Montague Conservation Commission
Approved Date: February 12, 2024
DEP #229-0263/ NOI #2023-02
Approved Amended Order of Conditions

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 5 – Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

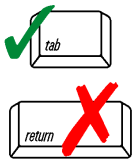
eDEP Transaction #

Montague
City/Town

A. General Information

Please note: this form has been modified with added space to accommodate the Registry of Deeds Requirements

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



1. From: Montague
Conservation Commission

2. This issuance is for (check one): a. ☐ Order of Conditions b. ☒ Amended Order of Conditions

3. To: Applicant:

Tom — a. First Name
Bergeron — b. Last Name
Town of Montague Department of Public Works — c. Organization
128 Turners Falls Road — d. Mailing Address
Turners Falls — e. City/Town
MA — f. State
01376 — g. Zip Code

4. Property Owner (if different from applicant):

a. First Name
b. Last Name
c. Organization
d. Mailing Address
e. City/Town
f. State
g. Zip Code

5. Project Location:

South Ferry Road — a. Street Address
Montague — b. City/Town
39 — c. Assessors Map/Plat Number
N/A — d. Parcel/Lot Number

Latitude and Longitude, if known: 42.54466 Latitude d m s; -72.55052 Longitude d m s

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #

Montague
City/Town

A. General Information (cont.)

6. Property recorded at the Registry of Deeds for (attach additional information if more than one parcel):

Franklin
a. County

b. Certificate Number (if registered land)

c. Book

d. Page

7. Dates: 11/30/2023 a. Date Notice of Intent Filed; 1/11/2024 b. Date Public Hearing Closed; 2/12/2024 c. Date of Issuance

8. Final Approved Plans and Other Documents (attach additional plan or document references as needed):

South Ferry Road Culvert Replacement - Plan Set
a. Plan Title

Stantec
b. Prepared By

c. Signed and Stamped by

October 19, 2023
d. Final Revision Date

1"=20'
e. Scale

Wetland Restoration/Replication Plan, Prepared by Epsilon
f. Additional Plan or Document Title

November 2023
g. Date

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act:

Following the review of the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act (the Act). Check all that apply:

a. ☒ Public Water Supply b. ☐ Land Containing Shellfish c. ☒ Prevention of Pollution

d. ☒ Private Water Supply e. ☒ Fisheries f. ☒ Protection of Wildlife Habitat

g. ☒ Groundwater Supply h. ☒ Storm Damage Prevention i. ☒ Flood Control

2. This Commission hereby finds the project, as proposed, is: (check one of the following boxes)

Approved subject to:

a. ☒ the following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP: 229-0263 (MassDEP File #)
eDEP Transaction #
Montague (City/Town)

B. Findings (cont.)

Denied because:

b. ☐ the proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**

c. ☐ the information submitted by the applicant is not sufficient to describe the site, the work, or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the Act's interests, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☐ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310 CMR 10.02(1)(a) — 0 (a. linear feet)

Inland Resource Area Impacts: Check all that apply below. (For Approvals Only)

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☒ Bank	65 a. linear feet	65 b. linear feet	130 c. linear feet	130 d. linear feet
5. ☒ Bordering Vegetated Wetland	916 temp/77 permenant a. square feet	916 temp/77 permenant b. square feet	80 c. square feet	80 d. square feet
6. ☒ Land Under Waterbodies and Waterways	202 a. square feet	202 b. square feet	487 c. square feet	487 d. square feet
	e. c/y dredged	f. c/y dredged		
7. ☐ Bordering Land Subject to Flooding	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. ☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. ☒ Riverfront Area	4, 473 a. total sq. feet	4, 473 b. total sq. feet		
Sq ft within 100 ft	4, 473 c. square feet	4, 473 d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	0 g. square feet	0 h. square feet	i. square feet	j. square feet

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #

Montague
City/Town

B. Findings (cont.)

Coastal Resource Area Impacts: Check all that apply below. (For Approvals Only)

	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. ☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. ☐ Coastal Beaches	a. square feet	b. square feet	c. nourishment cu yd	d. nourishment cu yd
14. ☐ Coastal Dunes	a. square feet	b. square feet	c. nourishment cu yd	d. nourishment cu yd
15. ☐ Coastal Banks	a. linear feet	b. linear feet		
16. ☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17. ☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. ☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. ☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20. ☐ Fish Runs	Indicate size under Coastal Banks, Inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	a. c/y dredged	b. c/y dredged		
21. ☐ Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		
22. ☐ Riverfront Area	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #

Montague
City/Town

B. Findings (cont.)

* **#23**. If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c (BVW) or B.17.c (Salt Marsh) above, please enter the additional amount here.

23. ☐ Restoration/Enhancement *:

a. square feet of BVW | b. square feet of salt marsh

24. ☐ Stream Crossing(s):

a. number of new stream crossings | b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects.

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
   a. The work is a maintenance dredging project as provided for in the Act; or
   b. The time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
   c. If the work is for a Test Project, this Order of Conditions shall be valid for no more than one year.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order. An Order of Conditions for a Test Project may be extended for one additional year only upon written application by the applicant, subject to the provisions of 310 CMR 10.05(11)(f).
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not extend the issuance date of the original Final Order of Conditions and the Order will expire on 6/9/2025 unless extended in writing by the Department.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.

C. General Conditions Under Massachusetts Wetlands Protection Act

8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.

9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work.

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

    "Massachusetts Department of Environmental Protection" [or, "MassDEP"]

    "File Number 229-0263 "

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before MassDEP.

12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.

13. The work shall conform to the plans and special conditions referenced in this order.

14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.

15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.

16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #

Montague
City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.

18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

19. The work associated with this Order (the "Project")
    (1) ☐ is subject to the Massachusetts Stormwater Standards
    (2) ☒ is NOT subject to the Massachusetts Stormwater Standards

    If the work is subject to the Stormwater Standards, then the project is subject to the following conditions:

    a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Construction General Permit as required by Stormwater Condition 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.

    b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that:
    i. all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures;
    ii. as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized;
    iii. any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10;

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #
Montague
City/Town

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

iv. all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition;

v. any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 18(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement) for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following:

i.) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and

ii.) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.

d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollution Discharge Elimination System Multi-Sector General Permit.

e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.

f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.

C. General Conditions Under Massachusetts Wetlands Protection Act (cont.)

g) The responsible party shall:
1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.

h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.

i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.

j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.

l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions (if you need more space for additional conditions, please attach a text document):

See "Attachment A" for Special Conditions

20. For Test Projects subject to 310 CMR 10.05(11), the applicant shall also implement the monitoring plan and the restoration plan submitted with the Notice of Intent. If the conservation commission or Department determines that the Test Project threatens the public health, safety or the environment, the applicant shall implement the removal plan submitted with the Notice of Intent or modify the project as directed by the conservation commission or the Department.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #

Montague
City/Town

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☒ No

2. The _____ hereby finds (check one that applies):
   Conservation Commission

   a. ☐ that the proposed work cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw, specifically:

   1. Municipal Ordinance or Bylaw | 2. Citation

   Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order of Conditions is issued.

   b. ☐ that the following additional conditions are necessary to comply with a municipal ordinance or bylaw:

   1. Municipal Ordinance or Bylaw | 2. Citation

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.
   The special conditions relating to municipal ordinance or bylaw are as follows (if you need more space for additional conditions, attach a text document):

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #

Montague
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

2/12/2024
1. Date of Issuance

Please indicate the number of members who will sign this form.
This Order must be signed by a majority of the Conservation Commission.

8
2. Number of Signers

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

Montague Conservation Commission

Signature	Printed Name
Mark Fairbrother	Mark Fairbrother
Anthony Reiber	Anthony Reiber
Tobias Carter	Tobias Carter
Justin Jerman	Justin Jermann
Donna Francis	Donna Francis
Margaux Rechard	Margaux Rechard
Sean Werle	Sean Werle
Al Averill	Al Averill

☐ by hand delivery on

Date

☐ by certified mail, return receipt requested, on

Date

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #
Montague
City/Town

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 – Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
229-0263
MassDEP File #

eDEP Transaction #

Montague
City/Town

G. Recording Information

Prior to commencement of work, this Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

Project Location | MassDEP File Number

Has been recorded at the Registry of Deeds of:

County | Book | Page

for: Property Owner

and has been noted in the chain of title of the affected property in:

Book | Page

In accordance with the Order of Conditions issued on:

2/12/2024
Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

Provided by DEP

A. Request Information

1. Location of Project

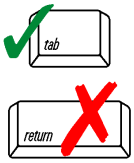
a. Street Address

b. City/Town, Zip

c. Check number

d. Fee amount

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



2. Person or party making request (if appropriate, name the citizen group's representative):

Name

Mailing Address

City/Town

State

Zip Code

Phone Number

Fax Number (if applicable)

3. Applicant (as shown on Determination of Applicability (Form 2), Order of Resource Area Delineation (Form 4B), Order of Conditions (Form 5), Restoration Order of Conditions (Form 5A), or Notice of Non-Significance (Form 6)):

Name

Mailing Address

City/Town

State

Zip Code

Phone Number

Fax Number (if applicable)

4. DEP File Number:

B. Instructions

1. When the Departmental action request is for (check one):

☐ Superseding Order of Conditions – Fee: $120.00 (single family house projects) or $245 (all other projects)

☐ Superseding Determination of Applicability – Fee: $120

☐ Superseding Order of Resource Area Delineation – Fee: $120

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Request for Departmental Action Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

Provided by DEP

B. Instructions (cont.)

Send this form and check or money order, payable to the *Commonwealth of Massachusetts,* to:

Department of Environmental Protection
Box 4062
Boston, MA 02211

2. On a separate sheet attached to this form, state clearly and concisely the objections to the Determination or Order which is being appealed. To the extent that the Determination or Order is based on a municipal bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

3. Send a **copy** of this form and a **copy** of the check or money order with the Request for a Superseding Determination or Order by certified mail or hand delivery to the appropriate DEP Regional Office (see https://www.mass.gov/service-details/massdep-regional-offices-by-community).

4. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Attachment A: Special Conditions under the MA Wetlands Protection Act, for the approved Amended Order of Conditions (DEP File # 229-0263) by the Montague Conservation Commission

Project Site: South Ferry Road Culvert Replacement, Montague MA

Property Owner/Applicant: Town of Montague, Department of Public Works. Attention Tom Bergeron, DPW Superintendent

Special Conditions:

1. The work shall conform to the following plans and documents, unless otherwise specified in this Order:
    a. Amended OOC Form 3 Notice of Intent filed by Tom Bergeron, submitted on October 24, 2023.
    b. Plan entitled " South Ferry Road Culvert Replacement - Plan Set", dated November 2023, prepared by Stantec
    c. Wetland Restoration/Replication Plan, Prepared by Epsilon, dated November 2023

2. The site engineer or contractor shall have a copy of this Order of Conditions at the site and available for inspection during all phases of construction.

3. Any change in the plans approved under this Order, including those due to review by other boards or resulting from the aforementioned conditions, must be submitted to the Montague Conservation Commission in writing for approval prior to implementation. The Commission will then decide whether the change is substantial enough to require a new Notice of Intent filing or a request for an amendment to this Order of Conditions. Any errors found in the plans or information submitted by the owner, or the owner's representative, shall be considered as changes.

4. Upon completion of this project (or within one year of the issuance of an occupancy permit), the owner, or the owner's representative, shall submit the following to the Conservation Commission to receive a Certificate of Compliance per Condition 12:

    a. Submission of a "Request for Certificate of Compliance" from the owner, or owner's representative, requesting a Certificate of Compliance for **DEP File #229-0263/ Montague CC#2023-02.**

    b. A written statement from a registered professional engineer of the Commonwealth certifying that the work has been completed in compliance with this Order of Conditions and the approved plans referenced herein (or approved revisions). Any discrepancies shall be noted.

PRIOR TO CONSTRUCTION

SEDIMENT AND EROSION CONTROLS

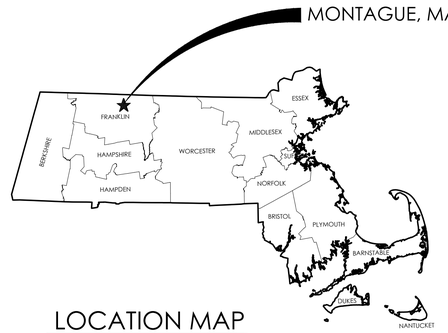
5. Accepted and usual methods for controlling sedimentation and erosion (e.g., silt fences, straw bales, straw wattles, compost wattles, etc.) shall be used during all phases of construction to prevent material from entering wetlands and surface waters. There shall be no erosion into wetlands and surface waters during any phase of construction or after completion of the project. Erosion controls shall be placed according to the plan referenced in Special Condition #1 above prior to any activity on site. Erosion control measures shall be installed in accordance with practices set forth by the U.S.D.A. Natural Resources Conservation Service or other acceptable best management practices standards.
6. The owner, or the owner's representative, shall report any problems with erosion control immediately to the Montague Conservation Commission office at (413) 863-3200 x112 or planner@montague-ma.gov.

Stantec

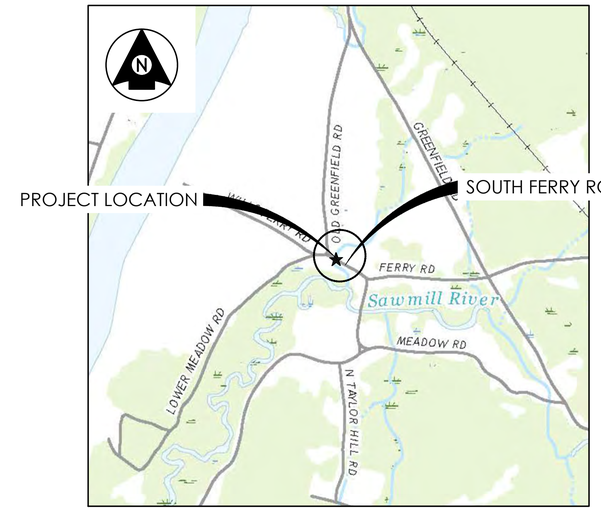
Montague Conservation Commission
Approved Date: February 12, 2024
DEP #229-0263/ NOI #2023-02
Approved Amended Order of Conditions

TOWN OF MONTAGUE, MASSACHUSETTS

SOUTH FERRY ROAD CULVERT REPLACEMENT



LOCATION MAP



VICINITY MAP
SCALE: 1"=1000'

INDEX OF SHEETS

SHEET NO.	TITLE
	COVER
G-001	GENERAL NOTES
G-002	NOTES AND LEGEND
C-100	EXISTING CONDITIONS AND DEMO PLAN
C-101	BORING B-1 LOCATION AND LOGS
C-102	BORING B-2 LOCATION AND LOGS
C-201	SOUTH FERRY RD PLAN AND PROFILE
C-202	UNNAMED STREAM PLAN AND PROFILE
C-203	GUARDRAIL LAYOUT PLAN
C-204	PAVEMENT LAYOUT AND SIGNAGE PLAN
C-205	BOX CULVERT DETAILS (1 OF 2)
C-206	BOX CULVERT DETAILS (2 OF 2)
C-207	BOX CULVERT AND CHANNEL DETAILS
C-301	GUARDRAIL DETAILS (1 OF 3)
C-302	GUARDRAIL DETAILS (2 OF 3)
C-303	GUARDRAIL DETAILS (3 OF 3)
C-304	EROSION AND SEDIMENTATION CONTROL DETAILS
C-401	CROSS SECTIONS (1 OF 2)
C-402	CROSS SECTIONS (2 OF 2)

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

SELECTBOARD

RICHARD KUKLEWICZ, CHAIR
CHRISTOPHER BOUTWELL, VICE CHAIR
MATTHEW LORD, CLERK

TOWN ADMINISTRATOR

STEVE ELLIS

ASSISTANT TOWN ADMINISTRATOR

WALTER RAMSEY

HIGHWAY SUPERINTENDENT

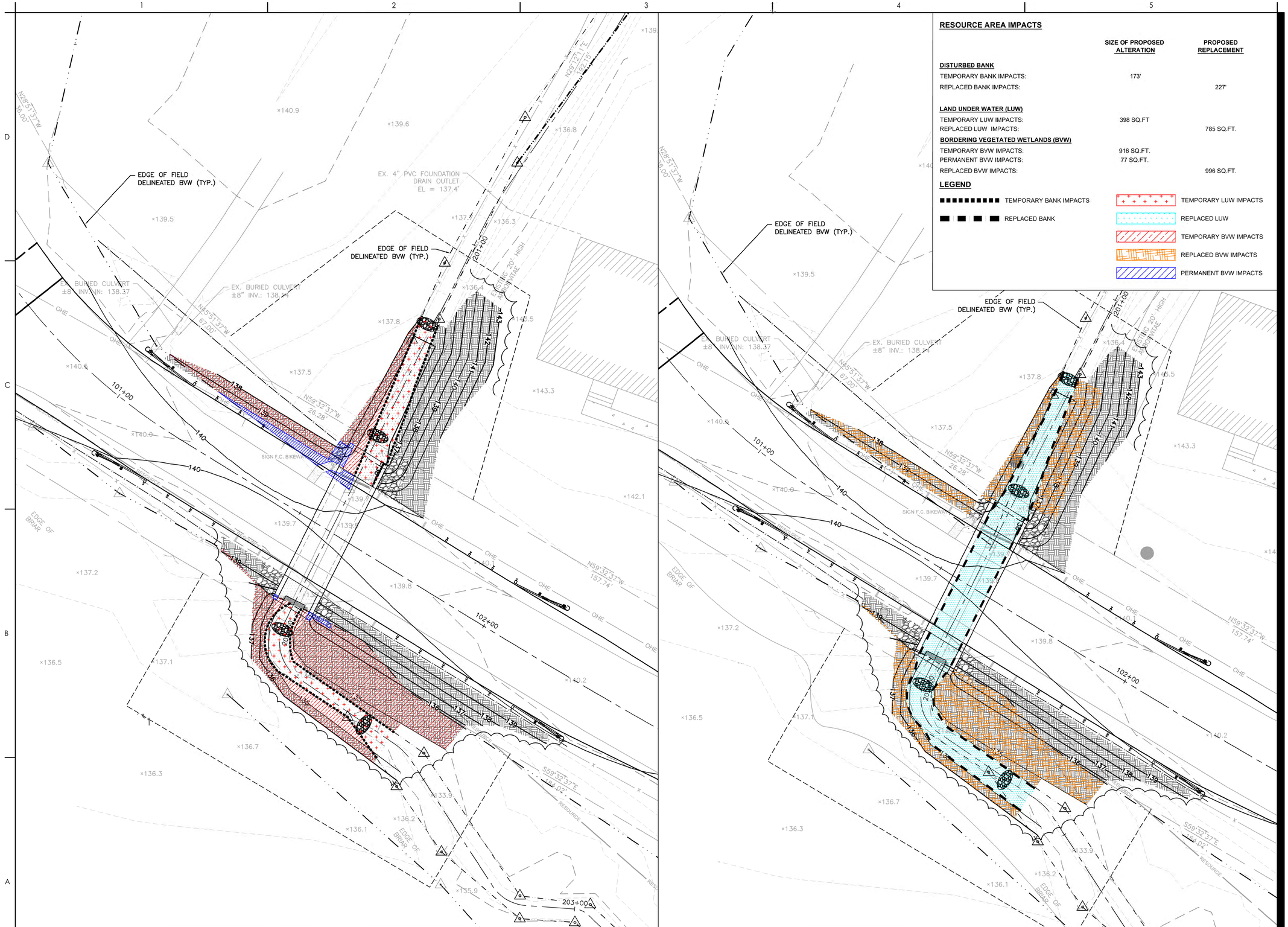
TOM BERGERON

HIGHWAY FOREMAN

WILL STRATFORD

OCTOBER 2023

Project Number: 195113487



RESOURCE AREA IMPACTS

	SIZE OF PROPOSED ALTERATION	PROPOSED REPLACEMENT
DISTURBED BANK		
TEMPORARY BANK IMPACTS:	173'	
REPLACED BANK IMPACTS:		227'
LAND UNDER WATER (LUW)		
TEMPORARY LUW IMPACTS:	398 SQ.FT	
REPLACED LUW IMPACTS:		785 SQ.FT.
BORDERING VEGETATED WETLANDS (BVW)		
TEMPORARY BVW IMPACTS:	916 SQ.FT.	
PERMANENT BVW IMPACTS:	77 SQ.FT.	
REPLACED BVW IMPACTS:		996 SQ.FT.

LEGEND

- TEMPORARY BANK IMPACTS
- REPLACED BANK
- TEMPORARY LUW IMPACTS
- REPLACED LUW
- TEMPORARY BVW IMPACTS
- REPLACED BVW IMPACTS
- PERMANENT BVW IMPACTS

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
File Name: 195113487 - IMPACT PLAN FOR PERMITTING	AJG Dwn.	BMR Dsgn.	BMR Chkd.	2023-07-15 YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
RESOURCE IMPACT CALCULATIONS PLAN

Project No.	Scale
195113487	NONE

Revision	Sheet	Drawing No.
0	1 of 1	SK-001

GENERAL NOTES

1. THE 2023 MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES, THE 2017 MASSDOT CONSTRUCTION STANDARD DETAILS, THE MASSDOT 1996 CONSTRUCTION AND TRAFFIC STANDARD DETAILS (AS RELATED TO TRAFFIC STANDARD DETAILS ONLY), THE 1990 MASSDOT STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 2009 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" WITH ASSOCIATED AMENDMENTS, THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z–60.1–1986), AND THE MASSDOT 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING DETAILS WILL GOVERN.

2. ALL PRECAUTIONS SHALL BE TAKEN TO PREVENT SILTATION OR POLLUTION INTO THE STREAM. ALL WATER PUMPED FROM EXCAVATION AREA SHALL BE CLARIFIED PRIOR TO BEING ALLOWED TO MIX WITH THE STREAM FLOW. APPLICABLE STATE REGULATORY WATER QUALITY STANDARDS SHALL BE MAINTAINED AT ALL TIMES.

3. IN–STREAM CONSTRUCTION SHALL OCCUR ONLY WITHIN THE TIMEFRAME OUTLINED IN THE PROJECT PERMITS. IF CONSTRUCTION IS PROPOSED IN STREAM WORK OUTSIDE OF THIS TIMEFRAME, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO PERFORMING THE WORK.

4. THE PLAN SHALL DEPICT MEASURES PROPOSED TO PREVENT EROSION AND SEDIMENTATION AND SHALL MAINTAIN STREAM WATER QUALITY. THE OWNER/ENGINEER SHALL DESIGN A PROPOSED WATER DIVERSION AND DEWATERING PLAN PLAN DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS PRIOR TO THE START OF CONSTRUCTION.

5. DIG–SAFE (1–888–344–7233 OR 811) SHALL BE NOTIFIED A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION.

6. ALL ELEVATIONS AND LOCATIONS OF EXISTING UTILITY AND DRAINAGE STRUCTURES SHALL BE VERIFIED IN THE FIELD PRIOR TO THE UTILIZATION OF THE DESIGN ELEVATIONS ON THE PLANS FOR CONSTRUCTION.

7. WORK HOURS SHALL BE 7:00 AM TO 5:00 PM, MONDAY THROUGH FRIDAY UNLESS AT THE DISCRETION OF THE OWNER.

8. ALL CONSTRUCTION WARNING SIGNS SHALL BE ERECTED PRIOR TO CLOSING THE ROAD.

9. THE MINIMUM ACCEPTABLE STANDARDS FOR ALL CONSTRUCTION MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE MASSDOT STANDARD SPECIFICATIONS.

10. ALL PERMANENT AND TEMPORARY TRAFFIC CONTROL SIGNS SHALL MEET THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

    A. PERMANENT CONSTRUCTION SIGNS SHALL CONFORM TO MASSDOT AND MUTCD STANDARDS.

    B. TEMPORARY CONSTRUCTION SIGNS USED FOR LANE CLOSURES AND TRAFFIC CONTROL SHALL CONFORM TO MASSDOT AND MUTCD STANDARDS.

11. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH ALL UTILITY COMPANIES, THE ENGINEER AND ALL ABUTTERS.

12. ALL BACKFILL SHALL BE COMPACTED TO 95% MAX. DRY DENSITY.

13. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES AND SHALL PROVIDE ALL NECESSARY CONTINUOUS BARRIERS OF SUFFICIENT TYPE, SIZE AND STRENGTH TO PREVENT ACCESS TO ALL OPEN EXCAVATIONS DURING AND AT THE COMPLETION OF EACH DAY'S WORK.

14. SHORING AND STABILIZATION OF EXCAVATION SIDEWALLS DURING EXCAVATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

15. ALL PRECAST CONCRETE STRUCTURES AND MATERIALS SHALL BE SUBJECT TO FINAL INSPECTION BY THE ENGINEER AND THE TOWN PRIOR TO ACCEPTANCE BY THE TOWN OF MONTAGUE.

16. ALL CLEARING LIMITS WILL BE LAID OUT, REVIEWED AND CONFIRMED APPROPRIATE BY THE ENGINEER PRIOR TO BEGINNING ANY CLEARING OPERATIONS.

17. CLEARING AND GRUBBING ALL AREAS INDICATED FOR PROPOSED CONSTRUCTION ON THE PLANS. THIS SHALL INCLUDE ALL EXISTING TREES, SHRUBS AND PLANTINGS. TREES & SHRUBS SHALL BE RETAINED ONLY WHERE SPECIFICALLY NOTED ON THE PLANS OR AT THE DISCRETION OF THE OWNER.

18. 4" TOPSOIL AND SEED SHALL BE PLACED OVER ALL DISTURBED UNPAVED AREAS UNLESS OTHERWISE SPECIFIED.

19. IN FILL AREAS, TOPSOIL SHALL BE REMOVED FOR A DEPTH OF 6" (MINIMUM) OR AS DETERMINED BY THE OWNER/ENGINEER. RESTORED AREAS RECEIVING LOAM SHALL BE COMPACTED PRIOR TO THE PLACEMENT OF FILL MATERIAL. TOPSOIL OBTAINED FROM ONSITE LOCATIONS SHALL BE TESTED PER MASSDOT REQUIREMENTS PRIOR TO EXCAVATION AND REMOVAL TO STOCKPILE.

20. EROSION CONTROL MATTING SHALL BE USED ON ALL DISTURBED SLOPES THAT ARE 3:1 OR STEEPER IMMEDIATELY FOLLOWING SEEDING.

21. THE INTENT OF THE GRADING IS GENERALLY SHOWN ON THE ROADWAY PLAN AND CROSS–SECTION PLANS. ROADWAYS SHALL BE CONSTRUCTED TO THE DESIGN ELEVATIONS INDICATED ON THE ROADWAY PROFILES AND THE CROSS–SECTIONS, ADJUSTMENTS FOR FIELD CONDITIONS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER.

22. THE OWNER WILL NOTIFY THE HOMEOWNERS ONE WEEK PRIOR TO CONSTRUCTION.

23. BLASTING, IF REQUIRED, SHALL BE PERFORMED BY A LICENSED BLASTING CONTRACTOR MEETING MASSDOT AND TOWN OF MONTAGUE REQUIREMENTS.

24. ALL DIMENSIONS SHALL BE VERIFIED FOR THE VARIOUS ITEMS OF WORK AT THE PROJECT SITE.

25. ALL CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE EPA NPDES PHASE II PROGRAM IF APPLICABLE AT THE TIME OF CONSTRUCTION OF THIS PROJECT.

26. THE OWNER SHALL COORDINATE WITH THE ENGINEER THE REVIEW OF ALL CONSTRUCTION ITEMS AND METHODS FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO THEIR USE ON THE PROJECT.

27. ALL TEMPORARY SIDE SLOPES SHALL BE GRADED NO STEEPER THAN 4H:1V UNLESS TEMPORARY ROADSIDE BARRIERS ARE PROVIDED. SIDE SLOPES SHALL BE GRADED TO NOT CREATE ADDITIONAL WETLAND IMPACT BEYOND WHAT IS APPROVED FOR THE PROJECT BY PERMIT.

28. ANY PROPOSED CHANGES TO THE APPROVED PLAN SHALL BE COORDINATED WITH THE OWNER AND THE ENGINEER AND CONFIRMED PRIOR TO PROCEEDING FOR REVIEW AND APPROVAL. ALL PROPOSED CHANGES SHALL BE SUBMITTED TO MASSDOT IN THE FORM OF AS BUILTS FOR THEIR RECORDS.

29. THE OWNER/ENGINEER SHALL BE RESPONSIBLE FOR MAINTAINING AS BUILT RECORDS OF ALL INSTALLED ASPECTS OF THE PROJECT, INCLUDING ALL INDIVIDUAL BRIDGE SECTIONS, ELEVATIONS, STATIONING, AND LOCATIONS OF INSTALLED FEATURES.

30. EXISTING FEATURES AND STRUCTURES WITHIN THE PROJECT SHALL BE RETAINED AND PROTECTED UNLESS OTHERWISE SPECIFIED ON THE PLANS.

31. DATE: THE YEAR "2024" OR THE YEAR OF FABRICATION, IF DIFFERENT, SHALL BE CAST INTO THE OUTSIDE FACE OF THE HEADWALLS IN FIVE INCH (5") BLOCK LETTERS.

32. DEMOLITION DEBRIS, CONSTRUCTION DEBRIS, STUMPS, WOOD WASTES, CONTAMINATED SOILS, HAZARDOUS MATERIALS AND OTHER SPECIAL WASTES SHALL BE TRANSPORTED, HANDLED AND DISPOSED OF STRICTLY IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

HYDRAULIC DESIGN DATA

Hydraulic Design Data	
Draining Area:	0.37 Sq Miles
Design Flood Discharge:	38.6 CFS
Design Flood Frequency:	10-Year Storm w/ 2-feet Freeboard
Design Flood Velocity:	4.81 FPS
Design Flood Elevation:	137.23
Design Flood Datum:	NAVD88
Base 100-Year Flood Data	
Base Flood Discharge:	76.8 CFS
Base Flood Elevation:	137.98
Base Flood Datum:	NAVD88
Design and Check Scour Data	
Design Scour Flood Event Frequency:	25-Year
Check Scour Flood Event Frequency:	50-Year
Flood of Record	
Discharge:	Unknown
Frequency:	Unknown
Maximum Elevation:	Unknown
Date:	Unknown
Other	
History of Ice Flows:	None Documented in NBIS database
Evidence of Scour:	None Documented in NBIS database

SEISMIC DATA

1. DESIGN RETURN PERIOD: 1,000–YEARS
2. A_S = 0.15
3. S_{DS} = 0.33
4. S_{D1} = 0.14
5. SITE CLASS: E
6. SEISMIC DESIGN CATEGORY (SDC) : A

TRAFFIC CONTROL

1. THE OWNER SHALL DEVELOP AND IMPLEMENT A SITE SPECIFIC TRAFFIC CONTROL PLAN FOR ROAD CLOSURES PER THE LATEST VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). NO WORK SHALL COMMENCE UNTIL THE TRAFFIC CONTROL PLAN HAS BEEN APPROVED. DEVELOPMENT AND IMPLEMENTATION OF TRAFFIC CONTROL PLAN SHALL BE IN ACCORDANCE WITH ITEM 852.

2. TRAFFIC DETOUR SIGNS SHALL BE INSTALLED AS NOT TO OBSTRUCT EXISTING SIGNS OR IMPEDE EXISTING SIGHT DISTANCE FOR ROADS OR DRIVEWAYS.

3. ALL SIGNS AND OTHER TRAFFIC CONTROL DEVICES SHALL BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE MUTCD PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION (FHWA).

4. ORANGE SOLID SUBSTRATE CONSTRUCTION SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING "AMERICAN SOCIETY FOR TESTING AND MATERIALS" (ASTM) TYPE VII, VIII OR IX REQUIREMENTS, UNLESS OTHERWISE NOTED.

5. ROLL UP SIGNS SHALL HAVE RETROREFLECTIVE SHEETING EQUAL TO OR EXCEEDING ASTM TYPE VI.

6. CONSTRUCTION SIGNS SHALL BE ERECTED BEFORE CONSTRUCTION AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY OR UPON COMPLETION OF THE WORK. EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER. SIGNS SHALL BE REMOVED UPON COMPLETION OF THE WORK UPON THE ACCEPTANCE OF THE ENGINEER.

7. FIXED SIGNS SHALL BE SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST SEVEN FEET ABOVE THE EDGE OF PAVEMENT. THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST SIX FEET OUTSIDE THE SHOULDER POINT OR FOUR FEET OUTSIDE THE FACE OF GUARDRAIL.

8. PORTABLE SIGNS SHALL BE PLACED ON THE EDGE OF THE ACCESS DRIVE AND A ONE FOOT MINIMUM ABOVE TRAVELED WAY. ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACE SHALL BE ABOVE THE TOP OF THE GUARDRAIL. REMOVAL OF SUCH VEGETATION SHALL BE SUBSIDIARY TO THE TRAFFIC CONTROL.

9. WHERE SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARDRAIL OR OTHER APPROVED TRAFFIC BARRIERS, ALL SIGN STANDS AND POST INSTALLATIONS SHALL BE "NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM" (NCHRP) REPORT 350 COMPLIANT. NO SIGN POSTS SHALL EXTEND OVER THE TOP OF THE SIGN INSTALLED ON SAID POST(S). WHEN ANCHORS ARE INSTALLED, STUB SHALL NOT BE GREATER THAN FOUR INCHES ABOVE EXISTING GROUND.

10. THE NUMBER OF CHANNELIZING DEVICES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THE TRAFFIC CONTROL PLANS ARE FOR ILLUSTRATIVE PURPOSES ONLY, THE ACTUAL NUMBER REQUIRED ARE TO BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR, CURVE, ETC.).

PROJECT LOCATION: SOUTH FERRY ROAD OVER AN UNNAMED TRIBUTARY TO THE SAWMILL RIVER, DUE EAST OF THE SOUTH FERRY ROAD AND WILLS FERRY ROAD INTERSECTION.

PROJECT DESCRIPTION: PART A:

A TEMPORARY ROADWAY CLOSURE WILL BE IMPLEMENTED THROUGHOUT THE REMOVAL OF THE EXISTING CULVERT AND THE INSTALLATION OF THE PROPOSED REPLACEMENT PRECAST CONCRETE STRUCTURE.

PART B:

THIS WORK INCLUDES ROAD RECONSTRUCTION FOR APPROXIMATELY 120 LINEAR FEET ALONG SOUTH FERRY ROAD.

11. THE 2023 MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED JUNE 30, 2022, THE 2017 MASSDOT CONSTRUCTION STANDARD DETAILS, THE 1996 MASSDOT CONSTRUCTION AND TRAFFIC STANDARD DETAILS (AS RELATED TO TRAFFIC STANDARD DETAILS ONLY) THE 1990 MASSDOT STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 2009 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" WITH ASSOCIATED AMENDMENTS, THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z–60.1–1986), AND THE MASSDOT 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING DETAILS WILL GOVERN.

PAVEMENT NOTES

TACK COAT SHALL BE APPLIED TO ALL BASE COURSE PAVEMENT THAT IS SUBJECTED TO WEATHER EXPOSURE OR VEHICULAR TRAFFIC FOR MORE THAN 48 HOURS.

FULL DEPTH CONSTRUCTION

SURFACE COURSE	4" HOT MIX ASPHALT PAVEMENT – MODIFIED, PLACED IN TWO LAYERS, 1 ½" SUPERPAVE 9.5 MM SURFACE COURSE MATERIAL OVER 2 ½" SUPERPAVE 12.5 MM BASE COURSE
SUB–BASE	6" DENSE–GRADED CRUSHED GRAVEL OVER 12" GRAVEL BORROW TYPE B
TACK COAT	APPLY ASPHALT EMULSION RS–1 (M3.03.0) TO THE MILLED SURFACE AND TO THE FACE OF SAWCUT PRIOR TO PAVING.

RESURFACING

COLD–PLANING	REMOVE 1 ½" BITUMINOUS CONCRETE PAVEMENT
SURFACE COURSE	PLACE 1 ½" SUPERPAVE 9.5 MM SURFACE COURSE – MODIFIED, TOP COURSE MATERIAL
TACK COAT	APPLY ⅛ GALLON BITUMEN (RS–1) PER SQUARE YARD FOR TACK COAT OVER EXISTING ROADWAY

STRUCTURAL NOTES

1. NO CONCRETE SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
2. DESIGN LOADING: HL–93 IN ACCORDANCE WITH THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
3. SPECIFICATIONS: LATEST VERSION OF THE AASHTO AND MASSDOT STANDARD SPECIFICATIONS AS AMENDED
4. ALL EXCAVATIONS SHALL BE VERIFIED AND APPROVED BY THE ENGINEER PRIOR TO PRECAST SECTION DELIVERY.
5. CONCRETE: PRECAST BOX CULVERT, AND OTHER PRECAST COMPONENTS SHALL BE A MINIMUM OF 5000 PSI @ 28 DAYS.
6. UNLESS SPECIFICALLY NOTED, ALL CONCRETE SHALL BE REINFORCED WITH EPOXY COATED REBAR.
7. REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED TO SATISFY HL–93 LOADING AS SPECIFIED IN THE 2020 AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

   UNLESS OTHERWISE NOTED, ALL REINFORCING STEEL BARS SHALL BE LAPPED AT A MINIMUM AS FOLLOWS:

   MODIFICATION CONDITIONS:

	#4 BARS	#5 BARS
1. NONE	21"	26"
2. 12" OF CONCRETE BELOW BAR	29"	36"
3. COATED BARS, COVER < 3db, OR CLEAR SPACING < 6db	31"	39"
4. COATED BARS, ALL OTHER CASES	25"	31"
5. CONDITION 2. AND 3.	35"	44"
6, CONDITION 2. AND 4.	34"	43"

   IF THE ABOVE BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH SPECIFIED ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

8. IF REINFORCING BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE PLANS.
9. CONCRETE COVER OVER REINFORCING BARS SHALL BE 2" UNLESS OTHERWISE NOTED.
10. SCHEDULE WITH THE SHOP DRAWING ALL NECESSARY ACCESSORIES TO HOLD REINFORCING SECURELY IN POSITION. MINIMUM REQUIREMENTS SHALL BE: HIGH CHAIRS = 48" ON CENTERS; SLAB BOLSTERS = 42" ON CENTERS; SUPPORT BARS FOR HIGH CHAIRS = #5.
11. ALL BARS, EXCEPT AS OTHERWISE NOTED, SHALL BE RUN CONTINUOUSLY AROUND CORNERS, LAPPED AT NECESSARY SPLICES, AND HOOKED AT DISCONTINUOUS ENDS. ALL REINFORCING SHALL COMPLY WITH SUBSECTION 4.2.2.10 OF MASSDOTS BRIDGE MANUAL.
12. ALL PRECAST CONCRETE SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO CONCRETE DELIVERY.
13. BOX CULVERT REINFORCING: GRADE 60 EPOXY COATED; ALL OTHER REINFORCING STEEL: AASHTO M31 (ASTM A615) GRADE 60.
14. CONCRETE PROTECTIVE COVERING FOR THE PRECAST CONCRETE REINFORCEMENT SHALL BE THE FOLLOWING, UNLESS SHOWN OTHERWISE:

    A. FORMED SURFACES IN DIRECT CONTACT WITH SOIL OR EXPOSED TO WEATHER = 2 INCHES.
    B. FOOTING BOTTOMS = 3 INCHES.

15. ALL EXPOSED PRECAST CONCRETE EDGES TO HAVE 1 1/2" CHAMFER UNLESS OTHERWISE NOTED.
16. CAST IN PLACE CONCRETE TO BE 5,000 PSI, 5±% AIR, 4" MAX SLUMP, 642 LBS TYPE II CEMENT
17. FOR PRE–FABRICATED STRUCTURES, THE CONTRACTOR SHALL SUBMIT THE FABRICATORS DESIGN CALCULATIONS AND SHOP DRAWINGS TO THE DESIGNER OF RECORD FOR REVIEW AND ACCEPTANCE PRIOR TO PROCEEDING..
18. CHAPTER 85 SECTION 35 REVIEW AND APPROVAL IN ACCORDANCE AND COMPLIANCE WITH THE REQUIREMENTS OF CHAPTER 85 SECTION 35 OF THE MASSACHUSETTS GENERAL LAWS, THE CONTRACTOR SHALL SUBMIT TO THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION ALL CONSTRUCTION DRAWINGS, DESIGN AND CALCULATIONS THAT SHALL BE USED TO FABRICATE AND CONSTRUCT THE STRUCTURE DENOTED ON THESE PLANS FOR REVIEW AND APPROVAL. THIS APPROVAL SHALL CONSTITUTE THE FINAL APPROVAL AS STIPULATED BY CHAPTER 85 SECTION 35 OF THE MASSACHUSETTS GENERAL LAWS.
19. FOR THE DESIGN OF SPREAD FOOTINGS BEARING SOIL, THE FOLLOWING BEARING RESISTANCES SHALL BE USED:

    FACTORED BEARING RESISTANCE
    STRENGTH I: 9.0 KSF
    SERVICE I: 7.0 KSF

    FOR THE STRENGTH CONDITION THE FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45. FOR THE SERVICE CONDITION THE FACTORED BEARING RESISTANCE IS BASED ON A MAXIMUM SETTLEMENT OF 1 INCH AND A RESISTANCE FACTOR OF 1.0.

MISCELLANEOUS

1. ALL DIMENSIONS SHALL BE VERIFIED PRIOR TO BRIDGE SUBMITTAL AND/OR MOBILIZATION.
2. THE OWNER SHALL BE RESPONSIBLE FOR ALL SHORING AND BRACING AND SHALL DISCUSS HIS METHODS WITH THE ENGINEER PRIOR TO THE START OF WORK.
3. DO NOT SCALE FROM DRAWINGS.

LIST OF ABBREVIATIONS

AL	ALUMINUM	EL	ELEVATION	NTS	NOT TO SCALE	TOS	TOP OF SLAB
B	BOTTOM	EW	EACH WAY	OC	ON CENTER	TOW	TOP OF WALL
BM	BEAM	H	HORIZONTAL	T	TOP	V	VERTICAL
CJ	CONSTRUCTION JOINT	HP	HIGH POINT	TOC	TOP OF CONCRETE		
EF	EACH FACE	LG	LARGE	TOF	TOP OF FOOTING		

PRECAST CONCRETE BOX CULVERT

1. THE BOX CULVERT STRUCTURE INCLUDING THE COPINGS AND CUT OFF WALLS SHALL BE PRECAST CONCRETE. THE CHAMFERED END SECTIONS SHALL BE PRECAST CONCRETE. THE DESIGN OF THIS BOX CULVERT SHALL BE THE RESPONSIBILITY OF THE FABRICATOR AND SHALL BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER WITH A CURRENT REGISTRATION IN THE COMMONWEALTH OF MASSACHUSETTS.

   THE DESIGN CRITERIA FOLLOWS:

   A. STRUCTURE SHALL BE DESIGNED FOR AN AASHTO HL–93 LIVE LOAD.
   B. DIMENSIONS OF BRIDGE ELEMENTS ON THE PLANS REPRESENT THE MINIMUM REQUIREMENT.

2. THE BOX CULVERT STRUCTURE THICKNESS SHALL NOT BE MODIFIED AND SHALL BE PROVIDED AS SHOWN ON THE PLANS.
3. THE PRECAST CONCRETE MANUFACTURER SHALL SUBMIT DESIGN CALCULATIONS, PREPARED IN ACCORDANCE WITH THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS AND THE MASSDOT BRIDGE MANUAL, WHILE USING ENGLISH UNITS FOR HL–93 LOADING FOR APPROVAL BY THE OWNER/ENGINEER. THE DESIGN COMPUTATIONS SHALL CONSIDER ALL LOADING AS APPROPRIATE DURING FABRICATION, SHIPMENT, ERECTION, CONSTRUCTION AND COMPLETION OF CONSTRUCTION BASED UPON THESE CONSTRUCTION DRAWINGS. THE DESIGN, CALCULATIONS AND DRAWINGS SHALL BE PREPARED AND STAMPED BY A PROFESSIONAL ENGINEER REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS.
4. AFTER RIGID FRAME STRUCTURE SECTIONS HAVE BEEN SET IN THEIR FINAL POSITION, ALL RIGID FRAME STRUCTURE JOINTS AND ALL LIFTING HOLES SHALL BE FILLED WITH AN OVERHEAD AND VERTICAL CEMENTITIOUS CONCRETE REPAIR MATERIAL APPROVED BY THE OWNER/ENGINEER. THE REPAIR MATERIAL SHALL BE CURED AS SPECIFIED BY THE MANUFACTURER.
5. THE ENTIRE TOP AND SIDES OF THE BOX CULVERT SHALL BE COVERED WITH A WATERPROOFING MEMBRANE PROCEEDING FROM OUTLET TO INLET. THE MEMBRANE SHEETS SHALL OVERLAP THE EDGES OF THE STRUCTURE BY 1 FOOT ON EACH SIDE AS SHOWN IN THE PLANS. THE MEMBRANE SHALL EXTEND VERTICALLY UP THE FACE OF THE INLET AND OUTLET CURB.
6. WATER REPELLANT IN ACCORDANCE WITH MASSDOT ITEM#965 SHALL BE APPLIED TO ALL EXPOSED SURFACES EXCEPT THE INSIDE OF THE BOX CULVERT.

Stantec
Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD
Issued	**By**	**Appd**	**YYYY.MM.DD**
File Name: 13487-02-NOTES	AJG Dwn.	BMR Dsgn.	BMR Chkd.	2023-07-15 YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
GENERAL NOTES

Project No. 195113487
Scale NONE
Revision 0
Sheet 2 of 19
Drawing No. **G-001**

REFERENCES

1. THE EXISTING CONDITIONS SITE PLAN THAT SERVES AS THE BASIS FOR THESE DRAWINGS ARE THE RESULT OF A TOPOGRAPHIC SURVEY PERFORMED BY MARTINEZ COUCH AND ASSOCIATES (MCA) OF ROCKY HILL, CT IN SEPTEMBER 2022 AND IS BASED ON THE NAVD 1988 DATUM AND IS ON MASSACHUSETTS STATE PLANE.
2. WETLANDS WERE INVESTIGATED AND DELINEATED BY CHRISTOPHER GUIDA, LICENSED WETLANDS SCIENTIST FOR FIELDSTONE LAND CONSULTANTS, PLCC IN AUGUST 2022.
3. THE SOIL BORINGS SHOWN ON THE PLANS WERE PERFORMED BY SEABOARD GEOTECHNICAL & ENVIRONMENTAL DRILLING SERVICES ON JULY 27, 2022 AND WERE OBSERVED AND RECORDED BY STANTEC.
4. THE SOUTH FERRY ROAD OVER THE UNNAMED TRIBUTARY TO SAWMILL RIVER SPANS WITHIN THE FLOOD PLAIN OVERLAY ZONE AND 100-YEAR FLOOD HAZARD AREA, AND IS DEFINED BY FEMA AS BEING IN FLOOD ZONE B FROM THE FEMA FLOOD INSURANCE STUDY (FIS) AND FEMA FIRM COMMUNITY MAP 250122 0010 C, FOR MONTAGUE, MA IN FRANKLIN COUNTY, WITH AN EFFECTIVE DATE OF FEBRUARY 12, 1982. ZONE B IS DESCRIBED BY FEMA AS BEING AN AREA BETWEEN LIMITS OF THE 100-YEAR FLOOD AND 500-YEAR STORM EVENT FLOODING; OR CERTAIN AREAS SUBJECT TO 100-YEAR FLOODING WITH AVERAGE OF LESS THAN ONE SQUARE MILE; OR AREAS PROTECTED BY LEVEES FROM THE BASE BY FEMA.
5. GEOTECHNICAL REPORT, COMPLETED BY STANTEC, DATED SEPTEMBER 16, 2022.
6. HYDRAULIC REPORT, COMPLETED BY STANTEC, DATED SEPTEMBER 26, 2023.

ENVIRONMENTAL PROTECTION

1. ALL WORK SHALL BE PERFORMED IN CONFORMANCE WITH MASSDEP ORDER OF CONDITIONS# 2022-259, NOTICE OF INTENT (NOI), AS AMENDED.
2. THE CONTRACTOR'S RESPONSIBILITIES SHALL INCLUDE THE FOLLOWING:
   A. MINIMIZE THE POTENTIAL ADVERSE ENVIRONMENTAL IMPACTS ASSOCIATED WITH CONSTRUCTION ACTIVITY.
   B. ESTABLISH AND MAINTAIN TEMPORARY EROSION CONTROL MEASURES DURING CONSTRUCTION SUCH AS STRAW BALES, SILT FENCE, ETC.
   C. PROVIDE PERMANENT EROSION CONTROL MEASURES SUCH AS PLANTINGS, MULCH AND PERMANENT GRASS COVER OVER ALL DISTURBED AREAS AS INDICATED IN THE CONTRACT DRAWINGS.
3. PREVENTIVE MEASURES SHALL BE TAKEN TO AVOID SPILLAGE OF PETROLEUM PRODUCTS AND OTHER POLLUTANTS. THE CONTRACTOR SHALL MAINTAIN CONTINGENCY ACTION PLANS FOR PROMPT REMEDIAL ACTION IN THE EVENT SPILLAGE SHOULD OCCUR.
4. DURING THE PROGRESS OF THE WORK, THE CONTRACTOR SHALL KEEP THE PROJECT SITE CLEAR OF DEBRIS RESULTING FROM HIS OPERATIONS AND SHALL REMOVE SURPLUS AND WASTE MATERIALS FROM THE SITE AS SOON AS POSSIBLE.
5. ALL ABANDONED OR USELESS OBJECTS INCLUDING CONSTRUCTION DEBRIS, EQUIPMENT, SUPPLIES, PERSONAL PROPERTY AND RUBBISH SHALL BE REMOVED FROM THE SITE AND DISPOSED OF.
6. GOOD HOUSEKEEPING:
   THE FOLLOWING GOOD HOUSEKEEPING PRACTICES WILL BE FOLLOWED ONSITE DURING THE CONSTRUCTION PROJECT.
   A. ONLY ENOUGH PRODUCT REQUIRED TO COMPLETE THE JOB WILL BE PERMITTED ONSITE;
   B. ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE;
   C. PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL;
   D. SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER;
   E. WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER;
   F. MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
7. HAZARDOUS PRODUCTS:
   THESE PRACTICES ARE USED TO REDUCE THE RISKS ASSOCIATED WITH HAZARDOUS MATERIALS.
   A. PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE;
   B. ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT PRODUCT INFORMATION;
   C. IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURER'S OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.
8. PRODUCT SPECIFIC PRACTICES:
   THE FOLLOWING PRODUCT SPECIFIC PRACTICES WILL BE FOLLOWED ON SITE:
   PETROLEUM PRODUCTS:
   ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTATIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
   FERTILIZERS:
   FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED IN THE SOIL TO LIMIT EXPOSURE TO STORMWATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
   PAINTS:
   ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURER'S INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.
9. SPILL CONTROL PRACTICES:
   IN ADDITION TO THE GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES DISCUSSED IN THE PREVIOUS SECTIONS OF THIS PLAN, THE FOLLOWING PRACTICES WILL BE FOLLOWED FOR SPILL PREVENTION AND CLEANUP:
   A. MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BECLEARLY POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.
   B. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.
   C. ALL SPILLS WILL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY.
   D. THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
   E. SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF SIZE.
   F. THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM REOCCURRING AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.
   G. THE SITE SUPERINTENDENT RESPONSIBLE FOR THE DAY-TO-DAY SITE OPERATIONS WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. THEY WILL DESIGNATE AT LEAST THREE OTHER SITE PERSONNEL WHO WILL EACH RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. THE NAMES OF RESPONSIBLE SPILL PERSONNEL WILL BE POSTED IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER ONSITE.

ENVIRONMENTAL PROTECTION (CONT)

10. ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND STORED IN SECURE DUMPSTERS OR APPROVED ENCLOSURE AND REMOVED FROM THE SITE ON A WEEKLY BASIS. NO CONSTRUCTION WASTE SHALL BE BURIED ON SITE. PORTABLE TOILET SANITARY WASTE FACILITIES WILL BE PROVIDED DURING CONSTRUCTION AND MAINTAINED/DISPOSED OF ON A REGULAR BASIS IN ACCORDANCE WITH TOWN AND STATE REGULATIONS.
11. RECORDS KEEPING:
    LISTS OF CONSTRUCTION ITEMS AND OTHER PRODUCTS USED ON THIS PROJECT SHALL BE KEPT ON RECORD WITH THE PROJECT SUPERINTENDENT AND AT THE TOWN OFFICES. ALL CHEMICALS, PETROLEUM PRODUCTS AND OTHER MATERIALS USED DURING CONSTRUCTION SHALL BE STORED IN A SECURE AREA, AND PRECAUTIONS USED TO PREVENT POTENTIAL SOURCES OF CONTAMINATION OR POLLUTION. ANY SPILL OF THESE TYPES OF SUBSTANCES SHALL BE CLEANED UP AND DISPOSED OF IN A LEGAL MANNER AS SPECIFIED BY STATE REGULATIONS AND THE MANUFACTURER. IF ANY SPILL OCCURS IN AMOUNTS EQUAL TO OR EXCEEDING THE REPORTABLE QUANTITY AS DEFINED BY THE EPA, THE CONTRACTOR SHALL TAKE THE FOLLOWING STEPS:
    A. NOTIFY THE NATIONAL RESPONSE CENTER IMMEDIATELY AT (800) 424-8802; IN WASHINGTON, D.C., CALL (202) 426-2675.
    B. WITHIN 14 DAYS, SUBMIT A WRITTEN DESCRIPTION OF THE RELEASE TO THE EPA REGIONAL OFFICE PROVIDING THE DATE AND CIRCUMSTANCES OF THE RELEASE AND THE STEPS TO BE TAKEN TO PREVENT ANOTHER RELEASE.
    C. MODIFY THE POLLUTION PREVENTION PLAN TO INCLUDE THE INFORMATION LISTED ABOVE.
12. DEBRIS CATCHES PER MASSDOT STANDARDS SHALL BE UTILIZED DURING DEMOLITION ACTIVITIES IN ORDER TO PREVENT ANY DEBRIS FROM ENTERING THE STREAM.

GENERAL SYMBOLS

EXISTING	PROPOSED	
10+00 +57.59 N00° 00' 00"E	10+00 +57.59 N00° 00' 00"E	BASE LINE, SURVEY LINE OR CONSTRUCTION BASELINE
B-1		BORINGS
CB (OR GI, LB)		CATCH BASIN
		CENTERLINE OF ALIGNMENT
		CITY, TOWN, OR COUNTY LAYOUT LINE (R.O.W.)
		EASEMENT (AS SPECIFIED)
		PROPERTY LINE
		ROAD R.O.W.
		EDGE OF GRAVEL
		EDGE OF PAVEMENT (AS SPECIFIED)
		EDGE OF STREAM AT TIME OF SURVEY
		EDGE OF WETLANDS
WF		WETLANDS FLAG (& FLAG #)
		GUARDRAIL (AS SPECIFIED)
		MAILBOX
		PROPERTY LINE
		ROAD R.O.W.
		SIGN AND POST
		SILT FENCE AND STRAW BALES
		STONE CHECK DAMS
		TEST PIT
		TREE LINE (LIMIT OF CLEARING)
UPOLE		UTILITY POLE
		PROPOSED PAVEMENT SAW CUT
		LIMIT OF WORK
OHE		OVERHEAD UTILITIES
		RIP RAP (AS SPECIFIED)
		SLOPE STABILIZATION
		2' STREAM BED MATERIAL ON RIP RAP (PER TYP. DETAIL)

ALIGNMENT & GRADING

BVCE	BEGINNING OF VERTICAL CURVE ELEVATION
BVCS	BEGINNING OF VERTICAL CURVE STATION
EVCE	END OF VERTICAL CURVE ELEVATION
EVCS	END OF VERTICAL CURVE STATION
LVC	LENGTH OF VERTICAL CURVE
PVC	POINT OF VERTICAL CURVE
PVI	POINT OF VERTICAL INTERSECTION
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
PC	POINT OF CURVE
PT	POINT OF TANGENT
CC	CENTER OF CURVE
PNT	POINT
∡PT	ANGLE POINT
200.35	SPOT GRADE

UTILITIES

CIT	CHANGE IN TYPE
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
RCP	REINFORCED CONCRETE PIPE
VCP	VITRIFIED CLAY PIPE
PVC	POLY-VINYL-CHLORIDE PIPE
ACCMP	ASPHALT COATED CORRUGATED METAL PIPE
CIP	CAST IRON PIPE
DIP	DUCTILE IRON PIPE
HYD	HYDRANT
CAP	CORRUGATED ALUMINUM PIPE
INV	INVERT ELEVATION
PWW	PAVED WATER WAY
UP	UTILITY POLE
TSV & B	TAPPING SLEEVE, VALVE AND BOX
COND	CONDUIT
OHE	OVER HEAD ELECTRIC
MJ	MECHANICAL JOINT

GENERAL

PROP.	PROPOSED	VGC	VERTICAL GRANITE CURB
MIN.	MINIMUM	G.C.	GRANITE CURB
MAX.	MAXIMUM	G.E.	GRANITE EDGING
RET.	RETAINING	C.C.	CONCRETE CURB
REM.	REMOVE	B.B.	BITUMINOUS BERM
REMOD.	REMODEL	B.C.	BITUMINOUS CURB
ABAN.	ABANDON	P.S.B.	PLANTABLE SOIL BORROW
ADJ.	ADJUST	N.I.C.	NOT IN CONTRACT
EXIST.	EXISTING	N.T.S.	NOT TO SCALE
R&R	REMOVE & RESET	TYP	TYPICAL
R&S	REMOVE & STACK	APPROX.	APPROXIMATE
FDN.	FOUNDATION	CLF	CHAIN LINK FENCE
ELEV.	ELEVATION	LP	LOW POINT
O.C.	ON CENTER	E.R.	EDGE OF ROAD
P.G.L.	PROFILE GRADE LINE	E.P.,E.O.P.	EDGE OF PAVEMENT
E.T.W.	EDGE OF TRAVEL WAY	CONST.	CONSTRUCTION
TOW	TOP OF WALL	LF	LINEAR FEET
BOW	BOTTOM OF WALL	PTH	PLANIMETER TO HERE
ROW	RIGHT OF WAY	BIT.	BITUMINOUS
BS	BOTTOM OF SLOPE	CEM.	CEMENT
TS	TOP OF SLOPE	CONC.	CONCRETE
H.E.S.	HIGH EARLY STRENGTH	N.I.C.	NOT IN CONTRACT
STA	STATION	R&D	REMOVE AND DELIVER TO TOWN
S	SLOPE	CL	CENTERLINE

RESTORATION NOTES

TOPSOILING:

TOPSOIL IS REQUIRED ON ANY AREA WHERE IT IS NECESSARY TO ESTABLISH A VEGETATIVE COVER. IF THERE IS INSUFFICIENT NATURALLY OCCURRING TOPSOIL, ADDITIONAL TOPSOIL SHALL BE PROVIDED TO A MINIMUM FINISHED DEPTH OF SIX INCHES (6")

1. LOAM, SANDY LOAM, OR SILTY LOAM SHALL BE USED FOR TOPSOIL MATERIAL.
2. THE MATERIAL SHALL BE FRIABLE AND FREE OF TREE ROOTS, WEEDS, STONES (GREATER THAN TWO INCHES) AND ANY OTHER DEBRIS. SOIL WHICH HAS BEEN TREATED WITH HERBICIDE IS UNACCEPTABLE.
3. THE MATERIAL SHALL BE TAKEN FROM THE NATURAL SURFACE LAYERS ("A" HORIZON) OF SOILS CAPABLE OF PRODUCING GOOD YIELDS OF CULTIVATED CROPS OR STRAW.
4. AREAS WHERE TOPSOIL HAS BEEN REMOVED SHALL BE PROTECTED AGAINST EROSION.
5. TOPSOIL SHALL NOT BE STOCKPILED WHERE IT WILL INTERFERE WITH ANY DRAINAGE COURSE OR WITHIN TWENTY-FIVE FEET OF A WETLAND RESOURCE AREA.
6. TOPSOIL SHALL NOT BE COLLECTED OR SPREAD WHILE IT IS WET OR FROZEN.
7. SUBSURFACES SHALL BE SCARIFIED OR OTHERWISE TILLED TO FACILITATE BONDING OF SOIL LAYERS.
8. TOPSOIL SHALL BE UNIFORMLY SPREAD TO PROVIDE A MINIMUM FINISHED DEPTH OF FOUR (4) INCHES AFTER SETTLEMENT.

RESTORATION NOTES (CONTINUED)

SEEDING

UNLESS OTHERWISE INDICATED OR DIRECTED BY THE OWNER, GROUND COVER WILL BE ESTABLISHED BY HYDROSEEDING. THE LOCATIONS DEFINED AS LAWN AREAS, SLOPE AREAS WILL BE VERIFIED WITH THE OWNER PRIOR TO HYDROSEEDING.

SEED MIXTURE – SEE MASSDOT STANDARD SPECIFICATION M6.03.0 – SEED.

SITE PREPARATIONS

1. ACCORDING TO SOIL TEST TO PH 6.5 OR IN THE ABSENCE OF A SOIL TEST, APPLY LIME AT THE RATE OF 2-3 TONS OF GROUND LIMESTONE PER ACRE (100-150 LBS. PER 1000 S.F.).
2. FERTILIZE ACCORDING TO SOIL TEST OR AT A RATE OF 1000 LBS. PER ACRE OF 5-10-10 FERTILIZER.
3. WORK UP A SEEDBED 1" TO 2" DEEP, THOROUGHLY INCORPORATING THE LIME AND FERTILIZER INTO THE SOIL.
4. SEED DURING THE PERIOD AUGUST 10 TO SEPTEMBER 15, OR IN THE SPRING BY MAY 20 FOR PERMANENT COVER. SEEDING AT OTHER TIMES SHALL BE CONSIDERED A TEMPORARY COVER.
5. APPLY SEED UNIFORMLY ACCORDING TO DIRECTIONS BY HYDRAULIC APPLICATION (HYDROSEEDING).
6. THE SEEDED AREA IS TO BE PROTECTED FROM EQUIPMENT, TRAMPLING AND OTHER DESTRUCTIVE ACTIVITY.

EROSION CONTROL NOTES

1. ALL EROSION CONTROL MEASURES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS" LATEST EDITION.
2. ALL EROSION CONTROL BARRIERS SHALL BE ERECTED BEFORE THE START OF EARTHWORK OPERATIONS. EROSION CONTROL BARRIERS SHALL BE REMOVED UPON ACCEPTANCE OF THE PROJECT.
3. THE INTENT OF THIS PROJECT IS TO CONTROL SEDIMENT AT THE SOURCE SUCH AS EARTHCUTS AND EXPOSED SURFACES. ALL EXPOSED SURFACES SHALL BE STABILIZED IMMEDIATELY UPON COMPLETION OF WORK.
4. IN ORDER TO PREVENT UNNECESSARY EROSION OF NEWLY GRADED SLOPES AND UNNECESSARY SILTATION OF DRAINAGEWAYS, THE CONTRACTOR SHALL PERFORM LOAMING, HYDROSEEDING, AND MULCHING AS SOON AS HE HAS SATISFACTORILY COMPLETED A UNIT OR PORTION OF THE PROJECT, SUCH AS EMBANKMENTS OR CUTS, A SECTION OF PAVEMENT OR DRAINAGEWAYS.
5. STRAW MULCH OR OTHER APPROVED METHODS SHALL BE USED TO CONTROL EROSION OF NEWLY GRADED AREAS. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 72 HOURS AFTER THEIR CONSTRUCTION.
6. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 6" OF TOPSOIL AND HYDROSEED ALL DISTURBED AND UNPAVED SURFACES (AND SURFACES NOT DESIGNATED FOR GRAVEL OR PAVEMENT) WITHIN THE LIMIT OF WORK.
7. THE CONTRACTOR SHALL MAINTAIN A CRUSHED STONE CONSTRUCTION ENTRANCE (75' MIN.) AND SHALL CLEAN AND REMOVE ANY SAND, SOIL, OR DEBRIS CARRIED ON ALL PAVED ROADWAYS BY TRUCKS LEAVING THE SITE AT THE END OF EACH DAYS WORK. WHEN REQUESTED BY THE ENGINEER, THE CONTRACTOR SHALL PROVIDE STREET SWEEPING OF EXISTING PAVED ROADWAYS TO REMOVE CONSTRUCTION RELATED DEBRIS AT NO ADDITIONAL COMPENSATION.
8. EROSION CONTROLS SHALL BE INSPECTED, CLEANED, AND PROPERLY MAINTAINED (INCLUDING REPLACING AS NECESSARY) DAILY DURING THE PROJECT.
9. NO CUT AREA SHALL BE LEFT UNPROTECTED FROM EROSION FOR A PERIOD OF MORE THAN 3 WEEKS. PROTECTION SHALL BE BY SEEDING, EROSION CONTROL MATTING, OR OTHER ACCEPTABLE METHODS.
10. NO DISTURBED AREA SHALL BE LEFT UNPROTECTED FROM EROSION OVER THE WINTER SEASON. THE WINTER SEASON IS HEREBY DEFINED AS THE THE PERIOD FROM NOVEMBER 1 TO APRIL 1. THIS SHALL NOT RESTRICT WORK FROM TAKING PLACE OVER THE WINTER MONTHS BUT THE CONTRACTOR/OWNER SHALL NOT ALLOW AN AREA GREATER THAN 5,000 S.F. TO BE LEFT UNPROTECTED.
11. SILT FENCE WITH STRAW BALES SHALL BE SECURED WITH A MINIMUM OF TWO STAKES PER BALE AND PROVIDED AT ALL DRAINAGEWAYS AND PIPE OUTLETS AS INDICATED ON THE CONSTRUCTION DRAWINGS.
12. THE CONTRACTOR SHALL PROVIDE DEBRIS CATCHES PER MASSDOT STANDARDS DURING DEMOLITION ACTIVITIES IN ORDER TO PREVENT ANY DEBRIS FROM ENTERING THE STREAM.
13. TEMPORARY STABILIZATION – TOPSOIL STOCKPILES AND DISTURBED AREAS OF THE CONSTRUCTION SITE THAT WILL NOT BE REDISTURBED FOR 21 DAYS OR MORE MUST BE STABILIZED BY THE 14TH DAY AFTER THE LAST DISTURBANCE. THE TEMPORARY SEED SHALL BE ANNUAL RYE APPLIED AT THE RATE OF 1.1 LBS PER 1,000 SQUARE FEET. PRIOR TO SEEDING, A MINIMUM OF 2 TONS PER ACRE OF AGRICULTURAL LIMESTONE AND 500 LBS PER ACRE OF 10-2-20 FERTILIZER SHALL BE APPLIED. AFTER SEEDING, EACH AREA SHALL BE MULCHED WITH 1.5 TONS PER ACRE OF STRAW MULCH. MULCH TO BE ANCHORED IN PLACE WHERE NECESSARY.
14. THE OWNER AND ENGINEER WILL MAINTAIN RECORDS OF CONSTRUCTION ACTIVITIES, INCLUDING DATES OF MAJOR GRADING ACTIVITIES, DATES WHEN CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED ON A PORTION OF THE SITE, DATES WHEN WORK IS COMPLETED ON A PORTION OF THE SITE, AND DATES WHEN STABILIZATION MEASURES ARE INITIATED ONSITE.

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
File Name: 13487-02-NOTES	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

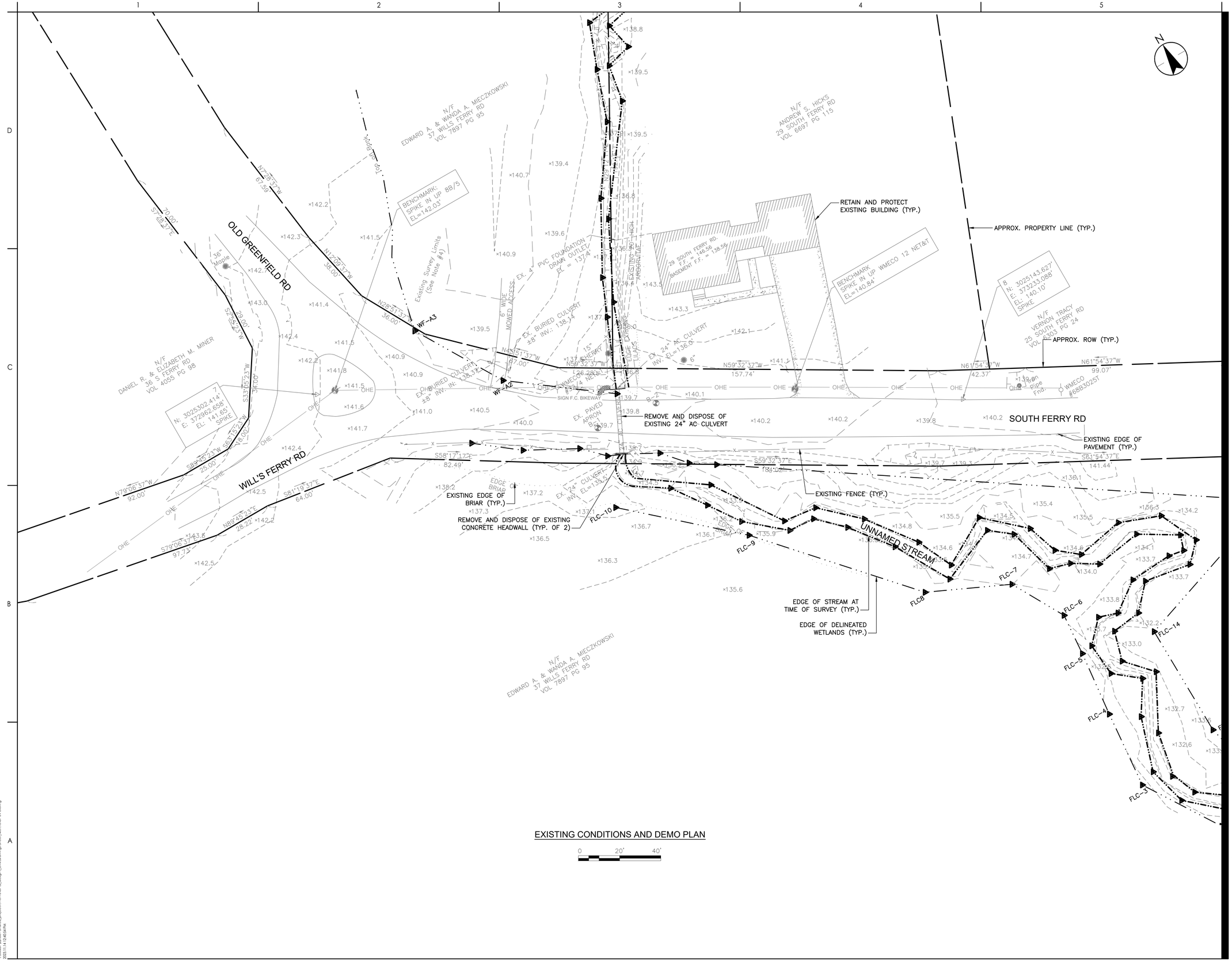
Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
NOTES AND LEGEND

Project No. 195113487 | Scale NONE
Revision 0 | Sheet 3 of 19 | Drawing No. G-002

ORIGINAL SHEET - ARCH D



EXISTING CONDITIONS AND DEMO PLAN

0 20' 40'

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

File Name: 13487-04-EXISTING	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
EXISTING CONDITIONS AND DEMO PLAN

Project No.	Scale
195113487	AS NOTED

Revision	Sheet	Drawing No.
0	4 of 19	C-100

\\us225-prjfil01\Shared_Projects\195113487\5_Design\Civil\Drawings\Sheet_Files\13487-04-existing 2023.11.14 12:42:54 PM

ORIGINAL SHEET - ARCH D

BOREHOLE LOG — B-1

CLIENT: Town of Montague | NORTHING: | PROJECT No.: 195189006
LOCATION: 29 South Ferry Road, Montague, MA | EASTING: | EXPLORATION No.: B-1
EXPLORATION DATE: 7/27/2022 to 7/27/2022 GROUND EL.: 140 | WATER LEVEL: 3.5 | DATUM:

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (in.)	SPT blows / 6"	SPT N-Value	SPT N(60) VALUE
0	140.0							
	139.7	ASPHALT PAVEMENT						
	138.7	Dry, brown, medium to fine SAND, some crushed asphalt pavement, some silt - FILL -	SS	1A	6	6 3	-	
	137.7	Damp, brown, organic SILT - SILT LAYER -	SS	1B	12	1 1	-	
		Moist, medium dense, brown/gray, medium to fine SAND, some coarse to fine gravel, little silt - SAND LAYER -	SS	2	13	5 4 6 7	10	
5	135.7	Wet, medium dense, gray, medium to fine SAND, some silt, little fine gravel	SS	3	14	6 7 7 6	14	
	133.7	Wet, medium dense, gray, coarse to fine GRAVEL, little fine sand, little silt - GRAVEL LAYER -	SS	4	6	7 7 5 6	12	
	131.7	Wet, very soft, gray, silty CLAY Handheld torvane = 300 psf	SS	5	24	WOH WOH WOH 1	0	
10	129.7	- CLAY DEPOSIT -						
	125.0	Wet, very soft, gray, silty CLAY Handheld torvane = 350 psf	SS	6	24	WOH WOH 1 1	1	
15	123.0							
20	120.0							

Undrained Shear Strength - tsf: 1 2 3 4
Water Content & Atterberg Limits: WP W L W
Dynamic Penetration Test, blows/foot
Standard Penetration Test, blows/foot
SPT N(60) VALUE: 10 20 30 40 50 60 70 80 90

Driller: Seaboard; Rig Type: Mobile Truck Mounted Drill Rig; Hammer Type: Auto Hammer; Method: Drive and Wash, 4-inch steel casing, 1-3/8 inch inside diameter split spoon; Supervisor: Liam Gillen-Hughes

△ Unconfined Compression Test
□ Field Vane Test ■ Remolded
✖ Pocket Penetrometer / Torvane

Continued Next Page

BOREHOLE LOG — B-1

CLIENT: Town of Montague | NORTHING: | PROJECT No.: 195189006
LOCATION: 29 South Ferry Road, Montague, MA | EASTING: | EXPLORATION No.: B-1
EXPLORATION DATE: 7/27/2022 to 7/27/2022 GROUND EL.: 140 | WATER LEVEL: 3.5 | DATUM:

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (in.)	SPT blows / 6"	SPT N-Value	SPT N(60) VALUE
20								
		Wet, very soft, gray, silty CLAY Handheld torvane = 400 psf	SS	7	24	WOH WOH WOH 1	0	
	118.0							
25	115.0	Wet, very soft, gray, silty CLAY, lense of fine sand at 26.5 feet Handheld torvane = 350 psf	SS	8	24	WOH WOH 1 2	1	
	113.0	- CLAY DEPOSIT -						
30	110.0	Wet, very soft, gray, silty CLAY, lense of medium to fine sand at 31.5 feet Handheld torvane = 300 psf	SS	9	24	WOH 2 2 2	4	
	108.0	Bottom of boring at 32.0 feet below ground surface in clay deposit. No refusal.						
35								
40								

Undrained Shear Strength - tsf: 1 2 3 4
Water Content & Atterberg Limits: WP W L W
Dynamic Penetration Test, blows/foot
Standard Penetration Test, blows/foot
SPT N(60) VALUE: 10 20 30 40 50 60 70 80 90

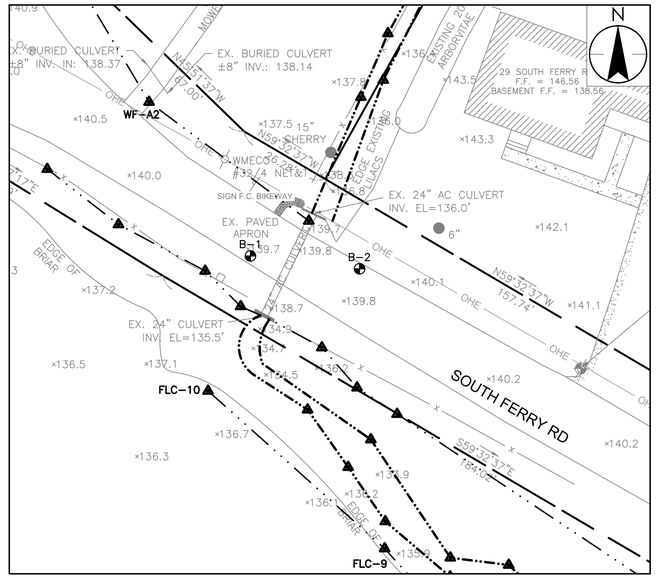
Driller: Seaboard; Rig Type: Mobile Truck Mounted Drill Rig; Hammer Type: Auto Hammer; Method: Drive and Wash, 4-inch steel casing, 1-3/8 inch inside diameter split spoon; Supervisor: Liam Gillen-Hughes

△ Unconfined Compression Test
□ Field Vane Test ■ Remolded
✖ Pocket Penetrometer / Torvane

STN:\\GEO-VOC MONTAGUE BORING LOGS.GPJ JW.WAP.GDT 8/19/22

BORING NOTES

1. THE LOCATIONS OF BORINGS ARE INDICATED ON THE PLANS BY THIS SYMBOL: B–1
2. BORINGS WERE TAKEN FOR THE PURPOSE OF DESIGN AND DESCRIBE THE CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BOREHOLE LOGS WERE OBSERVED AT THE TIME THAT THE BORINGS WERE PERFORMED AND DO NOT NECESSARILY SHOW THE GROUND WATER LEVEL THAT WILL BE ENCOUNTERED AT THE TIME OF CONSTRUCTION.
4. FIGURES IN COLUMNS INDICATE THE NUMBER OF BLOWS REQUIRED TO DRIVE A 1⅜" INNER DIAMETER SPLIT SPOON SAMPLER 6" WITH A 140 LB HAMMER FALLING 30", IN CONFORMANCE WITH ASTM D1586.
5. SOIL BORINGS WERE PERFORMED USING A HOLLOW STEM AUGER (HSA) TO THE NOTED APPROXIMATE ELEVATIONS OR TO REFUSAL ON PROBABLE BEDROCK:
   B–1: EL. = NONE
   B–2: EL. = NONE
6. ALL BORINGS AND PROBES WERE PERFORMED ON JULY 27, 2022 BY SEABOARD GEOTECHNICAL & ENVIRONMENTAL DRILLING OF CHICOPEE, MA. AND THE RESULTS OF THE BORINGS WERE OBSERVED AND RECORDED BY STANTEC CONSULTING SERVICES, INC.
7. THE BORINGS ARE RECORDED IN FEET IN THE FIELD.
8. BORING DEPTHS HAVE BEEN CONVERTED TO ELEVATIONS BY THE ENGINEER AND ARE APPROXIMATE.
9. NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 IS USED THROUGHOUT.
10. BORING SAMPLES ARE STORED AT STANTEC'S AUBURN, NEW HAMPSHIRE OFFICE AND ARE AVAILABLE FOR INSPECTION.



BOREHOLE LOCATIONS

0 20' 40'

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD
Issued	By	Appd	YYYY.MM.DD
File Name: 13487-03-BORINGS	AJG Dwn.	BMR Dsgn.	BMR Chkd.	2023-07-15 YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
BORING B-1 LOCATION AND LOGS

Project No.
195113487

Scale
1"=20'

Revision
0

Sheet
5 of 19

Drawing No.
C-101

BOREHOLE LOG — B-2

CLIENT Town of Montague — NORTHING — PROJECT No. 195189006
LOCATION 29 South Ferry Road, Montague, MA — EASTING — EXPLORATION No. B-2
EXPLORATION DATE 7/27/2022 to 7/27/2022 GROUND EL. 140 — WATER LEVEL 4.0 — DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SAMPLES TYPE	NUMBER	RECOVERY in.	SPT blows / 6"	SPT N-Value	SPT N(60) VALUE
0	140.0							
	139.5	TOPSOIL	SS	1A	6	2 6	-	
		Dry, medium dense, brown, medium to fine SAND, some silt, little coarse to fine gravel	SS	1B	13	7 6	-	
	138.0	No recovery, 2-inch cobble in spoon tip	SS	2	0	5 4 2 1	6	
		- SAND LAYER -						
	136.0	Wet, loose, brown/gray, coarse to medium SAND and coarse to fine gravel, some silt	SS	3A	12	2 2	-	
5	135.0	Wet, gray, silty CLAY	SS	3B	12	2 2	-	
	134.0	Handheld Torvane = 700 psf						
		Wet, very soft, gray, inorganic SILT, some clay	SS	4	18	WOH 1 1 1	2	
	132.0	Wet, very soft, gray, silty CLAY						
		Handheld Torvane = 400 psf	SS	5	24	WOH 1 1 1	2	
10	130.0	Wet, very soft, gray, silty CLAY						
		Handheld Torvane = 300 psf	SS	6	24	WOH 1 1 1	2	
	128.0	- CLAY DEPOSIT -						
15	125.0	Wet, very soft, gray, silty CLAY						
		Handheld Torvane = 300 psf	SS	7	24	WOH WOH 1 1	1	
	123.0							
20	120.0							

Undrained Shear Strength - tsf: 1 2 3 4
Water Content & Atterberg Limits WP W L
Dynamic Penetration Test, blows/foot ★
Standard Penetration Test, blows/foot ●
10 20 30 40 50 60 70 80 90

Driller: Seaboard; Rig Type: Mobile Truck Mounted Drill Rig; Hammer Type: Auto Hammer; Method: Drive and Wash, 4-inch steel casing, 1-3/8 inch inside diameter split spoon; Supervisor: Liam Gillen-Hughes

△ Unconfined Compression Test
□ Field Vane Test ■ Remolded
✖ Pocket Penetrometer / Torvane
Continued Next Page

BOREHOLE LOG — B-2

CLIENT Town of Montague — NORTHING — PROJECT No. 195189006
LOCATION 29 South Ferry Road, Montague, MA — EASTING — EXPLORATION No. B-2
EXPLORATION DATE 7/27/2022 to 7/27/2022 GROUND EL. 140 — WATER LEVEL 4.0 — DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SAMPLES TYPE	NUMBER	RECOVERY in.	SPT blows / 6"	SPT N-Value	SPT N(60) VALUE
20		Wet, very soft, gray, silty CLAY						
		Handheld Torvane = 350 psf	SS	8	24	WOH 1 1 1	2	
	118.0	From 22 feet, advanced roller bit as probe in attempt to locate bottom of soft clay deposit. Reached depth of 70 feet with no change in drill action or wash cuttings.						
25								
	110.0	- CLAY DEPOSIT -						
30								
35								
40	100.0							

Undrained Shear Strength - tsf: 1 2 3 4
Water Content & Atterberg Limits WP W L
Dynamic Penetration Test, blows/foot ★
Standard Penetration Test, blows/foot ●
10 20 30 40 50 60 70 80 90

Driller: Seaboard; Rig Type: Mobile Truck Mounted Drill Rig; Hammer Type: Auto Hammer; Method: Drive and Wash, 4-inch steel casing, 1-3/8 inch inside diameter split spoon; Supervisor: Liam Gillen-Hughes

△ Unconfined Compression Test
□ Field Vane Test ■ Remolded
✖ Pocket Penetrometer / Torvane
Continued Next Page

BOREHOLE LOG — B-2

CLIENT Town of Montague — NORTHING — PROJECT No. 195189006
LOCATION 29 South Ferry Road, Montague, MA — EASTING — EXPLORATION No. B-2
EXPLORATION DATE 7/27/2022 to 7/27/2022 GROUND EL. 140 — WATER LEVEL 4.0 — DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SAMPLES TYPE	NUMBER	RECOVERY in.	SPT blows / 6"	SPT N-Value	SPT N(60) VALUE
40								
	90.0	- CLAY DEPOSIT -						
50								
55								
60	80.0							

Undrained Shear Strength - tsf: 1 2 3 4
Water Content & Atterberg Limits WP W L
Dynamic Penetration Test, blows/foot ★
Standard Penetration Test, blows/foot ●
10 20 30 40 50 60 70 80 90

Driller: Seaboard; Rig Type: Mobile Truck Mounted Drill Rig; Hammer Type: Auto Hammer; Method: Drive and Wash, 4-inch steel casing, 1-3/8 inch inside diameter split spoon; Supervisor: Liam Gillen-Hughes

△ Unconfined Compression Test
□ Field Vane Test ■ Remolded
✖ Pocket Penetrometer / Torvane
Continued Next Page

BOREHOLE LOG — B-2

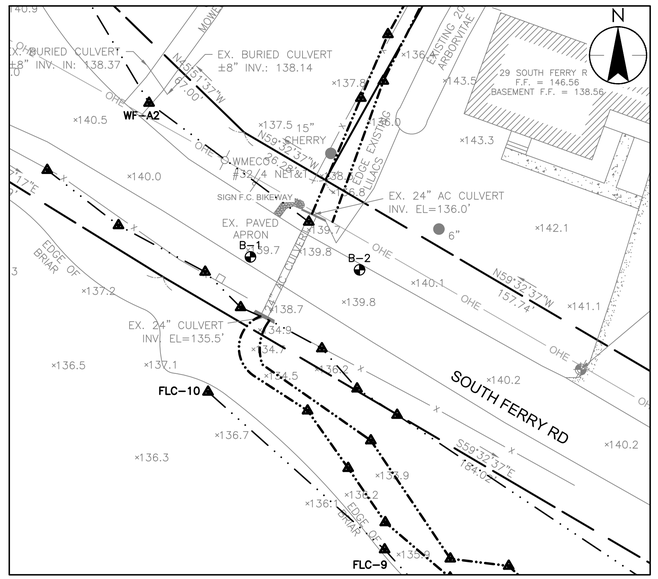
CLIENT Town of Montague — NORTHING — PROJECT No. 195189006
LOCATION 29 South Ferry Road, Montague, MA — EASTING — EXPLORATION No. B-2
EXPLORATION DATE 7/27/2022 to 7/27/2022 GROUND EL. 140 — WATER LEVEL 4.0 — DATUM

DEPTH (ft)	ELEVATION (ft)	MATERIAL DESCRIPTION	SAMPLES TYPE	NUMBER	RECOVERY in.	SPT blows / 6"	SPT N-Value	SPT N(60) VALUE
60								
	75.0	- CLAY DEPOSIT -						
70	70.0	Bottom of boring at 70.0 feet below ground surface in clay deposit. No refusal.						
75								
80								

Undrained Shear Strength - tsf: 1 2 3 4
Water Content & Atterberg Limits WP W L
Dynamic Penetration Test, blows/foot ★
Standard Penetration Test, blows/foot ●
10 20 30 40 50 60 70 80 90

Driller: Seaboard; Rig Type: Mobile Truck Mounted Drill Rig; Hammer Type: Auto Hammer; Method: Drive and Wash, 4-inch steel casing, 1-3/8 inch inside diameter split spoon; Supervisor: Liam Gillen-Hughes

△ Unconfined Compression Test
□ Field Vane Test ■ Remolded
✖ Pocket Penetrometer / Torvane



BOREHOLE LOCATIONS

0 20' 40'

BORING NOTES

1. THE LOCATIONS OF BORINGS ARE INDICATED ON THE PLANS BY THIS SYMBOL: B-1 ◔
2. BORINGS WERE TAKEN FOR THE PURPOSE OF DESIGN AND DESCRIBE THE CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BOREHOLE LOGS WERE OBSERVED AT THE TIME THAT THE BORINGS WERE PERFORMED AND DO NOT NECESSARILY SHOW THE GROUND WATER LEVEL THAT WILL BE ENCOUNTERED AT THE TIME OF CONSTRUCTION.
4. FIGURES IN COLUMNS INDICATE THE NUMBER OF BLOWS REQUIRED TO DRIVE A 1⅜" INNER DIAMETER SPLIT SPOON SAMPLER 6" WITH A 140 LB HAMMER FALLING 30", IN CONFORMANCE WITH ASTM D1586.
5. SOIL BORINGS WERE PERFORMED USING A HOLLOW STEM AUGER (HSA) TO THE NOTED APPROXIMATE ELEVATIONS OR TO REFUSAL ON PROBABLE BEDROCK:
   B-1: EL. = NONE
   B-2: EL. = NONE
6. ALL BORINGS AND PROBES WERE PERFORMED ON JULY 27, 2022 BY SEABOARD GEOTECHNICAL & ENVIRONMENTAL DRILLING OF CHICOPEE, MA. AND THE RESULTS OF THE BORINGS WERE OBSERVED AND RECORDED BY STANTEC CONSULTING SERVICES, INC.
7. THE BORINGS ARE RECORDED IN FEET IN THE FIELD.
8. BORING DEPTHS HAVE BEEN CONVERTED TO ELEVATIONS BY THE ENGINEER AND ARE APPROXIMATE.
9. NORTH AMERICAN VERTICAL DATUM (NAVD) 1988 IS USED THROUGHOUT.
10. BORING SAMPLES ARE STORED AT STANTEC'S AUBURN, NEW HAMPSHIRE OFFICE AND ARE AVAILABLE FOR INSPECTION.

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
File Name: 13487-03-BORINGS	AJG Dwn.	BMR Dsgn.	BMR Chkd.	2023-07-15 YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

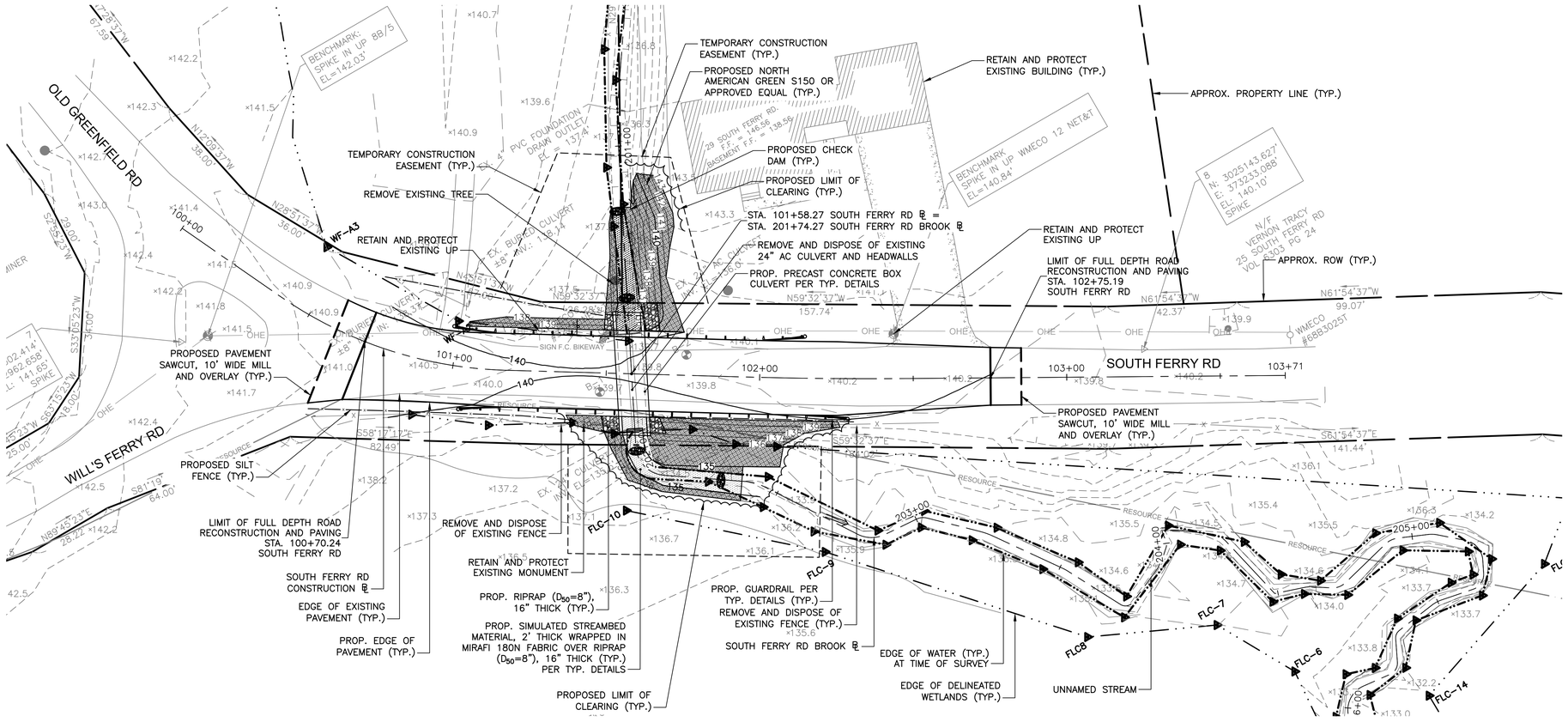
Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
BORING B-2 LOCATION AND LOGS

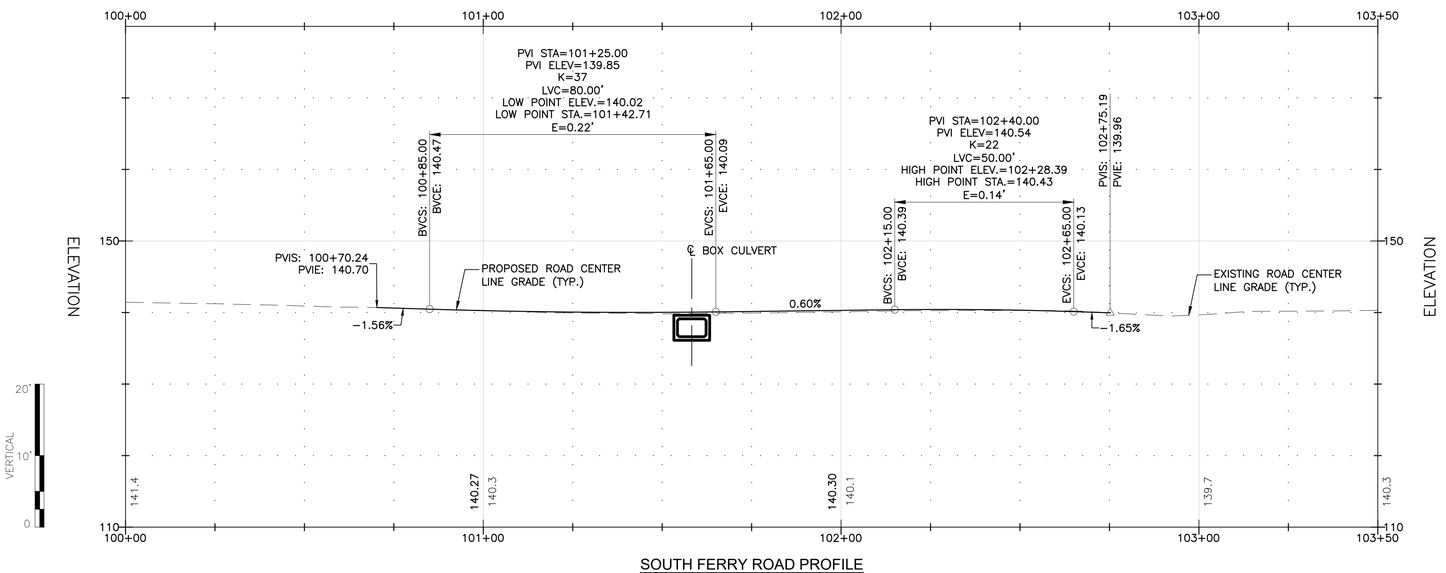
Project No.	Scale
195113487	1"=20'

Revision	Sheet	Drawing No.
0	6 of 19	C-102



SOUTH FERRY ROAD PLAN

0 20' 40'



SOUTH FERRY ROAD PROFILE

0 20' 40'

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

File Name: 13487-07-S_FERRY RD PLAN AND PROFILE	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

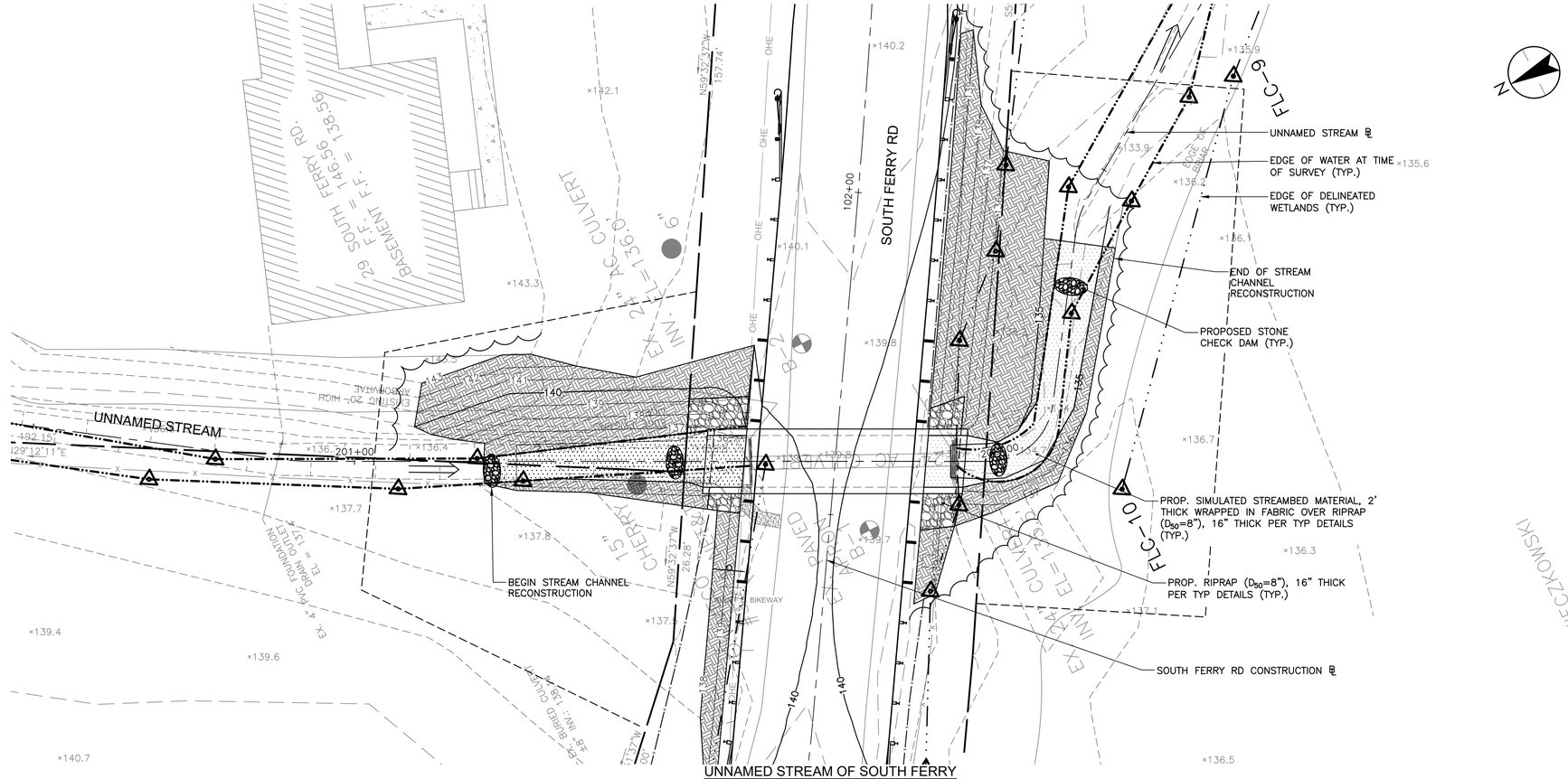
Title
SOUTH FERRY RD PLAN AND PROFILE

Project No.	Scale
195113487	1"=20'

Revision	Sheet	Drawing No.
0	7 of 19	C-201

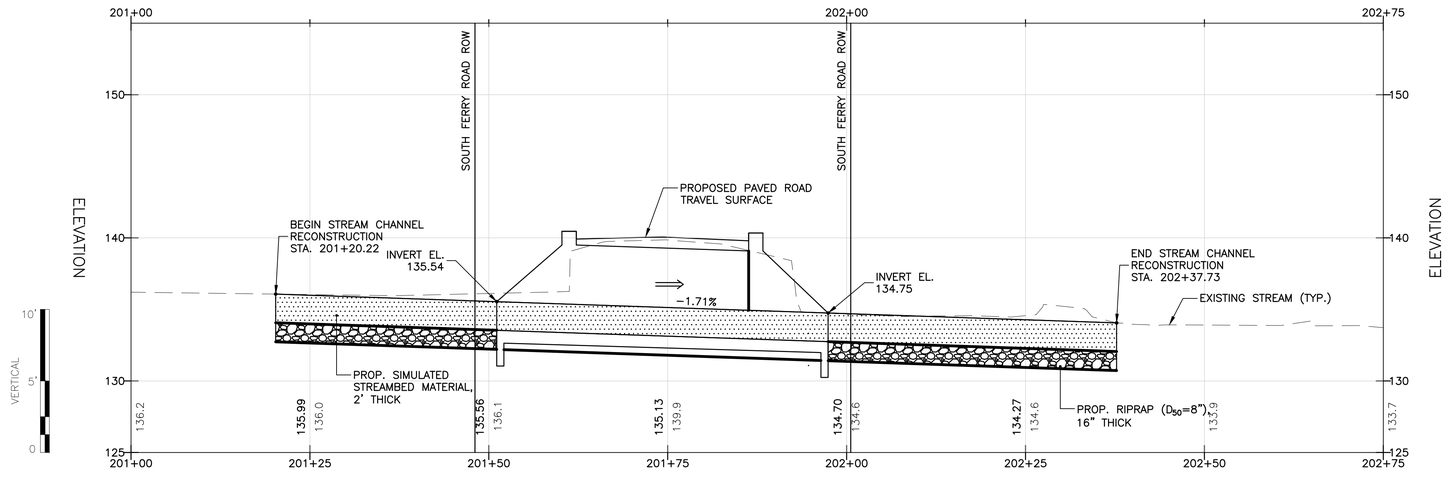
\\us2267-pstss01\shared_projects\195113487\S_design_civil\drawings\sheet_files\13487-07-s_ferry rd plan and profile 2023.11.14 12:41:24 PM

ORIGINAL SHEET - ARCH D



UNNAMED STREAM OF SOUTH FERRY ROAD BROOK PLAN

0 10' 20'



UNNAMED STREAM OF SOUTH FERRY ROAD BROOK PROFILE

0 10' 20'

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

File Name: 13487-07- S. FERRY RD BROOK PLAN AND PROFILE	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

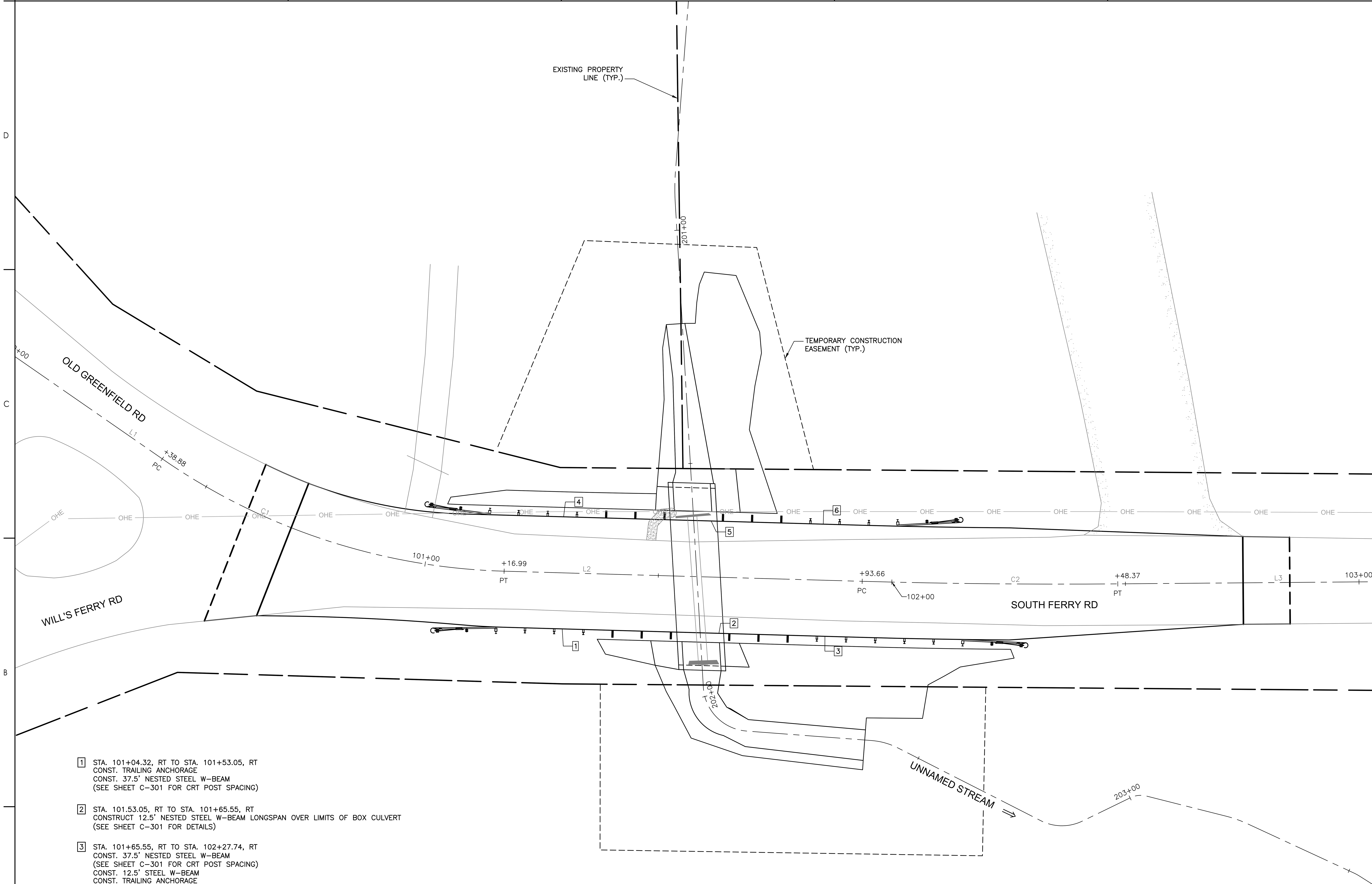
Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
UNNAMED STREAM PLAN AND PROFILE

Project No.	Scale
195113487	1"=20'

Revision	Sheet	Drawing No.
0	8 of 19	C-202



1 STA. 101+04.32, RT TO STA. 101+53.05, RT
CONST. TRAILING ANCHORAGE
CONST. 37.5' NESTED STEEL W-BEAM
(SEE SHEET C-301 FOR CRT POST SPACING)

2 STA. 101.53.05, RT TO STA. 101+65.55, RT
CONSTRUCT 12.5' NESTED STEEL W-BEAM LONGSPAN OVER LIMITS OF BOX CULVERT
(SEE SHEET C-301 FOR DETAILS)

3 STA. 101+65.55, RT TO STA. 102+27.74, RT
CONST. 37.5' NESTED STEEL W-BEAM
(SEE SHEET C-301 FOR CRT POST SPACING)
CONST. 12.5' STEEL W-BEAM
CONST. TRAILING ANCHORAGE

4 STA. 100+99.4, LT TO STA. 101+50.98, LT
CONST. TRAILING ANCHORAGE
CONST. 37.5' NESTED STEEL W-BEAM
(SEE SHEET C-301 FOR CRT POST SPACING)

5 101+50.98, LT TO STA. 101+63.48, LT
CONST. 12.5' NESTED STEEL W-BEAM LONGSPAN OVER LIMITS OF BOX CULVERT
(SEE SHEET C-301 FOR DETAILS)

6 101+63.48, LT TO STA. 102+13.59, LT
CONST. 37.5' NESTED STEEL W-BEAM
(SEE SHEET C-301 FOR CRT POST SPACING)
CONST. TRAILING ANCHORAGE

GUARDRAIL LAYOUT PLAN

0 10' 20'

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
File Name: 13487-10-GUARDRAIL LAYOUT	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
GUARDRAIL LAYOUT PLAN

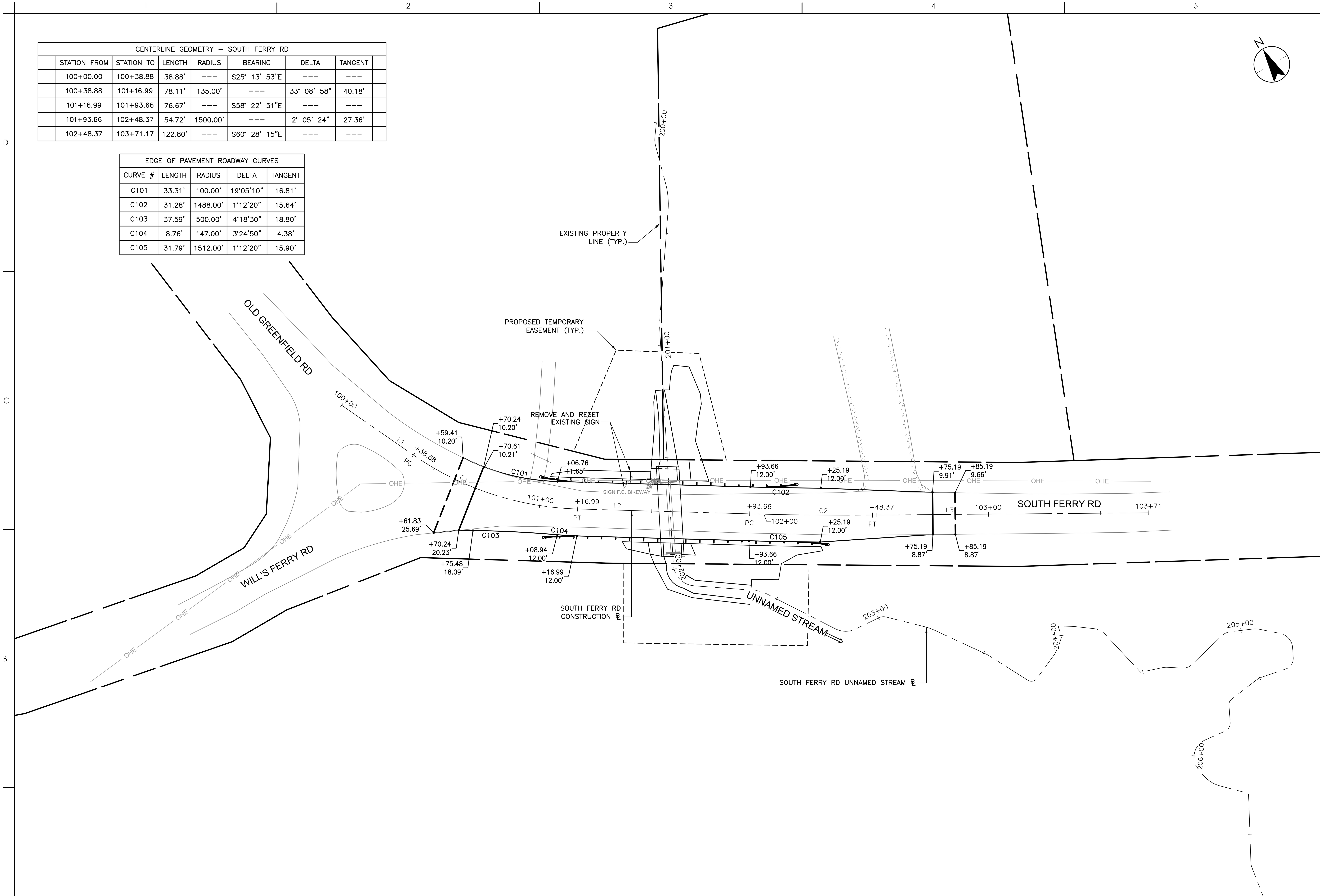
Project No. 195113487
Scale 1"=10'

Revision 0
Sheet 9 of 19
Drawing No. C-203

ORIGINAL SHEET - ARCH D

CENTERLINE GEOMETRY — SOUTH FERRY RD						
STATION FROM	STATION TO	LENGTH	RADIUS	BEARING	DELTA	TANGENT
100+00.00	100+38.88	38.88'	---	S25° 13' 53"E	---	---
100+38.88	101+16.99	78.11'	135.00'	---	33° 08' 58"	40.18'
101+16.99	101+93.66	76.67'	---	S58° 22' 51"E	---	---
101+93.66	102+48.37	54.72'	1500.00'	---	2° 05' 24"	27.36'
102+48.37	103+71.17	122.80'	---	S60° 28' 15"E	---	---

EDGE OF PAVEMENT ROADWAY CURVES				
CURVE #	LENGTH	RADIUS	DELTA	TANGENT
C101	33.31'	100.00'	19°05'10"	16.81'
C102	31.28'	1488.00'	1°12'20"	15.64'
C103	37.59'	500.00'	4°18'30"	18.80'
C104	8.76'	147.00'	3°24'50"	4.38'
C105	31.79'	1512.00'	1°12'20"	15.90'



PAVEMENT LAYOUT AND SIGNAGE PLAN

0 20' 40'

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision | By | Appd | YYYY.MM.DD

Issued | By | Appd | YYYY.MM.DD

File Name: 13487-10-PAVEMENT LAYOUT & SIGNING | AJG | BMR | BMR | 2023-07-15
Dwn. | Dsgn. | Chkd. | YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

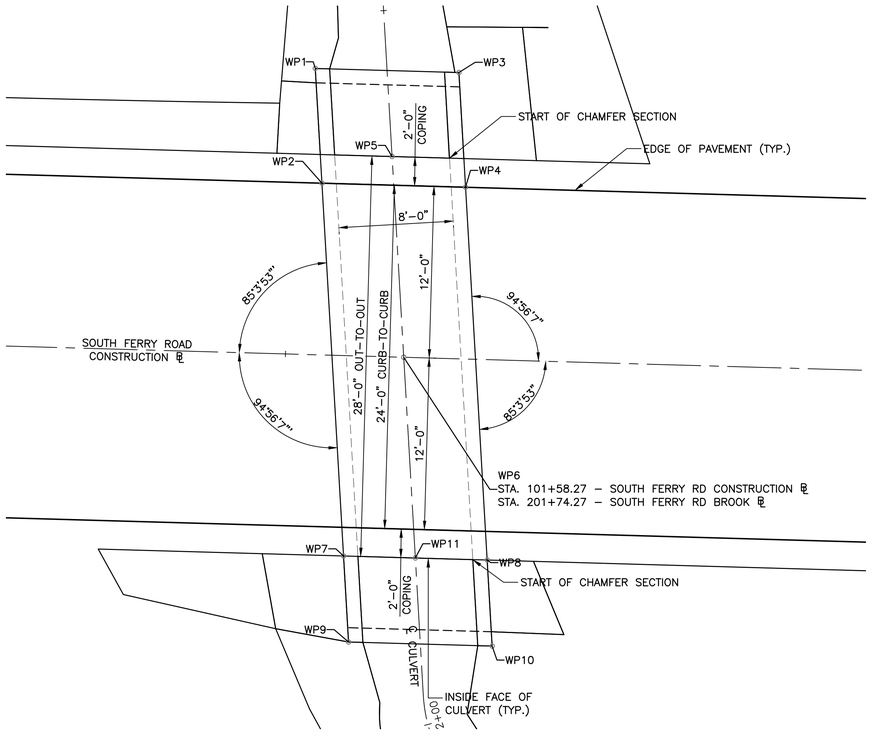
Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
PAVEMENT LAYOUT AND SIGNAGE PLAN

Project No. 195113487
Scale 1"=20'
Revision 0
Sheet 10 of 19
Drawing No. **C-204**

ORIGINAL SHEET - ARCH D

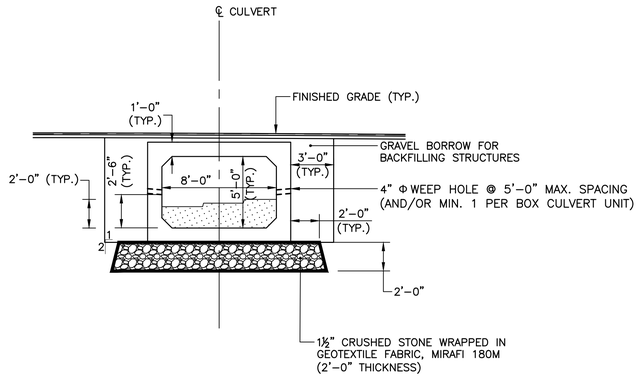


CULVERT LAYOUT

SCALE: 1" = 5'-0"

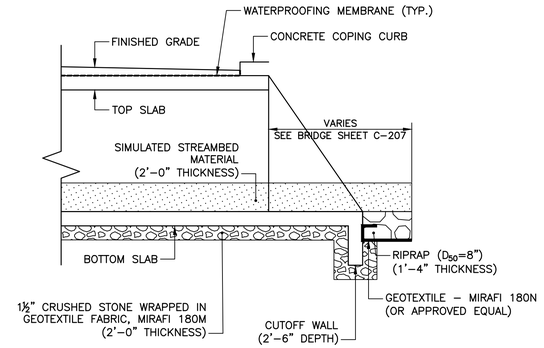
0 5' 10'

WORKING POINT COORDINATES		
WORKING POINT	NORTHING	EASTING
WP1	3025240.5955	373089.3337
WP2	3025233.4209	373085.7278
WP3	3025235.3333	373097.8809
WP4	3025228.1587	373094.2750
WP5	3025232.5835	373090.9029
WP6	3025220.0279	373084.5925
WP7	3025210.1035	373074.0086
WP8	3025204.8413	373082.5558
WP9	3025204.7226	373071.3042
WP10	3025199.4604	373079.8514
WP11	3025207.4724	373078.2822



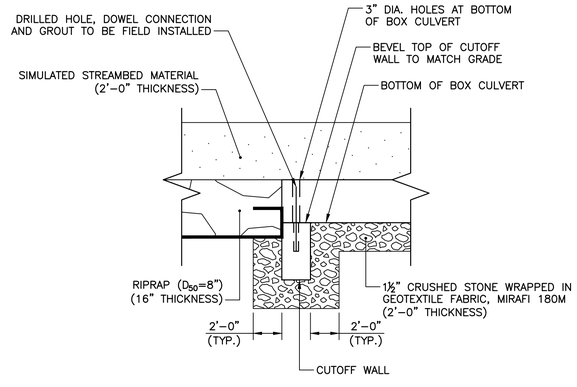
BOX CULVERT TYPICAL SECTION

NOT TO SCALE



INLET/OUTLET DETAIL

NOT TO SCALE



CUTOFF WALL DETAIL

NOT TO SCALE

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

File Name: 13487-11-BRIDGE DETAILS	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

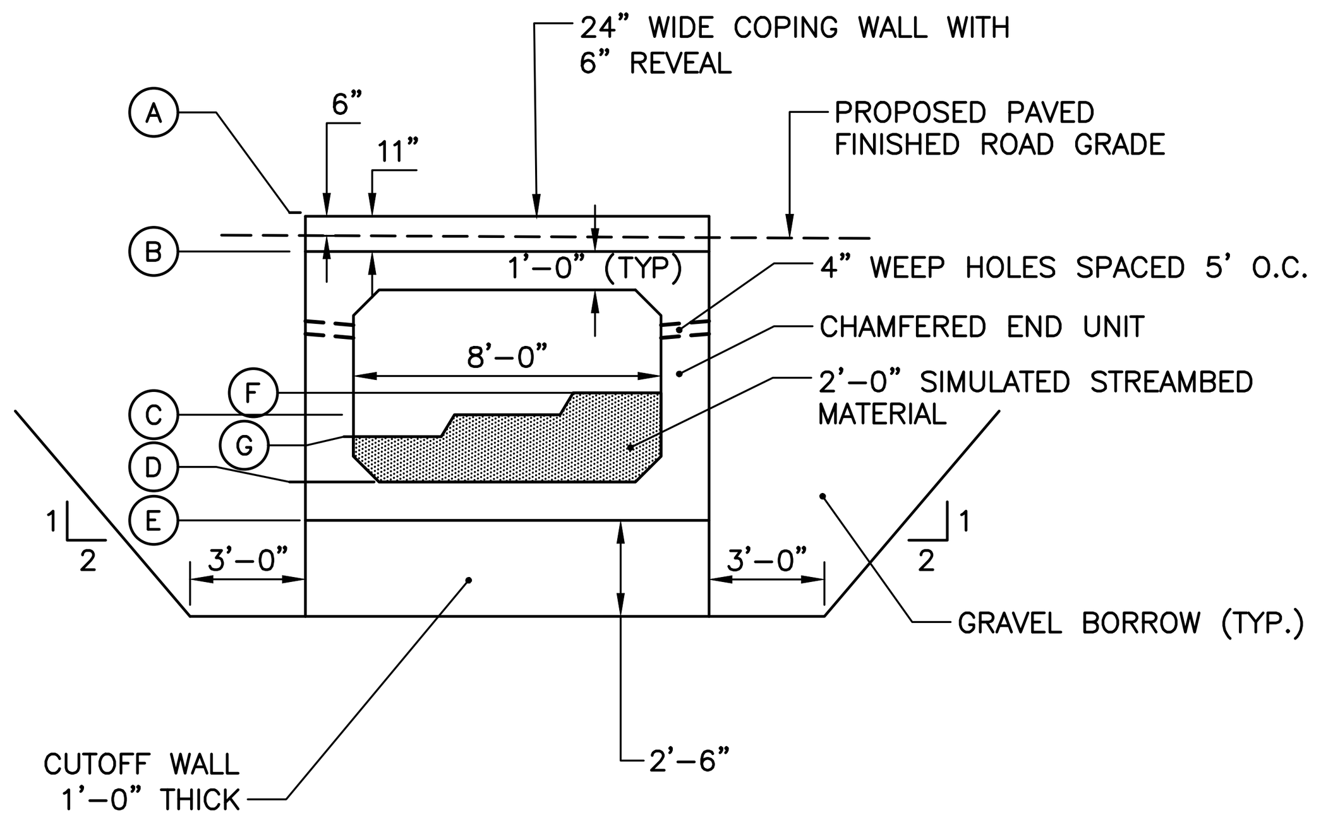
Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
BOX CULVERT DETAILS (1 OF 2)

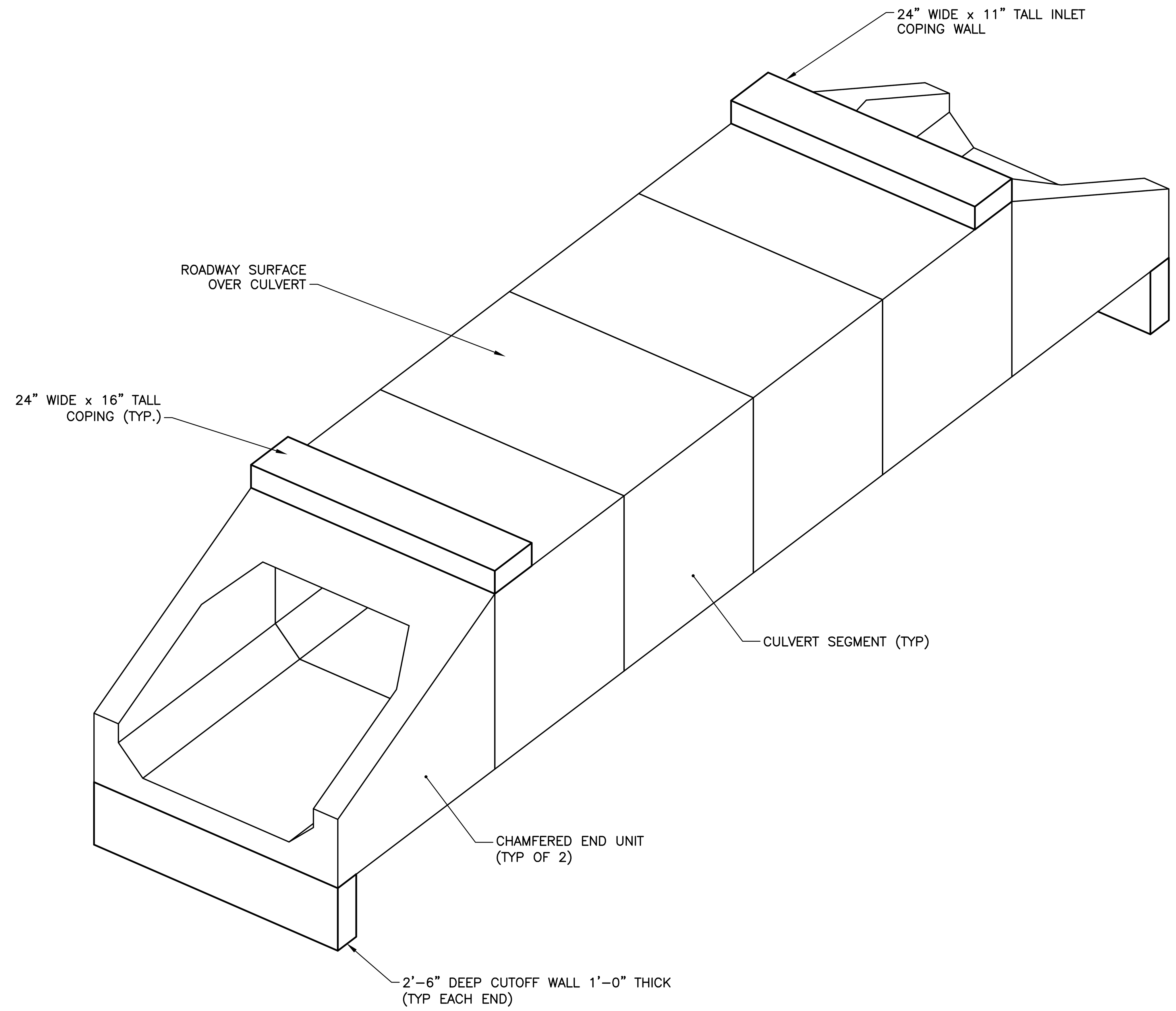
Project No.	Scale
195113487	AS NOTED

Revision	Sheet	Drawing No.
0	11 of 19	C-205

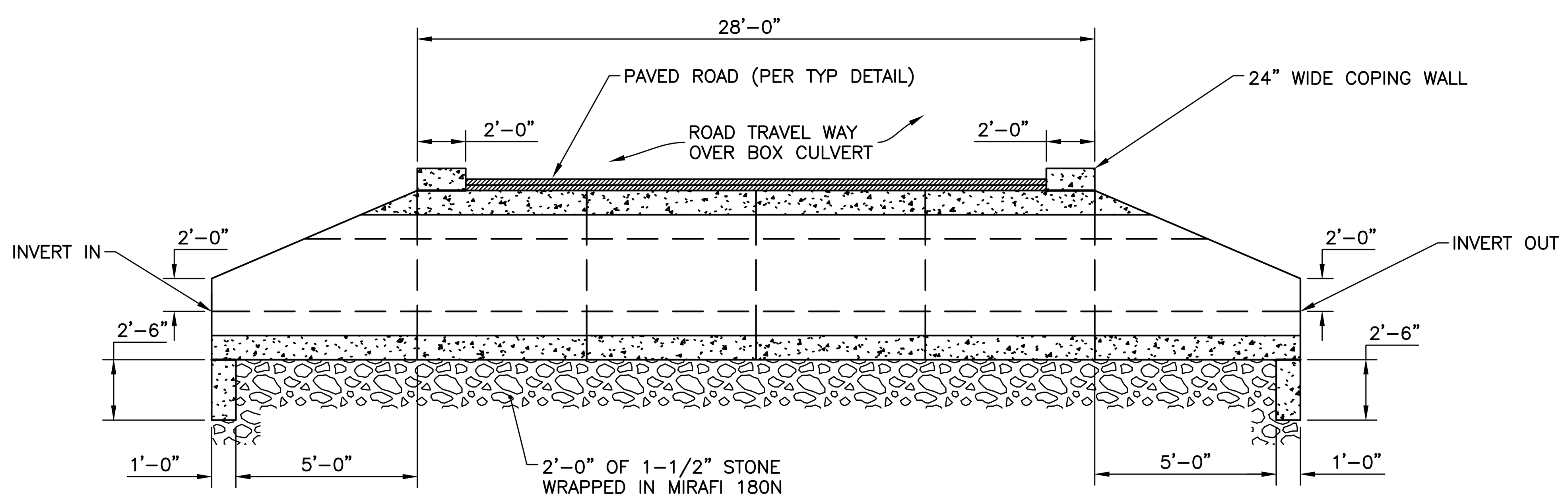


BOX CULVERT END SECTION
SCALE: 1" = 5'-0"

ELEVATONS TABLE			
	INLET	OUTLET	DESCRIPTION
A	140.45	140.25	TOP OF COPING
B	139.54	138.75	TOP OF BOX CULVERT
C	135.54	134.75	STREAM BED INVERT
D	133.54	132.75	BOX CULVERT INVERT
E	132.54	131.75	BOTTOM OF BOX CULVERT
F	136.04	135.25	TERRESTRIAL PASSAGE
G	135.04	134.25	LOW FLOW CHANNEL



BOX CULVERT ISOMETRIC
NOT TO SCALE



NORTH END
"INLET"

SOUTH END
"OUTLET"

BOX CULVERT SECTION
SCALE: 1" = 5'-0"

Stantec
Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision | By | Appd | YYYY.MM.DD

Issued | By | Appd | YYYY.MM.DD

File Name: 13487-11-BRIDGE DETAILS | AJG | BMR | BMR | 2023-07-15
Dwn. | Dsgn. | Chkd. | YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

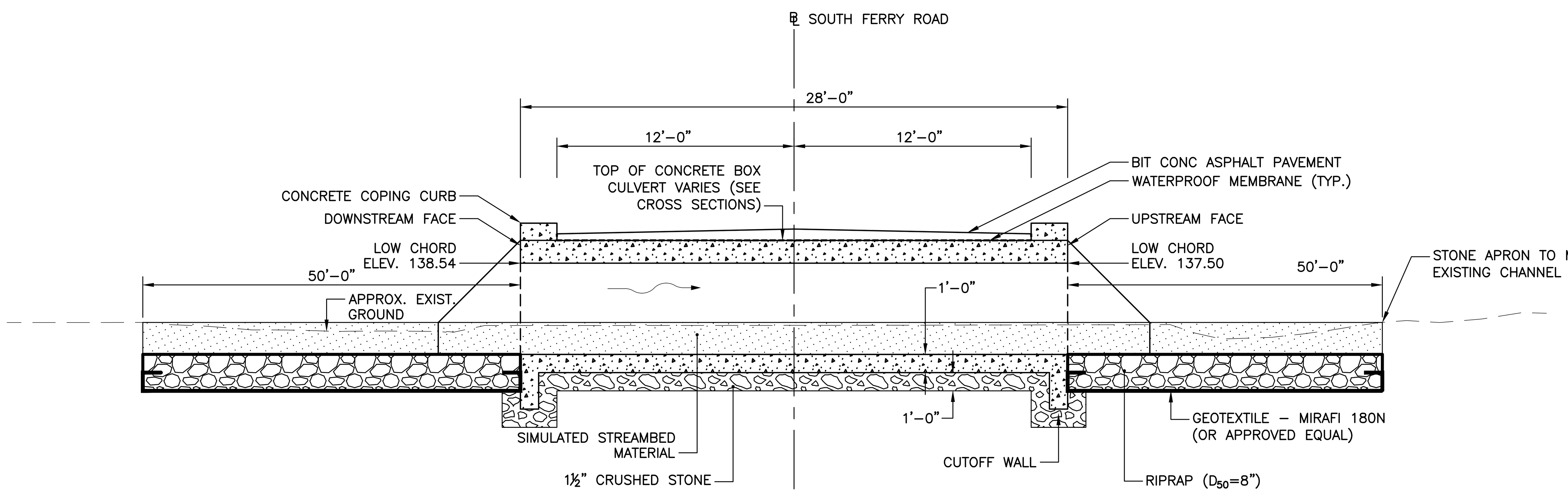
Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

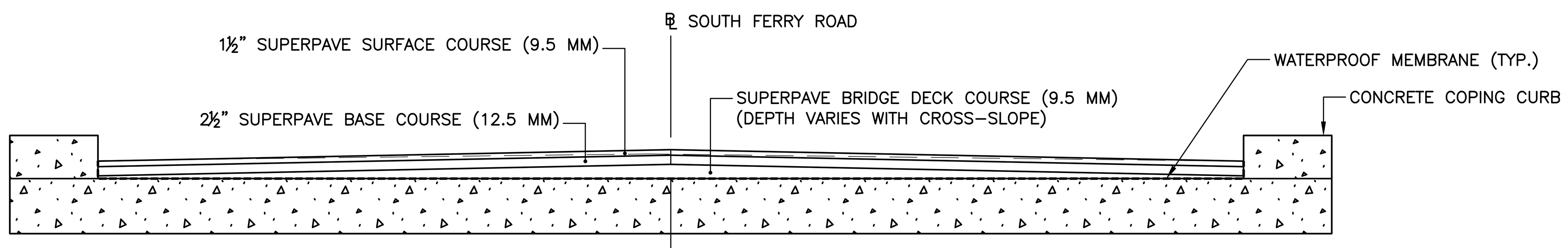
Title
BOX CULVERT DETAILS (2 OF 2)

Project No. 195113487
Scale AS NOTED
Revision 0
Sheet 12 of 19
Drawing No. C-206

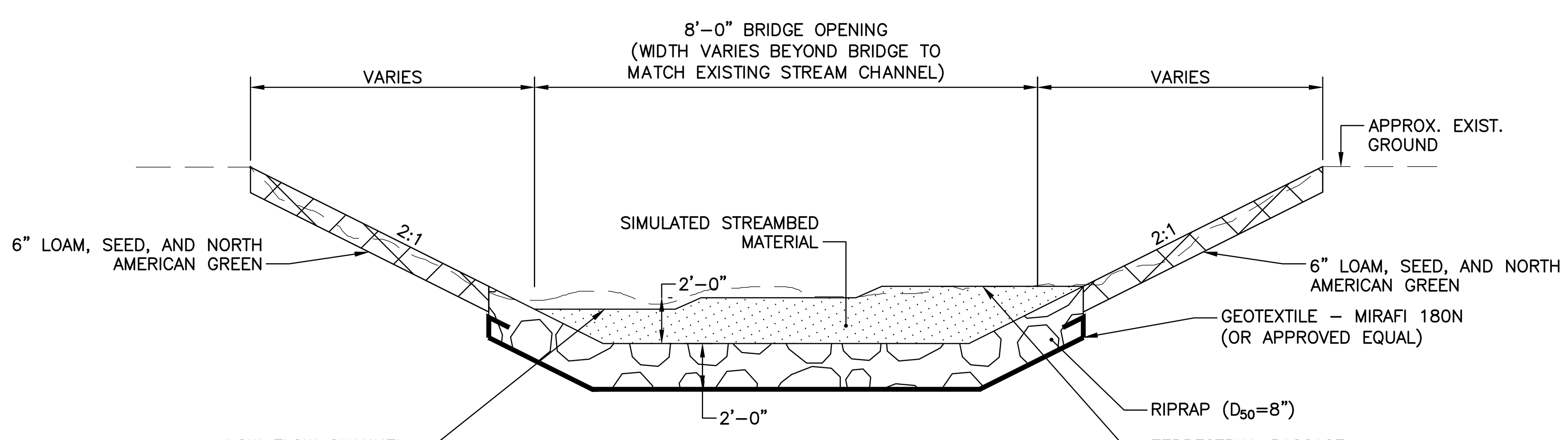
ORIGINAL SHEET - ARCH D



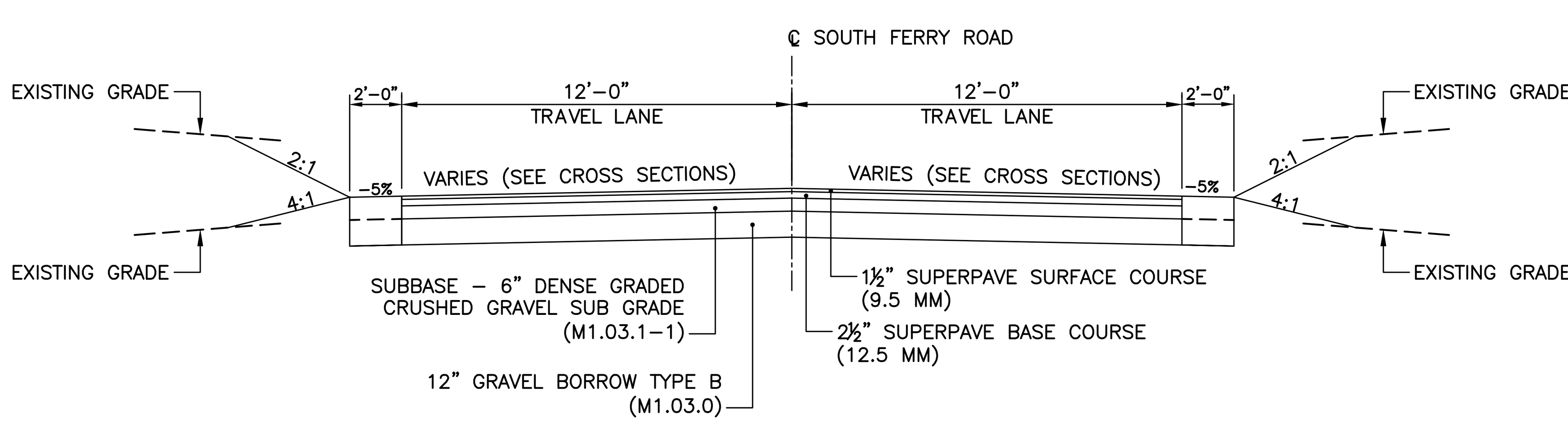
TYPICAL LONGITUDINAL SECTION ALONG PRECAST STRUCTURE
NOT TO SCALE



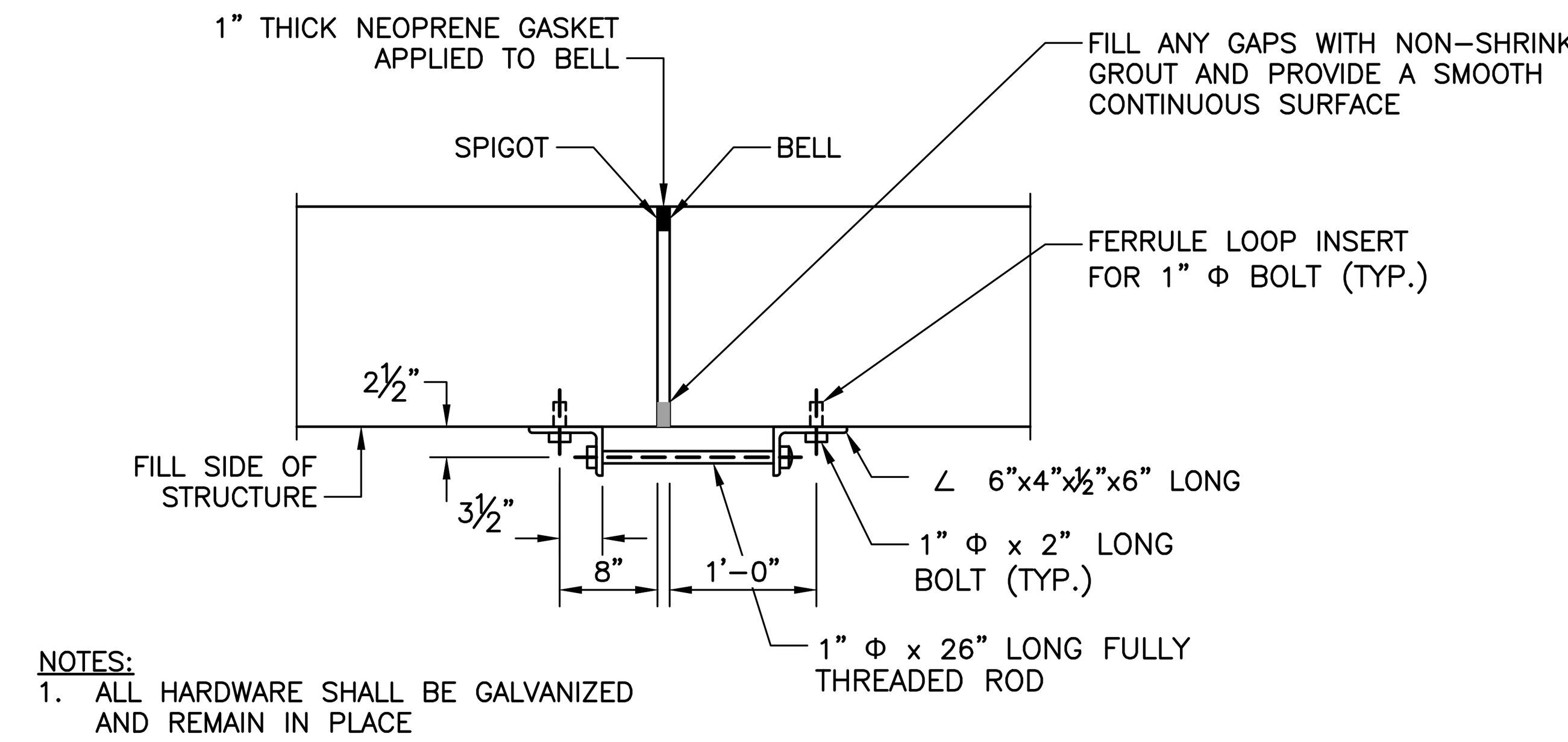
BRIDGE PAVING DETAIL
NOT TO SCALE



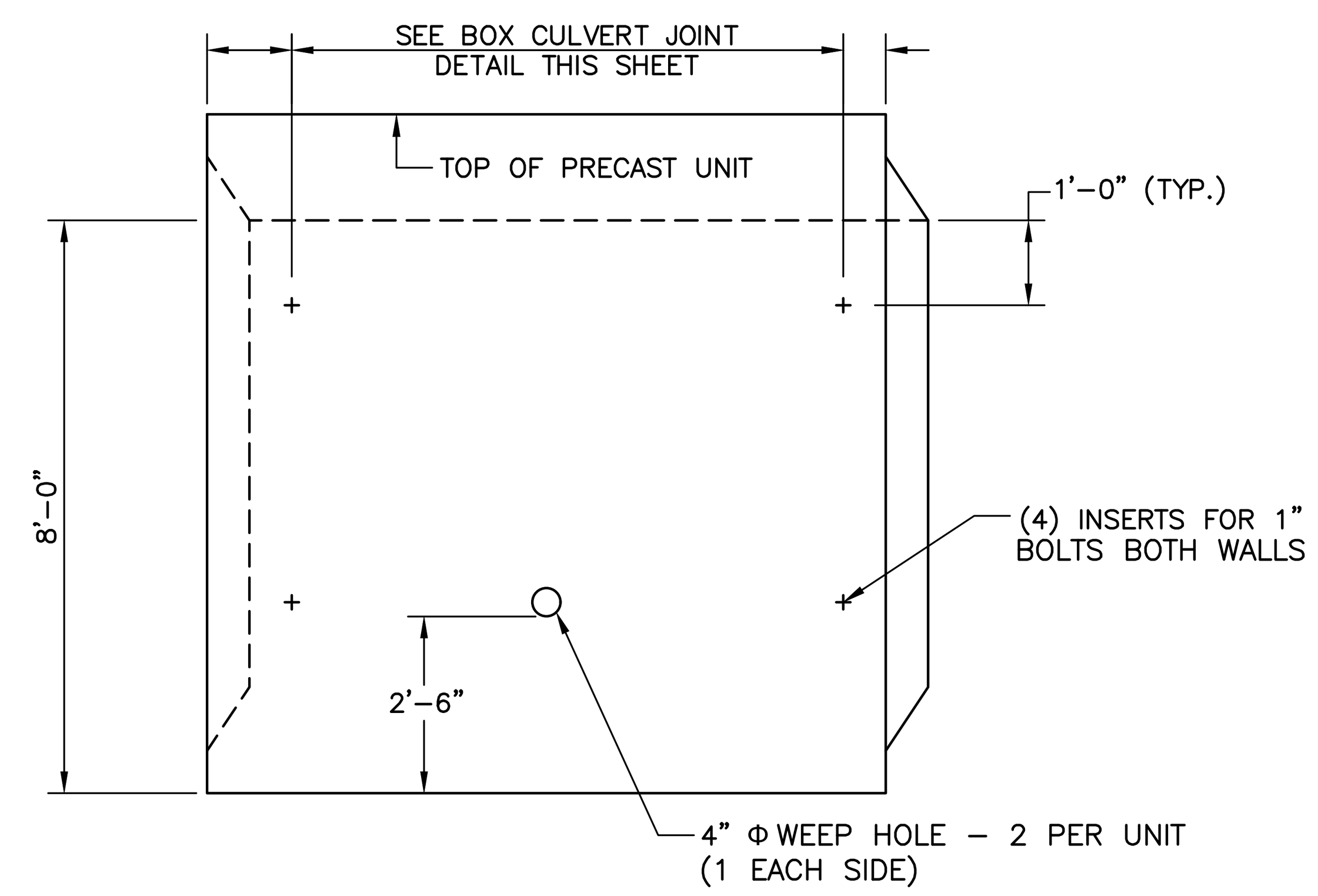
TYPICAL CHANNEL CROSS-SECTION
NOT TO SCALE



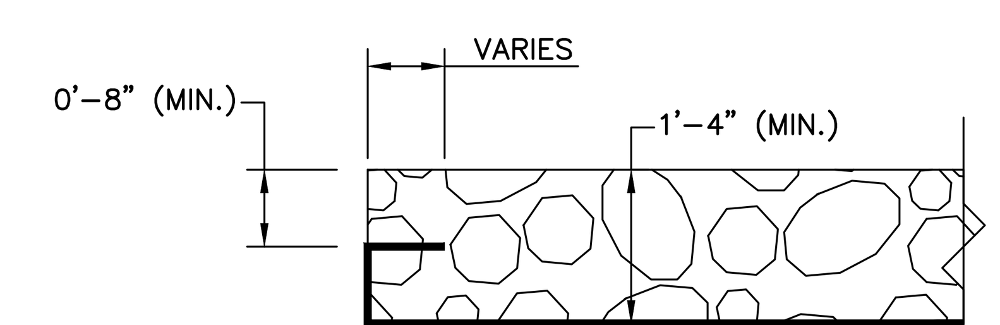
TYPICAL ROADWAY SECTION
NOT TO SCALE



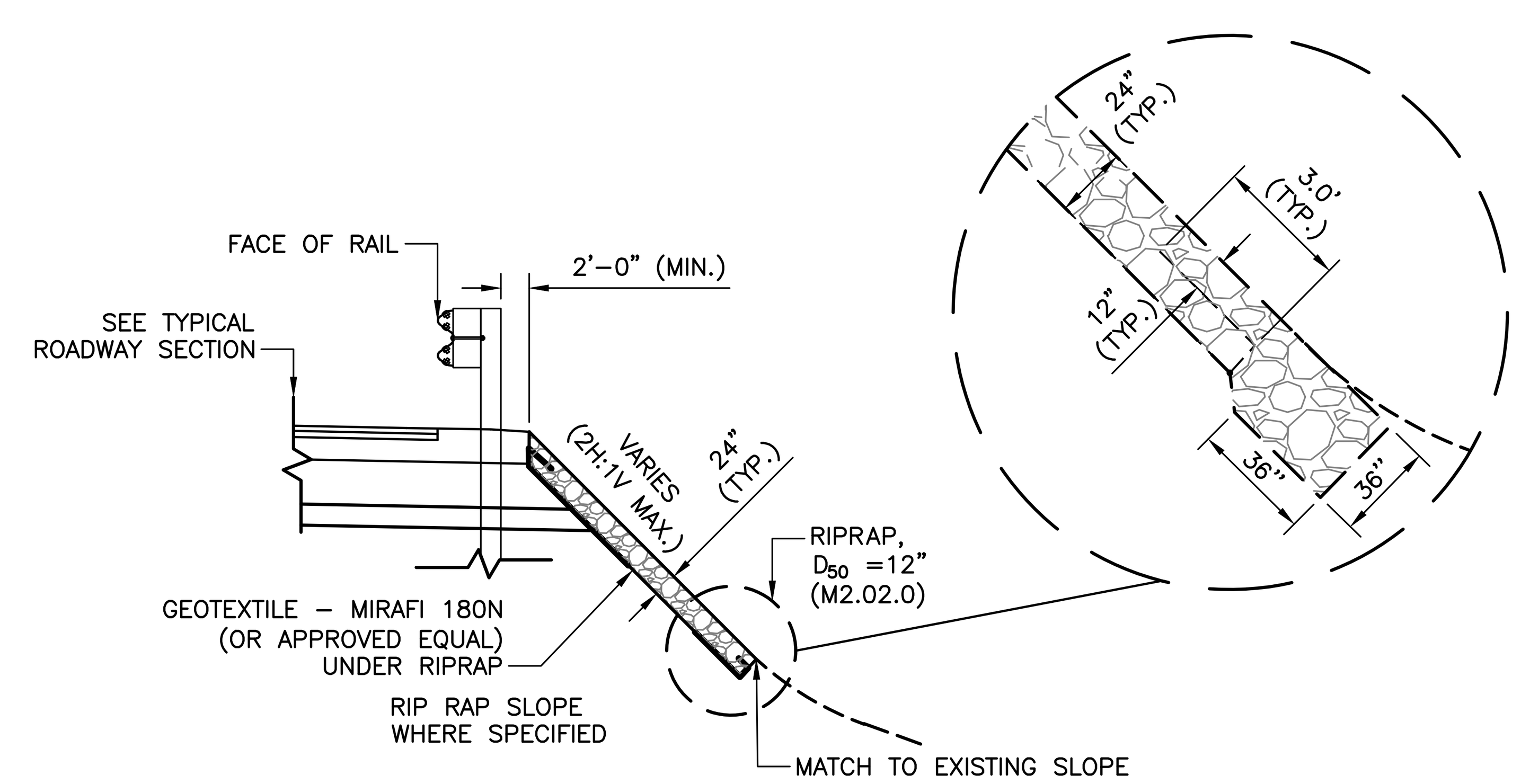
STRUCTURE JOINT DETAIL
NOT TO SCALE



FERRULE LOOP INSERT LAYOUT
NOT TO SCALE



RIPRAP (D_{50}=8") - END GEOTEXTILE DETAIL
NOT TO SCALE



TYPICAL RIPRAP SLOPE SECTION
NOT TO SCALE

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
File Name: 13487-11-BRIDGE DETAILS	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

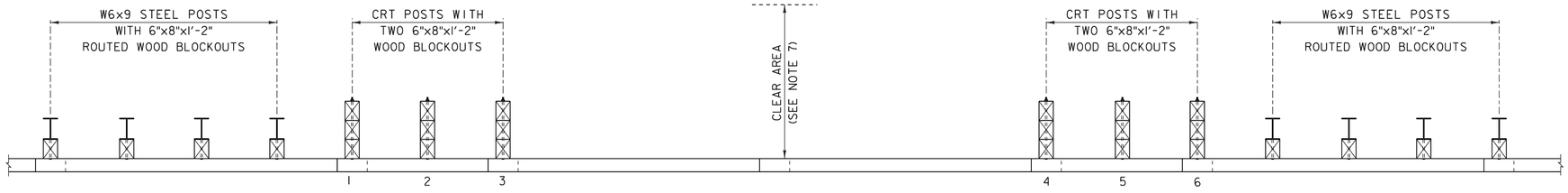
SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
BOX CULVERT AND CHANNEL DETAILS

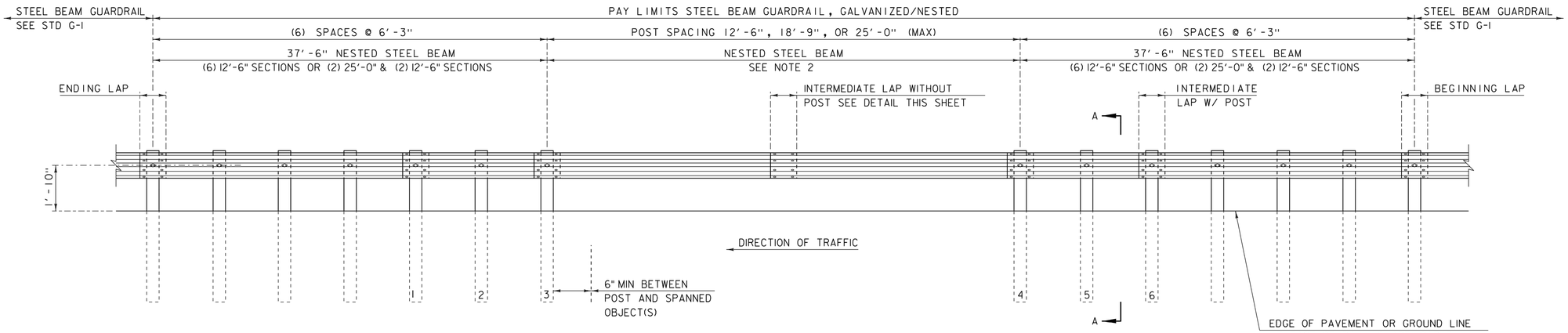
Project No. 195113487
Scale AS NOTED

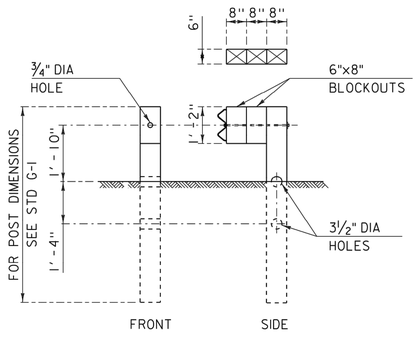
Revision 0
Sheet 13 of 19
Drawing No. **C-207**

ORIGINAL SHEET - ARCH D



LONGSPAN STEEL BEAM GUARDRAIL PLAN

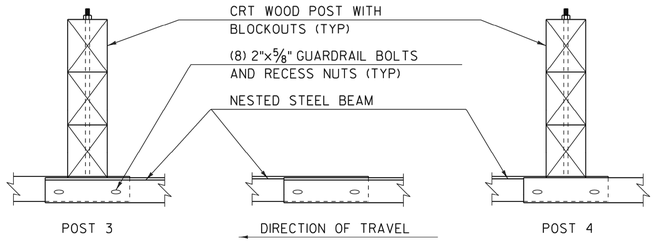




SECTION A-A

SECTION A-A TYPICAL FOR POST 1-6.
SEE NOTES 3 AND 4

LONGSPAN STEEL BEAM GUARDRAIL ELEVATION



INTERMEDIATE LAP WITHOUT POST

NOTES:

1. RAIL MEETS REQUIREMENTS OF NCHRP REPORT 350, TEST LEVEL 3; AS APPROVED IN FHWA ACCEPTANCE DOCUMENT HMHS-B58 (DATED: OCTOBER 8, 1999)
2. THERE SHALL BE NO MORE THAN ONE SPLICE IN THE LONGSPAN LOCATION.
3. POSTS 1 THRU 6 ARE BREAKAWAY CONTROLLED RELEASING TERMINAL (CRT) POSTS.
4. POSTS 1 THRU 6 HAVE TWO 6"x8" BLOCKOUTS.
5. ON POSTS 1 THRU 6, GUARDRAIL BOLT "D" AS SHOWN ON STD G1, SHALL BE 26" LONG.
6. ON ALL POSTS WHERE THE RAIL IS NESTED, GUARDRAIL BOLT "A" AS SHOWN ON STD G1, SHALL BE 2" LONG.
7. CLEAR AREA BEHIND BACK OF RAIL SHALL BE:
   5'-0" MINIMUM FOR OBSTRUCTIONS LESS THAN OR EQUAL TO THE HEIGHT OF RAIL.
   6'-0" FOR OBSTRUCTIONS TALLER THAN THE TOP OF RAIL.
8. W6x9 STEEL POST MAY BE REPLACED WITH CRT WOOD POST WITH THE APPROVAL OF THE ENGINEER.
9. ALL MATERIALS NECESSARY FOR THE ASSEMBLY OF THE RAIL MUST MEET THE REQUIREMENTS OF STD G-1 UNLESS OTHERWISE NOTED.
10. GUARDRAIL SECTIONS SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW FOR THE LANE NEAREST THE GUARDRAIL.

OTHER STDS. REQUIRED: **G-1, G-1D**

LONGSPAN STEEL BEAM GUARDRAIL, GALVANIZED

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

File Name: 13487-11-RAIL	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

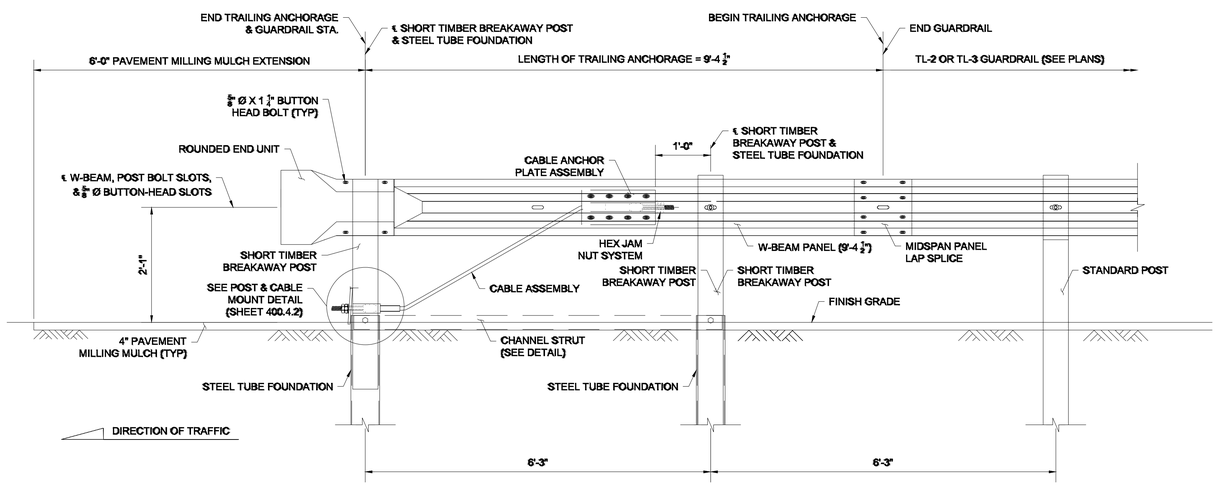
Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

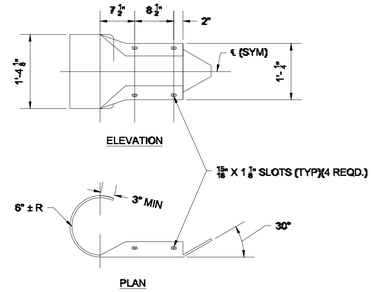
Title
GUARDRAIL DETAILS (1 OF 3)

Project No.	Scale
195113487	AS NOTED

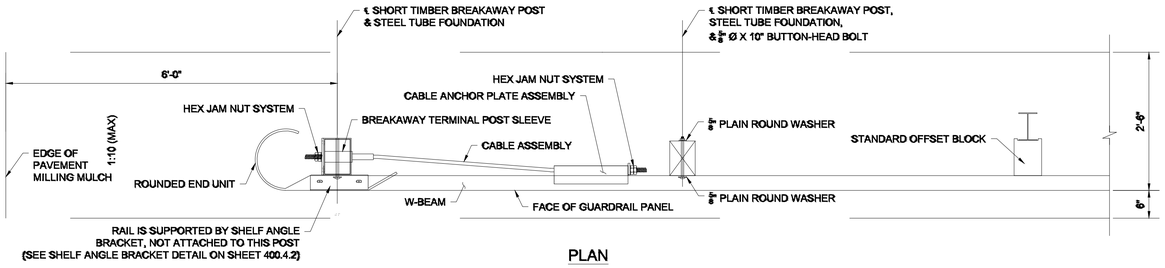
Revision	Sheet	Drawing No.
0	14 of 19	C-301



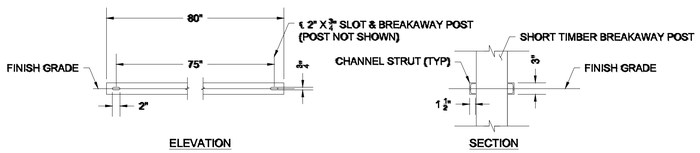
ELEVATION



ROUNDED END UNIT



PLAN



CHANNEL STRUT

NOTES:

1. FOR ADDITIONAL DETAILS, SEE 400.4.2.
2. LAP THE ROUNDED END UNIT OVER THE FACE OF THE W-BEAM PANEL.
3. INSTALL STEEL TUBE FOUNDATIONS BY ONE OF THE FOLLOWING METHODS:
   - A. EXCAVATE, INSTALL TUBE, BACKFILL, AND SUITABLY COMPACT MATERIALS; OR
   - B. DRIVE THE TUBE USING A DUMMY TIMBER POST TO PREVENT DAMAGE TO THE SHORT BREAKAWAY POST.

CONSTRUCTION STANDARDS

TRAILING ANCHORAGE

DATE OF ISSUE: OCTOBER 2017

DRAWING NUMBER

TRAILING ANCHORAGE DETAIL

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD
Issued	By	Appd	YYYY.MM.DD
File Name: 13487-11-RAIL	AJG Dwn.	BMR Dsgn.	BMR Chkd.	2023-07-15 YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
GUARDRAIL DETAILS (2 OF 3)

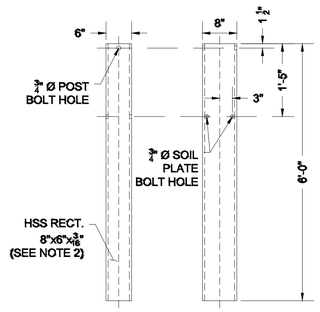
Project No.
195113487

Scale
AS NOTED

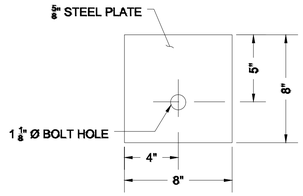
Revision
0

Sheet
15 of 19

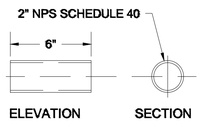
Drawing No.
C-302



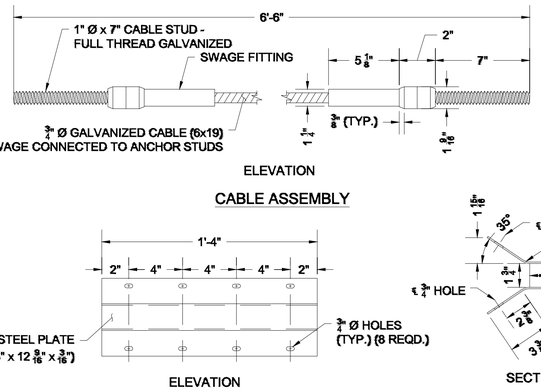
STEEL TUBE FOUNDATION



BCT BEARING PLATE

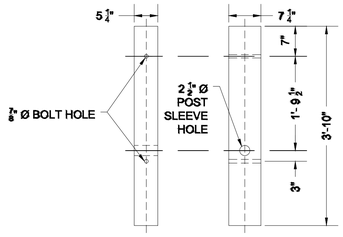


BREAKAWAY TERMINAL POST SLEEVE

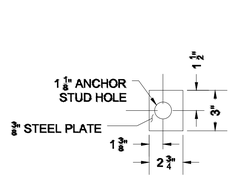


CABLE ASSEMBLY

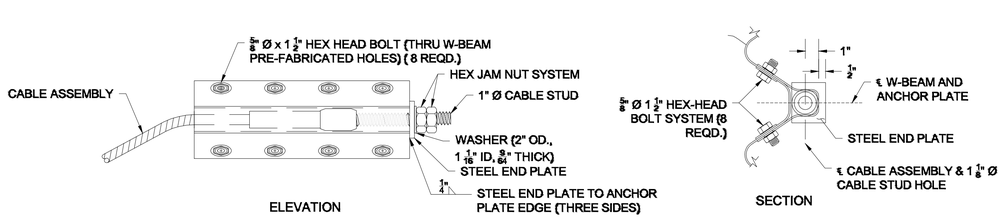
CABLE ANCHOR PLATE



SHORT TIMBER BREAKAWAY POST (6"x8" NOM.)

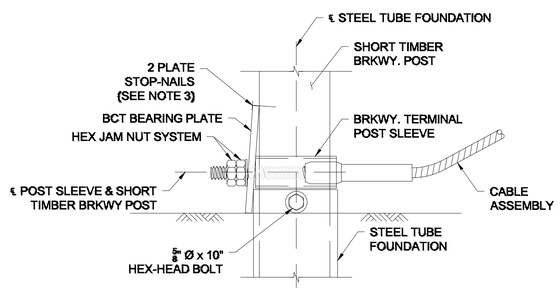


STEEL END PLATE



CABLE ANCHOR PLATE ASSEMBLY

SHELF ANGLE BRACKET



POST & CABLE MOUNT ASSEMBLY

NOTES:

1. HEX NUTS, HEX JAM NUTS AND WASHERS SHALL BE IN ACCORDANCE WITH AASHTO-ARTBA-AGC *A GUIDE TO STANDARDIZING HIGHWAY BARRIER HARDWARE*. TWO HEX NUTS MAY BE USED FOR THE HEX JAM SYSTEM.
2. DRIVE TWO ASTM A153 HOT DIP GALVANIZED STEEL 2 1/2" TYPE 8D NAILS TO PREVENT ROTATION OF THE BCT BEARING PLATE.

TRAILING ANCHORAGE COMPONENT DETAILS

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD
Issued	By	Appd	YYYY.MM.DD
File Name: 13487-11-RAIL	AJG Dwn.	BMR Dsgn.	BMR Chkd.	2023-07-15 YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
GUARDRAIL DETAILS (3 OF 3)

Project No.
195113487

Scale
AS NOTED

Revision
0

Sheet
16 of 19

Drawing No.
C-303

GENERAL NOTES AND SPECIFICATIONS FOR EROSION CONTROL

1. The contractor is responsible for water control during all phases of construction. No work shall be performed in flowing water. Streams shall be temporarily dammed by use of sand bags or other suitable means. The diversion shall be accomplished by temporary culverts or by pumping. Dewatering of the work area shall be discharged to an appropriately sized dewatering basin surrounded by erosion and sediment controls.

2. This plan is to be used as a guideline only. Additional erosion and sediment controls may be dictated by field conditions.

3. The Contractor is responsible for complying with all local, state, and federal regulations.

4. Temporary Stabilization:
All disturbed areas shall have temporary or permanent stabilization within 14 days of initial disturbance. After this time any disturbance shall be stabilized by the end of the day, with the following exceptions:

(1) Stabilization is not required if work is to continue in the area in the next 24 hours and there is no precipitation forecast for the next 24 hours.

(2) Stabilization is not required if the work is in a self–contained excavation with a depth of 2 feet or mare.

5. Temporary Stabilization Measures may include but are not limited to:

(1) Hay or straw mulch with a thickness of at least 2 inches.

(2) Soil tracking with tracked equipment. Should be limited to small areas with slopes less than 100 feet long (less than 50 feet with slopes steeper than 3:1)

(3) A combination of the above.

(4) Erosion Control matting.

6. Materials may include but are not limited to:
A. Mulch material: Select mulch material for erosion control that will best meet the site conditions from the following.

(1) Hay or straw – Shall be dry, free of mold and weed seeds. Hay or straw can be used on disturbed areas that will not be reworked for 7 to 30 days.

(2) Wood Chips – Shall be dry, free of soil and other foreign material.

(3) Rolled Erosion Control Products (RECP) – Shall be dry, and shall be made of straw or hay, coconut and related fibers, wood excelsior, jute, polypropylene, nylon, or an approved combination of different materials.

B. Mulch Anchoring: When mulch must be held in place, the following mulch anchoring material shall be used:
(1) Mulch Netting (Paper, twine, plastic, or plastic and wood fiber).

C. Lime: Ground limestone containing not less than 95% total carbonates (calcium or magnesium).

D. Temporary Seed Mixture: When it is impractical to establish permanent protective vegetation on disturbed earth by October 15, use "Conservation Mix" or the following seed mixture. Disturbed areas that will not be reworked for 30 days or more shall also receive temporary seed and mulch.

Kind of Seed:	% By Weight
Annual Ryegrass	50
Perennial Ryegrass	50

Apply seed mixture at 50 pounds per acre.

E. Permanent Seed Mixture: (Not for Wetland Restoration):

(1) For MassDOT slopes and shoulders restoration of growth: Shall normally be used on loam areas. This seed shall conform to the following:

Slopes and Shoulders

Kind of Seed:	Proportion	Germination Minimum	Purity Minimum
Creeping Red Chewings, and/or Hard Fescue	50%	85%	95%
Tall Fescue	35%	85%	95%
Perrenial Rye	5%	90%	98%
Red Top	5%	85%	92%
Dutch White Clover	5%	85%	96%

7. Seeding and Mulching:
A. All areas shall be seeded and mulched within 48 hours of final grading.

B. Soil samples may be sent to the county extension service for analysis to determine the proper seed mixture and fertilizer requirements.

C. The following procedures shall be followed for temporary seeding:

(1) Apply seed mixture at a rate of 50 pounds per acre and additional 3–4 lbs. per 1000 square feet for sloped areas of 45% and greater evenly in two intersecting directions. Rake lightly.

(2) Apply mulch material within 24 hours after seeding in accordance with the following:

(A) Hay or Straw: Application rate – 75 to 100 pounds per 1000 square feet. Spread by hand or with machine. Anchor on slopes and where subject to blowing or slipping.

(B) Wood Chips – Application rate – Two to six inches deep. Use for tree and shrub planting.

(3) Anchor mulch on all slopes exceeding 5% and other areas as required using the following method:

(A) Mulch Netting: Spread over loose mulch and pin to the soil in accordance with the manufacturer's instructions.

D. When temporary seeding cannot be accomplished to have established or visible growth by October 15, the disturbed areas shall be covered with 6 inches of mulch and anchored or erosion control blankets for the duration of the winter.

8. Maintenance of Erosion Control Structures:

A. Stone check dams shall be replaced when they become clogged with soil particles or as directed by the owner/representative.

B. When the sediment accumulation reaches a depth of 12 inches behind the silt fence, it shall be disposed of.

C. Repair all damages caused by soil erosion or construction equipment at or before the end of each working day.

D. Stone stabilized construction entrances shall be inspected to ensure tracking of sediments onto public right–of–ways or streets is not occurring. Maintenance may include periodic top dressing with additional aggregate to ensure a minimum thickness of eight inches.

E. All measures shall be removed within 30 days of stabilization.

10. Wetland Restoration and seeding notes

(1) Hydric soils shall be translocated from impacted wetland, as practicable, for use in restoration after base grading is completed.

(2) Topsoil shall be placed to a minimum depth of 6 inches in the replication area when establishing the final grades.

(3) Prior seeding, soils shall be shallowly harrowed/raked (i.e., to a depth < 4 inches) by hand.

(4) Seed shall be applied in early spring or mid fall.

(5) Planting and seeding shall not occur when ground is frozen, snow covered, inundated or otherwise unsuitable.

(6) Seed shall be applied over exposed soils at a minimum rate of 1 pound per 2500 square feet.

(7) A light coating of straw shall be used to cover exposed/seeded soils.

9. Winter Erosion Control
A. All erosion control features such as silt fence must be in place prior to the ground freezing.

B. All disturbed areas of the site shall be seeded and mulched from October 15 to May 1 regardless of whether final grading has been finished. Work may continue through this period if the following winter erosion controls are implemented.

(1) Oat seeds shall be substituted for any other temporary annual grass seeds.

(2) All exposed earth shall be mulched with 6 inches of hay or straw. Slopes over 5% shall have an additional covering of staked jute mat or its equivalent.

C. The following maintenance items should be performed specifically for the various erosion control devices:

(1) Diversion Dike:
(A) Minimum inspection frequency – Weekly.
(B) Remove any flow blockage caused by ice or sediment.

(2) Mulch:
(A) Minimum inspection frequency – Daily.
(B) Replace mulch on any area where original mulch cover has been lost.

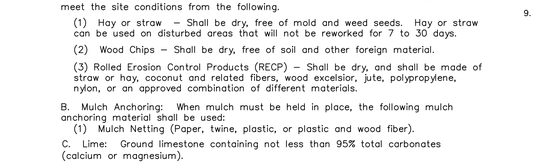
(3) Silt Fence:
(A) Minimum inspection frequency – Weekly.
(B) Clean and remove any collected sediment before predicted thaws or rainy periods.

(4) Stone Check Dam:
(A) Minimum inspection frequency – Weekly.
(B) Remove and replace clogged stone.

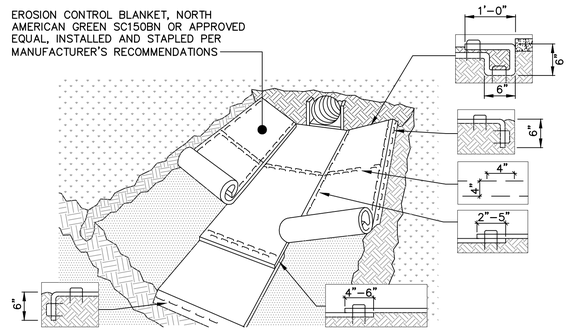
PROPOSED WETLAND SEED MIX

Botanical Name	Common Name	Indicator
Carex lurida	Lurid Sedge	OBL
Carex scoparia	Blunt Broom Sedge	FACW
Verbena hastata	Blue Vervain	FACW
Carex lupulina	Hop Sedge	OBL
Scirpus atrovirens	Green Bulrush	OBL
Panicum rigidulum	Redtop Panic Grass	FACW+
Deschampsia cespitosa	Tufted Hairgrass	FACW
Bidens aristosa	Tickseed Sunflower/Bur Marigold	FACW
Eleocharis palustris	Creeping Spike Rush	OBL
Juncus effusus	Soft Rush	FACW+
Carex crinita	Fringed Sedge	OBL
Mimulus ringens	Square Stemmed Monkey Flower	OBL
Aster puniceus	Swamp Aster	OBL
Eupatorium perfoliatum	Boneset	FACW
Glyceria canadensis	Rattlesnake Grass	OBL
Asclepias incarnata	Swamp Milkweed	OBL
Helenium autumnale	Common Sneezeweed	FACW+
Penthorum sedoides	Ditch Stonecrop	OBL

NOTE: "NEW ENGLAND WETMIX" FROM NEW ENGLAND WETLAND PLANTS, INC. APPLICATION RATE = 1 LB PER 2,500 SF. SEED MIX MAY BE MODIFIED DEPENDING UPON SEED AVAILABILITY WITH THE APPROVAL OF THE DESIGNATED WETLAND SCIENTIST. THE DESIGN CRITERIA AND ECOLOGICAL FUNCTION OF THE MIX SHALL REMAIN UNCHANGED.



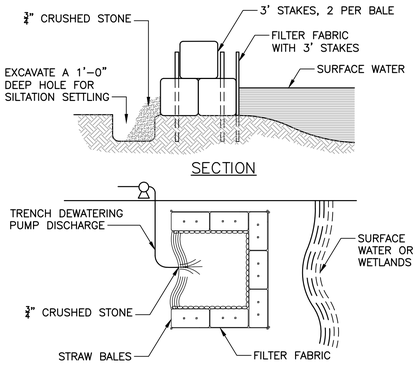
TYPICAL TOPSOIL STOCKPILE MOUND DETAIL
NOT TO SCALE



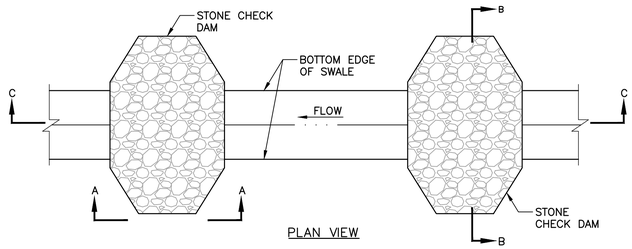
NOTES:

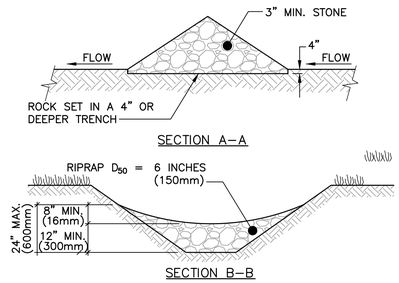
1. TO BE USED ON SLOPES 3 HORIZONTAL TO 1 VERTICAL OR STEEPER.
2. PREPARE SOIL INCLUDING APPLICATION OF LIME, FERTILIZER AND SEED PRIOR TO INSTALLING BLANKET

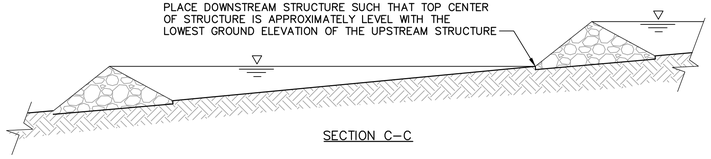
EROSION CONTROL BLANKET DETAIL
NOT TO SCALE



DEWATERING BASIN DETAIL
NOT TO SCALE



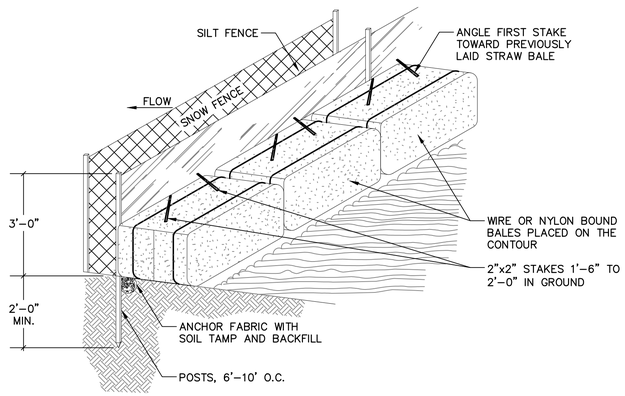




DITCH GRADE (G)	CHECK DAM SPACING(S)
0.02 FT/FT (M/M)	67.0 FT (20.5 M)
0.03 FT/FT (M/M)	44.5 FT (13.6 M)
0.04 FT/FT (M/M)	33.4 FT (10.2 M)
0.05 FT/FT (M/M)	26.7 FT (8.2 M)
0.06 FT/FT (M/M)	22.3 FT (6.8 M)

DO NOT USE CHECK DAMS BELOW 2% OR ABOVE 6% DITCH GRADES

STONE CHECK DAM DETAIL
NOT TO SCALE



SILT FENCE & STRAW BALE DETAIL
NOT TO SCALE

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

File Name: 13487-13-EROSION CONTROL DETAILS	AJG Dwn.	BMR Dsgn.	BMR Chkd.	2023-07-15 YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

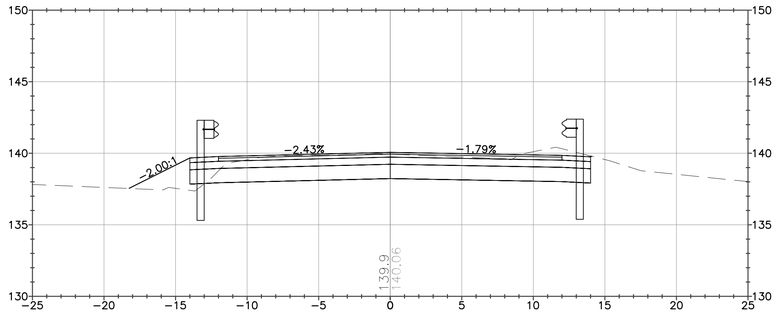
Client/Project Logo

Client/Project
TOWN OF MONTAGUE

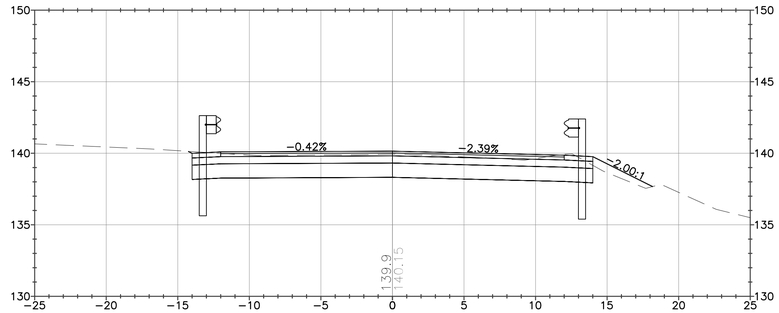
SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
EROSION AND SEDIMENTATION CONTROL DETAILS

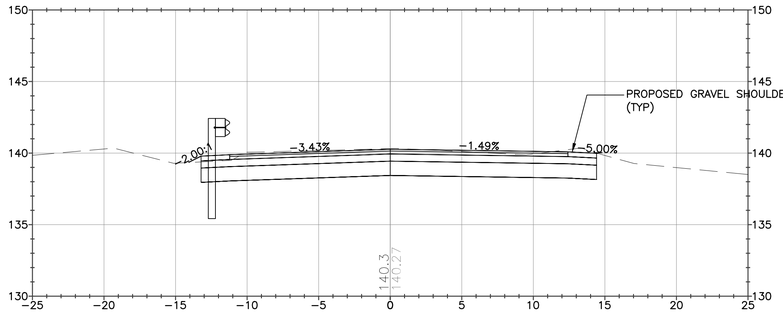
Project No.	Scale
195113487	AS NOTED
Revision 0	**Sheet** 17 of 19
	Drawing No. C-304



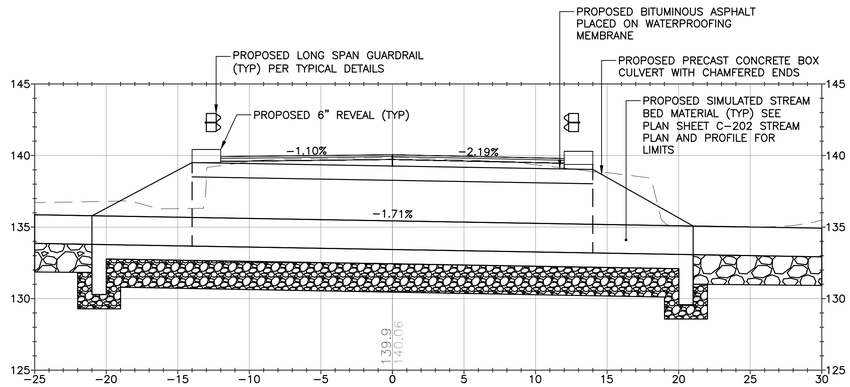
101+25.00



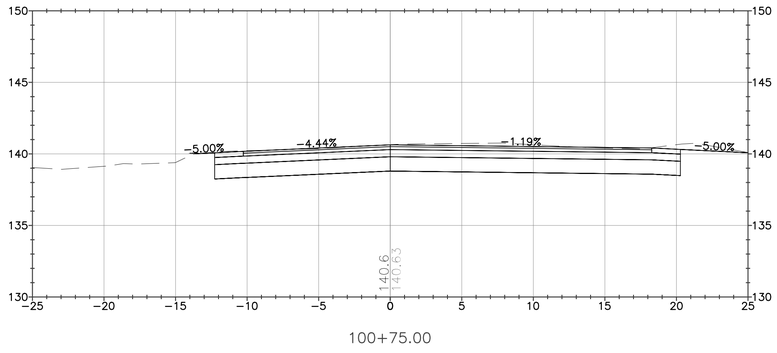
101+75.00



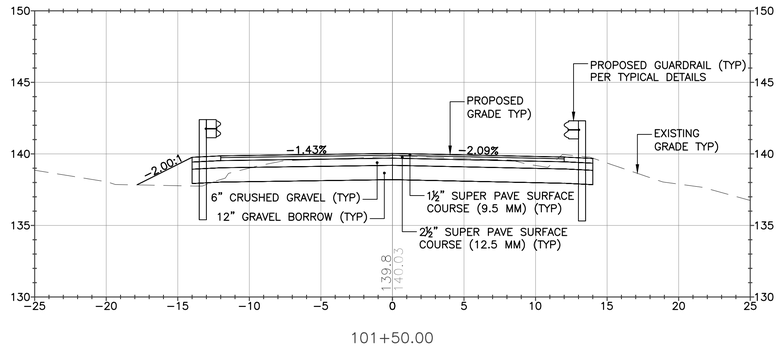
101+00.00



101+58.27



100+75.00



101+50.00

0 5' 10'

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

File Name: 13487_MODEL	AJG	BMR	BMR	2023-07-15
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Permit/Seal

PRELIMINARY NOT FOR CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
CROSS SECTIONS (1 OF 2)

Project No.
195113487

Scale
AS NOTED

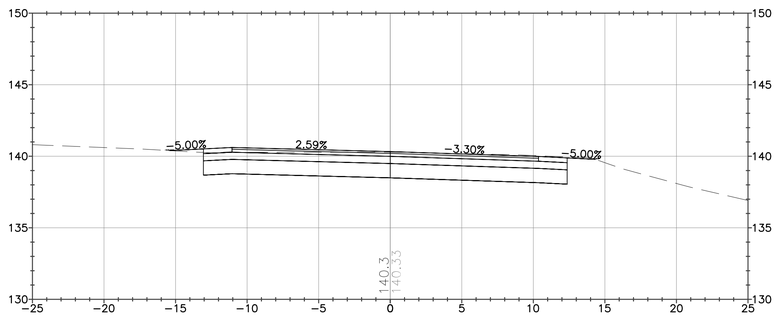
Revision
0

Sheet
18 of 19

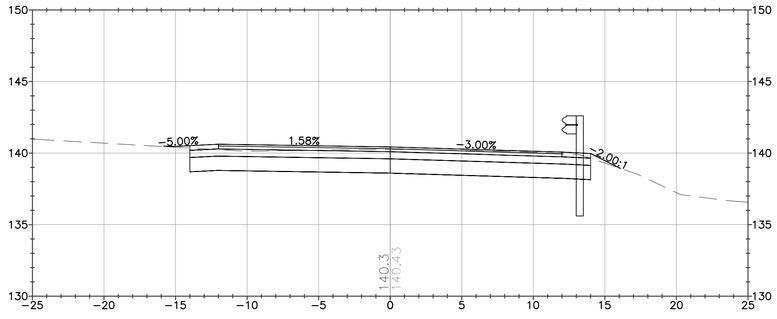
Drawing No.
C-401

\\us2007-pefs01\shared_projects\195113487\5_design_civil\drawings\civil\13487_model
2023.11.14 12:42:19 PM

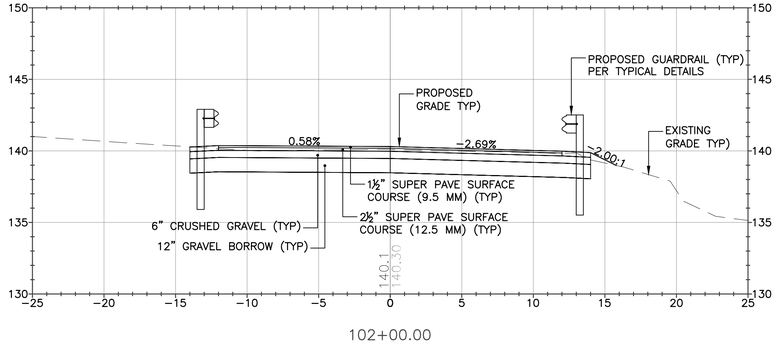
ORIGINAL SHEET - ARCH D



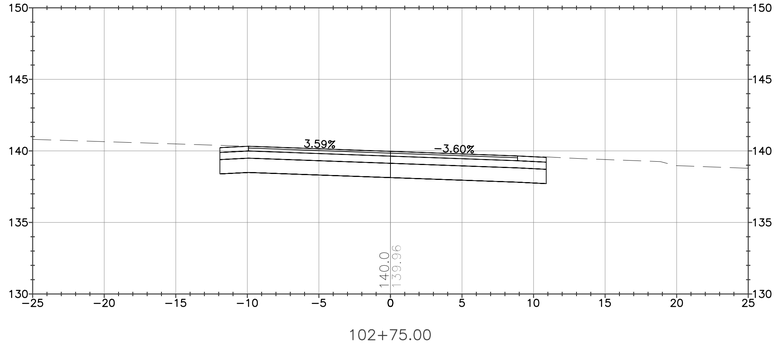
102+50.00



102+25.00



102+00.00



102+75.00

0 5' 10'

Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

Consultant

Notes

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
File Name: 13487_MODEL	AJG Dwn.	BMR Dsgn.	BMR Chkd.	2023-07-15 YYYY.MM.DD

Permit/Seal

PRELIMINARY
NOT FOR
CONSTRUCTION

Not for permits, pricing or other official purposes. This document has not been completed or checked and is for general information or comment only.

Client/Project Logo

Client/Project
TOWN OF MONTAGUE

SOUTH FERRY ROAD CULVERT REPLACEMENT

Title
CROSS SECTIONS (2 OF 2)

Project No.	Scale
195113487	AS NOTED
Revision 0	Sheet 19 of 19
Drawing No.	**C-402**

\\us069-ppfs01\shared_projects\195113487\3_design_civil\drawings\civil\13487_model
2023.11.14 12:42:27 PM

ORIGINAL SHEET - ARCH D

Montague Conservation Commission
Approved Date: February 12, 2024
DEP #229-0263/ NOI #2023-02
Approved Amended Order of Conditions

WETLAND RESTORATION / REPLICATION PLAN

Filed under
Massachusetts Wetlands Protection Act (M.G.L. Ch. 131 § 40)

South Ferry Road Culvert Replacement
Montague, MA

PROPONENT:
Town of Montague
Department of Public Works

PREPARED BY:

Epsilon Associates, Inc.
3 Mill & Main Place
Maynard, MA 01754

November 2023

TABLE OF CONTENTS

1.0 GENERAL INFORMATION

This Wetland and Buffer Zone Restoration Plan ("Plan") has been developed on behalf of the Town of Montague Department of Public Works ("proponent") to restore and replicate an area of bordering vegetated wetland ("BVW") to be altered altered during replacement of the existing culvert under South Ferry Road. This Plan provides for measures designed to restore / replicate the BVW to a similar vegetation composition as well as to restore the associated functions and values subsequent to completion of work.

2.0 WETLAND AND BUFFER ZONE RESTORATION

The objective of this Plan is to restore the areas within the BVW in a manner that ensures the continued function of the wetland and associated perennial stream. The Plan incorporates revegetation of disturbed areas with native species. The Plan also incorporates post-restoration monitoring and invasive species management to document survival of the plantings and control non-native species from becoming established. The restoration area will be developed as a predominantly scrub-shrub system with a low density of trees. The replication area will be graded down to or slightly below the grade. Where necessary, additional topsoil will be imported to establish a base for the new plantings. The planting plan has been developed to establish a variety of native tree and shrub species in both the restored wetland area as well as the adjacent buffer zone, with several fern species proposed as ground cover along with wetland and conservation seed mixes.

Wetland Function Restoration: Due to the restoration and replication activities associated with the impacted wetland, the proponent does not anticipate any significant loss of function or value of the BVW. The hydrological functions of the systems will be maintained post-construction. Wildlife habitat will be improved through the use of plant species that provide basic habitat requirements such as food and cover. Overall, the restored / replicated BVW will allow it to continue to function in a manner that protects the interests of the Act.

Design Constraints: There are no known significant design constraints that are anticipated to adversely affect the implementation of the proposed restoration plan. Bedrock depths are anticipated to be well below the grading limits of the site.

Construction Oversight: A wetland scientist or other qualified professional shall monitor the restoration effort to ensure compliance with the restoration plan and to adjust when appropriate to meet restoration goals.

Construction Timing: Restoration activities shall be started subsequent to the start of the 2024 growing season and completed prior to the end of the growing season or term of the Amended Order of Conditions, if possible, unless the Commission-approved restoration plan specifically states otherwise.

3.0 HYDROLOGY

The wetland area has been investigated by a wetland scientist to inventory the soil and hydrologic conditions the proposed plantings. The seasonal variation of the water table in this landscape position will not alter the conclusion that sufficient hydration of the soils will occur in the root zone of the wetland. The typical fluctuation of the water table in this type of setting is in the range of 0-3 feet. The period of time that the water table will drop below the root zone will be restricted to later portions of the growing season and will not adversely affect the growth of hydrophytic plants.

4.0 GRADING PLAN

Based on the nature of the activities that occurred within the BVW, minor grading will be required to establish the base elevation for the wetland replication area. This will likely be accomplished with a small backhoe or similar rubber-tired equipment. The importation of soil to re-establish grades within the wetland is anticipated and will be undertaken in consultation with the supervising wetland scientist. As necessary, clean topsoil will be imported to develop a sufficient substrate for the new plantings. Erosion controls (silt sock or equivalent) will be installed at the limits of work prior to any grading and also around any soil stockpile areas within the 100-foot buffer zone.

5.0 TOPSOIL

Should testing of this soil indicate that additional organic matter is needed to provide for a suitable growing substrate, additional organic matter such as peat or well-decomposed clean leaf compost or other soil amendments (if more readily available than clean leaf compost) will be used to increase the percent organic carbon content.

When topsoil must be stockpiled on the site, the following guidelines will be followed to maintain moisture in the soil.

- Avoid stockpiling compost organics in piles over 4 feet in height;
- Protect stockpiles from surface water flow and contain them with haybales and/or silt fence;
- Cover stockpiles with a material that prevents erosion (tarps, erosion control mat, straw and temporary seed, depending on size and duration of storage);
- Inspect and repair protection measures listed above regularly (weekly), as well as prior to (to the extent possible) and after storm events; and
- Maintain moisture in the soils during droughty periods.

6.0 PLANTING PLAN

A variety of plantings and herbaceous species are proposed to stabilize the exposed soil in a timely fashion and to direct and ensure the establishment of a variety of wetland plant community. It is the goal of this wetland restoration effort to achieve at least 75 percent coverage of the surface of the

disturbed area within two growing seasons. If at the time of final grading soil temperature and site conditions are not appropriate for transplantation and seed germination, the restoration area will be stabilized with 2 to 4 inches of straw mulch and subsequently planted at an appropriate time.

Plantings will be accomplished through use of plant stocks chosen for their compatibility with the local environment as well as the various hydrologic regimes within the restoration area. Commercially available plants and seeds will be utilized to accomplish this goal. The planting plan has been designed to provide a variety of wetland plant species to promote species richness, enhance wildlife edge habitat, and improve the aesthetics of the on-site wetland system.

The table at the end of this section provides the composition of the proposed wetland and conservation seed mixes to be applied within the proposed restoration areas. Only plant materials native and indigenous to the region will be used. Species not specified in the restoration plan will not be used without written approval from the Conservation Commission. No cultivars of native species such as *Acer rubrum* shall be used. The following notes further clarify the proposed planting program:

1. Seed mixes will be hand broadcast, mechanically broadcast or hydro-seeded at appropriate rates throughout appropriate areas of the wetland restoration area to create an herbaceous groundcover layer. A conservation grass seed mix will be distributed within the upland buffer zone areas to be restored. Acceptable wetland seed mixes include New England Wet Mix (New England Wetland Plants, Amherst, MA), whose components are listed in the attached table. Comparable alternative sources may be approved by the wetland scientist.

2. In addition to herbaceous plantings referenced above, woody plantings are proposed within wetland restoration area and throughout the upland buffer zone bordering the restoration area. Mulch will be used around woody plantings in an 18” diameter circle approximately 2” deep. These plantings are shown on the attached table. Final placement of the plantings will be determined in the field by the wetland scientist.
3. The contractor will be required to maintain adequate moisture in the wetland restoration area for the first two growing seasons following planting to support the plantings (>75% survival is required).

To ensure the success of the proposed restoration plan, a wetland scientist or other qualified professional will make certain that the necessary hydrologic regimes are achieved, and that the benefits of the proposed plan are maximized. During planting, a qualified professional may relocate the plantings if as-built conditions would pose an unreasonable threat to the survival of plantings installed according to the restoration plan. The plantings will be relocated to locations with suitable hydrology and soils and where appropriate structural context with other planting cells can be maintained.

COMMON PLANT SPECIES IN PROPOSED WETLAND SEED MIX

Seed Mix	Common Name	Scientific name
New England Wet Mix from New England Wetland Plants, Inc.	Fox Sedge	*Carex vulpinoidea*
	Hop Sedge	*Carex lupulina*
	Water Plantain	*Alisma plantagoaquatica*
	Nodding Bur-marigold	*Bidens cerua*
	Lurid Sedge	*Carex lurida*
	Soft Rush	*Juncus effusus*
	Grass-leaved Goldenrod	*Solidago graminifolia*
	Beared Sedge	*Carex comosa*
	Fringed Sedge	*Carex crinita*
	Boneset	*Eupatorium perfoliatum*
	Flat-top Aster	*Aster umbellatus*
	Hardstem Bulrush	*Scirpus acutus*
	Green Bulrush	*Scirups atrovirens*
	Woolgrass	*Scirpus cyperinus*
	Spotted Joe-pye Weed	*Eupatorium maculatum*
	Blue Vervain	*Verbana hastata*
	Ditch Stonecrop	*Penthorum sedoides*

- Application Rate: 10 lbs per acre

COMMON PLANT SPECIES IN PROPOSED
NEW ENGLAND CONSERVATION / WILDLIFE SEED MIX

Seed Mix	Common Name	Scientific name
New England Conservation / Wildlife Seed Mix from New England Wetland Plants, Inc.	Virginia Wild Rye	*Elymus virginicus*
	Little Bluestem	*Schizachyrium scoparium*
	Big Bluestem	*Andropogon gerardii*
	Red Fescue	*Festuca rubra*
	Indian Grass	*Sorghastrum nutans*
	Switch Grass	*Panicum virgatum*
	Partridge Pea	*Chamaecrista fasciculata*
	Panicled-leaf Tick Trefoil	*Desmodium paniculatum*
	Blue Vervain	*Verbena hastata*
	Butterfly Milkweed	*Asclepias tuberosa*
	Black Eyed Susan	*Rudbeckia hirta*
	Common Sneezeweed	*Helenium autumnale*
	Heath Aster	*Aster pilosus*
	Early Goldenrod	*Solidago juncea*

- Application Rate: 25 lbs per acre

WETLAND REPLICATION PLANT SPECIES LIST

SPECIES	SIZE	CONDITION	NOTES	QUANT.
SENSITIVE FERN (ONOCLEA SENSIBILIS)	CLUMP	POT/ROOT	FERN	10
CINNAMON FERN (O. CINNAMOMEA)	CLUMP	POT/ROOT	FERN	10
Subtotal				**20**
SWEET PEPPERBUSH (CLETHRA ALNIFOLA)	2 GAL.	CONT.	SHRUB	10
HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM)	2' - 3' HT.	CONT.	SHRUB	10
Subtotal				**20**
RED MAPLE (ACER RUBRUM)	3' – 5' HT.	B+B	TREE	5
GRAY BIRCH (BETULA POPULIFOLIA)	3' – 5' HT.	B+B	TREE	5
Subtotal				**10**
TOTAL				**50**

7.0 EROSION CONTROLS

Implementation of erosion control measures will be initiated in compliance with the construction restoration measures. During the creation process the erosion control barriers will be maintained on a regular basis and remain in place until the disturbed area is stabilized. Erosion control barriers will also be installed along the “new” wetland boundary when the grading and plantings within the creation area are complete. Extra erosion control materials will be kept on-site to be used for any maintenance of the installed erosion control barriers. These devices will be disassembled and properly disposed of upon receipt of a Certificate of Compliance or other written approval by the Conservation Commission. Sediment collected by these devices will be removed and placed within an upland in a manner that prevents its erosion and transport to a waterway or wetland.

8.0 CONTROL OF INVASIVE AND NOXIOUS SPECIES

The restoration site has a moderate potential for the invasion by non-indigenous species. Due to the historic disturbance within the property, invasive species may become established within the buffer zone and wetland periphery. A qualified wetland scientist or other qualified individual will inspect the restoration area for invasive species for the first two growing seasons. If invasive species are found,

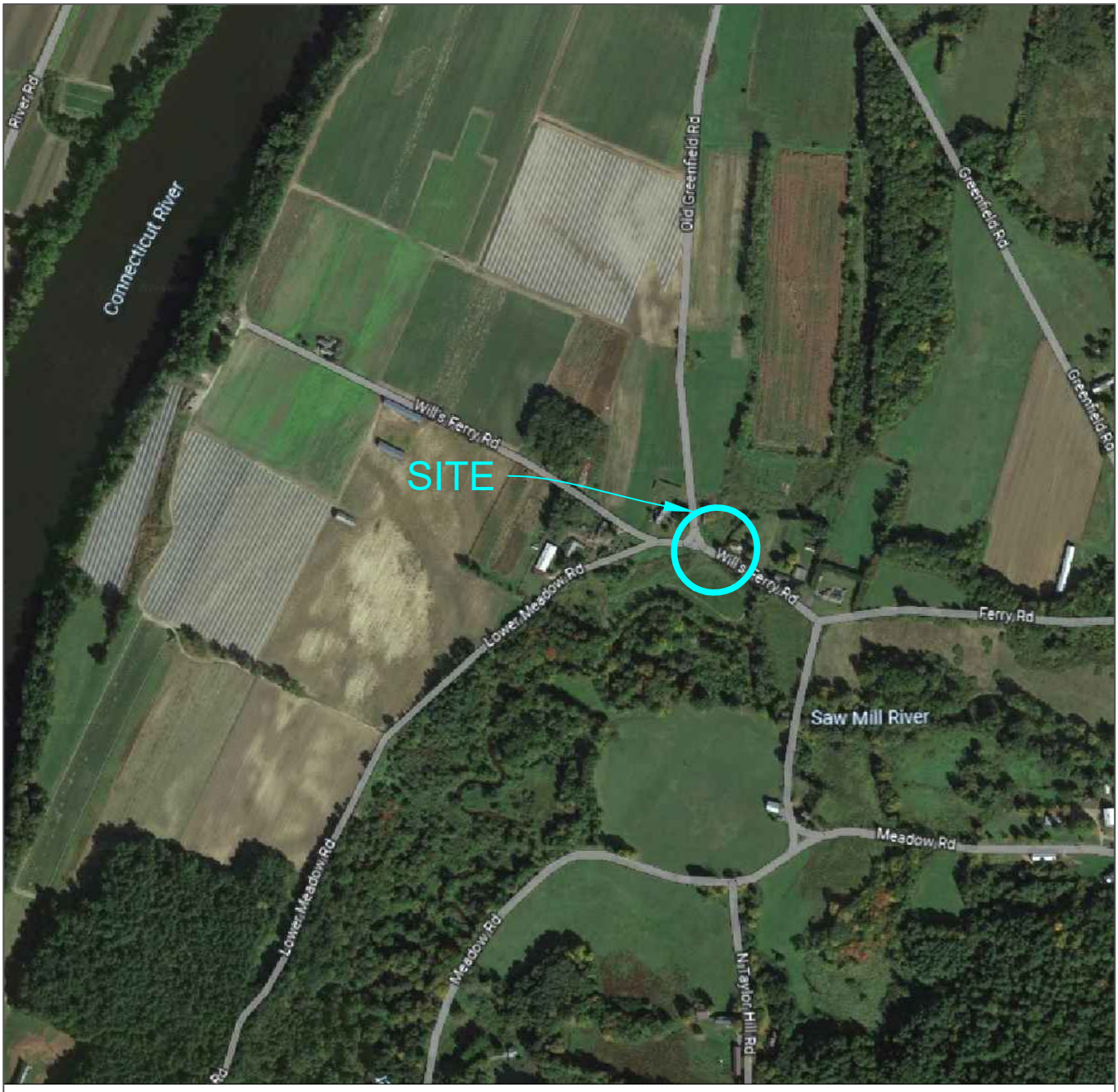
the necessary control measures will be developed and implemented in accordance with approval from the Conservation Commission. Regardless, an effective treatment plan will be tailored to address problems identified during the inspections and implemented.

9.0 MONITORING PLAN

Within 60 Days of completion of the restoration work, the proponent will submit a signed letter to the Conservation Commission specifying the date of completion of the restoration work. The proponent will monitor the restoration area for a period of at least two growing seasons. Observations will occur at least two times during the growing season – in late spring/early summer and again in late summer/early fall. Each annual monitoring report shall be submitted to the Conservation Commission no later than December 15 of the year being monitored.

10.0 CONTINGENCY

As noted previously, a wetland scientist or other qualified individual will be on-site during the construction of the restoration area to ensure compliance with the plan and to make appropriate adjustments to meet restoration goals. The wetland scientist will also be charged with supervising the conditions encountered during the construction and dealing with unforeseen conditions. Such conditions might include encountering bedrock within the excavation zone; different groundwater conditions than anticipated based upon testing; unexpected subgrade textures that would affect the design and function of the restoration area, etc. Under such circumstances, the wetland scientist will suspend the work and consult with the project engineer and construction manager about the implications of the findings for carrying out the intended plan. Alternatives to addressing the issue will be developed, if necessary. Any substantial change in the design of the restoration area will require the submission of revised plans to the Conservation Commission for review and approval prior to implementation.



N

MASSACHUSETTS

0 800' 1600'

ORIGINAL SHEET - ANSI A

AUGUST 30, 2022
195113487

Stantec

5 Dartmouth Drive, Suite 200
Auburn, NH
www.stantec.com

Client/Project
TOWN OF MONTAGUE
CULVERT REPLACEMENT
MONTAGUE, MASSACHUSETTS

Figure No.
1

Title
SITE LOCATION PLAN

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

January 15, 2024

Tom Bergeron
Town of Montague Department of Public Works
128 Turners Falls Road
Turners Falls, MA 01376

RE:	Project Location:	South Ferry Road, Montague
	Project Description:	Culvert replacement
	DEP Wetlands File No.:	229-0263
	NHESP File No.:	**24-11014 (22-41112)**

Dear Applicant:

The Natural Heritage & Endangered Species Program of the MA Division of Fisheries and Wildlife (the "Division") has received and reviewed the Request for Amendment to Order of Conditions (dated 11/29/23) and revised plans for the subject project.

The Division finds that the revised plans do not change our previous determination that this project **will not adversely affect** the actual Resource Area Habitat of state-protected rare wildlife species and **will not result in a prohibited Take** of state-listed rare species (Division letter dated 6/9/22) and that previous determination stands. Issuance of an Order of Conditions approving the project as currently designed is consistent with the Interests of the WPA strictly related to rare species. A copy of any final Order of Conditions shall be mailed or hand delivered to the Division simultaneous with sending to the applicant as required pursuant to 310 CMR 10.05(6)(e)).

We note that all work is subject to the anti-segmentation provisions (321 CMR 10.16) of the MESA. Any activity not included in the current filing and located within *Priority Habitat* may require an additional filing with the Division for review if not otherwise exempt. If no physical work is commenced on the above proposed project within five years from the date of issuance of our original letter or there is a material change in the plans that were submitted to the Division, updated information and/or plans must be sent to the Division for review prior to any work**.**

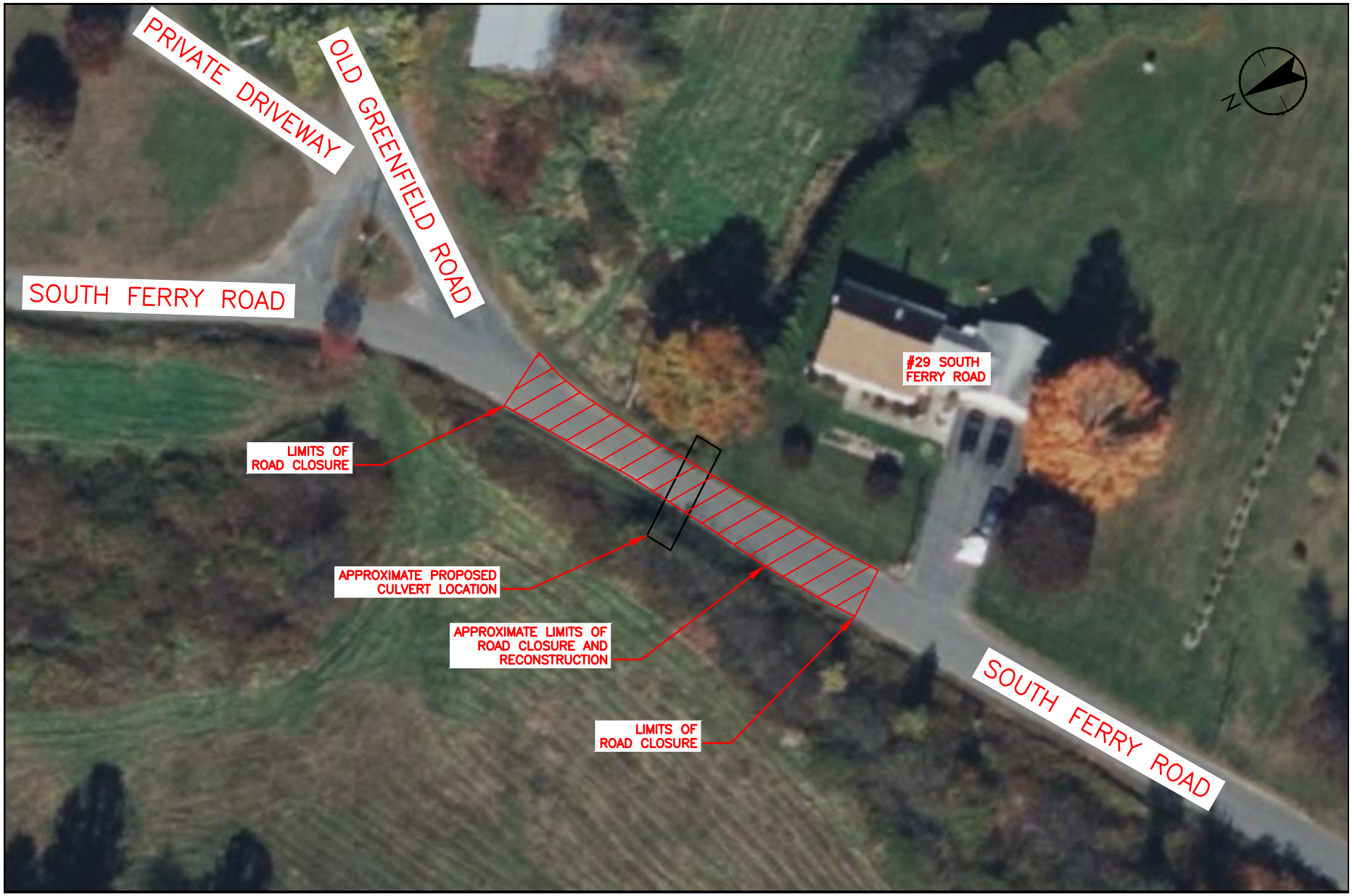
Please contact Melany Cheeseman, Endangered Species Review Assistant, at melany.cheeseman@mass.gov with any questions or comments.

Sincerely,

Everose Schlüter

Everose Schlüter, Ph.D.
Assistant Director

cc: John Zimmer, Epsilon Associates
Montague Conservation Commission



Stantec

Stantec Consulting Services Inc.
5 Dartmouth Drive Suite 200
Auburn NH 03032-3984
Tel: (603) 669-8672
www.stantec.com

NOTES:

1. THE ROAD IS ANTICIPATED TO BE CLOSED STARTING AUGUST 8TH THROUGH NOVEMBER 1ST FOR THE REMOVAL OF THE EXISTING CULVERT AND REPLACEMENT WITH A PRECAST CONCRETE BOX CULVERT.
2. THE ROAD WILL BE CLOSED TO ALL VEHICLES, PEDESTRIANS AND BICYCLIST DURING THE CLOSURE.
3. DETOUR SIGNAGE WILL NOT BE PROVIDED AND MOTORISTS AND PEDESTRIANS WILL NEED TO SEEK ALTERNATIVE ROUTES WHILE THE CLOSURE IS IN PLACE DURING CONSTRUCTION.
4. FOR ANY QUESTIONS PLEASE CONTACT THE TOWNS CONSULTING ENGINEER, BRYAN RUOFF OF STANTEC AT 603-854-9501 OR BY EMAIL AT BRYAN.RUOFF@STANTEC.COM

Client/Project
SOUTH FERRY ROAD
CULVERT REPLACEMENT
MONTAGUE, MASSACHUSETTS

Figure No.
SK-1

Title
ROAD CLOSURE LIMITS