STORMWATER POLLUTION CONTROL PLAN
(Erosion & Sediment [E&S] Control Plan)
City of Hartford Department of Public Works
Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project

Hartford Flood Control System:
South Meadows (Clark) Dike, Hartford, CT

Prepared For:
The City of Hartford Department of Public Works
50 Jennings Road, 2nd Floor
Hartford, CT 06120

Prepared to Comply With:
Connecticut Department of Energy & Environmental Protection's (CTDEEP's) National Pollutant Discharge Elimination System
General Permit for the Discharge of Stormwater from Construction Activities (CGP)

Prepared:
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Revised March 2026

Prepared By:
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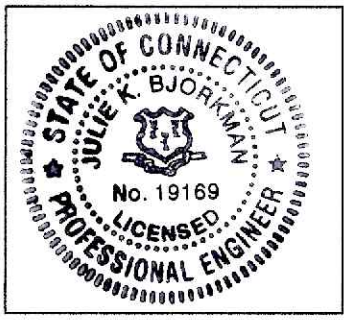
Signature of Registered Professional Engineer

Date: March 30, 2026

P.E. Stamp:

Reg. No.: 19169
State: CT



JKB CONSULTING, LLC
Environmental Permitting, Planning & Compliance

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APPENDICES

1.0 Introduction

1.1 OBJECTIVE

This Stormwater Pollution Control Plan (SPCP) has been prepared for the following project:

The City of Hartford Department of Public Works (DPW)
Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project
Hartford, CT

This SPCP has been prepared to be in conformance with the "*Connecticut Guidelines for Soil Erosion and Sediment Control*", (referred to as "the Guidelines") prepared by the Connecticut Council on Soil and Water Conservation, most recent version, and to meet the requirements of the Connecticut Department of Energy and Environmental Protection (CTDEEP) National Pollutant Discharge Elimination System General Permit for the Discharge of Stormwater from Construction Activities (CGP) (most recent version)[1]. This plan is intended to meet the requirements of the Guidelines, and the Guidelines should be consulted for any measures not included herein, or where a discrepancy is noted.

1.2 PROJECT BACKGROUND

The City of Hartford (COH) is responsible for operating and maintaining the Hartford Flood Control Dike System along the Connecticut River. The City of Hartford Department of Public Works (DPW) is proposing to maintain, repair and replace various portions of the Hartford Flood Control toe drain system at certain locations along its seven (7) mile long levee, primarily along the South Meadows (Clark) Dike. The levee was built by the U.S. Army Corps of Engineers (USACE) circa 1939 and the COH currently owns and maintains it.

Alfred Benesch & Company and GEI Consultants, Inc. (GEI) prepared the engineering design drawings and specifications (contract documents) for this project. Ms. Julie K. Bjorkman, PE, CPESC, of JKB Consulting, LLC, is the preparer of this SPCP, and is providing permitting

[1] 2026-01-01-construction-stormwater-general-permit-final.pdf

assistance services as a subconsultant to GEI. This project is receiving State Bond Commission funding administered by CTDEEP. Several permits and/or authorizations have been obtained for this project as summarized below.

Table 1: Summary of Project Permits

Type or Nature of Permit	Permit No.	Issuing Authority	Date Issued	Expiration Date	Permittee Name
Section 408	NA	USACE	6/24/2024	12/31/2029	City of Hartford
Section 404 GP#2	NAE-2021-2765	USACE	3/4/2022	12/15/2026 or 12/15/2027	City of Hartford
Section 401 WQC	202309359-WQC	CTDEEP	7/22/2024	12/15/2026 or 12/15/2027	City of Hartford
Individual Dam Safety Permit	DS-202206627	CTDEEP	8/9/2024	8/9/2027	City of Hartford
NDDB Determination	202302814	CTDEEP	4/11/2023	4/11/2025	--
GP for the Discharge of Stormwater from Construction Activities (CGP)*	GSN004054	CTDEEP	6/12/2024	12/31/2030	City of Hartford
GP for the Discharge of Groundwater Remediation Wastewater (GWRWW GP) (to be re-registered under the D2R GP)**	CTRSW0132	CTDEEP	3/25/2024	3/1/2025	City of Hartford
Greater Hartford Flood Commission (GHFC) Approval	NA	GHFC	11/9/2022	11/9/2027	City of Hartford
Federal Aviation Administration (FAA) Determinations	Various determinations	FAA	1/28/2025	7/28/2026	Connecticut Airport Authority (CAA)

NA Not applicable GP General Permit

*Note: The CGP Permit No. will change once the Notice of Coverage is issued by CTDEEP. This permit will be re-registered for by April 1, 2026. The new expiration date for CGP (issued effective 1/1/2026) will be 12/31/2030.

**Note: The project is currently registered under the GWRWW GP and will be re-registered under the new version called the General Permit for the Discharge of Dewatering and Remediation Wastewaters (D2R GP), that expires 2/28/2031.

1.3 SPCP OVERVIEW

This SPCP is prepared to be in conformance with the CTDEEP CGP and the Connecticut Guidelines for Soil Erosion and Sediment Control. The selected Contractor(s) will be responsible for following and implementing the approved SPCP. This plan includes a project narrative, construction sequencing, descriptions of erosion and sedimentation (E&S) controls and stormwater management, and a description of maintenance, inspections, and plan implementation.

Appendix A includes several figures that show the project location, wetlands locations, toe drain and stormwater drainage and discharge location, project overview and construction phasing and staging. This includes the following figures:

- **Figure 1** is a USGS Project Location Map and provides an overview of the work;
- **Figure 2** is a location plan / project overview map;
- **Figure 3** is an overview map that shows construction phasing and staging areas;
- **Figure 4** shows project wetland areas and provides a toe drainage and stormwater flow discharge schematic;
- **Figure 5** shows the toe drainage / stormwater discharge location map;
- **Figure 6** is an NDDB Map of the project area;
- **Figure 7** is a project area drainage basin map; and
- **Figure 8** is a soil re-use location plan.

The project Site Plans are included in **Appendix B**. The Site Plans show the existing and future conditions and contours, the E&S measures and details, and the locations of the work, including: installation of the new toe drain; areas of toe ditch sediment removal, reprofiling and slope stabilization; maintenance and cleaning of portions of the toe drain system; and installation of the chimney drain and soil buttress on segments of the system.

2.0 Project Narrative

2.1 SITE LOCATION

This project will occur along the Hartford Flood Control Dike System along the Connecticut River frontage from the Wethersfield town line up to the Windsor town line. This includes work primarily on the landside of the South Meadows (Clark) Dike. **Figures 1** and **2** (in **Appendix A**) show the project location and overview. The majority of the work will be conducted on property owned by the COH; however, some work will occur on easements in favor of the COH. Property owner and parcel information is included in the application submitted to CTDEEP via EZ File for the CGP (copy of application to be included in **Appendix C**).

The majority of the work will occur along the flood control dike system south of the Charter Oak Bridge, and adjacent to Hartford-Brainard Airport (HFD) and the MDC Hartford Water Pollution Control Facility (HWPCF), and between Routes I-91 and 5/15.

This SPCP will be made available on a website as required per Section 3.4.10 of the CGP. A sign will also be posted and maintained as required per Section 5.1.7 of the CGP.

2.2 SITE DESCRIPTION

The work is shown on the Site Plans included in **Appendix B**. The site plans also show the delineated wetlands, E&S controls, the proposed work, and other pertinent features. Southern portions of the Flood Control System along the South Meadows (Clark) Dike have a toe ditch on the landward side of the dike that was created to collect levee toe drainage on the inside of the dike. This swale also collects stormwater from adjacent areas. This man-made ditch is delineated as wetlands (both State and Federal jurisdictional) and identified as such on the site plans. Martin Brogie, Inc., conducted the wetlands delineation and prepared a wetlands report dated 11/10/2021 (included in **Appendix D**).

Portions of the work areas are also located within Natural Diversity Data Base (NDDB) shaded areas (refer to **Figure 6** in **Appendix A**). The CTDEEP NDDB Determination is included in **Appendix C** as part of the application and includes recommended project BMPs.

Note, the work is not located within the FEMA 100-year floodplain (all work is within Zone X – Area with Reduced Flood Risk Due to Levee), no work will occur within any Aquifer Protection Areas (APAs), and the work is not located within the Coastal Boundary.

2.3 SUMMARY OF WORK

The Toe Drain Improvement Project is being undertaken to improve levee safety and meet requirements of the U.S. Army Corps of Engineers pursuant to the System Wide infrastructure Framework (SWIF) program required to maintain the levee's active status. The project involves upgrades to the existing toe drain system on the City of Hartford's Flood Protection System along the Connecticut River in Hartford.

The majority of the work will occur in the South Meadows Dike (aka Clark Dike). For the most southerly section near Route 5/15, toe ditch restoration and bank stabilization are needed. On the South Meadows Dike, 6,000 LF of toe drain is proposed to be replaced (near I-91 and the HWPCF), and 6,427 LF is proposed to be cleaned and repaired (near Brainard Airport and MIRA). A landside chimney drain and soil buttress of approximately 2,400 feet in length on the South Meadows (Clark Dike) section, east of Brainard Airport, will be installed as part of the project.

Conventional excavation machinery and earth moving equipment, trench boxes and erosion control systems are anticipated for the construction of this project. This will include dump trucks to haul excavation spoils from the site and bring pipe installation, embankment and other required materials to the site, and other conventional construction equipment.

The project involved coordination with the Federal Aviation Administration (FAA) to obtain the project approval (Final Determinations). Prior to and during construction there will be further coordination with FAA, Connecticut Airport Authority (CAA), and Brainard Airport personnel regarding construction phasing and work logistics.

2.3.1 Toe Drain Replacement Work

The section of toe drain pipe to be replaced is within the southern portion of the Clark Dike from approximate Stations 10+00 S to 70+00 S. The Clark Dike section of toe drain, which is currently primarily 12" VCT pipe, will be replaced with 12" slotted PVC pipe and associated

precast concrete manholes. The toe drain is generally 4' to 10' in depth below grade. The new pipe will be installed with a sand /aggregate filter as per the plan details.

The project proposes to maintain some of the existing toe drain laterals (or outlets) which discharge to the toe ditch; however, several outlets will require replacement. The new lateral pipes will be installed with 5' x 5' stone splash pads consisting of 2-inch stone where they discharge to the toe ditch.

Estimated disturbance for the toe drain replacement work is approximately 2.7 acres.

2.3.1 Toe Ditch Sediment Removal & Reprofiling and Slope Stabilization Work

The toe drains south of the interior blanket section outlet into an open ditch that has been flagged as State and Federal wetlands. At the southernmost channel segment between Routes 5&15 and I-91, the side slopes of the open channel are as steep as 1.2H:1V. The open channel is adjacent to a paved road which provides access to the South Meadows Pump Station and the dike crest. This roadway is the only access to the pump station in a flood condition when the stop logs have been placed to prevent flood flow behind the dike, and contains a number of important utilities. Utilities include underground electric, sanitary sewer and water utility facilities in the access road. The open channel embankment adjacent to the access road is proposed to be brought back to the original side slope of a minimum of 2H:1V to maintain the stability of the access road and the underground utilities.

It is estimated that the construction of the embankment stabilization will require approximately 1,450 cubic yards (CY) of fill soils. Approximately 850 CY will be placed within the wetland limits. The total area of the bank stabilization is approximately 0.52 acres, with approximately 0.30 acres of the total area within designated wetlands.

Certain isolated sections of the toe drain ditch will be spot "cleaned" to include removal of sediment and vegetation build-up. These areas will then be reshaped, as needed, and revegetated. Estimated disturbance for this work is approximately 0.2 acres.

2.3.1 Maintain and Clean Toe Drain Work

Certain sections of the toe drain were inspected and found to be in generally good condition, comprising 6,427 feet in total. To keep these sections in service, the project plans call for the following sections to be cleaned, inspected, and spot repaired as needed: 2,450 feet of toe

drain (Clark Dike baseline Station 69+50 to Station 94+00); 600 feet of toe drain (P2 baseline Station 42+00 to 48+00); and 3,427 feet of toe drain (P2 baseline Station 48+00 to 82+27) which extends northerly into the Hartford Dike). These pipe sections will be CCTV inspected and will be cleaned as needed to remove existing sediments. Point repairs will be performed as needed to the existing toe drain piping based on data to be obtained during the inspection and cleaning operations.

2.3.1 Chimney Drain and Buttress Work

An interior blanket and chimney drain on the landside of the Clark Dike between Sta. 94+00S and 117+00S are also included in this project. The interior blanket chimney drain and soil buttress will improve seepage and stability criteria for the levee. The soil buttress will increase the footprint of the South Meadows Dike on the landside but will remain within the Hartford Levee Right of Way. The blanket will extend up to the height of the 0.2- percent annual chance flood (Top of Buttress Elevation 33.5 NAVD88) and will have a slope of 3H:1V, which approximates the existing dike slope. This feature is being added to meet the factor of safety required to meet USACE embankment stability criteria.

The soil buttress will be placed on the existing levee and consist of a 1.5’ thick layer of gravel filter material and the filter material will be topped with 1.7’ of soil to buttress the filter. Topsoil and turf establishment will be placed on top of the filter and buttress materials. The chimney drain will consist of a new slotted PVC pipe toe drain (24”-36” diameter) and will be placed at the base of the filter material and connect to the existing toe drain system. The new chimney drain will be connected to and run parallel to the existing toe drain system but located approximately 25 feet from the existing toe drain, further away from the dike on the landside. The existing toe drain (in the area adjacent to the new chimney drain) is proposed to be abandoned by filling it with a low strength flowable concrete or equivalent.

It is estimated that the construction of the chimney drain and buttress will consist of approximately 8,900 CY of Filter Material, 8,000 CY of soil buttress, 2,900 CY of topsoil, 2,360 LF of slotted PVC pipe and associated manholes, and will cover approximately 3.6 acres.

2.4 DIKE TOE DRAINAGE AND STORMWATER HANDLING

Toe drainage from the flood control dike system is collected via an underground collection system consisting of toe drain piping and manholes (MHs) that flows from north (near the Charter Oak Bridge) to south, and discharges to the open toe ditch or swale that begins at approximately STA 70+00S (east of Brainard Airport). **Figure 4** (in **Appendix A**) shows the delineated wetlands and toe drainage and stormwater flow discharge schematic. Stormwater is also discharged to the toe ditch / swale from the adjacent HWPCF and adjacent overland flow areas that drain to the swale which are primarily grassed.

There are a series of toe ditches / drainage swales that flow from north to south (east of HFD) and then from east to west (on the south side of the HWPCF) to the South Meadows Storage Pond via culverts under I-91 and Routes 5/15. From the South Meadows Storage Pond (SMSP), collected toe drainage and stormwater is discharged to Folly Brook which is a tributary to Wethersfield Cove which drains to the Connecticut River (refer to **Figure 4** in **Appendix A**). Water collected in the SMSP is discharged via gravity when the CT River is below a certain river elevation, and is pumped when the CT River is above a certain elevation, as prescribed in the COH Operations and Maintenance (O&M) manual. The discharge from the SMSP (called *Outfall #001* in this application and SPCP) is via a triple conduit made of three (3) reinforced concrete box culverts, each 6.5 ft. x 7 ft. The outfall discharge location is shown on **Figure 5** in **Appendix A**.

The outfall eventually discharges to the Connecticut River with waterbody segment ID: CT4000-00_03. This segment is not on the CTDEEP's "*Impaired Waters Table for Construction Stormwater Discharges*". This waterbody segment has a TMDL for bacteria (e. coli) and is listed as an impaired water for PCBs in the CTDEEP's "*2022 Integrated Water Quality Report*".

This project does not include any changes to the way that flood control dike toe drainage or stormwater is handled. It will be collected and conveyed in the same manner it currently is. The project includes replacing sections of the underground toe drain piping and laterals adjacent to the open toe ditch / drainage swale; toe ditch sediment removal and reprofiling in limited areas; toe ditch bank stabilization in limited areas; replacing sections of underground toe drain piping along with a new chimney drain and soil buttress along the landside of the dike; and cleaning and spot repair of designated segments of the toe drain system. Existing toe drains

within the chimney drain/buttress section will be abandoned in place by filling with grout or approved controlled low strength material.

2.5 SITE DISTURBANCE

The project will involve earth disturbance to accomplish the construction of the new toe drain piping and laterals, the sediment removal and bank stabilization work, installation of the soil buttress and chimney drain segment, and minor point repair work. Small segments of the work will cause disturbance in delineated wetlands areas.

The area of the site and site disturbance for the project are estimated as follows:

- Total project site work area is estimated at approximately **+/- 7.02 acres**.
- Total site disturbance is estimated at approximately +/- **7.02 acres,** as follows:
  - Toe drain replacement work: ~2.7 acres;
  - Toe ditch embankment stabilization work: ~0.52 acres;
  - Isolated toe ditch sediment removal & lateral outlets: ~0.2 acres, max.;
  - Chimney drain and buttress work: ~3.6 acres.
- Disturbance within wetlands is estimated at approximately **0.5 acres maximum.**

Note the following regarding runoff coefficients and impervious coverage:

- The dike and adjacent work areas have an established grassed surface, and the existing runoff coefficient is estimated in the range of: 0.2 to 0.4.
- There will be no change to impervious cover as part of this project and any areas disturbed during construction will be revegetated and restored consistent with pre-construction conditions. Therefore, the runoff coefficient is expected to remain the same as it was pre-construction.

3.0 Construction Phasing, Staging and Sequencing

Erosion and sedimentation (E&S) control measures are designed to minimize erosion and sedimentation of nearby and surrounding wetlands and watercourses. Silt fence will be installed at appropriate locations near all construction areas involving earth disturbance, or surrounding Contractor staging areas or soil stockpiles, as appropriate. A combination of silt fence and compost filter sock will be utilized to provide a double row of sediment barrier adjacent to all wetland areas. Existing catch basins located within the immediate vicinity of construction or site disturbance work, if any, will be protected using temporary sediment traps/ catch basin inserts / silt sacks. Other measures, such as anti-tracking pad and dust controls, will be utilized as described herein and as shown on the site plans in **Appendix B**. The main focus of these E&S control measures is to protect any nearby stormwater features and the wetlands (i.e., the toe ditch / drainage swale).

Minimum erosion and sedimentation (E&S) controls and details are shown on the site plans, and are described in further detail in the subsequent sections of this plan. The site plans and specifications (Contract Documents) include detailed requirements for protection and restoration of the land, and for installation and maintenance of appropriate E&S controls in conformance with applicable Federal, State and local requirements. The selected Contractor(s) will be responsible for implementing this Plan and for complying with all applicable regulatory requirements.

3.1 CONSTRUCTION CONTRACT PHASING

Currently, the anticipated project schedule is shown below, though the schedule may change due to permitting timeframes, project funding, or other factors.

Item	**Anticipated Timeframe**
Bidding & Contract Award	Winter 2025-2026
Begin Construction	Spring / Summer 2026
End Construction	2027

Note the project will be required to comply with any and all obtained or required FAA determinations and/or CAA approvals or requirements. The Contractor shall provide an updated schedule and sequence prior to the start of work as described in Section 3.3.

The work has been broken down into four (4) phases as shown on **Figure 3** in **Appendix A.** Since a substantial segment of the work will occur directly adjacent to Hartford-Brainard Airport (HFD), the work needs to be closely coordinated with airport operations and conform to FAA requirements. FAA determinations were obtained for the project and are included in specification 01 14 00: Special Permit Restrictions and Utility Authorizations included in **Appendix E**. For purposes of obtaining the FAA determinations, haul routes, work areas, staging areas and phasing were developed and depicted on several plan sheets in the site plan set, called the Construction Safety Phasing Plan (CSPP, 8 sheets at the end of the site plans). The first sheet of the CSPP "CSPP-1 – Overall" shows the overall phasing plan and is included as **Figure 3,** showing the work broken down into four (4) phases. The other CSPP plan sheets show details for the various phases. It should be noted that portions of the work will be required to be conducted at night, in addition to other requirements in the FAA determination. The Contractor will be required to closely coordinate with HFD and follow all requirements in the FAA determination. A table showing the currently anticipated construction phases and staging areas with applicable notes is provided below:

Table 2: Construction Phasing Summary

Construction Phase	Overview Figure 2 (Clark Dike Baseline ~STA)	Figure 3 (Pipe Centerline Baseline ~STA)	Notes
Area not subject to FAA determination	--	(55+50 to 82+27 (P2) outside FAA limits shown on Fig. 3)	--
➢ Phase 1A	42+00 to 46+00 (P1A); 117+00 to 126+00 (P1A)	18+00 to 22+55 (P1C); 47+00 to 55+50 (P2)	--
➢ Phase 1B	93+50 to 101+50 (P1A)	24+05 (P2) to 31+20 (P2)	--
➢ Phase 2	46+25 to 61+50 (P1A); 101+25 to 117+00 (P1A)	22+55 to 36+20 (P1C); 31+20 to 47+00 (P2)	NIGHT WORK: • Runway 2/20 closed • Turf Runway NE/SW closed during
➢ Phase 3	61+50 to 93+50 (P1A)	36+20 (P1C) to 24+05 (P2)	NIGHT WORK: • Runway 11/29 closed • Turf Runway NE/SW closed during
➢ Phase 4	10+00 to 42+00 (P1A)	0+00 to 9+99 (P1B); 0+00 to 18+00 (P1C)	--
STAGING AREAS:			
- Staging Area 1	10+00 to 13+00 (P1A)	0+00 to 2+50 (P1B)	--
- Staging Area 2	24+00 to 25+00 (P1A)	0+00 to 1+00 (P1C)	--
- Staging Area 3	81+50 to 88+00 (P1A)	12+00 to 18+00 (P2)	STAGING AREA 3: Can only be used under Phase 3 restrictions (Night Work as noted above).
- Staging Area 4	116+50 to 117+50 (P1A)	46+50 to 47+50 (P2)	--

3.2 CONTRACTOR STAGING

Contractor staging (laydown/storage) will occur in designated locations (Staging Areas #1 through 4) as shown on **Figure 3**. If the Contractor needs additional laydown or staging areas, such areas will be designated or approved by the Engineer and Owner prior to construction, and the Contractor will be responsible for coordinating and obtaining any FAA or CAA determinations or approvals required. Note that any of the designated staging areas (1 through 4) as shown on **Figure 3** may be used during the various phases of the work as long as all other conditions of the FAA Determination and other project requirements are met.

3.3 GENERAL CONSTRUCTION SEQUENCE

The Contractor(s) for each construction project, as applicable, will be responsible for providing a detailed sequence and schedule for the work under that particular construction contract or phase prior to the start of construction. The Contractor's schedule and sequence must adhere to the phasing described herein or as may be updated prior to construction, other applicable work restrictions (e.g., time of day restrictions and requirements in the FAA determinations and time of year restrictions in the NDDB Determination) included in the Contract Documents, and reflect any construction project or phasing changes in the Contract Documents, any project permits, or any funding approvals, and address any other relevant changed conditions identified prior to construction. The site shall be phased to avoid the disturbance of over five (5) acres at one time, as required by the CGP. The Engineer and Owner will review the schedules for overall conformance with this Plan and the Contract Documents.

This project is essentially a linear project and will be constructed in phases as described earlier, or as updated prior to construction. As such, the general sequence may be repeated for the various segments or phases of the work, as applicable. In general, construction will be sequenced as follows:

- A pre-construction meeting will be held prior to commencement of construction and/or each phase of construction, as applicable. At a minimum, the DQP, any Qualified Inspector(s), and all site Contractors and Subcontractors (as appropriate) shall attend. The meeting shall convey the design, E&S control measures, plan implementation and inspection requirements and include a site walk. A pre-construction meeting report shall be prepared, including relevant contact information and signatures of all attendees (refer to the Form in **Appendix G** (**G1**).
- The limits of work and critical resource areas (e.g., wetlands) will be field-staked and/or identified.
- Appropriate E&S control measures shown or required will be installed prior to site disturbance, including, but not limited to the following:
    - ✓ Installation of a double row of control measures (e.g., silt fence and sediment control log / compost filter sock or hay bale barrier) between work areas and adjacent wetlands;
    - ✓ Installation of silt fencing (at a minimum) adjacent to other work areas;
    - ✓ Installation of hay bale check dams where shown or required for slope stabilization, dewatering, or other work in wetland swales as shown on the Site Plans;
    - ✓ Installation of silt fencing or hay bale barrier surrounding Contractor Staging Areas or stockpiles as needed;

  - ✓ Installation of catch basin inserts / silt sacks in any nearby catch basins that could be impacted by the work; and
  - ✓ Installation of gravel construction entrances or anti-tracking aprons at the entrance(s) to disturbed work areas and at appropriate locations where appropriate or required.
  - ✓ Other measures may be installed if determined to be appropriate or necessary.
- During construction, the Contractor will conduct weekly inspections and inspections within 24 hours of the end of significant rainfall events (meaning a storm event of greater than 0.5 inches) of all E&S control measures and maintain such measures in accordance with this plan and the E&S Guidelines.
- Depending on the phase of the project, the following work will be completed in accordance with the plans and specifications, including:
  - ✓ Installation of the new toe drain, including laterals and splash pads;
  - ✓ Removal of sediment and reprofiling of the swale in designated segments or locations;
  - ✓ Slope stabilization in designated segments of the swale;
  - ✓ Maintenance flushing and cleaning of designated segments of the toe drain system;
  - ✓ Point repairs of the toe drain system as needed; and
  - ✓ Construction of the chimney drain and buttress.
- Dewatering will be handled in accordance with the specifications and this plan.
- Excavated soils and sediment will be handled in accordance with the project specifications and will either be reused on-site or disposed off-site.
- Stockpiles, if any, will be placed in designated staging areas and protected by hay bale or silt fence barriers and stabilized. Specific details and specifications address measures to be utilized for contaminated soils if encountered.
- Turf establishment will be installed and site restoration per the plans and specifications will be completed.
- Any remaining disturbed areas will be graded and stabilized per the site plans and specifications.
- All E&S control measures (e.g., silt fence, hay bales, etc.) will be removed after the site is fully stabilized.
- Note that cleaning of stormwater structures is not applicable to this project as described later in Section 5.2.

4.0 Soil Erosion & Sediment Controls

4.1 DESCRIPTION OF CONTROL MEASURES

Various E&S control measures will be utilized to prevent or minimize soil erosion and sedimentation of any impacted stormwater features and adjacent wetlands (e.g., toe ditch / drainage swale). Refer to the site plans in **Appendix B** for the locations and details for the installation of E&S control measures. The notes and details on the drawings also include general requirements for the installation and maintenance of these measures as well.

Copies of the following specifications are also included in **Appendix E** for reference:

- 01 14 00: Special Permit Restrictions and Utility Authorizations
- 01 57 13: Temporary Erosion & Sediment Control
- 01 57 19: Project Permits and Environmental Controls
- 02 61 15: Handling of Regulated Soil
- 02 61 50: Transportation and Disposal of Regulated Soil
- 31 23 23: Fill and Backfill
- 32 90 00: Site Restoration
- 32 92 00: Seeding
- 44 01 40: Operation and Maintenance of Water Discharge System

E&S control measures shall be installed as shown or specified. If any additional measures are determined to be necessary, the Guidelines shall be consulted for design criteria and general installation details. In addition, all E&S control measures shall comply with the requirements of the CTDEEP's CGP. Provided below are descriptions of specific E&S control measures.

4.1.1 Sedimentation Controls

Sedimentation controls mainly include silt fences, sediment control logs / compost filter socks and hay (straw) bale barriers or check dams. Wherever hay bales are indicated, certified noxious weed-free straw shall be utilized. Catch basin inserts / silt sacks may also be used if needed. Anti-tracking aprons (e.g., gravel construction entrances) may also be utilized as shown or if determined to be necessary. These measures will be installed as detailed on the site plans. Land disturbance is also required to be kept to a minimum to reduce soil erosion and

sedimentation. Wherever practicable, work shall be phased to avoid disturbance of more than five (5) acres at any one time.

Double row silt fence barrier: Where site disturbance occurs within fifty (50) feet upgradient of a wetlands or watercourses, a double row of sediment barrier is required between disturbed areas and any downgradient wetlands or waters. A combination of silt fence and compost filter sock will be utilized to provide a double row of sediment barrier adjacent to all wetland areas. This includes all work in or adjacent to the toe ditch / wetlands drainage swale, including the following work areas at a minimum:

- Downgradient of installation of the new toe drain next to the toe ditch / drainage swale;
- Around each new toe drain lateral where it discharges into and joins the toe ditch;
- Downgradient of toe ditch sediment removal and reprofiling work;
- Downgradient of any toe ditch slope stabilization work; and
- Downgradient of the chimney drain and buttress installation work.

Single row silt fence or hay bale barrier: At a minimum, a single row system (either silt fence or hay bale barrier) will be utilized downgradient of any point repairs necessary, as determined applicable. If such work is within 50-feet of a wetland or watercourse, then a double row barrier (described above) will be required to be utilized. These areas may be reviewed on a case-by-case basis and the measure(s) selected for use must meet the E&S Guidelines and requirements of the CGP, and be approved by the Owner and Engineer.

Hay bale check dams: Hay bale check dams will be utilized (as shown on the site plans) at intervals along the toe ditch / drainage swale for the slope stabilization work. A double row of hay bale check dams will also be utilized downstream of toe ditch sediment removal and reprofiling work areas. Hay bale check dams will also be used as part of dewatering operations as described in the next section.

Construction entrance: Construction entrance(s) will be utilized where determined necessary at the entrance to construction areas or disturbed earth work areas from adjacent paved or public access roads.

4.1.2 Dewatering Wastewaters

Dewatering is anticipated to be required for various aspects of construction and may be handled in different ways as described below. Any E&S control measures utilized for

dewatering and drainage systems will be required to conform to the Guidelines. At a minimum, removal of sediment and solids from the dewatering wastewater discharge will be required, as specified. The Contractor will be required to comply with all applicable dewatering wastewater discharge permit(s), including any conditions or requirements for treatment, flow monitoring, or sampling.

CGP - General Dewatering Wastewater:

Work in the wetlands swale (toe ditch) may or may not require dewatering in localized areas during the course of the work depending upon seasonal water levels encountered. This may include dewatering of small segments of the swale to install the toe drain laterals and associated stone splash pads, to conduct the sediment removal and reprofiling work, and to conduct the slope stabilization work. In these cases, the Contractor will be responsible for dewatering (as needed) and providing appropriate E&S controls in conformance with the Guidelines and the CGP, including reducing sediment, providing velocity dissipation, and protecting disturbed areas. Any dewatering wastewater discharges to surface waters shall meet the treatment requirements as per project permits, minimize the discoloration of receiving waters and measures shall be utilized that will ensure dewatering wastewater will not cause scour, or erosion or contain suspended solids in amounts that could reasonably be expected to cause pollution of the surface waters. In addition, no discharge of dewatering wastewater shall contain or cause a visible oil sheen, floating solids or foaming in the receiving water. Dewatering systems shall be located on upland soils, unless approved otherwise.

Dewatering small segments of the swale may involve pumping water out of the swale upstream of the work area using appropriate pump intake protection and discharging the dewatering water back to the swale downstream of the work area with applicable control measures and appropriate outlet protection. Typical E&S control measures would include the use of hay bale check dams in the swale and discharge through a geotextile filter bag as shown on site plan sheet “DET-6”. The Contractor will be responsible for developing the specific means and methods for this type of dewatering in conformance with the Guidelines and the CGP. Portions of specification 44 04 40: Operation and Maintenance of Water Treatment and Discharge System and drawing “DET-6” provide additional requirements, as applicable. If turbidity or discoloration or other pollutants are observed in the discharge from dewatering, additional or alternate control measures or corrective actions must be implemented by the

Contractor. The Contractor shall identify and implement such additional control measures and document corrective actions in the SPCP.

This method of dewatering may only be utilized for uncontaminated dewatering wastewater under the CGP. Any contaminated dewatering wastewater will be handled as described in the section below. Refer to **Figure 8** (excerpted from the soil re-use location plan for the project) for information regarding the location of varying soil conditions (e.g., polluted, natural or contaminated soil).

General Permit for the Discharge of Groundwater Remediation Wastewater (GWRWW GP) / Discharge of Dewatering and Remediation Wastewater (D2R GP):

Dewatering is anticipated to be required associated with the excavation required for construction of the new toe drain and for installation of the new chimney drain. It is anticipated that groundwater will be encountered in various locations and the excavations will need to be dewatered to conduct the work. Groundwater investigation results indicated low levels of TPH, SVOCs and metals. The Owner previously registered under CTDEEP's General Permit for the Discharge of Groundwater Remediation Wastewater (GWRWW GP) using previously obtained groundwater data to cover discharging this water to the toe ditch / drainage swale. Note, the GWRWW GP expired in 2025 and that permit was replaced with the General Permit for the Discharge of Dewatering and Remediation Wastewater (D2R GP). The project will be re-registered under the D2R GP by June 1, 2026 as required to maintain coverage. Dewatering wastewater will be treated using a mobile or "traveling" water treatment system (WTS) as prescribed in the specification 44 01 40: Operation and Maintenance of Water Treatment and Discharge System (included in **Appendix E**), and details are provided on plan sheet "DET-6".

Dewatering and treatment systems, including details and specifications, shall be designed by the Contractor (prepared by a Qualified Environmental Professional (PE or LEP) as defined in the D2R GP)) and submitted to the Engineer and the Owner for approval (refer to specification Section 44 01 40 in **Appendix E**). The treatment system design/components are to be determined by the Contractor, however, will generally include equalization tank(s), particulate filtration, carbon filtration and ion exchange resin filtration, along with appropriate controls and instrumentation, designed to treat collected water to the treatment parameters set forth in the GWRWW GP / D2R GP for discharges to surface waters.

The Contractor will be required to develop a "Site Operations Plan" per the specifications and identify the proposed discharge location(s). Dewatering wastewater may be discharged either to the toe ditch drainage channel, or adjacent grassed area or levee areas that flow to the toe ditch. Discharge point(s) are anticipated to be at multiple locations of the existing toe ditch system close to each work area along the Toe Drain project. The Contractor will be required to install appropriate E&S control measures to address velocity dissipation, sedimentation and erosion at the point of discharge.

4.1.3 Protection of Stockpiles

Contractor staging and/or soil stockpiles may be placed in designated staging areas, or at alternate locations if approved by the Engineer and/or the Owner and FAA/CAA. Soil stockpiles will be surrounded by either hay bales or silt fencing. Specific details and specifications address measures to be utilized for contaminated soils if encountered (refer to project plans and specifications). The maximum permissible slope of the stockpile will be 2H:1V. The area selected for stockpiling shall be dry and stable and the location approved by the Engineer and/or the Owner. The Contractor will be responsible for securing any and all determinations or approvals from the FAA or CAA for any stockpiles areas and will be required to manage and maintain any stockpiles in conformance with any FAA or CAA determinations, approvals or requirements. Stockpiles will also be required to be stabilized or securely covered, as appropriate, in conformance with all permits, approvals and the plans and specifications. Stockpiles that are not to be used within 30 days shall be seeded or mulched immediately after formation of the stockpile.

4.1.4 Dust Control

Dust control measures will be implemented in accordance with the Guidelines if determined to be necessary. Off-site vehicle tracking of sediments and the generation of dust shall be minimized. Wet dust suppression methods shall comply with section 22a-174-18(c) of the Regulations of Connecticut State Agencies. It is recommended that water be used for dust control due to the proximity of wetlands at the site. The volume of water sprayed to minimize dust shall be minimized to prevent the runoff of water, and any water running off shall contain no visible oil sheen, floating solids, discoloration or cause foaming in the receiving stream.

4.1.5 Restoration and Site Stabilization

The site plans and project specifications include provisions for appropriate erosion and sediment controls and details and site restoration. Disturbed areas will be stabilized with mulch or temporary seeding in accordance with the requirements and timeframes noted on the site plans and in accordance with the specifications. At a minimum, any disturbed area left exposed for a period of greater than 14 days will be stabilized. Stabilization should occur within seven (7) days after suspension of work in the disturbed area(s).

Site restoration will include installation of an erosion control blanket (where shown or required), topsoil / loam, turf establishment / seeding as shown on the site plans and detailed in the project specifications. All disturbed areas will be revegetated with native New England seeding as specified. Two types of seed mixes are specified in the Seeding Specification 32 92 00 in **Appendix E**, including one for use in the toe ditch / drainage swale and one for use on disturbed levee embankment and other areas outside the toe ditch / drainage swale.

The Contractor will be responsible for using means and methods to control and avoid the introduction or spread of invasive plant or animal species as a result of construction activities. If significant invasive species are observed during construction, best management practices will be used in accordance with UCONN's Connecticut Invasive Plant Working Group's (Home | Connecticut Invasive Plant Working Group (uconn.edu)) invasive plant management guides and information.

4.2 DETAILS AND INSTALLATION

Refer to the site plans and project specifications for all E&S control measure details and installation requirements.

4.3 HOUSEKEEPING AND OTHER CONTROL MEASURES

The Contractor will be required to implement this Plan and shall follow good housekeeping practices, materials management and spill prevention practices that will minimize the risk of spills or accidental exposure of materials to stormwater runoff or wetland areas. These minimum practices are outlined below.

4.3.1 Good Housekeeping and Waste Disposal

The following general practices will apply:

- The Contractor shall make an effort to store only enough product on-site required to do the job.
- All materials stored on-site will be stored in a neat, orderly manner in their appropriate containers and, if possible, under a roof, plastic or other weatherproof enclosure.
- Products will be kept in their original containers with the original manufacturer's labels intact.
- Original labels and material safety data sheets will be retained.
- Substances will not be mixed with one another unless in accordance with the manufacturer's recommendations.
- Whenever possible, all of a product will be used up before properly disposing of the container.
- Manufacturers' recommendations for proper use and disposal will be followed. If surplus product must be disposed of, follow manufacturer, State or Federal recommended methods for proper disposal (whichever is most stringent).
- The Contractor shall take measures to ensure that no litter, debris, building materials, or similar materials are discharged to waters of the State.
- The Contractor will inspect periodically to ensure proper use and disposal of materials. All wastes will be properly managed in accordance with applicable regulatory requirements.
- All on-site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Care will be taken in the selection of the location and method of storage of any petroleum products, hazardous materials, or similar, so as to minimize the potential for accidental spillage, leakage, or release to the environment. All chemical and petroleum product containers stored on the site shall be provided with impermeable containment which will hold at least 110% of the volume of the largest container, or 10% of the total volume of all containers in the area, whichever is larger, without overflow from the containment area. All chemicals and their containers shall be stored under a roofed area except for those chemicals stored in containers of 100-gallon capacity or more in which case a roof is not required. Double-walled tanks satisfy this requirement.
- No washout of concrete trucks shall be allowed on-site with a discharge to a surface water or to the stormwater system. Washout of applicators, containers, vehicles and equipment for concrete, paint and other materials shall be conducted in a designated washout area with no surface discharge. The washout area shall be located outside any buffers and at least 50 feet from any stream, wetlands, or sensitive area, or in an entirely self-contained system. Washout areas shall be clearly flagged and marked, inspected weekly, and immediately repaired upon discovery of any holes, leaks, or overflows. All hardened concrete waste shall be properly removed and disposed.

4.3.2 Spill Prevention and Response Practices

In addition to the good housekeeping and material management practices discussed above, the following general practices will be followed for spill prevention, response and cleanup:

- Materials and equipment necessary for spill response will be maintained on-site. Equipment and materials may include, but are not limited to: gloves, safety glasses, speedi-dri, spill "pigs", sorbent materials, poly sheeting, and miscellaneous containers (e.g., drums).
- Adequate personnel will be trained in spill response procedures.
- The Contractor shall designate a specific person to be responsible for spill prevention and response.
- The Contractor shall notify the Owner and Engineer of any spill or release prior to notifying any regulatory authorities, as applicable.
- All spills will be properly reported and cleaned up immediately upon discovery in accordance with applicable laws and regulations and any permits obtained for the project.
- Disposal of any materials will be in accordance with all applicable laws and regulations.

4.4 MAINTENANCE

During construction, various measures will be used to conserve soil and minimize erosion until disturbed areas are stabilized. The selected Contractor will be responsible for inspecting, maintaining and periodically cleaning all E&S control measures in accordance with the site plans and contract specifications.

Remove sediments when deposits reach one-half the height of a silt fence or hay bale barrier. Replace catch basin inserts / silt sacks or temporary sediment traps in accordance with manufacturer's instructions or as necessary to maintain catch basin in proper working function.

For anti-tracking aprons, construction entrances will be maintained in a condition to prevent tracking and washing of sediment onto paved surfaces. This may include the need for periodic top dressing with additional stone as conditions may warrant. The anti-tracking apron may be required to be modified (e.g., increasing the length, and/or installing wash racks) if the apron is determined not to be sufficient to remove the majority of sediment.

For sediment/dewatering systems or basins, inspections should be frequent, if not continuous, during operation for proper functioning. Accumulated sediment should be removed

from systems or basins periodically, as appropriate. All dewatering will be conducted in accordance with all required permits (e.g., CGP or D2R GP).

For concrete washout areas, hardened concrete shall be removed when materials have accumulated to ½ the height of the container or washout area.

The Contractor will also be responsible for periodically cleaning any E&S control measures as determined to be necessary. Minimum requirements for cleaning are detailed on the site plans, or the Guidelines should be referenced.

After construction and site stabilization, it is anticipated that the potential for erosion will be minimal. The Contractor will be responsible for post-construction restoration determined to be necessary and in accordance with the Contract Documents.

4.5 INSPECTIONS

In accordance with Specification 01 57 13 (in **Appendix E**), the Contractor is required to submit the name(s) of any designated inspectors and their qualifications in accordance with the definition of "Qualified Inspector" in the CGP. The Contractor is also required to submit the designated "normal working hours" for the Contract, in accordance with project requirements including FAA Determination/ HFD allowable work hours, and any other requirements in the project plans and specifications (Contract Documents).

4.5.1 Plan Implementation Inspection

Prior to commencement of *each phase* of construction activity, the "designing qualified professional" shall conduct inspections as follows:

- At least once within the first thirty (30) days of construction activity; and
- At least three (3) times, with seven (7) or more days between inspections, within the first ninety (90) days of construction activity.

The inspection shall:

- Confirm compliance with the CGP, and proper initial implementation of all control measures designated in this Plan for each phase of construction.

The inspector shall be someone who:

- Is not an employee (as defined by the IRS - Internal Revenue Code of 1986) of the applicant; and

- Has no ownership interest of any kind in the project for which the application is submitted.

The designated "designing qualified professional" (DQP) responsible for developing this SPCP is:

- Julie K. Bjorkman, PE, CPESC, JKB Consulting, LLC

Ms. Bjorkman is a Qualified Soil Erosion and Sediment Control Professional. Inspector qualifications are included in **Appendix F**. Ms. Bjorkman will be responsible for conducting the requisite plan implementation inspections as described herein in accordance with the schedule shown above. The Contractor will be required to contact the DQP to schedule and coordinate the required inspections. The Contractor shall not commence any phase of construction activity until notifying the DQP and coordinating the required plan implementation inspections. **Appendix G (G2)** includes blank inspection forms for these inspections.

4.5.2 Routine Inspections

The Contractor shall maintain a rain gauge on-site to document rainfall amounts. At a minimum, the Contractor shall conduct routine inspections as follows:

- Weekly inspections (including weekly turbidity monitoring if applicable; refer to Section 4.6); and
- Inspections within 24 hours of a storm that generates a discharge. For storms that end on a weekend or holiday, an inspection is required within 24 hours only for a storm that equals or exceeds 0.5 inches. For storms <0.5 inches, inspection shall occur immediately upon the start of the subsequent normal working hours.
- **Appendix G (G3)** contains blank inspection forms. Contractors may revise or amend these forms to suit the particular construction Contract if they still meet these requirements and are approved by the Owner or the Engineer.
- Routine inspections shall be conducted until a Notice of Termination (NOT) has been filed with CTDEEP.
- In areas that have been temporarily stabilized, routine inspections will be conducted weekly until final stabilization has been achieved.
- Once construction is completed, the Contractor shall coordinate the post-construction stormwater inspection per Section 4.5.3 below.
- Once final stabilization has been achieved, the Contractor shall conduct the final stabilization inspection per Section 4.5.4 below.
- Following the "final stabilization inspection", once the final stabilization has been achieved, routine inspections will continue to be conducted at least monthly.
- The Contractor will be responsible for documenting:
    - The date(s) of completion of installation of post-construction stormwater measures.

- Note that the date(s) of cleaning of SW measures is not applicable to this project as described in Section 5.2.
- The date of the end of construction (typically substantial completion).
- The date of "final stabilization".

Qualified personnel shall be used for inspections. The Contractor shall provide the names and qualifications of proposed "qualified inspector(s)" per the definition in the CGP. Inspector qualifications shall be maintained in **Appendix F**.

Areas to be inspected include the following:

- Any disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for the potential for pollutants to enter the drainage system;
- E&S control measures or devices and any structural control measures shall be observed to ensure they are operating properly;
- Any designated washout areas;
- Any stockpiles;
- Where discharge locations are accessible, they shall be inspected to assess if erosion control measures are effective; and
- Site or construction area entrances and exits shall be inspected for evidence of off-site tracking.

The inspection report shall include a statement that, in the judgment of the qualified inspector, the site is either in or out of compliance with the terms and conditions of this SPCP and the CGP (applicable form in **Appendix G [G3]**). If, based on the results of the inspection, it is determined that potential sources and pollution prevention measures require modification, the inspection report shall include a summary of remedial actions required to bring the site back into compliance. Non-engineered corrective actions shall be implemented within 24 hours, and any necessary revisions shall be made to the Plan within three (3) calendar days following the inspection. Any necessary engineered corrective actions shall be implemented on site within seven (7) days, and any necessary revisions shall be made to the Plan within ten (10) calendar days following the inspection. During the period in which any corrective actions are being developed, or are not yet fully implemented, interim measures shall be implemented to minimize the potential for the discharge of pollutants from the site. If the same routine maintenance fix is required repeatedly (e.g., 3 or more times), the DQP shall be consulted and develop a revised control measure (to be documented on inspection forms).

The completed inspection form (report) shall also summarize the scope of the inspection, name and qualifications of personnel making the inspection, the date of the inspection, weather

conditions including precipitation information, the major observations, a description of the stormwater discharge(s) from the site, any water quality monitoring performed during the inspection, and any actions taken, and shall be signed by the permittee (City of Hartford DPW) or his/her authorized representative (e.g., the Contractor), including the requisite certification statement on the form. All completed inspection forms (reports) shall be signed (refer to Section 6.4.2) and retained as part of the Plan for at least five (5) years after the date of inspection.

4.5.3 Post-Construction Inspection

Once all post-construction stormwater measures have been installed, a "qualified soil erosion and sediment control professional" or a "qualified professional engineer" (as defined in the CGP) will inspect the site to confirm compliance with the post-construction stormwater management requirements of the CGP. Inspector qualifications shall be maintained in **Appendix F**. The Contractor will be required to coordinate this inspection with the Engineer and the Owner. It is anticipated that this inspection will be conducted by a representative of the Engineer or Owner. A "post-construction inspection" report shall be prepared by the inspector (including time/date stamped photographs) using the applicable form in **Appendix G (G4)**. The inspector will also complete the applicable certification ("Locally Exempt Post-Construction Inspection Certification") in the NOT form, as applicable, to indicate compliance with the post-construction stormwater measures indicated in this SPCP. Note that currently a copy of the 1-5-2022 NOT Form is included in **Appendix H** until a new NOT form is issued by CTDEEP under the new CGP. *Note, that post-construction stormwater control measures are not specifically applicable to this project (refer to Section 5.1), and cleaning of stormwater structures is also not applicable to this project, as described in Section 5.2. A notation as such will be added to the "Locally Exempt Post-Construction Inspection Certification", as applicable.*

4.5.4 Final Stabilization Inspection

Once the site has achieved "final stabilization" (as defined in the CGP), the site will be inspected by a "Qualified Professional Engineer" (as defined in the CGP). Inspector qualifications shall be maintained in **Appendix F**. It is anticipated that this inspection will be conducted by a representative of the Engineer or Owner. "Final stabilization" means that no disturbed areas remain exposed, there are no signs of active erosion or sedimentation on site, the

vegetation must be at least 6 inches tall with a minimum of one hundred (100) plants per square foot across all seeded areas, or a permanent non-vegetative ground cover, as specified in the Plan, has been fully established. The "Qualified Professional Engineer" shall prepare a report (including clear time/date stamped photographs) using the applicable form in **Appendix G (G5)**, and the Qualified Professional Engineer will also complete the applicable certification ("Final Stabilization Inspection Certification", as applicable, in the NOT form. Note that currently a copy of the 1-5-2022 NOT Form is included in **Appendix H** until a new NOT form is issued by CTDEEP under the new CGP.

4.5.5 Termination Inspection

Once the site has maintained final stabilization for at least one (1) year following the "final stabilization inspection", the site will be inspected by a "Qualified Inspector" to confirm such stabilization has been maintained. Inspector qualifications shall be maintained in **Appendix F**. It is anticipated that this inspection will be conducted by a representative of the Engineer or Owner. The "Qualified Inspector" shall prepare a report (including clear time/date stamped photographs) using the applicable form in **Appendix G (G6)**, and the Qualified Inspector will also complete the applicable certification ("Termination Inspection Certification", as applicable, in the NOT form, and submit the Termination Inspection report with the NOT. Note that currently a copy of the 1-5-2022 NOT Form is included in **Appendix H** until a new NOT form is issued by CTDEEP under the new CGP.

4.6 MONITORING

Dewatering wastewater management is discussed in Section 4.1.2 of the SPCP. Discharges from dewatering operations shall be monitored *initially* and *weekly* for turbidity from each dewatering discharge point for the duration of dewatering operations. CTDEEP's "*Turbidity Monitoring and Inspection Guide for Construction Dewatering*"[2], March 2026 should be consulted for additional details and/or guidance. Link to the guidance document is in the footnote below. This section includes a summary of the turbidity monitoring requirements for dewatering discharges.

[2] Inspection and Monitoring Guide for Construction Dewatering, EPA's 2022 Construction General Permit, February 2022

Sampling requirements include:

- Samples shall be taken after the dewatering water has been treated by any treatment device or control measure.
- Turbidity shall be measured using 40 CFR 136 methods.
- The 1st turbidity measurement shall be taken within 30 minutes of initiating the dewatering discharge (initial monitoring).
- Following the "initial" monitoring, turbidity monitoring will be conducted weekly during the Routine Inspections.
- A record of the turbidity monitoring shall be maintained on-site with the SPCP and submitted to CTDEEP via email (refer to Section 6.4.2). Record results using the "Turbidity Monitoring Data Recording Form" included in **Appendix G (G7)**.
- If there is no dewatering discharge covered under this permit during a particular week, then a notation should be made during the Routine Inspection or on the Turbidity Monitoring Form indicating "no discharge" under this CGP. This could be the case if there is a dewatering discharge covered by a different permit as discussed in Section 4.1.2.

5.0 Post-Construction Stormwater Management

5.1 POST-CONSTRUCTION CONTROL MEASURES

This project involves repairs and improvements to the Hartford Flood Control System toe drain system, and this work is necessary to improve levee safety to meet USACE requirements for the flood control system. As such, this project is not a typical development project with typical stormwater infrastructure. The toe drain system is designed to primarily collect levee toe drainage and seepage, and is not a stormwater system. The project is designed to meet applicable USACE requirements for the flood control system. The project will include temporary earth disturbance and once completed all areas of earth disturbance will be restored and revegetated. Previously vegetated areas will be revegetated and there will be no change to impervious cover as a result of this project.

Therefore, the specific post-construction stormwater control measures in Section 5.2.2.10 of the CGP are not applicable to this project, including: (a) runoff reduction and low impact development (LID) practices; (b) suspended solids and floatables removal; and (c) velocity dissipation. That said, the project does utilize perforated piping for the new toe drain and chimney drain systems (consistent with LID practices), and new toe drain laterals that discharge to the toe ditch / drainage swale will be equipped with 5 ft. x 5 ft. stone splash pads to address velocity dissipation. The toe drainage / stormwater collected in the toe ditch is directed to the SMSP which provides some level of "settling" prior to discharge. The toe drain and chimney drain systems are closed systems that are not vulnerable to collecting trash or floatables and are designed to limit or inhibit sediment collecting within these piping systems that are bedded in drain aggregate and a filter sand envelope.

Appropriate E&S controls will be utilized during construction activities to protect stormwater features and wetlands.

5.2 CLEANING

It should be noted that cleaning of post-construction stormwater structures of sediment is not appropriate for this project as the toe drain system is not a stormwater system. The new toe

drain and chimney drain piping systems will be constructed to minimize / eliminate the potential for entry of sediment within these systems, and the Contractor will be required to turn over "clean" piping to the COH at completion of the project, which may involve flushing. Therefore, these piping systems will not require additional cleaning per Section 5.2.2.11.d of the CGP. A note will be made on the NOT form to be completed at the end of the project as such. Per this same section in the CGP (Section 5.2.2.11.d)); however, all silt fencing or other E&S control measures installed during construction will be removed upon stabilization of the site.

5.3 MAINTENANCE

During construction, affected stormwater catch basins (if any) will be protected with catch basin inserts / silt sacks, as detailed on the site plans, until disturbed areas are stabilized. Other E&S controls, including anti-tracking apron(s), silt fencing, compost filter socks, hay bale barriers, check dams, or other control measures deemed necessary will also be utilized as appropriate. The selected Contractors will be responsible for inspecting, maintaining and periodically cleaning all E&S control measures in accordance with the site plans. At a minimum, this will include weekly inspections and inspections within 24 hours of the end of a storm that generates a discharge (refer to Section 4.5). Other applicable inspections, as also detailed in Section 4.5, will be coordinated and conducted, including plan implementation inspections, post-construction, final stabilization, and termination inspections.

After final site stabilization, it is anticipated that the potential for erosion will be minimal. The Contractor will be responsible for inspecting all areas that have been temporarily or finally stabilized per the inspection requirements of the CGP and as outlined in Section 4.5. Any remaining silt fence or other E&S control measures shall be removed upon final stabilization of the site. After construction is complete and the site is fully stabilized, toe drain and toe ditch maintenance will be transitioned to and thereafter performed by the City of Hartford DPW through its regular maintenance program and practices as required by the USACE, O&M Manual, and other applicable regulatory requirements.

6.0 Plan Implementation

The site plans and specifications include requirements for protection and restoration of the land, and for installation and maintenance of appropriate E&S controls in conformance with applicable Federal, State and local requirements. The site plans also require that all work be performed in accordance with the Guidelines.

The Contractor will be responsible for implementing this SPCP, including installation, maintenance and inspection of all E&S control measures. The Contractor will also be responsible for notifying all other parties engaged in construction on this project of the requirements and objectives of the SPCP.

6.1 PLAN CERTIFICATIONS

As required by Section 5.2.5.6 of the CGP, this Plan includes the signed certification statement by the permittee (City of Hartford DPW) in **Appendix C**. Applicant certifications by both the applicant (City of Hartford DPW) and by the preparer (JKB Consulting, LLC), and the Professional Engineer (licensed in the State of Connecticut: Julie K. Bjorkman, P.E., JKB Consulting, LLC) design certification will be submitted to CTDEEP with the application by April 1, 2026. These certifications are also included in **Appendix C**, and a copy of the full completed application will also be included in this appendix, once submitted to CTDEEP. Note, the project was previously registered under the prior version of this GP and received a "Notice of Permit Authorization" dated 6/12/2024 for Permit No. GSN004054.

6.2 CONTRACTOR CERTIFICATIONS

Appendix I includes a blank table for listing the pertinent information regarding the names of Contractors and Subcontractors that will perform construction activities on the site that have the potential to cause pollution of waters of the State. The list of Contractors and Subcontractors will be updated and maintained in this appendix if there are any changes, additions or deletions. Each Contractor and Subcontractor shall sign the certification statement in **Appendix J** prior to commencing work. The completed Contractor and Subcontractor signed certifications will be maintained in this appendix.

6.3 PLAN AMENDMENTS

The Contractor will be responsible for making any requisite plan amendments during the course of the work. This plan may be modified or updated as necessary to comply with any updates to any E&S Guidelines or to the CTDEEP CGP. The Plan shall also be amended whenever there is a change in Contractors or Subcontractors, or change in the designing Qualified Professional, or a change in design, construction, operation or maintenance at the site which has the potential for the discharge of pollutants to waters of the State and which has not otherwise been addressed in the Plan, or if the actions required by the Plan fail to prevent pollution. If substantial engineered design changes are made, the Plan shall be updated and an updated P.E. certification completed. The Contractor shall be responsible for such changes or updated P.E. certification(s) necessary or required, and for assuring that any person updating and certifying the Plan has the same qualifications that would be required to initially prepare the Plan per the CGP.

A "Notice of Change" shall be filed with CTDEEP (via email: DEEP.StormwaterConstruction@ct.gov) by the Contractor whenever required per Section 3.5 of the CGP.

6.4 RECORDKEEPING AND REPORTING

6.4.1 Copies of SPCP and Inspection Reports

Copies of the Plan and all (inspection) reports required by the CGP and records of all data shall be retained for a period of at least five (5) years from the date the Notice of Termination (NOT) is accepted by CTDEEP. An updated copy of this Plan shall be retained at the construction site at all times from the date construction is initiated until the date construction is completed and the site is fully stabilized. Also, copies of the following inspection reports will also be maintained on-site: "plan implementation inspections" and "routine inspections", and submitted to CTDEEP upon request.

6.4.2 Turbidity Monitoring Reports

Record results using the "Turbidity Monitoring Data Recording Form" included in **Appendix G (G7)**. Records of turbidity monitoring shall be submitted to CTDEEP via email to:

DEEP.StormwaterConstruction@ct.gov with the subject line: "Construction turbidity monitoring" on forms prescribed by CTDEEP. Turbidity Monitoring Reports are to be submitted on the 1st day of each month following initiation of the dewatering discharge for as long as a discharge exists.

6.4.3 Reporting Violations

Upon learning of a violation of a condition of the CGP, actions must be taken immediately to determine the cause, to correct and mitigate the results of such violation, and to prevent further violation or recurrence.

Noncompliance of permit terms or conditions must be reported to CTDEEP via CTDEEP's online Noncompliance Notification Forms and reporting website:

Stormwater Management

There are "initial" notifications and five (5) day follow-up reporting requirements, as well as "additional" notification requirements as listed below:

- "Initial" notification: Certain noncompliance must be reported within two (2) hours, while other noncompliance must be reported within 24 hours. Refer to Section 6.2.1 of the CGP for noncompliance conditions requiring reporting.
- Five (5) day follow-up reporting: Within five (5) days of any "initial" notification of noncompliance, a 5-day follow-up report shall be submitted containing the following information: description of the noncompliance and cause, period of noncompliance, timeframe to correct noncompliance, and steps taken to correct the noncompliance, reduce, eliminate or prevent recurrence. Refer to Section 6.2.2 of the CGP for details.
- "Additional" Notification Requirements: There are additional notification requirements within 72 hours and a 30-day follow-up report for specific conditions as detailed in Section 6.2.3 of the CGP.

The Contractor responsible for the work activity that caused the violation will be responsible for investigating the violation, implementing appropriate corrective measures, and completing any noncompliance reporting (listed above) or as required by the CGP. Any report submitted to the CTDEEP must be certified in accordance with Section 6.4.5 below.

6.4.4 Notice of Termination

Once all post-construction stormwater measures have been installed, the Contractor shall coordinate with the Owner and Engineer to have the site inspected to confirm compliance with the post-construction stormwater measures (called the "post-construction inspection"). This inspection must be conducted by a "qualified soil erosion and sediment control professional" or by a "qualified professional engineer" as defined in the CGP.

Once the site has achieved final stabilization (as defined in the CGP) following the end of construction, the site will be inspected (called the "final stabilization inspection") by a "Qualified Professional Engineer". Subsequently, one (1) year following the "final stabilization inspection", the site will be inspected by a "Qualified Inspector" as the "Termination Inspection" to confirm stabilization is maintained. It is anticipated that these inspections will be conducted by a representative of the Engineer or Owner.

At the completion of the construction project, a Notice of Termination Form must be filed with the Commissioner of CTDEEP. The project is considered complete after all post-construction measures are installed, functioning, inspected and the site has achieved final stabilization and inspection (post-construction inspection, final stabilization inspection, and termination inspection one year after achieving final stabilization) following the end of construction. "Final stabilization" means that no disturbed areas remain exposed, there are no signs of active erosion or sedimentation on site, the vegetation must be at least 6 inches tall with a minimum of one hundred (100) plants per square foot across all seeded areas, or a permanent non-vegetative ground cover (per the plans and specifications) has been fully established.

Appendix H includes a copy of the 1-5-2022 version of the Notice of Termination (NOT) Form. This is a placeholder until a new NOT form is issued by CTDEEP under the new CGP. This form must be fully completed including the date of completion of construction, the date of the post-construction inspection, the date of the final stabilization inspection, and the date of the termination inspection. *Note that cleaning of stormwater structures is not applicable to this project as described in Section 5.2. Therefore, a notation as such will be added to the "Locally Exempt Post-Construction Inspection Certification" and the spot for "date all storm drainage structures were cleared of construction sediment and debris" on the NOT Forms, as applicable.* The form must also be signed by the permittee (City of Hartford DPW) and by the person certifying the post-construction, final stabilization, and termination inspections.

The form shall be submitted as follows:

1. Via email to:
   DEEP.StormwaterConstruction@ct.gov

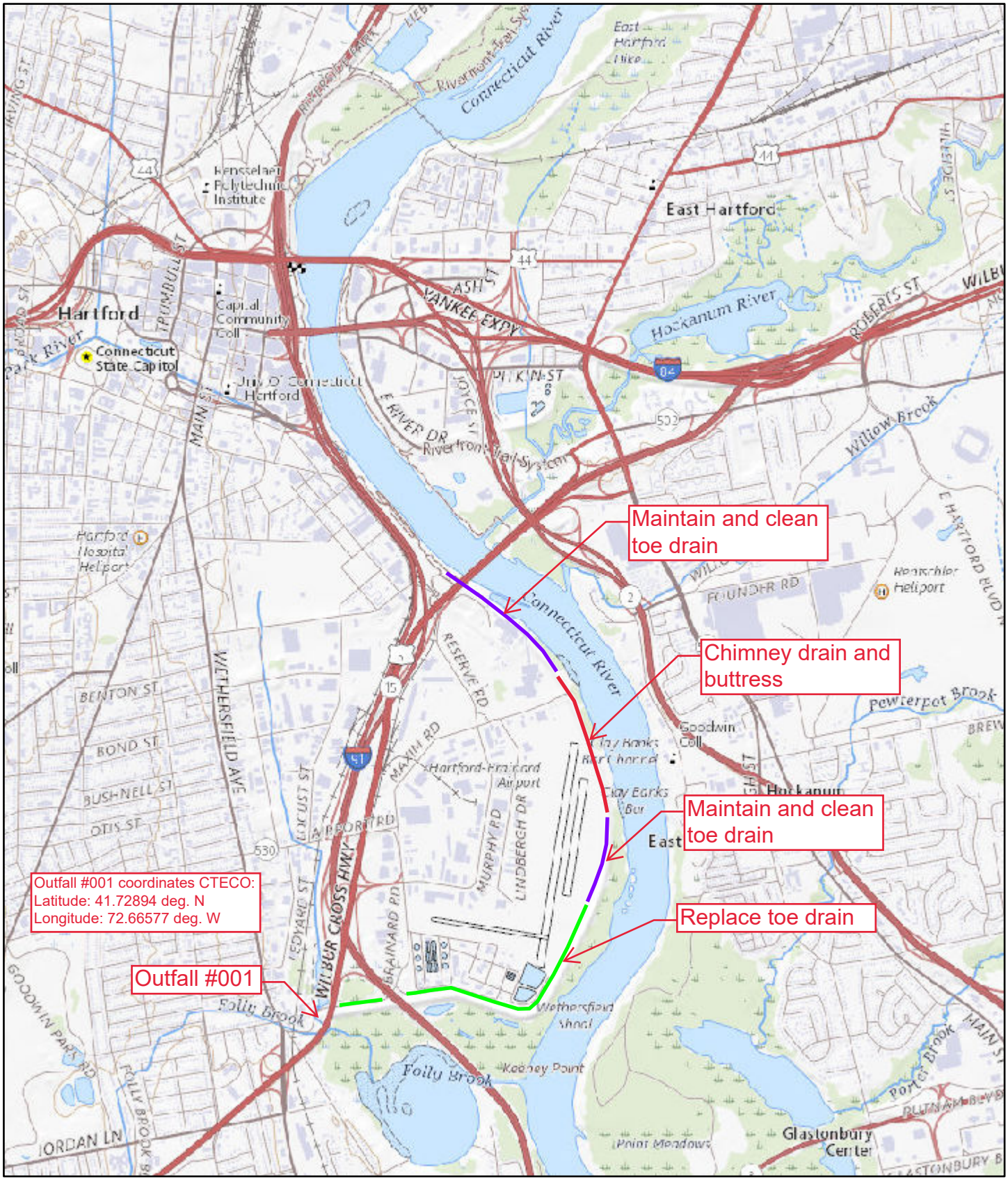
6.4.5 Certification of Documents

Any document or report submitted to the Commissioner of CTDEEP under this General Permit shall be signed by the permittee (City of Hartford DPW), or a duly authorized representative of the permittee (e.g., the Contractor), ***and*** by the individual or individuals responsible for actually preparing such document (e.g., the Contractor), each of whom shall sign the certification statement included in **Appendix K**.

APPENDIX A: FIGURES

- **Figure 1: USGS Project Location Map**
- **Figure 2: Location Plan / Overview Map**
- **Figure 3: Construction Phasing and Staging Areas**
- **Figure 4: Toe Drainage and Stormwater Flow Discharge Schematic**
- **Figure 5: Toe Drainage / Stormwater Discharge Location Map**
- **Figure 6: NDDB Map**
- **Figure 7: Project Area Drainage Basin Map**
- **Figure 8: Soil Re-use Location Plan**

Hartford Flood Control System Toe Drain Repairs



12/13/2023, 6:55:39 PM

1:42,000

0 0.28 0.55 1.1 mi

0 0.42 0.85 1.7 km

Replace toe drain

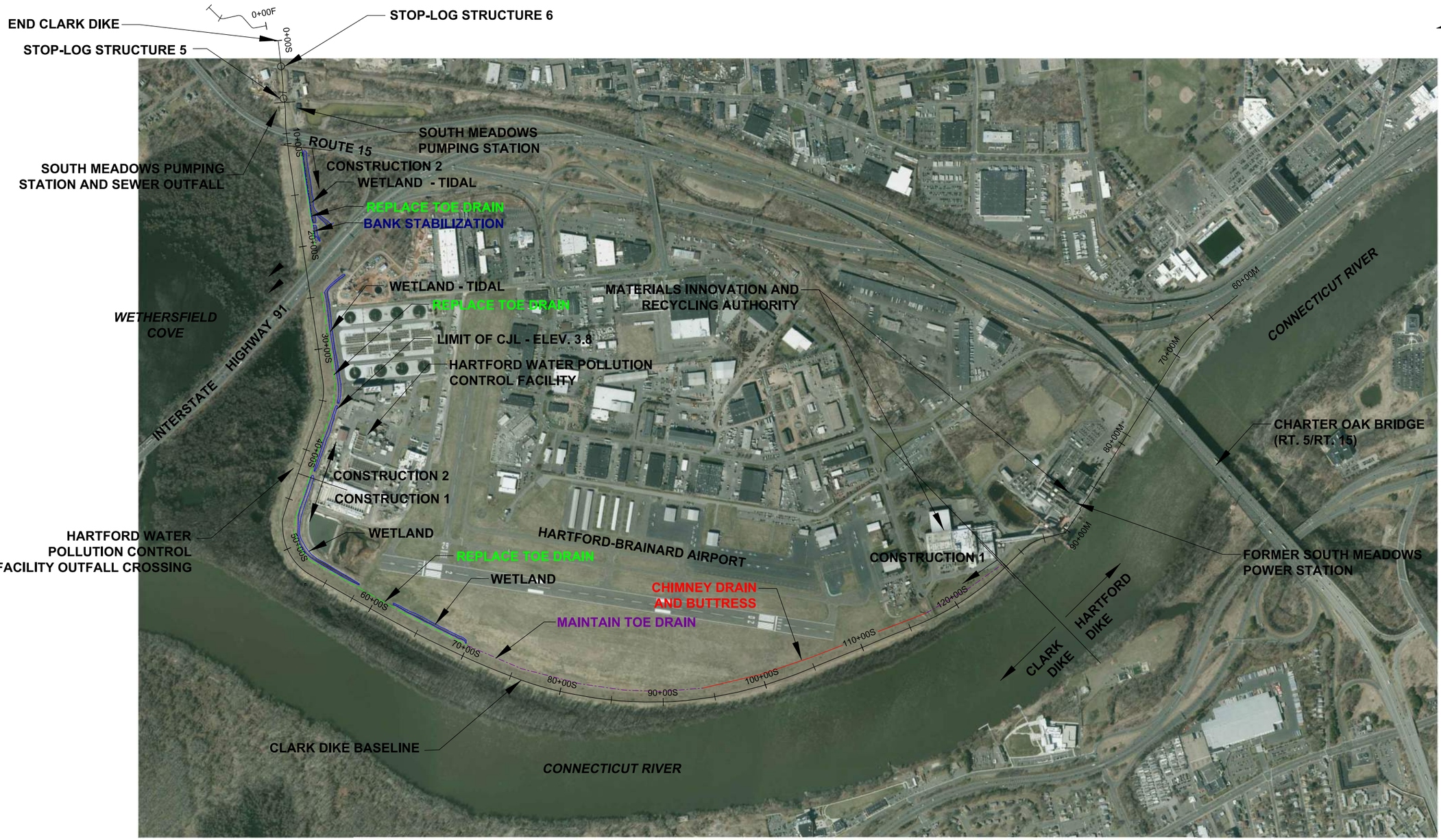
Maintain and clean toe drain

Chimney drain and buttress

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S.

USGS
2021 USGS

FIGURE 1:
USGS SITE LOCATION MAP



LEGEND

- MAINTAIN TOE DRAIN
- REPLACE TOE DRAIN
- CHIMNEY DRAIN AND BUTTRESS*
- BANK STABILIZATION

*** CHIMNEY DRAIN AND BUTTRESS INCLUDES NEW SOIL BUTTRESS AND TOE/COLLECTOR (CHIMNEY DRAIN) INCLUDING PIPE GROUTING OF ABANDONED SECTIONS**

SCALE

0 1000 2000

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

Designed:

Drawn:

Checked:

P.E. No:

GEI Project

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

75 years benesch
ALFRED BENESCH & COMPANY
120 HERON AVENUE, 2nd FLOOR
GLASTONBURY, CT 06033
(860) 633-8341

SOUTH MEADOWS (CLARK) DIKE TOEDRAIN, TOEDITCH AND EMPANKMENT REPAIRS

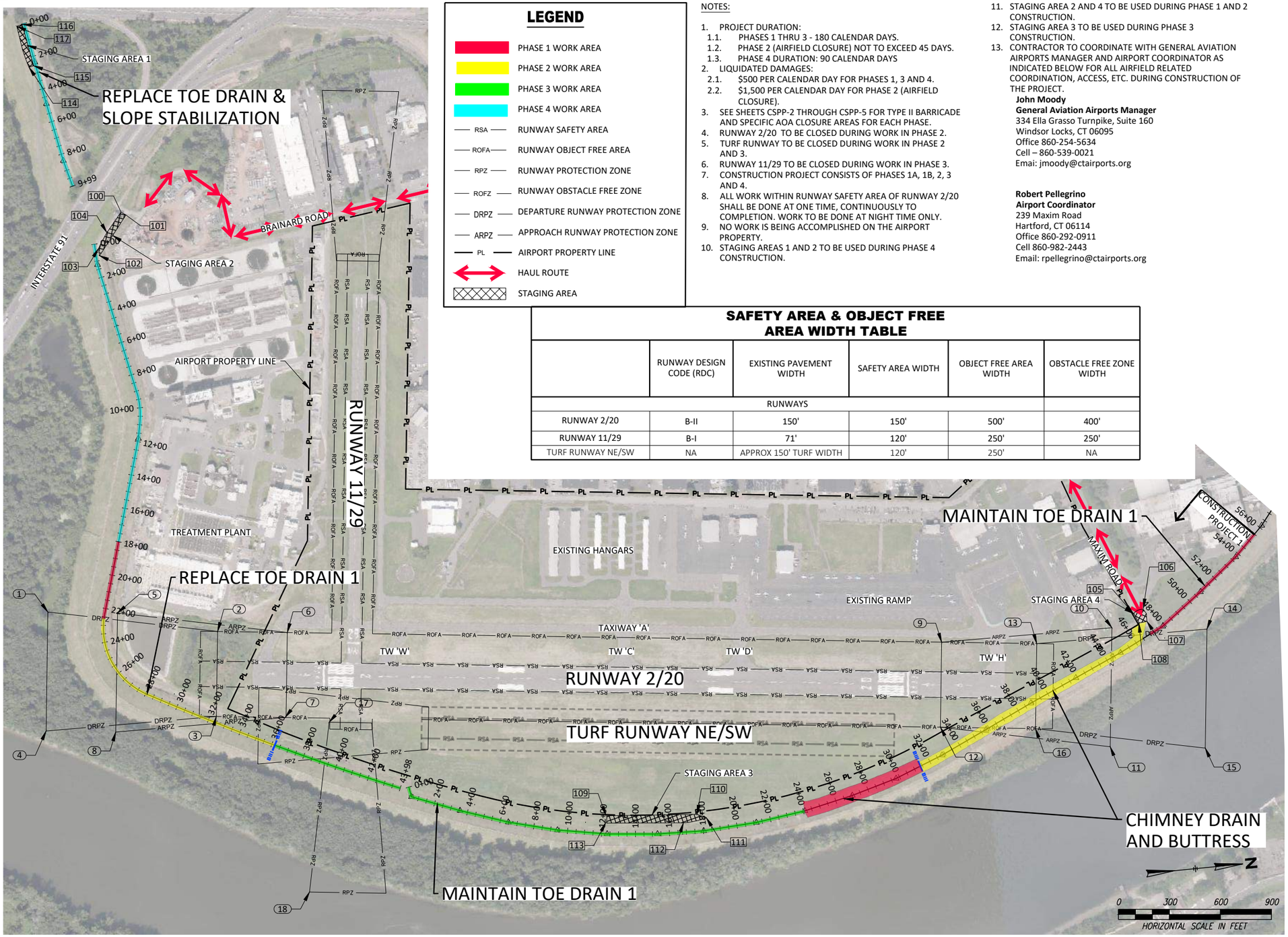
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME: LOCATION PLAN - CONSTRUCTION

SHEET NO.: **LOC-1**

FIGURE 2: LOCATION PLAN / OVERVIEW MAP



LEGEND

- PHASE 1 WORK AREA
- PHASE 2 WORK AREA
- PHASE 3 WORK AREA
- PHASE 4 WORK AREA
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- RPZ — RUNWAY PROTECTION ZONE
- ROFZ — RUNWAY OBSTACLE FREE ZONE
- DRPZ — DEPARTURE RUNWAY PROTECTION ZONE
- ARPZ — APPROACH RUNWAY PROTECTION ZONE
- PL — AIRPORT PROPERTY LINE
- HAUL ROUTE
- STAGING AREA

NOTES:

1. PROJECT DURATION:
   - 1.1. PHASES 1 THRU 3 - 180 CALENDAR DAYS.
   - 1.2. PHASE 2 (AIRFIELD CLOSURE) NOT TO EXCEED 45 DAYS.
   - 1.3. PHASE 4 DURATION: 90 CALENDAR DAYS
2. LIQUIDATED DAMAGES:
   - 2.1. $500 PER CALENDAR DAY FOR PHASES 1, 3 AND 4.
   - 2.2. $1,500 PER CALENDAR DAY FOR PHASE 2 (AIRFIELD CLOSURE).
3. SEE SHEETS CSPP-2 THROUGH CSPP-5 FOR TYPE II BARRICADE AND SPECIFIC AOA CLOSURE AREAS FOR EACH PHASE.
4. RUNWAY 2/20 TO BE CLOSED DURING WORK IN PHASE 2.
5. TURF RUNWAY TO BE CLOSED DURING WORK IN PHASE 2 AND 3.
6. RUNWAY 11/29 TO BE CLOSED DURING WORK IN PHASE 3.
7. CONSTRUCTION PROJECT CONSISTS OF PHASES 1A, 1B, 2, 3 AND 4.
8. ALL WORK WITHIN RUNWAY SAFETY AREA OF RUNWAY 2/20 SHALL BE DONE AT ONE TIME, CONTINUOUSLY TO COMPLETION. WORK TO BE DONE AT NIGHT TIME ONLY.
9. NO WORK IS BEING ACCOMPLISHED ON THE AIRPORT PROPERTY.
10. STAGING AREAS 1 AND 2 TO BE USED DURING PHASE 4 CONSTRUCTION.
11. STAGING AREA 2 AND 4 TO BE USED DURING PHASE 1 AND 2 CONSTRUCTION.
12. STAGING AREA 3 TO BE USED DURING PHASE 3 CONSTRUCTION.
13. CONTRACTOR TO COORDINATE WITH GENERAL AVIATION AIRPORTS MANAGER AND AIRPORT COORDINATOR AS INDICATED BELOW FOR ALL AIRFIELD RELATED COORDINATION, ACCESS, ETC. DURING CONSTRUCTION OF THE PROJECT.

John Moody
General Aviation Airports Manager
334 Ella Grasso Turnpike, Suite 160
Windsor Locks, CT 06095
Office 860-254-5634
Cell – 860-539-0021
Emai: jmoody@ctairports.org

Robert Pellegrino
Airport Coordinator
239 Maxim Road
Hartford, CT 06114
Office 860-292-0911
Cell 860-982-2443
Email: rpellegrino@ctairports.org

SAFETY PLAN NOTES:

1. EQUIPMENT AND MATERIAL STOCKPILES SHALL BE PARKED IN DESIGNATED STAGING AREAS OR AT LOCATIONS WITHIN THE WORK AREA APPROVED BY THE ENGINEER TO ENSURE THERE ARE NO POTENTIAL WINGTIP CLEARANCE CONFLICTS WHEN NO CONTRACTOR OPERATIONS ARE BEING COMPLETED. STOCKPILES SHALL NOT EXCEED 25' ABOVE SITE ELEVATION.
2. ALL CLOSURES SHALL BE COORDINATED WITH THE OWNER AND OWNER'S REPRESENTATIVE. PHASES SHOULD BE COMPLETED IN NUMBER ORDER UNLESS OTHERWISE APPROVED BY THE OWNER; HOWEVER, THEY MAY BE ADJUSTED TO BETTER ACCOMMODATE CONSTRUCTION.
3. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREAS AND DESIGNATED HAUL ROUTES UNLESS OTHERWISE APPROVED BY THE OWNER.
4. CONSTRUCTION WORK IS NOT LOCATED IN CLOSE PROXIMITY TO AIRSIDE PAVEMENTS; HOWEVER, CONTRACTOR SHALL HAVE A STREET SWEEPER, OR OTHER APPROVED METHOD, READILY AVAILABLE AT ALL TIMES TO REMOVE FOD FROM PAVEMENTS OPEN TO AIRCRAFT OPERATIONS, ALONG DESIGNATED PAVED HAUL ROUTES OR ADJACENT STREETS.
5. IT IS THE DESIRE OF THE AIRPORT TO HAVE PHASE 2 WORK COMPLETED CONCURRENTLY IN BOTH RUNWAY 2 AND 20 ENDS. IF WORK CANNOT BE ACCOMPLISHED CONCURRENTLY, THE CONTRACTOR SHALL COORDINATE WITH OWNER AND OWNER'S REPRESENTATIVE.
6. AERIAL IMAGE SHOWN FOR REFERENCE ONLY.

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

	RUNWAY DESIGN CODE (RDC)	EXISTING PAVEMENT WIDTH	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH	OBSTACLE FREE ZONE WIDTH
RUNWAYS					
RUNWAY 2/20	B-II	150'	150'	500'	400'
RUNWAY 11/29	B-I	71'	120'	250'	250'
TURF RUNWAY NE/SW	NA	APPROX 150' TURF WIDTH	120'	250'	NA

RPZ LIMITS POINT TABLE (XX)

POINT #	LATITUDE	LONGITUDE	DESCRIPTION	NORTHING	EASTING
1	N41° 43' 42.69"	W72° 39' 06.30"	RW2DRPZ	826195.009	1026818.918
2	N41° 43' 52.30"	W72° 39' 02.96"	RW2DRPZ	827167.739	1027071.498
3	N41° 43' 51.54"	W72° 38' 56.44"	RW2DRPZ	827090.849	1027565.551
4	N41° 43' 41.62"	W72° 38' 57.18"	RW2DRPZ	826087.370	1027510.593
5	N41° 43' 46.69"	W72° 39' 05.47"	RW2ARPZ	826600.034	1026881.948
6	N41° 43' 56.30"	W72° 39' 02.12"	RW2ARPZ	827572.764	1027134.528
7	N41° 43' 55.49"	W72° 38' 55.63"	RW2ARPZ	827491.210	1027626.545
8	N41° 43' 45.62"	W72° 38' 56.35"	RW2ARPZ	826492.396	1027573.623
9	N41° 44' 33.86"	W72° 38' 54.26"	RW20ARPZ	831375.648	1027726.334
10	N41° 44' 43.78"	W72° 38' 53.52"	RW20ARPZ	832379.131	1027781.293
11	N41° 44' 42.71"	W72° 38' 44.39"	RW20ARPZ	832271.493	1028472.968
12	N41° 44' 33.10"	W72° 38' 47.74"	RW20ARPZ	831298.762	1028220.393
13	N41° 44' 39.32"	W72° 38' 53.11"	RW20DRPZ	831928.058	1027812.329
14	N41° 44' 49.23"	W72° 38' 52.37"	RW20DRPZ	832931.536	1027867.287
15	N41° 44' 48.16"	W72° 38' 43.25"	RW20DRPZ	832823.898	1028558.962
16	N41° 44' 38.56"	W72° 38' 46.60"	RW20DRPZ	831851.168	1028306.382
17	N41° 43' 57.98"	W72° 38' 54.77"	RW29RPZ	827743.097	1027691.501
18	N41° 43' 55.46"	W72° 38' 41.95"	RW29RPZ	827489.508	1028663.968

STAGING AREA LIMITS POINT TABLE (XXX)

POINT #	LATITUDE	LONGITUDE	DESCRIPTION	NORTHING	EASTING
100	N41° 43' 50.16"	W72° 39' 36.22"	STAGE2	826948.288	1024549.990
101	N41° 43' 50.42"	W72° 39' 35.95"	STAGE2	826974.524	1024570.466
102	N41° 43' 48.57"	W72° 39' 33.11"	STAGE2	826787.462	1024785.958
103	N41° 43' 48.57"	W72° 39' 33.66"	STAGE2	826787.385	1024743.815
104	N41° 43' 49.18"	W72° 39' 34.80"	STAGE2	826849.097	1024657.276
105	N41° 44' 45.12"	W72° 38' 54.37"	STAGE4	832515.391	1027716.610
106	N41° 44' 45.75"	W72° 38' 54.68"	STAGE4	832578.501	1027692.743
107	N41° 44' 45.85"	W72° 38' 53.62"	STAGE4	832588.416	1027772.837
108	N41° 44' 45.36"	W72° 38' 53.57"	STAGE4	832539.725	1027776.586
109	N41° 44' 13.14"	W72° 38' 44.62"	STAGE3	829278.298	1028459.546
110	N41° 44' 18.39"	W72° 38' 43.69"	STAGE3	829810.731	1028528.865
111	N41° 44' 18.90"	W72° 38' 43.33"	STAGE3	829861.762	1028556.412
112	N41° 44' 17.54"	W72° 38' 43.20"	STAGE3	829723.906	1028566.794
113	N41° 44' 13.07"	W72° 38' 44.06"	STAGE3	829271.732	1028502.074
114	N41° 43' 46.05"	W72° 39' 48.34"	STAGE1	826531.331	1023630.912
115	N41° 43' 46.33"	W72° 39' 48.41"	STAGE1	826559.271	1023626.038
116	N41° 43' 46.01"	W72° 39' 51.71"	STAGE1	826526.878	1023375.757
117	N41° 43' 45.68"	W72° 39' 51.63"	STAGE1	826493.524	1023381.854

FIGURE 3: CONSTRUCTION PHASING AND STAGING AREAS

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	JCW
Drawn:	DJL
Checked:	AKM
Approved:	JAK
P.E. No:	0014897
GEI Project	1703638

GEI Consultants
GEI CONSULTANTS, INC.
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75 years benesch
Alfred Benesch & Company
120 Hebron Avenue, 2nd Floor
Glastonbury, CT 06033
(860)633-8341

SOUTH MEADOWS
REPAIR OF CLARK DIKE

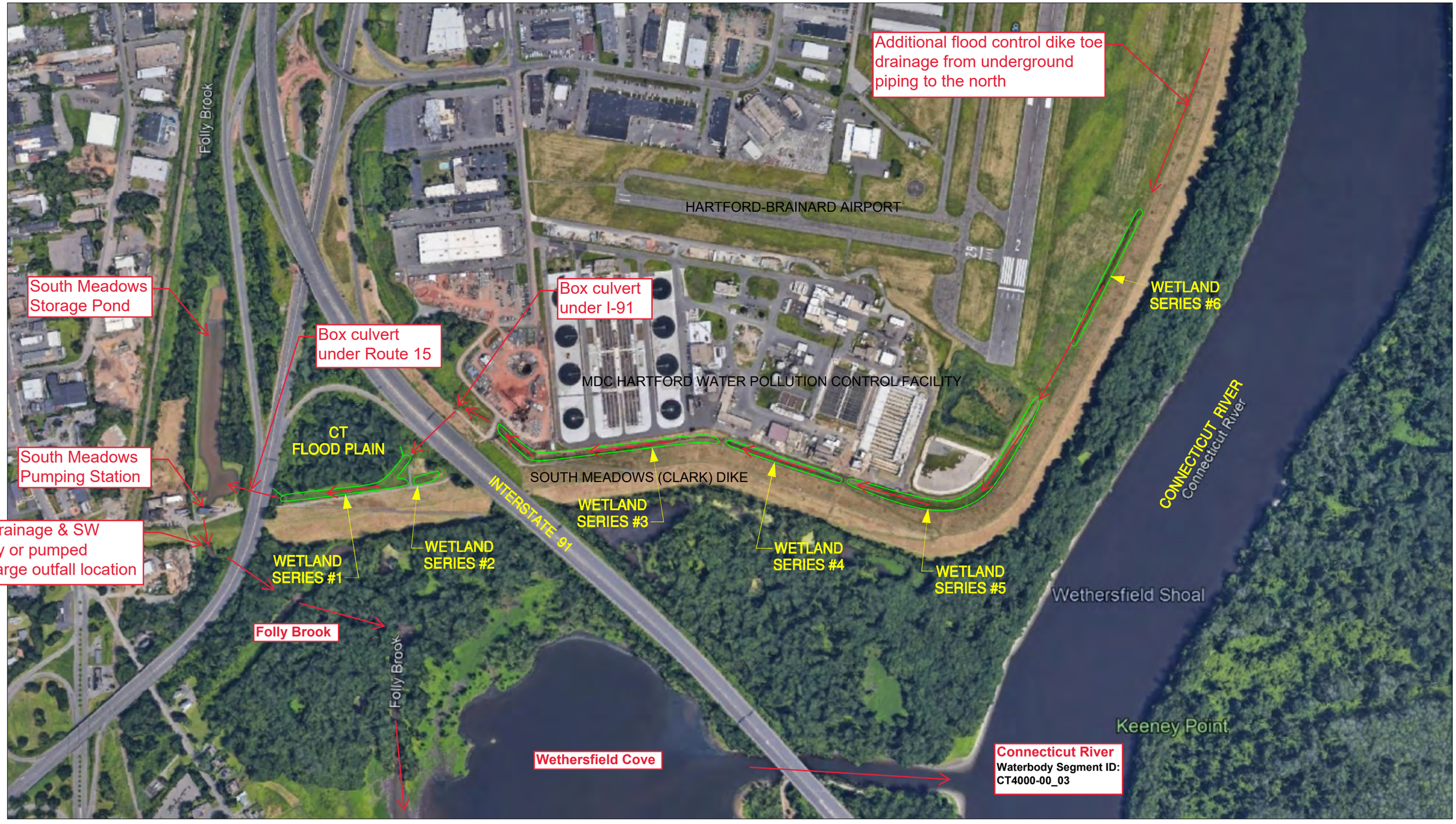
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME
CSPP-1 - OVERALL

SHEET NO.
SP-1

FIGURE 4: FLOOD CONTROL DIKE TOE DRAINAGE AND STORMWATER FLOW AND DISCHARGE SCHEMATIC
Excerpt from Soil Scientist Report
City of Hartford Flood Control Dike Toe Drain, Toe Ditch and Embankment Repairs Project, Hartford, CT



Toe drainage and stormwater flow direction

SCALE

0 500 1000

(Approximate scale in feet)

Martin Brogie, Inc.
ENVIRONMENTAL SERVICES
28 Arbor Lane
Madison, Connecticut 06443
ph: (860) 208-0360
email: martinbrogieinc@gmail.com

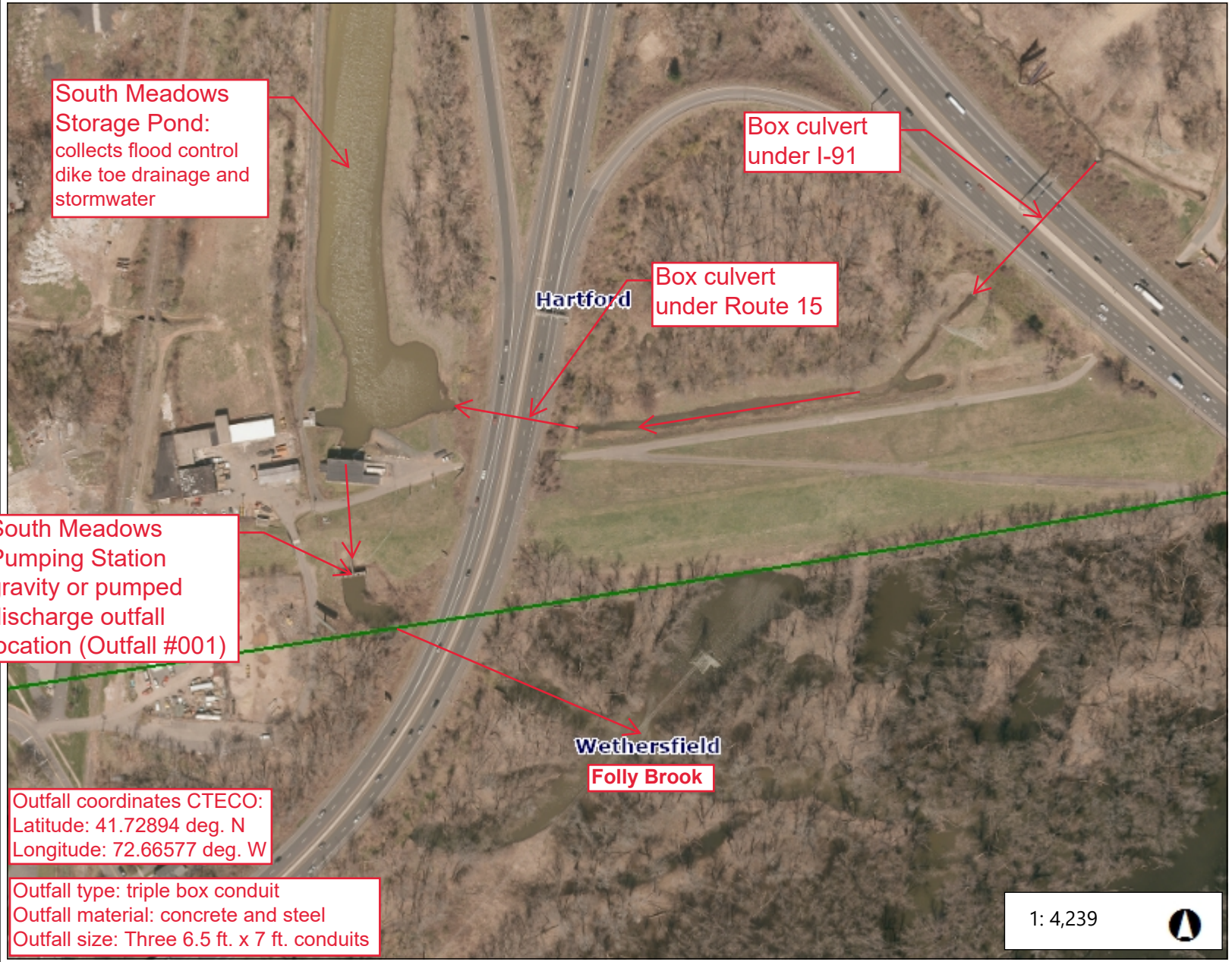
Figure 2 - Aerial Plan
Hartford Dikes Toe Drain Wetlands

Hartford, Hartford County, Connecticut

Project:	Hartford Dike Project
Drawn by:	KMH
Date:	11/6/21
Scale:	AS SHOWN

CT Environmental Conditions Online

FIGURE 5: FLOOD CONTROL DIKE TOE DRAINAGE AND STORMWATER DISCHARGE LOCATION MAP
City of Hartford Flood Control Dike Toe Drain, Toe Ditch and Embankment Repairs Project, Hartford, CT



Legend

Town Boundary

- State Boundary
- Town Boundary
- Coastline

Light Gray Canvas Base

Notes

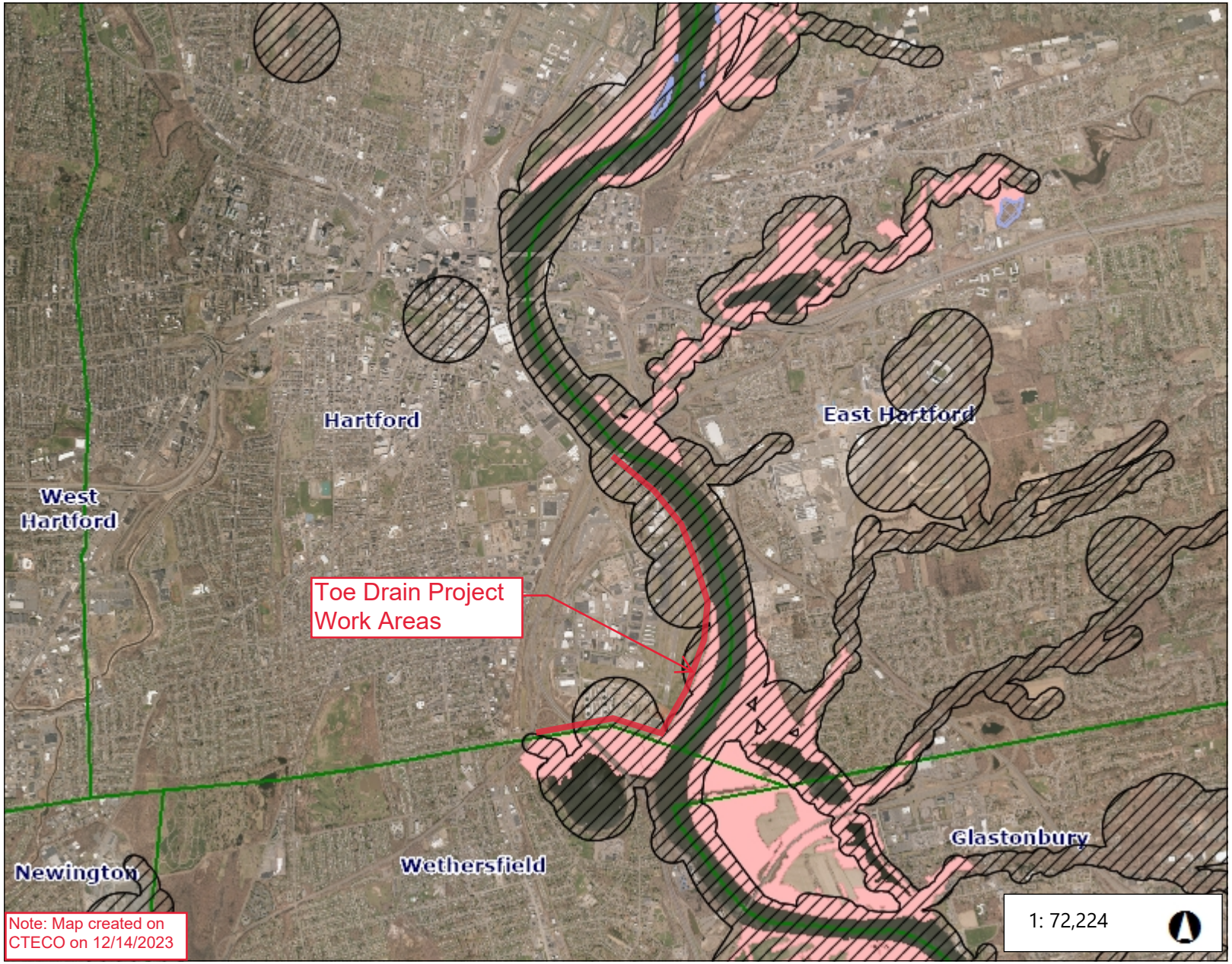
0.1 0 0.07 0.1 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

This map is intended for general planning, management, education, and research purposes only. Data shown on this map may not be complete or current. The data shown may have been compiled at different times and at different map scales, which may not match the scale at which the data is shown on this map.

CT Environmental Conditions Online

Hartford Flood Control System Toe Drain Repairs



Legend

Town Boundary

- State Boundary
- Town Boundary
- Coastline

Critical Habitat

- Beachshore, B
- Intertidal Marsh, IM
- Acidic Atlantic White Cedar Swamp
- Acidic Red/Black Spruce Basin Swa
- Circumneutral Northern White Ceda
- Floodplain Forest, FF
- Beachshore, B
- Circumneutral Spring Fen, CirSF
- Floodplain Forest, FF
- Freshwater Aquatic, FA
- Medium Fen, MF
- Poor Fen, PF
- Rich Fen, RF
- Sea Level Fen, SLF
- Coastal Woodland/Shrubland, CWS
- Dry Acidic Forest, DAF
- Dry Circumneutral Forest, DCF
- Dry Subacidic Forest, DSF
- Old Growth Forest, OGF
- Subacidic Cold Talus Forest/Woodl
- Acidic Rocky Summit Outcrop, AcR

Notes

FIGURE 6: NDDB MAP

2.3 0 1.14 2.3 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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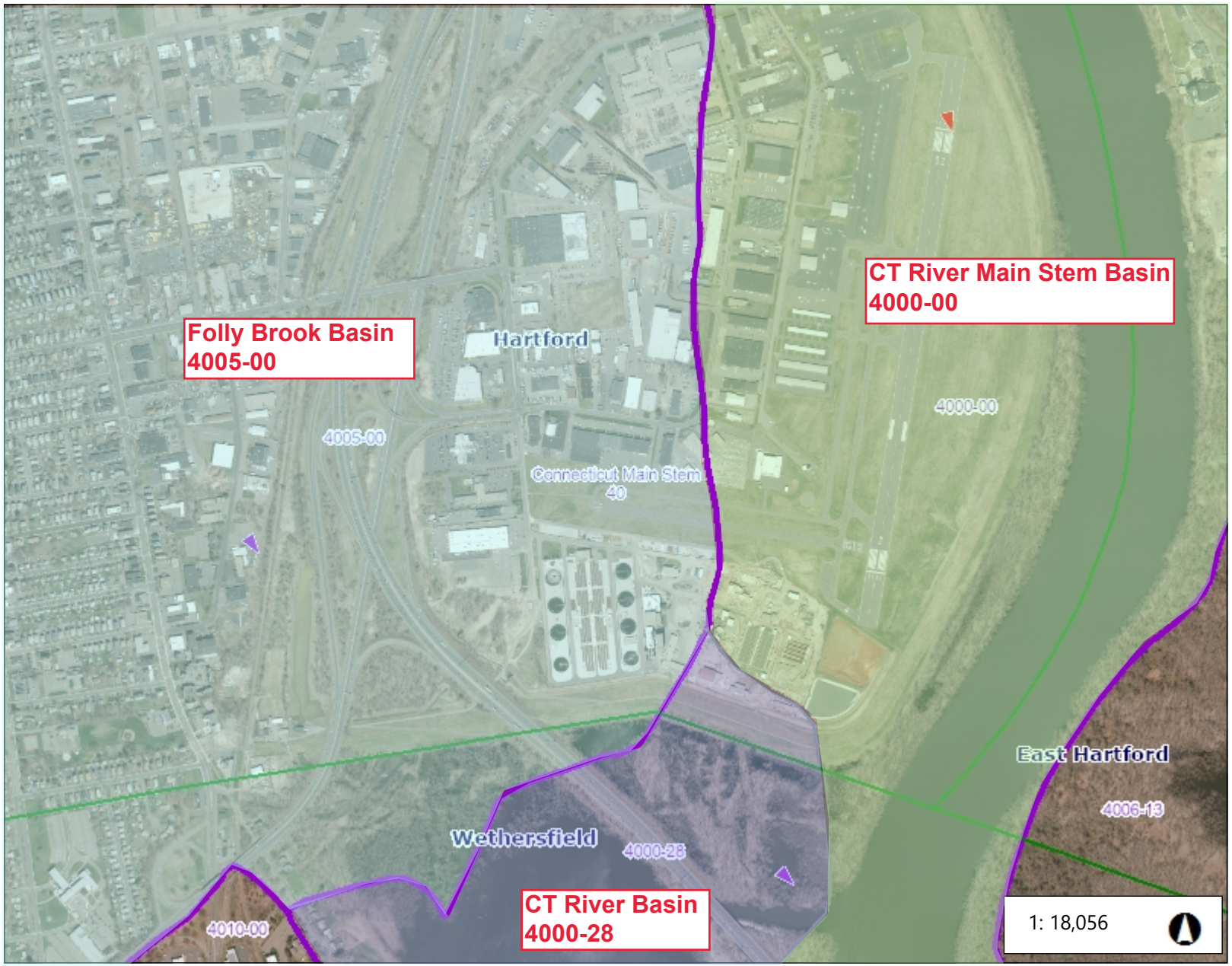
Hartford Flood Control Dike - Drainage Basin Map



Legend

- Town Boundary
  - State Boundary
  - Town Boundary
  - Coastline
- Regional Basin Boundary
  - Major Basin
  - Out of State Basin Closure
  - Regional Basin
- Local Basin Boundary
  - Major Basin
  - Regional Basin
  - Subregional Basin
  - Local Basin
- Local Drainage Basin Directior
  - Outlet Direction
  - Main Stem Direction
  - Coastal Direction
- Light Gray Canvas Base

Notes

FIGURE 7: DRAINAGE BASIN MAP

0.6 0 0.28 0.6 Miles

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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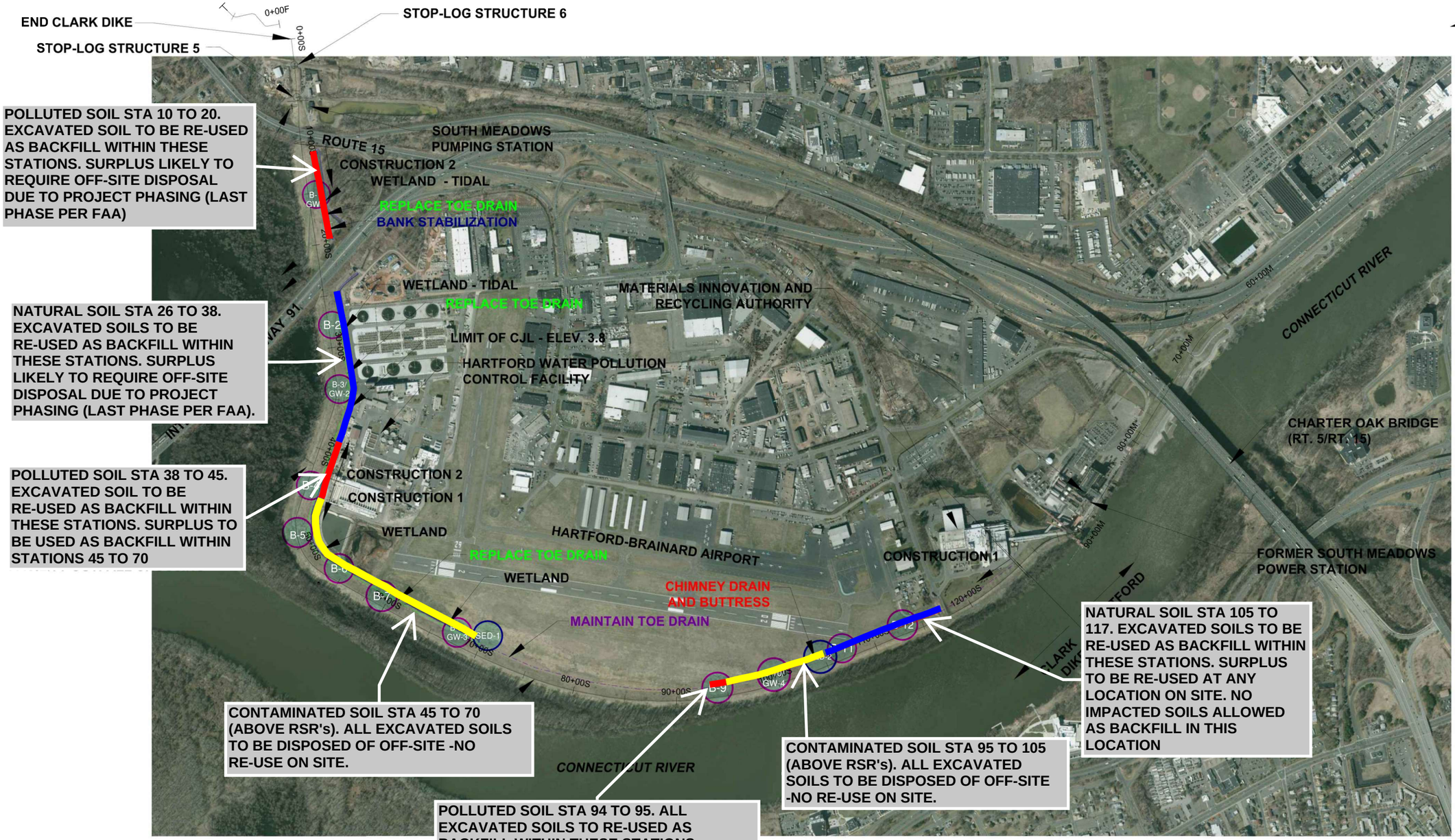

LEGEND

- MAINTAIN TOE DRAIN
- REPLACE TOE DRAIN
- CHIMNEY DRAIN AND BUTTRESS*
- BANK STABILIZATION

FIGURE 8: SOIL RE-USE LOCATION PLAN

* CHIMNEY DRAIN AND BUTTRESS INCLUDES NEW SOIL BUTTRESS AND TOE/COLLECTOR (CHIMNEY DRAIN) INCLUDING PIPE GROUTING OF ABANDONED SECTIONS

SCALE
0 1000 2000

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:
Drawn:
Checked:
P.E. No:
GEI Project

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
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75 years benesch
ALFRED BENESCH & COMPANY
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SOUTH MEADOWS (CLARK) DIKE TOEDRAIN, TOEDITCH AND EMPANKMENT REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0			

SHEET NAME
SOIL RE-USE LOCATION PLAN CT DAM SAFETY ATTACHMENT "T"

SHEET NO.

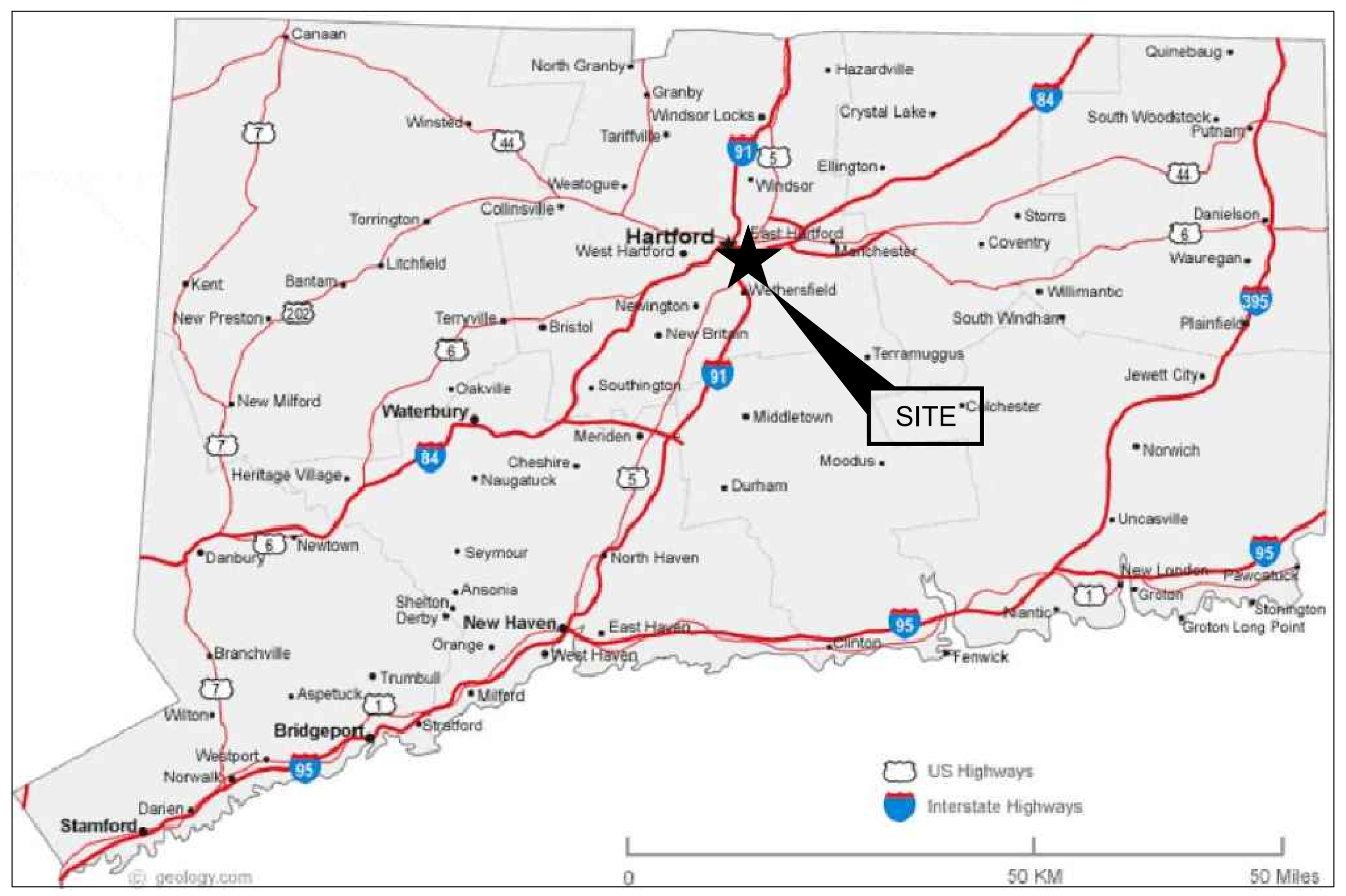
APPENDIX B: SITE PLANS

Site Plans prepared by GEI Consultants, Inc. and Alfred Benesch & Company
For Bid July 2025, Entitled:
"*City of Hartford Flood Control System, South Meadows (Clark) Dike, Toe Drain, Toe Ditch and Embankment Repairs*"

Title	Sheet ID	Title	Sheet ID
Cover Sheet	G-001	CSPP-1 – Overall	SP-1
Location Plan – Construction	LOC-1	CSPP-2 – Phase 1A	SP-2
Toe Drain Improvement Plan Legend	LEG-1	CSPP-3 – Phase 1B	SP-3
Toe Drain Improvement Alignment Table	LAY-1	CSPP-4 – Phase 2	SP-4
Toe Drain Improvement Alignment Table	LAY-2	CSPP-5 – Phase 3	SP-5
Toe Drain Improvement Plan and Profile	TD-1	CSPP-6 – Phase 4	SP-6
Toe Drain Improvement Plan and Profile	TD-2	CSPP-7 – Details	SP-7
Toe Drain Improvement Plan and Profile	TD-3	CSPP-8 – Notes	SP-8
Toe Drain Improvement Plan and Profile	TD-4		
Toe Drain Improvement Plan and Profile	TD-5		
Toe Drain Improvement Plan and Profile	TD-6		
Toe Drain Improvement Plan and Profile	TD-7		
Toe Drain Improvement Plan and Profile	TD-8		
Toe Drain Improvement Plan and Profile	TD-9		
Toe Drain Improvement Plan and Profile	TD-10		
Toe Drain Improvement Plan and Profile	TD-11		
Toe Drain Improvement Plan and Profile	TD-12		
Chimney Drain and Buttress Plan and Profile	CD-1		
Chimney Drain and Buttress Plan and Profile	CD-2		
Chimney Drain and Buttress Plan and Profile	CD-3		
Chimney Drain and Buttress Plan and Profile	CD-4		
Toe Drain Improvement Plan and Profile	TD-13		
Toe Drain Improvement Plan and Profile	TD-14		
Toe Drain Improvement Plan and Profile	TD-15		
Toe Drain Improvement Plan and Profile	TD-16		
Toe Drain Improvement Plan and Profile	TD-17		
Chimney Drain and Buttress Cross Sections	CD-5		
Chimney Drain and Buttress Cross Sections	CD-6		
Chimney Drain and Buttress Cross Sections	CD-7		
Chimney Drain and Buttress Cross Sections	CD-8		
Chimney Drain and Buttress Cross Sections	CD-9		
Chimney Drain and Buttress Cross Sections	CD-10		
Chimney Drain Partial Grading	GRA-1		
Toe Ditch Slope Stabilization Plan	SS-1		
Toe Ditch Slope Stabilization Plan	SS-2		
Toe Drain Slope Stabilization Cross Sections	SS-3		
Toe Drain Slope Stabilization Cross Sections	SS-4		
Toe Drain Improvement Details	DET-1		
Toe Drain Improvement Details	DET-2		
Toe Drain Improvement Details	DET-3		
Toe Drain Improvement E&S Details	DET-4		
Toe Drain Improvement E&S Details	DET-5		
Mobile Dewatering Treatment System Schematic and Stockpile Details	DET-6		

CITY OF HARTFORD
FLOOD CONTROL SYSTEM

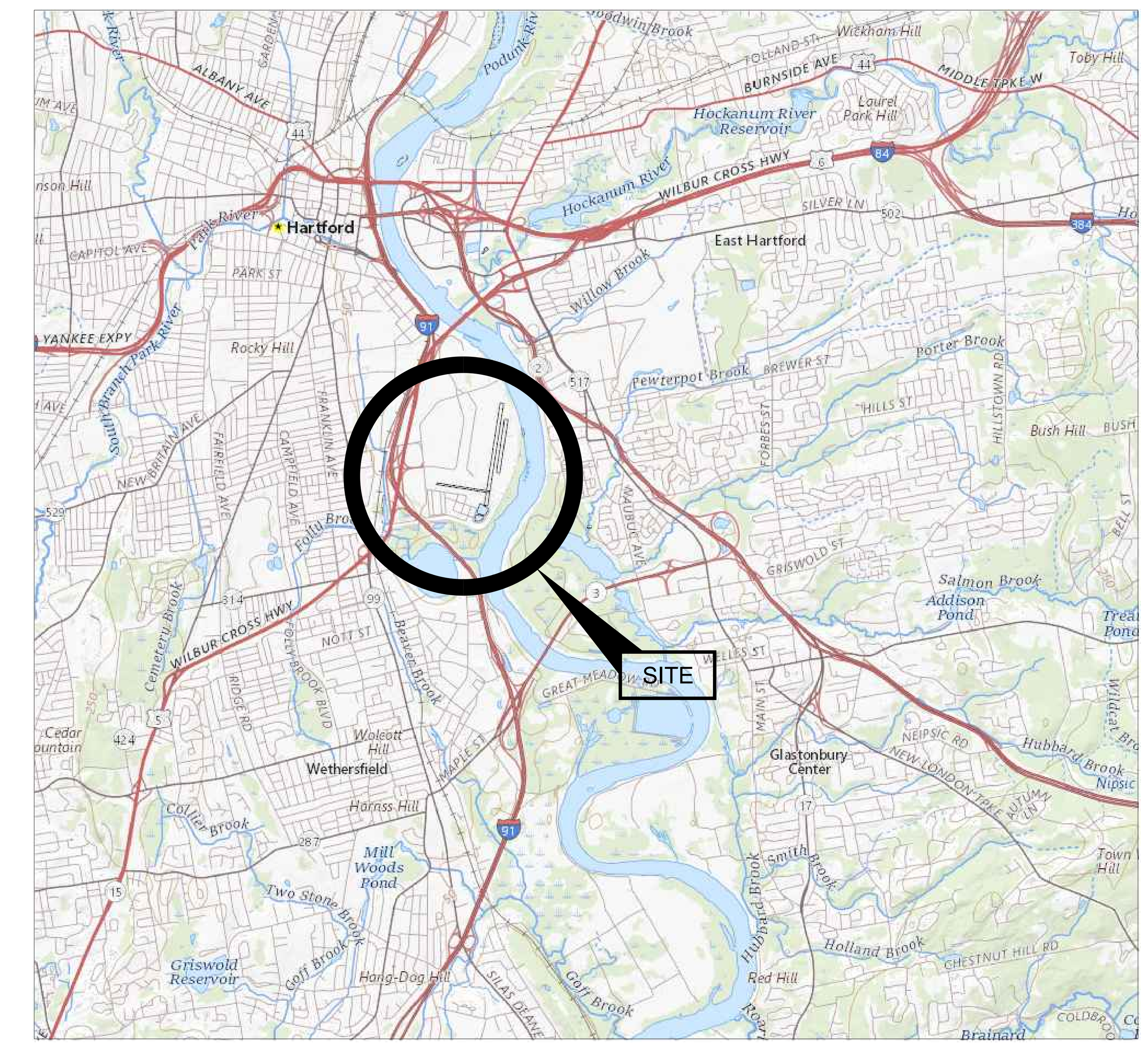
SOUTH MEADOWS (CLARK) DIKE
TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS



SOURCE:
{CT DEPARTMENT OF TRANSPORTATION}

STATE of CONNECTICUT

(NOT TO SCALE)



SOURCE:
{USGS}

SITE LOCATION MAP

(NOT TO SCALE)

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PREPARED FOR:

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FOR BID
JULY 2025

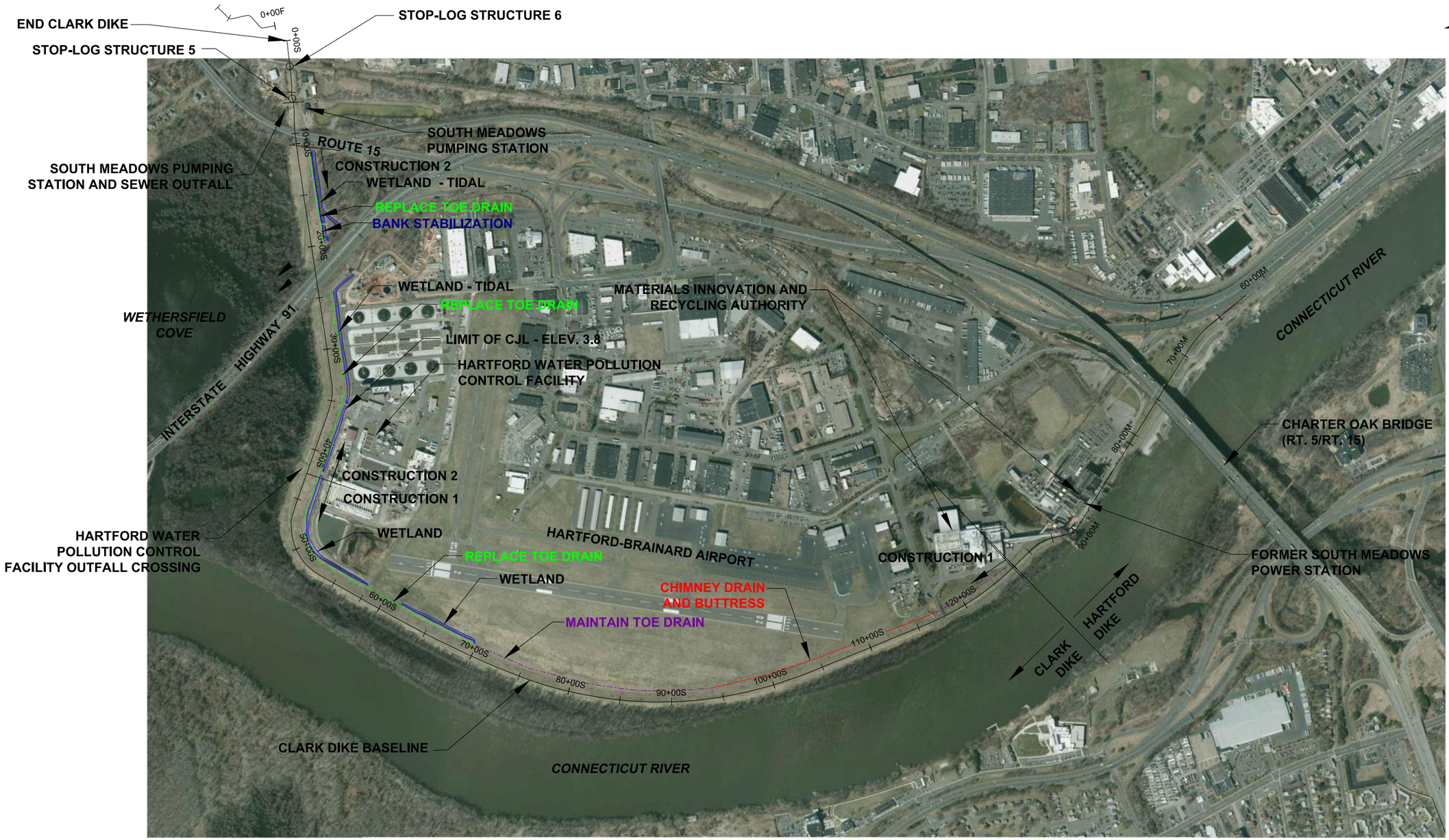
PROJECT DATUMS: NAD 83
NAVD88

PLANS DEVELOPED ON GEOTECHNICAL RECOMMENDATIONS PROVIDED BY GEI CONSULTANTS, INC. ANALYSIS OF THE SOUTH MEADOWS FLOOD CONTROL SYSTEM PRESENTED IN GEI CONSULTANTS, INC. "BASIS OF DESIGN, TOE DRAIN EVALUATION AND REPAIR - FEBRUARY 2021"

ALFRED BENESCH & COMPANY

DWG. NO.
G-001

REV NO.



LEGEND

- MAINTAIN TOE DRAIN
- REPLACE TOE DRAIN
- CHIMNEY DRAIN AND BUTTRESS*
- BANK STABILIZATION

*** CHIMNEY DRAIN AND BUTTRESS INCLUDES NEW SOIL BUTTRESS AND TOE/COLLECTOR (CHIMNEY DRAIN) INCLUDING PIPE GROUTING OF ABANDONED SECTIONS**

SCALE

0 1000 2000

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

Designed:

Drawn:

Checked:

P.E. No:

GEI Project

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GEI CONSULTANTS, INC.
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SOUTH MEADOWS (CLARK) DIKE TOEDRAIN, TOEDITCH AND EMPANKMENT REPAIRS

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME: LOCATION PLAN - CONSTRUCTION

SHEET NO.: **LOC-1**

GEOTECHNICAL INSTRUMENTATION LEGEND

SYMBOL	ABBREVIATION	GEOTECHNICAL INSTRUMENTATION
S1	DMP-1	DEFORMATION MONITORING POINT FOR PAVEMENT
S2	DMP-2	DEFORMATION MONITORING POINT FOR GROUND SURFACE
S3	DMP-3	DEFORMATION MONITORING POINT FOR STRUCTURES
SM	DMP-3	STRUCTURE MONITORING POINT ON VERTICAL MASONRY OR CONCRETE SURFACE OF BUILDINGS
SP	AMTS	PRISM FOR AUTOMATED MONITORING TOTAL STATION
	INC	INCLINOMETER
GP	VMP	GEOPHONE FOR MONITORING VIBRATIONS (VIBRATION MONITORING POINT)
	CB	CONVERGENCE BOLTS
	UMP	UTILITY MONITORING POINT
	MOW	MULTIPLE OBSERVATION WELL
	VW	VIBRATING WIRE PIEZOMETER
	EL	ELECTRO LEVEL
	DB	DEEP BENCHMARK

WETLAND IMPACT LEGEND

WETLANDS

REMOVE TOE DITCH SEDIMENTS

2" STONE SPLASH PAD (5X5)
AT NEW OUTLETS

FILL AREA

EXISTING OBSERVATION WELLS AND PIEZOMETERS LEGEND:

	OW	EXISTING OBSERVATION WELL
	PZ	EXISTING PIEZOMETER MDC
	OW/PZ	EXISTING OBSERVATION WELL/PIEZOMETER MDC
B117–PIEZO		EXISTING PIEZOMETER CITY OF HARTFORD
79 IRV 79 RB CAP		TRAVERSE

TEST PIT LEGEND:

	ETP	EXISTING TEST PIT
	PTP	PROPOSED TEST PIT
	B-12	ENVIRONMENTAL TEST PIT/SAMPLE LOCATION

0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	JHL
Drawn:	JHL
Checked:	JAK
Approved:	
P.E. No:	
GEI Project	

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
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SHEET NAME
TOE DRAIN
IMPROVEMENT
PLAN LEGEND

SHEET NO.
LEG-1

PTP PROPOSED TEST PIT

CLARK DIKE ALIGNMENT P1A

Number	Radius	Length	Line/Chord Direction	A Value	Northing	Easting	Beginning Segment
L1		316.11	N83° 22' 55.35"E		826346.85	1022330.95	0+00.00
L2		108.24	N84° 55' 11.33"E		826383.28	1022644.95	3+16.11
C1	500.00	77.96	N89° 23' 11.45"E	8°56'00"	826392.87	1022752.77	4+24.35
C2	200.00	67.24	N84° 13' 19.58"E	19°15'44"	826393.70	1022830.64	5+02.31
C3	450.00	110.48	N81° 37' 27.89"E	14°04'01"	826400.44	1022897.23	5+69.55
L3		169.15	N88° 39' 28.18"E		826416.49	1023006.25	6+80.03
L4		309.77	N82° 56' 45.13"E		826420.45	1023175.35	8+49.18
L5		556.53	N81° 25' 03.51"E		826458.49	1023482.78	11+58.94
L6		1254.02	N81° 21' 29.34"E		826541.54	1024033.07	17+15.47
L7		366.99	N82° 03' 22.93"E		826729.97	1025272.86	29+69.49
C4	500.00	236.75	S84° 22' 44.31"E	27°07'46"	826780.69	1025636.33	33+36.48
L8		1049.84	S70° 48' 51.55"E		826757.71	1025869.74	35+73.23
C5	400.00	89.64	S77° 14' 04.19"E	12°50'25"	826412.70	1026861.28	46+23.07
C6	545.00	638.66	N62° 46' 27.51"E	67°08'31"	826392.94	1026948.52	47+12.72
L9		860.20	N29° 12' 11.86"E		826668.69	1027484.48	53+51.37
C7	9000.00	1283.09	N25° 07' 08.75"E	8°10'06"	827419.55	1027904.18	62+11.58
C8	3780.00	2853.03	N0° 35' 15.54"W	43°14'42"	828580.31	1028448.39	74+94.66
L10		1221.28	N22° 12' 36.73"W		831365.95	1028419.82	103+47.69
C9	2677.00	1033.27	N33° 16' 03.91"W	22°06'54"	832496.62	1027958.17	115+68.97

CLARK DIKE CONTROL POINTS

Pnt#	North	East	Elevation	Pnt Description
3	834900.965	1025526.770	43.931	FSIR
4	826557.408	1026434.701	42.247	FSIR
6	826687.745	1024293.922	14.180	TRV 6 PK
8	826665.417	1024852.847	41.663	TRV 8 SPK
11	826423.985	1023175.328	42.186	TRV 11 SPK
19	834027.098	1026924.380	43.604	TRVHOLE TEMP
22	826748.269	1022960.763	5.040	TRVSPK
24	826422.096	1023140.575	42.227	TRVSPK
37	834462.312	1026209.487	42.612	RTKSPK
38	833905.766	1027056.270	31.966	TRVSPK
40	834648.629	1026296.308	9.275	RTKPK
50	826388.264	1022630.554	41.575	TRV 50 aka TRV 1 SPK
51	826395.169	1022844.981	42.053	TRV 51 aka TRV 2 SPK
61	826694.689	1024318.237	14.851	TRV 61 DH RIM
62	826754.241	1025310.672	41.378	TRV 62 PK
79	826663.811	1024209.843	13.448	TRV 79 RB CAP
100	826487.792	1023623.671	41.472	TRV 100 SPK
101	826658.193	1024464.931	42.806	TRV 101 RB CAP
151	834834.360	1025635.530	43.700	SPUR 151 SPK
152	834697.420	1025835.550	43.560	SPUR 152 SPK
1390	826781.588	1024927.566	15.797	TRV PK
1391	826759.948	1025157.604	32.841	TRV PK

ALIGNMENT P1B

Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L5	40.46	N86° 31' 09.47"E	(1023371.52,826537.98)	(1023411.91,826540.43)
L6	125.64	N82° 30' 34.81"E	(1023411.91,826540.43)	(1023536.48,826556.81)
L7	238.15	N81° 53' 09.48"E	(1023536.48,826556.81)	(1023772.24,826590.42)
L8	127.30	N82° 05' 17.58"E	(1023772.24,826590.42)	(1023898.33,826607.95)
L9	153.36	N81° 31' 01.96"E	(1023898.33,826607.95)	(1024050.01,826630.57)
L10	195.29	N81° 10' 09.96"E	(1024050.01,826630.57)	(1024242.99,826660.55)
L11	118.94	N76° 48' 28.02"E	(1024242.99,826660.55)	(1024358.79,826687.69)

STRUCTURES P1B

Structure Table			
Structure Name:	Station	Northing	Easting
Structure - (103)	STA0+28.59	826537.74	1023400.17
Structure - (105)	STA2+34.86	826568.41	1023604.27
Structure - (106)	STA4+90.21	826602.26	1023857.38
Structure - (107)	STA8+39.83	826654.35	1024203.09
Structure - (108)	STA9+99.15	826687.69	1024358.79

TD1

Toe Ditch					
Number	Radius	Length	Line/Chord Direction	Start Point	End Point
L44		43.47	S88° 13' 02.05"E	(1023393.14,826605.29)	(1023436.58,826603.94)
L45		751.77	N82° 00' 09.30"E	(1023436.58,826603.94)	(1024181.04,826708.53)
L46		751.77	N82° 00' 09.30"E	(1023436.58,826603.94)	(1024181.04,826708.53)
L47		751.77	N82° 00' 09.30"E	(1023436.58,826603.94)	(1024181.04,826708.53)
L48		92.07	N63° 41' 30.27"E	(1024181.04,826708.53)	(1024263.57,826749.34)

0 10' 20'

VERT: 1"=10'

0 50' 100'

HOR: 1"=50'

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

STATE OF CONNECTICUT — JOSEPH A. KOMOSKI — 14897 — LICENSED PROFESSIONAL ENGINEER

Designed:	JHL
Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
GEI Project	1703638

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
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SHEET NAME

TOE DRAIN
IMPROVEMENT
ALIGNMENT TABLE

SHEET NO.

LAY-1

LECOUR, JOSEPH, Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/2/2025

---- Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/2/2025

ALIGNMENT P1C

Line Table: Alignments				
Line #	Length	Direction	Start Point	End Point
L1	121.74	N89° 22' 53.92"E	(1024715.00,826767.36)	(1024836.72,826768.68)
L2	790.19	N80° 54' 40.85"E	(1024836.72,826768.68)	(1025617.00,826893.50)
L3	98.36	S76° 34' 40.38"E	(1025786.68,826887.08)	(1025882.36,826864.25)
L4	1052.89	S71° 09' 10.66"E	(1025882.36,826864.25)	(1026878.80,826524.12)
L5	40.46	N86° 31' 09.47"E	(1023371.52,826537.98)	(1023411.91,826540.43)
L6	125.64	N82° 30' 34.81"E	(1023411.91,826540.43)	(1023536.48,826556.81)
L7	238.15	N81° 53' 09.48"E	(1023536.48,826556.81)	(1023772.24,826590.42)
L8	127.30	N82° 05' 17.58"E	(1023772.24,826590.42)	(1023898.33,826607.95)
L9	153.36	N81° 31' 01.96"E	(1023898.33,826607.95)	(1024050.01,826630.57)
L10	195.29	N81° 10' 09.96"E	(1024050.01,826630.57)	(1024242.99,826660.55)
L11	118.94	N76° 48' 28.02"E	(1024242.99,826660.55)	(1024358.79,826687.69)
L12	296.55	N74° 59' 12.16"E	(1022873.64,826434.93)	(1023160.07,826511.75)

Curve Table: Alignments					
Curve #	Radius	Length	Chord Direction	Start Point	End Point
C3	15580.00	1588.50	N28° 21' 56.21"E	(1027379.29,826705.62)	(1028133.65,828102.79)
C2	425.00	575.32	N70° 04' 00.34"E	(1026878.80,826524.12)	(1027379.29,826705.62)
C1	435.00	170.91	S87° 49' 59.76"E	(1025617.00,826893.50)	(1025786.68,826887.08)

STRUCTURES P1C

Structure Table						Toe Drain
Structure Name:	Station	Northing	Easting	Rim	Inv	Inv
Structure - (129)	STA1+21.74	826768.68	1024836.72	12.03		7.10 E
Structure - (130)	STA3+74.77	826808.65	1025086.58	13.44	6.10 W	6.15 E
Structure - (131)	STA6+72.22	826855.63	1025380.30	10.13	5.10 W	5.10 E
Structure - (132)	STA8+74.39	826887.57	1025579.93	9.43	3.50 W	3.50 E
Structure - (133)	STA10+79.56	826887.83	1025783.50	11.09	6.50 W	
Structure - (113)	STA11+59.05	826869.39	1025860.81	12.30		7.00E
Structure - (114)	STA13+76.10	826801.28	1026066.81	11.56	5.00 W	5.00E
Structure - (115)	STA16+27.01	826720.23	1026304.27	12.16	6.50 W	6.50E
Structure - (115A)	STA17+74.87	826672.46	1026444.20	13.96	6.03 W	
Structure - (116)	STA18+24.87	826656.31	1026491.52	13.96		6.29 E
Structure - (116A)	STA18+75.00	826640.12	1026538.96	13.15	5.79 W	5.70 E
Structure - (117)	STA21+28.47	826558.23	1026778.85	12.16	6.50 W	5.80E
Structure - (117A)	STA22+78.91	826516.92	1026923.05	12.00	6.24 W	6.24 E
Structure - (118)	STA23+82.96	826501.43	1027025.16	12.11	6.60 W	6.60E
Structure - (119)	STA25+46.38	826535.86	1027183.88	10.03	5.40 W	5.40NE
Structure - (120)	STA27+05.30	826624.13	1027314.93	9.70	5.19 SW	5.19NE
Structure - (121)	STA28+78.20	826764.49	1027414.89	10.12	6.50 SW	6.58NE
Structure - (122)	STA31+27.64	826979.25	1027541.76	11.50	5.83 SW	5.83NE
Structure - (122A)	STA33+12.72	827140.43	1027632.72	12.23	6.76 SW	6.76NE
Structure - (123)	STA34+97.81	827301.62	1027723.68	11.88	7.68 SW	7.68NE
Structure - (123A)	STA36+87.24	827468.792	1027812.78	10.55	6.68	6.68
Structure - (124)	STA38+76.68	827635.95	1027901.88	10.80	5.68 SW	5.69NE
Structure - (124A)	STA40+98.67	827834.44	1028001.88	9.87	6.34 SW	6.34NE
Structure - (127)	STA43+20.69	828033.15	1028100.31	12.00	7.00 SW	7.00NE
Structure - (128)	STA43+97.90	828102.79	1028133.65	13.06	9.00 SW	

ALIGNMENT P2

Parcel Line Table		
Line #	Length	Direction
L13	58.94	N82° 20' 14.38"E
L14	296.46	N23° 53' 41.10"E
L15	292.12	N21° 25' 02.43"E
L16	292.68	N17° 11' 59.46"E
L17	292.99	N12° 31' 33.55"E
L18	296.22	N7° 57' 02.46"E
L19	272.41	N4° 05' 10.22"E
L20	313.21	N0° 56' 38.93"W
L21	293.43	N5° 30' 59.51"W
L22	293.47	N10° 00' 42.33"W
L23	276.16	N13° 11' 06.58"W
L24	303.32	N18° 53' 41.88"W
L25	300.21	N22° 15' 23.40"W
L26	303.95	N22° 25' 51.86"W
L27	303.99	N21° 21' 22.62"W
L28	301.96	N21° 27' 53.18"W
L29	292.98	N23° 59' 14.89"W
L30	299.96	N34° 25' 31.07"W
L31	292.09	N36° 42' 53.47"W
L32	239.62	N42° 26' 57.00"W

Parcel Line Table		
Line #	Length	Direction
L33	172.12	N49° 01' 00.39"W
L34	285.14	N20° 40' 02.40"W
L35	192.80	N6° 27' 35.20"W
L36	192.44	N60° 37' 10.59"W
L37	84.28	N45° 49' 00"W
L38	359.42	N56° 37' 55"W
L39	185.13	N57° 56' 41.58"W
L40	296.35	N63° 30' 31.02"W
L41	170.08	N58° 56' 36.04"W
L42	240.11	N58° 07' 43.03"W
L43	434.53	N55° 25' 06.28"W

STRUCTURES P2B

Structure Table						
Structure Name:	Station	Easting	Northing	Rim	Inv	Inv
Structure - B0 (Existing)	STA0+00.00	1028596.69	830440.67	21.76	9.14 EX	9.14 NW
Structure - B1	STA0+36.20	1028569.47	830464.54	17.80	9.15 S	9.15 N
Structure - B2	STA1+09.40	1028560.11	830537.13	18.03	9.16 S	9.16 N
Structure - B3	STA4+02.05	1028499.85	830823.51	18.33	9.27 S	9.27 N
Structure - B4	STA5+97.35	1028453.05	831013.12	19.33	9.35 S	9.35 N
Structure - B5	STA7+92.82	1028393.71	831199.37	20.43	9.43 S	9.43 N
Structure - B6	STA10+89.51	1028284.92	831475.39	20.88	9.55 S	9.55 N
Structure - B7	STA12+89.83	1028198.71	831656.22	18.49	9.63 S	9.63 N
Structure - B8	STA15+89.85	1028088.37	831935.21	18.72	9.75 S	9.75 N
Structure - B9	STA17+64.92	1028026.60	832099.01	19.21	9.95 S	11.00 N
Structure - B10	STA20+27.62	1027937.03	832345.98	23.09	14.20 S	14.20 N
Structure - B11	STA22+47.62	1027856.47	832550.70	28.52	19.13 S	
Structure - B12 (Existing MH 15)	STA17+85.69	1028044.06	832127.45	27.46	9.98SW	

0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
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STATE OF CONNECTICUT · JOSEPH A. KRAUSE · 14897 · LICENSED PROFESSIONAL ENGINEER

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Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
GEI Project	1703638

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Glastonbury, CT 06033
(860)633-8341

SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

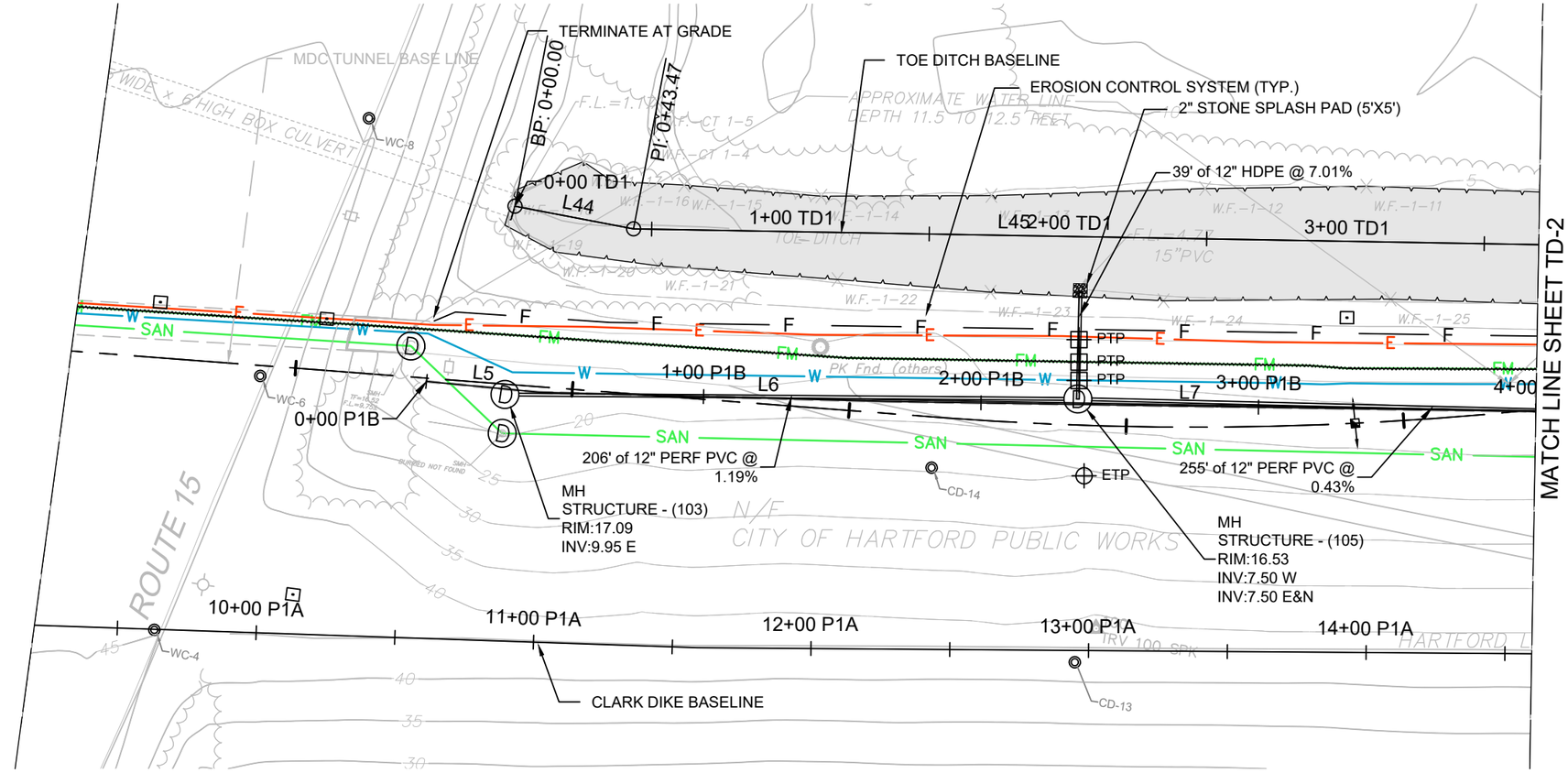
NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

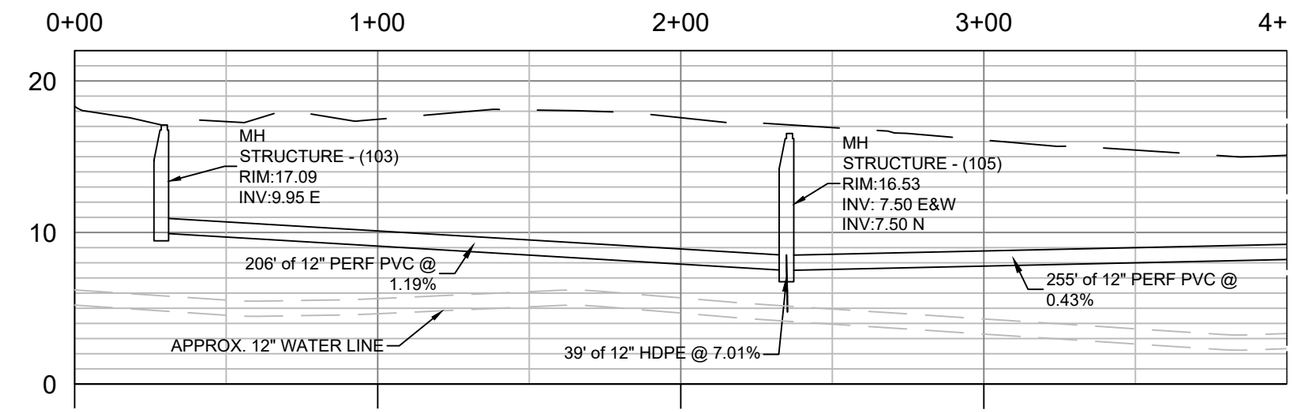
SHEET NAME
TOE DRAIN
IMPROVEMENT
ALIGNMENT TABLE

SHEET NO.
LAY-2

LEOCUR, JOSEPH Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/2/2025

Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/2/2025





UTILITY NOTES:
1. BASED ON GPR, APPROXIMATE DEPTH TO WATER LINE IS 11.5 TO 12.5 FEET.
2. BASED ON GPR AND HISTORIC DRAWINGS, APPROXIMATE DEPTH OF SANITARY SEWER IN EMBANKMENT IS 3'-7'.

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0 10' 20'
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Designed:	JHL
Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
GEI Project	1703638

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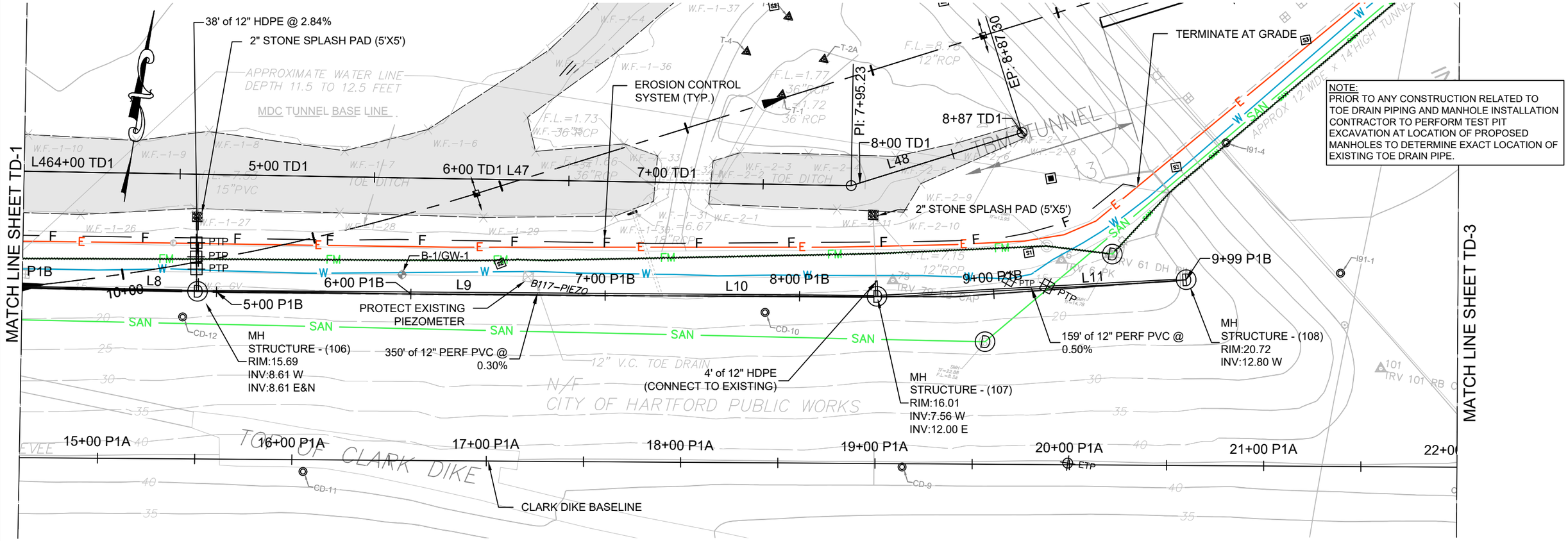
PLAN AND PROFILE

SHEET NO.
TD-1



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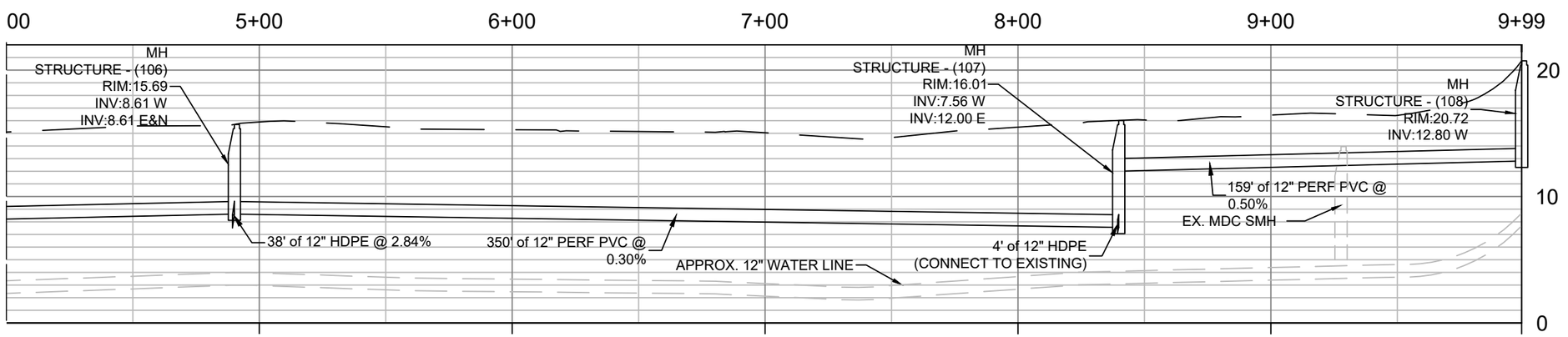

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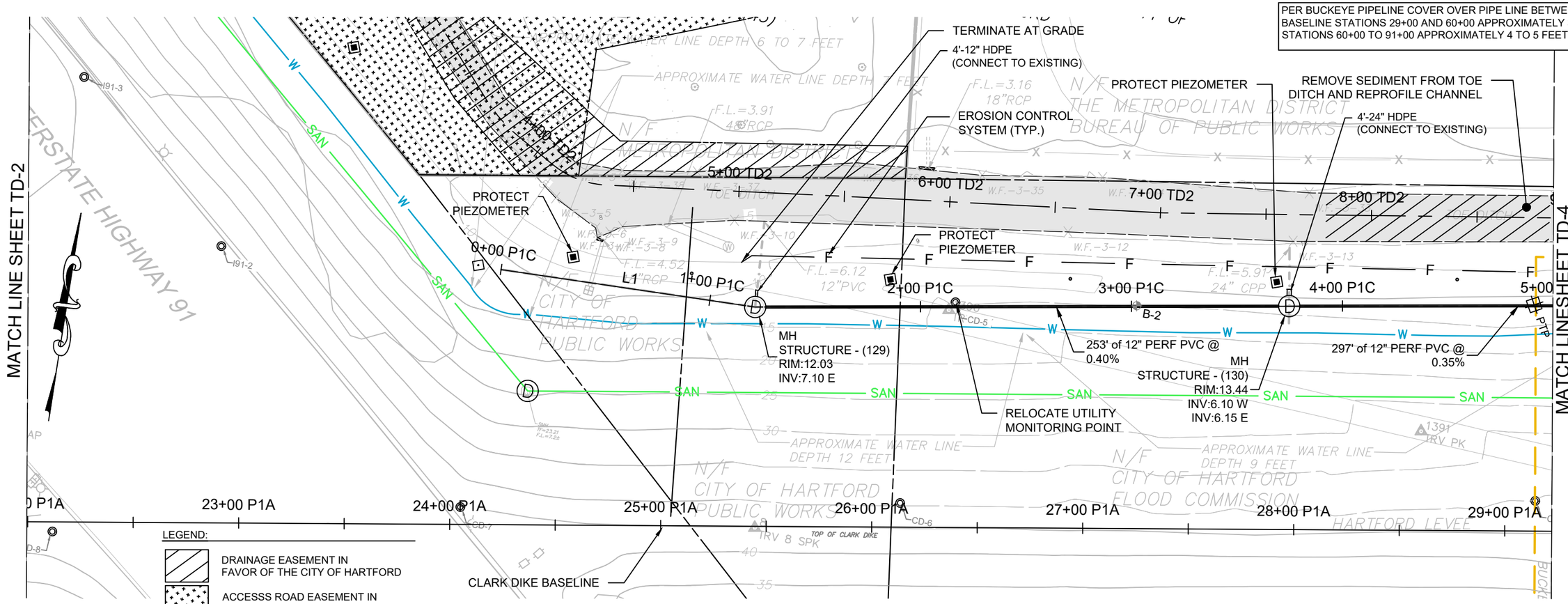
TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.
TD-2

LECOUR, JOSEPH Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/27/2023

---- Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/27/2023

PER BUCKEYE PIPELINE COVER OVER PIPE LINE BETWEEN CLARK BASELINE STATIONS 29+00 AND 60+00 APPROXIMATELY 3 TO 4 FEET AND STATIONS 60+00 TO 91+00 APPROXIMATELY 4 TO 5 FEET.



LEGEND:

- DRAINAGE EASEMENT IN FAVOR OF THE CITY OF HARTFORD
- ACCESSS ROAD EASEMENT IN FAVOR OF THE CITY OF HARTFORD

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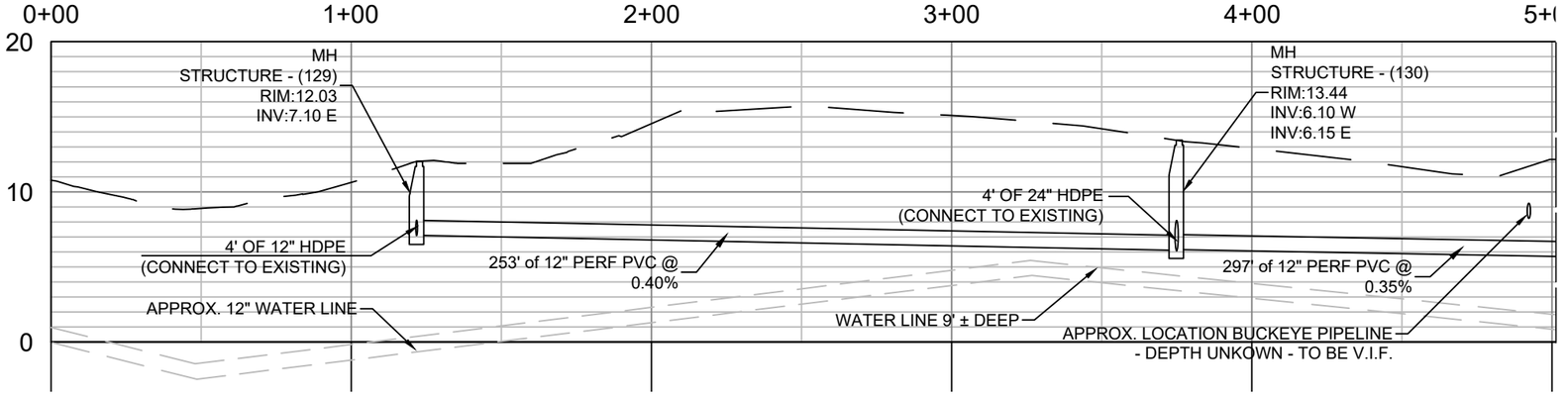

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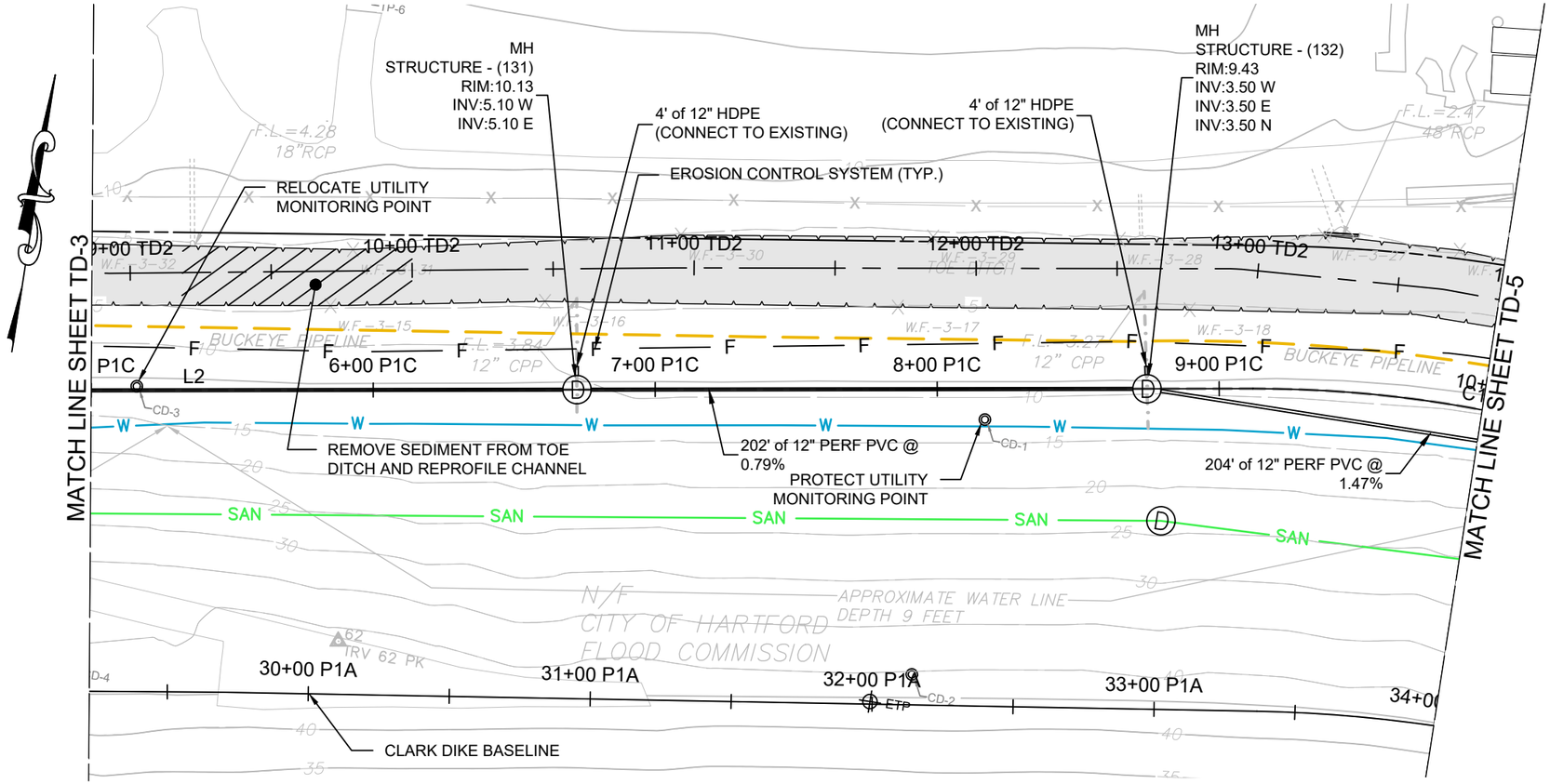
SHEET NAME: TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.: **TD-3**



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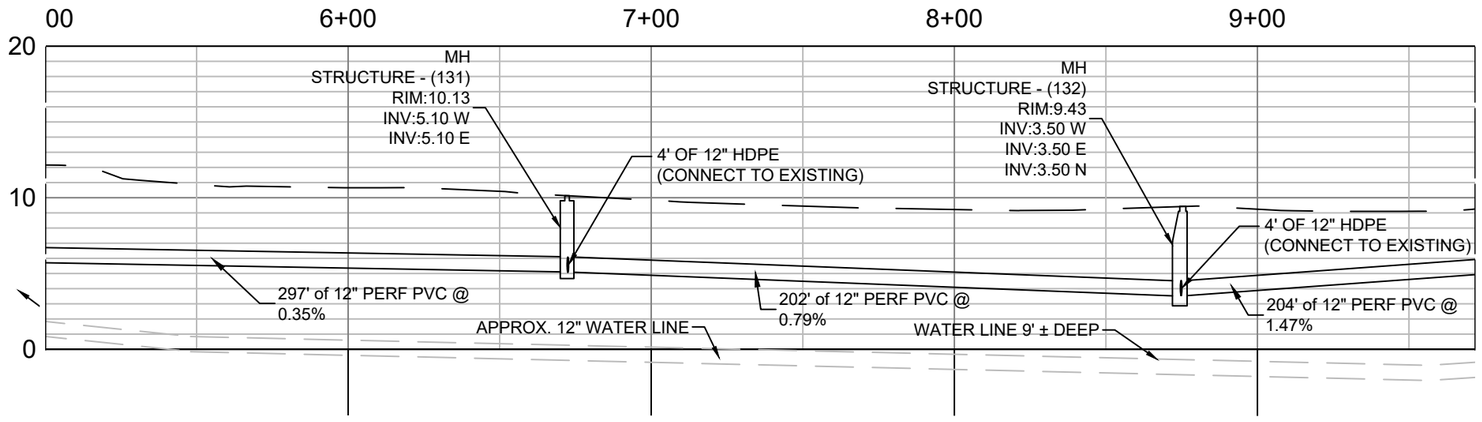

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SHEET NAME
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SHEET NO.
TD-4

PER BUCKEYE PIPELINE COVER OVER PIPE LINE BETWEEN CLARK BASELINE STATIONS 29+00 AND 60+00 APPROXIMATELY 3 TO 4 FEET AND STATIONS 60+00 TO 91+00 APPROXIMATELY 4 TO 5 FEET.

REMOVE SEDIMENT FROM TOE DITCH AND REPROFILE CHANNEL

EROSION CONTROL SYSTEM (TYP.)

4' of 12" HDPE (CONNECT TO EXISTING)

REMOVE SEDIMENT FROM TOE DITCH AND REPROFILE CHANNEL

4' of 12" HDPE (CONNECT TO EXISTING)

MATCH LINE SHEET TD-4

MATCH LINE SHEET TD-6

MH STRUCTURE - (133) RIM:11.09 INV:6.50 W

MH STRUCTURE - (113) RIM:12.30 INV:7.00 E

217' of 12" PERF PVC @ 0.92%

MH STRUCTURE - (114) RIM:11.56 INV:5.00 W INV:5.00 E

251' of 12" PERF PVC @ 0.60%

MDC BYPASS - 84" RCP

4' of 12" HDPE (CONNECT TO EXISTING)

MH STRUCTURE - (115) RIM:12.16 INV:6.50 W INV:6.50E

EXISTING TOE DRAIN BETWEEN MH133 AND MH113 TO BE GROUT FILLED

CLARK DIKE BASELINE

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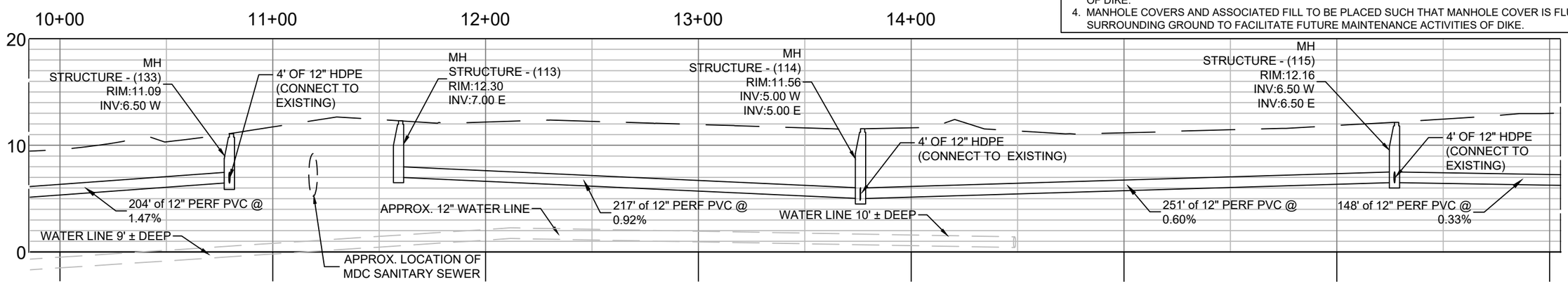

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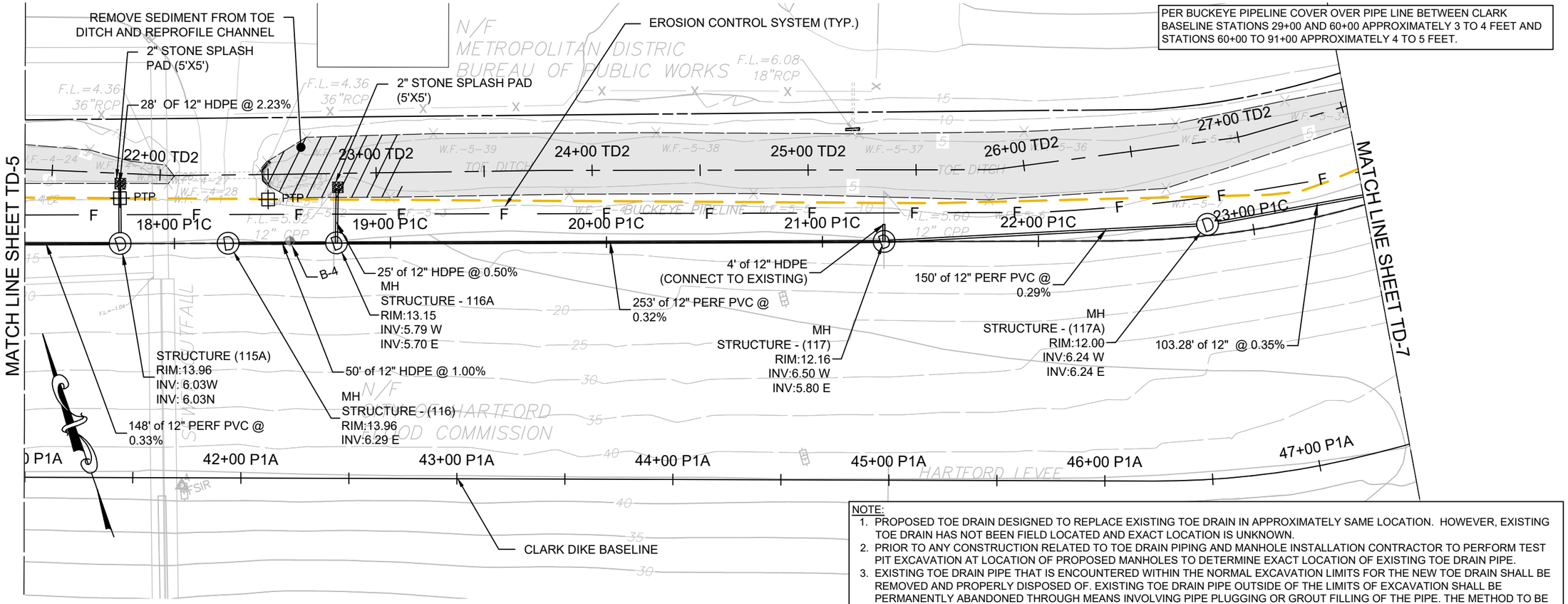
SHEET NAME: TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.: **TD-5**



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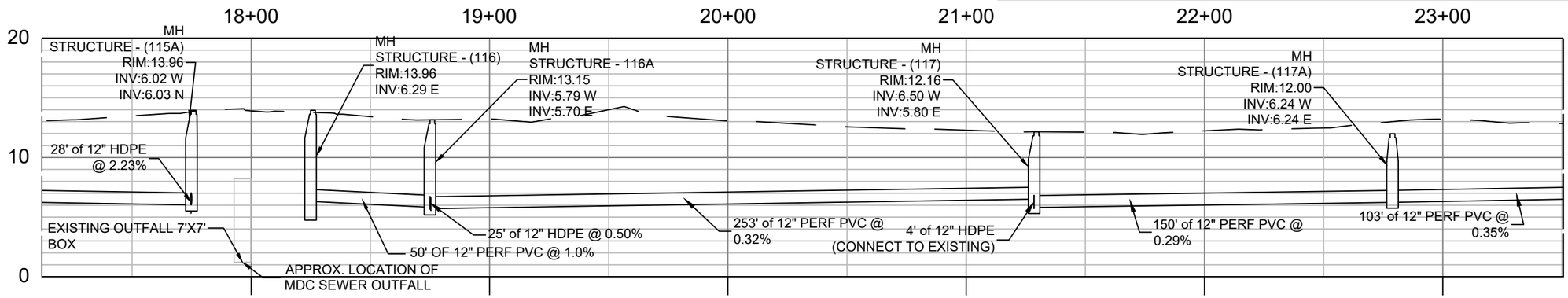

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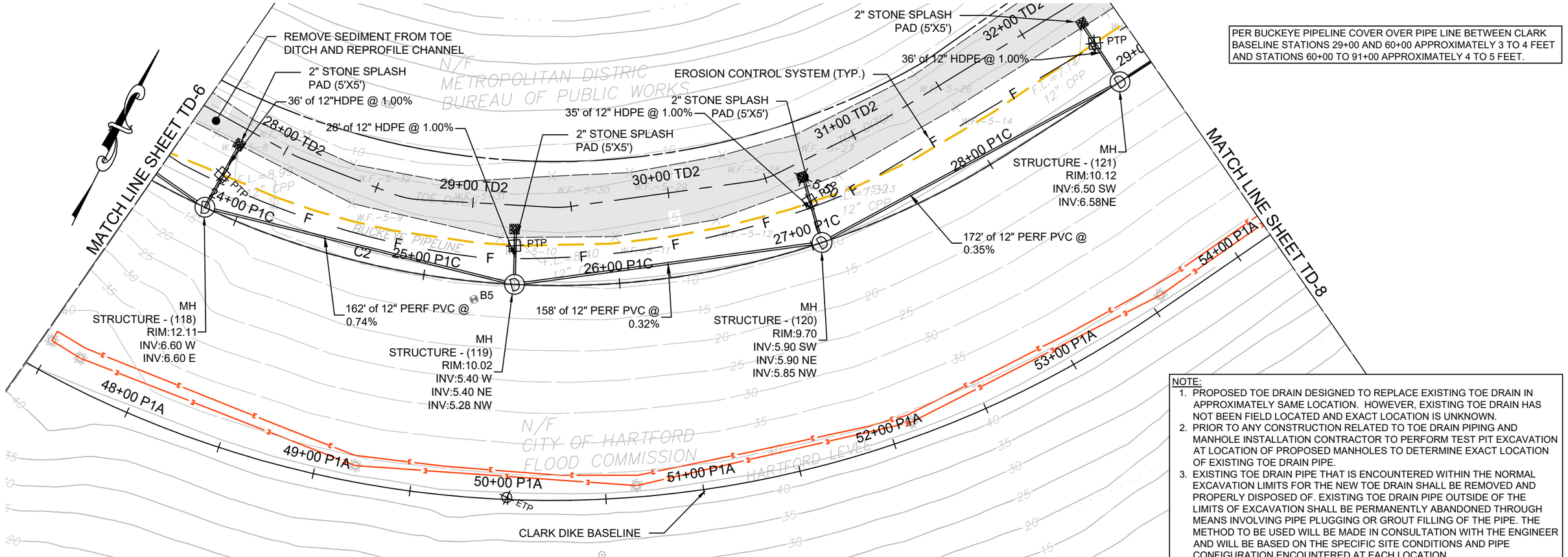

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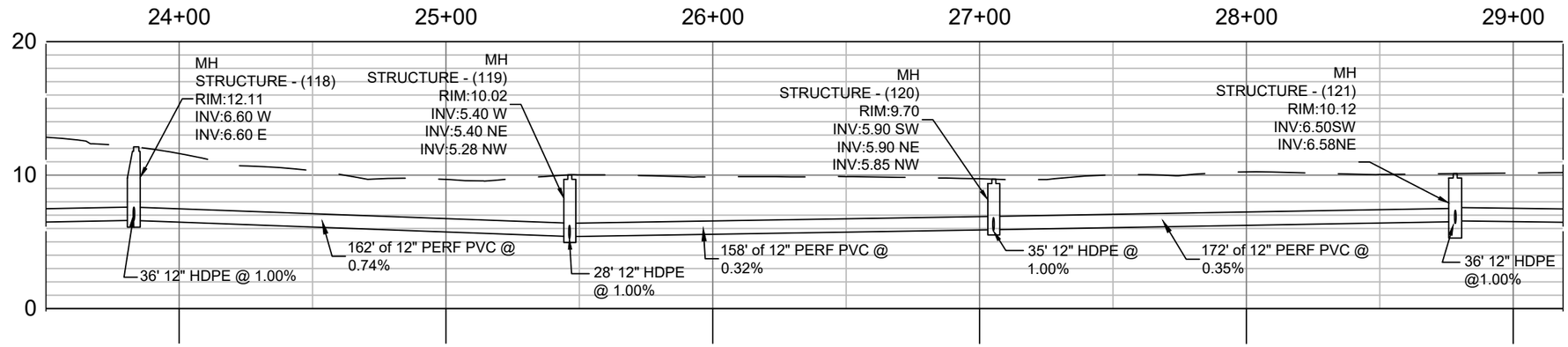

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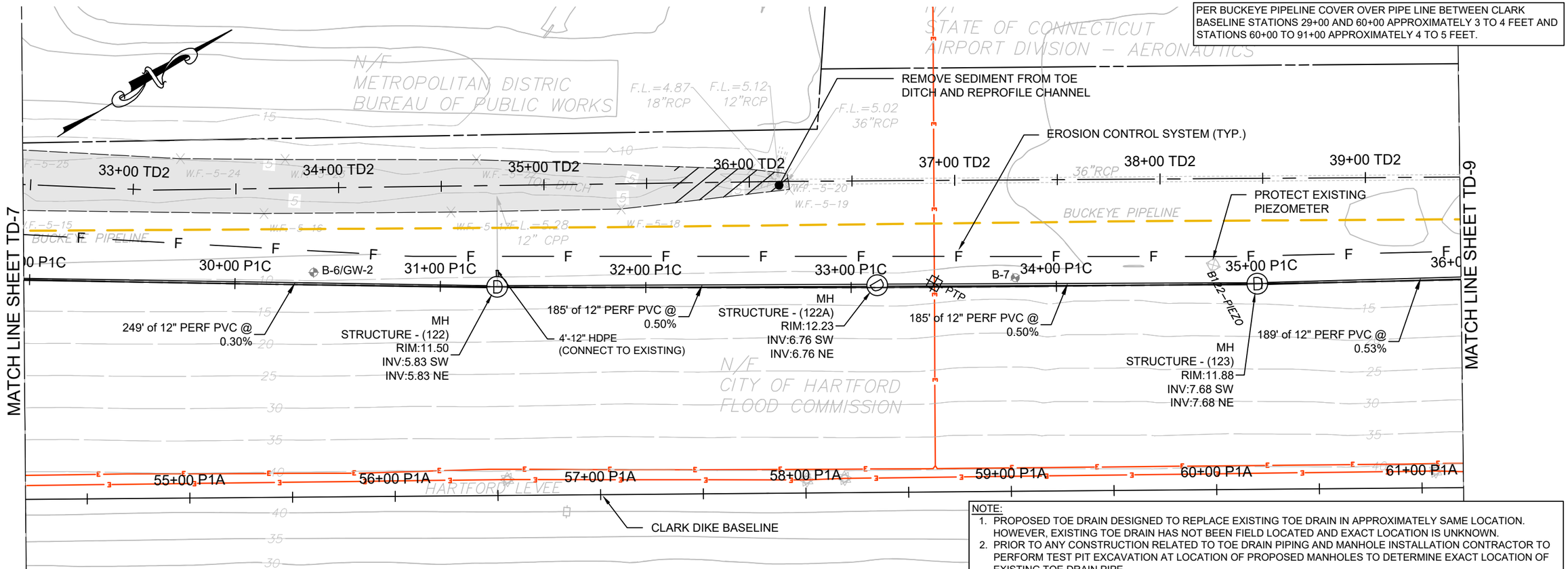
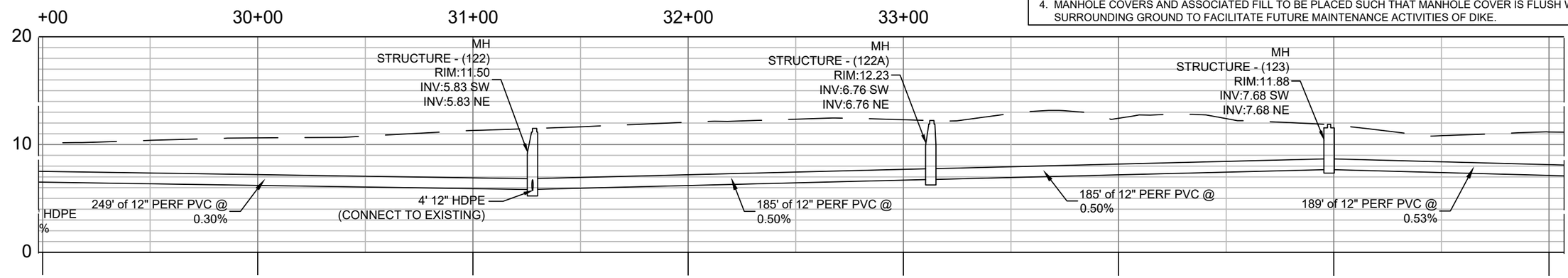
TD-7

PER BUCKEYE PIPELINE COVER OVER PIPE LINE BETWEEN CLARK BASELINE STATIONS 29+00 AND 60+00 APPROXIMATELY 3 TO 4 FEET AND STATIONS 60+00 TO 91+00 APPROXIMATELY 4 TO 5 FEET.





NOTE:
1. PROPOSED TOE DRAIN DESIGNED TO REPLACE EXISTING TOE DRAIN IN APPROXIMATELY SAME LOCATION. HOWEVER, EXISTING TOE DRAIN HAS NOT BEEN FIELD LOCATED AND EXACT LOCATION IS UNKNOWN.
2. PRIOR TO ANY CONSTRUCTION RELATED TO TOE DRAIN PIPING AND MANHOLE INSTALLATION CONTRACTOR TO PERFORM TEST PIT EXCAVATION AT LOCATION OF PROPOSED MANHOLES TO DETERMINE EXACT LOCATION OF EXISTING TOE DRAIN PIPE.
3. EXISTING TOE DRAIN PIPE THAT IS ENCOUNTERED WITHIN THE NORMAL EXCAVATION LIMITS FOR THE NEW TOE DRAIN SHALL BE REMOVED AND PROPERLY DISPOSED OF. EXISTING TOE DRAIN PIPE OUTSIDE OF THE LIMITS OF EXCAVATION SHALL BE PERMANENTLY ABANDONED THROUGH MEANS INVOLVING PIPE PLUGGING OR GROUT FILLING OF THE PIPE. THE METHOD TO BE USED WILL BE MADE IN CONSULTATION WITH THE ENGINEER AND WILL BE BASED ON THE SPECIFIC SITE CONDITIONS AND PIPE CONFIGURATION ENCOUNTERED AT EACH LOCATION.
4. MANHOLE COVERS AND ASSOCIATED FILL TO BE PLACED SUCH THAT MANHOLE COVER IS FLUSH WITH SURROUNDING GROUND TO FACILITATE FUTURE MAINTENANCE ACTIVITIES OF DIKE.

0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	JHL
Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
GEI Project	1703638

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

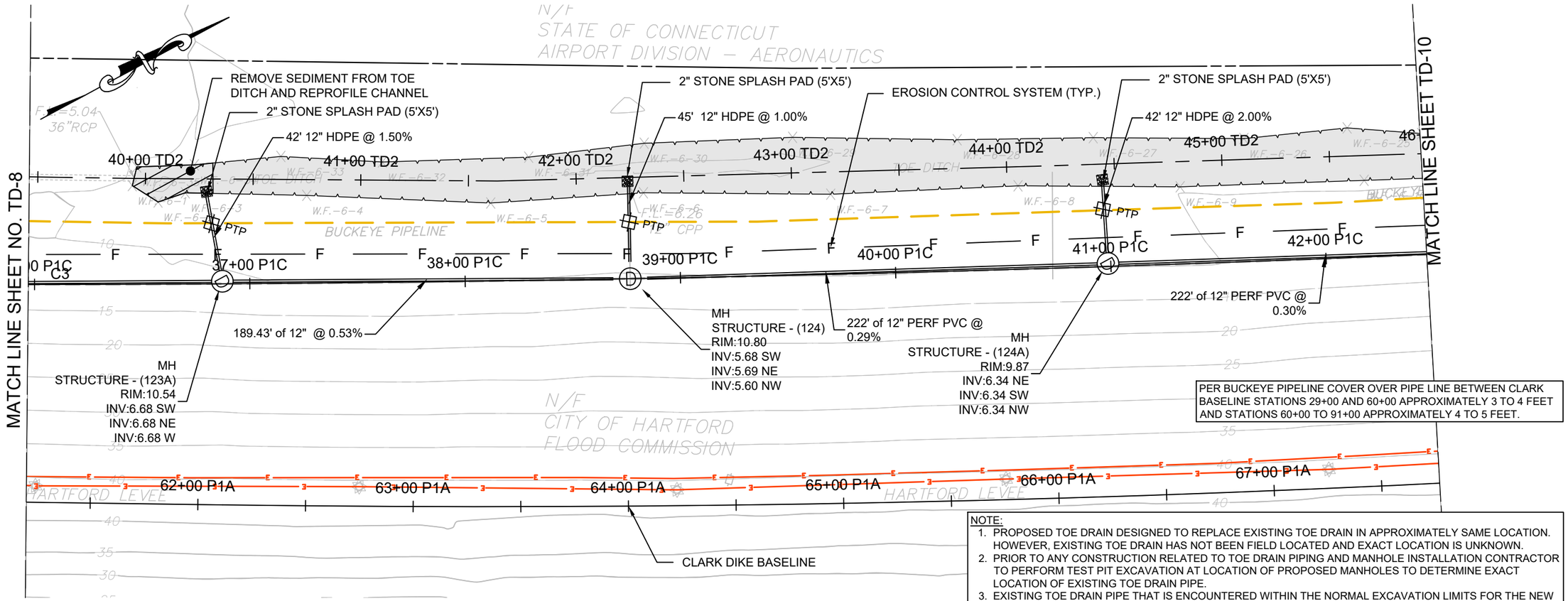
75 years benesch
Alfred Benesch & Company
120 Hebron Avenue, 2nd Floor
Glastonbury, CT 06033
(860)633-8341

SOUTH MEADOWS (CLARK) DIKE
TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME
TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.
TD-8



PER BUCKEYE PIPELINE COVER OVER PIPE LINE BETWEEN CLARK BASELINE STATIONS 29+00 AND 60+00 APPROXIMATELY 3 TO 4 FEET AND STATIONS 60+00 TO 91+00 APPROXIMATELY 4 TO 5 FEET.

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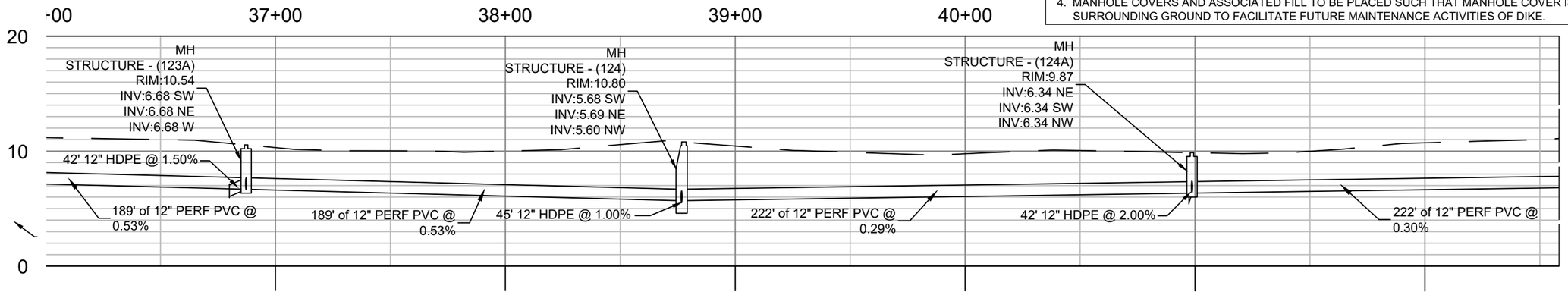

0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

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STATE OF CONNECTICUT REGISTERED 14897 LICENSED PROFESSIONAL ENGINEER

Designed:	JHL
Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
GEI Project	1703638

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
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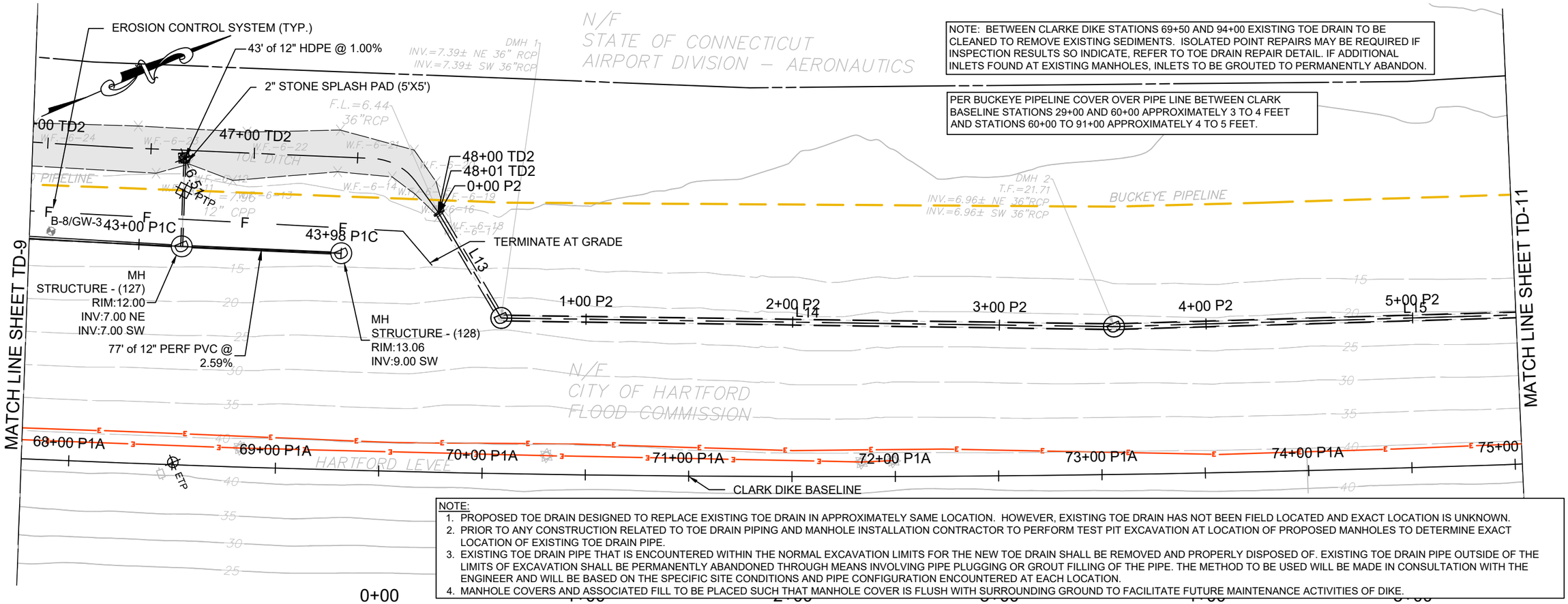
SHEET NAME
TOE DRAIN
IMPROVEMENT
PLAN AND PROFILE

SHEET NO.
TD-9



NOTE: BETWEEN CLARKE DIKE STATIONS 69+50 AND 94+00 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL. IF ADDITIONAL INLETS FOUND AT EXISTING MANHOLES, INLETS TO BE GROUTED TO PERMANENTLY ABANDON.

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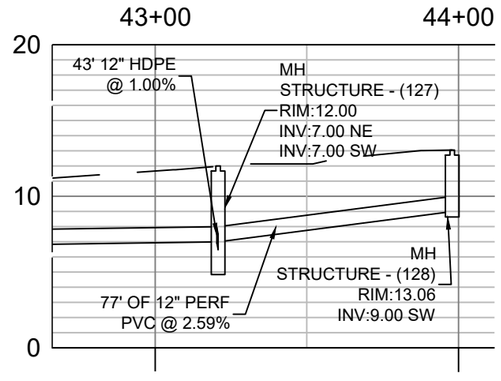

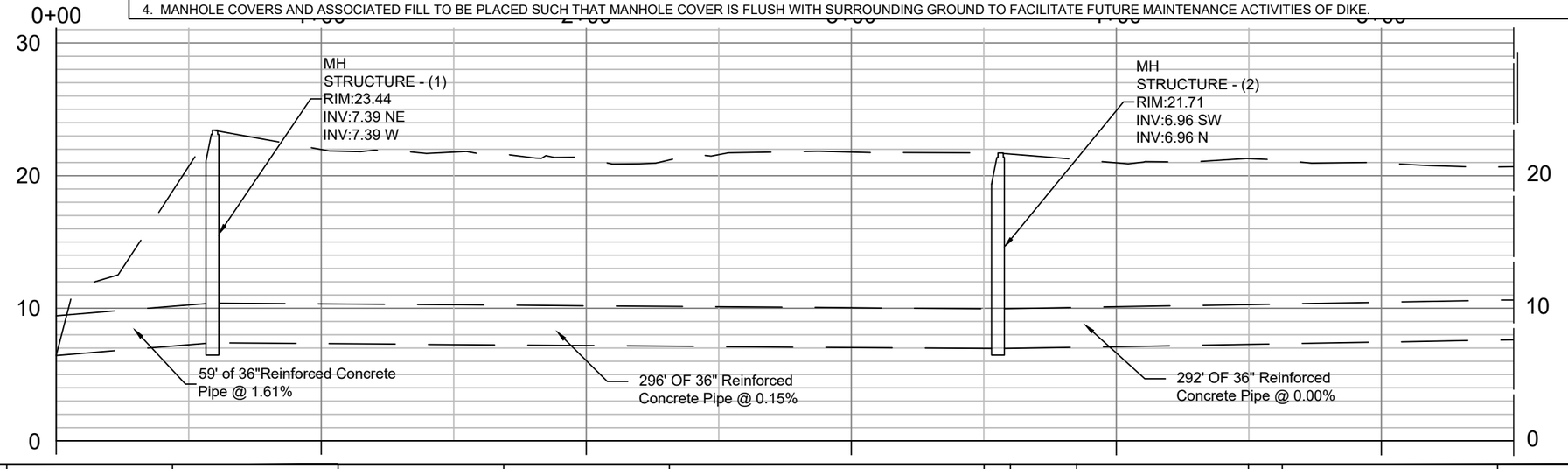

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME
TOE DRAIN
IMPROVEMENT
PLAN AND PROFILE

SHEET NO.
TD-10

---- Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/27/2023

NOTE: BETWEEN CLARKE DIKE STATIONS 69+50 AND 94+00 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL. IF ADDITIONAL INLETS FOUND AT EXISTING MANHOLES, INLETS TO BE GROUTED TO PERMANENTLY ABANDON.

CLARKE DIKE STATIONS 69+50 TO 94+00

MATCH LINE SHEET TD-10

MATCH LINE SHEET TD-12

BUCKEYE PIPELINE

DMH 3
T.F.=22.04
INV.=7.94± NE 36"RCP
INV.=7.94± SW 36"RCP

DMH 4
T.F.=22.81
INV.=8.81± NE 36"RCP
INV.=8.81± SW 36"RCP

DMH 5
T.F.=22.69
INV.=8.59± NE 36"RCP
INV.=8.59± SW 36"RCP

6+00 P2 | 7+00 P2 | 8+00 P2 | L16 | 9+00 P2 | 10+00 P2 | 11+00 P2 | L17 | 12+00 P2

P1A | 76+00 P1A | 77+00 P1A | 78+00 P1A | 79+00 P1A | 80+00 P1A | 81+00 P1A | 82+00 P1A

HARTFORD LEVEE

HARTFORD LEVEE

CLARK DIKE BASELINE

6+00 | 7+00 | 8+00 | 9+00 | 10+00 | 11+00 | 12+00

MH
STRUCTURE - (3)
RIM:22.04
INV:7.94 S
INV:7.94 N

293' OF 36" Reinforced
Concrete Pipe @ 0.30%

MH
STRUCTURE - (4)
RIM:22.81
INV:8.81 S
INV:8.81 N

293' OF 36" Reinforced
Concrete Pipe @ 0.08%

MH
STRUCTURE - (5)
RIM:22.69
INV:8.59 S
INV:8.59 N

30
20
10

0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
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Designed:	JHL
Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
GEI Project	1703638

GEI Consultants
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455 WINDING BROOK DRIVE
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(860)368-5300

75 years benesch
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(860)633-8341

SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

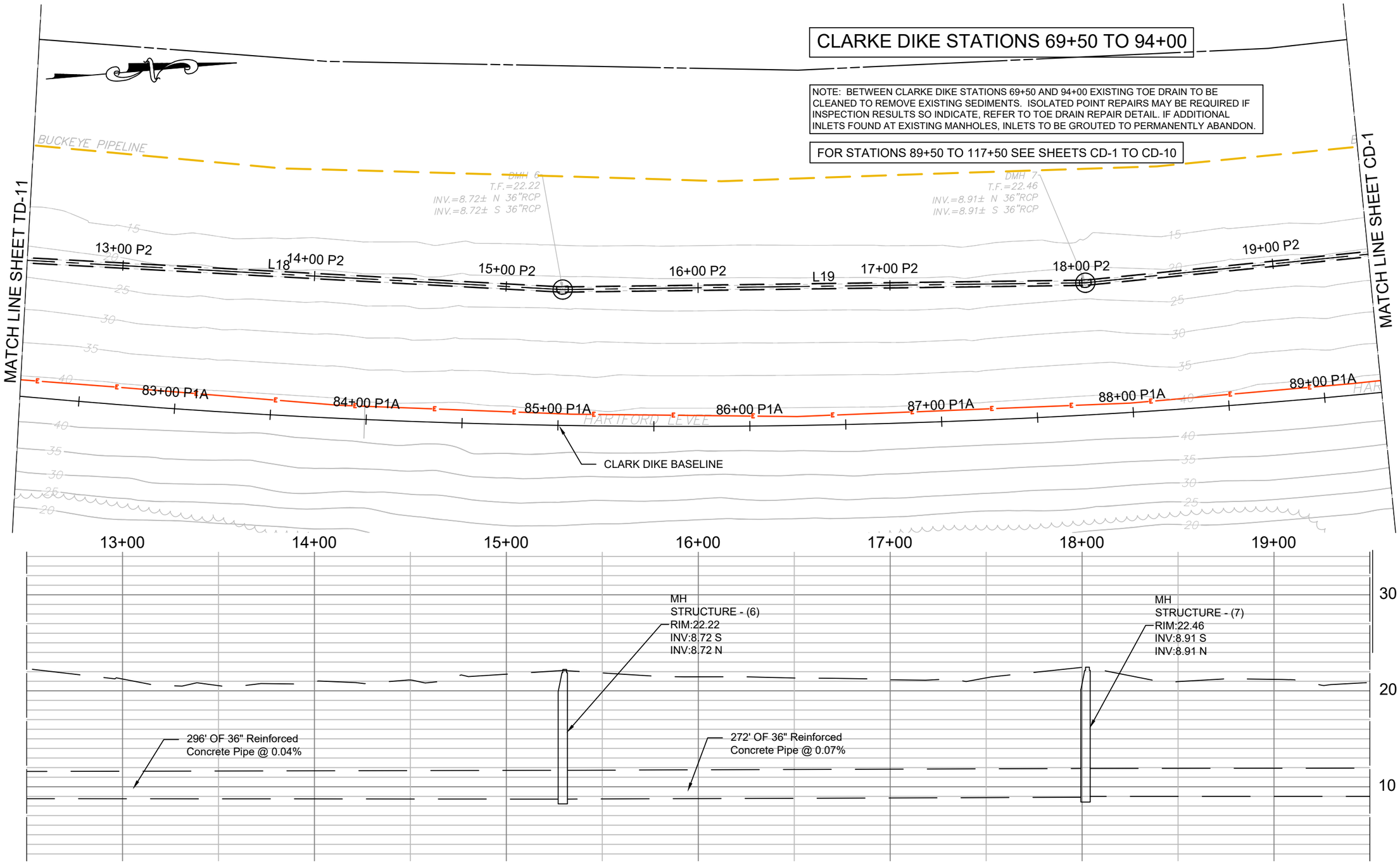
SHEET NAME
TOE DRAIN
IMPROVEMENT
PLAN AND PROFILE

SHEET NO.
TD-11

CLARKE DIKE STATIONS 69+50 TO 94+00

NOTE: BETWEEN CLARKE DIKE STATIONS 69+50 AND 94+00 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL. IF ADDITIONAL INLETS FOUND AT EXISTING MANHOLES, INLETS TO BE GROUTED TO PERMANENTLY ABANDON.

FOR STATIONS 89+50 TO 117+50 SEE SHEETS CD-1 TO CD-10



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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
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CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
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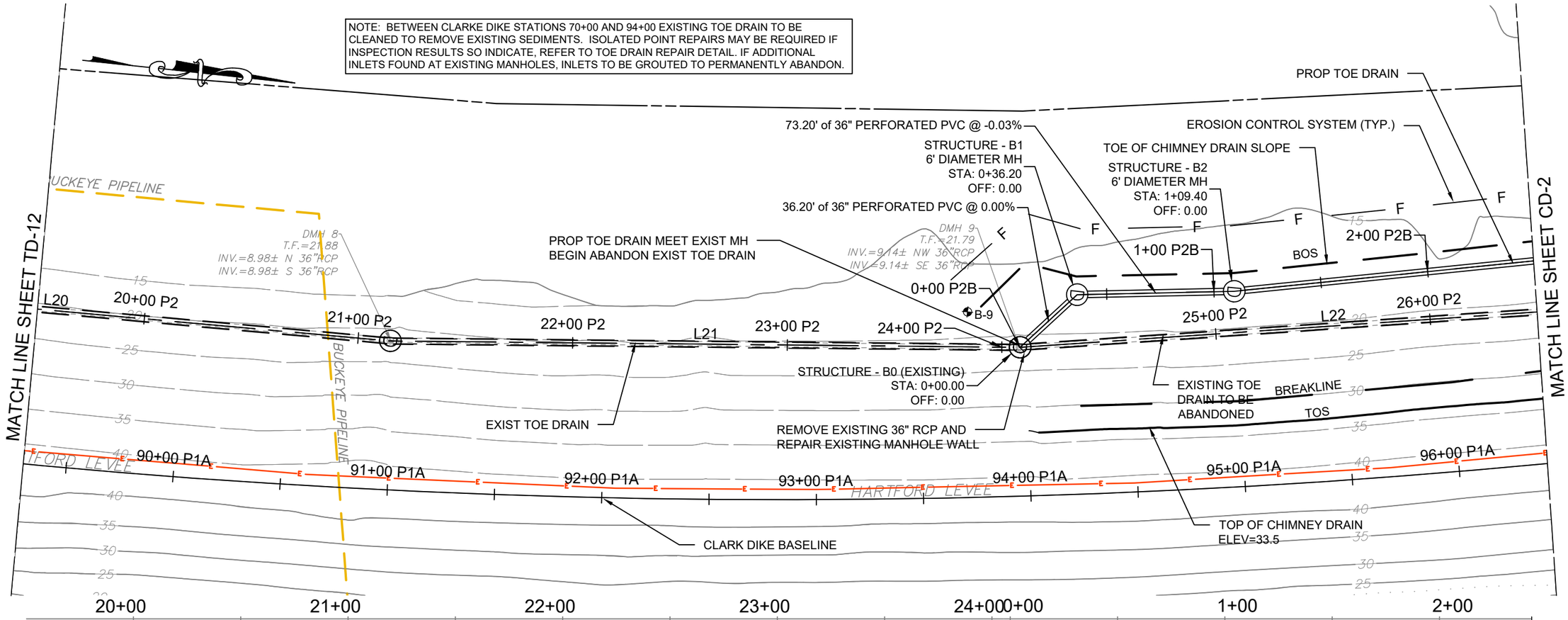
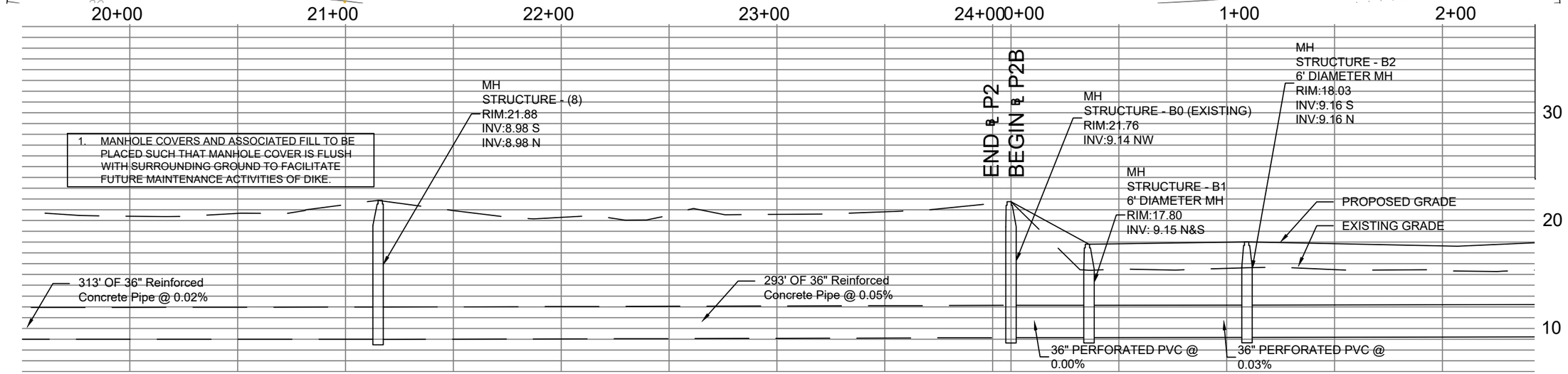
SHEET NAME
TOE DRAIN
IMPROVEMENT
PLAN AND PROFILE

SHEET NO.
TD-12

NOTE: BETWEEN CLARKE DIKE STATIONS 70+00 AND 94+00 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL. IF ADDITIONAL INLETS FOUND AT EXISTING MANHOLES, INLETS TO BE GROUTED TO PERMANENTLY ABANDON.





1. MANHOLE COVERS AND ASSOCIATED FILL TO BE PLACED SUCH THAT MANHOLE COVER IS FLUSH WITH SURROUNDING GROUND TO FACILITATE FUTURE MAINTENANCE ACTIVITIES OF DIKE.

0 10' 20'
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SOUTH MEADOWS
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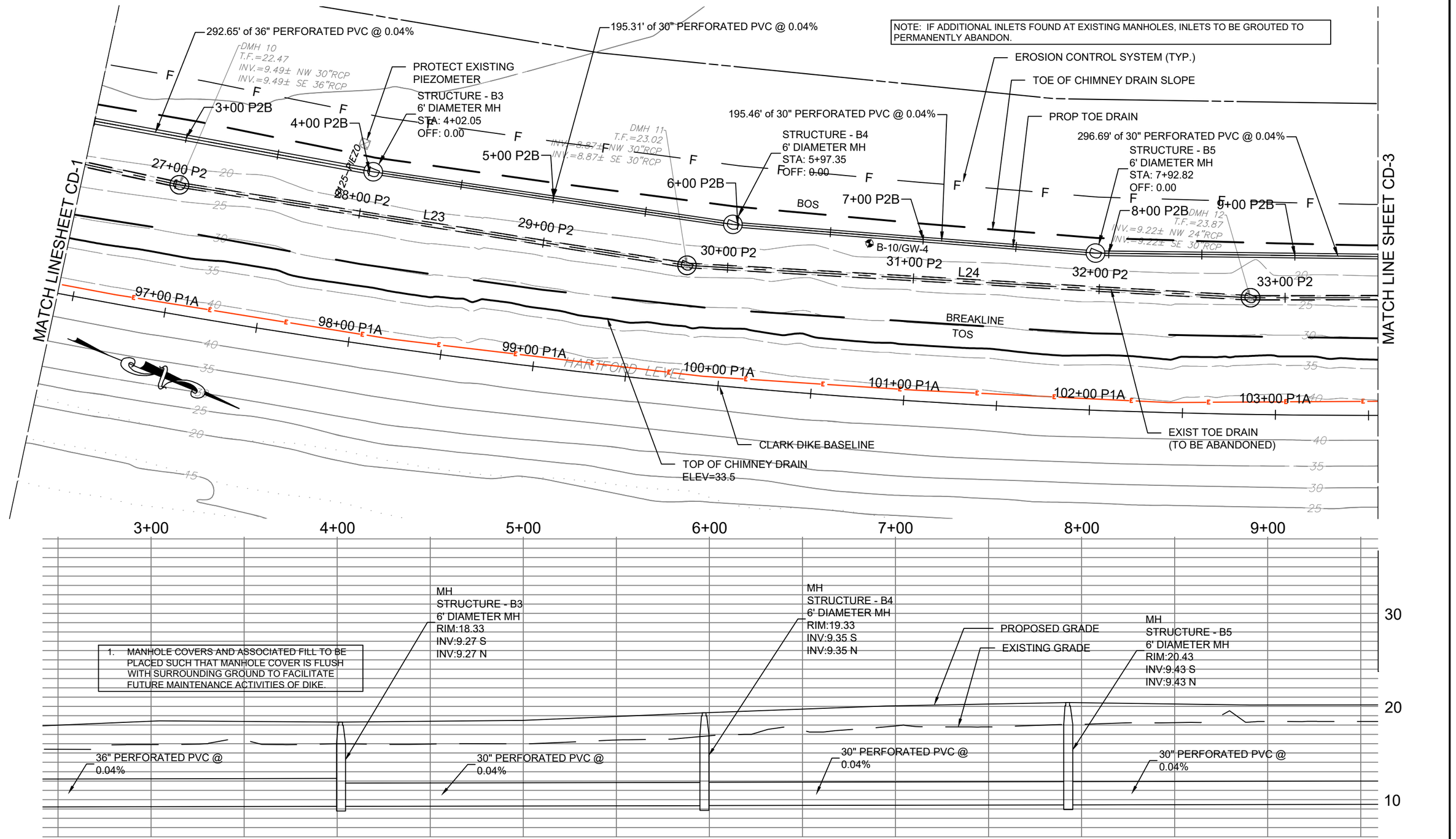
SHEET NAME
CHIMNEY DRAIN AND BUTTRESS PLAN AND PROFILE

SHEET NO.
CD-1

LECOUR, JOSEPH Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/27/2023

---- Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/27/2023



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GEI Project	1703638

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS
CITY OF HARTFORD
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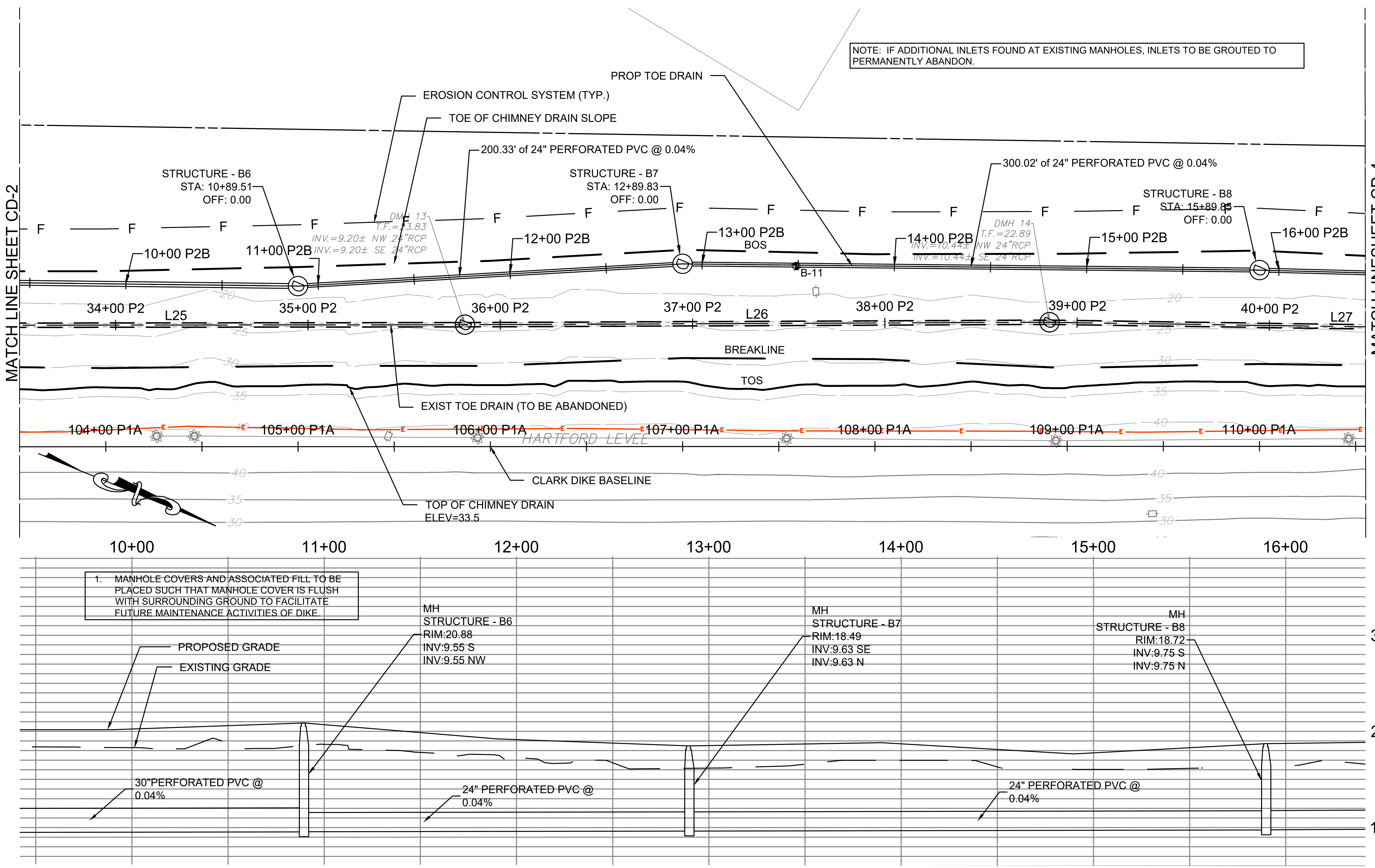
SHEET NAME
CHIMNEY DRAIN AND BUTTRESS PLAN AND PROFILE

SHEET NO.
CD-2


NOTE: IF ADDITIONAL INLETS FOUND AT EXISTING MANHOLES, INLETS TO BE GROUTED TO PERMANENTLY ABANDON.
PROP TOE DRAIN
EROSION CONTROL SYSTEM (TYP.)
TOE OF CHIMNEY DRAIN SLOPE
200.33' of 24" PERFORATED PVC @ 0.04%
300.02' of 24" PERFORATED PVC @ 0.04%
STRUCTURE - B6
STA: 10+89.51
OFF: 0.00
STRUCTURE - B7
STA: 12+89.83
OFF: 0.00
STRUCTURE - B8
STA: 15+89.85
OFF: 0.00
MATCH LINE SHEET CD-2
MATCH LINESHEET CD-4
10+00 P2B
11+00 P2B
12+00 P2B
13+00 P2B
14+00 P2B
15+00 P2B
16+00 P2B
BOS
B-11
34+00 P2
35+00 P2
36+00 P2
37+00 P2
38+00 P2
39+00 P2
40+00 P2
L25
L26
L27
BREAKLINE
TOS
EXIST TOE DRAIN (TO BE ABANDONED)
104+00 P1A
105+00 P1A
106+00 P1A
107+00 P1A
108+00 P1A
109+00 P1A
110+00 P1A
HARTFORD LEVEE
CLARK DIKE BASELINE
TOP OF CHIMNEY DRAIN
ELEV=33.5
10+00
11+00
12+00
13+00
14+00
15+00
16+00
1. MANHOLE COVERS AND ASSOCIATED FILL TO BE PLACED SUCH THAT MANHOLE COVER IS FLUSH WITH SURROUNDING GROUND TO FACILITATE FUTURE MAINTENANCE ACTIVITIES OF DIKE.
PROPOSED GRADE
EXISTING GRADE
MH
STRUCTURE - B6
RIM:20.88
INV:9.55 S
INV:9.55 NW
MH
STRUCTURE - B7
RIM:18.49
INV:9.63 SE
INV:9.63 N
MH
STRUCTURE - B8
RIM:18.72
INV:9.75 S
INV:9.75 N
30"PERFORATED PVC @ 0.04%
24" PERFORATED PVC @ 0.04%
24" PERFORATED PVC @ 0.04%
30
20
10

0 10' 20'

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SOUTH MEADOWS (CLARK) DIKE
TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS

CITY OF HARTFORD
HARTFORD , CONNECTICUT

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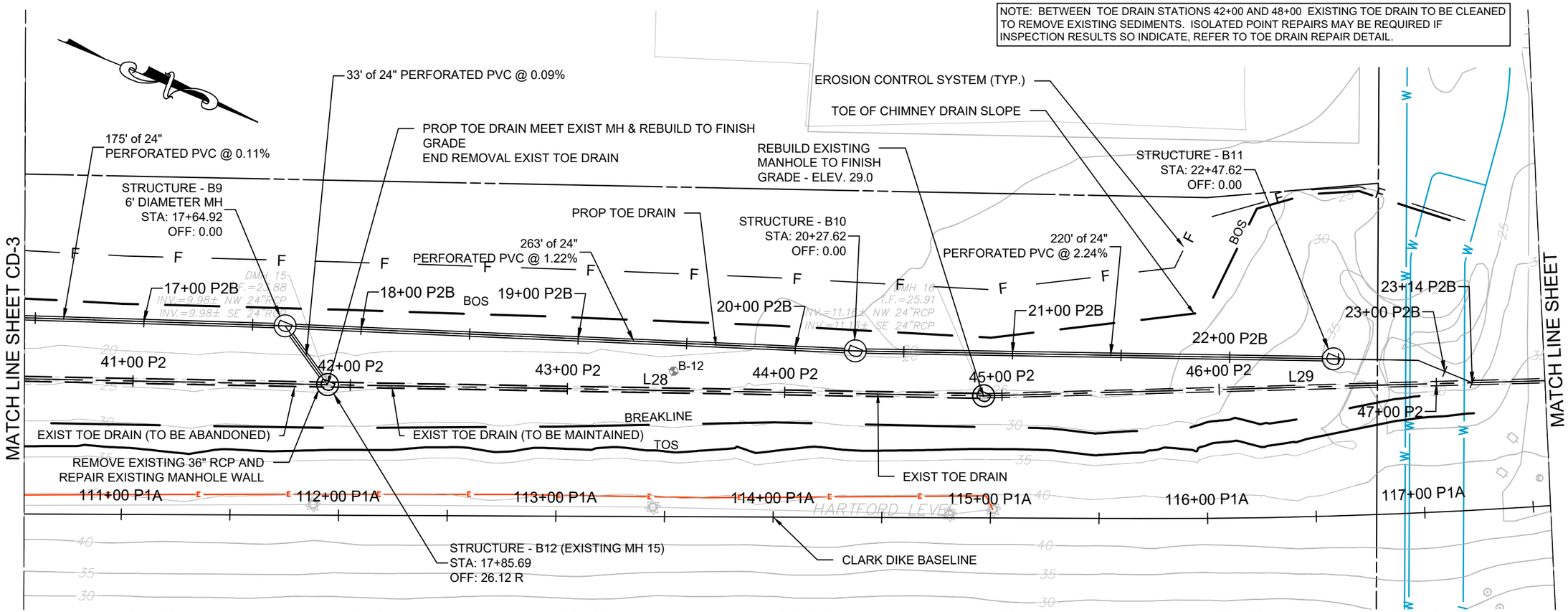
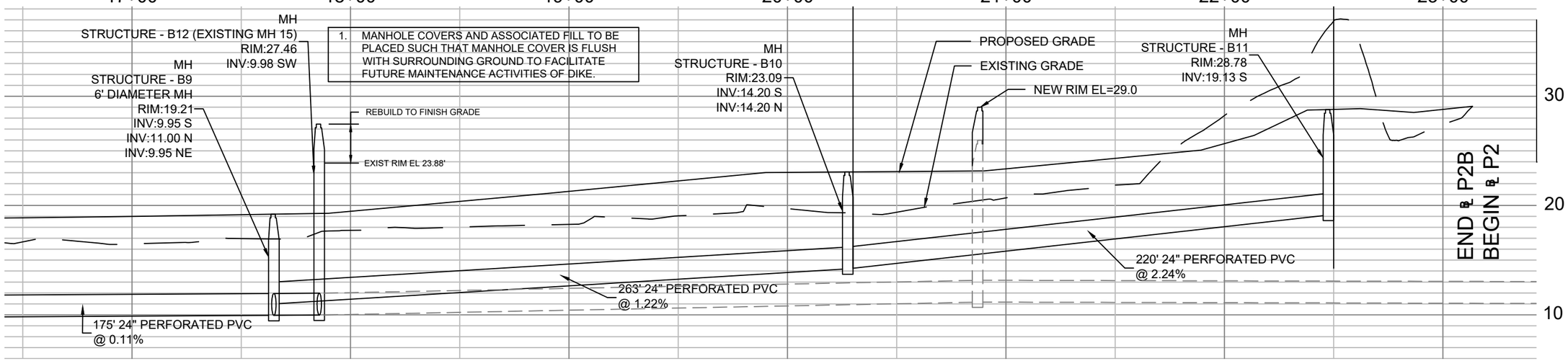
SHEET NAME: CHIMNEY DRAIN AND BUTTRESS PLAN AND PROFILE

SHEET NO.: CD-3

LECOUR, JOSEPH Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain-Chimney.dwg - 7/27/2023

NOTE: BETWEEN TOE DRAIN STATIONS 42+00 AND 48+00 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL.





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CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME
CHIMNEY DRAIN AND BUTTRESS PLAN AND PROFILE

SHEET NO.
CD-4

NOTE; BETWEEN TOE DRAIN STATIONS 48+00 AND 82+27 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL.

FOR STATIONS 89+50 TO 117+50 SEE SHEETS CD-1 TO CD-10

MATCH LINE SHEET CD-4

MATCH LINE SHEET TD-14

DMH 17
T.F.=25.47
INV.=11.02± NW 24"RCP
INV.=11.02± SE 24"RCP

DMH 18
T.F.=20.52
INV.=11.32 NW 24"RCP
INV.=11.32 SE 24"RCP

DMH 19
T.F.=21.04
INV.=11.54 NW 24"RCP
INV.=11.54 SE 24"RCP

48+00 P2 | 49+00 P2 | L30 | 50+00 P2 | 51+00 P2 | 52+00 P2 | L31 | 53+00 P2 | 54+00 P2

118+00 P1A | 119+00 P1A | 120+00 P1A | 121+00 P1A | 122+00 P1A | 123+00 P1A | 124+00 P1A

HARTFORD LEVEE

48+00 | 49+00 | 50+00 | 51+00 | 52+00 | 53+00 | 54+00

MH
STRUCTURE - (17)
RIM:25.47
INV:11.02 SE
INV:11.02 NW

300' OF 24" Reinforced
Concrete Pipe @ 0.10%

MH
STRUCTURE - (18)
RIM:20.52
INV:11.32 SE
INV:11.32 NW

292' OF 24" Reinforced
Concrete Pipe @ 0.08%

MH
STRUCTURE - (19)
RIM:21.04
INV:11.54 SE
INV:11.54 NW

30
20
10

0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	JHL
Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
GEI Project	1703638

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

75 years benesch
Alfred Benesch & Company
120 Hebron Avenue, 2nd Floor
Glastonbury, CT 06033
(860)633-8341

SOUTH MEADOWS (CLARK) DIKE TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
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SHEET NAME

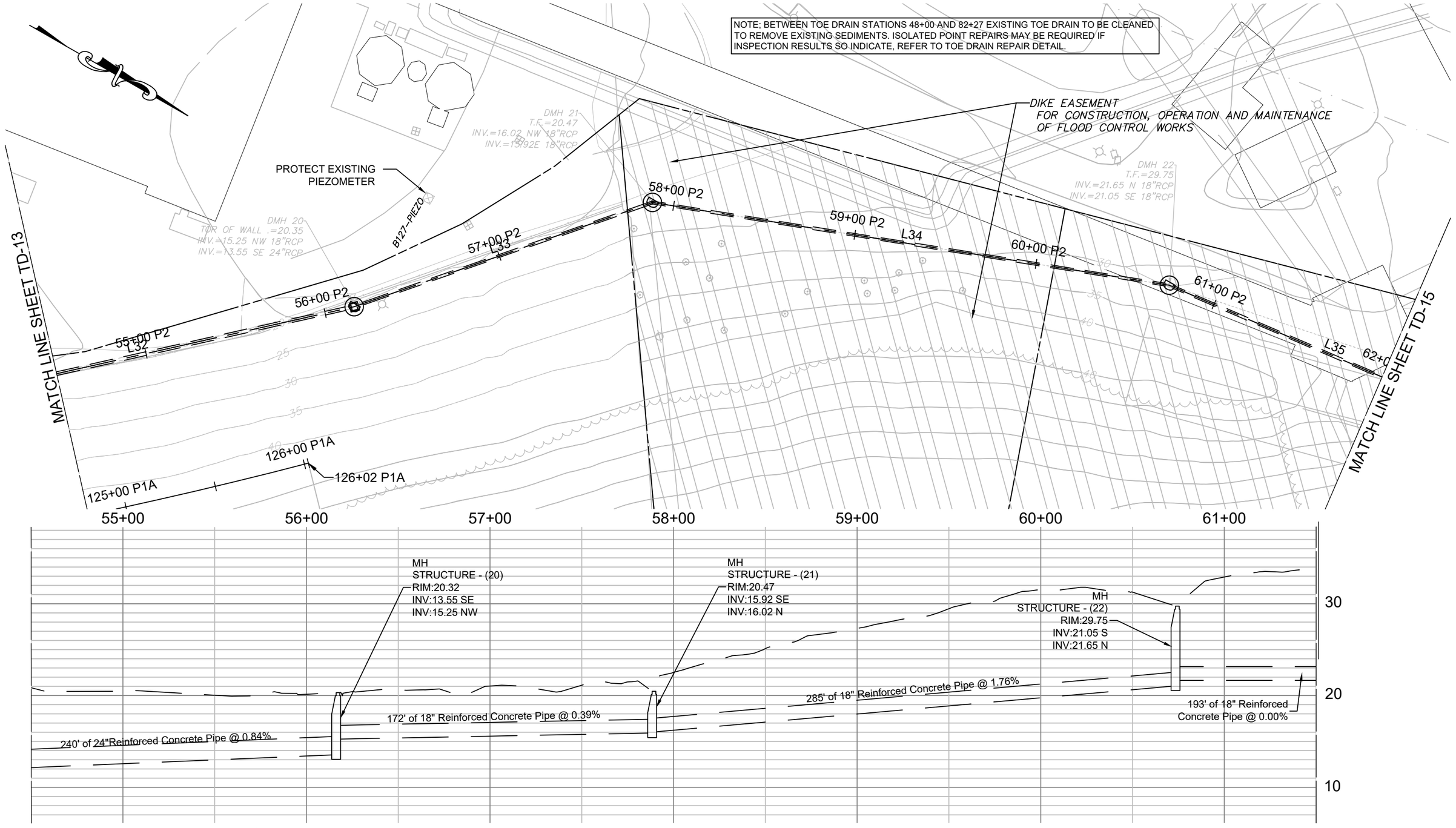
TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.

TD-13

ABANDON.

NOTE; BETWEEN TOE DRAIN STATIONS 48+00 AND 82+27 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL.



0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
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SOUTH MEADOWS (CLARK) DIKE TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS

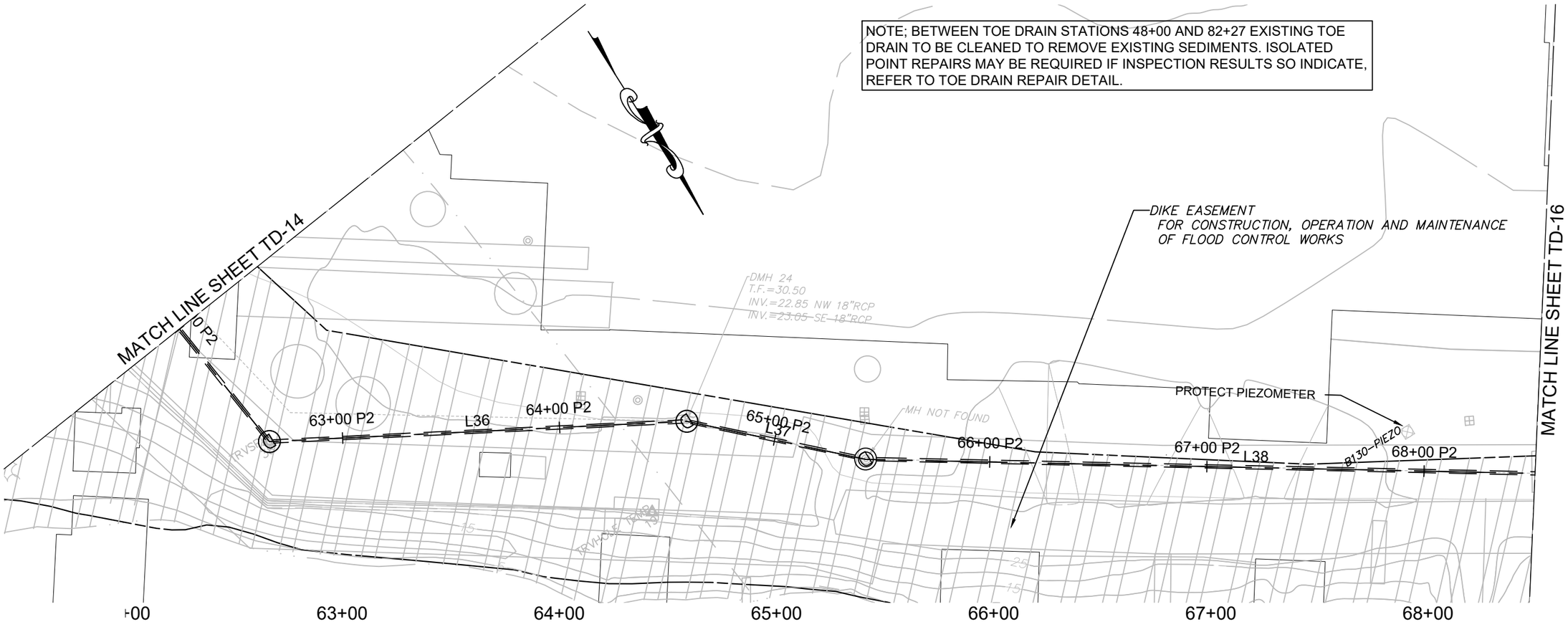
CITY OF HARTFORD
HARTFORD , CONNECTICUT

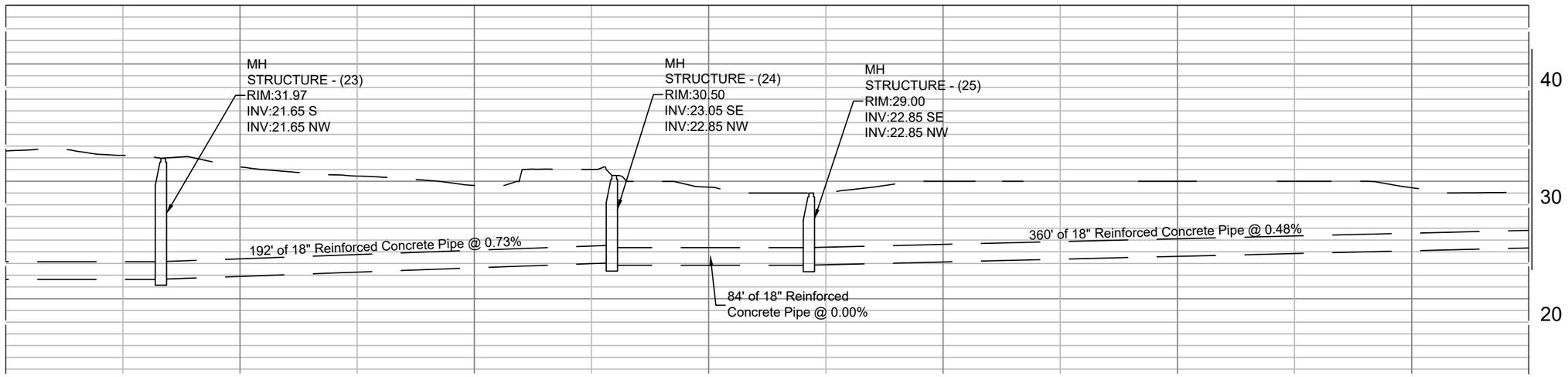
NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME: TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.: **TD-14**

NOTE; BETWEEN TOE DRAIN STATIONS 48+00 AND 82+27 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL.





0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
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CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
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SHEET NAME: TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.: **TD-15**

NOTE; BETWEEN TOE DRAIN STATIONS 48+00 AND 82+27 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL.

MATCH LINE SHEET TD-15

MATCH LINE SHEET TD-17

DIKE EASEMENT
FOR CONSTRUCTION, OPERATION AND MAINTENANCE
OF FLOOD CONTROL WORKS

DMH 26
T.F.=29.62
INV.=24.37 NW 15"RCP
INV.=24.57 SE 18"RCP
INV.=24.42 SW 12"CPP

DMH 27
T.F.=29.08
INV.=25.73 NW
INV.=25.83 SE
SEDIMENT=25.7

DMH 28
T.F.=32.57
INV.=26.07 NW
INV.=25.92 SE
SEDIMENT=26.02

DMH 29
T.F.=31.25
INV.=26.30 NW
INV.=26.20 SE

69+00 P2 L39 70+00 P2 71+00 P2 72+00 P2 L40 73+00 P2 74+00 P2 L41 75+00 P2 76+0

N/F CITY OF HARTFORD

69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+

MH
STRUCTURE - (26)
RIM:29.62
INV:24.57 SE
INV:24.37 NW
INV: 24.42 SW 12" CPP

MH
STRUCTURE - (27)
RIM:29.08
INV:25.83 SE
INV:25.73 NW
SEDIMENT 25.7

MH
STRUCTURE - (28)
RIM:32.57
INV:25.92 SE
INV:26.07 NW
SEDIMENT 26.02

MH
STRUCTURE - (29)
RIM:31.25
INV:26.20 SE
INV:26.30 NW

185' of 15" Reinforced Concrete Pipe @ 0.79%

296' of 15" Reinforced Concrete Pipe @ 0.06%

170' of 15" Reinforced Concrete Pipe @ 0.08%

40
30
20

0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
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GEI Project	1703638

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SOUTH MEADOWS (CLARK) DIKE TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
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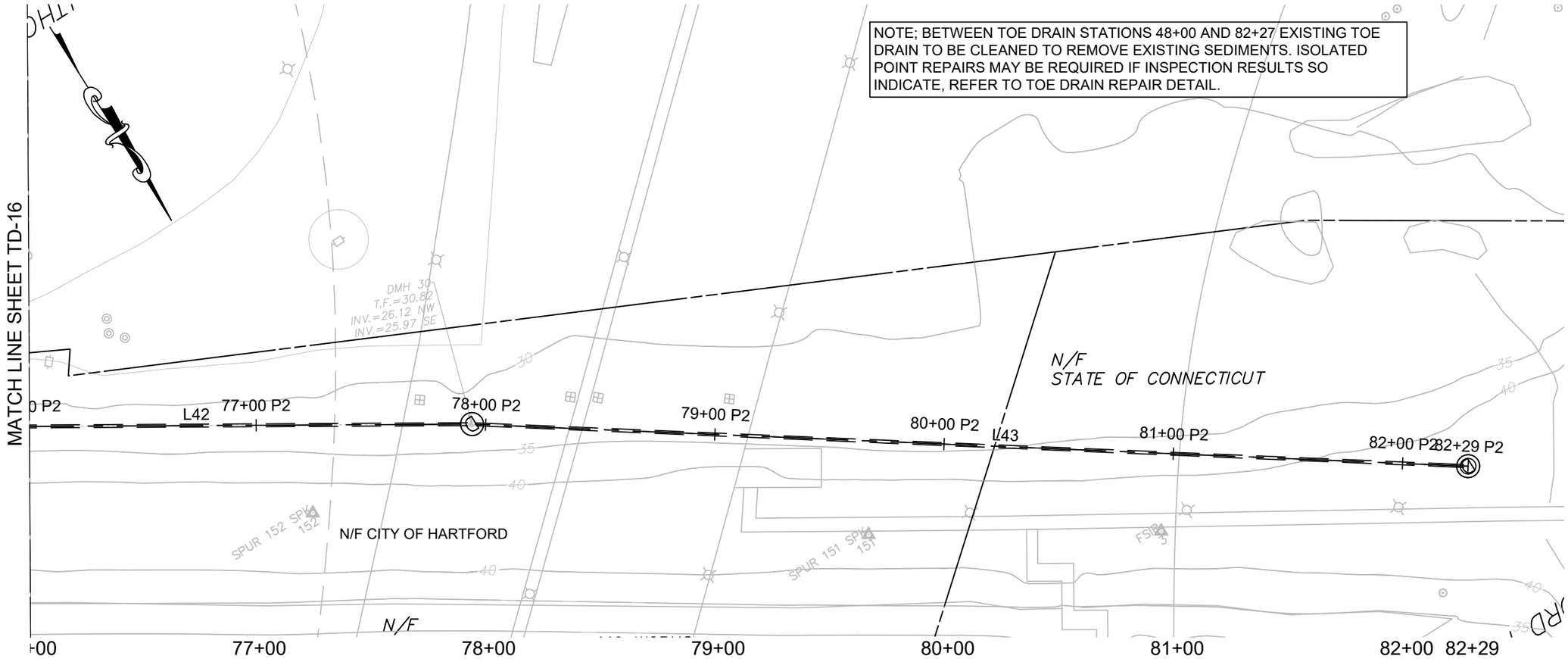
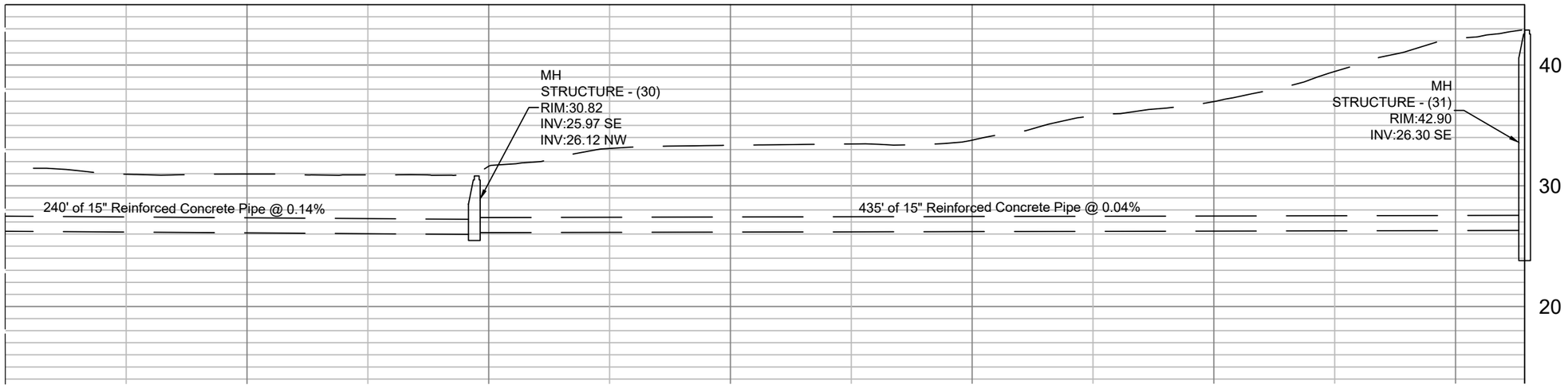
SHEET NAME
TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.
TD-16

NOTE; BETWEEN TOE DRAIN STATIONS 48+00 AND 82+27 EXISTING TOE DRAIN TO BE CLEANED TO REMOVE EXISTING SEDIMENTS. ISOLATED POINT REPAIRS MAY BE REQUIRED IF INSPECTION RESULTS SO INDICATE, REFER TO TOE DRAIN REPAIR DETAIL.





0 10' 20'
VERT: 1"=10'

0 50' 100'
HOR: 1"=50'

Attention:
0 1"
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P.E. No:	14897
GEI Project	1703638

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CITY OF HARTFORD
HARTFORD , CONNECTICUT

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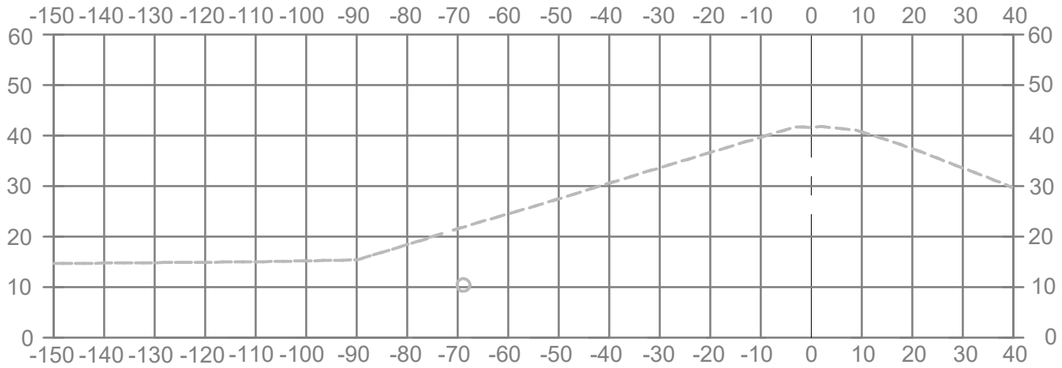
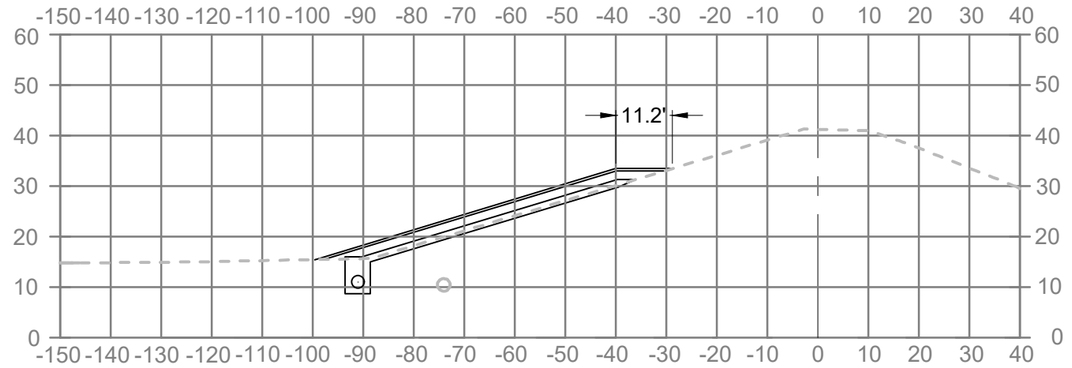
SHEET NAME: TOE DRAIN IMPROVEMENT PLAN AND PROFILE

SHEET NO.: **TD-17**

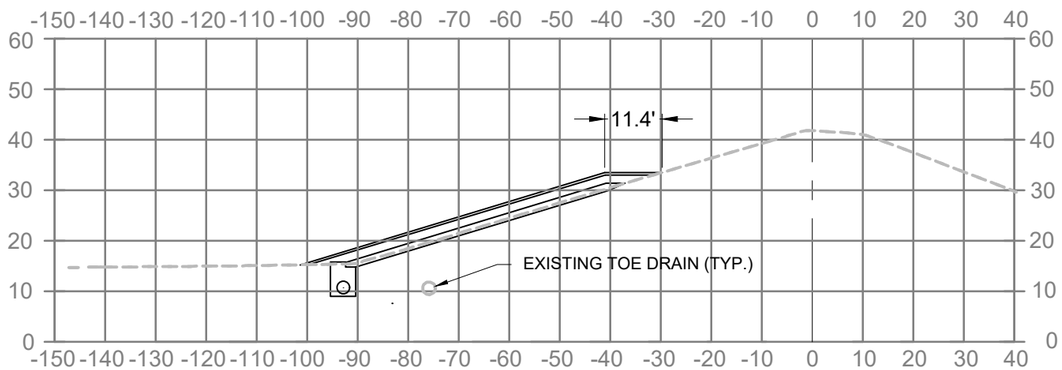
94+00.00



95+00.00



94+25.00



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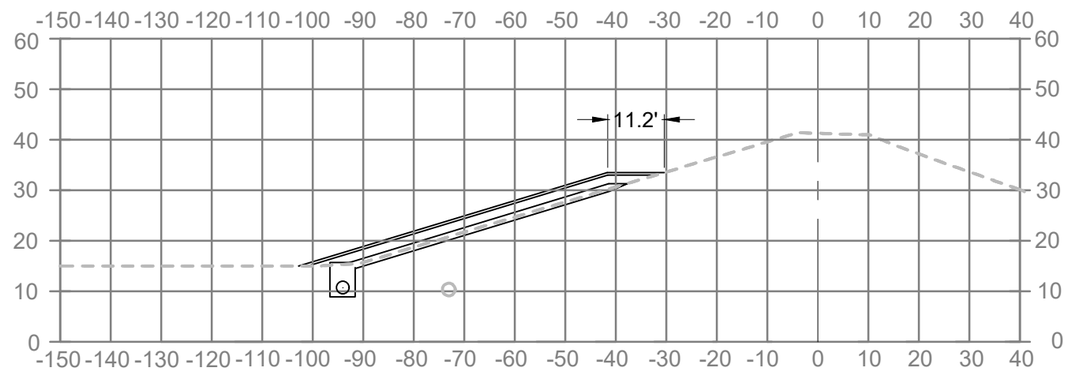

STATIONS REFER TO CLARK DIKE BASELINE

0 30' 60'

HORIZ. & VERT: 1"=30'

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

STATE OF CONNECTICUT — JOSEPH A. KLEIN — 14897 — LICENSED PROFESSIONAL ENGINEER

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
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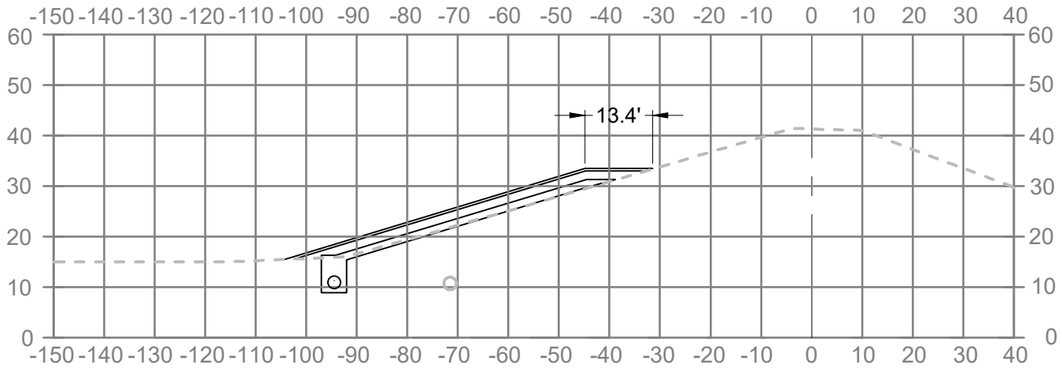
SHEET NAME

CHIMNEY DRAIN AND BUTTRESS CROSS SECTIONS

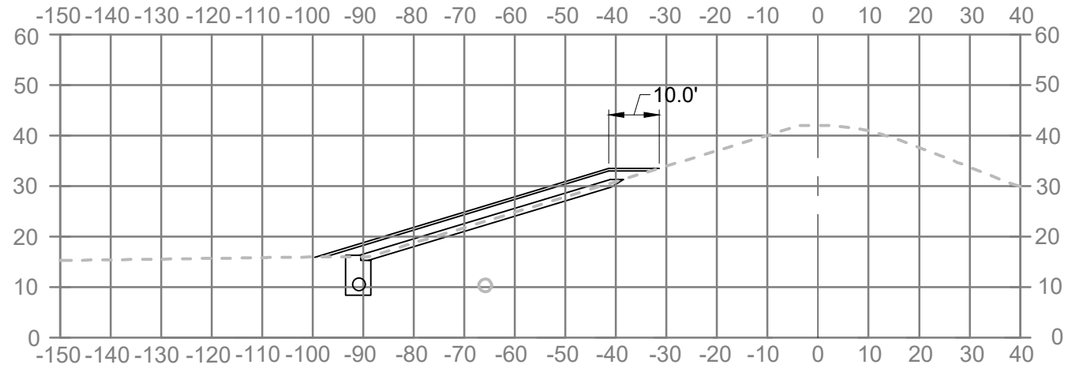
SHEET NO.

CD-5

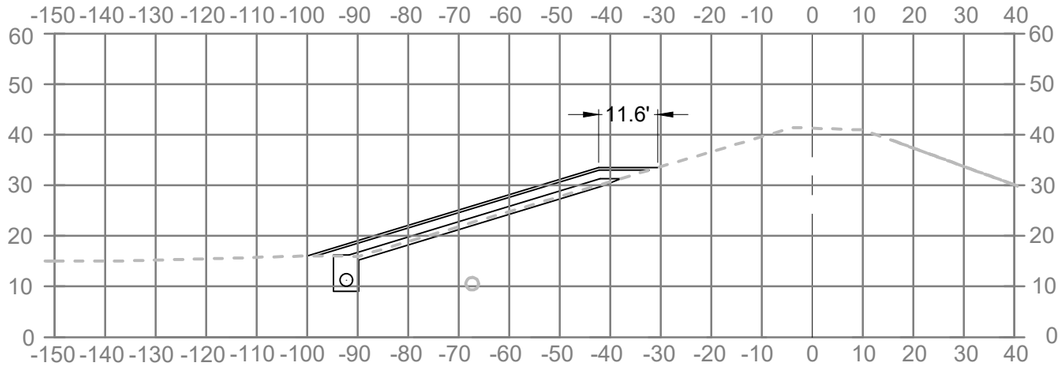
97+00.00



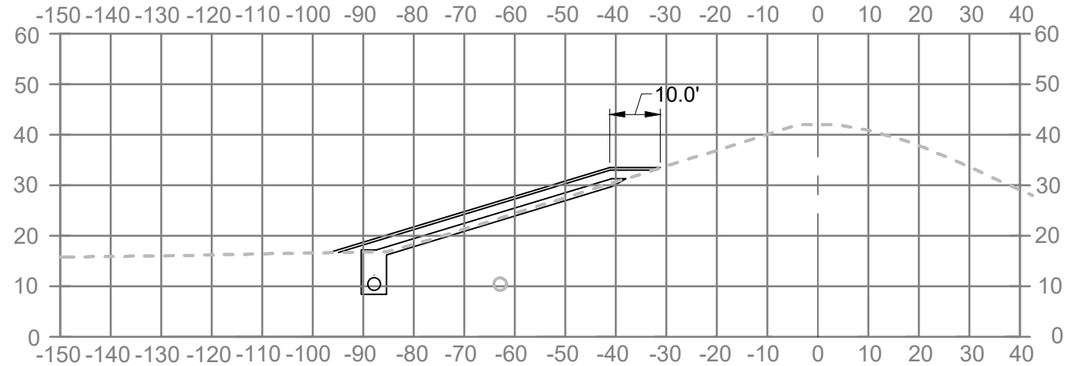
99+00.00



98+00.00



100+00.00



STATIONS REFER TO CLARK DIKE BASELINE

0 30' 60'

HORIZ. & VERT: 1"=30'

Attention:

0 1"

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
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REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

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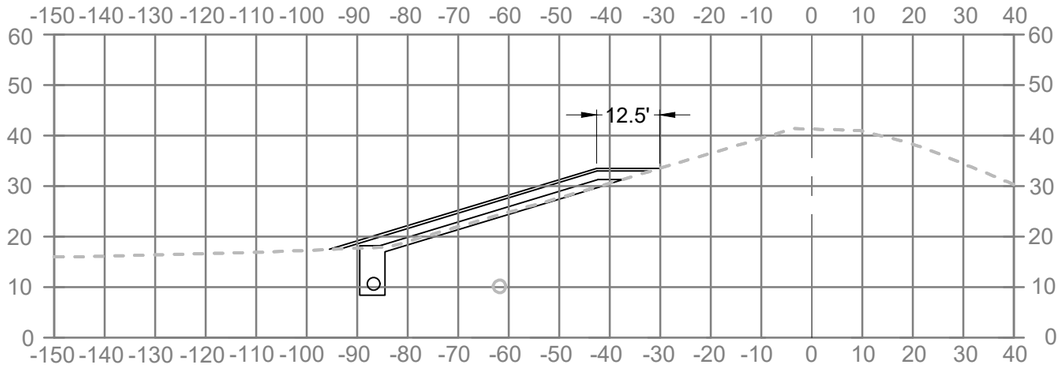
SHEET NAME

CHIMNEY DRAIN AND BUTTRESS CROSS SECTIONS

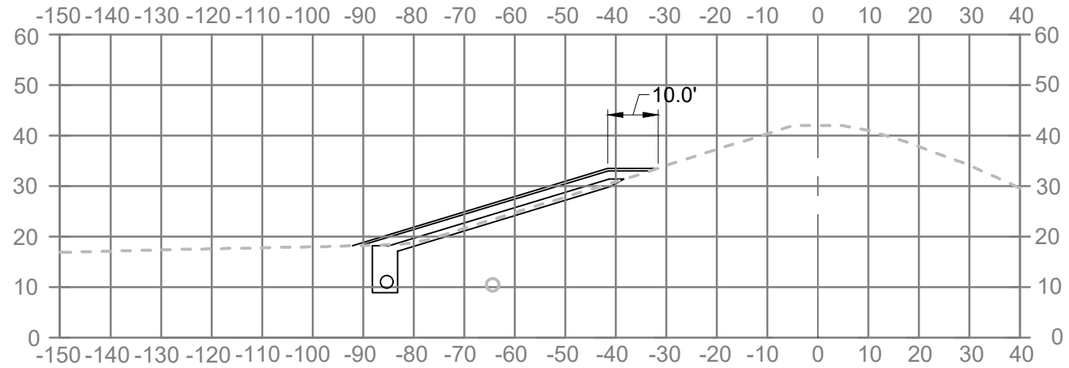
SHEET NO.

CD-6

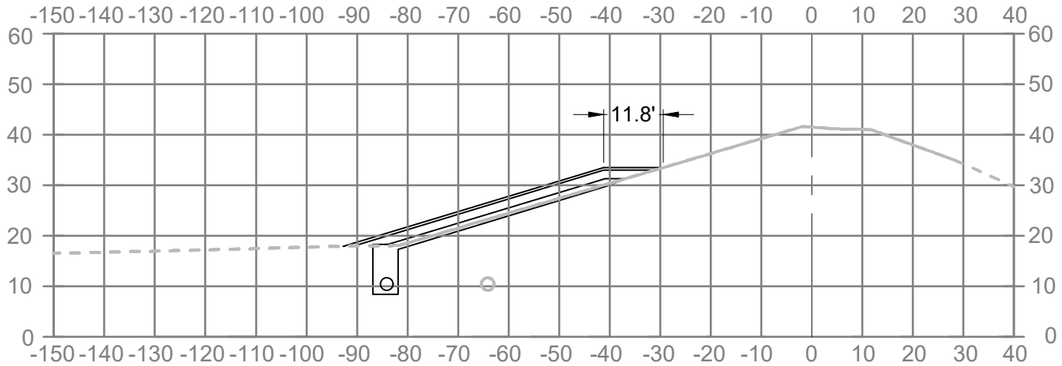
101+00.00



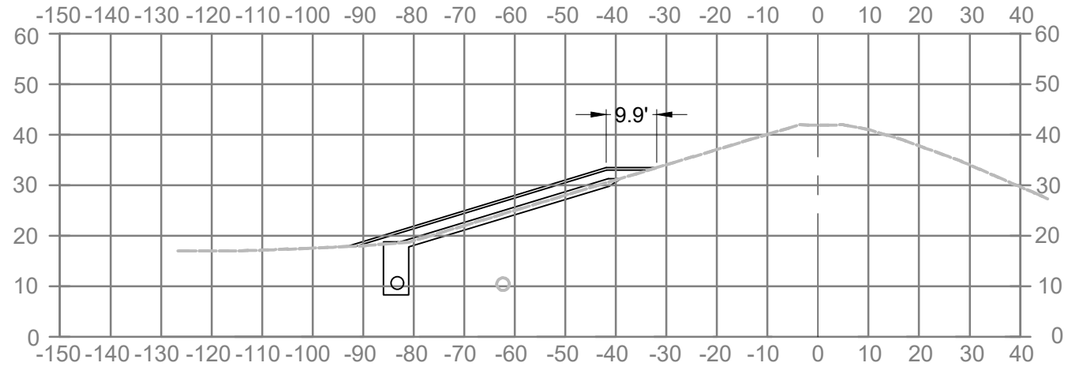
103+00.00



102+00.00



105+00.00



STATIONS REFER TO CLARK DIKE BASELINE

0 30' 60'

HORIZ. & VERT: 1"=30'

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

STATE OF CONNECTICUT — JOSEPH A. KOCUR — 14897 — LICENSED PROFESSIONAL ENGINEER

Designed:	JHL
Drawn:	JHL
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Approved:	JAK
P.E. No:	14897
GEI Project	1703638

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
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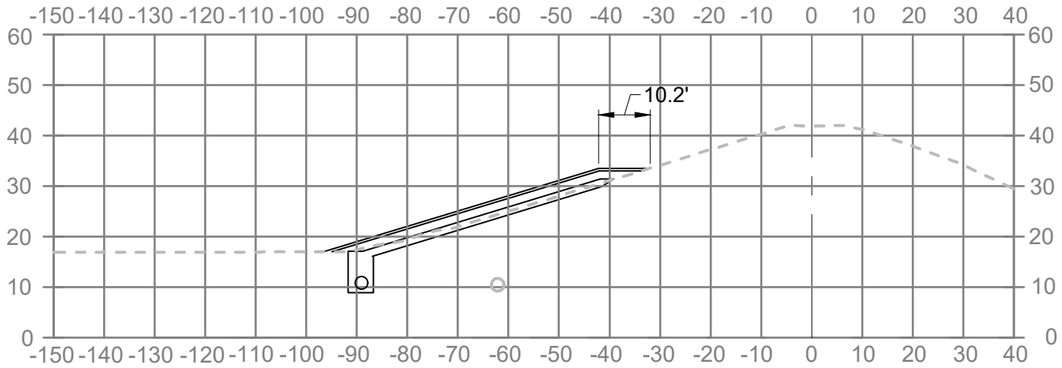
SHEET NAME

CHIMNEY DRAIN AND BUTTRESS CROSS SECTIONS

SHEET NO.

CD-7

106+00.00



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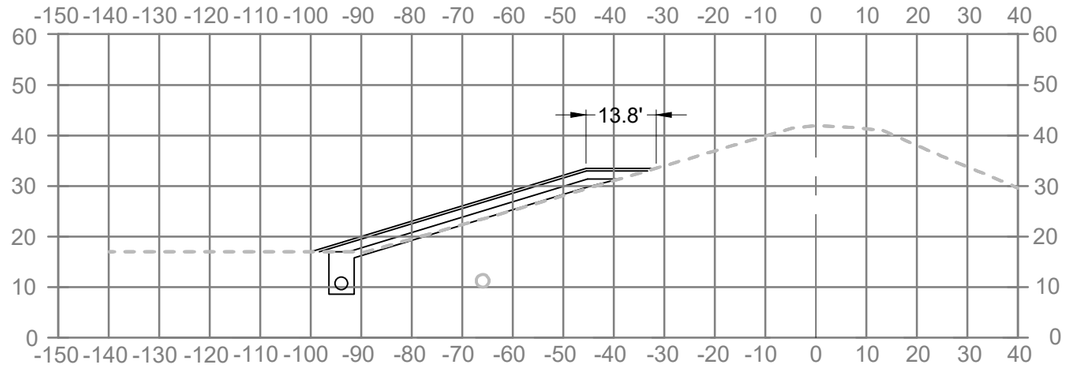

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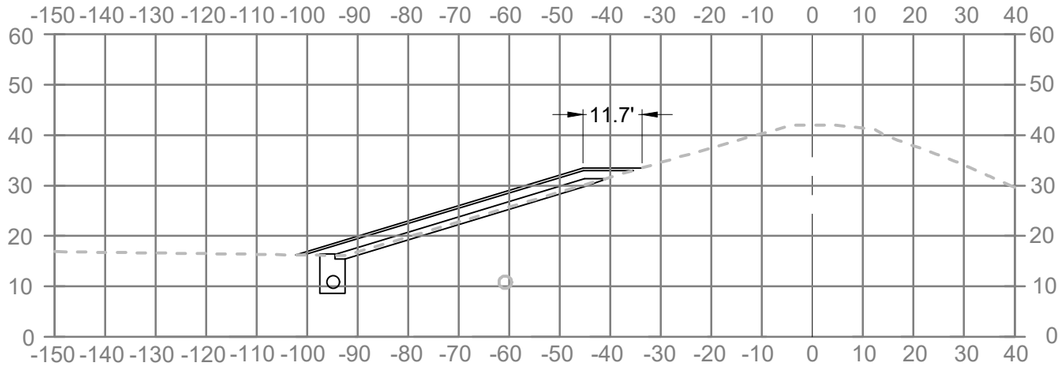

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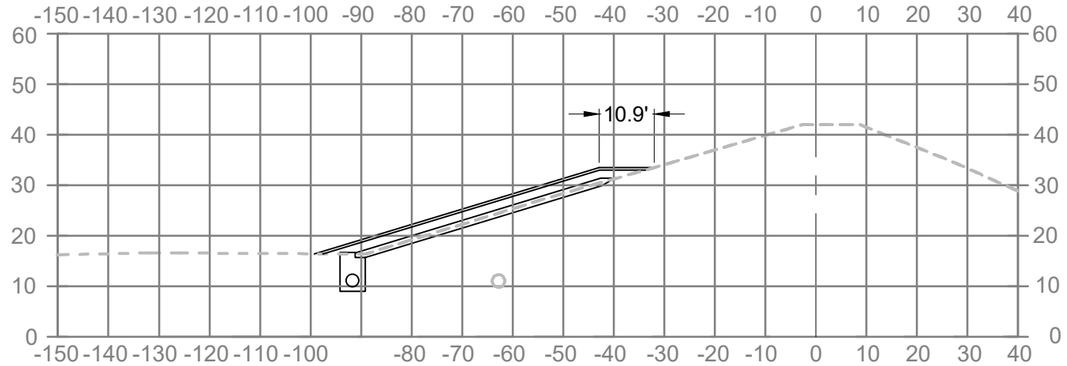

STATIONS REFER TO CLARK DIKE BASELINE

0 30' 60'

HORIZ. & VERT: 1"=30'

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

STATE OF CONNECTICUT — JOHN A. KRAUS — 14897 — LICENSED PROFESSIONAL ENGINEER

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Drawn:	JHL
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Approved:	JAK
P.E. No:	14897
GEI Project	1703638

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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
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CITY OF HARTFORD
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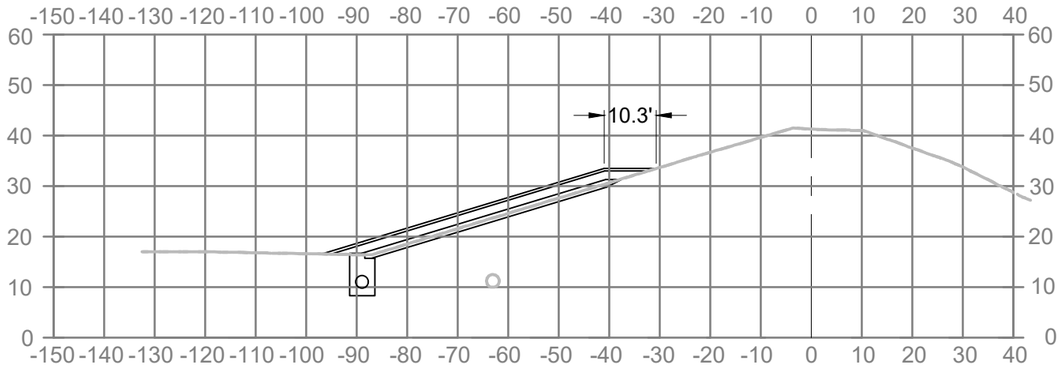
SHEET NAME

CHIMNEY DRAIN AND BUTTRESS CROSS SECTIONS

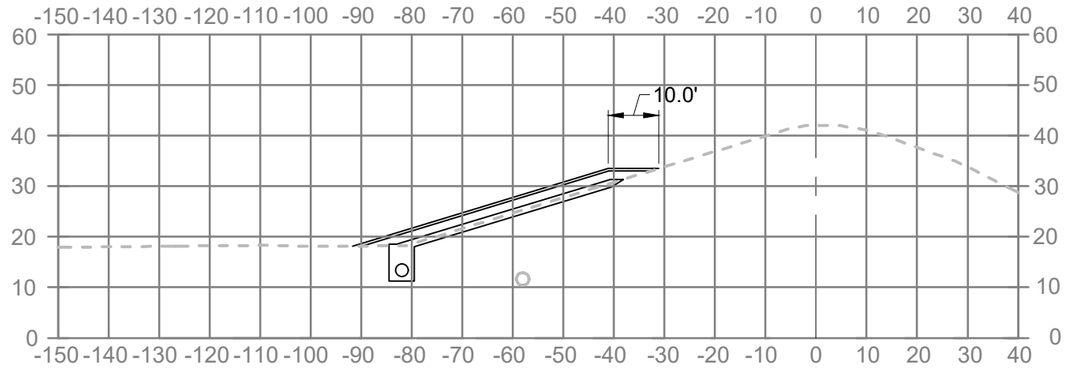
SHEET NO.

CD-8

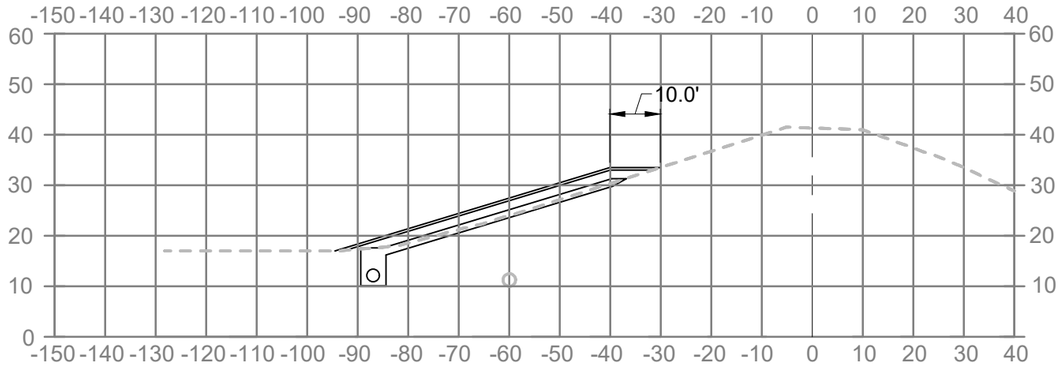
111+00.00



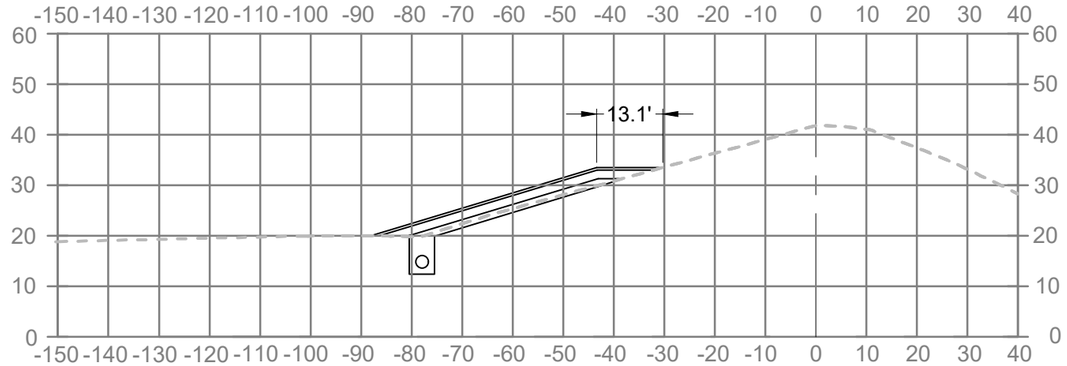
113+00.00



112+00.00



114+00.00



STATIONS REFER TO CLARK DIKE BASELINE

0 30' 60'

HORIZ. & VERT: 1"=30'

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

STATE OF CONNECTICUT JOSEPH A. KRAUSE 14897 LICENSED PROFESSIONAL ENGINEER

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(860)633-8341

SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

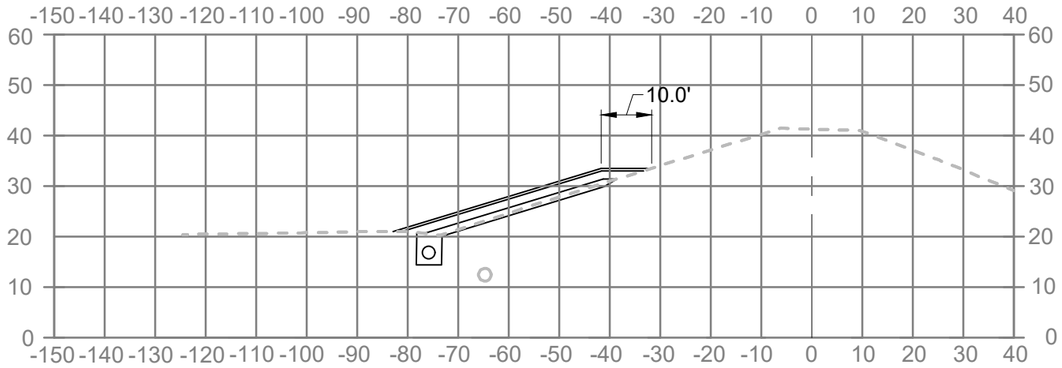
SHEET NAME

CHIMNEY DRAIN AND BUTTRESS CROSS SECTIONS

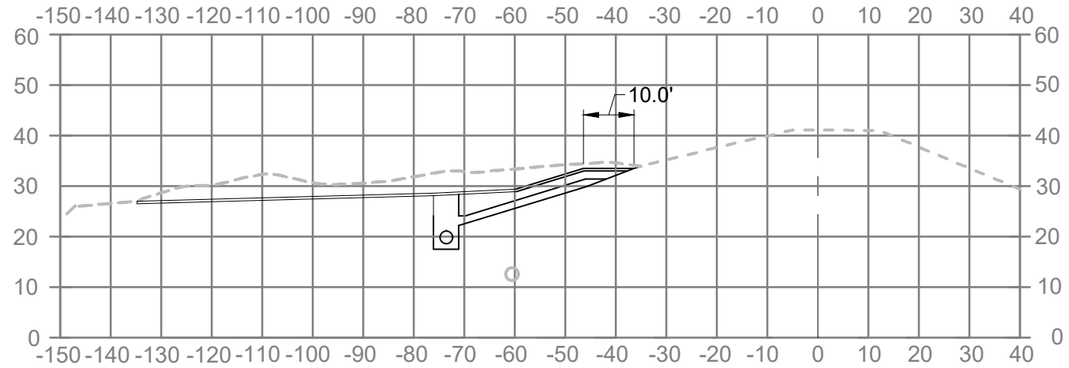
SHEET NO.

CD-9

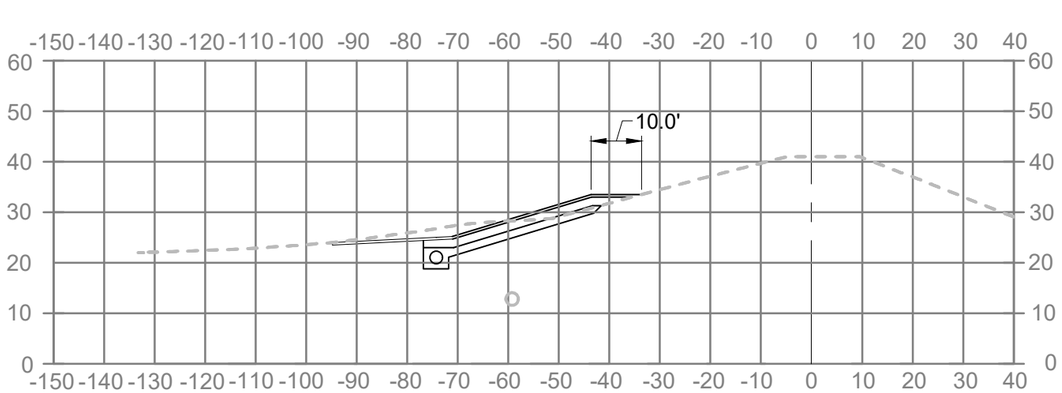
115+00.00



116+50.00



116+00.00



STATIONS REFER TO CLARK DIKE BASELINE

0 30' 60'

HORIZ. & VERT: 1"=30'

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

Designed:	JHL
Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
GEI Project	1703638

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

75 years benesch
Alfred Benesch & Company
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Glastonbury, CT 06033
(860)633-8341

SOUTH MEADOWS
(CLARK) DIKE
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CITY OF HARTFORD
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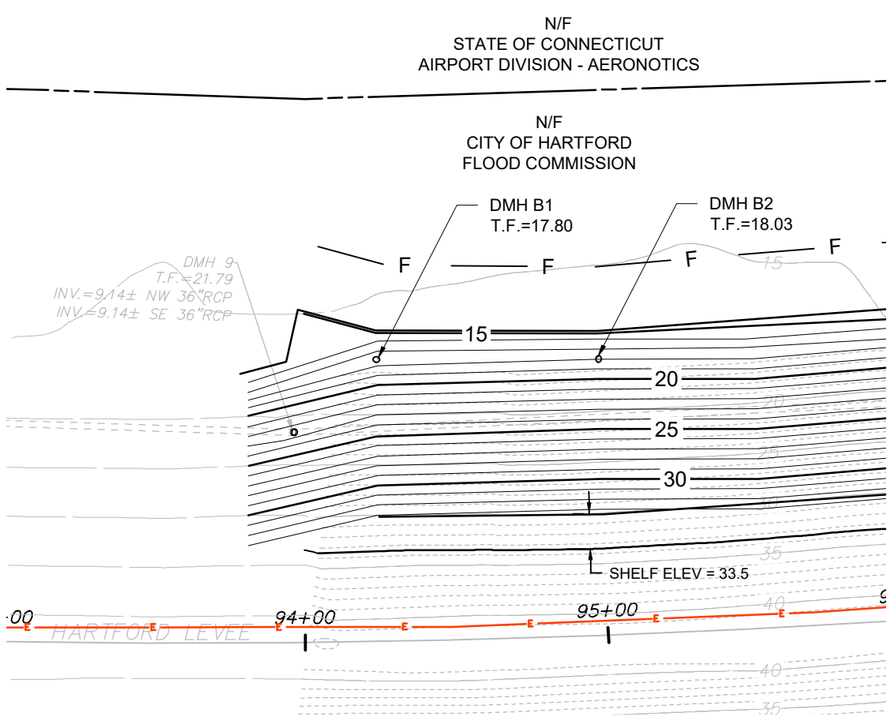
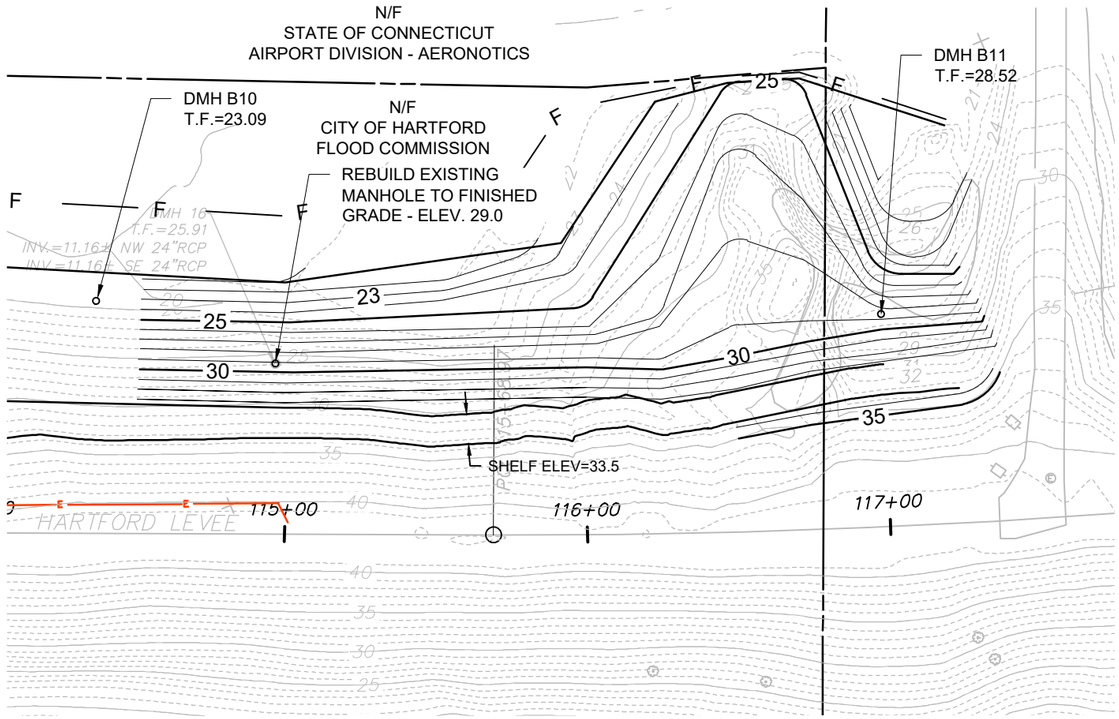
SHEET NAME

CHIMNEY DRAIN AND BUTTRESS CROSS SECTIONS

SHEET NO.

CD-10





0 50' 100'

SCALE: 1"=50'

Attention:

0 1"

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SOUTH MEADOWS (CLARK) DIKE TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS

CITY OF HARTFORD
HARTFORD , CONNECTICUT

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SHEET NAME

CHIMNEY DRAIN PARTIAL GRADING

SHEET NO.

GRA-1

EROSION CONTROL SYSTEM - HAY BALE CHECK DAM

TOE DITCH BASELINE

EROSION CONTROL SYSTEM - HAY BALE CHECK DAM

FILL SLOPE

2" STONE SPLASH PAD (5'X5')

EROSION CONTROL SYSTEM - HAY BALE CHECK DAM

2" STONE SPLASH PAD (5'X5')

EROSIO

EROSION CONTROL SY HAY BALE CHECK DAM

BP: 0+00.00

PI: 0+43.47

0+00 TD1

1+00 TD1

2+00 TD1

3+00 TD1

4+00 TD1

5+00 TD1

APPROXIMATE WATER LINE DEPTH 11.5 TO 12.5 FEET

APPROXIMATE WATI DEPTH 11.5 TO 12.

EP: 2+96.55

2+97 P14

3.5 WIDE x 6 HIGH BOX CULVERT

LEVEE ACCESS ROAD

PK Fnd. (others)

D.H. EMH RIM

W.G. GV

10+00

TOP OF FILL SLOPE

CD-14

CD-12

TOE DRAIN

EDGE OF PAVED ACCESS ROAD

TOP OF FILL SLOPE

N/F CITY OF HARTFORD PUBLIC WORKS

PI: 8+49.18

PI: 11+38.94

ROUTE 15

ROUTE 15

9+00

10+00

11+00

12+00

13+00

14+00

15+00

16+00

TRAV_PT 11 SPK

TRAV_PT 100 SPK

CLARK DIKE BASELINE

CD-13

HARTFORD LEVEE L5

TOP OF CLARK

CD-11

L4

WC-1 WC-2 WC-3 WC-4 WC-5 WC-6 WC-7 WC-8

WETLAND LEGEND

WETLANDS

SLOPE FILL AREA IN WETANDS

0 50' 100'

SCALE: 1"=50'

Attention:

0 1"

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SHEET NAME

TOE DITCH SLOPE STABILIZATION PLAN

SHEET NO.

SS-1

LECOUR_JCSEPH - Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain.dwg - 5/16/2022

---- Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Survey\ACAD\70498 Toe Drain.dwg - 3/10/2022

EROSION CONTROL SYSTEM - HAY BALE CHECK DAM

EROSION CONTROL SYSTEM - HAY BALE CHECK DAM

2" STONE SPLASH PAD (5'X5')

FILL SLOPE

APPROXIMATE WATER LINE DEPTH 11.5 TO 12.5 FEET

TOE DITCH BASELINE

5+00 TD1

6+00 TD1

7+00 TD1

8+00 TD1

8+87 TD1

PI: 7+95.23

EP: 8+87.60

4+00

INTERSTATE HIGHWAY 91

APPROX 12'WIDE x 14'HIGH TUNNEL

TWO MONITORING POINTS ON EACH SIDE OF 72" PIPE

INSIDE VEHICULAR CULVERT (UNDER HIGHWAY)

TRAV_PT 6 PK

TRAV_PT 61 RH RIM

TRAV_PT 79 RB CAP

TRAV_PT 101 RB CAP

MONITOR MANHOLE RIM

TOP OF FILL SLOPE

EDGE OF PAVED ACCESS ROAD

PI: 17+15.47

12" V.C. TOE DRAIN

TOE DRAIN

2" STONE SPLASH PAD (5'X5')

N/F CITY OF HARTFORD PUBLIC WORKS

TOP OF CLARK DIKE

16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00

CD-12 CD-11 CD-10 CD-9 CD-8

I91-1 I91-2 I91-3 I91-4

F.L.=8.78 12"RCP

F.L.=1.77 36"RCP

F.L.=1.72 36 RCP

F.L.=1.73 36"RCP

F.L.=1.66 36"RCP

F.L.=6.67 18"RCP

F.L.=7.15 12"RCP

W.F.-1-1 W.F.-1-2 W.F.-1-3 W.F.-1-4 W.F.-1-5 W.F.-1-6 W.F.-1-7 W.F.-1-8 W.F.-1-9 W.F.-1-27 W.F.-1-28 W.F.-1-31 W.F.-1-36 W.F.-1-37 W.F.-2-1 W.F.-2-2 W.F.-2-3 W.F.-2-6 W.F.-2-7 W.F.-2-8 W.F.-2-9

T-1 T-2A T-4

0 50' 100'

SCALE: 1"=50'

WETLAND LEGEND

WETLANDS

SLOPE FILL AREA IN WETANDS

Attention:

0 1"

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P.E. No:	
GEI Project	

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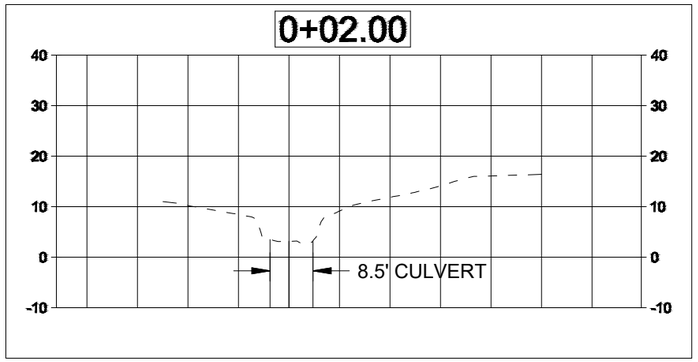
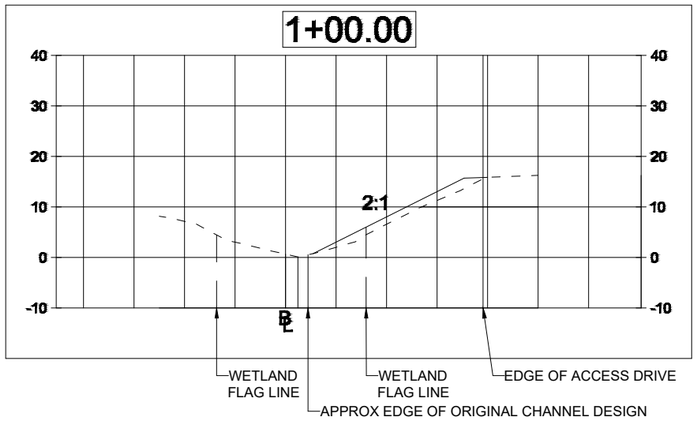
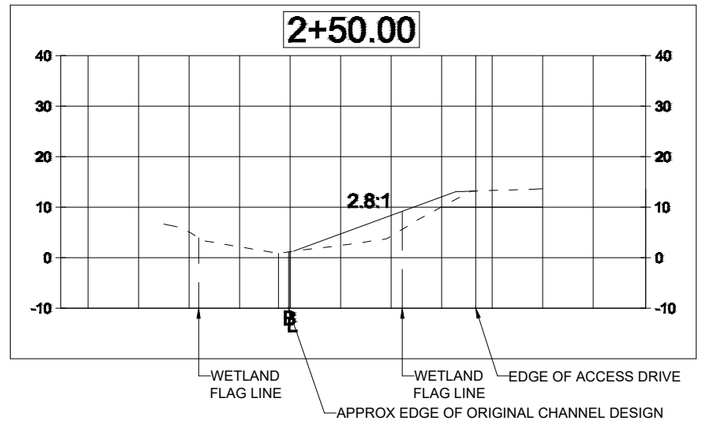
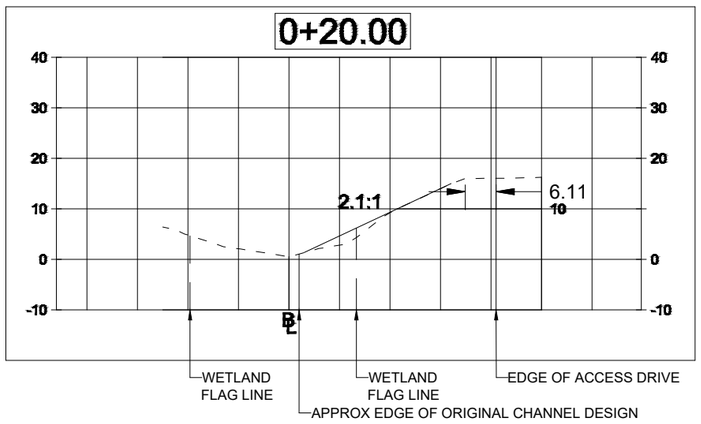
SHEET NAME: TOE DITCH SLOPE STABILIZATION PLAN

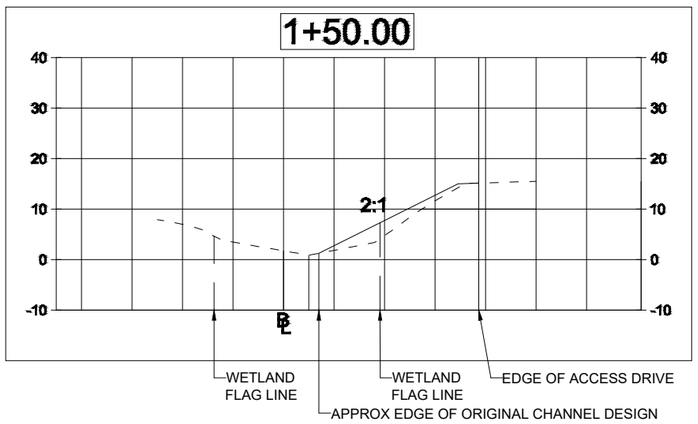
SHEET NO.: **SS-2**

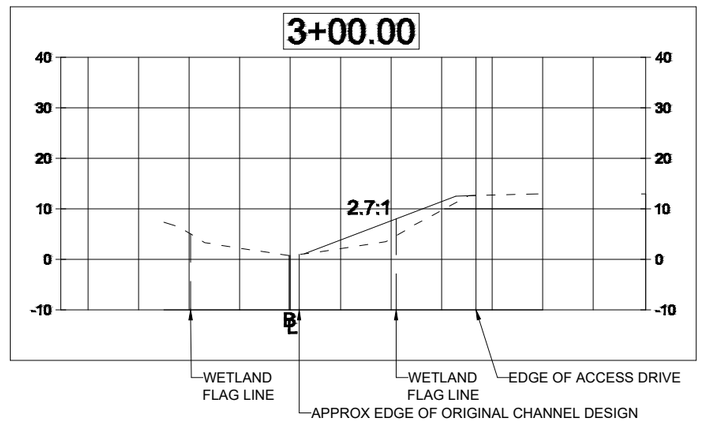


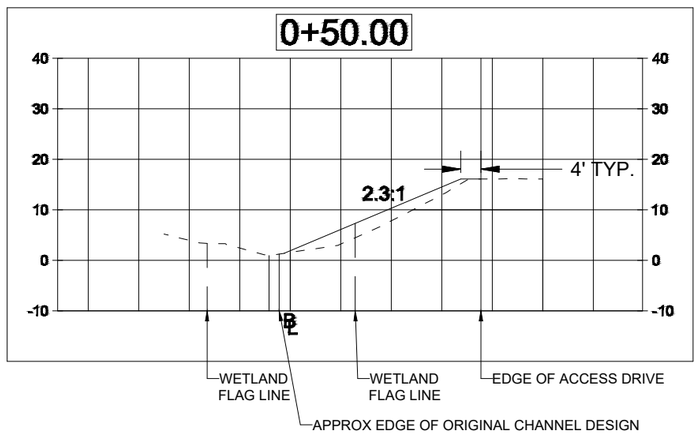


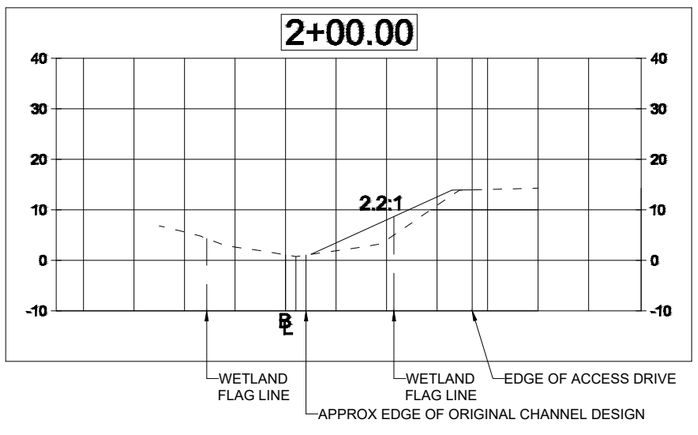


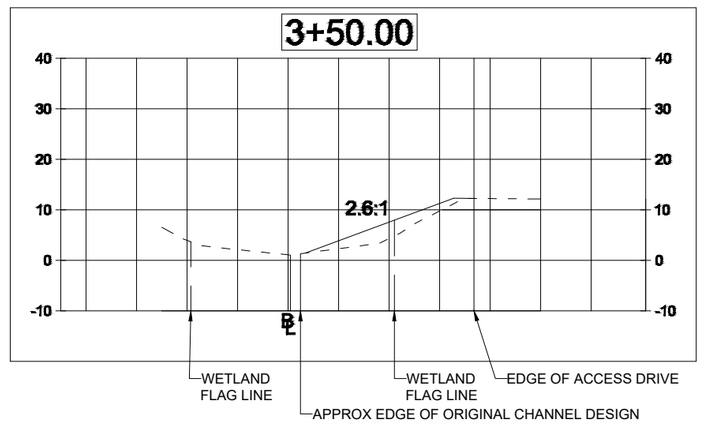












Attention:

0 1"

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STATE OF CONNECTICUT — JOHN H. LEHMANN — No. 14897 — LICENSED PROFESSIONAL ENGINEER

Designed:	JHL
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	JAK
P.E. No:	14897
GEI Project	1703638

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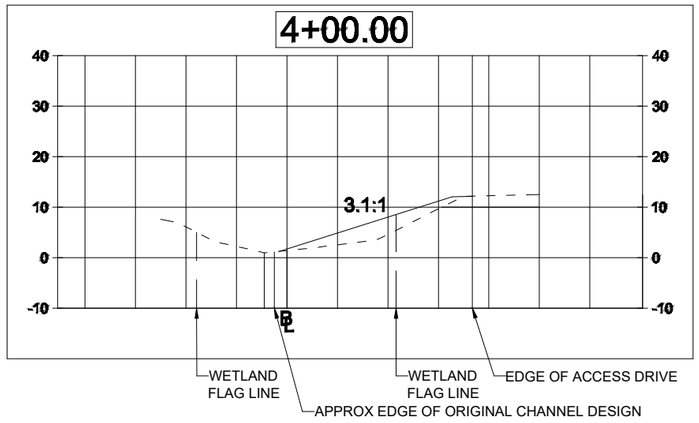
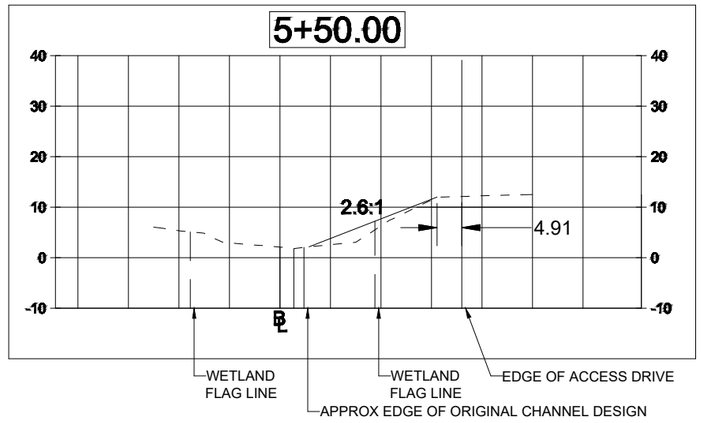
SHEET NAME

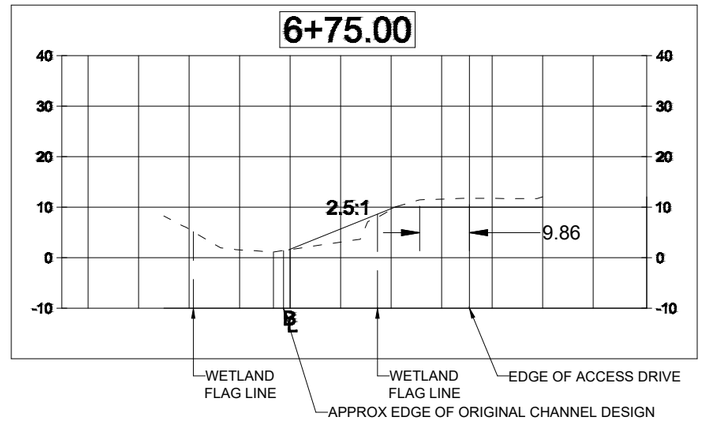
TOE DRAIN
SLOPE STABILIZATION
CROSS SECTIONS

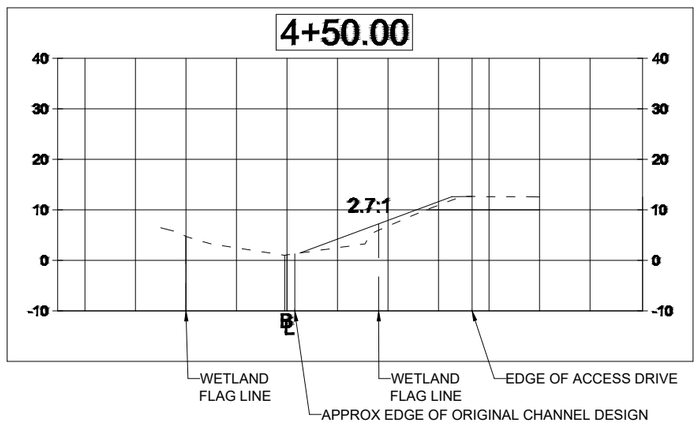
SHEET NO.

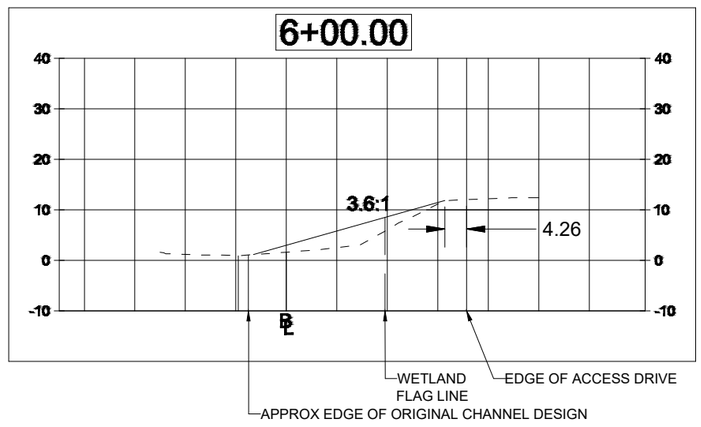
SS-3

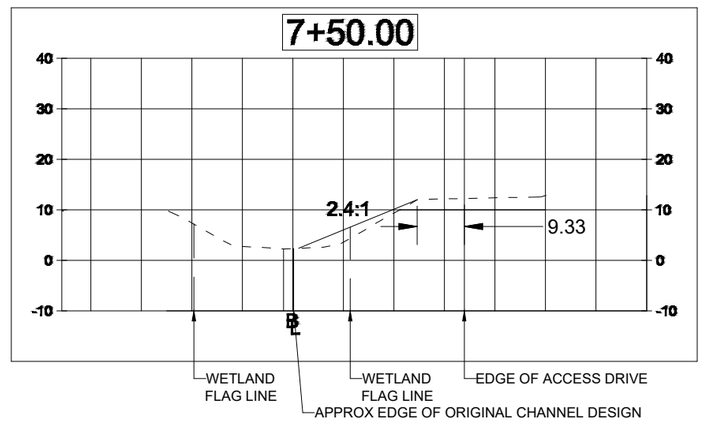


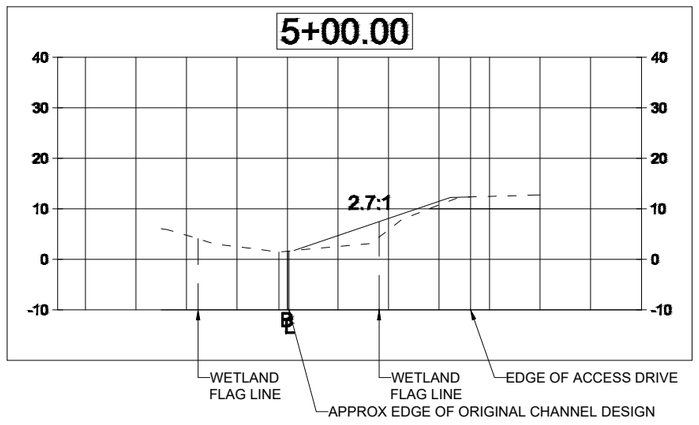


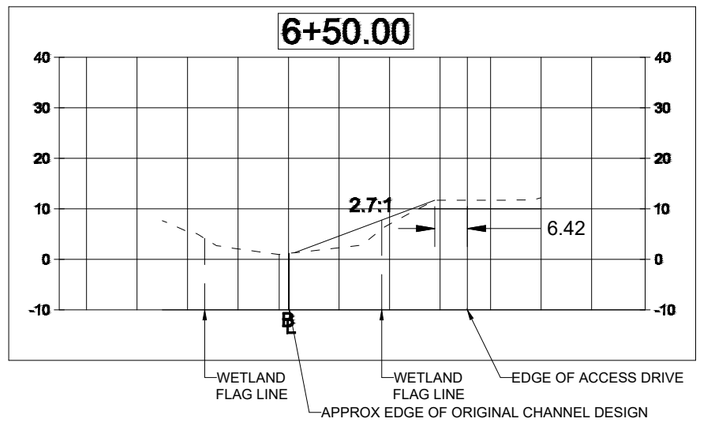


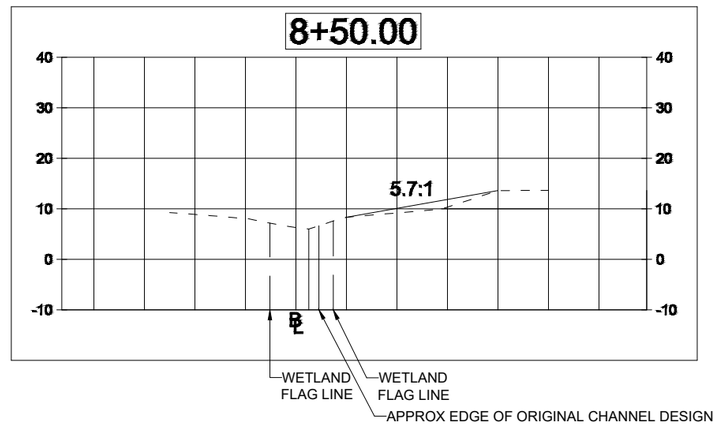












Attention:

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STATE OF CONNECTICUT — JOHN H. LEHMANN — No. 14897 — LICENSED PROFESSIONAL ENGINEER

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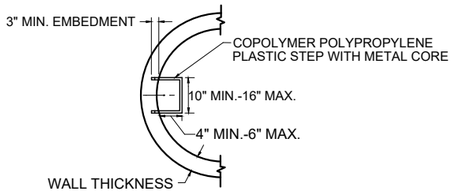
SHEET NAME

TOE DRAIN
SLOPE STABILIZATION
CROSS SECTIONS

SHEET NO.

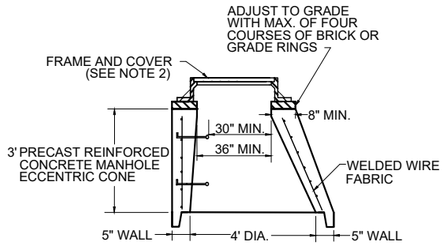
SS-4



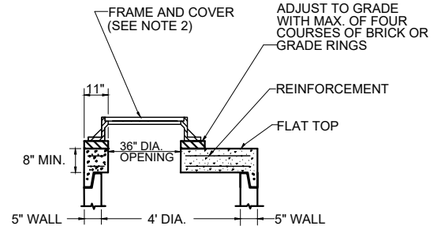
STEP DETAIL

GENERAL NOTES:

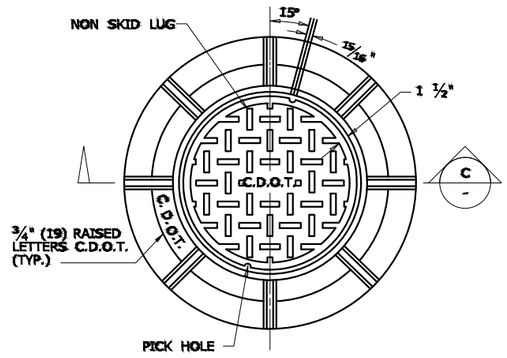
1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE.
2. SEE GUIDE SHEET NO. DGS-10a, OR DGS-10b FOR MANHOLE FRAME, GRATE AND COVER DETAIL.
3. CONTRACTOR TO VERIFY USE OF ECCENTRIC CONE OR FLAT TOP IN FIELD.
4. 6' DIAMETER MANHOLE TO BE USED AT STRUCTURES B-1, B-2, B-3, B-4 & B-5 (SEE SHEET CD-1 & CD-2) - STRUCTURE B9 (SEE SHEET CD-4), ALL OTHER MANHOLES TO BE 4' DIAMETER.



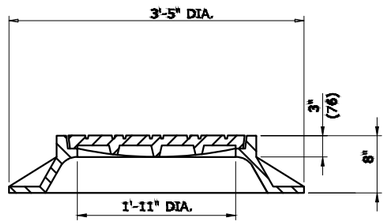
ECCENTRIC CONE SECTION



FLAT SLAB TOP FOR RISER SECTION

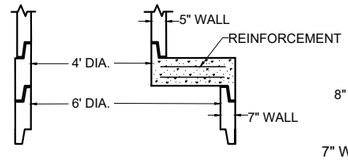


PLAN

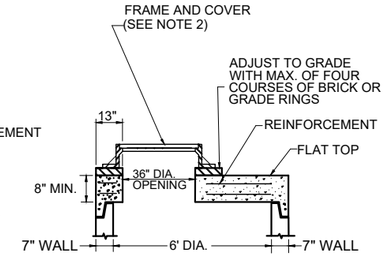


SECTION C - C

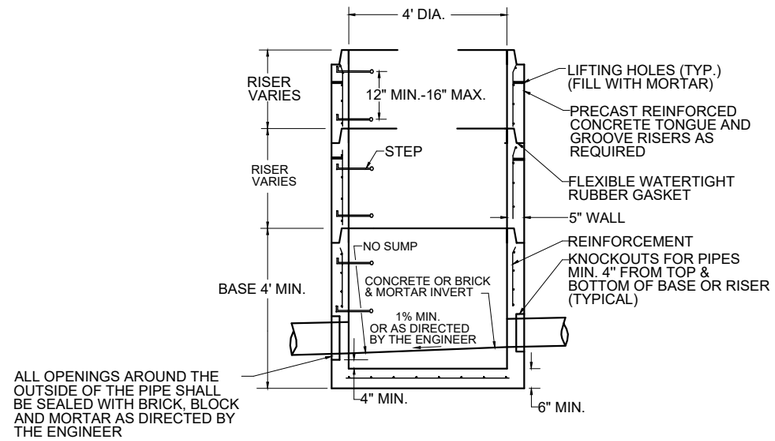
MANHOLE FRAME AND COVER



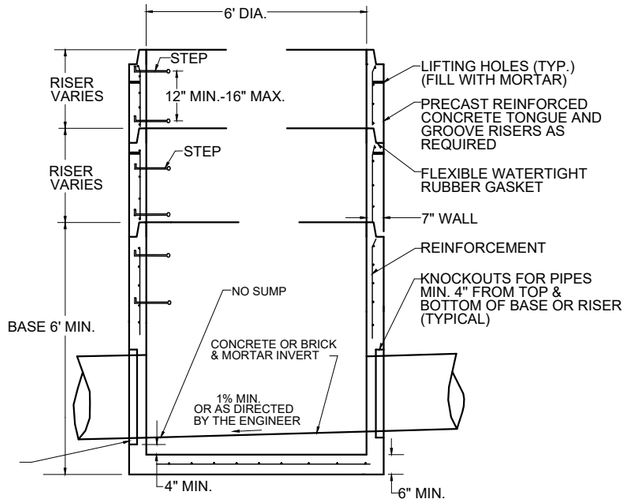
REDUCER SECTION



FLAT SLAB TOP FOR RISER SECTION



SECTION
4' DIAMETER REINFORCED PRECAST CONCRETE MANHOLE
N.T.S.



SECTION
6' DIAMETER REINFORCED PRECAST CONCRETE MANHOLE
N.T.S.

Attention:

0 1"

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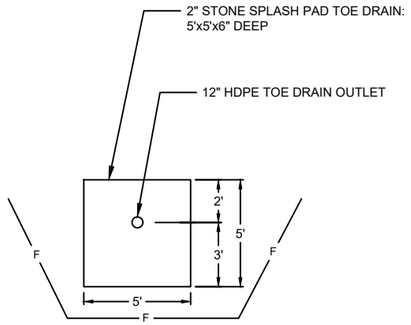
SHEET NAME: TOE DRAIN IMPROVEMENT DETAILS

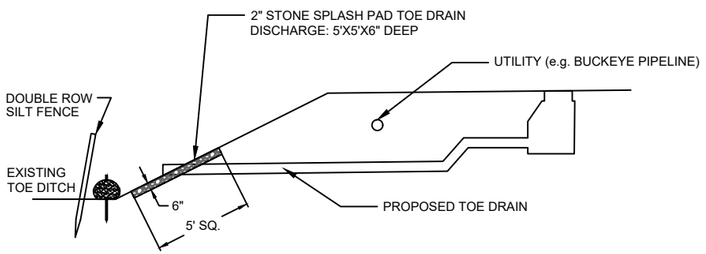
SHEET NO.: **DET-1**

GENERAL NOTES:

1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.



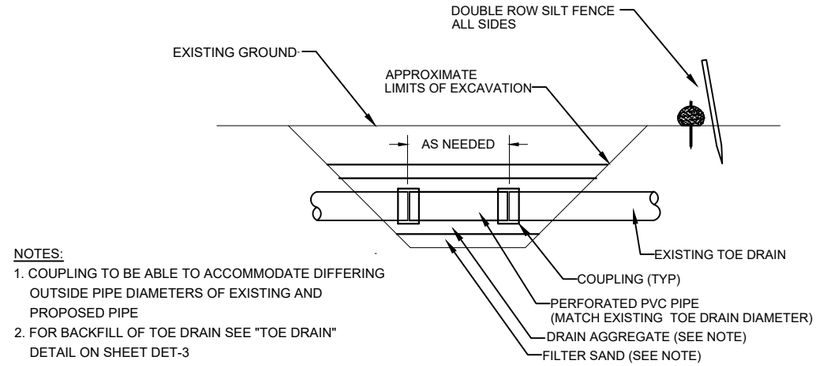
PLAN VIEW



TOE DRAIN OUTLET DETAIL

N.T.S.

TYPICAL OF CLARK DIKE (STAT. 31+00 TO STA. 68+50)

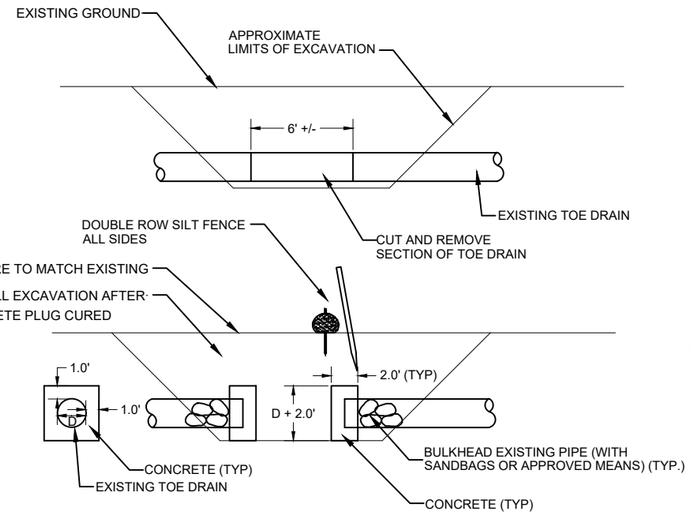


NOTES:

1. COUPLING TO BE ABLE TO ACCOMMODATE DIFFERING OUTSIDE PIPE DIAMETERS OF EXISTING AND PROPOSED PIPE
2. FOR BACKFILL OF TOE DRAIN SEE "TOE DRAIN" DETAIL ON SHEET DET-3

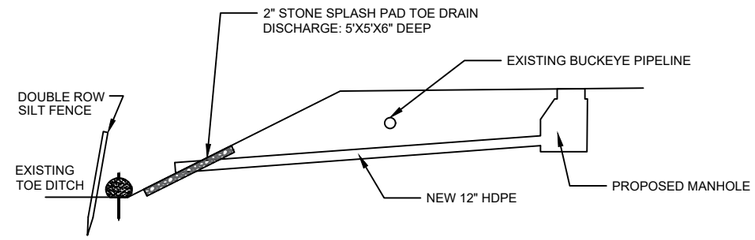
TOE DRAIN REPAIR

N.T.S.

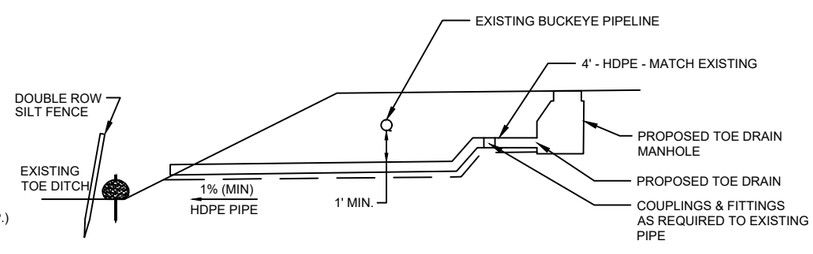


TOE DRAIN PLUG DETAIL

N.T.S.



LATERAL DRAIN DETAIL



ALTERNATIVE LATERAL DRAIN DETAIL

N.T.S.

TYPICAL OF CLARK DIKE (STAT. 31+00 TO STA. 68+50)

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

STATE OF CONNECTICUT — JOSEPH A. LECOUR — 14897 — LICENSED PROFESSIONAL ENGINEER

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Drawn:	JHL
Checked:	JAK
Approved:	JAK
P.E. No:	14897
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SOUTH MEADOWS
(CLARK) DIKE
TOE DRAIN, TOE DITCH
AND EMBANKMENT
REPAIRS

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
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SHEET NAME

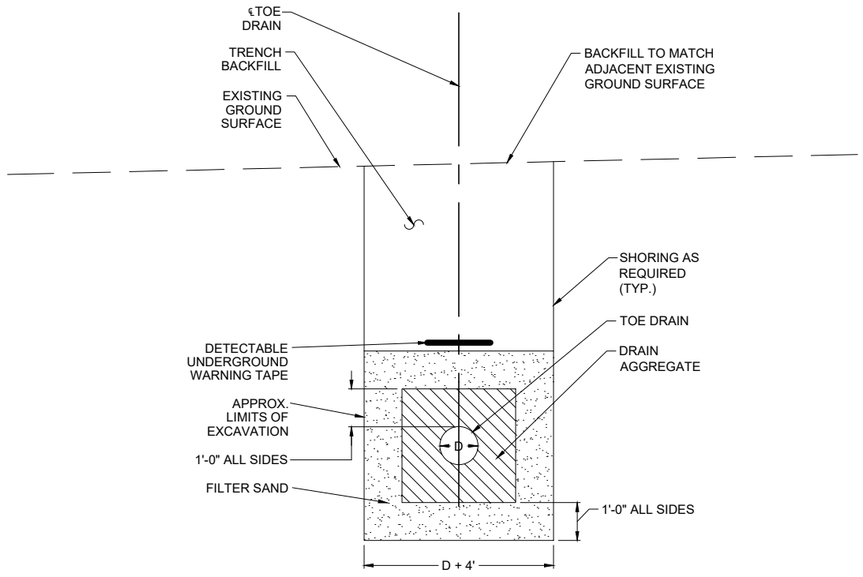
TOE DRAIN
IMPROVEMENT
DETAILS

SHEET NO.

DET-2

LECOUR, JOSEPH Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Eng_Docs\Geotechnical\70498 Details Toe Drain.dwg - 1/5/2024

--- Y:\Glastonbury\70400S\70498.00 GEI Hartford Dike\Eng_Docs\Geotechnical\70498 Details Toe Drain.dwg - 3/3/2022

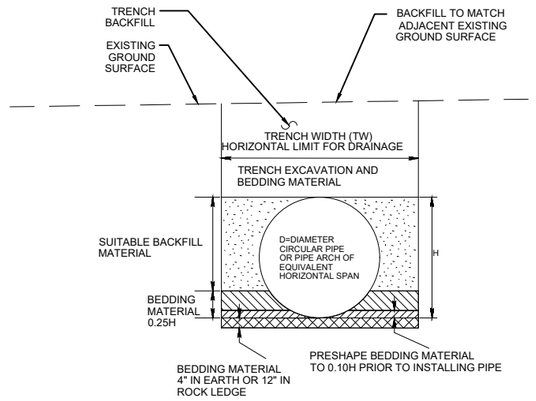


TOE DRAIN
N.T.S.

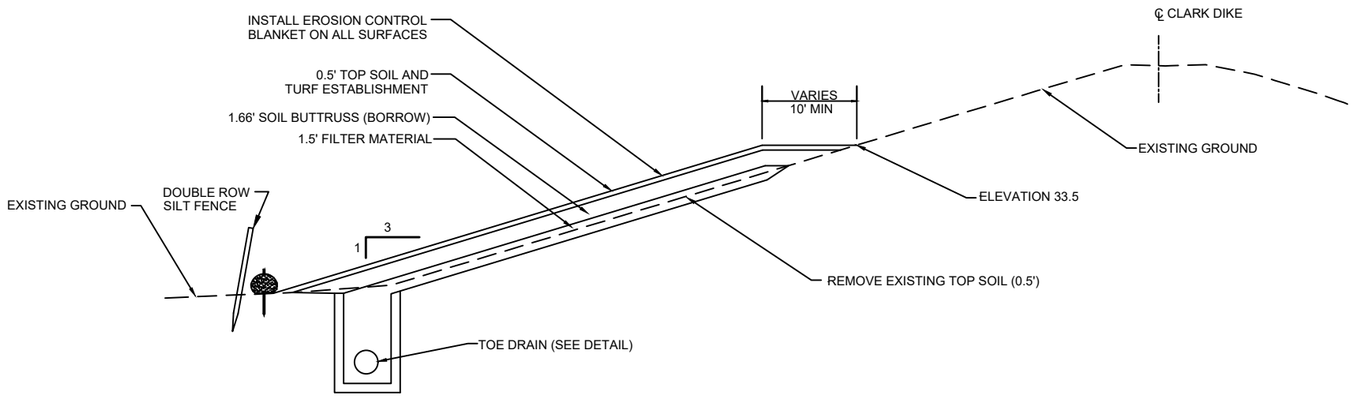
1. PVC PIPE DIAMETER SHALL MATCH EXISTING PIPE DIAMETER.

NOTES:

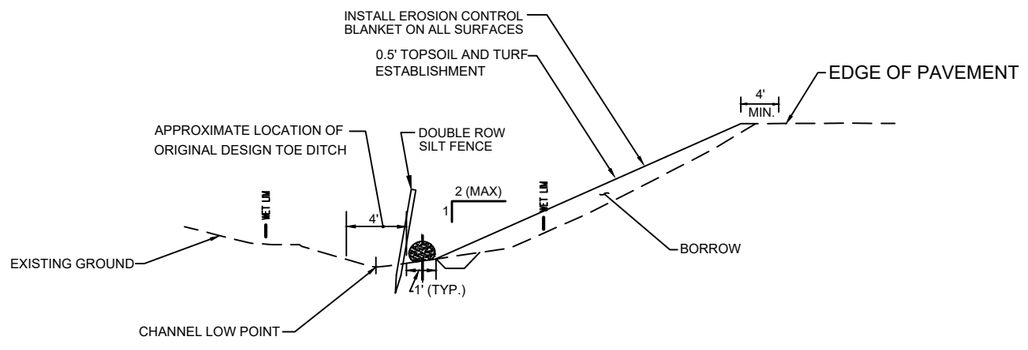
2. EXCAVATIONS FOR EXISTING TOE DRAIN REMOVAL AND TOE DRAIN RECONSTRUCTION TO BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER. EXCAVATIONS CAN BE OPEN-CUT OR SHORED AT THE CONTRACTOR'S OPTION, BUT EXCAVATION SIDE SLOPES OR SHORING MUST BE DESIGNED TO MAINTAIN LEVEE EMBANKMENT STABILITY.
3. REPLACEMENT OF TOE DRAIN SECTIONS WILL REQUIRE REMOVAL OF ALL EXISTING TOE DRAIN MATERIALS INCLUDING PIPING, ROCK FILL, AND GRAVEL BEDDING OR OTHER FILTER MATERIALS. DISPOSE OF ALL TOE DRAIN MATERIALS OFFSITE.
4. ACCESS TO THE TOE DRAIN SYSTEM WILL REQUIRE EXCAVATION THROUGH THE EXISTING EMBANKMENT. SEGREGATE EMBANKMENT MATERIALS AS REQUIRED FOR REUSE TO THE MAXIMUM EXTENT PRACTICABLE. EMBANKMENT PERVIOUS FILL MATERIALS CAN BE SUPPLEMENTED WITH MATERIAL MEETING THE REQUIREMENTS OF ASTM C 33 FINE AGGREGATED AS REQUIRED TO COMPENSATE FOR LOST VOLUME DUE TO COMPACTION.
5. FILTER SAND, GRAVEL PACK, AND EMBANKMENT MATERIALS WILL BE PLACED AND COMPACTED IN LIFTS (SEE SPECIFICATIONS).
6. CONTRACTOR TO MAINTAIN LINE AND GRADE OF TOE DRAIN INSTALLATION BY METHODS APPROVED BY THE ENGINEER (SEE SPECIFICATIONS).



TOE DRAIN OUTLET
N.T.S.



BLANKET DRAIN AND BUTTRESS
N.T.S.



TOE DRAIN - BANK STABILIZATION
N.T.S.

Attention:

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SOUTH MEADOWS
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HARTFORD , CONNECTICUT

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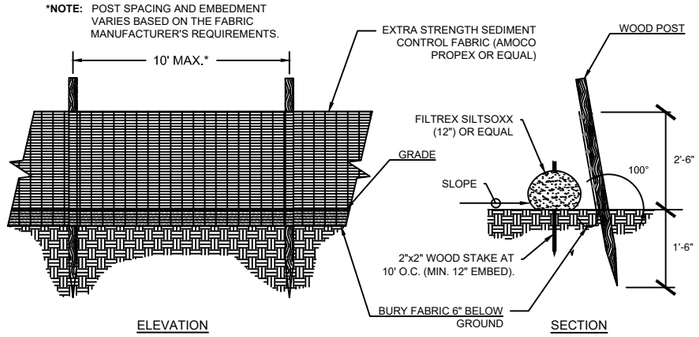
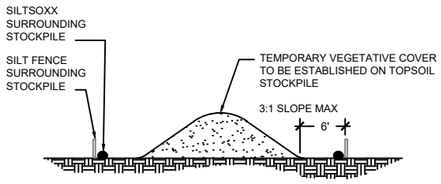
SHEET NAME: TOE DRAIN IMPROVEMENT DETAILS

SHEET NO.: **DET-3**



DOUBLE ROW SILT FENCE BARRIER

N.T.S.



TEMPORARY STOCKPILE (STK)

N.T.S.

CONSTRUCTION ENTRANCE (CE)

N.T.S.

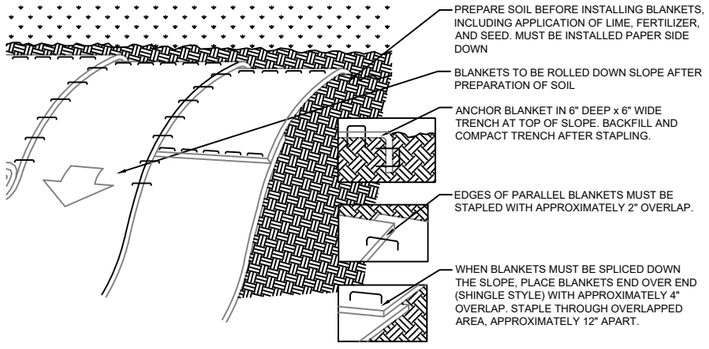
EROSION AND SEDIMENTATION CONTROL NARRATIVE

PER STATE OF CONNECTICUT:
ALL APPLICABLE PRACTICES RECOMMENDED BY THE 2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL SHALL BE FOLLOWED.

DESCRIPTION:
THIS PROJECT CONSISTS OF THE UPGRADE OF THE EXISTING TOE DRAIN SYSTEM ON THE SOUTH MEADOWS (CLARK DIKE) SECTION OF THE HARTFORD FLOOD CONTROL SYSTEM INCLUDING THE REPLACEMENT OF EXISTING TOE DRAIN, CLEANING AND REPAIR OF EXISTING TOE DRAIN AND CONSTRUCTION OF A LANDSIDE CHIMNEY DRAIN AND BUTTRESS.

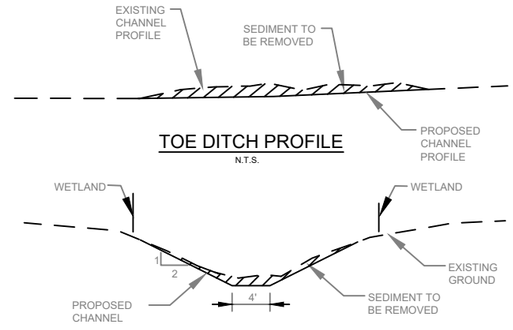
EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES WILL BE INSTALLED IN ACCORDANCE WITH THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL", MAY 2002 (AND ALL AMENDMENTS) BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION. INSTALL ALL SOIL EROSION AND SEDIMENT CONTROLS IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS PRIOR TO ANY SOIL DISTURBANCE.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION WHERE INDICATED ON THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ENGINEER, OWNER, OR OTHER AUTHORITIES HAVING JURISDICTION, AND IN ACCORDANCE WITH THE "STORMWATER POLLUTION CONTROL PLAN" (SWPCP) WRITTEN FOR THE PROJECT.
3. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF THE END OF A SIGNIFICANT STORM EVENT (TYPICALLY > 0.5-INCHES). COPIES OF THE WEEKLY EROSION AND SEDIMENT CONTROL INSPECTION REPORTS SHALL BE SUBMITTED TO THE ENGINEER UPON REQUEST. ANY REPAIRS OR REQUIRED MAINTENANCE TO EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONDUCTED IMMEDIATELY FOLLOWING THE INSPECTION. ALL FACILITIES CONSTRUCTED FOR EROSION CONTROL SHALL BE MAINTAINED FOR THE FULL EXTENT OF THE WORK.
4. UTILIZE PROPER CONSTRUCTION PROCEDURES TO PREVENT THE SILTING OF ANY WATERCOURSE OR WETLANDS IN ACCORDANCE WITH THE CONNECTICUT EROSION AND SEDIMENT CONTROL GUIDELINES.
5. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE INSTALLED AS NEEDED OR DETERMINED TO BE NECESSARY, WHEREVER AN EARTHEN ROAD INTERSECTS WITH A PAVED ROAD. DIMENSIONS SHALL BE IN ACCORDANCE WITH THE CONNECTICUT EROSION AND SEDIMENT CONTROL GUIDELINES.
6. ALL CONTRACTOR EQUIPMENT AND MATERIALS SHALL BE STAGED ONLY IN DESIGNATED CONTRACTOR LAYDOWN / STAGING OR STORAGE AREAS. IF THE CONTRACTOR NEEDS ADDITIONAL LAYDOWN OR STAGING AREAS, SUCH AREAS WILL BE DESIGNATED OR APPROVED BY THE ENGINEER AND OWNER PRIOR TO CONSTRUCTION, AND THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING AND OBTAINING ANY FAA OR CAA DETERMINATIONS OR APPROVALS REQUIRED.
7. ALL LAYDOWN/STAGING AREAS SHALL BE SEPARATED FROM REGULATED AREAS (WETLANDS OR WATERCOURSES) BY SILT FENCE OR HAY BALE BARRIER, AND SHALL BE FULLY PROTECTED WITH APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES.
8. STORAGE OF EQUIPMENT, CONSTRUCTION MATERIAL OR EXCAVATION MATERIAL IS PROHIBITED IN WETLANDS OR WATERCOURSES.
9. THE STORAGE OF FUEL AND FUELING EQUIPMENT IS PROHIBITED WITHIN 25 FEET OF ANY WETLAND OR WATERCOURSE. EQUIPMENT FUELING SHALL BE PERFORMED WITHIN A SPILL CONTAINMENT AREA OR AT A MINIMUM OF 25 FT FROM ANY WETLAND OR WATERCOURSE.
10. ANY (DIESEL) PUMPS LOCATED ADJACENT TO OR IN THE IMMEDIATE VICINITY OF ANY WATERCOURSE WILL BE LOCATED WITHIN SPILL CONTAINMENT.
11. STOCKPILES ARE TO BE LOCATED ONLY IN LOCATIONS APPROVED BY THE ENGINEER AND OWNER AND AS APPROVED BY FAA / CAA. ALL STOCKPILES SHALL BE FULLY CONTAINED WITH APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SPILL PREVENTION, CONTAINMENT, AND RESPONSE MEASURES AND SHALL PROVIDE AND MAINTAIN AN ADEQUATE SUPPLY OF SPILL CONTAINMENT EQUIPMENT ON-SITE. PREVENTIVE AND CONTAINMENT MEASURES SHALL BE UTILIZED TO AVOID SPILLAGE AND RELEASE OF PETROLEUM PRODUCTS OR OTHER POLLUTANTS. IN THE EVENT OF ANY SPILLAGE, PROMPT REMEDIAL ACTION SHALL BE TAKEN IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY HANDLING ANY DEWATERING WASTEWATER GENERATED DURING THE COURSE OF THE WORK, INCLUDING ANY TREATMENT AND HANDLING IN ACCORDANCE WITH ALL PERMITS OR APPROVALS OBTAINED OR REQUIRED FOR THE DISCHARGE OF THIS WASTEWATER.
14. ALL SEDIMENT AND/OR DEBRIS REMOVED FROM THE SITE SHALL BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
15. FOLLOWING COMPLETION OF THE WORK, CONTRACTOR SHALL ELIMINATE ALL SIGNS OF TEMPORARY CONSTRUCTION FACILITIES, INCLUDING ALL EROSION AND SEDIMENT CONTROL MEASURES, AS DIRECTD BY THE ENGINEER OR THE OWNER.
16. UPON COMPLETION OF THE WORK, IF THE SEASON PREVENTS THE ESTABLISHMENT OF A PERMANENT COVER, THE AREA TO BE RESTORED WILL BE TEMPORARILY SEEDED.
17. ANY DISTURBED AREA THAT WILL BE LEFT EXPOSED FOR MORE THAN THIRTY (30) DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC SHALL IMMEDIATELY RECEIVE TEMPORARY SEEDING, BE MULCHED WITH STRAW OR HAY AND TACKED, OR STABILIZED THROUGH THE USE OF OTHER APPROVED MEANS.
18. PERMANENT VEGETATION SHALL BE ESTABLISHED ON EXPOSED AREAS WITHIN SEVEN (7) DAYS AFTER FINAL GRADING. IF FINAL GRADING IS PERFORMED OUTSIDE THE GROWING SEASON, TEMPORARY STABILIZATION SHALL BE APPLIED AND MAINTAINED UNTIL PERMANENT VEGETATION CAN BE ESTABLISHED DURING THE FOLLOWING GROWING SEASON. SEED MIX AND VEGETATION SHALL BE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS OR THE CONNECTICUT EROSION AND SEDIMENT CONTROL GUIDELINES.
19. ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE GENERAL CONDITIONS AND REQUIREMENTS OF THE DEPARTMENT OF THE ARMY GENERAL PERMITS FOR THE STATE OF CONNECTICUT.
20. ANY CONSTRUCTION EQUIPMENT USED IN WETLANDS OR WATERCOURSES SHALL BE LOW GROUND PRESSURE (<3 PSI) OR USED ON SWAMP/ TIMBER MATS. THE USE OF SWAMP/TIMBER MATS MAY BE WAIVED DURING FROZEN OR DRY CONDITIONS IF APPROVED BY THE ARMY CORPS OF ENGINEERS. DRAGGING OF MATS INTO POSITION IS PROHIBITED. ALL MATS SHALL BE CLEANED BEFORE REUSE TO PREVENT THE SPREAD OF INVASIVE SPECIES. ASSURE MATTING IS PLACED ON A FLAT AND STABLE AREA AS APPROPRIATE.
21. THE INTRODUCTION OR SPREAD OF INVASIVE PLANT OR ANIMAL SPECIES SHALL BE CONTROLLED AND AVOIDED.
22. UPON COMPLETION OF CONSTRUCTION, ALL DISTURBED WETLAND AREAS SHALL BE STABILIZED WITH A WETLAND SEED MIX CONTAINING ONLY PLANT SPECIES NATIVE TO NEW ENGLAND AND SHALL NOT CONTAIN ANY SPECIES LISTED IN THE "INVASIVE AND OTHER UNACCEPTABLE PLANT SPECIES" LIST IN AN APPENDIX IN THE "NEW ENGLAND DISTRICT COMPENSATORY MITIGATION GUIDANCE", AS AMENDED. E&S CONTROL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION DURING CONSTRUCTION AND ALL EXPOSED SOIL OR DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED AT THE EARLIEST PRACTICABLE DATE.



SLOPE STABILIZATION USING EROSION CONTROL BLANKET (ECB)

N.T.S.



TOE DITCH PROFILE

N.T.S.

TOE DITCH SECTION

N.T.S.

SEDIMENT REMOVAL FROM EXISTING TOE DITCH

(FOR LIMITED SPOT REMOVAL OF SEDIMENT AS DETERMINED IN FIELD)

Attention:
0 1"
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SOUTH MEADOWS (CLARK) DIKE
TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS
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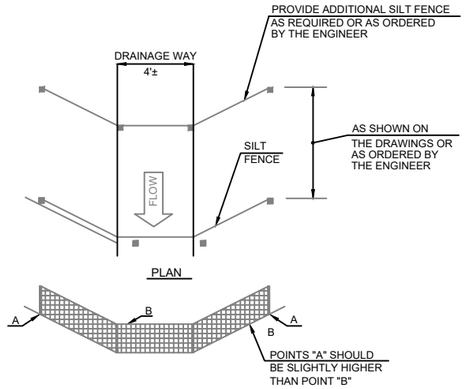
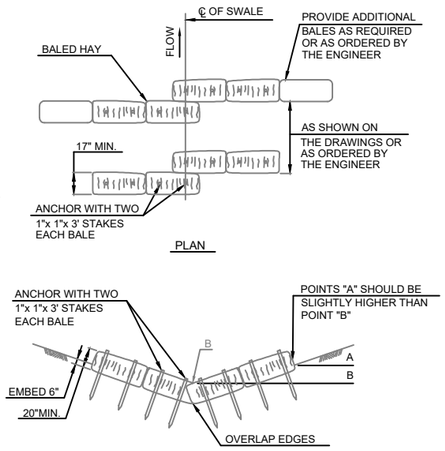
SHEET NAME: TOE DRAIN IMPROVEMENT E&S DETAILS

SHEET NO.: **DET-4**



SILT FENCE

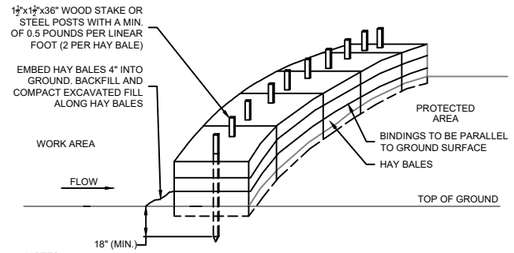


HAY BALE

CHECK DAMS IN SWALES

N.T.S.

NOTE
USE DOUBLE ROW OF CHECK DAMS AS SHOWN IN TOE DITCH DOWNSTREAM OF ALL LOCATIONS WHERE SEDIMENT REMOVAL WORK IS REQUIRED. PLACE CHECK DAMS MAXIMUM OF 25 FEET FROM DOWNSTREAM EDGE OF WORK ZONE AT EACH LOCATION WHERE SEDIMENT REMOVAL IS PERFORMED.

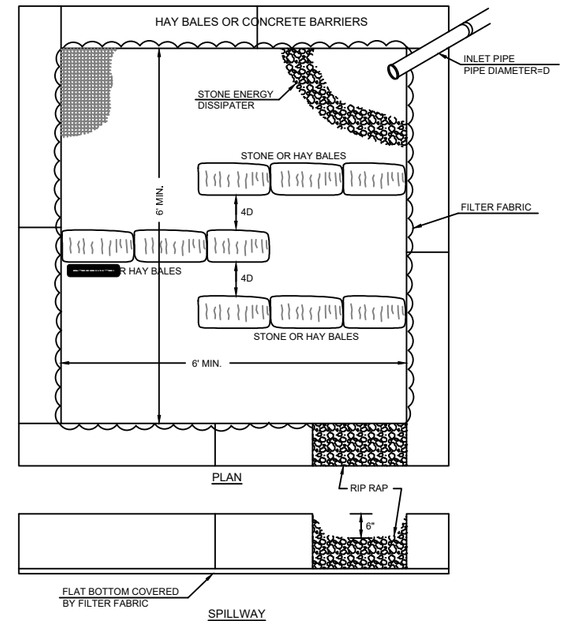


NOTES:

1. HAY BALES SHALL BE MADE OF HAY OR STRAW WITH 40 POUND MIN. WEIGHT AND 120 POUND MAX. WEIGHT HELD TOGETHER BY TWINE OR WIRE.
2. PLACE HAY BALES ON CONTOUR AND WING THE LAST HAY BALES UP SLOPE SO THAT THE TOP OF THE LAST SEVERAL HAY BALES ARE HIGHER THAN THE LINE OF HAY BALES.
3. DRIVE FIRST STAKE IN EACH BALE TOWARD THE PREVIOUSLY LAID BALE TO FORCE THEM TOGETHER.
4. PUT ONE HAY BALE PERPENDICULAR ALONG HAY BALE BARRIER EACH 100 FEET.

HAY BALE BARRIER (HB)

N.T.S.



NOTES:
1. VOLUME OF BASIN SHALL BE EQUAL TO THE MAXIMUM VOLUME OF WATER CAPABLE OF BEING PUMPED OVER ONE HOUR. THIS VOLUME SHALL BE DETERMINED BY THE PUMP MANUFACTURER'S SPECIFICATIONS.

2. IF PUMPING VOLUME EXCEEDS BASIN CAPACITY, BASIN MAY BE USED IN TANDEM OR IN TIERS.

DEWATERING BASIN

N.T.S.

Attention:
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STATE OF CONNECTICUT · JOHN A. KRAUSE · 14897 · LICENSED PROFESSIONAL ENGINEER

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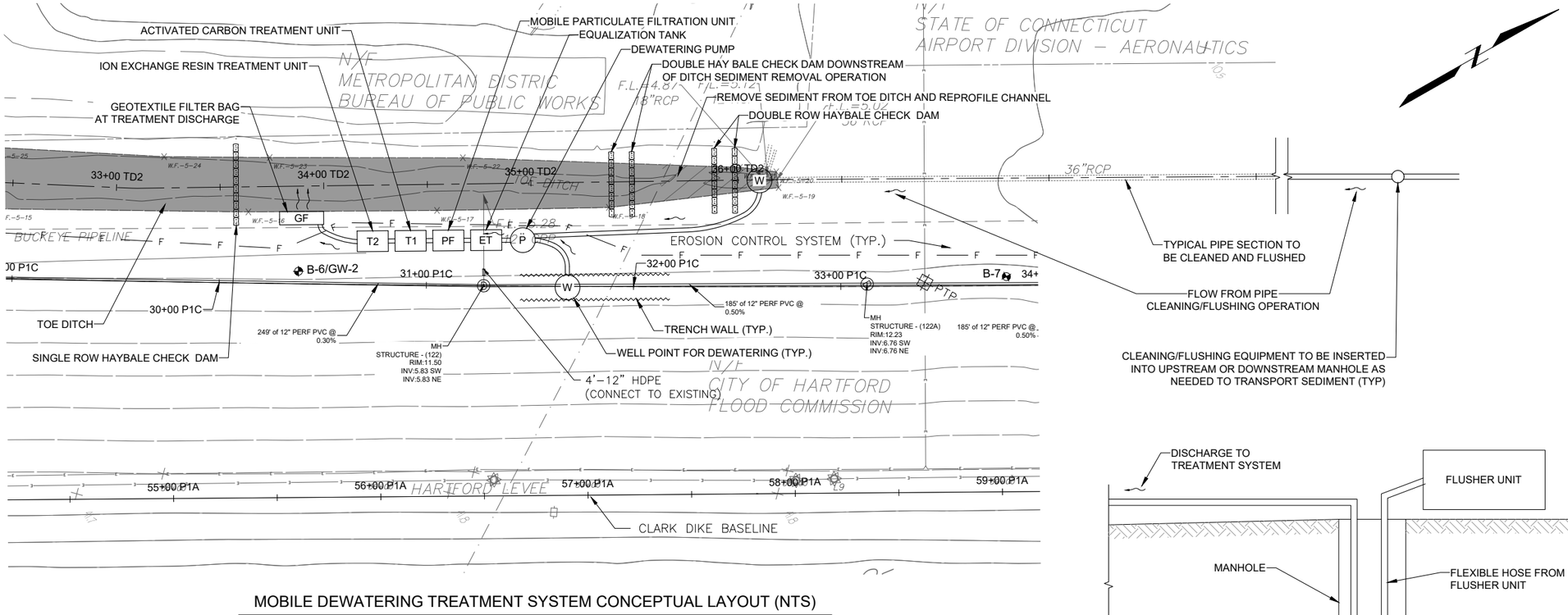
SHEET NAME
TOE DRAIN IMPROVEMENT E&S DETAILS

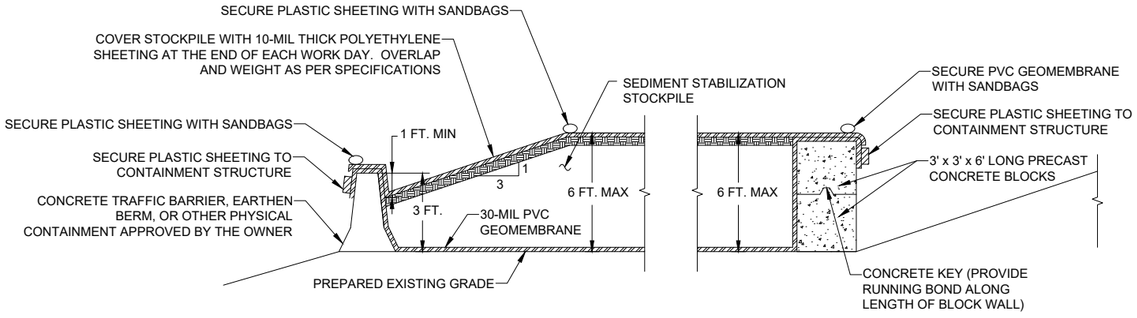
SHEET NO.
DET-5



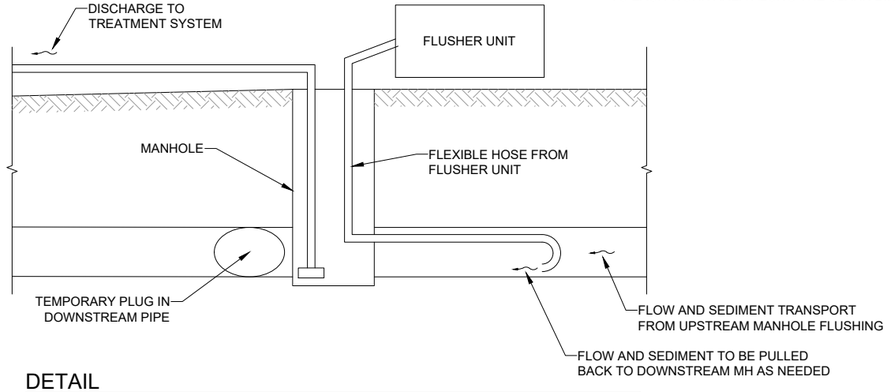
MOBILE DEWATERING TREATMENT SYSTEM CONCEPTUAL LAYOUT (NTS)

NOTES:

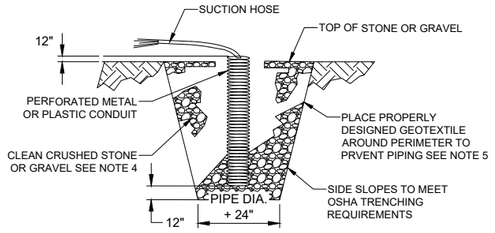
1. THE MOBILE COLLECTION AND TREATMENT EQUIPMENT AS SHOWN IS SCHEMATIC ONLY. THE LAYOUT SHOWN IS TYPICAL FOR VARIOUS LOCATIONS THROUGHOUT THE SITE WHERE DEWATERING OF IMPACTED SOIL/WATER ARE IDENTIFIED.
2. IT IS ANTICIPATED THAT THE SYSTEM WILL INCLUDE TYPICAL CONSTRUCTION GRADE SUMP PUMPS AND A MOBILE (TRAILER MOUNTED) TREATMENT SYSTEM. THE SYSTEM WILL BE MOVED AS NEEDED TO ACCOMMODATE THE PROGRESS OF CONSTRUCTION.
3. THE TREATMENT SYSTEM IS ANTICIPATED TO INCLUDE PARTICULATE FILTRATION, ACTIVATED CARBON FILTRATION, AND ION EXCHANGE RESIN FILTRATION AS SHOWN ON THE SCHEMATIC LAYOUT. THIS LAYOUT IS CONCEPTUAL ONLY AND IS INTENDED SOLELY TO SHOW THE GENERAL PARAMETERS THAT ARE ANTICIPATED TO BE REQUIRED TO TREAT THE DEWATERING WASTEWATERS FROM THE CONSTRUCTION OPERATION.
4. THE SPECIFIC SYSTEM DETAILS (I.E. CAPACITIES, VESSEL/EQUIPMENT SIZES, ETC.) ARE TO BE DETERMINED BY THE CONTRACTOR SELECTED TO PERFORM THE TOE DRAIN IMPROVEMENT PROJECT. THE SELECTED CONTRACTOR WILL BE REQUIRED TO PROVIDE A DETAILED SUBMITTAL FOR THE WATER TREATMENT SYSTEM DESIGNED BY A CT PROFESSIONAL ENGINEER. THE TREATMENT SYSTEM DESIGN WILL BE REQUIRED TO PROVIDE TREATMENT PROCESSES NECESSARY TO TREAT THE COLLECTED WATER TO THE TREATMENT STANDARDS SET FORTH IN THE PROJECT PERMITS FOR DISCHARGES TO SURFACE WATERS.
5. THE DEWATERING DISCHARGE POINT(S) WILL BE AT VARIOUS LOCATIONS ALONG THE EXISTING TOE DITCH SYSTEM CLOSEST TO EACH WORK AREA ALONG THE CLARK DIKE.



DETAIL
TYPICAL SECTION THROUGH STOCKPILE (FOR IMPACTED SOILS ONLY) NO SCALE



DETAIL
SCHEMATIC OF PIPE CLEANING AND TREATMENT LAYOUT NO SCALE



DETAIL
TYPICAL SECTION OF DEWATERING WELL NO SCALE

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	JHM
Drawn:	DE
Checked:	SC
Approved:	JHM
P.E. No:	13678
GEI Project	1703638

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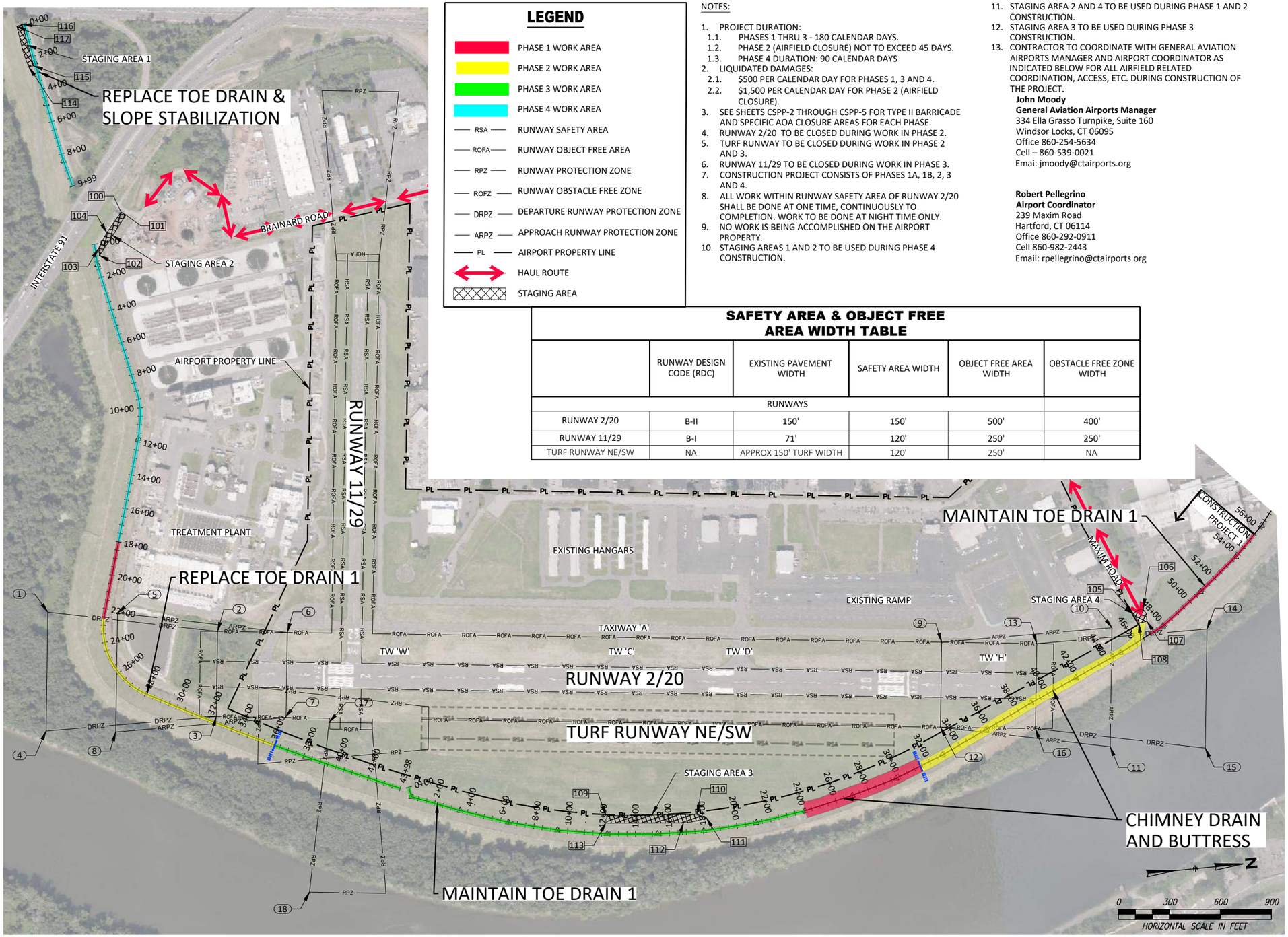
SOUTH MEADOWS (CLARK) DIKE
TOE DRAIN, TOE DITCH AND EMBANKMENT REPAIRS
CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME
MOBILE DEWATERING TREATMENT SYSTEM SCHEMATIC AND STOCKPILE DETAILS

SHEET NO.
DET-6



LEGEND

- PHASE 1 WORK AREA
- PHASE 2 WORK AREA
- PHASE 3 WORK AREA
- PHASE 4 WORK AREA
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- RPZ — RUNWAY PROTECTION ZONE
- ROFZ — RUNWAY OBSTACLE FREE ZONE
- DRPZ — DEPARTURE RUNWAY PROTECTION ZONE
- ARPZ — APPROACH RUNWAY PROTECTION ZONE
- PL — AIRPORT PROPERTY LINE
- HAUL ROUTE
- STAGING AREA

NOTES:

1. PROJECT DURATION:
   - 1.1. PHASES 1 THRU 3 - 180 CALENDAR DAYS.
   - 1.2. PHASE 2 (AIRFIELD CLOSURE) NOT TO EXCEED 45 DAYS.
   - 1.3. PHASE 4 DURATION: 90 CALENDAR DAYS
2. LIQUIDATED DAMAGES:
   - 2.1. $500 PER CALENDAR DAY FOR PHASES 1, 3 AND 4.
   - 2.2. $1,500 PER CALENDAR DAY FOR PHASE 2 (AIRFIELD CLOSURE).
3. SEE SHEETS CSPP-2 THROUGH CSPP-5 FOR TYPE II BARRICADE AND SPECIFIC AOA CLOSURE AREAS FOR EACH PHASE.
4. RUNWAY 2/20 TO BE CLOSED DURING WORK IN PHASE 2.
5. TURF RUNWAY TO BE CLOSED DURING WORK IN PHASE 2 AND 3.
6. RUNWAY 11/29 TO BE CLOSED DURING WORK IN PHASE 3.
7. CONSTRUCTION PROJECT CONSISTS OF PHASES 1A, 1B, 2, 3 AND 4.
8. ALL WORK WITHIN RUNWAY SAFETY AREA OF RUNWAY 2/20 SHALL BE DONE AT ONE TIME, CONTINUOUSLY TO COMPLETION. WORK TO BE DONE AT NIGHT TIME ONLY.
9. NO WORK IS BEING ACCOMPLISHED ON THE AIRPORT PROPERTY.
10. STAGING AREAS 1 AND 2 TO BE USED DURING PHASE 4 CONSTRUCTION.
11. STAGING AREA 2 AND 4 TO BE USED DURING PHASE 1 AND 2 CONSTRUCTION.
12. STAGING AREA 3 TO BE USED DURING PHASE 3 CONSTRUCTION.
13. CONTRACTOR TO COORDINATE WITH GENERAL AVIATION AIRPORTS MANAGER AND AIRPORT COORDINATOR AS INDICATED BELOW FOR ALL AIRFIELD RELATED COORDINATION, ACCESS, ETC. DURING CONSTRUCTION OF THE PROJECT.

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SAFETY PLAN NOTES:

1. EQUIPMENT AND MATERIAL STOCKPILES SHALL BE PARKED IN DESIGNATED STAGING AREAS OR AT LOCATIONS WITHIN THE WORK AREA APPROVED BY THE ENGINEER TO ENSURE THERE ARE NO POTENTIAL WINGTIP CLEARANCE CONFLICTS WHEN NO CONTRACTOR OPERATIONS ARE BEING COMPLETED. STOCKPILES SHALL NOT EXCEED 25' ABOVE SITE ELEVATION.
2. ALL CLOSURES SHALL BE COORDINATED WITH THE OWNER AND OWNER'S REPRESENTATIVE. PHASES SHOULD BE COMPLETED IN NUMBER ORDER UNLESS OTHERWISE APPROVED BY THE OWNER; HOWEVER, THEY MAY BE ADJUSTED TO BETTER ACCOMMODATE CONSTRUCTION.
3. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREAS AND DESIGNATED HAUL ROUTES UNLESS OTHERWISE APPROVED BY THE OWNER.
4. CONSTRUCTION WORK IS NOT LOCATED IN CLOSE PROXIMITY TO AIRSIDE PAVEMENTS; HOWEVER, CONTRACTOR SHALL HAVE A STREET SWEEPER, OR OTHER APPROVED METHOD, READILY AVAILABLE AT ALL TIMES TO REMOVE FOD FROM PAVEMENTS OPEN TO AIRCRAFT OPERATIONS, ALONG DESIGNATED PAVED HAUL ROUTES OR ADJACENT STREETS.
5. IT IS THE DESIRE OF THE AIRPORT TO HAVE PHASE 2 WORK COMPLETED CONCURRENTLY IN BOTH RUNWAY 2 AND 20 ENDS. IF WORK CANNOT BE ACCOMPLISHED CONCURRENTLY, THE CONTRACTOR SHALL COORDINATE WITH OWNER AND OWNER'S REPRESENTATIVE.
6. AERIAL IMAGE SHOWN FOR REFERENCE ONLY.

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

	RUNWAY DESIGN CODE (RDC)	EXISTING PAVEMENT WIDTH	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH	OBSTACLE FREE ZONE WIDTH
RUNWAYS					
RUNWAY 2/20	B-II	150'	150'	500'	400'
RUNWAY 11/29	B-I	71'	120'	250'	250'
TURF RUNWAY NE/SW	NA	APPROX 150' TURF WIDTH	120'	250'	NA

RPZ LIMITS POINT TABLE (XX)

POINT #	LATITUDE	LONGITUDE	DESCRIPTION	NORTHING	EASTING
1	N41° 43' 42.69"	W72° 39' 06.30"	RW2DRPZ	826195.009	1026818.918
2	N41° 43' 52.30"	W72° 39' 02.96"	RW2DRPZ	827167.739	1027071.498
3	N41° 43' 51.54"	W72° 38' 56.44"	RW2DRPZ	827090.849	1027565.551
4	N41° 43' 41.62"	W72° 38' 57.18"	RW2DRPZ	826087.370	1027510.593
5	N41° 43' 46.69"	W72° 39' 05.47"	RW2ARPZ	826600.034	1026881.948
6	N41° 43' 56.30"	W72° 39' 02.12"	RW2ARPZ	827572.764	1027134.528
7	N41° 43' 55.49"	W72° 38' 55.63"	RW2ARPZ	827491.210	1027626.545
8	N41° 43' 45.62"	W72° 38' 56.35"	RW2ARPZ	826492.396	1027573.623
9	N41° 44' 33.86"	W72° 38' 54.26"	RW20ARPZ	831375.648	1027726.334
10	N41° 44' 43.78"	W72° 38' 53.52"	RW20ARPZ	832379.131	1027781.293
11	N41° 44' 42.71"	W72° 38' 44.39"	RW20ARPZ	832271.493	1028472.968
12	N41° 44' 33.10"	W72° 38' 47.74"	RW20ARPZ	831298.762	1028220.393
13	N41° 44' 39.32"	W72° 38' 53.11"	RW20DRPZ	831928.058	1027812.329
14	N41° 44' 49.23"	W72° 38' 52.37"	RW20DRPZ	832931.536	1027867.287
15	N41° 44' 48.16"	W72° 38' 43.25"	RW20DRPZ	832823.898	1028558.962
16	N41° 44' 38.56"	W72° 38' 46.60"	RW20DRPZ	831851.168	1028306.382
17	N41° 43' 57.98"	W72° 38' 54.77"	RW29RPZ	827743.097	1027691.501
18	N41° 43' 55.46"	W72° 38' 41.95"	RW29RPZ	827489.508	1028663.968

STAGING AREA LIMITS POINT TABLE (XXX)

POINT #	LATITUDE	LONGITUDE	DESCRIPTION	NORTHING	EASTING
100	N41° 43' 50.16"	W72° 39' 36.22"	STAGE2	826948.288	1024549.990
101	N41° 43' 50.42"	W72° 39' 35.95"	STAGE2	826974.524	1024570.466
102	N41° 43' 48.57"	W72° 39' 33.11"	STAGE2	826787.462	1024785.958
103	N41° 43' 48.57"	W72° 39' 33.66"	STAGE2	826787.385	1024743.815
104	N41° 43' 49.18"	W72° 39' 34.80"	STAGE2	826849.097	1024657.276
105	N41° 44' 45.12"	W72° 38' 54.37"	STAGE4	832515.391	1027716.610
106	N41° 44' 45.75"	W72° 38' 54.68"	STAGE4	832578.501	1027692.743
107	N41° 44' 45.85"	W72° 38' 53.62"	STAGE4	832588.416	1027772.837
108	N41° 44' 45.36"	W72° 38' 53.57"	STAGE4	832539.725	1027776.586
109	N41° 44' 13.14"	W72° 38' 44.62"	STAGE3	829278.298	1028459.546
110	N41° 44' 18.39"	W72° 38' 43.69"	STAGE3	829810.731	1028528.865
111	N41° 44' 18.90"	W72° 38' 43.33"	STAGE3	829861.762	1028556.412
112	N41° 44' 17.54"	W72° 38' 43.20"	STAGE3	829723.906	1028566.794
113	N41° 44' 13.07"	W72° 38' 44.06"	STAGE3	829271.732	1028502.074
114	N41° 43' 46.05"	W72° 39' 48.34"	STAGE1	826531.331	1023630.912
115	N41° 43' 46.33"	W72° 39' 48.41"	STAGE1	826559.271	1023626.038
116	N41° 43' 46.01"	W72° 39' 51.71"	STAGE1	826526.878	1023375.757
117	N41° 43' 45.68"	W72° 39' 51.63"	STAGE1	826493.524	1023381.854

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Designed:	JCW
Drawn:	DJL
Checked:	AKM
Approved:	JAK
P.E. No:	0014897
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SOUTH MEADOWS
REPAIR OF CLARK DIKE

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME
CSPP-1 - OVERALL

SHEET NO.
SP-1

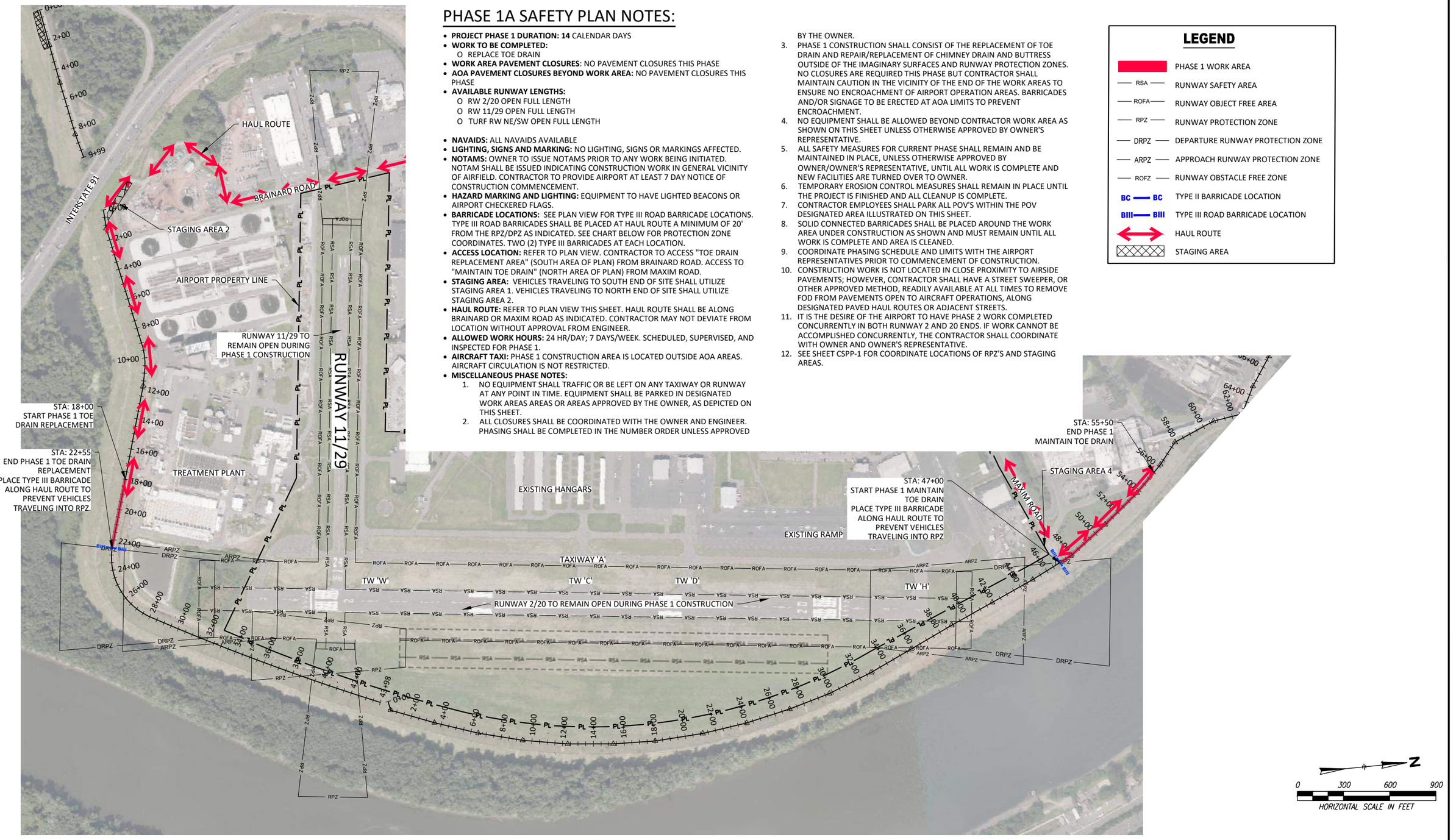
PHASE 1A SAFETY PLAN NOTES:

- **PROJECT PHASE 1 DURATION: 14** CALENDAR DAYS
- **WORK TO BE COMPLETED:**
  - O REPLACE TOE DRAIN
- **WORK AREA PAVEMENT CLOSURES**: NO PAVEMENT CLOSURES THIS PHASE
- **AOA PAVEMENT CLOSURES BEYOND WORK AREA:** NO PAVEMENT CLOSURES THIS PHASE
- **AVAILABLE RUNWAY LENGTHS:**
  - O RW 2/20 OPEN FULL LENGTH
  - O RW 11/29 OPEN FULL LENGTH
  - O TURF RW NE/SW OPEN FULL LENGTH

- **NAVAIDS:** ALL NAVAIDS AVAILABLE
- **LIGHTING, SIGNS AND MARKING:** NO LIGHTING, SIGNS OR MARKINGS AFFECTED.
- **NOTAMS:** OWNER TO ISSUE NOTAMS PRIOR TO ANY WORK BEING INITIATED. NOTAM SHALL BE ISSUED INDICATING CONSTRUCTION WORK IN GENERAL VICINITY OF AIRFIELD. CONTRACTOR TO PROVIDE AIRPORT AT LEAST 7 DAY NOTICE OF CONSTRUCTION COMMENCEMENT.
- **HAZARD MARKING AND LIGHTING:** EQUIPMENT TO HAVE LIGHTED BEACONS OR AIRPORT CHECKERED FLAGS.
- **BARRICADE LOCATIONS:** SEE PLAN VIEW FOR TYPE III ROAD BARRICADE LOCATIONS. TYPE III ROAD BARRICADES SHALL BE PLACED AT HAUL ROUTE A MINIMUM OF 20' FROM THE RPZ/DPZ AS INDICATED. SEE CHART BELOW FOR PROTECTION ZONE COORDINATES. TWO (2) TYPE III BARRICADES AT EACH LOCATION.
- **ACCESS LOCATION:** REFER TO PLAN VIEW. CONTRACTOR TO ACCESS "TOE DRAIN REPLACEMENT AREA" (SOUTH AREA OF PLAN) FROM BRAINARD ROAD. ACCESS TO "MAINTAIN TOE DRAIN" (NORTH AREA OF PLAN) FROM MAXIM ROAD.
- **STAGING AREA:** VEHICLES TRAVELING TO SOUTH END OF SITE SHALL UTILIZE STAGING AREA 1. VEHICLES TRAVELING TO NORTH END OF SITE SHALL UTILIZE STAGING AREA 2.
- **HAUL ROUTE:** REFER TO PLAN VIEW THIS SHEET. HAUL ROUTE SHALL BE ALONG BRAINARD OR MAXIM ROAD AS INDICATED. CONTRACTOR MAY NOT DEVIATE FROM LOCATION WITHOUT APPROVAL FROM ENGINEER.
- **ALLOWED WORK HOURS:** 24 HR/DAY; 7 DAYS/WEEK. SCHEDULED, SUPERVISED, AND INSPECTED FOR PHASE 1.
- **AIRCRAFT TAXI:** PHASE 1 CONSTRUCTION AREA IS LOCATED OUTSIDE AOA AREAS. AIRCRAFT CIRCULATION IS NOT RESTRICTED.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL TRAFFIC OR BE LEFT ON ANY TAXIWAY OR RUNWAY AT ANY POINT IN TIME. EQUIPMENT SHALL BE PARKED IN DESIGNATED WORK AREAS AREAS OR AREAS APPROVED BY THE OWNER, AS DEPICTED ON THIS SHEET.
  2. ALL CLOSURES SHALL BE COORDINATED WITH THE OWNER AND ENGINEER. PHASING SHALL BE COMPLETED IN THE NUMBER ORDER UNLESS APPROVED BY THE OWNER.
  3. PHASE 1 CONSTRUCTION SHALL CONSIST OF THE REPLACEMENT OF TOE DRAIN AND REPAIR/REPLACEMENT OF CHIMNEY DRAIN AND BUTTRESS OUTSIDE OF THE IMAGINARY SURFACES AND RUNWAY PROTECTION ZONES. NO CLOSURES ARE REQUIRED THIS PHASE BUT CONTRACTOR SHALL MAINTAIN CAUTION IN THE VICINITY OF THE END OF THE WORK AREAS TO ENSURE NO ENCROACHMENT OF AIRPORT OPERATION AREAS. BARRICADES AND/OR SIGNAGE TO BE ERECTED AT AOA LIMITS TO PREVENT ENCROACHMENT.
  4. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA AS SHOWN ON THIS SHEET UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
  5. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE, UNLESS OTHERWISE APPROVED BY OWNER/OWNER'S REPRESENTATIVE, UNTIL ALL WORK IS COMPLETE AND NEW FACILITIES ARE TURNED OVER TO OWNER.
  6. TEMPORARY EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE PROJECT IS FINISHED AND ALL CLEANUP IS COMPLETE.
  7. CONTRACTOR EMPLOYEES SHALL PARK ALL POV'S WITHIN THE POV DESIGNATED AREA ILLUSTRATED ON THIS SHEET.
  8. SOLID CONNECTED BARRICADES SHALL BE PLACED AROUND THE WORK AREA UNDER CONSTRUCTION AS SHOWN AND MUST REMAIN UNTIL ALL WORK IS COMPLETE AND AREA IS CLEANED.
  9. COORDINATE PHASING SCHEDULE AND LIMITS WITH THE AIRPORT REPRESENTATIVES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
  10. CONSTRUCTION WORK IS NOT LOCATED IN CLOSE PROXIMITY TO AIRSIDE PAVEMENTS; HOWEVER, CONTRACTOR SHALL HAVE A STREET SWEEPER, OR OTHER APPROVED METHOD, READILY AVAILABLE AT ALL TIMES TO REMOVE FOD FROM PAVEMENTS OPEN TO AIRCRAFT OPERATIONS, ALONG DESIGNATED PAVED HAUL ROUTES OR ADJACENT STREETS.
  11. IT IS THE DESIRE OF THE AIRPORT TO HAVE PHASE 2 WORK COMPLETED CONCURRENTLY IN BOTH RUNWAY 2 AND 20 ENDS. IF WORK CANNOT BE ACCOMPLISHED CONCURRENTLY, THE CONTRACTOR SHALL COORDINATE WITH OWNER AND OWNER'S REPRESENTATIVE.
  12. SEE SHEET CSPP-1 FOR COORDINATE LOCATIONS OF RPZ'S AND STAGING AREAS.

LEGEND

- PHASE 1 WORK AREA
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- RPZ — RUNWAY PROTECTION ZONE
- DRPZ — DEPARTURE RUNWAY PROTECTION ZONE
- ARPZ — APPROACH RUNWAY PROTECTION ZONE
- ROFZ — RUNWAY OBSTACLE FREE ZONE
- BC — BC — TYPE II BARRICADE LOCATION
- BIII — BIII — TYPE III ROAD BARRICADE LOCATION
- HAUL ROUTE
- STAGING AREA



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HORIZONTAL SCALE IN FEET

Attention:
0 1"
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Designed:	JCW
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CITY OF HARTFORD
HARTFORD , CONNECTICUT

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SHEET NAME: **CSPP-2 - PHASE 1A**

SHEET NO.: **SP-2**

PHASE 1B SAFETY PLAN NOTES:

- **PROJECT PHASE 1B DURATION: 49** CALENDAR DAYS
- **WORK TO BE COMPLETED:**
  - O CHIMNEY DRAIN AND BUTTRESS AT TOE DRAIN 2.
- **AOA PAVEMENT CLOSURES BEYOND WORK AREA:** TAXIWAYS LEADING TO RUNWAY 11/29 ARE TO BE CLOSED DURING THIS PHASE
- **AVAILABLE RUNWAY LENGTHS:**
  - O RW 2/20 OPEN FULL LENGTH
- **NAVAIDS:** ALL NAVAIDS AVAILABLE TO CORRESPONDING OPEN AREAS.
- **LIGHTING, SIGNS AND MARKING:** NO LIGHTING, SIGNS OR MARKINGS AFFECTED.
- **NOTAMS:** OWNER TO ISSUE NOTAMS PRIOR TO ANY WORK BEING INITIATED. CONTRACTOR TO PROVIDE AIRPORT AT LEAST 7 DAY NOTICE OF CONSTRUCTION COMMENCEMENT. NOTAMS SHALL BE ISSUED FOR THE FOLLOWING PAVEMENT CLOSURES DURING THIS PHASE
  - O RUNWAY 11/29
- **HAZARD MARKING AND LIGHTING:** CONTRACTOR FURNISHED X'S ON THE CLOSED RUNWAY 11/29 AND TURF RUNWAY NE/SW AS SHOWN IN PLAN VIEW. TYPE OF MATERIALS SHALL BE AS FOLLOWS:
  - O RUNWAY 11/29 - LIGHTED X's
  - O TURF RUNWAY - FABRIC X's

  EQUIPMENT TO HAVE LIGHTED BEACONS OR AIRPORT CHECKERED FLAGS.
- **BARRICADE LOCATIONS:** BARRICADES SHALL BE PLACED AS FOLLOWS:
  - O PLACE BARRICADE LINE BC AS SHOWN IN PLAN VIEW THIS SHEET. REFER TO DETAILS ON SHEET CSPP-8. PLACE TYPE II BARRICADES PER PLAN (ESTIMATED 99 REQUIRED).
  - O TYPE III BARRICADE SHALL BE PLACED AT HAUL ROUTE A MINIMUM OF 20' FROM THE RPZ/DPZ AS INDICATED. SEE CHART BELOW FOR PROTECTION ZONE COORDINATES. TWO (2) TYPE III BARRICADES AT EACH LOCATION.
- **ACCESS LOCATION:** REFER TO PLAN VIEW. CONTRACTOR TO ACCESS "TOE DRAIN REPLACEMENT AREA" (SOUTH AREA OF PLAN) FROM BRAINARD ROAD. ACCESS TO "CHIMNEY DRAIN AND BUTTRESS"(NORTH AREA OF PLAN) FROM MAXIM ROAD.
- **STAGING AREA:** VEHICLES TRAVELING TO SOUTH END OF SITE SHALL UTILIZE STAGING AREA 1. VEHICLES TRAVELING TO NORTH END OF SITE SHALL UTILIZE STAGING AREA 2. CONTRACTOR TO UTILIZE STAGING AREA 3 FOR CONSTRUCTION IN PHASE 3 AREAS.
- **HAUL ROUTE:** REFER TO PLAN VIEW THIS SHEET. HAUL ROUTE SHALL BE ALONG BRAINARD OR MAXIM ROAD AS INDICATED. CONTRACTOR MAY NOT DEVIATE FROM LOCATION WITHOUT APPROVAL FROM ENGINEER.
- **ALLOWED WORK HOURS:** 24 HR/DAY; 7 DAYS/WEEK. SCHEDULED, SUPERVISED, AND INSPECTED FOR PHASE 3.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL TRAFFIC OR BE LEFT ON ANY TAXIWAY OR RUNWAY AT ANY POINT IN TIME. EQUIPMENT SHALL BE PARKED IN DESIGNATED WORK AREAS AREAS OR AREAS APPROVED BY THE OWNER.
  2. ALL CLOSURES SHALL BE COORDINATED WITH THE OWNER AND ENGINEER. PHASING SHALL BE COMPLETED IN THE NUMBER ORDER UNLESS APPROVED BY THE OWNER.
  3. CONTRACTORS SHALL CONTACT AIR TRAFFIC CONTROL (CONTACT XX) PRIOR TO ENTERING RPZ TO TRAVEL TO PHASE 3 WORK AREA. CONTRACTORS TO PLACE TYPE III BARRICADES AT DESIGNATED LOCATIONS. AIR TRAFFIC SHALL HAVE THE RIGHT OF WAY, AND AT NO CIRCUMSTANCE SHALL THERE BE CONSTRUCTION VEHICLES WITHIN THE RPZ DURING TAKEOFF/LANDING OF AIRCRAFT ON RUNWAY 2/20. CONTRACTOR TO PROVIDE STAFF FOR COORDINATION.
  4. CONTRACTOR TO INSTALL LOW PROFILE BARRICADES AT THE DESIGNATED LOCATIONS THIS SHEET TO PROHIBIT AIRCRAFT FROM UTILIZING CLOSED RUNWAYS. BARRICADES SHALL BE INSTALLED PRIOR TO TOE DRAIN CONSTRUCTION THIS PHASE. SEE SHEET CSPP-7 FOR BARRICADE DETAILS.
  5. RUNWAY 2/20 SHALL BE CLOSED DURING PHASE 2 CONSTRUCTION. LIGHTED RUNWAY CLOSURE MARKING TO BE PLACED ON BOTH ENDS OF THE RUNWAY DURING THIS PHASE. SEE SHEET CSPP-7 FOR LIGHTED 'X' DETAIL.
  6. RUNWAY 11/29 AND TURF RUNWAY NE/SW SHALL BE CLOSED DURING PHASE 3 CONSTRUCTION. RUNWAY CLOSURE MARKING TO BE PLACED ON BOTH ENDS OF THE RUNWAYS DURING THIS PHASE . SEE SHEET CSPP-7 FOR FABRIC 'X' DETAIL.
  7. CONTRACTOR TO INSTALL LOW PROFILE BARRICADES AT THE DESIGNATED LOCATIONS THIS SHEET TO PROHIBIT AIRCRAFT FROM UTILIZING CLOSED RUNWAYS. BARRICADES SHALL BE INSTALLED PRIOR TO TOE DRAIN CONSTRUCTION THIS PHASE. SEE SHEET CSPP-7 FOR BARRICADE DETAILS.
  8. CONTRACTOR TO KEEP AIRFIELD PAVEMENTS CLEAN AT ALL TIMES DURING INSTALLATION AND REMOVAL OF LOW PROFILE BARRICADES. PAVEMENT SHALL BE SWEPT TO PREVENT FOREIGN OBJECT DEBRIS (FOD).
  9. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA AS SHOWN ON THIS SHEET UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
  10. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE, UNLESS OTHERWISE APPROVED BY OWNER/OWNER'S REPRESENTATIVE, UNTIL ALL WORK IS COMPLETE AND NEW FACILITIES ARE TURNED OVER TO OWNER.
  11. TEMPORARY EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE PROJECT IS FINISHED AND ALL CLEANUP IS COMPLETE.
  12. CONTRACTOR EMPLOYEES SHALL PARK ALL POV'S WITHIN THE POV DESIGNATED AREA ILLUSTRATED ON THIS SHEET.
  13. SOLID CONNECTED BARRICADES SHALL BE PLACED AROUND THE WORK AREA UNDER CONSTRUCTION AS SHOWN AND MUST REMAIN UNTIL ALL WORK IS COMPLETE AND AREA IS CLEANED.
  14. COORDINATE PHASING SCHEDULE AND LIMITS WITH THE AIRPORT REPRESENTATIVES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
  15. IT IS THE DESIRE OF THE AIRPORT TO HAVE PHASE 2 WORK COMPLETED CONCURRENTLY IN BOTH RUNWAY 2 AND 20 ENDS. IF WORK CANNOT BE ACCOMPLISHED CONCURRENTLY, THE CONTRACTOR SHALL COORDINATE WITH OWNER AND OWNER'S REPRESENTATIVE.
  16. CONTRACTOR TO ACQUIRE ACCESS EASEMENT FROM AIRPORT OR AN ESCORT TO ACCESS AIRFIELD DURING ERECTION OF BARRICADES AND RUNWAY CLOSURES.
  17. CONTRACTOR SHALL NOT IMPEDE ARFF ROUTES ON AIRFIELD. CONTACT XX FOR ARFF COORDINATION. CONTACT XX FOR AIRFIELD EMERGENCIES.
  18. SEE SHEET CSPP-1 FOR COORDINATE LOCATIONS OF RPZ'S AND STAGING AREAS.

LEGEND

- PHASE 1B WORK AREA
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- RPZ — RUNWAY PROTECTION ZONE
- DRPZ — DEPARTURE RUNWAY PROTECTION ZONE
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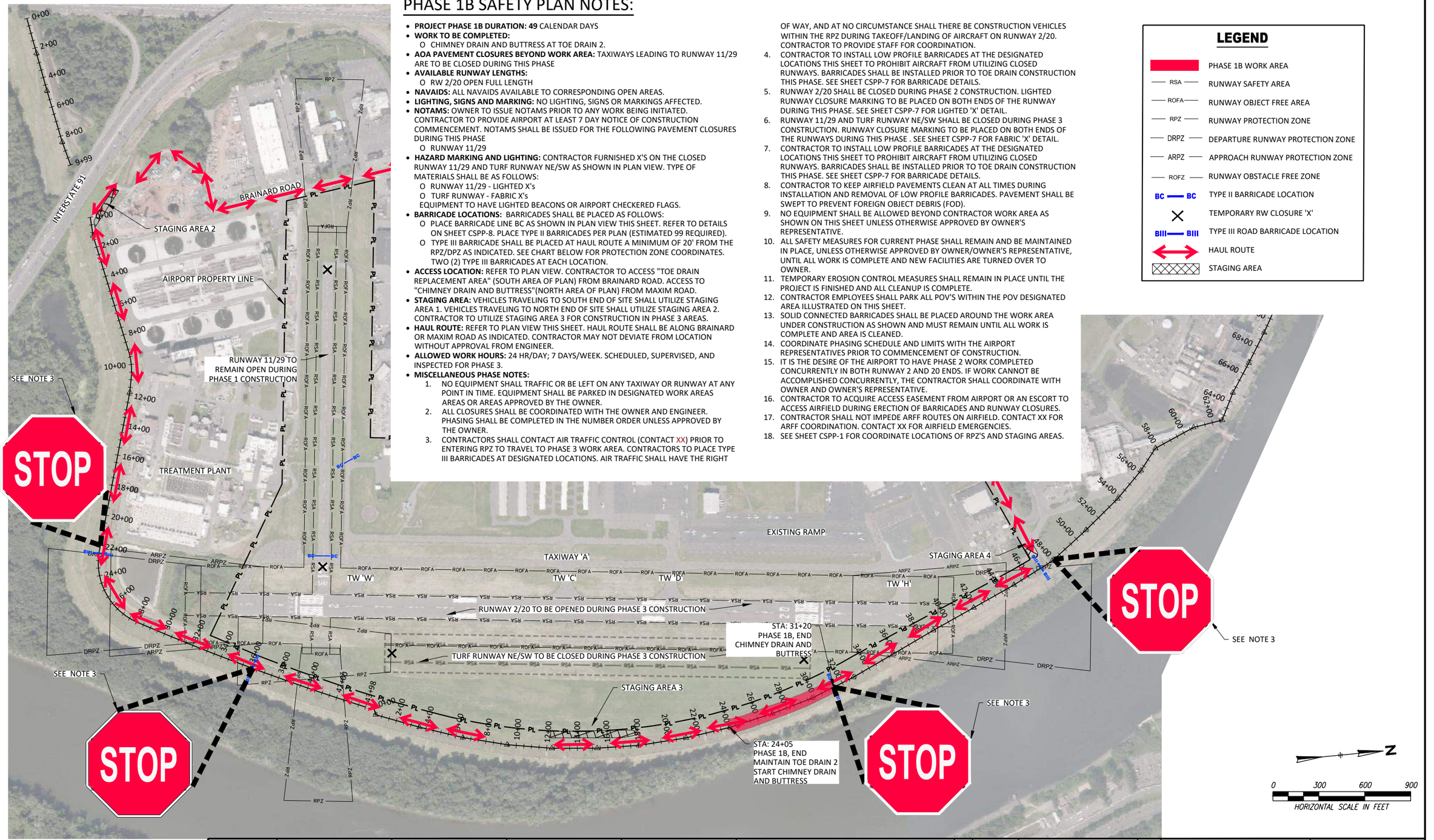
- BIII — BIII — TYPE III ROAD BARRICADE LOCATION
- HAUL ROUTE
- STAGING AREA



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HORIZONTAL SCALE IN FEET

Attention:

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Drawn:	DJL
Checked:	AKM
Approved:	JAK
P.E. No:	0014897
GEI Project	1703638

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SOUTH MEADOWS
REPAIR OF CLARK DIKE

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HARTFORD , CONNECTICUT

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SHEET NAME

CSPP-3 - PHASE 1B

SHEET NO.

SP-3

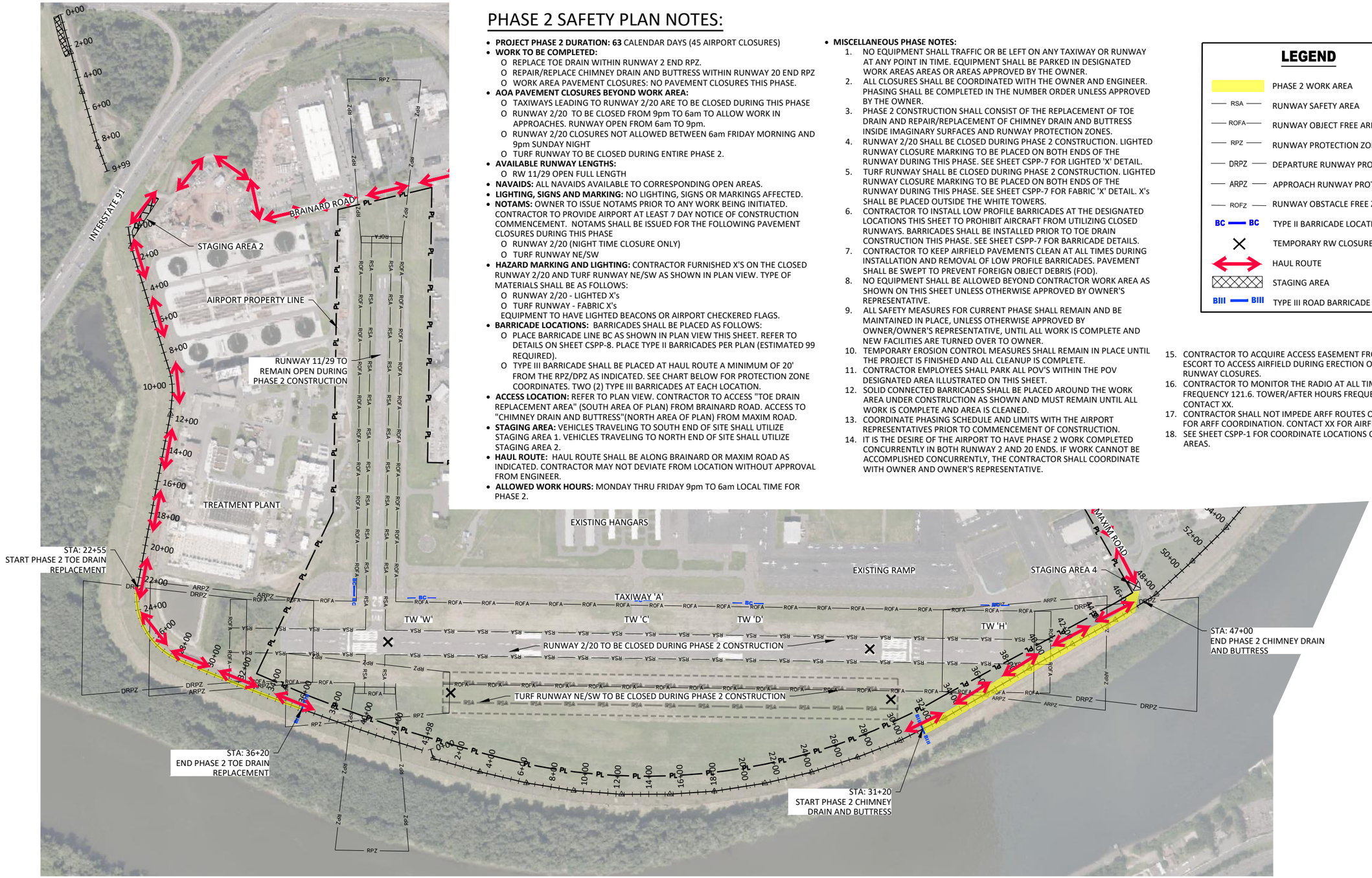
PHASE 2 SAFETY PLAN NOTES:

- **PROJECT PHASE 2 DURATION: 63** CALENDAR DAYS (45 AIRPORT CLOSURES)
- **WORK TO BE COMPLETED:**
  - O REPLACE TOE DRAIN WITHIN RUNWAY 2 END RPZ.
  - O REPAIR/REPLACE CHIMNEY DRAIN AND BUTTRESS WITHIN RUNWAY 20 END RPZ
  - O WORK AREA PAVEMENT CLOSURES: NO PAVEMENT CLOSURES THIS PHASE.
- **AOA PAVEMENT CLOSURES BEYOND WORK AREA:**
  - O TAXIWAYS LEADING TO RUNWAY 2/20 ARE TO BE CLOSED DURING THIS PHASE
  - O RUNWAY 2/20 TO BE CLOSED FROM 9pm TO 6am TO ALLOW WORK IN APPROACHES. RUNWAY OPEN FROM 6am TO 9pm.
  - O RUNWAY 2/20 CLOSURES NOT ALLOWED BETWEEN 6am FRIDAY MORNING AND 9pm SUNDAY NIGHT
  - O TURF RUNWAY TO BE CLOSED DURING ENTIRE PHASE 2.
- **AVAILABLE RUNWAY LENGTHS:**
  - O RW 11/29 OPEN FULL LENGTH
- **NAVAIDS:** ALL NAVAIDS AVAILABLE TO CORRESPONDING OPEN AREAS.
- **LIGHTING, SIGNS AND MARKING:** NO LIGHTING, SIGNS OR MARKINGS AFFECTED.
- **NOTAMS:** OWNER TO ISSUE NOTAMS PRIOR TO ANY WORK BEING INITIATED. CONTRACTOR TO PROVIDE AIRPORT AT LEAST 7 DAY NOTICE OF CONSTRUCTION COMMENCEMENT. NOTAMS SHALL BE ISSUED FOR THE FOLLOWING PAVEMENT CLOSURES DURING THIS PHASE
  - O RUNWAY 2/20 (NIGHT TIME CLOSURE ONLY)
  - O TURF RUNWAY NE/SW
- **HAZARD MARKING AND LIGHTING:** CONTRACTOR FURNISHED X'S ON THE CLOSED RUNWAY 2/20 AND TURF RUNWAY NE/SW AS SHOWN IN PLAN VIEW. TYPE OF MATERIALS SHALL BE AS FOLLOWS:
  - O RUNWAY 2/20 - LIGHTED X's
  - O TURF RUNWAY - FABRIC X's

  EQUIPMENT TO HAVE LIGHTED BEACONS OR AIRPORT CHECKERED FLAGS.
- **BARRICADE LOCATIONS:** BARRICADES SHALL BE PLACED AS FOLLOWS:
  - O PLACE BARRICADE LINE BC AS SHOWN IN PLAN VIEW THIS SHEET. REFER TO DETAILS ON SHEET CSPP-8. PLACE TYPE II BARRICADES PER PLAN (ESTIMATED 99 REQUIRED).
  - O TYPE III BARRICADE SHALL BE PLACED AT HAUL ROUTE A MINIMUM OF 20' FROM THE RPZ/DPZ AS INDICATED. SEE CHART BELOW FOR PROTECTION ZONE COORDINATES. TWO (2) TYPE III BARRICADES AT EACH LOCATION.
- **ACCESS LOCATION:** REFER TO PLAN VIEW. CONTRACTOR TO ACCESS "TOE DRAIN REPLACEMENT AREA" (SOUTH AREA OF PLAN) FROM BRAINARD ROAD. ACCESS TO "CHIMNEY DRAIN AND BUTTRESS"(NORTH AREA OF PLAN) FROM MAXIM ROAD.
- **STAGING AREA:** VEHICLES TRAVELING TO SOUTH END OF SITE SHALL UTILIZE STAGING AREA 1. VEHICLES TRAVELING TO NORTH END OF SITE SHALL UTILIZE STAGING AREA 2.
- **HAUL ROUTE:** HAUL ROUTE SHALL BE ALONG BRAINARD OR MAXIM ROAD AS INDICATED. CONTRACTOR MAY NOT DEVIATE FROM LOCATION WITHOUT APPROVAL FROM ENGINEER.
- **ALLOWED WORK HOURS:** MONDAY THRU FRIDAY 9pm TO 6am LOCAL TIME FOR PHASE 2.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL TRAFFIC OR BE LEFT ON ANY TAXIWAY OR RUNWAY AT ANY POINT IN TIME. EQUIPMENT SHALL BE PARKED IN DESIGNATED WORK AREAS AREAS OR AREAS APPROVED BY THE OWNER.
  2. ALL CLOSURES SHALL BE COORDINATED WITH THE OWNER AND ENGINEER. PHASING SHALL BE COMPLETED IN THE NUMBER ORDER UNLESS APPROVED BY THE OWNER.
  3. PHASE 2 CONSTRUCTION SHALL CONSIST OF THE REPLACEMENT OF TOE DRAIN AND REPAIR/REPLACEMENT OF CHIMNEY DRAIN AND BUTTRESS INSIDE IMAGINARY SURFACES AND RUNWAY PROTECTION ZONES.
  4. RUNWAY 2/20 SHALL BE CLOSED DURING PHASE 2 CONSTRUCTION. LIGHTED RUNWAY CLOSURE MARKING TO BE PLACED ON BOTH ENDS OF THE RUNWAY DURING THIS PHASE. SEE SHEET CSPP-7 FOR LIGHTED 'X' DETAIL.
  5. TURF RUNWAY SHALL BE CLOSED DURING PHASE 2 CONSTRUCTION. LIGHTED RUNWAY CLOSURE MARKING TO BE PLACED ON BOTH ENDS OF THE RUNWAY DURING THIS PHASE. SEE SHEET CSPP-7 FOR FABRIC 'X' DETAIL. X's SHALL BE PLACED OUTSIDE THE WHITE TOWERS.
  6. CONTRACTOR TO INSTALL LOW PROFILE BARRICADES AT THE DESIGNATED LOCATIONS THIS SHEET TO PROHIBIT AIRCRAFT FROM UTILIZING CLOSED RUNWAYS. BARRICADES SHALL BE INSTALLED PRIOR TO TOE DRAIN CONSTRUCTION THIS PHASE. SEE SHEET CSPP-7 FOR BARRICADE DETAILS.
  7. CONTRACTOR TO KEEP AIRFIELD PAVEMENTS CLEAN AT ALL TIMES DURING INSTALLATION AND REMOVAL OF LOW PROFILE BARRICADES. PAVEMENT SHALL BE SWEPT TO PREVENT FOREIGN OBJECT DEBRIS (FOD).
  8. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA AS SHOWN ON THIS SHEET UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
  9. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE, UNLESS OTHERWISE APPROVED BY OWNER/OWNER'S REPRESENTATIVE, UNTIL ALL WORK IS COMPLETE AND NEW FACILITIES ARE TURNED OVER TO OWNER.
  10. TEMPORARY EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE PROJECT IS FINISHED AND ALL CLEANUP IS COMPLETE.
  11. CONTRACTOR EMPLOYEES SHALL PARK ALL POV'S WITHIN THE POV DESIGNATED AREA ILLUSTRATED ON THIS SHEET.
  12. SOLID CONNECTED BARRICADES SHALL BE PLACED AROUND THE WORK AREA UNDER CONSTRUCTION AS SHOWN AND MUST REMAIN UNTIL ALL WORK IS COMPLETE AND AREA IS CLEANED.
  13. COORDINATE PHASING SCHEDULE AND LIMITS WITH THE AIRPORT REPRESENTATIVES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
  14. IT IS THE DESIRE OF THE AIRPORT TO HAVE PHASE 2 WORK COMPLETED CONCURRENTLY IN BOTH RUNWAY 2 AND 20 ENDS. IF WORK CANNOT BE ACCOMPLISHED CONCURRENTLY, THE CONTRACTOR SHALL COORDINATE WITH OWNER AND OWNER'S REPRESENTATIVE.
  15. CONTRACTOR TO ACQUIRE ACCESS EASEMENT FROM AIRPORT OR AN ESCORT TO ACCESS AIRFIELD DURING ERECTION OF BARRICADES AND RUNWAY CLOSURES.
  16. CONTRACTOR TO MONITOR THE RADIO AT ALL TIMES. RADIO GROUND FREQUENCY 121.6. TOWER/AFTER HOURS FREQUENCY 119.6. ATCT CONTACT XX.
  17. CONTRACTOR SHALL NOT IMPEDE ARFF ROUTES ON AIRFIELD. CONTACT XX FOR ARFF COORDINATION. CONTACT XX FOR AIRFIELD EMERGENCIES.
  18. SEE SHEET CSPP-1 FOR COORDINATE LOCATIONS OF RPZ'S AND STAGING AREAS.

LEGEND

- PHASE 2 WORK AREA
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- RPZ — RUNWAY PROTECTION ZONE
- DRPZ — DEPARTURE RUNWAY PROTECTION ZONE
- ARPZ — APPROACH RUNWAY PROTECTION ZONE
- ROFZ — RUNWAY OBSTACLE FREE ZONE
- BC — BC — TYPE II BARRICADE LOCATION
- TEMPORARY RW CLOSURE 'X'
- HAUL ROUTE
- STAGING AREA
- BIII — BIII — TYPE III ROAD BARRICADE LOCATION



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SHEET NAME: **CSPP-4 - PHASE 2**

SHEET NO.: **SP-4**

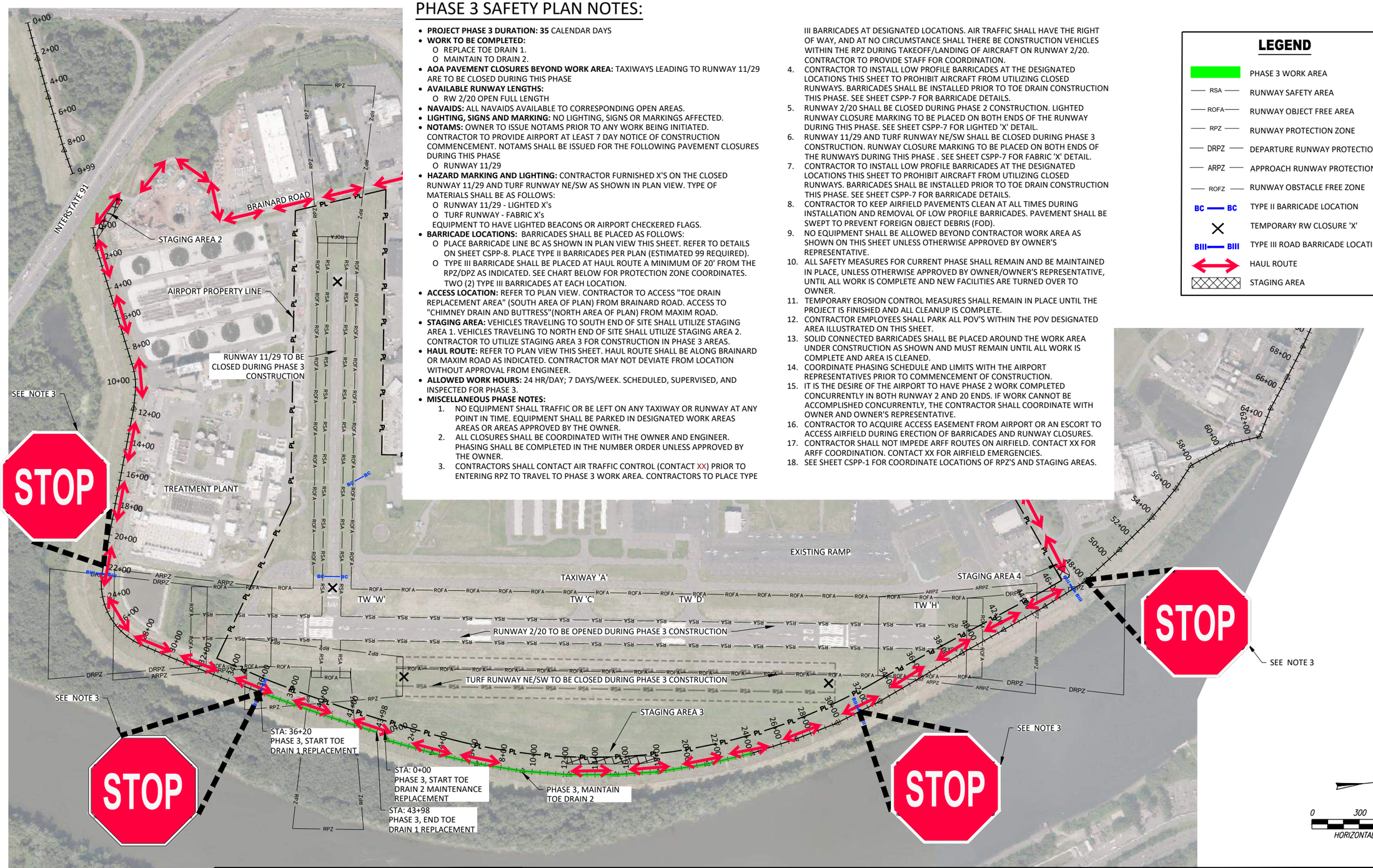
PHASE 3 SAFETY PLAN NOTES:

- **PROJECT PHASE 3 DURATION: 35** CALENDAR DAYS
- **WORK TO BE COMPLETED:**
  - O REPLACE TOE DRAIN 1.
  - O MAINTAIN TO DRAIN 2.
- **AOA PAVEMENT CLOSURES BEYOND WORK AREA:** TAXIWAYS LEADING TO RUNWAY 11/29 ARE TO BE CLOSED DURING THIS PHASE
- **AVAILABLE RUNWAY LENGTHS:**
  - O RW 2/20 OPEN FULL LENGTH
- **NAVAIDS:** ALL NAVAIDS AVAILABLE TO CORRESPONDING OPEN AREAS.
- **LIGHTING, SIGNS AND MARKING:** NO LIGHTING, SIGNS OR MARKINGS AFFECTED.
- **NOTAMS:** OWNER TO ISSUE NOTAMS PRIOR TO ANY WORK BEING INITIATED. CONTRACTOR TO PROVIDE AIRPORT AT LEAST 7 DAY NOTICE OF CONSTRUCTION COMMENCEMENT. NOTAMS SHALL BE ISSUED FOR THE FOLLOWING PAVEMENT CLOSURES DURING THIS PHASE
  - O RUNWAY 11/29
- **HAZARD MARKING AND LIGHTING:** CONTRACTOR FURNISHED X'S ON THE CLOSED RUNWAY 11/29 AND TURF RUNWAY NE/SW AS SHOWN IN PLAN VIEW. TYPE OF MATERIALS SHALL BE AS FOLLOWS:
  - O RUNWAY 11/29 - LIGHTED X's
  - O TURF RUNWAY - FABRIC X's

  EQUIPMENT TO HAVE LIGHTED BEACONS OR AIRPORT CHECKERED FLAGS.
- **BARRICADE LOCATIONS:** BARRICADES SHALL BE PLACED AS FOLLOWS:
  - O PLACE BARRICADE LINE BC AS SHOWN IN PLAN VIEW THIS SHEET. REFER TO DETAILS ON SHEET CSPP-8. PLACE TYPE II BARRICADES PER PLAN (ESTIMATED 99 REQUIRED).
  - O TYPE III BARRICADE SHALL BE PLACED AT HAUL ROUTE A MINIMUM OF 20' FROM THE RPZ/DPZ AS INDICATED. SEE CHART BELOW FOR PROTECTION ZONE COORDINATES. TWO (2) TYPE III BARRICADES AT EACH LOCATION.
- **ACCESS LOCATION:** REFER TO PLAN VIEW. CONTRACTOR TO ACCESS "TOE DRAIN REPLACEMENT AREA" (SOUTH AREA OF PLAN) FROM BRAINARD ROAD. ACCESS TO "CHIMNEY DRAIN AND BUTTRESS"(NORTH AREA OF PLAN) FROM MAXIM ROAD.
- **STAGING AREA:** VEHICLES TRAVELING TO SOUTH END OF SITE SHALL UTILIZE STAGING AREA 1. VEHICLES TRAVELING TO NORTH END OF SITE SHALL UTILIZE STAGING AREA 2. CONTRACTOR TO UTILIZE STAGING AREA 3 FOR CONSTRUCTION IN PHASE 3 AREAS.
- **HAUL ROUTE:** REFER TO PLAN VIEW THIS SHEET. HAUL ROUTE SHALL BE ALONG BRAINARD OR MAXIM ROAD AS INDICATED. CONTRACTOR MAY NOT DEVIATE FROM LOCATION WITHOUT APPROVAL FROM ENGINEER.
- **ALLOWED WORK HOURS:** 24 HR/DAY; 7 DAYS/WEEK. SCHEDULED, SUPERVISED, AND INSPECTED FOR PHASE 3.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL TRAFFIC OR BE LEFT ON ANY TAXIWAY OR RUNWAY AT ANY POINT IN TIME. EQUIPMENT SHALL BE PARKED IN DESIGNATED WORK AREAS AREAS OR AREAS APPROVED BY THE OWNER.
  2. ALL CLOSURES SHALL BE COORDINATED WITH THE OWNER AND ENGINEER. PHASING SHALL BE COMPLETED IN THE NUMBER ORDER UNLESS APPROVED BY THE OWNER.
  3. CONTRACTORS SHALL CONTACT AIR TRAFFIC CONTROL (CONTACT XX) PRIOR TO ENTERING RPZ TO TRAVEL TO PHASE 3 WORK AREA. CONTRACTORS TO PLACE TYPE III BARRICADES AT DESIGNATED LOCATIONS. AIR TRAFFIC SHALL HAVE THE RIGHT OF WAY, AND AT NO CIRCUMSTANCE SHALL THERE BE CONSTRUCTION VEHICLES WITHIN THE RPZ DURING TAKEOFF/LANDING OF AIRCRAFT ON RUNWAY 2/20. CONTRACTOR TO PROVIDE STAFF FOR COORDINATION.
  4. CONTRACTOR TO INSTALL LOW PROFILE BARRICADES AT THE DESIGNATED LOCATIONS THIS SHEET TO PROHIBIT AIRCRAFT FROM UTILIZING CLOSED RUNWAYS. BARRICADES SHALL BE INSTALLED PRIOR TO TOE DRAIN CONSTRUCTION THIS PHASE. SEE SHEET CSPP-7 FOR BARRICADE DETAILS.
  5. RUNWAY 2/20 SHALL BE CLOSED DURING PHASE 2 CONSTRUCTION. LIGHTED RUNWAY CLOSURE MARKING TO BE PLACED ON BOTH ENDS OF THE RUNWAY DURING THIS PHASE. SEE SHEET CSPP-7 FOR LIGHTED 'X' DETAIL.
  6. RUNWAY 11/29 AND TURF RUNWAY NE/SW SHALL BE CLOSED DURING PHASE 3 CONSTRUCTION. RUNWAY CLOSURE MARKING TO BE PLACED ON BOTH ENDS OF THE RUNWAYS DURING THIS PHASE . SEE SHEET CSPP-7 FOR FABRIC 'X' DETAIL.
  7. CONTRACTOR TO INSTALL LOW PROFILE BARRICADES AT THE DESIGNATED LOCATIONS THIS SHEET TO PROHIBIT AIRCRAFT FROM UTILIZING CLOSED RUNWAYS. BARRICADES SHALL BE INSTALLED PRIOR TO TOE DRAIN CONSTRUCTION THIS PHASE. SEE SHEET CSPP-7 FOR BARRICADE DETAILS.
  8. CONTRACTOR TO KEEP AIRFIELD PAVEMENTS CLEAN AT ALL TIMES DURING INSTALLATION AND REMOVAL OF LOW PROFILE BARRICADES. PAVEMENT SHALL BE SWEPT TO PREVENT FOREIGN OBJECT DEBRIS (FOD).
  9. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA AS SHOWN ON THIS SHEET UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
  10. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE, UNLESS OTHERWISE APPROVED BY OWNER/OWNER'S REPRESENTATIVE, UNTIL ALL WORK IS COMPLETE AND NEW FACILITIES ARE TURNED OVER TO OWNER.
  11. TEMPORARY EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE PROJECT IS FINISHED AND ALL CLEANUP IS COMPLETE.
  12. CONTRACTOR EMPLOYEES SHALL PARK ALL POV'S WITHIN THE POV DESIGNATED AREA ILLUSTRATED ON THIS SHEET.
  13. SOLID CONNECTED BARRICADES SHALL BE PLACED AROUND THE WORK AREA UNDER CONSTRUCTION AS SHOWN AND MUST REMAIN UNTIL ALL WORK IS COMPLETE AND AREA IS CLEANED.
  14. COORDINATE PHASING SCHEDULE AND LIMITS WITH THE AIRPORT REPRESENTATIVES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
  15. IT IS THE DESIRE OF THE AIRPORT TO HAVE PHASE 2 WORK COMPLETED CONCURRENTLY IN BOTH RUNWAY 2 AND 20 ENDS. IF WORK CANNOT BE ACCOMPLISHED CONCURRENTLY, THE CONTRACTOR SHALL COORDINATE WITH OWNER AND OWNER'S REPRESENTATIVE.
  16. CONTRACTOR TO ACQUIRE ACCESS EASEMENT FROM AIRPORT OR AN ESCORT TO ACCESS AIRFIELD DURING ERECTION OF BARRICADES AND RUNWAY CLOSURES.
  17. CONTRACTOR SHALL NOT IMPEDE ARFF ROUTES ON AIRFIELD. CONTACT XX FOR ARFF COORDINATION. CONTACT XX FOR AIRFIELD EMERGENCIES.
  18. SEE SHEET CSPP-1 FOR COORDINATE LOCATIONS OF RPZ'S AND STAGING AREAS.

LEGEND

- PHASE 3 WORK AREA
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- RPZ — RUNWAY PROTECTION ZONE
- DRPZ — DEPARTURE RUNWAY PROTECTION ZONE
- ARPZ — APPROACH RUNWAY PROTECTION ZONE
- ROFZ — RUNWAY OBSTACLE FREE ZONE
- BC — BC — TYPE II BARRICADE LOCATION
- TEMPORARY RW CLOSURE 'X'
- BIII — BIII — TYPE III ROAD BARRICADE LOCATION
- HAUL ROUTE
- STAGING AREA



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SHEET NAME: **CSPP-5 - PHASE 3**

SHEET NO.: **SP-5**

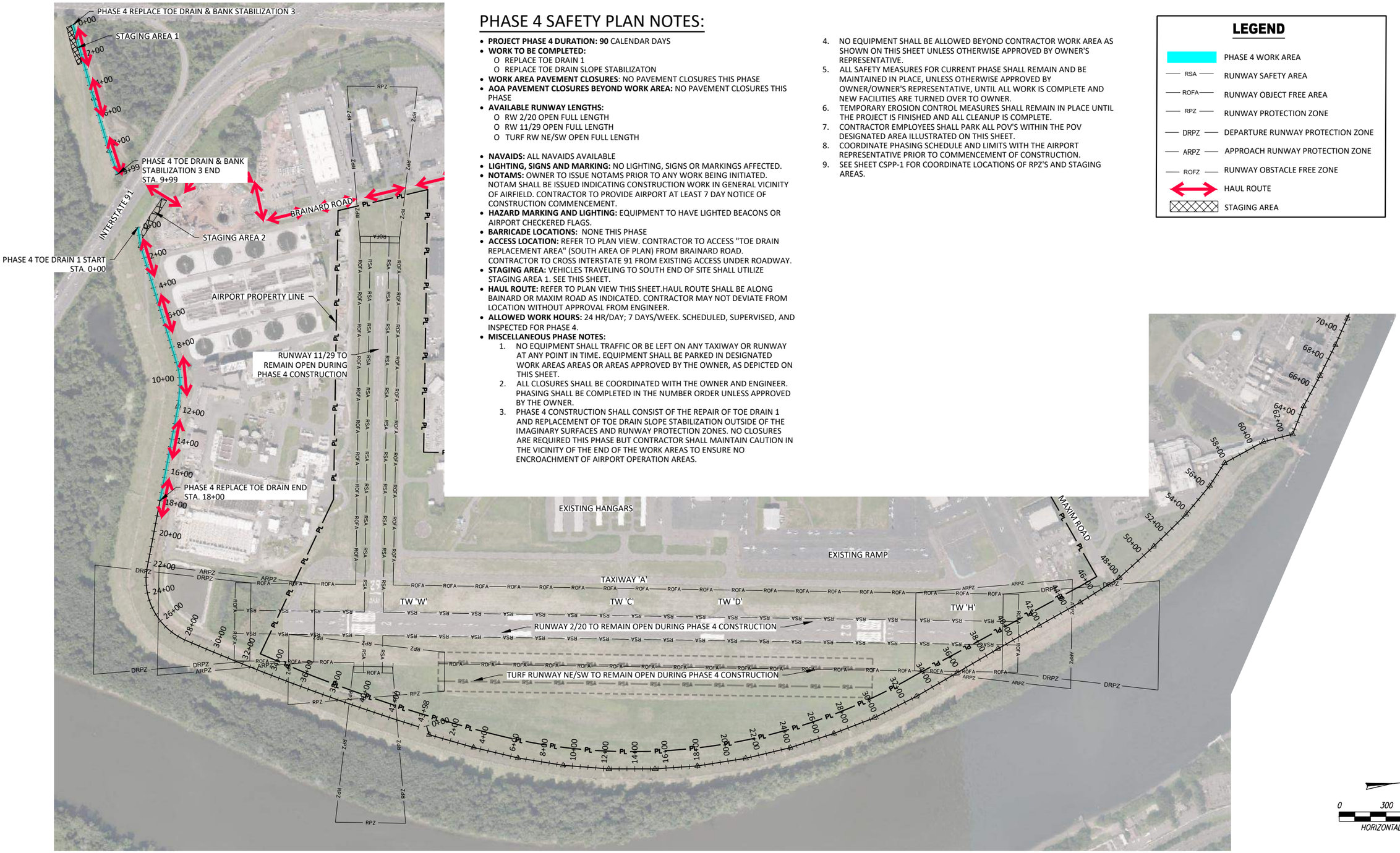
PHASE 4 SAFETY PLAN NOTES:

- **PROJECT PHASE 4 DURATION: 90** CALENDAR DAYS
- **WORK TO BE COMPLETED:**
  - O REPLACE TOE DRAIN 1
  - O REPLACE TOE DRAIN SLOPE STABILIZATON
- **WORK AREA PAVEMENT CLOSURES**: NO PAVEMENT CLOSURES THIS PHASE
- **AOA PAVEMENT CLOSURES BEYOND WORK AREA:** NO PAVEMENT CLOSURES THIS PHASE
- **AVAILABLE RUNWAY LENGTHS:**
  - O RW 2/20 OPEN FULL LENGTH
  - O RW 11/29 OPEN FULL LENGTH
  - O TURF RW NE/SW OPEN FULL LENGTH

- **NAVAIDS:** ALL NAVAIDS AVAILABLE
- **LIGHTING, SIGNS AND MARKING:** NO LIGHTING, SIGNS OR MARKINGS AFFECTED.
- **NOTAMS:** OWNER TO ISSUE NOTAMS PRIOR TO ANY WORK BEING INITIATED. NOTAM SHALL BE ISSUED INDICATING CONSTRUCTION WORK IN GENERAL VICINITY OF AIRFIELD. CONTRACTOR TO PROVIDE AIRPORT AT LEAST 7 DAY NOTICE OF CONSTRUCTION COMMENCEMENT.
- **HAZARD MARKING AND LIGHTING:** EQUIPMENT TO HAVE LIGHTED BEACONS OR AIRPORT CHECKERED FLAGS.
- **BARRICADE LOCATIONS:** NONE THIS PHASE
- **ACCESS LOCATION:** REFER TO PLAN VIEW. CONTRACTOR TO ACCESS "TOE DRAIN REPLACEMENT AREA" (SOUTH AREA OF PLAN) FROM BRAINARD ROAD. CONTRACTOR TO CROSS INTERSTATE 91 FROM EXISTING ACCESS UNDER ROADWAY.
- **STAGING AREA:** VEHICLES TRAVELING TO SOUTH END OF SITE SHALL UTILIZE STAGING AREA 1. SEE THIS SHEET.
- **HAUL ROUTE:** REFER TO PLAN VIEW THIS SHEET.HAUL ROUTE SHALL BE ALONG BAINARD OR MAXIM ROAD AS INDICATED. CONTRACTOR MAY NOT DEVIATE FROM LOCATION WITHOUT APPROVAL FROM ENGINEER.
- **ALLOWED WORK HOURS:** 24 HR/DAY; 7 DAYS/WEEK. SCHEDULED, SUPERVISED, AND INSPECTED FOR PHASE 4.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL TRAFFIC OR BE LEFT ON ANY TAXIWAY OR RUNWAY AT ANY POINT IN TIME. EQUIPMENT SHALL BE PARKED IN DESIGNATED WORK AREAS AREAS OR AREAS APPROVED BY THE OWNER, AS DEPICTED ON THIS SHEET.
  2. ALL CLOSURES SHALL BE COORDINATED WITH THE OWNER AND ENGINEER. PHASING SHALL BE COMPLETED IN THE NUMBER ORDER UNLESS APPROVED BY THE OWNER.
  3. PHASE 4 CONSTRUCTION SHALL CONSIST OF THE REPAIR OF TOE DRAIN 1 AND REPLACEMENT OF TOE DRAIN SLOPE STABILIZATION OUTSIDE OF THE IMAGINARY SURFACES AND RUNWAY PROTECTION ZONES. NO CLOSURES ARE REQUIRED THIS PHASE BUT CONTRACTOR SHALL MAINTAIN CAUTION IN THE VICINITY OF THE END OF THE WORK AREAS TO ENSURE NO ENCROACHMENT OF AIRPORT OPERATION AREAS.
  4. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA AS SHOWN ON THIS SHEET UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
  5. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE, UNLESS OTHERWISE APPROVED BY OWNER/OWNER'S REPRESENTATIVE, UNTIL ALL WORK IS COMPLETE AND NEW FACILITIES ARE TURNED OVER TO OWNER.
  6. TEMPORARY EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL THE PROJECT IS FINISHED AND ALL CLEANUP IS COMPLETE.
  7. CONTRACTOR EMPLOYEES SHALL PARK ALL POV'S WITHIN THE POV DESIGNATED AREA ILLUSTRATED ON THIS SHEET.
  8. COORDINATE PHASING SCHEDULE AND LIMITS WITH THE AIRPORT REPRESENTATIVE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
  9. SEE SHEET CSPP-1 FOR COORDINATE LOCATIONS OF RPZ'S AND STAGING AREAS.

LEGEND

- PHASE 4 WORK AREA
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- RPZ — RUNWAY PROTECTION ZONE
- DRPZ — DEPARTURE RUNWAY PROTECTION ZONE
- ARPZ — APPROACH RUNWAY PROTECTION ZONE
- ROFZ — RUNWAY OBSTACLE FREE ZONE
- HAUL ROUTE
- STAGING AREA



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SHEET NAME

CSPP 6 - PHASE 4

SHEET NO.

SP-6

GENERAL NOTES

1. **SITE CONDITIONS:** CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE SITE IN A CLEAN NATURE.

2. **SAFETY REQUIREMENTS**: THE CONTRACTOR SHALL COMPLETE ALL WORK IN ACCORDANCE WITH THE FAA ADVISORY CIRCULAR 150/5370-2G, OR CURRENT VERSION, "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION" AND THE CSPP DOCUMENTS. THE CONTRACTOR IS ADVISED THAT CERTAIN RULES AND RESTRICTIONS, AS CONTAINED IN THIS ADVISORY CIRCULAR AND AUGMENTED BY THESE PLANS AND SPECIFICATIONS, WILL APPLY TO THIS WORK. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL REQUIREMENTS APPLICABLE TO AIRPORT CONSTRUCTION AND COOPERATE WITH THE ENGINEER AND OWNER IN MAINTAINING A SAFE CONSTRUCTION SITE WHICH IS COMPATIBLE WITH AIRCRAFT AND AIRPORT OPERATIONS.

3. **SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)**: THE CONTRACTOR SHALL SUBMIT A SPCD AS DESCRIBED IN ADVISORY CIRCULAR 150/5370-2G (OR CURRENT VERSION) WITH EMPHASIS ON IMPLEMENTATION OF THE FOLLOWING MAJOR CONSTRUCTION ISSUES. THIS PLAN SHALL BE SUBMITTED AT LEAST 10 DAYS PRIOR TO THE PRE-CONSTRUCTION CONFERENCE.

   A. COORDINATION FOR PHASE 1 RUNWAY 2/20 NIGHT CLOSURE.

4. **AIRCRAFT TRAFFIC**: THE CONTRACTOR IS ADVISED THAT AIRPORT TAXILANES, TAXIWAY, RUNWAY, AND RAMPS WILL BE ACTIVE DURING THIS CONTRACT. CONTRACTOR WILL BE EXPECTED TO CONDUCT THE WORK SUCH THAT THE SAFETY OF OPERATIONS IS NOT DEGRADED AND THAT AIRCRAFT FLOW IS MAINTAINED AT ALL TIMES. CONTRACTORS ARE FURTHER ADVISED, AND SHALL ACCEPT AS AN IMPORTANT CONSIDERATION OF THE WORK, THAT THE MAINTENANCE OF SAFE AND EFFICIENT AIRCRAFT OPERATIONS IS AN INTEGRAL PART OF THE WORK. ALL CONSTRUCTION INTERFACE WITH AIRCRAFT PAVEMENTS, TAXIWAY CROSSINGS, AND SECURITY REQUIREMENTS AS CONTAINED IN FAA ADVISORY CIRCULAR 150/5370-2 (LATEST ADDITION) WILL APPLY.

5. **SITE ACCESS**: THE CONTRACTOR'S ACCESS TO THE SITE IS LIMITED TO THE LOCATIONS AS SHOWN ON THE PLANS. ACCESS VIA ANY OTHER ROUTES OR GATES NOT SHOWN ON THE PLANS WILL REQUIRE PRIOR WRITTEN APPROVAL BY THE (OWNER AND ENGINEER).

6. **CSPP PLAN CHANGES**: ANY PROPOSED CHANGES TO THE APPROVED SAFETY AND PHASING PLAN SHEETS SHALL BE SUBMITTED AT LEAST 7 CALENDAR DAYS IN ADVANCE OF THE START OF THE PHASE TO THE ENGINEER FOR REVIEW AND COORDINATION WITH THE OWNER AND THE FAA. FAA APPROVAL IS REQUIRED PRIOR TO CHANGING THE SAFETY AND PHASING PLANS AND NOTES.

7. **CSPP VIOLATIONS**: THE CONTRACTOR AND SUBCONTRACTOR(S) PERSONNEL SHALL REMAIN IN WORK AREA LIMITS. THE PENALTY FOR NON-COMPLIANCE WITH SAFETY PLAN PROVISIONS WILL RESULT IN THE FOLLOWING FOR EACH PERSONNEL:
   B. 1ST OFFENSE: WARNING
   C. 2ND OFFENSE: $500 FINE
   D. 3RD OFFENSE: $1,000 FINE
   E. 4TH OFFENSE: REMOVAL FROM PROJECT

8. **RADIO MONITORING:** THE CONTRACTOR IS NOT REQUIRED TO MONITOR LOCAL AIRCRAFT RADIO COMMUNICATIONS DURING LANDSIDE WORK FOR THIS PROJECT. ALL AIRSIDE WORK THAT AFFECTS AOA "MOVEMENT" AREAS REQUIRES MONITORING OF RADIO COMMUNICATIONS BY THE OWNER.

9. **QUALITY CONTROL PLAN**: THE CONTRACTOR SHALL PREPARE A QUALITY CONTROL PLAN IN ACCORDANCE WITH THE SPECIFICATIONS (GENERAL PROVISIONS, SECTION 100). CONTRACTOR SHALL PRESENT AND BE PREPARED TO DISCUSS HIS/HER UNDERSTANDING OF THE QUALITY CONTROL REQUIREMENTS AT THE PRE-CONSTRUCTION MEETING.

10. **CONSTRUCTION EQUIPMENT AIRCRAFT OPERATIONS**: NO CONTRACTOR EQUIPMENT WILL BE PERMITTED WITHIN RUNWAY PROTECTION ZONES OF ANY ACTIVE RUNWAY WHILE RUNWAY IS ACTIVE. HOWEVER, CROSSINGS MAY TAKE PLACE PROVIDED:
   F. THE ENGINEER AND AIRPORT OWNER IS GIVEN 7 DAYS NOTICE.
   G. THE ENGINEER AND OWNER HAVE GIVEN PRIOR WRITTEN APPROVAL.
   H. A NOTAM HAS BEEN ISSUED.
   I. THE CONTRACTOR IS MONITORING THE RADIO AT ALL TIMES AND COORDINATES WITH AIR TRAFFIC CONTROL.
   J. THE PAVEMENT IS KEPT FREE FROM FOD AT ALL TIMES.
   K. THE CONTRACTOR IMMEDIATELY CLEARS THE AREA FOR AIRCRAFT AS REQUIRED - THE AIRCRAFT HAS THE RIGHT-OF-WAY.

11. **CONTRACTOR CONSTRUCTION SCHEDULE:** THE CONTRACTOR SHALL SUBMIT A 2 WEEK ROLLING SCHEDULE FOR DAILY WORK AND CLOSURE OF AIRFIELD PAVEMENTS. THE SCHEDULE MUST BE APPROVED BY THE ENGINEER AND OWNER PRIOR TO THE START OF WORK. IF SCHEDULE REVISIONS ARE REQUIRED, AT LEAST 72 HOURS ADVANCE NOTICE TO THE ENGINEER AND OWNER IS REQUIRED FOR APPROVAL. DUE TO WEATHER, WIND DIRECTION, OR UNFORESEEN EMERGENCIES, THE CONTRACTOR MAY BE REQUIRED TO VACATE ANY GIVEN AREA AT SHORT NOTICE.

12. **EMERGENCY ACCESS**: CONTRACTOR SHALL COORDINATE HIS/HER ACTIVITIES THROUGHOUT THE PROJECT IN A MANNER THAT ALLOWS EMERGENCY ACCESS TO ALL RUNWAYS, TAXIWAYS, TAXILANES, AND APRONS AT ALL TIMES WITHOUT DELAY TO EMERGENCY VEHICLES RESPONSE TIME.

13. **SITE RESTORATION:** ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, STAGING AREAS, STOCKPILES, HAUL ROADS, AND PARKING SHALL BE COMPLETELY REMOVED FROM THE SITE AT THE COMPLETION OF THE PROJECT AND DISTURBED AREAS OF THE SITE SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER. IF AREAS ARE LOCATED ON EXISTING TURF, AND AGGREGATE IS USED TO PROVIDE ALL WEATHER CONDITIONS, THE AGGREGATE SHALL BE REMOVED AND TOPSOIL PLACED. ADDITIONAL TOPSOIL SHALL BE IMPORTED AS NEEDED TO PROVIDE AN ADEQUATE SEED BED. TURF DAMAGE SHALL BE FINE GRADED (TO PROVIDE POSITIVE DRAINAGE), SEEDED, MULCHED, AND FERTILIZED IN ACCORDANCE WITH CONSTRUCTION SPECIFICATIONS. SEEDING, MULCHING, AND ALL OTHER SITE RESTORATION WORK, INCLUDING TOPSOIL, SHALL BE INCLUDED IN AND PAID FOR UNDER "SEEDING" & "MULCHING" BID ITEMS. ALL OTHER SITE RESTORATION WORK SHALL BE INCLUDED IN "SITE PREPARATION AND MOBILIZATION".

14. AT THE CONCLUSION OF ANY TAXILANE OR TAXIWAY CLOSURE PERIOD THE TOFA, TSA, AND ALL CRITICAL AREAS SHALL HAVE BEEN RESTORED TO A CONDITION MEETING THE SAFETY AND OPERATIONAL REQUIREMENTS OF THE AREA. THE CONTRACTOR MAY NOT LEAVE A WORK AREA AFTER A WORK PERIOD IS COMPLETE UNTIL ALL AREAS HAVE BEEN RESTORED TO OPERATIONAL STATUS SATISFACTORY TO THE ENGINEER AND AIRPORT.

15. **STAGING AREAS, STOCKPILES, AND HAUL ROADS**: LOCATIONS OF STAGING AREAS, STOCKPILES, AND HAUL ROADS SHALL BE AS SHOWN ON THE PLANS, UNLESS OTHERWISE APPROVED BY THE OWNER. DISTURBED AREAS SHALL BE RESTORED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

16. **FOD & PAVEMENT CLEANING BROOM**: CAUTION SHALL BE TAKEN BY THE CONTRACTOR IN PREVENTING ANY DUST, MUD OR OTHER FOREIGN OBJECTS AND DEBRIS (FOD) WHICH MAY BECOME A HAZARD TO AIR AND GROUND OPERATIONS. THE CONTRACTOR SHALL CONTROL DUST, MUD AND FOD AT ALL TIMES AND MAY REQUIRE FULL TIME OPERATION WATER TRUCKS OR SWEEPERS. THE CONTRACTOR SHALL HAVE A STREET BROOM (BROCE 350-96" BROOM, VIRNIG 96" BOBCAT ATTACHMENT ANGLE BROOM, OR APPROVED EQUAL) ON SITE AND AVAILABLE AT ALL TIMES TO CLEAN ALL PAVEMENT BEFORE ANY PAVEMENT IS OPEN TO AIRCRAFT, INCLUDED IN "SITE PREPARATION AND MOBILIZATION". CLEANING EQUIPMENT SHALL STAY ON PAVEMENTS, AT ALL TIMES, TO ENSURE MUD AND OTHER DEBRIS ARE NOT DEPOSITED ON WHEELS OF EQUIPMENT TO BE UTILIZED FOR CLEANING PAVEMENTS. THE SWEEPER SHALL BE OPERATED DAILY TO KEEP ALL PAVEMENTS TRAVERSED BY THE CONTRACTOR EQUIPMENT CLEAN OF FOD. AT THE CONCLUSION OF EACH DAYS WORK PERIOD ALL PAVEMENTS WILL BE INSPECTED BY THE ENGINEER FOR FOD BEFORE OPENING THE PAVEMENTS TO AIRCRAFT ACTIVITY AND BEFORE THE CONTRACTOR WILL BE ALLOWED TO LEAVE THE JOB SITE. IF, IN THE OPINION OF THE AIRPORT OR THE ENGINEER, DUST, MUD, OR FOD IS NOT BEING CONTROLLED, THEY MAY SUSPEND WORK AND MAKE NECESSARY ARRANGEMENTS FOR DUST OR MUD CONTROL. THE CONTRACTOR SHALL MAINTAIN A FULLY FUNCTIONAL VACUUM SWEEPER OR LARGE BROOM SWEEPER ON THE JOB SITE AT ALL TIMES.

ANY TRASH OR MISCELLANEOUS MATERIALS THAT BLOW ONTO THE AIRPORT PROPERTY SHALL BE PICKED UP IMMEDIATELY BY AN AIRPORT REPRESENTATIVE. CONTRACTOR SHALL IMMEDIATELY CALL XXXXX AT XXXXX IF ANY KIND OF LOOSE FOD FINDS ITS WAY OUTSIDE THE LIMITS OF CONSTRUCTION. CONTRACTOR SHALL NOT ENTER AIRFIELD TO PICK UP LOOSE MATERIALS AT ANY TIME.

17. **PAY ITEMS:** THE PROJECT PAY ITEMS PROVIDED ARE TO BE INCLUSIVE OF ALL WORK TO BE PERFORMED AS SHOWN IN THESE PLANS. ALL WORK NOT IDENTIFIED WITH A SPECIFIC PAY ITEM IS TO BE CONSIDERED REQUIRED/INCIDENTAL WORK TO COMPLETE THE PROJECT AND IS TO BE INCLUDED IN THE COST OF PROJECT PAY ITEMS PROVIDED.

18. **TEMPORARY CONSTRUCTION EQUIPMENT, HEIGHT RESTRICTIONS**: OWNER TO ISSUE PROPER NOTAMS AND 7460-1 FORMS FOR TEMPORARY WORK AREAS FOR AN EQUIPMENT/WORK AREA HEIGHT OF 25 FEET. ALL ANTICIPATED CONSTRUCTION EQUIPMENT ANTICIPATED TO BE GREATER THAN 25 FEET IN HEIGHT (SUCH AS CONSTRUCTION CRANES, CONCRETE PUMPS, ETC.), SHALL NOT BE USED UNLESS AN FAA FORM 7460-1 DETERMINATION LETTER HAS BEEN FAVORABLY ISSUED FOR SUCH EQUIPMENT. REFERENCE THE CSPP AND CONTRACT DOCUMENTS.

19. ALL WASTE MATERIAL SHALL BE COLLECTED AND DISPOSED OF INTO TRASH DUMPSTERS, OR OTHER APPROVED TRASH COLLECTION BINS, WITHIN THE STAGING AREA FOR EACH PHASE. TRASH COLLECTION BINS AND/OR DUMPSTERS SHALL HAVE WATER TIGHT LIDS AND PLACED AWAY FROM ANY CATCH BASINS OR OTHER STORMWATER CONVEYANCE SYSTEMS. ONLY TRASH AND CONSTRUCITON DEBRIS FROM THE CONSTRUCTION PROJECT WILL BE DEPOSITED IN THESE RECEPTACLES. RECEPTACLES SHALL BE INSPECTED WEEKLY AND EXMPTIED AT A FREQUENCY ADEQUATE TO PREVENT OVERFLOW.

20. CONTRACTOR SHALL PROVIDE TEMPORARY ON-SITE TOILET FACILITIES AT ALL TIMES, AS REQUIRED.

Attention:
0 1"
If this scale bar does not measure 1" then drawing is not original scale.

Designed:	JCW
Drawn:	DJL
Checked:	AKM
Approved:	JAK
P.E. No:	0014897
GEI Project	1703638

GEI Consultants
GEI CONSULTANTS, INC.
455 WINDING BROOK DRIVE
SUITE 201
GLASTONBURY, CT 06033
(860)368-5300

75 years benesch
Alfred Benesch & Company
120 Hebron Avenue, 2nd Floor
Glastonbury, CT 06033
(860)633-8341

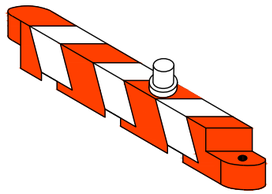
SOUTH MEADOWS
REPAIR OF CLARK DIKE

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME
CSPP-7 - DETAILS

SHEET NO.
SP-7

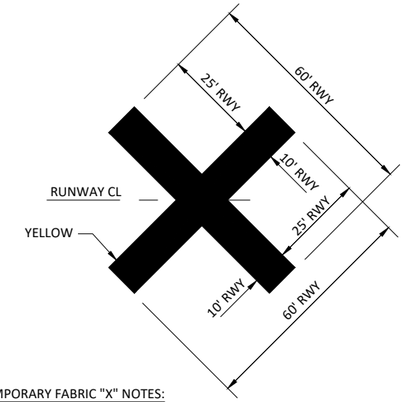


NOTES:

1. CONTRACTOR SHALL FURNISH **(99 ESTIMATED)** TYPE II LOW PROFILE PLASTIC WATER FILLED BARRICADES. BARRICADES SHALL BE RRM SAFETY ORANGE MODEL 4202S0-25 10"X96" UV-RESISTANT POLYETHYLENE LOW PROFILE PLASTIC AIRPORT BARRICADES MEETING THE REQUIREMENTS OF AC 150/5370-2 (CURRENT EDITION) WITH ONE (1) SCREW-IN 601 RED FLASHING SOLAR LIGHT (LIGHT MAY BE FULL 360° OR 2 SIDE FLASHER WITH EVERY OTHER LIGHT TURNED 90°) AND HIGH INTENSITY SHEETING ON BOTH SIDES (ORANGE AND WHITE STRIPES) AS MANUFACTURED BY ROADTECH MANUFACTURING, OAK PARK, IL (800-880-3073) OR APPROVED EQUAL.
2. CONTRACTOR SHALL FURNISH/PLACE/MAINTAIN/REMOVE TYPE II BARRICADES AS REQUIRED BY INDIVIDUAL 'PHASES'. PAID FOR AS "AIRPORT SAFETY MEASURES."
3. ALL BARRICADES SHALL BE CONTINUOUSLY LINKED TOGETHER AT EACH LOCATION AND FILLED WITH ENOUGH WATER TO PREVENT THE STRING OF BARRICADES FROM MOVING FROM WIND OR JET BLAST.
4. CONTRACTOR FURNISHED BARRICADES SHALL REMAIN THE PROPERTY OF CONTRACTOR UPON COMPLETION OF PROJECT.
5. ALL BARRICADE LOCATIONS SHALL BE PLACED OUTSIDE OF ACTIVE RUNWAY RSAS AND OUTSIDE TAXIWAY TOFAS. ENGINEER WILL RESOLVE ANY QUESTIONS REGARDING EXACT PLACEMENT LOCATIONS.

TYPE II AIRPORT BARRICADE DETAIL

NOT TO SCALE

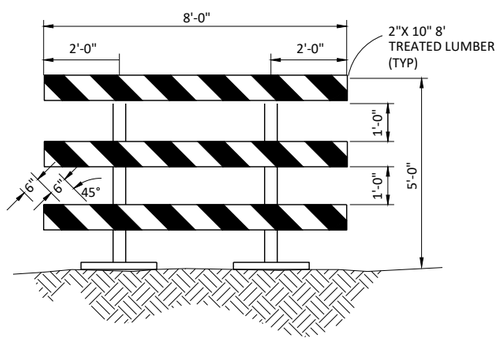


RUNWAY TEMPORARY FABRIC "X" NOTES:

1. CONTRACTOR FURNISHED X'S (**2 TOTAL - ESTIMATE MAXIMUM PHASE - ALL PHASES)**. EACH X SHALL CONSIST OF TWO (2) PIECES OF FABRIC MADE OF YELLOW VINYL COATED MESH. FABRIC SHALL BE SCREEN GUARD AS MANUFACTURED BY M. PUTTERMAN & CO. INC., 4834 SOUTH OAKLEY, CHICAGO, IL 60609 (1-800-621-0146), OR APPROVED EQUAL.
2. ALL TEMPORARY X'S SHALL BE FURNISHED BY THE CONTRACTOR AND SHALL REMAIN THE CONTRACTOR'S PROPERTY UPON COMPLETION OF THE PROJECT.
3. X'S SHALL BE PLACED AT LOCATIONS DESIGNATED BY THE FIELD ENGINEER/OWNER AS REQUIRED (PREFERABLY OUTSIDE THE WHITE TOWERS) AND SECURED DOWN WITH SAND BAGS OR TYPE 1 BARRICADE RUBBER BASE PAINTED AVIATION YELLOW (FURNISHED BY CONTRACTOR). FURNISHING, PLACING, MAINTAINING AND REMOVAL OF RUNWAY TEMPORARY X'S SHALL BE INCLUDED IN "AIRPORT SAFETY MEASURES."
4. IF X's KILL GRASS DURING USE, CONTRACTOR SHALL REMOVE 65'X65' SQUARE PATCH OF GRASS AND REPLACE WITH SOD.

TURF RUNWAY TEMPORARY FABRIC 'X' DETAIL

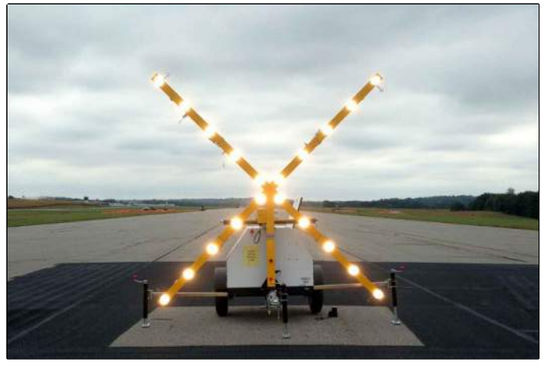
NOT TO SCALE



NOTE: APPROXIMATELY 2 REQUIRED. FURNISHING, PLACING, MAINTENANCE AND REMOVAL SHALL BE INCLUDED IN "AIRPORT SAFETY MEASURES". BARRICADES SHALL BE PLACED AT EACH LOCATION INDICATED. THE OWNER'S REPRESENTATIVE WILL DIRECT CONTRACTOR AS TO PLACEMENT OF BARRICADES.

TYPE III ROAD BARRICADE DETAIL

No Scale



LIGHTED PAVED RUNWAY CLOSURE X

No Scale

NOTES:

1. CONTRACTOR SHALL FURNISH, PLACE, MAINTAIN, RELOCATE, AND REMOVE FOUR (4) L-893 LIGHTED RUNWAY CLOSURE X'S. LIGHTED RUNWAY CLOSURE X'S SHALL MEET THE REQUIREMENTS OF FAA ADVISORY CIRCULAR 150/5345-55A. X'S SHALL BE PLACED PER THE CONSTRUCTION SAFETY & PHASING PLANS (CSPP).
2. CONTRACTOR SHALL PLACE/MAINTAIN LIGHTED RUNWAY CLOSURE XS (FOUR REQUIRED). CONTRACTOR SHALL BE RESPONSIBLE TO MAKE DAILY INSPECTION, FUEL AS REQUIRED AND SERVICE AS REQUIRED TO ENSURE PROPER OPERATION DURING RESPECTIVE PHASES.
3. ALL WORK ASSOCIATED WITH PLACING, MAINTAINING AND REMOVING LIGHTED XS SHALL BE INCLUDED IN "AIRPORT SAFETY MEASURES."
4. AN AIRPORT ESCORT WILL BE FURNISHED BY THE OWNER TO SET UP, FUEL, MAINTAIN AND REMOVE XS.
5. WHEN CONSTRUCTION DOESN'T ALLOW FOR PLACEMENT DIRECTLY OVER THE NUMERALS, THE FIELD ENGINEER/OWNER WILL DIRECT THE CONTRACTOR AS TO ALTERNATE LOCATIONS.

Attention:

0 1"

If this scale bar does not measure 1" then drawing is not original scale.

Designed:	JCW
Drawn:	DJL
Checked:	AKM
Approved:	JAK
P.E. No:	0014897
GEI Project	1703638

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75 years benesch
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SOUTH MEADOWS
REPAIR OF CLARK DIKE

CITY OF HARTFORD
HARTFORD , CONNECTICUT

NO	DATE	ISSUE/REVISION	APP
0	JULY 2025	FOR BID	

SHEET NAME

CSPP-8 - NOTES

SHEET NO.

SP-8

APPENDIX C: PLAN CERTIFICATIONS, CGP APPLICATION & NDDB DETERMINATION

- **SPCP Certification by Permittee**
- **Application Certification by Permittee**
- **Application Certification by Preparer**
- **Design Certification by PE**
- **Copy of Application submitted via EZ file**
  (*to be inserted*)
- **NDDB Determination**

STORMWATER POLLUTION CONTROL PLAN
CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Frank Dellaripa — 3/30/26

Permittee: Frank Dellaripa, P.E., City Engineer / Assistant Director of Public Works

Date

As required per Section 5.2.5.6 of the CGP, following certification in Section 8.21.4 of the CGP.

APPLICATION CERTIFICATION
BY PERMITTEE (The City of Hartford Department of Public Works)

"I hereby certify that I am making this certification in connection with an application under the General Permit for the Discharge of Stormwater from Construction Activities (general permit), submitted to the Commissioner by the City of Hartford, Department of Public Works for an activity located at Hartford Flood Control Dike System – Toe Drain, Toe Ditch and Embankment Repairs Project and that all terms and conditions of the general permit will be met for all discharges which will be initiated and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that the application filed pursuant to this general permit is on complete and accurate forms as prescribed by the Commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.13.1 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 2.2.13.2 of this general permit. I understand that the application filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Conn. Gen. Stat. I also understand that knowingly making any false statement in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

Frank Dellaripa — 3/30/26

Permittee: Frank Dellaripa, P.E., City Engineer / Assistant Director of Public Works — **Date**

As required per Section 2.2.13.3 of the CGP.

APPLICATION CERTIFICATION
BY PREPARER (JKB Consulting, LLC)

"I hereby certify that I am making this certification in connection with an application under the General Permit for the Discharge of Stormwater from Construction Activities (general permit), submitted to the Commissioner by the City of Hartford, Department of Public Works for an activity located at Hartford Flood Control Dike System – Toe Drain, Toe Ditch and Embankment Repairs Project and that all terms and conditions of the general permit will be met for all discharges which will be initiated and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that the application filed pursuant to this general permit is on complete and accurate forms as prescribed by the Commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.13.1 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 2.2.13.2 of this general permit. I understand that the application filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Conn. Gen. Stat. I also understand that knowingly making any false statement in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

Preparer: Julie K. Bjorkman, P.E.
Principal, JKB Consulting, LLC

March 30, 2026
Date

As required per Section 2.2.13.3 of the CGP.

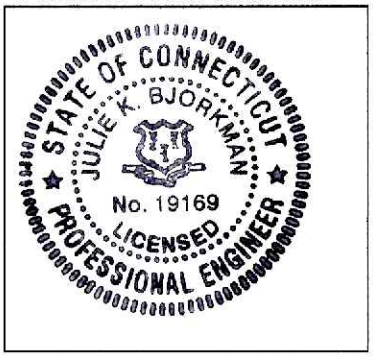
STORMWATER POLLUTION CONTROL PLAN
PROFESSIONAL ENGINEER DESIGN CERTIFICATION

"I hereby certify that I am a professional engineer licensed in the State of Connecticut. I am making this certification in connection with a application under the General Permit for the Discharge of Stormwater from Construction Activities (general permit), submitted to the Commissioner by the City of Hartford, Department of Public Works for an activity located at Hartford Flood Control Dike System – Toe Drain, Toe Ditch and Embankment Repairs Project. I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the project or activity covered by this certification. I further certify, based on such review and on the standard of care for such projects, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the Stormwater Quality Manual, as amended, and the conditions of the general permit, and that the controls required for such SPCP are appropriate for the site. I further certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement in this certification may subject me to sanction by the Department and/or be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

P.E. Signature

March 30, 2026
Date

P.E. No. 19169 and Seal:



Julie K. Bjorkman, P.E.,
Principal, JKB Consulting, LLC
P.E. Name & Title

As required per Section 2.2.14 of the CGP.

Note: If substantial engineered design changes are made, the Plan shall be updated and an updated P.E. certification completed.

ATTACH COPY OF FULL COMPLETED APPLICATION PACKAGE, INCLUDING APPLICANT AND PREPARER CERTIFICATIONS, AND PROFESSIONAL ENGINEER DESIGN CERTIFICATION SUBMITTED WITH APPLICATION

(to be inserted)

Connecticut
Department of Energy & Environmental Protection
WATER PERMITTING & ENFORCEMENT

General Permit Application Form for the Discharge of Stormwater from Construction Activities, effective 01/01/2026

Prior to completing this form, you **must** read the instructions for the subject general permit available at Stormwater Construction GP webpage (https://portal.ct.gov/deep/water-regulating-and-discharges/stormwater/construction-stormwater-gp).

Part I: Application Type

Select the appropriate boxes identifying the registration type and registration deadline.

Application Type			Application Timeline	
☑	**New Registration**	☐ **Locally Approvable** **Size of soil disturbance:** _____	**New registration - Sixty (60) days prior to the initiation of the construction activity for:** For sites with a total soil disturbance area of 5 or more acres	
☑		☑ **Locally Exempt** **Size of soil disturbance:** 7.02	☑	**New registration - Sixty (60) days prior to the initiation of the construction activity for:** Sites with a total disturbance area of one (1) to twenty (20) acres except those with discharges to impaired waters or tidal wetlands
			☐	**New registration - Ninety (90) days prior to the initiation of the construction activity for:** (i) Sites with a total soil disturbance area greater than twenty (20) acres, or (ii) Sites discharging to a tidal wetland (that is not fresh-tidal and is located within 500 feet), or (iii) Sites discharging to the impaired water listed in the "Impaired Waters Table for Construction Stormwater Discharges"

Part II: Fee Information

1. New Applications
   a. Locally approvable projects:
      ☐ $1250
   b. Locally exempt projects (application and Plan):
      ☐ $3,000 total soil disturbance area ≤ twenty (20) acres.
      ☐ $4,000 total soil disturbance > twenty (20) acres and ≤ fifty (50) acres.
      ☐ $5,000 total soil disturbance > fifty (50) acres.
   c. Is Renewal
      ☑ $1250

Total Fee: $1,250.00

The fees for municipalities shall be half of those indicated in subsections 1.a and 1.b above pursuant to Section 22a-6(b) of the Connecticut General Statutes. State and Federal agencies shall pay the full fees specified in this subsection. The application will not be processed without the fee. The fee shall be non-refundable and shall be paid by certified check or money order payable to the Department of Energy and Environmental Protection.

Part III: Registrant Information

- If a registrant is a corporation, limited liability company, limited partnership, limited liability partnership, or a statutory trust, it must be registered with the Secretary of the State. If applicable, the registrant's name shall be stated **exactly** as it is registered with the Secretary of the State online Business Records Search at:
  https://service.ct.gov/business/s/onlinebusinesssearch
- If a registrant is an individual, provide the legal name (include suffix) in the following format: First Name; Middle Initial; Last Name; Suffix (Jr, Sr., II, III, etc.).

1. Registrant /Client Name: CITY OF HARTFORD
   Registrant Type: Municipality
   Secretary of the State business ID #:
   Mailing Address: 50 Jennings Rd
   City/Town: Hartford State: CT Zip Code: 06120
   Business Phone: (860) 757-9975 ext.:
   Example:(xxx) xxx-xxxx
   Contact Person: Frank Dellaripa Title : City Engineer / Assistant Director Public
   E-Mail: frank.dellaripa@hartford.gov
2. List billing contact:
   Name: CITY OF HARTFORD
   Mailing Address: 50 Jennings Rd
   City/Town: Hartford State: CT Zip Code: 06120
   Business Phone: (860) 757-9975 ext.:
   Contact Person: Frank Dellaripa Title : City Engineer / Assistant Director Public

3. List primary contact for departmental correspondence and inquiries:
   Name: CITY OF HARTFORD
   Mailing Address: 50 Jennings Rd
   City/Town: Hartford State: CT Zip Code: 06120
   Business Phone: (860) 757-9975 ext.
   Contact Person: Frank Dellaripa Title: City Engineer / Assistant Director Public Works

4. List owner of the property on which the activity will take place:
   Name: CITY OF HARTFORD
   Mailing Address: 50 Jennings Rd
   City/Town: Hartford State: CT Zip Code: 06120
   Business Phone: (860) 757-9975 ext.
   Contact Person: Frank Dellaripa
5. List preparer:
   Name: JKB CONSULTING, LLC
   Mailing Address: 18 Crowley Dr
   City/Town: Old Saybrook State: CT Zip Code: 06475
   Business Phone: (860) 395-6654 ext.
   Contact Person: Julie K. Bjorkman Title:
6. List design professional:
   Name: JKB CONSULTING, LLC
   Mailing Address: 18 Crowley Dr
   City/Town: Old Saybrook State: CT Zip Code: 06475
   Business Phone: (860) 395-6654 ext.
   Contact Person: Julie K. Bjorkman Title:
7. List Reviewing Qualified Professional (for locally approvable projects only):
   Name:
   Mailing Address:
   City/Town: State: Zip Code:
   Business Phone: ext.
   Contact Person: Title:

Part IV: Site Information

Site Name: Hartford Flood Control Dike System

Street Address or Description of Location:

City/Town: Hartford State: CT Zip Code: 06120

Longitude: -72.648018 Latitude: 41.732558

Brief Description of construction activity:

Hartford Flood Control Dike System - Toe Drain, Toe Ditch and Embankment Repairs

Project Start Date: 1 Jun 2026 Anticipated Completion Date: 31 Dec 2027

Normal working hours: Varies to Varies

1. What type of the project is this?
   - ☐ Locally Approvable Project
   - ☑ Locally Exempt Project

a. Locally Approvable Project

Is this application for the site design phase of a design-build project conducted by a State entity? ☐ Yes ☐ No ☑ NA

a. Locally Exempt Project

Is this application for the site design phase of a design-build project conducted by a Federal entity? ☐ Yes ☑ No ☐ NA

b. Is this application a renewal of a previously permitted Stormwater Construction Activity? ☑ Yes ☐ No ☐ NA

i. If yes, provide the previously approved permit number: GSN004054

ii. Is this application for a Change of Permittee? ☑ Yes ☐ No ☐ NA

iii. Is this application for the final design of a design-build project? ☐ Yes ☑ No ☐ NA

2. **MINING** : Is the activity on the site in question part of mining operations (i.e. sand and gravel)? ☐ Yes ☑ No

If yes, mining is not authorized by this general permit. You must submit the Registration Form for the General Permit for the Discharge of Stormwater Associated with Industrial Activity.

3. **COMBINED OR SANITARY SEWER:** Does all of the stormwater from the proposed activity discharge to a combined or sanitary sewer (i.e. a sewage treatment plant)? ☐ Yes ☑ No

If yes, this activity is not regulated by this permit. Contact the Water Permitting & Enforcement Division at 860-424-3018.

4. **INDIAN LANDS:** Is or will the facility be located on federally recognized Indian lands? ☐ Yes ☑ No

5. **COASTAL BOUNDARY:** Is the activity which is the subject of this registration located within the coastal boundary as delineated on DEEP approved coastal boundary maps? ☐ Yes ☑ No

6. **ENDANGERED OR THREATENED SPECIES:**

Each application must perform a review of the Department's Natural Diversity Database maps to determine if the site of the construction activity is located within or in proximity (within ¼ mile) to a shaded area.

a. Provide the date of the NDDB maps were reviewed: 31 Mar 2026 (Print a copy of the NDDB map you viewed since it must be submitted with this registration as part of Attachment C.)

b. For an applicant using a two-year determination to register for this General Permit, provide the Department's Wildlife Division NDDB identification number for any such determination:

202302814 (The number is on the determination issued by the Department's Wildlife Division).

c. I verify that I have completed Attachment C to this Registration Form. ☑ Yes

7. **WILD AND SCENIC RIVERS:** Is the proposed project within the watershed of a designated Wild and Scenic River? (See Appendix H for guidance) ☐ Yes ☑ No

8. **AQUIFER PROTECTION AREAS:** Is the site located within a mapped **Aquifer Protection Area** , as defined in Section 22a-354h of the CT General Statutes? (For additional guidance, please refer to Appendix C of the General Permit) ☐ Yes ☑ No

9. **Connecticut Guidelines for Soil Erosion and Sediment Control Guidelines:** Is the activity in accordance with Connecticut Guidelines for Soil Erosion and Sediment Control Guidelines and local erosion & sediment control ordinances, where applicable? ☑ Yes ☐ No

10. **HISTORIC AND/OR ARCHAEOLOGICAL RESOURCES:**

Has the site of the proposed activity been reviewed (using the process outlined in Appendix G of this permit) for historic and/or archaeological resources? ☑ Yes ☐ No

a. The review indicates the proposed site does not have the potential for historic/ archaeological resources, OR ☑ Yes ☐ No

b. The review indicated historic and/ or archaeological resource potential exists and the proposed activity is being or has been reviewed by the Offices of Culture and Tourism, OR ☐ NA ☐ Yes ☑ No

c. The proposed activity has been reviewed and authorized under an Army Corps of Engineers Section 404 wetland permit. ☐ NA ☐ Yes ☑ No

11. **CONSERVATION OR PRESERVATION RESTRICTION:**

Is the property subject to a conservation or preservation restriction? ☐ Yes ☑ No

If Yes, proof of written notice of this registration to the holder of such restriction or a letter from the holder of such restriction verifying this registration is in compliance with the terms of the restriction, must be submitted as Attachment D.

Part V: Stormwater Discharge Information

Table 1

Outfall #	a) Type	b) Pipe Material	c) Pipe Size	Longitude *(Format: -xx.xxxxx)*	Latitude *(Format: xx.xxxxx)*	e) What method was used to obtain your latitude/longitude information?
001	Other(Please fill in below) Triple box conduit			-72.66577	41.72894	CT ECO

Part V: Stormwater Discharge Information Continued

Table 2

2. Provide the following information about the receiving water(s)/wetland(s) that receive stormwater runoff from your site, either directly or through the storm sewer system:							
Outfall #	**Dates when this outfall will be active:**	**a) To what system or receiving water does your stormwater runoff discharge? either "storm sewer or wetlands" or "waterbody"**	**b) What is your watershed ID (freshwater) or 305b ID (estuary)?**	**c.1) Is your receiving water identified as an impaired water in the "Impaired Waters Table for Construction Stormwater Discharges"?**	**c.2) Has any Total Maximum Daily Load (TMDL) been approved for your receiving waterbody?**	**For the drainage area associated with each outfall: Effective Impervious Area Before Construction (sq ft)**	**For the drainage area associated with each outfall: Effective Impervious Area After Construction (sq ft)**
001	Start: 1 Jun 2026 End: 31 Dec 2027	Waterbody	412	☐ Y ☐ N ☑ NA	☐ Y ☐ N ☑ NA	0	0
	Start: End:	Select One		☐ Y ☐ N ☐ NA	☐ Y ☐ N ☐ NA		
	Start: End:	Select One		☐ Y ☐ N ☐ NA	☐ Y ☐ N ☐ NA		
	Start: End:	Select One		☐ Y ☐ N ☐ NA	☐ Y ☐ N ☐ NA		
	Start: End:	Select One		☐ Y ☐ N ☐ NA	☐ Y ☐ N ☐ NA		
Provide the total effective impervious area for the entire site(sq ft):						0	0

Part V: Stormwater Discharge Information (continued)

1. **If the impaired water does not have a TMDL,** confirm compliance by selecting 1.a. or 2.b. below:

a. No more than 3 acres is disturbed at any time; ☐ Yes

OR

b. Stormwater runoff from a 2 yr, 24 rain event is **retained.** ☐ Yes

2. **If the impaired water has a TMDL,** confirm compliance by selecting 2.a. and 2.b. below and either question 2.c.1. or 2.c.2. below:

a. The Plan documents there is sufficient remaining Waste Load Allocations (WLA) in the TMDL for the proposed discharge, ☐ Yes

AND

b. Control measures shall be implemented to assure the WLA will not be exceeded, ☐ Yes

AND

c. 1. Stormwater discharges will be monitored for the indicator pollutant identified in the TMDL, ☐ Yes

OR

2. The Plan documents specific requirements for stormwater discharges specified in the TMDL. ☐ Yes

Part VI: Pollution Control Plan Availability

☑ I have attached the Stormwater Pollution Control Plan (SPCP) to this application.

☑ I have provided a URL to the webpage that has or will have the SPCP and application posted for public viewing and review.

URL to webpage:

https://www.hartfordct.gov/Government/Departments/Public-Works/Engineering-Division

Part VII: Registrant Certification

The registrant *and* the individual(s) responsible for actually preparing the registration must sign this part. A registration will be considered incomplete unless all required signatures are provided.

For New Applicants:

"I hereby certify that I am making this certification in connection with an application under the General Permit for the discharge of Stormwater from Construction Activities (general permit) submitted to the commissioner by CITY OF HARTFORD for an activity located at , Hartford, CT 06120 and that all terms and conditions of the general permit will be met for all discharges which will be initiated and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that the application filed pursuant to this general permit is on complete and accurate forms as prescribed by the Commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.13.1 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 2.2.13.2 of this general permit. I understand that the application filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Conn. Gen. Stat. I also understand that knowingly making any false statement in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

For Applications for previously approved construction activities:

"I hereby certify that I am making this certification in connection with an application under the General Permit for the Discharge of Stormwater from Construction Activities, submitted to the commissioner by _____ for an activity located at _____ and that all terms and conditions of the general permit will be met for all discharges which will be initiated and such activity is eligible for authorization under such permit. I further certify that a system is in place to ensure that all terms and conditions of this general permit will continue to be met for all discharges authorized by this general permit at the site. I certify that the application filed pursuant to this general permit is on complete and accurate forms as prescribed by the Commissioner without alteration of their text. I certify that I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.13.1 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I certify that I have made an affirmative determination in accordance with Section 2.2.13.2 of this general permit. I understand that the application filed in connection with such general permit is submitted in accordance with and shall comply with the requirements of Section 22a-430b of Conn. Gen. Stat. I also understand that knowingly making any false statement in the submitted information and in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Conn. Gen. Stat. and any other applicable law."

Signature of Registrant	
Frank Dellaripa	City Engineer / Assistant Director Public Works
Name of Registrant (print or type)	Title (if applicable)
Signature of Preparer and Date (if different than above)	
Julie K. Bjorkman	
Name of Preparer (print or type)	Title (if applicable)

Part VIII: Professional Engineer (or Landscape Architect, where appropriate) Design Certification (for publically approvable and exempt projects)

The following certification must be signed by a Professional Engineer, or Landscape Architect where appropriate.

"I hereby certify that I am a licensed in the State of Connecticut.
I am making this certification in connection with a registration under such general permit, submitted to the commissioner by CITY OF HARTFORD for an activity located at , Hartford, CT 06120 .
I certify that I have thoroughly and completely reviewed the Stormwater Pollution Control Plan for the project or activity covered by this certification. I further certify, based on such review and on the standard of care for such projects, that the Stormwater Pollution Control Plan has been prepared in accordance with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, the Stormwater Quality Manual, as amended, and the conditions of the general permit, and that the controls required for such Plan are appropriate for the site. I further certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I also understand that knowingly making any false statement in this certification may subject me to sanction by the Department and/or be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature of Design Professional and Date	
Julie K. Bjorkman	CT PE #19169
Name of Professional (print or type)	License Number

Affix P.E/L.A Stamp Here

Part IX: Reviewing Qualified Professional Certification

The following certification must be signed by a) a Conservation District reviewer OR, b) a qualified soil erosion and sediment control and/ or professional engineer

☐ **Review Certification by Conservation District:**

1.) District: _____

Date of Affirmative Determination: _____

"I am making this certification in connection with an application under General Permit for the Discharge of Stormwater from Construction Activities, submitted to the commissioner by _____ for an activity located at _____.

I have personally examined and am familiar with the information that provides the basis for this certification, and I affirm, based on the review described in this general permit and on the standard of care for such projects, that the Stormwater Pollution Control Plan is adequate to assure that the activity authorized under this general permit will comply with the terms and conditions of such general permit and that all stormwater management systems: (i) have been designed to control pollution to the maximum extent achievable using measures that are technologically available and economically practicable and that conform to those in the Guidelines and the Stormwater Quality Manual; (ii) will function properly as designed; (iii) are adequate to ensure compliance with the terms and conditions of this general permit; and (iv) will protect the waters of the state from pollution."

_____

Signature of District Professional and Date

_____ _____

Name of District Professional License Number (if applicable)

Or

☐ **Review Certification by Qualified Professional:**

Company Name: _____

Name: _____

License #: _____

Level of independency of professional:

Required for all projects disturbing over 1 acre:

1. I verify I am not an employee of the registrant. ☐ Yes
2. I verify I have no ownership interest of any kind in the project for which the registration is being submitted. ☐ Yes

Required for projects with more than 20 acres of site disturbance (in addition to questions 1&2):

3. I verify I did not engage in any activities associated with the preparation, planning, designing or engineering of the soil erosion and sediment control plan or stormwater management systems plan for this registrant. ☐ Yes
4. I verify I am not under the same employ as any person associated with the preparation, planning, designing or engineering of the soil erosion and sediment control plan or stormwater management systems plan for this registrant. ☐ Yes

Part IX: Reviewing Qualified Professional Certification (continued)

"I hereby certify that I am a Qualified Professional engineer licensed in the state of Connecticut and in good standing or qualified soil erosion and sediment control professional, or both, as defined in the General Permit for Discharge of Stormwater from Construction Activities (general permit) and as further specified in Sections 2.2.16.1.a and 2.2.16.1.b of the general permit, submitted to the Commissioner by

_____ for an activity located at

_____ .

I have personally examined and am familiar with the information that provides the basis for this certification, including but not limited to all information described in Section 2.2.16.3 of such general permit, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining such information, that the information upon which this certification is based is true, accurate and complete to the best of my knowledge and belief. I further certify that I have made the affirmative determination in accordance with Sections 2.2.13.1 and 2.2.13.2 of this general permit. I understand that this certification is part of an application submitted in accordance with Section 22a-430b of Connecticut General Statutes and is subject to the requirements and responsibilities for a Qualified Professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under Section 53a-157b of the Connecticut General Statutes and any other applicable law."

_____

Signature of Reviewing Qualified Professional

_____ _____

Name of Reviewing Qualified Professional License No.

Affix P.E./ L.A. Stamp Here

Connecticut
Department of Energy &
Environmental Protection

portal.ct.gov/DEEP

4/11/2023

John McGrane
GEI CONSULTANTS, INC.
455 Winding Brook Dr
Glastonbury, CT 06033
jmcgrane@geiconsultants.com

Subject: Hartford South Meadows Dike Toe Drain Replacement Renewal of NDDB 201908877
Filing #: 97092
NDDB - New Determination Number: 202302814

Expiration Date: 4/11/2025

Location Description: Hartford South Meadows Dike, 1010 Wethersfield Ave, Hartford, CT

I have re-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 in the area.

Bald eagle (*Haliaeetus leucocephalus*) State Threatened

There are nesting sites documented in both the North Meadows Dike area and the South Dike areas. Bald Eagles are currently listed as a state threatened species as well as protected under both the Federal Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. It is illegal pursuant to section 26-93 of the Connecticut General Statutes to disturb Bald eagles. These laws prohibit disturbing the birds while they are roosting, feeding, or nesting. The wildlife division recommends a 660' setback with no public access from a bald eagle nest or critical roosting site. To determine if nest or roost in your area is active this year contact the DEEP Wildlife Biologist coordinating eagle monitoring (Brian.hess@ct.gov).

- Between February 1- July 31: Work activities and staging areas are prohibited within 330 feet (approximately 100 meters) of active nests that are out of line of sight, or within 660 feet (approximately 200 meters) from nests that are in the line of sight during periods of eagle use, unless surveys demonstrate that the nest is not being used.

Peregrine Falcon (*Falco peregrinus*) State Threatened

A nesting site is located on the Charter Oak Bridge.

Habitat: cliff faces and under bridges. This falcon nests from April through July and is very susceptible to human disturbance during this time. Peregrine falcons are very territorial during the breeding season and will make their presence known if in close proximity to a nest site. The wildlife division recommends a 660' setback from nests with no public access. To determine if a nest in your area is active this year contact the DEEP Wildlife Biologist coordinating Peregrine falcon monitoring (Brian.hess@ct.gov).

- Between April 1- July 31: Do not introduce new work activities and staging areas within 330 feet (approximately 100 meters) of active nests that are out of line of sight, or within 660 feet (approximately 200 meters) from nests that are in the line of sight of

***Plantago virginica* (Hoary plantain) State Special Concern**

This plant is located along your southern work area indicated on the attached map.

- Do not disturb ground in this area especially along the walkway that extends to the south without consultation with a qualified botanist.

I recommend you hire a botanist to provide management recommendations to protect the plant in this area.

Habitat: Dry or sandy soil, pastures and grasslands, ephemeral. Blooms Mar, Apr, May, early Jun.

Your submission information indicates that your project requires a state permit, license, registration, or authorization, or utilizes state funding or involves state agency action. This NDDB - New determination may be utilized to fulfill the Endangered and Threatened Species requirements for state-issued permit applications, licenses, registration submissions, and authorizations.

Please be aware of the following limitations and conditions:

Natural Diversity Database information includes all information regarding listed species 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 Natural History Survey and cooperating units of DEEP, land owners, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. 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 into the Database and accessed through the ezFile portal as it becomes available. New information may result in additional review, and new or modified restrictions or conditions may be necessary to remain in compliance with certain state permits.

- During your work listed species may be encountered on site. A report must be submitted by the observer to the Natural Diversity Database promptly and additional review and restrictions or conditions may be necessary to remain in compliance with certain state permits. Please fill out the appropriate survey form and follow the instructions for submittal.
- Your project involves the state permit application process or other state involvement, including state funding or state agency actions; please note that consultations with your permit analyst or the agency may result in additional requirements. In this situation, additional evaluation of the proposal by the DEEP Wildlife Division may be necessary and additional information, including but not limited to species-specific site surveys, may be required. Any additional review may result in specific restrictions or conditions relating to listed species that may be found at or in the vicinity of the site.
- If your project involves preparing an Environmental Impact Assessment, this NDDB consultation and determination should not be substituted for biological field surveys assessing on-site habitat and species presence.

- The NDDB - New determination for the Hartford South Meadows Dike Toe Drain Replacement Renewal of NDDB 201908877 as described in the submitted information and summarized at the end of this document is valid until 4/11/2025. This determination applies only to the project as described in the submission and summarized at the end of this letter. Please re-submit an updated Request for Review if the project's scope of work and/or timeframe changes, including if work has not begun by 4/11/2025.

If you have further questions, please contact me at the following:

Shannon Kearney
CT DEEP Bureau of Natural Resources
Wildlife Division
Natural Diversity Database
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Please reference the Determination Number 202302814 when you e-mail or write. Thank you for consulting the Natural Diversity Data Base.

Shannon Kearney
Wildlife Division- Natural Diversity Data Base
79 Elm Street
Hartford, CT 06106-5127
(860) 424-3170
Shannon.Kearney@ct.gov

Application Details:

Project involves federal funds or federal permit:	Yes
Project involves state funds, state agency action, or relates to CEPA request:	Yes
Project requires state permit, license, registration, or authorization:	Yes
DEEP enforcement action related to project:	
Project Type:	Building and Infrastructure Development (including stormwater discharge associate with construction)
Project Sub-type:	Addition to an existing facility
Project Name:	Hartford South Meadows Dike Toe Drain Replacement Renewal of NDDB 201908877
Project Description:	Replacement of existing toe drain system on land side of dike, spot cleaning of land side toe ditch, and stabilization of embankments

NDDB Review 201908877 Hartford Drainage

Legend

Listed Plant

APPENDIX D: WETLANDS REPORT

Martin Brogie, Inc.
ENVIRONMENTAL SERVICES

- Environmental Site Investigations
- Building Contaminant Surveys
- Wetlands Consulting
- Remediation Contract Management

November 10, 2021

Jeffrey A. Koerner, PE
Associate / Sr. Project Manager
Alfred Benesch & Company
120 Hebron Avenue - 2nd Floor
Glastonbury, CT
06033

RE: Wetland Delineation Report
South End of Hartford Dike
Brainard Road
Hartford, CT

Dear Jeff:

Martin Brogie, Inc. (MBI) is pleased to submit the following report regarding the delineation of wetlands located along approximately 6000 linear feet of the north side of a portion of the Hartford Dikes system. The area in question is located south of the junction of Route 9 and Interstate 91 and the Hartford Water Pollution Control Facility (WPCF) and east of Brainard Airport. The delineation was completed to support permitting associated with the proposed reconstruction of the dike toe drain ditches which were the subject of the delineations.

28 Arbor Lane
Madison, CT 06443

martinbrogieinc@gmail.com
860-208-0360

Site Description

The subject area consists of a series of man-made ditches located along the north side of a portion of an earthen dike system located on the west side of the Connecticut River in Hartford, Connecticut. The ditches are discontinuous and were divided in to 6 discrete sections for purposes of this evaluation. Areas surrounding the ditches consist primarily of filled land including the dikes and dike access roads as well as highway fill and fill utilized to create the adjacent WPCF and airport. An inactive, remnant Connecticut River flood plain area is located in the western portion of the study area south of the Junction of Route 9 and Interstate 91. Other disturbed/filled former floor plain areas are located on the periphery of the study area.

A site location map is provided as Figure 1. An aerial view of the property is provided as Figure 2. Photographs of the wetland areas are provided as Attachment A.

Wetland Delineation

On May 24, 2019, MBI's Soil Scientist Martin Brogie, LEP reported to the site to assess the presence of wetlands and watercourses/intermittent watercourses in accordance with the definitions provided in Connecticut General Statutes Section 22a-38 definitions (15) and (16) and the United States Army Corps of Engineers Wetland Delineation Manual and Regional Supplement (3 parameter method). Additional wetland and upland data were collected on November 3, 2021.

MBI identified State and Federal wetland boundaries along the steep slopes of the six, discrete ditch segments that were the subject of the study. Hydric soil conditions (low chroma matrix), the presence of sustained hydrology and hydrophytic vegetation within the ditch bottoms indicated the presence of regulated wetlands. Six discrete wetland flag series were placed along the identified wetland boundaries for each ditch segment. In addition, five wetland flags (CT 1-1 through 1-5) were extended from the westernmost ditch segment (Series 1) to capture Connecticut Regulated Wetlands consisting of remnant flood plain soils north of the Series 1 segment. These flood plain soils did not meet the USACOE wetland definition.

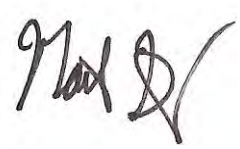
The Natural Resource Conservation Service (NRCS) identifies the soil type, *Udorthents Flood Control,* along the entire dike and ditch area. This designation signifies man-made fill materials associated with the dike system. Winoski Silt Loam, Limerick and Lim Soils and Saco Silt Loam are shown along the outside of filled area and consists of floodplain-related soils.

NRCS soil mapping and descriptions are provided as Attachment B. Wetland Determination Data Forms are provided in Attachment C.

The wetland flags shown on the plans entitled *South Meadows Conceptual Design for Repair Replacement (Clark) Dike Toe Drain Improvement Plan Phase 1* developed by Benesch appear to be substantially correct with respect to wetland flag locations and number sequences.

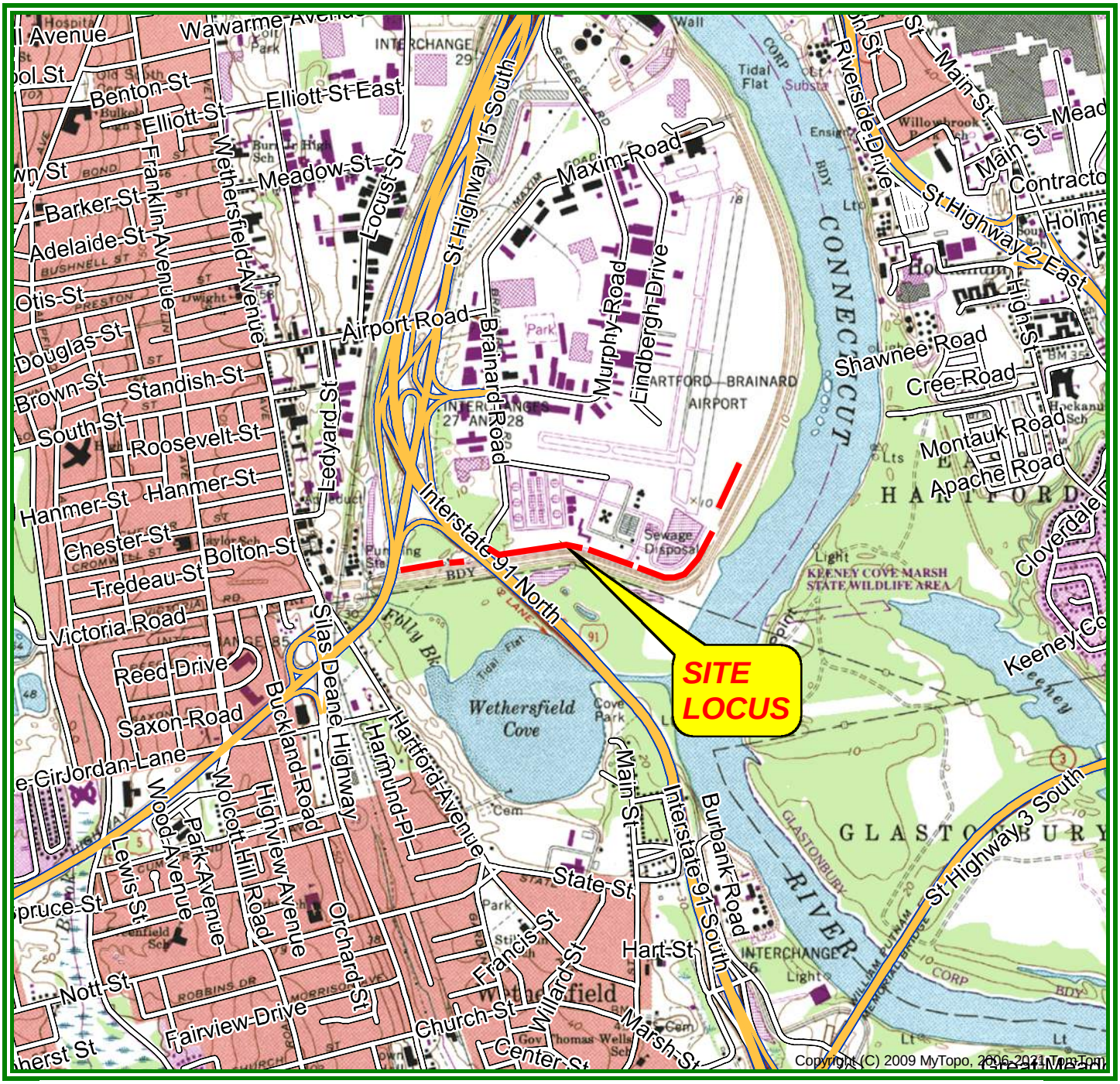
Please contact the undersigned at 860-208-0360 is you have any questions or require further information. Thank you for the opportunity to be of service.

Sincerely,



Martin Brogie, LEP
Soil Scientist

w/attachments



HARTFORD SOUTH Topographic 1964 41072-F6-TF-024 National Geodetic Vertical Datum 1929

N NE E SE S SW W NW

SCALE 1:24000

0 1000 2000 3000 4000 5000
FEET

0 1
MILE

Site Coordinates:
041° 43' 49.84" N, 072° 39' 25.01" W

Project:
Hartford Dikes Project

Site Location:
Hartford, Connecticut

Martin Brogie, Inc.
ENVIRONMENTAL SERVICES

28 Arbor Lane, Madison, Connecticut 06443
ph: (860) 208-0360
email: martinbrogieinc@gmail.com

Figure 1
Site Locus Map

SCALE

0 500 1000

(Approximate scale in feet)

Martin Brogie, Inc.
ENVIRONMENTAL SERVICES
28 Arbor Lane
Madison, Connecticut 06443
ph: (860) 208-0360
email: martinbrogieinc@gmail.com

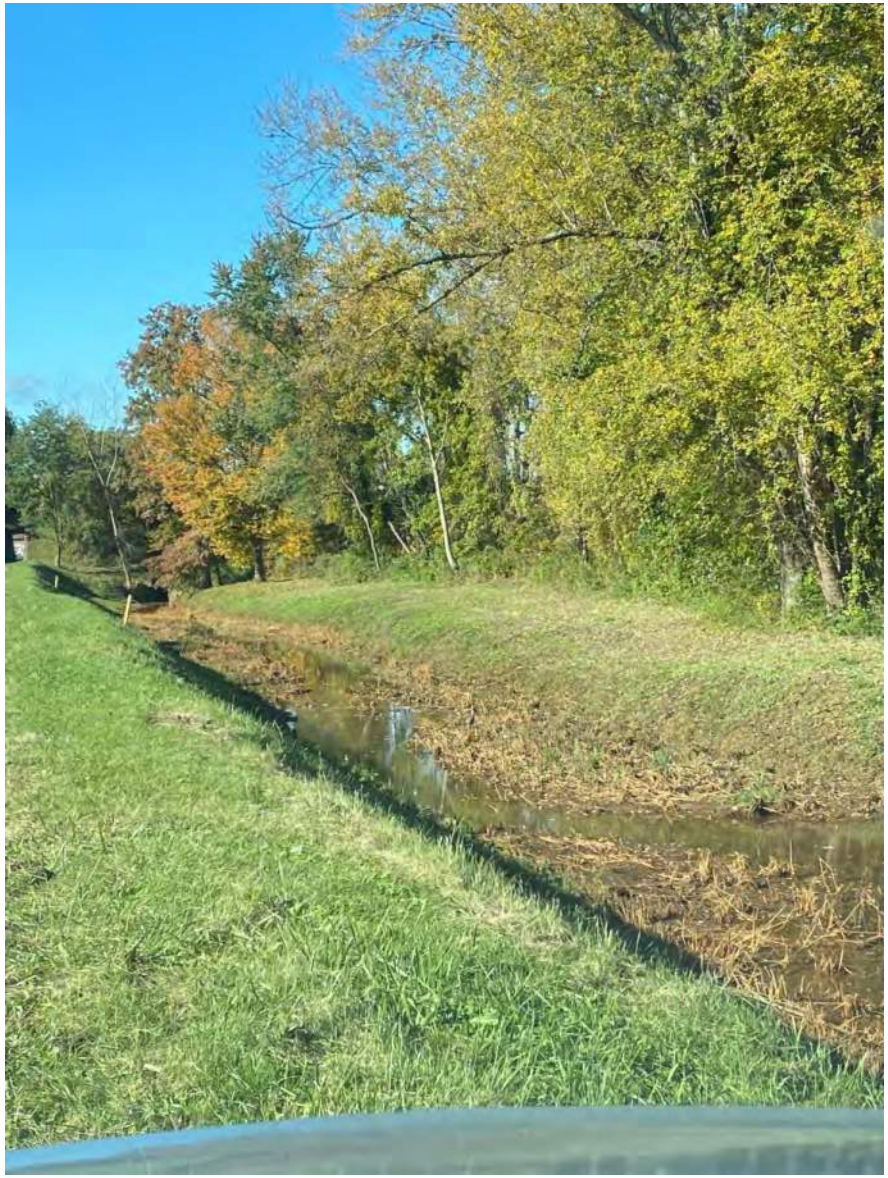
Figure 2 - Aerial Plan
Hartford Dikes Toe Drain Wetlands

Hartford, Hartford County, Connecticut

Project:	Hartford Dike Project
Drawn by:	KMH
Date:	11/6/21
Scale:	AS SHOWN

ATTACHMENT A

SITE PHOTOGRAPHS



WESTERNMOST DITCH LOCATED BETWEEN ROUTE 9 AND I-91. REMNANT FLOODPLAIN BEYOND DITCH IN RIGHT OF PHOTO

UPSTREAM END OF WESTERNMOST DITCH LOCATED BETWEEN ROUTE 9 AND I-91. SHOWING CULVERT BELOW I-91.

UPSTREAM END OF WESTERNMOST DITCH LOCATED BETWEEN ROUTE 9 AND I-91. SHOWING CULVERT BELOW I-91 AND REMNANT FLOODPLAIN TO THE LEFT.

WETLAND FLAG SERIES 2 AREA LOCATED ADJACENT TO THE WEST OF I-91 AND EAST OF SERIES 1 WETLAND. CULVERTS IN BACKGROUND JOIN SERIES 1 WETLAND.

WETLAND FLAG SERIES 2 AREA LOCATED ADJACENT TO THE WEST OF I-91 AND EAST OF SERIES 1 WETLAND. VIEW LOOKING EAST TOWARD I-95.

WETLAND FLAG SERIES 3 AREA LOCATED ADJACENT TO THE EAST OF I-91 LOOKING WEST.

WETLAND FLAG SERIES 4 AREA LOCATED ADJACENT TO THE SOUTH OF THE WPCF LOOKING EAST.

WETLAND FLAG SERIES 5 AREA LOCATED ADJACENT TO THE SOUTHEAST OF THE WPCF LOOKING EAST.

WETLAND FLAG SERIES 6 AREA LOCATED AT THE AIRPORT PROPERTY LOOKING NORTH

ATTACHMENT B

NRCS SOIL SURVEY

Soil Map—State of Connecticut
(Hartford Dikes)

Map Scale: 1:11,900 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 150 300 600 900

Feet
0 500 1000 2000 3000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

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.

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 21, Sep 7, 2021

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

Date(s) aerial images were photographed: Jul 15, 2019—Aug 29, 2019

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
26B	Berlin silt loam, 3 to 8 percent slopes	6.5	1.0%
28A	Elmridge fine sandy loam, 0 to 3 percent slopes	2.8	0.4%
28B	Elmridge fine sandy loam, 3 to 8 percent slopes	3.4	0.5%
101	Occum fine sandy loam	20.0	3.0%
102	Pootatuck fine sandy loam	3.4	0.5%
106	Winooski silt loam	40.4	6.1%
107	Limerick and Lim soils	75.0	11.3%
108	Saco silt loam	44.8	6.7%
263B	Cheshire-Urban land complex, 3 to 8 percent slopes	3.0	0.4%
306	Udorthents-Urban land complex	239.2	35.9%
307	Urban land	84.6	12.7%
308	Udorthents, smoothed	22.0	3.3%
309	Udorthents, flood control	30.9	4.6%
W	Water	90.6	13.6%
Totals for Area of Interest		**666.5**	**100.0%**

ATTACHMENT C

WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: CT FP

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 48.06 Long: -72 39 44.56W Datum:

Soil Map Unit Name: Saco Silt Loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X		
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located alongside a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Area is an isolated remnant flood plain area that is no longer active.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: CT FP

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	35		FACW
2. Populus deltoides	45	yes	FAC
3.			
4.			
5.			
6.			
7.			
	80	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1. Rosa multiflora	40	yes	FACU
2. Celastrus orbiculatus	15		UPL
3. Lonicera japonica	10		FACU
4.			
5.			
6.			
7.			
	65	= Total Cover	

Herb Stratum (Plot size:)			
1. Artemisia vulgaris	35	Yes	Upl
2. Onoclea sensibilis	5		FACW
3. Setaria viridis	5		FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	45	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: CT FP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10yr 3/2	100					fmsl	trace gravel
8-13	10yr 4/6	100					sims	2" sifs lens with OM
13-18	10yr 4/6	100					fms	
18-23	10yr 4/3	95	10yr 3/6	few	C	M	fssi	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#1 UPL

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 47.70N Long: -72 39 43.41W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No X Hydric Soil Present? Yes _____ No X Wetland Hydrology Present? Yes _____ No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located alongside a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled and formerly consisted of floodplain materials.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? **Yes** _____ **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location is along ditch in filled/disturbed uplands.

VEGETATION – Use scientific names of plants.

Sampling Point: WF#1-upl

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Plantago lanceolata	20		facu
2. Rudbeckia hirta	20		facu
3. Artemisia vulgaris	30	yes	upl
4. Populus Deltoides	5		fac
5. Verbascum thapsus	5		upl
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WF#1-upl

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
8	10yr 3/3	100					fsl	
8-14	10yr 4/4	100					sims	
14-19	10yr 3/6	100	5y/r 3/4	10	C	M	sifms	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#1 Wet

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 47.70N Long: -72 39 43.41W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present? Yes X No	
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID: Wetland 1

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located along a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled. Hydric soil has developed along with hydrophytic vegetation. Hydrology is sustained by surface flow and shallow groundwater.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- X Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 14

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: WF#1-wet

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Eleocharis obtusa	40	yes	obl
2. Lythrum salicaria	20		obl
3. Schoenoplectus tabernaemontani	10		obl
4. Ranunculus acris	5		fac
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#1-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
2	10yr 2/1	100					Muck	
16	Gly2 5/5BG	100					vfsclsilt	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#2 UPL

Investigator(s): Martin Brogie Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 47.74N Long: -72 39 43.84W Datum: _____

Soil Map Unit Name: Udorthents Flood Control NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X		
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located alongside a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled and formerly consisted of floodplain materials.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location is along ditch in filled/disturbed uplands.

VEGETATION – Use scientific names of plants.

Sampling Point: WF#2-upl

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Plantago lanceolata	10		facu
2. Achillea millefolium	15		facu
3. Artemisia vulgaris	30	yes	upl
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#2-upl

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
6	10yr 4/2	100					fsl	
6-14	10yr 3/6	100					sisl	
14-21	10yr 4/4	100					fsl	trace gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#2 Wet

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 47.74N Long: -72 39 43.84W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present? Yes X No	
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID: Wetland 2

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located along a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled. Hydric soil has developed along with hydrophytic vegetation. Hydrology is sustained by surface flow and shallow groundwater.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- X Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 8

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: WF#2-wet

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Eleocharis obtusa	30	yes	obl
2. Pontederia cordata	20		obl
3. Schoenoplectus tabernaemontani	10		obl
4. Phragmites australis	30	yes	facw
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	90 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#2-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
2	10yr 2/1	100					Muck	
13	Gly2 3/10BG	100					fms	
19	10yr 3/1	100					fssi	organic streaks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- X Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#3 UPL

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 49.22N Long: -72 39 34.37W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X		
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located alongside a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled and formerly consisted of floodplain materials.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):
Water Table Present?	Yes _____	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location is along ditch in filled/disturbed uplands.

VEGETATION – Use scientific names of plants.

Sampling Point: WF#3-upl

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Glechoma hederacea	10		facu
2. Achillea millefolium	15		facu
3. Artemisia vulgaris	30	yes	upl
4. Vicia americana	10		upl
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#3-upl

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
3	10yr 3/2	100					fsl	
3-14	5yr 4/4	100					fcsis	trace gravel-fill
14-22	10yr 4/4	100					fsl	trace gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#3 Wet

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 49.22N Long: -72 39 34.37W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present? Yes X No	If yes, optional Wetland Site ID: Wetland 3
Wetland Hydrology Present? Yes X No	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located along a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled. Hydric soil has developed along with hydrophytic vegetation. Hydrology is sustained by surface flow and shallow groundwater.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- X Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 8

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: WF#3-wet

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Typha latifolia	30	yes	obl
2. Carex alata	10		obl
3. Schoenoplectus tabernaemontani	10		obl
4. Phragmites australis	30	yes	facw
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	80 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#3-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
2	10yr 2/1	100					Muck	
19	10yr 4/1	100					fms	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- X Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#4 UPL

Investigator(s): Martin Brogie Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 48.79N Long: -72 39 15.81W Datum: _____

Soil Map Unit Name: Udorthents Flood Control NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located alongside a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled and formerly consisted of floodplain materials.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location is along ditch in filled/disturbed uplands.

VEGETATION – Use scientific names of plants.

Sampling Point: WF#4-upl

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Glechoma hederacea	10		facu
2. Solidago canadensis	15		facu
3. Artemisia vulgaris	30	yes	upl
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	55 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#4-upl

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
3	10yr 2/2	100					fsl	
3-17	10yr 4/4	100					ls	
17-22	10yr 3/3	100					fsil	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#4 Wet

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 48.79N Long: -72 39 15.81W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present? Yes X No	
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID: Wetland 4

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located along a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled. Hydric soil has developed along with hydrophytic vegetation. Hydrology is sustained by surface flow and shallow groundwater.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- X Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 8

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: WF#4-wet

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Onoclea sensibilis	30	yes	facw
2. Lemna spp.	10		obl
3. Persicaria maculosa	10		fac
4. Phragmites australis	30	yes	facw
5. Urtica dioica	15		fac
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	95 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#4-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
3	10yr 2/1	100					fsl	
3-9	10yr 3/4	100					fsl	
9-20	10yr 3/2	100					fsl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- X Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#5 UPL

Investigator(s): Martin Brogie Section, Township, Range: _____

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 46.06 Long: -72 39 3.60W Datum: _____

Soil Map Unit Name: Udorthents Flood Control NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No X Hydric Soil Present? Yes _____ No X Wetland Hydrology Present? Yes _____ No X	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** X If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located alongside a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled and formerly consisted of floodplain materials.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches):

Water Table Present? Yes _____ No X Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches):

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location is along ditch in filled/disturbed former floodplain.

VEGETATION – Use scientific names of plants.

Sampling Point: WF#5-upl

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Parthenocissus quinquefolia	10		facu
2. Poa pratensis	35	Yes	facu
3. Prunus serotina	5		facu
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#5-upl

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
3	10yr 3/3	100					fsl	
3-12	10yr 5/3	100					fs	trace gravel
12-22	10yr 4/4	100					fsl	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#5 Wet

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 46.06N Long: -72 39 3.60W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present? Yes X No	
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID: Wetland 5

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located along a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled. Hydric soil has developed along with hydrophytic vegetation. Hydrology is sustained by surface flow and shallow groundwater.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- X Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 20

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: WF#5-wet

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Schoenoplectus tabernaemontani	30	yes	obl
2. Lemna spp.	25	Yes	obl
3. Viburnum dentatum	10		fac
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	65 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL Sampling Point: WF#5-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
4	10yr 2/1	100					fsl	many fine root hairs
4-16	10yr 4/2	100					fms	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- X Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#6 UPL

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 55.49 Long: -72 38 53.71W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?**	**Yes** _____ **No** X
Hydric Soil Present?	Yes _____	No X		
Wetland Hydrology Present?	Yes _____	No X	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located alongside a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled and formerly consisted of floodplain materials. Area is also along an airport runway where additional fill materials are present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):
Water Table Present?	Yes _____	No X	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):

Wetland Hydrology Present? Yes _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Location is along ditch in filled/disturbed floodplain and airport run-way.

VEGETATION – Use scientific names of plants.

Sampling Point: WF#6-upl

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Rumex crispus	10		facu
2. Setaria viridis	35	Yes	facu
3. Plantago lanceolata	15	Yes	facu
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WF#6-upl

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
3	10yr 3/2	100					fsl	trace gravel
3-14	10yr 4/4	100					fmsis	trace gravel
14-23	10yr 6/3	100					ms	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Hartford Dikes Toe Drains City/County: Hartford/Hartford Sampling Date: 11/3/21

Applicant/Owner: City of Hartford State: CT Sampling Point: WF#6 Wet

Investigator(s): Martin Brogie Section, Township, Range:

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0%

Subregion (LRR or MLRA): 144A Lat: 41 43 55.49N Long: -72 38 53.71W Datum:

Soil Map Unit Name: Udorthents Flood Control NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present? Yes X No	
Wetland Hydrology Present? Yes X No	If yes, optional Wetland Site ID: Wetland 6

Remarks: (Explain alternative procedures here or in a separate report.)

Sample site is located along a man-made drainage ditch constructed along an extensive dike system on the Connecticut River. Soil has been excavated and filled. Hydric soil has developed along with hydrophytic vegetation. Hydrology is sustained by surface flow and shallow groundwater.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- X Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- X Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- X Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes X No _____ Depth (inches): 20

Water Table Present? Yes _____ No _____ Depth (inches):

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches):

Wetland Hydrology Present? **Yes** X **No**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: wf#6-wet

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Typha latifolia	30	yes	obl
2. Juncus effusus	25	Yes	obl
3. Sparganium americanum	15		
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	70 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: wf#6-wet

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
1	10yr 2/1	100					muck	
1-2	10yr 2/2	100					fsl	
2-18	10y/r 6/2	100					fcsis	trace gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- X Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L, M**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

APPENDIX E: SELECT PROJECT SPECIFICATIONS

- **01 14 00: Special Permit Restrictions and Utility Authorizations**
- **01 57 13: Temporary Erosion & Sediment Control**
- **01 57 19: Project Permits and Environmental Controls**
- **02 61 15: Handling of Regulated Soil**
- **02 61 50: Transportation and Disposal of Regulated Soil**
- **31 23 23: Fill and Backfill**
- **32 90 00: Site Restoration**
- **32 92 00: Seeding**
- **44 01 40: Operation and Maintenance of Water Discharge System**

SECTION 01 14 00
SPECIAL PERMIT RESTRICTIONS AND UTILITY AUTHORIZATIONS

PART 1 GENERAL

The CONTRACTOR is required to comply with the terms imposed by the permits and approvals listed in and with conditions of the Utilities and other entities noted below who own and/or have operated in some locations where the work will occur. The CONTRACTOR must provide the written work plans, health and safety plans, insurance, permits, and other documents, needed to obtain any additional approvals required to perform the work.

1.1 GENERAL

A. The City of Hartford Toe Drain Replacement Project will be performed on lands owned directly by the City, or on lands over which the City has legal rights to own, operate, and repair its flood control infrastructure. Despite this, the Contractor will be required to coordinate with numerous outside entities that have regulatory, ownership or easement rights, or other control over various locations within the project.

The following is a summary of the regulatory agencies that have issued permits or regulatory authorizations for the project. These permits and authorizations are included in ATTACHMENT A "Owner Obtained Permits and Test Results." The Contractor will be required to fully comply with all terms as described in the permits listed below:

1. City of Hartford/Greater Hartford Flood Commission (GHFC)
    a. GHFC Approval
2. U.S. Army Corps of Engineers
    a. Section 408 Permit.
    b. Section 404 Permit.
3. CT Department of Energy and Environmental Protection
    a. Dam Safety Permit (including Soil Management Plan outline).
    b. Section 401 Permit.
    c. General Permit for Discharge of Groundwater Remediation Wastewater.
    d. General Permit for Discharge of Stormwater and Dewatering Wastewater for Construction Activities.
    e. Natural Diversity Database (NDDB) Determination – Time of Year restrictions will apply in certain project locations due to threatened and endangered species.
4. Federal Aviation Authority (FAA) and CT Airport Authority (CAA)
    a. FAA 7460 Determination The(FAA Determination will govern the Contractor's work hours and specifically will require night work and

weekend work for various sections of the work in proximity to Brainard Airport.

b. FAA authorization 2024 ANE-2486-NRA was received on January 28, 2025 . The Phasing Plan and other documents from the FAA Determination will apply to this project and are included in Attachment A - Owner Obtained Permits.

c. Construction Safety Phasing Plan (CSPP) for Brainard Airport prepared by Alfred Benesch Associates for this project.

1.2 CONTRACTOR COORDINATION W/ UTILITY AND LAND/EASEMENT OWNERS

A. Work under this project will involve significant work in the proximity to existing underground utilities. The new toe drain will be installed adjacent to existing utilities and in some cases, crossing both over and under existing utilities. The Contractor will be required to perform all coordination and permitting with these utility owners. Utility locations shown on the plans are approximate and are based on records that are available.

The Contractor's Test Pit Program will be a key component of installing the new toe drain. The Contractor's test pit information will be provided to the Engineer for review. It is possible that adjustments in the proposed toe drain routing, elevation, or other details may be required to avoid conflicts.

The Contractor's Test Pit Information will also be provided to the utility owners to determine any adjustments or any additional protections needed during construction. The Contractor will be required to coordinate any such adjustments in vertical or horizontal alignment, utility adjustments, or utility protections as part of the contract pay items.

The Contractor shall also allow, and budget for, sufficient time for review and approval by the Engineer, USACE, or CT DEEP if any of the proposed adjustments to the Toe Drain alignment represent significant changes or require redesign. The review and approval process is expected to be completed within 21 days from receipt of the Contractor's alignment/design change request.

The minimum required test pit locations are as shown on the project plans. Additional test pits may be required to evaluate potential utility locations and identify other conflicts. If additional test pits are found necessary, the Contractor shall notify the Engineer in advance of the reason for the additional test pits, estimated number, and type of test pit needed. If approved by the Engineer, additional test pits will be authorized and paid at the contract unit prices.

B. The following are known utility owners who own facilities within the project limits, or who may have utility/easement rights and/or ownership rights over portions of the project, along with the types of issues that may be relevant to the work:

1. The Metropolitan District Commission

a. Support of Excavation for sewer, water and possibly force main.

b. Test pit program to identify required clearances and potential conflicts.
c. Utility crossing coordination and protection of utilities.

2. Buckeye Partners (Buckeye Pipeline)
   a. Utility crossing coordination and protection of utilities.
   b. Test pit program to identify clearances and potential conflicts.
3. Eversource Energy
   a. U/G electric Lines - crossing coordination and protection of utilities.
   b. Test pit program to identify clearances and potential conflicts.
4. CAA Airport
   a. Lighting conduits - crossing coordination and protection of utilities.
   b. Test pit program to identify clearances and potential conflicts.
   c. Construction Safety Phasing Plan (CSPP) for Brainard Airport prepared by Alfred Benesch Associates for this project.
5. Materials Innovation and Recycling Authority (MIRA/CRDA) Site
   a. Property has been owned by MIRA; however, ownership change is expected to occur on July 1, 2025, to the Capital Region Development Authority (CRDA).
   b. City has a permanent easement for flood control infrastructure.
   c. Access to secured area controlled by MIRA/CRDA.
   d. Subject to MIRA/CRDA Health and Safety Requirements.
   e. Obtain entry permits.
   f. Contractor is responsible for coordination of all applicable parts of his work within the MIRA/CRDA property (South Meadows Floodwall work).
   g. The MIRA/CRDA site is encumbered by numerous Environmental Land Use Restrictions (ELUR's) due to contamination from the previous uses of the site. Although proposed excavation work on the site is minimal, any excavation will require compliance with the Temporary Conditional Release (TCR) that was granted to the City for release from certain restrictions of the ELUR. The TCR pertains specifically to work within the City's flood control system easement. The Contractor is responsible to comply with all terms of the TCR and the Soil Management Plan that was that was developed for the site, and to secure all approvals in advance of the work. Contractor shall coordinate and arrange for all required authorizations in advance of the work pursuant to the ELUR's, TCR, and Soil Management Plan. A copy of the Temporary Conditional Release, Soils Management Plan, and Easement 1 A are included in Attachment A

C. City of Hartford Levee Operations and Maintenance:
To the extent possible, the Contractor shall not impede the normal operations or maintenance of the flood control levee. The City must

properly operate and maintain the levee and associated infrastructure to ensure proper flood protection. Where the limits of work are occupied by the Contractor, routine maintenance will be required to be performed by the Contractor. The Contractor is responsible for the vegetation maintenance including mowing/vegetation control on the levee and toe ditch/swale including levee mowing a minimum of 4 times per growing season within the project limits. The Contractor's work in the toe ditch shall be coordinated with the herbicide applications conducted in mid-summer by the City through Stahl Holding LLC dba the Pond & Lake Connection. The specifications for grass maintenance are covered in the specifications.

D. Limited portions of the work may involve access to and work within CT DOT owned rights of way. The CONTRACTOR is responsible to obtain any approvals needed including Encroachment Permits, and provide insurance, signage or other safety devices as required by CT DOT. All costs associated with working in the DOT right of way will be considered part of the unit prices for the related work. There will be no reimbursement for any DOT related costs.

E. The information in this specification is an outline of the generally required steps, however, the Contractor is responsible to investigate the specific and most current requirements of each entity and to fully comply with the requirements of each. This includes scheduling, work sequencing, safety training, work plans and procedures, hours of work, and compliance with the most current construction standards. All such costs will be at the contractor's sole expense.

F. The CONTRACTOR shall prepare project specific Work Plans that provide details of work operations and the means that will be employed to minimize impact on the flood control system, and property and facilities owned by the entities noted above. Work Plans shall include staging, parking, and access details. Support of Excavation, for example, will be a key component among these requirements.

G. Contractor shall comply with other technical requirements included in the various sections of the technical specifications.

1.3 FLOOD CONTINGENCY PLAN

A. The CONTRACTOR is required to develop a Flood Contingency Plan (FCP) that addresses all aspects of the contract work that could be affected by potential flooding conditions. If requested The CONTRACTOR will be provided a sample version of the FCP in MS Word format for use in developing a complete FCP as a contract submittal.

B. The CONTRACTOR shall submit the completed FCP to the OWNER for review and approval prior to the start of any work at the site. CONTRACTOR is notified that the FCP is also subject to review and approval by the U.S Army Corps of Engineers (USACE) which may add time to the review process.

C. General Contents of FCP

1. This plan shall include all provisions needed to allow for the City's effective operation of the flood control system during times of flooding or predicted flooding. This includes removal of CONTRACTOR equipment and materials from areas subject to flooding; cessation of work activities; alterations to the schedule, including stopping work and demobilizing; and avoidance of work during periods of time when the risk of flooding is identified.
2. This plan must be in effect prior to, and during the entire time that the CONTRACTOR is mobilized on any part of the flood control system.
3. Protection must be maintained to accommodate the full capacity of the flood protection system, up to and including the full design flood elevation of 42.0 (1929 NGVD datum). The FCP must contain criteria that will be triggered when designated flood stage levels are predicted and must contain provisions that preclude any impairment of the levee's full protection capability.
4. List key personnel with contact information and flow chart for notifications.
5. List of materials and equipment needed to construct and maintain the temporary system.
6. The FCP must take into consideration the need of Hartford Flood Crews to perform special operations and maintenance during times of flooding, including flood fighting actions.

1.4 HEALTH AND SAFETY PLAN

A. The CONTRACTOR is required to develop a Health & Safety Plan (HASP) that addresses all aspects of the contract work. The HASP is subject to approval by the OWNER, which must be prior to the start of any work at the site. This plan shall include provisions that address the specific requirements of the CAA Brainard Field Airport, MIRA, MDC, Buckeye Pipeline, and CT DOT.

B. The CONTRACTOR'S HASP shall include provisions for worker safety in handling and disposal of impacted and contaminated soil. A limited sampling and testing program for the soils expected to be encountered during the project. The results of the soil testing program are included in Attachment A.

1.5 RELATED DOCUMENTS:

A. Summary of the Work: Section 01 11 00, and all other sections of these contract specifications

1.6 SUBMITTALS:

The CONTRACTOR shall include complete documentation of the compliance with the above including, but not limited to:

A. Submittal Requirements

1. Required submittals are described in the respective technical specification sections.
2. Approval of relevant submittals will be required prior to work commencing.
3. All submittals are subject to review and approval by the Engineer, City of Hartford, and U.S. Army Corps of Engineers. Contractor must allocate sufficient time for submittal preparation and review by these entities.
4. Various submittals require preparation and certification by a professional engineer or other licensed professionals as indicated in the technical specifications.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01 57 13
TEMPORARY EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.1 WORK INCLUDES

A. Provide all layout, products, materials, equipment, tools, services, transportation, supervision, and labor to complete all temporary erosion and sediment control required to complete the work as shown on the drawings and include the following:

1. Install and maintain erosion protection and sediment control.

a. Erosion protection and sediment control measures shall comply with the erosion, and sediment controls shown on the Drawings and approved by Greater Hartford Flood Commission, and all requirements for other local, state, and federal permits associated with erosion protection and sediment control. This shall include, but may not be limited to, the permits described in Section 01 57 19: PROJECT PERMITS AND ENVIRONMENTAL CONTROLS.

1.2 REFERENCES

A. 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, State of Connecticut DEP Bulletin 34, or most current revision.

1.3 DEFINITIONS

A. Sediment and Erosion Control devices as defined herein shall mean silt fences, hay bales, sediment control logs, catch basin inserts, erosion control blankets, anti-tracking pad , or other devices approved by ENGINEER.

B. General Permit: General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities

1.4 SUBMITTALS

A. Submit material specifications and shop drawings for all materials furnished under this Section.

B. Prior to the start of the construction, submit schedule for the construction of required stormwater detention basins, temporary and permanent erosion, and sedimentation control measures, clearing and grubbing, grading, structures at watercourses, construction, and paving.

C. During construction, submit to Engineer schedule changes that affect timing of construction.

D. Submit copies of all inspection and maintenance report forms.

1.5 PERMIT CONDITIONS

A. Contractor and Subcontractors are bound to comply with any project-related permits obtained by Owner or Engineer for the work of the project. Such permits will affect

performance of the work, and Contractor and Subcontractors are bound to comply with requirements of such permit and representations contained in permit application as though Contractor and Subcontractor were the Permittee/permit-holder. Requirements and conditions set forth in Owner or Engineer-obtained project-related permits and permit applications shall be binding on Contractor just as any Specification would be.

1.6 QUALITY CONTROL

A. Contractor shall be responsible for the timely installation and maintenance of all sedimentation control devices necessary to prevent the erosion of soil or movement of sediment from construction activities to off-site areas via surface runoff or underground drainage systems. Measures in addition to those shown on the Drawings necessary to prevent the movement of sediment off site shall be installed, maintained, removed, and cleaned up at the expense of Contractor.

B. Where additional erosion and sedimentation control measures are required beyond what is indicated on the Drawings or herein, comply with applicable sections of the Connecticut Guidelines for Soil Erosion and Sediment Control, DEEP Bulletin 34, State of Connecticut Council on Soil and Water Conservation, 2002.

C. If applicable, comply with applicable provisions of the Connecticut Department of Energy and Environmental Protection (DEEP) General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, (DEEP-WPED-GP-015), latest revision thereof. Conditions of such General Permit, other conditions of approval or authorizations, and associated Stormwater Pollution Control Plan (SWPCP) shall become part of the Contract Documents.

D. Engineer has the authority to order immediate, additional, temporary control measures to prevent contamination of adjacent streams or other watercourses, or other areas of water impoundment and damage by erosion.

E. If Engineer observes construction procedures and operations that jeopardize erosion control provisions, Engineer will notify Contractor. If such construction procedures and operations are not corrected promptly, Engineer may suspend the performance of any or all construction until corrections have been made, and such suspension shall not be the basis of any claim by Contractor for additional compensation, nor for an extension of time to complete the Work.

F. Should construction materials be washed away or otherwise rendered ineffective in the opinion of Engineer during the progression of the Work, Contractor shall replace the installations at no additional cost to the Owner.

PART 2 PRODUCTS

2.1 SILT FENCE

A. Pervious Sheet: Polyester, polypropylene, or nylon filaments, woven into a uniform pattern, distinct and measurable openings.

B. In accordance with requirements of Table 1:

TABLE 1.

Physical Property	Required value	Test Method
Weight, oz./sq.yd., minimum	4	ASTM D 3776
Equivalent Opening Size, maximum	50 – 70	U.S. Standard Sieve
Grab Tensile Strength, lb., minimum	120	ASTM D 4632
Elongation, % maximum	15	ASTM D 4632
Mullen Burst Strength, psi, minimum	300	ASTM D 3786
Ultraviolet Radiation Resistance, % Strength Retention	70	ASTM D4355
Flow Rate, gal/minute/sq.ft, minimum	10	ASTM D 4491
Ultraviolet Radiation Stability, % minimum	90	ASTM G 26

C. Support Fence:
   1. Wire Mesh Material: As recommended by manufacturer of geotextile; strong enough to support applied loads.
   2. Support Posts: As recommended by manufacturer of geotextile.
   3. Fasteners: Heavy-duty wire stables at least 1 inch long, tie wires or hog rings, as recommended by manufacturer of geotextile.

2.2 HAY BALES

A. Hay bales or wattles used for short-term or long-term erosion control, silt fencing, and as vegetation aid shall be certified weed free.

B. Hay bales shall be securely set in place by partially burying the bottoms and anchoring with redwood stakes per Urban Drainage Standards.

2.3 SEDIMENT CONTROL LOGS

A. Straw-filled tube of flexible netting material. Machine-produced tube of compacted straw that is certified weed free. Netting shall consist of seamless, high-density polyethylene and ethyl vinyl acetate and contain ultraviolet inhibitors.

B. Meet the minimum performance requirements in Table 2.

TABLE 2.

Physical Property	Test Method	Required Value
Mass per Unit Weight, lbs/ft	Field Measured	1.6
Dimension, inch diameter	Field Measured	8.0 – 9.0
Net Strand Thickness, inch	Field Measured	0.030
Netting Unit Weight, ounces/ft.	Certified	0.35
Sediment Retention Capacity, lbs/ft	Rainfall Sim.(1)	30
Installed Free-Board Ht., inches	Field Measured	6.0 – 7.0
Soil Loss(1), % effectiveness	Rainfall Sim.(1)	58(2)
De-Stabilizing Moisture, % Retained (max.)	Rainfall Sim.(1)	11

Notes:
1. Minimum of three 10-year predicted storm events on 3H:1V slope with clayey sand type soil.
2. Minimum sediment yield reduction value.

2.4 CATCH BASIN INSERT

A. Catch basin insert shall be a Siltsack®, or approved equivalent.

B. Catch basin insert shall be manufactured to fit the opening of the catch basin or drop inlet. Catch basin insert shall have the following features:
   1. Dump straps attached at the bottom to facilitate the emptying.
   2. Lifting loops as an integral part of the system to be used to lift the insert from the basin.
   3. Restraint cord approximately halfway up the sack to keep the sides away from the catch basin walls, this cord is also a visual means of indicating when the sack should be emptied. Once the strap is covered with sediment, the insert should be emptied, cleaned, and placed back into the basin.

2.5 EROSION CONTROL BLANKETS

A. Erosion control blankets shall satisfy the requirements in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, State of Connecticut DEP Bulletin 34, or most current version. Erosion control blankets shall be:
   1. Composed of fibers and/or filaments that are biodegradable or photodegradable within two years but without substantial degradation over the period of intended usage (five months maximum).
   2. Mechanically, structurally, or chemically bound together to form a continuous matrix of even thickness and distribution that resists raindrop splash and when used with seeding allows vegetation to penetrate the blanket.
   3. Of sufficient structural strength to withstand stretching or movement by wind or water when installed in accordance with the manufacturer's recommendations.
   4. Free of any substance toxic to plant growth and unprotected human skin or which interferes with seed germination.
   5. Contain no contaminants that pollute the air or waters of the State when properly applied.

6. Provide either 80%-95% soil coverage when used as a substitute for Mulch for Seed or 100% initial soil coverage when used as a substitute for Temporary Soil Protection measure.

2.6 ANTI-TRACKING PAD

A. Construct anti-tracking gravel pad to dimensions shown on the drawing or as approved by the ENGINEER to control materials being transported onto public roads via vehicles leaving the site. Maintain proper operations of the anti-tracking pad for the duration of the project.

PART 3 EXECUTION

3.1 GENERAL PERMIT COMPLIANCE

A. Contractor shall be thoroughly familiarized and comply with all terms of the General Permits as listed in Specification 01 14 00 SPECIAL PERMIT RESTRICTIONS AND UTILITY AUTHORIZATIONS-.

3.2 SEDIMENT AND EROSION CONTROL

A. Install erosion controls to the required lines, levels, contours, and datums shown on the Drawings.

B. Install sediment and erosion controls prior to work involving site clearing, stripping, and stockpiling topsoil, excavation, and earthwork.

C. Maintain and repair sediment and erosion controls during course of construction.

3.3 SILT FENCE

A. Silt fence shall be one-piece or continuously sewn to make one-piece geotextile for full height of the fence, including portion buried in the toe trench.

B. When joints are necessary, splice geotextile together only at a support post, with a minimum 6-inch overlap, and securely fasten both ends to support post.

C. Geotextile shall not extend more than 24 inches above the ground surface. Securely fasten to up slope side of each support post using ties or staples. Bottom portion of geotextile shall be securely backfilled in toe trench such that it is not easily pulled out by hand. Geotextile shall not be stapled to existing trees.

D. Fasten wire mesh material support fence securely to up slope side of post fasteners. Extend wire into the trench a minimum of 4 inches, and not more than 36 inches above the ground surface.

E. Take precaution not to puncture geotextile during installation. Repair or replace damaged area.

3.4 SEDIMENT CONTROL LOGS (SCL)

A. Excavate a small trench, 2 to 3 inches in depth on the slope contour and perpendicular to water flow. Soil from the excavation should be placed down slope next to the trench.

B. Install the SCL in the trench, ensuring that no gaps exist between the soil and the bottom of the SCL. The ends of adjacent SCLs should be tightly abutted so that no opening exists for water or sediment to pass through.

C. Wooden stakes should be used to fasten the SCL to the soil. Place stakes at 4 feet on center.

D. Terminal ends of SCL should be doglegged upslope to ensure containment and prevent channeling of sedimentation.

3.5 CATCH BASIN INSERT

A. Install catch basin insert in accordance with manufactures instructions.

3.6 EROSION CONTROL BLANKETS

A. Install at locations where required or as shown on the drawings.

B. Install as shown on the drawings.

C. Install following seeding on slopes of at least 3H:1V, as directed by the ENGINEER, and in accordance with manufacturer's recommendations.

D. Staples shall be installed as per Manufacturer's recommendations.

E. Where two lengths are joined, the end of the up-grade strip shall overlap the down-grade strip.

F. The CONTRACTOR shall maintain and protect the areas with erosion control matting until such time as the turf grass is established.

3.7 ANTI-TRACKING PADS

A. Construct anti-tracking pad as necessary to control sediment leaving the site.

3.8 DUST CONTROL

A. Apply water uniformly over the surface when dust becomes a nuisance or when directed by the ENGINEER. Provide shut-off valve in convenient location on water truck, to allow for regulating water flow.

3.9 MAINTENANCE

A. Inspect control system at least once per week, immediately after each rainfall and daily during prolonged rainfall. Make repairs immediately.

B. Remove and dispose of accumulated sediments when sediment reaches approximately one-third the height of the control system, or when directed by the ENGINEER.

C. Replace control system promptly if fabric decomposes or system becomes ineffective prior to the expected usable life.

D. Maintain or replace system until no longer necessary for the intended purpose.

3.10 REMOVAL OF TEMPORARY FACILITIES

A. Do not remove erosion control facilities without written approval from Engineer.

B. All erosion control facilities will be the property of Contractor and shall be removed and disposed of offsite after all Work is complete.

C. Remove and dispose of sediments collected in the sediment control systems in accordance with Section 01 50 0: TEMPORARY FACILITIES AND CONTROLS.

END OF SECTION

SECTION 01 57 19
PROJECT PERMITS AND ENVIRONMENTAL CONTROLS

PART 1 GENERAL

1.1 WORK INCLUDES

A. Project Permits.

B. Abatement of Air Pollution.

C. Abatement of Noise Pollution.

D. Abatement of Water Pollution.

E. Landscape Preservation.

F. Preservation of Trees and Shrubs.

G. Preservation of Historical and Archaeological Data.

H. Protection of Endangered Species.

1.2 SUBMITTALS

A. Shop Drawings:

1. At least 30 days prior to the start of construction, provide copies of all necessary State and local permits required to complete the Work.
2. At least 30 days prior to the discharge or handling of any wastewaters, submit a detailed Water Quality Management Plan containing the following information:
    a. Name of the person who will be responsible for implementing and carrying out the plan.
    b. Precautions that will be taken to avoid discharge or accidental spills of oil or wastewater into river, stream, watercourse, or lake.
    c. Methods of handling and treating wastewater, including locations for evaporation or settling ponds, treatment facilities, and discharge points. Estimates of the amount of wastewater that may be handled and treated at each location.
    d. Methods for preventing or controlling runoff and erosion for all construction sites, both during and after construction, including the following areas:
        i. Access roads
        ii. Stockpile and waste areas
        iii. Construction plant and equipment yards
        iv. All excavated surfaces
        v. Other impacted areas
    e. The Water Quality Management Plan shall relate the methods and descriptions above to the conditions of required permits.

1.3 PROJECT PERMITS

A. Comply with OWNER obtained permits as listed in Section 01 14 00 SPECIAL PERMIT RESTRICTIONS AND UTILITY AUTHORIZATIONS. Copies of all Owner-obtained permits are included in Attachment A

B. Contractor shall obtain all other incidental permits required for the Work.

C. If the aggregate storage of oil at the Site is over 1,320 gallons or a single container has a capacity in excess of 660 gallons, prepare a Spill Prevention Control and Countermeasure (SPCC) plan. The plan shall be prepared and certified by a Registered Professional Engineer registered in the State of Connecticut.

D. All oil storage tanks shall be placed at least 20 feet from streams, flowing or dry watercourses, lakes, wetlands, reservoirs, and any other water source, and the area surrounding the tanks shall be diked to contain more than 1-1/2 times the volume of the largest tank, or more than half the volume of all tanks within the diked area, whichever is greater. Underground storage tanks shall be used only upon submission and approval of a written management plan documenting all necessary regulatory compliance.

1.4 ABATEMENT OF AIR POLLUTION

A. Abatement of air pollution shall be performed in accordance with the requirements of the Air Pollution Emission Permit and applicable Laws and Regulations concerning the prevention and control of air pollution. Use such methods and devices as are reasonably available to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.

B. Burning of cleared materials, combustible construction materials, and rubbish will not be allowed.

C. Apply a dust-preventive treatment or periodically water access and haul roads to prevent dust.

1.5 ABATEMENT OF NOISE POLLUTION

A. Abatement of noise pollution shall be performed in accordance with applicable Laws and Regulations regarding the prevention, control, and abatement of harmful noise levels.

1.6 ABATEMENT OF WATER POLLUTION

A. CONTRACTOR active on site must sign certification that they are familiar with and they are familiar with and will follow the CT DEEP –Discharge of Stormwater and Dewatering From Construction Activities –Permit and the Stormwater Pollution control Plan

B. Excavated materials or other construction materials shall not be stockpiled or wasted near or on streambanks, lake shorelines, or other watercourse perimeters where they can be washed away by high water or storm runoff or can in any way encroach upon the watercourse itself.

C. Include prevention measures to control silting and erosion, and to intercept and settle any runoff of sediment-ladened waters. Refer to Section 01 57 13: TEMPORARY

EROSION AND SEDIMENT CONTROL. Wastewater from general construction activities, such as drain water collection, drilling, grouting, or other construction operations, shall not enter flowing or dry watercourses without the use of approved turbidity control methods. All such wastewaters discharged shall contain the least concentration of settleable material possible and shall meet all conditions of the DEEP Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.

1.7 LANDSCAPE PRESERVATION

A. Preserve the natural landscape, and conduct operations so as to prevent unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the Work. Movement of crews and equipment within the rights-of-way and over routes provided for access to the Work shall be performed in a manner to prevent damage to property. When no longer required, construction roads shall be restored to original contours and made impassable to vehicular traffic.

1.8 PRESERVATION OF TREES AND SHRUBS

A. Preserve and protect existing vegetation not required or otherwise authorized to be removed. Vegetation shall be protected from damage or injury caused by CONTRACTOR construction operations, personnel, or equipment by the use of protective barriers or other methods. Removal of existing vegetation not specifically required to be removed will require prior approval by ENGINEER.

1.9 PRESERVATION OF HISTORICAL AND ARCHAEOLOGICAL DATA

A. Should CONTRACTOR, or any of CONTRACTOR's employees, or parties operating or associated with CONTRACTOR, in the performance of this Contract discover evidence of possible scientific, prehistorical, historical, or archeological data, immediately cease work at that location and notify ENGINEER, giving the location and nature of the findings. Forward written confirmation to OWNER within 2 days. Exercise care so as not to disturb or damage artifacts or fossils uncovered during excavation operations and provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by OWNER.

B. Where appropriate by reason of discovery, ENGINEER may order delays in the time of performance or changes in the Work, or both. If such delays or changes are ordered, an equitable adjustment will be made in the Contract in accordance with the applicable clauses of the Contract.

1.10 PROTECTION OF THREATENED AND ENDANGERED SPECIES

A. Conform to requirements of applicable project permits, approvals, and local, state, and federal laws, regulations, and ordinances.

B. There are no known Threatened and Endangered Species within the project limits, however, Bald Eagle, Peregrine Falcon, and protected plant species have been identified in the general vicinity. The Contractor shall become familiarized and comply with the protective measures as stipulated in the project permits and Natural Diversity Database

(NDDB).If the presence of these species is observed within the project limits, procedures as described in 1.10 C below shall be followed.

C. Unknown Threatened and Endangered Species

1. If CONTRACTOR, any of CONTRACTOR's employees, or parties operating or associating with CONTRACTOR in the performance of this Contract, discover evidence within the project limits of any endangered or threatened species, including those as listed in 1.10 B above, the Contractor shall:
    a. Immediately cease work at that location.
    b. Notify ENGINEER and OWNER of the location and nature of the findings within 24 hours.
    c. Do not disturb the discovered species or damage habitat.
    d. Cooperate and assist to relocate the species or other disposition by OWNER.
2. Where appropriate by reason of a discovery, ENGINEER may order delays in time of performance or changes in the Work, or both.
    a. If such delays, or changes, or both, are ordered, the time of performance and Contract Price will be adjusted in accordance with the applicable clauses in the Contract.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 02 61 15
HANDLING OF REGULATED SOIL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Provide all layout, products, materials, equipment, tools, services, testing, supervision, and labor to complete all handling of regulated soil required to complete the work.

1.2 RELATED WORK

A. Section 01 35 30: HEALTH AND SAFETY

B. Section 02 61 50: TRANSPORTATION AND DISPOSAL OF REGULATED SOIL

C. Section 31 23 16: EXCAVATION

D. Section 31 23 23: FILL AND BACKFILL

E. Section 15 57 13: TEMPORARY EROSION AND SEDIMENTATION CONTROL

1.3 DEFINITIONS

A. See Definitions in Section 02 61 50: TRANSPORTATION AND DISPOSAL OF REGULATED SOIL.

1.4 SUBMITTALS

A. Submit the following prior to commencement of Work:

1. Soil Management Plan: Submit a soil management plan at least 3 weeks prior to the start of construction activities, submit to the ENGINEER. The Soil Management Plan shall meet the requirements in Article 1.8 below.
2. Constituents anticipated to be encountered for this project are included in the pre-characterization testing results for Soil, Water, and Sediment included as an Appendix to the bid specifications.

B. Submit the following during execution or Work in accordance with Section 01 33 00: Submittal Procedures:

1. All chemical analytical reports within 48 hours of the CONTRACTOR's receipt.
2. Registrations, letters, forms, or applications to be sent to Federal, State of Local environmental regulatory agencies to the ENGINEER for review prior to submittal. Allow 7 days for review. No adjustments for time or money will be made if re-submittals are required due to deficiencies.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Perform earthwork, handling, storage, transportation, and disposal in compliance with applicable requirements of authorities having jurisdiction, including but not limited to the following:

1. Connecticut Department of Environmental Protection.

a. Connecticut Remediation Standard Regulations (RSRs), RCSA 22a-133k-1 to 3.
b. Connecticut Hazardous Waste Regulations, RCSA 22a-449(c)-100 to 119.
c. Connecticut Solid Waste Management Regulations, RCSA 22a-209-1 to 17.
d. Connecticut DEP Bureau of Materials Management and Compliance Assurance - Disposal of Special Waste Authorization (DEP-WEED-APP-200).

2. United States Environmental Protection Agency (EPA)
   a. Federal Hazardous Waste Regulations, 40 CFR 261-268.

B. CONTRACTOR Qualifications: Conform to the following qualifications:
   1. Work must be performed by CONTRACTOR personnel formally trained in procedures for Regulated Soil with proven history of successfully executing similar projects.
   2. Work must be accomplished by CONTRACTOR with proper equipment and personnel experienced in similar work.

C. CONTRACTOR's Qualified Environmental Professional shall be currently licensed as a Licensed Environmental Professional (LEP) in Connecticut.

D. CONTRACTOR's Independent Analytical Laboratory: Conform to the following qualifications:
   1. Accredited by the State of Connecticut Department of Health Services.
   2. Have a minimum 5 years' experience.
   3. Ability to perform all analyses and provide analytical reports in accordance with the CTDEP's Reasonable Confidence Protocols.

1.6 PROJECT CONDITIONS

A. See project conditions in Section 02 61 50: TRANSPORATION AND DISPOSAL OF REGULATED SOIL.

1.7 HEALTH AND SAFETY

A. Conduct all Work regarding loading and on-site transportation of Regulated Soil in accordance with the Health and Safety Plan submitted under Section 01 35 30: HEALTH, SAFETY.

1.8 SOIL MANAGEMENT PLAN

A. Prepare a Soil Management Plan. The plan should be prepared and signed by the CONTRACTOR's Qualified Environmental Professional and at a minimum, this plan shall describe detailed procedures that the CONTRACTOR plans to follow regarding management of all soil and include the following components:
   1. Schedule of activities.
   2. Soil characterization procedures including data quality management.
   3. Storage area construction materials.

4. Storage location(s).
5. Soil segregation procedures.
6. Soil loading location and method.
7. Operating log to track soil origin, storage location and final disposition.
8. Inspection and maintenance procedures.
9. Erosion control, dust control, and anti-tracking procedures.
10. Emergency and preparedness procedures.
11. Transportation routes.
12. Proposed transporters and disposal facilities.
13. Site security.
14. Notwithstanding any testing required by the Contractor, the Soil Management Plan shall address the handling of soils as per previous testing results by the owner that are made an appendix to these contract documents. The Plan shall also address the soils that can reasonably be expected to be encountered within the designated ELUR locations with the MIRA facility. See Section 3.1C of this specification.

B. No work shall be performed related to excavation and handling of any soil until the Soil Management Plan is submitted to and approved by the ENGINEER. However, the time to perform under the contract will begin on the date stipulated in the Notice to Proceed.

C. Maintain the Soil Management Plan on site and keep it current with Regulated Soil management activities including loading for transportation and actual site conditions.

D. Inform all on-site workers and subcontractors of all site safety rules, known or potential hazards, and emergency response procedures.

1.9 SCHEDULING

A. Notify the ENGINEER a minimum of 14 calendar days prior to the start of excavation of Regulated Soil. The ENGINEER will be responsible for contacting regulatory agencies in accordance with the applicable reporting requirements.

PART 2 PRODUCTS

2.1 MATERIALS

A. Stockpile Liner: The stockpile liner shall be manufactured of new, first quality product designed and manufactured specifically for the intended use and have the following properties:
1. The material shall be U.V. resistant (black in color).
2. The material shall be impervious to prevent precipitation from entering the stockpile or liquids from migrating to underlying soil.
3. The material shall be 20 mil thickness (liner under stockpile) and 10 mil thickness (liner over stockpile.)

B. Spill response materials: Provide appropriate spill response materials including, but not limited to the following: containers, adsorbents, shovels, and personal protective

equipment. Spill response materials shall be available at all times when Regulated Soil is being handled or transported. Spill response materials shall be compatible with the type of soil and contaminants being handled and detailed in the Site-Specific HASP.

PART 3 EXECUTION

3.1 ONSITE REUSE

A. Reusable Regulated Soil shall be:
   1. Reused on site as backfill in locations above the water table and not in areas subject to erosion in accordance with requirements in Section 31 23 23: FILL AND BACKFILL. Document the backfill location and depth in a drawing for any Reusable Regulated Soil reused.
   2. Managed, disposed of, treated, or recycled in accordance with the requirements for Regulated Soil, if not suitable for reuse or surplus.

B. Clean Fill shall be managed as specified in Section 31 23 23: FILL AND BACKFILL.

C. Hazardous Soil may be encountered within certain portions of the work limits. The MIRA/CRDA facility is denoted with numerous Environmental Land Use Restrictions (ELUR's) the Site. Work within the MIRA site, although limited, may encounter various impacted soils during operations such as pipe spot repairs.

D. Work on the MIRA/CRDA site is limited to the areas within Easement 1A which is in favor of the City of Hartford (GHFC). For flood control maintenance and repairs, the City was released from the ELUR through the Temporary Conditional Release (TCR) which is included in Attachment A. The TCR also references a (separate) Soil Management Plan that is also included in Attachment A and must be complied with for all excavation work on the MIRA/CRDA. Additional arrangements will be required to handle such materials. . Contractor shall coordinate and arrange for all required authorizations in advance of the work pursuant to the ELUR's, TCR, and Soil Management Plan.

   Although the volume of disturbed soil and pipe cleaning sediment on the MIRA/CRDA site will be limited, it is possible that testing may indicate that the soils are considered contaminated or hazardous. Contractor shall become familiarized with the ELUR and TCR and handle and dispose of all such soils appropriately.

3.2 REGULATED SOIL MANAGEMENT

A. Manage Regulated Soil in accordance with the procedures in the approved Soil Management Plan, approved HASP and the CTDEEP General Permit for Contaminated Soil and/or Sediment Management (General Permit).

B. Direct load Regulated Soil, which has been characterized in place, and ship it off site to the approved and permitted treatment, recycling, or disposal facility. If Regulated Soil has not been pre-characterized or if direct loading is not otherwise feasible, place the Regulated Soil in temporary storage immediately after excavation.

C. On-Site soil storage locations are limited to any indicated in the drawings or to off-site locations established by the CONTRACTOR per the approved Soil Management Plan.

No other location other than those indicated will be allowed for the storage of soil. Complete the Work in a manner that the soil storage capacity will not be exceeded.

D. Store Regulated soil in segregated bins within the soil stockpile or in separate stockpiles so that there is a discrete bin or stockpile represented by each characterization sample that is chemically analyzed.

E. Storage units shall be in good condition and constructed of materials that are compatible with the soil to be stored. Each stockpile or bin shall be clearly labeled with an identification number and a written log shall be kept to track the source of Regulated Soil in each temporary storage unit.

F. Stockpiles shall be constructed to isolate stored Regulated Soil from the environment. Stockpiles shall be constructed to include a chemically resistant geomembrane liner free of holes and other damage. The ground surface on which the geomembrane is to be placed shall be free of rocks greater than 0.5 inches in diameter and any other object which could damage the membrane.

G. The maximum on-site stockpile size shall be 1,000 cubic yards for Regulated Soil that is also classified as Contaminated Soil unless a registration has been submitted to and approved by the CTDEEP under the General Permit.

H. Contaminated Soil cannot be stockpiled off site unless a registration has been submitted to and approved by the CTDEEP under the General Permit.

I. Provide a concrete barrier surrounding the stockpile and a gravel runoff barrier at vehicle access points.

J. Cover stockpiles with a geomembrane cover free of holes or other damage to prevent precipitation from entering the stockpile. Extend the cover material over the bituminous runoff barrier or staked hay bales and anchor or ballast with sand bags or other suitable material to prevent it from being removed or damaged by wind.

K. Roll-off units, if used to temporarily store Regulated Soil, shall be water tight. A cover shall be placed over the units to prevent precipitation from contacting the stored soil.

L. Except for storm drain cleaning operations, liquids are not anticipated to be generated. If miscellaneous liquids such as rainwater that has contacted Regulated Soil or decontamination wastewaters from washing of Regulated soil from equipment or materials are generated, temporarily store them in containers that are water-tight and located in an area approved by the ENGINEER. Dispose of liquids in a properly permitted off-site treatment, disposal or recycling facility approved by the ENGINEER.

M. Manage all materials in the stockpile to minimize tracking of potential contaminated materials across the site and minimize dust generation.

3.3 SPILLS

A. Immediately notify the ENGINEER in the event of a spill or release of a hazardous substance, pollutant, contaminant, or oil. The OWNER will be responsible for any notifications to regulatory agencies. Follow the pre-established procedures as described in HASP and spill response plan in the Soil Management Plan. Immediately take

containment actions to minimize the effect of any spill or leak. Cleanup in accordance with applicable federal, state, and local regulations. Perform extra sampling and testing as directed by the ENGINEER to verify spills have been cleaned up. Spill cleanup and testing shall be done at no additional cost to the OWNER.

END OF SECTION

SECTION 02 61 50
TRANSPORTATION AND DISPOSAL OF REGULATED SOIL

PART 1 GENERAL

1.1 WORK INCLUDES

A. Provide all layout, products, materials, equipment, tools, services, testing, transportation, supervision, and labor to complete all transportation and disposal of regulated soil required to complete the work.

1.2 RELATED WORK:

A. Section 01 35 30: HEALTH AND SAFETY

B. Section 02 61 15: HANDLING OF REGULATED SOIL

C. Section 31 23 16: EXCAVATION

D. Section 31 23 23: FILL AND BACKFILL

1.3 DEFINITIONS

A. Contaminated Soil: Treated or untreated soil and/or sediment affected by a known or suspected release and determined or reasonably expected to contain substances exceeding Residential Direct Exposure Criteria or GA Pollutant Mobility Criteria, as these terms are defined in the Remediation Standard Regulations (RCSA Section 22a-133k-1).

B. Hazardous Soil: Soil that is classified as a hazardous waste. Soil is classified as hazardous waste if it exhibits a hazardous waste characteristic or if it contains RCRA-listed hazardous constituents above Connecticut's RCRA "Contained-In" Policy dated May 2002.

C. Hazardous Waste Disposal Area: Facility permitted for treatment, storage, or disposal of Hazardous Waste under RCRA and applicable Connecticut laws and regulations.

D. Polluted Soil: Soil affected by a release of a substance at a concentration above the analytical detection limit for such substance in accordance with RCSA 22a-133k-1(a)(45) or for naturally occurring substance at a concentration that exceeds concentrations that naturally occur in the environment.

E. Regulated Soil: Includes Polluted Soil and Contaminated Soil.

F. Reusable Regulated Soil: Regulated Soil with substance concentrations above the analytical detection limit for such substance in accordance with RCSA 22a-133k-1(a)(45) and below the residential direct exposure criteria and the GB pollutant mobility criteria as these terms are described in the Remediation Standard Regulations (RCSA 22a-133k-1 through 3), which do not contain polychlorinated biphenyls.

G. Soil: As used in this section soil includes natural soil, natural sediment, rock, brick, ceramics, concrete, asphalt paving fragments, and other miscellaneous debris and solid waste.

H. Special Waste Disposal Area: Facility permitted to receive solid waste under RCSA Sections 22a-209-1 through 13, or for facilities not located in Connecticut, permitted by the state to receive solid or industrial waste.

I. Treatment or Recycle Facility: Facility permitted to treat or recycle Regulated Soil that is permitted under RCSA 22a-174-3 and CGS Section 22a-454 or for facilities not located in Connecticut, permitted by the state in which the facility is located to treat or recycle Regulated Soil.

1.4 SUBMITTALS:

A. Submit the following prior to commencement of Work:
   1. Transporter Information:
      a. The name and address of transporters to be used on the project to transport Regulated Soil.
      b. Current licenses and permits to operate in all states affected by transport.
   2. Facility Information:
      a. General Information:
         i. Facility Name
         ii. Facility Address
         iii. Name of Contact Person
         iv. Title of Contact Person
         v. Telephone Number of Contact Person
         vi. Permit Number
   3. Written confirmation from the facility that they are permitted to accept and will accept material of the general quality and quantity described by these Specifications.
      a. Facility permits.
      b. Facility acceptance criteria.
      c. Written approval from Connecticut Department of Energy and Environmental Protection (CT DEEP) for disposal of Regulated Soil or use of Regulated Soil as cover soil in a solid waste disposal area or for beneficial reuse as fill at facilities located in Connecticut.
      d. Facility sampling frequency and analytical testing requirements.

B. Submit the following during execution of Work:
   1. Waste profile forms, material shipping records or any other forms, letters or documents that must be signed by the OWNER to obtain authorizations for disposal no less than 7 days in advance of shipping materials off site.
   2. Shipping papers or manifests that must be signed by the OWNER no less than 48 hours in advance of shipping materials off site.
   3. Certified manifests or shipping paper and weigh slips from the approved disposal facilities for Regulated Soil transported and disposed of offsite within 5 days of CONTRACTOR's receipt. At a minimum, manifests and weigh slips include the following:
      a. Transporter name, address, and telephone number.

b. Truck number, date, and time of load-out.
c. Gross weight, tare weight and net weight of truck.

4. All chemical analytical reports within 48 hours of the CONTRACTOR's receipt.
5. Registrations, letters, forms, or applications to be sent to Federal, State of Local environmental regulatory agencies to the ENGINEER for review prior to submittal. Allow 7 days for review. No adjustments for time or money will be made if re-submittals are required due to deficiencies.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements: Perform earthwork, storage, transportation, and disposal in compliance with applicable requirements of authorities having jurisdiction, including but not limited to the following:

1. Connecticut Department of Energy and Environmental Protection
   a. Connecticut Remediation Standard Regulations (RSRs), RCSA 22a-133k-1 to 3.
   b. Connecticut Hazardous Waste Regulations, RCSA 22a-449(c)-100 to 119.
   c. Connecticut Solid Waste Management Regulations, RCSA 22a-209-1 to 17.
   d. CT DEEP Bureau of Materials Management and Compliance Assurance - Disposal of Special Waste Authorization (DEP-WEED-APP-200).
2. Massachusetts Department of Environmental Protection (MassDEP),
   a. Massachusetts Solid Waste Management Regulations, 310 CMR 19.000.
   b. Reuse and Disposal of Contaminated Soil at Massachusetts Landfills, DEP Policy No. COMM-97-001.
   c. MassDEP Bureau of Waste Prevention – Solid Waste Management – Special Waste Determination (BWP SW 14, 31).
   d. MassDEP Bureau of Waste Prevention – Solid Waste Management – Beneficial Use Determination (BUD) (BWP SW 40).
3. United States Environmental Protection Agency (EPA)
   a. Federal Hazardous Waste Regulations, 40 CFR 261-268.
4. The OWNER will be the "generator" of all Regulated Soil. OWNER information is as follows:
   a. Owner's Name: The City of Hartford
   b. ATTN: Frank Dellaripa, P.E., City Engineer /Assistant Director of Public Works
   c. Owner's Address: 50 Jennings Road, Hartford, Connecticut 06120
   d. Owner's Telephone Number: (860) 757-9975
   e. Owner's email: Frank.Dellaripa@hartford.gov
   f. Project Name: Toe Drain Repairs, South Meadows Dike
   g. Site Address: Maxim Road, Hartford, CT 06120

B. CONTRACTOR Qualifications: Conform to the following qualifications:

1. Work must be performed by CONTRACTOR personnel formally trained in procedures for Regulated Soil with proven history of successfully executing similar projects.
2. Work must be accomplished by CONTRACTOR with proper equipment and personnel experienced in similar work.

C. CONTRACTOR's Qualified Environmental Professional shall be or work under the direct supervision of a currently licensed as a Licensed Environmental Professional (LEP) in Connecticut and, if applicable, Licensed Site Professional (LSP) in Massachusetts.

D. CONTRACTOR's Independent Analytical Laboratory: Conform to the following qualifications:
1. Accredited by the State of Connecticut Department of Health Services.
2. Have a minimum 5 years of experience.
3. Ability to perform all analyses and provide analytical reports in accordance with the CTDEEP's Reasonable Confidence Protocols.

1.6 PROJECT CONDITIONS

A. The geotechnical and environmental reports listed below provide soil chemical analysis, and boring logs showing subsurface conditions. Information regarding the approximate ground water elevations is also included. Information attached to the Contract Documents as follows:
1. GEI Consultants (2013), Supplemental Geotechnical Data included as an Appendix to the bid specifications.
2. Pre-characterization testing results for Soil, Water, and Sediment included as an Appendix to the bid specifications.

B. Notify the ENGINEER if unexpected subsurface conditions are encountered and discontinue work in that area until ENGINEER provides notification to resume work.

C. The ENGINEER shall be notified within 24 hours if Regulated Soil is discovered that has not been previously identified or if other discrepancies between data provided and actual field conditions are discovered.

D. Do not remediate, excavate, treat, or delineate Regulated soil, not previously identified, without consent from the ENGINEER.

PART 2 PRODUCTS

2.1 MATERIALS

A. Spill response materials: Provide appropriate spill response materials including, but not limited to the following: containers, adsorbents, shovels, and personal protective equipment. Spill response materials shall be available at all times when Regulated Soil is being handled or transported. Spill response materials shall be compatible with the type of soil and contaminants being handled and detailed in the Site-Specific Health and Safety Plan.

B. Packaging, Labeling, Marking and Placarding Materials: The CONTRACTOR shall provide all of the materials required for the packaging, labeling, marking, placarding and transportation of contaminated materials in conformance with Department of Transportation standards. Details in this specification shall not be construed as establishing the limits of the CONTRACTOR's responsibility

PART 3 EXECUTION

3.1 SAMPLING AND ANALYSIS

A. The CONTRACTOR's Qualified Environmental Professional shall sample Regulated Soil and have the samples analyzed as required by the treatment, recycling, or disposal facility to supplement existing data. This analysis can be performed on samples of in-situ soil collected prior to excavation or on samples of excavated soil that has been stockpiled. The frequency of sampling and parameters analyzed shall be performed as required by the treatment, recycling, or disposal facility.

B. Submit a copy of all analytical results to the ENGINEER within 24 hours of the CONTRACTOR's receipt of the laboratory report. Analytical data shall only be distributed to the OWNER and ENGINEER.

C. Coordinate schedule so that ENGINEER may observe sample collection activities.

D. All chemical analysis shall be performed by a laboratory certified by the State of Connecticut Department of Health Services and as applicable in accordance with the CT DEEP Reasonable Confidence Protocols.

3.2 FACILITY APPROVAL

A. Upon receipt of the final approval from the treatment, recycling or disposal facility, the CONTRACTOR shall immediately forward a copy of said approval to the ENGINEER. The CONTRACTOR shall be responsible for coordinating facility approval, loading, transportation, and ultimate disposal of the material at the facility.

3.3 REUSE AND DISPOSAL

A. Surplus or unsuitable Regulated Soil shall be:

1. Used as cover or disposed of in a Special Waste Disposal Area provided written approval is obtained from CT DEEP under RCSA Sec.22a-209-8 for use in an in-state facility.
2. Beneficially reused at a Massachusetts permitted lined or unlined landfill under Massachusetts Department of Environmental Protection Policy # COMM-97-001.
3. Taken to a Special Waste Disposal area for disposal or use as cover in a facility not located in Massachusetts or Connecticut.
4. Taken to a properly permitted Treatment or Recycling Facility for thermal treatment or recycling.
5. Reused at an off-site location in accordance with RCSA Sec. 22a-133k-2(h)(3) provided that written approval is obtained from CT DEEP for such reuse.
6. Disposed in a Hazardous Waste Disposal Area.

3.4 WASTE PROFILES, SHIPPING RECORDS AND MANIFESTS

A. Prepare and submit to the ENGINEER for review all waste profiles or material shipping records and coordinate with disposal facilities.

B. Prepare all manifests and shipping documents required to the ENGINEER for review. ENGINEER will be responsible for obtaining OWNER's signature. For most types of Regulated Soil signed documents are not required for each load.

C. Submit to OWNER and the ENGINEER, prior to receiving progress payment, documentation certifying that all materials were transported to, accepted, and disposed of, at the selected receiving facility, including but not limited to:

1. Facility signed manifests.
2. Weight slips. Provide certified tare and gross weights for each load.

3.5 LOADING

A. Load Regulated Soil for transport from the project site to the facility following approval by the ENGINEER.

B. Load all Regulated Soil into the transportation vehicle.

C. Following load-out from the stockpile or direct loading each day, remove residual Regulated Soil resulting from spillage from the loading area and return it to appropriate stockpile.

3.6 TRANSPORTATION

A. The Transporter shall adhere to all pertinent Federal, State, and local laws or regulatory agency policies.

B. No material shall leave the site until the treatment, recycling or disposal facility has approved shipments.

C. Cover transported Regulated Soil prior to leaving the point of generation and until its arrival at the treatment, recycling, or disposal facility.

D. All vehicles departing the Site are to be properly logged to show the vehicle identification number, driver's name, time of departure, destination, and approximate volume and content of materials.

E. All transportation vehicles are to have secure bodies and be free of defects for material transportation.

3.7 SPILLS

A. Immediately notify the ENGINEER in the event of a spill or release of a hazardous substance, pollutant, contaminant, or oil. The OWNER or ENGINEER will be responsible for any notifications to regulatory agencies. Follow the pre-established procedures as described in HASP. Immediately take containment actions to minimize the effect of any spill or leak. Cleanup in accordance with applicable federal, state, and local regulations. Perform extra sampling and testing as directed by the ENGINEER to verify

spills have been cleaned up. Spill cleanup and testing shall be done at no additional cost to the OWNER.

END OF SECTION

SECTION 31 23 23
FILL AND BACKFILL

PART 1 GENERAL

1.1 WORK INCLUDES

A. Provide all layout, products, materials, equipment, tools, services, transportation, supervision, and labor to complete all fill and backfill required to complete the work as shown on the drawings and including the following:
   1. Fill and backfill associated with but not limited to:
      a. Subdrainage.
      b. Manholes and Catch Basins.
      c. Miscellaneous fill or backfill not specifically covered in other sections.
   2. Does not include special earth materials covered in other Specification Sections, including Section 31 37 00: RIPRAP AND RIPRAP BEDDING, and Section 32 92 00 Seeding.

1.2 REFERENCES

A. The following is a list of standards which may be referenced in this Section:
   1. American Society for Testing and Materials (ASTM):
      a. ASTM C 33, Standard Specification for Concrete Aggregates
      b. ASTM C 88, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
      c. ASTM C 117, Standard Test Method for Materials Finer Than 75-Micrometers (No. 200) Sieve in Mineral Aggregates by Washing
      d. ASTM C 136, Standard Method for Sieve Analysis of Fine and Coarse Aggregates
      e. ASTM D 75, Standard Practice for Sampling Aggregates
      f. ASTM D 422, Test Method for Particle-Size Analysis of Soils
      g. ASTM D 698, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3))
      h. ASTM D 1556, Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
      i. ASTM D 1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3))
      j. ASTM D 2216, Laboratory Determination of Water (Moisture) Content of Soil Rock, and Soil-Aggregate Mixtures
      k. ASTM D 2488 - Practice for Description and Identification of Soils (Visual-Manual Procedure)
      l. ASTM D 2922, Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

m. ASTM D 4959 - Test Method for Determination of Water Content (Moisture) by Direct Heating Method

n. ASTM D 2937 - Test method for Density of Soil in Place by the Drive-Cylinder Method

o. ASTM D 3017, Moisture Content of Soil and Soil-Aggregates in Place by Nuclear Methods (Shallow Depth)

p. ASTM D 3740, Practice for the Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

q. ASTM D 4318, Standard Test Method for Liquid Limit, Plastic Limit, Plasticity Index of Soils

r. ASTM D 5084, Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

2. American Association of State Highway and Transportation Officials (AASHTO):
   a. AASHTO T27, Standard Method of Test for Family of Curves-One Point Method, in the Standard Specifications for Transportation Materials and Methods of Sampling and Testing, Part II Tests.
3. Connecticut Department of Transportation (CONNDOT), Standard Specifications for Roads, Bridges, and Incidental Construction, Form 818. Any reference to the CT DOT Form 818 is solely for use in resolving technical details and shall apply only to the extent that the technical details are not adequately addressed in the project technical specifications. Under no circumstances shall the DOT 818 be used to resolve or modify any payment or other contractual terms.
4. American National Standards Institute (ANSI): Z35.1, Safety Color Red.
5. American Public Works Association (APWA): Uniform Color Code for Temporary Marking of Underground Utility Locations.

1.3 DEFINITIONS

A. Refer to applicable definitions of Section 31 23 16: EXCAVATION.

B. Backfill: Fill materials placed in trenches, overexcavated areas, and around structures, pipes, and other facilities.

C. Certified/Certification: Review, approved, stamped, and signed by a Professional Engineer registered in the State of Connecticut.

D. Completed Course: A course or layer that is ready for next layer or next phase of Work.

E. Coverage: One coverage is defined as the requirement for successive trips of a piece of compaction equipment, which by means of sufficient overlap, will ensure contact on the entire surface of the layer by the equipment.

F. Deleterious Materials: Organic matter, trash, rubbish, debris, oversize materials, and soluble materials.

G. Fill: All materials used to raise existing grade where not defined as backfill.

H. Fines: Material passing the No. 200 sieve as determined in accordance with ASTM D 422.

I. Imported Material: Material obtained from sources off site.

J. Lift: Loose (uncompacted) layer of material.

K. Optimum Water Content:
   1. Determined in accordance with ASTM Standard specified to determine maximum dry density for relative compaction.
   2. Determine field water content on basis of fraction passing 3/4-inch sieve.

L. Oversize Materials: Soil particles, soil clods, sedimentary fragments, rocks, and other materials having a maximum dimension in excess of the specified limits.

M. Particle Size: The size of a particle before compaction measured parallel to its longest dimension.

N. Period of Inactivity or Extended Shutdown: Four days.

O. Prepared Foundation: Ground surface after completion of required clearing and grubbing, stripping of topsoil, excavation to grade, and foundation preparation.

P. Processed Fill: Fill material that is physically modified by CONTRACTOR to derive a material that is suitable for a specific use.

Q. Relative Compaction:
   1. Ratio, in percent, of as-compacted field dry density to laboratory maximum dry density as determined in accordance with ASTM D 1557.
   2. Apply corrections for oversize material to either as-compacted field dry density or maximum dry density, as determined by ENGINEER.

R. Relative Density: Calculated in accordance with ASTM D 4254 based on maximum index density determined in accordance with ASTM D 4253 and minimum index density determined in accordance with ASTM D 4254.

S. Well-Graded:
   1. A mixture of particle sizes with no specific concentration or lack thereof of one or more sizes.
   2. Does not define numerical value that must be placed or coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters.
   3. Used to define material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.

1.4 SUBMITTALS

A. Administrative
   1. Contractors Fill and Backfill Quality Control Plan. Plan shall include name of person or firm who will perform quality control testing, their qualifications, types, and frequency of quality control testing.

B. Shop Drawings:

1. Catalog and manufacturer's data sheets for all equipment to be used to compact fill and backfill.

C. Samples:
   1. Imported material taken at source.

D. Quality Control Submittals:
   1. Certified test results documenting conformance with all Specification requirements for:
      a. Imported materials.
      b. Onsite materials proposed for reuse onsite.

1.5 CONTRACTOR QUALITY CONTROL

A. Provide certified quality control test results for all imported material. Provide submittal prior to importing materials. Provide tests as specified during production.

B. Perform water content, field density, gradation, and other tests during borrow materials development and fill placement as needed to develop and manage operations and produce consistent embankment fill and backfill meeting the Specifications.

C. Notify ENGINEER when any one of the following occur:
   1. Backfill is about to be placed on prepared foundation, or backfill operations are about to be resumed after a period of inactivity.
   2. Structures are ready for backfilling, or backfilling operations are about to be resumed after a period of inactivity.
   3. Soft or loose surface is encountered where fill or backfill is to be placed.
   4. Materials appear to be deviating from the Specifications.
   5. Initial sampling of imported material is to be conducted or importing of a material to the site is about to begin.

1.6 OWNER QUALITY ASSURANCE

A. OWNER and /or its agents will perform field quality assurance tests to measure density and water content of soil in place, laboratory full compaction and associated one-point compaction tests, and gradation or index tests to confirm that materials placed meet the requirements of these Specifications.

B. CONTRACTOR shall remove surface material and provide assistance as necessary with sampling and testing.

C. OWNER will also procure the services of a Geotechnical Engineer to perform quality assurance functions including review of CONTRACTOR Fill and Backfill Quality Control Plan; Contractor's proposed soil testing program; review and verification of accuracy of testing results; independent testing where necessary to determine key fill, backfill, and compaction parameters; and site inspection and observation services.

PART 2 PRODUCTS

2.1 SOURCE QUALITY CONTROL

A. Source(s) of imported material must be approved by ENGINEER before material is imported to the site.

B. Samples:
   1. Provide one 50-pound sample of each imported material, collected in accordance with ASTM D 75, at least 28 days before importing to the site.
   2. Clearly mark to show source of material and intended use.
   3. Provide certified test results to document conformance with Specification requirements.

C. Tests:
   1. As necessary to locate acceptable sources of imported material and to develop and manage borrow areas.
   2. During production of imported material, perform gradation test and Atterberg limits test in accordance with ASTM D422 and ASTM D 4318, respectively at a minimum frequency of one per every 150 cubic yards of imported material delivered to the site.
   3. Perform a minimum of one laboratory compaction test per ASTM D 1557for every 300 cubic yards of material delivered to the site.
   4. During production of imported material, perform soundness testing in accordance with ASTM C 88.
   5. Clearly mark test results to show source of material date tested and intended use.
   6. Provide gradation test results to ENGINEER within 48 hours of sampling; provide all other test results to ENGINEER upon test completion.

D. Fill materials that are derived from processing of on-site borrow rather than being imported, shall meet the requirements under SOURCE QUALITY CONTROL.

2.2 PERVIOUS FILL

A. Clean sands and sands with silt and clay derived from excavated soils or imported materials, well graded, and having a maximum particle size of 3 inches, fines and plasticity characteristics noted below for each zone, and free of deleterious materials.

B. Maximum Fines Content: 10 percent after placement and compaction in the fill.

C. Maximum plasticity index: 10

D. Allowable USCS classifications: SP, SW, SW-SC, SP-SC, SW-SM, and SP-SM

E. Blend adequately during placement such that the compacted material forms a uniform, homogeneous, dense, void free, and relatively pervious compacted fill.

F. Remove cobbles, boulders, hard bedrock fragments, or other particles larger than 6 inches.

2.3 TRENCH BACKFILL (ORDINARY FILL)

A. On-site soils from excavations are generally acceptable as Ordinary fill unless deemed unacceptable by the ENGINEER.

B. Ordinary fill shall consist of hard, durable sand and gravel, free of clay, organic matter, surface coatings, and other deleterious materials.

C. Materials will be well graded, having a maximum particle size of 3 inches. Remove cobbles, boulders, or other particles larger than 3 inches.

D. Soil finer than the No. 200 sieve shall be non-plastic.

E. Gradation Limits:

Sieve Size	Percent Passing (%)
3-inch	100
2-inch	80-100
No. 4	20-100
No. 200	0-20

F. On-site soils that do not meet these gradation limits may be used as ordinary fill if approved by the ENGINEER.

2.4 FILTER SAND

A. Imported fine aggregate conforming to the requirements of ConnDOT M.03.01.2.

2.5 DRAIN AGGREGATE (NO. 89 AGGREGATE)

A. Imported coarse aggregate conforming to the requirements of ASTM C 33, Gradation of Aggregate, No. 89 Aggregate.

2.6 PIPE BEDDING

A. Pipe bedding material shall conform to the requirements of ConnDOT M.08.01. This material shall be sand or sandy soil, all of which passes a 3/8-inch (9.5-millimeter) sieve, and not more than 10% passes a No. 200 (75-micron) sieve.

B. When ground water is encountered, the Engineer may allow No. 6 stone conforming to ConnDOT M.01.01 to be used instead of sand or sandy soil.

2.7 TOPSOIL

A. Topsoil shall meet requirements of CONNDOT M.13.01-1. Topsoil shall meet the soil textural classes established by the USDA Classification System based upon the proportion of sand, silt, and clay size particles after passing a No. 10 (2 millimeter) sieve and subjected to a particle size analysis. The topsoil shall not contain less than 6% nor more than 20% organic matter as determined by loss on ignition of oven-dried samples dried at 221° F (105° C).

1. The following textural classes shall be acceptable:

a. Loamy sand, including coarse, loamy fine, and loamy very fine sand

b. Sandy loam, including coarse, fine, and very fine sandy loam
c. Loam
d. Silt loam, with not more than 60% silt

B. The topsoil to be furnished by the CONTRACTOR shall be loose and friable and free from refuse, stumps, roots, brush, weeds, rocks, and stones over 1 inch (25 millimeters) in diameter. The topsoil shall also be free from any material that will prevent the formation of a suitable seedbed or prevent seed germination and plant growth.

C. The CONTRACTOR shall notify the ENGINEER of the location from which he proposes to furnish topsoil to the project at least 15 calendar days prior to delivery.

D. The CONTRACTOR will be allowed to strip and re-use existing topsoil.

E. Topsoil which does not meet specifications or which has become mixed with undue amounts of subsoil during any operation at the source or during placing and spreading, will be rejected and shall be replaced by the CONTRACTOR with acceptable material at his expense.

2.8 WATER FOR MOISTURE CONDITIONING

A. Free of hazardous or toxic contaminates, or contaminants deleterious to proper compaction.

2.9 MOISTURE CONDITIONING EQUIPMENT

A. Provide water trucks and/or tankers and other supplemental equipment necessary to uniformly apply water in excavation areas and to loose lifts of material for proper compaction and for watering of completed courses until overlying courses are placed.

B. Watering equipment shall be equipped with pressurized distributor bars or other means necessary to assure uniform application or water.

C. Provide blades, discs, and other supplemental equipment necessary to process, blend non-uniform fill and backfill materials, for aerating and drying out wet materials, and for scarification of completed courses.

D. Discs shall be of sufficient type, size, and power to blend the full depth of the loose lifts, and to cut into and scarify the underlying completed course to a depth of 2 inches to allow bonding of successive lifts. In addition, discs shall be adjustable to allow light scarification of completed courses or haul roads that require reconditioning prior to placement of overlying fill.

2.10 COMPACTION EQUIPMENT

A. Provide dedicated compaction equipment of suitable type, capable of achieving the requirements of the Specifications, and which provide a satisfactory uniform, homogeneous fill for each zone of material.

B. Hauling or placement equipment shall not be considered compaction equipment except under special circumstances as specified below.

C. Provide hand-operated equipment for use in confined areas not accessible to regular compaction equipment or where regular compaction equipment might damage structures or piping. Compaction equipment shall be subject to the approval of ENGINEER.

PART 3 EXECUTION

3.1 GENERAL

A. Scarify, moisture condition, and compact top 8 inches of subgrade.

B. Where subgrade cannot be compacted as specified, or in areas identified by ENGINEER that display yielding or excessive rutting during construction activities, adjust moisture content and recompact, Bridge by adding crushed rock at ENGINEER'S direction or over excavate and replace overexcavated material.

C. Prior to beginning placement of fill or backfill, the CONTRACTOR shall notify the ENGINEER in writing that an area is ready to receive fill. No fill or backfill shall be placed until final approval has been given by the ENGINEER.

D. Keep placement surfaces free of water, debris, and foreign material during placement and compaction of fill and backfill materials.

E. Place and spread fill and backfill materials in horizontal lifts of uniform thickness in a manner that avoids segregation.

F. Compact each lift at the specified moisture content, using the specified equipment, and to specified densities, prior to placing succeeding lifts.

G. Slope lifts only where necessary to conform to final grades or as necessary to keep placement surfaces drained of water.

H. The maximum allowable particle size delivered in the fill and backfill at placement location and prior to any compaction shall be no larger than the maximum specified in Part 2.

I. Maintain moisture content of delivered materials and compact materials in the lift to produce the specified fill characteristics.

J. During filling and backfilling around structures, keep level of fill and backfill even on all sides of structure.

K. Do not place fill or backfill if fill or backfill material is frozen, or if surface upon which fill or backfill is to be placed is frozen.

L. Tolerances:

1. Final Lines and Grades: Within a tolerance of 0.1-foot unless dimensions or grades are shown or specified otherwise.
2. Grade to establish and maintain slopes and drainage as shown. Reverse slopes are not permitted.

M. Settlement: Correct and repair any subsequent damage to walls, bulkhead, toe drains, cutoff wall, and other facilities caused by settlement of fill or backfill.

3.2 MOISTURE CONDITIONING AND PROCESSING

A. Provide supplemental sprinkling on the fill to keep material within specified moisture content limits throughout the placement and compaction process, and to preserve moisture in completed courses until placement of overlying courses.

B. Blend material by disking, blading, or harrowing to maintain uniform moisture content throughout the lift.

C. Do not attempt to compact material that contains excessive moisture. Material that becomes too wet shall be removed or reworked. Aerate material by blading, disking, harrowing, or other methods to hasten the drying process.

D. Provide suitable types and numbers of watering and blending equipment to keep pace with fill and backfill placement activities. Provide additional equipment or restrict material placement rates if watering and blending equipment cannot keep pace with fill and backfill placement.

E. Maintain moisture conditions of the fill surface during nights, weekends, holidays, and other periods of temporary work stoppage.

3.3 COMPACTION

A. Compact all material by mechanical means. If tests indicate that compaction or moisture content is not as specified, or if compaction equipment being used is not as specified, terminate material placement and take corrective action prior to resuming material placement.

B. Operate compaction equipment in strict accordance with manufacturer's instructions and recommendations. Maintain equipment in such condition that it will deliver the manufacturer's rated compactive effort.

C. Operate tamping foot rollers at a speed less than 5 miles per hour, and vibratory drum roller at a speed less than 3 miles per hour.

D. Operate sheepsfoot and tamping foot rollers to maintain the spaces between the individual feet clear of adherent materials that impair the effectiveness of the roller.

E. Where a minimum number of coverages is specified, provide 20 percent overlapping roller passes for each complete roller coverage per lift.

F. Provide suitable numbers of equipment to keep pace with fill and backfill placement activities. Restrict material placement rates if compaction equipment cannot keep pace with fill and backfill placement.

G. The CONTRACTOR's Fill and Backfill Quality Control Plan submittal shall identify the compaction metrologies proposed for the project. This submittal shall include descriptions of the equipment size and type (i.e., vibratory, sheep's foot roller, etc.) as well as the details of compaction effort as noted above. The Fill and Backfill Quality Control Plan shall also include methodologies for compaction operations including details such as number of passes typically needed, method for applying water to achieve optimal moisture content, segregation of different filter materials etc.

H. The Geotechnical Engineer shall review the Contractor's Fill and Backfill Quality Control Plan submittal to confirm acceptability of the above methodologies prior to construction.

3.4 PERVIOUS FILL, TRENCH BACKFILL (ORDINARY FILL)

A. Maximum Lift Thickness: 8 inches

B. Compaction: Not less than 92 percent relative compaction (ASTM D 1557).

C. Compaction Moisture: Between 2 percent below and 2 percent above optimum water content.

3.5 FILTER SAND

A. Maximum Lift Thickness: 8 inches

B. Compaction: Not less than 92 percent relative compaction (ASTM D 1557).

C. Compaction Moisture: Between 2 percent below and 2 percent above optimum water content.

3.6 DRAIN AGGREGATE (NO. 89 AGGREGATE):

A. Place crushed rock material in maximum 12-inch lifts and compact to a minimum number of passes of a rubber-wheeled compactor.

B. Crushed rock may be used to stiffen soft subgrades when identified by the ENGINEER. Use and compaction will be at the discretion of the ENGINEER.

3.7 PIPE BEDDING

A. Maximum Lift Thickness: 8 inches

B. Compaction: Not less than 92 percent relative compaction (ASTM D 1557).

C. Compaction Moisture: Between 2 percent below and 2 percent above optimum water content.

3.8 SUBBASE

A. Maximum Lift Thickness: 6 inches after final compaction. However, if the required thickness of subbase does not exceed 8 inches, it may be placed in one course.

B. Compaction: Not less than 95 percent relative compaction (ASTM D 1557).

C. Compaction Moisture: Between 2 percent below and 2 percent above optimum water content.

D. After each course has been placed as specified above, its entire area shall be compacted with equipment specifically manufactured for that purpose. The sole use of hauling and spreading equipment shall not be considered as a substitute for compacting equipment. Compaction shall be continued until the entire course is uniformly compacted to the required minimum density.

E. Should the foundation material beneath the subbase become churned up and mixed with subbase material at any time, the Contractor shall, without additional compensation, remove the mixture and replace it with new subbase material to the required thickness shown on the plans or as previously required by the Engineer. Such replaced subbase material shall be compacted to the required minimum density.

3.9 REPLACING OVEREXCAVATED MATERIAL

A. Replace excavation carried below grade lines shown or established by ENGINEER as follows:
   1. Beneath Fill or Backfill: Same material as specified for overlying fill or backfill.
   2. Beneath pavement, sidewalks, and curbs: Subbase.

3.10 SITE GRADING

A. Grade surface to drain uniformly and to a smooth, uniform appearance.

B. Place Topsoil as specified in Section 32 90 00: SITE RESTORATION.

3.11 PROTECTION OF PIPE INTEGRITY AND ALIGNMENT DURING CONSTRUCTION

A. The CONTRACTOR shall implement sufficient measures to ensure that new or existing pipes are maintained in proper alignment during backfill and compaction efforts.

B. Backfill and compaction operations shall be sequenced and performed so that pipe deformations and pipe misalignments do not occur. These details shall be included in the CONTRACTOR's Fill and Backfill Quality Control Plan.

C. CONTRACTOR's Fill and Backfill Quality Control Plan shall include provisions for protection systems including, but not limited to movable shoring systems to keep filter aggregates separated; allow for compaction during trench backfill; maintenance of Laser guidance during backfill and compaction to assure that pipe alignment does not change; proper selection and operation of compaction equipment to minimize stress on pipe; placement of filter materials and backfilling in balanced lifts to avoid vertical or lateral movement of the pipe during backfill and compaction operations; avoidance of heavy operation equipment over trenches until all compaction is completed; etc.

3.12 QUALITY CONTROL

A. CONTRACTOR shall perform quality control tests prior to and during fill and backfill placement. Test frequencies specified are minimums. Additional testing may be performed where minimum frequencies are unrepresentative for variable materials or inconsistent construction operations, and to retest previously failed materials after corrective actions have been implemented.

B. Field Quality Control Tests
   1. An initial number of tests are required prior to placement of fill or backfill as specified below; additional tests are required during construction at the specified frequency and whenever material variation occurs such that existing information is not representative.
   2. CONTRACTOR will perform Moisture-Density Relationship:

a. Prior to placement of fill and backfill, a minimum of (4) four laboratory compaction density tests in accordance with ASTM D 1557 for each different soil and weathered bedrock material used.
b. Apply rock corrections to density and moisture content determinations for oversize materials larger than 3/4-inch.
c. During fill and backfill placement, additional laboratory compaction tests are required whenever material variation occurs such that the existing relationships are not representative, and at the following minimum frequencies.
    i. One laboratory compaction test per 1,000 cy material that is placed.
    ii. One-point laboratory compaction tests in conjunction with in-place field density and moisture tests.

3. CONTRACTOR will perform Gradation and Atterberg Limits:
    a. Prior to placement of fill and backfill, four gradation tests and (4) four Atterberg limit tests for each different soil material used; tests shall correspond with samples used for initial laboratory compaction and minimum/maximum density tests. Gradation test shall be performed in accordance with ASTM D 422, and Atterberg limits test shall be performed in accordance with ASTM D 4318.
    b. During fill and backfill placement, additional gradation and Atterberg limit tests are required whenever material variation occurs and appears to deviate from the Specifications, and at the following minimum frequencies:
        i. One per 1,000 cy, each material
4. CONTRACTOR will perform In-Place Density and Moisture Content:
    a. During fill and backfill placement, in-place density testing shall be performed once per day per material placed but not less than once per 200 cy. In-place density testing shall use one, or a combination of the following methods: ASTM D 2922, D 1556, D 2216, and D 3017.
    b. A minimum of 20 percent of the in-place density and moisture content tests for each material will be made in accordance with the following methods: ASTM D 1556 (sand cone) and ASTM D 2216 (laboratory moisture). A one-point compaction test will be performed for every sand cone test.
    c. The maximum dry density and optimum water content at the location of the in-place density test shall be evaluated using the one-point compaction test and full-curve compaction tests (family of curves) of representative fill materials. Determine the maximum dry density and optimum water content in accordance with the Maximum Density and Optimum Water Content Calculation section and the Appendix section of AASHTO T272.
    d. Retests of failed areas after corrective measures have been implemented are required; retests will reference the prior failing test number.
5. Test Reporting:
    a. Written copies of all Field Quality Control Tests shall be available on site at all times.
    b. Written copies of all field quality control tests shall be submitted to the ENGINEER within 3 days of testing.

3.13 GEOTECHNICAL ENGINEER QUALITY ASSURANCE AND TESTING

A. The OWNER will procure the services of a qualified Geotechnical Engineer to provide quality assurance and testing services as needed during construction to ensure that the specified requirements for the Contractor's quality control program are achieved. The primary responsibility for quality control and testing rests with the CONTRACTOR as outlined in Section 3.12.

B. The Geotechnical Engineer's primarily role shall be to perform quality assurance services necessary to verify the CONTRACTOR's quality control program including, but not limited to, review and verification of accuracy of CONTRACTOR testing results; independent testing as needed to determine that key fill, backfill, and compaction parameters are being properly implemented; site inspection and observation services; and resolution of technical questions and clarifications of the plans and specifications during construction.

END OF SECTION

SECTION 32 90 00
SITE RESTORATION

PART 1 GENERAL

1.1 WORK INCLUDES

A. Provide all layout, products, materials, equipment, tools, services, transportation, supervision, and labor to complete all site restoration required to complete the work as shown on the drawings or as directed by the ENGINEER.

1.2 DEFINITIONS

A. Reclaiming disturbed areas shall mean regrading and preparing disturbed surfaces for designated planting, and completing seeding/plantings as indicated on the drawings.

1.3 SUBMITTALS

A. Shop Drawings: Sequence and limits of site reclamation, and materials to be used for site reclamation.

1.4 PROTECTION

A. Protect from damage areas outside the approved limits of site disturbance.

B. Reclaim any disturbance of vegetation or native ground outside of the limits of site disturbance.

C. Pay the cost of any fines incurred by OWNER due to work being performed by CONTRACTOR outside the limits of site disturbance.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL

A. Reclaim areas where construction work has been completed as soon as possible after completion of the Work.

B. Grade all areas to drain. The maximum slope steepness shall be 3H:1V unless otherwise shown on the Drawings or approved in writing by ENGINEER.

C. Remove all CONTRACTOR's equipment, debris, office, temporary fences or gates, and all other CONTRACTOR's properties in accordance with Section 01 50 00: TEMPORARY FACILITIES AND CONTROLS.

D. Eliminate uneven areas and low spots. Remove debris, roots, branches, and stones in excess of 3-inch size.

3.2 TOPSOIL PLACEMENT

A. Topsoil shall meet specifications defined in Section 31 23 23: FILL AND BACKFILL.

B. The areas on which topsoil is to be placed shall be graded to a reasonably true surface. Topsoil shall be spread and shaped:
   1. To the lines and grades shown on the plans,
   2. To match the original grades, or as directed by the ENGINEER.
   3. or as directed by the ENGINEER.

C. The required depth to which the topsoil is to be placed is to be the depth after settlement of the material has taken place. If not indicated on the plans, place topsoil to a minimum depth of 6 inches.

D. All stones, roots, debris, sod, weeds, and other undesirable material shall be removed.

E. After shaping and grading, all trucks and other equipment shall be excluded from the topsoiled area to prevent excessive compaction. The Contractor shall perform such work as required to provide a friable surface for seed germination and plant growth prior to seeding.

F. During hauling and spreading operations, the Contractor shall immediately remove any material dumped or spilled on the shoulders or pavement.

G. It shall be the Contractor's responsibility to restore to the line, grade, and surface all eroded areas with approved material and to keep topsoiled areas in acceptable condition until the completion of the construction work or grass is established.

3.3 PREPARATION FOR SEED PLACEMENT

A. In no event will seeding be permitted on hard or crusted soil surface.

B. Level areas: These areas shall be made friable and receptive for seeding by disking or by other approved methods to the satisfaction of the ENGINEER. In all cases the final prepared and seeded soil surface shall meet the lines and grades for such surface as shown in the plans, or as directed by the ENGINEER.

C. Slope and Embankment Areas: These areas shall be made friable and receptive to seeding by approved methods which will not disrupt the line and grade of the slope surface.

D. All areas to be seeded shall be reasonably free from weeds taller than 3 inches. Removal of weed growth from the slope areas shall be by approved methods, including hand-mowing, which do not rut or scar the slope surface, or cause excessive disruption of the slope line or grade. Seeding on level areas shall not be permitted until substantially all weed growth is removed. Seeding on slope areas shall not be permitted without removal or cutting of weed growth except by written permission of the ENGINEER.

3.4 FENCING RESTORATION

A. Restore fencing and gates temporarily removed to facilitate construction. Restored fencing and gates to condition that meets or exceeds pre-construction condition.

3.5 HANDRAIL RESTORATION

A. Restore handrails temporarily removed to facilitate construction. Restored handrails to condition that meets or exceeds pre-construction condition.

END OF SECTION

SECTION 32 92 00
SEEDING

PART 1 GENERAL

1.1 WORK INCLUDES

A. Provide all layout, products, materials, equipment, tools, services, transportation, supervision, and labor to complete all seeding required to complete the work as shown on the drawings and including the following:
   1. Seeding, erosion-control mats, mulching, and fertilizing.
   2. Maintenance.

1.2 REFERENCES

A. FS O-F-241 - Fertilizers, Mixed, Commercial.

B. ConnDOT Standard Specifications for Road and Bridge Construction Form 818 Section 9.50-99 and Section M.13. Any reference to the CT DOT Form 818 is solely for use in resolving technical details and shall apply only to the extent that the technical details are not adequately addressed in the project technical specifications. Under no circumstances shall the DOT 818 be used to resolve or modify any payment or other contractual terms.

1.3 SUBMITTALS

A. Landscape CONTRACTOR Qualifications including:
   1. Name, address, and telephone number of landscaping CONTRACTOR.
   2. Resume of proposed landscaping CONTRACTOR superintendent.

B. Product Data: Seed inspection certificate, fertilizer data, and soil test data with fertilizer recommendations from certified testing laboratory or local agricultural agency.

C. Provide Manufacturer's analysis of fertilizer, describing percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value.

1.4 SUBMITTALS AT PROJECT CLOSEOUT

A. Maintenance Data: Include maintenance instructions, cutting method, and maximum grass height, types, application frequency, and recommended coverage of fertilizer.

1.5 SCHEDULE

A. Planting shall be completed during the following periods:
   1. Spring Planting: March 15 to June 15
   2. Fall Planting: August 15 to October 15.

1.6 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

1.7 REGULATORY REQUIREMENTS

A. Comply with regulatory agencies for fertilizer composition.

B. Provide certificate of compliance from authority having jurisdiction, indicating approval of seed mixture.

1.8 DELIVERY, STORAGE, AND PROTECTION

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of Manufacturer.

1.9 MAINTENANCE SERVICE

A. The CONTRACTOR shall maintain all seeded areas until final acceptance of the project and shall restore or replace any portion of the seeding work that is found defective or which becomes damaged prior to final acceptance.

B. Maintenance shall include:

1. Mow grass every two weeks unless greater interval allowed by OWNER due to slower seasonal growth rates. CONTRACTOR is responsible to mow all grass (new and existing) within the limits of the work area.
2. Restoration or replacement work shall include the reestablishment of the grade or profile of the area, replacement of topsoil, re-fertilization, reseeding, and re-mulching as directed by the ENGINEER. When the damage consists only of the displacement of mulch, the mulch shall be replaced within 7 days.
3. Reseed and mulch spots larger than 1 sq. ft. without uniform stand of grass.

1.10 ACCEPTANCE

A. Seeding shall be accepted under the following schedule:

1. Seeding may be considered 25% complete once seeding has been placed.
2. Seeding may be considered 50% complete once seeding is established and approved by the ENGINEER. An establishment inspection for acceptance will be made within 60 days after seeding, excluding seeding dates that fall between September 30 and March 1. Seeding dates that fall between September 30 and March 1 will not be inspected earlier than May 1.
3. Seeding may be considered 100% complete upon final acceptance of the project.

PART 2 PRODUCTS

2.1 SEED MIXTURE

A. Provide seed mixture meeting the requirements:

1. Type 1 Mix – Seed mix shall be “New England Erosion Control/Restoration Mix For Dry Sites” produced by New England Wetland Plants, Inc., Amherst, MA or approved equal.

2. Type 2 Mix – "New England Wetmix" produced by New England Wetland Plants, Inc., Amherst, MA or approved equal.

B. Follow recommendations contained in ConnDOT Standard Specifications for Road and Bridge Construction Section M.13for seed types and mixture ratios for slopes and shoulders. Provide a minimum of 120 percent of the recommended seed application rate.

2.2 ACCESSORIES

A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

B. Fertilizer: Provide fertilizer mixture to meet recommendations of ConnDOT Standard Specifications for Road and Bridge Construction Section M.13 for topsoil proposed by CONTRACTOR. Use no Phosphates. Use slow-release sources of Nitrogen (IBDU or Urea Formaldehyde) with a minimum of 50% of the nitrogen as water insoluble nitrogen (WIN).

C. Water: Clean, fresh, and free of substances or matter that could inhibit vigorous growth of grass.

D. Herbicide: Not allowed.

E. Stakes: Softwood lumber, chisel pointed.

F. String: Organic fiber.

G. Tackifiers: Water soluble materials that cause mulch particles to adhere to one another, generally consisting of either a natural vegetable gum blended with gelling and hardening agents or a blend of hydrophilic polymers, resins, viscosifiers, sticking aids and gums. Emulsified asphalts are specifically prohibited for use as tackifiers due to their potential for causing water pollution following its application.

H. Erosion Control Blankets: As specified in Section 01 57 13 : TEMPORARY EROSION AND SEDIMENT CONTROL.

PART 3 EXECUTION

3.1 FERTILIZING

A. Apply fertilizer in accordance with recommendations from the ConnDOT standards.

B. Apply fertilizer in granular form. Liquid emulsions shall not be allowed. Follow Manufacturer's recommendations.

C. Apply after smooth raking of soil and prior to compaction.

D. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

E. Mix thoroughly into upper 4 inches of soil. After vigorous grass growth has been established, fertilizer may be applied to the surface.

F. Lightly water to aid the dissolving of fertilizer.

G. Do not apply if rain is forecast for the next 24 hours.

3.2 SEEDING

A. Apply seed at recommended rate evenly in two intersecting directions. Rake in lightly.
   1. Minimum rate of application is 50 pounds per acre for Type 1 Mix.
   2. Minimum rate of application is 30 pounds per acre for Type 2 Mix.

B. Do not seed areas in excess of that which can be mulched on same day.

C. Hydroseeding will be allowed, however no fertilizer will be allowed in the hydroseed mixture.

D. Do not sow immediately following rain, when ground is too dry, or during windy periods.

E. Provide mulch at a rate of one pound per square yard, or as necessary to protect and promote seed growth.

F. Apply water with a fine spray immediately after each area has been mulched. Saturate the top 4 inches of soil.

3.3 SEED PROTECTION

A. Identify seeded areas with stakes and string around area periphery.

B. Apply tackifier to secure mulch.

3.4 EROSION CONTROL BLANKETS

A. Following seeding on slopes of 3H:1V or steeper, install erosion control blankets in accordance with manufacturer's recommendations or as directed by the ENGINEER.

B. Staples shall be installed as per Manufacturer's recommendations.

C. Where two lengths are joined, the end of the up-grade strip shall overlap the down-grade strip.

D. The CONTRACTOR shall maintain and protect the areas with erosion control matting until such time as the turf grass is established.

3.5 TURF ESTABLISHMENT

A. The Contractor shall keep all seeded areas free from weeds and debris, such as stones, cables, baling wire.

B. The Contractor shall maintain turf established (seeded) areas until construction is completed and accepted, and until the grass growth attains a height of 6 inches (150 millimeters)

C. Clean-up shall include, but not be limited to, the removal of all debris from the turf establishment operations in the work area and on adjacent properties publicly and privately owned.

3.6 MAINTENANCE

A. Mow grass at least every two weeks or at regular intervals to maintain at a maximum height of 2½ inches. Do not cut more than 1/3 of grass blade at any one mowing.

B. Water to prevent grass and soil from drying out.

C. Immediately reseed areas that show bare spots until dense grass growth is established.

D. Protect seeded areas with warning signs during maintenance period.

END OF SECTION

SECTION 44 01 40
OPERATION AND MAINTENANCE OF WATER DISCHARGE SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. The Work required under this section includes furnishing all labor, materials, equipment, and performing all operations required for the dewatering of the levee toe drain excavations and pipe cleaning operations, operation of the treatment and discharge of water collected during the dewatering activity, maintenance dewatering, and sediment disposal Work.

1.2 GENERAL

A. Provide pumping equipment, dewatering wells, hoses, tankage, geotextile bags, filter media, etc. sufficient for initial dewatering and maintenance dewatering operations.

B. Provide a water treatment system (WTS) capable of treating the dewatering and decontamination and stockpile runoff water generated during construction.

C. Furnish the design, materials, and methods required for construction of the water treatment system subject to the design criteria.

D. The treated discharge water and sediment will be disposed of under applicable environmental permits required for the project.

E. The requirements for water quality will be determined by the above referenced permits. The discharge shall not contain suspended solids in amounts that would reasonably be expected to cause pollution of surface waters.

1.3 SUBMITTALS

A. The Contractor shall develop a water treatment submittal (Site Operations Plan -SOP), to include the following information:

1. Description of water pumping equipment, treatment system, equipment (including size and capacity), processes, and monitoring capabilities that will achieve compliance with permit treatment and discharge conditions.
2. The SOP shall include provisions necessary to treat the dewatering and other wastewaters to be encountered during the project in order to meet permit requirements.
3. Constituents anticipated to be encountered for this project are included in the pre-characterization testing results for Soil, Water, and Sediment included as an Appendix to the bid specifications.
4. Operation & maintenance plan to include regular maintenance, routine inspection requirements, daily operating procedures, and record keeping.
5. Calculations and supporting documentation for the WTS design, component selection, and sizing that have been stamped by an engineer licensed to practice in the State of Connecticut.

6. Description of the phasing and coordination between the water treatment system and excavation portions of the Work.
7. A backup liquid disposal contingency plan.
8. Product information and details on the secondary containment system that will be employed with the WTS.

PART 2 PRODUCTS

2.1 PRIMARY WATER TREATMENT EQUIPMENT

A. Provide a system capable of performing the following unit process functions:
   1. Pumping of water from excavations and pipe cleaning operations through the treatment system at the capacity required to accommodate the project schedule and discharge parameters.
   2. Removal of suspended solids and other by gravity separation and filtration and removal of any other compounds as determined by applicable permits
   3. Discharge flow metering.

B. Choose the type, size, and equipment components needed to complete the Work.

C. The materials and equipment used for the water treatment system may be new or used but must be suitable for the Work and be maintained in good condition.

D. Keep on hand, or have immediate access to, spare components to provide for reasonably anticipated breakdowns.

E. All water treatment and storage equipment is to remain property of the Contractor or Subcontractor. Clean/decontaminate all water treatment equipment prior to removal from the site.

F. Provide sampling ports for collecting samples in accordance with the requirements of the discharge permit.

2.2 WATER TREATMENT SYSTEM CONTROLS

A. Provide high-level alarms on tanks to prevent overflow conditions. Alarms may cause automatic actions to relieve the condition or may warn the operator.

   If an upset condition occurs, which may result in a release or nonconformance with the discharge permit, immediately suspend operation and notify the ENGINEER.

PART 3 EXECUTION

3.1 WATER TREATMENT - GENERAL

A. Mobilize and set up all pumping and water treatment equipment as required to treat the collected water.

B. It is anticipated that the treatment system will need to be portable to accommodate changes in location of the excavation and pipe cleaning operations.

C. Perform a pre-production test of the entire water treatment system in accordance with the requirements of the applicable permits. Prior to discharge, turbidity test results for

treated samples collected under the supervision of the ENGINEER must demonstrate that the treated water is in compliance with the requirements of the discharge permit.

D. Discharge the water treatment system at the location shown in the approved SOP.

E. Place equipment at the location shown in the approved SOP. Equipment, in as much as possible, should be located in a permanent location for the entire duration of the Project.

F. Arrange components and provide the means to contain any spills or overflows from the treatment process within the Site.

G. Provide spill containment for any water treatment chemicals used on the Site.

H. Provide additional erosion and sediment control measures, as necessary, to ensure that all components of the water treatment system are enclosed.

I. Establish, maintain, and document quality control.

3.2 SEQUENCING AND SCHEDULING

A. Conduct water treatment activities in conjunction and coordination with pipe cleaning, bulkheading, and pipe grouting operations.

B. Provide a water treatment system with the treatment and storage capacity to manage water without causing construction delays.

3.3 DISPOSAL OF RESIDUAL WASTE

A. Manage and dispose of settled solids and spent filtration media in accordance with all transportation laws, regulations, and requirements of the approved receiving facilities.

3.4 SAMPLING AND CHEMICAL ANALYSIS

A. Perform the laboratory analyses as required by applicable permits.

B. All laboratory analyses must be conducted in accordance with 40 CFR Part 136.

C. Forward the results of all laboratory analyses to the ENGINEER upon receipt.

END OF SECTION

APPENDIX F: INSPECTOR QUALIFICATIONS

INSERT INSPECTOR QUALIFICATIONS IN THIS APPENDIX, AS APPLICABLE

- **Designing Qualified Professional (DQP) resume / qualifications**
- **Qualified Inspector(s) resume(s) / qualifications (e.g., Contractor personnel)**
- **Qualified Soil Erosion and Sediment Control Professional resume(s) / qualifications, as applicable**
- **Qualified Professional Engineer resume(s) / qualifications, as applicable**

JKB CONSULTING, LLC
Environmental Permitting, Planning & Compliance

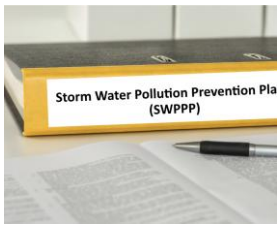
COMPANY OWNER:

Julie Bjorkman is the principal and owner of JKB Consulting, LLC. Ms. Bjorkman has over 30 years of experience in environmental consulting, the majority of which have been in Connecticut.

JKB specializes in **environmental permitting**, facility **pollution prevention** planning, and **regulatory compliance**. JKB handles various Connecticut Department of Energy & Environmental Protection (**CTDEEP**), **Army Corps** and local **wetlands** and **planning and zoning** permitting. JKB can assist with environmental regulatory compliance, water pollution control, stormwater and wastewater and other permitting needs. Ms. Bjorkman is extremely familiar with permitting processes with the CTDEEP and is, uniquely qualified to assist Connecticut-based business, industry, and municipalities with their environmental compliance and permitting needs.

TECHNICAL EXPERTISE:

JKB has experience with various CTDEEP Permits (e.g., Floodplain Management, Dam Safety, Water Quality Certificates), Army Corps Permits (CT GP), local wetlands permitting, and local planning and zoning permitting. JKB has completed hundreds of Federal Aviation Administration (FAA) case filings for work near a CT airport. Ms. Bjorkman has extensive experience with permitting for CT wastewater treatment facility expansions and upgrades, and sanitary sewer system improvement and rehabilitation projects. JKB also provides construction inspection assistance relative to erosion and sediment control and environmental permit requirements.



JKB has developed environmental plans for various types of facilities, including Spill Prevention, Control and Countermeasure (**SPCC**) Plans, Stormwater Pollution Prevention Plans (**SWPPPs**), and Solvent Management Plans (**SMPs**), and completed regulatory compliance assessments for industrial facilities. Ms. Bjorkman developed environmental compliance assistance tools and plans designed to bring facilities into compliance and tailored to a specific facility's needs. Extensive experience in industrial wastewater permitting, including **NPDES**, **pretreatment** and **general permits** for wastewater discharges. Prepared various wastewater permit applications and assisted with permit negotiations for industrial clients such as power plants, manufacturing facilities, and metal finishing facilities.

JKB also has experience in site remediation, landfill and solid waste management, and RCRA closure work.

EDUCATION, LICENSES, SOCIETIES:

- B.S. CIVIL ENGINEERING, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MAY 1991
- GRADUATE COURSES IN ENVIRONMENTAL ENGINEERING, UNIVERSITY OF HARTFORD, 1998-1999 (SOLID WASTE MANAGEMENT & HAZARDOUS WASTE MANAGEMENT)
- CT PROFESSIONAL ENGINEER SINCE 1996 (P.E. LICENSE NO. 19169)
- PROFESSIONAL ENGINEERING CORPORATION (P.E.C. LICENSE NO. 994)
- MEMBER AMERICAN SOCIETY OF CIVIL ENGINEERS
- CT DAS-CERTIFIED WBE (MBE)
- CERTIFIED PROFESSIONAL IN EROSION AND SEDIMENT CONTROL (CPESC) MAY 2018
- COMPLETED 2009 CTDEEP/UCONN INLAND WETLAND COMMISSIONERS TRAINING PROGRAM

EMAIL: JULIE_BJORKMAN@YAHOO.COM
PHONE: (860) 395-6654
OFFICE: OLD SAYBROOK, CT 06475

JULIE K. BJORKMAN, P.E.
PRINCIPAL

Key Project Experience:

Greater New Haven Water Pollution Control Authority (GNHWPCA) Hamden and East Haven Sanitary Sewer System Improvements to Reduce Infiltration and Inflow – Paradise Ave. Easement (2016-2023). JKB identified permits required for this complicated sanitary sewer improvements, rehabilitation and lining project for piping located under a wetland / impoundment and under a CTDEEP-owned dam, and coordinated and prepared applications for Wetlands De Minimis and Wetlands Exemption Requests from the Town of Hamden; CTDEEP NDDB Review; Army Corps of Engineers Connecticut General Permit Self-Verification Form; and a CTDEEP Dam Construction Permit. JKB provided limited regulatory coordination assistance and site inspections during construction.

Metropolitan District Commission (MDC) HWPCF, Hartford, CT, Wet Weather Expansion Project (WWEP) (2011-2020). JKB provided overall permitting coordination for this $100M wastewater treatment system upgrade project. JKB identified permits or approvals, provided regulatory coordination, and prepared permit applications and/or approvals, including: Greater Hartford Flood Commission (GHFC), CTDEEP Dam Safety and Army Corps of Engineers coordination; City of Hartford Site Plan Reviews, Zoning Permits for Erosion and Sediment Control Plans, and Wetlands Permit; City of Hartford Building Department and Fire Marshal coordination; CTDEEP Natural Diversity Data Base (NDDB) review; CTDEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities; and Federal Aviation Administration (FAA) determinations. JKB provided permit coordination assistance during construction.

MDC HWPCF, Hartford, CT, South Hartford Conveyance and Storage Tunnel (SHCST) and Tunnel Pump Station Construction Projects (2016-present).
JKB provides Contractor permit compliance assistance to the Construction Managers for components of the SHCST project at the HWPCF. JKB provides Contractor submittal review, permit compliance assistance, and conducts monthly site inspections for erosion and sediment (E&S) controls during construction.

Town of South Windsor 3 Pump Stations Upgrades Project (2021-present). JKB coordinated pre-application permitting meetings with CTDEEP and the Town of South Windsor to discuss the Pump Station upgrades. JKB identified permits required and prepared applications, including: CTDEEP Flood Management Certification; CTDEEP NDDB Review; Town of South Windsor Wetlands Permits and Site Plan reviews; and CTDEEP CEPA coordination.

MDC Richards Corner Dam Maintenance and Repairs Project, New Hartford, CT (2021-present). JKB coordinated pre-application consultations with CTDEEP, the Town of New Hartford and Army Corps of Engineers to review proposed dam maintenance and repairs. JKB identified permits required, provided regulatory coordination, and prepared applications, including: CTDEEP NDDB Review and Fisheries consultations; CTDEEP Individual Dam Safety Permit; Army Corps of Engineers Pre-Construction Notification (CT GP #2); CTDEEP PCN License; and Town of New Hartford Wetlands declaratory ruling. JKB is continuing permit compliance coordination, contractor submittal review and E&S site inspections during construction.

Town of Trumbull Beardsley Pump Station (PS) Force Main Renewal Project (2021-2023). This project includes renewal and replacement of segments of Trumbull's sanitary sewer force main from the Beardsley PS in Trumbull through Beardsley Park in Bridgeport. JKB coordinated pre-application consultations with the City of Bridgeport and CTDEEP to conduct this work on State-owned land in the City of Bridgeport. JKB prepared and coordinated the following permit applications and approvals: a CTDEEP Floodplain Management Certification, CTDEEP Land Management approval and temporary easement; CTDEEP Temporary Special Use License; CTDEEP NDDB review; City of Bridgeport Parks Department authorization; and SHPO historical review.

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PHONE: (860) 395-6654
OFFICE: OLD SAYBROOK, CT 06475

JULIE K. BJORKMAN, P.E.
PRINCIPAL

APPENDIX G: INSPECTION & MONITORING FORMS

- **G1: Pre-Construction Meeting Report Form**
- **G2: Plan Implementation Inspection Form**
- **G3: Routine Inspection Form**
- **G4: Post-Construction Inspection Form**
- **G5: Final Stabilization Inspection Form**
- **G6: Termination Inspection Form**
- **G7: Turbidity Monitoring Data Recording Form**

APPENDIX G1:
PRE-CONSTRUCTION MEETING REPORT FORM

Pre-construction meeting shall be conducted (see Section 5.1.6 of the Permit) as follows:

- Conduct meeting prior to commencement of any construction activity.
- Attendees to include the DQP, any Qualified Inspector(s), and all site Contractors and Subcontractors (as applicable).
- All Attendees must sign confirming attendance.

Attendees (*update/add names and information for pre-construction meeting*):

Name	Firm / Role	Phone No.	Email	Signature
OWNER & OWNER'S REPRESENTATIVES				
Frank Dellaripa	COH DPW / Owner	860-757-9975	Frank.Dellaripa@hartford.gov	
Nick Casparino	COH DPW / Owner	860-757-9985	Nicholas.Casparino@hartford.gov	
John McGrane	GEI Consultants / Engineer	860-368-5426	jmcgrane@geiconsultants.com	
Julie Bjorkman	JKB Consulting, LLC / DQP	860-395-6654	julie_bjorkman@yahoo.com	
CONTRACTOR				
SUBCONTRACTOR(S)				

Note: Julie K. Bjorkman, P.E., CPESC, JKB Consulting, LLC is the "Designing Qualified Professional" (DQP) for the project.

General Information			
Project/Site:	Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project, South Meadows (Clark) Dike, Hartford, CT		
Date of Pre-Construction Mtg.:		**Start/End Time:**	
Weather Information			
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: _____ Temperature: _____ Approx. Date & Precip. (in.) of recent storm: _____			

APPENDIX G1:
PRE-CONSTRUCTION MEETING REPORT FORM

	ITEMS REVIEWED:	Yes?	Notes or recommended follow-up items, if any (attach rep. photos, as applicable)
1	Convey design intent and review E&S CMs	❑	
2	Review SPCP implementation, updating of Plan, inspections, monitoring, reporting, etc.	❑	
3	Review dewatering handling (different permits, turbidity monitoring & reporting, etc.)	❑	
4	Review contract requirements	❑	
5	Confirm that the List of Contractors and Subcontractors has been updated (Appendix I)	❑	
6	Confirm that Contractor and Subcontractor Certifications have been completed (Appendix J)	❑	
7	Review and confirm "normal working hours"	❑	
8	Confirm sign posting	❑	
9	Confirm site walk conducted	❑	
10	Review general location of E&S measures, housekeeping, etc.	❑	
11	Review staging areas, FAA coordination, phasing	❑	
12	Review NDDB* compliance	❑	
13	Review communications	❑	
14	Other	❑	

Notes:
CM control measure
*Bald Eagle: Between February 1 – July 1, work activities and staging areas are prohibited within 330 feet of active nests out of line of sight, or within 660 feet from nests that are in line of sight during periods of eagle use.
Peregrine Falcon: Between April 1 – July 31, do not introduce new work activities and staging areas within 330 feet of active nests out of line of sight, or within 660 feet from nests that are in line of sight.

CERTIFICATION**:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

CERTIFICATION BY PREPARER (Individual Responsible for Preparing this Document)	CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works or Duly Authorized Representative)
Signature:	**Signature:**
Date:	**Date:**
Name:	**Name:**
Title and Affiliation:	**Title and Affiliation:**
Contact Information:	**Contact Information:**

The completed Pre-Construction Meeting Report Form shall be certified by the Permittee (City of Hartford DPW or their Duly Authorized Representative) and by the individual responsible for preparing the document. Completed forms must be retained for at least five (5) years after the date of inspection.

APPENDIX G2:
PLAN IMPLEMENTATION INSPECTION FORM

Plan Implementation Inspections shall be conducted by the "Designing Qualified Professional" (DQP) for the project: **Julie K. Bjorkman, P.E., CPESC, JKB Consulting, LLC**

General Information			
Project/Site:	Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project, South Meadows (Clark) Dike, Hartford, CT		
Name of Contractor:			
Construction Contract and Phase of Construction:			
Date of Inspection:		**Start/End Time:**	
Inspector's Name(s):	Julie K. Bjorkman, P.E., CPESC, JKB Consulting, LLC (qualifications included in the applicable Appendix of the SPCP)		
Inspector's Contact Information:	Julie Bjorkman, JKB Consulting, LLC Phone: 860-395-6654; email: Julie_bjorkman@yahoo.com		
Plan Implementation Inspection Schedule: ❑ First inspection (within 1st 30 days of construction) ❑ Second inspection (within 1st 90 days of construction, at least 7 days from last inspection) ❑ Third inspection (within 1st 90 days of construction, at least 7 days from last inspection)			
Weather Information			
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: _____ Temperature: _____ Approx. Date & Precip. (in.) of recent storm: _____			

	Work occurring (check all that apply):	STATION(S) where work is occurring:	Notes or recommended corrective action (if any; attach time & date stamped photos)
❑	E&S CM installation or maintenance		
❑	Dewatering setup or removal		
❑	Active dewatering		
❑	Toe drain replacement work		
❑	Toe ditch sediment removal work		
❑	Toe ditch slope stabilization work		
❑	Maintain & clean toe drain work		
❑	Point repair work (if any)		
❑	Chimney drain & buttress work		
❑	Staging areas / stockpiles		
❑	Hauling (e.g., sediment)		
❑	NDDB compliance*		
❑	Other, describe:		

Notes:
CM control measure
*Bald Eagle: Between February 1 – July 1, work activities and staging areas are prohibited within 330 feet of active nests out of line of sight, or within 660 feet from nests that are in line of sight during periods of eagle use.
Peregrine Falcon: Between April 1 – July 31, do not introduce new work activities and staging areas within 330 feet of active nests out of line of sight, or within 660 feet from nests that are in line of sight.

APPENDIX G2:
PLAN IMPLEMENTATION INSPECTION FORM

	Area/Item Reviewed	CMs in place?	Maintenance Required?	Notes or recommended corrective action (if any; attach rep. photos)
1	Are slopes and disturbed areas stabilized or protected?	❑Yes ❑No	❑Yes ❑No	
2	Are resources (e.g., streams, wetlands, etc.) protected with CMs?	❑Yes ❑No	❑Yes ❑No	
3	Are perimeter controls and sediment barriers properly installed & maintained?	❑Yes ❑No	❑Yes ❑No	
4	Are discharge points and receiving waters free of excessive turbidity, sediment deposits, discoloration, oil sheen, foaming, and/or floating solids?	❑Yes ❑No	❑Yes ❑No	
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	
6	Is the construction exit/CMs preventing sediment tracking onto roads?	❑Yes ❑No	❑Yes ❑No	
7	Are equipment & material storage, fueling areas free of spills/leaks, or trash/debris?	❑Yes ❑No	❑Yes ❑No	
8	Other, describe:	❑Yes ❑No	❑Yes ❑No	
	COMPLIANCE:	**Yes?**	**No?**	**Notes or recommended corrective action (if any; attach rep. photos)**
9	Have the CMs designated in the SPCP been properly initially implemented?	❑	❑	

CERTIFICATION**:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

CERTIFICATION BY PREPARER (Individual Responsible for Preparing this Document)	CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works or Duly Authorized Representative)
Signature:	**Signature:**
Date:	**Date:**
Name:	**Name:**
Title and Affiliation:	**Title and Affiliation:**
Contact Information:	**Contact Information:**

The completed Plan Implementation Inspection Form shall be certified by the Permittee (City of Hartford DPW or their Duly Authorized Representative) and by the individual responsible for preparing the document. Completed inspection forms must be retained for at least five (5) years after the date of inspection.

APPENDIX G3:
CONTRACTOR ROUTINE INSPECTION FORM

Inspections shall be conducted by Contractor's "Qualified Inspector" as follows:

- ***ROUTINE INSPECTIONS:***
  - ***Weekly and within 24 hours of the end of a storm that generates a discharge, or if a storm occurs on a weekend or holiday, the inspection will be conducted immediately upon the start of the subsequent normal working hours (for rainfall events <0.5 inches as measured by Contractor's on-site rain gauge) for all disturbed areas of the construction activity that have not been finally stabilized;***
  - ***Within 24 hours of the end of a storm that equals or exceeds 0.5 inches (as measured by Contractor's on-site rain gauge), regardless if the storm occurs on a weekend or holiday outside of normal working hours for all disturbed areas of the construction activity that have not been finally stabilized; and***
  - ***Weekly for areas that have been temporarily stabilized until final stabilization is achieved.***
  - ***NOTE: Also complete the "Turbidity Monitoring Report Form" during the weekly Routine Inspection, if there is a dewatering discharge.***
  - ***Monthly once final stabilization is achieved until the NOT is filed.***

Areas to be inspected include the following:

- ***Any disturbed areas.***
- ***Any areas used for storage of materials that are exposed to precipitation.***
- ***Erosion & sediment control measures or devices and any structural control measures.***
- ***Stockpiles.***
- ***Designated washout areas.***
- ***Accessible discharge locations.***
- ***All locations where vehicles enter or exit the site.***

THESE FORMS MAY BE REVISED OR AMENDED TO SUIT THE PARTICULAR CONSTRUCTION CONTRACT AS LONG AS THEY STILL MEET THESE REQUIREMENTS, THE REQUIREMENTS OF THE CONSTRUCTION SW GP, AND ARE APPROVED BY THE OWNER AND THE ENGINEER.

General Information			
Site:	Hartford Flood Control System: South Meadows (Clark) Dike, Hartford, CT		
Project:	Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project		
Contract Number:			
Name of Contractor:			
Date of Inspection:		**Start/End Time:**	
Inspector's Name(s):			
Inspector's Title(s):			
Inspector's Contact Information:			
Inspector's Qualifications:	Include inspector qualifications in the applicable Appendix of the SPCP.		
Describe present phase of construction:			
Type of Inspection: ❑ Routine (weekly) ❑ Pre-storm event ❑ During storm event ❑ Post-storm event			

APPENDIX G3:
CONTRACTOR ROUTINE INSPECTION FORM

Weather Information
Has there been a storm event since the last inspection? ❑Yes ❑No **If yes, provide:** Approximate Storm Start Date & Time: _____ Approximate Amount of Precipitation (in): _____
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: _____ Temperature: _____
Have any discharges occurred since the last inspection? ❑Yes ❑No **If yes, describe:**
Are there any discharges occurring at the time of inspection? ❑Yes ❑No **If yes, describe:**
Any water quality sampling conducted during the inspection? ❑Yes ❑No **If yes, describe:**

Site Information					
	Area/Item Reviewed (provide numbered list referenced to a site plan or STA and indicate type(s) of CMs used)	**Control Measures (CMs) Installed or Implemented?**	**Maintenance Required?**	**Corrective Action Needed (if any) and Notes***	**Initials & Date Recommended Actions Completed****
	Disturbed Areas (protected/stabilized)				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		
	Perimeter Control Measures (e.g., silt fence, straw bales)				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		
	Storm Drain Inlets (e.g., catch basins, culverts, swales)				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		
	Stockpiles				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		

APPENDIX G3:
CONTRACTOR ROUTINE INSPECTION FORM

Site Information					
	Area/Item Reviewed (provide numbered list referenced to a site plan or STA and indicate type(s) of CMs used)	**Control Measures (CMs) Installed or Implemented?**	**Maintenance Required?**	**Corrective Action Needed (if any) and Notes***	**Initials & Date Recommended Actions Completed****
	Staging Areas				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		
	Waste Disposal Areas				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		
	Construction Entrances/Exits (e.g., anti-tracking pads)				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		
	Stormwater Discharges (e.g., outfall 001, etc.)				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		
	Designated Washout Areas				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		
	Other Areas				
1.		❑Yes ❑No	❑Yes ❑No		
2.		❑Yes ❑No	❑Yes ❑No		
3.		❑Yes ❑No	❑Yes ❑No		
4.		❑Yes ❑No	❑Yes ❑No		
5.		❑Yes ❑No	❑Yes ❑No		

APPENDIX G3:
CONTRACTOR ROUTINE INSPECTION FORM

GENERAL REVIEW					
	Area/Item Reviewed (provide numbered list of areas referenced to a site plan and indicate type(s) of control measures used)	**Control Measures Installed or Implemented?**	**Maintenance Required?**	**Corrective Action Needed (if any) and Notes***	**Initials & Date Recommended Actions Completed****
1	Are all slopes and disturbed areas not actively being worked properly stabilized?	❑Yes ❑No	❑Yes ❑No		
2	Are natural resource areas (e.g., streams, wetlands, etc.) protected with control measures?	❑Yes ❑No	❑Yes ❑No		
3	Are perimeter controls and sediment barriers properly installed (keyed into substrate) and maintained?	❑Yes ❑No	❑Yes ❑No		
4	Are discharge points and receiving waters free of any sediment deposits?	❑Yes ❑No	❑Yes ❑No		
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No		
6	Is the construction exit preventing sediment from being tracked into the street?	❑Yes ❑No	❑Yes ❑No		
7	Is trash/litter from work areas collected and placed in covered dumpsters?	❑Yes ❑No	❑Yes ❑No		
8	Are washout facilities (e.g., concrete) available, clearly marked, and maintained?	❑Yes ❑No	❑Yes ❑No		
9	Are vehicle and equipment fueling, cleaning, and maintenance areas free of spills, leaks, or any other deleterious material?	❑Yes ❑No	❑Yes ❑No		
10	Are materials that are potential stormwater contaminants stored inside or under cover or in appropriate containment?	❑Yes ❑No	❑Yes ❑No		
11	Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?	❑Yes ❑No	❑Yes ❑No		

APPENDIX G3:
CONTRACTOR ROUTINE INSPECTION FORM

GENERAL REVIEW					
	Area/Item Reviewed (provide numbered list of areas referenced to a site plan and indicate type(s) of control measures used)	**Control Measures Installed or Implemented?**	**Maintenance Required?**	**Corrective Action Needed (if any) and Notes***	**Initials & Date Recommended Actions Completed****
12	(Other)	❑Yes ❑No	❑Yes ❑No		
	COMPLIANCE:				
13	In the judgement of the Qualified Inspector, is the site in or out of compliance with the terms and conditions of the SPCP and the CGP?	❑ In compliance	❑ Out of compliance	*If the site is out of compliance, implement the corrective measures recommended above and complete the last column within the timeframes noted in the footnotes below this table.*	Notes:

***If changes are required to the SPCP, they shall be made within three (3) calendar days for non-engineered measures and within ten (10) calendar days for engineered measures.**
****If changes to the site or corrective measures are required, they shall be implemented within 24 hours for non-engineered measures and within seven (7) calendar days for engineered measures and noted in the last column. If routine maintenance fixes are required repeatedly (e.g., 3 or more times), the DQP shall be consulted and develop a revised control measure (document on the inspection form).**

CERTIFICATION***:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

CERTIFICATION BY PREPARER (Individual Responsible for Preparing this Document)	CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works or Duly Authorized Representative)
Signature:	**Signature:**
Date:	**Date:**
Name:	**Name:**
Title and Affiliation:	**Title and Affiliation:**
Contact Information:	**Contact Information:**

******Each completed routine inspection form shall be certified by the Permittee (City of Hartford DPW or their Duly Authorized Representative) and by the individual responsible for preparing the document (the Contractor's Qualified Inspector). Completed inspection forms must be retained for at least five (5) years after the date of inspection.***

APPENDIX G4:
POST-CONSTRUCTION INSPECTION REPORT FORM

Post-Construction Inspection shall be conducted by a "Qualified Soil Erosion and Sediment Control Professional" (QSESCP) or a "Qualified Professional Engineer" (QPE) as defined in the Permit.

General Information			
Project/Site:	Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project, South Meadows (Clark) Dike, Hartford, CT		
Name of Contractor:			
Construction Contract and Phase of Construction:			
Date of Inspection:		**Start/End Time:**	
Inspector's Name(s):			
Inspector's Contact Information:			
Inspector Qualifications:	❑ QSESCP or ❑ QPE (include inspector qualifications in the applicable Appendix of the SPCP)		
Date of Construction Completion:			
Date of Cleaning of SW Drainage Structures:	*Note that cleaning of SW drainage structures is not applicable (NA) to this project as described in Section 5.2 of the SPCP.*		
Weather Information			
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: _____ Temperature: _____ Approx. Date & Precip. (in.) of recent storm: _____			

	Work occurring (check all that apply)*:	**STATION(S) where work is occurring:**	**Notes or recommended corrective action (if any; attach time & date stamped photos)**
❑	E&S CM installation or maintenance		
❑	Dewatering setup or removal		
❑	Active dewatering		
❑	Toe drain replacement work		
❑	Toe ditch sediment removal work		
❑	Toe ditch slope stabilization work		
❑	Maintain & clean toe drain work		
❑	Point repair work (if any)		
❑	Chimney drain & buttress work		
❑	Staging areas / stockpiles		
❑	Hauling (e.g., sediment)		
❑	NDDB compliance**		
❑	Other, describe:		

Notes:
CM control measure
*Attach time & date stamped photos of work occurring or conditions at the time of the post-construction inspection.
**Bald Eagle: Between February 1 – July 1, work activities and staging areas are prohibited within 330 feet of active nests out of line of sight, or within 660 feet from nests that are in line of sight during periods of eagle use.
Peregrine Falcon: Between April 1 – July 31, do not introduce new work activities and staging areas within 330 feet of active nests out of line of sight, or within 660 feet from nests that are in line of sight.

APPENDIX G4:
POST-CONSTRUCTION INSPECTION REPORT FORM

	Area/Item Reviewed	CMs in place?	Maintenance Required?	Notes or recommended corrective action (if any; attach rep. photos)
1	Are slopes and disturbed areas stabilized or protected?	❑Yes ❑No	❑Yes ❑No	
2	Are resources (e.g., streams, wetlands, etc.) protected with CMs?	❑Yes ❑No	❑Yes ❑No	
3	Are perimeter controls and sediment barriers properly installed & maintained?	❑Yes ❑No	❑Yes ❑No	
4	Are discharge points and receiving waters free of excessive turbidity, sediment deposits, discoloration, oil sheen, foaming, and/or floating solids?	❑Yes ❑No	❑Yes ❑No	
5	Are storm drain inlets properly protected?	❑Yes ❑No	❑Yes ❑No	
6	Is the construction exit/CMs preventing sediment tracking onto roads?	❑Yes ❑No	❑Yes ❑No	
7	Are equipment & material storage, fueling areas free of spills/leaks, or trash/debris?	❑Yes ❑No	❑Yes ❑No	
8	Other, describe:	❑Yes ❑No	❑Yes ❑No	
	COMPLIANCE:	**Yes?**	**No?**	**Notes or recommended corrective action (if any; attach rep. photos)**
9	Have the post-construction stormwater management measures been installed as required by Section 5.2.2.10 of the CGP and as specified in the SPCP?	--	--	*NOTE: This requirement is NA to this project as described in Section 5.1 of the SPCP*
10	Have the post-construction stormwater management measures been cleaned of construction sediment and debris?	--	--	*NOTE: This requirement is NA to this project as described in Section 5.2 of the SPCP*

CERTIFICATION***:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

CERTIFICATION BY PREPARER (Individual Responsible for Preparing this Document)	CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works or Duly Authorized Representative)
Signature:	**Signature:**
Date:	**Date:**
Name:	**Name:**
Title and Affiliation:	**Title and Affiliation:**
Contact Information:	**Contact Information:**

******The completed Post-Construction Inspection Report Form shall be certified by the Permittee (City of Hartford DPW or their Duly Authorized Representative) and by the individual responsible for preparing the document. Completed inspection forms must be retained for at least five (5) years after the date of inspection. The inspector shall also complete any applicable certification (for "Locally Exempt Post-Construction Inspection Certification") in the NOT form, as applicable.***

APPENDIX G5:
FINAL STABILIZATION INSPECTION REPORT FORM

Final Stabilization Inspection shall be conducted by a "Qualified Professional Engineer" as defined in the Permit. (Include inspector qualifications in the applicable Appendix of the SPCP)

General Information			
Project/Site:	Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project, South Meadows (Clark) Dike, Hartford, CT		
Name of Contractor:			
Construction Contract and Phase of Construction:			
Date of Inspection:		**Start/End Time:**	
Inspector's Name(s):			
Inspector's Contact Information:			
Date of Construction Completion:			
Date(s) of Post-Construction Inspection(s):			
Date of removal of all E&S CMs (e.g., silt fence, hay bales, etc.):			

Weather Information

Weather at time of this inspection?
❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds
❑ Other: _____ Temperature: _____ Approx. Date & Precip. (in.) of recent storm: _____

	COMPLIANCE*:	**Yes?**	**No?**	**Notes or recommended corrective action (if any; attach rep. photos)**
1	Confirm all temporary E&S CMs (e.g., silt fence, hay bales, etc.) have been removed?	❑	❑	
2	Confirm all areas of the site are fully stabilized (e.g., achieved "final stabilization" as defined in the CGP; see 2a-2d below) and vegetated?	❑	❑	
2a	Confirm no disturbed areas remain exposed?	❑	❑	
2b	Confirm there are no signs of active erosion or sedimentation on site?	❑	❑	
2c	Confirm the vegetation (in areas specified to be vegetated) is at least 6 inches tall with a minimum of 100 plants / SF across all seeded areas?	❑	❑	
2d	Confirm that a permanent non-vegetative ground cover (in areas specified for such cover) has been fully established over the entire site?	❑	❑	
3	Confirm that all post-construction stormwater management measures are implemented and functioning as designed?	--	--	*NOTE: This requirement is NA to this project as described in Section 5.1 of the SPCP*

Notes:
CM control measure
*Attach time & date stamped photos of conditions at the time of the final stabilization inspection, including captions.

APPENDIX G5:
FINAL STABILIZATION INSPECTION REPORT FORM

CERTIFICATION**:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

CERTIFICATION BY PREPARER (Individual Responsible for Preparing this Document)	CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works or Duly Authorized Representative)
Signature:	**Signature:**
Date:	**Date:**
Name:	**Name:**
Title and Affiliation:	**Title and Affiliation:**
Contact Information:	**Contact Information:**

The completed Final Stabilization Inspection Report Form shall be certified by the Permittee (City of Hartford DPW or their Duly Authorized Representative) and by the individual responsible for preparing the document. Completed inspection forms must be retained for at least five (5) years after the date of inspection. The inspector shall also complete the applicable certification ("Final Stabilization Inspection Certification") in the NOT form, as applicable.

APPENDIX G6:
TERMINATION INSPECTION REPORT FORM

Termination Inspection shall be conducted once the site has maintained "final stabilization" (as defined in the CGP) for at least one (1) year following the Final Stabilization Inspection.

The Termination Inspection shall be conducted by a "Qualified Inspector" as defined in the Permit.
(Include inspector qualifications in the applicable Appendix of the SPCP)

General Information			
Project/Site:	Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project, South Meadows (Clark) Dike, Hartford, CT		
Name of Contractor:			
Construction Contract and Phase of Construction:			
Date of Inspection:		**Start/End Time:**	
Inspector's Name(s):			
Inspector's Contact Information:			
Date of Construction Completion:			
Date of Final Stabilization Inspection:			
Weather Information			
Weather at time of this inspection? ❑ Clear ❑Cloudy ❑ Rain ❑ Sleet ❑ Fog ❑ Snowing ❑ High Winds ❑ Other: _____ Temperature: _____ Approx. Date & Precip. (in.) of recent storm: _____			

	COMPLIANCE*:	**Yes?**	**No?**	**Notes or recommended corrective action (if any; attach rep. photos)**
2	Confirm all areas of the site have maintained "final stabilization" as defined in the CGP (see 2a-2d below) for at least one (1) year following the Final Stabilization Inspection?	❑	❑	
2a	Confirm no disturbed areas remain exposed?	❑	❑	
2b	Confirm there are no signs of active erosion or sedimentation on site?	❑	❑	
2c	Confirm the vegetation (in areas specified to be vegetated) is at least 6 inches tall with a minimum of 100 plants / SF across all seeded areas?	❑	❑	
2d	Confirm that a permanent non-vegetative ground cover (in areas specified for such cover) has been fully established over the entire site?	❑	❑	

Notes:
CM control measure
*Attach time & date stamped photos of conditions at the time of the termination inspection, including captions.

APPENDIX G6:
TERMINATION INSPECTION REPORT FORM

CERTIFICATION**:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

CERTIFICATION BY PREPARER (Individual Responsible for Preparing this Document)	CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works or Duly Authorized Representative)
Signature:	**Signature:**
Date:	**Date:**
Name:	**Name:**
Title and Affiliation:	**Title and Affiliation:**
Contact Information:	**Contact Information:**

The completed Termination Inspection Report Form shall be certified by the Permittee (City of Hartford DPW or their Duly Authorized Representative) and by the individual responsible for preparing the document. Completed inspection forms must be retained for at least five (5) years after the date of inspection. The inspector shall also complete the applicable certification ("Termination Inspection Certification") in the NOT form, as applicable.

APPENDIX G7:
TURBIDITY MONITORING DATA RECORDING FORM

Turbidity Monitoring shall be conducted as outlined in Section 5.2.2.8.b of the Permit and in Section 4.6 of the SPCP, as follows:

- CTDEEP's "*Turbidity Monitoring and Inspection Guide for Construction Dewatering*"[1], March 2026 should be consulted for additional details and/or guidance.
- Conduct turbidity monitoring during the weekly "routine inspection".
- Initial: The 1st turbidity measurement shall be taken within 30 minutes of initiating the dewatering discharge ("initial" monitoring).
- Weekly: Following the "initial" monitoring, turbidity monitoring will be conducted weekly during the Routine Inspections.
- Samples shall be taken after the dewatering water has been treated by any treatment device or control measure.
- Turbidity shall be measured using 40 CFR 136 methods.

Record and submit turbidity monitoring results as follows:

- Complete the basic project, inspector and weather information on the Routine Inspection Form (Appendix G3).
- If there is no dewatering discharge covered under this Permit during a particular week, note on this Form indicating "no discharge". This could be the case if there is a dewatering discharge covered by a different permit (e.g., the D2R GP) as discussed in Section 4.1.2 of the SPCP.
- Record results of the turbidity monitoring on this Form (next page).
- Records of turbidity monitoring (using this Form) shall be submitted to CTDEEP via email to: DEEP.StormwaterConstruction@ct.gov with the subject line: "Construction turbidity monitoring". Turbidity Monitoring Reports are to be submitted on the 1st day of each month following initiation of the dewatering discharge for as long as a discharge exists.

Note: The "Turbidity Monitoring Data Table" on the next page is taken directly from the CTDEEP turbidity monitoring guidance document referenced in footnote 1, with notes and the certification statement added.

1 Inspection and Monitoring Guide for Construction Dewatering, EPA's 2022 Construction General Permit, February 2022

APPENDIX G7:
TURBIDITY MONITORING DATA RECORDING FORM

Turbidity Monitoring Data Table

Project Name: Hartford Flood Control System Toe Drain, Toe Ditch & Embankment Repairs Project
Permit Number:
Dewatering Discharge Point ID (if multiple discharge points)**:**
Sample Location:
Turbidity Meter (make and model)**:**
Test Method (e.g., EPA 180.1)**:**

SAMPLE COLLECTION			TURBIDITY ANALYSIS				
Name of Individual Collecting Sample	**Date**	**Time**	**Name of Individual Analyzing Sample**	**Date**	**Time**	**Meter Calibrated?**	**Turbidity Result (NTUs)***
						☐ Yes	
						☐ Yes	
						☐ Yes	
						☐ Yes	
						☐ Yes	
						☐ Yes	

*Note as ND or "no discharge" if there is no such dewatering discharge under this Permit.

Notes:

CERTIFICATION**:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

CERTIFICATION BY PREPARER (Individual Responsible for Preparing this Document)	CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works or Duly Authorized Representative)
Signature:	**Signature:**
Date:	**Date:**
Name:	**Name:**
Title and Affiliation:	**Title and Affiliation:**
Contact Information:	**Contact Information:**

This Form shall be certified by the Permittee (City of Hartford DPW or their Duly Authorized Representative) and by the individual responsible for preparing the document. Completed forms must be retained for at least five (5) years after the date of inspection.

APPENDIX H: NOTICE OF TERMINATION FORM

Copy of previous 1-5-2022 NOT Form included

(to be replaced with new NOT Form upon issuance by CTDEEP)

Connecticut Department of
Energy & Environmental Protection
Bureau of Materials Management & Compliance Assurance
Water Permitting & Enforcement Division

General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities

Notice of Termination Form: Non-Solar Projects

This Notice serves as a request to terminate the below listed permit as well as any applicable Letter(s) of Credit.

Part I: Permittee Information

The below information is required in accordance with Section 6(b) of the General Permit.

1. Permit Number: GSN _____
2. Registrant: _____
3. Site Address: _____

   City/Town: _____ State: _____ Zip Code: _____
4. Date of completion of construction: _____

   Date all storm drainage structures were cleared of construction sediment and debris: _____

   Beginning and Ending Dates of post-construction inspections: _____

   Date of final stabilization inspection(s)*: _____

   Qualified Inspector who conducted the Final Stabilization Inspection: (This person must sign Part III) _____
5. Check the post-construction activity(ies)** at the site (check all that apply):

   ☐ Industrial ☐ Residential ☐ Capped Landfill

   ☐ Commercial ☐ Solar Array ☐ Other: _____

* The Final Stabilization Inspection must occur at least one full growing season after final stabilization has been achieved. A full growing season is defined as the timeframe encompassed by two consecutive full seeding seasons: April 1 through June 15, and August 15 through October 1. If final stabilization is achieved during a seeding season, the following seeding season will be considered the first full seeding season after final stabilization has been achieved.

** If the post-construction activity involves solar arrays, the Department may require that the "Solar Projects: Notice of Termination Form" be used. Any questions regarding the necessity of such a form for the project can be sent via email to DEEP.StormwaterStaff@ct.gov.

Locally Approvable Projects Must Complete the following Part II - *(Attach additional sheets as needed)*

Part II: Locally Approvable Post-Construction Inspection Certification

The below information is required in accordance with Section 5(b)(4)(C)(i) of the General Permit.

Certification by a Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional / District Representative

"I hereby certify that I am a qualified professional engineer / a qualified soil erosion and sediment control professional / a representative of the District in which the site is located as defined in Section 2 of the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). I am familiar with the site described in this Notice of Termination and the requirements of the general permit. I certify, based on my personal inspection of the site pursuant to Section 6(a) of the general permit that all post-construction measures have been installed as specified in the permittee's Stormwater Pollution Control Plan and in accordance with Section 5(b)(2)(C) of the general permit and that all such measures have been cleaned of construction sediment and debris. I understand that this certification is part of a registration submitted in accordance with section 22a-430b of Connecticut General Statutes and is subject to the requirements and responsibilities for a qualified professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature of Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional / Representative of the District	Date
Printed Name of Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional / Representative of the District	Title

Check off the qualifications of the signatory of the above part:

☐ Qualified Professional Engineer ☐ Qualified Soil Erosion and Sediment Control Professional ☐ Representative of the District

Locally Exempt Projects Must Complete the following Part II - *(Attach additional sheets as needed)*

Part II: Locally Exempt Post-Construction Inspection Certification

The below information is required in accordance with Section 5(b)(4)(C)(ii) of the General Permit.

Certification by a Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional

"I hereby certify that I am a qualified professional engineer / a qualified soil erosion and sediment control professional as defined in Section 2 of the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). I am familiar with the site described in this Notice of Termination and the requirements of the general permit. I certify, based on my personal inspection of the site pursuant to Section 6(a) of the general permit that all post-construction measures have been installed as specified in the permittee's Stormwater Pollution Control Plan and in accordance with Section 5(b)(2)(C) of the general permit and that all such measures have been cleaned of construction sediment and debris. I understand that this certification is part of a registration submitted in accordance with section 22a-430b of Connecticut General Statutes and is subject to the requirements and responsibilities for a qualified professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature of Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional	Date
Printed Name of Qualified Professional Engineer / Qualified Soil Erosion and Sediment Control Professional	Title

Check off the qualifications of the signatory of the above part:

☐ Qualified Professional Engineer ☐ Qualified Soil Erosion and Sediment Control Professional

State Agency Projects Must Complete the following Part II - (Attach additional sheets as needed)

Part II: State Agency Post-Construction Inspection Certification

The below information is required in accordance with Section 5(b)(4)(C)(iii) of the General Permit.

Certification by a DOT District Engineer or his/her designee / a DOT District Environmental Coordinator / a designated employee of another state agency

"I hereby certify that I am a DOT District Engineer or his/her designee / a DOT District Environmental Coordinator / a designated employee of another state agency as defined in Section 2 of the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). I am familiar with the site described in this Notice of Termination and the requirements of the general permit. I certify, based on my personal inspection of the site pursuant to Section 6(a) of the general permit that all post-construction measures have been installed as specified in the permittee's Stormwater Pollution Control Plan and in accordance with Section 5(b)(2)(C) of the general permit and that all such measures have been cleaned of construction sediment and debris. I understand that this certification is part of a registration submitted in accordance with section 22a-430b of Connecticut General Statutes and is subject to the requirements and responsibilities for a qualified professional in such statute. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature	Date
Printed Name	Title

Check off the qualifications of the signatory of the above part:

☐ Qualified Professional Engineer ☐ Qualified Soil Erosion and Sediment Control Professional ☐ Representative of the District

All Projects Must Complete the following Part III - *(Attach additional sheets as needed)*

Part III: Final Stabilization Inspection Certification

The below information is required in accordance with Section 5(b)(4)(D) of the General Permit.

Certification by a Qualified Inspector

"I hereby certify that I am a qualified inspector as defined in Section 2 of the General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit). I am familiar with the site described in this Notice of Termination and the requirements of the general permit. I certify, based on my personal inspection of the site pursuant to Section 6(a) of the general permit that the site has been stabilized, as defined in Section 2 of the general permit, for a period of no less than one full growing season following the cessation of construction activities. I further certify that there is no active erosion or sedimentation present on site and no disturbed areas remain exposed. I also understand that knowingly making any false statement in this certification may be punishable as a criminal offense, including the possibility of fine and imprisonment, under section 53a-157b of the Connecticut General Statutes and any other applicable law."

Signature of Qualified Inspector	Date
Printed Name of Qualified Inspector	Title

All Projects Must Complete the following Part IV - *(Attach additional sheets as needed)*

Part IV: Permittee Certification

The below information is required in accordance with Section 5(b)(4)(D) of the General Permit.

Certification by the Permittee

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with section 22a-6 of the Connecticut General Statutes, pursuant to section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

Signature of Permittee	Date
Printed Name of Permittee	Title

All Projects Must Complete the following Part V - *(Attach additional documentation as needed)*

Part V: Additional Submittals

The following attachments are required to be submitted along with the Notice of Termination Form:

☐ Post-Construction Inspection Report (must contain photos with time stamps)

☐ Final Stabilization Inspection Report (must contain photos with time stamps)

Complete and submit this form in accordance with the general permit (DEEP-WPED-GP-015) to ensure the proper handling of the termination. Print or type unless otherwise noted.

Submit this Notice of Termination Form to the address below, as well as via email to DEEP.StormwaterStaff@ct.gov:

WATER PERMITTING AND ENFORCEMENT DIVISION/STORMWATER GROUP
DEPARTMENT OF ENERGY & ENVIRONMENTAL PROTECTION
79 ELM STREET
HARTFORD, CT 06106-5127

APPENDIX I: LIST OF CONTRACTORS AND SUBCONTRACTORS

- **Blank Form**
- **Completed Forms**

STORMWATER POLLUTION CONTROL PLAN
LIST OF CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK AT THE SITE

Each contractor and subcontractor that will perform construction activities on the site that have the potential to cause pollution of the waters of the State will be identified in the SPCP.

Site: Hartford Flood Control System: South Meadows (Clark) Dike, Hartford, CT

Project: Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project

Reproduce additional sheets as needed.

CONTRACTOR OR SUBCONTRACTOR:		
Date of Notice to Proceed:		
1.	Company Name	
	Company Address	
	Company Phone Number	
	Contact Person Designated Responsible for SPCP Compliance	
	Direct Phone Number of Contact Person	
	Is this Company the main Contractor or Subcontractor?	
	If Subcontractor, Name of main Contractor	
2.	Company Name	
	Company Address	
	Company Phone Number	
	Contact Person Designated Responsible for SPCP Compliance	
	Direct Phone Number of Contact Person	
	Is this Company the main Contractor or Subcontractor?	
	If Subcontractor, Name of main Contractor	

STORMWATER POLLUTION CONTROL PLAN
LIST OF CONTRACTORS AND SUBCONTRACTORS PERFORMING WORK AT THE SITE

CONTRACTOR OR SUBCONTRACTOR:		
3.	Company Name	
	Company Address	
	Company Phone Number	
	Contact Person Designated Responsible for SPCP Compliance	
	Direct Phone Number of Contact Person	
	Is this Company the main Contractor or Subcontractor?	
	If Subcontractor, Name of main Contractor	
4.	Company Name	
	Company Address	
	Company Phone Number	
	Contact Person Designated Responsible for SPCP Compliance	
	Direct Phone Number of Contact Person	
	Is this Company the main Contractor or Subcontractor?	
	If Subcontractor, Name of main Contractor	
5.	Company Name	
	Company Address	
	Company Phone Number	
	Contact Person Designated Responsible for SPCP Compliance	
	Direct Phone Number of Contact Person	
	Is this Company the main Contractor or Subcontractor?	
	If Subcontractor, Name of main Contractor	

APPENDIX J: CONTRACTOR AND SUBCONTRACTOR CERTIFICATIONS

- **Blank Form**
- **Completed Forms**

STORMWATER POLLUTION CONTROL PLAN
CONTRACTOR AND SUBCONTRACTOR CERTIFICATION FORM

The following certification form shall be signed by each contractor and subcontractor identified in the SPCP that will perform construction activities on the site that have the potential to cause pollution of the waters of the State.

"I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater from Construction Activities and the site-specific Stormwater Pollution Control Plan (SPCP). I understand that as a contractor or subcontractor at the site, I must comply with the terms and conditions of this general permit and the SPCP."

_____ _____
Signature Date

Company Name: _____
Company Address: _____
Company Phone Number: _____
Name of Signatory: _____
Title of Signatory: _____

If Subcontractor, Name of Contractor with whom subcontractor is directly contracted:
_____

Site: Hartford Flood Control System: South Meadows (Clark) Dike, Hartford, CT

Project: Hartford Flood Control System Toe Drain, Toe Ditch and Embankment Repairs Project

Contract or Construction Phase (if applicable): _____

APPENDIX K: BLANK CERTIFICATION FOR SUBMITTAL OF DOCUMENTS OR REPORTS

- **Blank Certification by Permittee**
- **Blank Certification by Preparer**

CERTIFICATION STATEMENT TO ATTACH TO ANY DOCUMENT, NOTICE OR REPORT SUBMITTED TO THE COMMISSIONER (CTDEEP) UNDER THE CGP:

CERTIFICATION BY PERMITTEE (The City of Hartford Department of Public Works)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

_____ _____

Signature by: Date

Permittee: Frank Dellaripa, P.E., City Engineer / Assistant Director of Public Works

OR Duly Authorized Representative of the Permittee:

Name and Title: _____

Company: _____

CERTIFICATION STATEMENT TO ATTACH TO ANY DOCUMENT, NOTICE OR REPORT SUBMITTED TO THE COMMISSIONER (CTDEEP) UNDER THE CGP:

CERTIFICATION BY PREPARER

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that a false statement made in this document or its attachments may be punishable as a criminal offense, in accordance with Section 22a-6 of the Connecticut General Statutes, pursuant to Section 53a-157b of the Connecticut General Statutes, and in accordance with any other applicable statute."

_____ _____

Signature by: Date

Individual Responsible for Preparing Document

Name and Title: _____

Company: _____