

ENVIRONMENTAL PERMIT PLANS STATE PROJECT XXXX-XXXX BRIDGE NO. XXXXX IN THE CITY/TOWN OF _____

SAMPLE PROJECT USED FOR PLANS

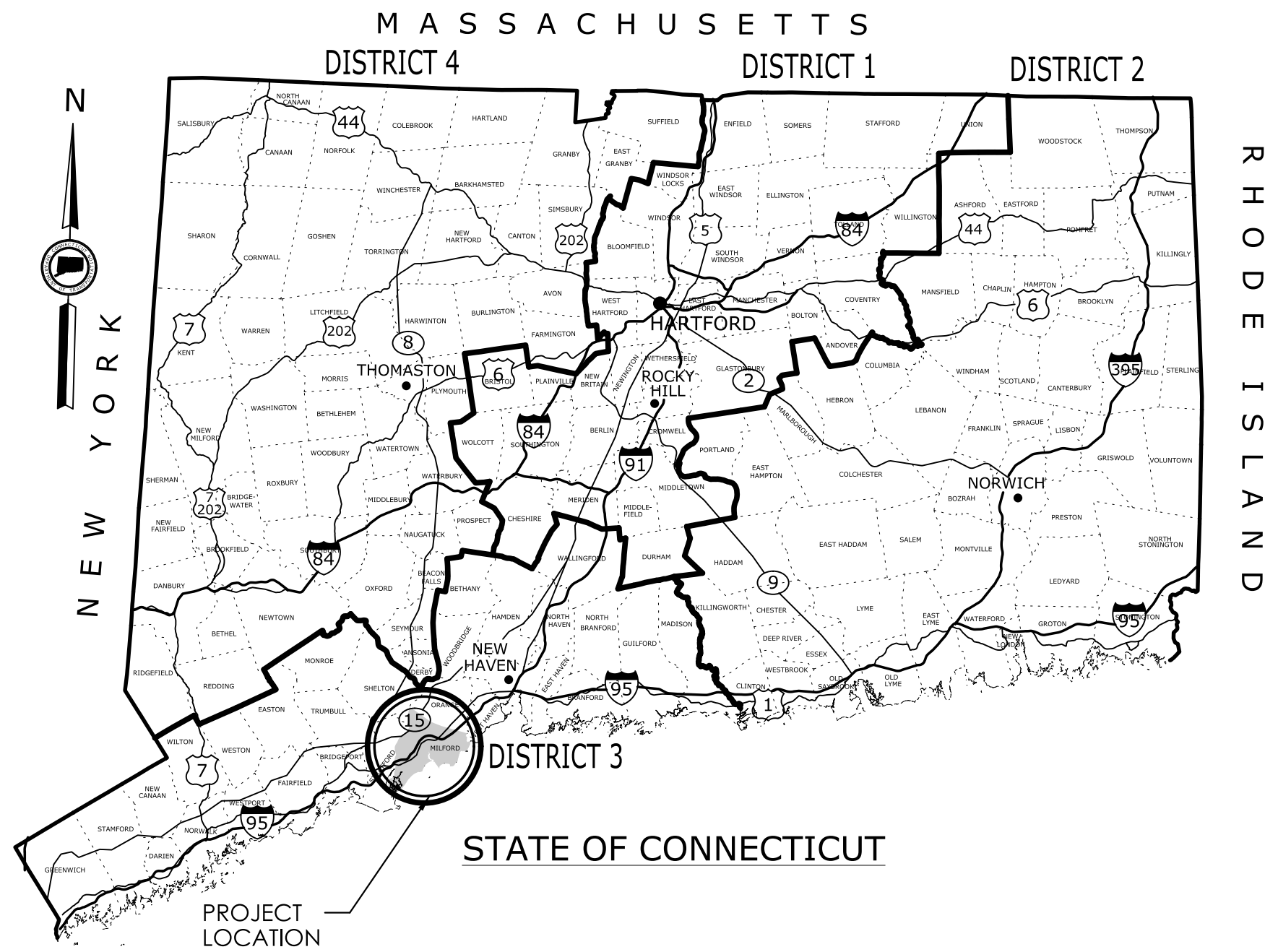
The following sample project involves relining an existing 72" pipe with a 63" pipe. The project is proposed to be constructed using a bypass pipe through the existing pipe for waterhandling. This project involves installing 2 access roads, one temporary and one permanent, for construction. Due to the location (major highway with 132,000 ADT) and approx 24 ft. of fill over the existing pipe, relining the existing pipe was determined to be the most viable option for the crossing.
The following permits are anticipated for this project:
Inland Wetland and Watercourses (DEEP LWRD IW)
DEEP Pre-Construction Notification (DEEP LWRD PCN)
US Army Corps of Engineers Pre-Construction Notification (USACE PCN)
Note: a relining is an automatic PCN permit

For this sample project, the bypass pipe was designed using a 2-year frequency discharge. The reline pipe was designed for the 100-year storm. The sample project falls within a mapped FEMA Floodway with a FEMA elevation provided.

Impact areas include ALL areas to be impacted due to the project construction and activities related to the project, both temporary and permanent. 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.

As with all watercourse crossing projects, but especially relining projects, the Regulating Agencies are concerned with changes in water surface elevation (W.S.E.) and maintaining fish passage. Reviewing DEEP Fisheries comments and impacts to fish passage is important to consider in design, along with impacts to any nearby properties due to any changes in W.S.E. Early consultation with the Office of Environmental Planning (OEP) regarding any Fisheries concerns and the Hydraulics and Drainage Unit (H&D) for review of floodplain/floodway concerns is recommended.

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



LOCATION PLAN
NOT TO SCALE

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 General Note 4 as appropriate for project. Update General 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) (both 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"

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 1983/2011 VERTICAL DATUM BASED ON NAVD OF 1988.
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.

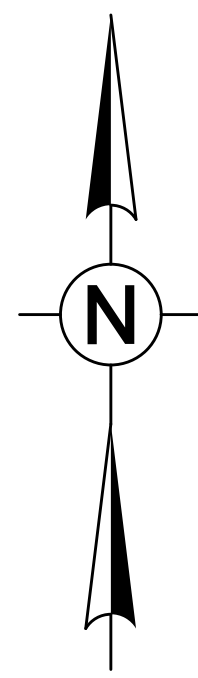
LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
PMT-01	TITLE SHEET
PMT-02	GENERAL SITE PLAN
PMT-03	WETLAND/WATERCOURSE IMPACT PLAN
PMT-04	100-YEAR FLOOD IMPACT PLAN
PMT-05	ELEVATION AND SECTION PLAN
PMT-06	WATER HANDLING PLAN AND NOTES
PMT-07	PERMIT PLANTING PLAN
PMT-08	SCOUR HOLE AND ROCK WEIR DETAILS

DESIGNED BY: _____

Block for Consultant stamp and signature if applicable

PLAN DATE: APRIL 2, 2024

REV.	DATE	REVISION DESCRIPTION



N/F
CITY OF MILFORD
&
BOARD OF
EDUCATION

LINE LEGEND: Generally not necessary to repeat each sheet. Add items as appropriate for project and the plan sheet.
FLOODPLAIN: Identify per "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"
WETLANDS: If needed, identify if project area contains separate State wetland areas.

N/F
245 ORANGE AVE
LLC

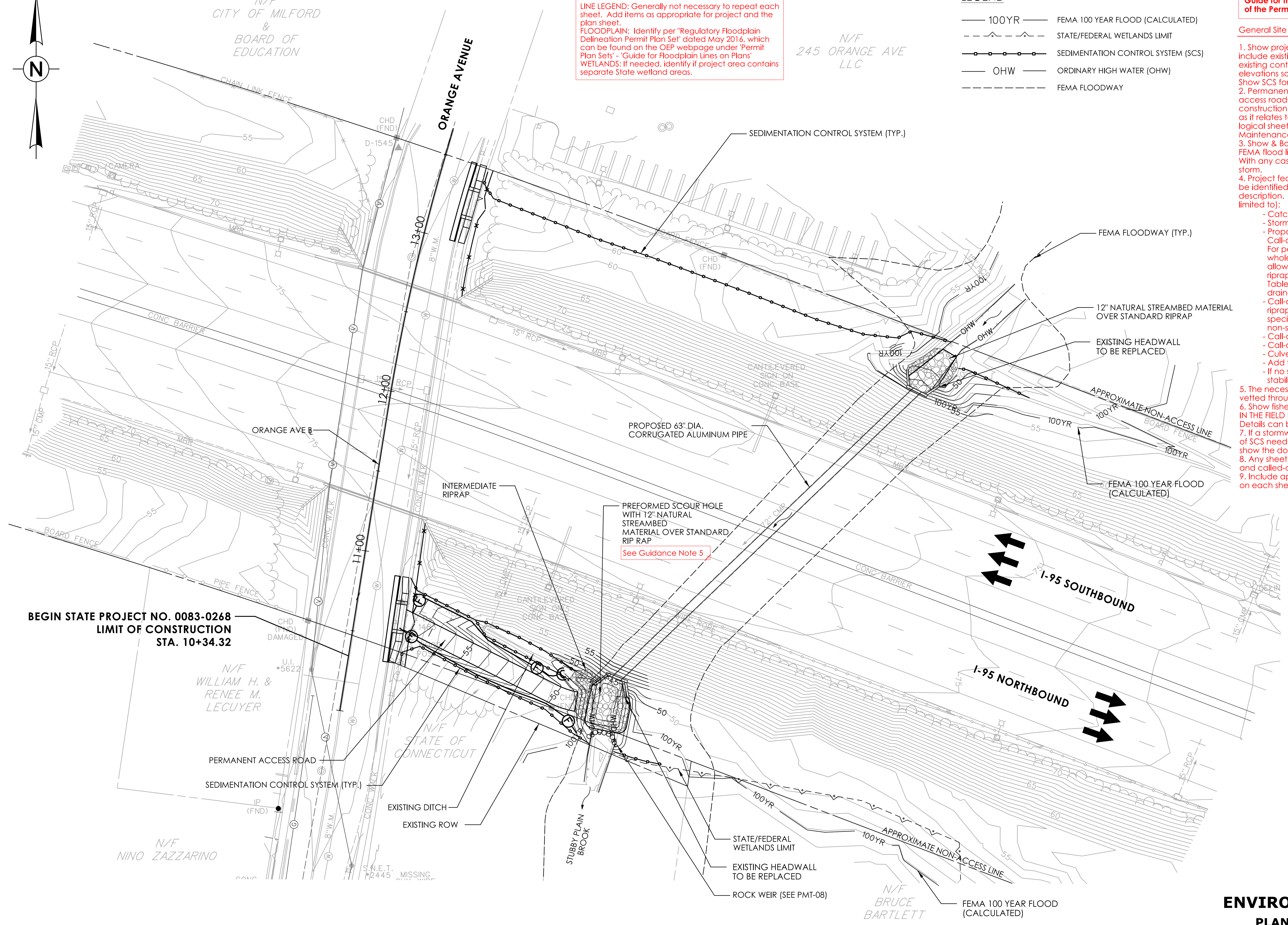
LEGEND

- 100YR — FEMA 100 YEAR FLOOD (CALCULATED)
- - - STATE/FEDERAL WETLANDS LIMIT
- SEDIMENTATION CONTROL SYSTEM (SCS)
- OHW — ORDINARY HIGH WATER (OHW)
- - - - - FEMA FLOODWAY

Guide for the Development of the Permit Plan Set

General Site Plan:

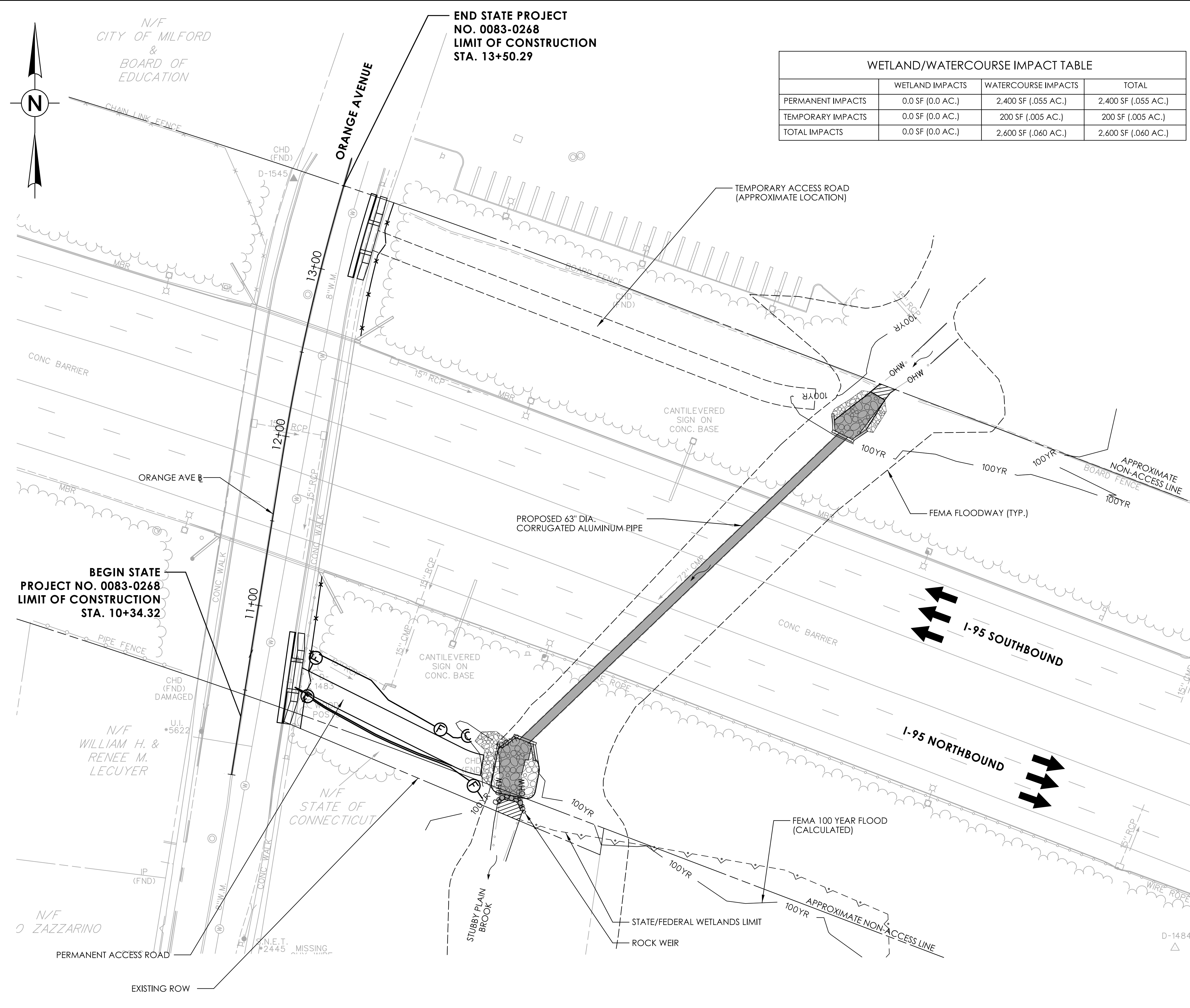
1. Show project at completion. Identify project limits. Plan to include existing survey (screened), including existing culverts and existing contours. Include proposed contours and label contour elevations so the reader can clearly understand grades and slope. Show SCS for final stabilization (foe of slope).
2. Permanent access roads should be shown (can show temporary access roads 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.
3. 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.
4. 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 for 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 it is a non-standard design.
 - Call-out streambed material and depth.
 - Call-out any required slope protection material
 - Culvert Lining: Call-out 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.
5. The necessity for streambed material over riprap in a scour hole shall be vetted through OEP, DEEP Fisheries, and the Hydraulics and Drainage Unit.
6. 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.
7. 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.
8. Any sheetpiling that must be left in place shall be shown on the plans and called-out.
9. Include appropriate line legend on General Plan (not required to repeat on each sheet)



BEGIN STATE PROJECT NO. 0083-0268
LIMIT OF CONSTRUCTION
STA. 10+34.32

See Guidance Note 5

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: DECEMBER 15, 2023



**END STATE PROJECT
NO. 0083-0268
LIMIT OF CONSTRUCTION
STA. 13+50.29**

**BEGIN STATE
PROJECT NO. 0083-0268
LIMIT OF CONSTRUCTION
STA. 10+34.32**

WETLAND/WATERCOURSE IMPACT TABLE			
	WETLAND IMPACTS	WATERCOURSE IMPACTS	TOTAL
PERMANENT IMPACTS	0.0 SF (0.0 AC.)	2,400 SF (.055 AC.)	2,400 SF (.055 AC.)
TEMPORARY IMPACTS	0.0 SF (0.0 AC.)	200 SF (.005 AC.)	200 SF (.005 AC.)
TOTAL IMPACTS	0.0 SF (0.0 AC.)	2,600 SF (.060 AC.)	2,600 SF (.060 AC.)

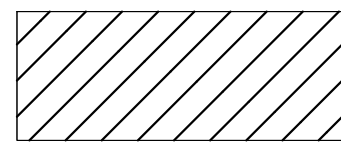

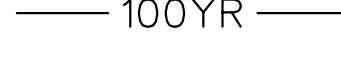

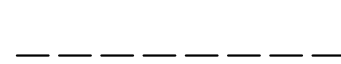

These values can be rounded up

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 floodplain/floodway limits lines (bold), if present.
 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. Depict permanent access road location. Temporary access roads can be shown as a dashed line and labeled "approximate location". (Details to be shown on 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). A lined pipe carrying a watercourse is to be counted as permanent watercourse impact. 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 the 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 Legend)

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

LEGEND

-  TEMPORARY WETLAND/WATERCOURSE IMPACTS
-  PERMANENT WETLAND/WATERCOURSE IMPACTS
-  100 YR FEMA 100 YEAR FLOOD (CALCULATED)
-  STATE/FEDERAL WETLANDS LIMIT
-  OHW ORDINARY HIGH WATER (OHW)
-  FEMA FLOODWAY

**ENVIRONMENTAL PERMIT PLANS
PLAN DATE: DECEMBER 15, 2023**

100-YEAR FLOODPLAIN IMPACTS CUT AND FILL	
VOLUME IMPACTS	
EXCAVATION IN FEMA FLOODPLAIN	FILL IN FEMA FLOODPLAIN
400 C.Y.	390 C.Y.

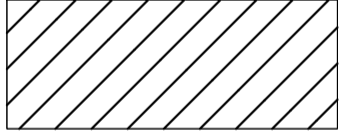




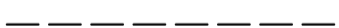
These values can be rounded up

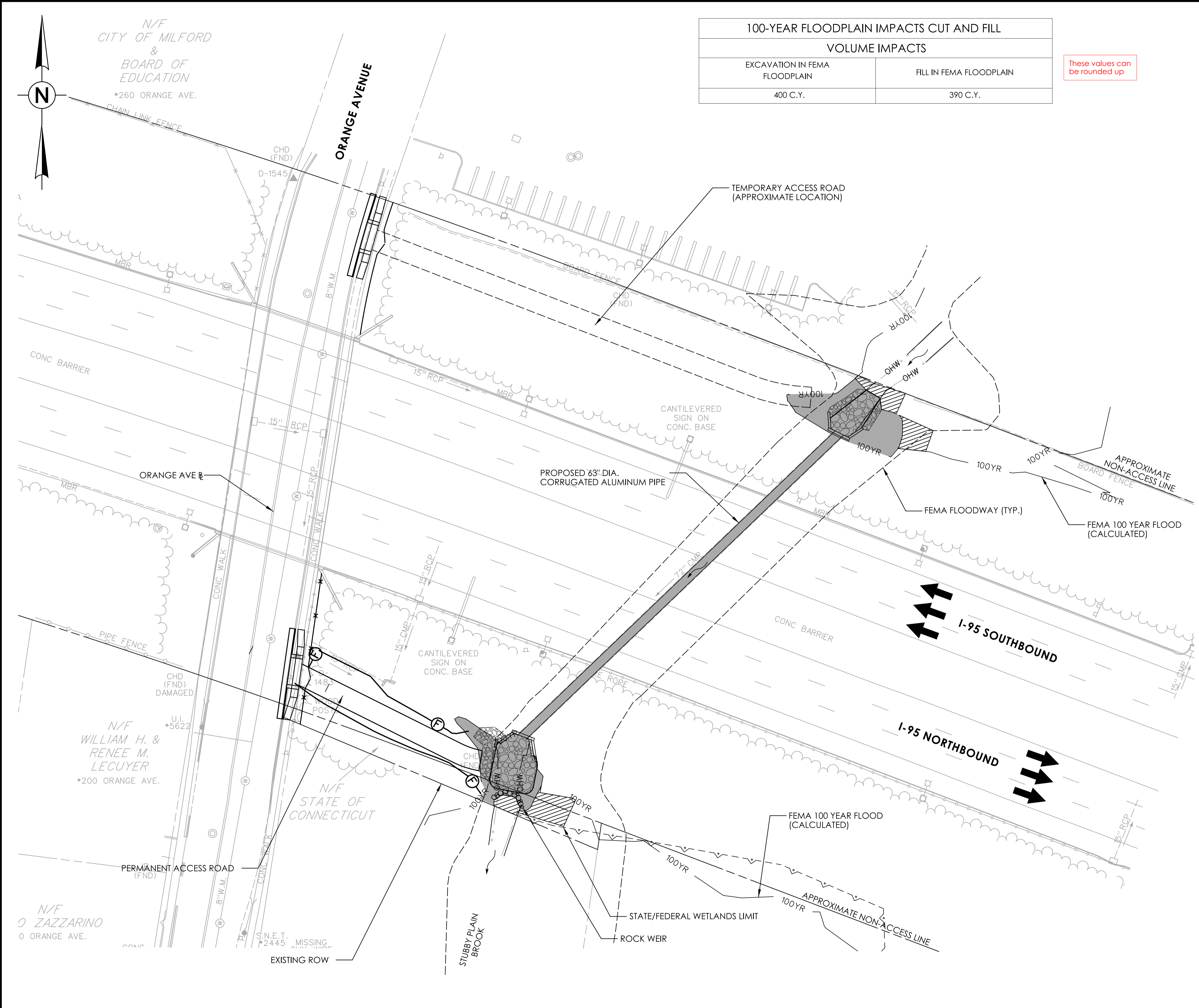
Guide for the Development of the Permit Plan Set

Flood Impact Plan

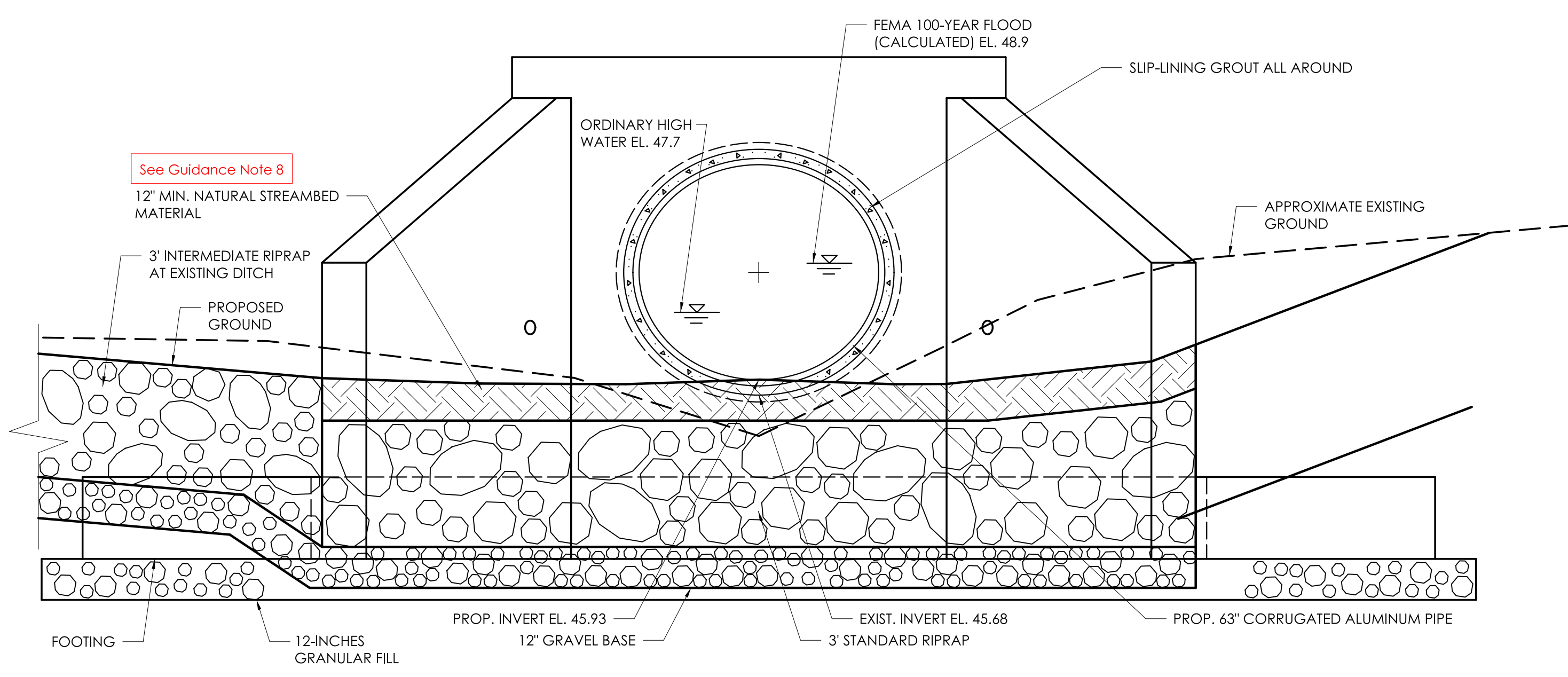
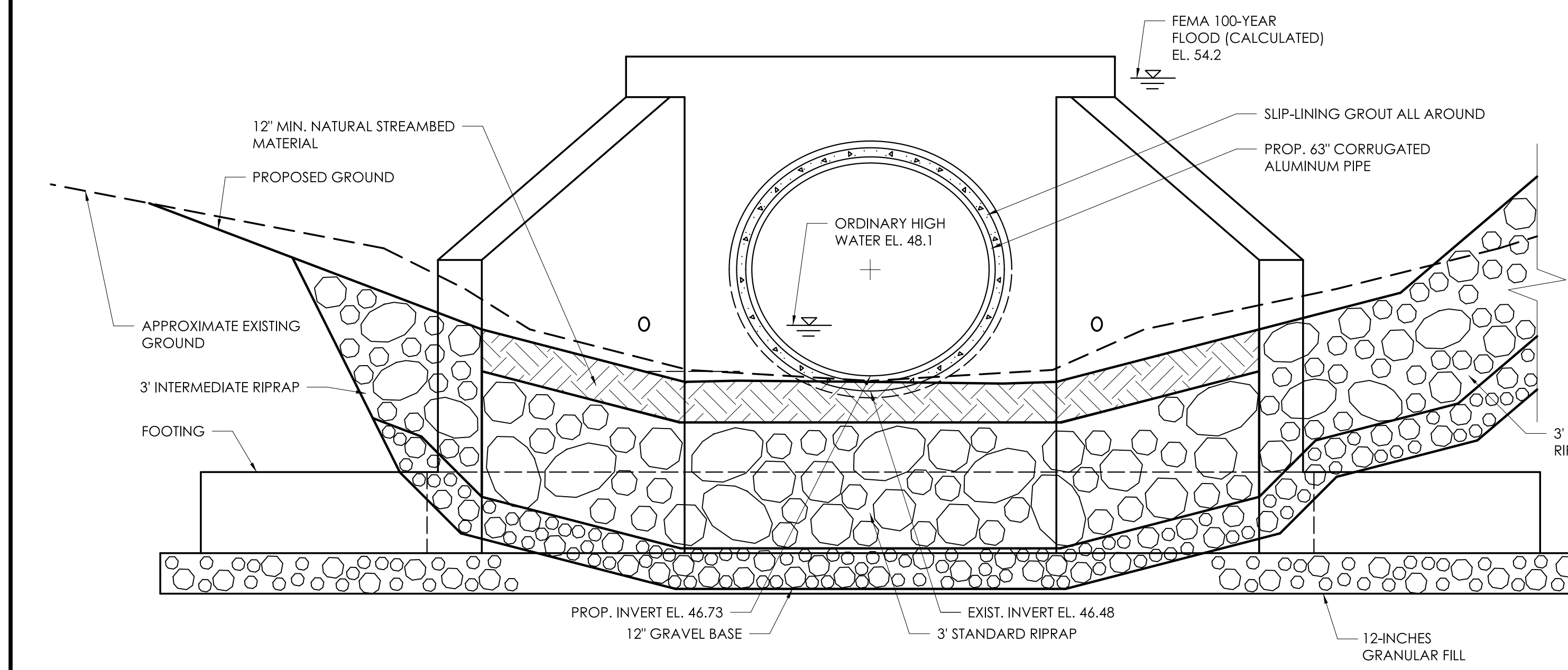
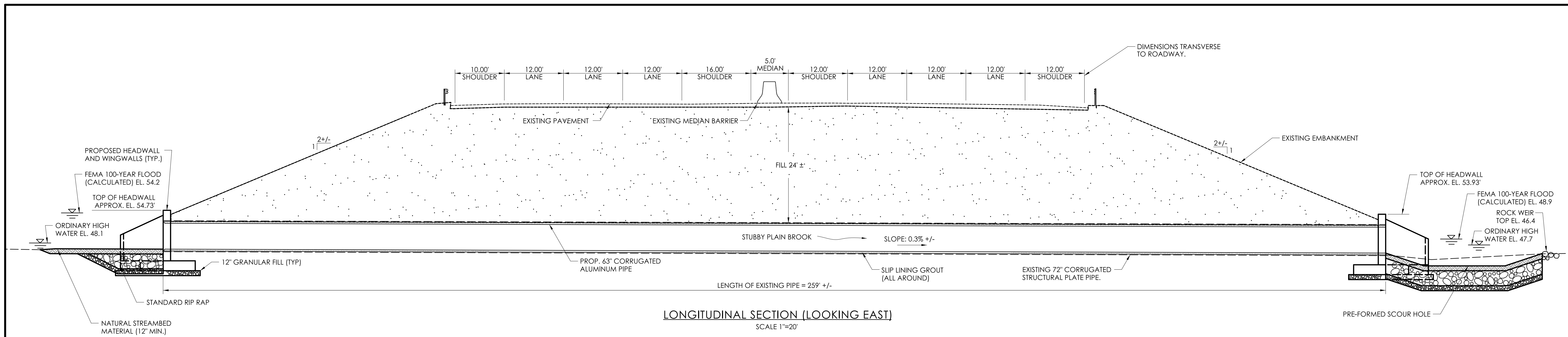
1. This sheet is not necessary if there are no impacts to a floodplain/floodway. The flood impact plan can use the same base map as the wetland/watercourse impact plan, but would show the flood impact areas. If the entire project is within a flood zone (i.e. zone lines are off the plan sheet or out of project limits), a note can be added to the plans "entire project area located within FEMA Flood Zone."
2. Include floodplain limits (and floodway if present) (both bold). Floodplain to be identified as noted 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." Floodway is graphical from FEMA map. Do not show limits of temporary or proposed design storm.
3. Plan to clearly depict temporary and permanent impacts to floodplain areas. 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.
 - Temporary impacts are in locations that are being restored to original grade
 - Permanent impacts are locations that contain an overall cut or fill from the original grade and also includes placement of project features (Example: riprap, endwalls)
4. Include floodplain impact table. Only provide the permanent volume of impacts in cubic yards (values can be rounded up). Do not quantify volume of temporary impact. Do not quantify the plan view impact area (S.F.). If the project has minimal fill in the floodplain, it is recommended to review to attempt to balance cut and fill. An excess of fill in the floodway is discouraged/not permitted. All projects within a floodplain/floodway must have early coordination with H&D.
5. Show wetland and OHW limits (bold).
6. SCS does not need to be shown.
7. 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.
8. 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.
9. Depict permanent access road location. Temporary access roads can be shown as dashed and labeled as an "approximate location". (Details to be shown on Contract Plans)
10. Any sheetpiling that must be left in place within a regulated area shall be counted as permanent impact and shown on the plan.

LEGEND

-  TEMPORARY FLOODPLAIN IMPACTS
-  PERMANENT FLOODPLAIN IMPACTS
-  FEMA 100 YEAR FLOOD (CALCULATED)
-  STATE/FEDERAL WETLANDS LIMIT
-  ORDINARY HIGH WATER (OHW)
-  FEMA FLOODWAY



ENVIRONMENTAL PERMIT PLANS
PLAN DATE: DECEMBER 15, 2023



Guide for 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 OHW 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. Include hydraulic data table as appropriate for project. Do not need scour information in the data table.
 6. Plan sheet does not need to show unnecessary construction notes and comments. Plan sheet should show items pertinent to environmental permitting.
 7. 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 of streambed material shall be in accordance with special provision 'washing-in supplemental streambed material'".
 8. The necessity for streambed material over riprap within a scour hole shall be vetted through OEP, DEEP Fisheries, and the Hydraulics and Drainage Unit.
 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).

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

HYDRAULIC SUMMARY DATA		
DRAINAGE AREA (sq. mi.)	0.72	
DESIGN FREQUENCY (YEAR)	100	
DESIGN DISCHARGE (CFS)	370	
AVERAGE DAILY FLOW ELEVATION (FEET)	48.9	
DESIGN WATER SURFACE ELEVATION (FEET)	UPSTREAM 60.4	DOWNSTREAM 48.9

OPENNESS RATIO (OR):
OR = OPEN AREA/STRUCTURE LENGTH
OR = 21.6 S.F. / 259 FT = 0.084 FT
0.084 FT < 0.82 FT (RECOMMENDED MINIMUM)

BANKFULL WIDTH (BFW):
BFW = 12 FT
1.2 X BFW = 14.4 FT
14.4 FT > 5.25 FT (CULVERT SPAN)

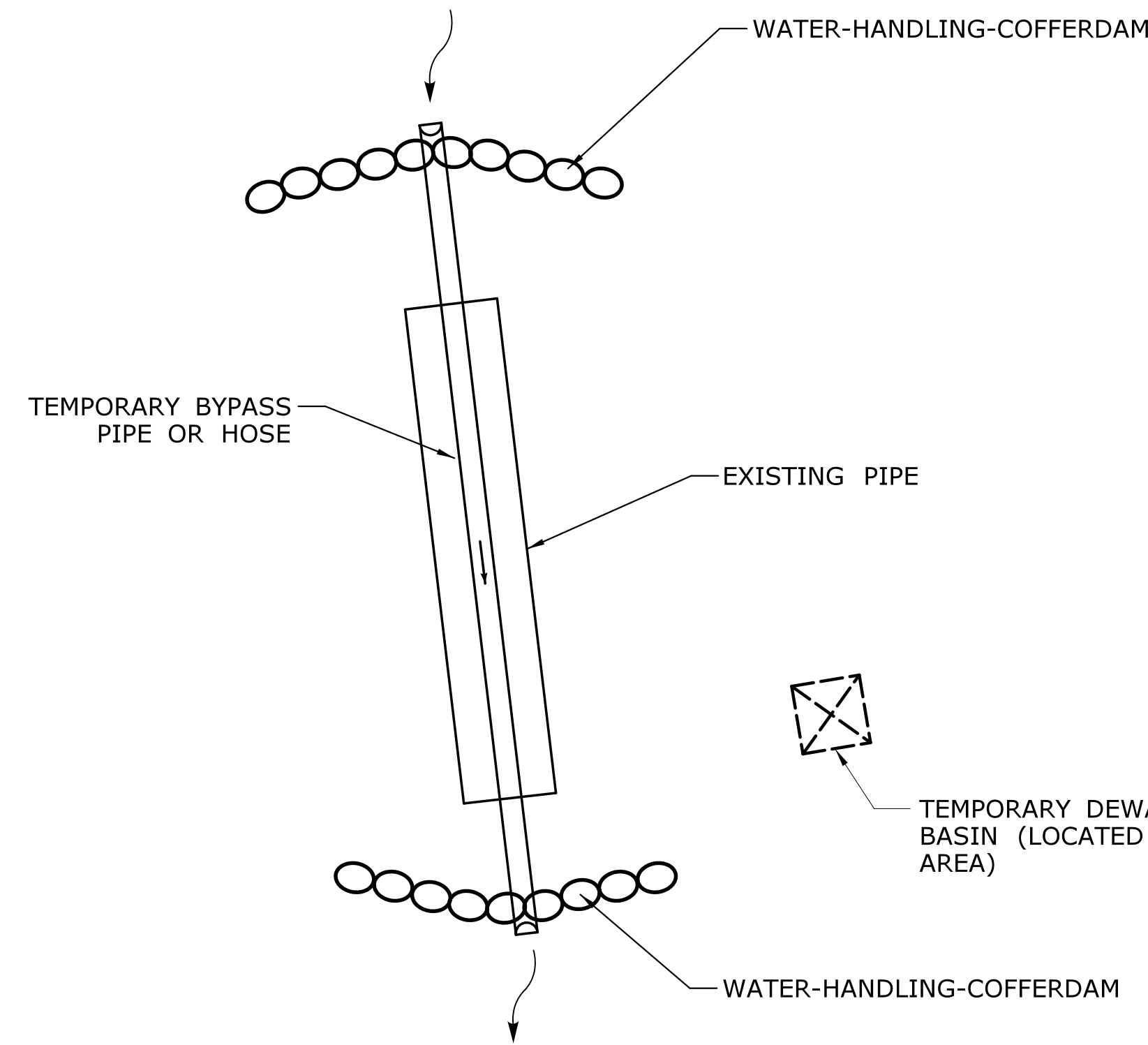
Information for the Openness Ratio and Bankfull Width (BFW) can be found in the USACE Stream Crossing Best Management Practices found in Appendix G of the USACE CT-GP dated 2021. Additional information can also be found in the DEEP Stream Crossing Guidelines February 2008.

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.

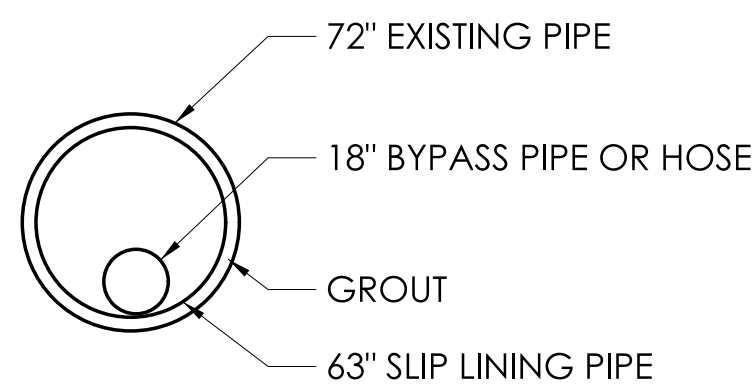
Only if required, include special provision for "washing-in supplemental streambed material" see Guidance Note 7

- 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.

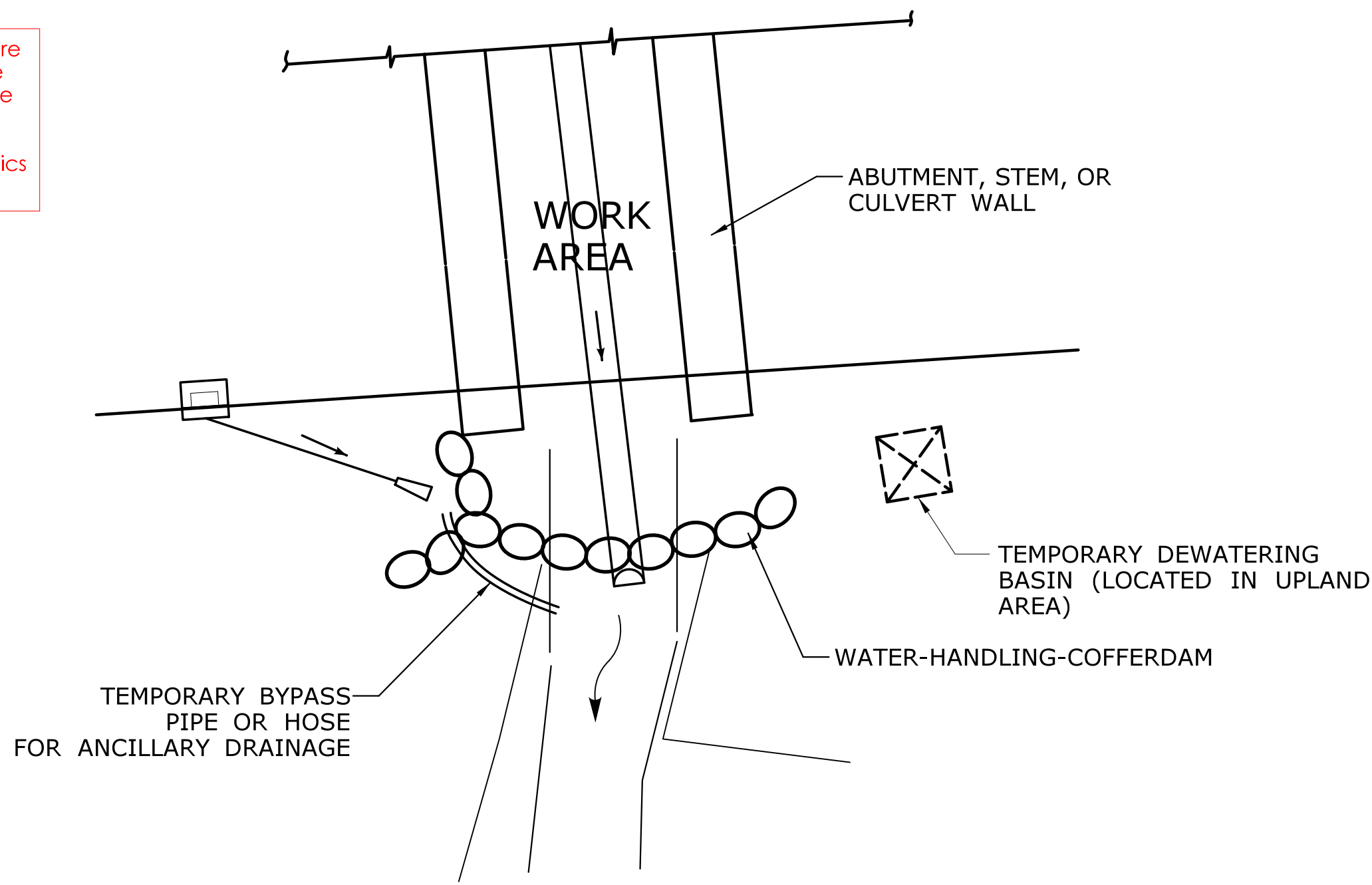
ENVIRONMENTAL PERMIT PLANS
PLAN DATE: DECEMBER 15, 2023



**TEMPORARY PIPE/HOOS
THROUGH EXISTING PIPE**
(NOT TO SCALE)



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



**ANCILLARY STORM DRAINAGE
NEAR WORK AREA**
(NOT TO SCALE)
SEE NOTE 5

Guide for the Development of the Permit Plan Set

Staging/Water Handling Plan:

- 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.
- 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.
- 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):
 - 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.
- 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).
- Show dewatering basin (if needed).
- 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.
- State any CTDEEP/Fisheries prohibited actions (example: water handling techniques not allowed)
- Include temporary hydraulic table as appropriate for the project. For pumping as an option, include a low-flow pumping rate in the table.
- Include standard Water-Handling Notes and additional notes for any project specifics.
- Note any regulatory Time-of-Year (TOY) restriction(s). The TOY will be project specific. The designer should refer to DEEP Fisheries comments and OEP for 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 projects).

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

Temporary Hydraulic Data values calculated by DOT's Hydraulics and Drainage Unit or Consultant

* TEMPORARY HYDRAULIC DATA	
AVERAGE DAILY FLOW	2.0 CFS
AVERAGE SPRING FLOW	3.0 CFS
2-YEAR FREQUENCY DISCHARGE	60 CFS
LOW FLOW PUMPING TEMPORARY DESIGN DISCHARGE = 4 x AVERAGE SPRING FLOW	12 CFS
TEMPORARY WATER SURFACE UPSTREAM	51.4 FT
TEMPORARY WATER SURFACE DOWNSTREAM	47.3 FT

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

SUGGESTED SEQUENCE OF CONSTRUCTION

- INSTALL SEDIMENTATION CONTROL SYSTEM (SCS), REMOVE INVASIVE SPECIES, AND CLEAR AND GRUB THE WORK AREA.
- CONSTRUCT TEMPORARY/PERMANENT ACCESS ROADS AND LAYDOWN/STAGING AREA.
- INSTALL WATER-HANDLING-COFFERDAM, BYPASS PIPE, AND DEWATERING BASIN.
- CLEAN EXISTING CULVERT.
- PRESSURE GROUT THE VOIDED AREAS BEHIND THE EXISTING PIPE WHERE NECESSARY.
- TEMPORARILY REMOVE THE BYPASS PIPE. SLIP LINE THE EXISTING PIPE WITH A 63" DIAMETER CORRUGATED ALUMINUM PIPE.
- RE-INSTALL BYPASS PIPE.
- GROUT THE ANNULAR SPACE BETWEEN THE EXISTING AND PROPOSED PIPES.
- CONSTRUCT COFFERDAM AND DEWATERING AT BOTH INLET AND OUTLET.
- REMOVE AND REPLACE THE INLET AND OUTLET HEADWALLS AND WINGWALLS.
- REMOVE COFFERDAM AND DEWATERING AT BOTH INLET AND OUTLET.
- BACKFILL AND GRADE AROUND NEW HEADWALLS.
- INSTALL PREFORMED SCOUR HOLE, ROCK WEIR, RIPRAP, AND NATURAL STREAMBED MATERIAL TO BRING THE STREAMBED UP TO THE NEW INVERT ELEVATION. THE ENGINEER, OR THEIR AUTHORIZED DELEGATE, SHALL BE NOTIFIED 10 DAYS IN ADVANCE OF THE ROCK WEIR INSTALLATION.
- REMOVE TEMPORARY WATER-HANDLING-COFFERDAM AND BYPASS PIPES, RESTORE FLOWS THROUGH THE CULVERT.
- RESTORE AREAS WITH CONSERVATION SEED MIX, INSTALL PLANTINGS, AND REMOVE SCS UPON PERMANENT STABILIZATION.

WATER-HANDLING NOTES:

- THE CONTRACTOR SHALL MAINTAIN WATER THROUGH THE WATER HANDLING SYSTEM AS REQUIRED DURING CONSTRUCTION.
- A DEWATERING FACILITY SHALL BE ESTABLISHED OUTSIDE OF THE WETLAND LIMITS.
- 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 THE 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.
- WATER HANDLING SYSTEM SHALL NOT EXCEED IMPACT AREAS SHOWN ON THE WETLAND AND FLOODPLAIN IMPACT SHEETS OF THE PERMIT PLANS.
- ANY STORM DRAINAGE DISCHARGING INTO A CONFINED WORK AREA FROM EXISTING OR PROPOSED STORM DRAINAGE PIPES OR DRAINAGE SWALES SHALL BE DIVERTED OR PUMPED OUTSIDE THE CONFINED AREA AND IS INCLUDED AS PART OF WATER HANDLING. 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.
- IF 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.

See Guidance Note 10

UNCONFINED IN-STREAM WORK BMP NOTE:

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 THE 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 EXTENT POSSIBLE
- * IN-STREAM WORK SHALL BE DONE DURING PERIODS OF LOW FLOW

ENVIRONMENTAL PERMIT PLANS
PLAN DATE: DECEMBER 15, 2023

REV	DATE	DESCRIPTION



Guide for the Development of the Permit Plan Set

Permit Planting Plan

1. Plan depicts completed project with proposed planting area (shaded) as related to the environmental permit planting plan. If a designated permit planting plan is not required for the project, call-outs can be added to the General Plan for seeding type, restoration measures, and any invasive vegetation control.
2. Coordinate with the Department's Landscape 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 detail 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 to include invasive species control (required for USACE 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 not trees (taller than 10 ft. of maturity) are placed under utility lines.
10. Call-out general areas of seed mixes if necessary.
11. SCS does not need to be shown.

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 included 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 with the project.

Must be native plants on Permit Plan Set. Sizes to match CTDOT Master Bid Item List



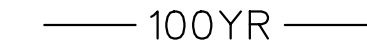
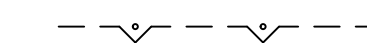
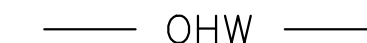
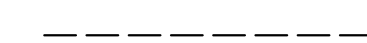
PERMIT PLANT LIST

BOTANICAL NAME	COMMON NAME AND SIZE	QTY.	SPACING	WETLAND INDICATOR	COMMENTS
ILEX VERTICILLATA	COMMON WINTER BERRY 2'-3' HT B.B.	4 EA.	FIELD LOCATE	FACW	
CORNUS AMOMUM	SILKY DOGWOOD 3'-4' HT B.B.	4 EA.	FIELD LOCATE	FACW	
ACER RUBRUM	RED MAPLE 3' - 4' HT. WHIPS B.R.	8 EA.	FIELD LOCATE	FAC	CONTAINERS REQUIRED, NOT BARE ROOT
SALIX DISCOLOR	PUSSY WILLOW 2'-3' HT. CONTAINER	8 EA.	FIELD LOCATE	FACW	PLACE AROUND CULVERT ENDS AND ALONG BANKS

Note to Designers for Permit Planting Plan (in-house State design projects):

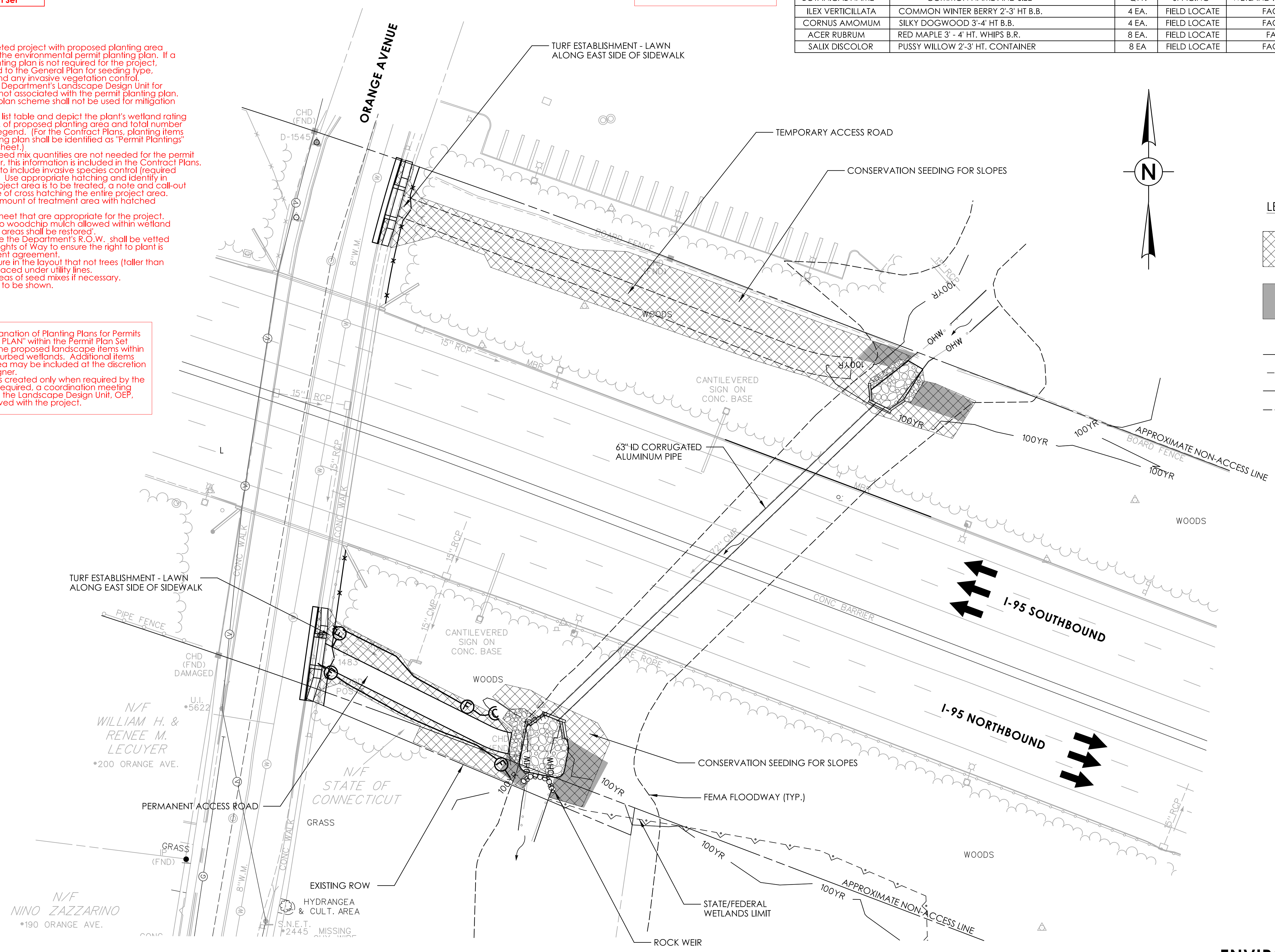
- 1) Designers to provide to OEP a project plan sheet that depicts the shaded area available for plantings (ie. do not include areas of riprap, area below OHW, mow areas near roadway, etc.). The amount of available planting area (in S.F.) also needs to be provided.
- 2) OEP to provide the designers with the table of proposed plantings for the project, including spacing and indicator.

LEGEND

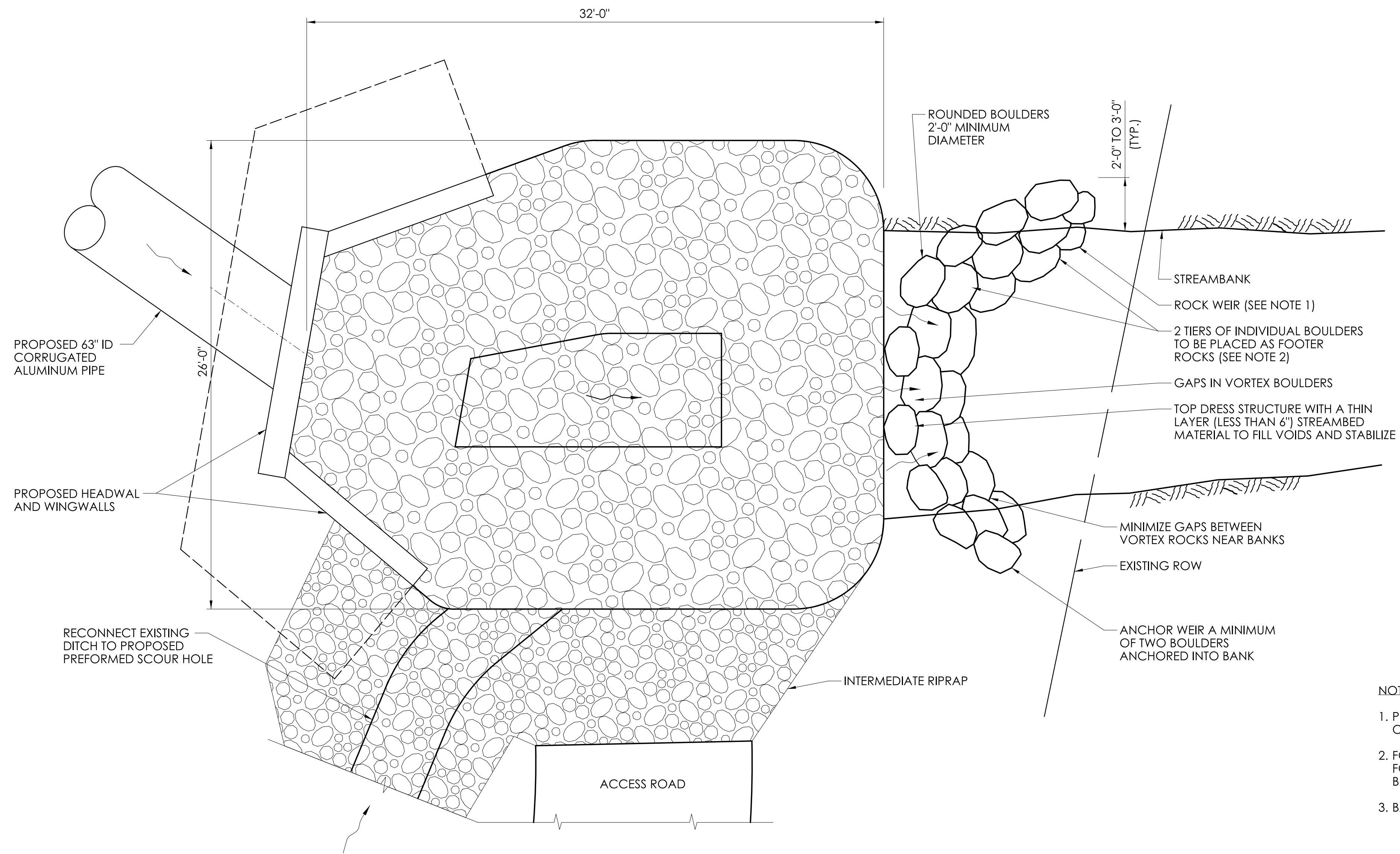
-  CONTROL AND REMOVAL OF INVASIVE VEGETATION. 1,550 SY (SEE NOTE 7)
-  PERMIT PLANTINGS
TOTAL PLANTS = 24
TOTAL PLANTING AREA = 175 SY
-  100YR FEMA 100 YEAR FLOOD (CALCULATED)
-  STATE/FEDERAL WETLANDS LIMIT
-  OHW ORDINARY HIGH WATER (OHW)
-  FEMA FLOODWAY

NOTES:

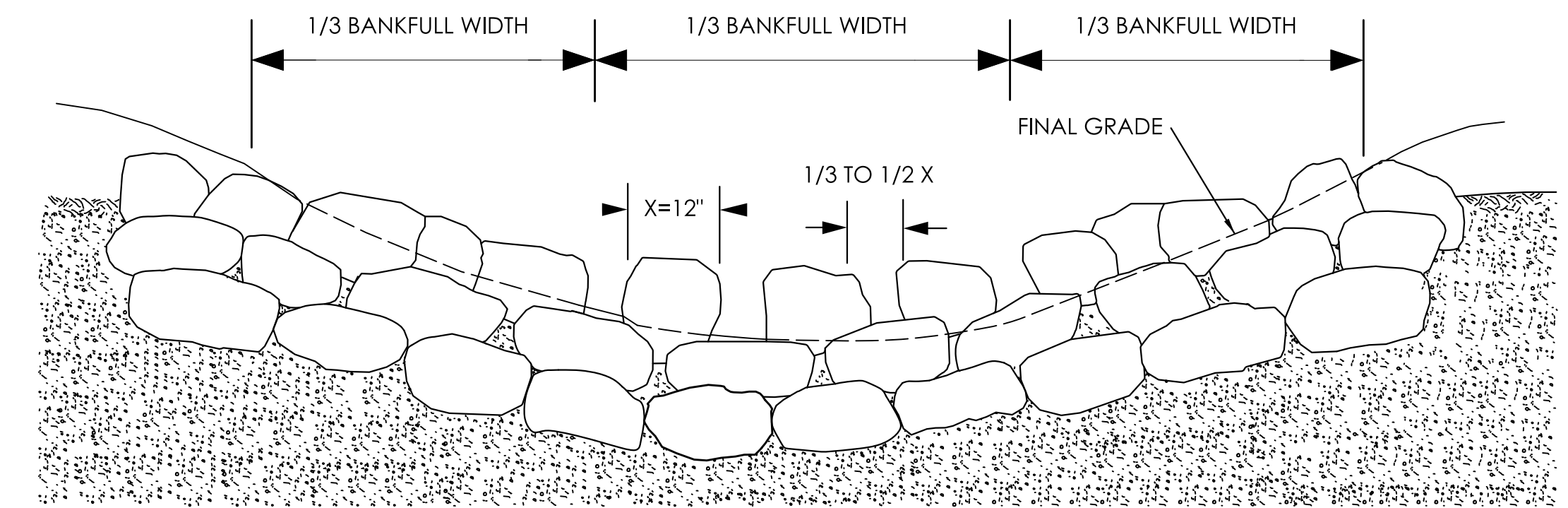
1. PLANTINGS ON THIS SHEET ARE FOR ENVIRONMENTAL PERMITTING. ANY SUBSTITUTIONS TO THE PERMIT PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT'S OFFICE OF ENVIRONMENTAL PLANNING (OEP).
2. PROPOSED PLANTINGS TO BE FIELD LOCATED BY CTDOT OEP OR THEIR DESIGNATED REPRESENTATIVE.
3. WOOD CHIP MULCH SHALL 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 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.



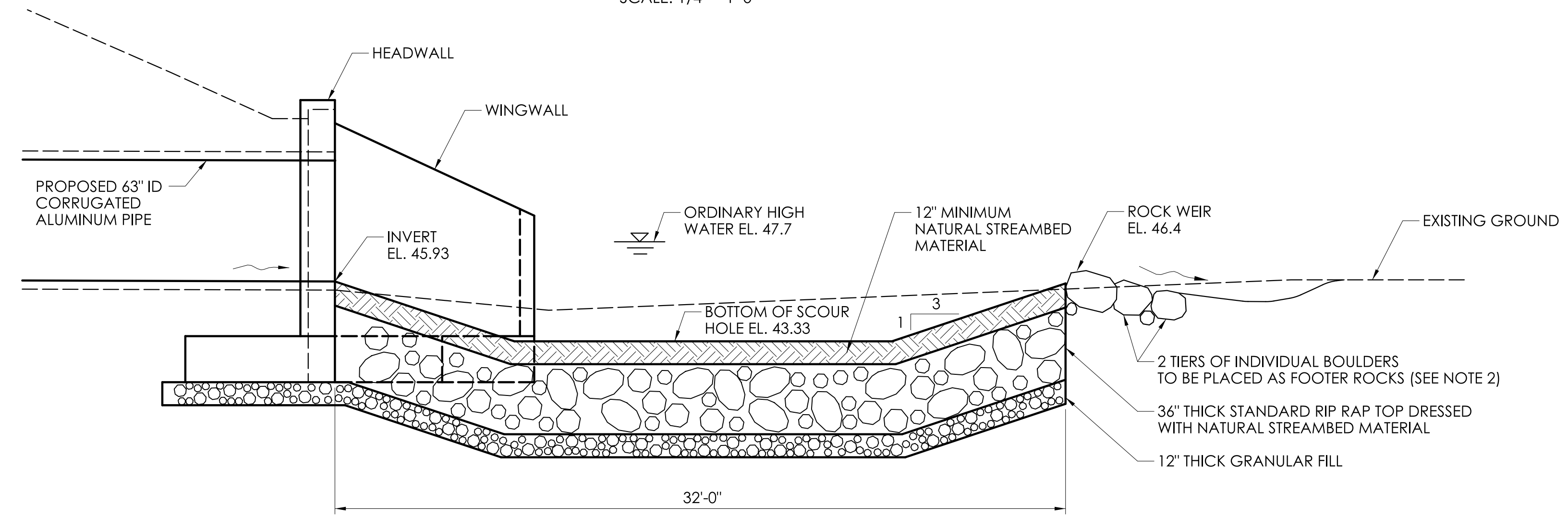
ENVIRONMENTAL PERMIT PLANS
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PREFORMED SCOUR HOLE TYPE I AND ROCK WEIR PLAN
SCALE: 1/4" = 1'-0"



ROCK WEIR - SECTION VIEW (UPSTREAM)
N.T.S.



SCOUR HOLE LONGITUDINAL PROFILE
SCALE: 1/4" = 1'-0"

Miscellaneous Detail Sheet

1. Detail sheet, if needed, for project items within a regulated area. Such as: fisheries details, section of permanent access road, non-standard scour hole design, engineered embankments, etc.

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

NOTES:

1. PLACEMENT OF THE ROCK WEIR SHALL BE DIRECTED IN THE FIELD BY THE ENGINEER OR THEIR AUTHORIZED DELEGATE. SEE SPECIAL PROVISION "ROCK WEIR".
2. FOOTER ROCKS SHALL SERVE AS THE FOUNDATION FOR THE TOP LAYER OF THE WEIR. FOOTER ROCKS SHALL HAVE REASONABLE FLAT TOPS AND BOTTOMS TO ENABLE BETTER PLACEMENT OF THE TOP LAYER OF THE WEIR.
3. BANKFULL WIDTH DISTANCE IS MEASURED AT THE LOCATION OF THE PROPOSED WEIR.

ENVIRONMENTAL PERMIT PLANS

PLAN DATE: DECEMBER 15, 2023