

STATE OF NEW HAMPSHIRE INTER-DEPARTMENT COMMUNICATION

DATE: April 17, 2023

FROM: Andrew O'Sullivan
Wetlands Program Manager

AT (OFFICE): Department of
Transportation

SUBJECT Dredge & Fill Application
Columbia 43441

Bureau of
Environment

TO: Karl Benedict, Public Works Permitting Officer
New Hampshire Wetlands Bureau
29 Hazen Drive, P.O. Box 95
Concord, NH 03302-0095

Forwarded herewith is the application package prepared by NH DOT Bureau of Highway Design for the subject major impact project. The project will replace an existing concrete, open bottom, 44" wide x 46" high x 60' long culvert crossing under US Route 3 at approximately 975' north of South Jordan Hill Road (primary culvert). Incidental work includes replacement of an existing 15" x 56' long concrete pipe (secondary culvert), repair of a failed 15" concrete pipe outlet, adding an end section to a 15" plastic pipe outlet.

This project was reviewed at the Natural Resource Agency Coordination Meeting on January 18, 2023. A copy of the minutes has been included with this application package. A copy of this application and plans can be accessed on the Departments website via the following link: <http://www.nh.gov/dot/org/projectdevelopment/environment/units/program-management/wetland-applications.htm>.

NHDOT anticipates and request that this project be reviewed and permitted by the Army Corp of Engineers through the State Programmatic General Permit process. A copy of the application has been sent to the Army Corp of Engineers.

Mitigation was determined not to be required.

The lead people to contact for this project are Kirk Mudgett, Bureau of Highway Design ((603) 271-1598) or kirk.mudgett@dot.nh.gov) or Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment (271-3226 or Andrew.O'Sullivan@dot.nh.gov).

A payment voucher has been processed for this application (**Voucher #716068**) in the amount of \$1740.80.

If and when this application meets with the approval of the Bureau, please send the permit directly to Andrew O'Sullivan, Wetlands Program Manager, Bureau of Environment.

AMO:amo

cc:

BOE Original

Town of Columbia (4 copies via certified mail)

Connecticut River Headwaters Local Advisory Subcommittee (4 copies via certified mail)

David Trubey, NH Division of Historic Resources (Cultural Review Within)

Mike Dionne, NH Fish & Game (via electronic notification)

Kevin Newton, NH Fish & Game (via electronic notification)

Maria Tur, US Fish & Wildlife (via electronic notification)

Beth Alafat & Jeanie Brochi, US Environmental Protection Agency (via electronic notification)

Michael Hicks, US Army Corp of Engineers (via electronic notification)

Kevin Nyhan, BOE (via electronic notification)



**STANDARD DREDGE AND FILL
WETLANDS PERMIT APPLICATION**
Water Division/Land Resources Management
Wetlands Bureau
[Check the Status of your Application](#)



RSA/Rule: RSA 482-A/Env-Wt 100-900

APPLICANT'S NAME: NH Dept. of Transportation **TOWN NAME:** Columbia

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

A person may request a waiver of the requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interest of the public or the environment but is still in compliance with RSA 482-A. A person may also request a waiver of the standards for existing dwellings over water pursuant to RSA 482-A:26, III(b). For more information, please consult the [Waiver Request Form](#).

SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))	
Please use the Wetland Permit Planning Tool (WPPT) , the Natural Heritage Bureau (NHB) DataCheck Tool , the Aquatic Restoration Mapper , or other sources to assist in identifying key features such as: priority resource areas (PRAs) , protected species or habitats , coastal areas, designated rivers, or designated prime wetlands.	
Has the required planning been completed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Does the property contain a PRA? If yes, provide the following information:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<ul style="list-style-type: none"> • Does the project qualify for an Impact Classification Adjustment (e.g. NH Fish and Game Department (NHF&G) and NHB agreement for a classification downgrade) or a Project-Type Exception (e.g. Maintenance or Statutory Permit-by-Notification (SPN) project)? See Env-Wt 407.02 and Env-Wt 407.04. • Protected species or habitat? <ul style="list-style-type: none"> ○ If yes, species or habitat name(s): <input style="width: 100px;" type="text"/> ○ NHB Project ID #: NHB22-3681 • Bog? • Floodplain wetland contiguous to a tier 3 or higher watercourse? • Designated prime wetland or duly-established 100-foot buffer? • Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone? 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Is the property within a Designated River corridor? If yes, provide the following information:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<ul style="list-style-type: none"> • Name of Local River Management Advisory Committee (LAC): Connecticut River Headwaters Local Advisory Subcommittee 	

irm@des.nh.gov or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

www.des.nh.gov

<ul style="list-style-type: none"> A copy of the application was sent to the LAC on Month: <input type="text"/> Day: <input type="text"/> Year: <input type="text"/> 	
<p>For dredging projects, is the subject property contaminated?</p> <ul style="list-style-type: none"> If yes, list contaminant: <input type="text"/> 	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>Is there potential to impact impaired waters, class A waters, or outstanding resource waters?</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>For stream crossing projects, provide watershed size (see WPPT or Stream Stats):</p> <p><input type="text"/> N/A</p>	
<p>SECTION 2 - PROJECT DESCRIPTION (Env-Wt 311.04(i))</p> <p>Provide a brief description of the project and the purpose of the project, outlining the scope of work to be performed and whether impacts are temporary or permanent. DO NOT reply "See attached"; please use the space provided below.</p>	
<p>The project purpose is to replace or rehabilitate deficient culverts and drainage structures under NHDOT's federal funded Culvert Rehabilitation and Drainage Repair Program.</p> <p>The project will replace an existing concrete, open bottom, 44" wide x 46" high x 60' long culvert crossing under US Route 3 at approximately 975' north of South Jordan Hill Road. Incidental work includes replacement of an existing 15" x 56' long concrete pipe, repair of a failed 15" concrete pipe outlet, adding an end section to a 15" plastic pipe outlet, and installation of 438 +/- LF of new steel beam guardrail along the US 3 southbound edge of pavement. The primary culvert will be replaced with a 3.5' high x 6' wide (clear opening) x 61' long precast concrete box culvert. The secondary culvert will be replaced with a 24" x 54' long concrete pipe with end sections.</p> <p>Permanent wetland impacts are required for matching the replaced or rehabilitated structures to existing topography, and for constructing the required slope grading around the proposed guardrail end terminals. Temporary wetland impacts are required for access, staging, water diversion, and erosion controls.</p>	
<p>SECTION 3 - PROJECT LOCATION</p> <p>Separate wetland permit applications must be submitted for each municipality within which wetland impacts occur.</p>	
<p>ADDRESS: <input type="text"/> US Route 3, at 975' north of South Jordan Hill Road</p>	
<p>TOWN/CITY: <input type="text"/> Columbia</p>	
<p>TAX MAP/BLOCK/LOT/UNIT: <input type="text"/> N/A - US Route 3 ROW</p>	
<p>US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME: <input type="text"/></p> <p><input checked="" type="checkbox"/> N/A</p>	
<p>(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places): <input type="text"/> 44.83101° North</p>	

-71.55228° West

SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER) INFORMATION (Env-Wt 311.04(a))

If the applicant is a trust or a company, then complete with the trust or company information.

NAME: NH DEPT. OF TRANSPORTATION

MAILING ADDRESS: PO BOX 483

TOWN/CITY: CONCORD

STATE: NH

ZIP CODE: 03301

EMAIL ADDRESS: Kirk.Mudgett@dot.nh.gov

FAX: N/A

PHONE: 603-271-1598

ELECTRONIC COMMUNICATION: By initialing here: KOM, I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c)) N/A

LAST NAME, FIRST NAME, M.I.: [REDACTED]

COMPANY NAME: [REDACTED]

MAILING ADDRESS: [REDACTED]

TOWN/CITY: [REDACTED]

STATE: [REDACTED]

ZIP CODE: [REDACTED]

EMAIL ADDRESS: [REDACTED]

FAX: [REDACTED]

PHONE: [REDACTED]

ELECTRONIC COMMUNICATION: By initialing here [REDACTED], I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 6 - PROPERTY OWNER INFORMATION (IF DIFFERENT THAN APPLICANT) (Env-Wt 311.04(b))

If the owner is a trust or a company, then complete with the trust or company information.

 Same as applicant

NAME: NHDOT

MAILING ADDRESS: 7 Hazen Drive

TOWN/CITY: Concord

STATE: NH

ZIP CODE: 03301

EMAIL ADDRESS: Andrew.OSullivan@dot.nh.gov

FAX: N/A

PHONE: 603-271-3226

ELECTRONIC COMMUNICATION: By initialing here [REDACTED], I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 7 - RESOURCE-SPECIFIC CRITERIA ESTABLISHED IN Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, OR Env-Wt 900 HAVE BEEN MET (Env-Wt 313.01(a)(3))

Describe how the resource-specific criteria have been met for each chapter listed above (please attach information about stream crossings, coastal resources, prime wetlands, or non-tidal wetlands and surface waters):

In accordance with Env-Wt 400 the jurisdictional areas within the project limits have been delineated by: NHDOT Personnel (Joshua Brown, Deidra Benjamin, Andrew Czachor, and Dillan Schmidt on August 12, August 24, and November 7, 2022. The jurisdictional areas are referenced on the attached included wetland impact plans. The project has been designed in accordance with Env-Wt 527 to the maximum extent practicable. The application includes a technical report as well as details within the supplemental narrative to address various items including: existing conditions, natural and cultural resources, hydraulics, etc. Unavoidable impacts to wetlands have been minimized to the maximum extent practicable. Project specific information is contained within this permit application.

SECTION 8 - AVOIDANCE AND MINIMIZATION

Impacts within wetland jurisdiction must be avoided to the maximum extent practicable (Env-Wt 313.03(a)).* Any project with unavoidable jurisdictional impacts must then be minimized as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#) and the [Wetlands Permitting: Avoidance, Minimization and Mitigation Fact Sheet](#). For minor or major projects, a functional assessment of all wetlands on the project site is required (Env-Wt 311.03(b)(10)).*

Please refer to the application checklist to ensure you have attached all documents related to avoidance and minimization, as well as functional assessment (where applicable). Use the [Avoidance and Minimization Checklist](#), the [Avoidance and Minimization Narrative](#), or your own avoidance and minimization narrative.

*See Env-Wt 311.03(b)(6) and Env-Wt 311.03(b)(10) for shoreline structure exemptions.

SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)

If unavoidable jurisdictional impacts require mitigation, a mitigation [pre-application meeting](#) must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation Pre-Application Meeting Date: Month: Day: Year:

N/A - Mitigation is not required

SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (Env-Wt 313.01(a)(1)c)

Confirm that you have submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent unavoidable impacts that will remain after avoidance and minimization techniques have been exercised to the maximum extent practicable: I confirm submittal.

N/A – Compensatory mitigation is not required

SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))

For each jurisdictional area that will be/has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is after-the-fact (ATF; i.e., work was started or completed without a permit).

For intermittent and ephemeral streams, the linear footage of impact is measured along the thread of the channel. *Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.*

For perennial streams/ivers, the linear footage of impact is calculated by summing the lengths of disturbances to the channel and banks.

Permanent impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials).

Temporary impacts are impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.

JURISDICTIONAL AREA		PERMANENT			TEMPORARY		
		SF	LF	ATF	SF	LF	ATF
Wetlands	Forested Wetland	507		<input type="checkbox"/>	175		<input type="checkbox"/>
	Scrub-shrub Wetland	484		<input type="checkbox"/>	1380		<input type="checkbox"/>
	Emergent Wetland			<input type="checkbox"/>			<input type="checkbox"/>
	Wet Meadow			<input type="checkbox"/>			<input type="checkbox"/>
	Vernal Pool			<input type="checkbox"/>			<input type="checkbox"/>
	Designated Prime Wetland			<input type="checkbox"/>			<input type="checkbox"/>
	Duly-established 100-foot Prime Wetland Buffer			<input type="checkbox"/>			<input type="checkbox"/>
Surface Water	Intermittent / Ephemeral Stream			<input type="checkbox"/>			<input type="checkbox"/>
	Perennial Stream or River			<input type="checkbox"/>			<input type="checkbox"/>
	Lake / Pond	698	102	<input type="checkbox"/>	1108	130	<input type="checkbox"/>
	Docking - Lake / Pond			<input type="checkbox"/>			<input type="checkbox"/>
	Docking - River			<input type="checkbox"/>			<input type="checkbox"/>
Banks	Bank - Intermittent Stream			<input type="checkbox"/>			<input type="checkbox"/>
	Bank - Perennial Stream / River			<input type="checkbox"/>			<input type="checkbox"/>
	Bank / Shoreline - Lake / Pond			<input type="checkbox"/>			<input type="checkbox"/>
Tidal	Tidal Waters			<input type="checkbox"/>			<input type="checkbox"/>
	Tidal Marsh			<input type="checkbox"/>			<input type="checkbox"/>
	Sand Dune			<input type="checkbox"/>			<input type="checkbox"/>
	Undeveloped Tidal Buffer Zone (TBZ)			<input type="checkbox"/>			<input type="checkbox"/>
	Previously-developed TBZ			<input type="checkbox"/>			<input type="checkbox"/>
	Docking - Tidal Water			<input type="checkbox"/>			<input type="checkbox"/>
TOTAL		1689	102		2663	130	

SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)

<input type="checkbox"/> MINIMUM IMPACT FEE: Flat fee of \$400.	
<input type="checkbox"/> NON-ENFORCEMENT RELATED, PUBLICLY-FUNDED AND SUPERVISED RESTORATION PROJECTS, REGARDLESS OF IMPACT CLASSIFICATION: Flat fee of \$400 (refer to RSA 482-A:3, 1(c) for restrictions).	
<input type="checkbox"/> MINOR OR MAJOR IMPACT FEE: Calculate using the table below:	
Permanent and temporary (non-docking): 4352 SF	× \$0.40 = \$1,740.80
Seasonal docking structure: 0 SF	× \$2.00 = \$0
Permanent docking structure: 0 SF	× \$4.00 = \$0
Projects proposing shoreline structures (including docks) add \$400 = \$0	
Total =	\$1,740.80
The application fee for minor or major impact is the above calculated total or \$400, whichever is greater = \$1,740.80	

irm@des.nh.gov or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

www.des.nh.gov

SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05)
 Indicate the project classification.

<input type="checkbox"/> Minimum Impact Project	<input type="checkbox"/> Minor Project	<input checked="" type="checkbox"/> Major Project
---	--	---

SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11)

Initial each box below to certify:

Initials: [Redacted] KOM [Redacted]	To the best of the signer’s knowledge and belief, all required notifications have been provided.
--	--

Initials: [Redacted] KOM [Redacted]	The information submitted on or with the application is true, complete, and not misleading to the best of the signer’s knowledge and belief.
--	--

Initials: [Redacted] KOM [Redacted]	The signer understands that: <ul style="list-style-type: none"> • The submission of false, incomplete, or misleading information constitutes grounds for NHDES to: <ol style="list-style-type: none"> 1. Deny the application. 2. Revoke any approval that is granted based on the information. 3. If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the joint board of licensure and certification established by RSA 310-A:1. • The signer is subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641. • The signature shall constitute authorization for the municipal conservation commission and the Department to inspect the site of the proposed project, except for minimum impact forestry SPN projects and minimum impact trail projects, where the signature shall authorize only the Department to inspect the site pursuant to RSA 482-A:6, II.
--	--

Initials: [Redacted] KOM [Redacted]	If the applicant is not the owner of the property, each property owner signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.
--	---

SECTION 15 - REQUIRED SIGNATURES (Env-Wt 311.04(d); Env-Wt 311.11)

SIGNATURE (OWNER): [Redacted]	PRINT NAME LEGIBLY: [Redacted]	DATE: [Redacted]
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER): <i>Kirk Mudgett</i>	PRINT NAME LEGIBLY: Kirk Mudgett	DATE: 4/11/23
SIGNATURE (AGENT, IF APPLICABLE): [Redacted]	PRINT NAME LEGIBLY: [Redacted]	DATE: [Redacted]

SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))

As required by RSA 482-A:3, I(a)(1), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

TOWN/CITY CLERK SIGNATURE: [Redacted]	State Agency, Exempt per RSA 482-A:3, I(a)(1)	PRINT NAME LEGIBLY: [Redacted]
TOWN/CITY: [Redacted]	DATE: [Redacted]	

DIRECTIONS FOR TOWN/CITY CLERK:

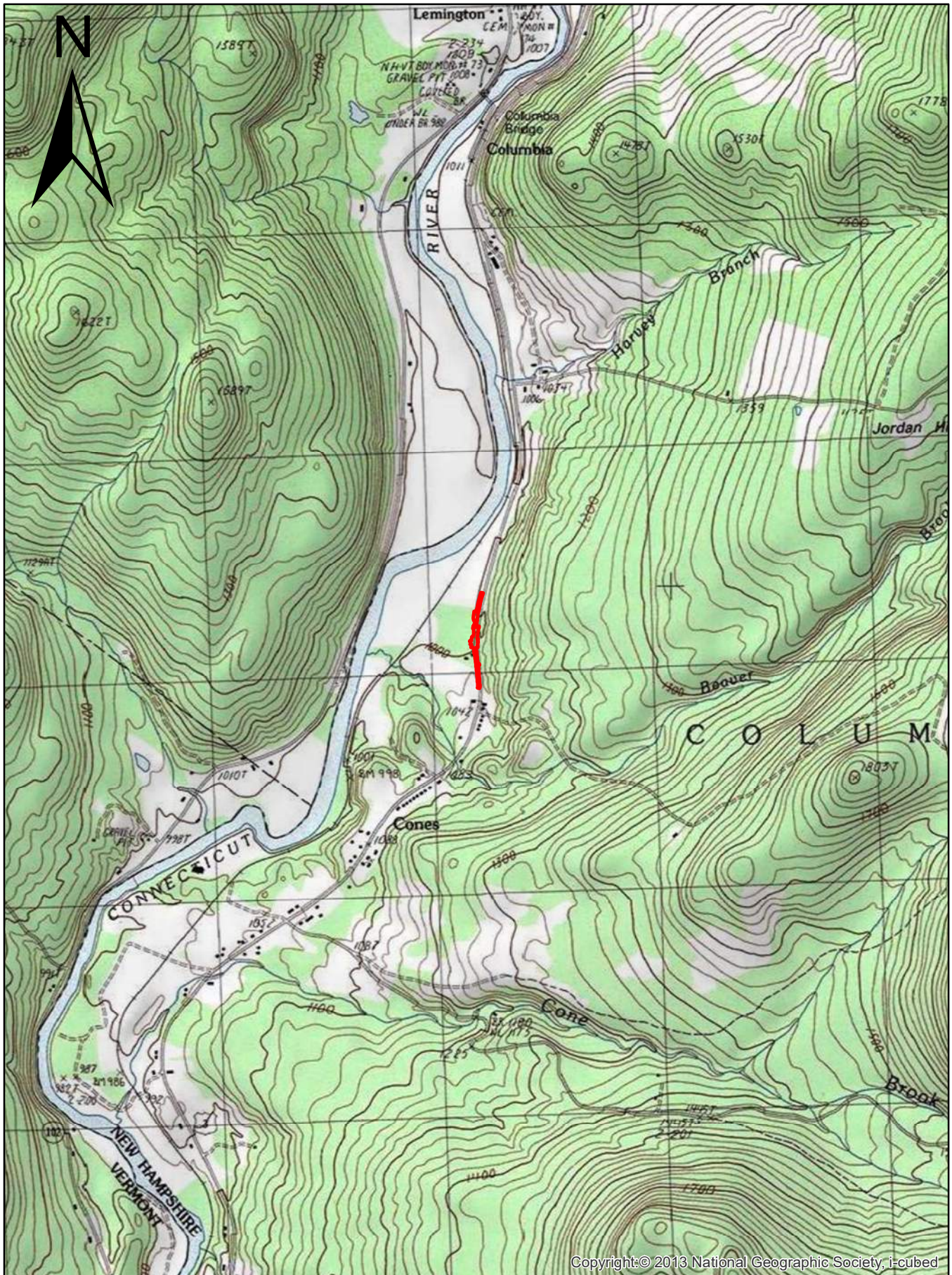
Per RSA 482-A:3, I(a)(1)

1. IMMEDIATELY sign the original application form and four copies in the signature space provided above.
2. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
3. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board.
4. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

Submit the original permit application form bearing the signature of the Town/City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery at the address at the bottom of this page. Make check or money order payable to "Treasurer – State of NH".

NHDOT Columbia 43441, X-A005(109) Culvert Replacement



Columbia 43441

Cad Renderer

— Project Limits



1:24,000

0 0.25 0.5 1 Miles

NHDOT Columbia 43441, X-A005(109) Culvert Replacement



Columbia 43441

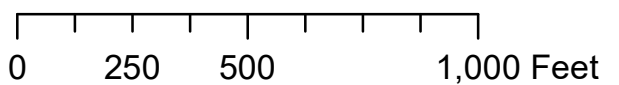
Cad Renderer

 Project Limits

 All parcels



1:5,000





STANDARD DREDGE AND FILL
WETLANDS PERMIT APPLICATION
ATTACHMENT A: MINOR AND MAJOR PROJECTS



Water Division/Land Resources Management
Wetlands Bureau

[Check the Status of your Application](#)

RSA/ Rule: RSA 482-A/ Env-Wt 311.10; Env-Wt 313.01(a)(1); Env-Wt 313.03

APPLICANT'S NAME: NH Dept. of Transportation **TOWN NAME:** Columbia

Attachment A is required for *all minor and major projects*, and must be completed *in addition* to the [Avoidance and Minimization Narrative](#) or [Checklist](#) that is required by Env-Wt 307.11.

For projects involving construction or modification of non-tidal shoreline structures over areas of surface waters having an absence of wetland vegetation, only Sections I.X through I.XV are required to be completed.

PART I: AVOIDANCE AND MINIMIZATION

In accordance with Env-Wt 313.03(a), the Department shall not approve any alteration of any jurisdictional area unless the applicant demonstrates that the potential impacts to jurisdictional areas have been avoided to the maximum extent practicable and that any unavoidable impacts have been minimized, as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#).

SECTION I.I - ALTERNATIVES (Env-Wt 313.03(b)(1))

Describe how there is no practicable alternative that would have a less adverse impact on the area and environments under the Department's jurisdiction.

THE PROJECT PROPOSES TO REPLACE AN EXISTING OPEN BOTTOM, 44" WIDE X 46" HIGH X 60' LONG CONCRETE CULVERT (PRIMARY CULVERT), REPLACE AN EXISTING 15" X 56' LONG CONCRETE PIPE (SECONDARY CULVERT), REPAIR A FAILED 15" CONCRETE PIPE OUTLET, ADD A METAL END SECTION TO AN EXISTING 15" PLASTIC CULVERT, AND INSTALL 438 +/- LF OF NEW STEEL BEAB GUARDRAIL ALONG THE US 3 SOUTHBOUND EDGE OF PAVEMENT.

THE PRIMARY CULVERT IS IN POOR STRUCTUTRAL CONDITION DUE TO AGE RELATED CONCRETE DETERIORATION. REPAIRS ARE NOT CONSIDERED PRACTICABLE.THE PROPOSED REPLACEMENT IS A 3.5' HIGH (CLEAR OPENING) X 6' WIDE BOX CULVERT EMBEDDED 12". THE CULVERT WILL BE REPLACED IN THE SAME LOCTION WITH SIMILAR INVERTS. V-SHAPED GRADE CONTROLS WILL BE USED INSIDE THE CULVERT TO HOLD THE EMBEDMENT MATERIAL IN PLACE AND TO PROMOTE AOP AND WILDLIFE PASSAGE DURING LOW FLOW PERIODS. CHANNEL MATCHES HAVE BEEN DESIGNED TO THE SHORTEST PRACTICABLE LENGTHS IN ORDER TO KEEP THE WETLAND IMPACTS TO A MINIMUM.

THE SECONDARY CULVERT IS BURIED AT BOTH ENDS AND MAY NOT BE FUNCTIONAL. DREDGING THE ENDS OF THE PIPE IS NOT PRACTICABLE DUE TO THE WETLANDS AT EITHER END. THE PROPOSED DESIGN IS REPLACEMENT WITH A 24" CONCRETE PIPE. THE MINIMUM (HYDRAULIC) SIZE IS 18". UPSIZING TO 24" DOES NOT REQUIRE ANY ADDITIONAL IMPACTS AND PROVIDES SOME ADDITIONAL CAPACITY. THE INVERTS OF THE NEW 24" PIPE WILL BE SET AT THE CURRENT WETLAND ELEVATIONS WHICH WILL RESTORE FUNCTIONALITY AND PROVIDE FOR IMPROVED WILDLIFE PASSAGE.

INCIDENTAL WORK WILL BE COMPLETED WITH THE MINIMAL AMOUNT OF IMPACTS AS PRACTICABLE.

irm@des.nh.gov or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

www.des.nh.gov

SECTION I.II - MARSHES (Env-Wt 313.03(b)(2))

Describe how the project avoids and minimizes impacts to tidal marshes and non-tidal marshes where documented to provide sources of nutrients for finfish, crustacean, shellfish, and wildlife of significant value.

No tidal marshes or non-tidal marshes delineated in the project area

SECTION I.III - HYDROLOGIC CONNECTION (Env-Wt 313.03(b)(3))

Describe how the project maintains hydrologic connections between adjacent wetland or stream systems.

The primary culvert provides a hydrologic connection between the upstream and downstream channels. There is no existing perch at the inlet or outlet. The invert of the proposed culvert will be set such that the embedment material inside the culvert matches the channel upstream and downstream. No significant change to the alignment or slope of the crossing is proposed.

Temporary disturbance to inlet and outlet areas will be restored such that there is no change to the existing channel grade. The hydrologic connection between the upstream and downstream channels will remain the same post construction.

The secondary culvert is buried at both ends and may not be functional. The proposed 24" concrete pipe will be installed in the same location as the existing pipe and at higher elevation to match the existing wetland grade. The length of the new crossing, including end sections, will be 62 LF. End section locations were set to match the existing US 3 embankment slopes, such that minimal re-grading will be required. The proposed pipe will restore hydrologic connectivity and opportunity for wildlife passage.

Incidental work at the 15" pipe outlets has no effect on connectivity as both pipes have a drainage structure at the inlet end and no baseflow.

SECTION I.IV - JURISDICTIONAL IMPACTS (Env-Wt 313.03(b)(4))

Describe how the project avoids and minimizes impacts to wetlands and other areas of jurisdiction under RSA 482-A, especially those in which there are exemplary natural communities, vernal pools, protected species and habitat, documented fisheries, and habitat and reproduction areas for species of concern, or any combination thereof.

The project has been designed in accordance with ENV-Wt 400 and 500. Unavoidable impacts to wetlands have been minimized to the maximum extent practicable; the Department has addressed Env-Wt 311.07 Avoidance and Minimization through the checklist document included with this application.

The resources present within the project area that will be impacted consist of delineated wetlands PSS1E, PSS1Ex, PABHh, and PFO/4Ex. The project area is within the range of the Northern Long-eared Bat (NLEB), Canada Lynx, and Monarch Butterfly which are listed as endangered, threatened, and candidate species respectively under the Federal Endangered Species Act. NH Fish and Game Department has completed it's review of the project area and it was determined that no known records of threatened or endangered species were identified within the project area. There are no PRA's associated with this project area. The Connecticut River comes within 900' of the project area, but the proposed work will have no effect on the River. There are no waterbodies subject to the SWQPA within the project area. There are no documented coldwater fisheries in the project area.

The proposed design is the minimum impact alternative that meets the project purpose and need and avoids impacts to nearby jurisdictional areas.

SECTION I.V - PUBLIC COMMERCE, NAVIGATION, OR RECREATION (Env-Wt 313.03(b)(5))

Describe how the project avoids and minimizes impacts that eliminate, depreciate or obstruct public commerce, navigation, or recreation.

The proposed design/work will allow traffic to continue to flow along US Route 3 during construction minimizing the impact to local and regional commuting and commerce. In the project area, the Connecticut River will not be impacted and normal water recreation and fishing can be utilized during and after construction. No permanent impacts to public commerce navigation, or recreation are anticipated as a result of the project.

SECTION I.VI - FLOODPLAIN WETLANDS (Env-Wt 313.03(b)(6))

Describe how the project avoids and minimizes impacts to floodplain wetlands that provide flood storage.

In the project area, the delineated wetlands do provide flood storage, but are outside the floodplain for the Connecticut River. The project will not have a significant effect on the flood storage capacity of the existing wetlands and will have no effect on the Connecticut River.

SECTION I.VII - RIVERINE FORESTED WETLAND SYSTEMS AND SCRUB-SHRUB – MARSH COMPLEXES (Env-Wt 313.03(b)(7))

Describe how the project avoids and minimizes impacts to natural riverine forested wetland systems and scrub-shrub – marsh complexes of high ecological integrity.

There are no riverine forested wetlands within the proposed limits of work. There are delineated scrub-shrub wetlands (PSS1E and PSS1Ex) in the project area. Avoidance of all impacts is not practicable since the culvert locations are fixed and replacement in the same location is the minimum impact alternative. The proposed design minimizes impacts to the scrub-shrub wetlands to the maximum extent practicable. New guardrail is proposed along the southbound side of US 3 to minimize permanent slope impacts. The majority of impacts are temporary and will not affect the functions and values of the wetland beyond the construction period.

SECTION I.VIII - DRINKING WATER SUPPLY AND GROUNDWATER AQUIFER LEVELS (Env-Wt 313.03(b)(8))

Describe how the project avoids and minimizes impacts to wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

The project will have no effect on wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

SECTION I.IX - STREAM CHANNELS (Env-Wt 313.03(b)(9))

Describe how the project avoids and minimizes adverse impacts to stream channels and the ability of such channels to handle runoff of waters.

The project will not effect any stream channels.

SECTION I.X - SHORELINE STRUCTURES - CONSTRUCTION SURFACE AREA (Env-Wt 313.03(c)(1))

Describe how the project has been designed to use the minimum construction surface area over surface waters necessary to meet the stated purpose of the structures.

N/A - The project does not involve shoreline structures.

SECTION I.XI - SHORELINE STRUCTURES - LEAST INTRUSIVE UPON PUBLIC TRUST (Env-Wt 313.03(c)(2))

Describe how the type of construction proposed is the least intrusive upon the public trust that will ensure safe docking on the frontage.

N/A

SECTION I.XII - SHORELINE STRUCTURES – ABUTTING PROPERTIES (Env-Wt 313.03(c)(3))

Describe how the structures have been designed to avoid and minimize impacts on ability of abutting owners to use and enjoy their properties.

N/A

SECTION I.XIII - SHORELINE STRUCTURES – COMMERCE AND RECREATION (Env-Wt 313.03(c)(4))

Describe how the structures have been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.

N/A

SECTION I.XIV - SHORELINE STRUCTURES – WATER QUALITY, AQUATIC VEGETATION, WILDLIFE AND FINFISH HABITAT (Env-Wt 313.03(c)(5))

Describe how the structures have been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.

N/A

SECTION I.XV - SHORELINE STRUCTURES – VEGETATION REMOVAL, ACCESS POINTS, AND SHORELINE STABILITY (Env-Wt 313.03(c)(6))

Describe how the structures have been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.

N/A

PART II: FUNCTIONAL ASSESSMENT
REQUIREMENTS
Ensure that project meets the requirements of Env-Wt 311.10 regarding functional assessment (Env-Wt 311.04(j); Env-Wt 311.10).
FUNCTIONAL ASSESSMENT METHOD USED: U.S. Army Corps of Engineers Methodology
NAME OF CERTIFIED WETLAND SCIENTIST (FOR NON-TIDAL PROJECTS) OR QUALIFIED COASTAL PROFESSIONAL (FOR TIDAL PROJECTS) WHO COMPLETED THE ASSESSMENT Deidra Benjamin and Joshua Brown
DATE OF ASSESSMENT: 09/19/2022
Check this box to confirm that the application includes a NARRATIVE ON FUNCTIONAL ASSESSMENT: <input type="checkbox"/>
For minor or major projects requiring a standard permit without mitigation, the applicant shall submit a wetland evaluation report that includes completed checklists and information demonstrating the RELATIVE FUNCTIONS AND VALUES OF EACH WETLAND EVALUATED. Check this box to confirm that the application includes this information, if applicable: <input checked="" type="checkbox"/>
Note: The Wetlands Functional Assessment worksheet can be used to compile the information needed to meet functional assessment requirements.

CULVERT REHABILITATION / REPLACEMENT PROJECT

US Route 3, Columbia, NH

NHDOT PROJECT NO. 43441

SUPPLEMENTAL NARRATIVE

Project Description

The project was initiated to replace an existing concrete, open bottom, 44” wide x 46” high x 60’ long culvert crossing under US Route 3 at approximately 975’ north of South Jordan Hill Road (primary culvert). Incidental work includes replacement of an existing 15” x 56’ long concrete pipe (secondary culvert), repair of a failed 15” concrete pipe outlet, adding an end section to a 15” plastic pipe outlet, and installation of 438 +/- LF of new steel beam guardrail along the US 3 southbound edge of pavement. The primary culvert will be replaced with a 3.5’ high x 6’ wide (clear opening) x 61’ long precast concrete box culvert. The secondary culvert will be replaced with a 24” x 54’ long concrete pipe with end sections.

Total project length along US Route 3 is about 800 LF, from 330’ south to 470’ north of the primary culvert.

The scheduled advertising date is August 8, 2023, with construction anticipated in the 2024 construction season.

This project was initiated and is funded under NHDOT’s Federal Culvert Replacement/Rehabilitation & Drainage Repair (CRDR) Program. The Program purpose is to address major culvert and drainage needs statewide that are not being addressed through current or future Capital Improvement or other programmatic projects. Projects are selected and scheduled based primarily on the condition of the culvert (risk of failure), Road Tier, traffic volume, depth of fill, and detour length (potential impact of failure). The Program funding is fully committed for at least the next three years.

The primary culvert was selected for replacement under the Program based on road Tier, traffic volume, structural condition/risk of failure, and potential regional traffic impact of a closure of US Route 3. If the structural deficiency of the culvert is not addressed, further deterioration of the concrete will eventually lead to a sinkhole in US Route 3 causing potentially significant impacts to traffic, utilities, and other resources.

As part of the field review and project scoping process, other drainage structures within the limits of traffic control for the primary culvert replacement were reviewed.

An existing 15” concrete culvert at approximately 250’ north of the primary culvert (Sta 115+80) was found to be buried and non-functional. An existing 15” concrete culvert at approximately 300’ south (Sta 110+27 Rt) was found to have a failed outlet end. An existing 15” plastic pipe outlet near the primary culvert inlet was found to be blocked by riprap (Sta 112+87 Rt). Repair or replacement of these incidental drainage structures will be included in the project.

Also noted was an existing steep embankment along the southbound edge of US 3. Limits extend from the northerly project limit to the primary culvert outlet. The distance from the US 3 edge of travel way to the embankment slope is below design standards for the posted speed limit and the embankment is on the outside of a relatively sharp curve, making “run off the road” accidents more likely. Review by NHDOT’s Safety section indicated that the steep embankment is a safety concern. The deficiency could be corrected by the project by extending the culvert on the outlet side and flattening the slope with fill or by adding new guardrail.

Existing Site Conditions

US 3 is a Tier 2 Roadway, a regionally significant arterial, with average daily traffic of about 2,500 vehicles per day, including commercial truck traffic. Posted speed limit is 55 mph. In the event of a culvert failure, there would be no practical detour route in NH. The closest Connecticut river crossings are about 7 miles south and 2 miles north of the primary culvert.

US 3 pavement width is about 32', with pavement markings for 11' travel lanes and 5' shoulders. Existing ROW width is 66'. In the project area, US 3 is on an average 2.5% downgrade going northbound. The low point in the roadway profile is near Sta 117+00, about 375' north of the primary culvert. US 3 curves relatively sharply at the primary culvert location, with superelevated pavement. There is existing steel beam guardrail along the northbound edge of pavement, ending just north of the culvert inlet. There are several drainage inlets and minor cross culverts within the project area.

There is a fire pond with dry hydrant and gravel access area adjacent to the primary culvert outlet, and several residential driveways in the project area.

Natural and Cultural Resources

Threatened and Endangered Species:

Federal listed endangered or threatened species under the Endangered Species Act in the project area include Northern Long-eared Bat and Canada Lynx. The Monarch Butterfly is listed as a candidate species. USFWS has verified that this project may rely on the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat. The project has a may affect - likely to adversely affect determination for NLEB due to tree clearing and no further consultation is needed. No time of year restrictions on clearing are proposed. USFWS has concurred with the proposed project's determination of may affect, not likely to adversely affect the Canada Lynx species therefore, no further consultation with USFWS regarding the Canada Lynx species is required.

The Natural Heritage Bureau data check:

The Natural Heritage Bureau data check did not identify any records of State-listed threatened or endangered species within the project area. Therefore, coordination with New Hampshire Fish & Game Department (NHFG) and New Hampshire Natural Heritage Bureau (NHB) are not required.

Cultural Resources:

The proposed work was reviewed by the Department's Cultural Resources Program and was found to be consistent with the Section 106 Programmatic Agreement (Section 106 PA) among the FHWA, the New Hampshire State Historic Preservation Office, the Advisory Council on Historic Preservation and the Department. As such, the proposed work has been determined to have no potential to cause effects to historical resources under Appendix B of the Section 106 PA.

Wetlands:

Wetland resources present within the project area include palustrine, aquatic bed, permanently flooded, diked/impounded (PABHh); Palustrine, emergent, persistent, seasonally flooded/saturated (PEM1E); Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated, (excavated) (PSS1E(x)); and Palustrine, forested, broad-leaved deciduous, needle-leaved evergreen, (excavated) (PFO1/4E(x)) wetlands. All impacts to wetlands have been minimized to the maximum extent practicable. The proposed permanent impacts would not have an effect on the wetlands' functions or values.

Note that the culvert crossings were not delineated as streams. A wetland delineation narrative supporting the classifications is included after the Natural Resource Meeting Minutes.

Water Quality:

DOT has designed this project so as to prevent or control erosion in accordance with contract provisions, engineering standards, guidelines, or best management practices (BMPs) and regulatory standards as outlined in the Terrain Alteration Permit Exemption dated March 1, 2022. As appropriate, the project includes channel protection measures at drainage outfalls, and results in no change in peak runoff.

Prime Wetlands, Designated Rivers, and Shoreland Water Quality Protection Act:

There are no prime wetlands in the vicinity of the project area. A portion of the project limits are located within ¼ mile of the Connecticut River, a NH Designated River. The project is not located within the protected shoreland buffer of any waterbodies protected by the NH Shoreland Water Quality Protection Act.

Floodplains:

The project area is not within the Connecticut River's regulatory 100-year floodplain.

Invasive Species: Populations of Type II invasive species are present within the project area. Purple Loosestrife (*Lythrum salicaria*). Delineation of invasive species was performed during a field review in August 2022. The Contractor will be required to perform all work activities in accordance with the Department publication "Best Management Practices for the Control of Invasive and Noxious Plant Species" in order to prevent the spread of invasive species to the site during construction.

Contamination:

No point source or PFAS concerns were identified with the proposed project.

Limited Reuse Soils (LRS) excavated from within the operational State right-of-way shall be addressed in accordance with applicable NHDES rules, waivers, and/or Soils Management Plans.

Wildlife Action Plan:

Supporting landscape for wildlife corridors exists within the project area. The Wildlife Action Plan shows two corridors crossing the project area, one at the primary culvert crossing and one at the secondary culvert crossing. Wildlife passage will be considered in the design of these crossings.

Conservation Lands: The property at the primary culvert outlet is subject to a US Dept. of Agriculture Wetland Reserve Program (WRP) easement. The property is labelled as Parcel 2 on the Plans, Sta 112+75 Lt to Sta 118+13 Lt. The Dover, NH office of the USDA Natural Resources Conservation Service is the primary contact for coordination. The project proposes minor impacts within the easement area.

On 12/15/2022, NHDOT Bureau of Highway Design sent preliminary construction plans and supplemental information for the work proposed under this Application to Matt Brown, NRCS State Conservation Engineer and Brooke Stubbs, NRCS Easement Coordinator. Comments received indicated that NRCS is supportive of the project and that the proposed impacts will not have a significant effect on the function of the wetland subject to the conservation easement.

Brooke Stubbs attended the project presentation at the January 18, 2023 Natural Resources Meeting. Comments indicated NRCS support of the project.

On March 9, 2023, NHDOT Bureau of Highway Design sent construction plans and supplemental information showing final proposed impacts, and a copy of the project's draft NEPA document to NRCS.

The NRCS State Conservation Engineer will use this information to develop a Finding of No Significant Impact (FONSI). After NEPA approval, the NHDOT Bureau of Right of Way will work with the NRCS Easement Coordinator to obtain the necessary approval for the proposed work.

NHDES Aquatic Restoration Mapper: Review of the project area in the Mapper found one flood history flag indicating that the property downstream of the primary culvert outlet is prone to flooding from the Connecticut River, and that US Route 3 could potentially be impacted “from time to time”. Source was the 2016 Columbia Hazard Mitigation Plan. There were no streams or drainage crossings shown in the Mapper in the project area.

The proposed work will have no effect on runoff to downstream properties or the Connecticut River and no significant effect on flood elevations for the Connecticut River or downstream properties.

Conservation Commission: The Town of Columbia does not have a Conservation Commission. The Selectboard, Planning Board, Emergency Management Director, and the Administrative Assistant were contacted via letter on December 06, 2022 requesting information about the project area and feedback on the proposed work. The Administrative Assistant provided a response dated December 15, 2022 indicating that the Town of Columbia did not have any additional information or feedback to provide.

Primary Culvert Existing Conditions

The existing culvert is in poor structural condition due to age related concrete deterioration. Deficiencies include severe spalling and exposed rebar at the inlet and inside the culvert, cracking of the walls and roof, and undermining of the walls inside. Original construction was prior to 1936. Archive plans indicate the culvert was extended by 22’ on the outlet side in 1936. No records of more recent modifications were found.

The culvert is open bottom with gravel/cobble substrate. Depth of footings is unknown. Surveyed length was 60.6’ and existing slope is about 2.5%. The referenced 44” width and 46” height were measured at the inlet. Height and width varies a bit through the length. Minimum inside dimensions are about 42” x 42”. Maximum height is close to 4.5’ at outlet. Fill height (from culvert flowline to US 3 pavement) varies from 8’ near the inlet to 10’ near the outlet.

The culvert has a straight concrete headwall at the inlet and riprap on the upstream embankment, and riprap around the inlet. Average inlet channel slope is about 4%. The culvert inlet channel was formed when the roadway embankment was constructed along the base of the steep hill on the east side of US 3. The channel is V shaped, 5’ – 8’ deep with side slopes as steep as 1:1 in places.

The culvert outlet has a concrete headwall with wingwalls. The outlet channel is about 3’ wide and 2’ – 3’ deep, surrounded with saplings and brush, Substrate is cobble-gravel with numerous boulders along the sides. Outlet channel slope varies from 3.6% near the outlet to 7.3% downstream. Outlet channel is about 50’ long, outletting into the man-made fire pond. Date of construction of the fire pond is unknown, but appears recent. The outlet channel was likely modified as part of the fire pond construction.

Downstream of and adjacent to the fire pond is a large wetland which was created or enhanced by a US Dept. of Agriculture Natural Resources Conservation Service (USDA/NRCS) project in 2006. The downstream property is encumbered by a USDA Wetland Reserve Program (WRP) easement. The NRCS project built a berm, outlet structure, and spillway to regulate water levels and promote wetland hydrology. Downstream of the wetland there is a railroad embankment with a culvert and then the Connecticut River and it’s floodplain. At the closest point, the Connecticut River is approximately 900’ from US 3 in the project area. The primary culvert outlet is about 1,475’ from the edge of the River.

Primary Culvert Hydrology / Hydraulics

The drainage area is mostly steep wooded hillside, with a few residential structures, a power line right of way, and a gravel pit. Soils are predominantly Type C (somewhat poorly drained) with some Type A (very well drained) surrounding US 3, and some Type B soils.

The drainage area was determined to be 146.8 acres (0.23 sq mi) from LIDAR. The design flows for this crossing were determined by the SCS Method and are as follows:

Q2 = 15 cfs, Q10 = 46 cfs, Q50 = 92 cfs, and Q100 = 115 cfs.

FHWA Regression equations predicted similar flows. Streamstats was not used because the stream network was not accurate in the project area.

Maximum headwater depth at the inlet (about 7.2') is controlled by the elevation of an existing gravel driveway adjacent to the culvert inlet (EL 1002.15). Headwater depth exceeding this elevation would result in bypass over the drive and north along US 3 to a 15" concrete culvert crossing under US 3 and outletting into the large wetland. This is the 'secondary culvert' referenced elsewhere.

Due to potential ponding in the downstream wetland, a high tailwater condition was used to evaluate culvert capacity. A low tailwater condition was used to evaluate maximum culvert outlet velocity.

The high tailwater condition was set at EL 996' (lowest elevation of the railroad embankment downstream of the wetland enhancement project. This elevation is 3' higher than the top of the wetland enhancement project berm and 2.6' higher than the culvert outlet invert. The existing culvert capacity was determined to be 145 cfs with headwater depth equal to the bypass elevation. The existing culvert can pass the design Q100 flow without bypass, flooding or overtopping. NHDOT District 1 Maintenance reports no history of flooding, or damage related to this culvert.

The low tailwater condition was set at the culvert outlet invert elevation (no downstream ponding). Maximum Q50 outlet velocity was 9.3 ft/s. Q2 outlet velocity was about 5 ft/s, which is consistent with field review finding no erosion or sedimentation at the culvert outlet.

Primary Culvert Alternatives

The preferred alternative will replace the existing culvert while minimizing impacts to existing infrastructure and natural resources, within the Program budget. Alternatives considered will maintain the existing culvert location and orientation, with similar length and inverts so as to match existing conditions as closely as practical.

Extending the culvert and addressing the steep outlet embankment slope with fill is not considered practical due to the wetland impacts that would result. Proposed guardrail is discussed later in this narrative.

The new culvert will be embedded 12", with natural bottom material – sand, gravel, and round cobbles. Concrete grade controls will be used inside the culvert to hold the bottom material in place and maintain a V shaped bottom, which maximizes depth at low flow for aquatic organism passage and provides potential for dry areas for terrestrial wildlife passage. Length will be 61 LF, about the same as existing, with precast headwalls and wingwalls.

Hydraulic design criteria for this size culvert is to pass Q50 with headwater less than or equal to the culvert rise ($HW/D \leq 1$), and accommodate Q100 without causing damage.

Sizes considered included replace in kind (3.5' high x 4' wide), 3.5' high x 5' wide, and 3.5' high x 6' wide. The 3.5' height constraint is to maintain cover at the inlet side and allow for resetting the guardrail terminal above the inlet.

The existing culvert capacity is about 145 cfs vs Q100 of 115 cfs for the high tailwater condition. Hydraulic performance for the three alternatives is as follows:

Alternative	Capacity at Bypass El	Q50 HW/D	Q50 Outlet Velocity
3.5' x 4' span	144 cfs	1.26	9.05 ft/s
3.5' x 5' span	179 cfs	1.08	8.4 ft/s
3.5' x 6' span	215 cfs	0.95	7.9 ft/s

The 5' span and 6' span alternatives are sufficiently close to the Q50 HW/D =1 criteria and both satisfy the Q100 criteria of no overtopping or damage caused.

Lower outlet velocity is generally preferable, favoring the 6' span option.

If this crossing were delineated as a stream, bankfull width would be a consideration in selection of the span. Regional stream crossing curves for this size drainage area suggest a bankfull width of 6.1', also favoring the 6' span option.

The increase in structure cost for 6' span vs 5' span is about \$15,000. Incidental items such as embedment material and % based items such as mobilization would increase the total construction cost from \$15,000 to about \$25,000 for the 1' increase in span.

Given the overall construction budget of \$635,000 for the primary culvert replacement, the cost of the wider span is relatively small in comparison to the capacity benefit. The wider span also provides small benefits in reducing outlet velocity and increased opportunity for wildlife passage. Impacts to wetlands and other resources would be the same for any of the span options. The 6' span option is the preferred alternative.

Primary Culvert Proposed Design

The proposed design is a 3.5' high x 6' wide (clear opening) x 61' long, embedded 12" precast box culvert.

The new culvert will have precast headwalls and wingwalls and will be embedded 12" below channel grade with concrete grade controls inside the culvert to hold the bed material in place. The grade controls will be "V" shaped to maximize low flow water depth. The proposed gradation of the simulated bed material was set to match the bed material inside the existing culvert.

A specification for the bed material gradation is included after this Narrative. The gradation is intended to match the bed material in the existing culvert. Existing bed material within the culvert may be salvaged and re-used, with approval from the Engineer.

Based on the flood hazard flag shown in the NH Aquatic Restoration Mapper, additional tailwater analysis was performed for the proposed culvert. The maximum tailwater elevation at which the proposed culvert will pass the 100-year design flow is EL 1000.5, which is 7' higher than the Connecticut River's regulatory 100-year flood elevation (EL 998).

Length of proposed channel matches for the inlet and outlet are the minimum necessary to transition the channel flowline to the new culvert inverts and to transition the channel width from existing to the new 6' wide culvert span. Simulated bed material will be used on the channel bottoms in the transition areas.

Inlet side channel match will require existing riprap to be reset and some new riprap to be added on the outside bend. Total length of the inlet side channel match is about 36'. A permanent slope easement is proposed on Parcel 1 (Sta 113 Rt) for the channel match and stone slope stabilization. About 180 SF of tree clearing will be required in the permanent slope easement area.

Outlet side channel match will also require stone armor to maintain stability of the 1.5:1 proposed slopes adjacent to the outlet wingwalls to minimize impacts. Other slopes throughout the project will be 2:1 or flatter with seed and mulch. Total length of the outlet side channel match is about 34'.

Incidental work includes adding a metal end section to the existing 15" plastic pipe outlet near the culvert inlet. The existing pipe has no end section and is partially blocked by riprap. Adding an end section will better support the riprap and minimize potential for future blockages. Impacts for this work are with the permanent impact for the primary culvert replacement work.

Wetland impacts related to the culvert replacement include permanent impacts at the inlet and outlet for channel matches and slope grading, temporary impacts at the outlet for access and erosion controls and temporary impacts along the west side of US 3 for temporary water diversion and erosion controls. An alternate water diversion may be proposed by the Contractor.

The temporary diversion shown on the Plans is one acceptable method. Water diversion would be via a temporary pipe installed under the driveway adjacent to the culvert inlet. Temporary ditch grading would be required to match the pipe outlet to the existing ditch at Sta 115+00 Rt. Flow would then continue in the existing ditch to the culvert crossing at Sta 115+80. If this method is used, the Contractor will be required to replace the pipe at Sta 115+80 prior to diverting water. Temporary construction easements are required from Parcel 1 and 3 (Sta 113+50 Rt – Sta 115+50 Rt).

A temporary construction easement is proposed on Parcel 3 for access, slope grading, and channel work at the outlet. The culvert is within the existing ROW and conditions outside the ROW will be substantially the same after construction. The USDA conservation easement is sufficient to prevent adverse changes to the culvert outlet area by the landowner. The need for regular periodic maintenance by NHDOT forces is not anticipated.

Tree clearing at the outlet area will be approximately 1,850 SF. Existing vegetation consists of saplings and brush. Stabilization after construction will be with seed, mulch, and erosion control matting. A wetland seed mix will be used in wetland areas. Vegetation will be allowed to re-establish naturally.

Secondary Culvert Existing Conditions

The existing 15" concrete culvert is located approximately 250' north of the primary culvert (Sta 115+80). The culvert connects a small wetland on the east side of US Route 3 to a larger wetland on the west. This culvert was not found by survey or visual field investigation but is shown on the 1936 archive plans. NHDOT District 1 Maintenance found the inlet end and measured approximate elevations, indicating the pipe is well below the average wetland grade on both ends. The culvert is considered to be non-functional. If bypass flow were to occur, it would be north along the edge of US 3 for about 200', over a driveway and into an 18" concrete cross culvert at Sta 119+08. The bypass elevation is 995.66, which is about 3.7' above the average wetland grade at the 15" pipe inlet.

Long term sediment accumulation in the upstream ditch and downstream wetland is the likely cause of the pipe ends being buried. There is no history of flooding or damage related to this crossing.

Abandoning the crossing would risk flooding of the existing ditch line and potentially damaging the existing driveway to the north. Dredging the outlet area is not considered practicable as it would require significant impacts to the large downstream wetland. Replacement at higher elevation is the preferred solution.

The drainage area was determined to be 13.1 acres (LIDAR) and the SCS Method design flows are as follows:

Q2 = 1.4 cfs Q10 = 5.8 cfs Q50 = 12.75 cfs Q100 = 16.24 cfs

The existing culvert is slightly undersized for current design standards. Capacity at bypass elevation is about 10 cfs, assuming a clean culvert with inverts below the wetland grade and tailwater elevation equal to the top of the downstream wetland berm (EL 993.0).

Secondary Culvert Alternatives & Proposed Design

The intent is to replace the culvert in the same location, and up-size to meet current design standards – pass Q50 and accommodate Q100 without causing damage. Inverts will be raised to match the existing wetland elevation on both sides.

The preferred alternative is to replace the existing culvert with a concrete culvert. Proposed length will be slightly longer than the estimated existing length, including the lengths of the proposed end sections. Estimated existing length is 56' versus proposed of 62' (including ends sections).

An 18" pipe meets Q50 headwater requirements, but a small amount of bypass would occur. The proposed design is a 24" concrete pipe, which passes Q50 and Q100 without bypass.

The proposed upsizing will allow for some future sediment accumulation, restoring functionality and improving the openness ratio and opportunity for wildlife passage.

Small areas of temporary wetland impacts and temporary construction easements are proposed at the inlet and outlet for construction access, control of potential groundwater, and erosion controls. No tree clearing is anticipated in the impact areas. Stabilization after construction will be with seed, mulch, and erosion control matting. A wetland seed mix will be used in wetland areas.

Incidental Work: 15" Culvert Outlet Repair

The 15" concrete culvert is located at Sta 110+25, about 300' south of the primary culvert. The culvert carries runoff from one catch on the opposite side of US 3 and outlets near the toe of the US 3 embankment. This pipe was constructed in 1936 along with the other US 3 improvements. The culvert was originally 72' long per archive plans.

Overall condition of the pipe is still good, except that outlet headwall and the last 4' section of pipe have fallen, likely due to the steep roadway embankment slope and inadequate headwall foundation. There is no history of flooding or damage related to this pipe.

The proposed design is to replace the fallen section of pipe and install an end section (rather than replacing the headwall). The end section will better match the existing slope and not require as much excavation or disturbance as replacing the headwall.

A small area of permanent wetland impact is shown for this work to allow for re-shaping the embankment and channel flowline. This work will be within the existing ROW. No tree clearing is anticipated.

Incidental Work: Proposed Guardrail

As previously noted, the steep embankment slope adjacent to the southbound edge of US Route 3 is considered a safety hazard.

Current design standards suggest a clear zone of at least 30' from edge or travel way (white line). A clear zone is defined as an area along the roadside free of fixed objects such as trees and utility poles, with embankment slopes no steeper than 4:1. Due to the limited ROW and the extent of impacts to the adjacent wetland, providing the recommended clear zone using 4:1 fill slopes would not be practicable. Adding guardrail also eliminates the need to extend the primary culvert outlet outside the existing ROW.

Standard steel beam guardrail is proposed along the southbound edge of US 3 pavement, from Sta 117+75 to Sta 113+30 (about 435 LF total length).

Crashworthy end terminals are required, and the terminals require relatively flat grading in the vicinity of the terminal ends. The terminal units and platform grading selected result in the minimum impact to wetlands.

Additional permanent and temporary wetland impacts are required at the northern guardrail terminal end (Sta 116+75 Lt to Sta 117+75 Lt). Tree clearing will be approximately 1,675 SF. Existing vegetation consists of saplings and brush. Stabilization after construction will be with seed, mulch, and erosion control matting. A wetland seed mix will be used in wetland areas. Vegetation will be allowed to re-establish naturally.

No tree clearing or wetland impacts are anticipated within the standard guardrail section (Sta 114+50 Lt – 116+75 Lt).

Construction Considerations:

Construction duration is estimated at 4-5 months, beginning in late spring or early summer of 2024. Construction will be substantially complete before winter.

The primary culvert replacement will be accomplished using phased construction. Two phases are anticipated, with duration about 3 weeks per phase. Alternating two-way traffic will be maintained in one lane using temporary signals and concrete barrier to separate US 3 traffic from the work area.

Access to residential driveways and the fire pond will be maintained to the maximum extent practicable. Appropriate coordination with the property owners and emergency services will occur.

One additional temporary wetland impact area is required to accommodate the temporary signal Sta 110+90 Rt. The US 3 shoulder is not wide enough to accommodate the signal and there is guardrail along the edge of pavement. Removing the existing guardrail or shifting US 3 traffic is not considered practicable. These solutions would extend the project limits, place additional driveways within the signal controlled area and reduce the operational efficiency of the signal setup. A temporary signal platform is proposed behind the guardrail. A temporary pipe would be placed in the wetland to maintain flow and the ditch would be restored to existing condition after the platform removal.

A temporary signal platform is also required at Sta 115+90 Lt. Platform impacts will be less than or equal to the permanent slope impacts at this location. Temporary widening of US 3 is also required in order to provide adequate width for traffic during Phase 2 of the culvert installation. The width of widening is expected to be a maximum of 7' wide at the culvert, tapering to match the existing edge of US Route 3 at Sta 112+00 Lt and Sta 115+15 Lt. The actual width of widening will be as approved by the NHDOT

Engineer, based on the Contractor's installation plan for the culvert. Slope impacts for the temporary widening will be less than or equal to permanent slope impacts. No additional wetland impacts are proposed for the temporary widening.

Project Summary:

The proposed advertising date is August 8, 2023.

The Estimated construction cost for the proposed project is \$1,025,000. Note that the construction cost estimate of \$635,000 cited in the Natural Resource Meeting presentation was for the primary culvert replacement only. The revised construction estimate now includes all incidental work and reflects increased estimated unit prices based on the recent inflationary environment.

The majority of work will be within the existing ROW. One permanent slope easement is proposed on Parcel 1, measuring approximately 325 SF. Temporary construction easements are required from Parcel 1, 2, and 3, totaling about 11,175 SF.

Tree clearing areas total about 3,700 SF. Total disturbed area for the project is estimated at 0.62 acres.

Invasive species will be managed in accordance with current guidelines (if found to be present within the work areas).

LRS will be managed in accordance with current guidelines. Most of the work is expected to fall under the *deminimis* classification. A small amount of LRS may need to be stockpiled during the primary culvert replacement. Adequate stockpile areas are available within the existing ROW Any excess LRS will be re-used on the existing US 3 embankment slopes.

Total area of fill to be placed in wetlands is 897 SF (Sta 114+00 LT to Sta 117+70 Lt.)

The NRCS wetland enhancement project constructed a berm to promote wetland hydrology. According to the 2006 NRCS plans, flood storage created between the wetland bottom (EL 988.4) and the top of berm (EL 993.0) was 26.5 acre-feet. Total proposed volume of fill to be placed below El 993 is 42.4 cubic yards (0.026 ac-ft), which would result in a 0.10% reduction in available storage volume. The proposed fill will not have a significant effect on the function or operation of the wetland enhancement area. Fill volume calculations were provided to NRCS for review.

Total permanent wetland impacts will be 1,689 SF.

Total temporary wetland impacts will be 2,663 SF.

Combined Permanent + Temporary Wetland Impacts = 4,352 SF

March 21, 2023

SPECIAL PROVISION
AMENDMENT TO SECTION 585 – STONE FILL
Item 585.3401 – Simulated Streambed Material

Add to Description:

1.2 This work shall consist of furnishing and placing Simulated Streambed Material at the following location on this project:

Simulated Streambed Material shall be placed at 12” nominal thickness at the inlet and inside the culvert and 12” to 18” thick at the outlet. Simulated streambed material shall be intermixed with the stone armor layer at the outlet to fill voids.

1.2.1 The intent is to replicate the natural environments upstream and downstream of the culvert. The percentage of specific stream bed material was determined by photo image analysis of bed material within the existing culvert. The gradation of substrate particle sizes is based on the Wentworth scale as referenced in the Guidelines for Naturalized River Channel Design and Bank Stabilization.

Add to Materials:

2.1.6 Bed material within the existing culvert may be salvaged and re-used, with approval from the Engineer. New Simulated Streambed Material shall meet the following gradations:

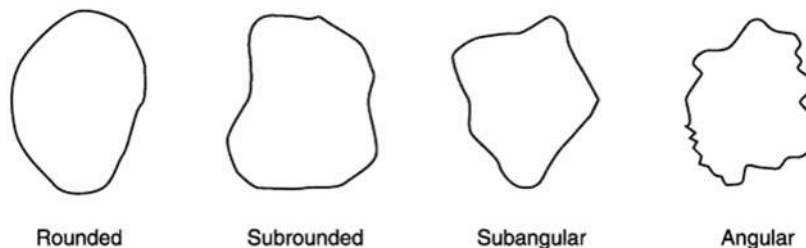
	Upstream Channel Match	Inside Culvert	Downstream Channel Match **	
	% by Weight	% by Weight	% by Weight	Sieve Sizes (in)
Sand	5%	5%	5%	0.003 to 0.08 (smaller than head of a match)
Gravel	60%	60%	60%	0.08 to 2.5 (between head of match and tennis ball)
Cobble	30%	30%	30%	2.5 to 9.0 (between tennis ball and volleyball)
Boulder	5%	5%	5%	9.0 or larger (larger than volleyball)
Maximum Particle size	9”	9”	9”	

** Sand and gravel gradations shall be used to fill voids in the stone armor layer at the outlet.

2.1.6.1 Streambed Material nominal depth shall be as shown on the Plans. The depth upstream and downstream may be modified as directed by the Engineer such that removal of bedrock and boulders below the elevation of the finished channel grade is not required. Any voids created by excavation below Plan sub-grade may be filled with material meeting the gradation in 2.1.6.

2.1.6.2 Gravel, Cobble, and Boulder particle shape shall be **Rounded** in accordance with the following:

R = Rounded, Sub-R = Subrounded, Sub-A = Subangular, A = Angular



2.1.6.3 Existing streambed material may be salvaged, stockpiled, and reused under this Item.

Add to 3.1:

3.1.3 In accordance with the *Guidelines for Naturalized River Channel Design and Bank Stabilization*, specifically 2.2.1.2 Semi-Natural Form Design, the Streambed Material shall be placed directly on the existing channel floor or subgrade as shown in the contract plans. In cases where scour protection or streambed anchorage material is required the scour/anchorage material shall be placed first. Then the Streambed Material shall be worked into the anchorage material such that all voids are filled, followed by the depth of Streambed Material specified.

3.1.4 Do not remove streambed material that is not disturbed by other construction operations.

Method of Measurement

Add to Method of Measurement:

4.2 Simulated Streambed Material will be measured by the cubic yard.

Basis of Payment

Add to Basis of Payment:

5.1.1 The accepted quantity of Simulated Streambed Material will be paid for at the Contract unit price per cubic yard complete in place.

Add to Pay Items and Units:

585.3401	Simulated Streambed Material	Cubic Yard
----------	------------------------------	------------

**BUREAU OF ENVIRONMENT
CONFERENCE REPORT**

Final

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting

DATE OF CONFERENCE: January 18, 2023

LOCATION OF CONFERENCE: Virtual meeting held via Zoom

ATTENDED BY:

NHDOT

Matt Urban
Andrew O’Sullivan
Jon Evans
Marc Laurin
Rebecca Martin
Dillan Schmidt
Chris Carucci
Dillan Schmidt
John Sargent
Meli Dube

ACOE

Mike Hicks

USCG

Gary Croot

EPA

Jean Brochi

NHDES

Karl Benedict
Mary Ann Tilton

NHB

Absent

NH Fish & Game

Mike Dionne
Kevin Newton

Federal Highway

Absent

US Fish & Wildlife

Absent

The Nature Conservancy

Absent

**NH Transportation &
Wildlife Workgroup**

Absent

**Consultants/ Public
Participants**

Brooke Stubbs
Michael Leach
Gerard Fortin
Alanna Gerton
Peter Walker
Stephen Hoffmann
Christine Perron
Sam White

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH: *(minutes on subsequent pages)*

Table of Contents:

Finalize Meeting Minutes.....2
Columbia, #43441 (X-A005(109)).....2
Fremont, # 23793 (Non-Fed).....6
Jaffrey, #16307 (X-A001(234)).....8
Lee, #41322 (X-A004(593)).....10

Finalize Meeting Minutes

Finalized and approved the December 21, 2022 meeting minutes.

Columbia, #43441 (X-A005(109))

Chris Carucci (NH DOT): discussed the overall project location, the primary culvert location, surrounding area, and provided a brief overview of the project scope and culvert rehabilitation program, proposed advertisement date of August 08, 2023, and anticipated construction during the 2024 construction season. Discussion on US Route 3 being regionally significant with an average daily traffic of about 2500 vehicles per day, including commercial truck traffic and that there would be no practical detour route within New Hampshire. The culvert selection was based on condition, risk of failure, and implications such as length of detour.

The primary culvert location is about 975 feet north of South Jordan Hill Road. It is an open bottom concrete box culvert about 44 inches wide and 46 inches high at the inlet, 60 feet long.

The project includes a second culvert replacement, a 15-inch concrete pipe located about 250 feet north of the primary culvert. The agenda mistakenly said that this was an 18-inch pipe, it is an existing 15-inch pipe.

Incidental work includes repair of a failed 15-inch pipe outlet just south of the primary culvert and adding an end section to a 15" slope drain close to the primary culvert inlet.

Another major component is adding guardrail along the west side of US route 3 due to a steep slope that lands in the wetland.

This is the first review of this project, to present existing conditions, resources, alternatives, and impacts for the proposed design. In our plan, we reference US Route 3 going North, Connecticut River is out to the West. US Route 3 is at the base of a steep hill with flat, lowland to the west. US Route 3 is at about a 2 ½% downgrade going north, the low point is around station 117.

Right at the primary culvert outlet, we have a fire pond and the entire parcel at the outlet was a wetland enhancement project constructed in cooperation with NRCS in 2006 and has a wetland reserve program (WRP) easement that we are going to have some minor impacts to.

Most of the project is quite a distance from the Connecticut River but it does bend sharply. The closest project impact is a little over 900 feet from the river, at Station 118, so technically we are within ¼ mile.

(Chris displays photos, including the following):

The primary culvert inlet, the inlet area looking South along US Route 3, the inlet channel is believed to have been created when the original US Route 3 roadway embankment intersected the hill, so it wasn't a natural stream but more of a created drainage way, we will provide more information on that later. Inside the primary culvert, you can see that it was extended at some point. The original construction was prior to 1936 which is the oldest plans that we have. The picture doesn't show all of the deteriorated areas, but we have some serious holes on the top and other concrete-related issues. At the outlet area there is a gravel access, and the fire pond is just down below that. The culvert outlet is within the small trees and brush area. There is a channel leading to the fire pond, as noted here we don't expect the match from the culvert replacement to stretch this far and we do not expect impacts to the channel where it enters the fire pond.

Incidental work: Photo of the location of a 15-inch concrete pipe that goes from a drainage inlet from the left, under Route 3, out into the ditch section of the primary culvert. The last piece of the pipe and headwall has fallen off, so we are going to repair the pipe in-kind and add an end section rather than replacing the headwall.

Photo of the second culvert replacement area, inlet at a depression in the embankment. The pipe crosses under Route 3 from east to west and outlets into the big wetland. The pipe ends are buried, so the plan is to replace it at a higher elevation.

Several photos of the southbound direction of Route 3, beginning at the north project limit, showing the access road to the berm that was constructed with the 2006 wetland enhancement project and existing small trees along the roadside. Proposed work includes construction of new guardrail along the edge of pavement. Last photo is at the fire pond access looking north. The steep slope along the outside of the curve adjacent to US 3 definitely warrants guardrail. The culvert replacement is going to impact this area and either require extending to meet current standards or install the guardrail, allowing the culvert to stay short. With that, I'll turn it over to Dillan to go over resources in the area.

Dillan Schmidt (NHDOT): For USFWS, on the IPaC species list we have Northern long-eared bat, Canada Lynx, and Monarch Butterfly. There were no records of State-listed threatened or endangered species as per the NHB Data Check. I did see Purple Loostripe on-site while in the field, that is the only invasive plant species that was identified. Wetland delineations were conducted in August 2022. For contamination we anticipate LRS management, there was no point-source contamination. As Chris indicated, we have some conservation land to the west of US 3, and we are partially within ¼ mile of the Connecticut River, which is a designated river. Items that were of no concern or not present within the project area are Section 106 impacts, State-listed Threatened and Endangered species, and point source contamination. (*displaying wildlife corridor map*). This is a map of predicted wildlife corridors, and as you can see there are two predicted corridors. We looked into this and there is potential to increase the primary culvert to a 6-foot span and upsize the 15-inch culvert to a 24-inch culvert, both of which should help increase the ability for wildlife passage. With that, I'm going to pass it back over to Chris but if anyone has any questions, please let me know.

Chris Carucci (NHDOT): The existing primary culvert is concrete, open bottom. The dimensions do vary throughout, the minimum inside dimension is about 3 ½ feet square, the outlet could be as much as 4 ½ feet high. The culvert slope is relatively mild, inlet and outlet slopes are also relatively mild, then it takes a dip into the fire pond. Original construction plans from 1936 indicate the culvert was extended and there are no records of more recent modifications. The culvert is in poor structural condition, with no history of flooding or damage. The drainage area is 146.8 acres. We looked at two tailwater conditions: one is the wetland berm created under the 2006 project and downstream of that somewhere between the road and the river is a railroad embankment, that was used for the tailwater analysis for the culvert. The existing and proposed culverts are pretty close to existing slope. If bypass were to occur, it would be over the adjacent driveway, headed down to the next crossing which is the 15-inch culvert.

Alternatives for the primary culvert: The intent was to replace the culvert in the same location and at similar invert elevations, matching existing conditions as closely as practical. New culvert will be embedded 12" with natural bottom material and concrete grade controls to hold the material in place. The length will be 61 feet, about the same as existing. Sizing will meet current design standards, pass Q50 and would not cause any damage or overtopping with Q100.

Sizes considered included replace in kind (3.5' high x 4' wide), 3.5' high x 5' wide, and 3.5' high x 6' wide. The 3.5' height constraint is to maintain cover at the inlet side and allow for resetting the guardrail terminal above the inlet. Capacity goes up significantly with every foot of additional span. As span increases, outlet velocities decrease slightly. The incremental cost is not significant relative to the overall project budget, total construction cost would increase about \$30,000 to \$50,000 for an increase up to the 6-foot span. We are in fact proposing a 6-foot span

and as Dillan noted, we do have two wildlife corridors, a little bit wider span provides some benefit there, and some benefit to reduced outlet velocity.

This crossing was not delineated as a stream, but we did in fact check the bank full width for this drainage area, which is about a 6-foot span. If it was delineated as a stream or not, we would still be proposing the same design.

(Displaying plans)

Proposed culvert elevations are close to existing, so the channel match is relatively short, about 15 feet on the inlet with some new riprap on the outside of the bend. Existing stone will be reset. On the outlet side the match right now is about 50 feet, we can probably reduce that a bit on the final review of the grading. The slope right around the outlet wingwalls is pretty steep so stone stabilization will be needed to hold that slope.

The secondary culvert is existing 15-inch concrete pipe about 56 feet long also constructed in 1936. The pipe connects a small wetland area on the east side of US 3 to the large wetland on the west side of US 3. The pipe is buried on both ends and is currently non-functional. The bypass would be to the north to the next crossing. There is no history of flooding or damage related to this pipe. Drainage area is about 13 acres, and analysis finds the existing 15-inch culvert is undersized. Tailwater analysis used the top of berm elevation rather than the higher railroad embankment elevation. The proposed pipe elevation will be higher to match the wetland grade on both sides, end sections would be added. A replacement 18-inch pipe would have passed the Q50 but with a little bit of bypass, so we went with the 24-inch pipe as it passes both Q50 and Q100 with no bypass. Restoring functionality and upsizing will also improve openness ratio and allow a better opportunity for wildlife passage. Chris discussed the 15-inch pipe outlet repair: One 4-foot section of the 15-inch pipe has fallen off and we're going to remove that, reset the 4-foot section and add an end section rather than a headwall. We expect the end section to be more stable and it will better match the existing embankment slope. The 15-inch slope drain near the primary culvert is obstructed by riprap. This area will be disturbed anyway, so we will put an end section on the slope drain. The final piece is the proposed guardrail, as previously shown in the photo, there is a steep slope on the outside of the curve and we can't provide the required clear zone due to the wetland impacts and right-of-way impacts. The total guardrail length would be about 440 feet including the end units. The majority of wetland impacts are related to the end unit terminal platforms that need special grading so that an approaching vehicle remains stable in a head on impact.

The primary culvert is to be done in two phases, with US 3 open to traffic in one lane with temporary signals. A small amount of temporary widening will be required along the southbound side of US 3. The slope impacts for the temporary widening are within or less than the overall project impacts. The replacement duration is estimated at about 2-3 weeks per phase. The total disturbed area is just over ½ acre, this includes non-jurisdictional areas.

Preliminary wetland impacts are about 1,600 SF permanent and about 2,800 SF temporary. These are mostly an accumulation of small impacts.

In summary, the overall budget is \$635,000, with the assumption that no mitigation payments are required. About 4-5 months of construction anticipated in the summer of 2024. Temporary easements are required from 3 parcels, totaling about 11,850 SF. Tree clearing areas total 3,860 SF, mostly brush and small trees. Total combined temporary and permanent wetland impacts are about 4,425 SF.

Q/A

Karl Benedict (NHDES): I would check the boxes for the alternatives analysis and the estimated impact areas make sense. One question I had I believe it's the 15-inch existing pipe. Does that get abandoned or does that get removed?

Chris Carucci (NHDOT): The existing pipe would be removed.

Karl Benedict (NHDES): Okay, the second question I have is the inverts were set to the existing wetland delineation. Could you expand a little more on that? It shows water level, can we confirm that it is the wetland elevation and what I'm really getting out is that there would be no change to wetland elevation due to these inverts.

Chris Carucci (NHDOT): When survey goes out, they pick up water level at the time they happen to be out there. The pipe is shown as slightly higher than existing ground level but to get an even invert elevation and also to get some slope on the pipe. The average ground elevation in the big wetland varies quite a bit. But generally, we want to be close to the wetland line at the end. Shown on the profile, we would be sticking out about 2-feet into the delineated wetland. We try to match very close to where the ground wants the drainage to cross.

Karl Benedict (NHDES): Great, that's what I was looking to confirm, thanks. Trying to confirm invert elevations relative to wetland elevation. So, I think you've addressed it there. Another question that I did have was relative to the stream diversion, could you maybe expand on that portion of the project a little bit? Ultimately what I'm getting at is sizing considerations for construction aiming at the 2-year storm event.

Chris Carucci (NHDOT): Yes, so I've done a preliminary calculation for what size pipe would be necessary, the other alternative would be digging a new pipe from the inlet all the way across Route 3, or we could dig a pipe north under the driveway and outlet it into the existing ditch, with a little bit of grading. That 15-inch pipe that we mentioned is about another 100 feet, so this seemed to be the least impactful method of diverting water. The 24-inch pipe inlet at this point would pass the 2-year storm.

Karl Benedict (NHDES): Great, that addresses it, thank you. My final question is relative to the wetland classifications. I would just like to mention to maybe re-evaluate that as potentially a stream. It does show up as a drainage layer, I do agree with Palustrine-forested and Scrub-shrub, I just wonder if there is maybe also a stream resource running through it. Relative to the alternatives, I don't think it really changes other than a quantification of the impact areas and linear feet associated with that. My only comment would be to ask to re-assess that stream classification.

Chris Carucci (NHDOT): I think our wetland folks drafted a narrative supporting their delineation which would be included in the permit application.

Dillan Schmidt (NHDOT): I just wanted to add a couple of quick points to that, one being that the conveyance of water is not classified as a stream on NWI and on not shown as a stream on the national hydrography dataset, and the stream is running straight and parallel to the roadway for several hundred feet and appears to be unnatural and channelized due to past construction. Those were just a couple of quick comments but as Chris indicated, there is a narrative to back those claims up.

Karl Benedict (NHDES): Thanks, we'll dive into that, so thanks that's my only other comment.

Andy O'Sullivan (NHDOT): Karl, just to expand on that, we have gone out there multiple times with multiple people because it was a complex location where we had the same questions you have, so we did take a second look at that.

Karl Benedict (NHDES): Great, thank you I will look for that to be addressed as you mentioned.

Mary Anne (NHDES): I'll defer to Karl on the stream crossing designs, I thought he had some good questions on that and agree with his analysis. The one thing I will say is part of the mitigation accounting and generally impact tracking, we are looking more carefully at how projects are classified. We are seeing folks' mis-classify projects that are really wetlands and streams. So, make sure you look not just at the NWI or the NHD as when we did the updates for NWI it did not account for narrow stream systems of less than 15 feet. USFWS had a memo on that so I would look to the State definition of water course which looks at defined scouring, and evidence of sediment transport for continuous channel. That's how we are defining streams, so it would kick into riverine on the NWI classification system. We are also looking at each of the different types of wetlands and what their predominant functions are. So that's something that we are going to be requiring a more detailed accounting when we update our forms. In terms of the wildlife corridor, is that something you're proposing a wildlife shelf at that crossing?

Chris Carucci (NHDOT): There is not a wildlife shelf. This crossing has relatively low base flow, the bottom would be kind of a V shaped, so low flows would be concentrated in the center so there would be dry edges within that crossing.

Mary Anne (NHDES): Okay, do you know what types of wildlife would be using that crossing?

Chris Carucci (NHDOT): We don't have any specific species.

Mary Anne (NHDES): Okay, the other thing to be aware of is I don't know if you've looked at the new NWI that's been published since November of a year ago actually, we have just published on the WPPT a function layer which is computer generated so that might be a good screening layer. It can't be relied on without field verification but that's something on these large-scale projects that you can start to look at. That's a computer-generated function, it's called NWI+ on the WPPT so I just wanted to let you know about that and that's all I have.

Mike Dionne (NHFG): No comments from me, seems like a good project and we appreciate the upsizing for better wildlife passage.

Kevin Newton (NHFG): No comments, we don't have any records according to the NHB DataCheck.

Mike Hicks (ACOE): No comment other than to make sure the historical components are squared away, and the bats, and I believe it was the Lynx, just make sure we address that and other than that, it looks fine.

Jeanie Brochi (EPA): Great discussion, I have no additional comments thank you.

Gary Croot (USCG): No navigable waterways impacted so we have no comment.

Brook Stubbs (USDA-NRCS): So, I have no additional comments I just appreciate the opportunity to watch the presentation. Looks like a great project and we will be looking forward to receiving a draft copy of the agreement (in relation to the NEPA analysis and draft Subordination Agreement that needs to be provided by the project proponent to NRCS for review) so we can get that paperwork done and it looks like you guys have everything under consideration for the evaluation of the resources so no further comment, thank you.

Fremont, # 23793 (Non-Fed)

This is the initial presentation to the Natural Resources meeting. Jerry Fortin introduced the Stantec project team to the meeting attendees, and noted this project is being presented on behalf of the Town of Fremont then began the presentation regarding Fremont 23793 – Culvert Replacement Project at Martin Road over Brown Brook. He reviewed the existing condition of the site:

- Located at the Eastern side of Fremont

New Hampshire Department of Transportation
Bureau of Environment – Wetlands Program
Concord, NH 03011

**RE: Wetland Delineation Narrative
Columbia, NH #43441**

At the request of the Department of Transportation's (DOT) Bureau of Highway Design, the Bureau of Environment (BOE) visited the project site on August 12th and August 24th of 2022 to delineate the project area for wetlands utilizing methodology outlined in Env-Wt 406 Delineation and Classification of Jurisdictional Areas (Figure 1). This written narrative is being prepared to provide additional information and supporting documentation for classification of the site's wetlands.

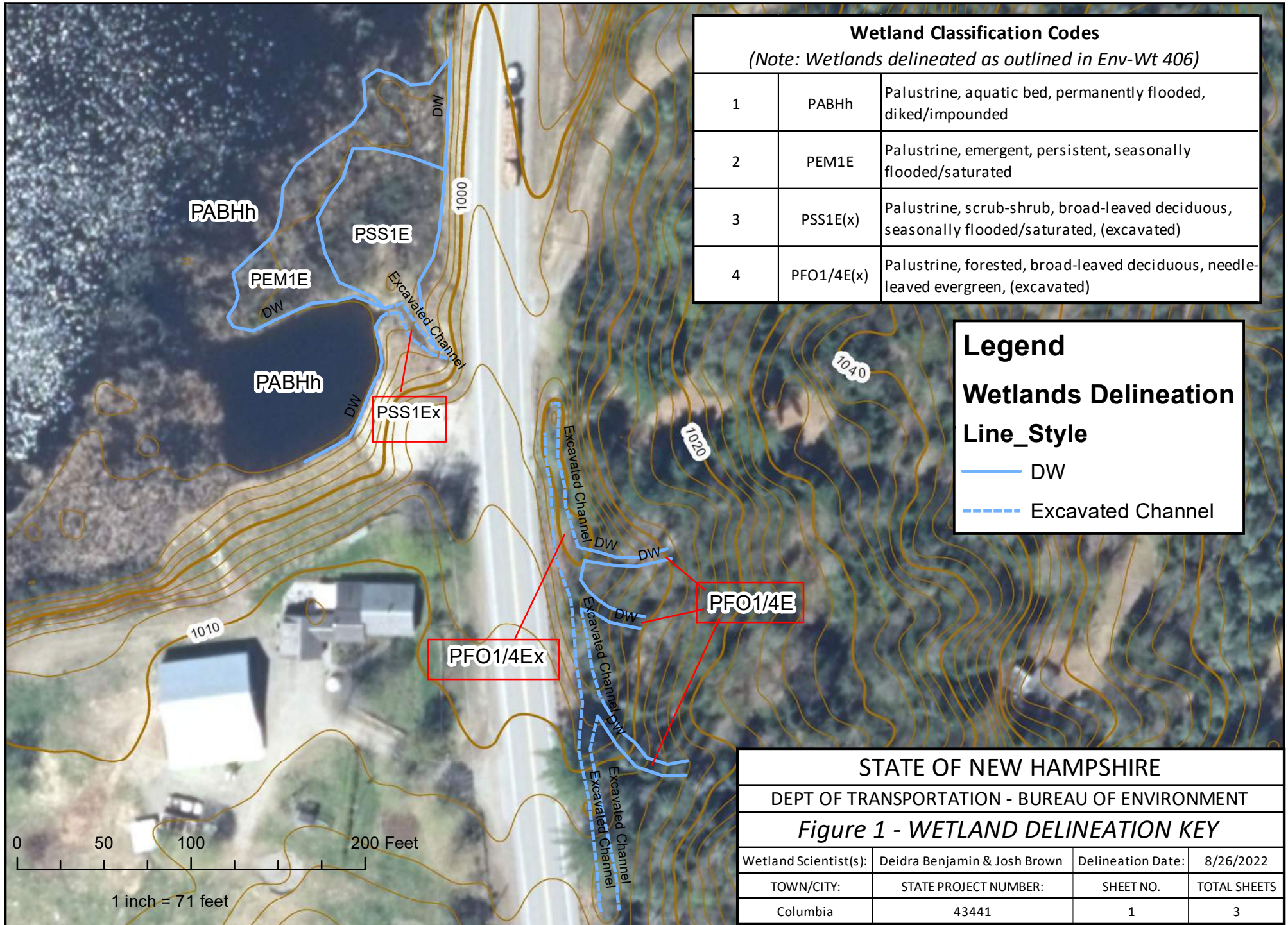
The purpose of this DOT project is to replace a failing culvert that conveys water from one wetland to another underneath Route 3 in the town of Columbia, NH. It is believed that the water being conveyed through the culvert should not be considered a stream as it does not display characteristics of a stream and that the project should be permitted under Env-Wt 400 classification rather than Env-Wt 900.

The upstream conveyance of water traveling from the east side of Route 3 was delineated as an excavated forested wetland (PFO1/4Ex) at the base of a hillslope, where elevations increase drastically, in a short distance, as you move away from the road and water travels in several braided channels via sheet flow during storm events (Figure 1). It is also possible that some groundwater is seeping out at the base of the slope and collecting in the channel running parallel to the road. From the bottom of the hillslope, water collects and moves to an area of lower elevation and eventually into a large wetland complex on the west side of Route 3. There was no reference reach for this conveyance of water as the braided channels were dry at the time of the site visit.

The conveyance of water was not classified in the field as an intermittent stream for several reasons. The first being that the conveyance of water is not classified as a stream on National Wetland Inventory (NWI) map (Figure 2) and is not shown as a stream on the National Hydrography Dataset (Figure 3). Additionally, the stream is running perfectly straight and parallel to the road for several hundred feet and appeared to be unnatural and channelized by past human activity when the road was constructed (See Photos 1 & 2 below). Additionally, the channel width about the size of an excavator bucket (~5') and riprap was observed on either side of the banks (See photos of the channel included with this narrative). Finally, the upstream reaches of the conveyance of water lacked evidence of a clear dominant channel, banks, evidence of sediment transport, or aquatic organisms.

The downstream conveyance of water on the west side of Route 3 was classified as a scrub-shrub (Photos 3 & 4) excavated wetland that conveys roughly 50-feet of water to a large palustrine wetland that was previously impounded by human activity (Photo 5). The south side of the downstream portion did not meet hydric soil and vegetation requirements and was several feet higher than the elevation on the north side of the downstream portion. The soil observed appeared to be a fill material, possibly from channelization of the channel adjacent to the test pit. The north side of the downstream portion was classified as a wetland as the material observed in the test pit met the definition of a hydric soil and wetland vegetation was present.

Columbia, 43441

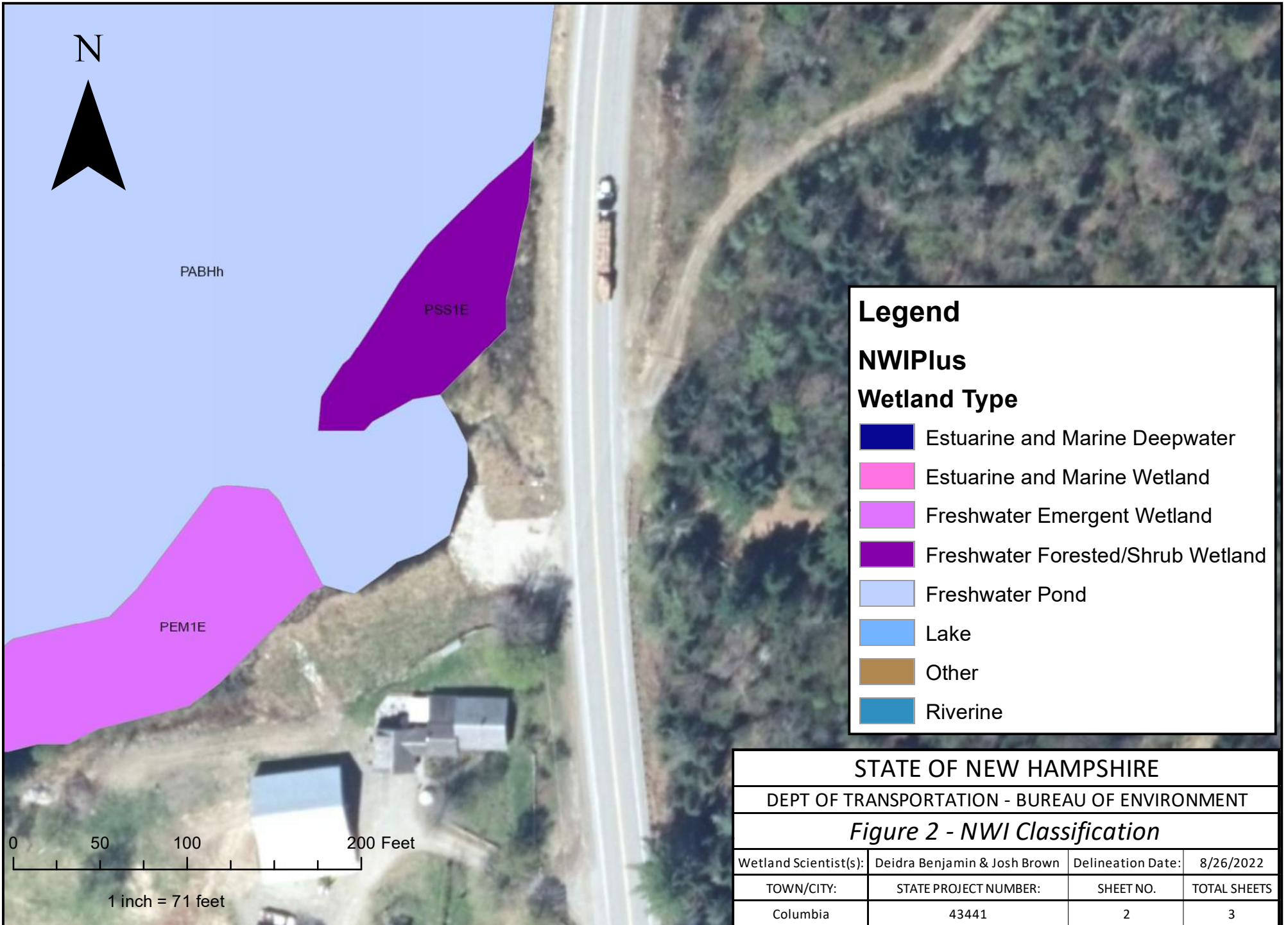


Wetland Classification Codes		
<i>(Note: Wetlands delineated as outlined in Env-Wt 406)</i>		
1	PABHh	Palustrine, aquatic bed, permanently flooded, diked/impounded
2	PEM1E	Palustrine, emergent, persistent, seasonally flooded/saturated
3	PSS1E(x)	Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated, (excavated)
4	PFO1/4E(x)	Palustrine, forested, broad-leaved deciduous, needle-leaved evergreen, (excavated)

Legend	
Wetlands Delineation	
Line_Style	
	DW
	Excavated Channel

STATE OF NEW HAMPSHIRE			
DEPT OF TRANSPORTATION - BUREAU OF ENVIRONMENT			
<i>Figure 1 - WETLAND DELINEATION KEY</i>			
Wetland Scientist(s):	Deidra Benjamin & Josh Brown	Delineation Date:	8/26/2022
TOWN/CITY:	STATE PROJECT NUMBER:	SHEET NO.	TOTAL SHEETS
Columbia	43441	1	3

Columbia, 43441



Legend

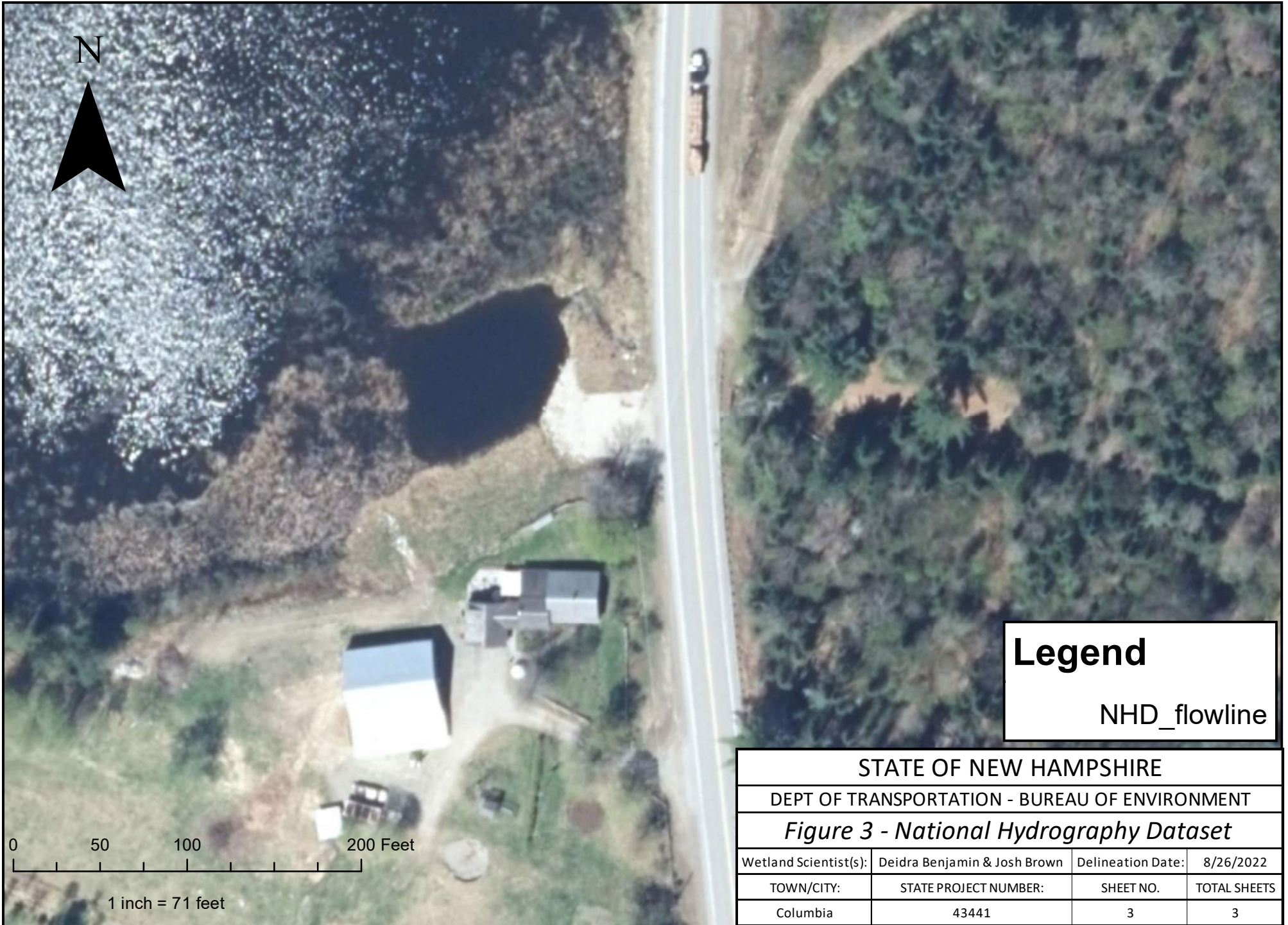
NWIPlus

Wetland Type

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

STATE OF NEW HAMPSHIRE			
DEPT OF TRANSPORTATION - BUREAU OF ENVIRONMENT			
<i>Figure 2 - NWI Classification</i>			
Wetland Scientist(s):	Deidra Benjamin & Josh Brown	Delineation Date:	8/26/2022
TOWN/CITY:	STATE PROJECT NUMBER:	SHEET NO.	TOTAL SHEETS
Columbia	43441	2	3

Columbia, 43441



Legend
NHD_flowline

STATE OF NEW HAMPSHIRE			
DEPT OF TRANSPORTATION - BUREAU OF ENVIRONMENT			
<i>Figure 3 - National Hydrography Dataset</i>			
Wetland Scientist(s):	Deidra Benjamin & Josh Brown	Delineation Date:	8/26/2022
TOWN/CITY:	STATE PROJECT NUMBER:	SHEET NO.	TOTAL SHEETS
Columbia	43441	3	3

Columbia, #43441



Photo 1: Looking upstream from Inlet at hard armoring on banks.



Photo 2: Looking downstream at inlet at hard armoring on banks.

Columbia, #43441



Photo 3: Looking upstream at PSS1Ex. The left side of photo was Delineated as PSS1E. The area to the right side of photo did not meet hydric soils/vegetation.

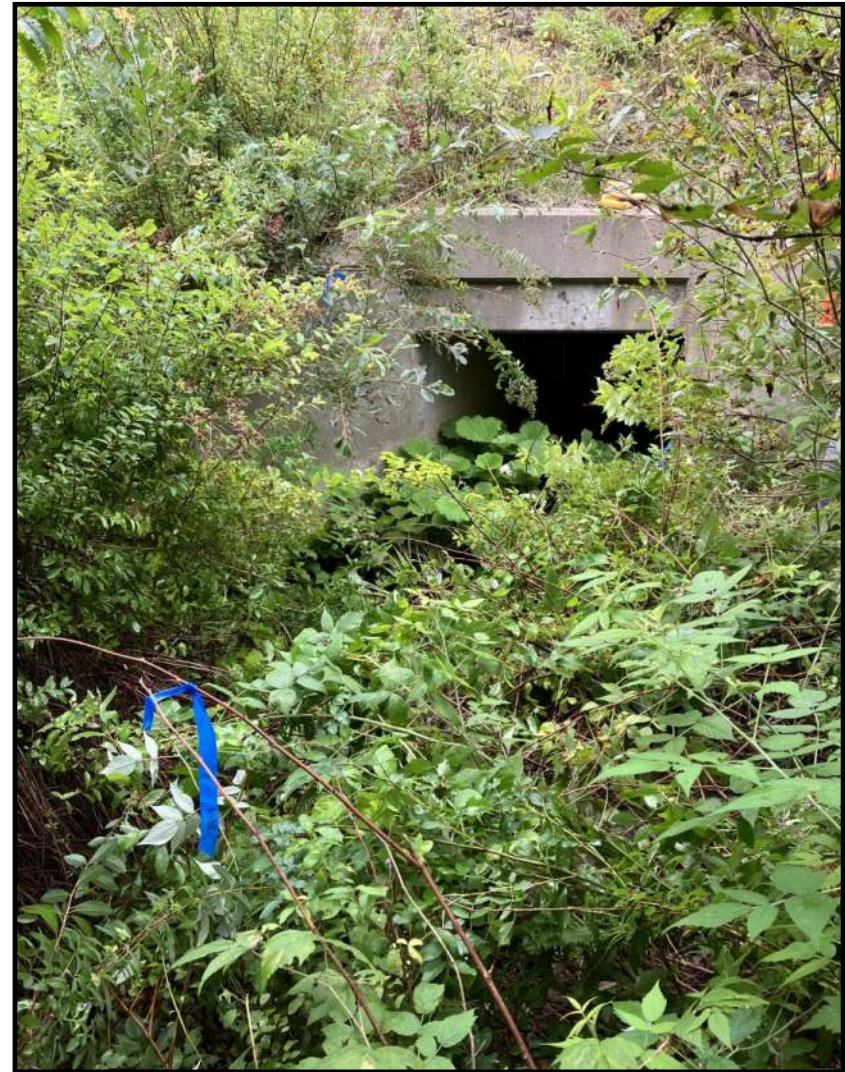


Photo 4: Looking upstream at outlet.

Columbia, #43441



Photo 5: *Looking downstream at apparent riprap stacked as channel outlets into emergent wetland/Fire Pond.*



AVOIDANCE AND MINIMIZATION CHECKLIST

Water Division/Land Resources Management Wetlands Bureau



[Check the Status of your Application](#)

RSA/Rule: RSA 482-A/ Env-Wt 311.07(c)

This checklist can be used in lieu of the written narrative required by Env-Wt 311.07(a) to demonstrate compliance with requirements for Avoidance and Minimization (A/M), pursuant to RSA 482-A:1 and Env-Wt 311.07(c).

For the construction or modification of non-tidal shoreline structures over areas of surface waters without wetland vegetation, complete only Sections 1, 2, and 4 (or the applicable sections in [Attachment A: Minor and Major Projects \(NHDES-W-06-013\)](#)).

The following definitions and abbreviations apply to this worksheet:

- “A/M BMPs” stands for [Wetlands Best Management Practice Techniques for Avoidance and Minimization](#) dated 2019, published by the New England Interstate Water Pollution Control Commission (Env-Wt 102.18).
- “Practicable” means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes (Env-Wt 103.62).

SECTION 1 - CONTACT/LOCATION INFORMATION		
APPLICANT LAST NAME, FIRST NAME, M.I.: NH Dept. of Transportation		
PROJECT STREET ADDRESS: US Route 3, 975' north of South Jordan Hill Road	PROJECT TOWN: Columbia	
TAX MAP/LOT NUMBER: N/A - US Route 3 ROW		
SECTION 2 - PRIMARY PURPOSE OF THE PROJECT		
Env-Wt 311.07(b)(1)	Indicate whether the primary purpose of the project is to construct a water-access structure or requires access through wetlands to reach a buildable lot or the buildable portion thereof.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

irm@des.nh.gov or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

www.des.nh.gov

If you answered “no” to this question, describe the purpose of the “non-access” project type you have proposed:
 The project purpose is to replace or rehabilitate deficient culverts and drainage structures under NHDOT's federal funded Culvert Rehabilitation and Drainage Repair Program. The project proposes to repalce an existing 44" wide x 46" high x 60' long concrete culvert with age related deterioration, replace a buried 15" rcp culvert, repair a failed 15" concrete pipe outlet, and add an end section to an existing 15" plastic pipe outlet. The intent is to restore functionality of the crossings while meeting current hydraulic design standards and minimizing impacts to resources to the maximum extent practical.

New beam guardrail along the US 3 southbound edge of pavement is proposed in order to avoid extending the primary culvert beyond it's existing length.

SECTION 3 - A/M PROJECT DESIGN TECHNIQUES

Check the appropriate boxes below in order to demonstrate that these items have been considered in the planning of the project. Use N/A (not applicable) for each technique that is not applicable to your project.

Env-Wt 311.07(b)(2)	For any project that proposes new permanent impacts of more than one acre or that proposes new permanent impacts to a Priority Resource Area (PRA), or both, whether any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, could be used to achieve the project’s purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 311.07(b)(3)	Whether alternative designs or techniques, such as different layouts, construction sequencing, or alternative technologies could be used to avoid impacts to jurisdictional areas or their functions and values.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(1) Env-Wt 311.10(c)(2)	The results of the functional assessment required by Env-Wt 311.03(b)(10) were used to select the location and design for the proposed project that has the least impact to wetland functions.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 311.07(b)(4) Env-Wt 311.10(c)(3)	Where impacts to wetland functions are unavoidable, the proposed impacts are limited to the wetlands with the least valuable functions on the site while avoiding and minimizing impacts to the wetlands with the highest and most valuable functions.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.01(c)(1) Env-Wt 313.01(c)(2) Env-Wt 313.03(b)(1)	No practicable alternative would reduce adverse impact on the area and environments under the department’s jurisdiction and the project will not cause random or unnecessary destruction of wetlands.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 313.01(c)(3)	The project would not cause or contribute to the significant degradation of waters of the state or the loss of any PRAs.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A

Env-Wt 313.03(b)(3) Env-Wt 904.07(c)(8)	The project maintains hydrologic connectivity between adjacent wetlands or stream systems.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	Buildings and/or access are positioned away from high function wetlands or surface waters to avoid impact.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	The project clusters structures to avoid wetland impacts.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 311.10 A/M BMPs	The placement of roads and utility corridors avoids wetlands and their associated streams.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	The width of access roads or driveways is reduced to avoid and minimize impacts. Pullouts are incorporated in the design as needed.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	The project proposes bridges or spans instead of roads/driveways/trails with culverts.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	The project is designed to minimize the number and size of crossings, and crossings cross wetlands and/or streams at the narrowest point.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 500 Env-Wt 600 Env-Wt 900	Wetland and stream crossings include features that accommodate aquatic organism and wildlife passage.	<input checked="" type="checkbox"/> Check <input type="checkbox"/> N/A
Env-Wt 900	Stream crossings are sized to address hydraulic capacity and geomorphic compatibility.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
A/M BMPs	Disturbed areas are used for crossings wherever practicable, including existing roadways, paths, or trails upgraded with new culverts or bridges.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
SECTION 4 - NON-TIDAL SHORELINE STRUCTURES		
Env-Wt 313.03(c)(1)	The non-tidal shoreline structure has been designed to use the minimum construction surface area over surfaces waters necessary to meet the stated purpose of the structure.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(2)	The type of construction proposed for the non-tidal shoreline structure is the least intrusive upon the public trust that will ensure safe navigation and docking on the frontage.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(3)	The non-tidal shoreline structure has been designed to avoid and minimize impacts on the ability of abutting owners to use and enjoy their properties.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A

Env-Wt 313.03(c)(4)	The non-tidal shoreline structure has been designed to avoid and minimize impacts to the public’s right to navigation, passage, and use of the resource for commerce and recreation.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(5)	The non-tidal shoreline structure has been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A
Env-Wt 313.03(c)(6)	The non-tidal shoreline structure has been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.	<input type="checkbox"/> Check <input checked="" type="checkbox"/> N/A

New Hampshire Natural Heritage Bureau NHB DataCheck Results Letter

To: Dillan Schmidt
7 Hazen Drive
Concord, NH 03301

From: NH Natural Heritage Bureau

Date: 11/28/2022 (This letter is valid through 11/28/2023)

Re: Review by NH Natural Heritage Bureau of request dated 11/28/2022

Permit Types: Wetland Standard Dredge & Fill - Major
Federal: NEPA Review

NHB ID: NHB22-3681

Applicant: Dillan Schmidt

Location: Columbia
Tax Map: N/A, Tax Lot: N/A
Address: State Right-of-Way

Proj. Description: The proposed project would replace an existing (44" wide x 46" high x 68' long open bottom concrete box) culvert with a pre-cast concrete box culvert embedded with stream simulation. The replacement preliminary size would be 6' wide x 5' high x 68' long, embedded 12" below the streambed (the replacement would have a 6' x 4' clear opening). The proposed replacement culvert would be in the same location and at a similar streambed elevation as the existing culvert. There would be no anticipated changes to the roadway, pavement, or guardrail.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

Based on the information submitted, no further consultation with the NH Fish and Game Department pursuant to Fis 1004 is required.

New Hampshire Natural Heritage Bureau
NHB DataCheck Results Letter

MAP OF PROJECT BOUNDARIES FOR: NHB22-3681





United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project Code: 2023-0018644
Project Name: NHDOT Columbia 43441

November 28, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the “**New England Field Office Endangered Species Project Review and Consultation**” website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

<https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat Update - Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to be addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

Additional Info About Section 7 of the Act

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/service/section-7-consultations>

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the

ESA. The species' occurrence on an official species list does not convey a requirement to consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

<https://www.fws.gov/program/migratory-bird-permit>

<https://www.fws.gov/library/collections/bald-and-golden-eagle-management>

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Project Summary

Project Code: 2023-0018644

Project Name: NHDOT Columbia 43441

Project Type: Culvert Repair/Replacement/Maintenance

Project Description: The proposed project would replace an existing culvert (44" wide x 46" high x 68' long open bottom concrete box). The proposed replacement would be a pre-cast concrete box culvert embedded with stream simulation. The replacement preliminary size would be 6' wide x 5' high x 68' long, embedded 12" below the streambed (the replacement would have a 6' x 4' clear opening). The proposed replacement culvert would be in the same location and at a similar streambed elevation as the existing culvert. There would be no anticipated changes to the roadway, pavement, or guardrail.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.8311323,-71.55230077909094,14z>



Counties: Coos County, New Hampshire

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

Agency: New Hampshire Department of Transportation
Name: Dillan Schmidt
Address: 7 Hazen Drive
City: Concord
State: NH
Zip: 03302
Email: dillan.c.schmidt@dot.nh.gov
Phone: 6032716799

Lead Agency Contact Information

Lead Agency: Federal Highway Administration



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project code: 2023-0018644
Project Name: NHDOT Columbia 43441

November 28, 2022

Subject: Consistency letter for the 'NHDOT Columbia 43441' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated November 28, 2022 to verify that the **NHDOT Columbia 43441** (Proposed Action) may rely on the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, and is likely to adversely affect the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*). Consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) is required.

This "may affect - likely to adversely affect" determination becomes effective when the lead Federal action agency or designated non-federal representative requests the Service rely on the PBO to satisfy the agency's consultation requirements for this project. Please provide this consistency letter to the lead Federal action agency or its designated non-federal representative for review, and as the agency deems appropriate, transmit to this Service Office for verification that the project is consistent with the PBO.

This Service Office will respond by letter to the requesting Federal action agency or designated non-federal representative within 30 calendar days after receiving request for verification to:

- verify that the Proposed Action is consistent with the scope of actions covered under the PBO;
- verify that all applicable avoidance, minimization, and compensation measures are included in the action proposal;
- identify any action-specific monitoring and reporting requirements, consistent with the monitoring and reporting requirements of the PBO, and
- identify anticipated incidental take.

ESA Section 7 compliance for this Proposed Action is not complete until the Federal action agency or its designated non-federal representative receives a verification letter from the Service.

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required.

For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities: If your initial bridge/culvert or structure assessments failed to detect Indiana bats, but you later detect bats prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office. In these instances, potential incidental take of Indiana bats may be exempted provided that the take is reported to the Service.

If the Proposed Action may affect any other federally-listed or proposed species and/or designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please advise the lead Federal action agency accordingly.

The following species may occur in your project area and **are not** covered by this determination:

- Canada Lynx *Lynx canadensis* Threatened
 - Monarch Butterfly *Danaus plexippus* Candidate
-

Project Description

The following project name and description was collected in IPaC as part of the endangered species review process.

Name

NHDOT Columbia 43441

Description

The proposed project would replace an existing culvert (44" wide x 46" high x 68' long open bottom concrete box). The proposed replacement would be a pre-cast concrete box culvert embedded with stream simulation. The replacement preliminary size would be 6' wide x 5' high x 68' long, embedded 12" below the streambed (the replacement would have a 6' x 4' clear opening). The proposed replacement culvert would be in the same location and at a similar streambed elevation as the existing culvert. There would be no anticipated changes to the roadway, pavement, or guardrail.

Determination Key Result

Based on your answers provided, this project is likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat. Therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the conclusion and Incidental Take Statement provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

Qualification Interview

1. Is the project within the range of the Indiana bat^[1]?

[1] See [Indiana bat species profile](#)

Automatically answered

No

2. Is the project within the range of the Northern long-eared bat^[1]?

[1] See [Northern long-eared bat species profile](#)

Automatically answered

Yes

3. Which Federal Agency is the lead for the action?

A) *Federal Highway Administration (FHWA)*

4. Are *all* project activities limited to non-construction^[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

[1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

No

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces^[1]?

[1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

No

6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum^[1]?

[1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

No

7. Is the project located **within** a karst area?

No

8. Is there *any* suitable^[1] summer habitat for Indiana Bat or NLEB **within** the project action area^[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the [User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat](#).

Yes

9. Will the project remove *any* suitable summer habitat^[1] and/or remove/trim any existing trees **within** suitable summer habitat?

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

Yes

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

No

11. Have presence/probable absence (P/A) summer surveys^{[1][2]} been conducted^{[3][4]} **within** the suitable habitat located within your project action area?

[1] See the Service's [summer survey guidance](#) for our current definitions of suitable habitat.

[2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

[3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

[4] Negative presence/probable absence survey results obtained using the [summer survey guidance](#) are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

No

12. Does the project include activities **within documented NLEB habitat**^{[1][2]}?

[1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry triangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

[2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

No

13. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

Yes

14. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

C) During both the active and inactive seasons

15. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

Yes

16. Will **more than** 10 trees be removed **between** 0-100 feet of the road/rail surface *during* the active season^[1]?

[1] Areas containing more than 10 trees will be assessed by the local Service Field Office on a case-by-case basis with the project proponent.

Yes

17. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

No

18. Are *all* trees that are being removed clearly demarcated?

Yes

19. Will the removal of habitat or the removal/trimming of trees involve the use of **temporary** lighting?

Yes

20. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

No

21. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

No

22. Does the project include slash pile burning?

No

23. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

No

24. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

No

25. Will the project involve the use of *any* **temporary** lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees), or bridge/structure removal, replacement or maintenance activities?

Yes

26. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be used?

Yes

27. Will the project install new or replace existing **permanent** lighting?

No

28. Does the project include percussives or other activities (**not including tree removal/trimming or bridge/structure work**) that will increase noise levels above existing traffic/background levels?

Yes

29. Will the activities that use percussives (**not including tree removal/trimming or bridge/structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the active season^[1]?

[1] Coordinate with the local Service Field Office for appropriate dates.

Yes

30. Will *any* activities that use percussives (**not including tree removal/trimming or bridge/structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the inactive season^[1]?

[1] Coordinate with the local Service Field Office for appropriate dates.

Yes

31. Are *all* project activities that are **not associated with** habitat removal, tree removal/trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

Yes

32. Will the project raise the road profile **above the tree canopy**?

No

33. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the active season within undocumented habitat.

34. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels consistent with a No Effect determination in this key?

Automatically answered

Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the inactive season

35. Is the habitat removal portion of this project consistent with a Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because tree removal that occurs within the NLEB's active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, and is not in documented NLEB roosting/foraging habitat or travel corridors, and a visual emergence survey has not been conducted

36. Is the habitat removal portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

Automatically answered

Yes, because the tree removal/trimming that occurs outside of the NLEB's active season occurs greater than 0.5 miles from the nearest hibernaculum, is less than 100 feet from the existing road/rail surface, includes clear demarcation of the trees that are to be removed, and does not alter documented roosts and/or surrounding summer habitat within 0.25 miles of a documented roost.

37. **General AMM 1**

Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

Yes

38. **Tree Removal AMM 1**

Can *all* phases/aspects of the project (e.g., temporary work areas, alignments) be modified, to the extent practicable, to avoid tree removal^[1] in excess of what is required to implement the project safely?

Note: Tree Removal AMM 1 is a minimization measure, the full implementation of which may not always be practicable. Projects may still be NLAA as long as Tree Removal AMMs 2, 3, and 4 are implemented and LAA as long as Tree Removal AMMs 3, 5, 6, and 7 are implemented.

[1] The word “trees” as used in the AMMs refers to trees that are suitable habitat for each species within their range. See the USFWS’ current summer survey guidance for our latest definitions of suitable habitat.

Yes

39. **Tree Removal AMM 3**

Can tree removal be limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits)?

Yes

40. **Lighting AMM 1**

Will *all* **temporary** lighting used during the removal of suitable habitat and/or the removal/trimming of trees within suitable habitat be directed away from suitable habitat during the active season?

Yes

41. **Lighting AMM 1**

Will *all* **temporary** lighting (besides that indicated for tree clearing or bridge/structure removal, replacement or maintenance activities) be directed away from suitable habitat during the active season?

Yes

42. For Indiana bat, if applicable, compensatory mitigation measures are required to offset adverse effects on the species (see Section 2.10 of the BA). Please select the mechanism in which compensatory mitigation will be implemented:

6. *Not Applicable*

Project Questionnaire

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?
-

No

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

No

3. How many acres^[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

[1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

0.081

4. **Please verify:**

All tree removal will occur greater than 0.5 mile from any hibernaculum.

Yes, I verify that all tree removal will occur greater than 0.5 miles from any hibernaculum.

5. Is the project location 0-100 feet from the edge of existing road/rail surface?

Yes

6. Is the project location 100-300 feet from the edge of existing road/rail surface?

No

7. **Please verify:**

No documented NLEB roosts or surrounding summer habitat within 150 feet of documented roosts will be impacted between June 1 and July 31.

Yes, I verify that no documented NLEB roosts or surrounding summer habitat within 150 feet of documented roosts will be impacted during this period.

8. You have indicated that the following Avoidance and Minimization Measures (AMMs) will be implemented as part of the proposed project:

- *Tree Removal AMM 1*
- *Lighting AMM 1*
- *Tree Removal AMM 3*
- *General AMM 1*

Avoidance And Minimization Measures (AMMs)

This determination key result includes the commitment to implement the following Avoidance and Minimization Measures (AMMs):

TREE REMOVAL AMM 1

Modify all phases/aspects of the project (e.g., temporary work areas, alignments) to avoid tree removal.

LIGHTING AMM 1

Direct temporary lighting away from suitable habitat during the active season.

TREE REMOVAL AMM 3

Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).

GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

Determination Key Description: FHWA, FRA, FTA Programmatic Consultation For Transportation Projects Affecting NLEB Or Indiana Bat

This key was last updated in IPaC on October 11, 2022. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's [February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects](#). The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

IPaC User Contact Information

Agency: New Hampshire Department of Transportation
Name: Dillan Schmidt
Address: 7 Hazen Drive
City: Concord
State: NH
Zip: 03302
Email: dillan.c.schmidt@dot.nh.gov
Phone: 6032716799

Lead Agency Contact Information

Lead Agency: Federal Highway Administration

From: Schmidt, Dillan
Sent: Monday, November 28, 2022 1:08 PM
To: newengland@fws.gov
Subject: NHDOT Columbia 43441, FHWA #X-A005(109), DOT #43441
Attachments: [LAA Consistency Letter_ FHWA_ FRA_ FTA Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat 2022-11-28.pdf](#); [Species List_ New England Ecological Services Field Office \(1\).pdf](#); [43441_Topo24k.pdf](#); [Columbia_43441_Aerial_2k.pdf](#)

Audrey Mayer, New England Field Office
70 Commercial St, Suite 300
Concord, NH 03301-5087

Dear Ms. Mayer,

Please find enclosed the LAA Consistency Letter: FHWA, FRA, FTA Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat generated through the Information for Planning and Consultation (IPaC) website regulatory review. The proposed project would replace an existing (44" wide x 46" high x 68' long open bottom concrete box) culvert with a pre-cast concrete box culvert embedded with stream simulation. The replacement preliminary size would be 6' wide x 5' high x 68' long, embedded 12" below the streambed (the replacement would have a 6' x 4' clear opening). The proposed replacement culvert would be in the same location and at a similar streambed elevation as the existing culvert. There would be no anticipated changes to the roadway, pavement, or guardrail. The proposed project adheres to the criteria and conditions of the FHWA, FRA, FTA USFWS Range-wide Programmatic Consultation, as outlined in the biological assessment (BA) and biological opinion (BO).

The project will include 0.081 acres of active and inactive season tree clearing in the Town of Columbia. The proposed clearing is necessary for access to drainage work locations.

The Official Species List for the project area includes the Northern Long-eared Bat, Canada Lynx, and Monarch Butterfly.

The NH DOT has coordinated with New Hampshire Natural Heritage Bureau and the New Hampshire Fish and Game Nongame and Endangered Wildlife Program to ascertain that there are no known NLEB maternity roost trees or hibernacula in the project area or in the vicinity of the project. All project tree clearing will be within 300 feet of the road surface.

The IPaC FHWA, FRA, FTA Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat Determination Key was utilized to review the project area(s) and activities. The NH DOT has determined that the project may affect, is likely to adversely affect (LAA) the NLEB, as the project includes tree clearing that will be conducted during the NLEB active season in the Town of Columbia, NH. The DOT will employ appropriate Avoidance and Mitigation Measures as indicated in the LAA Consistency Letter for the project. We respectfully request your concurrence that the project may rely on the December 15, 2016 Programmatic Biological Opinion (BO) for federally funded or approved FHWA, FRA, FTA transportation projects that may affect the NLEB and with our LAA determination.

Please feel free to contact me with any questions or concerns about the project. Thank you!

Sincerely,

Dillan Schmidt
Environmental Manager
NHDOT - Bureau of Environment
7 Hazen Drive, Concord, NH 03302
Ph: (603) 271-3226



Enclosures
Location maps
Official species list
Concurrence letter



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project code: 2023-0018644
Project Name: NHDOT Columbia 43441

March 28, 2023

Federal Nexus: yes
Federal Action Agency (if applicable): Federal Highway Administration

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for
'NHDOT Columbia 43441'

Dear Dillan Schmidt:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 28, 2023, for "NHDOT Columbia 43441" (here forward, Project). This project has been assigned Project Code 2023-0018644 and all future correspondence should clearly reference this number.

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northeast Determination Key (DKey), invalidates this letter. To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative effect(s)), to a federally listed species or designated critical habitat.

Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17). Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no further consultation with, or concurrence from, the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Service concurs, in writing, that a proposed action "is

not likely to adversely affect (NLAA)" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13]).

The IPaC results indicated the following species is (are) potentially present in your project area and, based on your responses to the Service's Northeast DKey, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Canada Lynx (<i>Lynx canadensis</i>)	Threatened	NLAA

Conclusion

The Service concurs to the above-mentioned determination(s) of may affect, not likely to adversely affect. This concurrence confirms receipt of your agencies coordination required under Section 7(a)(2) of the ESA.

In addition to the species listed above, the following species and/or critical habitats may also occur in your project area and are not covered by this conclusion:

- Monarch Butterfly *Danaus plexippus* Candidate
- Northern Long-eared Bat *Myotis septentrionalis* Threatened

To complete consultation for species that have reached a "May Affect" determination and/or species may occur in your project area and are not covered by this conclusion, please visit the "New England Field Office Endangered Species Project Review and Consultation" website for step-by-step instructions on how to consider effects on these listed species and/or critical habitats, avoid and minimize potential adverse effects, and prepare and submit a project review package if necessary: <https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the species identified above. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project implements any changes which are final or commits additional resources.

Please Note: If the Action may impact bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) by the prospective permittee may be required. Please contact the Migratory Birds

Permit Office, (413) 253-8643, or PermitsR5MB@fws.gov, with any questions regarding potential impacts to Eagles.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference the Project Code associated with this Project.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

NHDOT Columbia 43441

2. Description

The following description was provided for the project 'NHDOT Columbia 43441':

The proposed project would replace an existing culvert (44" wide x 46" high x 68' long open bottom concrete box). The proposed replacement would be a pre-cast concrete box culvert embedded with stream simulation. The replacement preliminary size would be 6' wide x 5' high x 68' long, embedded 12" below the streambed (the replacement would have a 6' x 4' clear opening). The proposed replacement culvert would be in the same location and at a similar streambed elevation as the existing culvert. There would be no anticipated changes to the roadway, pavement, or guardrail.

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.83114315,-71.55229963271304,14z>



QUALIFICATION INTERVIEW

1. As a representative of this project, do you agree that all items submitted represent the complete scope of the project details and you will answer questions truthfully?

Yes

2. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed species?

Note: This question could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered, or proposed species.

No

3. Is the action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

Yes

4. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) the lead agency for this project?

Yes

5. FHWA, FRA, and FTA have completed a rangewide [programmatic biological opinion](#) for transportation projects within the range of the Indiana bat and northern long-eared bat. Does your proposed project fall within the scope of this programmatic consultation?

Note: If you are using the Northeast Key to satisfy consultation requirements for species not covered by the FHWA programmatic (e.g., species other than Indiana bat or northern long-eared bat), select "No" and continue through the key. If you are unsure whether your project qualifies for the FHWA programmatic, please select "Yes" and use the FHWA, FRA, FTA Assisted Determination Key to determine if the programmatic biological opinion is applicable to your project. If it is not applicable, you can return to this key.

No

6. Are you including in this analysis all impacts to federally listed species that may result from the entirety of the project (not just the activities under federal jurisdiction)?

Note: If there are project activities that will impact listed species that are considered to be outside of the jurisdiction of the federal action agency submitting this key, contact your local Ecological Services Field Office to determine whether it is appropriate to use this key. If your Ecological Services Field Office agrees that impacts to listed species that are outside the federal action agency's jurisdiction will be addressed through a separate process, you can answer yes to this question and continue through the key.

Yes

7. Are you the lead federal action agency or designated non-federal representative requesting concurrence on behalf of the lead Federal Action Agency?

Yes

8. Will the proposed project involve the use of herbicide?

No

9. Are there any caves or anthropogenic features suitable for hibernating or roosting bats within the area expected to be impacted by the project?

No

10. Does any component of the project associated with this action include structures that may pose a collision risk to birds or bats (e.g., wind turbines, communication towers, transmission lines, any type of towers with or without guy wires)?

Note For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

No

11. Will the proposed project result in permanent changes to water quantity in a stream or temporary changes that would be sufficient to result in impacts to listed species?

For example, will the proposed project include any activities that would alter stream flow, such as water withdrawal, hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines? Projects that include temporary and limited water reductions that will not displace listed species or appreciably change water availability for listed species (e.g. listed species will experience no changes to feeding, breeding or sheltering) can answer "No". Note: This question refers only to the amount of water present in a stream, other water quality factors, including sedimentation and turbidity, will be addressed in following questions.

No

12. Will the proposed project affect wetlands?

This includes, for example, project activities within wetlands, project activities within 300 feet of wetlands that may have impacts on wetlands, water withdrawals and/or discharge of contaminants (even with a NPDES).

Yes

13. Will the proposed project activities (including upland project activities) occur within 0.5 miles of the water's edge of a stream or tributary of a stream where listed species may be present?

Yes

14. Will the proposed project directly affect a streambed (below ordinary high water mark (OHWM)) of the stream or tributary?

Yes

15. Will the proposed project bore underneath (directional bore or horizontal directional drill) a stream?

No

16. Will the proposed project involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds)?

No

17. Will the proposed project involve the removal of excess sediment or debris, dredging or in-stream gravel mining?

No

18. Will the proposed project involve the creation of a new water-borne contaminant source?

Note New water-borne contaminant sources occur through improper storage, usage, or creation of chemicals. For example: leachate ponds and pits containing chemicals that are not NSF/ANSI 60 compliant have contaminated waterways. Sedimentation will be addressed in a separate question.

No

19. Will the proposed project involve perennial stream loss that would require an individual permit under 404 of the Clean Water Act?

No

20. Will the proposed project involve blasting?

No

21. Will the proposed project include activities that could result in an increase to recreational fishing or potentially affect fish movement temporarily or permanently (including fish stocking, harvesting, or creation of barriers to fish passage)?

No

22. Will the proposed project involve earth moving that could cause erosion and sedimentation, and/or contamination along a stream?

Note Answer "Yes" to this question if erosion and sediment control measures will be used to protect the stream.

Yes

23. Will the proposed project involve vegetation removal within 200 feet of a perennial stream bank?

No

24. Will erosion and sedimentation control Best Management Practices (BMPs) associated with applicable state and/or Federal permits, be applied to the project? If BMPs have been provided by and/or coordinated with and approved by the appropriate Ecological Services Field Office, answer "Yes" to this question.

Yes

25. [Semantic] Does the project intersect the Virginia big-eared bat critical habitat?

Automatically answered

No

26. [Semantic] Does the project intersect the Indiana bat critical habitat?

Automatically answered

No

27. [Hidden Semantic] Does the project intersect the Canada lynx AOI?
Automatically answered
Yes
28. Will the project involve trapping, poisoning, or broadcasting disease control agents for wild animals (e.g. animal damage control, controlling or managing furbearer wildlife, capturing animals for research projects, rabies baits)?
No
29. Will the project be enclosed by fencing that could unintentionally trap lynx (e.g. wind and solar development, waste treatment settling ponds, impervious fencing along roads)?
No
30. Is this a road or highway project?
No
31. Is the project in a non-forested habitat (fields, towns and urban areas, agricultural fields) and of a nature that will not result in take of lynx?
Yes
32. [Semantic] Does the project intersect the candy darter critical habitat?
Automatically answered
No
33. [Semantic] Does the project intersect the diamond darter critical habitat?
Automatically answered
No
34. [Semantic] Does the project intersect the Big Sandy crayfish critical habitat?
Automatically answered
No
35. [Hidden Semantic] Does the project intersect the Guyandotte River crayfish critical habitat?
Automatically answered
No
36. Do you have any other documents that you want to include with this submission?
No
-

PROJECT QUESTIONNAIRE

1. Approximately how many acres of trees would the proposed project remove?
0.081
 2. Approximately how many total acres of disturbance are within the disturbance/
construction limits of the proposed project?
0.62
 3. Briefly describe the habitat within the construction/disturbance limits of the project site.
Rural, agriculture land, fields, wooded lots, etc.
-

IPAC USER CONTACT INFORMATION

Agency: New Hampshire Department of Transportation
Name: Dillan Schmidt
Address: 7 Hazen Drive
City: Concord
State: NH
Zip: 03302
Email: dillan.c.schmidt@dot.nh.gov
Phone: 6032716799

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

Date Reviewed: 10/17/2022
(Desktop or Field Review Date)

This Project uses only State funding; however project activities listed below comply with the PA.

Project Name: Columbia

State Number: 43441

FHWA Number: X-A005(109)

Environmental Contact: Dillan Schmidt

DOT

Email Address: Dillan.C.Schmidt@dot.nh.gov

Project Manager: Kirk Mudgett

Project Description: The proposed project would consist of the replacement of an existing 44"x46"x68' open bottom concrete box culvert. The proposed replacement box culvert would be 6'x4.5'x61' embedded 12" below the stream bed. Incidental work includes the addition of guardrail and terminal units along the southbound side of US 3, several minor drainage repairs, and the replacement of a failed 15" RCP.

Please select the applicable activity/activities:

Highway and Roadway Improvements	
<input type="checkbox"/>	1. Modernization and general highway maintenance that may require additional highway right-of-way or easement , including: h. removal of trees, as part of roadway improvements Choose an item.
<input type="checkbox"/>	2. Installation of rumble strips or rumble stripes
<input type="checkbox"/>	3. Installation or replacement of pole-mounted signs
<input checked="" type="checkbox"/>	4. Guardrail replacement, provided any extension does not connect to a bridge older than 50 years old (unless it does already), and there is no change in access associated with the extension
Bridge and Culvert Improvements	
<input checked="" type="checkbox"/>	5. Culvert replacement (excluding stone box culverts), when the culvert is less than 60" in diameter and excavation for replacement is limited to previously disturbed areas
<input type="checkbox"/>	6. Bridge deck preservation and replacement, as long as no character defining features are impacted
<input checked="" type="checkbox"/>	7. Non-historic bridge and culvert maintenance, renovation, or total replacement, that may require minor additional right-of-way or easement , including: a. replacement or maintenance of non-historic bridges Choose an item.
<input type="checkbox"/>	8. Historic bridge maintenance activities within the limits of existing right-of-way, including: Choose an item. Choose an item.
<input type="checkbox"/>	9. Stream and/or slope stabilization and restoration activities (including removal of debris or sediment obstructing the natural waterway, or any non-invasive action to restore natural conditions)
Bicycle and Pedestrian Improvements	
<input type="checkbox"/>	10. Construction of pedestrian walkways, sidewalks, sidewalk tip-downs, small passenger shelters, and alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons
<input type="checkbox"/>	11. Installation of bicycle racks
<input type="checkbox"/>	12. Recreational trail construction
<input type="checkbox"/>	13. Recreational trail maintenance when done on existing alignment
<input type="checkbox"/>	14. Construction of bicycle lanes and shared use paths and facilities within the existing right-of-way
Railroad Improvements	

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

<input type="checkbox"/>	15. Modernization, maintenance, and safety improvements of railroad facilities within the existing railroad or highway right-of-way, provided no historic railroad features are impacted , including, but not limited to: Choose an item. Choose an item.
<input type="checkbox"/>	16. In-kind replacement of modern railroad features (i.e. those features that are less than 50 years old)
<input type="checkbox"/>	17. Modernization/modification of railroad/roadway crossings provided that all work is undertaken within the limits of the roadway structure (edge of roadway fill to edge of roadway fill) and no associated character defining features are impacted
Other Improvements	
<input type="checkbox"/>	18. Installation of Intelligent Transportation Systems
<input type="checkbox"/>	19. Acquisition or renewal of scenic, conservation, habitat, or other land preservation easements where no construction will occur
<input checked="" type="checkbox"/>	20. Rehabilitation or replacement of existing storm drains.
<input checked="" type="checkbox"/>	21. Maintenance of stormwater treatment features and related infrastructure

Please describe how this project is applicable under Appendix B of the Programmatic Agreement.

The proposed project was reviewed for impacts to historical, archaeological, and cultural impacts by the NHDOT Bureau of Environment, Cultural Resource Program staff, Jillian Edelmann and Sheila Charles. The program expressed concern with the proposed box culvert replacement as the existing box culvert is a pre-1936 open bottom box culvert. Further review of the box culvert revealed that the existing box does not appear to have integrity as a 1936 or pre-1936 culvert due to the physical changes over the years therefore, the program does not have any additional concerns with the proposed box culvert replacement. An EMMIT review of the project area had identified a recorded archaeological site, the Lyman Brook Outbuilding Site. Upon further review, it was determined that the proposed project would not have any impact to the archaeological site.

Please submit this Certification Form along with the Transportation RPR, including photographs, USGS maps, design plans and as-built plans, if available, for review. Note: The RPR can be waived for in-house projects, please consult Cultural Resources Program Staff.

Coordination Efforts:

Has an RPR been submitted to NHDOT for this project?	No	NHDHR R&C # assigned?	Click here to enter text.
Please identify public outreach effort contacts; method of outreach and date:	<u>Town of Columbia public officials were contacted via letter on December 06, 2022. Additionally, LCHIP, CLS, and LWCF conservation groups were contacted regarding the proposed project.</u>		

Finding: (To be filled out by NHDOT Cultural Resources Staff)

<input checked="" type="checkbox"/>	No Potential to Cause Effects	<input type="checkbox"/>	No Historic Properties Affected
This finding serves as the Section 106 Memorandum of Effect. No further coordination is necessary.			
<input type="checkbox"/>	This project does not comply with Appendix B. Review will continue under Stipulation VII of the Programmatic Agreement. Please contact NHDOT Cultural Resources Staff to determine next steps.		
NHDOT comments:			

Section 106 Programmatic Agreement – Cultural Resources Review Effect Finding

Appendix B Certification – Activities with Minimal Potential to Cause Effects

Sheila Charles

1/10/2022

NHDOT Cultural Resources Staff

Date

Coordination of the Section 106 process should begin as early as possible in the planning phase of the project (undertaking) so as not to cause a delay.

Project sponsors should not predetermine a Section 106 finding under the assumption a project is limited to the activities listed in Appendix B until this form is signed by the NHDOT Bureau of Environment Cultural Resources Program staff.

Every project shall be coordinated with, and reviewed by the NHDOT-BOE Cultural Resources Program in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the New Hampshire State Historic Preservation Office, the Army Corps of Engineers, New England District, the Advisory Council on Historic Preservation, and the New Hampshire Department of Transportation Regarding the Federal Aid Highway Program in New Hampshire*. In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

NHDOT and the State Historic Preservation Office may use provisions of the Programmatic Agreement to address the applicable requirements of NH RSA 227-C:9 in the location, identification, evaluation and management of historic resources, for projects funded by State funds.

If any portion of the project is not entirely limited to any one or a combination of the activities specified in Appendix B (with, or without the inclusion of any activities listed in Appendix A), please continue discussions with NHDOT Cultural Resources staff.

This No Potential to Cause Effect or No Historic Properties Affected project determination is your Section 106 finding, as defined in the Programmatic Agreement.

Should project plans change, please inform the NHDOT Cultural Resources staff in accordance with Stipulation VII of the Programmatic Agreement.



**US Army Corps
of Engineers**®
New England District

**Appendix B
New Hampshire General Permits
Required Information and USACE Section 404 Checklist**

Required Information

In order for USACE to properly evaluate your application, applicants must submit the following information for all projects along with the NHDES Wetlands Bureau application or permit notification forms. Some projects may require more information. Check with USACE at (978) 318-8832 for project-specific requirements. For your convenience, this Appendix B is also attached to the NHDES Wetlands Bureau application and Permit by Notification forms.

- NHDES Wetlands Permit Application.
- Request for Project Review Form by the NH DHR: <https://www.nh.gov/nhdhr/review/rpr.htm>.
- Photographs of wetland/waterway to be impacted.
- Purpose of the project.
- Legible, reproducible plans no larger than 11"x17" with bar scale. Provide locus map and plan views of the entire property.
- Typical cross-section views of all wetland and waterway fill areas and wetland replication areas.
- In navigable waters, show MLW and MHW elevations. Show the HTL elevations when fill is involved. In other waters, show the OHW elevation.
- On each plan, show the following for the project:
 - Vertical datum and the NAVD 1988 equivalent with the vertical units as U.S. feet. In coastal waters this may be mean higher high water (MHHW), MHW, MLW, mean lower low water (MLLW) or other tidal datum with the vertical units as U.S. feet. MLLW and MHHW are preferred. Provide the correction factor detailing how the vertical datum (e.g., MLLW) was derived using the latest National Tidal Datum Epoch for that area, typically 1983 - 2001.
 - Horizontal state plane coordinates in U.S. survey feet based on the Traverse Mercator Grid system for the State of New Hampshire (Zone 2800) NAD 83.
 - Project limits with existing and proposed conditions.
 - Limits of any FNP in the vicinity of the project area and horizontal State Plane Coordinates in U.S. survey feet for the limits of the proposed work closest to the FNP.
 - Volume, type, and source of fill material to be discharged into waters and wetlands, including the area(s) (in square feet or acres) of fill in wetlands, below the OHW in inland waters and below the HTL in coastal waters.
 - Delineation of all waterways and wetlands on the project site.
- Use Federal delineation methods and include USACE wetland delineation data sheets (GC 2).
- For activities involving discharges of dredged or fill material into waters of the U.S., include a statement describing how impacts to waters of the U.S. are to be avoided and minimized, and either a statement describing how impacts to waters of the U.S. are to be compensated for (or a conceptual or detailed mitigation plan) or a statement explaining why compensatory mitigation should not be required for the proposed impacts. Please contact USACE for guidance.



**US Army Corps
of Engineers**®
New England District

**Appendix B
New Hampshire General Permits
Required Information and USACE Section 404 Checklist**

USACE Section 404 Checklist

1. Attach any explanations to this checklist. Lack of information could delay a USACE permit determination.
2. All references to “work” include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 3 for information on single and complete projects.
4. Contact USACE at (978) 318-8832 with any questions.
5. The information requested below is generally required in the NHDES Wetland Application. See page 61 for NHDES references and Admin Rules as they relate to the information below.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See the following to determine if there is an impaired water in the vicinity of your work area. * https://nhdes-surface-water-quality-assessment-site-nhdes.hub.arcgis.com/ https://www.des.nh.gov/water/rivers-and-lakes/water-quality-assessment https://www4.des.state.nh.us/onestopdatamapper/onestopmapper.aspx	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to tidal SAS, prime wetlands, or priority resource areas? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www4.des.state.nh.us/NHB-DataCheck/ .		X
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	X	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres?		X
2.6 What is the area of the previously filled wetlands?	Unknown	
2.7 What is the area of the proposed fill in wetlands?	897 SF	
2.8 What % of the overall project site will be previously and proposed filled wetlands?	Unknown	
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www4.des.state.nh.us/NHB-DataCheck/ . USFWS IPAC website: https://ipac.ecosphere.fws.gov/	X	

3.2 Would work occur in any area identified as either “Highest Ranked Habitat in N.H.” or “Highest Ranked Habitat in Ecological Region”? (These areas are colored magenta and green, respectively, on NH Fish and Game’s map, “2010 Highest Ranked Wildlife Habitat by Ecological Condition.”) Map information can be found at: <ul style="list-style-type: none"> • PDF: https://wildlife.state.nh.us/wildlife/wap-high-rank.html. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html. 	X	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		X
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		X
3.5 Are stream crossings designed in accordance with the GC 31?	N/A	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the RPR Form (www.nh.gov/nhdhr/review) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 37 GC 14(d) of the GP document**	X	
6. Minimal Impact Determination (for projects that exceed 1 acre of permanent impact)	Yes	No
Projects with greater than 1 acre of permanent impact must include the following: <ul style="list-style-type: none"> • Functional assessment for aquatic resources in the project area. • On and off-site alternative analysis. • Provide additional information and description for how the below criteria are met. 	N/A	
6.1 Will there be complete loss of aquatic resources on site?		
6.2 Have the impacts to the aquatic resources been avoided and minimized to the greatest extent practicable?		
6.3 Will all aquatic resource function be lost?		
6.4 Does the aquatic resource (s) have regional significance (watershed or ecoregion)?		
6.5 Is there an on-site alternative with less impact?		
6.6 Is there an off-site alternative with less impact?		
6.7 Will there be a loss to a resource dependent species?		
6.8 Are indirect impacts greater than 1 acre within and adjacent to the project area?		
6.9 Does the proposed mitigation replace aquatic resource function for direct, indirect, and cumulative impacts?		

*Although this checklist utilizes state information, its submittal to USACE is a federal requirement.

** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.

Supplemental Information:

2.6 The amount of previously filled wetlands is unknown. The proposed work will occur within the existing ROW of US Route 3, a roadway corridor originally constructed in 1936.

2.8 The overall project site is the area within the existing ROW and proposed easements within the project limits. The total site area is 1.56 acres including limits of traffic control. Total disturbed area is estimated at 0.62 acres.

3.5 The culverts covered by this application were not delineated as stream crossings.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: _____ City/County: _____ Sampling Date: _____
 Applicant/Owner: _____ State: _____ Sampling Point: _____
 Investigator(s): _____ Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____
 Slope (%): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ 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 _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ 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 _____ Depth (inches): _____ Water Table Present? Yes _____ No _____ Depth (inches): _____ Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No _____
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: 	
Remarks:	

VEGETATION – Use scientific names of plants.

Sampling Point: _____

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				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 = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				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 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.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
_____ = Total Cover				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes _____ No _____
4. _____	_____	_____	_____	

Wetland Function-Value Evaluation Form

Total area of wetland	17.3 Ac.	Human made?	Yes	Is the wetland part of a wildlife corridor?	Yes	Or a "habitat island"?	No	Wetland I.D.	Wetland A			
Adjacent land use	Road/Residential	Distance to nearest roadway or other development	Adjacent	Latitude	43.8311	Longitude	71.55255	Prepared by:	JRB	Date:	9/19/2022	
Dominant wetland system present	PABHh, PSS1E, PEM1E	Contiguous undeveloped buffer zone present	No	Wetland Impact:								
Is the wetland a separate hydraulic system?	Yes	If not, where does the wetland lie in the drainage basin?		Type	Temp/Perm	Area	3655 ft2	Evaluation based on:				
How many tributaries contribute to the wetland?	None	Wildlife & vegetation diversity/abundance (see attached list)		Office	Yes	Field	Yes	Corps manual wetland delineation	Completed?	Y	X	N

Function / Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/ Value(s)	Comments
Groundwater Recharge/Discharge	Yes	2, 6, 12, 13	No	Wetland has been previously impounded (Fire pond) and is large. Listed as outstanding resource water in NHDES database. Very poorly drained soils per NWI.
Floodflow Alteration	Yes	1, 2, 5, 6, 8, 9, 11, 14, 15, 17, 18	Yes	This wetland is a large area and has been previously impounded by man and is being fed by a large hill that is adjacent.
Fish and Shellfish Habitat	Yes	1, 2	No	This wetland is a low point coming off a large hill and not fed by a watercourse.
Sediment/Toxicant Retention	Yes	3, 4, 5, 7, 8	Yes	The wetland is relatively flat, well vegetated, and large and thus water moves through it slowly and allows for effective sediment trapping.
Nutrient Removal	Yes	1, 2, 3, 5, 6, 7, 8, 9, 10, 11	Yes	The wetland is relatively flat, well vegetated, and large and thus water moves through it slowly and allows for nutrient trapping.
Production Export	Yes	1, 2, 4, 5, 6, 7, 8, 12	No	This is a large, permanently flooded wetland where fish were observed as well as a heron on one of the field days, however the wetland is not currently used to export materials.
Sediment/Shoreline Stabilization	Yes	12, 13, 14, 15	No	This is a large ponded area, surrounded by emergent and scrub shrub wetlands. The slopes are gentle and a watercourse is not contributing to this wetland and thus this wasn't
Wildlife Habitat	Yes	1, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23	Yes	Previously restored wetland (DES: 2005-00122) for the benefit of migratory waterfowl along the Connecticut River Flyway.
Recreation	Yes	1, 2, 5, 6, 7, 8, 9	No	Though suitable, the primary function of this wetland is not to provide recreation and parking is limited.
Educational/Scientific Value	Yes	2, 3, 5, 6, 7	No	This wetland has multiple classes of wetland type and is a conservation area, however this was not selected as a principal function due to lack of parking and good, safe access.
Uniqueness/Heritage	Yes	3, 4, 5, 6, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 27, 28	Yes	This wetland was likely a natural wetland that was impounded to create a larger wetland complex to serve as a piece of conservation land.
Visual Quality/Aesthetics	Yes	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12	Yes	This is a nicely constructed, large wetland with multiple wetland classes easily visible from the road.
ES Endangered Species Habitat	No		No	NHB records indicate no protected/endangered species records in the area.
Other				

Notes: This is a man constructed and conserved wetland in which its purpose is to provide habitat for waterfowl along the Connecticut River Flyway.

* Refer to backup list of numbered considerations.



By NHDOT Bureau of Environment 11/8/2022

Primary Culvert outlet looking downstream (west)
Wetland #6 (PSS1Ex) - Impact Areas A & B, Wetland #7 (PSS1E) – Impact Areas C & D



By NHDOT Bureau of Environment 8/12/2022

Downstream of culvert outlet, looking downstream (west)
Center - Wetland #6 (PSS1Ex) - Impact Areas A & B
Right - Wetland #7 (PSS1E) - Impact Areas C & D



By NHDOT Highway Design 8/12/2022

Wetland #7 (PSS1E) - Area D (temporary) & Impact Area E (permanent) Looking south



By NHDOT Highway Design 8/12/2022

Existing 15" culvert outlet (buried), bottom left of photo
Wetland #9 (PABHh) - Impact Area F (permanent & temporary) Looking North



By NHDOT Bureau of Environment 11/8/2022

Wetland #9 (PABHh) – Impact Area G (Permanent & temporary) Looking Northwest



By NHDOT Highway Design 8/12/2022

Existing 15" culvert inlet (buried), bottom right of photo
Wetland #10 (PSS1E) - Impact Area H (permanent & temporary) looking Northeast



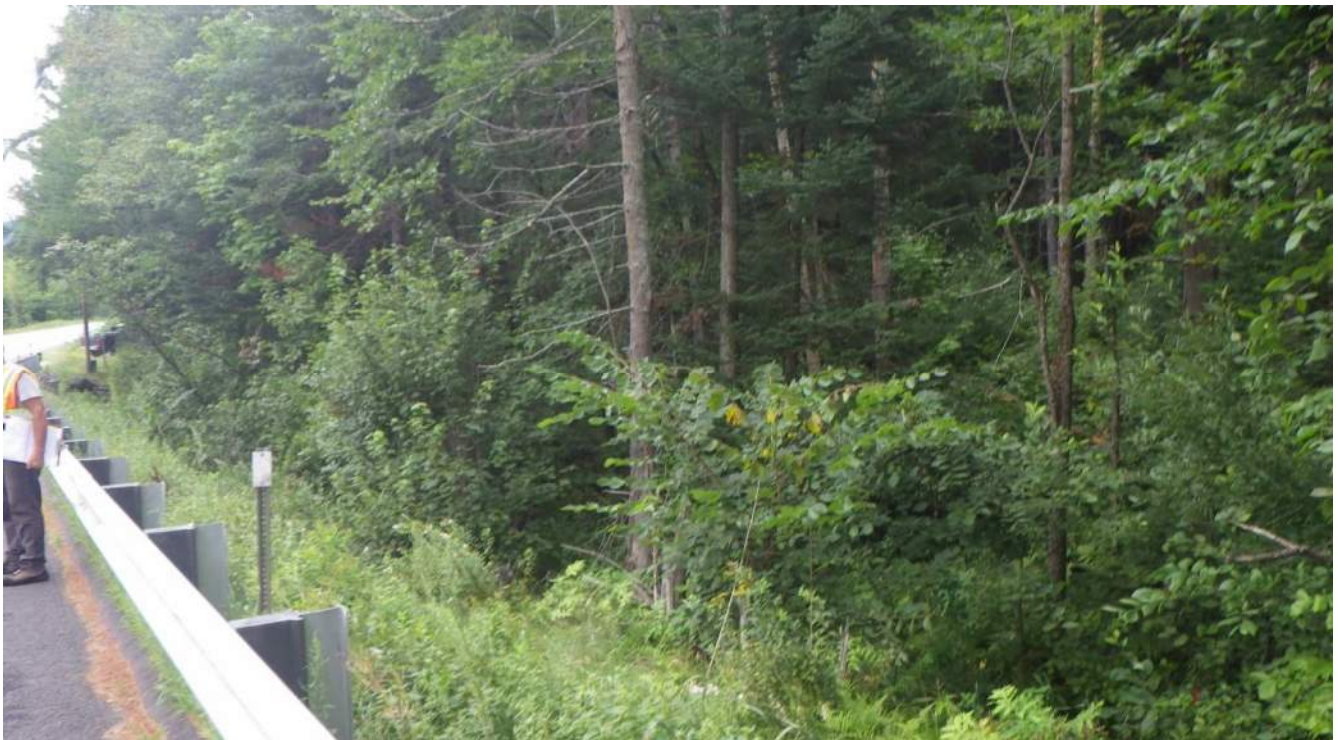
By NHDOT Bureau of Environment 8/12/2022

Primary Culvert Inlet – Wetland #1 (PFO1/4Ex) - Impact Area I (permanent)
Looking North



By NHDOT Bureau of Environment 8/12/2022

Wetland #1 (PFO1/4Ex) - Impact Area J (temporary) Looking North



By NHDOT Highway Design 8/12/2022

Wetland #1 (PFO1/4Ex) – Impact Area K (permanent)
Looking Northeast



By NHDOT Highway Design 9/18/2019

Severe spall in culvert roof, rebar exposed



By NHDOT Highway Design 9/18/2019

Structural crack in culvert roof



By NHDOT Highway Design 9/18/2019

Wall joint between older and newer construction
Cracking / spalling with void behind, backfill material leaking



By NHDOT Highway Design 9/18/2019

Outlet side (newer construction)
Proposed simulated bed material is similar to existing bed material inside culvert

COLUMBIA 43441

CONSTRUCTION SEQUENCE

Dewatering basins, water diversion structures, and other temporary measures referenced in this sequence or shown on the Erosion Control Plans are approximate. Type, size, and location will be as per the Contractor's approved SWPPP.

SECONDARY CULVERT – REPLACE 15” RCP, Sta 115+80

(The 15” CULVERT replacement shall be done first if it is the proposed water diversion path for the primary culvert replacement.)

1. Perform any necessary clearing operations for access and staging at inlet and outlet.
2. Install perimeter sediment controls and install necessary temporary erosion controls as specified on the strategies sheet.
3. Install other sedimentation controls/BMP's as needed. A formal water diversion is not expected to be needed as the existing pipe typically has no baseflow and proposed work can be scheduled for short periods of 2 -3 days with no significant rainfall in the forecast.
4. Installation of the new 24” concrete pipe is proposed to be done half at a time, on two consecutive days, using one lane alternating two-way traffic under flagger control. No temporary widening or ground disturbance is anticipated for shifting traffic. Removal of existing culvert is subsidiary.
5. Install 24” concrete pipe from outlet to US Route 3 centerline. Place a temporary cap on pipe end, backfill excavation, restore pavement with temporary crushed gravel.
6. Complete installation of 24” concrete pipe from US Route 3 centerline to inlet location. Backfill excavation, restore pavement with temporary crushed gravel.
7. Install inlet and outlet end sections. Match existing ground to the end sections such that there is a smooth transition and no perch.
8. Place seed, mulch, and erosion control matting (where steeper than 4:1) on newly graded areas. Seed placed in jurisdictional wetland areas shall be a wetland seed mix.
9. Permanent repair of the existing pavement is expected to be completed once the primary culvert installation is completed.
10. Repair any rutting on embankment slopes.
11. Stabilize any remaining disturbed areas with seed, mulch, and temporary slope matting (where steeper than 4:1).
12. Remove erosion and sediment controls once the site is stabilized.

PRIMARY CULVERT – REPLACE 44” WIDE X 46” HIGH BOX CULVERT

1. Perform necessary clearing operations for access and staging.
2. Install perimeter sediment controls and install necessary temporary erosion controls as specified on the strategies sheet. Include all staging areas. Set up dewatering basins.
3. Install Water Diversion (clean water bypass). An acceptable water diversion would be a temporary 24” pipe installed from the inlet of the existing culvert towards the newly installed 24” concrete pipe as shown on the Plans. Temporary ditch grading would be required to match the temporary pipe outlet to the existing ditch at Sta 115+00 Rt.
4. Install temporary platform behind the existing guardrail at Sta 110+54 Rt for temporary signal. Place approximately 20 LF of temporary 24” pipe to maintain flow. Temporary platforms are typically constructed using clean stone over geotextile.
5. Install temporary platform for temporary signal at Sta 116+26 Lt. Platform impacts will be less than or equal to the permanent slope impacts at this location.
6. Set up Phase 1 traffic control barrier and temporary signals (maintain 1 lane of traffic through work area, shifted toward inlet side of culvert).
7. Install Cofferdam to support the portion of US Route 3 open to traffic.
8. Remove approximately half of the existing box culvert (starting at the outlet side), install new box culvert sections, embedment material, outlet side headwall and wingwalls, stone slope protection, and grading to match existing channel and banks.
9. Stabilize outlet channel banks and over bank areas.
10. Construct temporary widening on outlet side of the culvert. The width of widening is expected to be a maximum of 7’ wide at the culvert, tapering to match the existing edge of US Route 3 at Sta 112+00 Lt and Sta 115+15 Lt. The actual width of widening will be as approved by the NHDOT Engineer, based on the Contractor’s installation plan for the culvert. Slope impacts for the temporary widening will be less than or equal to permanent slope impacts in wetland areas.
11. Modify cofferdam as needed for Phase 2 of culvert installation.
12. Set up Phase 2 traffic control (shift traffic toward outlet side of culvert). Temporary signals will be in the same locations as for Phase 1.
13. Remove remaining portion of the box culvert, install new box culvert sections, embedment material, inlet side headwall and wingwalls, stone slope stabilization, and grading to match inlet channel and banks. Add end section to 15” pipe outlet Sta 112+87 Rt during this phase.
14. Stabilize inlet channel banks and over bank areas.

15. Remove cofferdam, temporary signals, and traffic control barrier (maintain 1 lane of traffic using drums/cones, shift traffic as needed to accomplish remaining operations).
16. Remove diversion pipe, repair and stabilize areas disturbed by removal. Remove water diversion and re-establish flow through the new culvert.
17. Remove temporary widening, construct final slope grading in proposed guardrail area.
18. Stabilize disturbed areas.
19. Construct proposed guardrail and terminal units.
20. Install final paving and pavement markings. Final pavement width and elevation will match the original US Route 3 conditions.
21. Remove erosion and sediment controls once the site is stabilized.

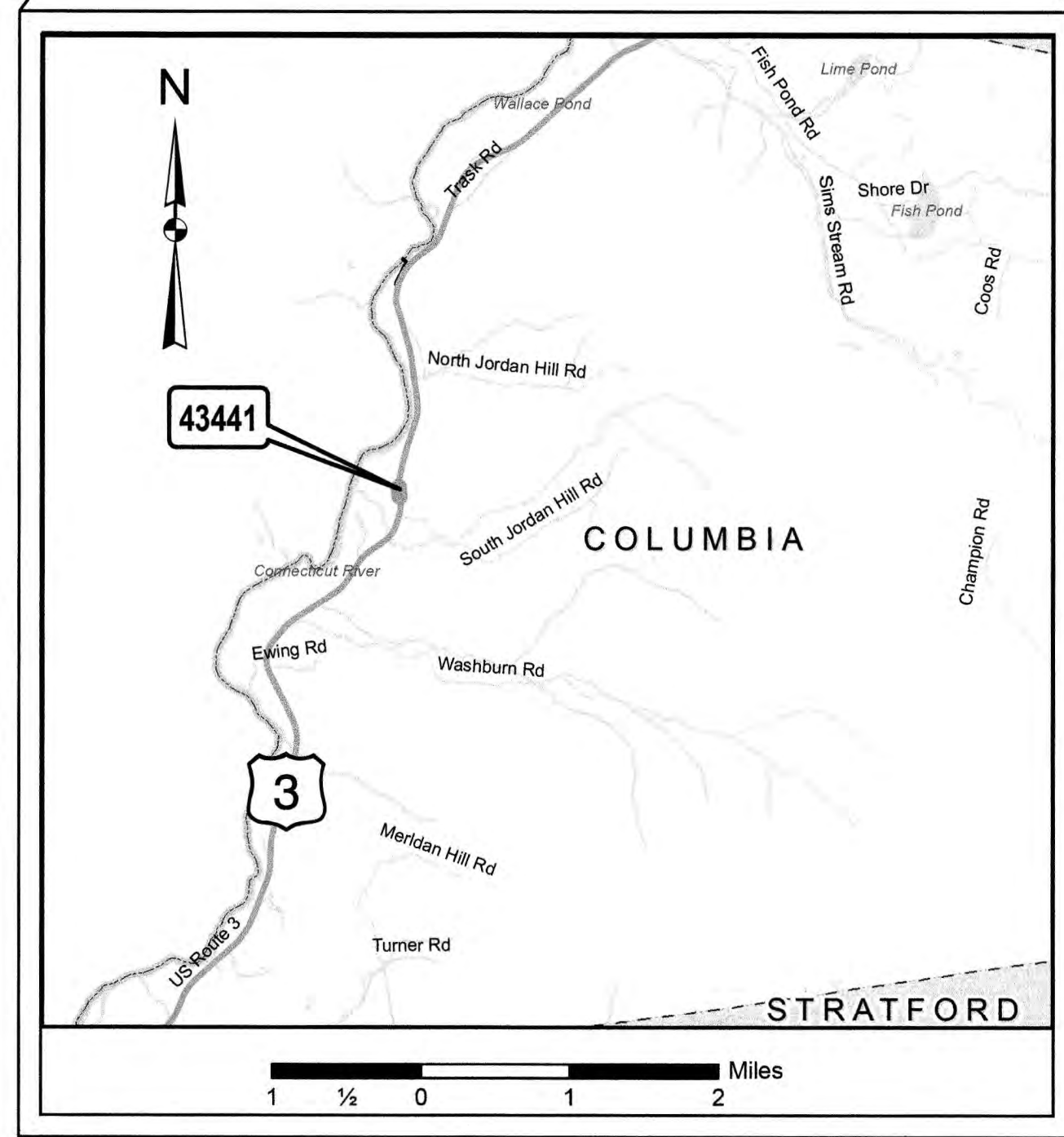
Incidental Work:

1. At Sta 110+27 Rt, remove fallen headwall, reset or replace a 4' section of 15" rcp culvert, and install end section. This work could be done at any time, but will likely be scheduled at the same time as installation or removal of the temporary signal platform at Sta 110+90 Rt. No water diversion will be required as the existing pipe has no baseflow.

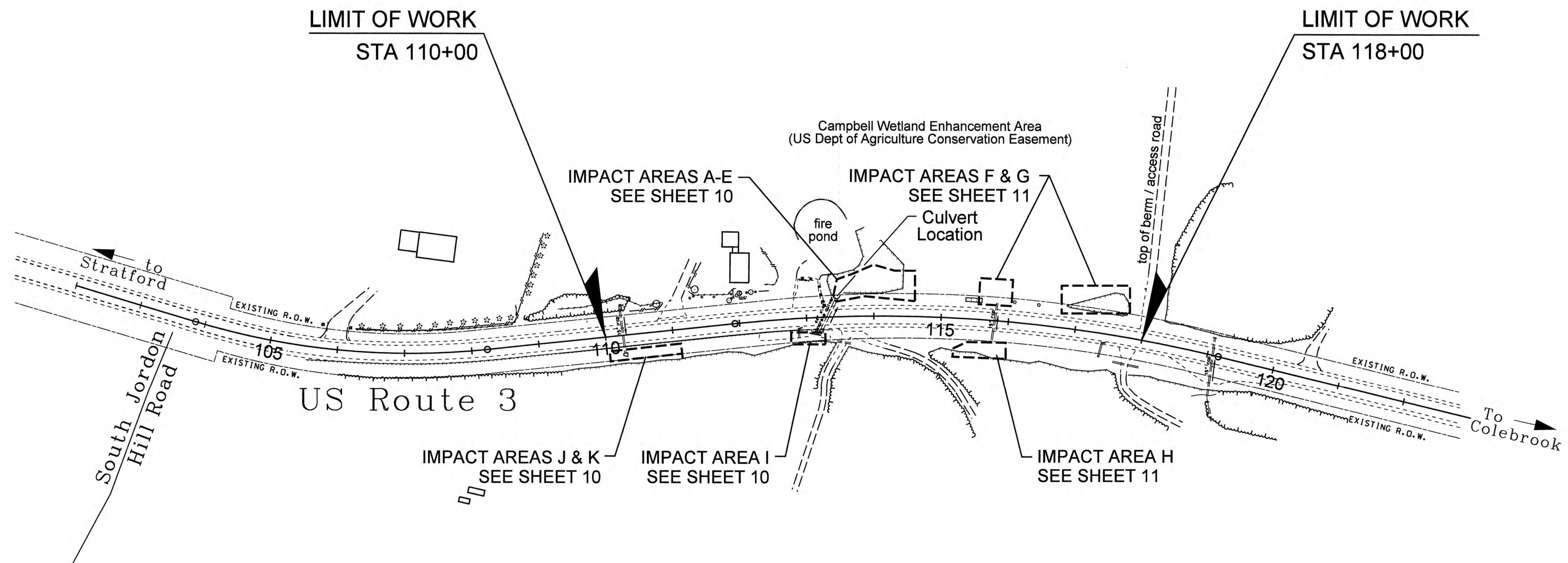
STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
WETLANDS PLANS
FEDERAL AID PROJECT

X-A005(109)
N.H. PROJECT NO. 43441
US ROUTE 3

DESIGN DATA	
AVERAGE DAILY TRAFFIC 20 22	2,520
AVERAGE DAILY TRAFFIC 20 42	3,070
PERCENT OF TRUCKS	8%
DESIGN SPEED	POSTED 55 MPH
LENGTH OF PROJECT	800 LF



LOCATION MAP



TOWN OF COLUMBIA

COUNTY OF COOS

SCALE: 1" = 100'

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

DRAWN BY J-JN DATE 2/2023
CHECKED BY CAC DATE 4/6/23

INDEX OF SHEETS

- 1 FRONT SHEET
- 2-3 STANDARD SYMBOLS SHEETS
- 4 WETLAND IMPACT SUMMARY
- 5-9 DETAILS AND GRADING PLANS
- 10-11 WETLAND IMPACT PLANS
- 12-13 PROFILES
- 14 EROSION CONTROL STRATEGIES
- 15-16 EROSION CONTROL PLANS

PER WETLAND PLANS RULE(S) ENV-WT 311.05 FOR ENGINEERING	NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION			
	Wetland Delineation per ENV-Wt 406 by: NH Dept. of Transportation (Deirdra Benjamin, Joshua Brown, Andrew Czahor, Dillian Schmidt) on 8/12/2022, 8/24/2022, 11/07/2022			
	PLANS PREPARED BY: Christopher Carucci, PE			
DATE April 6, 2023				
DRAWING NAME	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43441fsw	X-A005(109)	43441	1	16

GENERAL

EDGE OF PAVEMENT TRAVELED WAY			
DRIVEWAYS			(label surface type)
BUILDINGS			(label house or type of building) (building to be removed)
FOUNDATION			(label type)
LEACH FIELD			leach field
BRIDGE CROSSINGS			STREAM OVERPASS
STEPS AND WALK			(label type)
INTERMITTENT WATER COURSE			
SHORE LINE			river/stream pond (label name of water body)
POTENTIAL WET AREA SYMBOL			
BRUSH OR WOODS LINE			
TREES (PLANS)			(deciduous)(coniferous) (stump)
TREE OR STUMP (CROSS-SECTIONS)			(show station, circumference in feet & type)
HEDGE			(label type)
MONITORING WELL			mon W
WELL			W
FLAG POLE			fp

ORIGINAL GROUND (TYPICALS)	
ROCK OUTCROP	
ROCK LINE (TYPICALS & SECTIONS ONLY)	
GUARDRAIL (label type)	
JERSEY BARRIER	
CURB (LABEL TYPE)	
STONE WALL	
RETAINING WALL (LABEL TYPE)	
FENCE (LABEL TYPE)	
SIGNS	
GAS PUMP	
FUEL TANK (ABOVE GROUND)	
STORAGE TANK FILLER CAP	
SEPTIC TANK	
GRAVE	
MAILBOX	
VENT PIPE	
SATELLITE DISH ANTENNA	
PHONE	
GROUND LIGHT/LAMP POST	
BORING LOCATION	
TEST PIT	
INTERSTATE NUMBERED HIGHWAY	
UNITED STATES NUMBERED HIGHWAY	
STATE NUMBERED HIGHWAY	

SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE	
DELINEATED WETLAND	
ORDINARY HIGH WATER	
TOP OF BANK	
TOP OF BANK & ORDINARY HIGH WATER	
NORMAL HIGH WATER	
WIDTH AT BANK FULL	
PRIME WETLAND	
PRIME WETLAND 100' BUFFER	
NON-JURISDICTIONAL DRAINAGE AREA	
COWARDIN DISTINCTION LINE	
TIDAL BUFFER ZONE	
DEVELOPED TIDAL BUFFER ZONE	
HIGHEST OBSERVABLE TIDE LINE	
MEAN HIGH WATER	
MEAN LOW WATER	
VERNAL POOL	
SPECIAL AQUATIC SITE	
REFERENCE LINE	
WATER FRONT BUFFER	
NATURAL WOODLAND BUFFER	
PROTECTED SHORELAND	
INVASIVE SPECIES LABEL	
INVASIVE SPECIES	

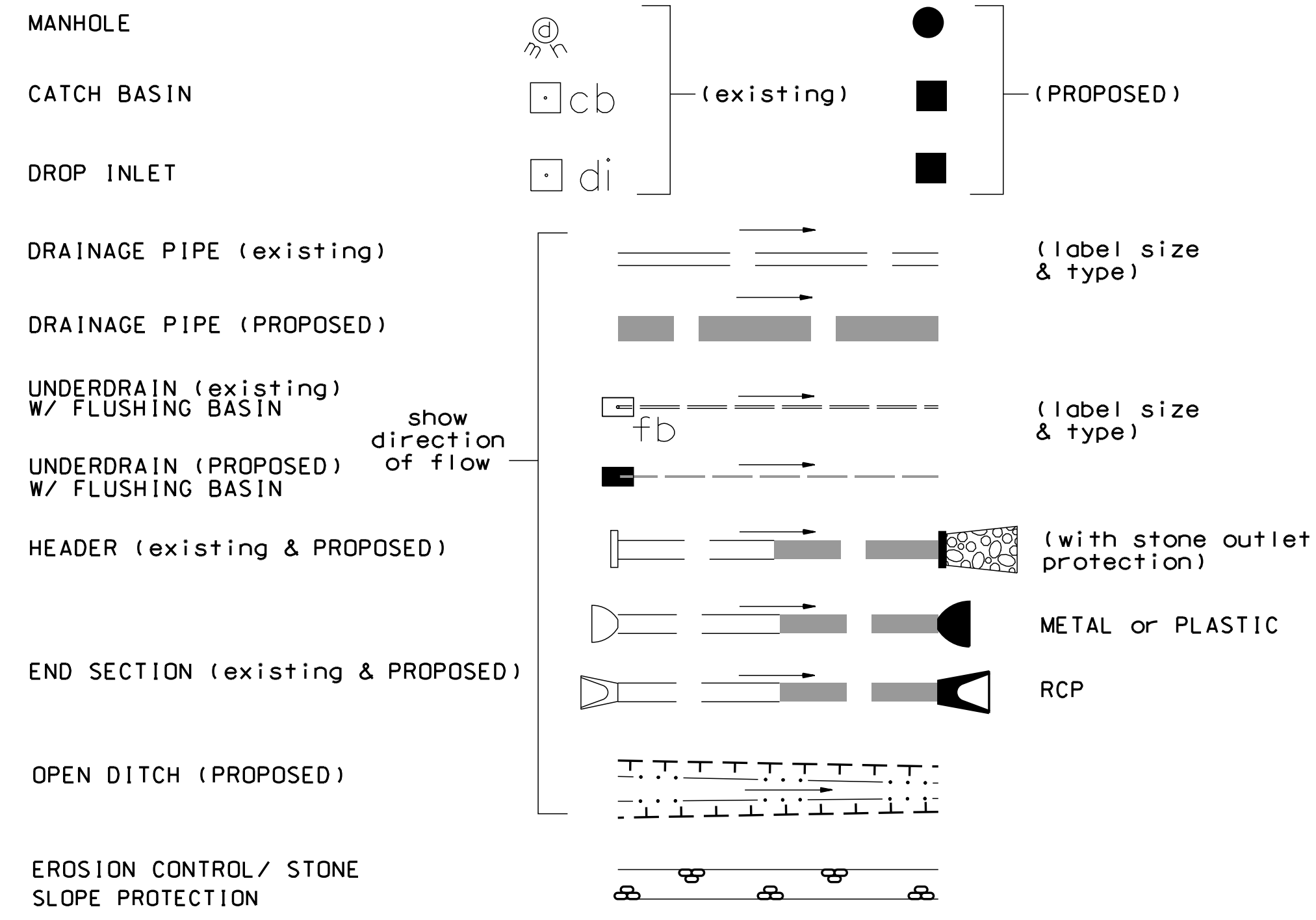
FLOODPLAIN / FLOODWAY

500 YEAR FLOODPLAIN BOUNDARY	
100 YEAR FLOODPLAIN BOUNDARY	
FLOODWAY	

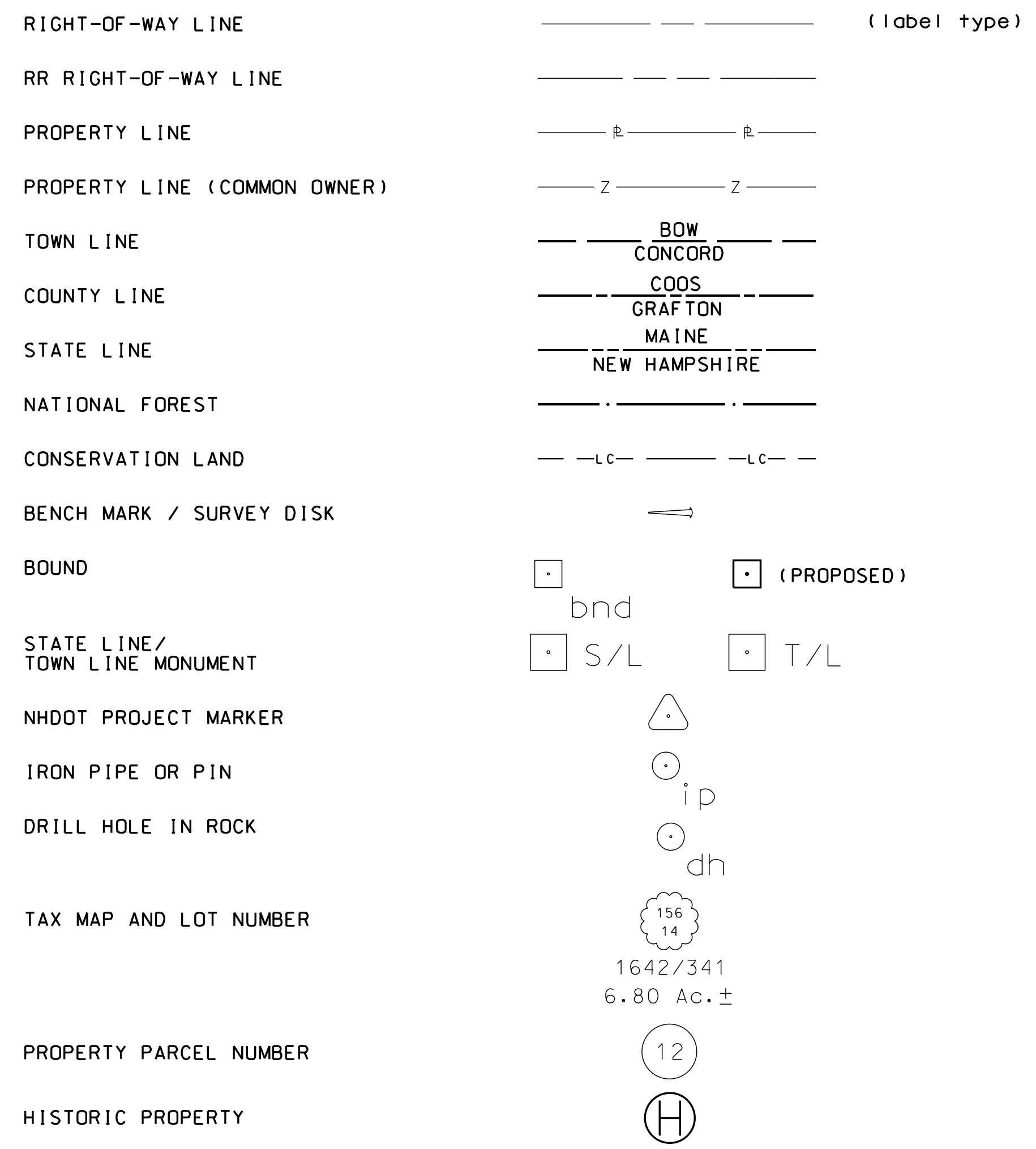
ENGINEERING

CONSTRUCTION BASELINE	
PC, PT, POT (ON CONST BASELINE)	
PI (IN CONSTRUCTION BASELINES)	
INTERSECTION OR EQUATION OF TWO LINES	
ORIGINAL GROUND LINE (PROFILES AND CROSS-SECTIONS)	
PROFILE GRADE LINE (PROFILES AND CROSS-SECTIONS)	
CLEARING LINE	
SLOPE LINE	
SLOPE LINE (FILL)	
SLOPE LINE (CUT)	
PROFILES AND CROSS SECTIONS:	
ORIGINAL GROUND ELEVATION (LEFT)	
FINISHED GRADE ELEVATION (RIGHT)	

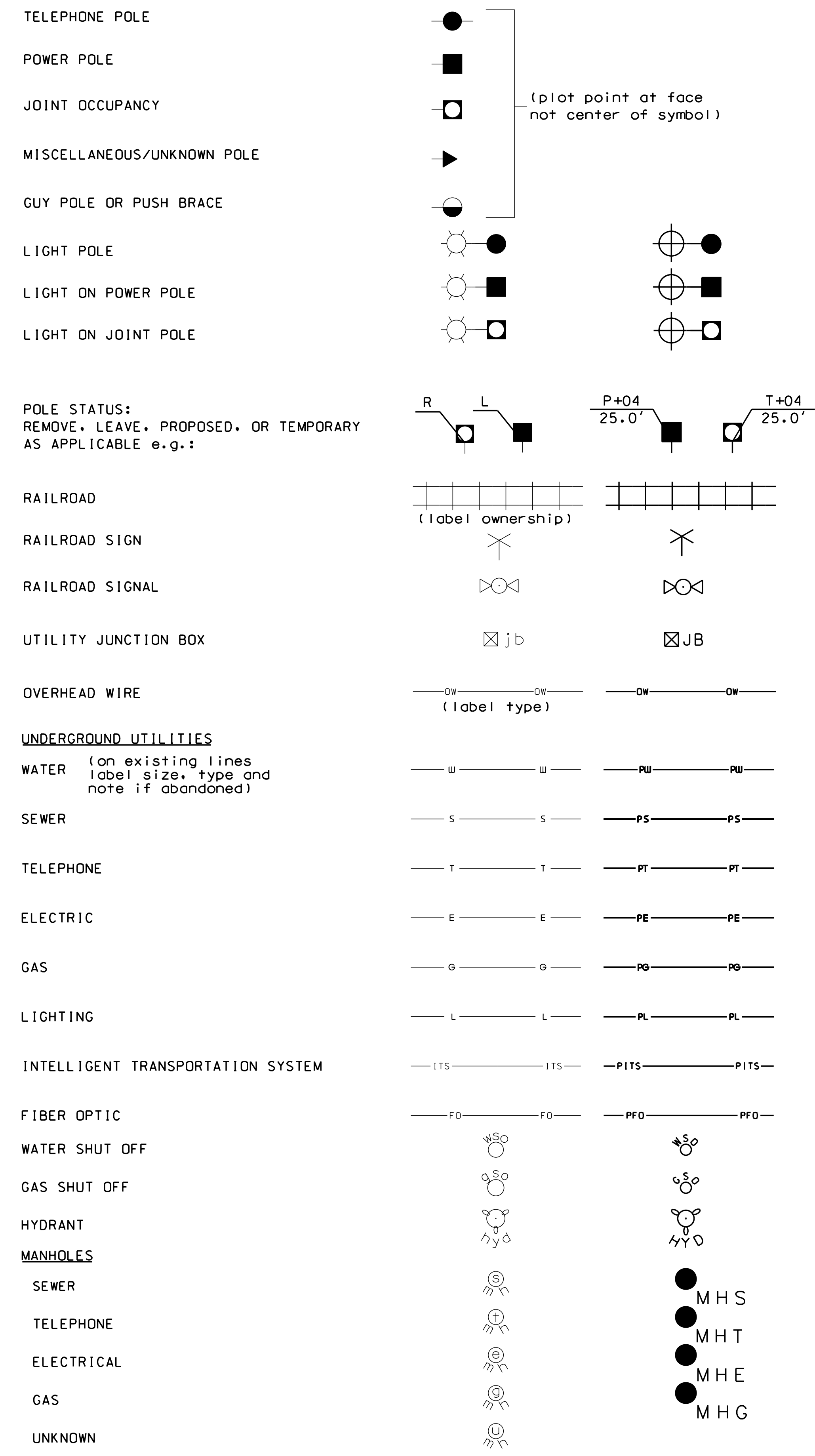
DRAINAGE



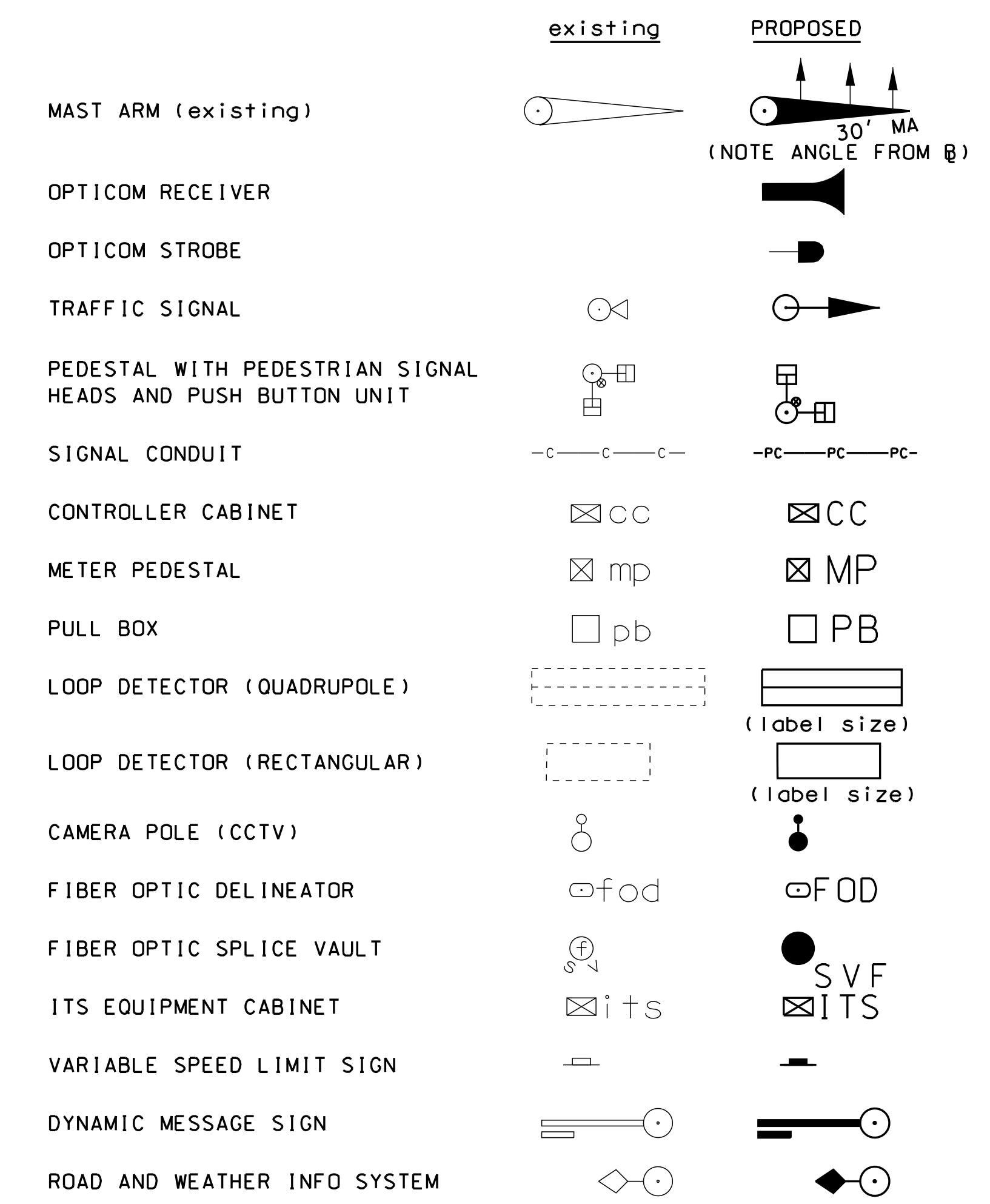
BOUNDARIES / RIGHT-OF-WAY



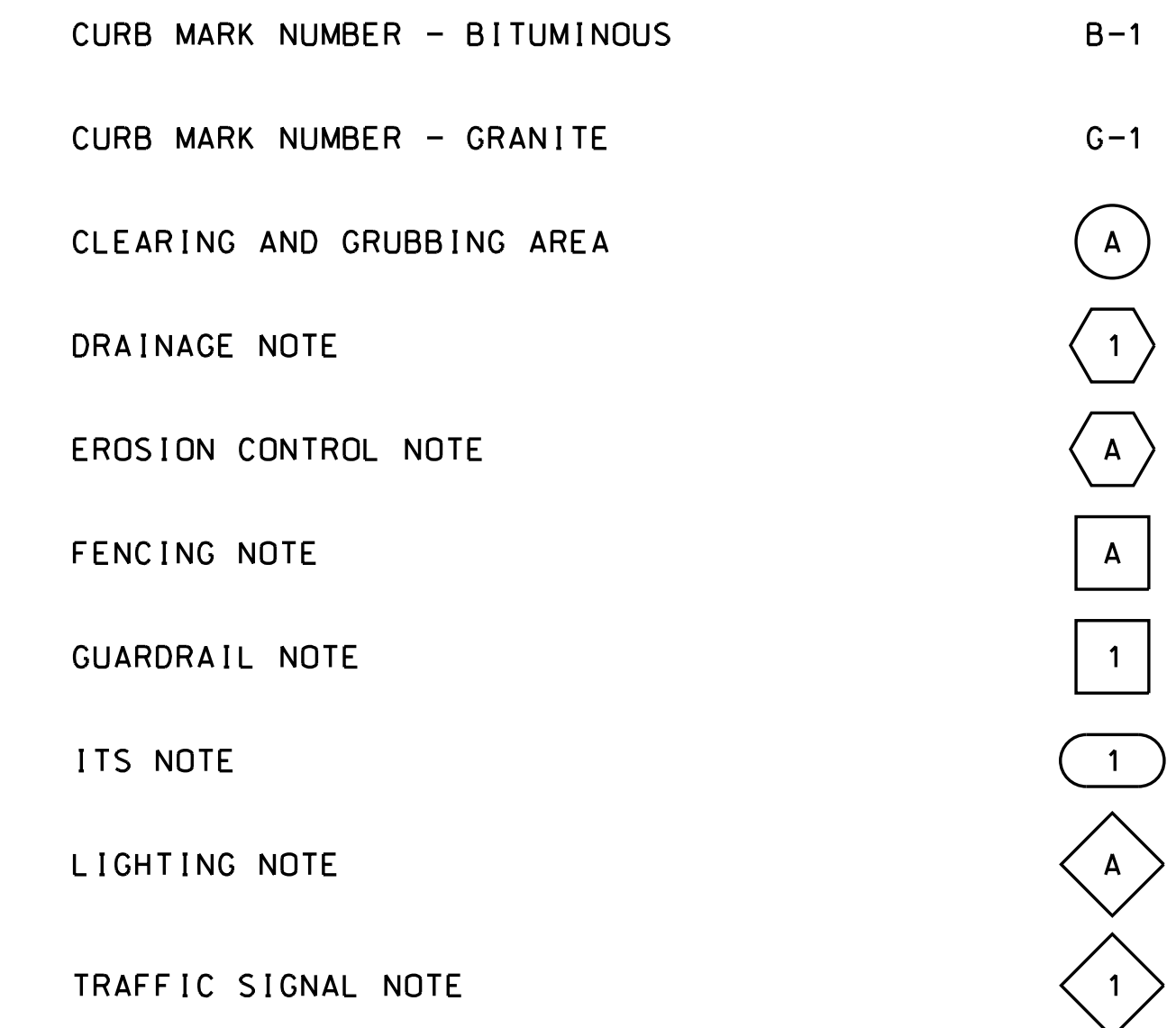
UTILITIES



TRAFFIC SIGNALS / ITS



CONSTRUCTION NOTES



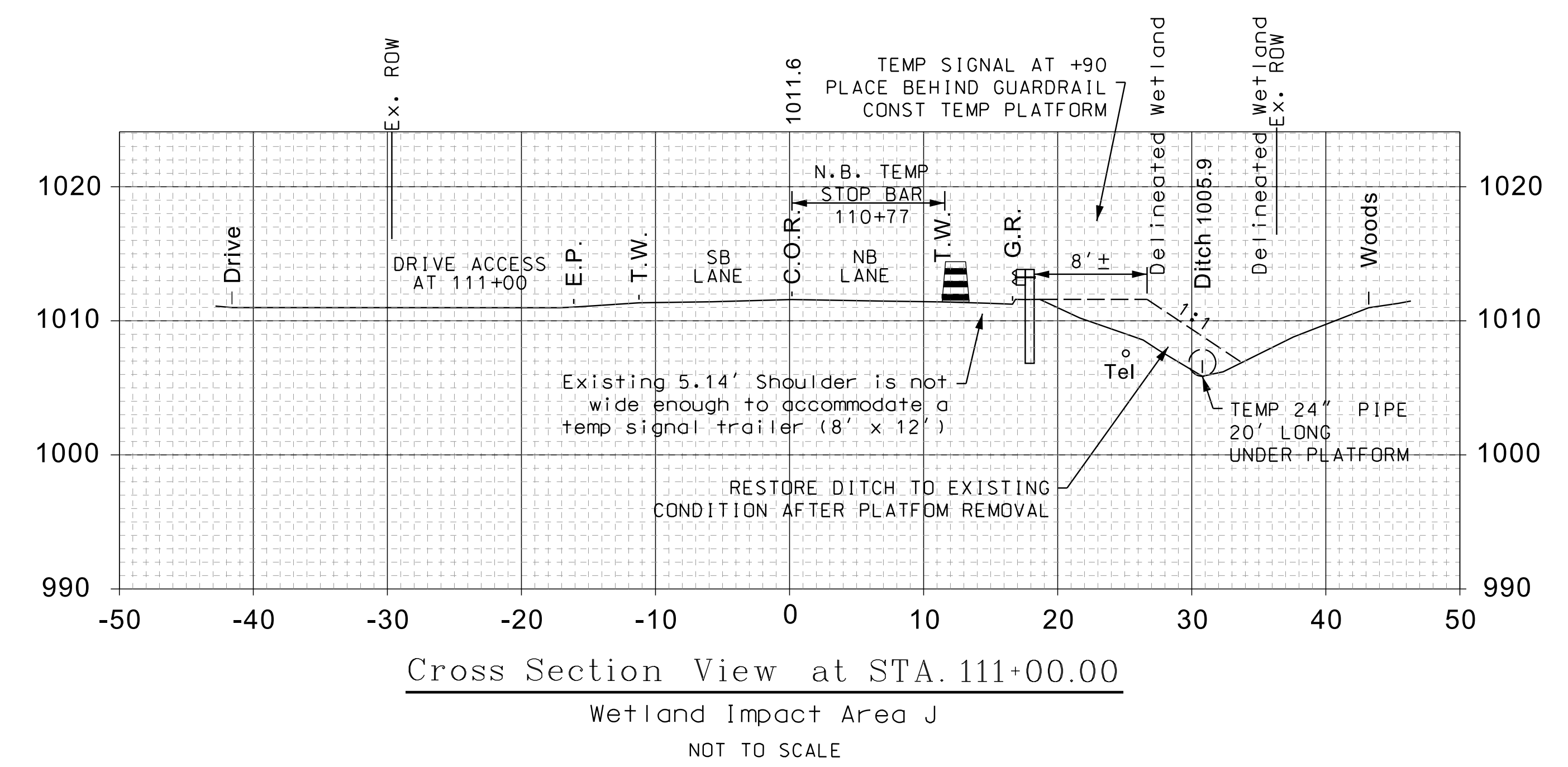
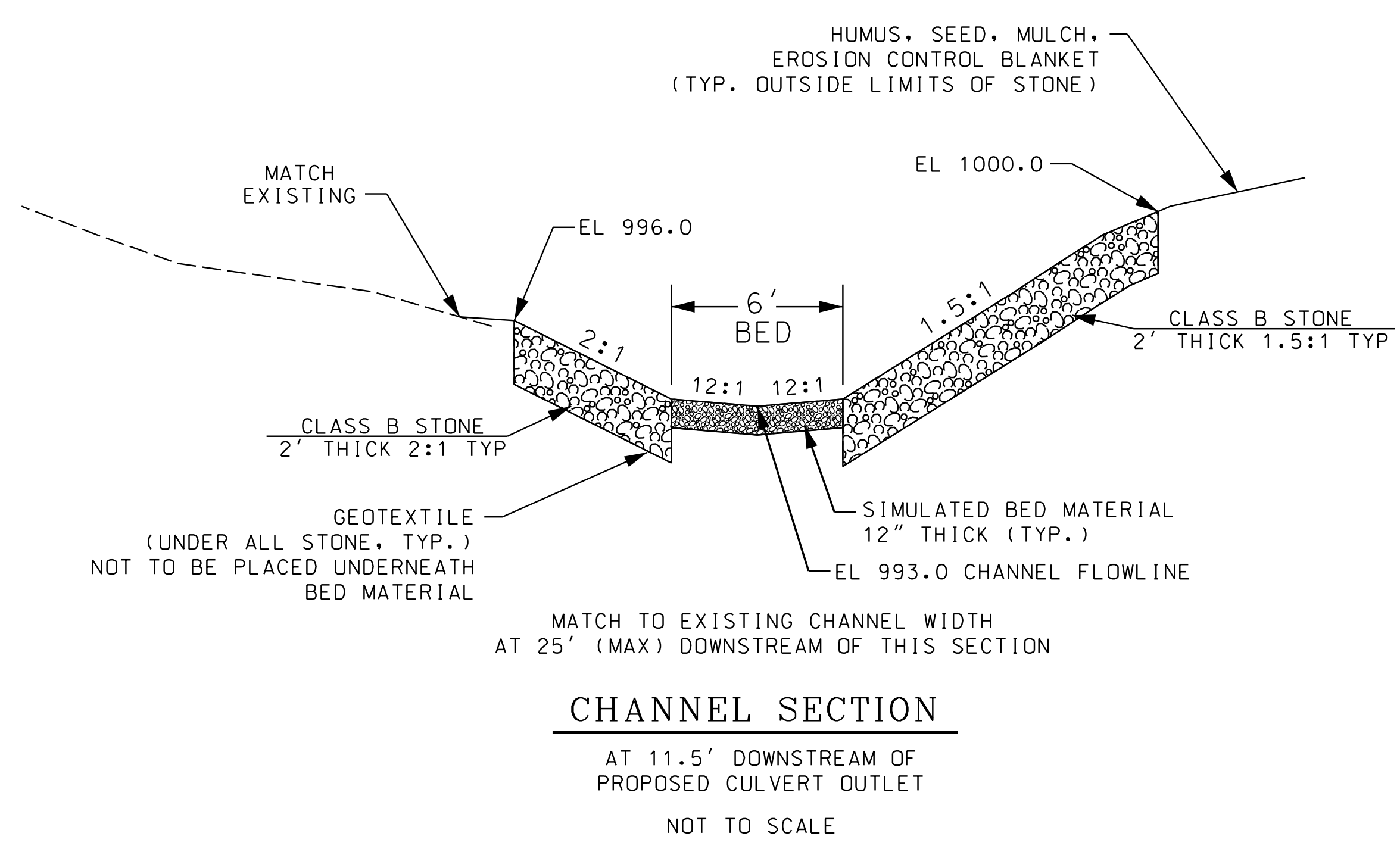
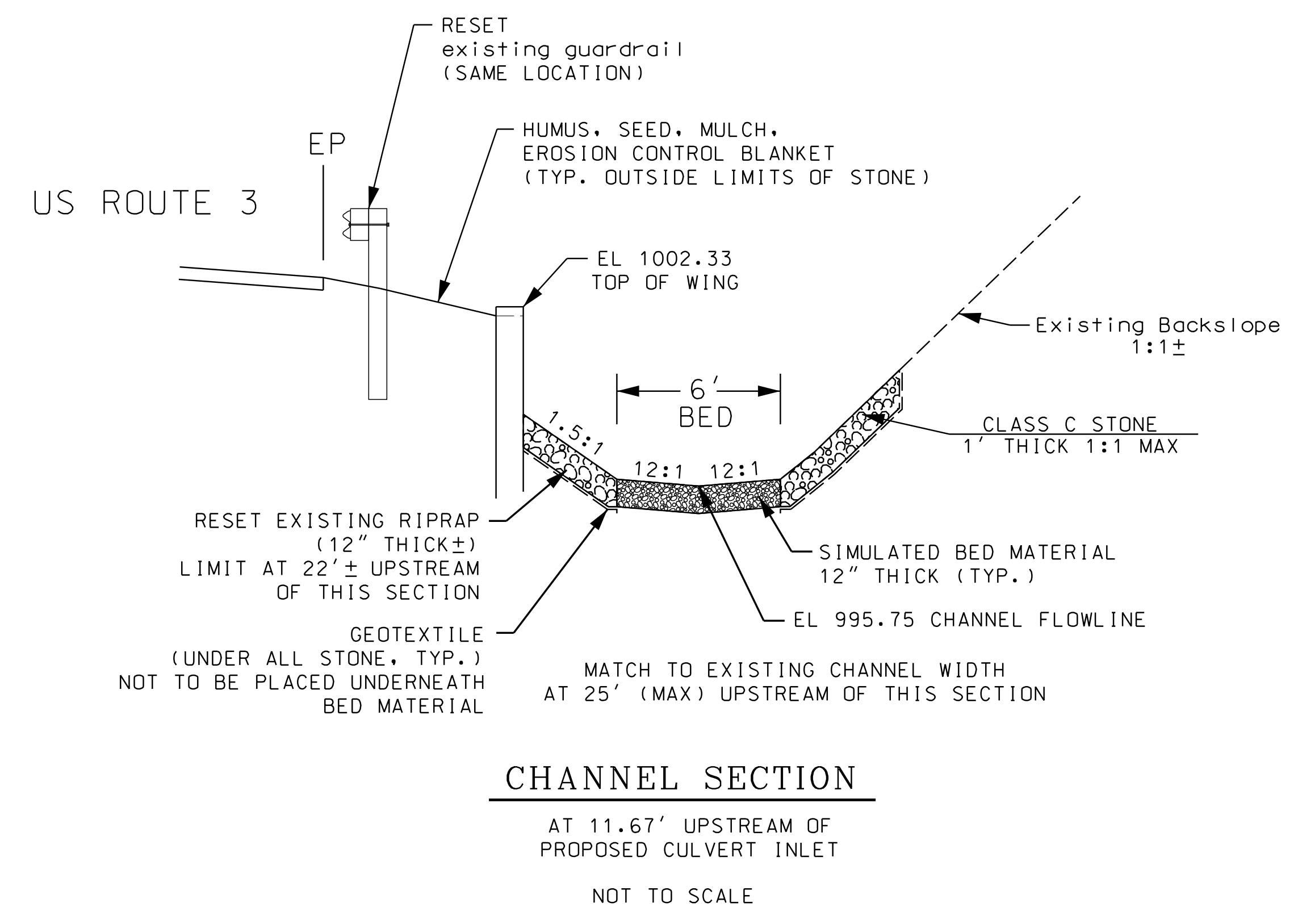
SDR PROCESSED	DATE	REVISIONS AFTER PROPOSAL	STATION
NEW DESIGN	JUN 3/2023		
SHEET CHECKED	CAC 4/6/23		
AS BUILT DETAILS	DATE		

WETLAND CLASSIFICATION CODES	
PSS1E	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/ SATURATED
PSS1Ex	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS, SEASONALLY FLOODED/SATURATED, EXCAVATED
PABHh	PALUSTRINE, AQUATIC BED, PERMANENTLY FLOODED, DIKED/IMPOUNDED
PFO/4Ex	PALUSTRINE, FORESTED, NEEDLE-LEAVED EVERGREEN, SEASONALLY FLOODED/ SATURATED, EXCAVATED

WETLAND IMPACT SUMMARY								
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS					
			PERMANENT				TEMPORARY	
			N.H.W.B. (NON-WETLAND)		N.H.W.B. & A.C.O.E. (WETLAND)			
			SF	LF	SF	LF	SF	LF
6	PSS1Ex	A	--	--	181	--	--	--
7	PSS1Ex	B	--	--	--	--	40	--
7	PSS1E	C	--	--	70	--	--	--
7	PSS1E	D	--	--	--	--	740	--
7	PSS1E	E	--	--	233	--	--	--
9	PABHh	F	--	--	34	10	511	40
9	PABHh	G	--	--	664	92	597	90
10	PSS1E	H	--	--	--	--	600	--
1	PFO1/4Ex	I	--	--	365	--	--	--
1	PFO1/4Ex	J	--	--	--	--	175	--
1	PFO1/4Ex	K	--	--	142	--	--	--
			--	--	--	--	--	--
TOTAL			--	--	1689	102	2663	130

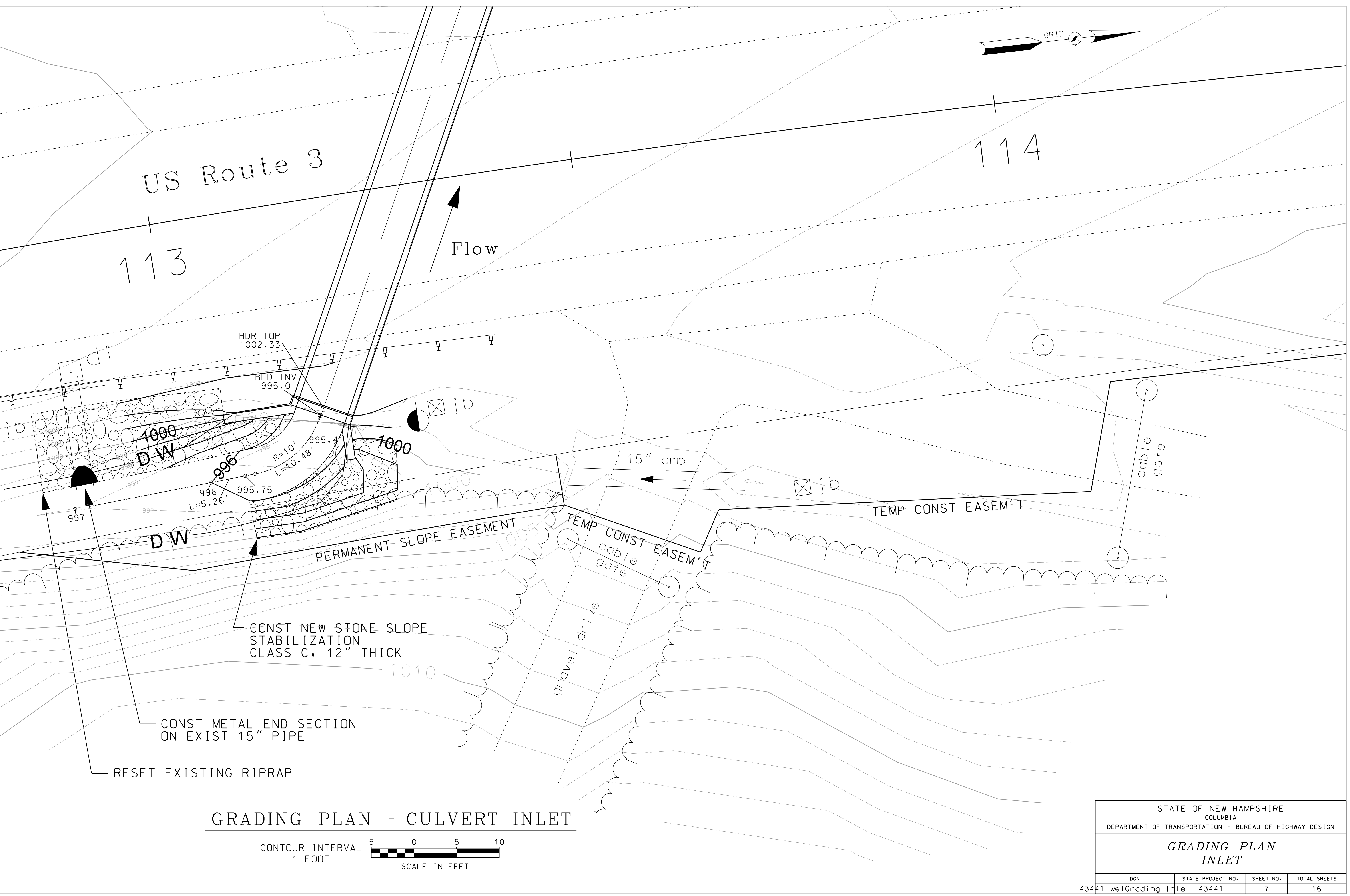
PERMANENT IMPACTS: 1,689 SF
TEMPORARY IMPACTS: 2,663 SF
TOTAL IMPACTS: 4,352 SF

SDR PROCESSED	---	DATE	---
NEW DESIGN	JUN	DATE	3/2023
SHEET CHECKED	CAC	DATE	4/6/23
AS BUILT DETAILS		DATE	

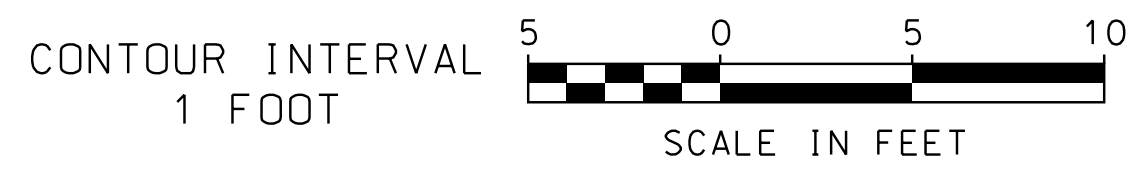


STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
DETAILS			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43441 details	43441	5	16

SDR PROCESSED	DATE	3/2023
NEW DESIGN	CAC	
SHEET CHECKED	JUN	
AS BUILT DETAILS	DATE	

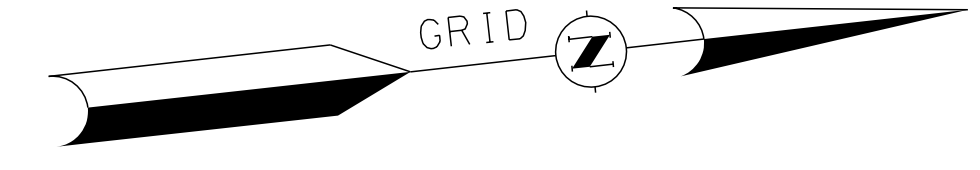
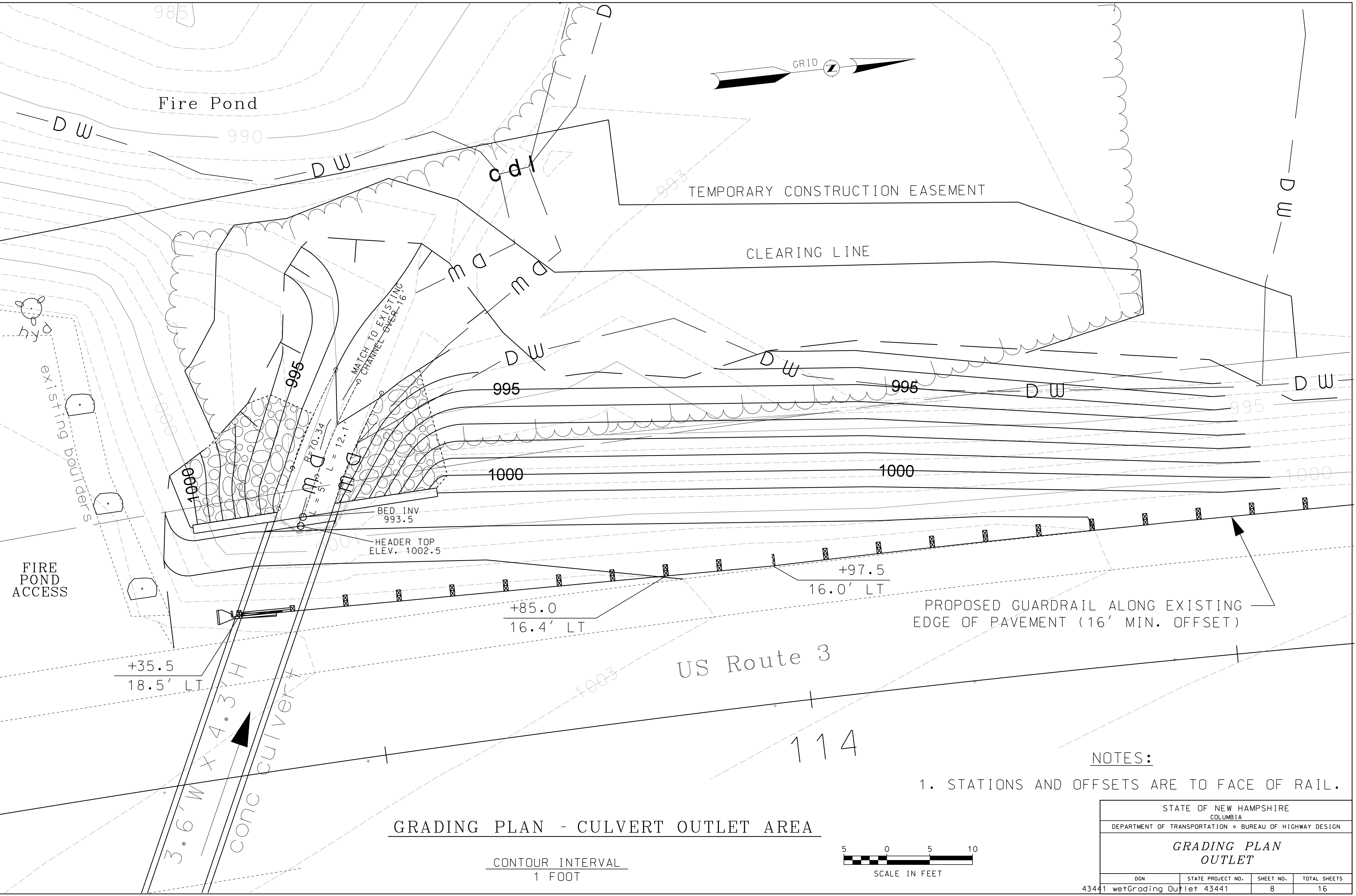


GRADING PLAN - CULVERT INLET



STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
GRADING PLAN INLET			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43441 wetGrading Inlet	43441	7	16

SDR PROCESSED	DATE	3/2023
NEW DESIGN	CAC	
SHEET CHECKED	JUN	
AS BUILT DETAILS	DATE	
NUMBER	DATE	
STATION	DATE	
STATION	DATE	
STATION	DATE	
DESCRIPTION	DATE	
REVISIONS AFTER PROPOSAL	DATE	



GRADING PLAN - CULVERT OUTLET AREA

CONTOUR INTERVAL
1 FOOT



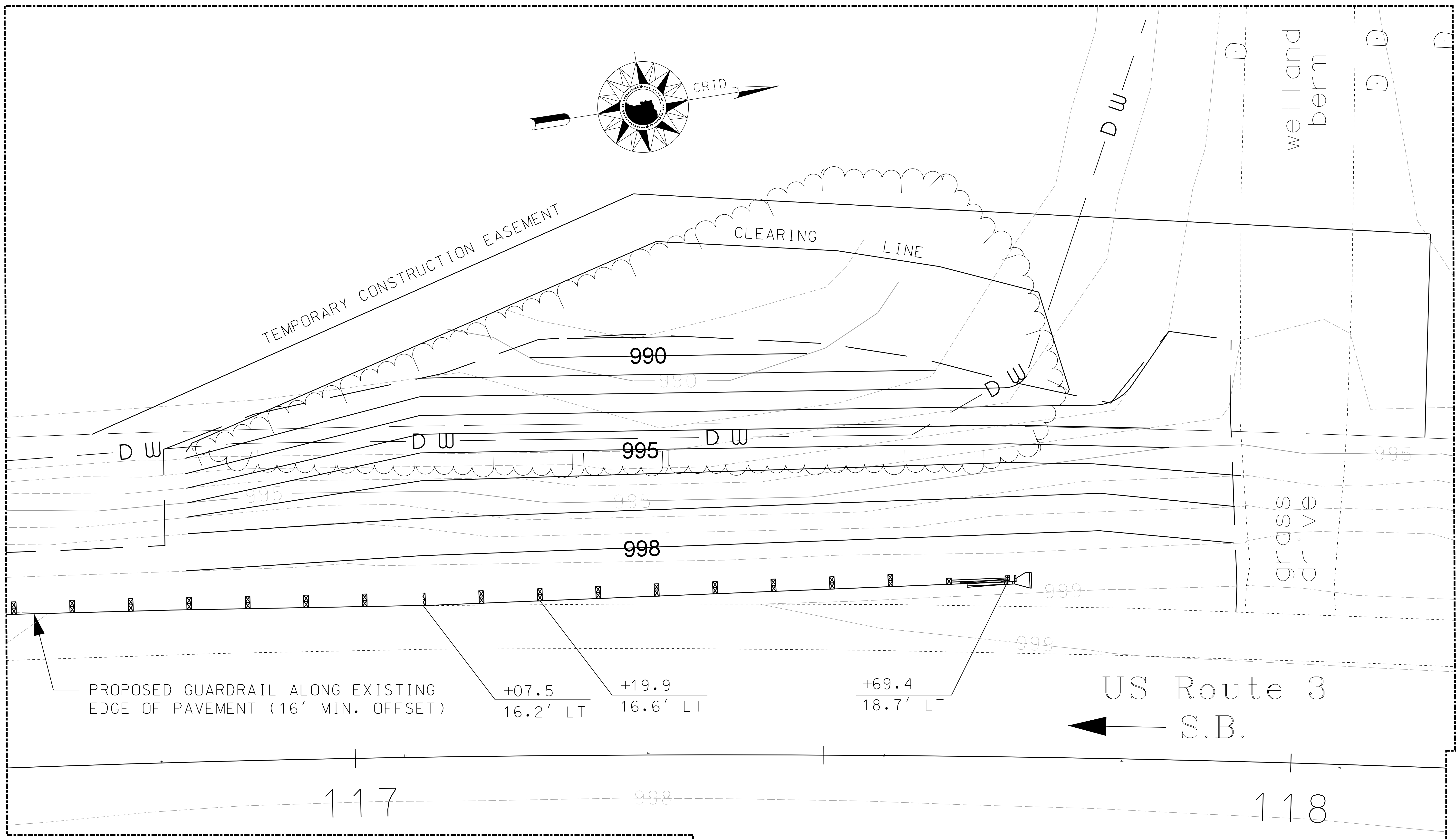
NOTES:

1. STATIONS AND OFFSETS ARE TO FACE OF RAIL.

STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
GRADING PLAN OUTLET			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43441 wetGrading Outlet	43441	8	16

SDR PROCESSED	DATE	3/2023
NEW DESIGN	CAC	DATE
SHEET CHECKED	JUN	DATE
AS BUILT DETAILS	DATE	

REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION



NOTES:

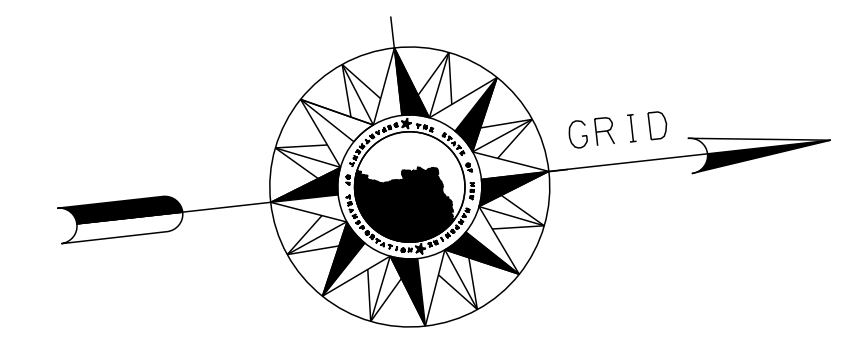
1. STATIONS AND OFFSETS ARE TO FACE OF RAIL.
2. GRADING AROUND GUARDRAIL TERMINAL IS THE MINIMUM REQUIRED FOR APPROACH SPEED GREATER THAN 45 MPH.

GUARDRAIL APPROACH GRADING



STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
GRADING PLAN GUARDRAIL APPROACH			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43441	wetGrading Guardrai143441	9	16

Campbell Wetland Enhancement Area
(US Dept of Agriculture Conservation Easement)



4 STA 115+79.7:
REMOVE 56 LF OF 15" RCP
BACKFILL WITH APPROVED MATERIAL
CONST 54 LF OF 24" RCP (same location)
CONST METAL END SECTION AT INLET
(STA 115+77.6, RT 28.9', INV 993.0)
CONST CONCRETE END SECTION AT OUTLET
(STA 115+82.1, LT 32.9', INV 992.0)
TOTAL LENGTH 62 LF (INCLUDING END SECTIONS)
SEE PROFILE, TYPICAL, & DETAILS
REPLACE PAVEMENT IN-KIND

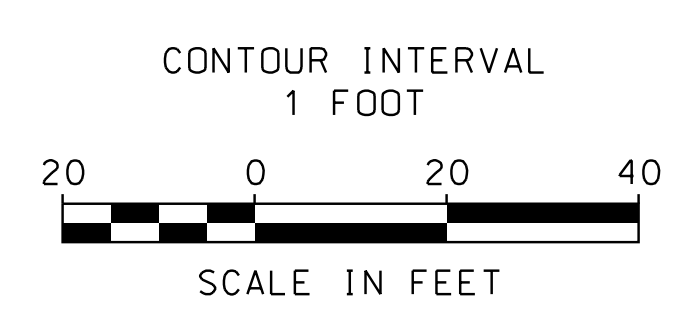
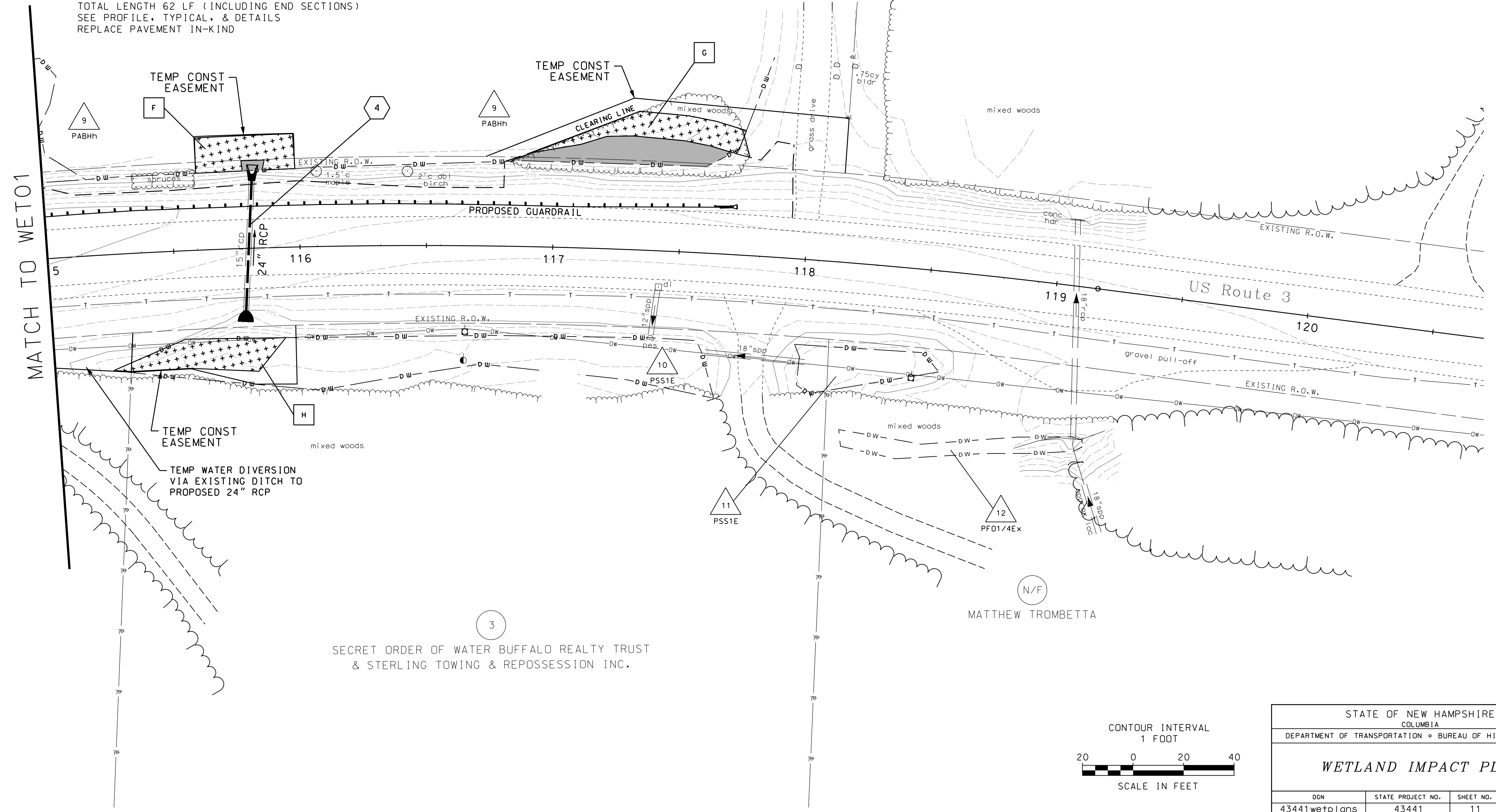
2
DONALD CAMPBELL
STACEY CAMPBELL

N/F
BRADLEY C. WHITE

N/F
MATTHEW TROMBETTA

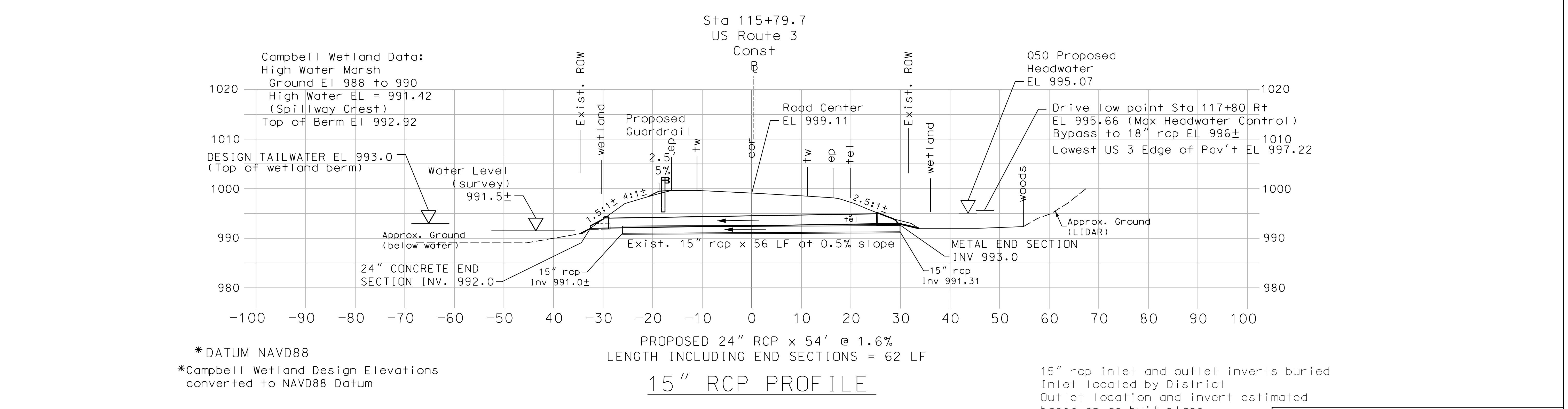
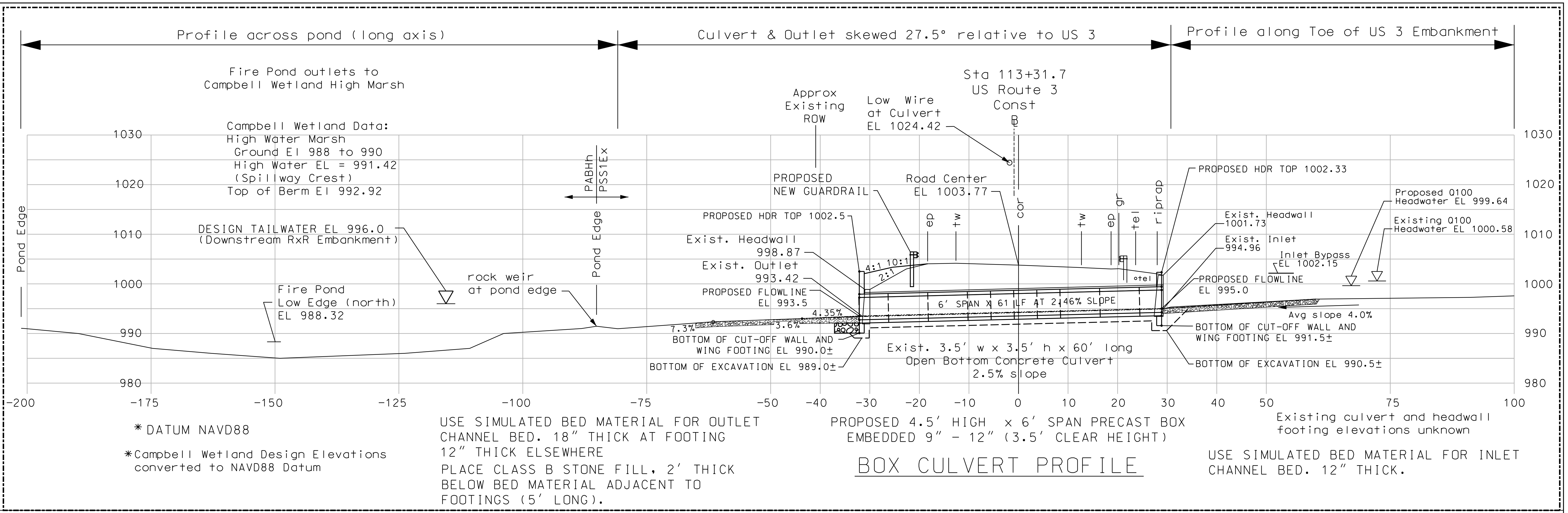
3
SECRET ORDER OF WATER BUFFALO REALTY TRUST
& STERLING TOWING & REPOSSESSION INC.

SDR PROCESSED	SEL	DATE	08/2022
NEW DESIGN	JUN	DATE	12/2022
SHEET CHECKED	CAC	DATE	4/6/23
AS BUILT DETAILS		DATE	



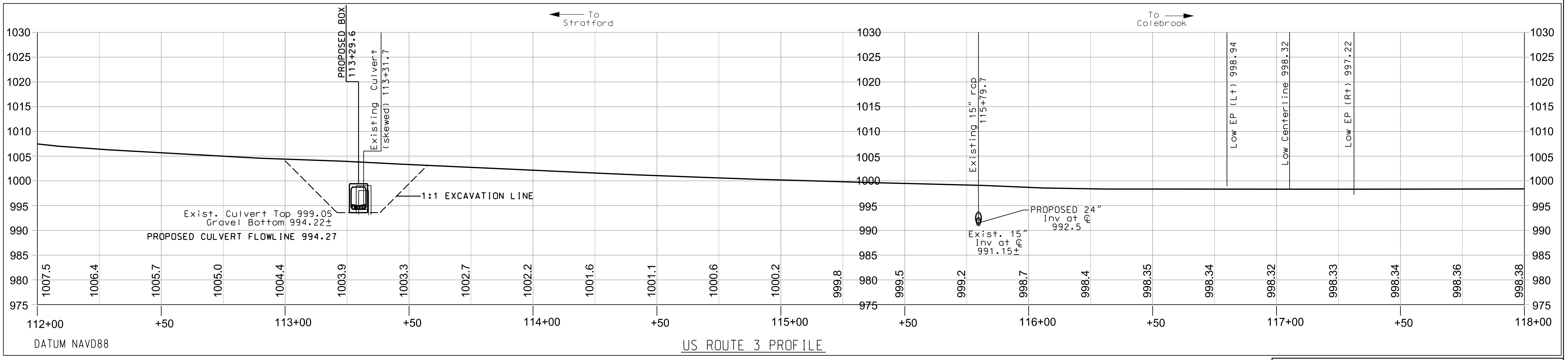
STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
WETLAND IMPACT PLAN			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43441wetplans	43441	11	16

SDR PROCESSED	DATE	DATE	DATE	DATE
NEW DESIGN	CAC	4/2023	4/2023	
SHEET CHECKED	JUN	4/6/23		
AS BUILT DETAILS				



STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
PROFILES			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43341wetprofiles	43441	12	16

SDR PROCESSED		DATE		REVISIONS AFTER PROPOSAL	
NEW DESIGN	CAC	DATE	1/2023	NUMBER	DATE
SHEET CHECKED	JUN	DATE	4/6/23	STATION	STATION
AS BUILT DETAILS		DATE		DESCRIPTION	



STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<i>PROFILES</i>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43341wetprofiles	43441	13	16

EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
 - 1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
 - 1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
 - 1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
 - 1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
 - 1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WO 1500 REQUIREMENTS ([HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM](http://des.nh.gov/organization/commissioner/legal/rules/index.htm))
 - 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.
2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
 - 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
 - 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
 - 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
 - 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
 - (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
 - 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
 - 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
 - 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
 - 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30th AND MAY 1st OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
 - (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15th, OR WHICH ARE DISTURBED AFTER OCTOBER 15th, SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
 - (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15th, OR WHICH ARE DISTURBED AFTER OCTOBER 15th, SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
 - (C) AFTER NOVEMBER 30th INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
 - (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME, UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WO 1505.02 AND ENV-WO 1505.05.
 - (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WO 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30th.

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
 - 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
 - 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
 - 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
 - 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
 - 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.
4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
 - 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
 - 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
 - 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1st THROUGH NOVEMBER 30th, OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.
5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
 - 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
 - 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
 - 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
 - 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
 - 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.
6. PROTECT SLOPES:
 - 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
 - 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
 - 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
 - 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.
7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
 - 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
 - 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.
8. PROTECT STORM DRAIN INLETS:
 - 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
 - 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
 - 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
 - 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.
9. SOIL STABILIZATION:
 - 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
 - 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS IN THE CURRENT CGP. (SEE TABLE FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
 - 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR. IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
 - 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.
10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
 - 10.1. TEMPORARY SEDIMENT BASINS (SEE CURRENT CGP) OR SEDIMENT TRAPS (ENV-WO 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
 - 10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
 - 10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:
 - 11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
 - 11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
 - 11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
 - 11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
 - 11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
 - 11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
 - 11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
 - 11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
 - 11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
 - 12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500; ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
 - 12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
 - 12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
 - 12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
 - 12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
 - 12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
 - 12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.
13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
 - 13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
 - 13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
 - 13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
 - 13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.
14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
 - 14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485:A:17 AND ENV-WO 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
 - 14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
 - 14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WO 1506.13 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS. THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES ²				ROLLED EROSION CONTROL BLANKETS ³			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNCSB	DNCB
SLOPES ¹												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES	YES	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNCSB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

- NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH ≤ 10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
 2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
 3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
<i>EROSION CONTROL STRATEGIES</i>			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43441erosstrat	43441	14	16

SDR PROCESSED	SEL	DATE	08/2022
NEW DESIGN	JUN	DATE	1/2023
SHEET CHECKED	CAC	DATE	4/6/23
AS BUILT DETAILS		DATE	

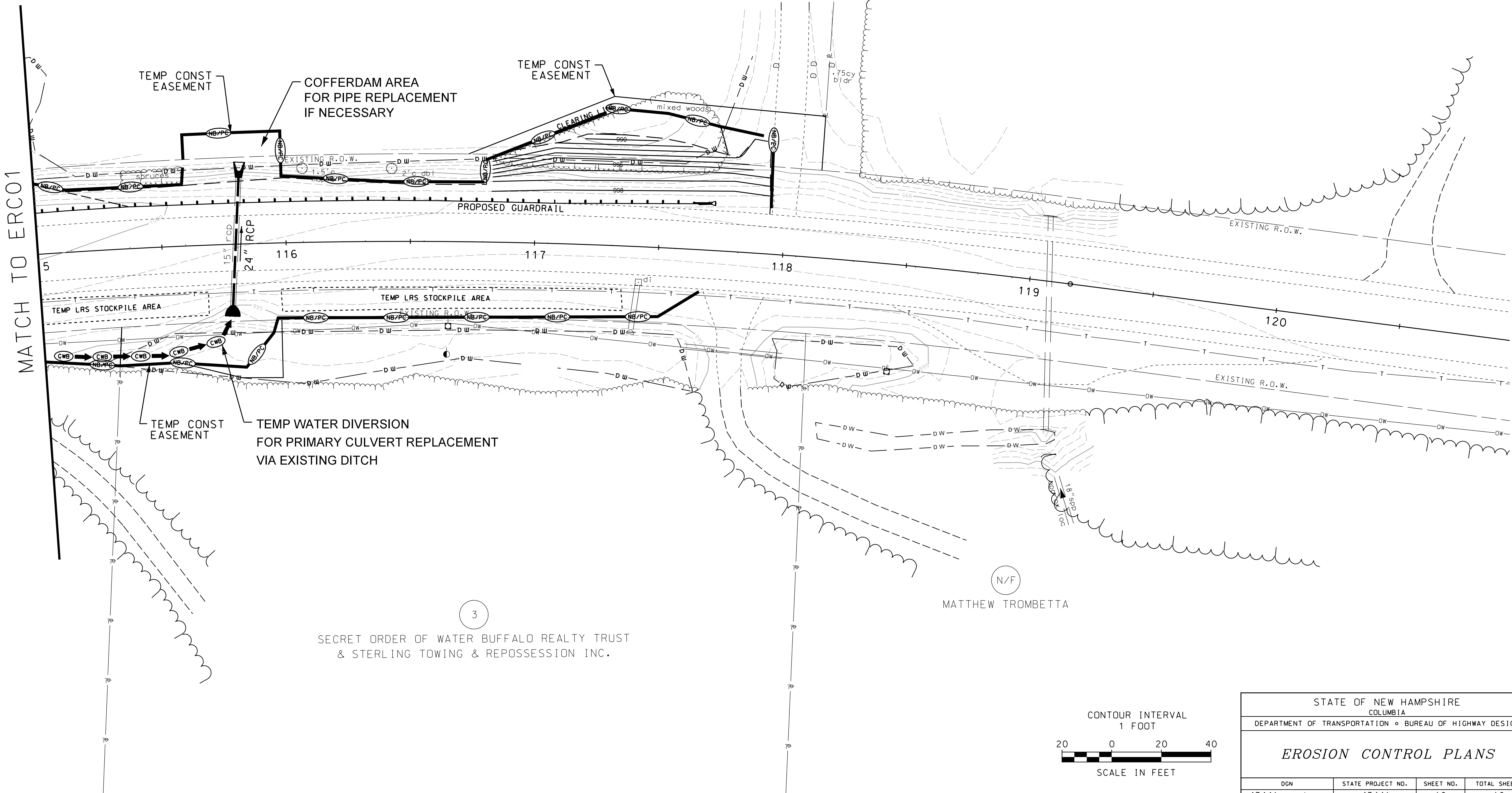
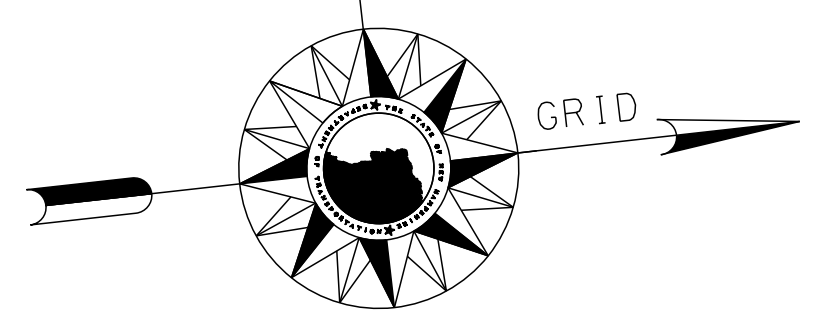
REVISIONS AFTER PROPOSAL	STATION	DESCRIPTION

NOTES:

THE EXISTING 15" RCP AT STA 115+80 TYPICALLY HAS NO BASEFLOW. WATER DIVERSION / CLEAN WATER BYPASS IS NOT EXPECTED FOR THE PIPE REPLACEMENT.

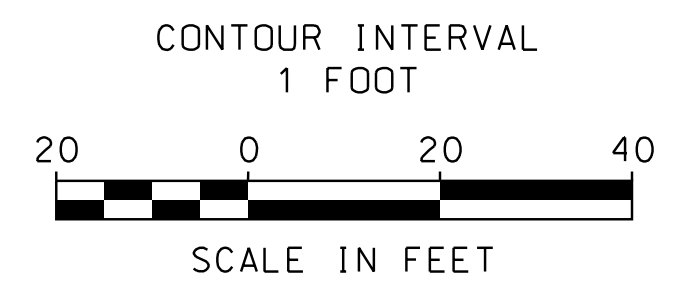
2
DONALD CAMPBELL
STACEY CAMPBELL

N/F
BRADLEY C. WHITE



3
SECRET ORDER OF WATER BUFFALO REALTY TRUST
& STERLING TOWING & REPOSSESSION INC.

N/F
MATTHEW TROMBETTA



STATE OF NEW HAMPSHIRE COLUMBIA			
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN			
EROSION CONTROL PLANS			
DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
43441ercplans	43441	16	16