Monitor well locations and stream gauge locations.

4) Please add the CT DEEP letter which confirms the Diversion Registrations will remain in force and no permit is required.

#23-458F-305-1) Please insert substitute page 2 of the Application PDF which indicates updated volumes for fill and compensatory storage.

2) Please insert page 9 of the PDF which indicates the revised volumes.

3) Please add the attached spreadsheet summary for cut/fill and compensatory storage volume.

CT DEEP Letter

May 6, 2022

May 6, 2022

Magdalena Lofstedt
CDM Smith Inc
77 Hartland St, Suite 201
East Hartford, CT 06108
LOFSTEDTMH@CDMSMITH.COM

NDDB DETERMINATION NUMBER: 202205409

Project: (City of New Britain) Replace existing groundwater wells, Upper & Lower Wellfields, White Bridge Waterworks Facility, off Maltby St, Bristol

Expiration: May 6, 2024

I have reviewed Natural Diversity Database (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) documented nearby and within the watershed of your project area. Recommendations to minimize impacts are included below.

- **Spotted turtle (*Clemmys guttata*) State Special Concern**
- **Wood turtle (*Glyptemys insculpta*) State Special Concern**

Spotted turtle: Individuals of this species are associated with wetlands and vernal pools. Over the course of a season and lifetime, individuals will travel large distances (up to 1km) over upland forest and fields between multiple wetlands. They overwinter burrowed into the mud in wetlands between Nov 1-March 15. They do not begin to reproduce until 7-10 years old and adults can live at least 30 years. This species is threatened most by any activities that reduce adult survivorship including road kills, commercial and casual collection, increased predation in areas around commercial and residential development, mortality and injury from agricultural equipment or other mechanical equipment.

Wood turtle: Individuals of this species are riverine and riparian obligates, overwintering and mating in clear, cold, primarily sand-gravel and rock bottomed streams and foraging in riparian zones, fields and upland forests during the late spring and summer. They hibernate in the banks of the river in submerged tree roots between November 1 and March 31. Their summer habitat focuses within 90m (300ft of rivers) and they regularly travel 300m (0.2 mile) from rivers during this time. During summer they seek out early successional habitat: pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. Their habitat in Connecticut is already severely threatened by fragmentation of riverine, instream, riparian, and upland habitats, but is exacerbated by heavy adult mortality from machinery, cars, and collection. This is compounded by the species late maturity, low reproductive potential, and high nest and hatchling depredation rates.

Land disturbance activities that will crush active turtles or unearth/or crush hibernating turtles or nests need to consider local habitat features and apply fencing and/or time of year restrictions as appropriate. We recommend you consult with a herpetologist familiar with preferred habitats to assist you with proper techniques to ensure the best protection strategies are employed for your site.

- Land disturbance and excavation confined to the upland (greater than 10 meters from a wetland) can be done without risk for impact if it is restricted to the dormant season (November 1- March 15).

If land disturbance activity will include significant areas within and around wetlands, you will need to take precautions to avoid crushing or killing hibernating adults.

- Do not conduct land disturbance activities within a wetland during the turtle's dormant period (November 1- March 15).

Additionally, when working in the upland between March 15- November 1:

- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- Exclusionary fencing be at least 20 inches tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through.
- Prior to construction, all turtles occurring within fencing work area will be relocated to suitable habitat outside disturbance area. This should be performed by a qualified professional familiar with habitat requirements and behavior of the species.
- The Contractor must search the work area each morning prior to any work being done.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point. These animals are protected by law and no turtles should be relocated from the site.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal vernal pools.

Natural Diversity Database information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Bureau of Natural Resources and cooperating units of DEEP, independent conservation groups, and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated in the NDDB as it becomes available.

Please contact me if you have any questions (shannon.kearney@ct.gov). Thank you for consulting with the Natural Diversity Database and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist



Mr. Sebastian Amenta, P.E.
Comprehensive Environmental, Inc.
1 Hartford Square, Suite 227
New Britain, CT 06052
samenta@ceiengineers.com

RE: Request for Diversion Permit Need Determination
Whites Bridge Wellfield Improvements
New Britain Water Department
Bristol, CT

Dear Mr. Amenta:

This letter is in response to your November 8, 2023 request for Water Diversion permit need determination regarding your proposal to modify certain registered water diversions. The proposed activities are documented in the report you submitted on behalf of the New Britain Water Department (NBWD) entitled “Negative Declaration of Diversion / White Bridge Wellfield Improvements / Bristol, Connecticut,” dated November 2023 (“the report”), as well as other information provided in a subsequent email dated December 5, 2023. The project involves the replacement of several public water supply wells that make up two separate, but nearby wellfields registered to the NBWD pursuant to Section 22a-368 Connecticut General Statutes (CGS) as described in the table below.

REGISTRATION NUMBER	NAME OF DIVERSION	REGISTERED WITHDRAWAL (million gallons per day)	BASIN NAME
4314-007-PWS-GR	Upper White Bridge Wells	2.1600	Copper Mine River
4314-008-PWS-GR	Lower White Bridge Wells	6.6240	Copper Mine River

The report states that these “wellfields are unable to be used in accordance with their original design intent and drastic improvements are needed due to poor groundwater well performance caused by clogged well screens and an antiquated suction withdrawal system.” The proposed redevelopment includes the abandonment of all existing wells in these two wellfields, replacing them with new wells, all within the extent of the existing wellfields as registered. The proposed wells, as described in the report, will be withdrawing from the same stratified drift aquifer wherein the existing wells are located.

Based on our review of your submittal, it has been determined that this proposal as presented in the submitted materials conforms with Section 22a-377(c)-1(c)(1) of the Regulations of Connecticut State Agencies (RCSA) included below in its entirety:

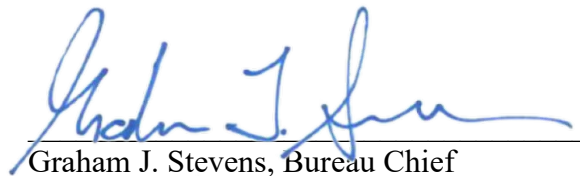
Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may maintain such diversion only in accordance with the information provided in the registration form filed with the Commissioner. Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may not cause or allow any modification of such diversion, including but not limited to an increase in withdrawal capacity, without having first obtained a permit under sections 22a-365 to 22a-378, inclusive, of the General Statutes and 22a-377(c)-2 of the Regulations of Connecticut State Agencies, unless such modification is exempt under section 22a-377 of the General Statutes or section 22a-377 (b)-1 of the Regulations of Connecticut State Agencies.

As such, this department finds that the proposed diversion modifications, comprising of the wellfields identified on page 1 of this determination, **will not** require a water diversion permit pursuant to Section 22a-368(a) CGS, provided the total combined withdrawal from the respective wellfields does not exceed the registered withdrawal as indicated in the above table. However, it is requested that you keep us informed as the project develops, particularly on matters relating to aquifer response modeling and induced infiltration studies.

If you should have any additional questions regarding this matter, please contact Doug Hoskins at 860-424-4192 or douglas.hoskins@ct.gov.

February 21, 2024

Date



Graham J. Stevens, Bureau Chief
Water Protection and Land Resources

GS/dh

Cc:

Ray Esponda, New Britain Water Dept., Ray.Esponds@NewBritainCT.gov

Raul Tejada, CT DPH, raul.tejada@ct.gov

Lori Mathieu, CT DPH, Lori.Mathieu@ct.gov

Brendan Schain, CT DEEP brendan.schain@ct.gov

Shalyn Zappulla, CT DEEP shalyn.zappulla@ct.org

Alicia Charamut, Rivers Alliance, alicea@riversalliance.org



PROJECT REVIEW COVER FORM

This is: ☒ a new submittal ☐ supplemental information ☐ other

Date Submitted: April 27, 2022

PROJECT INFORMATION

Project Name: White Bridge Waterworks Facilities

Project Proponent: City of Bristol

The individual or group sponsoring, organizing, or proposing the project.

Project Street Address: off Maltby Street

Include street number, street name, and or Route Number. If no street address exists give closest intersection.

City or Town: Bristol

Please use the municipality name and **not** the village or hamlet.

County: Hartford

PROJECT DESCRIPTION (REQUIRED)

Please summarize the project below. In a separate attachment, describe the project in detail. As applicable, provide any information regarding past land use, project area size, renovation plans, demolitions, and/or new construction.

Replace existing groundwater wells, demolish three existing pumping stations (Upper Wellfield, Lower Wellfield, and Pond),

construct new pumping station and new access road at the Lower Wellfield (see attached letter).

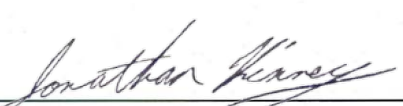
List all state and federal agencies involved in the project and indicate the funding, permit, license or approval program pertaining to the proposed project:

Agency Type	Agency Name	Program Name
☒ State ☐ Federal	CT DEEP, Div. of Land Resources	401 Water Quality Certification
☒ State ☐ Federal	CT Dept. Public Health	Drinking State Revolving Funding (DWSRF)
☐ State ☒ Federal	U.S. Army Corps of Engineers	PreConstruction Notification (PCN)
☐ State ☐ Federal		

If there is no state or federal agency involvement, please state the reason for your review request:

FOR SHPO USE ONLY

Based on the information submitted to our office for the above named property and project, it is the opinion of the Connecticut State Historic Preservation Office that no historic properties will be affected by the proposed activities.*


Jonathan Kinney
Deputy State Historic Preservation Officer

June 14, 2022

Date

*All other determinations of effect will result in a formal letter from this office

PROJECT REVIEW COVER FORM

CULTURAL RESOURCES IDENTIFICATION

Background research for previously identified historic properties within a project area may be undertaken at the SHPO's office. To schedule an appointment, please contact Catherine Labadia, 860-500-2329 or Catherine.labadia@ct.gov. Some applicants may find it advantageous to hire a qualified historic preservation professional to complete the identification and evaluation of historic properties.

Are there any historic properties listed on the State or National Register of Historic Places within the project area? (Select one)

☐ Yes ☐ No ☒ Do Not Know **If yes, please identify:** _____

Architecture

Are there any buildings, structures, or objects within the Area of Potential Effects (houses, bridges, barns, walls, etc.)? The area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. If you're not sure, check "I don't know."

- ☐ Yes (attach clearly labeled photographs of each resource and applicable property cards from the municipality assessor)
☐ No (proceed to next section)
☒ I don't know (proceed to next section)

Date the existing building/structures/objects were constructed: 1923

If the project involves rehabilitation, demolition, or alterations to existing buildings older than 50 years, provide a work plan (If window replacements are proposed, provide representative photographs of existing windows).

Archeology

Does the proposed project involve ground disturbing activities?

- ☒ Yes (provide below or attach a description of current and prior land use and disturbances. Attach an excerpt of the soil survey map for the project area. These can be created for free at: <https://websoilsurvey.nrcs.usda.gov>

Soil survey attached.

☐ No

CHECKLIST (Did you attach the following information?)

Required for all Projects	Required for Projects with architectural resources
☒ Completed Form	☐ Work plans for rehabilitation or renovation
☒ Map clearly labelled depicting project area	☐ Assessor's Property Card
☒ Photographs of current site conditions	Required for Projects with ground disturbing activities
☒ Site or project plans for new construction	☒ Soil survey map
Suggested Attachments, as needed	
☒ Supporting documents needed to explain project	☐ Supporting documents identifying historic properties
☐ Historic maps or aerials (available at http://magic.lib.uconn.edu or https://www.historicaerials.com/)	

PROJECT CONTACT

Name: Magdalena Lofstedt Firm/Agency: CDM Smith Inc.

Address: 75 State Street, Suite 701

City: Boston State: MA Zip: 02109

Phone: 617-452-6597 Email: lofstedtmh@cdmsmith.com

Federal and state laws exist to ensure that agencies, or their designated applicants, consider the impacts of their projects on historic resources. At a minimum, submission of this completed form with its attachments constitutes a request for review by the Connecticut SHPO. The responsibility for preparing documentation, including the identification of historic properties and the assessment of potential effects resulting from the project, rests with the federal or state agency, or its designated applicant. The role of SHPO is to review, comment, and consult. SHPO's ability to complete a timely project review largely depends on the quality of the materials submitted. Please mail the completed form with all attachments to the attention of: Environmental Review, State Historic Preservation Office, 450 Columbus Boulevard, Suite 5, Hartford, CT. **Electronic submissions are not accepted at this time.**



77 Hartland Street, Suite 201
East Hartford, CT 06108
tel: 860-529-7615

April 27, 2022

CT State Historic Preservation Office
Attn: Environmental Review
450 Columbus Boulevard, Suite 5
Hartford, CT 06103

Subject: Section 106 Review
Replacement of White Bridge Waterworks Facilities
Applicant: City of New Britain

Dear Mr. Kinney:

On behalf of the City of New Britain, CDM Smith Inc. (CDM Smith) is requesting your review of significant historical and archeological resources within the Phase 1 project limits of the White Bridge Waterworks Facilities Replacement Project. The proposed project is a 2 Phase project to replace existing groundwater wells at both the Upper and Lower Wellfields. Phase 1 is described in detail in this letter. Phase 2 consists of modifications to the new Pond Pumping Station to be constructed in Phase 1.

There are approximately 30 total wells in the Lower Wellfield, but only five are online and the maximum pumping capability of the wellfield is currently approximately 1.8 million gallons per day (mgd). The existing Diversion Registration for the Lower Wellfield is 6.624 mgd. Similar to the Lower Wellfield, the Upper Wellfield is not currently performing at its intended capacity. There are approximately six total wells in the Upper Wellfield, but only one is operational. The maximum pumping capability of the Upper Wellfield is currently approximately 0.3 mgd. The existing Diversion Registration for the Upper Wellfield is 2.16 mgd.

Existing Facilities

The White Bridge Facilities currently consist of pumping systems for groundwater and surface water supplies including the Lower Wellfield, Upper Wellfield, and Pond Pumping Station. These facilities are located off Maltby Street in the city of Bristol, Connecticut and are shown on **Figure 1: USGS Location Map**. Currently, both of the Upper and Lower Wellfields and the Pond Pumping Station convey raw water to the Shuttle Meadow Reservoir for treatment at the City of New Britain (City)'s Shuttle Meadow Water Treatment Plant (WTP). The total Diversion Registration for the White Bridge Facilities is 23.784 mgd, including registrations for up to 6.624 mgd from the Lower Wellfield, 2.16 mgd from the Upper Wellfield, and 15.0 mgd from the Pond Pumping Station (surface water).



Lower Wellfield

The original White Bridge Facilities consisted of one pumping station, which drew water from approximately 22 8-inch-diameter groundwater wells and from one 50-foot-diameter caisson well. This system was constructed between 1920 and 1923 and featured suction lift pumps located at the eastern end of the system. The original building from 1923 still exists today but was reworked to become a surface water pumping station in the 1950s. In the 1940s, a new building was constructed to provide electric power to all on-site facilities and to draw water from the Lower Wellfield wells. In the 1950s, seven additional gravel-packed wells were drilled to expand the capacity of the facility. In the 1980s, new suction lift pumps were installed at the Lower Wellfield and piping adjustments were made so that the pumps took supply directly from the wells and not from the caisson.



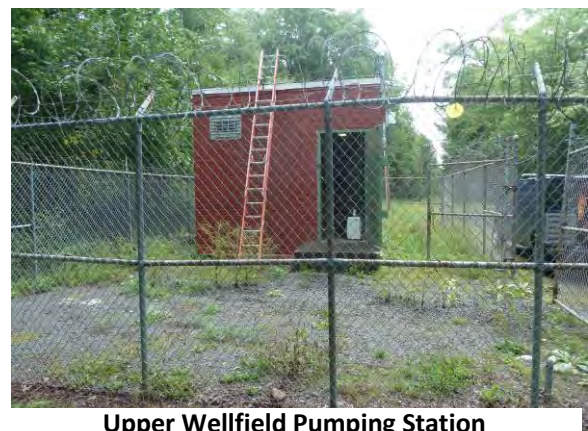
Lower Wellfield Pumping Station lower level

The Lower Wellfield pumping system was intended to deliver approximately 3 mgd, less than the Diversion Registration of 6.624 mgd. However, currently there is generally only one pump in operation at a time because of issues with loss of prime and the difficulty in obtaining repair parts. Currently the system can pump up to approximately 1.5 to 1.8 mgd from up to five wells before loss of prime. There has been no redevelopment of any well screens, so it is likely all the wells are heavily encrusted.

Upper Wellfield

In the 1940s, the White Bridge groundwater supply system was expanded to include the Upper Wellfield. It originally included 66 driven wells, each 2.5 inches in diameter and connected in series. The wells originally yielded about 1 mgd, less than the diversion registration of 2.16 mgd, but the production declined because of clogging. In 1955, six 8-inch-diameter drilled wells about 25 feet deep were constructed. In the 1980s, the Upper Wellfield facilities were updated to provide six new wells in the Upper Wellfield and upgrade the piping and the suction lift pumping system.

The existing facilities at the Upper Wellfield remain essentially unchanged from the 1980s, except for



Upper Wellfield Pumping Station

SHPO

April 27, 2022

Page 3

pump and motor replacement and equipment upkeep. Historical records indicate that there has been a degradation of flow quantities from the Upper Wellfield over time; a recent test indicated a capacity of approximately 0.3 mgd and only one well able to be pumped at a time. This degradation is likely from clogging of well screens, piping system air entrainment, and possible collapse of one or more well screens.

Pond Supply and Pumping Station

In the 1950s, the original Lower Wellfield Pumping Station from 1923 was converted into a surface water pumping station (now termed the Pond Pumping Station) that takes its water from an adjacent man-made pond via suction lift. This pond features a 24-inch screened intake structure and two interconnecting piping systems that allow water to flow freely from the Copper Mine Brook or from the canal adjacent to the wells. This canal is also hydraulically connected to Copper Mine Brook on the east and Polkville Avenue Brook on the west, so that the canal and pond are supplemented by brook flows. There are weir structures in both the Copper Mine Brook and Polkville Avenue Brook to hinder water flow and direct flow to the canal. The Pond Pumping Station, with a Diversion Registration of up to 15 mgd, typically pumps approximately 5 mgd when in operation.



Pond Pumping Station internal pump and piping

Supply Pond and Canal

The Supply Pond is located adjacent to the Lower Wellfield, south of Maltby Road. The Supply Pond, which is man-made and approximately 2.56 acres, serves as a raw surface water source. The Canal, also man-made, is 1,120 feet long and connects the Copper Mine Brook to the Polkville Avenue Brook; the Canal is hydraulically connected to the Supply Pond. Over the many decades of operation, both the Canal and Supply Pond have experienced accumulation of sediment associated with pumping operations.



Pond Intake Structure Rehabilitation

There is an existing concrete Pond Intake Structure located near the eastern end of the Supply Pond. Water enters the Pond Intake Structure through sides and is conveyed to the Pond Pumping Station via a 24-inch-diameter cast iron pipe. The structure includes stationary steel mesh screen panels on two sides to keep debris out of the flow to the Pond Pumping Station. Each of the steel screen panels is 9-feet wide and 9.5-feet high. The screens are manually cleaned by operators in place using rakes and other handheld tools; the need for screen cleaning is infrequent.

Phase 1 Proposed Work

Under Phase 1, the New Britain Water Department is proposing to:

- Replace six (6) water supply wells at the Lower Wellfield and three (3) water supply wells at the Upper Wellfield; all wells will include submersible well pumps with variable frequency drives (VFDs). Wells will be connected directly to the raw water conveyance system. Install new yard piping as required for the new facilities and remove/abandon some existing piping (see Sheets C-6 and C-7).
- Construct new Pond Pumping Station building including flood protection (lowest floor elevation elevated at least 1 foot above the 100-yr flood elevation), modern electrical and control systems, sampling space, standby power, operator restroom, and space for a designated chemical room with provisions for potential future chemical addition (see Sheet C-5)
- Demolish the three existing pumping stations including appropriate disposal of hazardous materials and abandon the existing wells and caisson (see Sheets C-5 and C-6). Some hazardous materials including asbestos, lead paint, and polychlorinated biphenyls are present in certain locations of the existing buildings. The demolition will be completed in accordance with applicable state and federal removal and disposal requirements.
- New driveway to the Lower Wellfield and new Pond Pumping Station graded to be above the 100-year flood elevation of 256 feet (NAVD 88).
- Remove sediment from both the Supply Pond and Canal to restore their operating capacity as well as provide for unhindered flow into the Pond Intake Structure.
- Repair concrete cracks in the Pond Intake Structure, replace existing screens with stainless steel screens, and add a 6-ft wide riprap protection at the Supply Pond Intake Structure.



SHPO

April 27, 2022

Page 5

Please review the enclosed USGS Location Map and Project Plans of the proposed water works replacement project and advise us in writing of any significant historical or archeological resources within the project areas.

You may contact me at (617) 452-6597 if you have any questions regarding this correspondence.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Magdalena Lofstedt'.

Magdalena Lofstedt, PWS
Environmental Scientist
CDM Smith Inc.

Enclosures:

Project Notification Form

Figure 1: USGS Project Location Map

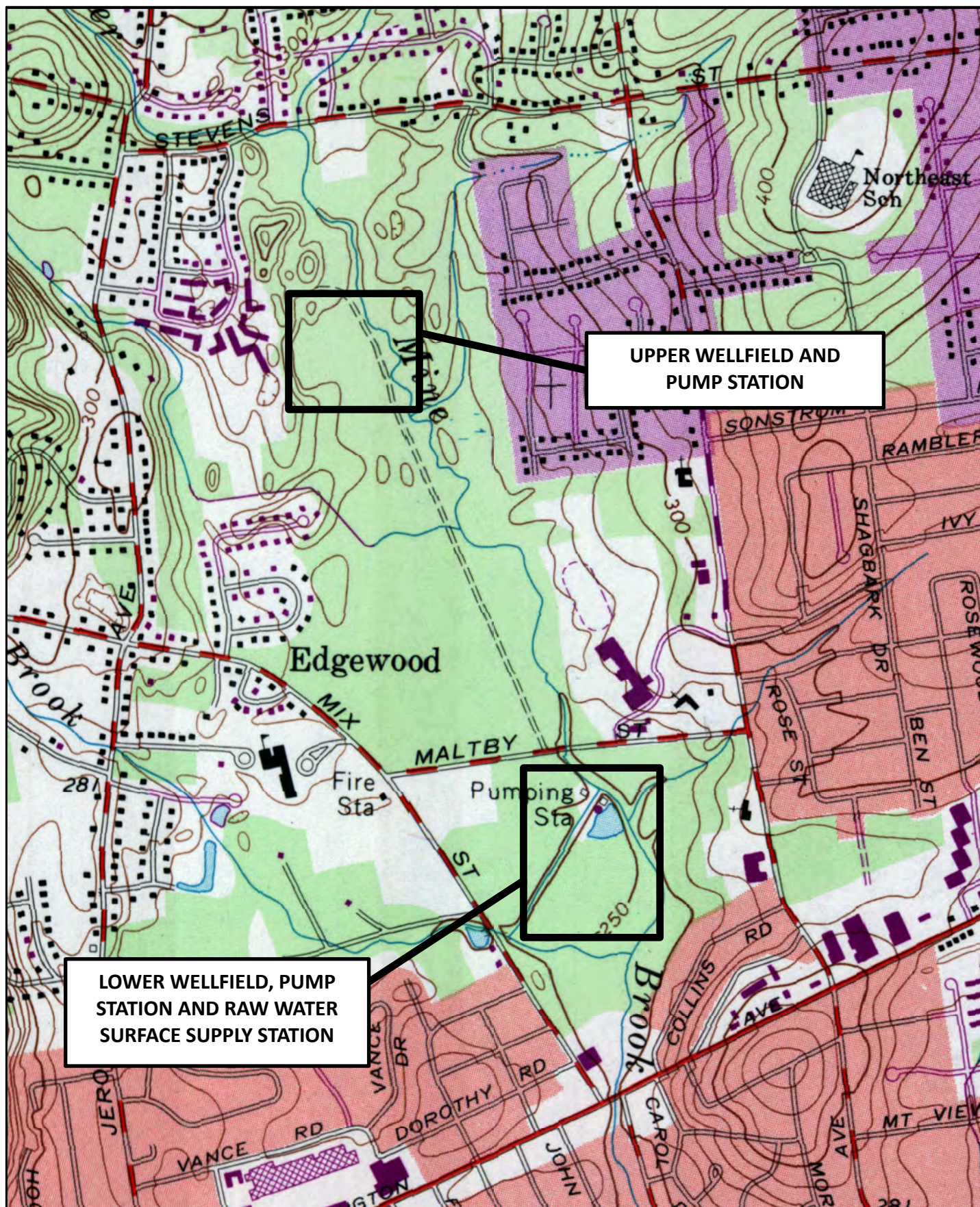
Soil Survey

Project Plans Sheets C-2, C-3, C-4, C-5, C-6, C-7, and C-8

cc: V. Varghese, CDM Smith Inc.

K. Wagner, CDM Smith Inc.





1 in = 1,000 ft

0 500 1,000 1,500 2,000 Feet

**CDM
Smith**



**Figure 1: USGS Project Location Map
New Britain Water Department
Bristol, Connecticut**

April 2020



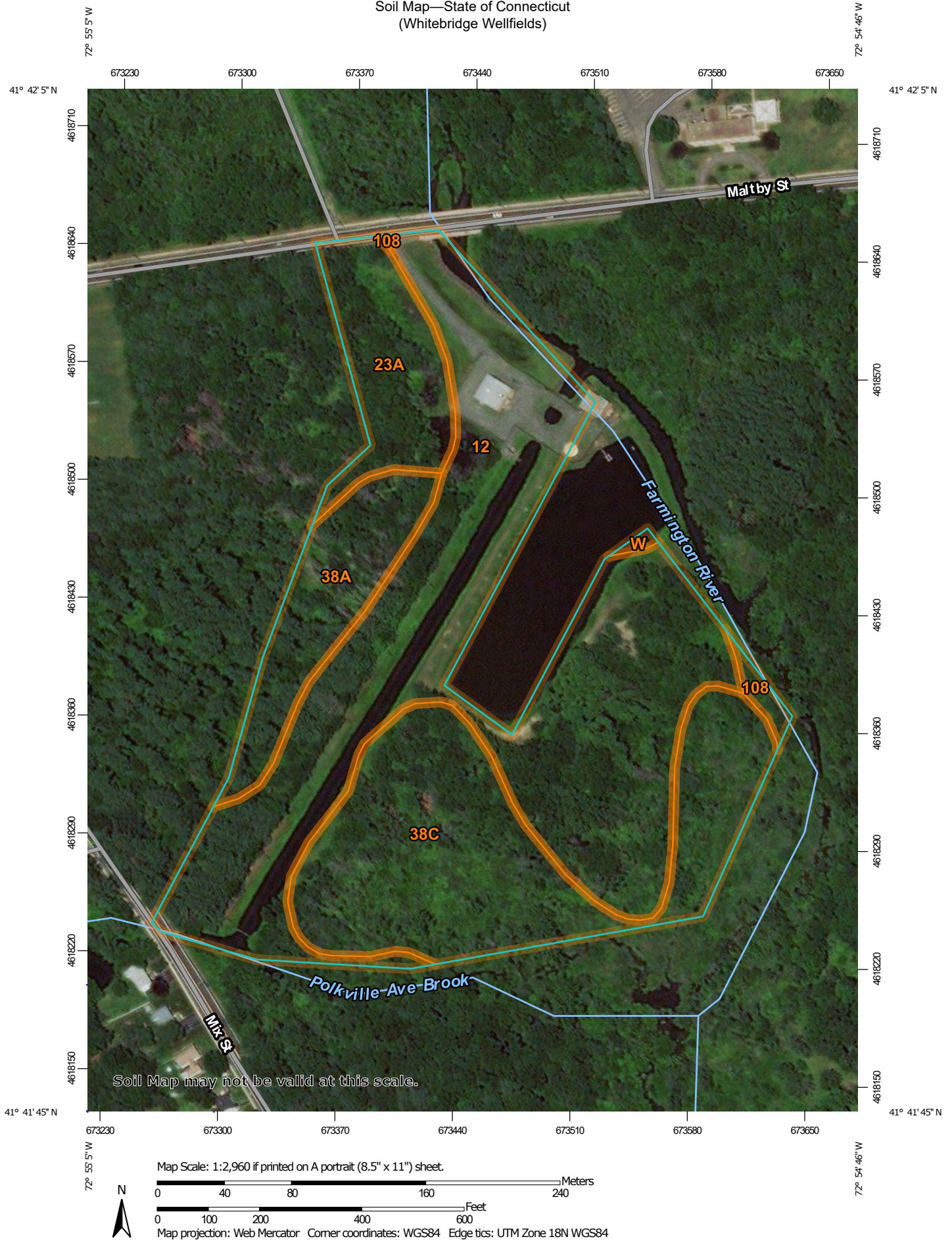
Soil Map—State of Connecticut (Upper Well-Fields)



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

Soil Map—State of Connecticut
(Whitebridge Wellfields)



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut

Survey Area Data: Version 16, Sep 15, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 29, 2013—Oct 16, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
12	Raypol silt loam	0.3	2.9%
15	Scarboro muck, 0 to 3 percent slopes	8.6	76.5%
21A	Ninigret and Tisbury soils, 0 to 5 percent slopes	0.4	3.5%
37C	Manchester gravelly sandy loam, 3 to 15 percent slopes	0.1	0.6%
37E	Manchester gravelly sandy loam, 15 to 45 percent slopes	1.2	10.4%
108	Saco silt loam	0.7	6.1%
Totals for Area of Interest		11.3	100.0%

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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	G. HOWARD
DRAWN BY:	J. BRONENKANT
SHEET CHK'D BY:	
CROSS CHK'D BY:	
APPROVED BY:	
DATE:	MARCH 2022

CDM Smith
77 Hartland Street, Suite 200
East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

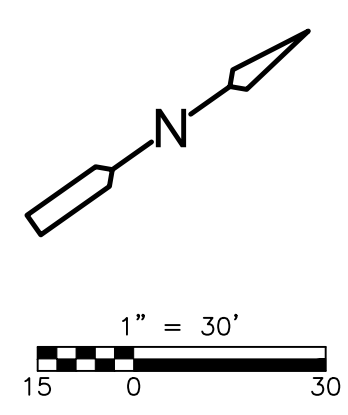
OVERALL SITE PLAN

C-2

PROJECT NO.	10739-264571
FILE NAME:	C002STPL.DWG
SHEET NO.	C-2

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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: _____ G. HOWARD
DRAWN BY: _____ J. BRONENKANT
SHEET CHK'D BY: _____
CROSS CHK'D BY: _____
APPROVED BY: _____
DATE: _____ MARCH 2022



CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

POND PUMPING STATION SITE PLAN & GRADING

PROJECT NO.	10739-264571
FILE NAME:	C005GDPL.DWG
SHEET NO.	
C-5	

DESIGNED BY: K. GERLACH
DRAWN BY: S. ENGEL
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: _____
APPROVED BY: _____
DATE: MARCH 2022



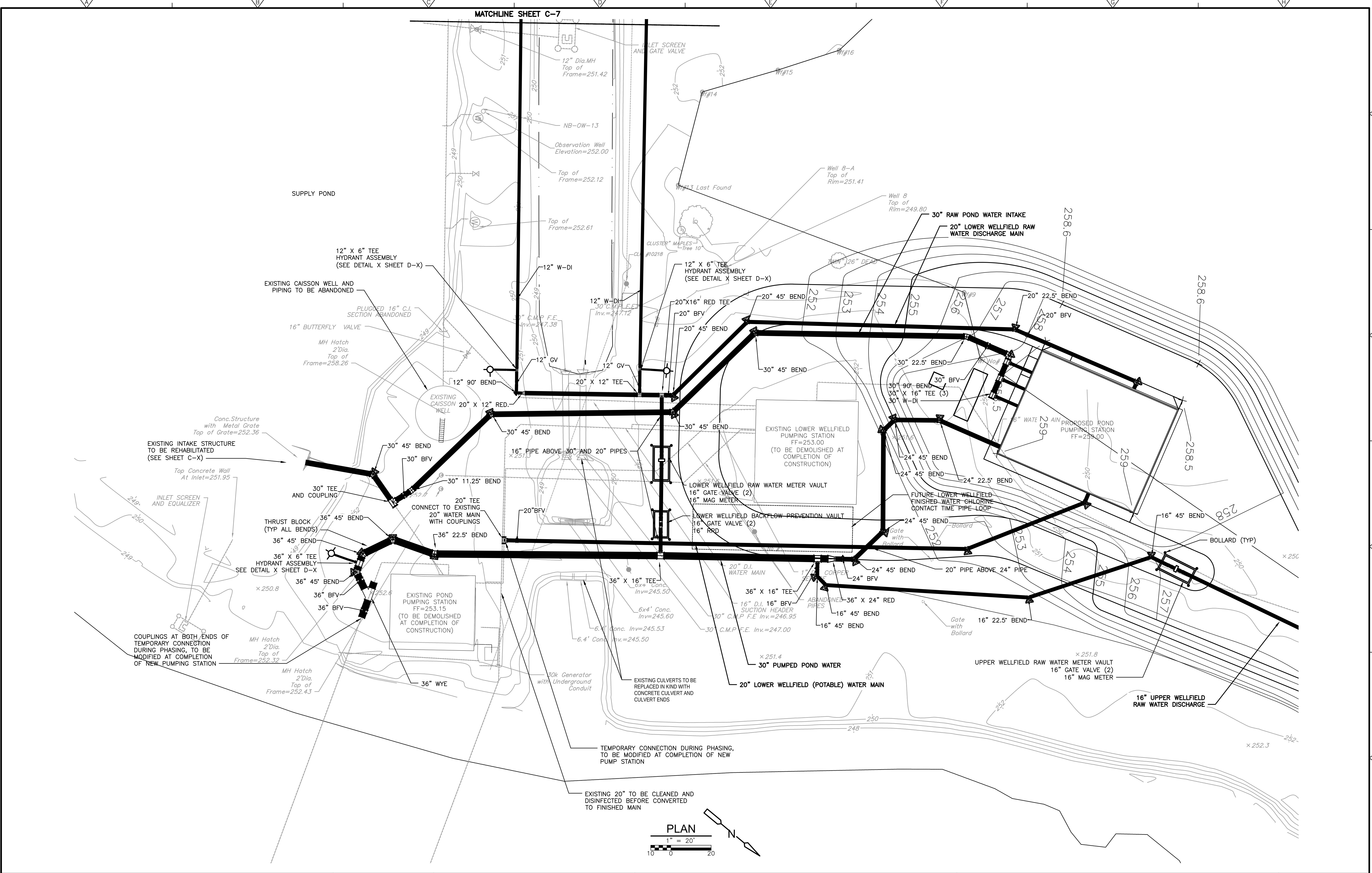
LOWER WELLFIELD YARD PIPING PLAN

PROJECT NO. 10739-264571
FILE NAME: C007YPPL.DWG

SHEET NO.

C-7

XREFs: [CDMS-2436, CYPWP001, XSPVLO00, CMP0000ST, AWZ001PS - 2D Process Export] Images: []
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REV. NO.	DATE	DRWN	CHKD	REMARKS

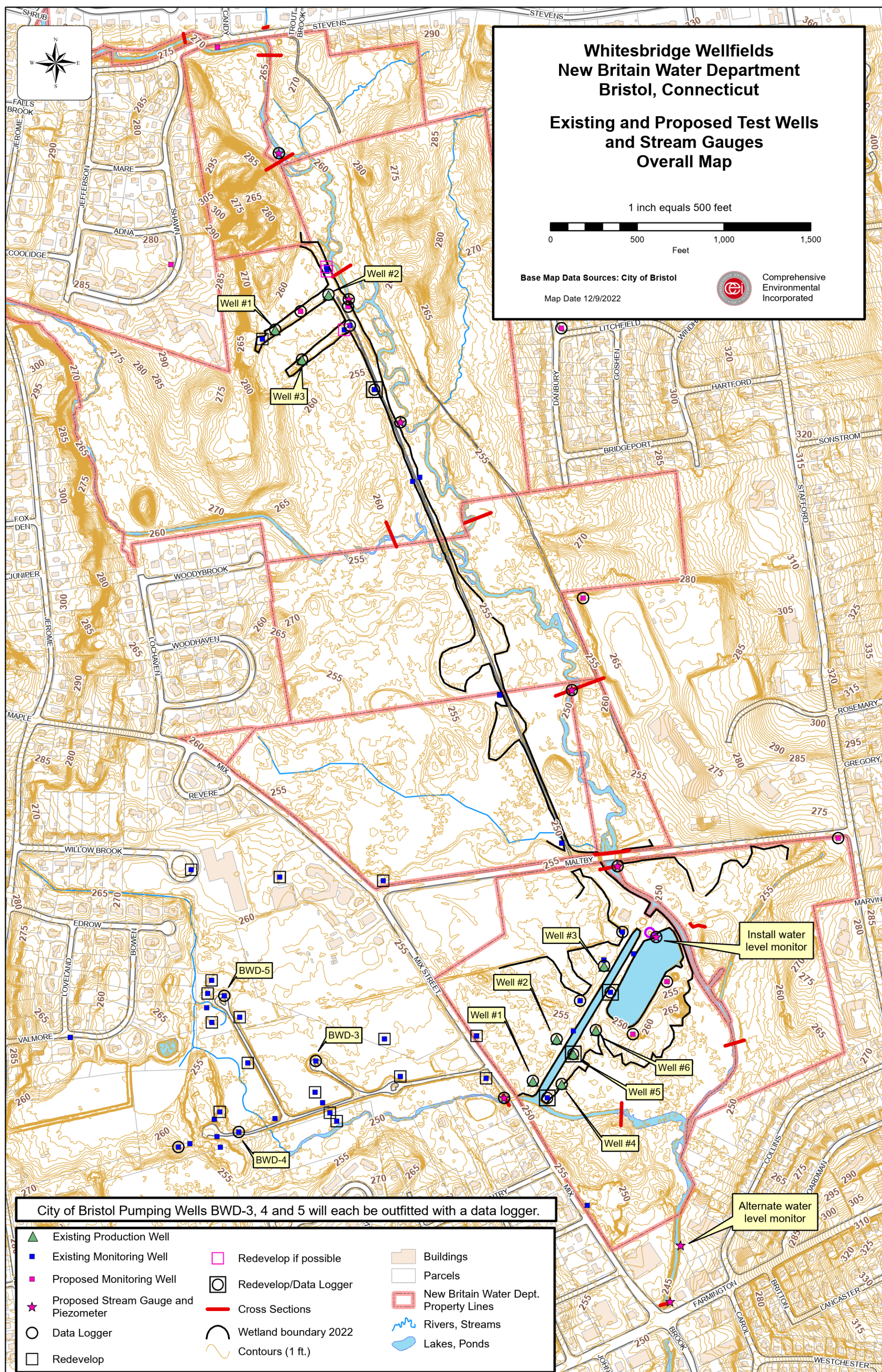
DESIGNED BY:	K. GERLACH
DRAWN BY:	S. ENGEL
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	
APPROVED BY:	
DATE:	MARCH 2022

CDM Smith
77 Hartland Street, Suite 200
East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
**WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION**

**POND PUMPING STATION
YARD PIPING PLAN**

PROJECT NO.	10739-264571
FILE NAME:	CO08YPPL.DWG
SHEET NO.	C-8



Verified Petition to Intervene

February 5, 2024

**BRISTOL INLAND WETLANDS AND WATERCOURSES AGENCY/CONSERVATION
COMMISSION**

Application #2019 - Wetlands boundary change application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Application #2020 – Wetlands application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Application #23-458F-305 – Floodplain application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

February 5, 2024

VERIFIED PETITION TO INTERVENE UNDER CGS §22a-19

Rivers Alliance of Connecticut, Inc. (RA) requests that the Bristol Inland Wetlands and Watercourses Agency/Conservation Commission (Agency) grant it intervenor status in the above captioned proceedings, pursuant to the Connecticut Environmental Protection Act, CGS section 22a-19(a)(1) (CEPA). RA does not oppose the work that is proposed by New Britain Water Department (NBWD) in the above-referenced applications to purportedly rehabilitate its wellfields and to come into compliance with Connecticut Department of Public Health (DPH) and Federal Emergency Management Agency (FEMA) requirements, so long as the reasonably foreseeable environmental threats posed by these activities are appropriately conditioned to protect the important natural resources comprised of waters of the State under the stewardship of

the City of Bristol. RA's participation in this matter is in the interests of justice and will not impair the orderly conduct of the proceedings.

In support of its petition, RA represents the following:

1. CEPA provides in pertinent part at General Statutes Section 22a-19(a) that

In any administrative, . . . proceeding, and in any judicial review thereof made available by law, . . . any person, . . . corporation . . . or other legal entity may intervene as a party on the filing of a verified pleading asserting that the proceeding or action for judicial review involves conduct which has, or which is reasonably likely to have, the effect of unreasonably polluting, impairing or destroying the public trust in the air, water or other natural resources of the state.

2. The Agency is the town agency authorized to administer the statutory provisions regulating the use of inland wetlands and watercourses pursuant to General Statutes Section 22a-36, et seq., and of its own duly enacted Inland Wetlands and Watercourses Regulations of the City of Bristol (Regulations).

3. RA is a 501(c)(3) non-profit environmental organization, founded in 1992, and dedicated to the protection and preservation of the water resources of the State. Its membership includes, primarily, river and watershed groups in the state, civic and business groups, municipal commissions, and individuals concerned with water health, thus representing a network of thousands of members statewide. RA's mission is to protect the quality and availability of surface and ground waters of Connecticut and Long Island Sound and associated recreational uses and habitat values. RA advocates for the protection of ample, healthy sources of water for drinking and other vital societal uses. RA brings expertise in policy, law, and science to participation in policy-making entities and to its extensive educational program. RA's goal is to bring people together to protect our state waters for current and future generations. Numerous

RA members are residents of Bristol or customers of NBWD. RA's offices are located at 28 Russel Street, P.O. Box 1797, Litchfield, Connecticut, 06759.

4. The Agency's decision in this matter will specifically affect RA, its members, and important natural resources of the State. NBWD owns or manages water supply facilities in the City of Bristol. Pursuant to CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies, NBWD is authorized to divert 23.78 million gallons of water per day (mgd) in perpetuity.

5. Bristol Water Department (BWD) also owns or manages water supply facilities within the same drainage basin as the White Bridge Waterworks Facility. Pursuant to CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies, BWD is authorized to divert 3.87 million gallons of water per day (mgd) in perpetuity.

6. Coppermine Brook is listed in Connecticut Department of Energy and Environmental Protection's (DEEP) 2022 Integrated Water Quality Report to Congress under Nonpollutant Impairments (EPA Category 4c) for Flow Regime Modification. DEEP has developed a methodology for assessing flow impairments when sufficient information is available. The term "flow regime modification" is used to reflect the impairments which are predominantly due to flow alterations that serve public needs and safety.

7. Sections of Coppermine Brook below and adjacent to the NBWD and BWD were effectively dry during the 2016-2017 drought and DEEP has documented impairment due to low flow for periods following the 2016-2017 drought. Due to decreased well performance, NBWD has been able to withdraw only a portion of the 23.78 mgd it is authorized pursuant to

CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies.

8. NBWD has stated in Application #2020 that “The NBWD has registered diversions and those withdrawals will be increased.” It also stated that “The proposed wetland disturbances activity will not affect the nearby watercourse flow rate.”

9. RA seeks to intervene in this proceeding for the purposes of assuring that Coppermine Brook is not further impaired for regime flow modification due to an increase in withdrawals by the NBWD. The potential for such further impairment is not adequately addressed in the Application. RA further seeks to ensure that the Agency has a complete record on which to make an informed decision on all aspects of this complicated proceeding. As DEEP cannot intervene on impairments from low flow (as this activity is purportedly in compliance with CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies), it is reasonable for the Agency to inquire into potential impacts to downstream flow from NBWD withdrawals. In addition, impacts on streams from groundwater withdrawals are not included in DEEP’s Streamflow Standards and Regulations pursuant to CGS §26-141(a) and (b) and §26-141b-7(a) of the Regulations of Connecticut State Agencies. Appropriate regulation and oversight of potential impacts to downstream flow can be accomplished by requiring monitoring of streamflow above and below the wellfields and requiring that NBWD work with DEEP to determine a threshold at which NBWD would have to work with DEEP to find an operational mode that would not impair Coppermine Brook, as per the NBWD agreement with DPH for funds procured through DPH’s Drinking Water State Revolving Fund for the project. This regulation and oversight clearly falls

within the Agency's jurisdiction in this proceeding pursuant to CGS section 22a-41, 22a-42, and the city's Inland Wetlands and Watercourses Regulations.

10. It is RA's position that prudent conditions to protect critical natural resources of the State, which are threatened by the increased uncertainty of climate change, are necessary and appropriate. RA is focused on a narrow but important set of natural resources that receive limited, but critical, protections under state statute. RA's intervention in this matter is in the interests of justice and will not impair the orderly conduct of the proceedings.

11. RA is not aware of any other intervening party to this proceeding whose focus is to ensure that the water resources of the state under the care of the City of Bristol are protected from undue impairment.

12. RA intends to offer brief and pertinent direct testimony from Connecticut water conservation experts with personal knowledge of wetlands and hydrology, as it applies to the Applications.

13. RA requests that the following individuals be listed on the Service List in this proceeding:

Alicea Charamut, Executive Director
Rivers Alliance of Connecticut, Inc.
28 Russel Street, P.O. Box 1797
Litchfield, CT 06759
(860) 416-7859
alicea@riversalliance.org

and

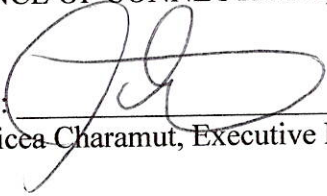
Mary Ridingsward, Executive Director
Pequabuck River Watershed Association
PO Box 1461
Bristol, CT 06011-1461
pequabuckriverct@gmail.com

Copies of filings and notices should be sent to alicea.@riversalliance.org.

WHEREFORE, Rivers Alliance of Connecticut, Inc. respectfully requests intervention status in this proceeding pursuant to CEPA upon the filing of this verified pleading for intervention.

Respectfully submitted,

INTERVENOR
RIVERS ALLIANCE OF CONNECTICUT, INC.

By: 
Alicea Charamut, Executive Director

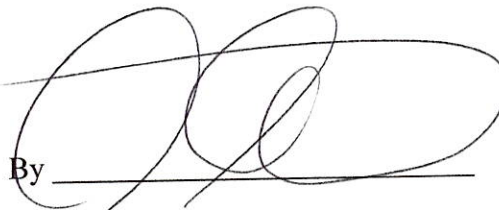
VERIFICATION OF PETITION FOR INTERVENTION
UNDER GENERAL STATUTES SECTION 22a-19(a)

I, the undersigned, being duly sworn, depose and say that (i) I am the Executive Director of Rivers Alliance of Connecticut; (ii) I have the authority to execute this Petition for Intervention on behalf of Rivers Alliance of Connecticut; and (iii) I have read the foregoing Petition for Intervention and verify that the facts stated therein are true and correct to the best of my knowledge, information and belief based on my personal knowledge, and the records which I have reviewed in this matter.

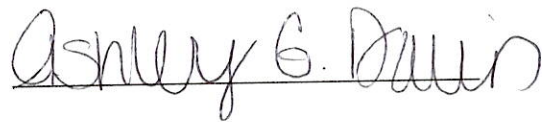
Dated at Newington Connecticut, this 5th day of February, 2024.

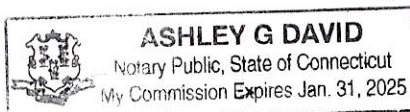
INTERVENOR

RIVERS ALLIANCE OF CONNECTICUT

By 
Alicea Charamut, Executive Director

Subscribed and sworn to before me the undersigned this 5th day of February, 2024.





Notary Public: Ashley G. David
My Commission Expires: 01/31/2025

Link to State Historic Preservation Office Application, Letter, Response (April 2022)

Link to Document:

https://www.bristolct.gov/DocumentCenter/View/45992/NBWD-SHPO_Letter_Response-and-Application-April-27-2022



Photos submitted by Daniel Sutula - 3/11/24

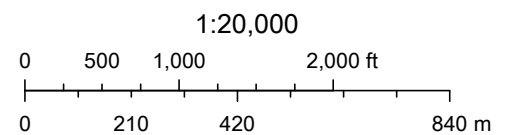
ATTACHMENT 1

PROJECT SITE MAP

White Bridge Waterworks Facility



2/22/2023, 3:28:12 PM



USGS The National Map: Orthoimagery and US Topo. Data refreshed December, 2022.

ATTACHMENT 2

ADDITIONAL INFORMATION

Wetlands Permit Application – IW-1

This attachment to the IW-1 application serves to provide the additional information required for significant activity application submittals, including:

- Site plans
- Proposed project activities
- Description and delineation of wetlands (Wetland Delineation Report)
- Impact on watercourse & flowrate
- Project alternatives
- Measures to mitigate the impact of the proposed activity

Proposed Project Activities:

A rehabilitative project will be conducted at the Upper and Lower Wellfields of the White Bridge Waterworks Facility owned by the New Britain Water Department (NBWD) accessed via Maltby Street. The purpose of this project is to redevelop the existing Upper and Lower Wellfields, which were constructed in the 1940s and 1921, respectively. Presently, these wellfields serve as a raw water supply only and cannot serve as a backup in their present condition. The age of the wellfields is such that they have come to the end of their useful life and repair and replacement equipment is no longer available. The NBWD needs to upgrade the facilities and modernize the equipment.

To become a potable water supply, any new wells must be located 50 feet from any water bodies or wetland limits per Department of Public Health (DPH) requirements. In addition, the wells must be raised 2' above the one-hundred-year flood plain elevation. Because of these requirements, the existing wells cannot be redrilled or rehabilitated in their present location. All currently existing wells will be abandoned in accordance with DPH requirements. The Lower Wellfield may but suitable as a public water supply subject to the ground water under the direct influence of surface water testing which will be done once the project is completed in a future phase of construction.

Numerous studies have been performed in preparation for this project including:

- A detailed test well program
- A seismic refraction study
- Wetlands mapping

The project will be executed according to a predetermined schedule prepared by the design consultant (CDM Smith) in coordination with the contractor (TBD). A 2-year duration from start of construction to completion is anticipated. A total of nine wells will be installed at the Upper and Lower Wellfields (three at the Upper Wellfield and six at the Lower Wellfield). A new pumphouse will be constructed at the Lower Wellfield along with all the necessary underground piping related to the new wells and pump house. The new pump house will house chemical treatment facilities. The pump house will be constructed 2' above the 100-year flood elevation per DPH regulation.

Compensatory flood storage areas will be created so as to not increase the current flood elevation levels as given by FEMA guidelines. These compensatory storage areas will also create additional wetland

areas and, as such, an IW-2 permit application has been submitted for review. See the attached maps for further information on the locations of these affected areas.

The proposed project also includes the removal of sediment from both the existing supply pond and canal located to the north. See a detailed drawing of the sediment removal attached. Over the years sediment has accumulated significantly in these water bodies and has decreased the capacity of both. The benefit of sediment removal will be an increased capacity of readily available surface water.

Description of Property and Wetlands:

This property spans a total of 303.7 acres, which includes the following parcels (by Map/Lot number): 52-15, 52-16B16A, 52-17, 52-11, 53-149, 53-150, 53-151, 53-145 and 53-147. Copper Mine Brook travels through the entirety of the property from north to south. The Upper Wellfield is located on parcel 52-17, which is 104.6 acres and has PFO1E and PEM1E wetland areas. PFO1E areas are seasonally flooded/saturated broad-leaved deciduous wetlands. PEM1E areas are seasonally flood/saturated persistent emergent wetlands. Soils in this project area consist mostly of Scarboro muck, with some Saco silt loam located closer to Copper Mine Brook. Soil scientist Ian Cole located all the wetland boundaries in the vicinity of the test well explorations. These boundaries are shown on the plans provided.

The Lower Wellfield is located on parcel 53-145, which is 50.3 acres and also has PFO1E and PEM1E wetland areas. Polkville Brook travels west to east, then southerly through this parcel before flowing into Copper Mine Brook. Onsite vehicular transport, between the Upper and Lower Wellfield areas will use existing travel ways on the site not within any wetland boundaries. Soils in the Lower Wellfield project area consist mostly of Raypol silt loam, with some Hinckley loamy sand located closer to Polkville Brook. Detailed wetlands mapping is provided on the plans.

Impact on Watercourse & Flowrate:

The proposed wetland disturbances activity will not affect the nearby watercourse flow rate.

The subject project includes the following watercourses that flow through the project site:

- Copper Mine Brook
- Polkville Ave Brook
- Freeman's Brook

The NBWD has registered diversions and those withdrawals will be increased.

Project Alternatives:

The following project alternatives were considered in selecting the preferred option for this project:

- Alternative 1 – No Action – The City would continue to run the existing White Bridge facilities at their current capacity without capital improvements.
- Alternative 2 – Purchasing water from The Metropolitan District (MDC) supply – Multiple alternatives were established to purchase raw or finished water from the MDC.
 - Alternative 2A – Raw Water to WTP/Shuttle Meadow Reservoir – Through existing agreements with MDC, the City has the ability to pump up to 7.5 mgd of raw water from MDC's Nepaug Reservoir, through the City's Nepaug pumping station, to the City's WTP or Shuttle Meadow Reservoir.
 - Alternative 2B – Raw Water to a new treatment plant – This alternative is similar to 2A, but would pump raw water to a new treatment facility near the existing White Bridge facilities to provide a redundant finished water source for New Britain customers.
 - Alternative 2C – Finished Water - There are also two existing interconnections with MDC's potable water distribution system. At the intersection of Fienemann and Farm Springs Road in Farmington, there is a hydrant-to-hydrant connection and at Hartford Road, just south of Westfarms Mall, there is a 12-inch meter pit connection. These are emergency-only interconnections and would need to be upgraded to become regularly-utilized sources. Once upgraded, these interconnections would provide up to 3 mgd of finished water to the City's distribution system.
- Alternative 3 – New Pond Pump Station Phased Approach – A new Pond Pump Station providing pumping of the surface water and Upper Wellfield water to the Shuttle Meadow Reservoir as raw water, as is currently the case for those supply sources. The facility will also include space for chemical addition, installed under a subsequent phase, to treat the Lower Wellfield water. A conceptual plan for the chemical addition would be included in this alternative. All wells would be replaced, and new pumps installed. The foregoing work constitutes Phase 1. Design and construction of the chemical addition for the subsequent Phase 2 would be dependent on the results of GWUDI (groundwater under the direct influence of surface water) testing.
- Alternative 4 - New Pond Pump Station / Lower Wellfield Chemical Addition Building - A combined facility providing pumping of the surface water and Upper Wellfield water to the Shuttle Meadow Reservoir as raw water, as is currently the case for those supply sources. The facility would also include chemical treatment facilities for sequestering manganese in the Lower Wellfield water. The finished Lower Wellfield water would be pumped directly to the City's water distribution system. Treatment of the Lower Wellfield water is dependent on the results of a GWUDI study. All wells would be replaced, and new pumps installed. Alternative 4 differs from Alternative 3 only in the timing of construction of the chemical addition facilities. In Alternative 4, they would be built at the same time as the rest of the facilities, not in a subsequent phase.

The following improvements were identified to be common to Alternatives 3 and 4:

- New wells at the Lower and Upper Wellfields to increase their production to levels closer to the Diversion Registrations.
- Supply Pond and Canal Restoration to remove sediment and restore these facilities back to their original intent.
- Intake Upgrade to replace the existing screens and piping up to the intake structure. The bridge from the bank of the supply pond to the intake structure would be repaired as well.
- Abandonment of the existing wells, caisson, and associated piping.

An initial screening of alternatives was performed, which eliminated Alternatives 1, 2A, 2B, and 2C as these alternatives did not meet the needs of the project or had high capital cost. Alternatives 3 and 4 were carried forward to additional evaluation and represent the proposed activity for this permit application.

Measures to Mitigate Project Impact – Erosion Control Measures:

The erosion and sedimentation control measures at the White Bridge facility focus on the protection of wetlands and waterways during and following construction since the work includes land disturbances, excavation dewatering, supply pond and canal sediment removal activities, and other associated construction activities. Several methods are included on the Drawings to slow the flow of runoff and protect disturbed land during construction activities. Please refer to the project plans for typical details of measures to protect wetlands and waterways during and after construction. The following summary presents typical mitigation measures that will be implemented to avoid and minimize wetland impacts during construction.

Construction Period

- During construction, the limit of land disturbances will be kept to a minimum, where possible, and the construction will be sequenced so the entire site will not be disturbed at the same time.
- Clearing and grubbing will be limited to only the areas necessary for work to be performed, specifically in areas at the Upper and Lower Wellfields (Sheet C-9 and C-11) where wells and piping will be installed, at the Maltby Street 16" pipe crossing (Sheet C-18), at areas where wetlands and compensatory storage will be created (Sheet C-13 and C-14), and areas around the Supply Pond for access during sediment removal activities (Sheet C-23).
- Sedimentation barriers (i.e., silt fence and/or compost logs/straw wattles installed per industry standards) will be installed at the down gradient limits of work and construction access roadways prior to the commencement of work to prevent the transport of sediment to the downgradient wetlands and waterways during construction (see Sheets C-6 thru C-8). Specifically, at the Upper Wellfield this includes compost logs/straw wattles along the facility driveway from Maltby Street to the existing Pumping Station and down each of the well field laterals. At the Lower Wellfield, this includes along the wetlands to the north and west of proposed work, along the Coppermine

Brook to the east, around the Supply Pond, and along both sides of the Canal to the Polkville Avenue Brook. These barriers will be inspected at least once per week and within 24 hours of rainfall events ½-inch or greater and repaired as needed. These barriers will remain in place until all disturbed soils are stabilized. A stockpile of compost logs/straw wattles and silt fence will be maintained on site for routine maintenance and emergency repairs. Barriers will be replaced as necessary due to sediment build-up and degradation.

- Sedimentation barriers (i.e., silt fence and/or compost logs/straw wattles installed per industry standards) will be installed surrounding temporary stockpile areas.
- For all slopes 4:1 or steeper, an erosion control blanket will be required, including at the Upper and Lower Wellfield wells (see Sheet C-9 and C-11). Temporary erosion control blankets will be inspected at least once per week and within 24 hours of rainfall events.
- A turbidity curtain will be installed to prevent sedimentation and turbidity disturbances in the Coppermine Brook during canal and supply pond sediment removal activities (see Sheet C-23 and Detail Sheet C-24). Turbidity curtains will be inspected daily during Supply Pond and canal sediment removal activities. The turbidity curtain will not be removed before sediment removal activities have ended and clarity of water has returned.
- Catch basin filters will be installed on catch basins near all excavation work on Maltby Street, Stafford Avenue, and Mix Street (See Sheet C-18 and Detail Sheet C-24).
- In the event that excavation dewatering is necessary, water will be pumped and discharged to one of the temporary sedimentation basins in designated areas of the site (see Sheet C-6 thru C-8 and Detail Sheet C-24). Temporary sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. Temporary portable sediment tanks may also be used to handle significant amounts of excavation dewatering. All water to be discharged from dewatering activities will be filtered or otherwise treated prior to discharge to prevent siltation to adjacent areas. Best management practices will be used by the Contractor in order to prevent siltation to adjacent areas during dewatering activities.
- A temporary sediment dewatering and stockpiling area has been designated within the Supply Pond to dewater removed sediments during restoration activities (see Sheet C-23 and Detail Sheet C-24). Stockpiled materials and containment area will be inspected daily during dewatering activities, weekly during non-dewatering activities, and within 24 hours of rainfall events of ½-inch or greater.
- A stabilized construction entrance is also being required for the site to prevent tire tracked soils to onsite and offsite locations (see Sheet C-23 and Detail Sheet C-24). The stabilized construction entrance will be inspected periodically and additional top dressing or length will be added, as necessary, to continue capturing sediment tracked on vehicles.
- The silt fence and/or compost log/straw wattle barrier will not be removed until the site areas are vegetated, paved or otherwise permanently stabilized to prevent erosion of exposed soils. Work

will proceed as rapidly as possible, limiting the exposure time of disturbed soils to wind and precipitation.

- The sedimentation barriers will not be removed until the site areas are vegetated, paved or otherwise permanently stabilized to prevent erosion of exposed soils. Work will proceed as rapidly as possible, limiting the exposure time of disturbed soils to wind and precipitation.
- Periodic inspections will be made by the applicant to ensure compliance with the permit conditions.

Spill Control Measures

- Spill containment equipment (e.g. oil absorbent pads, oil absorbent materials, containment booms, shovels, etc.) will be stored in the equipment storage and refueling area in an easily accessible manner for use in the clean-up of accidental releases of fuel or other hazardous materials. Should there be an accidental release the proper authorities will be notified in accordance with all applicable federal, state, and local laws; and
- To minimize the possibility of leakage of hydraulic fluid, all hydraulic lines on all construction equipment and vehicles will be inspected at the end of each workday. If any excessive wear or leakage is observed, the line will be repaired prior to further use. In addition, a supply of oil absorbent materials (i.e. pads, "speedy dry," and/or booms) will be maintained with the equipment at the work area for immediate deployment in the event of an accidental release of fuel, hydraulic fluid, oil, etc.

Post-Construction Period

The following summary of mitigation measures will be implemented to restore any areas affected by short-term impacts that occur in or adjacent to wetlands.

- The final site is designed to have a 3-foot wide gravel infiltration trench with 1.5"-3" diameter washed aggregate covered with 6" pea gravel running along the facility driveway to collect and slow the flow of runoff from impervious surfaces (see Sheet C-10 and Detail Sheet C-26).
- All areas disturbed during construction activities are to be loamed and seeded to provide vegetated soil cover protection against sheet runoff and wind erosion (see Sheet C-9 thru C-12). Seeded areas will be inspected at least once per week and within 24 hours of rainfall events of ½-inch or greater.
- Once established, seeded areas will be mowed and maintained as appropriate.
- The Pond Pumping Station building roof drain leader will outlet to a riprap apron (See Sheet C-10 and Detail Sheet C-26). Riprap used in the roof drain apron will be inspected periodically to determine if high flows have caused scour beneath riprap or if vegetation removal is required. On the northeast side of the Pond Pumping Station building, a retaining wall will be utilized to prevent steep slopes.

- The wetland replication and restoration areas will be planted with trees and shrubs per the planting plans, and seeded with a wetland seed mixture.
- If seeding occurs outside of the growing season, temporary stabilization measures (i.e., mulching or erosion control blankets) will be used to prevent erosion until the area can be seeded during the following growing season.
- Reseeding and mulching disturbed areas. These areas will be maintained and re-seeded to ensure that grass cover is adequate to stabilize the exposed soil, and
- Sedimentation and erosion control barriers will not be removed until a vegetative cover dense enough to prevent erosion is established.

Selections from Figure 3-2 of the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control:

Figure 3-2 Measure Selection Matrix						
Identify Problem Areas	Identify Control Problems	Identify Strategy	Select Specific Measure		Plan Key	
			Functional Group	Measure		
Disturbed Areas	Control Soil Detachment	Preserve and Conserve Existing Site Resources	Protect Vegetation	Tree Protection	TP	
			Preserve and Conserve Soil	Topsoiling	TO	
				Land Grading	LG	
Short or Shallow Slopes	Raindrop Splash	Protect Surface	Vegetative Soil Cover	Surface Roughening	SR	
	Dust Control			DC		
	Temporary Seeding			TS		
Steep Slopes	Sheet & Rill Erosion	Protect Surface	Vegetative Soil Cover	Permanent Seeding	PS	
	Wind Erosion			Sodding	SO	
				Landscape Planting	LP	
Long Slopes			Non-Living Soil Protection	Temporary Soil Protection	TSP	
				Mulch for Seed	MS	
				Landscape Mulch	LM	
Stockpile Areas		Protect Surface and/or Convey Runoff	Stabilization Structures	Temporary Erosion Control Blanket	ECB	
				Permanent Turf Reinforcement Mat	TRM	
				Stone Slope Protection	SSP	
Borrow Areas	Control Water Movement			Retaining Walls	RW	
				Riprap	RR	
				Gabions	G	
Drainage Ways	Gully Erosion	Convey Runoff	Drainageways and Watercourses	Permanent Slope Drain	PSD	
	Channel & Stream Erosion			Channel Grade Stabilization Structure	CSS	
				Temporary Lined Chute	TC	
Wetlands and Watercourses		Direct Runoff	Diversions	Temporary Pipe Slope Drain	TSD	
				Vegetated Waterway	VW	
				Temporary Lined Channel	TLC	
Waterbodies		Intercept Grnd Water	Subsurface Drains	Permanent Lined Waterway	PW	
				Temporary Stream Crossing	TSC	
				Temporary Fill Berm	TFB	
Areas of Flooding and Existing Erosion	Natural Resource Degradation	Diffuse Runoff	Energy Dissipators	Water Bar	WB	
				Temporary Diversion	TD	
				Permanent Diversion	PD	
Drainage Outlets	Control Sediment Deposition	Detain Sediments	Sediment Impoundments, Barriers, and Filters	Subsurface Drain	SD	
				Detention Structures	Detention Basin	DB
				Level Spreader	LS	
Travel Areas	Protect Onsite and Offsite Areas	Control Mechanically Moved Waters and Soils	Dewatering	Outlet Protection	OP	
				Stone Check Dam	SCD	
				Temporary Sediment Basin	SB	
Dewatering				Temporary Sediment Trap	TST	
				Hay Bale Barrier	HB	
				Geotextile Silt Fence	GSF	
				Turbidity Curtain	TC	
				Vegetative Filter	VF	
				Construction Entrance	CE	
				Pump Intake and Outlet Protection	PuP	
				Pumping Settling Basin	PSB	
				Portable Sediment Tank	PST	
				Dewatering of Earth Materials	DWM	

LINK TO PROJECT PLAN SET:

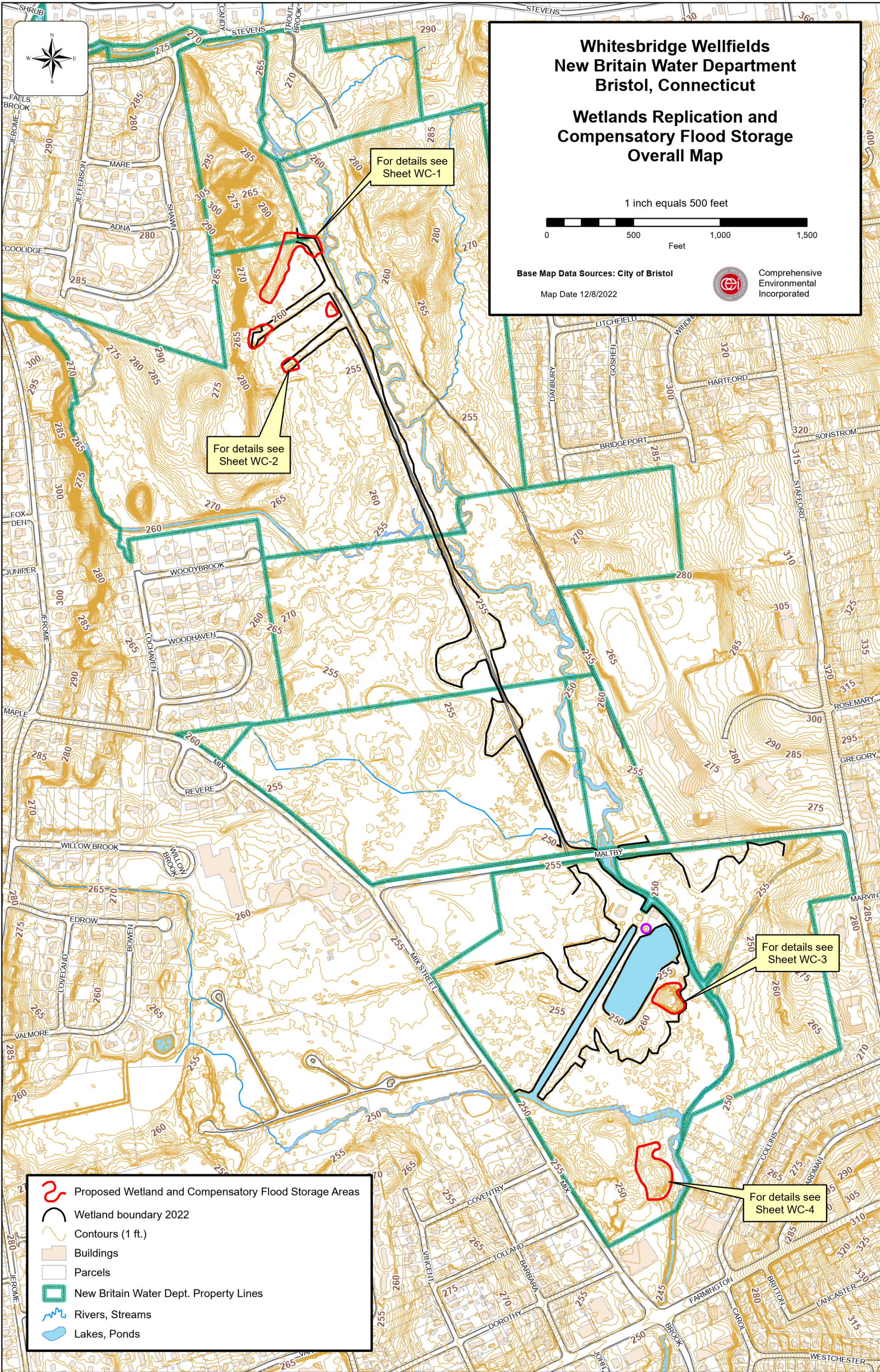
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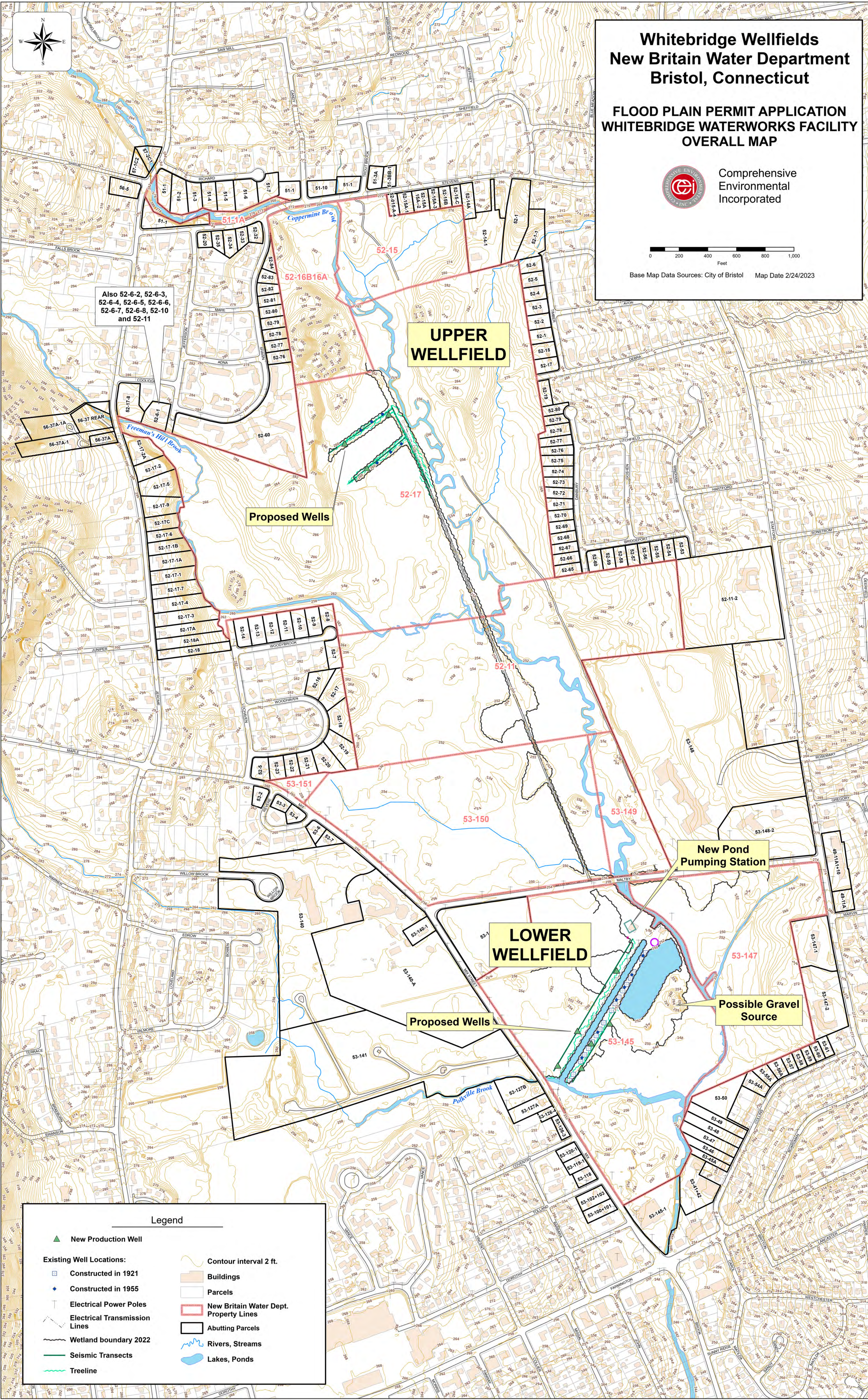
ATTACHMENT 3

PROJECT DRAWINGS

ATTACHMENT 4

PROPERTY MAP



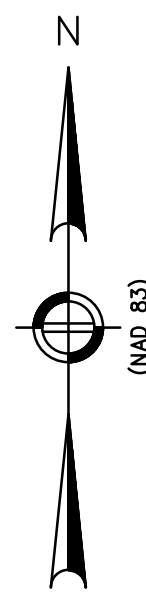


ABUTTING PROPERTY OWNERS

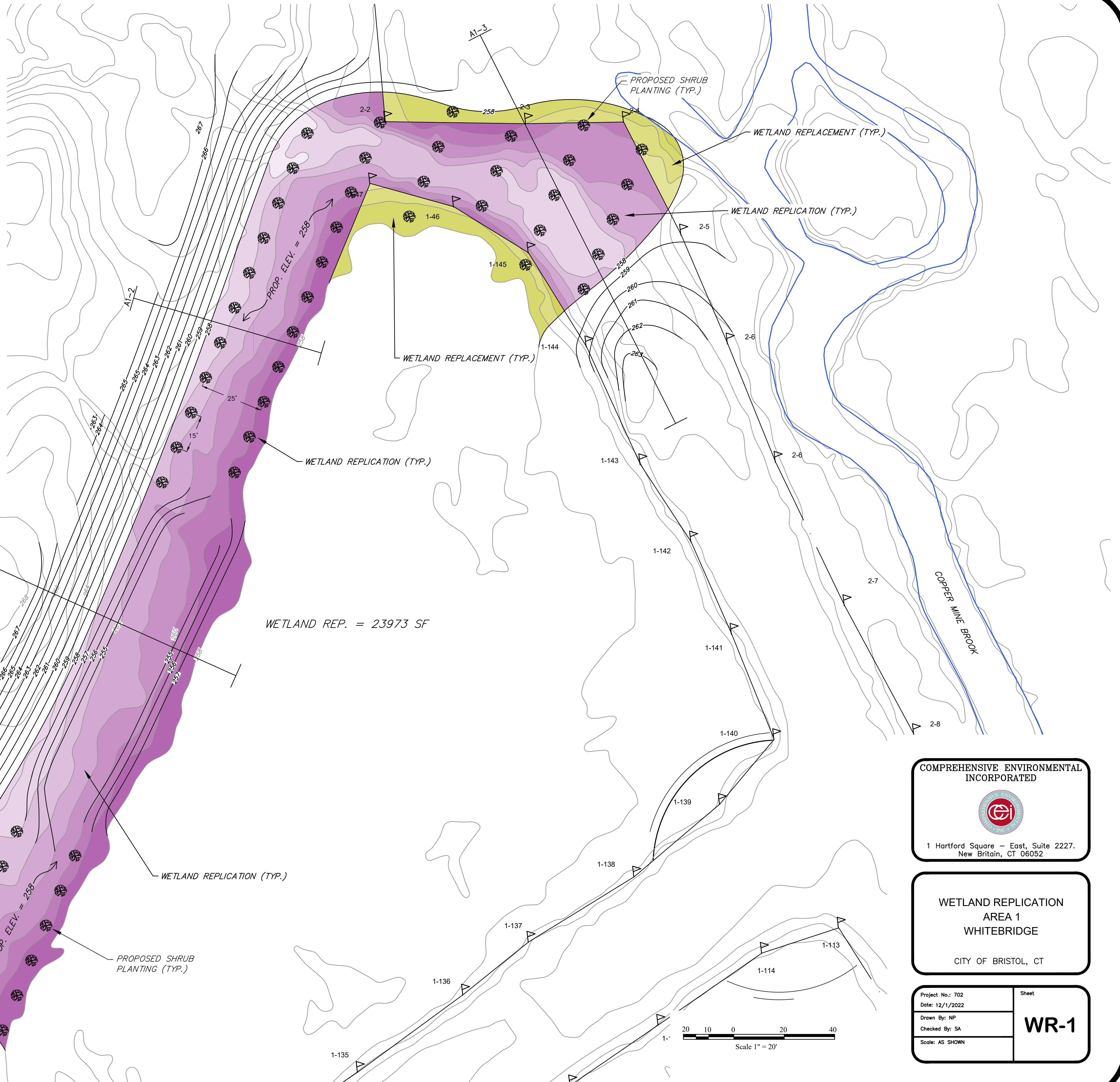
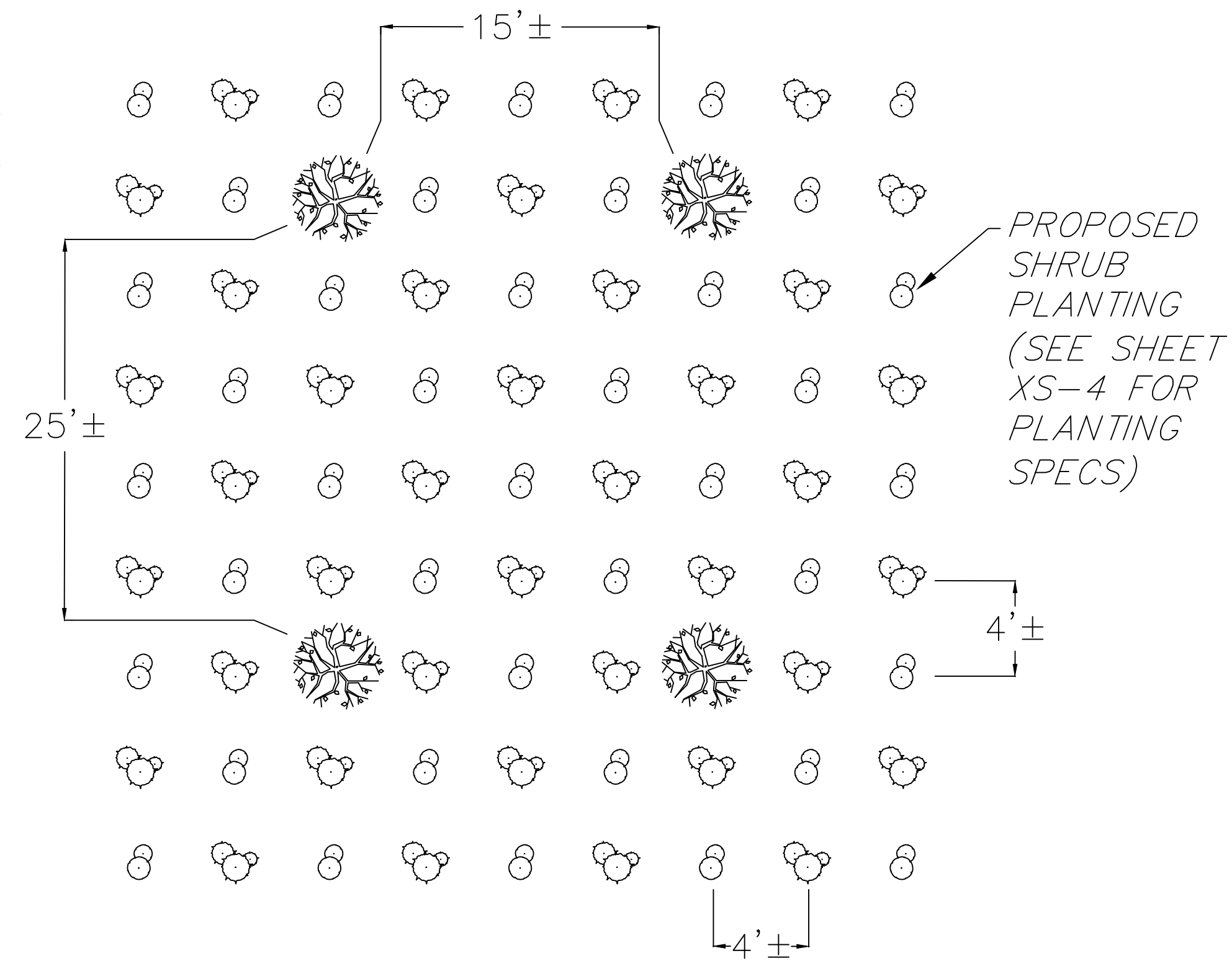
Parcel ID	MAP	BLOCK	LOT	UNIT	OWNER NAME	LOCATION	MUNI	ACRES	ZONING	LAND USE	COMMENT	MAIL ADDR	MAIL CITY	MAIL STATE	MAIL ZIP
49-11A	49	11A-10	1		STAFFORD COMMONS LLC	916 STAFFORD AVE	BRISTOL	0.32 R 15		Appt		1253 BURNINGHAM AVE	BRISTOL	CT	06010
49-11A-10	49	11A-10	2		STAFFORD COMMONS LLC	916 STAFFORD AVE	BRISTOL	1.33 Bn		Multi Ctr		200 SUMNER ST	BRISTOL	CT	06010
51-1	51	1			ORRIN CRISTAL	3 STEVENS ST	BRISTOL	0.72 R 15		Single Family		3 STEVENS ST	BRISTOL	CT	06010
51-1	51	1			ROCKON RICHARD	108 CANDY LA	BRISTOL	0.28 R 15		Single Family		108 CANDY LA	BRISTOL	CT	06010
51-1	51	1			BENSTON JANICE	135 STEVENS ST	BRISTOL	0.39 R 15		Single Family		135 STEVENS ST	BRISTOL	CT	06010
51-1	51	1			HARRIS BIRECCA C	8 RICHARD CT	BRISTOL	0.34 R 15		Single Family		8 RICHARD CT	BRISTOL	CT	06010
51-10	51	10			STUART WILLIAM G + RITA M INT TENANTS	107 CANDY LA	BRISTOL	0.49 R 15		Single Family		107 CANDY LA	BRISTOL	CT	06010
51-2	51	2			DONAHOWA FRANK G + CARRIE M	16 RICHARD CT	BRISTOL	0.66 R 15		Single Family		16 RICHARD CT	BRISTOL	CT	06010
51-3	51	3			BARTLEY DAVID + ANANDA SURV	26 RICHARD CT	BRISTOL	0.46 R 15		Single Family		26 RICHARD CT	BRISTOL	CT	06010
51-3A	51	3A			CALLAHAN JOSHUA	165 STEVENS ST	BRISTOL	0.37 R 15		Single Family		15 PINNACLE RIDGE FARM CANTON	BRISTOL	CT	06019
51-3B-1	51	3B-1			COMBS CAMERON	167 STEVENS ST	BRISTOL	0.35 R 15		Single Family		167 STEVENS ST	BRISTOL	CT	06010
51-4	51	4			REBEZ JESY + WIOLETA	36 RICHARD CT	BRISTOL	0.43 R 15		Single Family		36 RICHARD CT	BRISTOL	CT	06010
51-5	51	5			HARVEY BEATA + MATTHEW J	46 RICHARD CT	BRISTOL	0.6 R 15		Single Family		46 RICHARD CT	BRISTOL	CT	06010
51-6	51	6			LAPLANTE ZACHARY C	60 RICHARD CT	BRISTOL	0.76 R 15		Single Family		60 RICHARD CT	BRISTOL	CT	06010
51-7	51	7			MCGLOULIN WILLIAM E + GRACE	72 RICHARD CT	BRISTOL	0.49 R 15		Single Family		72 RICHARD CT	BRISTOL	CT	06010
015-4-4	52	015-4-4			D'AMATO MICHAEL + LISA SURV	176 STEVENS ST	BRISTOL	0.25 R 15		Single Family		176 STEVENS ST	BRISTOL	CT	06010
52-1	52	1			SIMONE JOSEPH WILLIAM	25 TIMBER LA	BRISTOL	0.39 R 15		Single Family		25 TIMBER LA	BRISTOL	CT	06010
52-1	52	1			CONTINUUM OF CARE INC	276 STEVENS ST	BRISTOL	2.1 R 15		Single Family		109 LEGION AVE	NEW HAVEN	CT	06519
52-10	52	10			DEFLUO SHERI L	45 WOODBROOK RD	BRISTOL	0.46 R 15		Single Family		45 WOODBROOK RD	BRISTOL	CT	06010
52-10	52	10			CURRENT OWNER	76 JEFFERSON AVE	BRISTOL	0.32							
52-11	52	11			MORELLI MICHAEL + MICHELLE L	35 WOODBROOK RD	BRISTOL	0.46 R 15		Single Family		35 WOODBROOK RD	BRISTOL	CT	06010
52-11	52	11			CURRENT OWNER	68 JEFFERSON AVE	BRISTOL	0.31							
52-11	52	1-1			NEWMAN KAREN E	87 TIMBER LA	BRISTOL	1 R 15		Single Family		87 TIMBER LA	BRISTOL	CT	06010
52-12	52	1-2			ST ANDREW EVANGALICAL LUTHERAN	1125 STAFFORD AVE	BRISTOL	10 R 40		Church B4		1125 STAFFORD AVE	BRISTOL	CT	06010
52-12	52	12			AKADOWN ESSE	25 WOODBROOK RD	BRISTOL	0.46 R 15		Single Family		25 WOODBROOK RD	BRISTOL	CT	06010
52-13	52	13			MADSEN ALLEN E AND CATHERINE M	15 WOODBROOK RD	BRISTOL	0.46 R 15		Single Family		15 WOODBROOK RD	BRISTOL	CT	06010
52-14	52	14			RUGHTON SUSAN M	5 WOODBROOK RD	BRISTOL	0.44 R 15		Single Family		5 WOODBROOK RD	BRISTOL	CT	06010
52-14-1	52	14-1			RAMSEY JASON M + STEPHANIE	250 STEVENS ST	BRISTOL	2.41 R 15		Single Family		250 STEVENS ST	BRISTOL	CT	06010
52-14A	52	14A			LOHR AARON S + JESSICA L	236 STEVENS ST	BRISTOL	0.5 R 15		Single Family		236 STEVENS ST	BRISTOL	CT	06010
52-15A-10A-2	52	15A-10A-2			SCHNEIDER ERNEST W JR	186 STEVENS ST	BRISTOL	0.39 R 15		Single Family	MERGED BY USE IN ORDER TO MATCH ASSESSOR RECORDS	186 STEVENS ST	BRISTOL	CT	06010
52-15A-1	52	15A-1			BYRNE SABRINA	186 STEVENS ST	BRISTOL	0.35 R 15		Single Family		186 STEVENS ST	BRISTOL	CT	06010
52-15A-3	52	15A-3			CASTONGIAY BERNARD D	206 STEVENS ST	BRISTOL	0.26 R 15		Single Family		206 STEVENS ST	BRISTOL	CT	06010
52-15B	52	15B			BROUSAL DAVID R	214 STEVENS ST	BRISTOL	0.28 R 15		Single Family		214 STEVENS ST	BRISTOL	CT	06010
52-15-C	52	15-C			WASKO PAMELA D	222 STEVENS ST	BRISTOL	0.28 R 15		Single Family		222 STEVENS ST	BRISTOL	CT	06010
52-16	52	16			WHEELER MARGARET R + JOHN H SR	84 WOODHAVEN RD	BRISTOL	0.61 R 15		Single Family		84 WOODHAVEN RD	BRISTOL	CT	06010
52-17	52	17			JANE STEVEN + SHARON M	64 WOODHAVEN RD	BRISTOL	0.71 R 15		Single Family		64 WOODHAVEN RD	BRISTOL	CT	06010
52-17	52	17			ZIGLE ANDREW + LUMLEY LISA TRUSTEES	5 TIMBER LA	BRISTOL	0.37 R 15		Single Family		112 MADISON DR	BRISTOL	CT	06010
52-17-1	52	17-1			NEUMANN DAVID LIFE USE	634 JEROME AVE	BRISTOL	0.56 R 15		Single Family		634 JEROME AVE	BRISTOL	CT	06010
52-17-1A	52	17-1A			BENTLEY HENRY G JR + TAFFIE A SURV LIFE	624 JEROME AVE	BRISTOL	0.46 R 15		Single Family		624 JEROME AVE	BRISTOL	CT	06010
52-17-1B	52	17-1B			RUCHAS JESOP A + JOAN M	636 JEROME AVE	BRISTOL	0.38 R 15		Single Family		636 JEROME AVE	BRISTOL	CT	06010
52-17-2	52	17-2			BAILEY BARBARA L	602 JEROME AVE	BRISTOL	0.19 R 15		Single Family		602 JEROME AVE	BRISTOL	CT	06010
52-17-2A	52	17-2A			OLSON DIANE M	690 JEROME AVE	BRISTOL	0.5 R 15		Single Family		690 JEROME AVE	BRISTOL	CT	06010
52-17-3	52	17-3			JOHNSON JEREMIAH R + ROY LINDA L	538 JEROME AVE	BRISTOL	0.32 R 15		Single Family		538 JEROME AVE	BRISTOL	CT	06010
52-17-4	52	17-4			HATCHCOCK CHARLES + MARISA L SURV	598 JEROME AVE	BRISTOL	0.48 R 15		Single Family		598 JEROME AVE	BRISTOL	CT	06010
52-17-5	52	17-5			LOMBARD ANTHONY G + MARCIA M	682 JEROME AVE	BRISTOL	0.88 R 15		Single Family		682 JEROME AVE	BRISTOL	CT	06010
52-17-6	52	17-6			WILLIAMS THOMAS D + KASE	644 JEROME AVE	BRISTOL	0.21 R 15		Single Family		644 JEROME AVE	BRISTOL	CT	06010
52-17-7	52	17-7			KIRSCHNER JAMES R +	606 JEROME AVE	BRISTOL	0.78 R 15		Single Family		606 JEROME AVE	BRISTOL	CT	06010
52-17-8	52	17-8			PALMISANO CORY JAMES + ABRAMS EDEN P +	746 JEROME AVE	BRISTOL	0.5 R 15		Single Family		746 JEROME AVE	BRISTOL	CT	06010
52-17-9	52	17-9			LOMBARD ANTHONY G + MARCIA M SURV	636 JEROME AVE	BRISTOL	0.78 R 15		Single Family		636 JEROME AVE	BRISTOL	CT	06010
52-17A	52	17A			RICH VICTOR SEAN B	634 JEROME AVE	BRISTOL	0.41 R 15		Single Family		578 JEROME AVE	BRISTOL	CT	06010
52-17C	52	17C			MURRAY JAMES A	636 JEROME AVE	BRISTOL	0.46 R 15		Single Family		656 JEROME AVE	BRISTOL	CT	06010
52-18	52	18			BICK JENNIFER J	56 WOODHAVEN RD	BRISTOL	0.72 R 15		Single Family		56 WOODHAVEN RD	BRISTOL	CT	06010
52-18	52	18			HURGES LILLIAN F	562 JEROME AVE	BRISTOL	0.41 R 15		Single Family		562 JEROME AVE	BRISTOL	CT	06010
52-18	52	18			MICCICI BARBARA	15 TIMBER LA	BRISTOL	0.26 R 15		Single Family		214 STEVENS ST	BRISTOL	CT	06010
52-18A	52	18A			568 JEROME AVE LLC	568 JEROME AVE	BRISTOL	0.41 R 15		Retail		135 CHESTNUT RD	NEWINGTON	CT	06111
52-19	52	19			MCDONOUGH JEFFREY T + MARCIA B SURV	48 WOODHAVEN RD	BRISTOL	0.81 R 15		Single Family		48 WOODHAVEN RD	BRISTOL	CT	06010
52-19	52	19			SUTULA DANIEL P	135 DEBRA LA	BRISTOL	0.71 R 15		Single Family		135 DEBRA LA	BRISTOL	CT	06010
52-2	52	2			GIANNINI JOHN D JR	35 TIMBER LA	BRISTOL	0.35 R 15		Single Family		35 TIMBER LA	BRISTOL	CT	06010
52-20	52	20			MARRAS SAM J	42 WOODHAVEN RD	BRISTOL	0.21 R 15		Single Family		42 WOODHAVEN RD	BRISTOL	CT	06010
52-21	52	21			SELEDONIA BRIAN J + JENNIFER J	44 STEVENS ST	BRISTOL	0.28 R 10		Single Family		44 STEVENS ST	BRISTOL	CT	06010
52-21	52	21			NORMAN JOHN + ANNE SURV	34 WOODHAVEN RD	BRISTOL	0.4 R 15		Single Family		34 WOODHAVEN RD	BRISTOL	CT	06010
52-22	52	22			LEWANDOWSKI EDWARD +	24 WOODHAVEN RD	BRISTOL	0.35 R 15		Single Family		34 WOODHAVEN RD	BRISTOL	CT	06010
52-23	52	23			BEATON STEPHEN W	14 WOODHAVEN RD	BRISTOL	0.38 R 15		Single Family		14 WOODHAVEN RD	BRISTOL	CT	06010
52-3	52	3			CURRENT RESIDENT	45 TIMBER LA	BRISTOL	0.34 R 15		Single Family		45 TIMBER LA	BRISTOL	CT	06010
52-32	52	32			DOODY MARIE B	6 SHAWN DR	BRISTOL	0.28 R 15		Single Family		6 SHAWN DR	BRISTOL	CT	06010
52-33	52	33			TRULIER KEVIN F	68 STEVENS ST	BRISTOL	0.24 R 10		Single Family		68 STEVENS ST	BRISTOL	CT	06010
52-34	52	34			ARCHAMBAULT RYAN + TABARA	60 STEVENS ST	BRISTOL	0.22 R 10		Single Family		60 STEVENS ST	BRISTOL	CT	06010
52-35	52	35			VARRONE JOSEPH L	52 STEVENS ST	BRISTOL	0.27 R 10		Single Family		52 STEVENS ST	BRISTOL	CT	06010
52-4	52	4			DECLARD MARY L	55 TIMBER LA	BRISTOL	0.34 R 15		Single Family		55 TIMBER LA	BRISTOL	CT	06010
52-5	52	5			MARTINELLI LINDA S	81 WOODHAVEN RD	BRISTOL	0.35 R 15		Single Family		81 WOODHAVEN RD	BRISTOL	CT	06010
52-5	52	5			ANGELLO DAVID + MOTTASAMANTHA JOINT	165 TIMBER LA	BRISTOL	0.34 R 15		Single Family		61 TIMBER LA	BRISTOL	CT	06010
52-5	52	5			HARRINGTON CAROLE D	5 BRIDGEPORT AVE	BRISTOL	0.29 R 15		Single Family		5 BRIDGEPORT AVE	BRISTOL	CT	06010
52-54	52	54			CLARK DA + TODD R	13 BRIDGEPORT AVE	BRISTOL	0.29 R 15		SFR w/ACC Apt		13 BRIDGEPORT AVE	BRISTOL	CT	06010
52-55	52	55			RAVIA JOSEPH + ELIZABETH W TRUSTEES LUT	21 BRIDGEPORT AVE	BRISTOL	0.29 R 15		Single Family		21 BRIDGEPORT AVE	BRISTOL	CT	06010
52-56	52	56			COSTELLO GREGORY	31 BRIDGEPORT AVE	BRISTOL	0.29 R 15		Single Family		31 BRIDGEPORT AVE	BRISTOL	CT	06010
52-57	52	57			CARPENTER NANCY P	39 BRIDGEPORT AVE	BRISTOL	0.29 R 15		Single Family		39 BRIDGEPORT AVE	BRISTOL	CT	06010
52-58	52	58			DAKES VERNIE A JR ESTATE OF + BETTY L	47 BRIDGEPORT AVE	BRISTOL	0.28 R 15		Single Family		47 BRIDGEPORT AVE	BRISTOL	CT	06010
52-59	52	59			WIMAN JEFFREY + KATHLEEN M SURV	67 BRIDGEPORT AVE	BRISTOL	0.28 R 15		Single Family		67 BRIDGEPORT AVE	BRISTOL	CT	06010
52-6	52	6			ANDERSON DAVID G + SHARON S SURV	75 TIMBER LA	BRISTOL	0.34 R 15		Single Family		75 TIMBER LA	BRISTOL	CT	06010
52-60	52	60			AUGUST BENJAMIN	67 BRIDGEPORT AVE	BRISTOL	0.28 R 15		Single Family		67 BRIDGEPORT AVE	BRISTOL	CT	06010
52-61	52	61			COPPERHINE HOUSING ASSOCIATES LLC	135 SHAWN DR	BRISTOL	7.1 A		Apartments		2 CENTER PLAZA SUITE 700 BOSTON	MA	02108	
52-61	52	61		1	CURRENT OWNER	130 JEFFERSON AVE #1	BRISTOL	0 A		Condo Res.					
52-62	52	62		2	CURRENT OWNER	130 JEFFERSON AVE #2	BRISTOL	0 A							
52-63	52	63		3	CURRENT OWNER	130 JEFFERSON AVE #3	BRISTOL	0							
52-64	52	64		4	CURRENT OWNER	130 JEFFERSON AVE #4	BRISTOL	0							
52-65	52	65		5	CURRENT OWNER	102 DANBURY LA	BRISTOL	0.27 R 15		Single Family		102 DANBURY LA	BRISTOL	CT	06010
52-65	52	65		6	CURRENT OWNER	130 JEFFERSON AVE #5	BRISTOL	0							
52-66	52	66		5	CURRENT OWNER	92 DANBURY LA	BRISTOL	0.28 R 15		Single Family		92 DANBURY LA	BRISTOL	CT	06010
52-67	52	67		7	CURRENT OWNER	84 DANBURY LA	BRISTOL	0.28 R 15		Single Family		84 DANBURY LA	BRISTOL	CT	06010
52-67	52	67		8	CURRENT OWNER	130 JEFFERSON AVE #7	BRISTOL	0							
52-68	52	68		8	CURRENT OWNER	76 DANBURY LA	BRISTOL	0.29 R 15		Single Family		76 DANBURY LA	BRISTOL	CT	06010
52-69	52	69		9	CURRENT OWNER	68 DANBURY LA	BRISTOL	0.31 R 15		Single Family		68 DANBURY LA	BRISTOL	CT	06010
52-7	52	7			MULLER ELEANOR	68 DANBURY LA	BRISTOL	0.41 R 15		Single Family		68 WOODBROOK RD	BRISTOL	CT	06010

ATTACHMENT 5

WETLAND REPLICATION AREAS



PLANTING PLAN



COMPREHENSIVE ENVIRONMENTAL
INCORPORATED

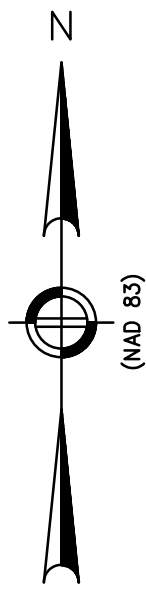


1 Hartford Square — East, Suite 2227.
New Britain, CT 06052

WETLAND REPLICATION
AREA 1
WHITEBRIDGE
CITY OF BRISTOL, CT

Project No.: 702	Sheet
Date: 12/1/2022	WR-1
Drawn By: NP	
Checked By: SA	
Scale: AS SHOWN	





COMPREHENSIVE ENVIRONMENTAL
INCORPORATED

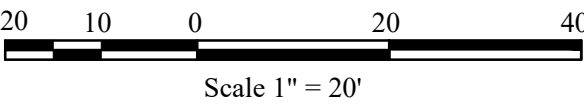


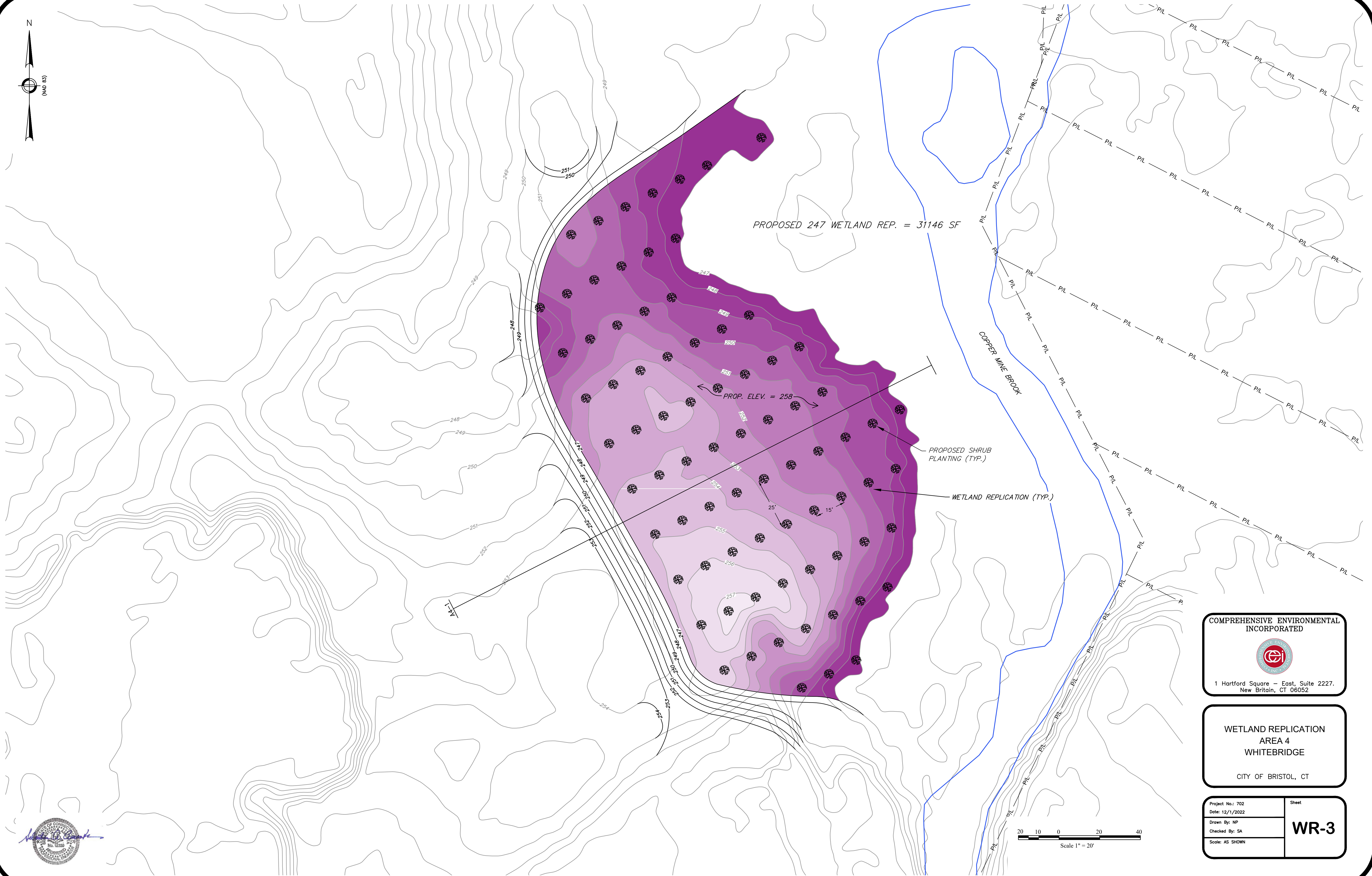
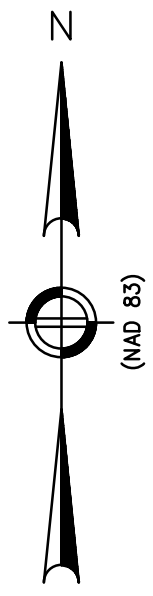
1 Hartford Square — East, Suite 2227.
New Britain, CT 06052

WETLAND REPLICATION
AREA 2
WHITEBRIDGE

CITY OF BRISTOL, CT

Project No.: 702	Sheet WR-2
Date: 12/1/2022	
Drawn By: NP	
Checked By: SA	
Scale: AS SHOWN	





COMPREHENSIVE ENVIRONMENTAL
INCORPORATED

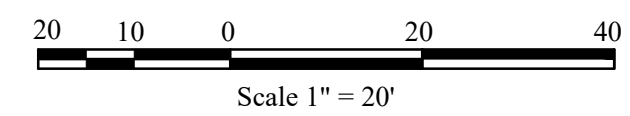


1 Hartford Square — East, Suite 2227.
New Britain, CT 06052

WETLAND REPLICATION
AREA 4
WHITEBRIDGE

CITY OF BRISTOL, CT

Project No.: 702	Sheet
Date: 12/1/2022	WR-3
Drawn By: NP	
Checked By: SA	
Scale: AS SHOWN	



LINK TO SOIL SCIENTIST REPORT:

<https://www.bristolct.gov/DocumentCenter/View/45918/Soil-Scientist-Report-Extracted>

ATTACHMENT 6
SOIL SCIENTIST
REPORT

LINK TO STORMWATER MANAGEMENT REPORT:

<https://www.bristolct.gov/DocumentCenter/View/45917/SW-Report-Extracted>

ATTACHMENT 7

STORMWATER MANAGEMENT REPORT

23-458F-305

APPLICATION NO. _____

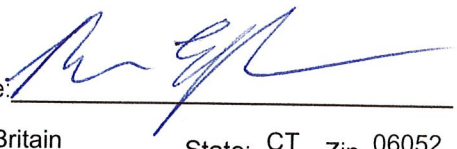
DATE FILED: 12-28-23

APPROVED: _____

DENIED: _____

**BRISTOL FLOOD & EROSION COMMISSION
FLOOD PLAIN APPLICATION
PERMIT FOR FLOOD PLAIN DEVELOPMENT**

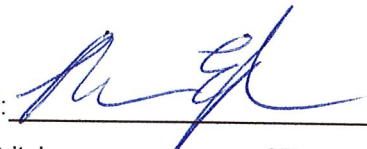
1. APPLICANT:

Name: New Britain Water Department, Ramon Esponda Signature: 

Address: 1000 Shuttle Meadow Ave City: New Britain State: CT Zip 06052

Telephone No.: (860) 826-3535 [] home [X] work

2. PROPERTY OWNER(S):

Name: New Britain Water Department, Ramon Esponda Signature: 

Address: 1000 Shuttle Meadow Ave City: New Britain State: CT Zip 06052

Telephone No.: (860) 826-3535 [] home [X] work

3. DESCRIBE THE SUBJECT PROPERTY:

Address or Location: Upper and Lower Wellfields via Maltby Street

Assessor's Map No.: 52, 53 Assessor's Lot No.(s): 11, 15, 16B16A, 17, 145, 147, 149, 150, 151

Street of Access: Maltby Street

Name of Watercourse or Water Body: Copper Mine Brook, Polkville Ave Brook

FIRM Panel Number: 458 of 675 Total Area of Lot(s): 303.7 acres

4. PROJECT DESCRIPTION:

Flood Plain use for which the applicant is seeking a permit. (check one)

[] a. Permitted Use [X] b. Regulated Use [] c. Special Exception

Describe the proposed activity and its purpose: The White Bridge Wellfield Rehabilitation project includes the replacement and restoration of the White Bridge Waterworks Facility located in Bristol, CT. This project involves the demolition and removal of existing structures in addition to the construction of new groundwater wells, a new pump house and underground piping.

Proposed encroachment of Flood fringe area (S.F. or acres): 94,660 SQ. FT.

Proposed encroachment of Regulated Floodway (S.F. or acres): 28,619 SF

Proposed alteration of Watercourse (L.F., S.F. or acres): 0 SF

Flood proofing techniques proposed: Wellheads and New Structures built 2 feet above 100yr flood elevation.

Disturbance of designated wetland area: [] No [X] Yes: Permit Number: Pending

Date applied for: 12/28/2023 Disposition: Pending

BRISTOL FLOOD & EROSION COMMISSION FLOOD PLAIN APPLICATION PERMIT FOR FLOOD PLAIN DEVELOPMENT

5. TECHNICAL & PLANNING DATA:

Project Specifics: Provide the following information from official sources or submitted documentation.

All elevations are to be relative to mean sea level.

Existing base flood flow rate: 2710 CFS & 4230 CFS Source: StreamStats 1%, Upper and Lower Wellfields
Existing base flood elevation: 259.0' & 255.9' NAVD88 Source: FEMA FIRM, Upper and Lower Wellfields
Lowest floor elevation of existing buildings including garage or basements: 253' @ Lower Wellfield
Lowest floor elevation of proposed building including garage or basements: 258' @ Lower Wellfield
Will there be dry access to the structure(s) during the 100 year flood? Yes

Floodplain Alterations Proposed:

Volume of displaced Flood Plain: 7,305-CU. YDS. 6,643 Cubic Yards
Volume of mitigated Flood Plain: 17,616-CU. YDS. 14,198 Cubic Yards

Floodway Alterations Proposed:

Length of reconstructed or altered floodway: 85 FT & 325 FT; Upper and Lower
Proposed base flood flow rate: 2710 CFS & 4230 CFS; Upper and Lower
Proposed base flood elevation: 259.0' & 255.9' NAVD88; Upper and Lower

6. AUTHORIZATIONS AND CERTIFICATIONS:

- a. I/we hereby authorize the commissioners and agents of the Bristol Flood and Erosion Agency to inspect the subject property at reasonable times, both before and after a final decision has been made regarding this application or request.
- b. I/we hereby certify that I/we am/are familiar with the information included in this application and am/are aware that the law provides that any person who commits, takes part in, or assists in any violation of any provision of the Connecticut General Statutes, including regulations adopted by the Commissioner of Environmental Protection and ordinances and regulations of the City of Bristol through its Flood and Erosion Agency and Inland Wetlands Agency, shall be assessed a civil penalty of not more than one thousand dollars for each offense. I/we further certify that I/we am/are aware that it is a violation of law to obtain a flood plain permit or ruling through deception or through inaccurate or misleading information.
- c. I/we hereby certify that this application shall be considered complete only when all information and documents required by the Administrator have been submitted.

7. SUBMISSION REQUIREMENTS:

The following shall be included as part of this application:

- filing fee – make checks payable to "City of Bristol,"
\$5.00 Permitted Use, \$50.00 for Regulated Use, and \$100.00 for Special Exception
- ten copies of a Site Plan showing existing and proposed conditions in relation to the flood plain, floodway, watercourses, and/or wetlands prepared in accordance with the Regulations,
- any other information as may be required by the Agency
 - ☐ Site Plans ☐ Detail Plans ☐ Construction Specifications
 - ☐ Drainage Computations ☐ Flood Proofing Details ☐ Flood Proofing Certification

BRISTOL FLOOD & EROSION COMMISSION FLOOD PLAIN APPLICATION PERMIT FOR FLOOD PLAIN DEVELOPMENT

Page 2

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Lowest floor elevation of proposed building including garage or basements: 258' @ Lower Wellfield
Will there be dry access to the structure(s) during the 100 year flood? Yes

Floodplain Alterations Proposed:

Volume of displaced Flood Plain: 7,305 CU. YDS.

Volume of mitigated Flood Plain: 17,616 CU. YDS.

Floodway Alterations Proposed:

Length of reconstructed or altered floodway: 85 FT & 325 FT; Upper and Lower

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Proposed base flood elevation: 259.0' & 255.9' NAVD88; Upper and Lower

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- I/we hereby certify that I/we am/are familiar with the information included in this application and am/are aware that the law provides that any person who commits, takes part in, or assists in any violation of any provision of the Connecticut General Statutes, including regulations adopted by the Commissioner of Environmental Protection and ordinances and regulations of the City of Bristol through its Flood and Erosion Agency and Inland Wetlands Agency, shall be assessed a civil penalty of not more than one thousand dollars for each offense. I/we further certify that I/we am/are aware that it is a violation of law to obtain a flood plain permit or ruling through deception or through inaccurate or misleading information.
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\$5.00 Permitted Use, \$50.00 for Regulated Use, and \$100.00 for Special Exception
- ten copies of a Site Plan showing existing and proposed conditions in relation to the flood plain, floodway, watercourses, and/or wetlands prepared in accordance with the Regulations,
- any other information as may be required by the Agency
 - ☐ Site Plans ☐ Detail Plans ☐ Construction Specifications
 - ☐ Drainage Computations ☐ Flood Proofing Details ☐ Flood Proofing Certification

BFEC-12/01

Wetlands Permit Application – Flood & Erosion Control

Project Narrative:

A rehabilitative project will be conducted at the Upper and Lower Wellfields of the White Bridge Waterworks Facility owned by the New Britain Water Department (NBWD) accessed via Maltby Street. The purpose of this project is to redevelop the existing Upper and Lower Wellfields, which were constructed in the 1940s and 1921, respectively. Presently, these wellfields serve as a raw water supply only. The age of the wellfields is such that they have come to the end of their useful life and repair and replacement equipment is no longer available. The NBWD needs to upgrade the facilities and modernize the equipment.

To become a potable water supply, any new wells must be located 50 feet from any water body or wetlands boundary per Department of Public Health (DPH) requirements. In addition, the wells must be raised 2' above the one-hundred-year flood plain elevation. The majority of the NBWD owned property related to this project is within the 100-year floodplain. Because of these requirements, the existing wells cannot be redrilled or rehabilitated in their present location. All currently existing wells will be abandoned in accordance with DPH requirements. The Lower Wellfield may but suitable as a public water supply subject to the ground water under the direct influence of surface water testing which will be done once the project is completed in a future phase of construction.

Proposed activities for the project include the demolition of pre-existing structures in addition to the construction of new groundwater wells, a pump house and underground piping. Pre-existing structures include the Upper Wellfield pump station, Pond pump station and Well pump station. Two of those pre-existing buildings are within the floodway. The new pump house structure will be outside of the floodway. Compensatory flood storage areas will be created so as to not increase the current flood elevation levels as given by FEMA guidelines. These compensatory storage areas will also create additional wetland areas.

The project will impact approximately 31,000 square feet of wetlands. As part of the project, wetlands replication will be done at a ratio of greater than two to one. The new structure and facilities will add approximately ~~7,000~~ 6,543 cubic yards of fill within the floodplain. As part of the project, over ~~17,000~~ 14,198 cubic yards of material will be removed from the flood plain.

As part of the scope of work of this project various areas within both the flood fringe and floodway will be encroached upon. See attached maps for the extent of the encroachment within both areas.

Erosion & Sedimentation Control:

The erosion and sedimentation control measures at the White Bridge facility focus on the protection of wetlands and waterways during and following construction since the work includes land disturbances, excavation dewatering, supply pond and canal sediment removal activities, and other associated construction activities. Several methods are included on the Drawings to slow the flow of runoff and protect disturbed land during construction activities. Please refer to the project plans for typical details of measures to protect wetlands and waterways during and after construction. The following summary

Pumping Station					
Fill			Cut		
Contour	Volume C.F.		Contour	Volume C.F.	Net C.F.
250	8,622		250	0	8,622
251	17,313		251	183	17,130
252	29,777		252	4,202	25,575
253	28,376		253	4,202	24,175
254	25,800		254	4,202	21,598
255	23,466		255	4,202	19,264
256	21,270		256	4,202	17,069
257	14,512		257	4,202	10,311
143,745 Fill C.F.					

Upper Wellfield					
Fill			Cut		
Contour	Volume C.F.		Contour	Volume C.F.	Net C.F.
256	2,257		256	0	2,257
257	3,806		257	0	3,806
258	5,733		258	0	5,733
259	2,045		259	0	2,045
13,840 Fill C.F.					

Lower Wellfield					
Fill			Cut		
Contour	Volume C.F.		Contour	Volume C.F.	Net C.F.
248	914		248	0	914
249	3,932		249	0	3,932
250	0		250	0	0
251	0		251	112	-112
252	6,011		252	635	5,376
253	4,374		253	416	3,958
254	2,994		254	324	2,670
255	1,859		255	251	1,609
256	991		256	151	840
257	0		257	107	-107
19,077 Fill C.F.					

Total Project Fill 176,662 Fill C.F.
6,543 Fill C.Y.

Complying Quantity Reference Sheet	UWF Total Needed (C.F.)
CS-1/2	2,257
CS-1/2	3,806
CS-1/2	5,733
CS-1/2	2,045

Complying Quantity Reference Sheet	LWF Total Needed Including Pumping Station (C.F.)
CS-4	914
CS-4	3,932
CS-4	8,622
CS-4	17,019
CS-3/4	30,951
CS-3/4	28,132
CS-3/4	24,268
CS-1/3/4	20,873
CS-3/4	17,908
CS-3/4	10,204

Contour	CS-1	CS-2	CS-3	CS-4	Total (C.F.)	Difference (C.F.)	Over or Need
256	3,903	1,493			5,396	3,139	OVER
257	4,859	6,077			10,936	7,130	OVER
258	23,973	3,689	11,977		39,639	33,906	OVER
259	21,846	1,469	10,447		33,762	31,717	OVER
89,733 C.F. Storage							

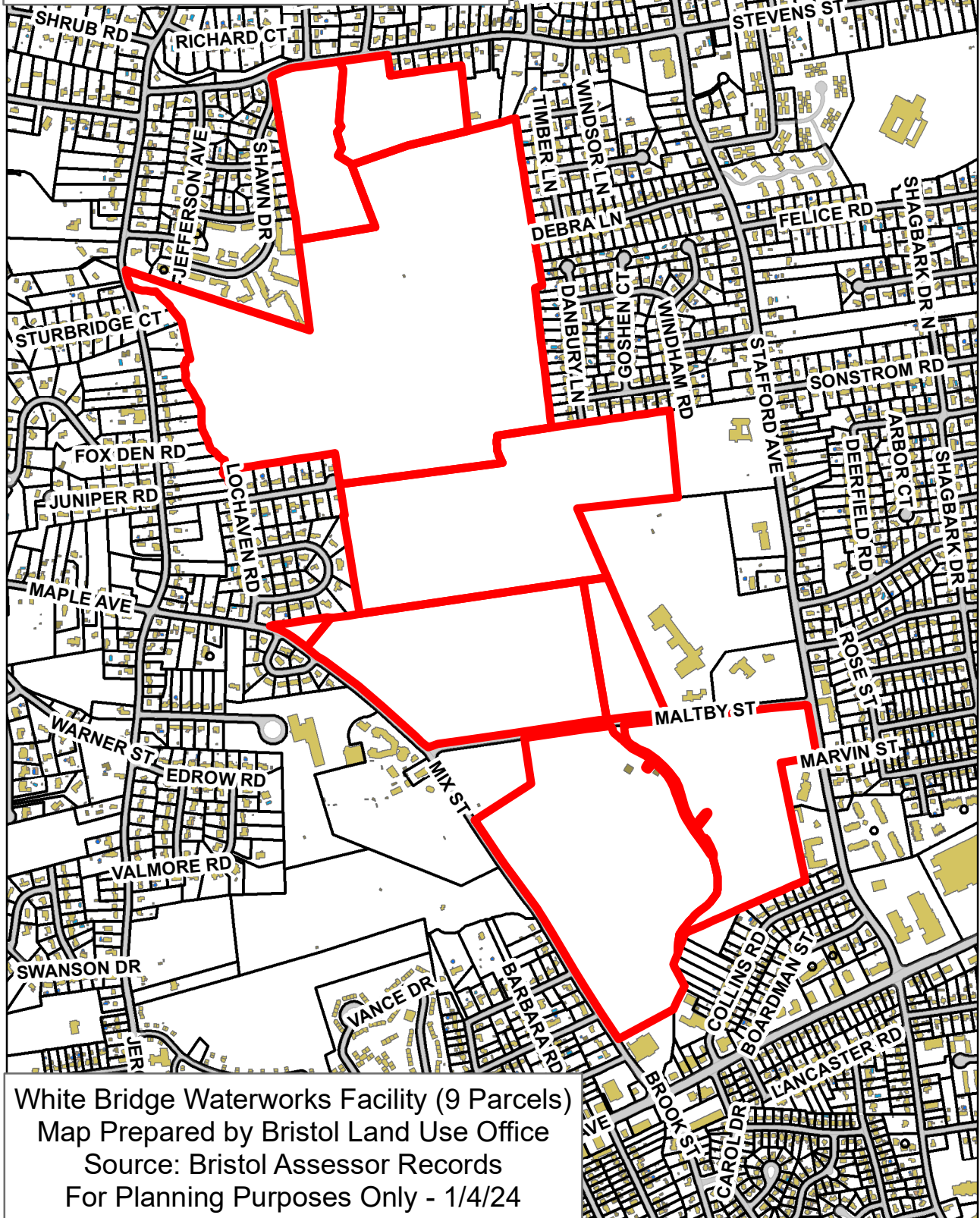
Note: 1,397 C.F. of this total applied to the Lower Wellfield at contour 256'.

Contour	CS-1	CS-2	CS-3	CS-4	Total (C.F.)	Difference (C.F.)	Over or Need
248				29,192	29,192	28,278	OVER
249				27,921	27,921	23,989	OVER
250				24,902	24,902	16,280	OVER
251				20,309	20,309	3,290	OVER
252			32,168	16,115	48,283	17,332	OVER
253			47,369	13,469	60,838	32,706	OVER
254			20,100	7,973	28,073	3,805	OVER
255	3,004		17,436	3,387	23,827	2,954	OVER
256			15,162	1,349	16,511	-1,397	EVEN
257			13,541	205	13,746	3,542	OVER
293,602 C.F. Storage							

Note: Short fall of 1,397 C.F. has been applied from compensatory storage contour 256' at Upper Wellfield.

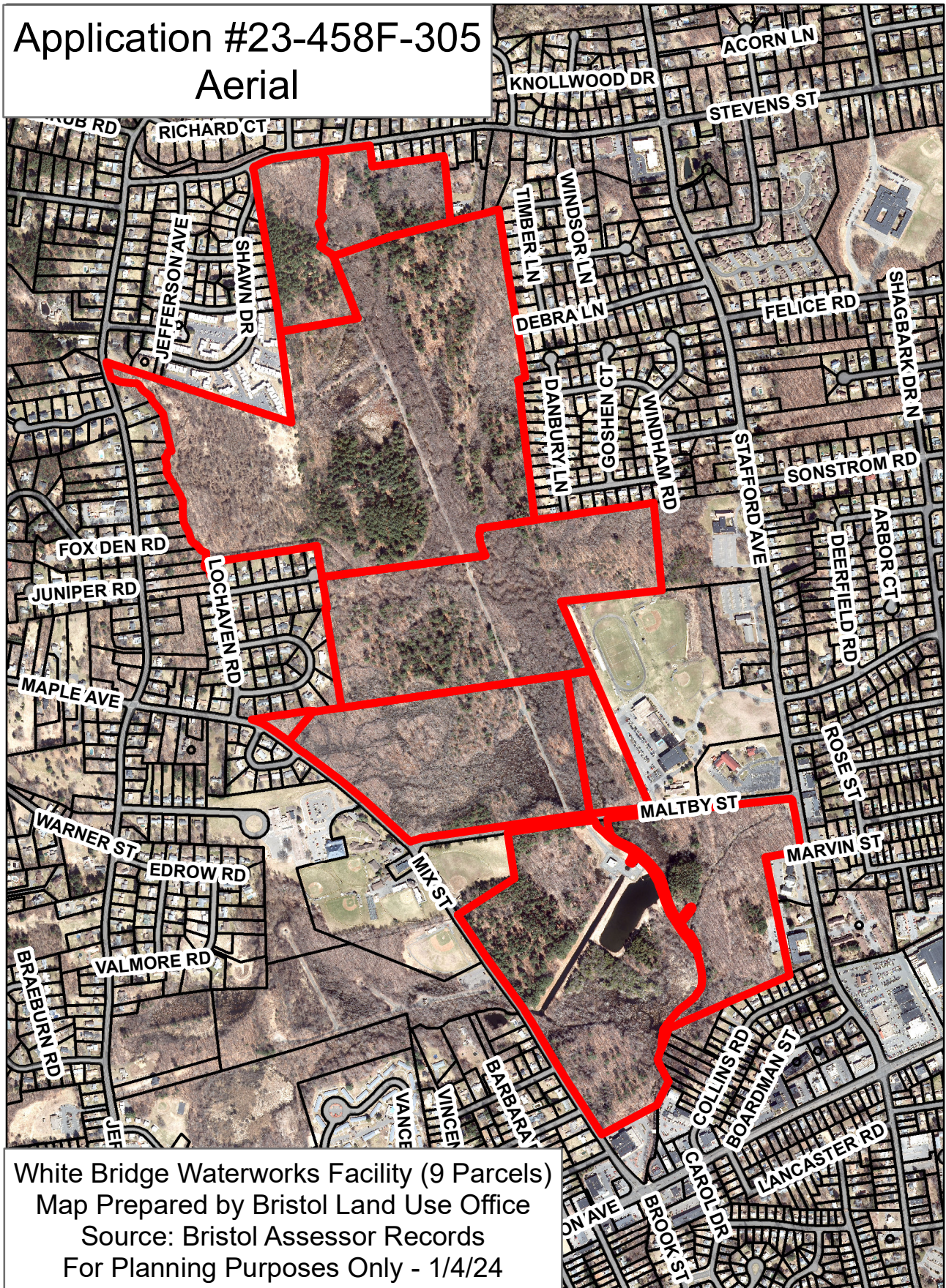
Total Project CS 383,335 C.F. Storage
14,198 C.Y. Storage

Application #23-458F-305 Location

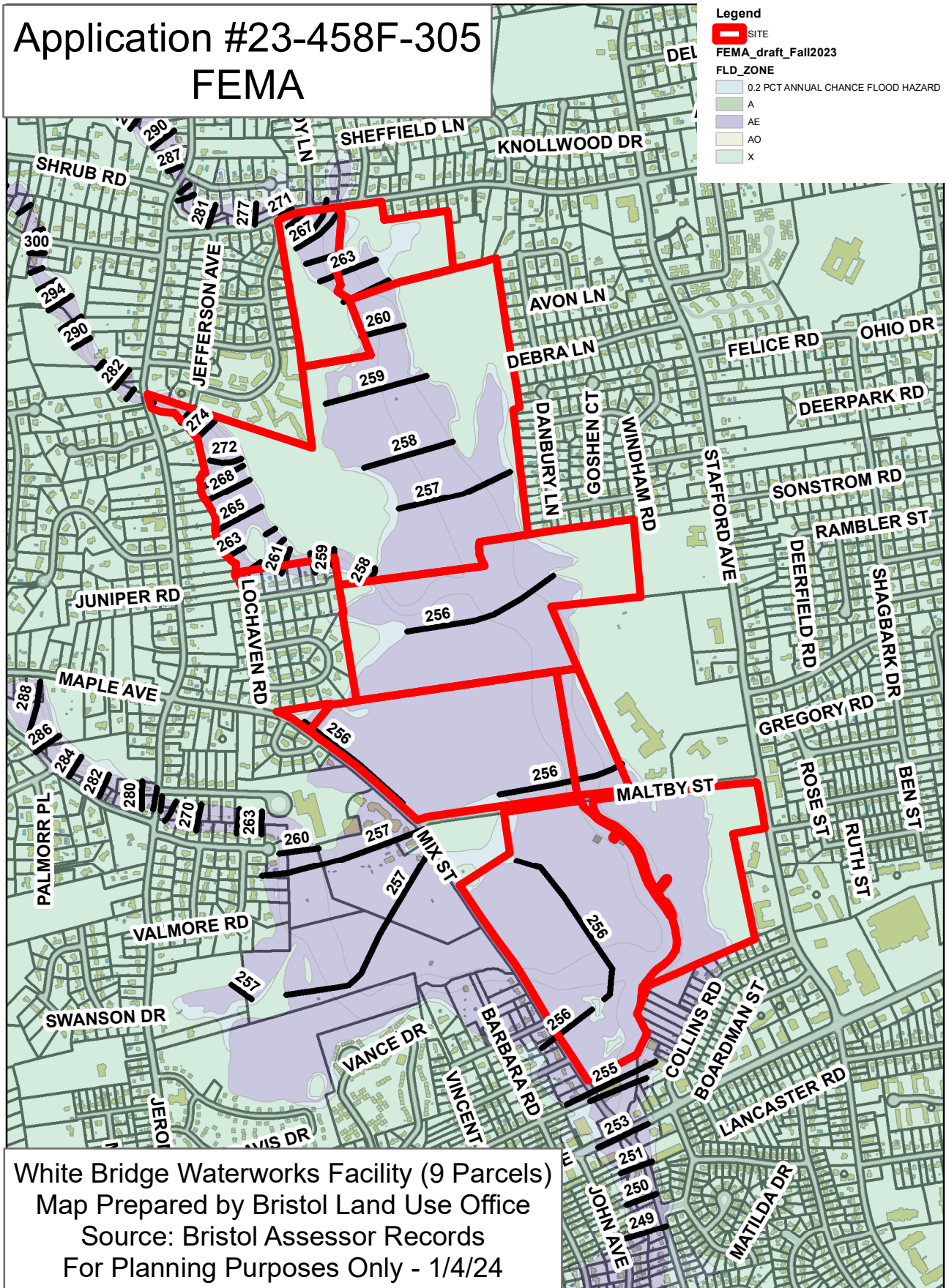


Application #23-458F-305

Aerial



Application #23-458F-305 FEMA





COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

Gateway Crossing
1 Hartford Square East, Suite 227
New Britain, CT 06052
860.224.0442

May 1, 2024

Mr. Robert Flanagan, City Planner
City Hall
111 North Main Street
Bristol, CT 06010

**RE: Wetlands and Flood Commission Permits- Applications #2019, #2020 & #23-458F-305
Submission of Response to Staff Comments and Supplemental Information**

Dear Mr. Flanagan,

On behalf of the Applicant, the New Britain Water Department, Comprehensive Environmental Inc. (CEI) is providing in this document responses to comments and supplemental information regarding the above referenced applications.

Responses to City Staff Comments:

Comment #1. *Proposed construction wetland “replication” appears to consist of excavation adjacent to existing wetland and installation of 3 inches of hydrophilic soil. Provide additional information associated with the hydrophilic soil specification and post development groundwater depth to support wetland “replication” areas. DPW Engineering Division proposes a min of 12-inch depth of hydrophilic soil within wetland “replication” area. On adjacent 2:1 slopes 6 inches of hydrophilic soil is sufficient. Detail/document short and long term monitoring and wetland “replication” area management plan to ensure long-term viability of area.*

Response #1. The wetland replication and compensatory storage plans and sections have been revised to address the above comments. Please note that due to the presence of a vernal pool in the upper wellfield area the compensatory storage and wetland replication area was moved further north. In addition, the United States Army Corp of Engineers (USACE) has requested a 3:1 wetlands replication as part of their permit review. These changes are reflected in revised sheets WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 and C-14A which are attached herein as **Attachment 1.A**. Also attached as **Attachment 1.B**. are the calculations for the compensatory storage. More information about the vernal pool can be found in the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is also attached to this document as **Attachment 1.C**. Sheet XS-5 and Section 4 of the NBWD Supplemental Environmental/Wetlands Permit Information detail the short term and long term monitoring for wetland replication.

Comment #2. *Plan indicates dewater sedimentation basin, however provide anticipated/ proposed discharge rates with sizing of sedimentation basins. In addition, indicate controls / monitoring of turbidity discharge from sedimentation basin.*

Response #2. Temporary dewatering sedimentation basins are intended to be used in the event high groundwater is encountered during excavation activities. Anticipated/proposed discharges will vary depending on the required amount of excavation dewatering but typically can range from 20-50 gpm, intermittently. As shown in Detail J of Drawing Sheet C-24 (included herein as **Attachment 2**), the dewatering sedimentation basin size may vary depending on necessity with a 5-foot diameter being the minimum diameter of the basin. Sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. The Contractor may also elect to install permeable geotextile dewatering bags in addition to the dewatering sedimentation basins for sediment filtration.

Comment #3. *Provide construction sequence with durations along with staging plan, areas of stockpile storage and refueling areas.*

Response #3. See the Proposed Construction Sequence Memorandum included in **Attachment 3.A.** for more information, and the associated Drawing Sheets C-20, C-21, and C-22 in Attachment 3.B. Additionally, see Sheet C-1 and C-7 of **Attachment 3.B.** for notes and depiction of Contractor staging, stockpiling, and refueling areas.

Comment #4. *Clarify proposed location of floating turbidity curtain.*

Response #4. Floating turbidity curtains are to be located within the canal, east and west of the proposed sediment removal areas. See revised Sheet C-23 in **Attachment 4.**

Comment #5. *Include installation line of silt fence along the toe of ALL proposed slopes. Silt fence shall be installed prior to construction, be monitored during construction and removed once slopes are stabilized.*

Response #5. Notes requiring the installation of silt fence has been included throughout drawings. See revised sheets C-1, C-6, C-7, C-8, C-13, C-14, C-14A in **Attachment 5.**

Comment #6. *Provide additional detail associated with compensation storage area 3. The plans indicate excavation to elevation 252, however indicate proposed access to area, erosion control and restoration.*

Response #6. The revised plans referenced in Comment Response #1 address these comments.

Comment #7. *Provide additional detail associated with compensation area 4, including additional elevation east of the area between the compensation area and the Coppermine. Detail cross section AA-1 and indicate erosion control measures and proposed access to area.*

Response #7. The revised plans referenced in Comment Response #1 address this comment.

Comment #8. *The Storm Water Management Report is prepared in accordance with the CT Storm Water Quality Manual. As indicated in your report the manual requires maintaining the pre-*

development annual groundwater recharge volume. The report indicates recharge is achieved through reduction in impervious area; however, please indicate impact of additional well withdrawal will have on wetlands.

Response #8. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is included in **Attachment 1.C.**

Comment #9. *Proposed plans indicate flood plain mitigation measures (excavation within flood plain to offset the placement of fill within flood plain). However, Bristol DPW recommends a CLOMR prior to work and will require a LOMR as condition of approval (if approved).*

Response #9. See No Rise Certification included in **Attachment 9.** No objection to coordinating with FEMA for CLOMR/LOMR as a condition of approval.

Responses to North Central Conservation District (Letter Dated March 28, 2024):

1. See the Letter from CT DEEP in **Attachment 10**, which confirms the continued applicability of the Diversion Registration to the facilities and that no diversion permit is required for continued operation of the facilities as proposed with this project.
2. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information, included in **Attachment 1.C.**, concluding no permanent impacts from withdrawals.
3. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information and the related Supplemental Alternatives Evaluation contained therein, detailing alternatives considered for this project. There are no feasible and prudent alternatives to the proposed plan.
4. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information concluding no permanent impacts to wetlands functions and values.

Additional Information Submitted:

1. Detailed Groundwater and Stream Flow Monitoring Plan, as required by CT DPH, is included in **Attachment 11.**
2. Letter confirming hydrogeologic information for project site remains valid. See **Attachment 12.**
3. Proposed wetlands boundary line change map is submitted for consideration. See **Attachment 13.**
4. Resumes of Engineers and Soil Scientist are included in **Attachment 14.**

Attachments Includes:

- Response 1 – Attachments
 - 1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A
 - 1.B. Calculations: Compensatory Storage
 - 1.C. NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC
- Response 2 – Attachment
 - 2. Drawing: C-24
- Response 3 – Attachments
 - 3.A. Proposed Construction Sequence Memorandum
 - 3.B. Drawings: C-1 and C-7; C-20, C-21, and C-22
- Response 4 – Attachment

- 4. Drawing: C-23
- Response 5 – Attachment
 - 5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A
- Response 9 – Attachment
 - 9. No Rise Certification
- Attachment 10
 - 10. CT DEEP Permit Need Determination
- Attachment 11
 - 11. Detailed Groundwater and Stream Flow Monitoring Plan
- Attachment 12
 - 12. Letter confirming hydrogeologic information for project site remains valid
- Attachment 13
 - 13. Proposed wetlands boundary line change map
- Attachment 14
 - 14. Resumes of Engineers and Soil Scientist
 - Sebastian Amenta, P.E.
 - Ian T. Cole - Professional Soil Scientist
 - Joseph L. Laliberte, PE, BCEE, PM
 - Clinton L. Webb Jr. – Senior Environmental Scientist/Ecologist

If you have any questions or require any additional information, please do not hesitate to contact me at 860.224.0442 or samenta@ceiengineers.com.

Sincerely,
Comprehensive Environmental Inc.



Sebastian Amenta, PE
Regional Program Director

May 6, 2024

Zach Fisk, Chair
Bristol Inland Wetland Commission
c/o Bristol Land Use Division via email

RE: **Application #2019, Application #2020, Application #23-458F-305** Application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessors Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Dear Chair Fisk and Bristol IWW Commissioners:

This letter is written in response to the recent submittal (dated May 1, 2024) of additional information regarding subject applications. This additional submittal information includes revisions made to the proposed plans in response to the discovery of a vernal pool at the north wellfield site, as well as revisions made to address staff comments, and revisions made to the plans as a result of the comments from the Army Corps of Engineers to address the federal requirements for wetland mitigation for the impacts to wetlands as a result of the proposed improvements. Also, the Streamflow monitoring plan, prepared for the Department of Public Health, was presented in Attachment 11.

Additionally, since the last public hearing, third party review letter from the North Central Conservation District desktop review (dated March 28, 2024, 3 pp) has been available. Further third party review for wetland/floodplain environmental services has not yet been made available.

The following comments are made in response to the May 1, 2024 additional information submittal.

1. Regarding the Supplemental information/vernal pool discovery in the vicinity of the north wellfield:
 - a. Was the Commission able to review the vernal pool extents during the site walk to confirm limits and conditions? (According to sheet WR-1, the proposed access road to the modified mitigation area north of the pool impacts the 100' review area of the vernal pool.)
 - b. Where is the vernal pool location compared to the well drawdown contours presented in the hydrogeologic report? These contours appear to extend into the vernal pool protection area, and the drawdown contours were presented for operations at Well 5A, (pumping at approximately 1/7 of the north wellfield proposed rate). What drawdown data was provided to the wetland scientists to respond to the surface water drawdown impacts to the ecological systems? What protections will be proposed to protect the existing natural systems (wetlands and stream) from impact due to increase well water withdrawals?
2. Regarding the revised wetland mitigation / floodplain compensation areas:
 - a. Sheet WR-1 shows a wetland replication area (represented by section A1-1) to excavate up to 8' in depth from an area of approximately 28,726 SF in size (to el 261). This area is located immediately adjacent to brook. The proposed transition slope areas to the north and west of this area add additional significant area of

disturbance. How close is the proposed replication area to the brook and what riparian impacts will result from the clearing? What is the total disturbance of the mitigation area, including the transition slope areas and haul road? What portions of the disturbed areas are located in regulated wetlands/upland review areas? What is the existing land cover in the proposed impacted areas, i.e. what kind of land cover will be cleared to accommodate the wetland replication area (and how much is considered brook riparian area)? What is the estimated time period for the mitigation area to restore to land cover conditions similar to the mature conditions (similar to the existing condition)? Will the perimeter fringe areas be more subject to invasive species (and if managed, chemical treatment) than the existing conditions (presumably with no current chemical use and less potential for introduction of invasives)? Are there seasonal restrictions in specifications to help minimize impacts related to clearing, dewatering and removal of the substantial proposed excavation materials? What is the proposed time period required and any seasonal restrictions for the proposed grading and planting? Will mitigation work be completed before the proposed impacts? Have any borings been performed to determine the need for access road stabilization and wetland material reuse? Will the haul/access road remain through Growing Seasons 2-5. Quantify the areas of haul/access road for clearing, grading, and stabilization and whether these areas occur in regulated wetlands or regulated floodplain. Has any road fill been computed in the floodplain impacts? Will any stabilized road work be removed and restored?

- b. On sheet WR-2, will any grading and stabilization be done for the haul/construction/access road? (The south road shows “dips” of 3’ - 4’ in the vicinity of the road narrowing for the south longitudinal section of mitigation). What is the tabulated area of impact for wetlands/upland review for these areas, including slope transitions, with a discussion of the existing land cover? Please discuss periods for invasive management and any proposed chemical use that may be needed to manage invasives in these proposed mitigation area. Due to the proximity of the wells, will chemical use be restricted? The plan calls for wetland replication of 3,057 SF to el 257 and 2,008 SF to el 256. The third area of impact/replication is not called out. What is the quantity of temporary impacts in regulated wetlands for each area’s construction? What is the anticipated surface water fluctuation to the adjacent wetlands and brook resulting from the new wells?

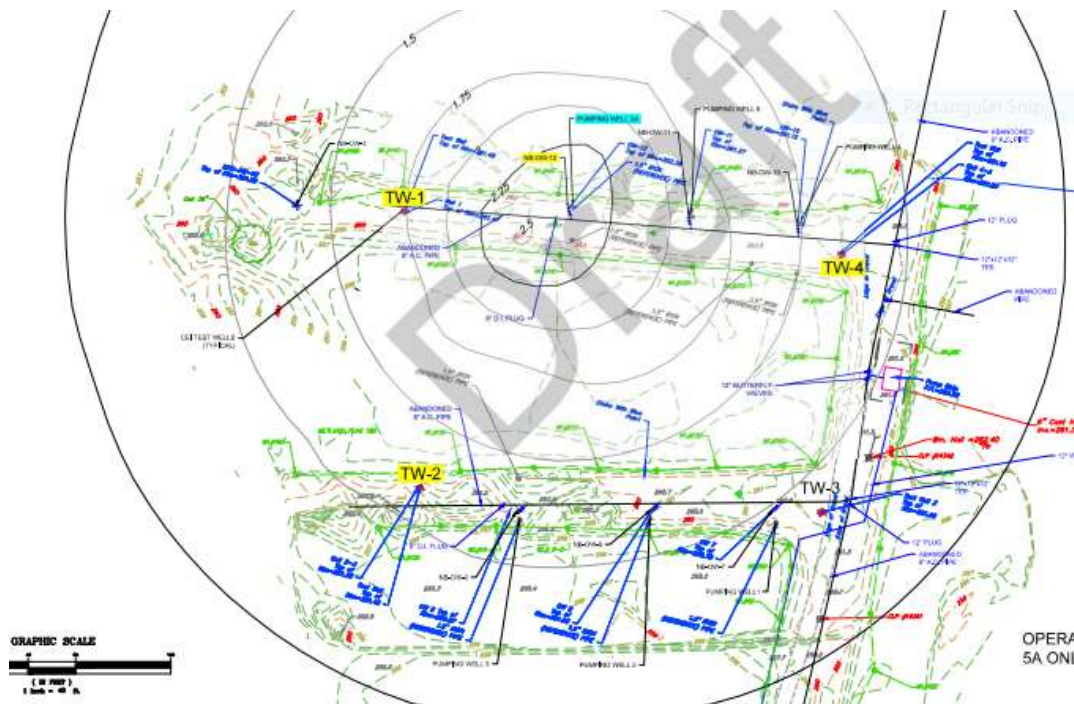


Exhibit taken from Hydrogeologic report, Figure 2

- c. On sheet WR-3, the wetland replication area (represented by Section A3-1) is tabulated at 31,146 SF by excavating the area immediately adjacent to the Coppermine to depths up to 10' (to el 247). This area is shown to be located immediately adjacent to brook. Contours on the northwest of the proposed replication area indicate an existing adjacent area of bottom contour 248. Was this area investigated as a potential pool or wetland? Where are the wetland limits in this area? The proposed transition slope areas to the north and west and southwest of this area add additional significant area of disturbance to this area. What is the total disturbance of this mitigation area construction, including the transition slopes and haul/access road areas? What portions of these areas are located in regulated wetlands/upland review areas? What is the land cover in the proposed impacted areas, i.e. how much and what kind of land cover will be cleared to accommodate the wetland replication area, slope and access road areas? What is the estimated time period for the mitigation area to restore to land cover conditions similar to the existing conditions? Will the perimeter fringe areas be more subject to invasive species (and if managed, chemical treatment) than the existing conditions? What is the proposed time period required and any seasonal restrictions for removal of the substantial proposed excavation materials to minimize disturbance? What is the proposed time period required and any seasonal restrictions for the proposed grading and planting? How long will the silt fences and haul/access road remain for management of the wetland replication area? Will it be removed/restored? Have any borings been performed to determine the need for haul road stabilization and wetland material reuse?

- d. On Sheet WR-4, the proposed replication area 7,000 SF graded to el 249 with an unidentified quantity of area graded to 252 and grassed (represented by Section A4-1). Please describe the existing and replacement land covers, label contours and tabulate the impacted areas, including slopes and access road, in the regulated wetland areas.
 - e. On Sheet WR-5, the proposed replication area, excavated up to 10' in depth is proposed to be graded to el 250 (represented by Section A5-1), immediately adjacent to the Coppermine. Similarly, please similarly address land use cover, identify contours and slope transitions, limits of impact, similar to previous comments.
3. With respect to investigation into project alternatives with less wetland/watercourse impact, the applicant can consider; **propose less pump capacity withdrawals for each of the wellfields and the pond.** This request is further supported by past studies that indicate the state registration withdrawal quantities cannot be supported. It's obvious from past and more recent pump testing that the shallow aquifer is of limited capacity and influenced by infiltration (and therefore drawdown) of the adjacent surface waters and wetlands. The well testing report by S.B Church (Sept 2019), based on test wells approved in the previous wetland application), suggests 2 wells in the south wellfield, and (report summary as clipped below) estimates yields considerably below the proposed six wells at 470 gpm in the south wellfield.

yields do not reflect the influence that the wells may have on each other and they do not reflect the influence of the drainage basin supplying water to each well throughout the year.

Well Number	Estimated Yield GPM
5	400
6	68
7	250
8	80
9	148
10	220
11	374
12	180
Estimated Total 1721 GPM of 1.54 MGD	

Handwritten notes:
 - Assume 8' drawdown?
 2 45
 5, 7, 9, 10, 11, 12

We suggest that two 30 inch large diameter wells be constructed at the sites of 5 and 11. We suggest that these wells be constructed as 30 inch diameter by 24 inch diameter gravel packed wells. The wells may be drilled a permanent production wells or as test wells with the plan to later permit them as permanent production wells.

We suggest that 72 hour pump tests be conducted on each of the wells to determine their influence on the other potential well sites. We also suggest that both wells be pumped simultaneously at approximately one million gallons per day to determine their influence on other potential well sites. This data could be used to determine where other future production wells should be drilled.

The applicant has not addressed the drawdown impacts for the proposed well withdrawals and for the adjacent south wellfield pond/surface water pump withdrawals, **except to recognize that brook impacts have and will occur.** Portions of the current Hydrogeology report states:

- Surface water elevations recorded by Lenard both before and during pump testing revealed a total water surface elevation decrease of 1 ft. for both the Copper Mine and Polkville Brook, strongly implying a hydraulic connection between surface water bodies within the wellfield. CEI observed a decrease in canal water levels of 1 ft, with near complete dewatering and drying of the canal observed within approximately 7 days of wellfield operation (primarily impact do to operation of the pond pump), implying the canal and unconsolidated wellfield formation are hydraulically well connected.
- The 2007 Lenard report implied that several brooks, including The Copper Mine, Polkville, Negro Hill, Wildcat, Whigville, and several unnamed tributaries are part of the Copper Mine drainage basin, and directly supply both the upper and Lower Wellfields with significant amounts of surface water, with the Upper Wellfield likely receiving the most recharge.
- Following observations made of historic data collected by Maguire during the Summer 1985 Lower Wellfield performance evaluation, it appears that operation of the 1985 wellfield at 2 MGD was unsustainable due to limitations imposed by the close proximity of installed wells and the unaccounted-for principal of well interference. 1 MGD was reported to be sustainable but is significantly lower than the permitted 4 MGD pumping limit. It is the opinion of CEI that due to this unaccounted-for phenomenon, the Lower Wellfield will be able to sustainably produce approximately 2 MGD should a more optimal wellfield configuration be installed accounting for the phenomena of well interference and nearby vertical recharge sources.

Recall that these statements were observations after the most recent pump test monitoring of pump discharges that were much, much lower than the proposed application pump rates. No clear documentation has been provided on the influence of the proposed simultaneous pond surface water pumps and well pumps on regulated wetlands and watercourses.

The applicant has the capability and the responsibility to test, model, and evaluate safe sub-surface and surface withdrawals to reduce impact to the adjacent wetlands/surface waters. Further evaluation, considering simultaneous well withdrawals and surface water withdrawals, is needed to realize a practical solution.

The applicant should also consider options to increase redundancy of its existing treatment system, located central to its main customer base. Considering that the proposed water capacity upgrades are presented as emergency supply for New Britain Water customers, it's hard to understand why these substantial upgrades are proposed in mapped floodplain and regulated wetland areas in the City of Bristol, making them subject to natural disaster and potentially unavailable.

4. The Streamflow monitoring plan (Attachment 11 of the May 1, 2024 submittal materials) was prepared for the Department of Public Health and does not address wetlands protections. It's noted that while monitoring is crucial, but it does not protect wetlands and streamflow unless protective management measures are developed and implemented.

5. The proposed re-fueling area located in the floodplain/regulated wetlands adjacent to Coppermine should be examined.
6. The Bristol Inland Wetland Commission follows local and state guidelines for wetlands and watercourse protections that differ from state health or federal requirements. Clear tabulation of the Bristol regulated wetland areas needs to be presented.
7. Due to review time constraints, portions of past comments are repeated below.

How can the Bristol Inland Wetland Commission protect the flow-impaired Coppermine and surrounding wetlands? Please consider the following:

- a. North wellfield: Applicant should model the effects of the groundwater and surface water drawdown resulting from proposed wells' pump rate capacities, operating simultaneously. Clearly show the extents of the estimated drawdown relative to regulated wetlands and surface waters and evaluate protective pump rates. Tabulate the impacted area and provide a flora and fauna assessment of the impacts. Address surface water fluctuations relative to operational and seasonal changes. Address operational management protocols to protect Copper Mine and associated wetland areas. Address mitigation plan, including monitoring, for all unavoidable impacts.
- b. South wellfield/pond: Applicant should model the effects of the groundwater and surface water withdrawal capacities simultaneously to clearly show the extents of the drawdown relative to regulated wetlands and surface waters. Evaluate protective pump rates. Tabulate the impacted area and provide a flora and fauna assessment of the impacts. Address surface water fluctuations relative to operational and seasonal changes. Address operational protocols to protect Coppermine and associated wetland areas. Address mitigation plan, including monitoring, for all unavoidable impacts.

The well and pond withdrawals have been documented to affect and to rely on the adjacent surface water natural system. These surface water sources and wetland storage areas serve valuable water quality, quantity and wildlife functions. Thank you for your consideration.

Carol Noble, P.E., CFM (ret)

Attachment 1:

Tables of the rates and the study references are compiled below for informational purposes.

White Bridge Upper Wellfield:

	DEEP Diversion Registration (2)	Existing Withdrawal (3)	Proposed Withdrawal (2)	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (2, 3)
gpm	1,500	~200	3@470=1,400	840	694	600	200 (Well 5A)
MGD (1)	2.16	~0.3	2.0	1.2	1.0	0.86	0.3

Notes:

(1) Conversion 1 MGD = 694.44 gpm

(2) Preliminary Engineering Study, CEI CDE Smith, Feb 2021

(3) Existing withdrawal assumed from the April 2020 CEI Hydrogeologic report estimating the most current working well pump

(4) Level A Study Withdrawal taken from Dec 2007 Lenard Hydrogeologic Level A Study Executive Summary. Note the Lenard Study states ““It was determined that the aquifer could not support the maximum registered diversion of the New Britain upper, lower and Bristol Mix Street wellfields”. The study reassigned “agreed upon” reduced flow rates to simulate a safe yield for each of the wellfields.

White Bridge Lower Wellfield:

	DEEP Diversion Registration (2)	Existing Withdrawal (3)	Proposed Withdrawal (2)	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (2, 3)
gpm	4,333	700 - 1250	6@470=2,800	2,190	1,958	611	850-1080 (meas at caisson (3,4))
MGD ⁽¹⁾	6.24	1 - 1.8	4.0	3.15	2.82	0.88	1.2 – 1.6 (meas at caisson ^(3,4))

Notes:

⁽¹⁾ Conversion 1 MGD = 694.44 gpm

⁽²⁾ Preliminary Engineering Study, CEI CDE Smith, Feb 2021

⁽³⁾ Existing withdrawal taken from the April 2020 CEI Hydrogeologic report inferring test well pump rates based on 1985 pump test.

⁽⁴⁾ Level A Study Withdrawal taken from Dec 2007 Lenard Hydrogeologic Level A Study Executive Summary. Note the Lenard Study states ““It was determined that the aquifer could not support the maximum registered diversion of the New Britain upper, lower and Bristol Mix Street wellfields”. The study reassigned “agreed upon” reduced flow rates to simulate a safe yield for each of the wellfields. No pond pump withdrawal was considered in the evaluation.

White Bridge Pond System:

	DEEP Diversion Registration (2)	Existing Withdrawal	Proposed Withdrawal	Level A Study Withdrawal (4)	Safe Yield Ave (4)	Safe Yield Drought (4)	Pump test (4)
gpm	10,400	~2,000	3@3,500=10,500	NSE	NSE	NSE	NSE
MGD ⁽¹⁾	15	~3	20.2 (4 pumps) 15 (3 pumps)	NSE	NSE	NSE	NSE

Notes:

⁽¹⁾ 1 MGD = 694.44 gpm

⁽²⁾ Preliminary Engineering Study, CEI CDE Smith, Feb 2021

⁽³⁾ Existing withdrawal assumed from the April 2020 CEI Hydrogeologic report reference

⁽⁴⁾ NSE = Not Specifically evaluated

Although the engineering reports document the influence of the pond pumping on the lower wellfield pump tests, simultaneous pond pumping influence was not evaluated.

Ray Rogozinski Review Comments

April 22, 2024

&

Applicant Responses

May 2, 2024

Bristol Department of Public Works has completed the review of the following materials submitted as part of Applications #2019, #2020 & #23-458F-305.

- i. Central Conservation District review letter, dated March 28, 2024.
- ii. CDM Smith Stormwater Management Report for the White Bridge Waterworks Facilities Pond Pumping Station.
- iii. C. Webb & Associates, LLC Wetland Delineation Report, dated September 29, 2022. iv. CDM Smith Plan Set, dated December 2022: Existing Conditions sheets 1-3, Wetlands replication areas sheets 1-3, Cross-Sections sheets 1-4.
- v. Freeman Companies Existing Conditions Survey Upper & Lower Wellfield, topography survey.
- vi. CDM Smith Plan Set: C-2,6-10, 10B, 11-17, 18A, 18B, 2, 19, 23-29, 9, 11-14, 18 A, 18 B. vii. CDM Smith Plan Set: Attachment 4: Floodway & Flood Fringe Encroachment Areas 60% Submittal C9, 5, 11, 13, 14, 9, 9, 9, 9, 11 (10 sheets), 5 (8 sheets), CS1-CS4. Based on the review the following comments are provided:

1. Proposed construction wetland “replication” appears to consist of excavation adjacent to existing wetland and installation of 3 inches of hydrophic soil. Provide additional information associated with the hydrophic soil specification and post development groundwater depth to support wetland “replication” areas. DPW Engineering Division proposes a min of 12 inch depth of hydrophic soil within wetland “replication” area. On adjacent 2:1 slopes 6 inches of hydrophic soil is sufficient. Detail/document short and long term monitoring and wetland “replication” area management plan to ensure long-term viability of area.

4/22/24 Applicant Response: The wetland replication and compensatory storage plans and sections have been revised to address the above comments. Please note that due to the presence of a vernal pool in the upper wellfield area the compensatory storage and wetland replication area was moved further north. In addition, the United States Army Corp of Engineers (USACE) has requested a 3:1 wetlands replication as part of their permit review. These changes are reflected in revised sheets WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 and C-14A which are attached herein as Attachment 1.A. Also attached as Attachment 1.B. are the calculations for the compensatory storage. More information about the vernal pool can be found in the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is also attached to this document as Attachment 1.C. Sheet XS-5 and Section 4 of the NBWD Supplemental Environmental/Wetlands Permit Information detail the short term and long term monitoring for wetland replication.

5/2/24 City Response: Depth of hydrophilic soil revised in wetland “replication” detail”. Please have the Cert Soil Scientist available to address the Commission with the post development groundwater depth to support the wetland “replication”, the additional wetland replication requested by the USACE and specification for the hydrophilic soil.

2. Plan indicates dewater sedimentation basin, however provide anticipated/ proposed discharge rates with sizing of sedimentation basins. In addition, indicate controls / monitoring of turbidity discharge from sedimentation basin.

4/22/24 Applicant Response: Temporary dewatering sedimentation basins are intended to be used in the event high groundwater is encountered during excavation activities. Anticipated/proposed discharges will vary depending on the required amount of excavation dewatering but typically can range from 20-50 gpm, intermittently. As shown in Detail J of Drawing Sheet C-24 (included herein as Attachment 2), the dewatering sedimentation basin size may vary depending on necessity with a 5-foot diameter being the minimum diameter of the basin. Sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. The Contractor may also elect to install permeable geotextile dewatering bags in addition to the dewatering sedimentation basins for sediment filtration.

5/2/24 City Response: Please provide additional details/procedures to prevent sediment/ discharge of dewatering water from being discharges with a high turbidity.

3. Provide construction sequence with durations along with staging plan, areas of stockpile storage and refueling areas.

4/22/24 Applicant Response: See the Proposed Construction Sequence Memorandum included in Attachment 3.A. for more information, and the associated Drawing Sheets C-20, C-21, and C-22 in Attachment 3.B. Additionally, see Sheet C-1 and C-7 of Attachment 3.B. for notes and depiction of Contractor staging, stockpiling, and refueling areas.

5/2/24 City Response: Construction sequence provided. Please have a representative available to review the sequence and anticipated duration of construction with the Commission.

4. Clarify proposed location of floating turbidity curtain.

4/22/24 Applicant Response: Floating turbidity curtains are to be located within the canal, east and west of the proposed sediment removal areas. See revised Sheet C-23 in Attachment 4.

5/2/24 City Response: Turbidity curtain location clarified.

5. Include installation line of silt fence along the toe of ALL proposed slopes. Silt fence shall be installed prior to construction, be monitored during construction and removed once slopes are stabilized.

4/22/24 Applicant Response: Notes requiring the installation of silt fence has been included throughout drawings. See revised sheets C-1, C-6, C-7, C-8, C-13, C-14, C-14A in Attachment 5.

5/2/24 City Response: No additional comments.

6. Provide additional detail associated with compensation storage area 3. The plans indicate excavation to elevation 252, however indicate proposed access to area, erosion control and restoration.

4/22/24 Applicant Response: The revised plans referenced in Comment Response #1 address these comments.

5/2/24 City Response: No additional comments, please be prepared to address any questions the commission may have at the meeting.

7. Provide additional detail associated with compensation area 4, including additional elevation east of the area between the compensation area and the Coppermine. Detail cross section AA-1 and indicate erosion control measures and proposed access to area.

4/22/24 Applicant Response: The revised plans referenced in Comment Response #1 address this comment.

5/2/24 City Response: 9. No additional comments, please be prepared to address any questions the commission may have at the meeting.

8. The Storm Water Management Report is prepared in accordance with the CT Storm Water Quality Manual. As indicated in your report the manual requires maintaining the pre- development annual groundwater recharge volume. The report indicates recharge is achieved through reduction in impervious area, however please indicate impact of additional well withdrawal will have a wetlands.

4/22/24 Applicant Response: See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC., which is included in Attachment 1.C.

5/2/24 City Response: Please have a representative available address any questions the Commission may have regarding section 3 and 4 (Impact to Wetlands Associated with Well Drawdown & Wetland Creation) of the Supplemental Env/Wetland Permit Information.

9. Proposed plans indicate flood plain mitigation measures (excavation within flood plain to offset the placement of fill within flood plain). However, Bristol DPW recommends a CLOMR prior to work and will require a LOMR as condition of approval (if approved).

4/22/24 Applicant Response: See No Rise Certification included in **Attachment 9**. No objection to coordinating with FEMA for CLOMR/LOMR as a condition of approval.

5/2/24 City Response: Comment received, please plan on submitting a LOMAR to FEMA.

Responses to North Central Conservation District (Letter Dated March 28, 2024):

1. See the Letter from CT DEEP in **Attachment 10**, which confirms the continued applicability of the Diversion Registration to the facilities and that no diversion permit is required for continued operation of the facilities as proposed with this project.
2. See Section 3 of the NBWD Supplemental Environmental/Wetlands Permit Information, included in **Attachment 1.C.**, concluding no permanent impacts from withdrawals.
3. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information and the related Supplemental Alternatives Evaluation contained therein, detailing alternatives considered for this project. There are no feasible and prudent alternatives to the proposed plan.
4. See Section 5 of the NBWD Supplemental Environmental/Wetlands Permit Information concluding no permanent impacts to wetlands functions and values.

Additional Information Submitted:

1. Detailed Groundwater and Stream Flow Monitoring Plan, as required by CT DPH, is included in **Attachment 11**.
2. Letter confirming hydrogeologic information for project site remains valid. See **Attachment 12**.
3. Proposed wetlands boundary line change map is submitted for consideration. See **Attachment 13**.
4. Resumes of Engineers and Soil Scientist are included in **Attachment 14**.

Attachments Includes:

Response 1 – Attachments

- 1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A
- 1.B. Calculations: Compensatory Storage
- 1.C. NBWD Supplemental Environmental/Wetlands Permit Information prepared by C. Webb and Associates, LLC

Response 2 – Attachment

- 2. Drawing: C-24

Response 3 – Attachments

- 3.A. Proposed Construction Sequence Memorandum
- 3.B. Drawings: C-1 and C-7; C-20, C-21, and C-22

Response 4 – Attachment

- 4. Drawing: C-23

Response 5 – Attachment

- 5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A

Response 9 – Attachment

- 9. No Rise Certification

Attachment 10

- 10. CT DEEP Permit Need Determination

Attachment 11

- 11. Detailed Groundwater and Stream Flow Monitoring Plan

Attachment 12

- 12. Letter confirming hydrogeologic information for project site remains valid

Attachment 13

- 13. Proposed wetlands boundary line change map

Attachment 14

- 14. Resumes of Engineers and Soil Scientist
 - Sebastian Amenta, P.E.
 - Ian T. Cole - Professional Soil Scientist
 - Joseph L. Laliberte, PE, BCEE, PM
 - Clinton L. Webb Jr. – Senior Environmental Scientist/Ecologist

If you have any questions or require any additional information, please do not hesitate to contact me at 860.224.0442 or samenta@ceiengineers.com.

Link to City of Bristol 3rd Party Environmental Review Agreement:

[https://www.bristolct.gov/DocumentCenter/View/46665
/N-PRP-2401017-City-of-Bristol-WhiteBridge-Well-Field-
Review--04162024](https://www.bristolct.gov/DocumentCenter/View/46665/N-PRP-2401017-City-of-Bristol-WhiteBridge-Well-Field-Review--04162024)

Link to Response 1 - Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46659/Response-1-Attachments>

Response 1 – Attachments

1.A. Drawings: WR-1 to WR-5, CS-1 to CS-5, XS-1 to XS-5, C-14 to and C-14A

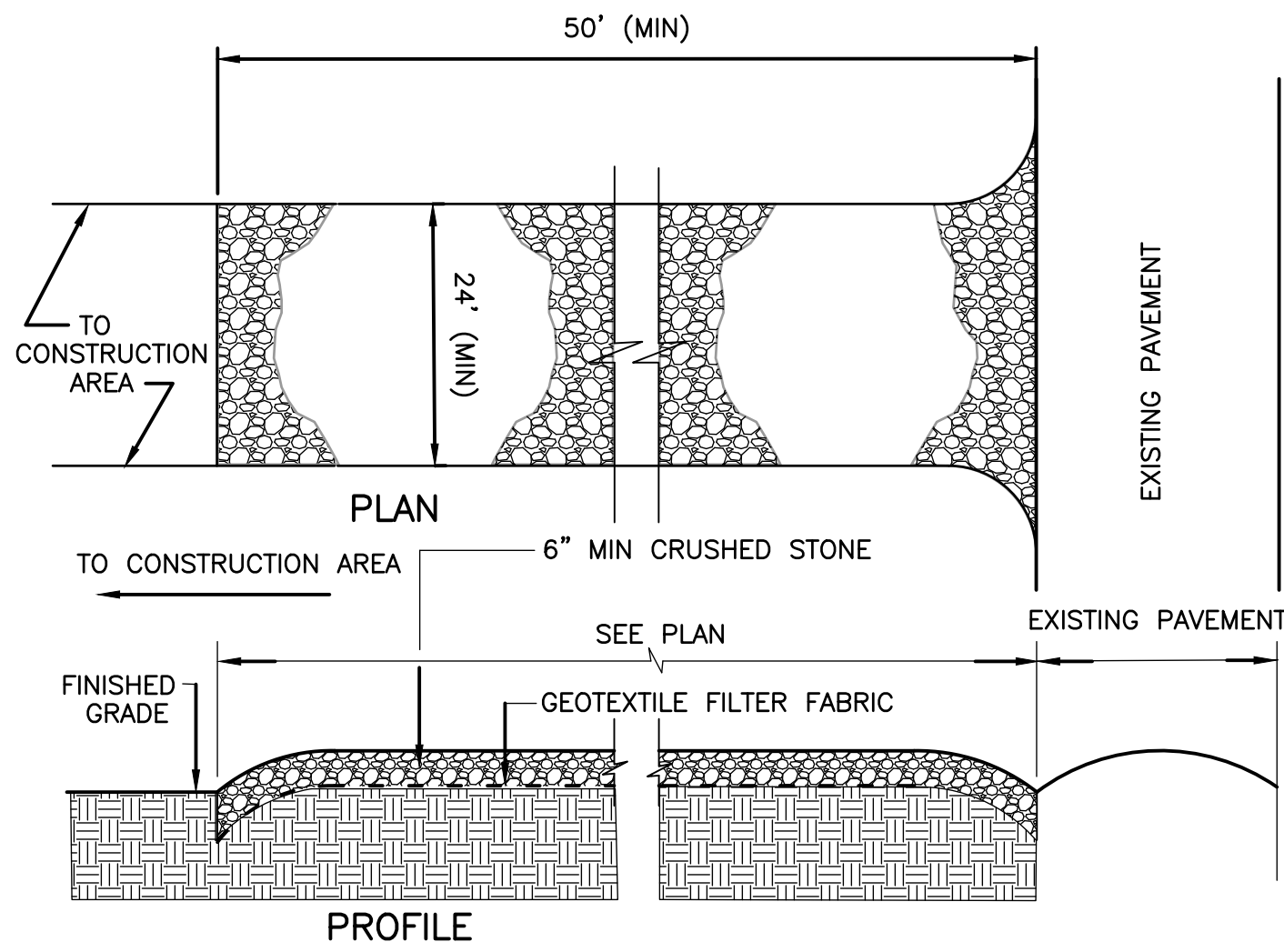
1.B. Calculations: Compensatory Storage

1.C. NBWD Supplemental Environmental/Wetlands Permit Information prepared by C.Webb and Associates, LLC

Response 2 – Attachment

2. Drawing: C-24

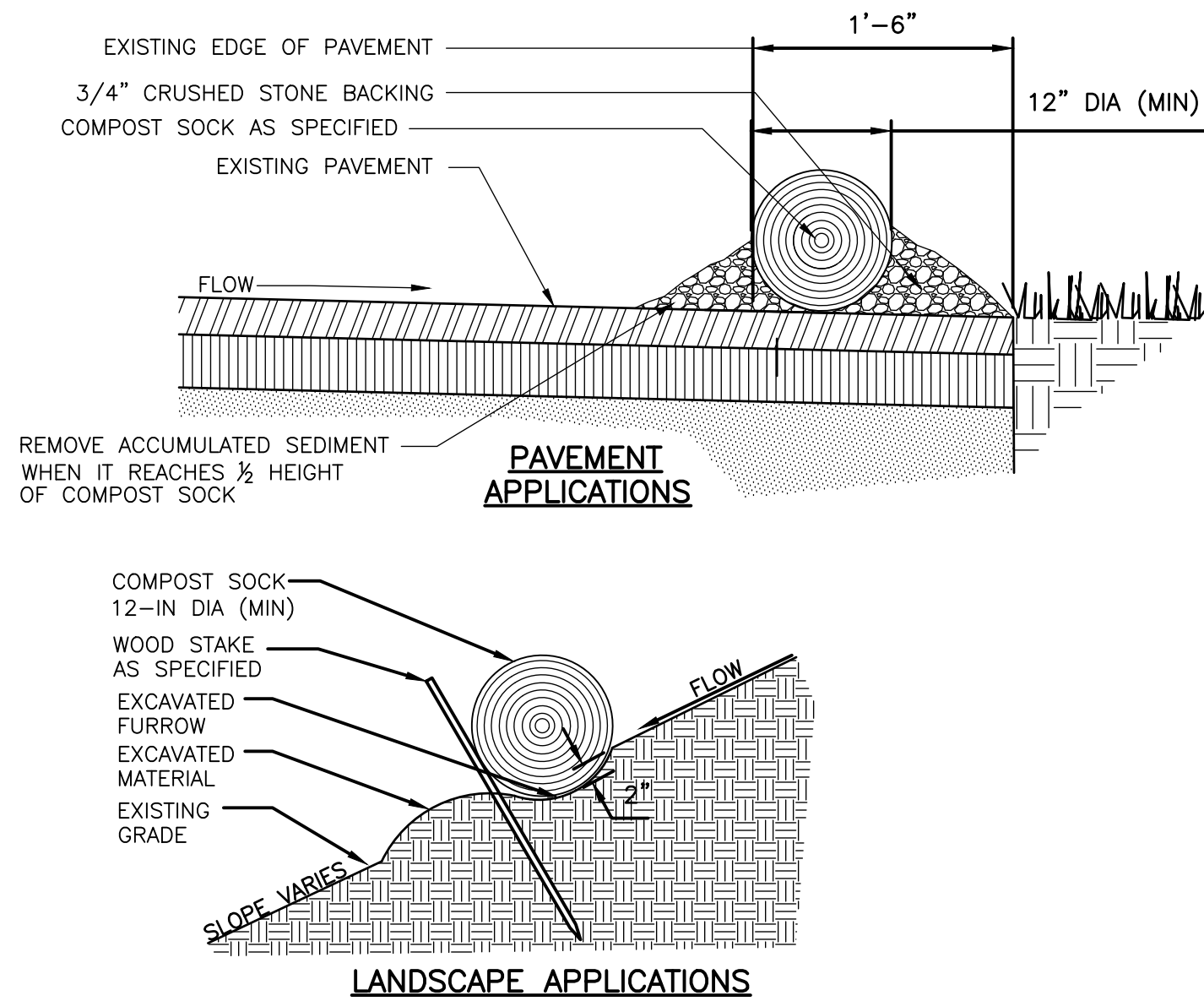
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C:\Users\engelsb\ACCDocs\CDM Smith Inc\10739-264571 - New Britain CT White Bridge Well Fields and PS\Project Files\02 Civil (C)\10 CAD\CD001CSDT.dwg
© 2023 CDM SMITH. ALL RIGHTS RESERVED.
REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



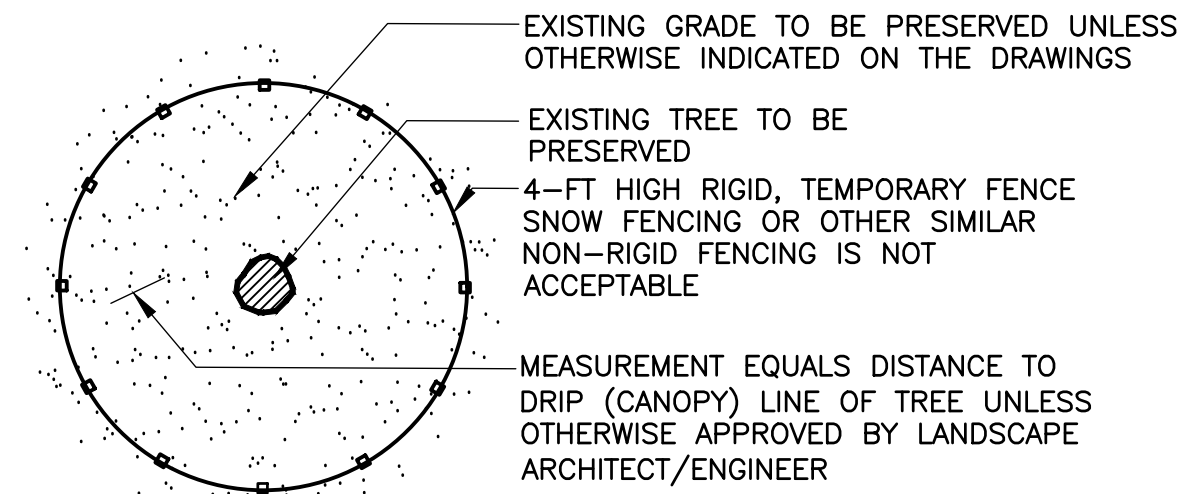
STABILIZED CONSTRUCTION ENTRANCE
DETAIL A
NOT TO SCALE

NOTES:

- 1.) PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND EXISTING PAVEMENT.
- 2.) LIMITS OF STABILIZED CONSTRUCTION ENTRANCE SHALL BE AS DIRECTED BY THE ENGINEER.
- 3.) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDING STONE TO THE LENGTH OF THE ENTRANCE.
- 4.) REPAIR AND CLEANOUT MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO EXISTING PAVEMENT SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.



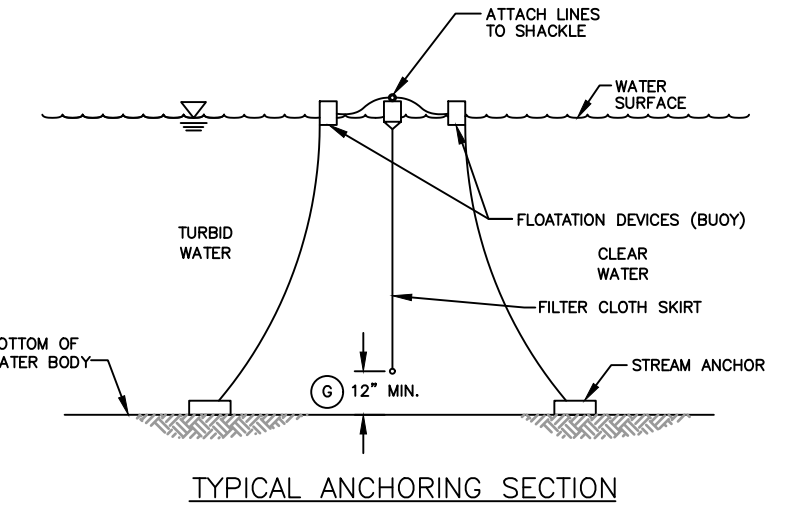
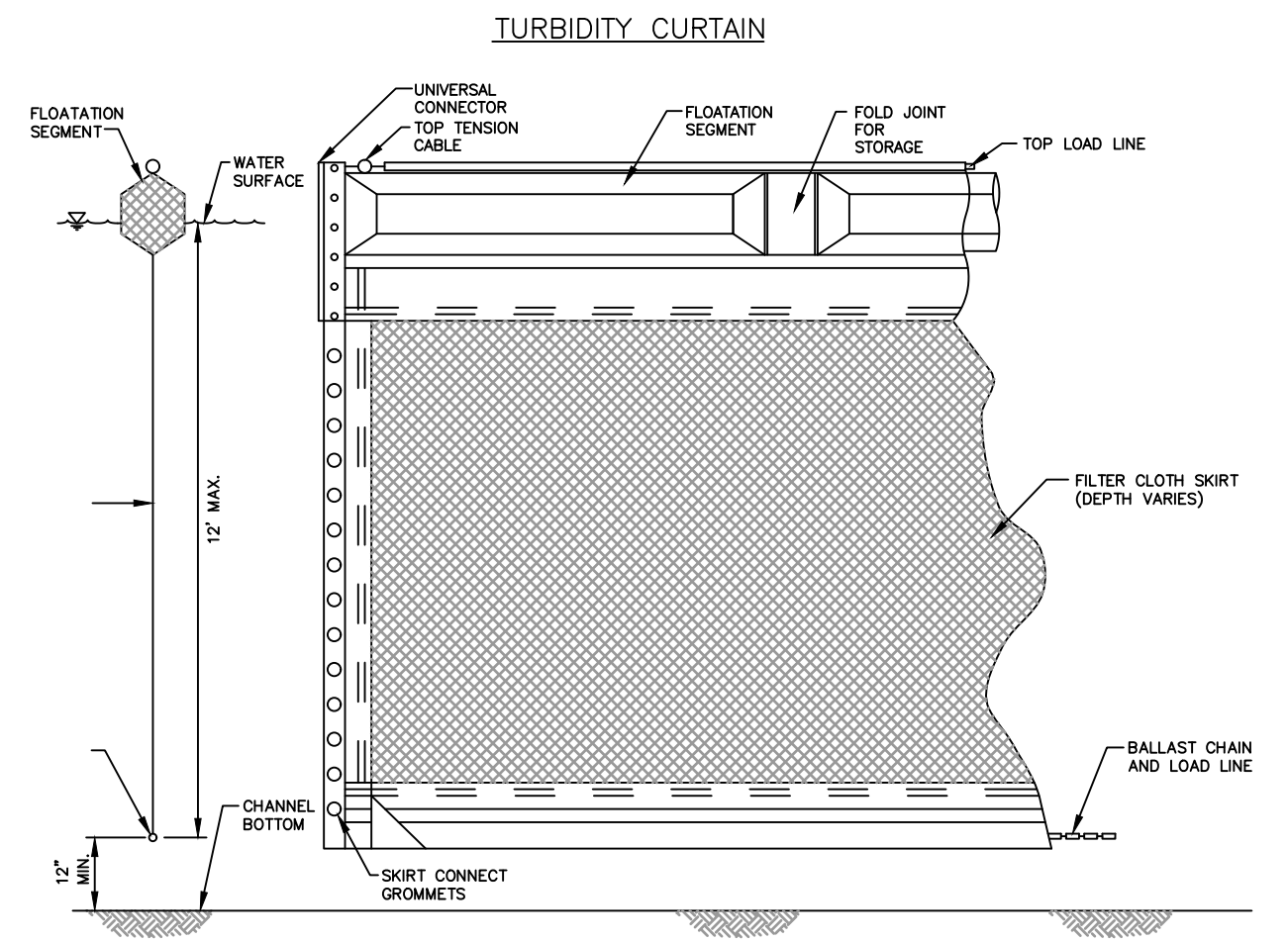
COMPOST SOCK
DETAIL B
SCALE: NTS



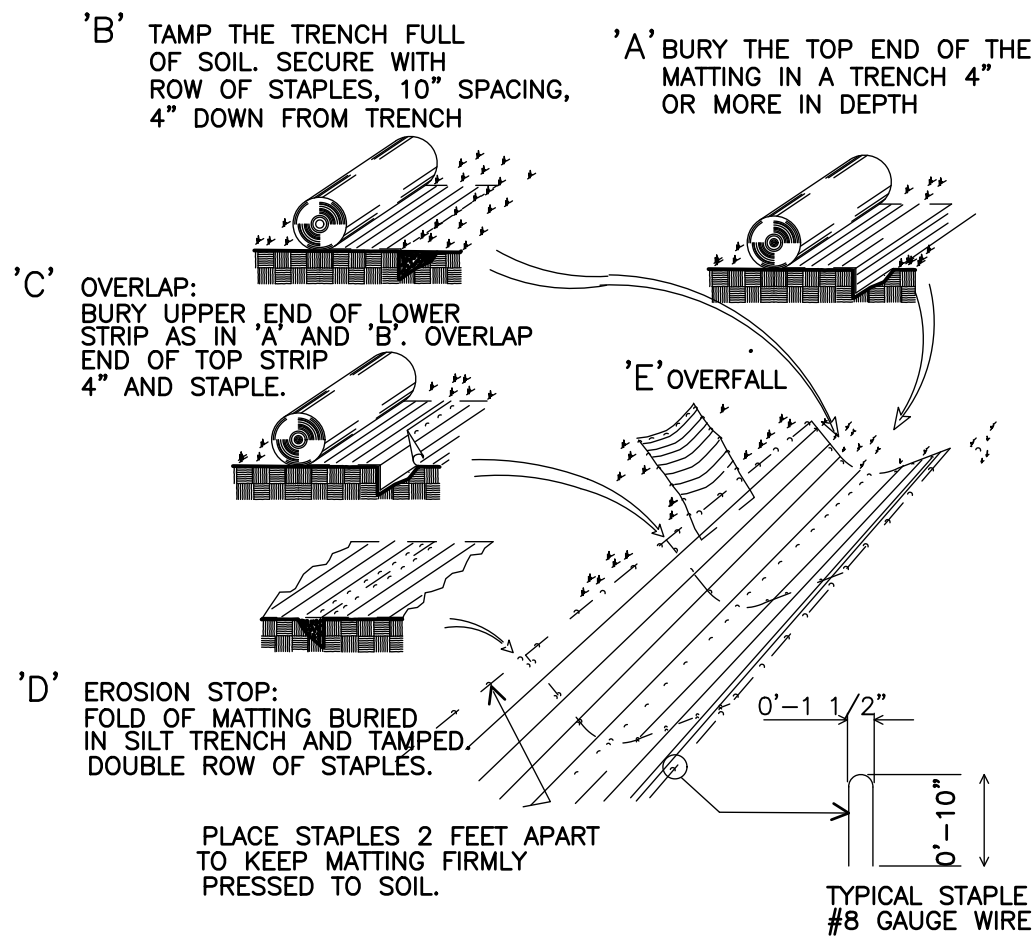
NOTES:

1. FENCING SHALL BE INSTALLED AROUND PERIMETER OF ALL EXISTING TREES TO BE PRESERVED WITHIN THE LIMIT OF WORK.
2. FENCING MAY BE REMOVED TEMPORARILY, ONLY AS REQUIRED TO PERFORM THE WORK SHOWN ON THE DRAWINGS.
3. FENCING SHALL REMAIN IN PLACE & BE MAINTAINED THROUGHOUT CONSTRUCTION AND THEN REMOVED COMPLETELY.

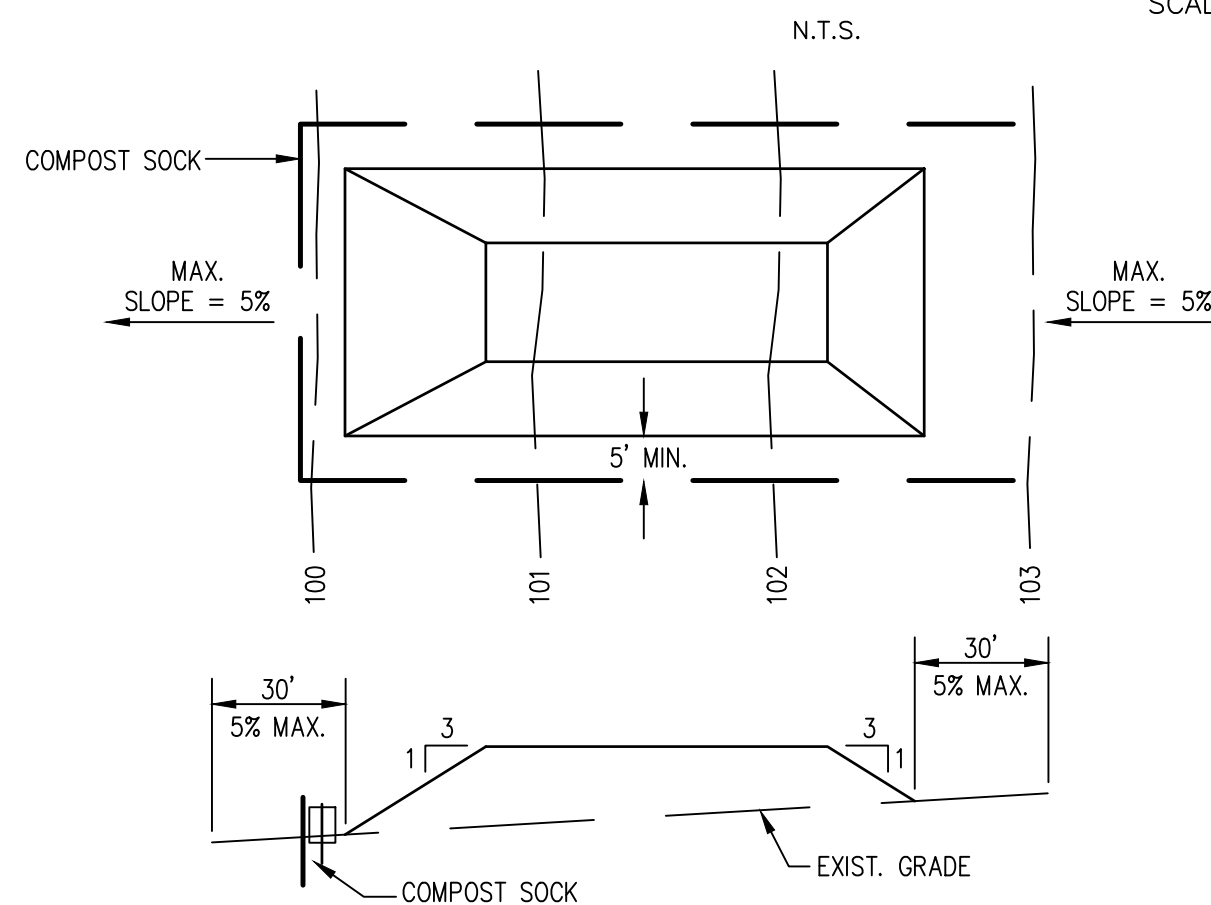
TREE PROTECTION
DETAIL C
NOT TO SCALE



TURBIDITY CURTAIN
DETAIL D
NOT TO SCALE



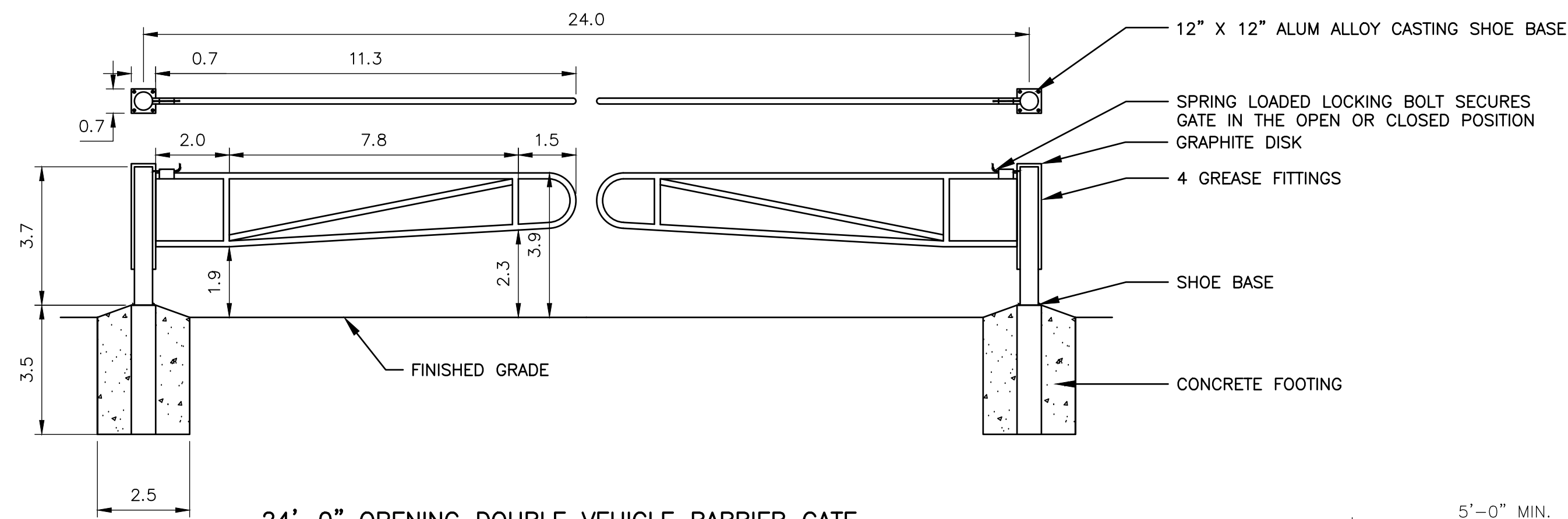
EROSION CONTROL BLANKET
DETAIL E
NOT TO SCALE



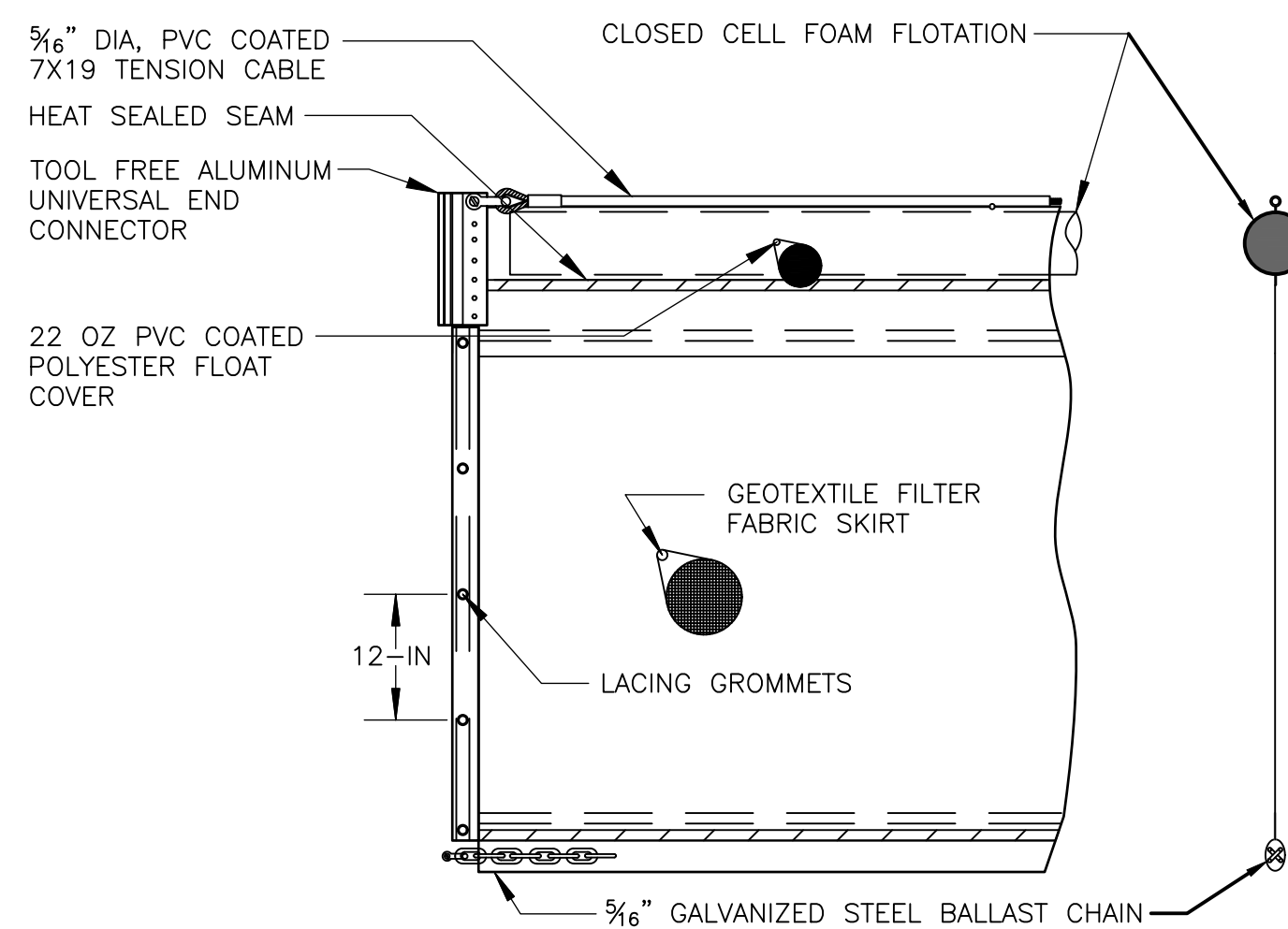
NOTES:

1. PLACE STOCKPILES AT LOCATIONS AS SHOWN ON THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
2. ALL SIDE SLOPES SHALL BE 3 TO 1 OR FLATTER.
3. STOCKPILE SHALL RECEIVE A VEGETATIVE COVER IN ACCORDANCE WITH MINIMUM STABILIZATION REQ.
4. COMPOST SHALL BE INSTALLED AS DETAILED HEREON.

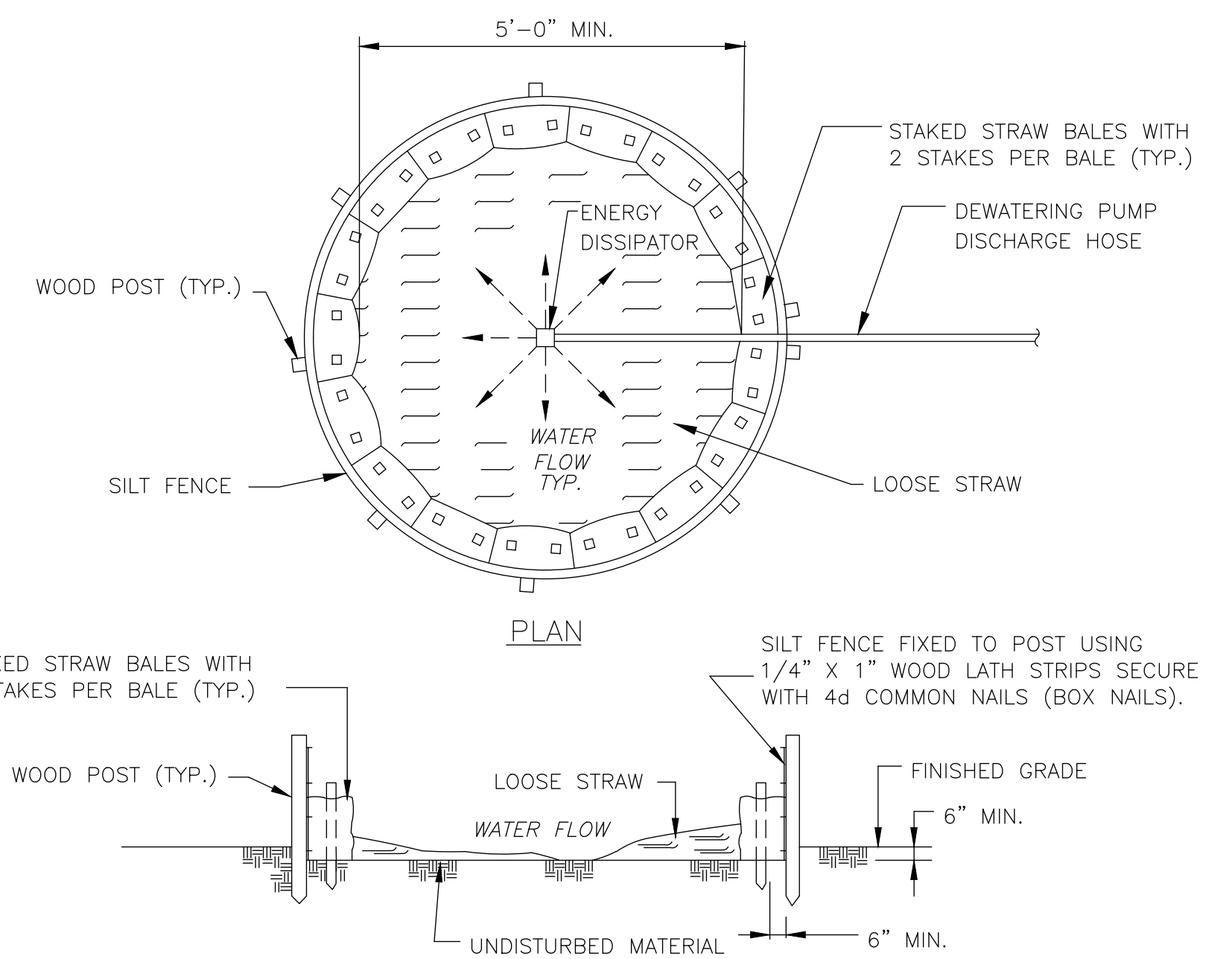
SOIL STOCKPILE
DETAIL F
NOT TO SCALE



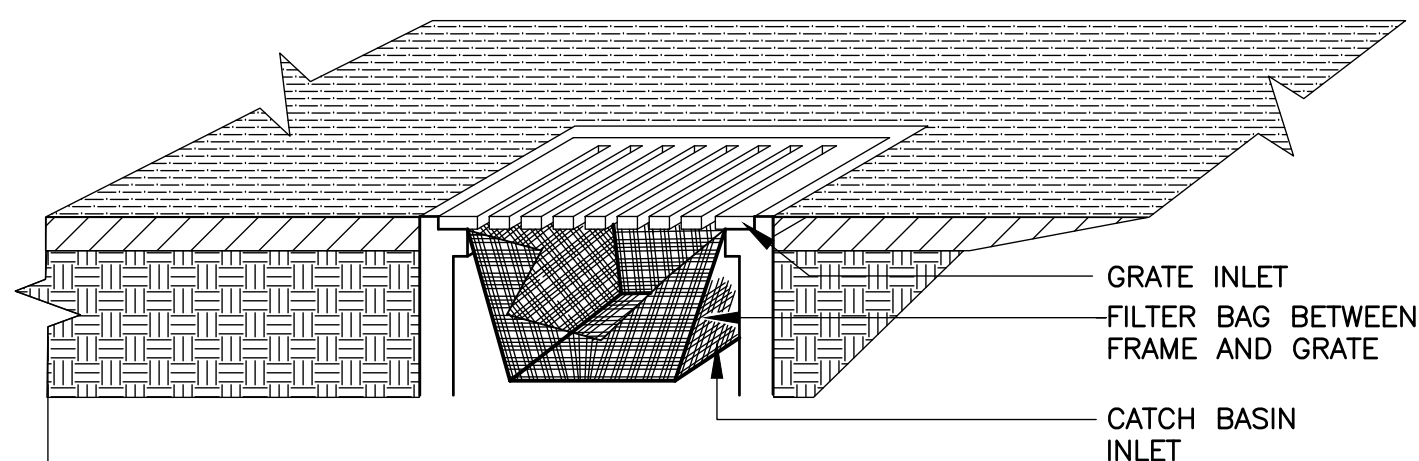
24'-0" OPENING DOUBLE VEHICLE BARRIER GATE
DETAIL G
NOT TO SCALE



FLOATING TURBIDITY BARRIER
DETAIL I
NOT TO SCALE



DEWATERING SEDIMENTATION BASIN
DETAIL J
NOT TO SCALE



CATCH BASIN FILTER
DETAIL H
NOT TO SCALE

DESIGNED BY: K. GERLACH
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: K. GERLACH
APPROVED BY: K. WAGNER
DATE: APRIL 2023

CDM Smith
77 Hartland Street, Suite 200
East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

CIVIL DETAILS I

PROJECT NO. 10739-264571
FILE NAME: CD001CSDT.DWG
SHEET NO.
C-24

Link to Response 3 Attachments:

<https://www.bristolct.gov/DocumentCenter/View/46660/Response-3-Attachments>

Response 3 – Attachments

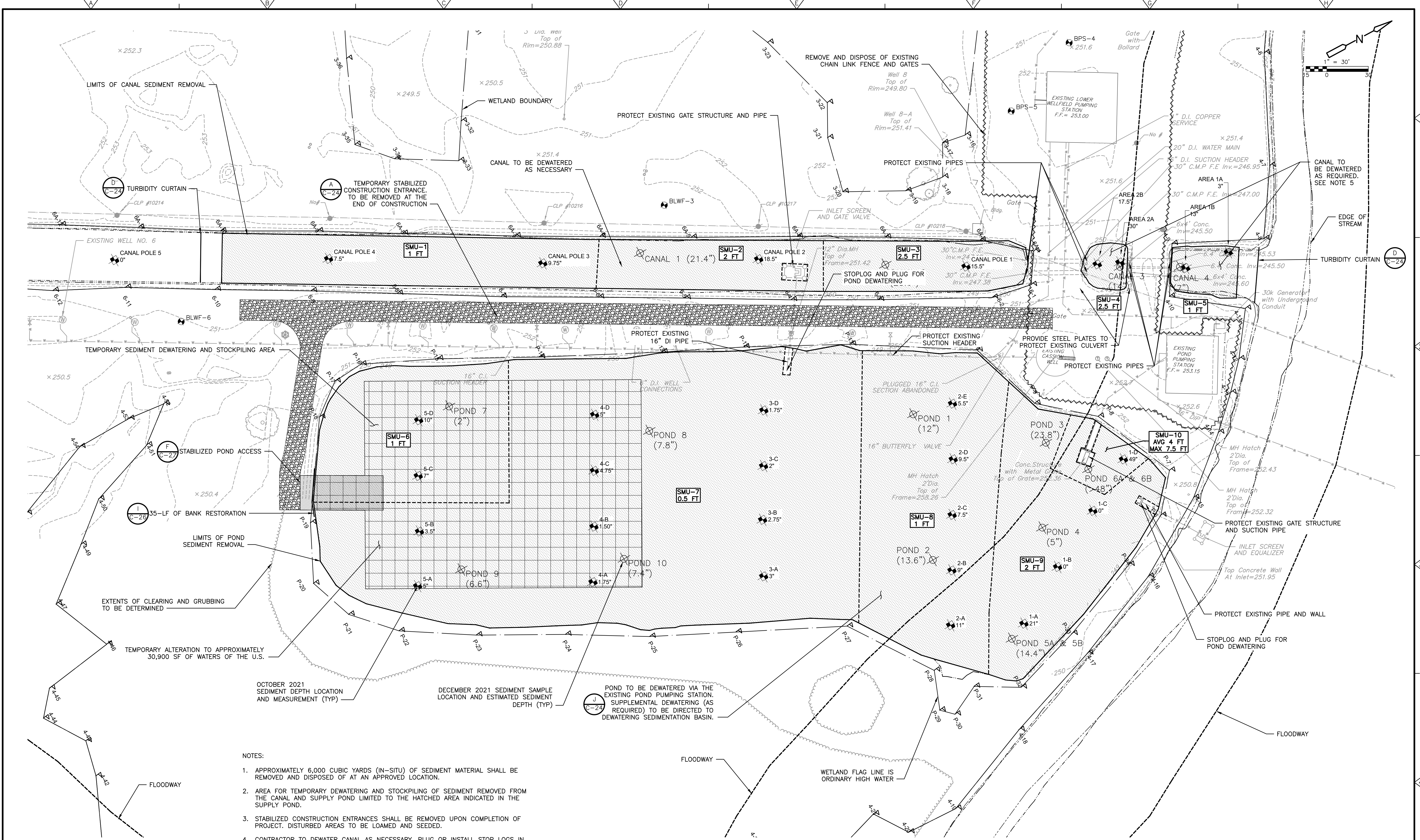
3.A. Proposed Construction Sequence Memorandum

3.B. Drawings: C-1 and C-7; C-20, C-21, and C-22

Response 4 – Attachment

4. Drawing: C-23

XREFs: [TEST HOLE POINTS, CDMS 2436, XSVRLO40, 2022-17, BORING LOCATIONS, Floodway_Floodplain] Images: []
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PLAN
1" = 30'

- NOTES:
- APPROXIMATELY 6,000 CUBIC YARDS (IN-SITU) OF SEDIMENT MATERIAL SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION.
 - AREA FOR TEMPORARY DEWATERING AND STOCKPILING OF SEDIMENT REMOVED FROM THE CANAL AND SUPPLY POND LIMITED TO THE HATCHED AREA INDICATED IN THE SUPPLY POND.
 - STABILIZED CONSTRUCTION ENTRANCES SHALL BE REMOVED UPON COMPLETION OF PROJECT. DISTURBED AREAS TO BE LOAMED AND SEEDED.
 - CONTRACTOR TO DEWATER CANAL AS NECESSARY. PLUG OR INSTALL STOP LOGS IN EXISTING CULVERTS OR INSTALL COFFERDAM. SUPPLEMENTAL DEWATERING (AS REQUIRED) TO BE DIRECTED TO DEWATERING SEDIMENTATION BASINS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	T. BURKE
DRAWN BY:	S. ENGEL
SHEET CHK'D BY:	K. GERLACH
CROSS CHK'D BY:	T. BURKE
APPROVED BY:	K. WAGNER
DATE:	JANUARY 2024

CDM Smith
101 East River Drive, Suite 1A
East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

SUPPLY POND AND CANAL
SEDIMENT REMOVAL PLAN

PROJECT NO.	10739-264571
FILE NAME:	C023SDRM.DWG
SHEET NO.	C-23

Link to Response 5 Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46664/Response-5-Attachments>

Response 5 – Attachment

5. Drawings: C-1, C-6, C-7, C-8, C-13, C-14, C-14A

Link to Response 9 Attachments:
<https://www.bristolct.gov/DocumentCenter/View/46661/Response-9-Attachments>

Response 9 – Attachment

9. No Rise Certification

Attachment 10

10. CT DEEP Permit Need Determination



Mr. Sebastian Amenta, P.E.
Comprehensive Environmental, Inc.
1 Hartford Square, Suite 227
New Britain, CT 06052
samenta@ceiengineers.com

RE: Request for Diversion Permit Need Determination
Whites Bridge Wellfield Improvements
New Britain Water Department
Bristol, CT

Dear Mr. Amenta:

This letter is in response to your November 8, 2023 request for Water Diversion permit need determination regarding your proposal to modify certain registered water diversions. The proposed activities are documented in the report you submitted on behalf of the New Britain Water Department (NBWD) entitled “Negative Declaration of Diversion / White Bridge Wellfield Improvements / Bristol, Connecticut,” dated November 2023 (“the report”), as well as other information provided in a subsequent email dated December 5, 2023. The project involves the replacement of several public water supply wells that make up two separate, but nearby wellfields registered to the NBWD pursuant to Section 22a-368 Connecticut General Statutes (CGS) as described in the table below.

REGISTRATION NUMBER	NAME OF DIVERSION	REGISTERED WITHDRAWAL (million gallons per day)	BASIN NAME
4314-007-PWS-GR	Upper White Bridge Wells	2.1600	Copper Mine River
4314-008-PWS-GR	Lower White Bridge Wells	6.6240	Copper Mine River

The report states that these “wellfields are unable to be used in accordance with their original design intent and drastic improvements are needed due to poor groundwater well performance caused by clogged well screens and an antiquated suction withdrawal system.” The proposed redevelopment includes the abandonment of all existing wells in these two wellfields, replacing them with new wells, all within the extent of the existing wellfields as registered. The proposed wells, as described in the report, will be withdrawing from the same stratified drift aquifer wherein the existing wells are located.

Based on our review of your submittal, it has been determined that this proposal as presented in the submitted materials conforms with Section 22a-377(c)-1(c)(1) of the Regulations of Connecticut State Agencies (RCSA) included below in its entirety:

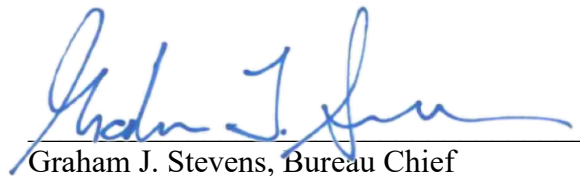
Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may maintain such diversion only in accordance with the information provided in the registration form filed with the Commissioner. Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may not cause or allow any modification of such diversion, including but not limited to an increase in withdrawal capacity, without having first obtained a permit under sections 22a-365 to 22a-378, inclusive, of the General Statutes and 22a-377(c)-2 of the Regulations of Connecticut State Agencies, unless such modification is exempt under section 22a-377 of the General Statutes or section 22a-377 (b)-1 of the Regulations of Connecticut State Agencies.

As such, this department finds that the proposed diversion modifications, comprising of the wellfields identified on page 1 of this determination, **will not** require a water diversion permit pursuant to Section 22a-368(a) CGS, provided the total combined withdrawal from the respective wellfields does not exceed the registered withdrawal as indicated in the above table. However, it is requested that you keep us informed as the project develops, particularly on matters relating to aquifer response modeling and induced infiltration studies.

If you should have any additional questions regarding this matter, please contact Doug Hoskins at 860-424-4192 or douglas.hoskins@ct.gov.

February 21, 2024

Date



Graham J. Stevens, Bureau Chief
Water Protection and Land Resources

GS/dh

Cc:

Ray Esponda, New Britain Water Dept., Ray.Esponds@NewBritainCT.gov

Raul Tejada, CT DPH, raul.tejada@ct.gov

Lori Mathieu, CT DPH, Lori.Mathieu@ct.gov

Brendan Schain, CT DEEP brendan.schain@ct.gov

Shalyn Zappulla, CT DEEP shalyn.zappulla@ct.org

Alicia Charamut, Rivers Alliance, alicea@riversalliance.org

Link to Attachment 11:

<https://www.bristolct.gov/DocumentCenter/View/46662/Response-11-Attachments>

Attachment 11

11. Detailed Groundwater and Stream Flow Monitoring Plan

Attachment 12

12. Letter confirming hydrogeologic information for project site remains valid



COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

Gateway Crossing
1 Hartford Square East, Suite 227
New Britain, CT 06052
860.224.0442

April 30, 2024

Robert Flanigan, City Planner
City Hall
111 North Main Street
Bristol, CT 06010

**RE: White Bridge Wellfield Improvements -Applications #2019, #2020 & #23-458F-305
Confirmation of Hydrogeologic Report**

Pursuant to City Staff request Comprehensive Environmental Inc. is confirming by way of this letter that the hydrogeologic studies and report (*Hydrogeology Report of Upper and Lower White Bridge Wellfield Bristol, Connecticut* dated April 6, 2020) submitted to CT DPH for the above project site is still valid and relevant for the intended use.

Feel free to contact me with any questions or comments at 860-620-3673 or samenta@ceiengineers.com.

Sincerely,

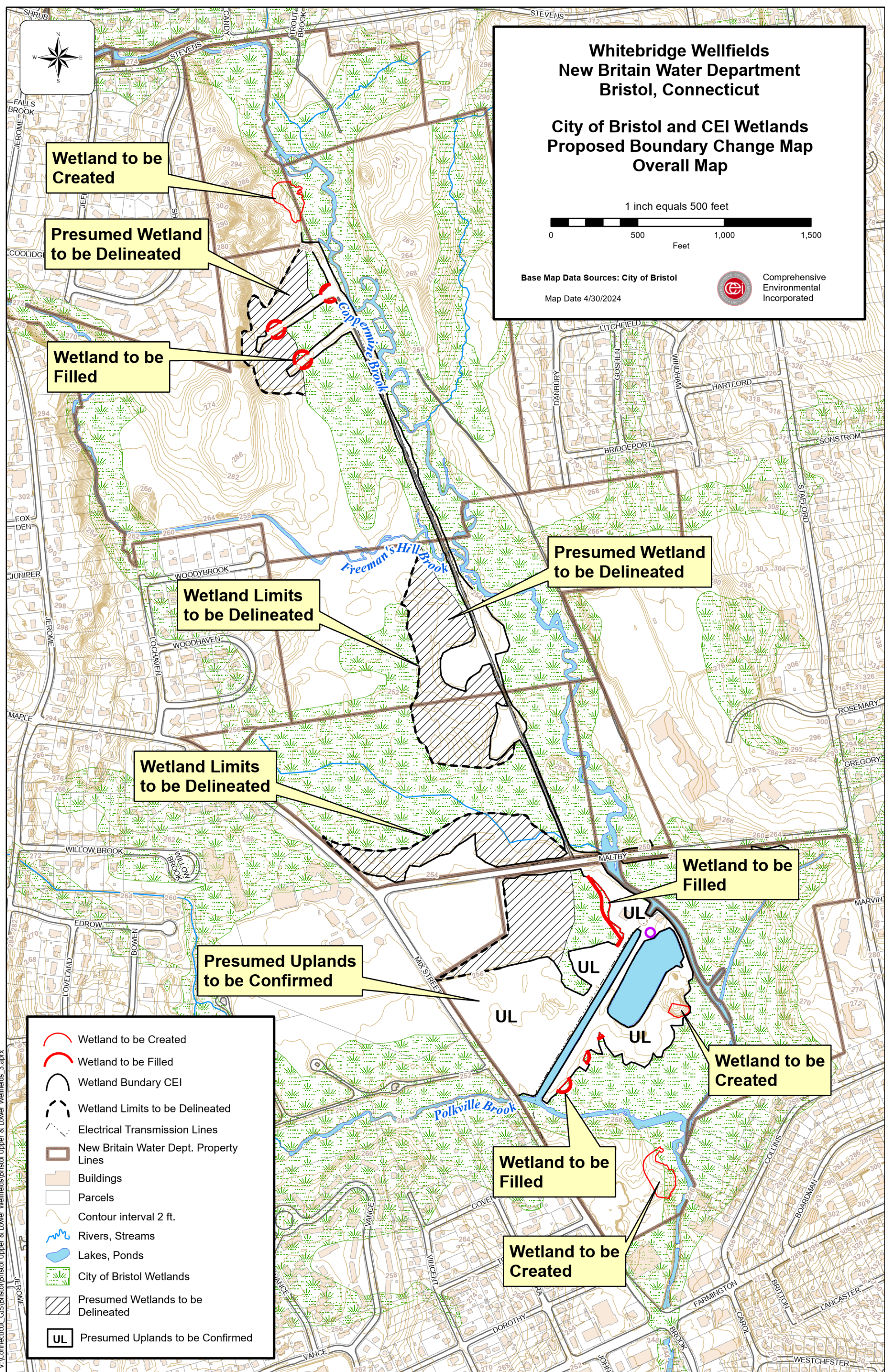
COMPREHENSIVE ENVIRONMENTAL INC.

A handwritten signature in blue ink that reads "Sebastian A. Amenta".

Sebastian A Amenta, P.E.
Northeast Program Manager

Attachment 13

13. Proposed wetlands boundary line change map



Link to Attachment 14:

<https://www.bristolct.gov/DocumentCenter/View/46663/Response-14-Attachments>

Attachment 14

14. Resumes of Engineers and Soil Scientist



AVON ▪ BLOOMFIELD ▪ BOLTON ▪ BRISTOL ▪ BURLINGTON ▪ CANTON ▪ COVENTRY ▪ EAST GRANBY ▪ EAST WINDSOR ▪ EAST HARTFORD ▪ ELLINGTON
ENFIELD ▪ FARMINGTON ▪ GLASTONBURY ▪ GRANBY ▪ HARTFORD ▪ MANCHESTER ▪ PLAINVILLE ▪ SIMSBURY ▪ SOMERS ▪ SOUTH WINDSOR
STAFFORD ▪ SUFFIELD ▪ WEST HARTFORD ▪ WETHERSFIELD ▪ TOLLAND ▪ VERNON ▪ WILLINGTON ▪ WINDSOR ▪ WINDSOR LOCKS

Date: March 28, 2024

To: Nancy Levesque, Bristol City Engineer
Bristol Inland Wetlands and Watercourses Commission

From: Covill, Natural Resources Specialist *Cameron J. Covill*
Joanna Shapiro, Executive Director *Joanna Shapiro*

Re: Review of Wetland Application, New Britain Water

This review is limited to a desktop review of the wetland application and related materials, with general recommendations based on the proposed activities. A site walk and wetland boundary review were not completed within the given timeframe.

If the Commission still deems it necessary following their site walk, a limited wetland boundary review can be performed before a subsequent meeting. Based on the size of the site and time limitations, a field review of all wetland boundaries on site by our staff is not feasible, but rather the Commission can direct the District to specific areas they feel require further review.

Background

District staff reviewed the 10-sheet site plan entitled “White Bridge Waterworks Facilities Upper and Lower Wellfields and Pond Pumping Station” prepared by CDM Smith dated December 2022, as well as Attachment 3, “Project Drawings” and Attachment 4, “Floodway and Flood Fringe Encroachment Areas” (hereto forth referred to as “the Plans”). Staff also reviewed the materials submitted for applications #23-458F-305, #2019 and #2020 along with previous meeting minutes, relevant imagery, topographic, soil, and other maps.

The Plans propose construction of a new single building to house surface water pumping facilities with space for future groundwater treatment facilities, well replacement at Lower and Upper Wellfields, dewatering and sediment removal from the existing pond and canal, new utility connections, culvert replacement, paving an existing gravel access road, and associated work to ultimately bring an aging facility up to current requirements. In order to become a potable water supply, any new wells must be located 50 feet from any water bodies or wetland limits per CT Department of Public Health requirements. The wells must be raised 2’ above the one-hundred-year flood elevation. Due to these requirements, existing wells cannot be used and the new wells are proposed. Wetland resources are proposed to be filled in order to comply with these DPH regulations. Wetland replication, replacement, and enhancements are proposed to mitigate or offset the loss of these wetland areas, and compensatory flood storage areas are proposed to offset the activities which may raise the flood elevation, per FEMA requirements.

Comments/Recommendations

Withdrawals/Flow Calculations

Discussion on the record has included concern related to groundwater withdrawals. While groundwater withdrawals are regulated by CT DEEP and are not explicitly in the purview of the Inland Wetlands and Watercourses Commission, they may be considered if the Commission has reason to believe that such withdrawal may impact wetlands or watercourses. Review of aquifer withdrawals, resiliency, and recharge, and their impacts to wetlands and watercourses are outside the area of expertise of the North Central Conservation District.

- The Commission may request additional information from the applicant or intervenor regarding the potential impact of withdrawals on wetlands and watercourses, including their functions and values, if deemed a concern of the Commission necessary to render a decision and/or to rule on the claims of the petition to intervene.
- If additional information from the applicant or intervenor is deemed insufficient to make these rulings, the Town may consider further 3rd party review from a hydrogeologist or similarly qualified individual or firm, to review the proposed withdrawals from the aquifer as it pertains to impacts to the wetlands and watercourses in the project area.

In the comments submitted by Rivers Alliance on February 5th, 2024, they note that for diversions registered prior to 1983, registrants have rights to divert the amount of water originally registered in perpetuity, and that they were never and are not currently subject to any environmental review.

- Recommend that the Town request information from the applicant and CT DEEP on the accuracy of this statement, and whether any environmental review or impact analysis has ever been completed for this project location.

In Application #2020, the applicant states in the Additional Comments/Information section, “No flow calculations are provided due to zero impact as a result of the proposed work”.

- If the Commission has concerns about potential wetland/watercourse impacts related to potential flow alteration as a result of this application, recommend requesting flow calculations from the applicant to determine the average and seasonal flows of the brook, the average and/or seasonal withdrawals proposed, and any historical withdrawal information the applicant can provide.
- Recommend that the Commission require the applicant to develop an action plan to be submitted to and approved by the Commission, outlining under which circumstances withdrawals would be limited or stopped to ensure adequate flows, both for the benefit of future withdrawals and to reduce or prevent negative impacts to wetlands, watercourses, and dependent flora and fauna. To develop this action plan, recommend that the applicant use historical flow data from stream gauges or similar methods, predicted future flow calculations, and average rainfall data, contrasted with proposed withdrawal amounts and frequencies. This action plan can be required as part of the application, or this can potentially be a condition of approval of a Wetland Permit.

Functions and Values Assessment

Functions and values were assessed within the applicant’s soil scientist’s report, and replication/replacement of wetlands is proposed. However, it was not made clear in the application materials or the meeting minutes whether those functions and values of the existing wetlands will be preserved or replicated.

- Recommend that the Commission request testimony from the project soil scientist regarding whether functions and values assessed for existing wetlands will be preserved and/or replicated through proposed wetland replications, replacements, or enhancements.

Alternatives Analysis

Per section 10.3 of the Bristol Inland Wetlands and Watercourses Regulations, “In the case of an application which received a public hearing pursuant to a finding by the Inland Wetlands Agency that the proposed activity may have a significant impact on wetlands or watercourses, a permit shall not be issued unless the Agency finds on the basis of the record that a feasible and prudent alternative does not exist. In making the finding, the Agency shall consider the facts and circumstances set forth in subsection 10.2. The finding and the reasons therefore shall be stated on the record in writing”. Section 10.2 outlines the considerations for assessment by the Commission of Prudent and Feasible alternatives.

- While alternatives assessments were discussed upon the record of the March 4, 2024 meeting minutes, the District recommends that the Commissioners review Sections 10.2 and 10.3 of the Bristol Inland Wetlands and Watercourses Regulations, and state upon the record in their decision whether alternatives were adequately assessed to the extent required by the regulations.

Thank you for the opportunity to comment.

HYDROGEOLOGIC STUDY

**UPPER AND LOWER WHITE BRIDGE
WELL FIELDS CITY OF NEW BRITAIN
WATER DEPARTMENT AND MIX STREET
WELL FIELD (WELLS 3, 4, & 5) CITY OF
BRISTOL WATER DEPARTMENT**

PREPARED FOR:

**CITY OF NEW BRITAIN WATER
DEPARTMENT AND CITY OF BRISTOL
WATER DEPARTMENT**

DECEMBER 2007

Prepared by:

LENARD ENGINEERING, INC.

CIVIL, ENVIRONMENTAL & HYDROGEOLOGICAL CONSULTANTS

1768 STORRS ROAD, P.O. BOX 580

STORRS, CT 06268-0580

Executive Summary

In accordance with Level "A" Mapping Regulations, Lenard Engineering, Inc. (LEI) conducted a Level "A" study of The City of New Britain's Lower White Bridge and Upper White Bridge, and The City Bristol's Mix Street well fields, the purpose of delineating the aquifer protection area. The White Bridge Upper well field consists of six well points which travel to a common pump station in the Upper well field. The White Bridge Lower well field consists of 17 gravel packed wells and a caisson well. All of the Lower well field well points travel to a common pump station located in the Lower well field. The Mix Street well field consists of three gravel packed wells (#3, #4, and #5).

Prior to initiating the Level "A" study, LEI prepared a Plan for Data Collection detailing the methodologies to be used during the aquifer testing and ground water modeling portions of the study. The Plan for Data Collection was submitted to and subsequently approved by the DEP.

Between October 21 and October 24, 2004, LEI conducted a 3 day aquifer parameter pump test on the New Britain Upper White Bridge well field. New Britain's Upper White Bridge well field was pumped at 400 gpm. During this test, Bristol's Mix Street well field was pumped at 850 gpm, and New Britain's Lower White Bridge and surface water pumping station (the pond station) were turned off during this pumping test.

Between November 1 and November 8, 2004, LEI conducted a 7 day induced infiltration pump test of the New Britain Upper and Lower White Bridge well fields and on Bristol's Mix Street well field. New Britain's Upper White Bridge and Lower White Bridge well fields were pumped at 400 gpm and 600 gpm, respectively. While, Bristol's Mix Street well field was pumped at 1,240 gpm. New Britain's White Bridge surface water pumping station (the pond station) was turned off during the pumping test.

The above information was reduced, and input to create a 3-D aquifer model. Waterloo Hydrogeologic, Inc. Visual Modflow Version 4.1 software was used to create a 3-D model of the aquifer. The information collected from the pump tests conducted in the fall of 2004 was used to create and calibrate the aquifer model for transient flow conditions. Ground water and surface water elevations and stream flows were entered, and the model calibrated to Level "A" aquifer mapping standards. A sensitivity analysis was conducted on the resulting data.

To verify the accuracy of our aquifer model two previous pump tests were simulated.

The first verification test was a pump test conducted by LEI between June 24 and June 27, 2002, simultaneously pumping the New Britain Upper and Lower White Bridge well field, and the White Bridge surface water pumping station (the pond station). New Britain's Upper White Bridge well field, Lower White Bridge well field and Lower White Bridge pond station were pumped at 600 gpm, 400 gpm and 5.0 MGD, respectively.

White Bridge pond station were pumped at 600 gpm, 400 gpm and 5.0 MGD, respectively.

The second verification test was a pump test conducted by the Center for Engineering between September 11, 1992 and September 18, 1992, pumping the Bristol Mix Street well field well field.

The calibrated model was then used to delineate the aquifer protection area to the well fields. A steady state aquifer model simulation was created using fifty percent duration stream flow rates and mean annual recharge rates for the drainage basin. During the steady state simulation it was determined that the aquifer could not support the maximum registered diversions of the New Britain Upper White Bridge, New Britain Lower White Bridge and Bristol Mix Street well fields. Lenard Engineering, Inc., the City of New Britain Water Department and the City of Bristol Water Department agreed upon pumping rates which would best suit the needs of both water departments. Based on this it was determined to model the aquifer using the maximum pumping rates of the New Britain Upper White Bridge, New Britain Lower White Bridge and Bristol Mix Street well fields as follows:

New Britain Upper White Bridge well field: 840 gpm

New Britain Lower White Bridge well field: 2,190 gpm

Bristol Mix Street well field: 900 gpm

Using these pumping rates, a particle tracking simulation was applied to the aquifer model and groundwater contours were generated. The particle tracking simulation helped to delineate the area of contributions and the groundwater contours were used to determine the recharge areas of the well fields. Based upon these results **Figures 1-3** were generated which depict the area of contributions, recharge areas and indirect recharge areas within a 5 mile radius of the well fields.

Link to Application #23-458F-305

Letters, Emails & Correspondence:

<https://www.bristolct.gov/DocumentCenter/View/46565/NB-Floodplain-App-Extracted-Correspondence>



February 26, 2024

Mr. Robert M. Flanagan, AICP-City Planner
City Hall
111 North Main Street
Bristol, CT 06010

RE: UPDATES TO PERMIT APPLICATIONS
#2019, #2020, AND #23-458F-305
FOR THE NEW BRITAIN WATER DEPARTMENT

Dear Mr. Flanagan

The following correspondence is provided to make corrections to the above applications and provide supplemental information for each application.

The attached summary details the documents submitted and the relative application location for submitted correction. Some of this information was previously submitted, but we wish to formally send it for clarity.

- The major items include correcting the text in Application #2020 to make clear that water withdrawals will remain within the registered diversion volumes. In addition CT DEEP has confirmed the registrations will remain in effect and no diversion permits are required. A letter from CT DEEP is included in the information.
- The Flood Plain permit application has been revised to reflect the updated fill and compensatory storage numbers presented at the February 5th hearing, along with a supporting spreadsheet.

We are working with the NBWD to formalize an operations and maintenance plan for canal/pond and related activities which will be submitted shortly.

We will also be contacting FEMA as to the protocol in submitting a certificate of no rise in flood elevation to the commission.

Please contact me if you have any questions at 860 224 0442 or 860 620 3673.

Sincerely,

COMPREHENSIVE ENVIRONMENTAL INC

Sebastian A Amenta, P.E.
Regional Program Director

CC. Nancy Levesque, City Engineer
Andrew Armstrong, Assistant Planner
Ray Esponda, Deputy Director NBWD
Joseph Hammer, Esquire
Vinta Varghese, CDM Smith

Enclosures: Summary of Attachments-#2019, #2020, and #23-458F-305

Summary of Updates
to
Applications #2019, #2020 and #23-458F-305

#2019-1) Please add the attached map to Attachment 4. It is an overlay of scientist wetlands flagging on the City's wetlands map for the project area.

#2020-1) Please insert the corrected page and substitute it for the page on file.

2) Please add the NDDB and SHPO documents to the filing

3) Map showing Monitor well locations and stream gauge locations.

4) Please add the CT DEEP letter which confirms the Diversion Registrations will remain in force and no permit is required.

#23-458F-305-1) Please insert substitute page 2 of the Application PDF which indicates updated volumes for fill and compensatory storage.

2) Please insert page 9 of the PDF which indicates the revised volumes.

3) Please add the attached spreadsheet summary for cut/fill and compensatory storage volume.

#23-458F-305 Update



Mr. Sebastian Amenta, P.E.
Comprehensive Environmental, Inc.
1 Hartford Square, Suite 227
New Britain, CT 06052
samenta@ceiengineers.com

RE: Request for Diversion Permit Need Determination
Whites Bridge Wellfield Improvements
New Britain Water Department
Bristol, CT

Dear Mr. Amenta:

This letter is in response to your November 8, 2023 request for Water Diversion permit need determination regarding your proposal to modify certain registered water diversions. The proposed activities are documented in the report you submitted on behalf of the New Britain Water Department (NBWD) entitled “Negative Declaration of Diversion / White Bridge Wellfield Improvements / Bristol, Connecticut,” dated November 2023 (“the report”), as well as other information provided in a subsequent email dated December 5, 2023. The project involves the replacement of several public water supply wells that make up two separate, but nearby wellfields registered to the NBWD pursuant to Section 22a-368 Connecticut General Statutes (CGS) as described in the table below.

REGISTRATION NUMBER	NAME OF DIVERSION	REGISTERED WITHDRAWAL (million gallons per day)	BASIN NAME
4314-007-PWS-GR	Upper White Bridge Wells	2.1600	Copper Mine River
4314-008-PWS-GR	Lower White Bridge Wells	6.6240	Copper Mine River

The report states that these “wellfields are unable to be used in accordance with their original design intent and drastic improvements are needed due to poor groundwater well performance caused by clogged well screens and an antiquated suction withdrawal system.” The proposed redevelopment includes the abandonment of all existing wells in these two wellfields, replacing them with new wells, all within the extent of the existing wellfields as registered. The proposed wells, as described in the report, will be withdrawing from the same stratified drift aquifer wherein the existing wells are located.

Based on our review of your submittal, it has been determined that this proposal as presented in the submitted materials conforms with Section 22a-377(c)-1(c)(1) of the Regulations of Connecticut State Agencies (RCSA) included below in its entirety:

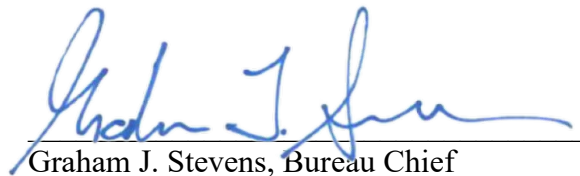
Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may maintain such diversion only in accordance with the information provided in the registration form filed with the Commissioner. Any person or municipality which registered a diversion pursuant to section 22a-368 of the General Statutes may not cause or allow any modification of such diversion, including but not limited to an increase in withdrawal capacity, without having first obtained a permit under sections 22a-365 to 22a-378, inclusive, of the General Statutes and 22a-377(c)-2 of the Regulations of Connecticut State Agencies, unless such modification is exempt under section 22a-377 of the General Statutes or section 22a-377 (b)-1 of the Regulations of Connecticut State Agencies.

As such, this department finds that the proposed diversion modifications, comprising of the wellfields identified on page 1 of this determination, **will not** require a water diversion permit pursuant to Section 22a-368(a) CGS, provided the total combined withdrawal from the respective wellfields does not exceed the registered withdrawal as indicated in the above table. However, it is requested that you keep us informed as the project develops, particularly on matters relating to aquifer response modeling and induced infiltration studies.

If you should have any additional questions regarding this matter, please contact Doug Hoskins at 860-424-4192 or douglas.hoskins@ct.gov.

February 21, 2024

Date



Graham J. Stevens, Bureau Chief
Water Protection and Land Resources

GS/dh

Cc:

Ray Esponda, New Britain Water Dept., Ray.Esponds@NewBritainCT.gov

Raul Tejada, CT DPH, raul.tejada@ct.gov

Lori Mathieu, CT DPH, Lori.Mathieu@ct.gov

Brendan Schain, CT DEEP brendan.schain@ct.gov

Shalyn Zappulla, CT DEEP shalyn.zappulla@ct.org

Alicia Charamut, Rivers Alliance, alicea@riversalliance.org

CT DEEP Letter

May 6, 2022

May 6, 2022

Magdalena Lofstedt
CDM Smith Inc
77 Hartland St, Suite 201
East Hartford, CT 06108
LOFSTEDTMH@CDMSMITH.COM

NDDB DETERMINATION NUMBER: 202205409

Project: (City of New Britain) Replace existing groundwater wells, Upper & Lower Wellfields, White Bridge Waterworks Facility, off Maltby St, Bristol

Expiration: May 6, 2024

I have reviewed Natural Diversity Database (NDDB) maps and files regarding this project. According to our records, there are State-listed species (RCSA Sec. 26-306) documented nearby and within the watershed of your project area. Recommendations to minimize impacts are included below.

- **Spotted turtle (*Clemmys guttata*) State Special Concern**
- **Wood turtle (*Glyptemys insculpta*) State Special Concern**

Spotted turtle: Individuals of this species are associated with wetlands and vernal pools. Over the course of a season and lifetime, individuals will travel large distances (up to 1km) over upland forest and fields between multiple wetlands. They overwinter burrowed into the mud in wetlands between Nov 1-March 15. They do not begin to reproduce until 7-10 years old and adults can live at least 30 years. This species is threatened most by any activities that reduce adult survivorship including road kills, commercial and casual collection, increased predation in areas around commercial and residential development, mortality and injury from agricultural equipment or other mechanical equipment.

Wood turtle: Individuals of this species are riverine and riparian obligates, overwintering and mating in clear, cold, primarily sand-gravel and rock bottomed streams and foraging in riparian zones, fields and upland forests during the late spring and summer. They hibernate in the banks of the river in submerged tree roots between November 1 and March 31. Their summer habitat focuses within 90m (300ft of rivers) and they regularly travel 300m (0.2 mile) from rivers during this time. During summer they seek out early successional habitat: pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. Their habitat in Connecticut is already severely threatened by fragmentation of riverine, instream, riparian, and upland habitats, but is exacerbated by heavy adult mortality from machinery, cars, and collection. This is compounded by the species late maturity, low reproductive potential, and high nest and hatchling depredation rates.

Land disturbance activities that will crush active turtles or unearth/or crush hibernating turtles or nests need to consider local habitat features and apply fencing and/or time of year restrictions as appropriate. We recommend you consult with a herpetologist familiar with preferred habitats to assist you with proper techniques to ensure the best protection strategies are employed for your site.

- Land disturbance and excavation confined to the upland (greater than 10 meters from a wetland) can be done without risk for impact if it is restricted to the dormant season (November 1- March 15).

If land disturbance activity will include significant areas within and around wetlands, you will need to take precautions to avoid crushing or killing hibernating adults.

- Do not conduct land disturbance activities within a wetland during the turtle's dormant period (November 1- March 15).

Additionally, when working in the upland between March 15- November 1:

- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance as shown on the plans.
- Exclusionary fencing be at least 20 inches tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through.
- Prior to construction, all turtles occurring within fencing work area will be relocated to suitable habitat outside disturbance area. This should be performed by a qualified professional familiar with habitat requirements and behavior of the species.
- The Contractor must search the work area each morning prior to any work being done.
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point. These animals are protected by law and no turtles should be relocated from the site.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal vernal pools.

Natural Diversity Database information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Bureau of Natural Resources and cooperating units of DEEP, independent conservation groups, and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the NDDB should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated in the NDDB as it becomes available.

Please contact me if you have any questions (shannon.kearney@ct.gov). Thank you for consulting with the Natural Diversity Database and continuing to work with us to protect State-listed species.

Sincerely,

/s/ Shannon B. Kearney
Wildlife Biologist

Verified Petition to Intervene
February 5, 2024

**BRISTOL INLAND WETLANDS AND WATERCOURSES AGENCY/CONSERVATION
COMMISSION**

Application #2019 - Wetlands boundary change application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Application #2020 – Wetlands application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

Application #23-458F-305 – Floodplain application for the restoration of the White Bridge Waterworks facility at Maltby Street; Assessor's Map 52 & 53, Lots 11, 15, 16B16A, 17, 145, 147, 149, 150 & 151; New Britain Water Department, Ramon Esponda, Deputy Director, applicant.

February 5, 2024

VERIFIED PETITION TO INTERVENE UNDER CGS §22a-19

Rivers Alliance of Connecticut, Inc. (RA) requests that the Bristol Inland Wetlands and Watercourses Agency/Conservation Commission (Agency) grant it intervenor status in the above captioned proceedings, pursuant to the Connecticut Environmental Protection Act, CGS section 22a-19(a)(1) (CEPA). RA does not oppose the work that is proposed by New Britain Water Department (NBWD) in the above-referenced applications to purportedly rehabilitate its wellfields and to come into compliance with Connecticut Department of Public Health (DPH) and Federal Emergency Management Agency (FEMA) requirements, so long as the reasonably foreseeable environmental threats posed by these activities are appropriately conditioned to protect the important natural resources comprised of waters of the State under the stewardship of

the City of Bristol. RA's participation in this matter is in the interests of justice and will not impair the orderly conduct of the proceedings.

In support of its petition, RA represents the following:

1. CEPA provides in pertinent part at General Statutes Section 22a-19(a) that

In any administrative, . . . proceeding, and in any judicial review thereof made available by law, . . . any person, . . . corporation . . . or other legal entity may intervene as a party on the filing of a verified pleading asserting that the proceeding or action for judicial review involves conduct which has, or which is reasonably likely to have, the effect of unreasonably polluting, impairing or destroying the public trust in the air, water or other natural resources of the state.

2. The Agency is the town agency authorized to administer the statutory provisions regulating the use of inland wetlands and watercourses pursuant to General Statutes Section 22a-36, et seq., and of its own duly enacted Inland Wetlands and Watercourses Regulations of the City of Bristol (Regulations).

3. RA is a 501(c)(3) non-profit environmental organization, founded in 1992, and dedicated to the protection and preservation of the water resources of the State. Its membership includes, primarily, river and watershed groups in the state, civic and business groups, municipal commissions, and individuals concerned with water health, thus representing a network of thousands of members statewide. RA's mission is to protect the quality and availability of surface and ground waters of Connecticut and Long Island Sound and associated recreational uses and habitat values. RA advocates for the protection of ample, healthy sources of water for drinking and other vital societal uses. RA brings expertise in policy, law, and science to participation in policy-making entities and to its extensive educational program. RA's goal is to bring people together to protect our state waters for current and future generations. Numerous

RA members are residents of Bristol or customers of NBWD. RA's offices are located at 28 Russel Street, P.O. Box 1797, Litchfield, Connecticut, 06759.

4. The Agency's decision in this matter will specifically affect RA, its members, and important natural resources of the State. NBWD owns or manages water supply facilities in the City of Bristol. Pursuant to CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies, NBWD is authorized to divert 23.78 million gallons of water per day (mgd) in perpetuity.

5. Bristol Water Department (BWD) also owns or manages water supply facilities within the same drainage basin as the White Bridge Waterworks Facility. Pursuant to CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies, BWD is authorized to divert 3.87 million gallons of water per day (mgd) in perpetuity.

6. Coppermine Brook is listed in Connecticut Department of Energy and Environmental Protection's (DEEP) 2022 Integrated Water Quality Report to Congress under Nonpollutant Impairments (EPA Category 4c) for Flow Regime Modification. DEEP has developed a methodology for assessing flow impairments when sufficient information is available. The term "flow regime modification" is used to reflect the impairments which are predominantly due to flow alterations that serve public needs and safety.

7. Sections of Coppermine Brook below and adjacent to the NBWD and BWD were effectively dry during the 2016-2017 drought and DEEP has documented impairment due to low flow for periods following the 2016-2017 drought. Due to decreased well performance, NBWD has been able to withdraw only a portion of the 23.78 mgd it is authorized pursuant to

CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies.

8. NBWD has stated in Application #2020 that “The NBWD has registered diversions and those withdrawals will be increased.” It also stated that “The proposed wetland disturbances activity will not affect the nearby watercourse flow rate.”

9. RA seeks to intervene in this proceeding for the purposes of assuring that Coppermine Brook is not further impaired for regime flow modification due to an increase in withdrawals by the NBWD. The potential for such further impairment is not adequately addressed in the Application. RA further seeks to ensure that the Agency has a complete record on which to make an informed decision on all aspects of this complicated proceeding. As DEEP cannot intervene on impairments from low flow (as this activity is purportedly in compliance with CGS §22a-365 through 22a-379 as well as Sections 22a-372-1, 22a-377(b)-1 and 22a-377(c)-1 to 22a-377(c)-2 of the Regulations of Connecticut State Agencies), it is reasonable for the Agency to inquire into potential impacts to downstream flow from NBWD withdrawals. In addition, impacts on streams from groundwater withdrawals are not included in DEEP’s Streamflow Standards and Regulations pursuant to CGS §26-141(a) and (b) and §26-141b-7(a) of the Regulations of Connecticut State Agencies. Appropriate regulation and oversight of potential impacts to downstream flow can be accomplished by requiring monitoring of streamflow above and below the wellfields and requiring that NBWD work with DEEP to determine a threshold at which NBWD would have to work with DEEP to find an operational mode that would not impair Coppermine Brook, as per the NBWD agreement with DPH for funds procured through DPH’s Drinking Water State Revolving Fund for the project. This regulation and oversight clearly falls

within the Agency's jurisdiction in this proceeding pursuant to CGS section 22a-41, 22a-42, and the city's Inland Wetlands and Watercourses Regulations.

10. It is RA's position that prudent conditions to protect critical natural resources of the State, which are threatened by the increased uncertainty of climate change, are necessary and appropriate. RA is focused on a narrow but important set of natural resources that receive limited, but critical, protections under state statute. RA's intervention in this matter is in the interests of justice and will not impair the orderly conduct of the proceedings.

11. RA is not aware of any other intervening party to this proceeding whose focus is to ensure that the water resources of the state under the care of the City of Bristol are protected from undue impairment.

12. RA intends to offer brief and pertinent direct testimony from Connecticut water conservation experts with personal knowledge of wetlands and hydrology, as it applies to the Applications.

13. RA requests that the following individuals be listed on the Service List in this proceeding:

Alicea Charamut, Executive Director
Rivers Alliance of Connecticut, Inc.
28 Russel Street, P.O. Box 1797
Litchfield, CT 06759
(860) 416-7859
alicea@riversalliance.org

and

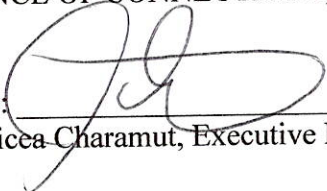
Mary Ridingsward, Executive Director
Pequabuck River Watershed Association
PO Box 1461
Bristol, CT 06011-1461
pequabuckriverct@gmail.com

Copies of filings and notices should be sent to alicea@riversalliance.org.

WHEREFORE, Rivers Alliance of Connecticut, Inc. respectfully requests intervention status in this proceeding pursuant to CEPA upon the filing of this verified pleading for intervention.

Respectfully submitted,

INTERVENOR
RIVERS ALLIANCE OF CONNECTICUT, INC.

By: 
Alicea Charamut, Executive Director

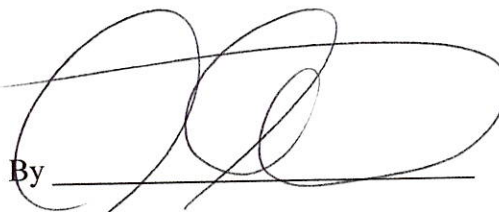
VERIFICATION OF PETITION FOR INTERVENTION
UNDER GENERAL STATUTES SECTION 22a-19(a)

I, the undersigned, being duly sworn, depose and say that (i) I am the Executive Director of Rivers Alliance of Connecticut; (ii) I have the authority to execute this Petition for Intervention on behalf of Rivers Alliance of Connecticut; and (iii) I have read the foregoing Petition for Intervention and verify that the facts stated therein are true and correct to the best of my knowledge, information and belief based on my personal knowledge, and the records which I have reviewed in this matter.

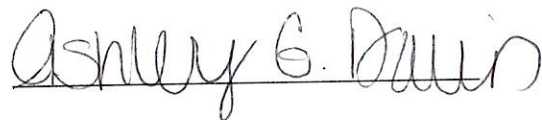
Dated at Newington Connecticut, this 5th day of February, 2024.

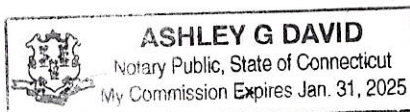
INTERVENOR

RIVERS ALLIANCE OF CONNECTICUT

By 
Alicea Charamut, Executive Director

Subscribed and sworn to before me the undersigned this 5th day of February, 2024.





Notary Public: Ashley G. David
My Commission Expires: 01/31/2025



Photos submitted by Daniel Sutula - 3/11/24

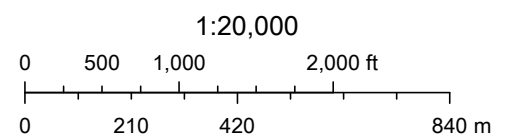
ATTACHMENT 1

PROJECT SITE MAP

White Bridge Waterworks Facility



2/22/2023, 3:28:12 PM



USGS The National Map: Orthoimagery and US Topo. Data refreshed December, 2022.

ATTACHMENT 2
ADDITIONAL INFORMATION
NARRATIVE

Wetlands Permit Application – Flood & Erosion Control

Project Narrative:

A rehabilitative project will be conducted at the Upper and Lower Wellfields of the White Bridge Waterworks Facility owned by the New Britain Water Department (NBWD) accessed via Maltby Street. The purpose of this project is to redevelop the existing Upper and Lower Wellfields, which were constructed in the 1940s and 1921, respectively. Presently, these wellfields serve as a raw water supply only. The age of the wellfields is such that they have come to the end of their useful life and repair and replacement equipment is no longer available. The NBWD needs to upgrade the facilities and modernize the equipment.

To become a potable water supply, any new wells must be located 50 feet from any water body or wetlands boundary per Department of Public Health (DPH) requirements. In addition, the wells must be raised 2' above the one-hundred-year flood plain elevation. The majority of the NBWD owned property related to this project is within the 100-year floodplain. Because of these requirements, the existing wells cannot be redrilled or rehabilitated in their present location. All currently existing wells will be abandoned in accordance with DPH requirements. The Lower Wellfield may but suitable as a public water supply subject to the ground water under the direct influence of surface water testing which will be done once the project is completed in a future phase of construction.

Proposed activities for the project include the demolition of pre-existing structures in addition to the construction of new groundwater wells, a pump house and underground piping. Pre-existing structures include the Upper Wellfield pump station, Pond pump station and Well pump station. Two of those pre-existing buildings are within the floodway. The new pump house structure will be outside of the floodway. Compensatory flood storage areas will be created so as to not increase the current flood elevation levels as given by FEMA guidelines. These compensatory storage areas will also create additional wetland areas.

The project will impact approximately 31,000 square feet of wetlands. As part of the project, wetlands replication will be done at a ratio of greater than two to one. The new structure and facilities will add approximately 7,000 cubic yards of fill within the floodplain. As part of the project, over 17,000 cubic yards of material will be removed from the flood plain.

As part of the scope of work of this project various areas within both the flood fringe and floodway will be encroached upon. See attached maps for the extent of the encroachment within both areas.

Erosion & Sedimentation Control:

The erosion and sedimentation control measures at the White Bridge facility focus on the protection of wetlands and waterways during and following construction since the work includes land disturbances, excavation dewatering, supply pond and canal sediment removal activities, and other associated construction activities. Several methods are included on the Drawings to slow the flow of runoff and protect disturbed land during construction activities. Please refer to the project plans for typical details of measures to protect wetlands and waterways during and after construction. The following summary

presents typical mitigation measures that will be implemented to avoid and minimize wetland impacts during construction.

Construction Period

- During construction, the limit of land disturbances will be kept to a minimum, where possible, and the construction will be sequenced so the entire site will not be disturbed at the same time.
- Clearing and grubbing will be limited to only the areas necessary for work to be performed, specifically in areas at the Upper and Lower Wellfields (Sheet C-9 and C-11) where wells and piping will be installed, at the Maltby Street 16" pipe crossing (Sheet C-18), at areas where wetlands and compensatory storage will be created (Sheet C-13 and C-14), and areas around the Supply Pond for access during sediment removal activities (Sheet C-23).
- Sedimentation barriers (i.e., silt fence and/or compost logs/straw wattles installed per industry standards) will be installed at the down gradient limits of work and construction access roadways prior to the commencement of work to prevent the transport of sediment to the downgradient wetlands and waterways during construction (see Sheets C-6 thru C-8). Specifically, at the Upper Wellfield this includes compost logs/straw wattles along the facility driveway from Maltby Street to the existing Pumping Station and down each of the well field laterals. At the Lower Wellfield, this includes along the wetlands to the north and west of proposed work, along the Coppermine Brook to the east, around the Supply Pond, and along both sides of the Canal to the Polkville Avenue Brook. These barriers will be inspected at least once per week and within 24 hours of rainfall events ½-inch or greater and repaired as needed. These barriers will remain in place until all disturbed soils are stabilized. A stockpile of compost logs/straw wattles and silt fence will be maintained on site for routine maintenance and emergency repairs. Barriers will be replaced as necessary due to sediment build-up and degradation.
- Sedimentation barriers (i.e., silt fence and/or compost logs/straw wattles installed per industry standards) will be installed surrounding temporary stockpile areas.
- For all slopes 4:1 or steeper, an erosion control blanket will be required, including at the Upper and Lower Wellfield wells (see Sheet C-9 and C-11). Temporary erosion control blankets will be inspected at least once per week and within 24 hours of rainfall events.
- A turbidity curtain will be installed to prevent sedimentation and turbidity disturbances in the Coppermine Brook during canal and supply pond sediment removal activities (see Sheet C-23 and Detail Sheet C-24). Turbidity curtains will be inspected daily during Supply Pond and canal sediment removal activities. The turbidity curtain will not be removed before sediment removal activities have ended and clarity of water has returned.
- Catch basin filters will be installed on catch basins near all excavation work on Maltby Street, Stafford Avenue, and Mix Street (See Sheet C-18 and Detail Sheet C-24).
- In the event that excavation dewatering is necessary, water will be pumped and discharged to one of the temporary sedimentation basins in designated areas of the site (see Sheet C-6 thru C-8).

and Detail Sheet C-24). Temporary sedimentation basins will be inspected at least once per week and cleaned as needed to remove accumulated sediments. Temporary portable sediment tanks may also be used to handle significant amounts of excavation dewatering. All water to be discharged from dewatering activities will be filtered or otherwise treated prior to discharge to prevent siltation to adjacent areas. Best management practices will be used by the Contractor in order to prevent siltation to adjacent areas during dewatering activities.

- A temporary sediment dewatering and stockpiling area has been designated within the Supply Pond to dewater removed sediments during restoration activities (see Sheet C-23 and Detail Sheet C-24). Stockpiled materials and containment area will be inspected daily during dewatering activities, weekly during non-dewatering activities, and within 24 hours of rainfall events of ½-inch or greater.
- A stabilized construction entrance is also being required for the site to prevent tire tracked soils to onsite and offsite locations (see Sheet C-23 and Detail Sheet C-24). The stabilized construction entrance will be inspected periodically and additional top dressing or length will be added, as necessary, to continue capturing sediment tracked on vehicles.
- The silt fence and/or compost log/straw wattle barrier will not be removed until the site areas are vegetated, paved or otherwise permanently stabilized to prevent erosion of exposed soils. Work will proceed as rapidly as possible, limiting the exposure time of disturbed soils to wind and precipitation.
- The sedimentation barriers will not be removed until the site areas are vegetated, paved or otherwise permanently stabilized to prevent erosion of exposed soils. Work will proceed as rapidly as possible, limiting the exposure time of disturbed soils to wind and precipitation.
- Periodic inspections will be made by the applicant to ensure compliance with the permit conditions.

Spill Control Measures

- Spill containment equipment (e.g. oil absorbent pads, oil absorbent materials, containment booms, shovels, etc.) will be stored in the equipment storage and refueling area in an easily accessible manner for use in the clean-up of accidental releases of fuel or other hazardous materials. Should there be an accidental release the proper authorities will be notified in accordance with all applicable federal, state, and local laws; and
- To minimize the possibility of leakage of hydraulic fluid, all hydraulic lines on all construction equipment and vehicles will be inspected at the end of each workday. If any excessive wear or leakage is observed, the line will be repaired prior to further use. In addition, a supply of oil absorbent materials (i.e. pads, "speedy dry," and/or booms) will be maintained with the equipment at the work area for immediate deployment in the event of an accidental release of fuel, hydraulic fluid, oil, etc.

Post-Construction Period

The following summary of mitigation measures will be implemented to restore any areas affected by short-term impacts that occur in or adjacent to wetlands.

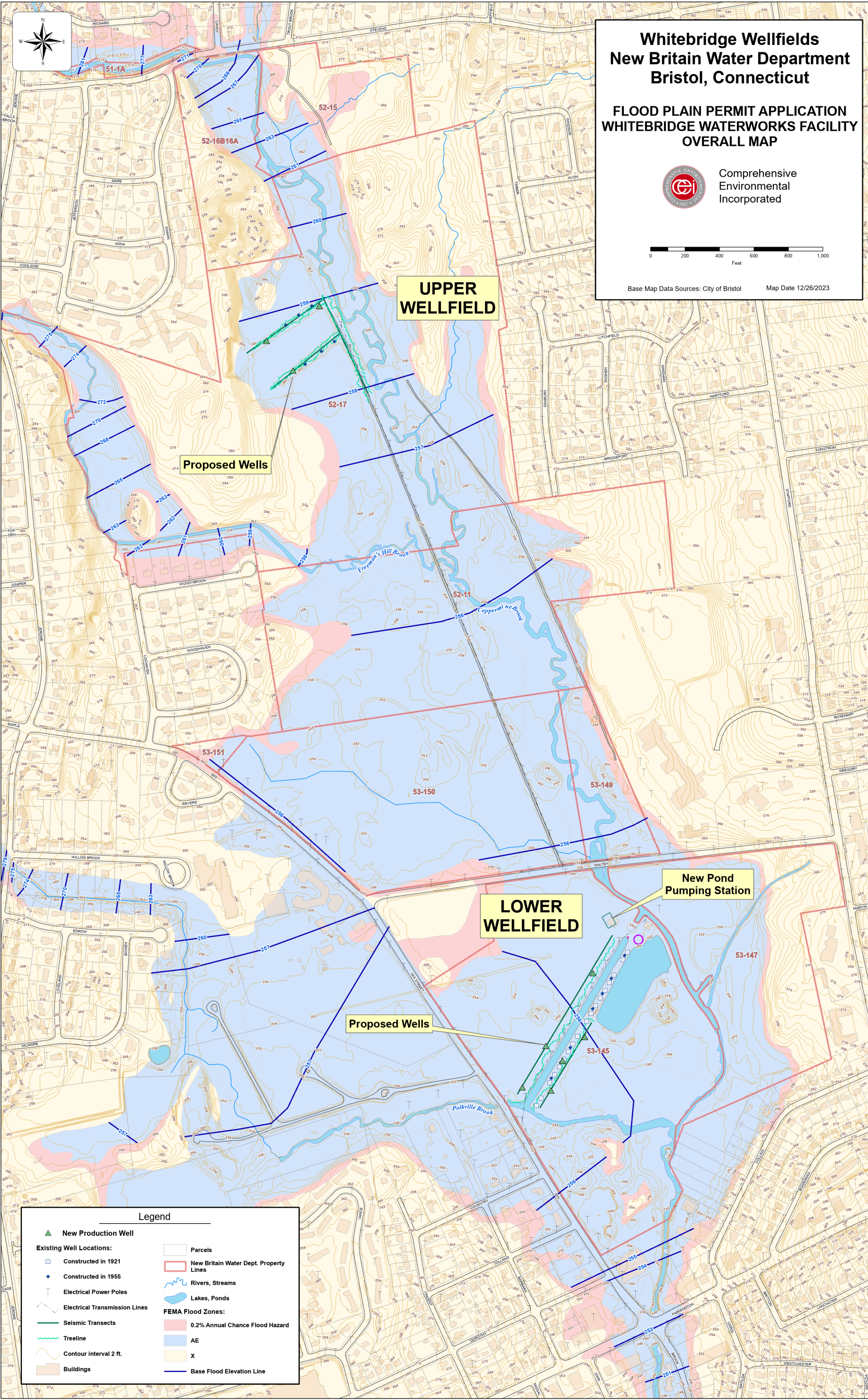
- The final site is designed to have a 3-foot wide gravel infiltration trench with 1.5"-3" diameter washed aggregate covered with 6" pea gravel running along the facility driveway to collect and slow the flow of runoff from impervious surfaces (see Sheet C-10 and Detail Sheet C-26).
- All areas disturbed during construction activities are to be loamed and seeded to provide vegetated soil cover protection against sheet runoff and wind erosion (see Sheet C-9 thru C-12). Seeded areas will be inspected at least once per week and within 24 hours of rainfall events of ½-inch or greater.
- Once established, seeded areas will be mowed and maintained as appropriate.
- The Pond Pumping Station building roof drain leader will outlet to a riprap apron (See Sheet C-10 and Detail Sheet C-26). Riprap used in the roof drain apron will be inspected periodically to determine if high flows have caused scour beneath riprap or if vegetation removal is required. On the northeast side of the Pond Pumping Station building, a retaining wall will be utilized to prevent steep slopes.
- The wetland replication and restoration areas will be planted with trees and shrubs per the planting plans, and seeded with a wetland seed mixture.
- If seeding occurs outside of the growing season, temporary stabilization measures (i.e., mulching or erosion control blankets) will be used to prevent erosion until the area can be seeded during the following growing season.
- Reseeding and mulching disturbed areas. These areas will be maintained and re-seeded to ensure that grass cover is adequate to stabilize the exposed soil, and
- Sedimentation and erosion control barriers will not be removed until a vegetative cover dense enough to prevent erosion is established.

Selections from Figure 3-2 of the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control:

Figure 3-2 Measure Selection Matrix					
Identify Problem Areas	Identify Control Problems	Identify Strategy	Select Specific Measure		Plan Key
			Functional Group	Measure	
Disturbed Areas	Control Soil Detachment	Preserve and Conserve Existing Site Resources	Protect Vegetation	Tree Protection	TP
			Preserve and Conserve Soil	Topsoiling	TO
				Land Grading	LG
				Surface Roughening	SR
Short or Shallow Slopes	Raindrop Splash	Protect Surface		Dust Control	DC
			Vegetative Soil Cover	Temporary Seeding	TS
				Permanent Seeding	PS
				Sodding	SO
Steep Slopes	Sheet & Rill Erosion		Non-Living Soil Protection	Landscape Planting	LP
				Temporary Soil Protection	TSP
				Mulch for Seed	MS
				Landscape Mulch	LM
Long Slopes	Wind Erosion			Temporary Erosion Control Blanket	ECB
				Permanent Luff Reinforcement Mat	TRM
				Stone Slope Protection	SSP
Stockpile Areas	Control Water Movement	Protect Surface and/or Convey Runoff	Stabilization Structures	Retaining Walls	RW
				Riprap	RR
				Cabions	G
				Permanent Slope Drain	PSD
Borrow Areas	Gully Erosion			Channel Grade Stabilization Structure	CSS
				Temporary Lined Chute	TC
				Temporary Pipe Slope Drain	TSD
Drainage Ways	Channel & Stream Erosion	Convey Runoff	Drainageways and Watercourses	Vegetated Waterway	VW
				Temporary Lined Channel	TLC
				Permanent Lined Waterway	PW
				Temporary Stream Crossing	TSC
Wetlands and Watercourses		Direct Runoff	Diversions	Temporary Fill Berm	TFB
				Water Bar	WB
				Temporary Diversion	TD
				Permanent Diversion	PD
Waterbodies		Intercept Gnd. Water	Subsurface Drains	Subsurface Drain	SD
Areas of Flooding and Existing Erosion	Natural Resource Degradation	Diffuse Runoff	Detention Structures	Detention Basin	DB
				Level Spreader	LS
				Outlet Protection	OP
				Stone Check Dam	SCD
Drainage Outlets	Control Sediment Deposition	Detain Sediments	Sediment Impoundments, Barriers, and Filters	Temporary Sediment Basin	SB
				Temporary Sediment Trap	TST
				Hay Bale Barrier	HB
				Geotextile Silt Fence	GSF
Travel Areas	Protect Onsite and Offsite Areas			Turbidity Curtain	TC
				Vegetative Filter	VF
				Construction Entrance	CE
				Pump Intake and Outlet Protection	PuP
Dewatering		Control Mechanically Moved Waters and Soils	Dewatering	Pumping Settling Basin	PSB
				Portable Sediment Tank	PST
				Dewatering of Earth Materials	DWM

ATTACHMENT 3

FLOOD MAP



Whitebridge Wellfields
New Britain Water Department
Bristol, Connecticut

FLOOD PLAIN PERMIT APPLICATION
WHITEBRIDGE WATERWORKS FACILITY
OVERALL MAP



Comprehensive
Environmental
Incorporated

0 200 400 600 800 1,000
Feet

Base Map Data Sources: City of Bristol

Map Date 12/26/2023

**UPPER
WELLFIELD**

Proposed Wells

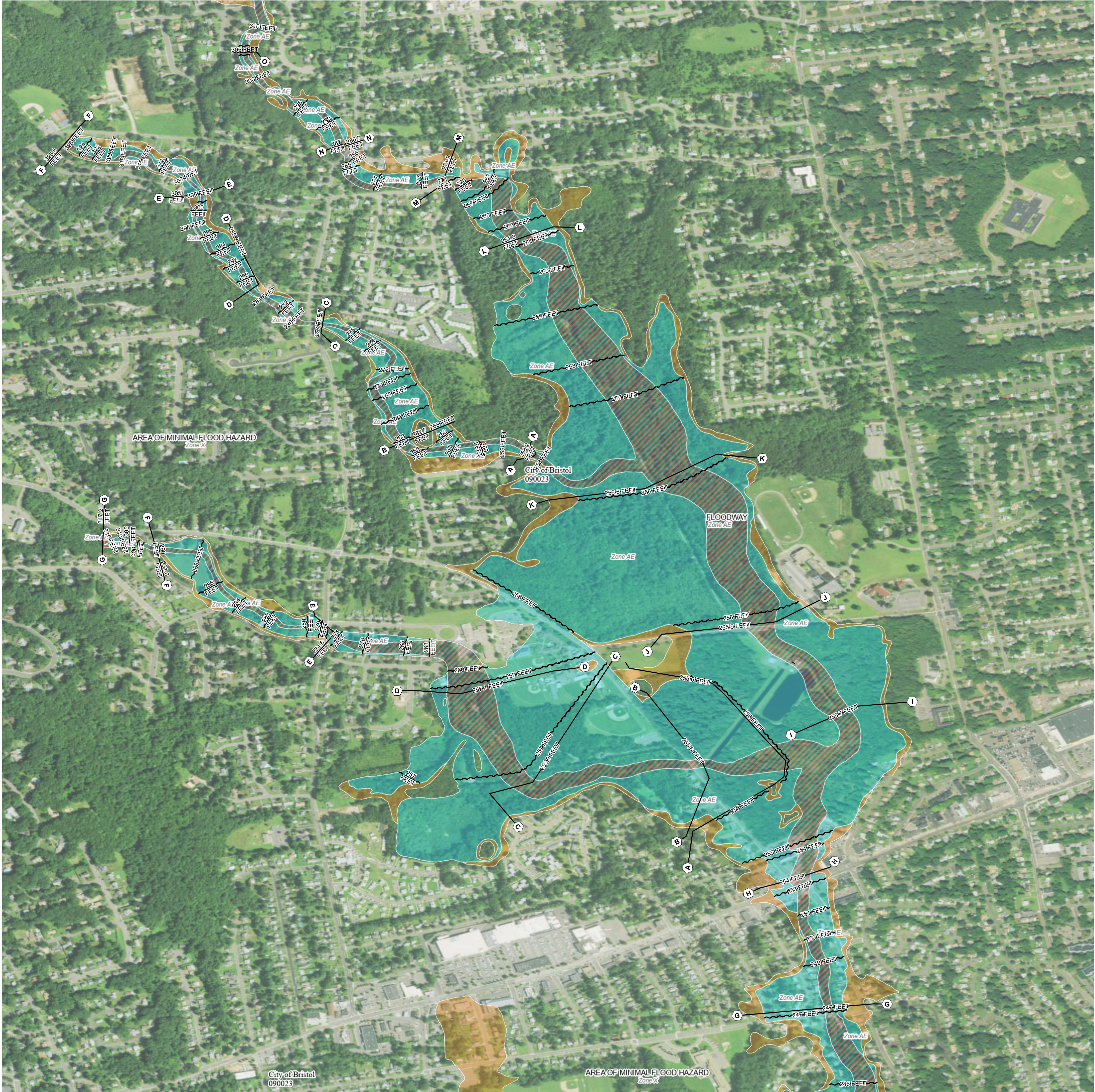
**LOWER
WELLFIELD**

**New Pond
Pumping Station**

Proposed Wells

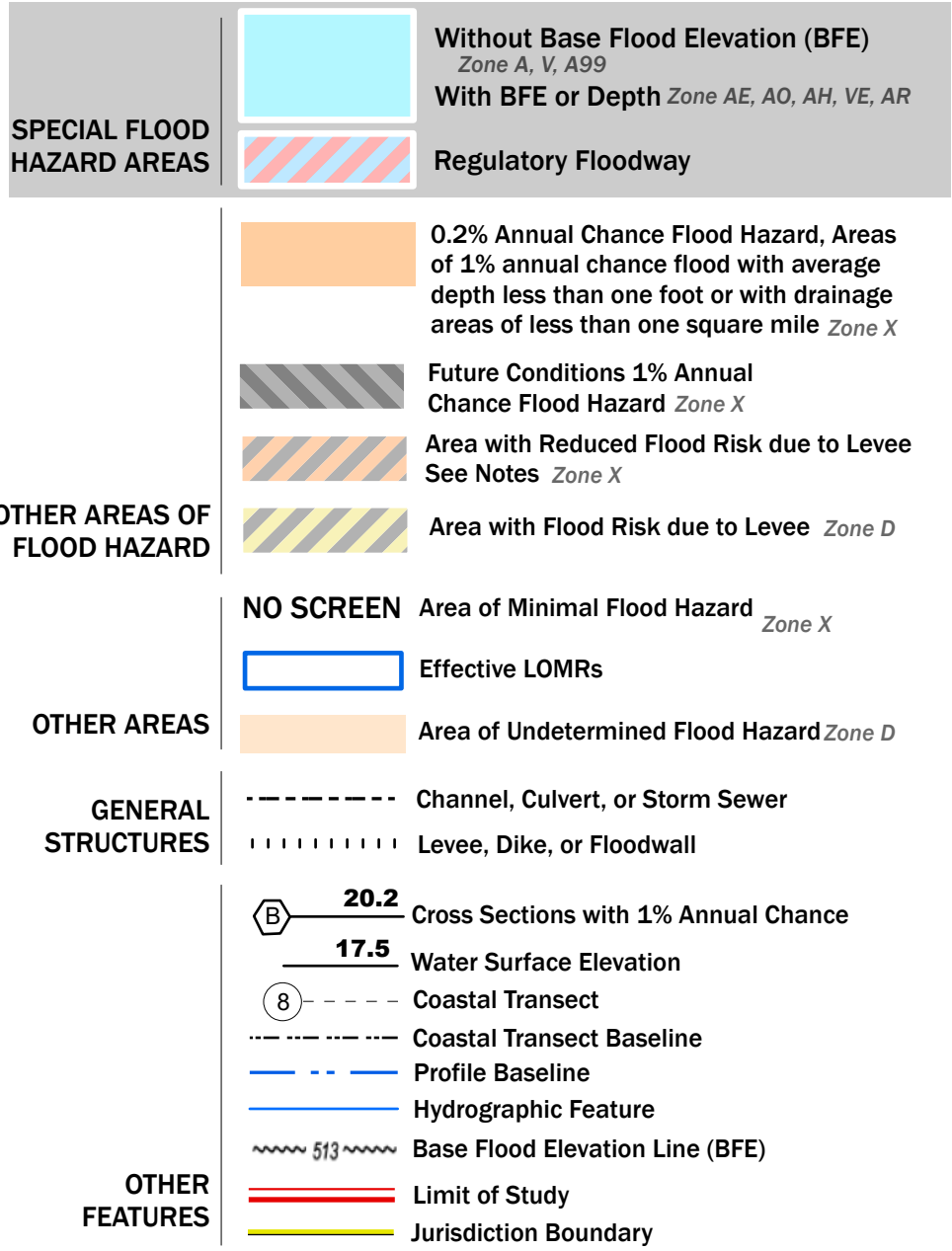
Legend

- New Production Well
- Existing Well Locations:**
 - Constructed in 1921
 - Constructed in 1955
 - Electrical Power Poles
 - Electrical Transmission Lines
 - Seismic Transects
 - Treeline
 - Contour interval 2 ft.
 - Buildings
- 0.2% Annual Chance Flood Hazard
- AE
- X
- Base Flood Elevation Line
- Parcels
- New Britain Water Dept. Property Lines
- Rivers, Streams
- Lakes, Ponds



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR DRAFT FIRM PANEL LAYOUT



NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-6627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to the Flood Insurance Study Report for this jurisdiction.

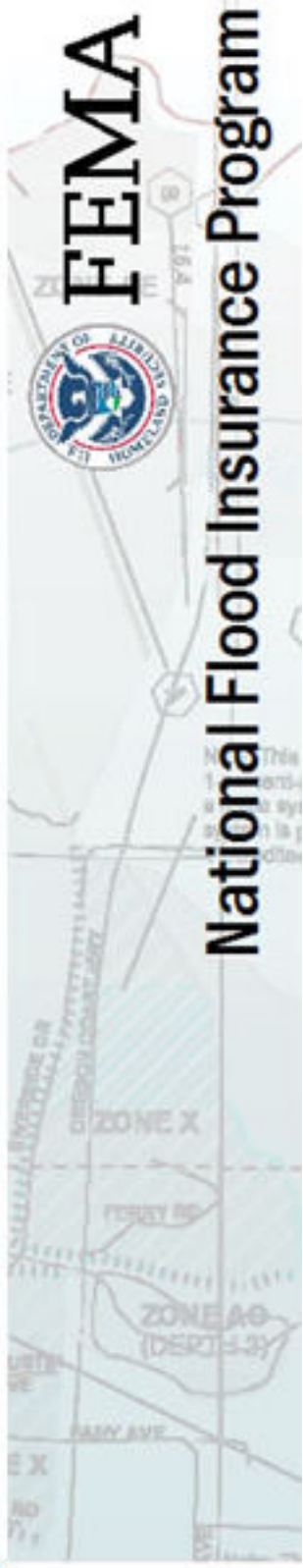
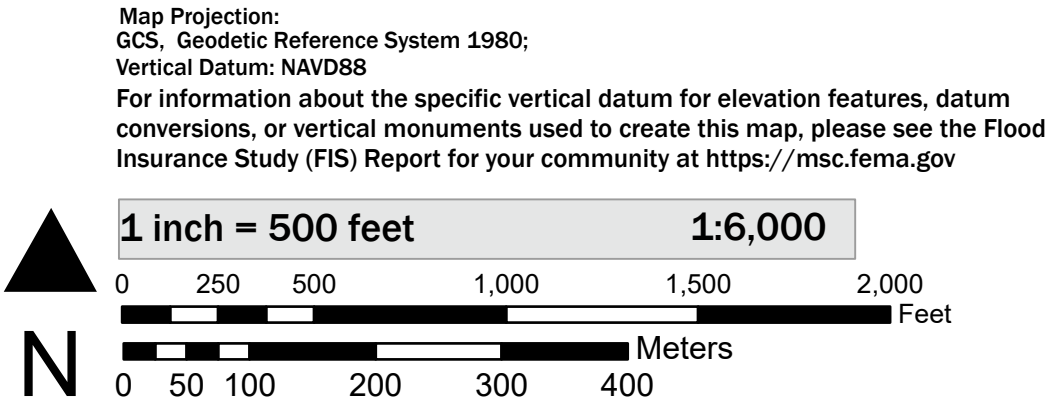
To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Basemap information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). The basemap shown is the USGS National Map: Orthoimagery. Last refreshed October, 2020.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **10/1/2021 10:57 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at <https://www.fema.gov/media-library/assets/documents/118418>

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards. This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

SCALE



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

PANEL	458	OF	658
Panel Contains:			
COMMUNITY	NUMBER	PANEL	
CITY OF BRISTOL	090023	0458	

Link to Attachment #4:

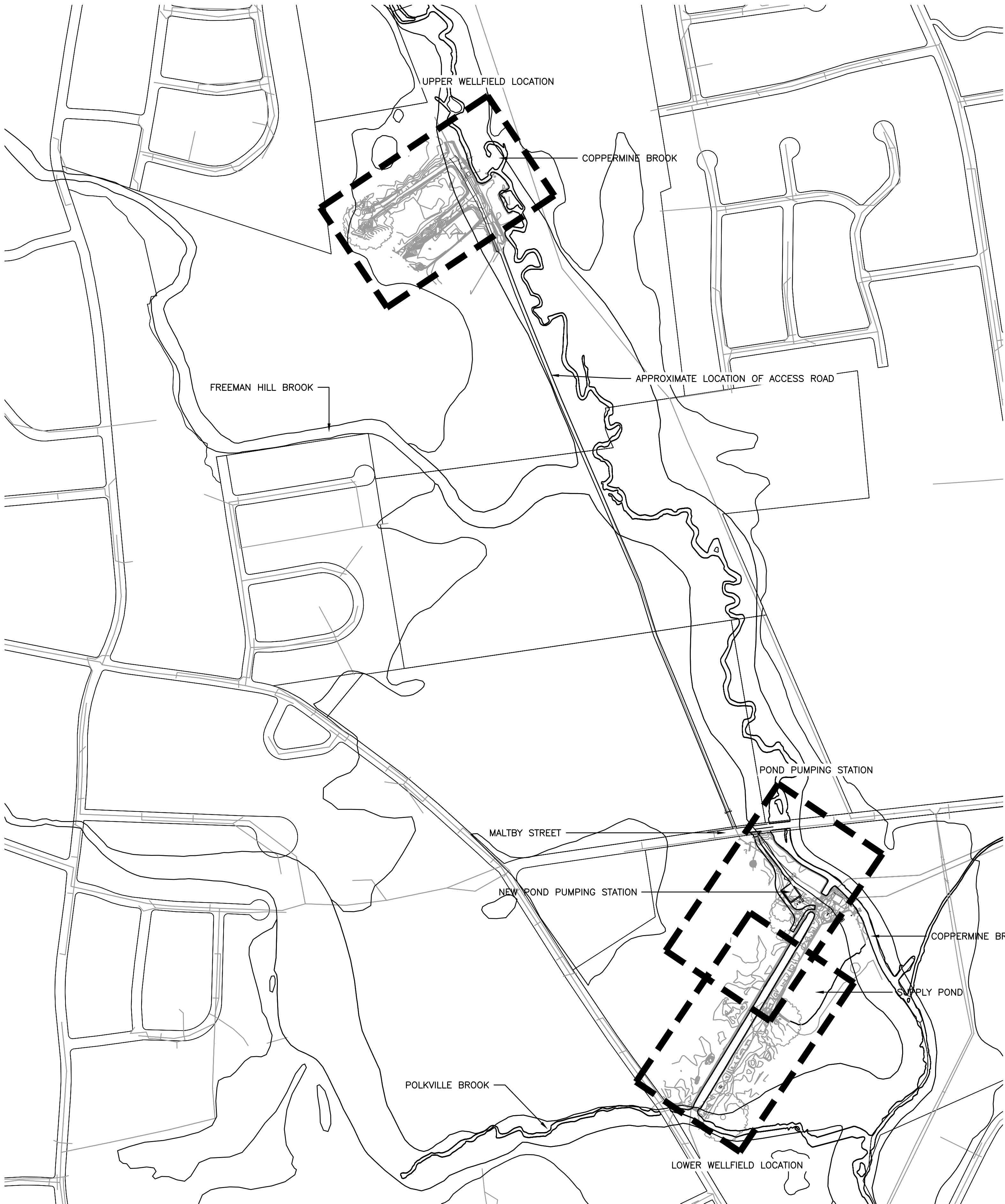
<https://www.bristolct.gov/DocumentCenter/View/45996/Attachment-4-Extracted---Floodway-Areas>

ATTACHMENT 4

FLOODWAY & FLOOD FRINGE ENCROACHMENT AREAS

ATTACHMENT 5
PROJECT DRAWINGS

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PLAN
1" = 300'



PLAN
N.T.S.

FLOOD	LOWER WELLFIELD & POND PUMPING STATION	UPPER WELLFIELD
	ELEVATION (ft)	ELEVATION (ft)
0.2% ANNUAL CHANCE FLOOD (500 - YR FLOOD)	256.7	259.7
1% ANNUAL CHANCE FLOOD (100 - YR FLOOD)	255.9	259.0
2% ANNUAL CHANCE FLOOD (50 - YR FLOOD)	255.6	258.6
10% ANNUAL CHANCE FLOOD (10 - YR FLOOD)	253.0	258.0

NOTE: ELEVATIONS SHOWN ARE IN FEET AND ARE REFERENCED
USGS DATUM NAVD88

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: G. HOWARD
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: G. HOWARD
CROSS CHK'D BY: K. WAGNER
APPROVED BY: K. WAGNER
DATE: APRIL 2023

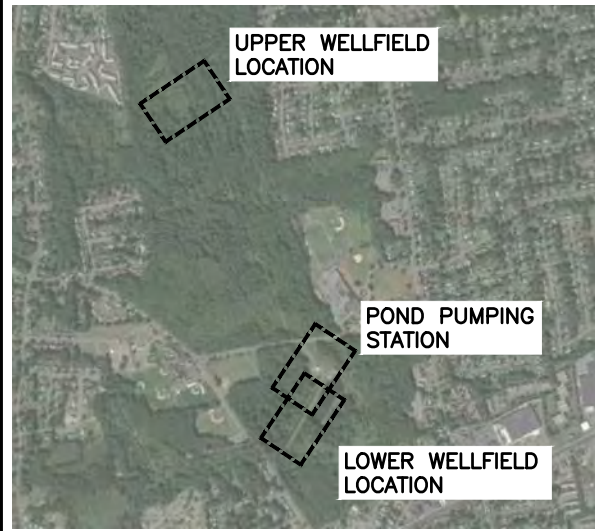
**CDM
Smith**
77 Hartland Street, Suite 200
East Hartford, CT 06108
Tel: (860) 529-7615



CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

OVERALL SITE PLAN

PROJECT NO. 10739-264571
FILE NAME: C002STPL.DWG
SHEET NO.
C-2



PLAN

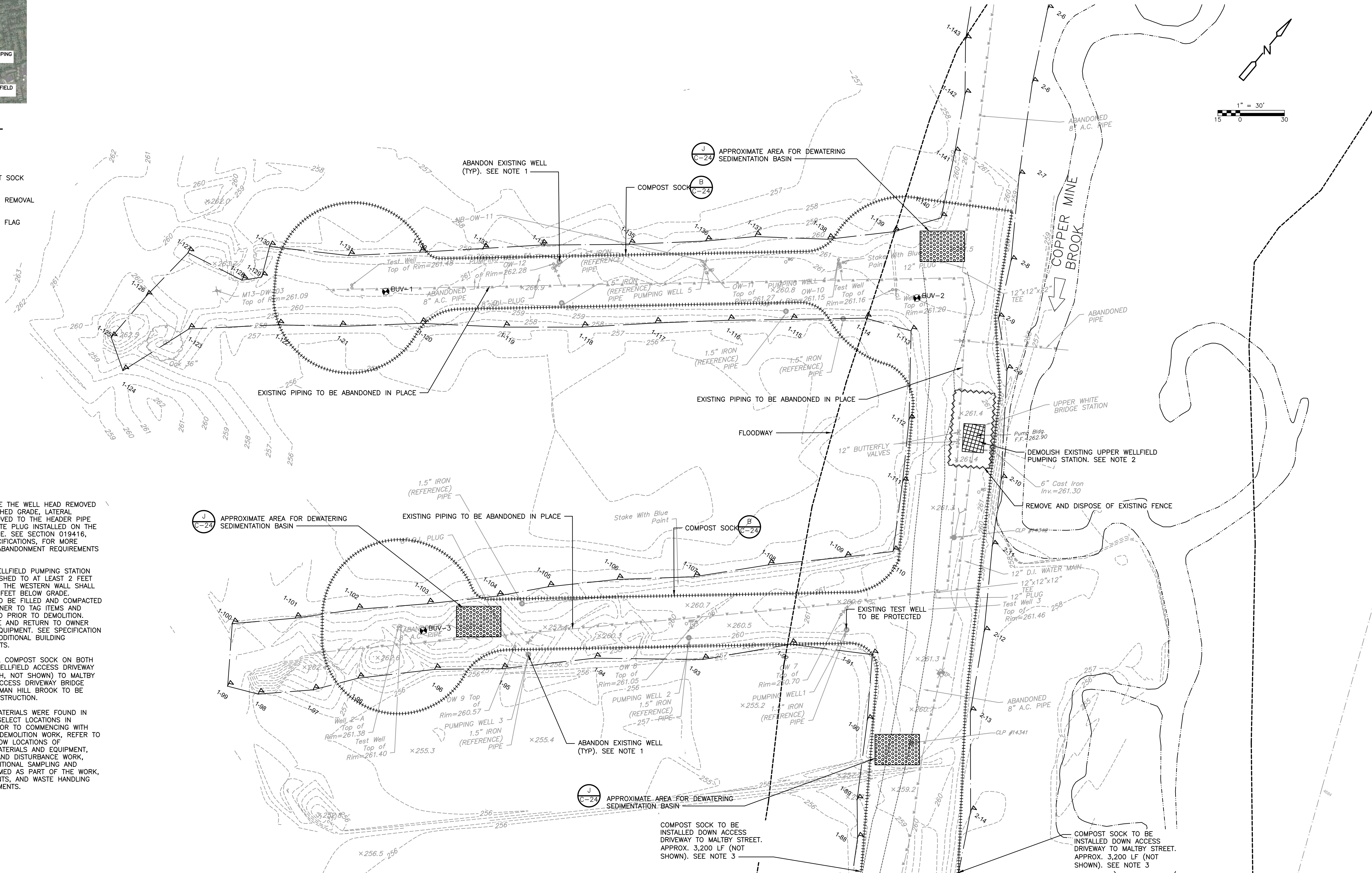
N.T.S.

LEGEND

- COMPOST SOCK
- BUILDING REMOVAL
- WETLAND FLAG
- BORING

NOTES:

- EXISTING WELLS TO HAVE THE WELL HEAD REMOVED TO 5 FEET BELOW FINISHED GRADE, LATERAL DISCHARGE PIPING REMOVED TO THE HEADER PIPE AND A CAP OR CONCRETE PLUG INSTALLED ON THE ABANDONED HEADER PIPE. SEE SECTION 019416, APPENDED TO THE SPECIFICATIONS, FOR MORE DECOMMISSIONING AND ABANDONMENT REQUIREMENTS OF EXISTING WELLS.
- THE EXISTING UPPER WELLFIELD PUMPING STATION BUILDING TO BE DEMOLISHED TO AT LEAST 2 FEET BELOW FINISHED GRADE. THE WESTERN WALL SHALL REMAIN TO AT LEAST 2 FEET BELOW GRADE. BUILDING FOUNDATION TO BE FILLED AND COMPACTED TO EXISTING GRADE. OWNER TO TAG ITEMS AND EQUIPMENT TO BE SAVED PRIOR TO DEMOLITION. CONTRACTOR TO REMOVE AND RETURN TO OWNER ANY TAGGED ITEM OR EQUIPMENT. SEE SPECIFICATION SECTION 024116 FOR ADDITIONAL BUILDING DEMOLITION REQUIREMENTS.
- CONTRACTOR TO INSTALL COMPOST SOCK ON BOTH SIDES OF THE UPPER WELLFIELD ACCESS DRIVEWAY (APPROX. 3,200 LF EACH, NOT SHOWN) TO MALTBY STREET. THE EXISTING ACCESS DRIVEWAY BRIDGE CROSSING OF THE FREEMAN HILL BROOK TO BE PROTECTED DURING CONSTRUCTION.
- HAZARDOUS BUILDING MATERIALS WERE FOUND IN SAMPLES TAKEN FROM SELECT LOCATIONS IN EXISTING BUILDINGS. PRIOR TO COMMENCING WITH ANY MODIFICATIONS OR DEMOLITION WORK, REFER TO SPECIFICATIONS FOR KNOW LOCATIONS OF HAZARDOUS BUILDING MATERIALS AND EQUIPMENT, PROPOSED ABATEMENT AND DISTURBANCE WORK, REQUIREMENTS FOR ADDITIONAL SAMPLING AND TESTING TO BE PERFORMED AS PART OF THE WORK, MONITORING REQUIREMENTS, AND WASTE HANDLING AND DISPOSAL REQUIREMENTS.



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	G. HOWARD
DRAWN BY:	J. BRONENKANT
SHEET CHK'D BY:	G. HOWARD
CROSS CHK'D BY:	K. WAGNER
APPROVED BY:	K. WAGNER
DATE:	APRIL 2023

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77 Hartland Street, Suite 200
East Hartford, CT 06108
Tel: (860) 529-7615

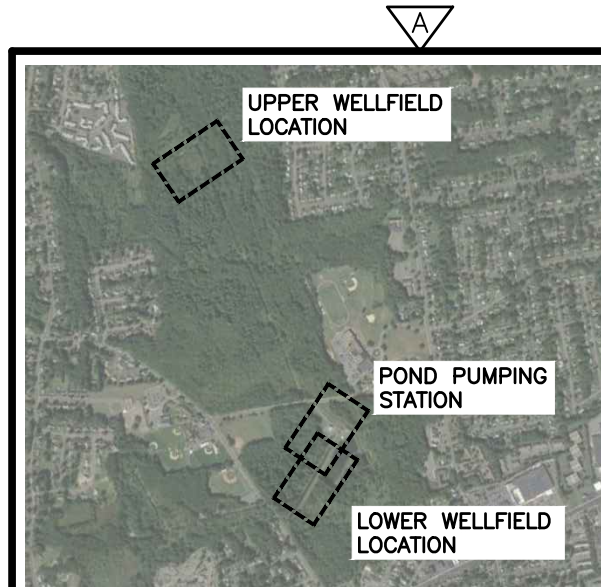
CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

UPPER WELLFIELD
DEMOLITION AND REMOVALS PLAN

C-6

PROJECT NO.	10739-264571
FILE NAME:	C006STPL.DWG
SHEET NO.	C-6

XREFs: [CDMS-2436_XSWPL000_Floodway_Floodplain_2022-17_BORING LOCATIONS] Images: [Base Image]
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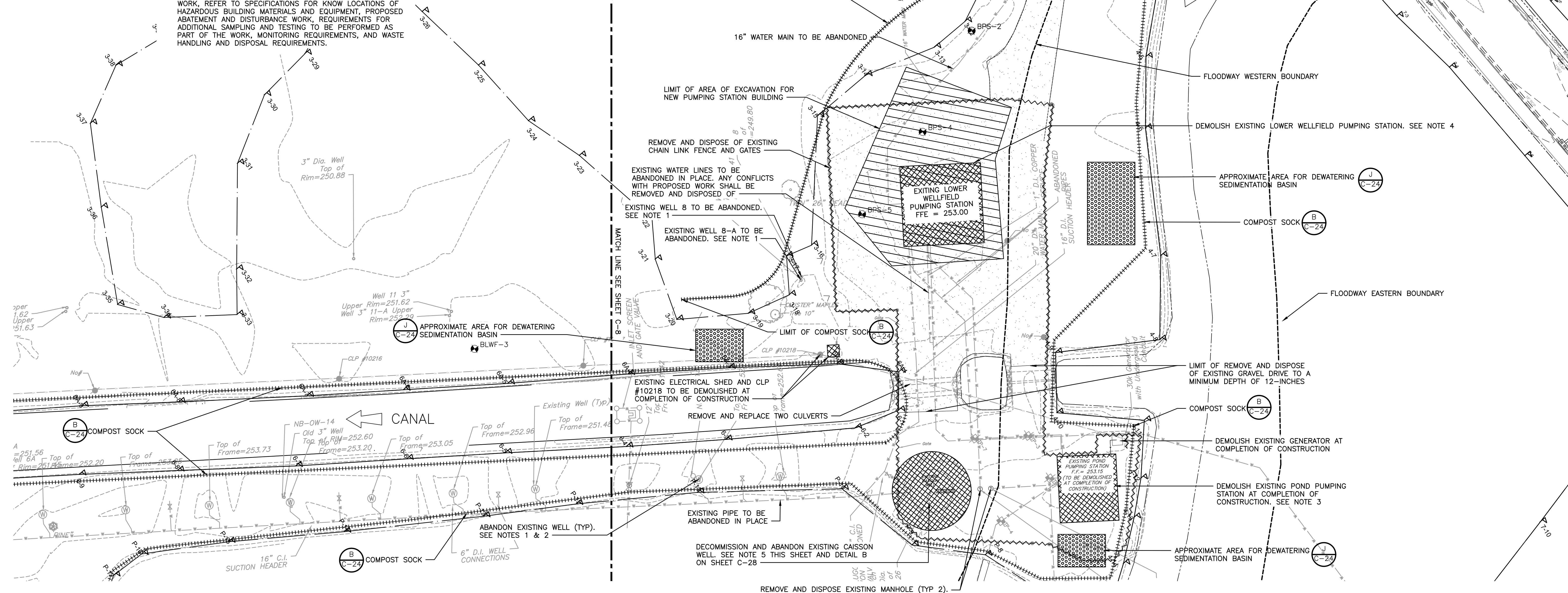
PLAN

N.T.S.

LEGEND

-  COMPOST SOCK
 BUILDING REMOVAL
 WETLAND FLAG
 BORING

1. EXISTING WELLS TO HAVE THE WELL HEAD REMOVED TO 5 FEET BELOW FINISHED GRADE, LATERAL DISCHARGE PIPING REMOVED TO THE EXISTING 16" CI SUCTION HEADER PIPE, AND A CAP OR CONCRETE PLUG INSTALLED ON THE ABANDONED HEADER PIPE. SEE SECTION 019416, APPENDED TO THE SPECIFICATIONS, FOR MORE DECOMMISSIONING AND ABANDONMENT REQUIREMENTS OF EXISTING WELLS.
2. EXISTING WELLS WITH WELL HEAD LOCATED IN A VAULT TO HAVE VAULT DEMOLISHED AND REMOVED, WELL HEAD REMOVED TO 5 FEET BELOW BOTTOM OF VAULT, LATERAL DISCHARGE PIPING REMOVED TO THE EXISTING 16" CI SUCTION HEADER PIPE, AND A CAP OR CONCRETE PLUG INSTALLED ON THE ABANDONED HEADER PIPE. SEE SECTION 019416, APPENDED TO THE SPECIFICATIONS, FOR MORE DECOMMISSIONING AND ABANDONMENT REQUIREMENTS OF EXISTING WELLS.
3. THE EXISTING POND PUMPING STATION BUILDING TO BE DEMOLISHED AT COMPLETION OF NEW POND PUMPING STATION TO AT LEAST 12 FEET BELOW FINISHED GRADE, THE WESTERN WALL SHALL REMAIN TO AT LEAST 2 FEET BELOW FINISHED GRADE. BUILDING FOUNDATION TO BE FILLED AND COMPACTED TO EXISTING GRADE, OWNER TO TAG ITEMS AND EQUIPMENT TO BE SAVED PRIOR TO DEMOLITION, CONTRACTOR TO REMOVE AND RETURN TO OWNER ANY TAGGED ITEM OR EQUIPMENT. SEE SPECIFICATION SECTION 024116 FOR ADDITIONAL BUILDING DEMOLITION REQUIREMENTS.
4. THE EXISTING LOWER WELLFIELD PUMPING STATION BUILDING AND FOUNDATION TO BE DEMOLISHED TO ELEVATION 241.2 FT. EXCAVATION LIMITS FOR THE NEW POND PUMPING STATION BUILDING TO APPROXIMATE MIN ELEVATION 241.2 FT. OWNER TO TAG ITEMS AND EQUIPMENT TO BE SAVED PRIOR TO DEMOLITION, CONTRACTOR TO REMOVE AND RETURN TO OWNER ANY TAGGED ITEM OR EQUIPMENT. SEE DETAIL B ON SHEET C-26 AND SPECIFICATIONS SECTION 024116 FOR ADDITIONAL BUILDING DEMOLITION REQUIREMENTS.
5. THE EXISTING CAISSON WELL TO BE DECOMMISSIONED AND ABANDONED IN PLACE. THE CONE OF THE EXISTING CAISSON WELL TO BE DEMOLISHED TO AT LEAST 2 FEET BELOW FINISH GRADE. SEE DETAIL B ON SHEET C-28 AND SECTION 019416, APPENDED TO THE SPECIFICATIONS, FOR MORE DECOMMISSIONING AND ABANDONMENT REQUIREMENTS OF THE EXISTING CAISSON WELL.
6. HAZARDOUS BUILDING MATERIALS WERE FOUND IN SAMPLES TAKEN FROM SELECT LOCATIONS IN EXISTING BUILDINGS. PRIOR TO COMMENCING WITH ANY MODIFICATIONS OR DEMOLITION OF HAZARDOUS BUILDING MATERIALS AND EQUIPMENT, PROPOSED ABATEMENT AND DISTURBANCE WORK REQUIREMENTS FOR ADDITIONAL SAMPLING AND TESTING TO BE PERFORMED AS PART OF THE WORK, MONITORING REQUIREMENTS, AND WASTE HANDLING AND DISPOSAL REQUIREMENTS.



REV. NO.	DATE	DRWN	CHKD	REMARKS

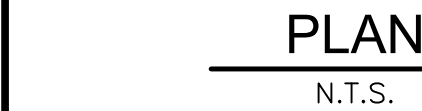
DESIGNED BY: _____ G. HOWARD
DRAWN BY: _____ J. BRONENKANT
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CROSS CHK'D BY: _____ K. WAGNER
APPROVED BY: _____ K. WAGNER
DATE: _____ DECEMBER 2023



CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

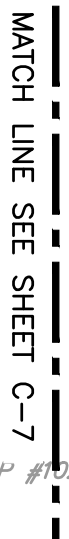
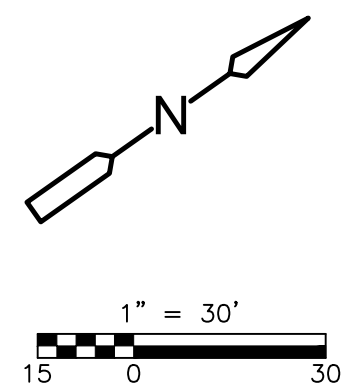
POND PUMPING STATIONS DEMOLITION AND REMOVALS PLAN

PROJECT NO.	10739-264571
FILE NAME:	C007STPL.DWG
SHEET NO.	
C-7	



 COMPOST SOCK
 BUILDING REMOVAL
 WETLAND FLAG
 BORING

1. EXISTING WELLS TO HAVE THE WELL HEAD REMOVED TO 5 FEET BELOW FINISHED GRADE, LATERAL DISCHARGE PIPING REMOVED TO THE EXISTING 16" CI SUCTION HEADER PIPE, AND A CAP OR CONCRETE PLUG INSTALLED ON THE ABANDONED HEADER PIPE. SEE SECTION 019416, APPENDED TO THE SPECIFICATIONS, FOR MORE DECOMMISSIONING AND ABANDONMENT REQUIREMENTS OF EXISTING WELLS.
2. EXISTING WELLS WITH WELL HEAD LOCATED IN A VAULT TO HAVE VAULT DEMOLISHED AND REMOVED, WELL HEAD REMOVED TO 5 FEET BELOW BOTTOM OF VAULT, LATERAL DISCHARGE PIPING REMOVED TO THE EXISTING 16" CI SUCTION HEADER PIPE, AND A CAP OR CONCRETE PLUG INSTALLED ON THE ABANDONED HEADER PIPE. SEE SECTION 019416, APPENDED TO THE SPECIFICATIONS, FOR MORE DECOMMISSIONING AND ABANDONMENT REQUIREMENTS OF EXISTING WELLS

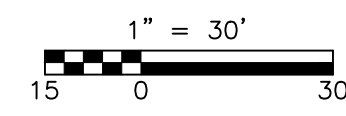
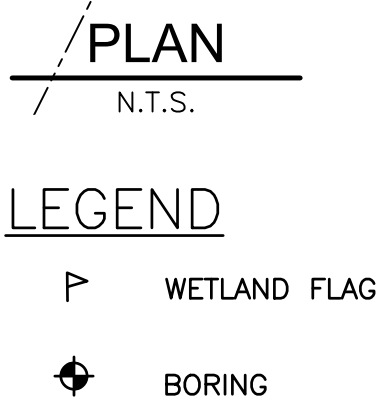


DESIGNED BY: G. HOWARD
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: G. HOWARD
CROSS CHK'D BY: K. WAGNER
APPROVED BY: K. WAGNER
DATE: APRIL 2023



LOWER WELLFIELD DEMOLITION AND REMOVALS PLAN

PROJECT NO.	10739-264571
FILE NAME:	C008GDPL.DWG
SHEET NO.	
C-8	



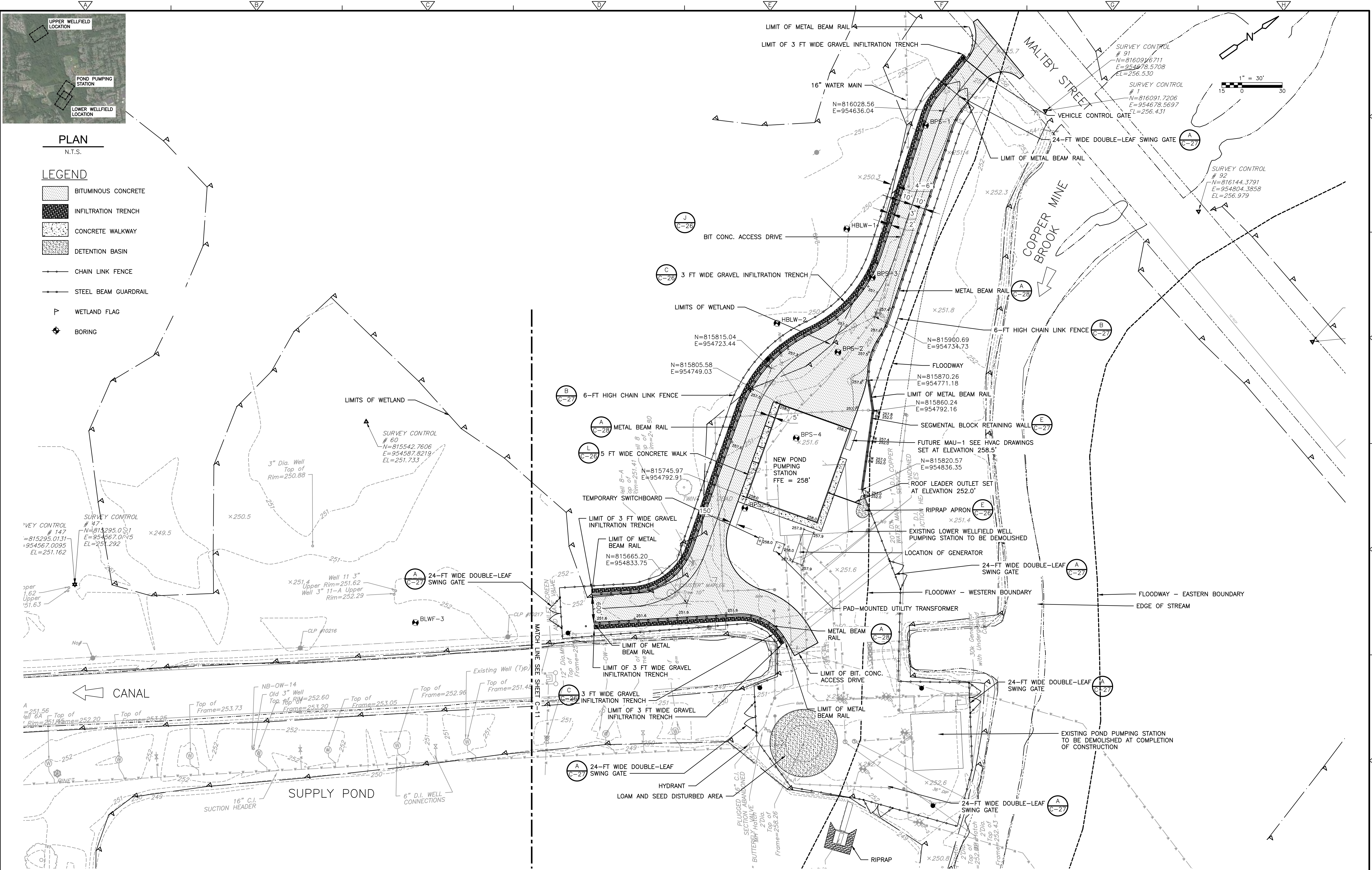
DESIGNED BY: G. HOWARD
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: G. HOWARD
CROSS CHK'D BY: K. WAGNER
APPROVED BY: K. WAGNER
DATE: APRIL 2023



UPPER WELLFIELD
LAYOUT, MATERIALS, AND GRADING PLAN

PROJECT NO. 10739-264571
FILE NAME: C009STPL.DWG
SHEET NO.
C-9

XREFs: [CDMS-2436, CWP00001, Floodway, Floodplain, ANZ001PS - 2D Process Export, CEP00001, XSVPL000, BORING LOCATIONS, 2022-17, CYPWP001] Images: [Base Image]
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REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: G. HOWARD
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: G. HOWARD
CROSS CHK'D BY: K. WAGNER
APPROVED BY: K. WAGNER
DATE: APRIL 2023

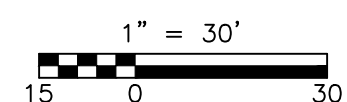
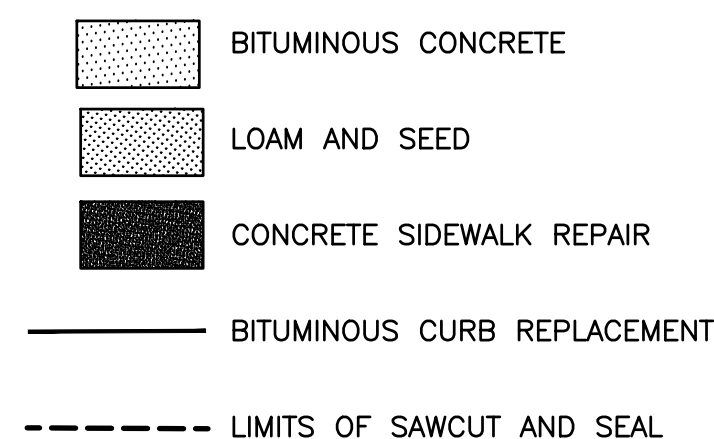
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East Hartford, CT 06108
Tel: (860) 529-7615

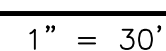


CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

POND PUMPING STATION
LAYOUT AND MATERIALS PLAN

PROJECT NO. 10739-264571
FILE NAME: C010GDP.LDW
SHEET NO.
C-10



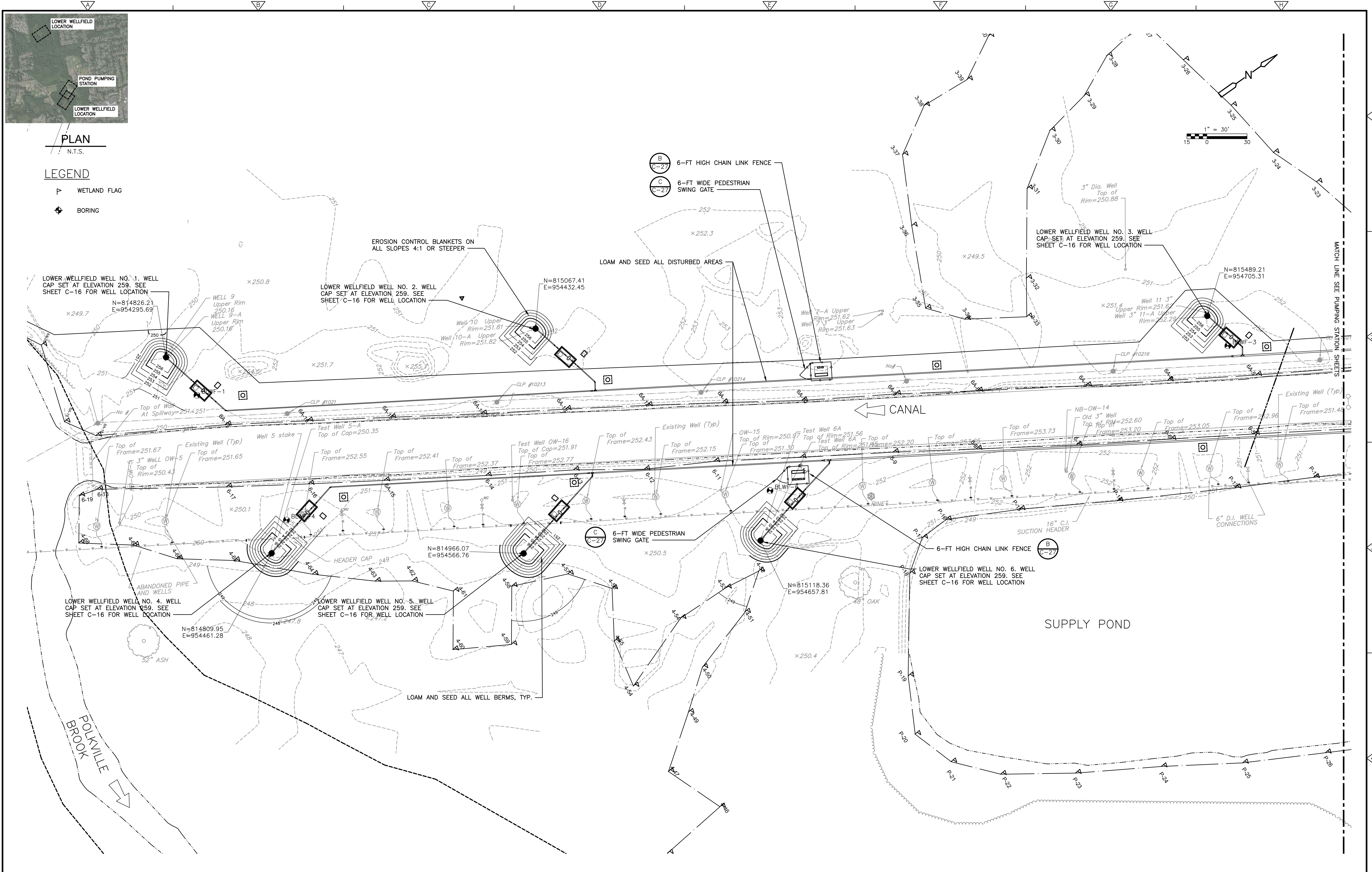
$$1'' = 30'$$


DESIGNED BY: G. HOWARD
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: G. HOWARD
CROSS CHK'D BY: K. WAGNER
APPROVED BY: K. WAGNER
DATE: DECEMBER 2023



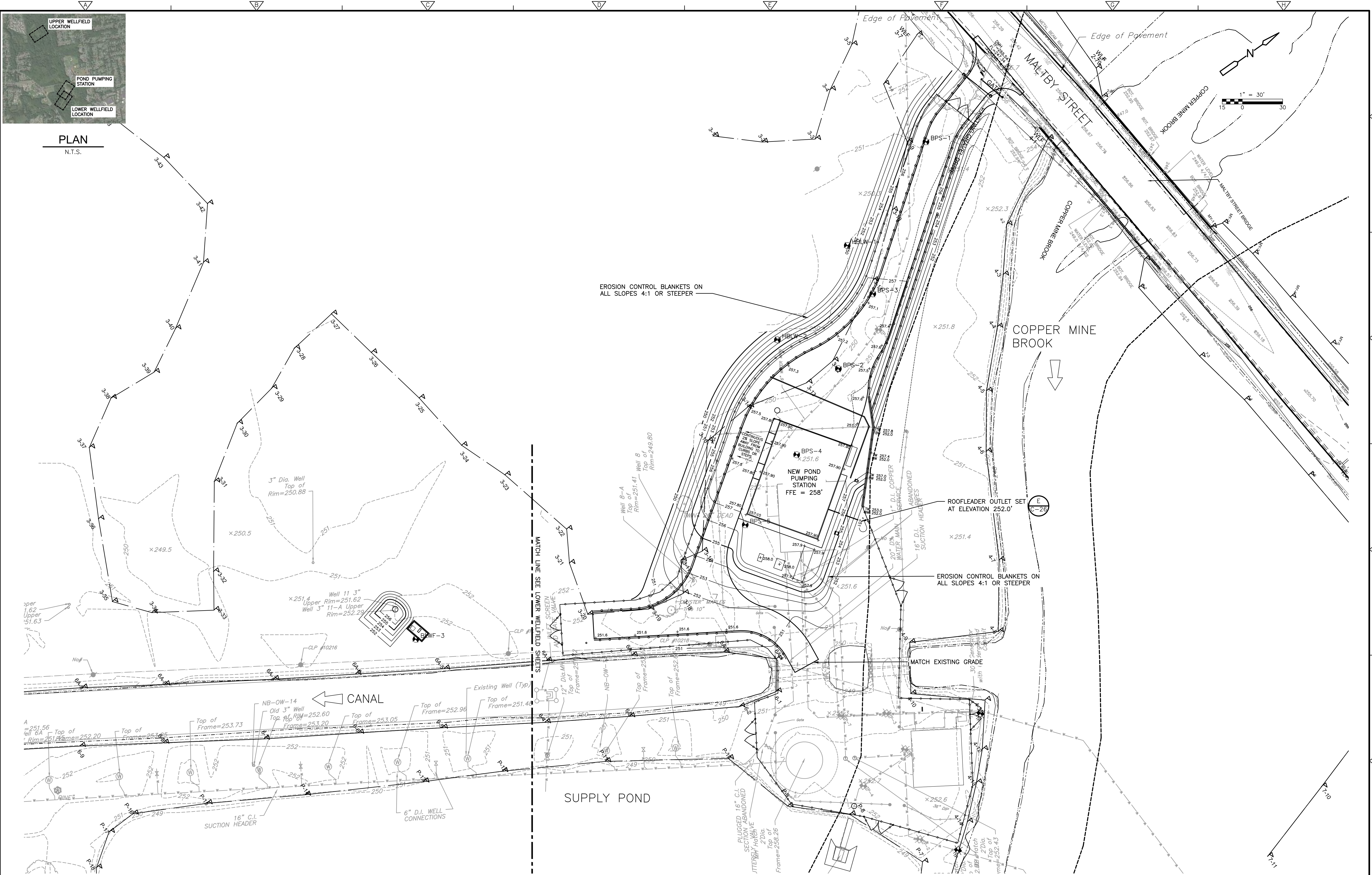
MAILTBY STREET SURFACE RESTORATION

PROJECT NO. 10739-264571
FILE NAME: C010BGDPL.DWG
SHEET NO.
C-10B



					DESIGNED BY: G. HOWARD	 CDM Smith 77 Hartland Street, Suite 200 East Hartford, CT 06108 Tel: (860) 529-7615	CITY OF NEW BRITAIN, CONNECTICUT WHITE BRIDGE WATERWORKS FACILITIES UPPER AND LOWER WELLFIELDS AND POND PUMPING STATION	PROJECT NO. 10739-264571 FILE NAME: C011GDPL.DWG	SHEET NO. C-11
					DRAWN BY: J. BRONENKANT				
					SHEET CHK'D BY: G. HOWARD				
					CROSS CHK'D BY: K. WAGNER				
					APPROVED BY: K. WAGNER				
					DATE: APRIL 2023				
REV.	NO.	DATE	DRWN	CHKD	REMARKS				

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				DESIGNED BY: <u>G. HOWARD</u>				 	CITY OF NEW BRITAIN, CONNECTICUT WHITE BRIDGE WATERWORKS FACILITIES UPPER AND LOWER WELLFIELDS AND POND PUMPING STATION	POND PUMPING STATION GRADING AND DRAINAGE PLAN	PROJECT NO. 10739-264571
				DRAWN BY: <u>J. BRONENKANT</u>							FILE NAME: C012GDPL.DWG
				SHEET CHK'D BY: <u>K. GERLACH</u>							SHEET NO.
				CROSS CHK'D BY: <u>K. WAGNER</u>							C-12
				APPROVED BY: <u>K. WAGNER</u>							
REV. NO.	DATE	DRWN	CHKD	REMARKS				DATE: <u>DECEMBER 2023</u>			

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NOTES:
1. REFER TO SPECIFICATIONS FOR MORE DETAILS AND REQUIREMENTS FOR WETLANDS REPLICATION AND COMPENSATORY FLOOD STORAGE REQUIREMENTS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. GARLACH
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: K. GERLACH
CROSS CHK'D BY: K. WAGNER
APPROVED BY: K. WAGNER
DATE: APRIL 2023

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East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

WETLAND REPLICATION PLAN I
C-13

PROJECT NO. 10739-264571
FILE NAME: CO13STPL.DWG
SHEET NO. C-13

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NOTES:

1. REFER TO SPECIFICATIONS FOR MORE DETAILS AND REQUIREMENTS FOR WETLANDS REPLICATION AND COMPENSATORY FLOOD STORAGE REQUIREMENTS.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. GERLACH
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: K. GERLACH
CROSS CHK'D BY: K. WAGNER
APPROVED BY: K. WAGNER
DATE: APRIL 2023

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East Hartford, CT 06108
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CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

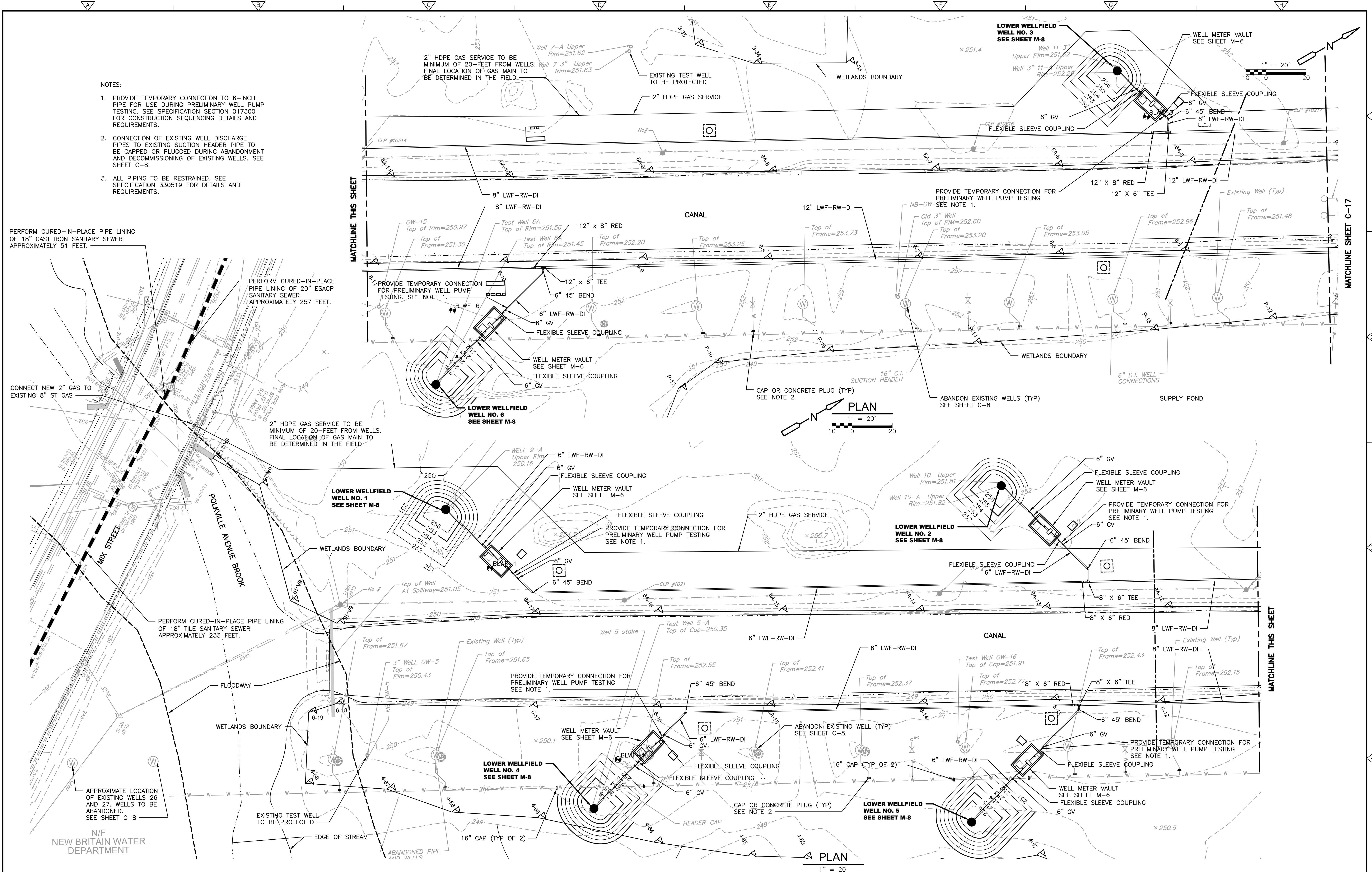
WETLAND REPLICATION PLAN II

PROJECT NO. 10739-264571
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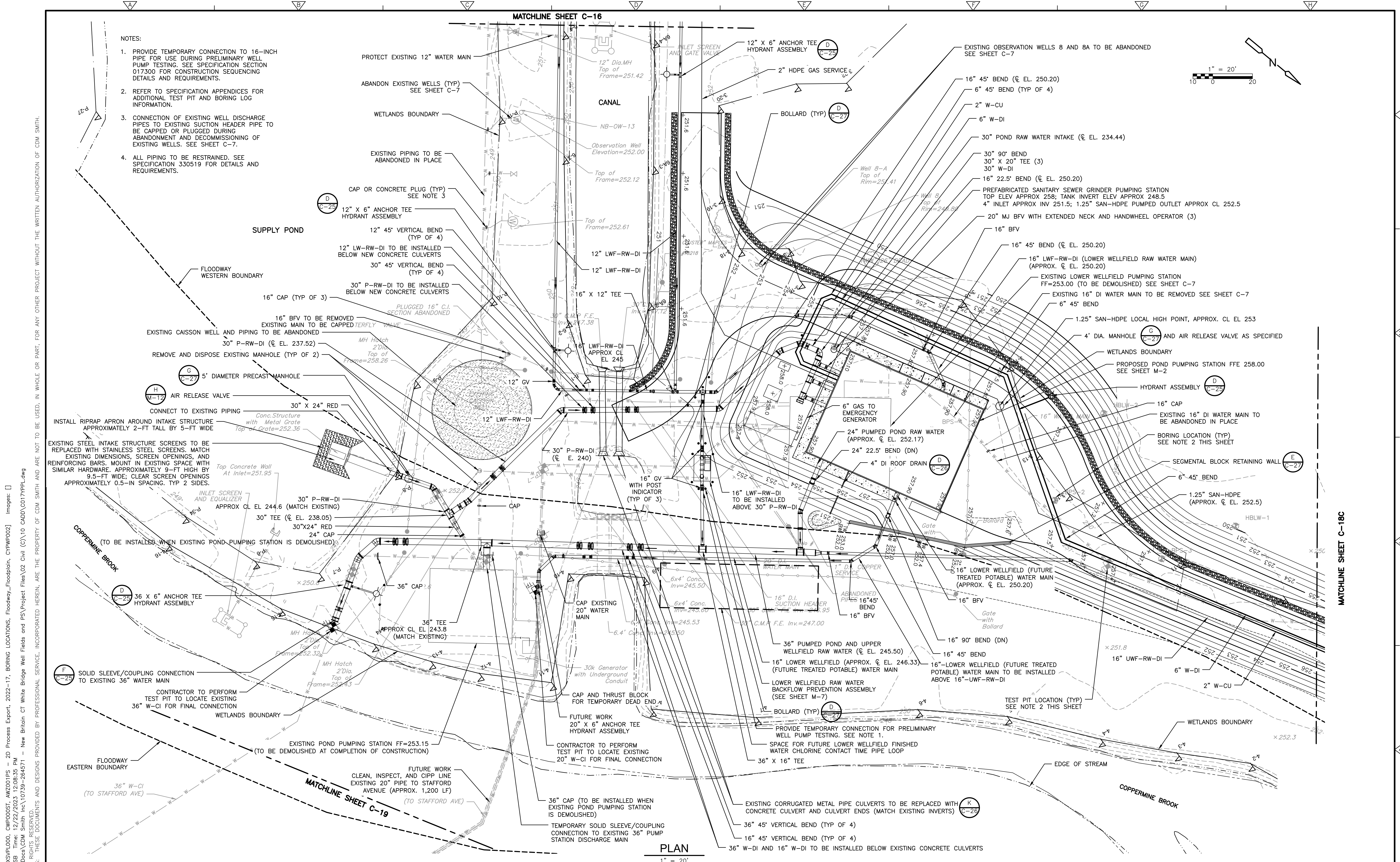
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C-14

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REV.	NO.	DATE	DRWN	CHKD	REMARKS																								



NOTES:

1. PROVIDE TEMPORARY CONNECTION TO 16-INCH PIPE FOR USE DURING PRELIMINARY WELL PUMP TESTING. SEE SPECIFICATION SECTION 017300 FOR CONSTRUCTION SEQUENCING DETAILS AND REQUIREMENTS.
2. REFER TO SPECIFICATION APPENDICES FOR ADDITIONAL TEST PIT AND BORING LOG INFORMATION.
3. CONNECTION OF EXISTING WELL DISCHARGE PIPES TO EXISTING SUCTION HEADER PIPE TO BE CAPPED OR PLUGGED DURING ABANDONMENT AND DECOMMISSIONING OF EXISTING WELLS. SEE SHEET C-7.
4. ALL PIPING TO BE RESTRAINED. SEE SPECIFICATION 330519 FOR DETAILS AND REQUIREMENTS.

DESIGNED BY: K. GERLACH
DRAWN BY: S. ENGEL
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: K. GERLACH
APPROVED BY: K. WAGNER
DATE: DECEMBER 2023

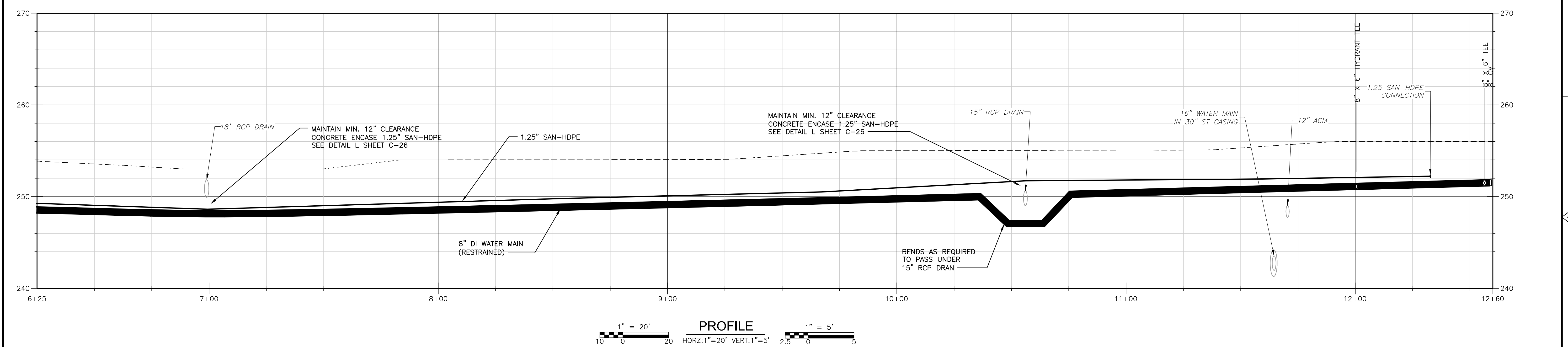
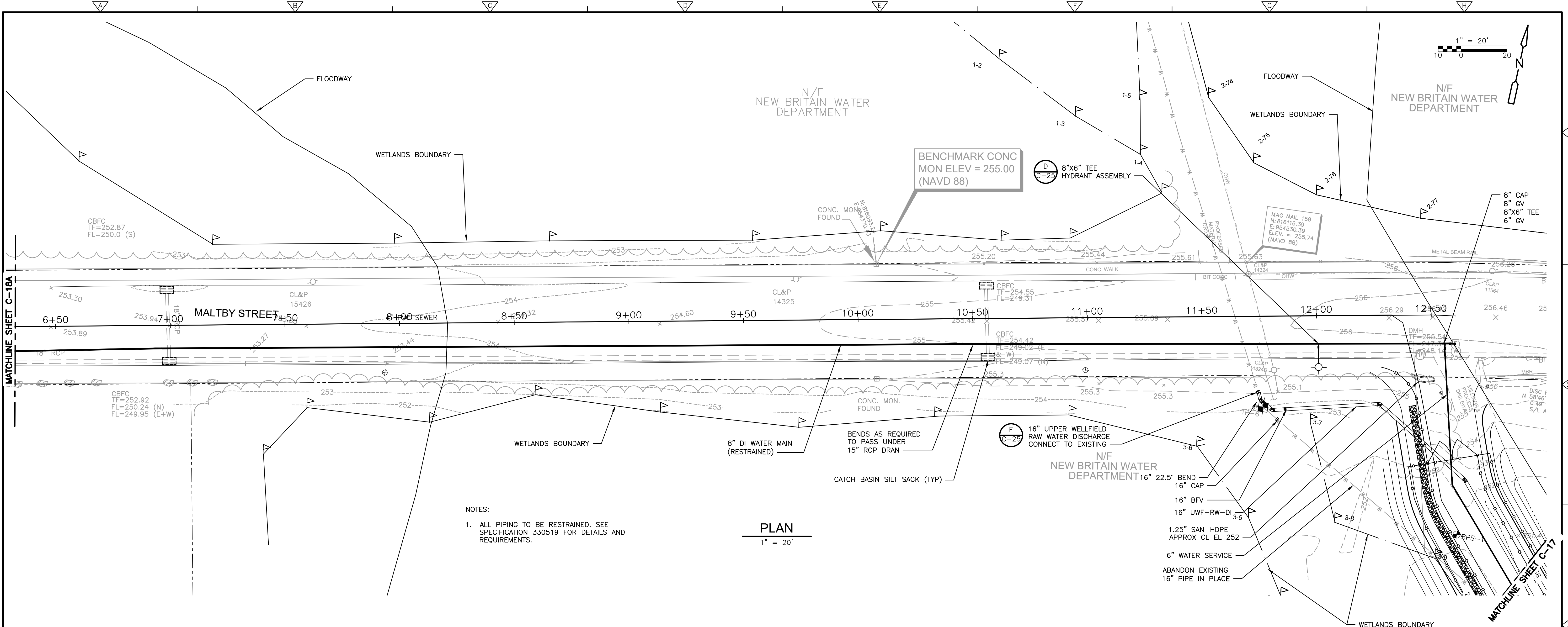
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East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

POND PUMPING STATION
YARD PIPING PLAN

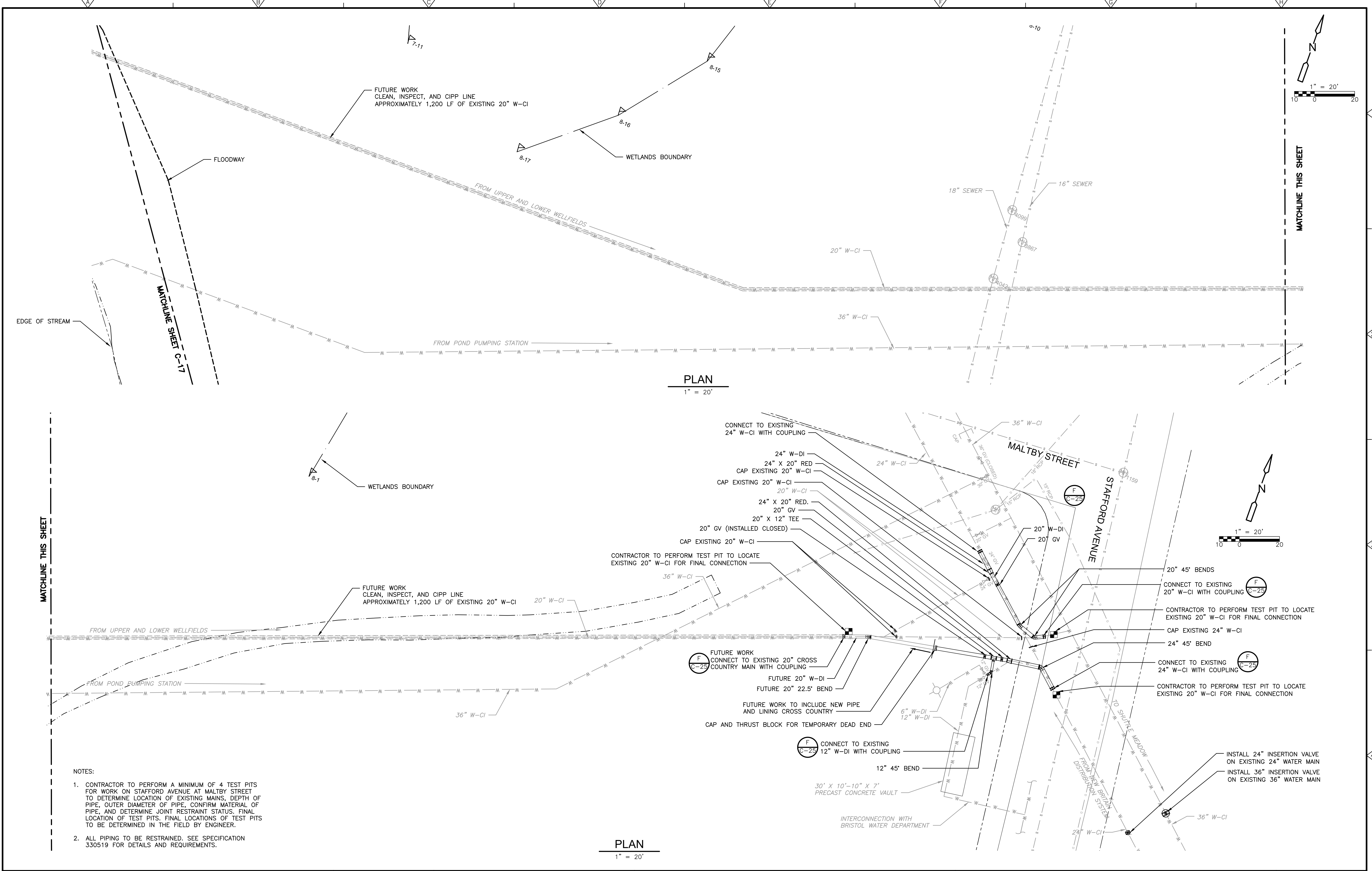
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SHEET NO. C-17

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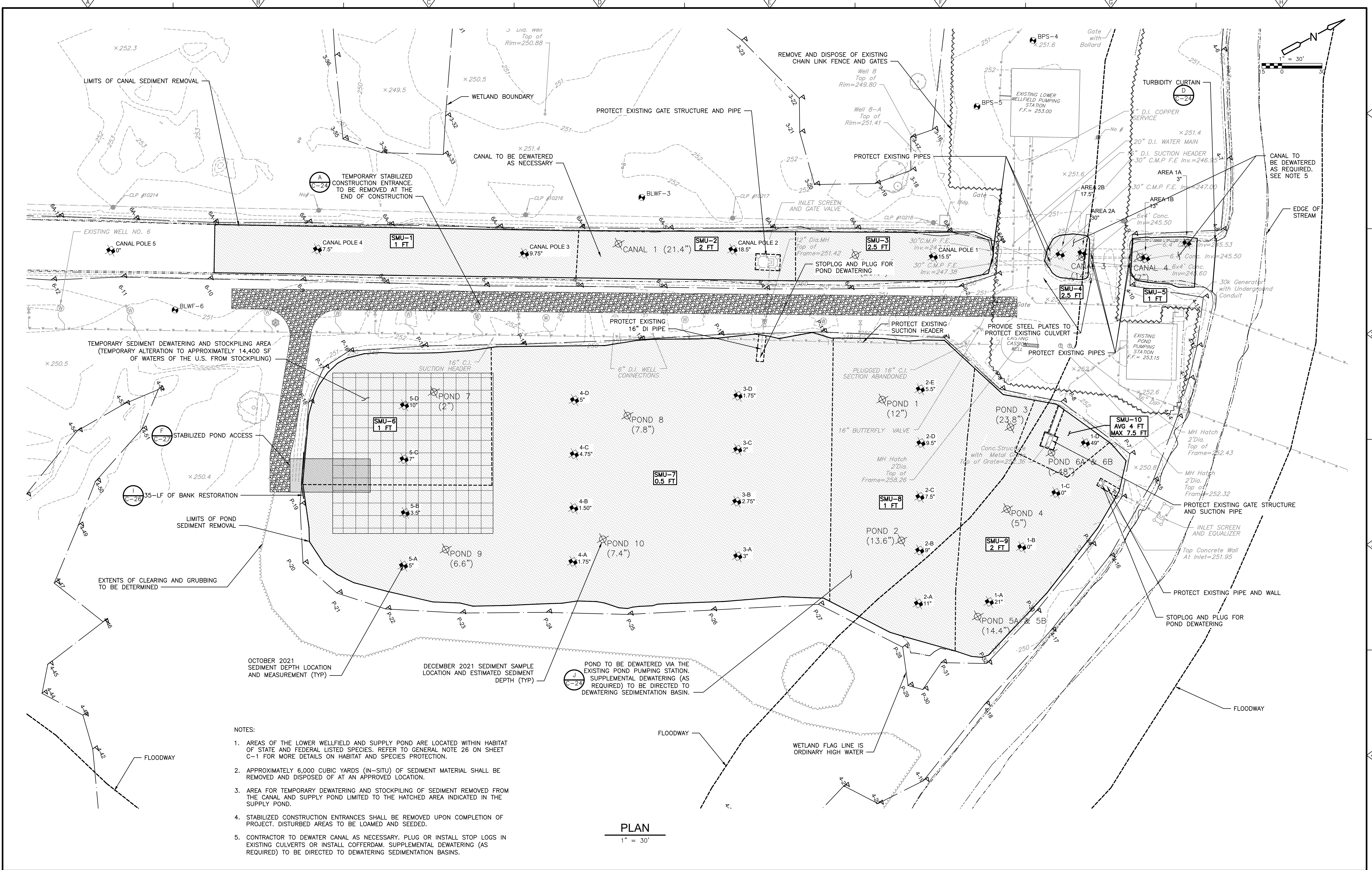
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XREFs: [CDMS-2436, CYPWP001, XSVPL000, CMP000ST, AWZ001PS - 2D Process Export, 2022-17, BORING LOCATIONS-CEI Edits, Floodway_Floodplain]
Last saved by: ENGELSB Time: 11/17/2023 4:22:11 PM
C:\Users\engelsb\Desktop\WHITEBRIDGE CAD FILES\C019YPPL.dwg
© 2023 CDM SMITH. ALL RIGHTS RESERVED.
REUSE OF DOCUMENTS: THESE DOCUMENTS AND DESIGNS PROVIDED BY PROFESSIONAL SERVICE, INCORPORATED HEREIN, ARE THE PROPERTY OF CDM SMITH AND ARE NOT TO BE USED, IN WHOLE OR PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF CDM SMITH.



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XREFs: [TEST HOLE POINTS, CDMS 2436, XSVPL040, 2022-17, BORING LOCATIONS, Floodway, Floodplain] Images: []
Last saved by: ENGELS.B, Time: 2/28/2023 11:25:29 AM
C:\Users\engelsb\Documents\CDM Smith Inc\10739-264571 - New Britain CT White Bridge Well Fields and PS\Project Files\02 Civil (C)\10 CADD\C023SDRM.dwg
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- NOTES:
- AREAS OF THE LOWER WELLFIELD AND SUPPLY POND ARE LOCATED WITHIN HABITAT OF STATE AND FEDERAL LISTED SPECIES. REFER TO GENERAL NOTE 26 ON SHEET C-1 FOR MORE DETAILS ON HABITAT AND SPECIES PROTECTION.
 - APPROXIMATELY 6,000 CUBIC YARDS (IN-SITU) OF SEDIMENT MATERIAL SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION.
 - AREA FOR TEMPORARY DEWATERING AND STOCKPILING OF SEDIMENT REMOVED FROM THE CANAL AND SUPPLY POND LIMITED TO THE HATCHED AREA INDICATED IN THE SUPPLY POND.
 - STABILIZED CONSTRUCTION ENTRANCES SHALL BE REMOVED UPON COMPLETION OF PROJECT. DISTURBED AREAS TO BE LOAMED AND SEEDED.
 - CONTRACTOR TO DEWATER CANAL AS NECESSARY. PLUG OR INSTALL STOP LOGS IN EXISTING CULVERTS OR INSTALL COFFERDAM. SUPPLEMENTAL DEWATERING (AS REQUIRED) TO BE DIRECTED TO DEWATERING SEDIMENTATION BASINS.

PLAN
1" = 30'

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: T. BURKE
DRAWN BY: S. ENGEL
SHEET CHK'D BY: K. GERLACH
CROSS CHK'D BY: T. BURKE
APPROVED BY: K. WAGNER
DATE: APRIL 2023

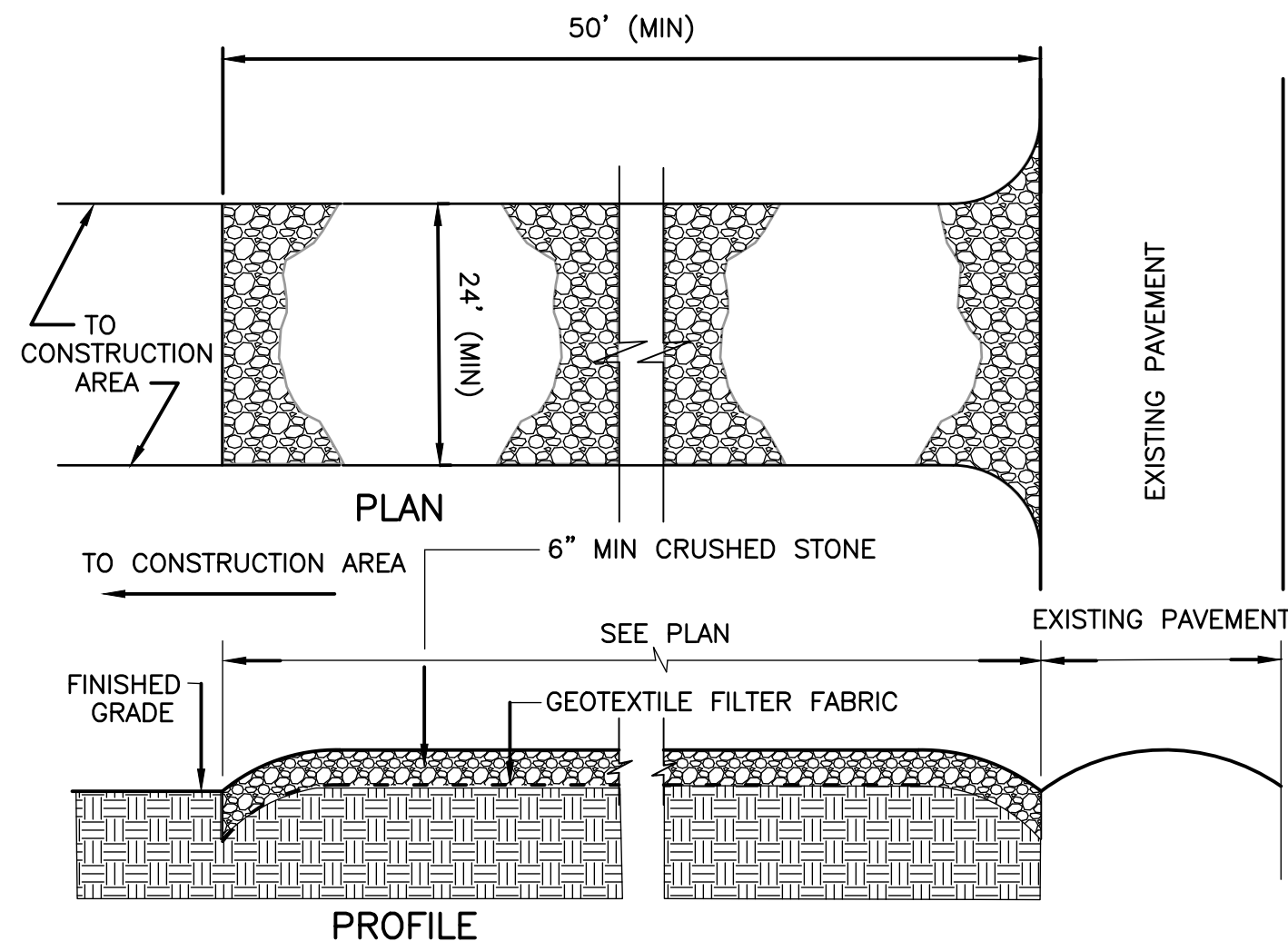


CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

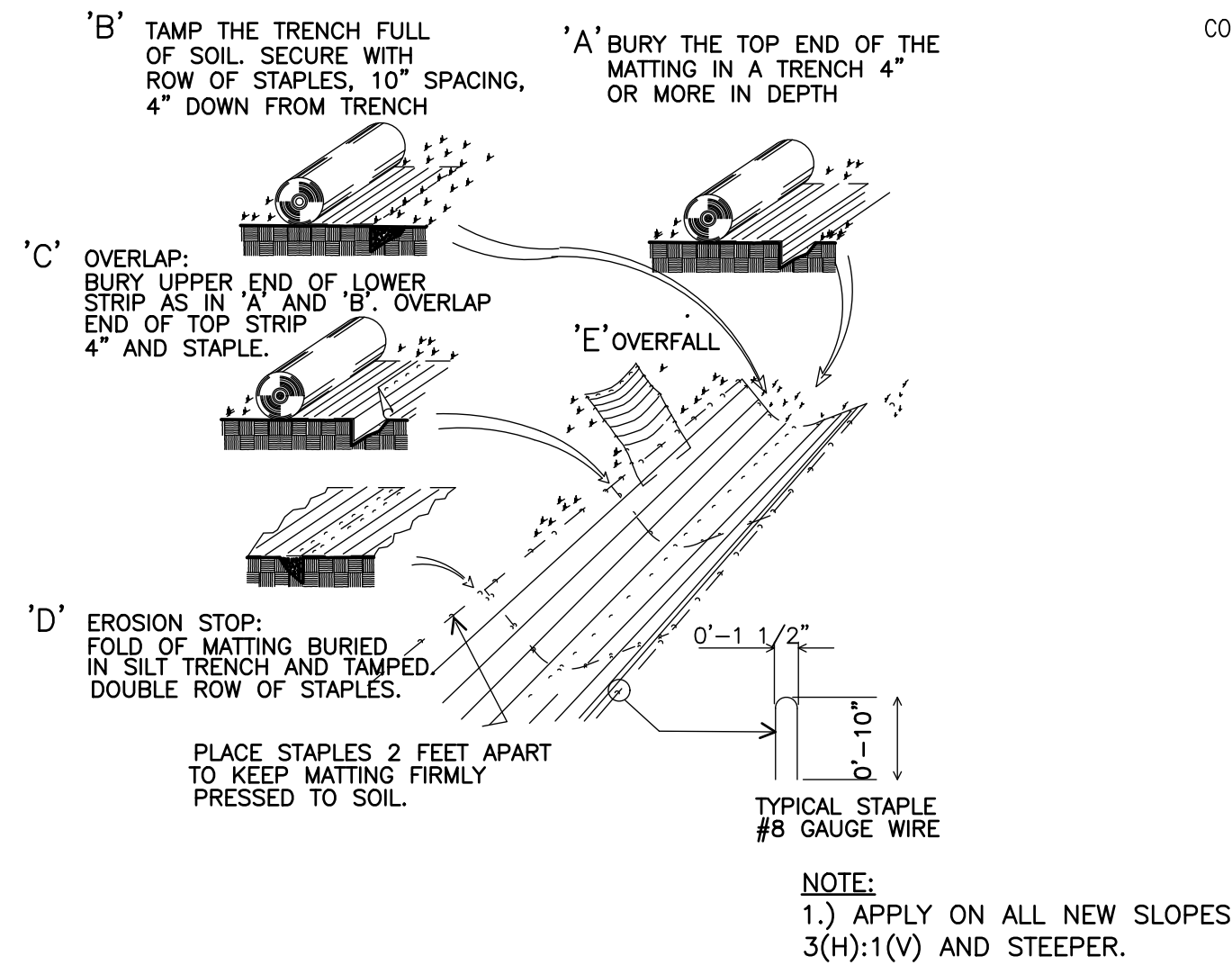
SUPPLY POND AND CANAL
SEDIMENT REMOVAL PLAN
C-23

PROJECT NO. 10739-264571
FILE NAME: C023SDRM.DWG
SHEET NO.
C-23

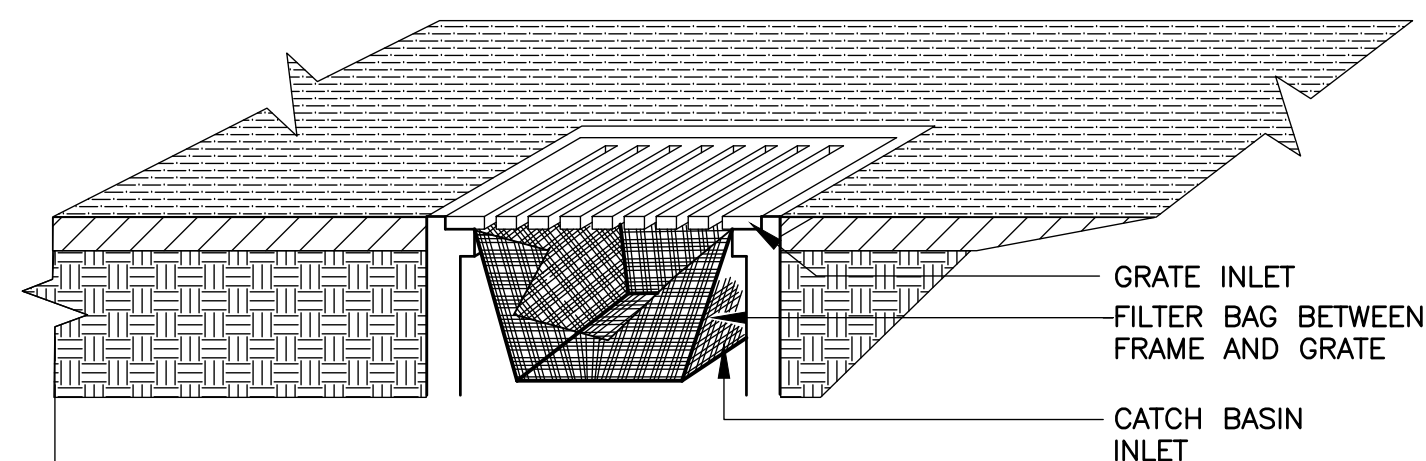
XREFs: [CDMS-2436_XSWPL000_CWP0000ST_Floodway_Floodplain_AW2001PS - 2D Process Export]
Last saved by: ENGELSB Time: 2/28/2023 11:28:15 AM
C:\Users\engelsb\OneDrive\CDMS\CDMS Smith Inc\10739-264571 - New Britain CT White Bridge Well Fields and PS\Project Files\02 Civil (C)\10 CADD\CD001CSDT.dwg
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STABILIZED CONSTRUCTION ENTRANCE
DETAIL A
NOT TO SCALE



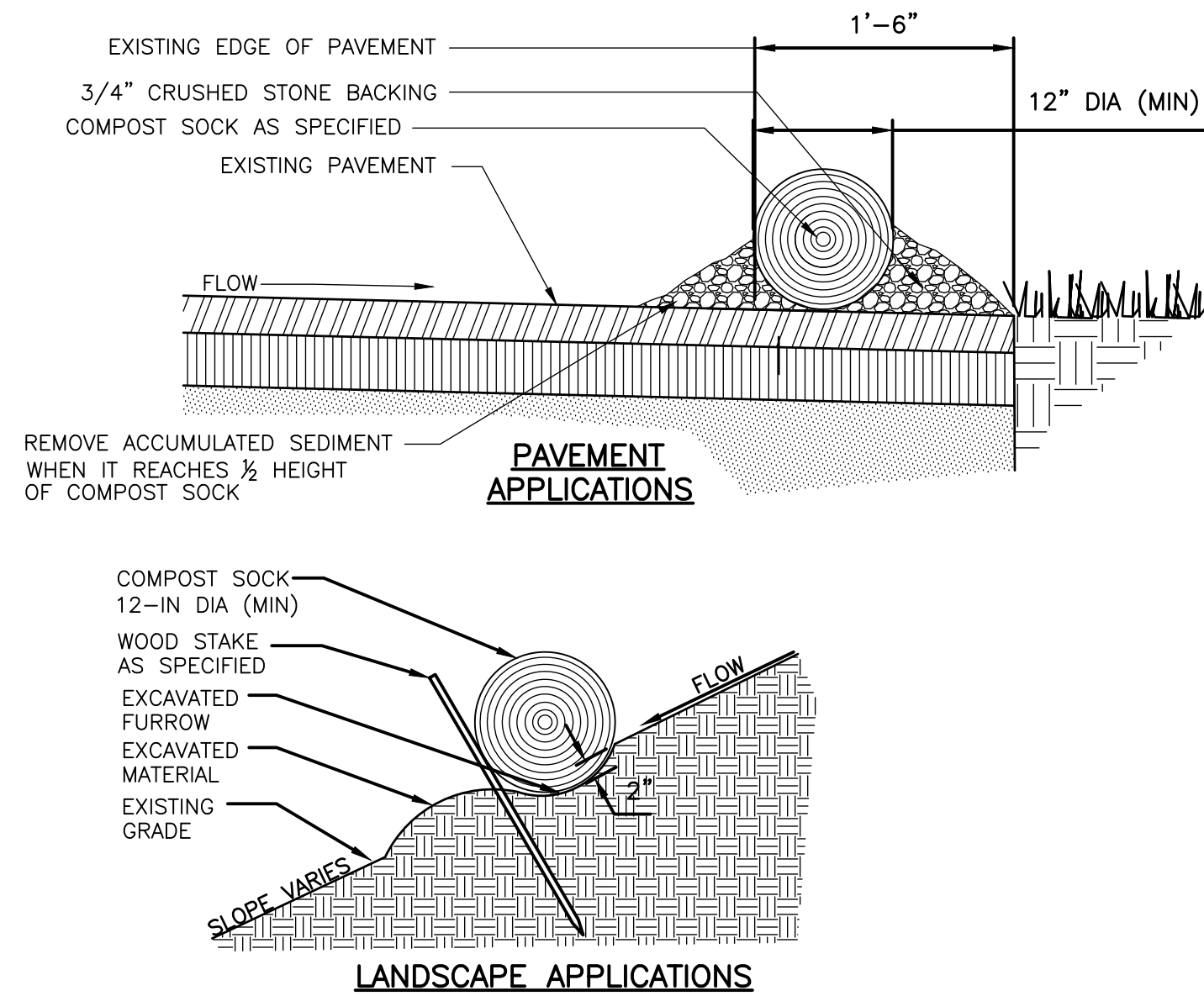
EROSION CONTROL BLANKET
DETAIL E
NOT TO SCALE



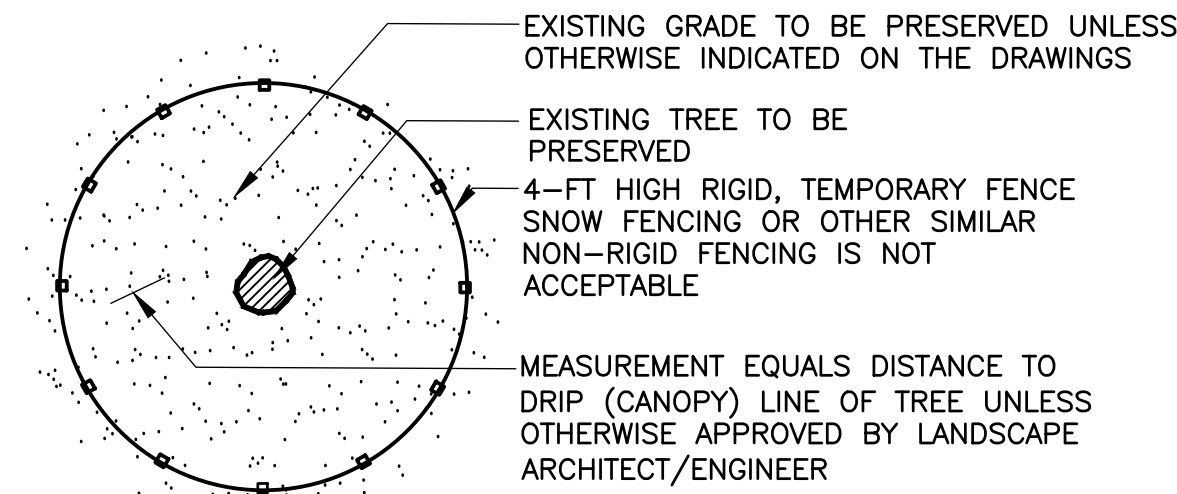
CATCH BASIN FILTER
DETAIL H
NOT TO SCALE

NOTES:

- 1.) PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND EXISTING PAVEMENT.
- 2.) LIMITS OF STABILIZED CONSTRUCTION ENTRANCE SHALL BE AS DIRECTED BY THE ENGINEER.
- 3.) THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDING STONE TO THE LENGTH OF THE ENTRANCE.
- 4.) REPAIR AND CLEANOUT MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO EXISTING PAVEMENT SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.

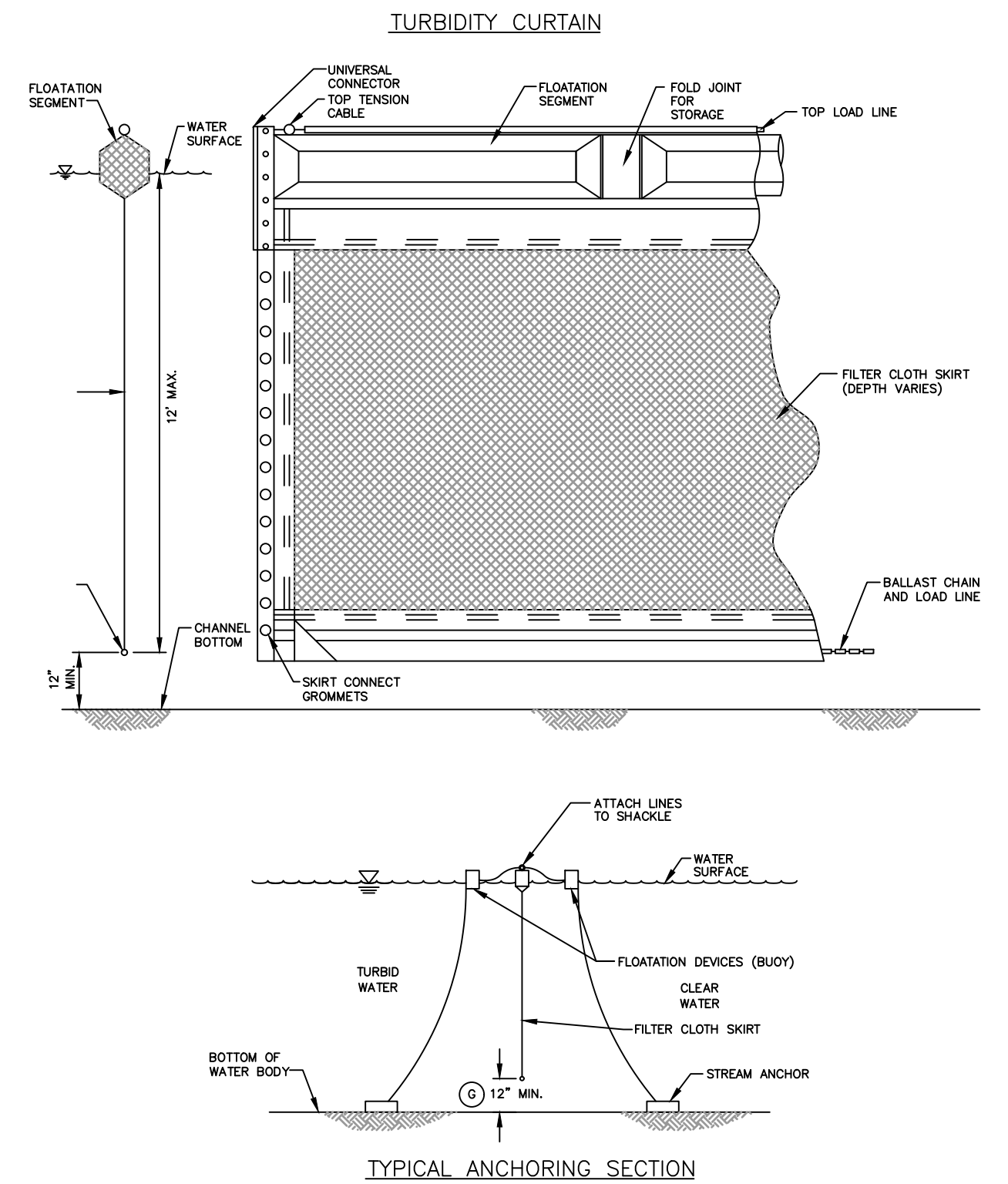


COMPOST SOCK
DETAIL B
SCALE: NTS

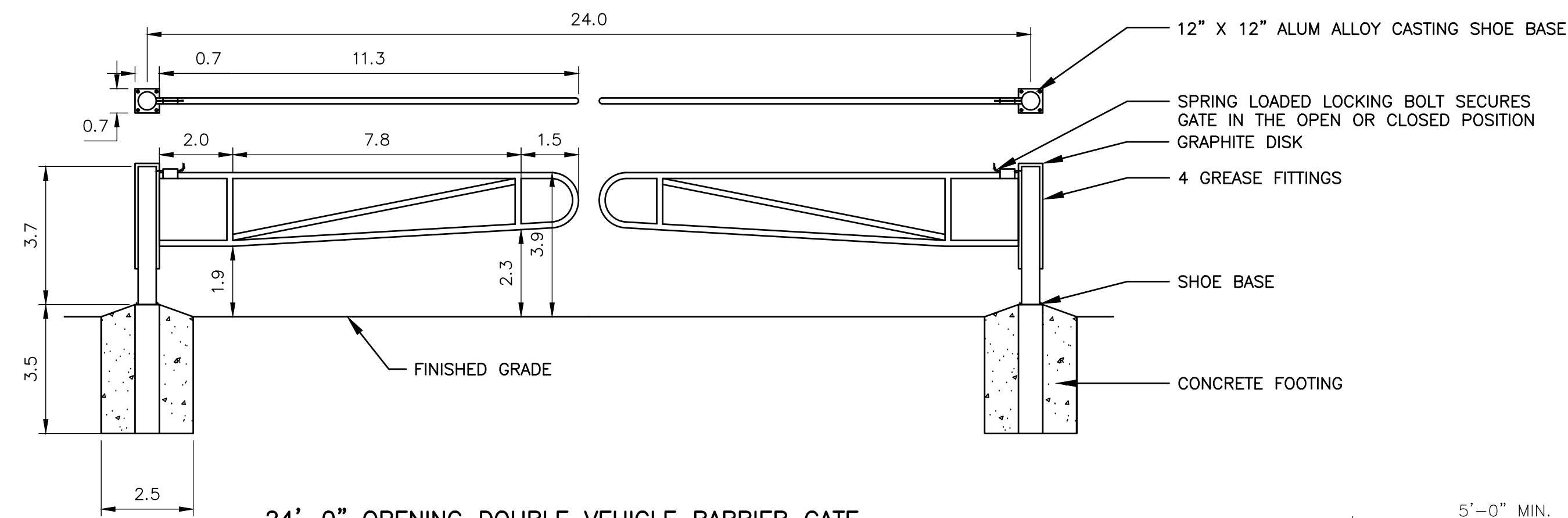


- NOTES:
1. FENCING SHALL BE INSTALLED AROUND PERIMETER OF ALL EXISTING TREES TO BE PRESERVED WITHIN THE LIMIT OF WORK.
 2. FENCING MAY BE REMOVED TEMPORARILY, ONLY AS REQUIRED TO PERFORM THE WORK SHOWN ON THE DRAWINGS.
 3. FENCING SHALL REMAIN IN PLACE & BE MAINTAINED THROUGHOUT CONSTRUCTION AND THEN REMOVED COMPLETELY.

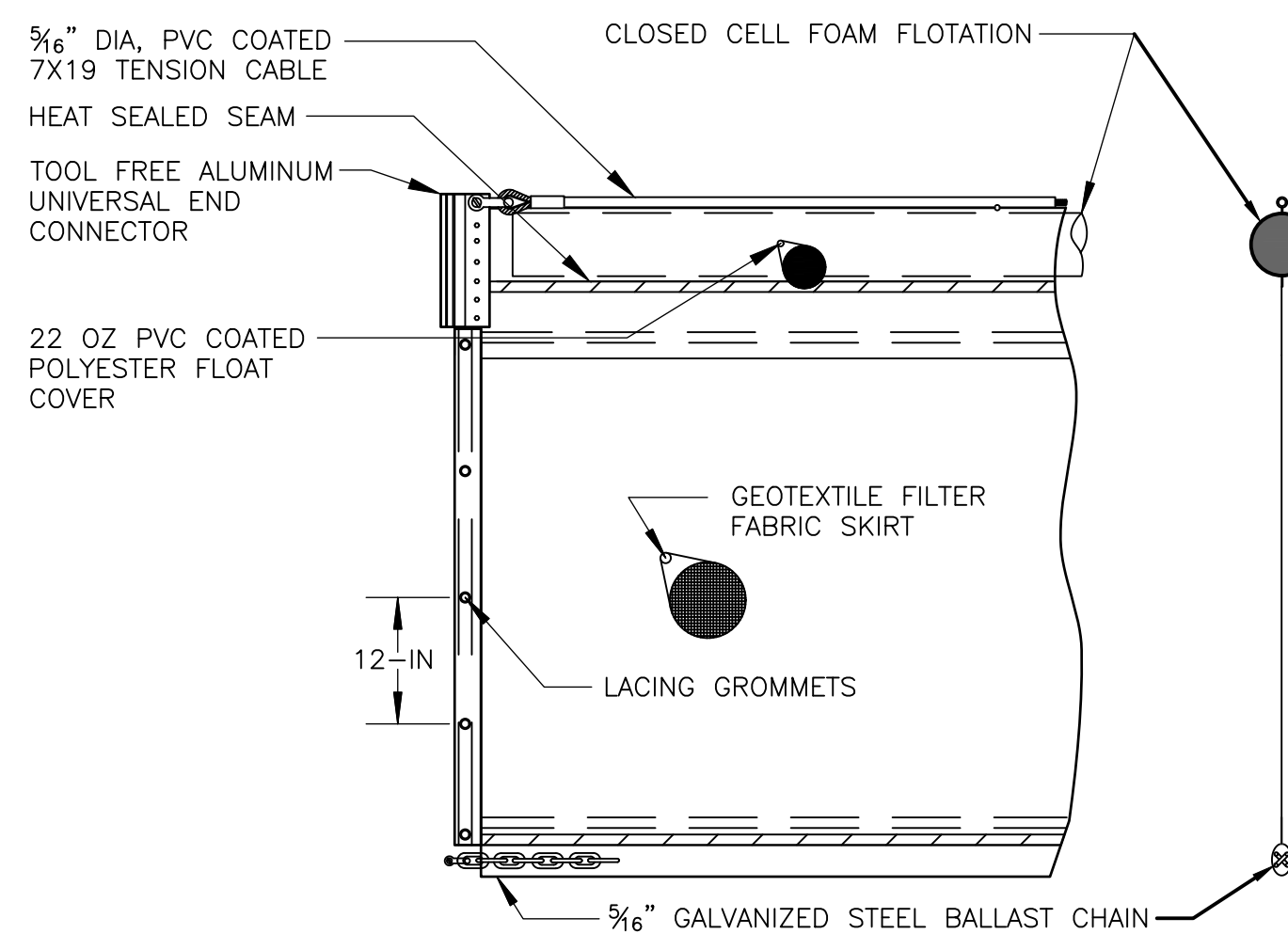
TREE PROTECTION
DETAIL C
NOT TO SCALE



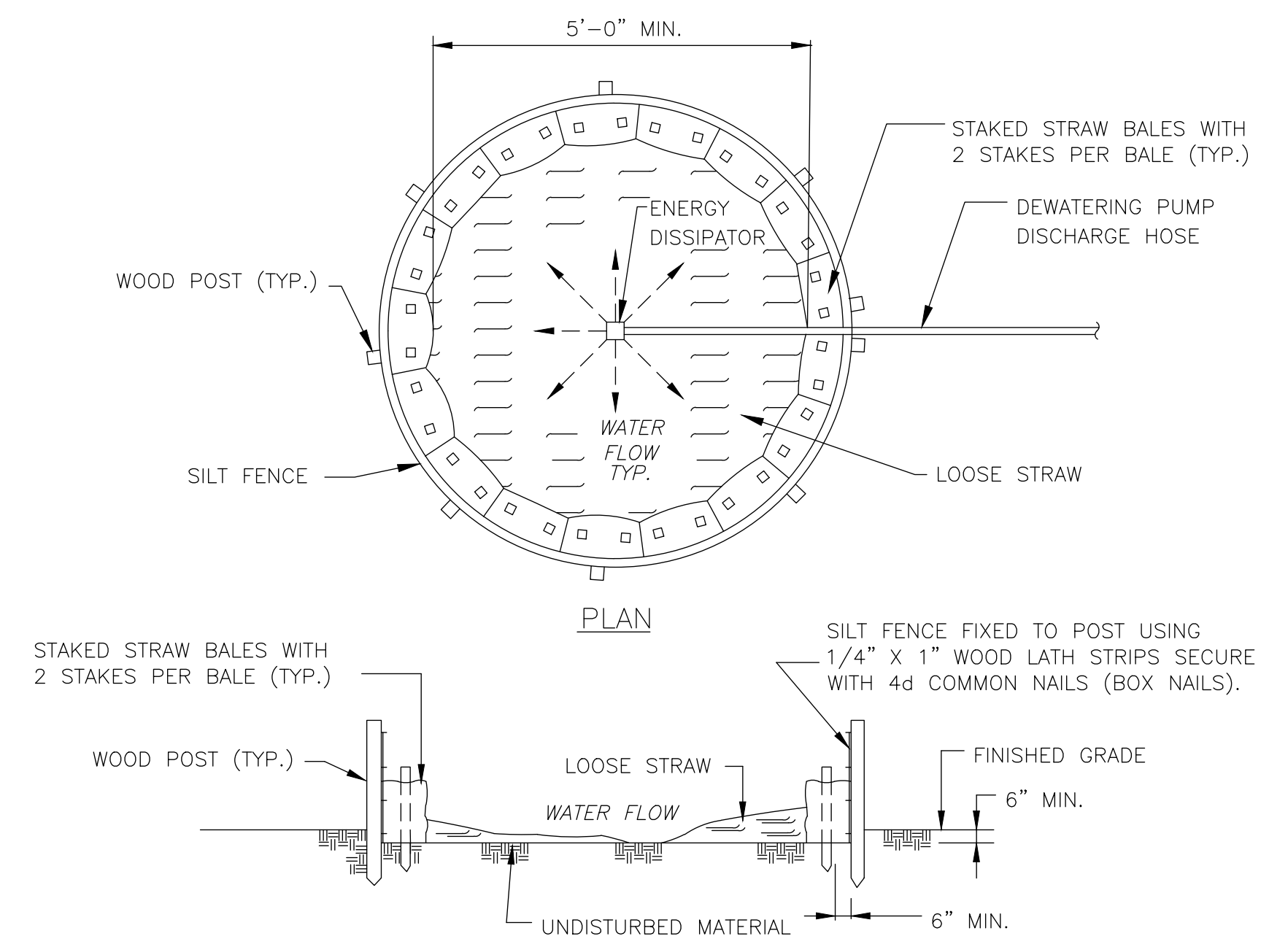
TURBIDITY CURTAIN
DETAIL D
NOT TO SCALE



24'-0" OPENING DOUBLE VEHICLE BARRIER GATE
DETAIL G
NOT TO SCALE



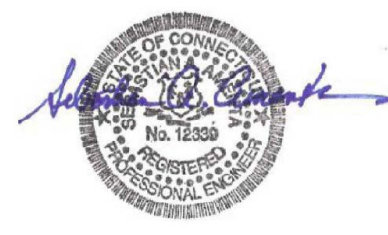
FLOATING TURBIDITY BARRIER
DETAIL I
NOT TO SCALE



DEWATERING SEDIMENTATION BASIN
DETAIL J
NOT TO SCALE

DESIGNED BY: K. GERLACH
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: K. GERLACH
APPROVED BY: K. WAGNER
DATE: APRIL 2023

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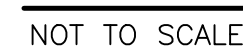
CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

CIVIL DETAILS I

PROJECT NO. 10739-264571
FILE NAME: CD001CSDT.DWG
SHEET NO.
C-24



1. ALL WELDS TO BE PERFORMED BY A CERTIFIED STRUCTURAL WELDER.
2. ALL SUPPORT BRACKET MEMBERS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
3. ALL NUTS, BOLTS, AND WASHERS SHALL BE 316 STAINLESS STEEL.
4. THE SPACING OF SIDEWALL PIPE SUPPORTS SHALL BE SPECIFICALLY DESIGNED BASED UPON MANY FACTS INCLUDING PIPE SIZE AND MATERIAL EMBEDMENT LIMITATIONS. UNLESS APPROVED OTHERWISE BY THE ENGINEER, IN NO CASE SHALL THE SPACING OF SUPPORTS BE GREATER THAN TWELVE (12) INCHES ON-CENTER FOR PIPE SIZES TWELVE (12) INCH AND SMALLER AND TEN (10) FEET ON-CENTER FOR PIPE SIZES GREATER THAN TWELVE (12) INCHES.



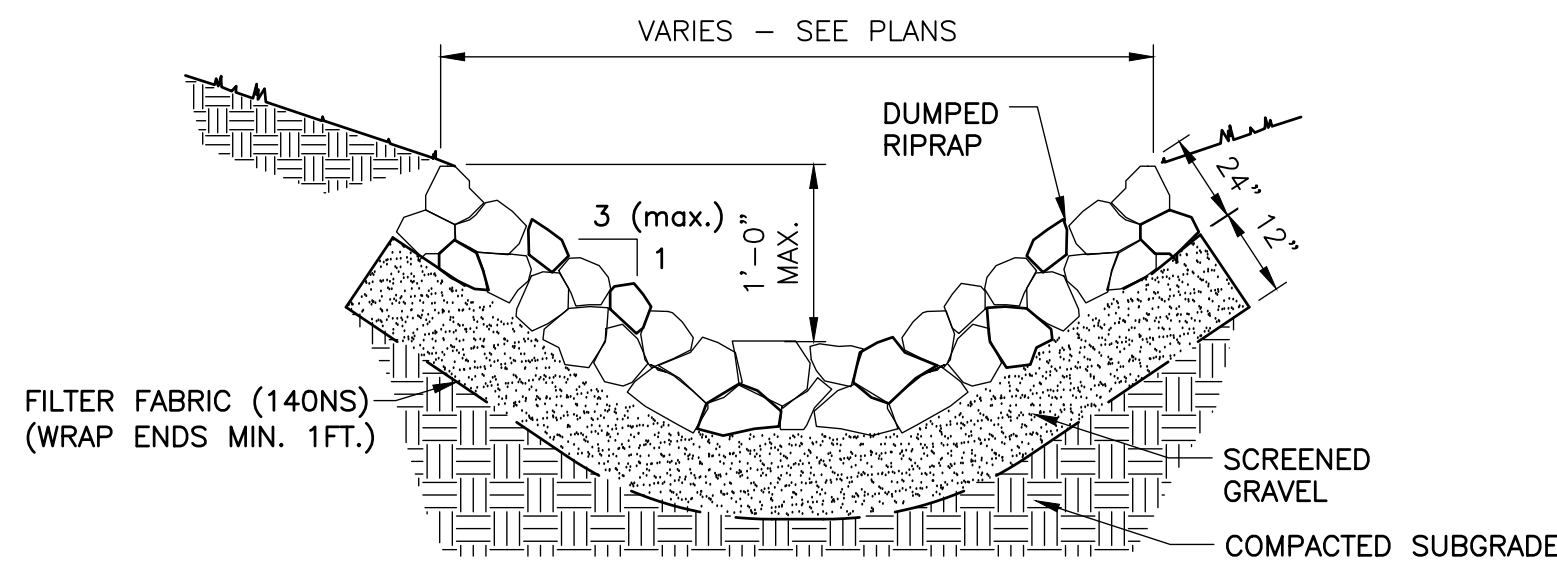
DESIGNED BY: _____ K. GERLACH
DRAWN BY: _____ J. BRONENKANT
SHEET CHK'D BY: _____ K. WAGNER
CROSS CHK'D BY: _____ K. GERLACH
APPROVED BY: _____ K. WAGNER
DATE: _____ DECEMBER 2023



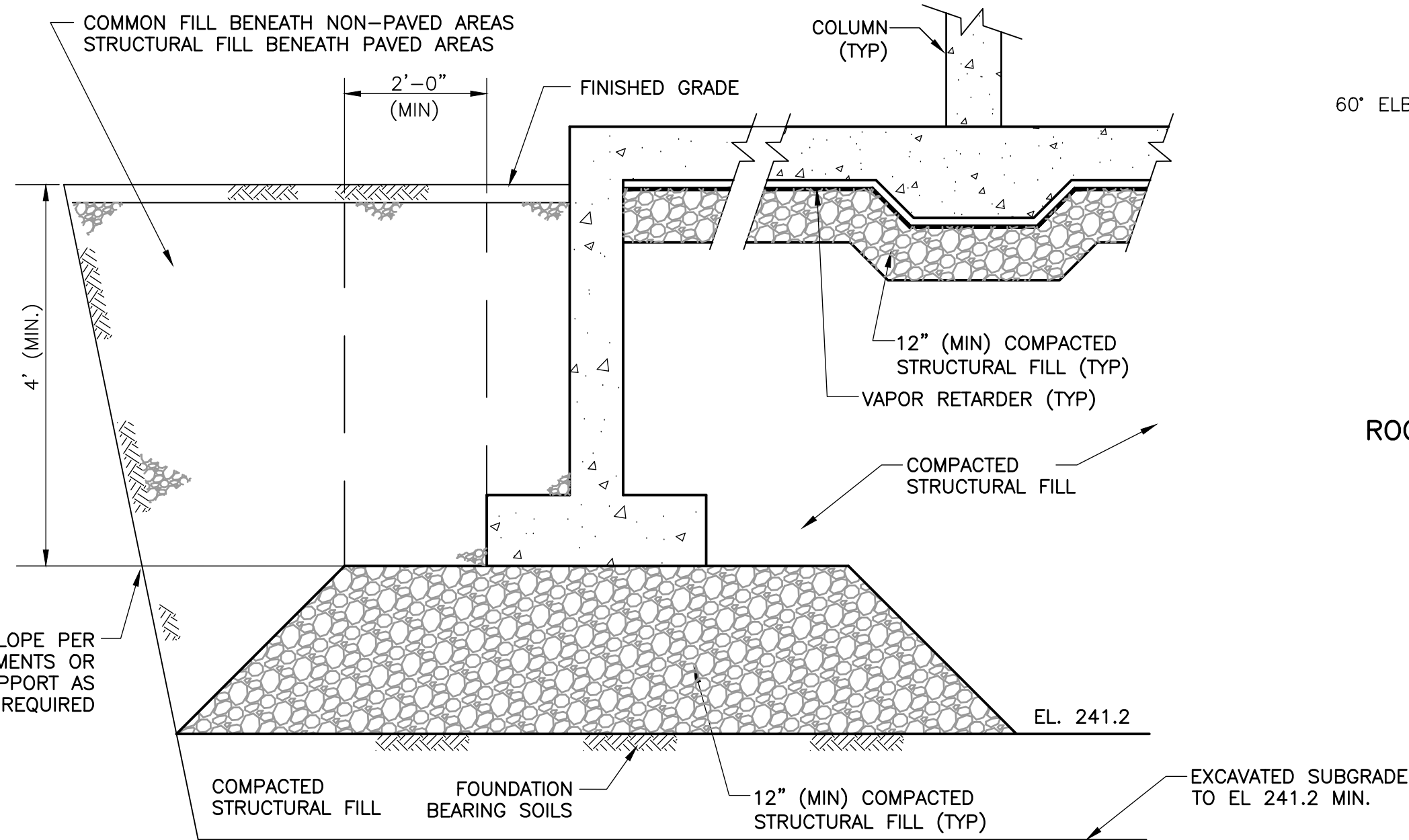
PROJECT NO. 10739-26457
FILE NAME: CD002CSDT.DWG

SHEET NO.
C-25

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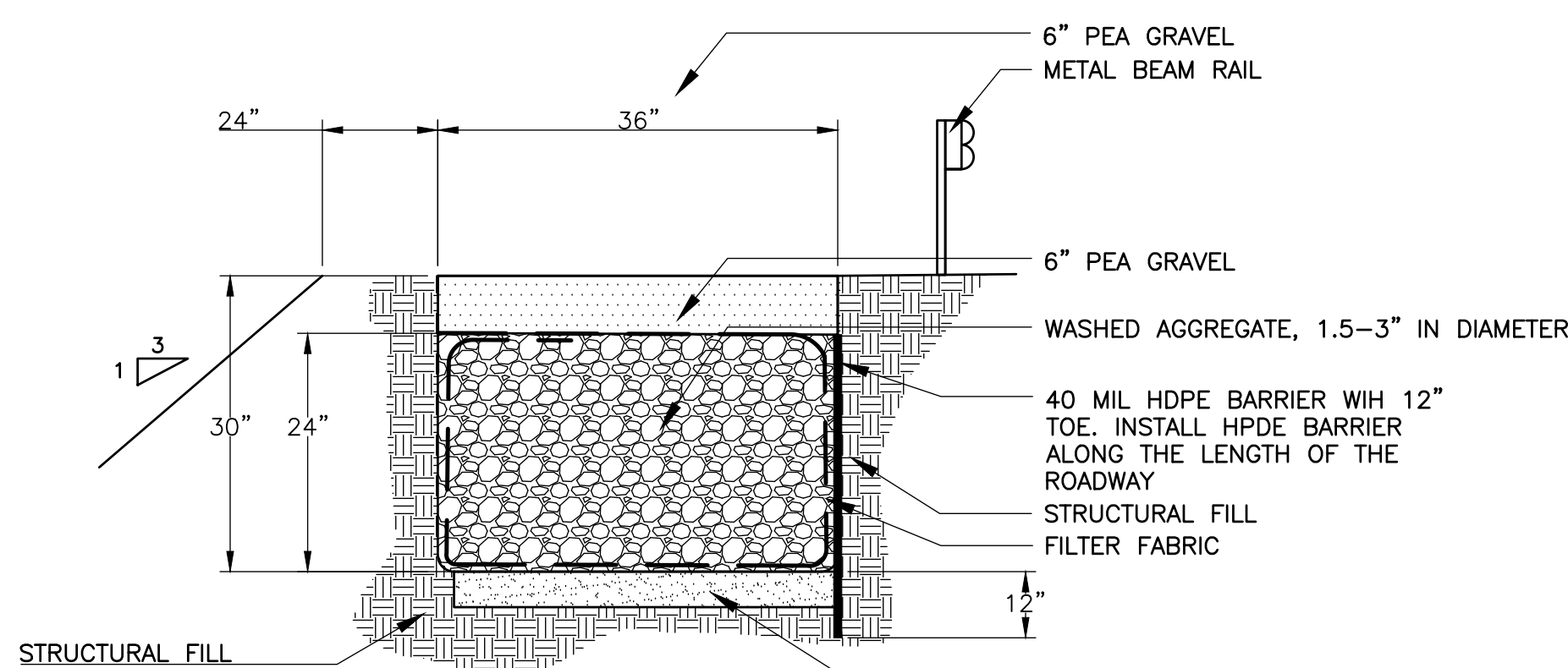


SECTION
RIPRAP SWALE
DETAIL A
SCALE: NTS

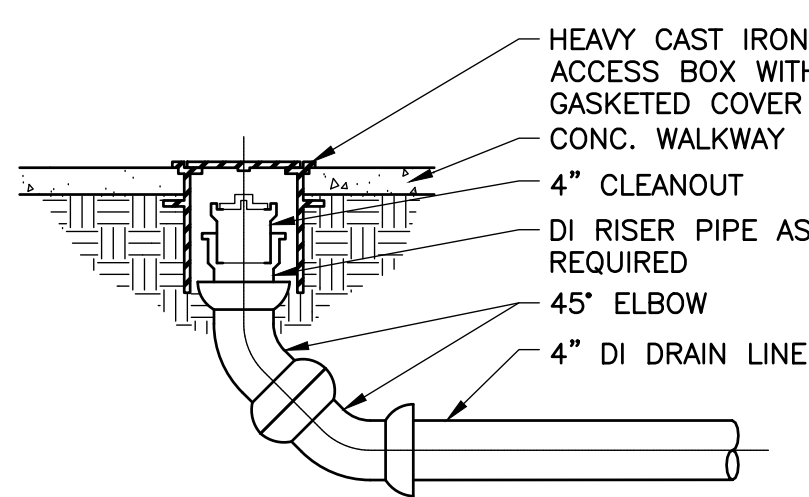


- NOTES:
1. THE SUITABILITY OF THE FOUNDATION SUB-GRADE TO BE VERIFIED BY CONTRACTOR'S GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF CONCRETE.
 2. SEE SPECIFICATION SECTION 312000 FOR SUBGRADE PREPARATION REQUIREMENTS AND COMPACTION REQUIREMENTS.
 3. STRUCTURES INCLUDE TANK, BUILDING, OR SHALLOW FOOTINGS. SEE SITE PLANS.

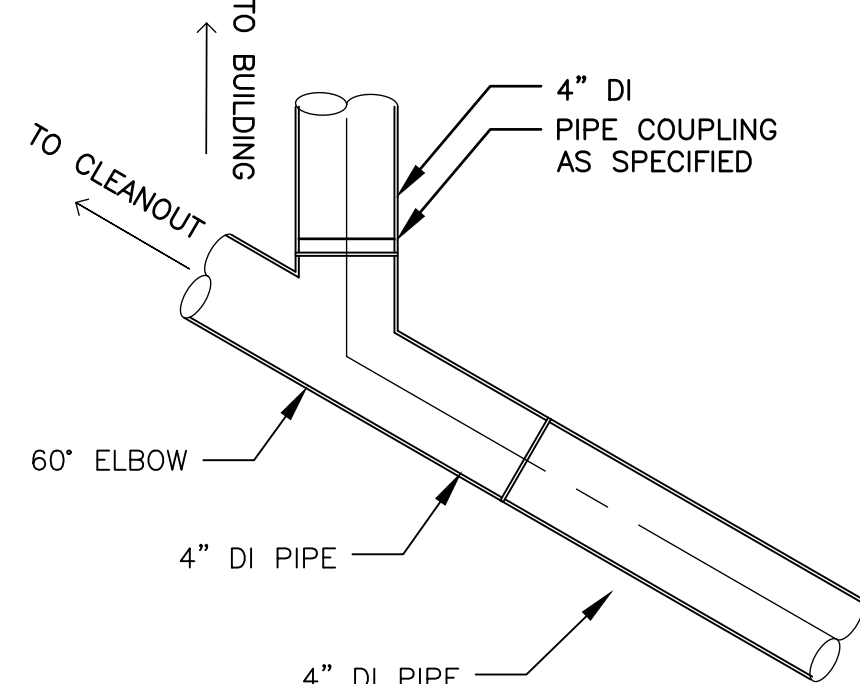
BACKFILL
DETAIL B
NTS



GRAVEL INFILTRATION TRENCH
DETAIL C
NOT TO SCALE

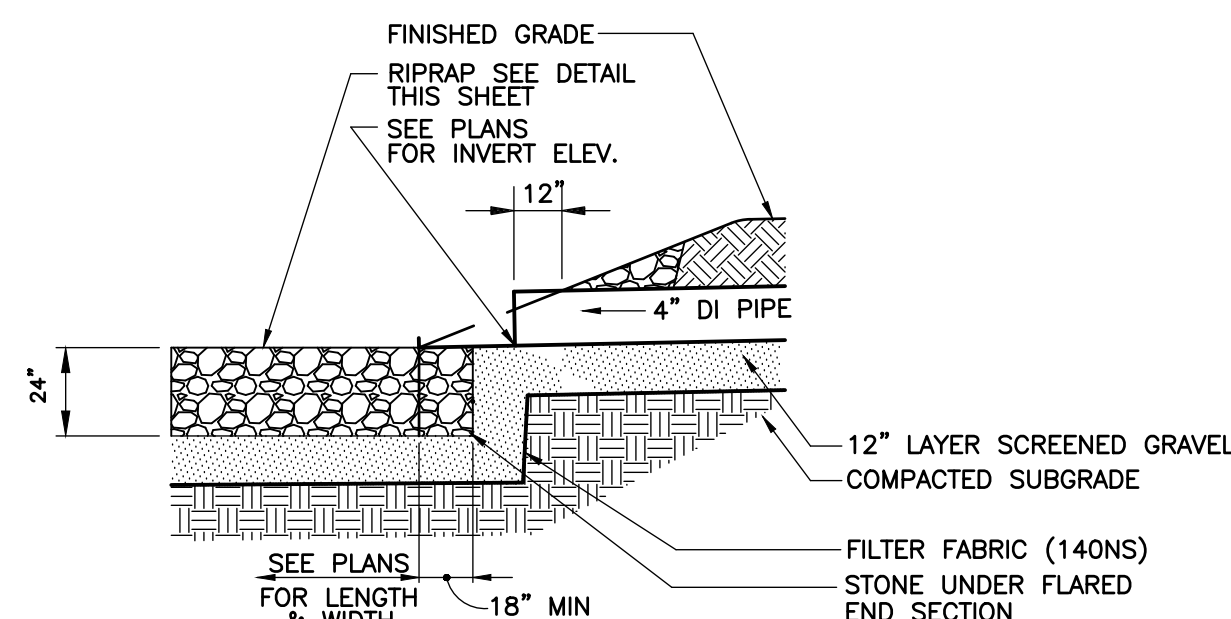


SECTION VIEW

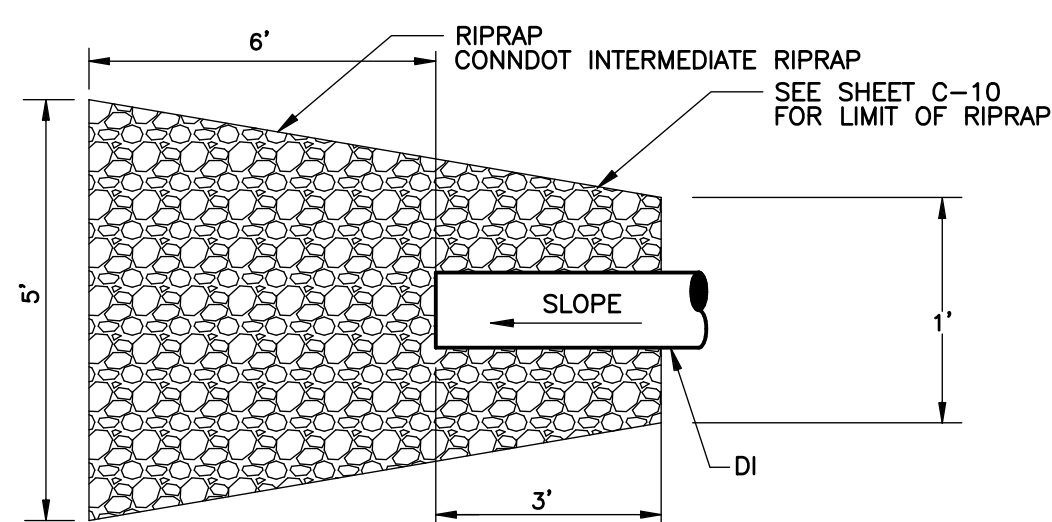


PLAN VIEW

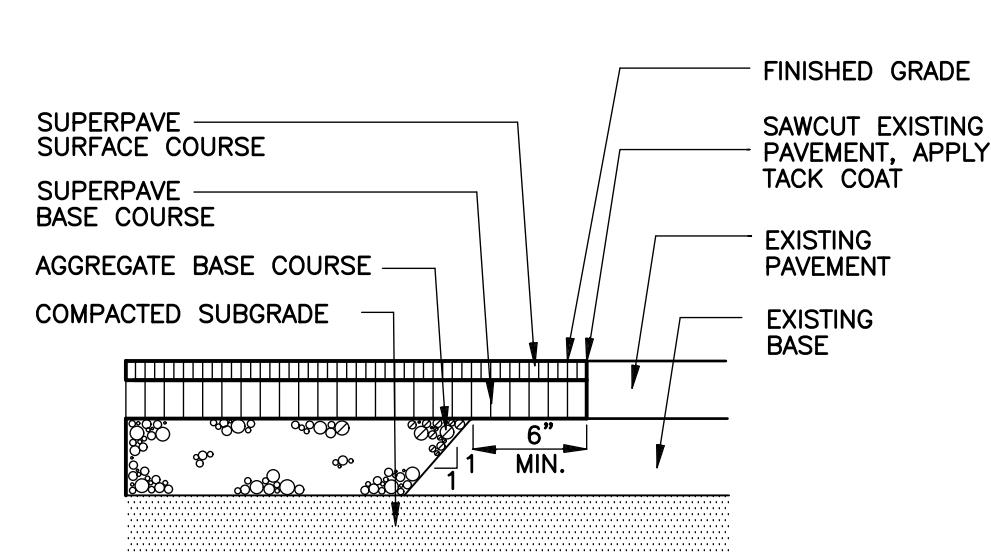
ROOF DRAIN CONNECTION WITH CLEANOUT
DETAIL D
NTS



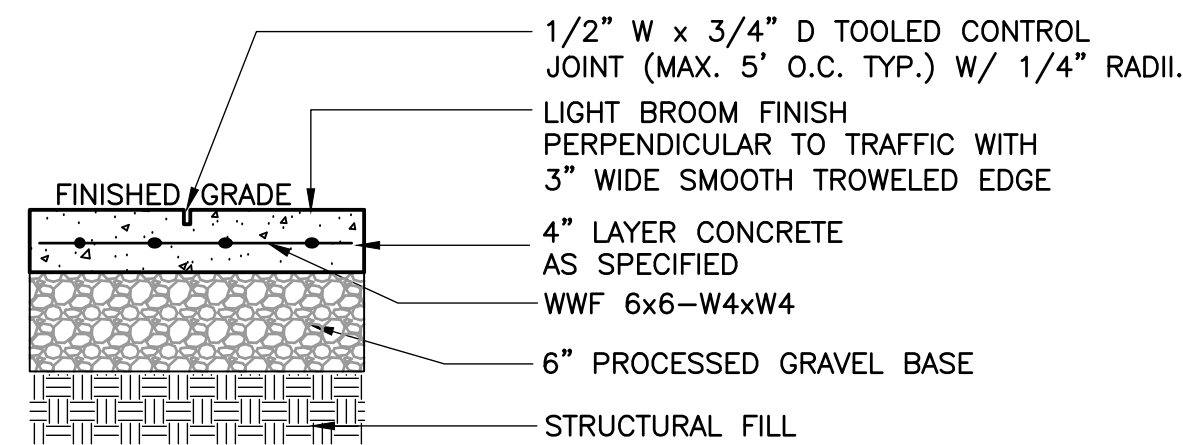
SECTION



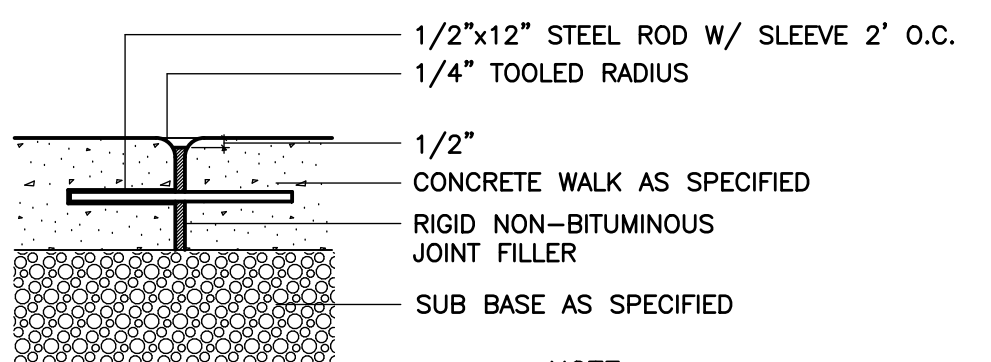
PIPE END SECTION & RIPRAP APRON
DETAIL E
NOT TO SCALE



PAVEMENT MATCH
DETAIL F
NOT TO SCALE

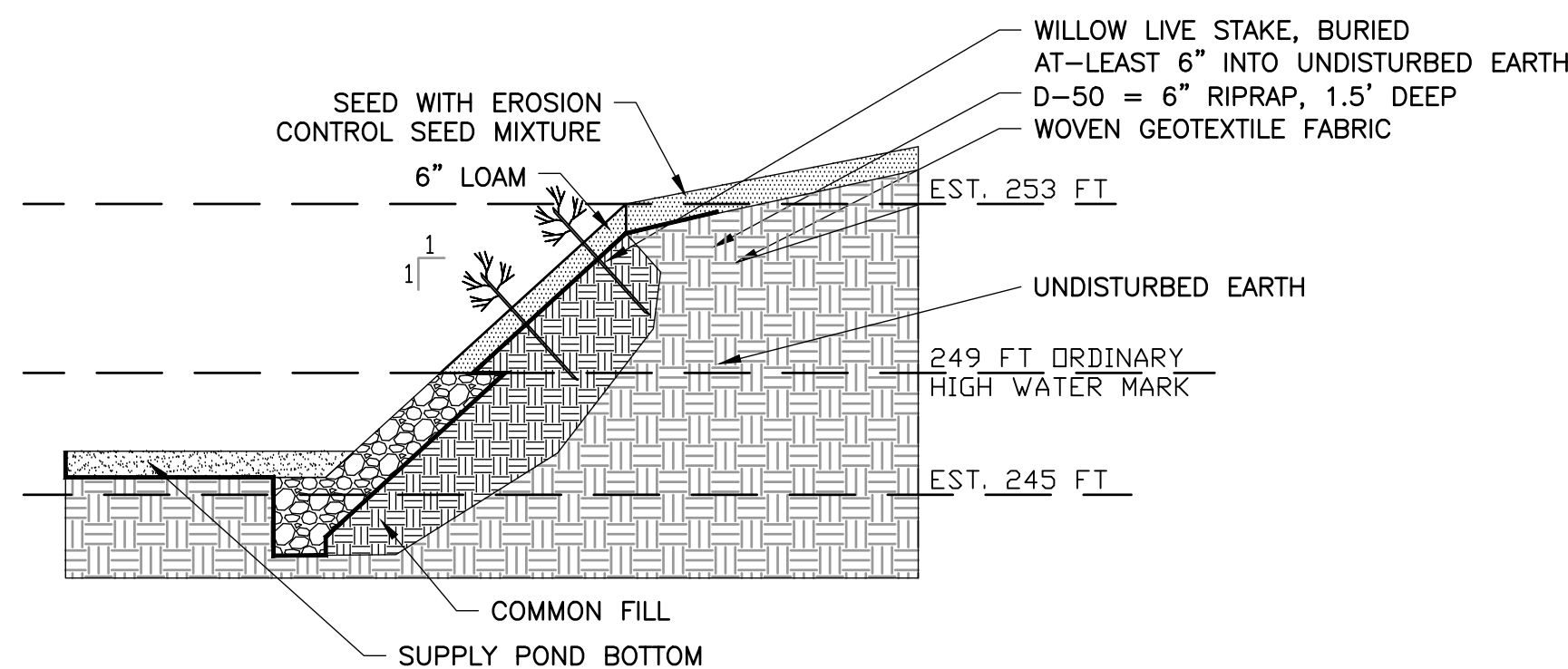


CONCRETE WALKWAY
DETAIL G
NOT TO SCALE

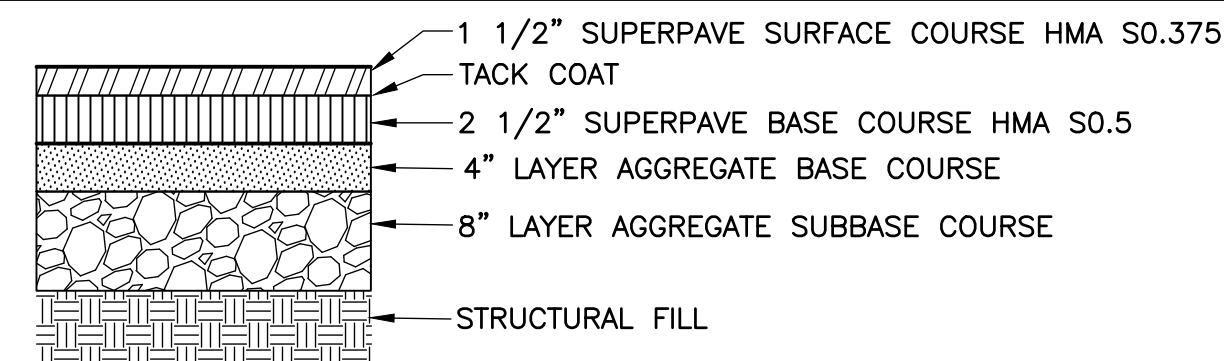


- NOTE:
1. CONC. WALK SHALL HAVE 3 STEEL RODS MIN.
 2. EXPANSION JOINTS SHALL BE LOCATED 30 FT. MIN. O.C. AND AT THE END OF EACH DAYS POUR.

EXPANSION JOINT
DETAIL H
NOT TO SCALE

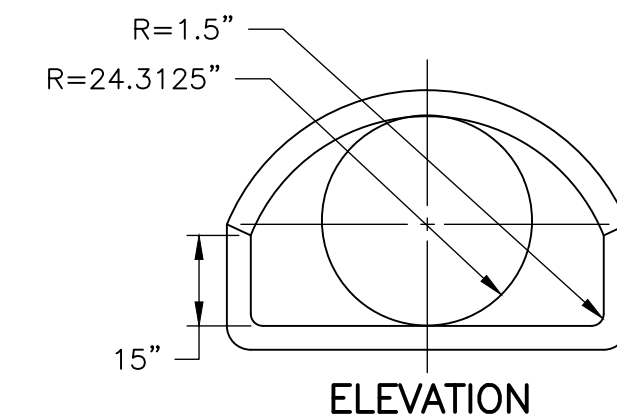


BANK RESTORATION
DETAIL I
NOT TO SCALE

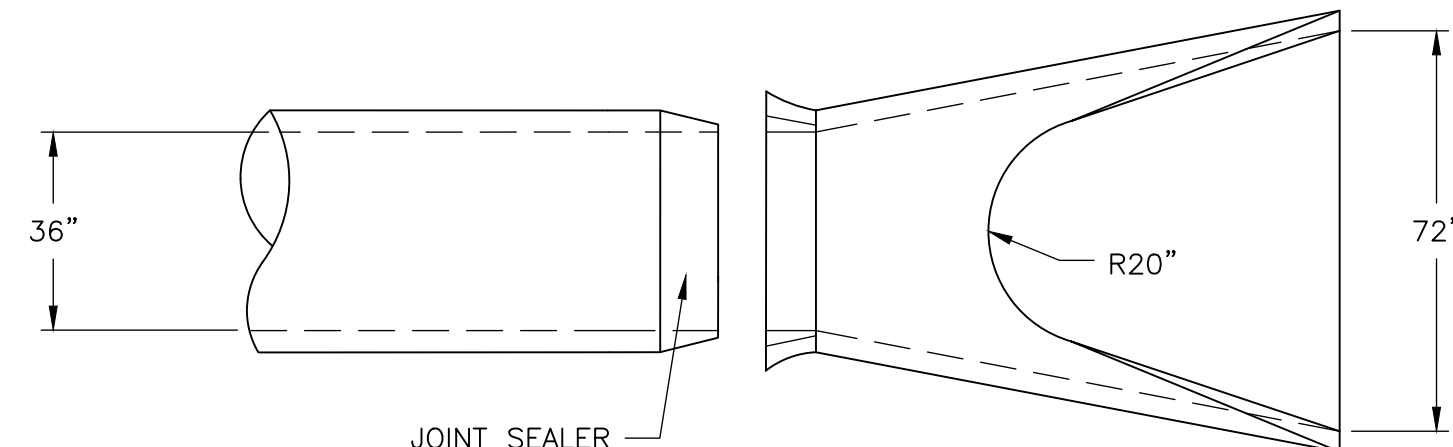


- NOTES:
1. BASE COURSE SHALL EXTEND 3" MIN. BEYOND EDGE OF PAVEMENT. DEPTH VARIES SEE GRADING AND DRAINAGE PLAN

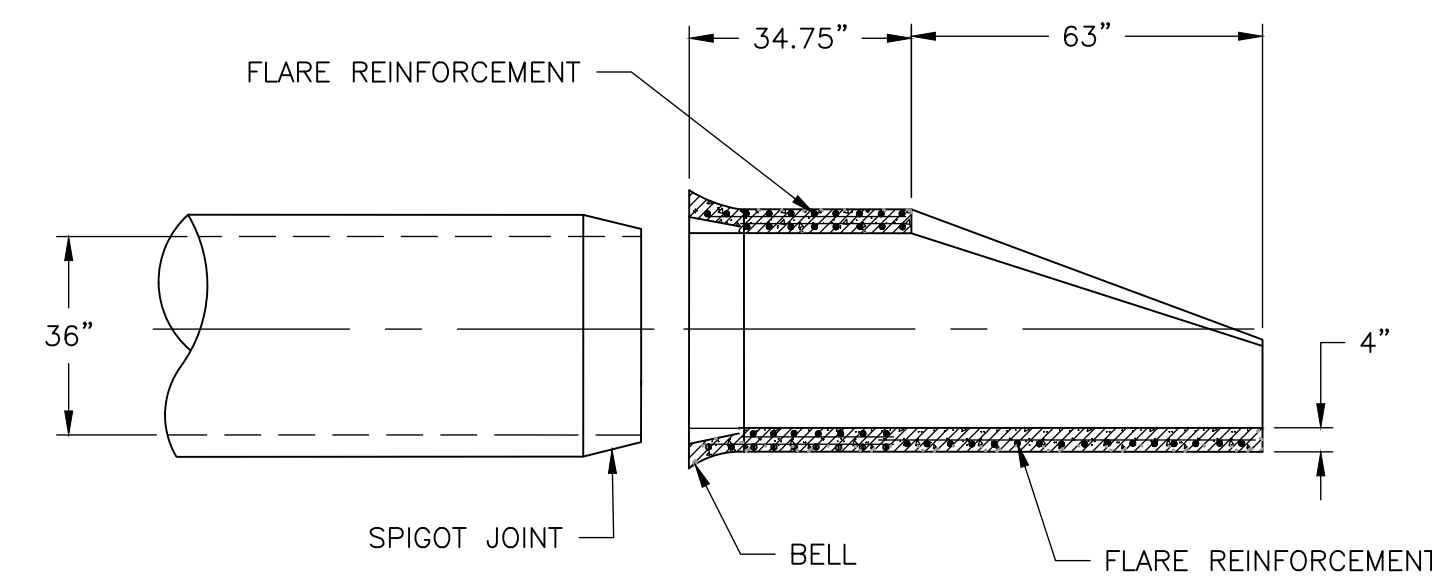
BITUMINOUS CONCRETE PAVEMENT
DETAIL J
NOT TO SCALE



ELEVATION

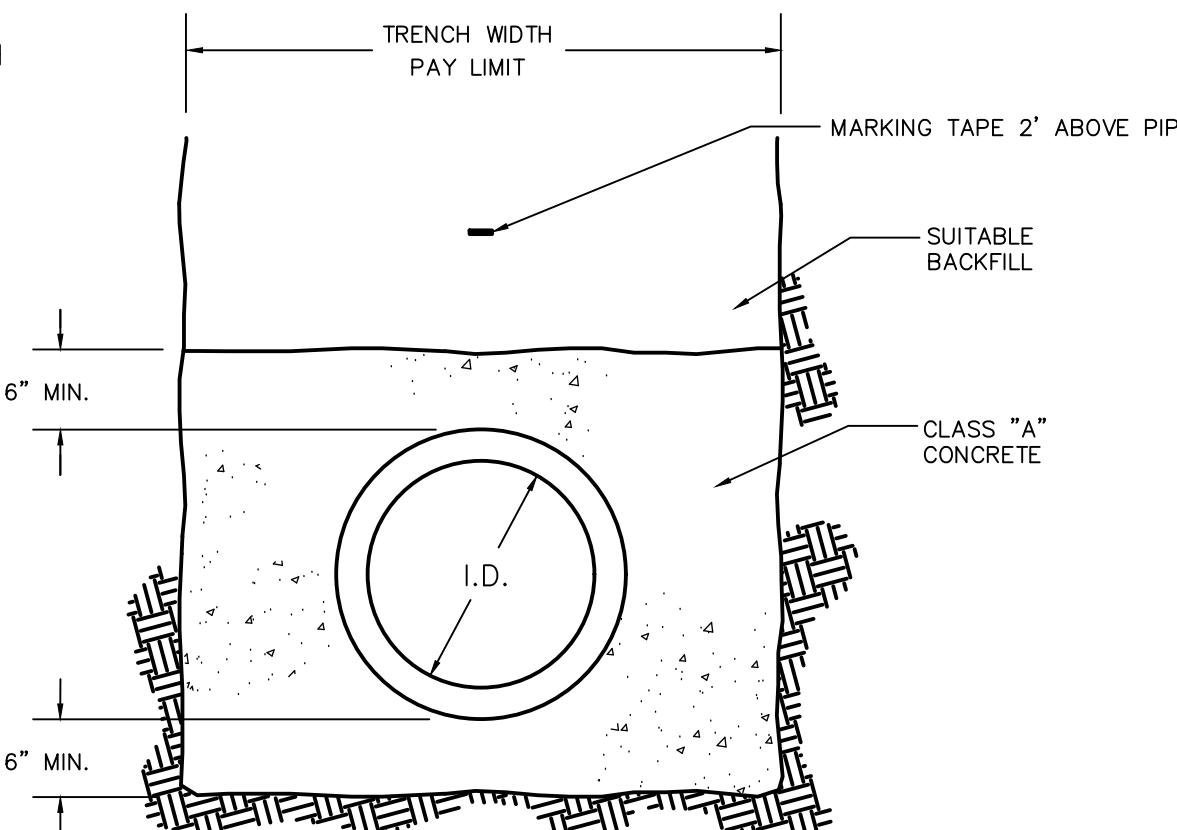


PLAN VIEW



SECTION VIEW

RCP CULVERT PIPE END
DETAIL K
NOT TO SCALE



CONCRETE ENCASEMENT
DETAIL L
NOT TO SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:	K. GERLACH
DRAWN BY:	J. BRONENKANT
SHEET CHK'D BY:	K. WAGNER
CROSS CHK'D BY:	K. GERLACH
APPROVED BY:	K. WAGNER
DATE:	DECEMBER 2023

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CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

CIVIL DETAILS III

PROJECT NO.	10739-264571
FILE NAME:	CD003CSDT.DWG
SHEET NO.	C-26

DETAIL 
NOT TO SCALE

DETAIL B
NOT TO SCALE

DETAIL C

NOT TO SCALE

STEEL BOLLARD
DETAIL
NOT TO SCALE

NOTES:
1) THIS MANHOLE TO BE USED WHEN TOT.
DEPTH IS GREATER THAN 12' OR ANY PIPE
SIZE IS GREATER THAN 18".
2) ALL NEW SANITARY AND STORM SEWER
INSTALLATIONS SHALL BE TELEVIEWED.

TYPE II MANHOLE
(PRECAST WITHOUT STEPS)

NEW BRITAIN STANDARD
WATERTIGHT MANHOLE CASTING

DETAIL 

SCALE: NTS

NOTES:

1. PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED POND ACCESS/TRUCK OFFLOADING RAMP AND EXISTING GROUND SURFACE.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO GROUND SURFACE.
3. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDING STONE TO THE LENGTH OF THE ENTRANCE.
4. REPAIR AND CLEANOUT MEASURES USED TO TRAP SEDIMENT.
5. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.
6. THE SLOPE OF THE POND ACCESS AND OFFLOADING RAMP TO BE DETERMINED BY CONTRACTOR BASED ON SELECTED EQUIPMENT, MEANS AND METHODS, AND APPROVED BY THE ENGINEER.
7. DAYLIGHT SLOPES OF THE RAMP WILL BE INSTALLED AS NEEDED BASED ON THE EXCAVATION DEPTH AND BANK HEIGHT TO MAINTAIN STABILITY OF THE POND ACCESS/OFFLOADING RAMP.
8. ALL MATERIAL FOR POND ACCESS/OFFLOADING RAMP IS TEMPORARY AND WILL BE REMOVED AFTER SEDIMENT REMOVAL COMPLETED. POND BANK TO BE RESTORED PER SPECIFICATIONS.

DETAIL

SCALE: NTS

F

NOTES:
1) THIS MANHOLE TO BE USED WHEN TOTAL DEPTH IS 12' OR LESS AND LARGEST PIPE SIZE IS 18" OR SMALLER.
2) ALL NEW SANITARY AND STORM SEWER INSTALLATIONS SHALL BE TELEVIEWED.

TYPE I MANHOLE
(PRECAST WITHOUT STEPS)

MANHOLE
DETAIL
NOT TO SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. GERLACH
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: K. GERLACH
APPROVED BY: K. WAGNER
DATE: APRIL 2023



CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

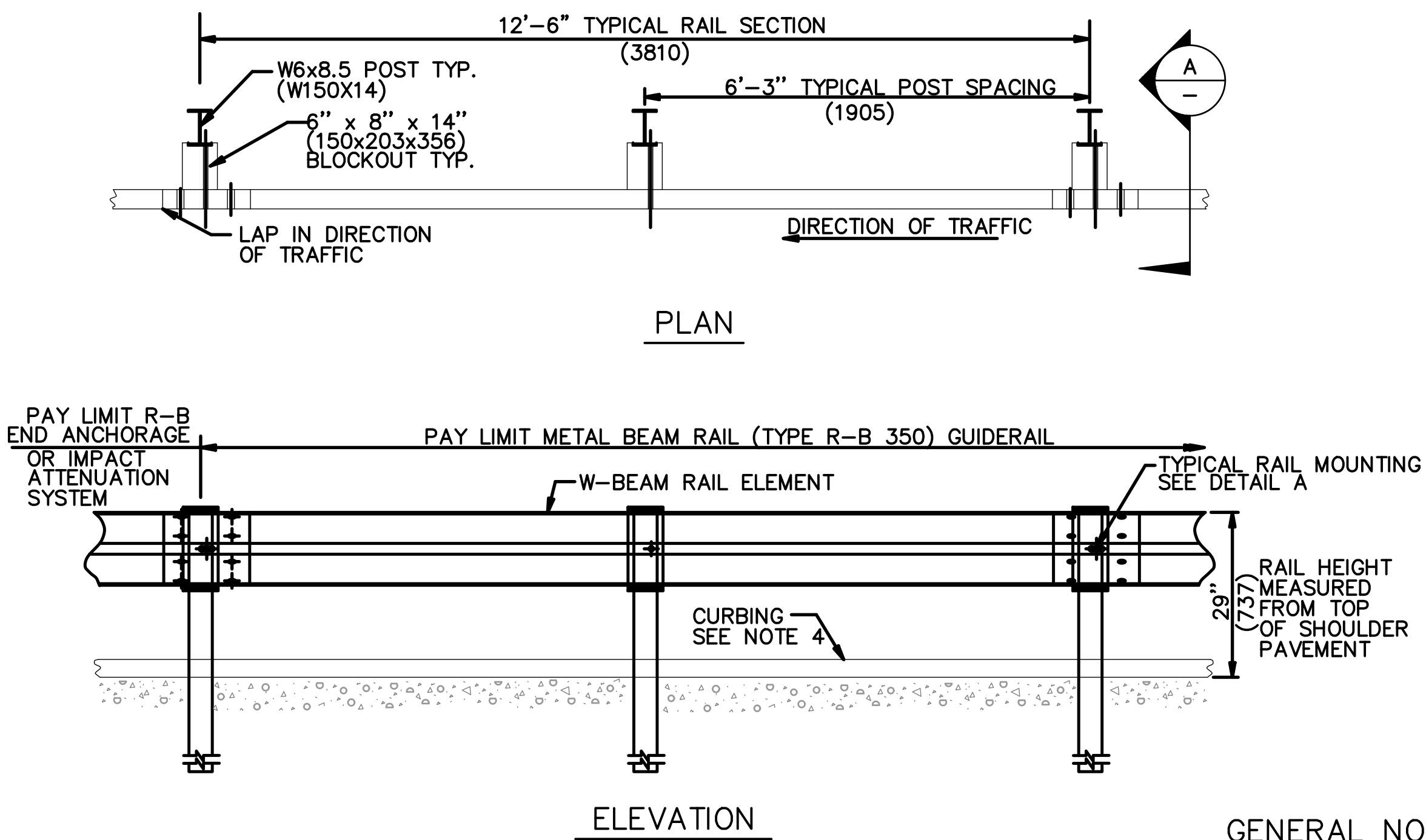
CIVIL DETAILS IV

PROJECT NO. 10739-264571
FILE NAME: CD004CSDT.DWG

SHEET NO.

C-27

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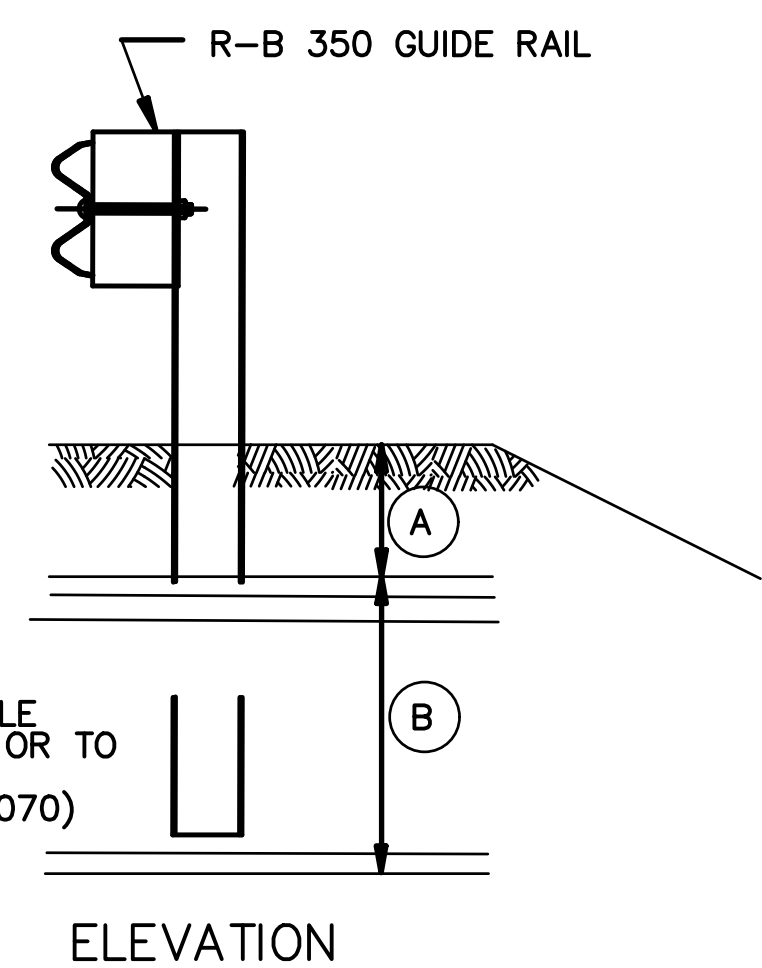


CONDITION 1 :

IF SOIL DEPTH IS < 18" (457) DEEP (A) DRILL 20" (507) DIA. HOLE 24" (610) INTO LEDGE (B)

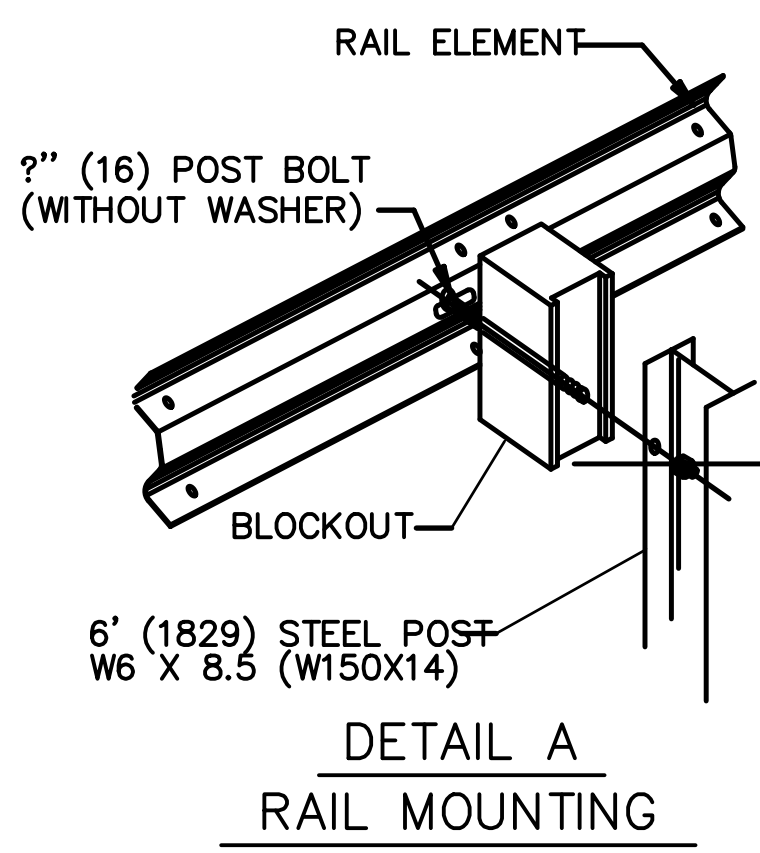
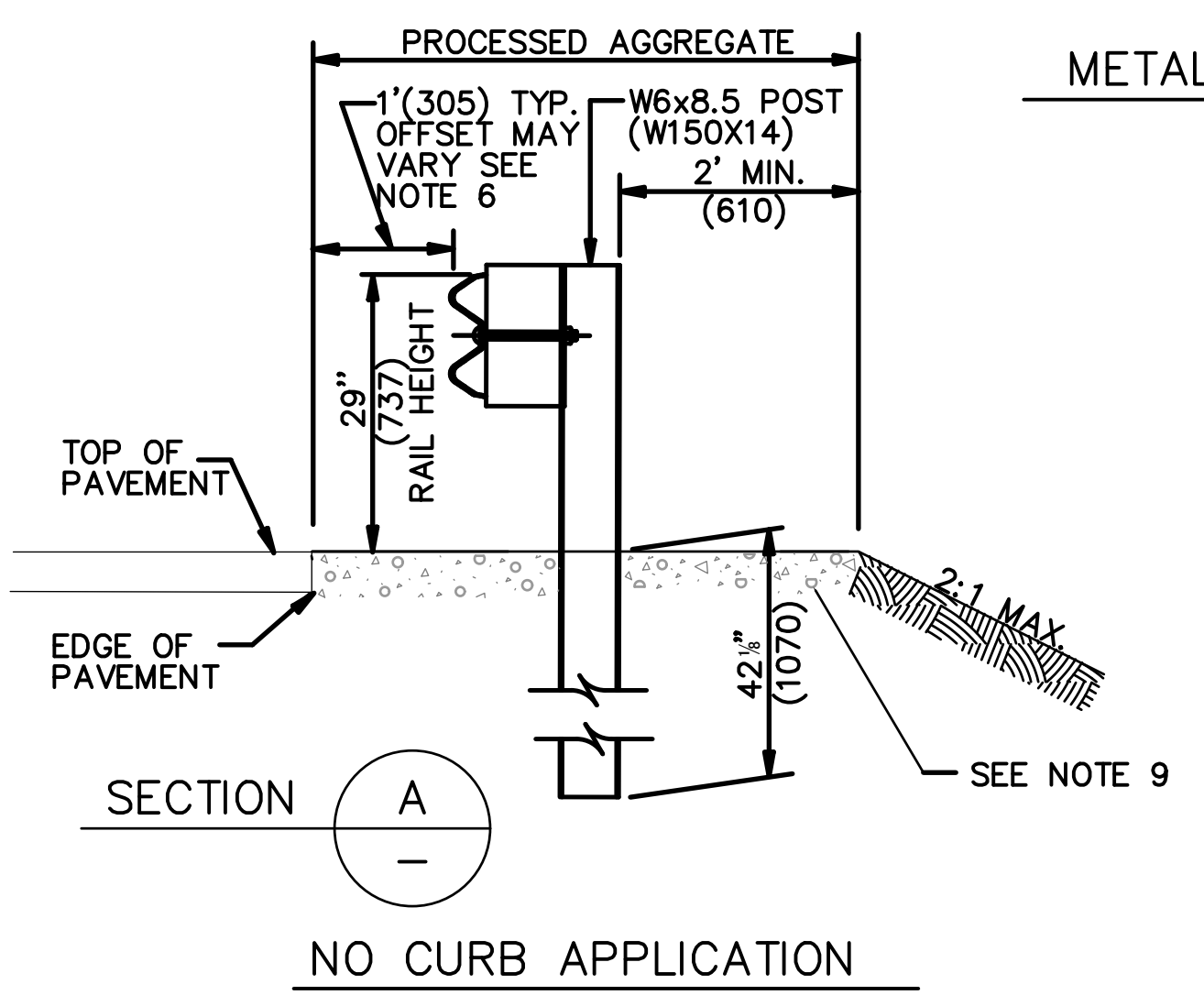
CONDITION 2 :

IF SOIL DEPTH IS > 18" (457) DEEP (A) DRILL 8" (203) DIA. HOLE 1' (305) INTO LEDGE (B) OR TO THE DEPTH OF FULL EMBEDMENT OF 42" (1070) WHICHEVER IS LESS.

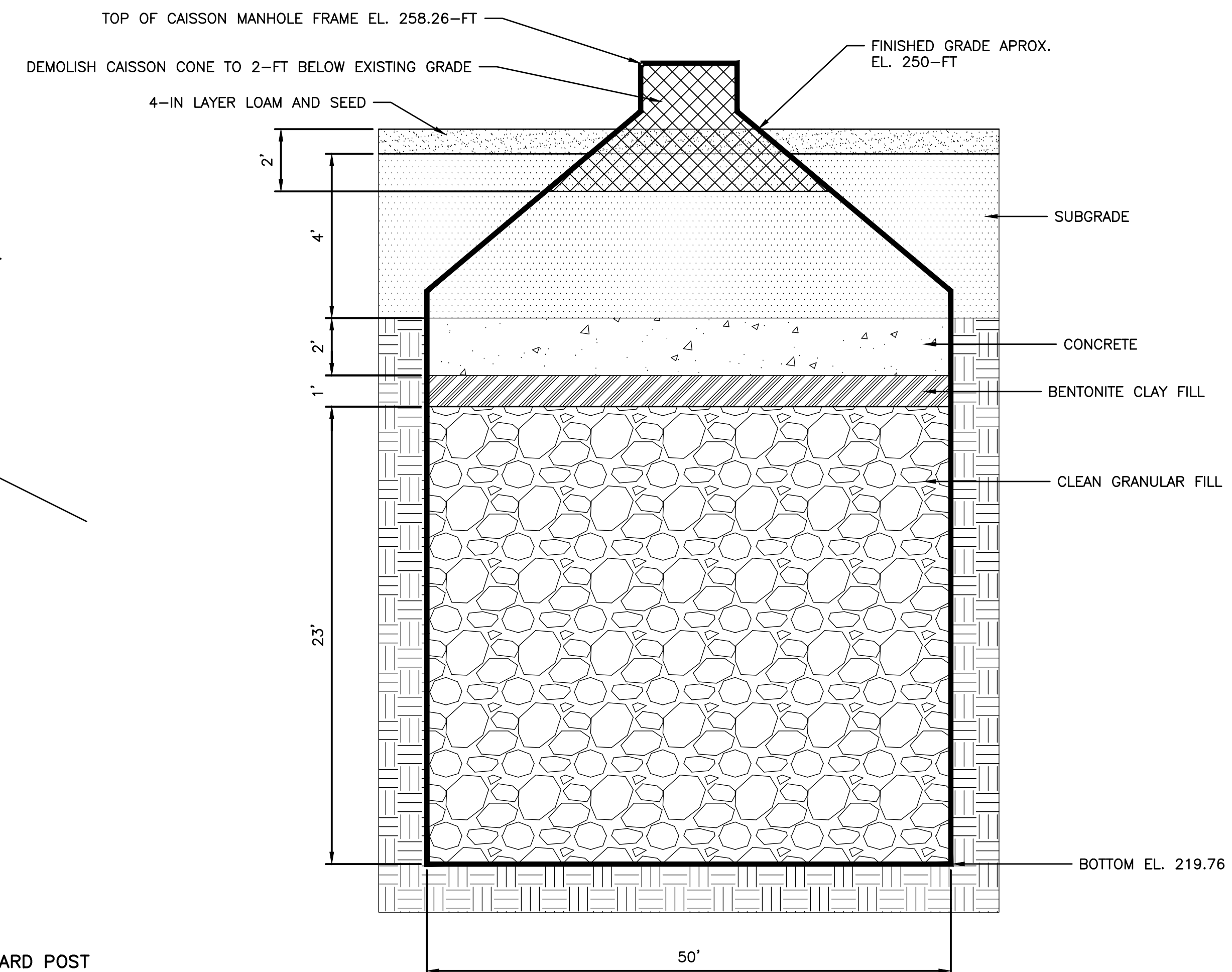


GENERAL NOTES:

- SEE CTDOT STANDARDS FOR HARDWARE AND DELINEATOR DETAILS.
- MAXIMUM DESIGN DEFLECTION FOR R-B 350 GUIDERAIL AT THE STANDARD POST SPACING OF 6'-3" IS 4'-3". DEFLECTION REQUIREMENT IS MEASURED FROM THE BACK OF POST TO THE FACE OF OBJECT.
- FOR CURVES WITH RADII OF 150'(45.7m) OR LESS, ALL RAIL ELEMENTS SHALL BE SHOP FABRICATED TO THE PROPER RADIUS AND GALVANIZED AFTER FABRICATION. RADIUS RAIL WHEN REQUIRED AND NOTED ON THE PLANS, IS INCLUDED IN THE PAY ITEM FOR GUIDERAIL.
- RAIL HEIGHT WITH CURBING SHALL BE MEASURED FROM THE TOP OF PAVEMENT. ON HIGH SPEED ROADWAYS (>45mph 72.4kph), 4" CURBING MAY BE USED IN CONJUNCTION WITH GUIDERAIL AND THE RAIL ELEMENT SHALL BE PLACED FLUSH WITH THE FACE OF CURB. ON LOW SPEED ROADWAYS (<45mph 72.4kph), 6" CURBING MAY BE USED IN CONJUNCTION WITH GUIDERAIL AND THE RAIL ELEMENT SHALL BE PLACED A MAXIMUM OF 9" BEHIND THE FACE OF CURB.
- THREE BLOCKOUTS MAY BE USED FOR ONE POST ONLY. TWO BLOCKOUTS MAY BE USED FOR A SERIES OF POSTS. THE COST OF ADDITIONAL BLOCKOUTS AND LONGER BOLTS SHALL BE INCLUDED IN THE BID PRICE PER FOOT OF GUIDERAIL. EXTRA BLOCKOUTS AT TRANSITION TO BRIDGE PARAPETS SHOULD BE AVOIDED.
- W-BEAM GUIDERAIL MAY BE PLACED 1' OR MORE FROM THE EDGE OF PAVEMENT ONLY ON SLOPES 10:1 OR FLATTER AND WITHOUT CURBING. IF THE RAIL IS INSTALLED WITHIN 2' OF THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE SHOULDER SLOPE EXTENDED TO THE RAIL. IF THE RAIL IS INSTALLED BEYOND 2' FROM THE EDGE OF PAVEMENT, THE RAIL HEIGHT IS MEASURED FROM THE GROUND DIRECTLY BELOW THE RAIL.
- ALL R-B 350 GUIDERAIL TYPES INSTALLED ON EXPRESSWAYS AND RAMPS SHALL USE CLASS B, TYPE-II (10 GAUGE) W-BEAM RAIL ELEMENTS.
- 20" DIA. EXCAVATED HOLE SHALL BE BACKFILLED WITH SUITABLE MATERIAL, OR GRANULAR FILL COMPACTED IN 6" LIFTS BEFORE DRIVING POST OR POSTS MAY BE SET IN EXCAVATED HOLE AND BACKFILLED WITH CONTROLLED LOW STRENGTH MATERIAL (CLSM). 8" DIA. HOLE SHALL BE BACKFILLED WITH SUITABLE MATERIAL.
- AS DIRECTED BY THE ENGINEER AND WHERE PAVEMENT FOR RAILING IS NOT BEING INSTALLED, A MIN. 6" DEPTH OF PROCESSED AGGREGATE SHALL BE INSTALLED FROM THE PAVEMENT EDGE OR BACK OF CURB TO A MINIMUM OF 2' BEHIND THE GUIDERAIL POST AND COMPACTED IN 6" LIFTS.
- MINIMUM RAIL HEIGHT FOR NEW CONSTRUCTION SHALL BE 29" + 1".



METAL BEAM RAIL
DETAIL A
NOT TO SCALE



NOTES:

- EXISTING CAISSON WELL TO BE DECOMMISSIONED AND ABANDONED AS REQUIRED IN SECTION 019416, APPENDED TO THE SPECIFICATIONS.
- CAISSON TOP CONE TO BE DEMOLISHED TO AT LEAST 2 FEET BELOW FINISH GRADE.

CAISSON DECOMMISSIONING AND ABANDONMENT
DETAIL B
NOT TO SCALE

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. GERLACH
DRAWN BY: J. BRONENKANT
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: K. GERLACH
APPROVED BY: K. WAGNER
DATE: APRIL 2023

77 Hartland Street, Suite 200
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CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

CIVIL DETAILS V

SHEET NO.
C-28

PROJECT NO. 10739-264571
FILE NAME: CD005CSDT.DWG

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NOTES FOR TRAFFIC CONTROL PLANS

1. IF A TRAFFIC STOPPAGE OCCURS IN ADVANCE OF SIGN (A), THEN AN ADDITIONAL SIGN (A) SHALL BE INSTALLED IN ADVANCE OF THE STOPPAGE.

2. SIGNS (A), (A), AND (D) SHOULD BE OMITTED WHEN THESE SIGNS HAVE ALREADY BEEN INSTALLED TO DESIGNATE A LARGER WORK ZONE THAN THE WORK ZONE THAT IS ENCOMPASSED ON THIS PLAN.

3. SEE TABLE 1 FOR ADJUSTMENT OF TAPERS IF NECESSARY.

4. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN TRAFFIC DRUMS SHALL BE USED IN PLACE OF TRAFFIC CONES.

5. ANY LEGAL SPEED LIMIT SIGNS WITHIN THE LIMITS OF A ROADWAY / LANE CLOSURE AREA SHALL BE COVERED WITH AN OPAQUE MATERIAL WHILE THE CLOSURE IS IN EFFECT, AND UNCOVERED WHEN THE ROADWAY / LANE CLOSURE IS RE-OPENED TO ALL LANES OF TRAFFIC.

6. IF THIS PLAN REMAINS IN CONTINUOUS OPERATION FOR MORE THAN 36 HOURS, THEN ANY EXISTING, CONFLICTING PAVEMENT MARKINGS SHALL BE ERADICATED OR COVERED, AND TEMPORARY PAVEMENT MARKINGS THAT DELINEATE THE PROPER TRAVELPATHS SHALL BE INSTALLED.

7. DISTANCES BETWEEN SIGNS IN THE ADVANCE WARNING AREA MAY BE REDUCED TO 100' ON LOW-SPEED URBAN ROADS (SPEED LIMIT < 40 MPH).

8. IF THIS PLAN IS TO REMAIN IN OPERATION DURING THE HOURS OF DARKNESS, INSTALL BARRICADE WARNING LIGHTS - HIGH INTENSITY ON ALL POST-MOUNTED DIAMOND SIGNS IN THE ADVANCE WARNING AREA.

9. A CHANGEABLE MESSAGE SIGN SHALL BE INSTALLED ONE HALF TO ONE MILE IN ADVANCE OF THE LANE CLOSURE TAPER.

10. SIGN (P) SHALL BE MOUNTED A MINIMUM OF 7 FEET FROM THE PAVEMENT SURFACE TO THE BOTTOM OF THE SIGN.

TABLE 1 - MINIMUM TAPER LENGTHS

POSTED SPEED LIMIT (MILES PER HOUR)	MINIMUM TAPER LENGTH FOR A SINGLE LANE CLOSURE
30 OR LESS	180' (55m)
35	250' (75m)
40	320' (100m)
45	540' (165m)
50	600' (180m)
55	660' (200m)
65	780' (240m)

METRIC CONVERSION CHART (1" = 25mm)

ENGLISH	METRIC	ENGLISH	METRIC	ENGLISH	METRIC
12"	300mm	42"	1050mm	72"	1800mm
18"	450mm	48"	1200mm	78"	1950mm
24"	600mm	54"	1350mm	84"	2100mm
30"	750mm	60"	1500mm	90"	2250mm
36"	900mm	66"	1650mm	96"	2400mm

CONSTRUCTION TRAFFIC CONTROL PLAN

NOTES

SCALE: NONE

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE 108 SQ. FT. (MIN.)

80-9612

END ROAD WORK

80-9950

STOP

80-9803

80-9834

80-9603

31-1906

DENOTES APPROXIMATE LOCATION OF UNIFORMED FLAGGER, TRAFFICPERSON OTHER THAN POLICE OFFICERS SHALL USE SIGN 80-9950 MOUNTED ON A 6' MIN. STAFF.

FROM THE MUTCD (2009 EDITION) Table 6E-1 Stopping Sight Distance as a Function of Speed

Speed (mph)	Distance (ft)
30	115
35	155
40	200
45	250
50	305
55	360
60	425
65	495

TRAFFIC CONE OR TRAFFIC DRUM

OPTIONAL TRAFFIC DRUM

PORTABLE SIGN SUPPORT

HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 13 - SHEET 1 OF 2

SEE NOTES 1, 2, 4, 6, 7, 8

SCALE: NONE

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS

SIGN FACE 108 SQ. FT. (MIN.)

80-9612

END ROAD WORK

80-9950

STOP

80-9803

80-9834

80-9603

31-1906

HAND SIGNAL METHODS TO BE USED BY UNIFORMED FLAGGERS

THE FOLLOWING METHODS FROM SECTION 6E.07, FLAGGER PROCEDURES, IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," SHALL BE USED BY UNIFORMED FLAGGERS WHEN DIRECTING TRAFFIC THROUGH A WORK AREA. THE STOP/SLOW SIGN PADDLE (SIGN NO. 80-9950) SHOWN ON THE TRAFFIC STANDARD SHEET TR-1220 01 ENTITLED, "SIGNS FOR CONSTRUCTION AND PERMIT OPERATIONS" SHALL BE USED.

A. TO STOP TRAFFIC

TO STOP ROAD USERS, THE FLAGGER SHALL FACE ROAD USERS AND AIM THE STOP PADDLE FACE TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. THE FREE ARM SHALL BE HELD WITH THE PALM OF THE HAND ABOVE SHOULDER LEVEL TOWARD APPROACHING TRAFFIC.

B. TO DIRECT TRAFFIC TO PROCEED

TO DIRECT STOPPED ROAD USERS TO PROCEED, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.

C. TO ALERT OR SLOW TRAFFIC

TO ALERT OR SLOW TRAFFIC, THE FLAGGER SHALL FACE ROAD USERS WITH THE SLOW PADDLE FACE AIMED TOWARD ROAD USERS IN A STATIONARY POSITION WITH THE ARM EXTENDED HORIZONTALLY AWAY FROM THE BODY. TO FURTHER ALERT OR SLOW TRAFFIC, THE FLAGGER HOLDING THE SLOW PADDLE FACE TOWARD ROAD USERS MAY MOTION UP AND DOWN WITH THE FREE HAND, PALM DOWN.

TRAFFIC CONE OR TRAFFIC DRUM

OPTIONAL TRAFFIC DRUM

PORTABLE SIGN SUPPORT

HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 13 - SHEET 2 OF 2

SEE NOTES 1, 2, 4, 6, 7, 8

SCALE: NONE

WORK IN SHOULDER - TWO LANE HIGHWAY

SIGN FACE 71 SQ. FT. (MIN.)

80-9612

END ROAD WORK

80-9958

SHOULDER CLOSED

80-9603

ROAD WORK AHEAD

31-1906

ROAD WORK AHEAD FINES DOUBLED

ADVANCE WARNING AREA

SHOULDER

TERMINATION AREA

WORK AREA

ACTIVITY AREA

TRANSITION AREA

ADVANCE WARNING AREA

TRAFFIC CONE OR TRAFFIC DRUM

OPTIONAL TRAFFIC DRUM

PORTABLE SIGN SUPPORT

HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 14

SEE NOTES 1, 2, 4, 7, 8

SCALE: NONE

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY

SIGN FACE 62 SQ. FT. (MIN.)

80-9612

END ROAD WORK

80-9603

ROAD WORK AHEAD

31-1906

ROAD WORK AHEAD FINES DOUBLED

ADVANCE WARNING AREA

SHOULDER

TERMINATION AREA

TRANSITION AREA

WORK AREA

ACTIVITY AREA

TRANSITION AREA

ADVANCE WARNING AREA

TRAFFIC CONE OR TRAFFIC DRUM

OPTIONAL TRAFFIC DRUM

PORTABLE SIGN SUPPORT

HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 15

SEE NOTES 1, 2, 4, 6, 7, 8

SCALE: NONE

WORK IN MIDDLE OF ROADWAY TWO LANE HIGHWAY

SIGN FACE 72 SQ. FT. (MIN.)

80-9612

END ROAD WORK

31-1526

80-9603

ROAD WORK AHEAD

31-1906

ROAD WORK AHEAD FINES DOUBLED

ADVANCE WARNING AREA

SHOULDER

TERMINATION AREA

TRANSITION AREA

WORK AREA

ACTIVITY AREA

TRANSITION AREA

ADVANCE WARNING AREA

TRAFFIC CONE OR TRAFFIC DRUM

OPTIONAL TRAFFIC DRUM

PORTABLE SIGN SUPPORT

HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 16

SEE NOTES 1, 2, 4, 6, 7, 8

SCALE: NONE

WORK IN MIDDLE OF ROADWAY AT INTERSECTION

SIGN FACE 144 SQ. FT. (MIN.)

80-9612

END ROAD WORK

31-1526

80-9603

ROAD WORK AHEAD

31-1906

ROAD WORK AHEAD FINES DOUBLED

ADVANCE WARNING AREA

SHOULDER

TERMINATION AREA

TRANSITION AREA

WORK AREA

ACTIVITY AREA

TRANSITION AREA

ADVANCE WARNING AREA

TRAFFIC CONE OR TRAFFIC DRUM

OPTIONAL TRAFFIC DRUM

PORTABLE SIGN SUPPORT

HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 17

SEE NOTES 1, 2, 4, 6, 7, 8

SCALE: NONE

WORK IN TRAVEL LANE AND SHOULDER TWO LANE HIGHWAY ALTERNATING ONE-WAY TRAFFIC OPERATIONS STOP SIGN CONTROL

SIGN FACE 125 SQ. FT. (MIN.)

80-9612

END ROAD WORK

31-0557

STOP

80-9950

80-9834

ONE LANE ROAD AHEAD

80-9603

ROAD WORK AHEAD

31-1906

ROAD WORK AHEAD FINES DOUBLED

ADVANCE WARNING AREA

SHOULDER

TERMINATION AREA

TRANSITION AREA

WORK AREA

ACTIVITY AREA

TRANSITION AREA

ADVANCE WARNING AREA

TRAFFIC CONE OR TRAFFIC DRUM

OPTIONAL TRAFFIC DRUM

PORTABLE SIGN SUPPORT

HIGH MOUNTED INTERNALLY ILLUMINATED FLASHING ARROW

CONSTRUCTION TRAFFIC CONTROL PLAN

PLAN 18

SEE NOTES 1, 2, 4, 7, 8

SCALE: NONE

REV.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: K. GERLACH
DRAWN BY: S. ENGEL
SHEET CHK'D BY: K. WAGNER
CROSS CHK'D BY: K. GERLACH
APPROVED BY: K. WAGNER
DATE: DECEMBER 2023

CDM Smith
101 East River Drive, Suite 1A
East Hartford, CT 06108
Tel: (860) 529-7615

CITY OF NEW BRITAIN, CONNECTICUT
WHITE BRIDGE WATERWORKS FACILITIES
UPPER AND LOWER WELLFIELDS
AND POND PUMPING STATION

TRAFFIC CONTROL
NOTES AND PLANS

PROJECT NO. 10739-264571
FILE NAME: CO29TRFC.DWG
SHEET NO.
C-29

REGULATORY REVIEW SUBMITTAL - NOT FOR CONSTRUCTION
Page 308 of 309

Pumping Station					
Fill			Cut		
Contour	Volume C.F.		Contour	Volume C.F.	Net C.F.
250	8,622		250	0	8,622
251	17,313		251	183	17,130
252	29,777		252	4,202	25,575
253	28,376		253	4,202	24,175
254	25,800		254	4,202	21,598
255	23,466		255	4,202	19,264
256	21,270		256	4,202	17,069
257	14,512		257	4,202	10,311
143,745 Fill C.F.					

Upper Wellfield					
Fill			Cut		
Contour	Volume C.F.		Contour	Volume C.F.	Net C.F.
256	2,257		256	0	2,257
257	3,806		257	0	3,806
258	5,733		258	0	5,733
259	2,045		259	0	2,045
13,840 Fill C.F.					

Lower Wellfield					
Fill			Cut		
Contour	Volume C.F.		Contour	Volume C.F.	Net C.F.
248	914		248	0	914
249	3,932		249	0	3,932
250	0		250	0	0
251	0		251	112	-112
252	6,011		252	635	5,376
253	4,374		253	416	3,958
254	2,994		254	324	2,670
255	1,859		255	251	1,609
256	991		256	151	840
257	0		257	107	-107
19,077 Fill C.F.					

Total Project Fill 176,662 Fill C.F.
6,543 Fill C.Y.

Complying Quantity Reference Sheet	UWF Total Needed (C.F.)
CS-1/2	2,257
CS-1/2	3,806
CS-1/2	5,733
CS-1/2	2,045

Complying Quantity Reference Sheet	LWF Total Needed Including Pumping Station (C.F.)
CS-4	914
CS-4	3,932
CS-4	8,622
CS-4	17,019
CS-3/4	30,951
CS-3/4	28,132
CS-3/4	24,268
CS-1/3/4	20,873
CS-3/4	17,908
CS-3/4	10,204

Contour	CS-1	CS-2	CS-3	CS-4	Total (C.F.)	Difference (C.F.)	Over or Need
256	3,903	1,493			5,396	3,139	OVER
257	4,859	6,077			10,936	7,130	OVER
258	23,973	3,689	11,977		39,639	33,906	OVER
259	21,846	1,469	10,447		33,762	31,717	OVER
89,733 C.F. Storage							

Note: 1,397 C.F. of this total applied to the Lower Wellfield at contour 256'.

Contour	CS-1	CS-2	CS-3	CS-4	Total (C.F.)	Difference (C.F.)	Over or Need
248				29,192	29,192	28,278	OVER
249				27,921	27,921	23,989	OVER
250				24,902	24,902	16,280	OVER
251				20,309	20,309	3,290	OVER
252			32,168	16,115	48,283	17,332	OVER
253			47,369	13,469	60,838	32,706	OVER
254			20,100	7,973	28,073	3,805	OVER
255	3,004		17,436	3,387	23,827	2,954	OVER
256			15,162	1,349	16,511	-1,397	EVEN
257			13,541	205	13,746	3,542	OVER
293,602 C.F. Storage							

Note: Short fall of 1,397 C.F. has been applied from compensatory storage contour 256' at Upper Wellfield.

Total Project CS 383,335 C.F. Storage
14,198 C.Y. Storage