

# ENVIRONMENTAL PERMIT PLANS

## STATE PROJECT NO. XXXX-XXXX

### REPLACEMENT OF BRIDGE NO. XXXXX

### IN THE TOWN OF \_\_\_\_\_

Guide for the Development  
of the Permit Plan Set

Title Sheet:

1. Location plan at an appropriate scale that shows project location and nearby cross streets (example: 1"=500', 1"=1000'). For longer lateral projects, depict beginning and end of project (project limits)
2. Include State of Connecticut map with Town shaded and call-out project location
3. Include general index for "LIST OF DRAWINGS"
4. Include GENERAL NOTES 1-5 (Additional notes may be added as appropriate for the project). Revise Note 4 as appropriate for project. Update Note 5 as needed for any revisions to specs and manuals.
5. Include a signature block for Consultant Engineer, if needed.
6. Include a PLAN DATE (Latest revision date of sheet. Dates do not need to match within plan set)

On All Other Plan Views:

1. Show wetland limits and ordinary high water (OHW) (bold)
2. If within a regulated flood zone, show existing flood limit lines on plan views (bold). Identify using the guidance in the 'Regulatory Floodplain Delineation, Permit Plan Set' dated May 2016 which can be found on the OEP webpage under 'Permit Plan Sets' - 'Guide for Floodplain Lines on Plans' and is summarized here:
  - A) Calculated elevation on a FEMA map governs. Label as "FEMA 100-YR FLOOD (CALCULATED)"
  - B) Otherwise, show hydraulic analysis elevation. Label as "EXISTING 100-YR FLOOD (CALCULATED)"
  - C) If no calculations were performed, show mapped FEMA lines. Label as "MAPPED FEMA 100-YR FLOOD LIMIT"
3. Show Floodway lines, if present (bold). This would be graphical from the FEMA map. (If floodplain/floodway appears illogical, designer may consult with H&D regarding possible adjustment in order to depict on plans)
4. Show Cut/Fill limits
5. Flow arrows (existing and proposed)
6. If present in survey file, include edge of water and/or edge of waterbody (screened with survey file)
7. For Permit Plans, remove references to Contract Drawings as these drawings are not provided as part of the permit plan set. Remove reference to Specifications/Special Provisions. These documents are not provided to the regulators unless requested.
8. Add "PLAN DATE: " to every sheet in the set which is the latest revision date of the sheet. The dates do not need to match within the plan set.

Note: For additional environmental information, see the Department's Office of Environmental Planning's Permit Plan Set checklist found on the OEP webpage under "Permitting Process"

#### SAMPLE PROJECT USED FOR PLANS

The following sample project is located on an inland watercourse and involves replacing an existing large pipe with a three-sided (open bottom) culvert. The project is planned to be constructed in 3 stages. A water handling pipe will be used and placed within the existing pipe. This project involves a roadway overbuild in the staging, therefore, an access road is not needed for construction of the project.

The following permits are anticipated for this project:  
Flood Management Certification (DEEP LWRD FMC)  
General Permit for Water Resource Construction Activities (DEEP LWRD GP)  
US Army Corps of Engineers Self-Verification (USACE SV)

For this sample project, the cofferdam was designed using a 2-year frequency discharge. The culvert was designed for a 100-year storm. The sample project falls within a mapped FEMA area with no elevation provided on the FEMA map. A 100-year storm elevation (existing) has been calculated and this elevation is used in determining the floodplain impact area. An 8 1/2" x 11" FEMA map is provided within the permit application. No floodway is present in the project area.

Impact areas include ALL areas to be impacted due to the project construction and activities related to the project, both temporary and permanent. On this project, additional impact area was included to allow the contractor to utilize different methods and equipment. Engineering judgement should be used to determine the amount of area the contractor needs to perform the work, while trying to minimize the disturbance to the wetland resources. The designer should also evaluate any utility work and access roads that may be needed as part of the project and include any of those associated impacts.

NOTE: This sample project has been altered from the actual project to produce this sample set of plans.

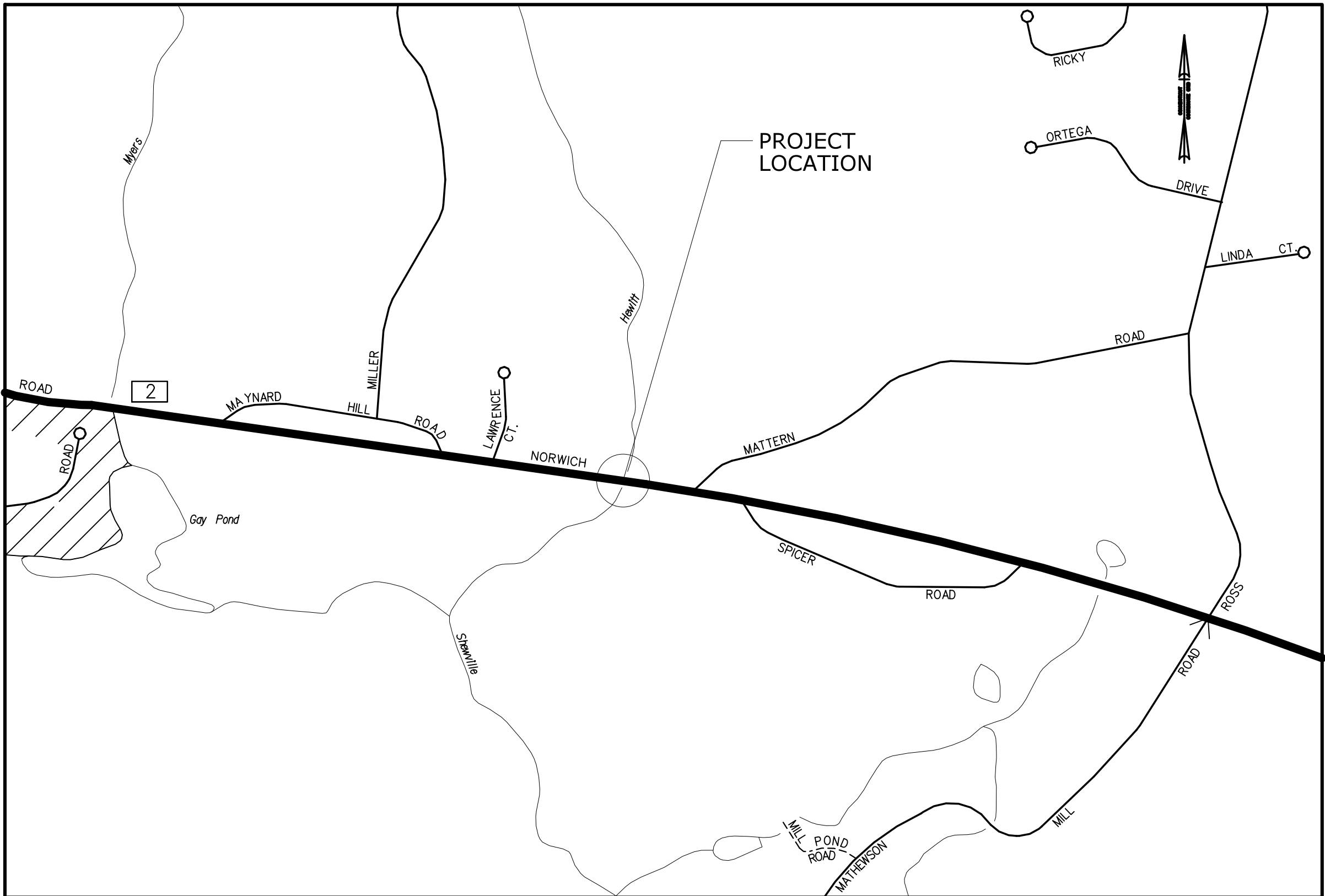
#### GENERAL NOTES:

See Title Sheet guidance note 4

1. THESE PLANS ARE NOT FOR CONSTRUCTION AND ARE INTENDED ONLY FOR ENVIRONMENTAL PERMITTING PURPOSES. THESE PLANS HOLD AUTHORITY FOR ALL ACTIVITIES CONCERNING THE REGULATED AREA. FOR DETAILED PLANIMETRIC INFORMATION AND PAYMENT, REFER TO THE APPLICABLE CONTRACT DOCUMENTS.
2. THE DEPARTMENT OF TRANSPORTATION WILL ONLY SUBMIT REVISIONS TO DEEP AND USACE FOR CHANGES TO THE DESIGN THAT WILL AFFECT REGULATED AREAS.
3. FOR A DESCRIPTION OF THE WATERCOURSES, WETLANDS AND WETLAND SOILS SEE RELEVANT SECTIONS OF THE PERMIT APPLICATION.
4. 400 FOOT GRID BASED ON CONNECTICUT COORDINATE SYSTEM N.A.D. 1927 VERTICAL DATUM BASED ON NGVD OF 1929.
5. ALL CONSTRUCTION ACTIVITIES WILL BE CONDUCTED IN ACCORDANCE WITH THE DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, FACILITIES, AND INCIDENTAL CONSTRUCTION, FORM 819, SECTION 1.10 AND WILL ALSO FOLLOW REQUIRED BEST MANAGEMENT PRACTICES (BMPs) AND SEDIMENT AND EROSION CONTROL MEASURES IN ACCORDANCE WITH THE DEEP CONNECTICUT GUIDELINES FOR SOIL EROSION & SEDIMENT CONTROL AND THE DEEP CONNECTICUT STORMWATER QUALITY MANUAL.

#### NOTE TO DESIGNERS:

PRELIMINARY PERMIT PLAN DEVELOPMENT SHOULD BE INITIATED AFTER 30% DESIGN REVIEW HAS BEEN COMPLETED. PLEASE ENSURE ANY PERTINENT/APPLICABLE 30% DESIGN REVIEW COMMENTS ARE INCORPORATED INTO THE PERMIT PLANS.



#### LOCATION PLAN


1" = 500'

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	100-YEAR FLOOD IMPACT PLAN
PMT-05	ELEVATIONS & SECTION PLAN
PMT-06	STAGING AND WATER HANDLING PLAN
PMT-07	PERMIT PLANTING PLAN

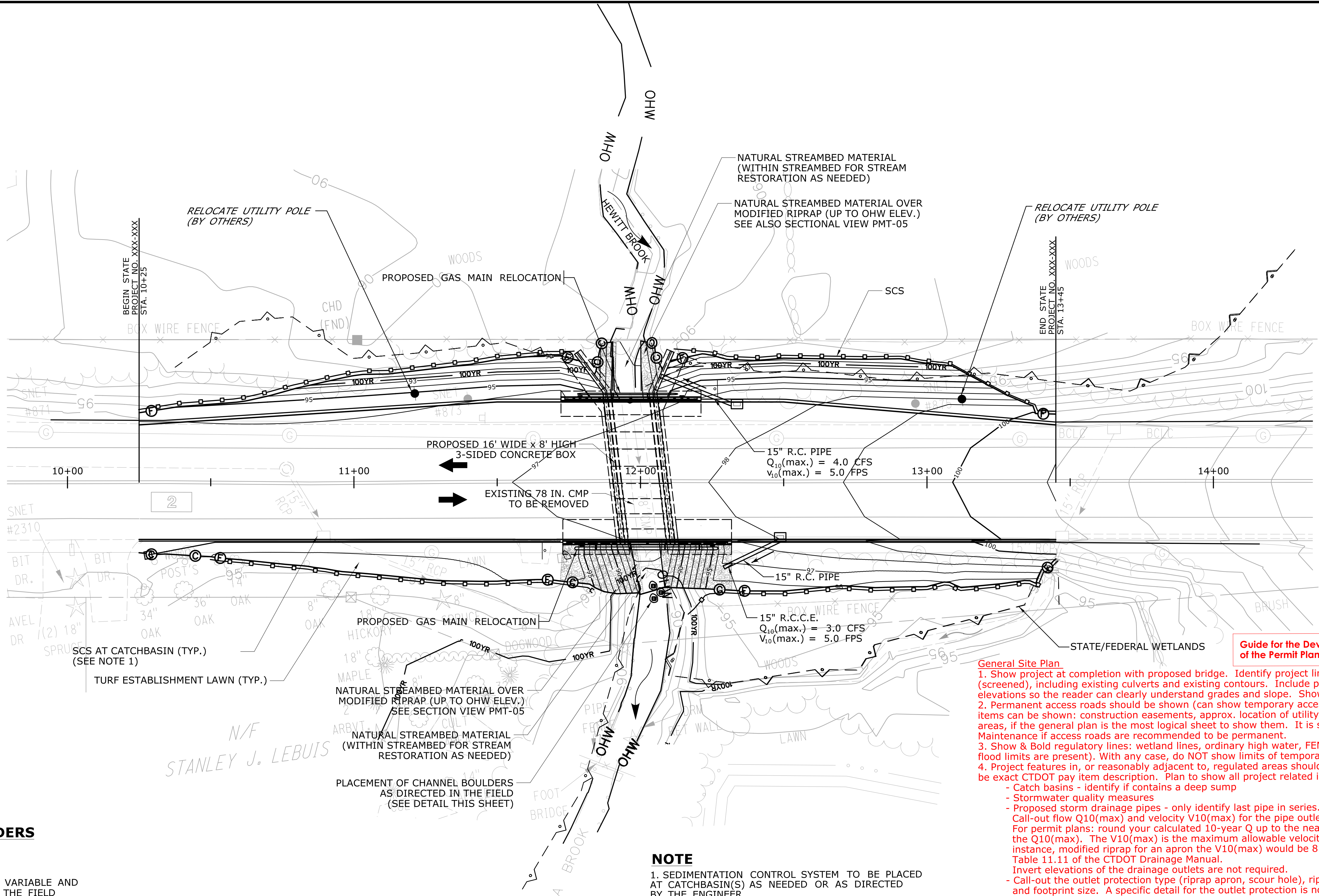
Block for Consultant  
stamp and signature  
if applicable

DESIGNED BY:

PLAN DATE: APRIL 2, 2024

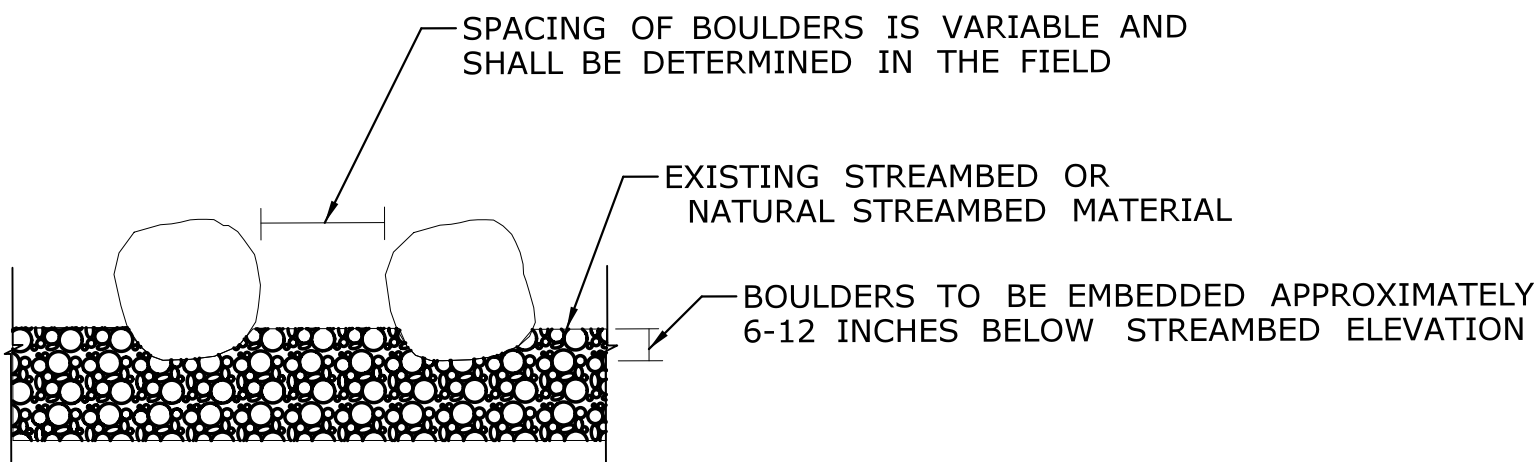
				DESIGNER/DRAFTER:	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	SIGNATURE/ BLOCK:	PROJECT TITLE:  <b>REPLACEMENT OF BRIDGE NO. XXXXX ROUTE X OVER A BROOK</b>	TOWN:  <b>TOWN</b>	PROJECT NO. <b>XXX-XXX</b> DRAWING NO. <b>PMT-01</b> SHEET NO.
				CHECKED BY:					
				SCALE AS NOTED					
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 4/1/2024	Filename: ...\\TITLE SHEET - Proj XXX.dgn				





Note: For a dgn of fisheries details contact the CTDOT EPC Unit. A pdf of the fisheries detail and associated specifications can be found on the OEP's webpage under the Environmental Resource Compliance Section

PLACEMENT OF CHANNEL BOULDERS  
SECTION VIEW  
N.T.S.



ROUNDED BOULDERS APPROXIMATELY 2 FT. MIN. DIAMETER SHALL BE PLACED IN CLUSTERS, AS DIRECTED IN THE FIELD BY DEEP FISHERIES/ OEP STAFF OR THEIR AUTHORIZED DELEGATE.

LEGEND

- 100YR EXISTING 100-YEAR FLOOD (CALCULATED)
- OHW ORDINARY HIGH WATER (OHW)
- STATE/FEDERAL WETLANDS
- SEDIMENTATION CONTROL SYSTEM (SCS)
- SURVEYED EDGE OF WATER

NOTE

- SEDIMENTATION CONTROL SYSTEM TO BE PLACED AT CATCHBASIN(S) AS NEEDED OR AS DIRECTED BY THE ENGINEER
- SEDIMENTATION CONTROL SYSTEM SHOWN IN FINAL CONDITION (APPROXIMATE LOCATION)

LINE LEGEND: Generally not necessary to repeat each sheet. Add items as appropriate for project.

FLOODPLAIN: Identify per 'Regulatory Floodplain Delineation, Permit Plan Set' dated May 2016, which can be found on the OEP webpage under 'Permit Pan Sets' - 'Guide for Floodplain Lines on Plans'


WETLANDS: If needed, identify if project area contains separate State wetland areas.

General Site Plan

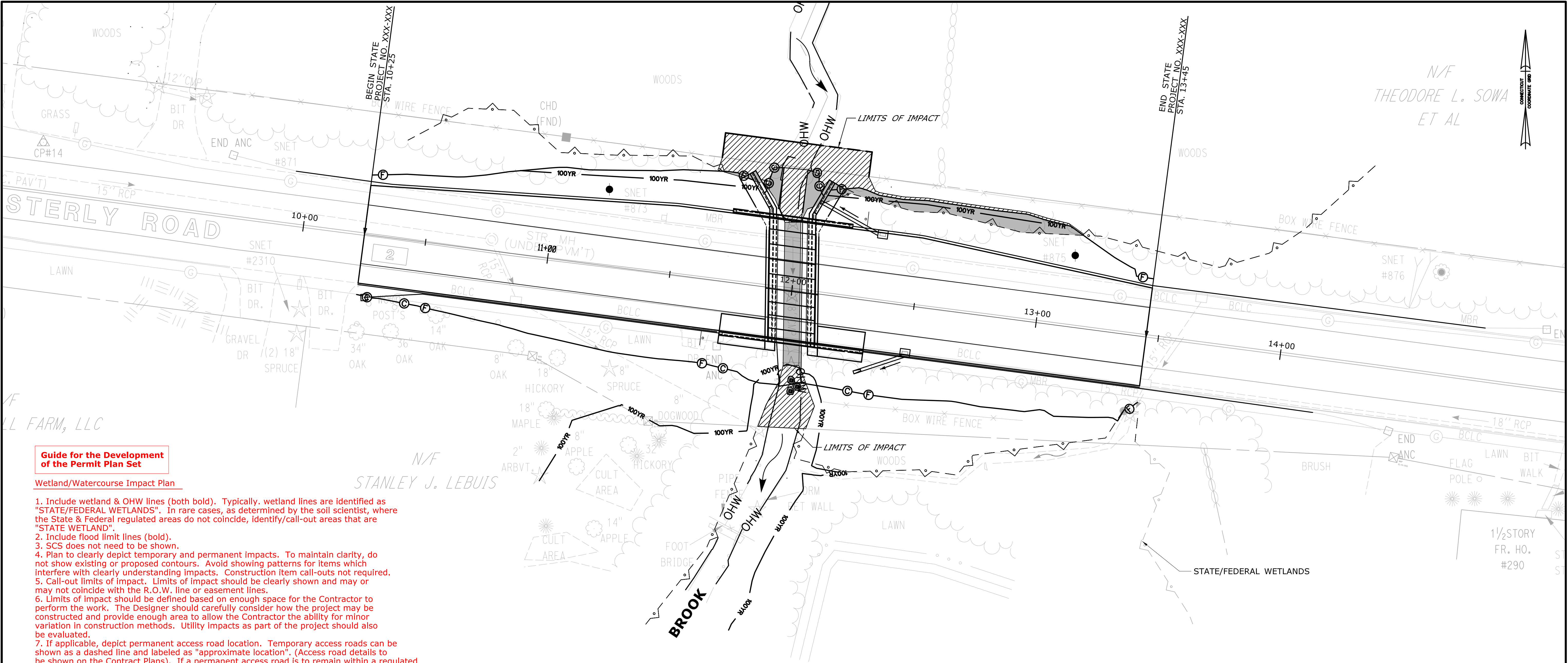
- Show project at completion with proposed bridge. Identify project limits. Plan to include existing survey (screened), including existing culverts and existing contours. Include proposed contours and label contour elevations so the reader can clearly understand grades and slope. Show SCS for final stabilization (toe of slope).
  - Permanent access roads should be shown (can show temporary access on impact plan(s)). Some temporary items can be shown: construction easements, approx. location of utility lines and poles as it relates to regulated areas, if the general plan is the most logical sheet to show them. It is suggested to discuss with District Maintenance if access roads are recommended to be permanent.
  - Show & Bold regulatory lines: wetland lines, ordinary high water, FEMA flood limits, and floodway (if FEMA flood limits are present). With any case, do NOT show limits of temporary or final design storm.
  - Project features in, or reasonably adjacent to, regulated areas should be identified. Call-outs do not need to be exact CTDOT pay item description. Plan to show all project related items including (but not limited to):
    - Catch basins - identify if contains a deep sump
    - Stormwater quality measures
    - Proposed storm drainage pipes - only identify last pipe in series.
    - Call-out flow Q10(max) and velocity V10(max) for the pipe outlets.For permit plans: round your calculated 10-year Q up to the nearest whole number for the Q10(max). The V10(max) is the maximum allowable velocity for the proposed outlet, for instance, modified riprap on an apron the V10(max) would be 8 fps, this value is from Table 11.11 of the CTDOT Drainage Manual.
  - Invert elevations of the drainage outlets are not required.
  - Call-out the outlet protection type (riprap apron, scour hole), riprap size (intermediate, standard, etc.) and footprint size. A specific detail for the outlet protection is not needed, unless a non-standard design. The necessity for streambed material over riprap in a scour hole shall be vetted through OEP, DEEP Fisheries, and the Hydraulics and Drainage Unit.
  - Call-out streambed material and depth. If washing-in of streambed material is requested by DEEP Fisheries and required, include call-out on plan.
  - Call-out any required slope protection material.
  - Structure: Call-out proposed type and size
  - Add flow arrows
  - If no separate permit planting plan is required, call-out type of final stabilization and restoration measures on the General Plan.
- Show fisheries enhancement (if required). Include note "TO BE DIRECTED IN THE FIELD BY DEEP FISHERIES/OEP STAFF" (as appropriate for project). Details can be shown on separate sheet.
  - If a stormwater permit is required, include note regarding double row of SCS needed near wetlands (contact EPC Unit or OEP for note). Do not show the double SCS on plans.
  - Any sheetpiling that must be left in place shall be shown on the plans and called out.
  - Include appropriate legend on General Plan (not required to repeat on each sheet).

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: OCTOBER 5, 2023

				DESIGNER/DRAFTER:		 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	SIGNATURE/ BLOCK:	PROJECT TITLE:  <b>REPLACEMENT OF BRIDGE NO. XXXXX ROUTE X OVER A BROOK</b>	TOWN:  <b>TOWN</b>	PROJECT NO. <b>XXX-XXX</b>				
				CHECKED BY:										
				<div>SCALE IN FEET</div> <div><div>0</div><div>20</div><div>40</div></div> <div>SCALE 1"=20'</div>										
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 1/2/2024		Filename: ...\\GENERAL PLAN - Proj XXX.dgn		DRAWING TITLE:  <b>GENERAL SITE PLAN</b>						
								SHEET NO. <b>PMT-02</b>						





Guide for the Development  
of the Permit Plan Set

Wetland/Watercourse Impact Plan

1. Include wetland & OHW lines (both bold). Typically, wetland lines are identified as "STATE/FEDERAL WETLANDS". In rare cases, as determined by the soil scientist, where the State & Federal regulated areas do not coincide, identify/call-out areas that are "STATE WETLAND".
2. Include flood limit lines (bold).
3. SCS does not need to be shown.
4. Plan to clearly depict temporary and permanent impacts. To maintain clarity, do not show existing or proposed contours. Avoid showing patterns for items which interfere with clearly understanding impacts. Construction item call-outs not required.
5. Call-out limits of impact. Limits of impact should be clearly shown and may or may not coincide with the R.O.W. line or easement lines.
6. Limits of impact should be defined based on enough space for the Contractor to perform the work. The Designer should carefully consider how the project may be constructed and provide enough area to allow the Contractor the ability for minor variation in construction methods. Utility impacts as part of the project should also be evaluated.
7. If applicable, depict permanent access road location. Temporary access roads can be shown as a dashed line and labeled as "approximate location". (Access road details to be shown on the Contract Plans). If a permanent access road is to remain within a regulated area, then a section detail of the access road should be provided. If possible, permanent access roads should be removed from the regulated area.
8. Any sheetpiling that must be left in place within a regulated area shall be counted as permanent impact and shown on the plan.
9. Include wetland and watercourse impact table. Quantify impacts to wetlands (above OHW) and watercourses (below OHW) (values can be rounded up). If there are independent areas of State and/or Federal wetlands, then impacts to those resources must be listed separately. Separate distinct wetland areas (often found on long linear projects) should be numbered (ex. WL1, WL2) and associated impacts noted in the table (these numbers will correspond with the wetland report).
10. Add note for the Contractor's restriction of work in the regulated areas. (note which is shown on this sheet above the Wetland Impact Table)

NOTE:

THE CONTRACTOR SHALL NOT WORK WITHIN THE LIMITS OF THE WETLANDS AND WATERCOURSE WITH THE EXCEPTION OF THOSE AREAS DELINEATED AS TEMPORARY OR PERMANENT IMPACTS TO THE WETLANDS AND WATERCOURSE. ALL DISTURBED AREAS SHALL BE RESTORED.

WETLAND IMPACT TABLE			
	WETLAND IMPACTS	WATERCOURSE IMPACTS	TOTAL
PERMANENT IMPACTS	400 S.F.(0.009 AC.)	400 S.F.(0.009 AC.)	800 S.F. (0.018 AC.)
TEMPORARY IMPACTS	1,200 S.F. (0.028 AC.)	1,000 S.F. (0.028 AC.)	2,200 S.F. (0.051 AC.)
TOTAL IMPACTS	2,000 S.F. (0.046 AC.)	1,000 S.F. (0.028 AC.)	3,000 S.F. (0.069 AC.)

These values can  
be rounded up

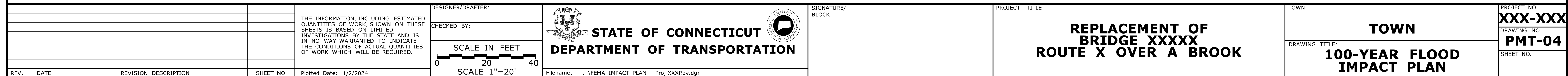
LEGEND:

- TEMPORARY WETLAND/WATERCOURSE IMPACT
- PERMANENT WETLAND/WATERCOURSE IMPACT

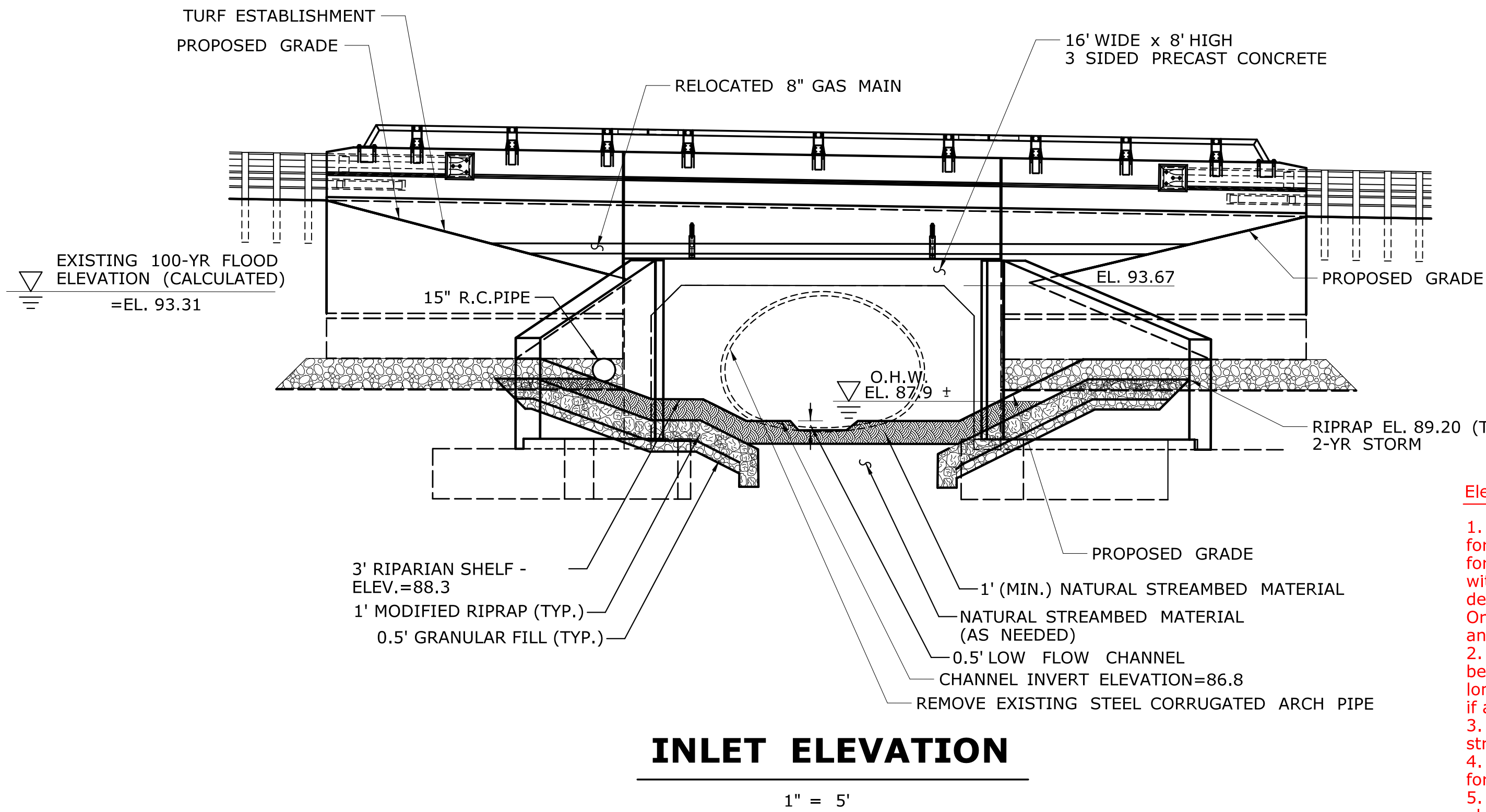
ENVIRONMENTAL PERMIT PLANS

PLAN DATE: OCTOBER 5, 2023



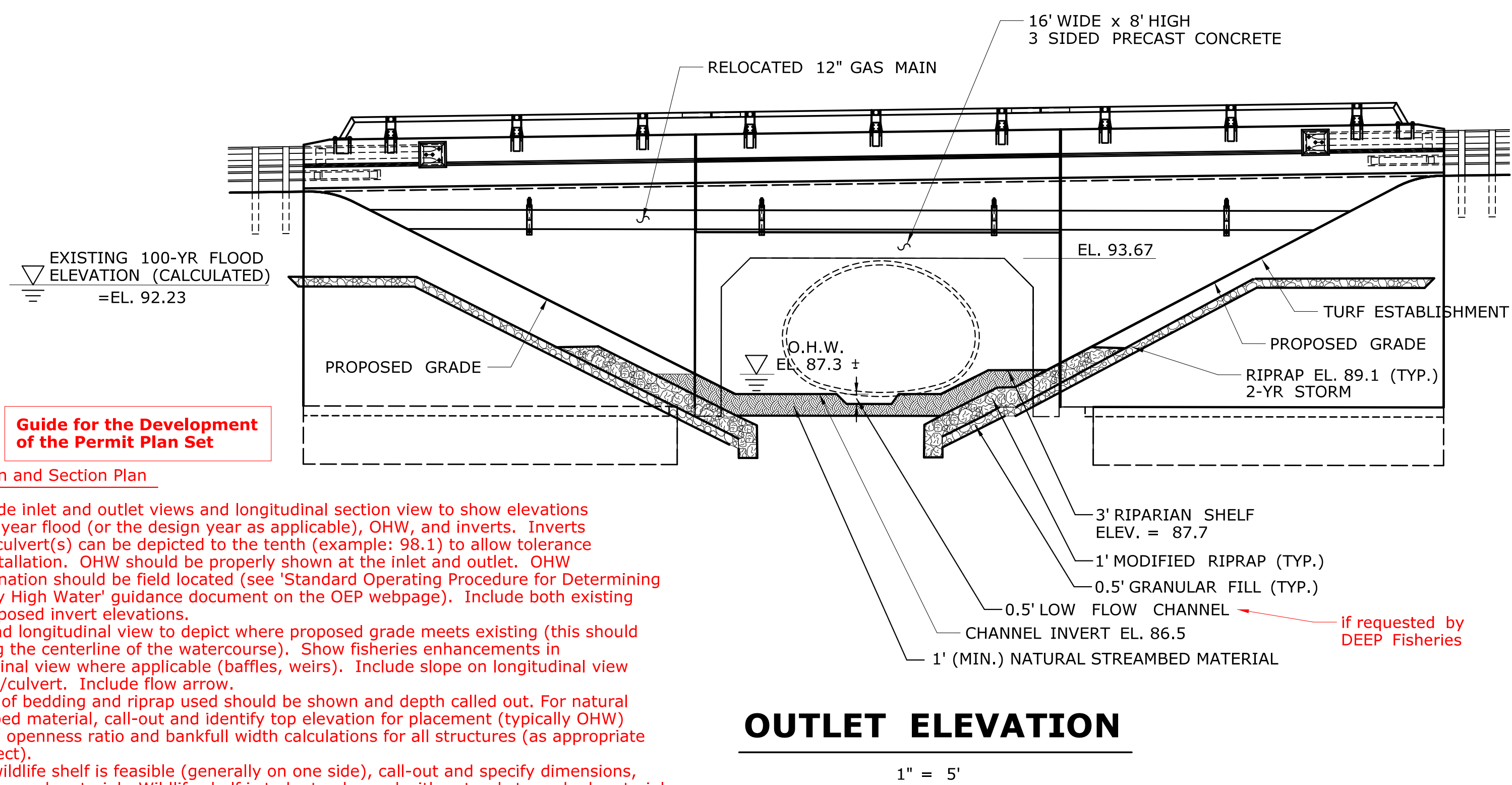




Guide for the Development  
of the Permit Plan Set

Elevation and Section Plan

1. Include inlet and outlet views and longitudinal section view to show elevations for 100-year flood (or the design year as applicable), OHW, and inverts. Inverts for the culvert(s) can be depicted to the tenth (example: 98.1) to allow tolerance with installation. OHW should be properly shown at the inlet and outlet. OHW determination should be field located (see 'Standard Operating Procedure for Determining Ordinary High Water' guidance document on the OEP webpage). Include both existing and proposed invert elevations.
2. Extend longitudinal view to depict where proposed grade meets existing (this should be along the centerline of the watercourse). Show fisheries enhancements in longitudinal view where applicable (baffles, weirs). Include slope on longitudinal view if a pipe/culvert. Include flow arrow.
3. Type of bedding and riprap used should be shown and depth called out. For natural streambed material, call-out and identify top elevation for placement (typically OHW)
4. Show openness ratio and bankfull width calculations for all structures (as appropriate for project).
5. If a wildlife shelf is feasible (generally on one side), call-out and specify dimensions, elevation, and material. Wildlife shelf is to be topdressed with natural streambed material.
6. Include hydraulic data table as appropriate for project. Do not need scour information in the data table.
7. Plan sheet does not need to show unnecessary construction notes and comments. Plan sheet should show items pertinent to environmental permitting.
8. Add streambed material notes (as applicable for the project) and supplemental streambed material note, if needed. If washing-in streambed material is requested by CTDEEP Fisheries and required, include call-out on plans where applicable and reference specification in the streambed material notes "washing-in supplemental streambed material shall be in accordance with the special provision "washing-in supplemental streambed material"."
9. If project is proposing to leave sheeting in place within a regulated area, show sheeting in elevation views with call-out "sheetpiling cut 1 ft. minimum below streambed" (or depth as appropriate for project).



OPENNESS RATIO (OR):

OR = OPEN AREA / STRUCTURE LENGTH  
OR = 104 s.f / 51.5 ft. = 2.0 ft.  
2.0 ft. > 0.82 ft. (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):

BFW = 10 ft.  
1.2 x BFW = 12 ft.  
12 ft. < 16 ft. PROPOSED CULVERT SPAN

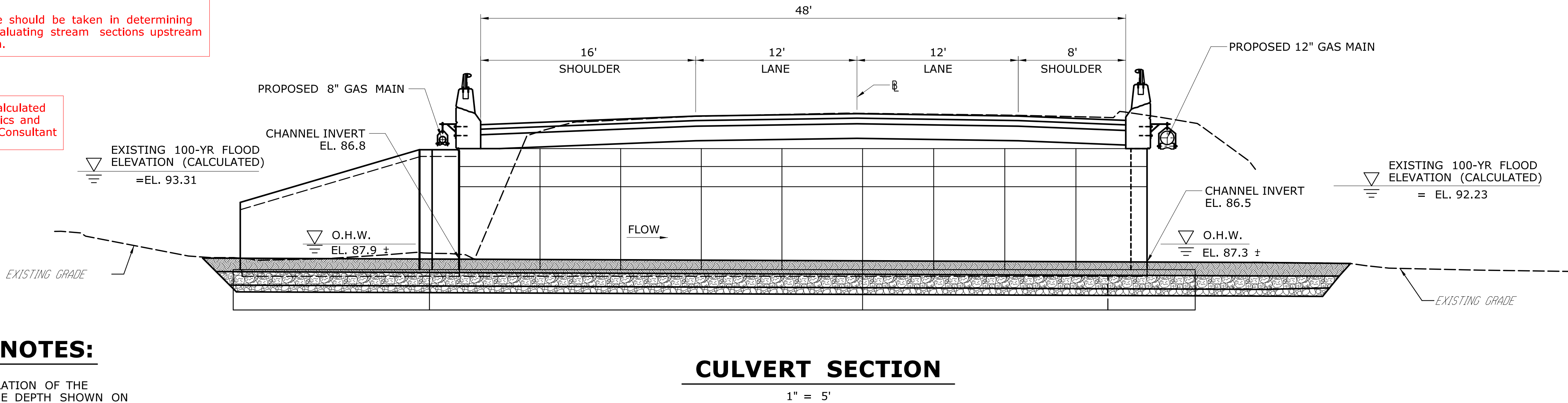
Information for the Openness Ratio and Bankfull Width (BFW) can be found in the USACE Stream Crossing Best Management Practices found in Appendix G of the USACE CT-GP dated 2021. Additional information can also be found in the DEEP Stream Crossing Guidelines February 2008.

For a bridge that obviously meets the openness ratio, it can be simply stated as meeting the >0.82

Additionally, care should be taken in determining the BFW by evaluating stream sections upstream and downstream.

HYDRAULIC DATA	
DRAINAGE AREA	1.59 SQ. MILE
DESIGN FREQUENCY	100 YEAR
DESIGN DISCHARGE	521 CFS
AVERAGE DAILY FLOW ELEVATION	87.76 FT. ±
100-YR UPSTREAM DESIGN WATER SURFACE ELEVATION	93.31 FT. ±
100-YR DOWNSTREAM DESIGN WATER SURFACE ELEVATION	92.23 FT. ±

Hydraulic Data Calculated by DOT's Hydraulics and Drainage Unit or Consultant




NATIVE STREAMBED MATERIAL NOTES:

1. NATIVE STREAMBED MATERIAL EXCAVATED DURING THE INSTALLATION OF THE STRUCTURE SHALL BE STOCKPILED AND THEN REPLACED TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH THE SPECIAL PROVISION "EXCAVATION AND REUSE OF EXISTING CHANNEL BOTTOM MATERIAL."
2. ADDITIONAL STREAMBED MATERIAL, IF REQUIRED, SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION "SUPPLEMENTAL STREAMBED CHANNEL MATERIAL."
3. THE STOCKPILE SHALL BE LOCATED OUTSIDE THE WETLAND LIMITS AND PROTECTED WITH SEDIMENTATION CONTROL SYSTEM.

Only if required, include special provision for "washing-in supplemental streambed material" see Guidance Note 8

ENVIRONMENTAL PERMIT PLANS

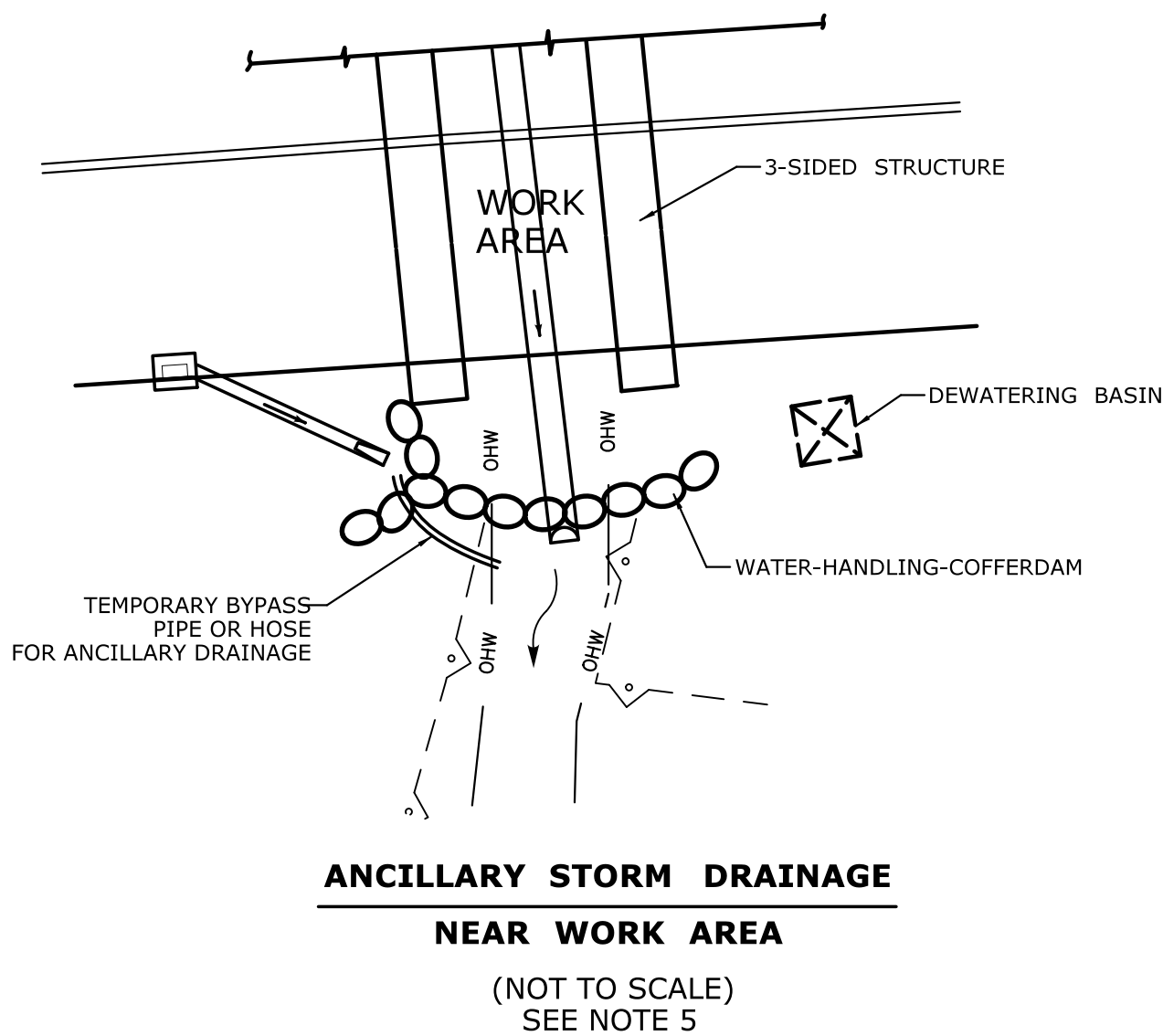
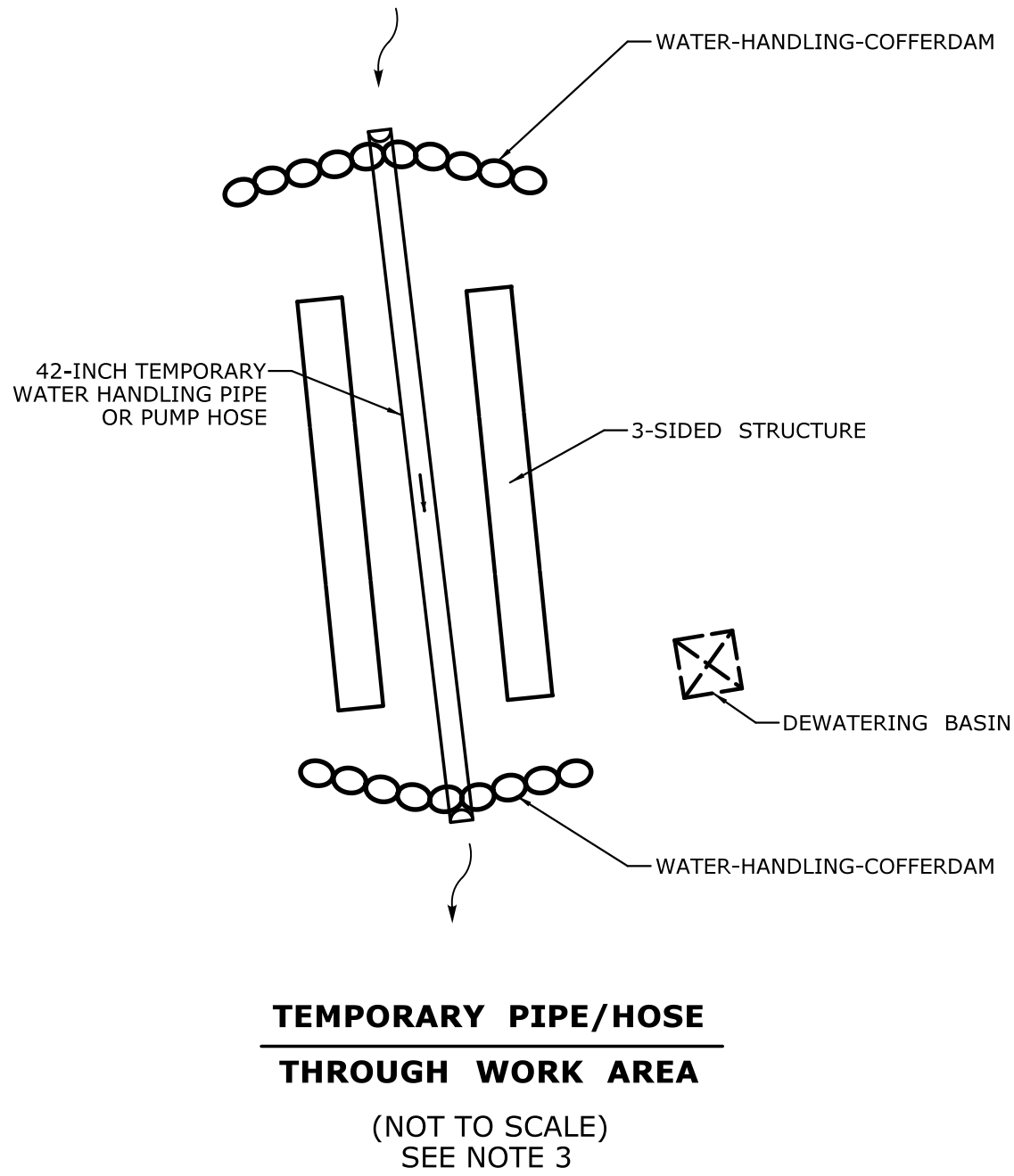
PLAN DATE: MAY 5, 2024

				DESIGNER/DRAFTER:	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b>	SIGNATURE/ BLOCK:	PROJECT TITLE:  <b>REPLACEMENT OF BRIDGE NO. XXXXX ROUTE X OVER A BROOK</b>	TOWN:  <b>TOWN</b>	PROJECT NO. <b>XXX-XXX</b>			
				CHECKED BY:								
				SCALE AS NOTED								
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 6/7/2024	Filename: ...\\ElevationsRev - Proj XXX.dgn							
				DRAWING TITLE: <b>ELEVATION AND SECTION PLAN</b>						SHEET NO. <b>PMT-05</b>		



Water Handling Schematics are found within the Guide on the OEP webpage (see Guidance Note 2).

For digital files of the schematics contact DOT's EPC Unit



### WATER HANDLING NOTES:

See Guidance Notes 8 and 9

1. THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE TEMPORARY WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION OF THE NEW STRUCTURE.
2. A DEWATERING BASIN SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.
3. TEMPORARY WATER HANDLING SYSTEM SHALL CONSIST OF AN APPROVED SYSTEM THAT THE CONTRACTOR ELECTS TO USE WHICH WILL SAFELY CONVEY WATER FLOWS THROUGH THE CONSTRUCTION AREA, SHALL BE ABLE TO SUPPORT CONSTRUCTION ACTIVITY AND SHALL CONFORM TO PERMITS.
- ANY WATER HANDLING SCHEME DEPICTED WITHIN THE DEPARTMENT'S 'HANDLING WATER TYPICAL SCHEMATICS' MAY BE UTILIZED UNLESS SPECIFICALLY PROHIBITED. A MEANS AND METHOD FOR WATER HANDLING SYSTEM SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL.
4. WATER HANDLING SYSTEM SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND AND FLOODPLAIN IMPACT SHEETS OF THE PERMIT PLANS.
5. ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING OR PROPOSED STORM DRAINAGE PIPES SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREAS. PUMPS/PIPES SHALL BE SIZED BY THE CONTRACTOR TO HANDLE THE EXPECTED FLOWS AND BE DISCHARGED TO A STABLE LOCATION. THE CONTRACTOR SHALL SUBMIT THE MEANS AND METHODS OF HANDLING STORM DRAINAGE TO THE ENGINEER FOR APPROVAL.
6. IF A PUMP SYSTEM IS PROPOSED DURING LOW FLOW CONDITIONS, THE PUMP SYSTEM SHALL BE DESIGNED BY THE CONTRACTOR. PUMP SYSTEM PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL.

BASED UPON FIELD CONDITIONS, WORK DURATION, AND EXPECTED WEATHER CONDITIONS, THE ENGINEER MAY APPROVE A CONSTRUCTION WATER HANDLING PLAN WITH LOWER PUMPING FLOWS, PROVIDED THAT THIS INCLUDES A CONTINGENCY PLAN, WHICH MINIMIZES NEGATIVE IMPACTS AND SAFELY CONVEYS LARGER FLOWS THROUGH THE WORK AREA.

### UNCONFINED IN-STREAM WORK BMP NOTE:

See Guidance Notes 10 and 11

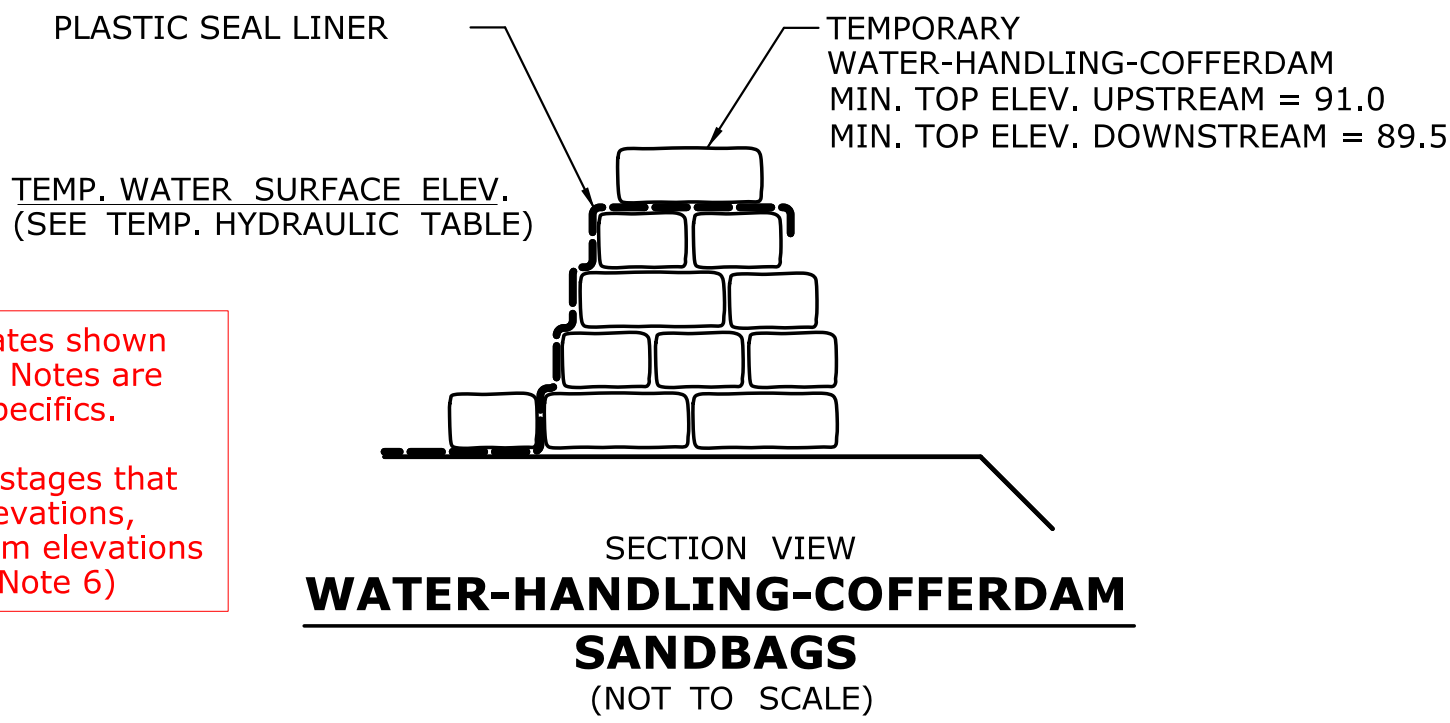
ANY UNCONFINED IN-STREAM WORK WITHIN THE WATERCOURSE SHALL BE RESTRICTED TO THE PERIOD FROM JUNE 1 TO SEPTEMBER 30, INCLUSIVE.

THE DEPARTMENT WILL REVIEW AND MAY APPROVE THE METHODS OF UNCONFINED IN-WATER WORK WITH CONSIDERATION OF THE FOLLOWING:

- \* PROPOSED SCHEDULE FOR WORK OPERATIONS
- \* ALL UNCONFINED IN-WATER WORK SHALL BE MINOR IN NATURE
- \* DISTURBANCE SHALL BE LIMITED TO AREAS THAT HAVE BEEN APPROVED FOR TEMPORARY AND PERMANENT IMPACT
- \* BEST MANAGEMENT PRACTICE SHALL BE UTILIZED WHEREVER POSSIBLE TO MINIMIZE TURBIDITY/SEDIMENT TRANSPORT DOWNSTREAM
- \* DISTURBED AREAS AND THE DURATION OF DISTURBANCE SHALL BE MINIMIZED TO THE EXTEND POSSIBLE
- \* IN-STREAM WORK SHALL BE DONE DURING PERIODS OF LOW FLOW.

Values, Elevations, and Dates shown in the Tables, Details, and Notes are dependent upon project specifics.

For projects with multiple stages that require a change in top elevations, include the top of cofferdam elevations per stage. (See Guidance Note 6)



*TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	3 CFS
AVERAGE SPRING FLOW	7 CFS
2-YEAR FREQUENCY DISCHARGE	46 CFS
TEMPORARY FREQUENCY DISCHARGE = 2-YEAR FREQUENCY	46 CFS
LOW FLOW PUMPING TEMPORARY DESIGN DISCHARGE = 2 x AVG DAILY	6 CFS
GRAVITY FLOW BYPASS PIPE TEMPORARY DESIGN DISCHARGE = 2-YEAR FREQUENCY	46 CFS
TEMPORARY WATER SURFACE ELEVATION UPSTREAM	90.62 FT
TEMPORARY WATER SURFACE ELEVATION DOWNSTREAM	89.02 FT

\* NOTE: VALUES AND ELEVATIONS MAY VARY SLIGHTLY FROM THE CONTRACT PLANS.

## SUGGESTED SEQUENCE OF CONSTRUCTION

CONSTRUCTION OF THIS PROJECT WILL BE PERFORMED BY SHIFTING TWO-WAY TRAFFIC

STAGE 1:

1. INSTALL SEDIMENTATION CONTROL SYSTEM (SCS), INCLUDING SCS AT CATCHBASINS AS NEEDED.
2. PERFORM CLEARING AND GRUBBING, AS NECESSARY.
3. INSTALL TEMPORARY DEWATERING BASIN. BASIN TO REMAIN THROUGH ALL STAGES.
4. INSTALL TEMPORARY WATER HANDLING SYSTEM INCLUDING WATER-HANDLING-COFFERDAMS AND TEMPORARY PIPE. WATER HANDLING SYSTEM TO REMAIN THROUGH ALL STAGES.
5. CONSTRUCT TEMPORARY ROADWAY WIDENING.

STAGE 2:

1. SHIFT TRAFFIC TO SOUTH. CONSTRUCT MICROPILES AND FOOTINGS ON NORTH SIDE
2. PARTIALLY REMOVE TOP AND SIDE PORTIONS OF EXISTING CULVERT AND CONSTRUCT THE FINAL CHANNEL OUTSIDE THE TEMPORARY PIPE.
3. ERECT NORTH SIDE THREE-SIDED FRAME UNITS. CONSTRUCT WINGWALLS, ENDWALLS AND BACKFILL. COMPLETE NORTH SIDE ROADWAY.

STAGE 3:

1. SHIFT TRAFFIC TO NORTH. CONSTRUCT MICROPILES AND FOOTINGS ON SOUTH SIDE.
2. PARTIALLY REMOVE TOP AND SIDE PORTIONS OF EXISTING CULVERT AND CONSTRUCT THE FINAL CHANNEL OUTSIDE THE TEMPORARY PIPE.
3. ERECT THREE-SIDED FRAME UNITS. CONSTRUCT ENDWALLS AND BACKFILL. COMPLETE STAGE 3 ROADWAY CONSTRUCTION.
4. REMOVE THE REMAINING PORTION OF THE EXISTING CULVERT AND COMPLETE CHANNEL CONSTRUCTION.
5. REMOVE TEMPORARY WATER HANDLING SYSTEM. INSTALL CHANNEL BOULDERS.
6. PERFORM FINAL GRADING AND INSTALL PLANTINGS.
7. REMOVE EROSION AND SEDIMENTATION CONTROL UPON PERMANENT STABILIZATION.

### Staging/Water Handling Plan

1. The purpose of this plan sheet is to show the regulating agency the general intended scheme for construction/staging of the project and also the method(s) intended for water handling. It is expected that more detailed plans may be developed for final construction and also submitted by the contractor. It is intended that these permit plans are general enough that later contract plans can comply with the intent of the permit plans.
2. A "Handling Water Typical Schematics" guide has been developed and can be found on the OEP webpage. The guide is also referenced in an Engineering Directive ED-2019-6 which includes additional handling water information.
3. Include "SUGGESTED SEQUENCE OF CONSTRUCTION" which lists the basic information for construction of the project as it relates to regulated areas. Include general work within wetlands/watercourses, and the installation of items such as (but not limited to):

- debris shield (if required) with a minimum elevation (no need to show in view, can state in sequence)
- Sedimentation Control System (SCS) (install and then removal upon final stabilization)
- installation and removal of water handling system
- fisheries enhancements (include notifying DEEP Fisheries 10 days in advance of installation, if required)
- installation of plantings as required for the project.

4. Call-out size of temporary pipe for gravity flow (or minimum channel width, if applicable). Call-out the pump hose if pumping (hose size and the location of the pump is not required).
5. Show dewatering basin (if needed).

6. Include appropriate water-handling-cofferdam detail and the proposed top elevation of the water-handling-cofferdam. Top elevation to be equal or slightly above temporary design storm elevation per project specifics. A maximum elevation may be specified depending on project requirements. Provide minimum elevation for sheeting when using as water handling. If the project requires multiple water handling configurations that require different top elevations, include the elevations per stage in the detail.
7. Include temporary hydraulic table as appropriate for the project. For pumping as an option, include a low-flow pumping rate in the table (exclude if not feasible or not allowed by regulators).

EX: For this sample project, the temporary design frequency is the 2-year frequency discharge. The low-flow pumping rate is project specific (# x AVG Daily or Spring Flow). For this project it was determined to be 2 x average spring flow.

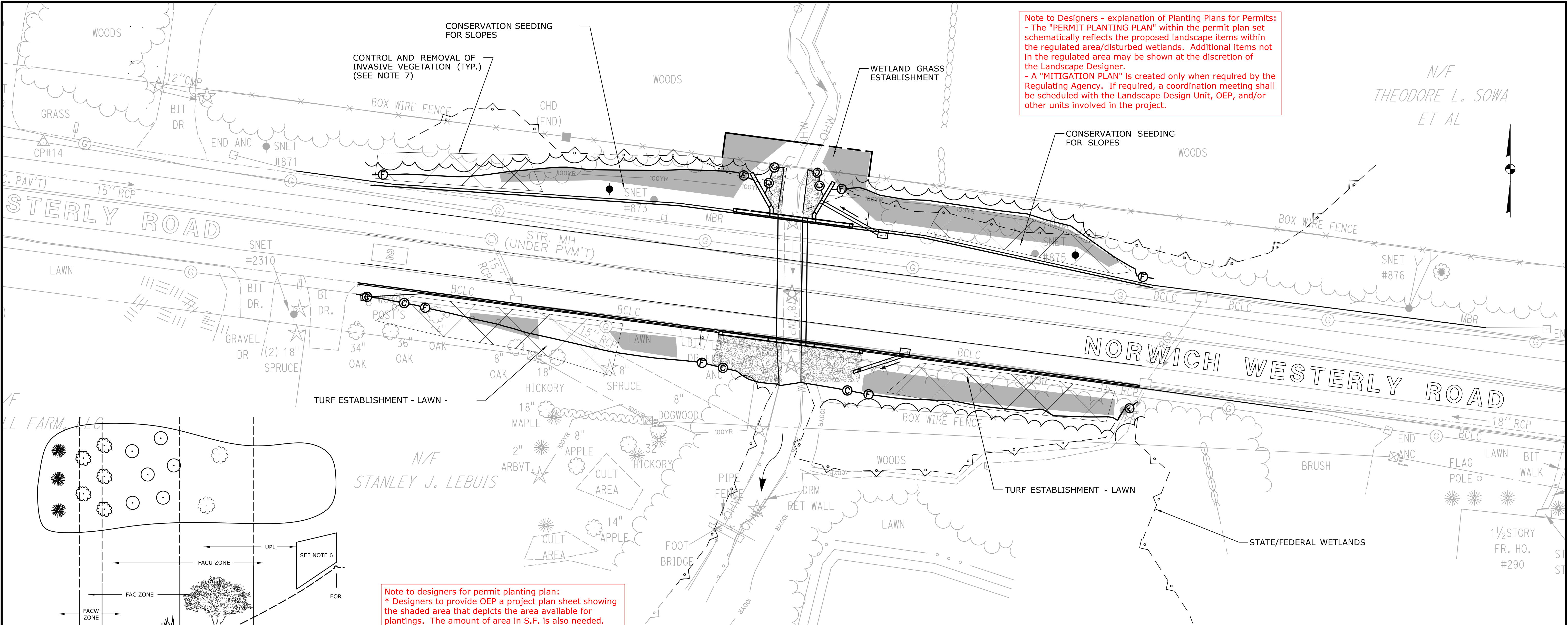
- If the project requires multiple water handling configurations/stages that will require different temporary Water Surface Elevations (WSE), include the WSEs per stage, as needed, in the table. For this example, the WSE does not change per stage.
8. Include standard Water-Handling Notes and additional notes for any project specifics. If low-flow pumping is not allowed, the low-flow pumping note should be removed (Water Handling Note 6 in this sample).
9. State any CTDEEP/Fisheries prohibited actions (example: water handling techniques not allowed)
10. Note any Time-of-Year (TOY) restriction for Fisheries resources. The TOY will be project specific. The designer should refer to DEEP Fisheries comments and OEP guidance with the TOY. Include the bulleted list regarding Department's review of methods. This bulleted list of unconfined work considerations applies to inland projects only (non-tidal waters).
11. If required for the Project, include a separate section titled "Protected Species Time-of-Year" and list any other regulatory requirement for a protected species (Example: State Listed Turtle(s)). This is from the USFWS IPaC or CTDEEP NDDB reviews and would be noted in the USFWS letter and Section 1.10 specification. Note the species and the TOY. For example: "Tri-Colored Bat - No trimming, cutting, or removal of trees with a 3" dbh or greater from April 15 to October 31".

## ENVIRONMENTAL PERMIT PLANS

PLAN DATE: MAY 20, 2024

				THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.	DESIGNER/DRAFTER: CHECKED BY: SCALE IN FEET 0 20 40 SCALE 1"=20'	 <b>STATE OF CONNECTICUT</b> <b>DEPARTMENT OF TRANSPORTATION</b> Filename: ...\\Staging Plan - Proj XXXrev - Schematic\\WH.dgn	SIGNATURE/ BLOCK:	PROJECT TITLE:  <b>REPLACEMENT OF BRIDGE NO. XXXXX ROUTE X OVER A BROOK</b>	TOWN:  <b>TOWN</b> DRAWING TITLE: <b>STAGING/ WATER HANDLING PLAN</b>	PROJECT NO. <b>XXX-XXX</b> DRAWING NO. <b>PMT-06</b> SHEET NO.
REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 6/7/2024						





Note to Designers - explanation of Planting Plans for Permits:  
- The "PERMIT PLANTING PLAN" within the permit plan set schematically reflects the proposed landscape items within the regulated area/disturbed wetlands. Additional items not in the regulated area may be shown at the discretion of the Landscape Designer.  
- A "MITIGATION PLAN" is created only when required by the Regulating Agency. If required, a coordination meeting shall be scheduled with the Landscape Design Unit, OEP, and/or other units involved in the project.

N/F  
THEODORE L. SOWA  
ET AL

Note to designers for permit planting plan:  
\* Designers to provide OEP a project plan sheet showing the shaded area that depicts the area available for plantings. The amount of area in S.F. is also needed.  
\* OEP to provide the designers with the table of proposed plantings for the project, including spacing and indicator.

Guide for the Development of the Permit Plan Set

Permit Planting Plan (if required)

1. Plan depicts completed project with proposed planting area (shaded) as related to the environmental permit planting plan. If a designated permit planting plan sheet is not required for the project, call-outs and/or notes can be added to the General Plan for seeding type, restoration measures, and any invasive species control.
2. Coordinate with Department's Landscaping Design Unit for projects with plantings not associated with the permit planting plan.
3. This permit planting plan scheme shall not be used for mitigation sites.
4. Include permit plant list table and depict the plant's wetland rating (indicator). Include S.F. of proposed planting area and total number of plants with shaded legend. (For the Contract Plans, planting items under the permit planting plan shall be identified as "Permit Plantings" on the Detailed Estimate Sheet.)
5. Item Numbers and seed mix quantities are not needed for the permit planting plan. However, this information is included in the Contract Plans.
6. Permit Planting Plan may include invasive species control (required for USACE Pre-Construction Notification (PCN) permit). Use appropriate hatching and identify in legend. If the entire project area is to be treated, a note and call-out can be added in place of cross hatching the entire project area. Include approximate amount of treatment area with hatched legend.
7. Add notes on plan sheet that are appropriate for the project. Include notes stating "no woodchip mulch allowed within wetland area" and "all disturbed areas shall be restored"
8. Any plantings outside the Department's R.O.W. shall be vetted through the Office of Rights of Way to ensure the right to plant is included in the easement agreement.
9. Designer should ensure in the layout that no trees (taller than 10 ft. at maturity) are placed under utility lines.
10. Call-out general areas of seed mixes, if necessary.
11. SCS does not need to be shown.

NOTES

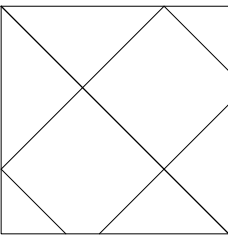
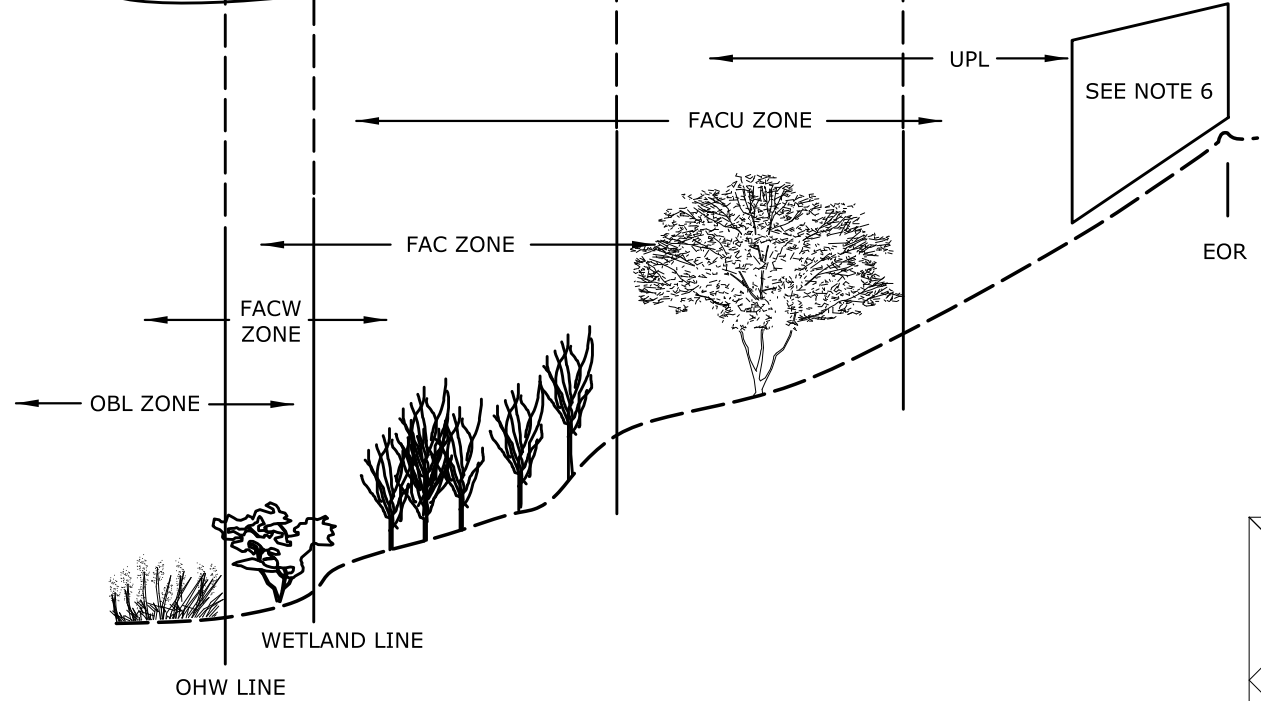
1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY SUBSTITUTIONS TO THE PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING (OEP).
2. PROPOSED PLANTINGS TO BE FIELD LOCATED BY CTDOT OEP OR THEIR DESIGNATED REPRESENTATIVE.
3. WOOD CHIP MULCH SHALL NOT BE PLACED IN THE WETLAND AREA.
4. DISTURBED AREAS BELOW THE WETLAND LIMIT SHALL BE SEEDED WITH WETLAND GRASS ESTABLISHMENT. DISTURBED AREAS ABOVE THE WETLAND LIMIT SHALL BE SEEDED WITH CONSERVATION SEEDING FOR SLOPES, OR OTHER SEED MIX AS SPECIFIED. ALL AREAS SHALL BE RESTORED.
5. ALL PLANT MATERIAL SHALL BE NURSERY GRADE STRAIGHT SPECIES, CONFORMING TO SECTION 3 OF THE AMERICAN STANDARDS FOR NURSERY STOCK. CTDOT OEP WILL REVIEW AND APPROVE PROPOSED PLANTINGS.
6. NO PLANTINGS SHALL BE PLACED IN MOW AREA
7. AREA TO BE TREATED FOR INVASIVES SHALL BE PROPERLY PREPARED FOR FINAL PLANTING, SEEDING, AND RESTORATION.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: OCTOBER 5, 2023

SCHEMATIC PLANTING

Must be native plants on permit plan set. Sizes to match CTDOT Master Bid Item List



CONTROL AND REMOVAL OF INVASIVE VEGETATION  
700 S.Y. (SEE NOTE 7)



AREA TO BE RESTORED WITH PLANTINGS

TOTAL PLANTS = 128  
TOTAL PLANTING AREA = 3,230 S.F.

PERMIT PLANT LIST

BOTANICAL NAME	COMMON NAME	SIZE	QTY.	SPACING	WETLAND INDICATOR
ALNUS INCANA	SPECKLED ALDER	4'-5' HT. B.B.	12	FIELD LOCATED	FACW
AMELANCHIER CANADENSIS	SERVICE-BERRY	4'-5' HT. B.B.	12	FIELD LOCATED	FAC
ACER RUBRUM	RED MAPLE	3'-4' HT. WHIPS B.R.	20	FIELD LOCATED	FAC
CORNUS RACEMOSA	GRAY DOGWOOD	2'-3' HT. B.B.	22	FIELD LOCATED	FAC
CORNUS ALBA	RED OSIER	24"-36" HT. B.B.	22	FIELD LOCATED	FACW
RHUS AROMATICA	FRAGRANT SUMAC	18"-24" HT. B.B.	40	FIELD LOCATED	UPL
TOTAL			128		

REV.		DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: 1/2/2024	DESIGNER/DRAFTER:	CHECKED BY:	STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION		SIGNATURE/ BLOCK:	PROJECT TITLE:	TOWN:	PROJECT NO.	
						SCALE IN FEET 0 20 40 SCALE 1"=20'		FILENAME: ...\\LDS.Project XXX.PMT_07Rev.DGN		OFFICE OF ENGINEERING		REPLACEMENT OF BRIDGE NO. XXXXX ROUTE X OVER A BROOK	TOWN	XXX-XXX
										APPROVED BY:		DRAWING TITLE:	DRAWING NO.	
												PERMIT PLANTING PLAN	PMT-07	
													SHEET NO.	