VERMONT

Vermont Department of Environmental Conservation
Watershed Management Division
Springfield Regional Office
100 Mineral Street, Suite 303
Springfield, VT 05156
www.watershedmanagement.vt.gov

Agency of Natural Resources

[phone] 802-885-8855
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AUTHORIZATION TO CONDUCT STREAM ALTERATION ACTIVITIES

Pursuant to Section C.2.2.3 of the VT Stream Alteration General Permit (Reporting activities not requiring an application)

Project Number: **SA-05-002-2016 Weathersfield Baltimore Road Culvert**

Applicant Name: Town of Weathersfield
Mailing Address: PO Box 550, Ascutney, Vermont 05030
Project Location: Baltimore Road 1.1 MM over un-named tributary

Contact: Jim Mullen or Ed Morris
Phone: 802-674-2626
Email: Townmanager@weathersfield.org

The Secretary of the Vermont Agency of Natural Resources (VT ANR) has determined that:

1. This project authorizes replacement of a 57" x 38" CMP culvert damaged by T.S. Irene with a new 14' x 5' three-sided concrete box culvert over an un-named tributary to Great Brook at mile marker 1.1 on Baltimore Road.
2. The proposed activity is eligible for coverage under the VT ANR Stream Alteration General Permit.
3. The proposed activity will meet the terms and conditions of Section C.2.2.3 of the General Permit provided:
   a) The project will be completed as shown on the November 25, 2015 plans, prepared by the Hammond Engineering, as approved by the Vermont Agency of Natural Resources as attached herein.
   b) The project is proportional to the threat and conditioned to cease when the threat to life or to improved property has ended. Stone size type E3 in the attached VT SRMPP Appendix M shall be used for channel bed fills.
   c) The project will not result in a threat to life, public health or safety.
   d) The project will meet the standards detailed in subsection C.2.2.3 and F of the General Permit.
   e) The project will meet Stream Alteration Standards to the greatest extent possible.
   f) A pre-construction meeting is held with the contractor, owner/applicant, and ANR River Management Engineer.
   g) The River Management Engineer is notified by phone or email when construction begins and when the project is complete.
   h) In-stream working dates for all GP activities are from July 1st through October 1st; any in-stream work outside these dates will require an Individual Stream Alteration Permit authorization by the River Management Engineer.
   i) This authorization has been posted for three days public comment. This authorization constitutes final approval.

If there are any changes in the project plan or deviation in construction from the plan, the Permittee must notify the River Management Engineer immediately.

If the project is constructed as you have described, as shown on the above referenced approved plans and according to the above conditions, there is no reason to expect any violation of Vermont Water Quality Standards.

Signed this 17th day of February, 2016
Alyssa B. Schuren, Commissioner
Department of Environmental Conservation

This permit expires October 1, 2016.

by: _____
Todd Menees, P.E., P.H., River Management Engineer

Streambed Stone Fill Design Guidance

Type	Velocity Range (fps)*	Embeddedness (in)
E1	$V \leq 9$	18
E2	$9 < V \leq 11$	24
E3	$11 < V \leq 13$	36
E4	$13 < V \leq 15$	48

*Maximum velocity should be based on a minimum 50-year design flow rate and calculated at the structure outlet.

Item xxx.xxx CY Streambed Stone Fill Specification

Type E1. The longest dimension of the stone shall be at least 18 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 12 inches, and at least 25 percent of the particles shall have a maximum dimension of 2 inches and be well graded material.

Type E2. The longest dimension of the stone shall be at least 24 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 18 inches, and at least 25 percent of the particles shall have a maximum dimension of 2 inches and be well graded material.

Type E3. The longest dimension of the stone shall be at least 36 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 24 inches, and at least 25 percent of the particles shall have a maximum dimension of 2 inches and be well graded material.

Type E4. The longest dimension of the stone shall be at least 48 inches, and at least 50 percent of the volume of the stone in place shall have a least dimension of 36 inches, and at least 25 percent of the particles shall have a maximum dimension of 2 inches and be well graded material.

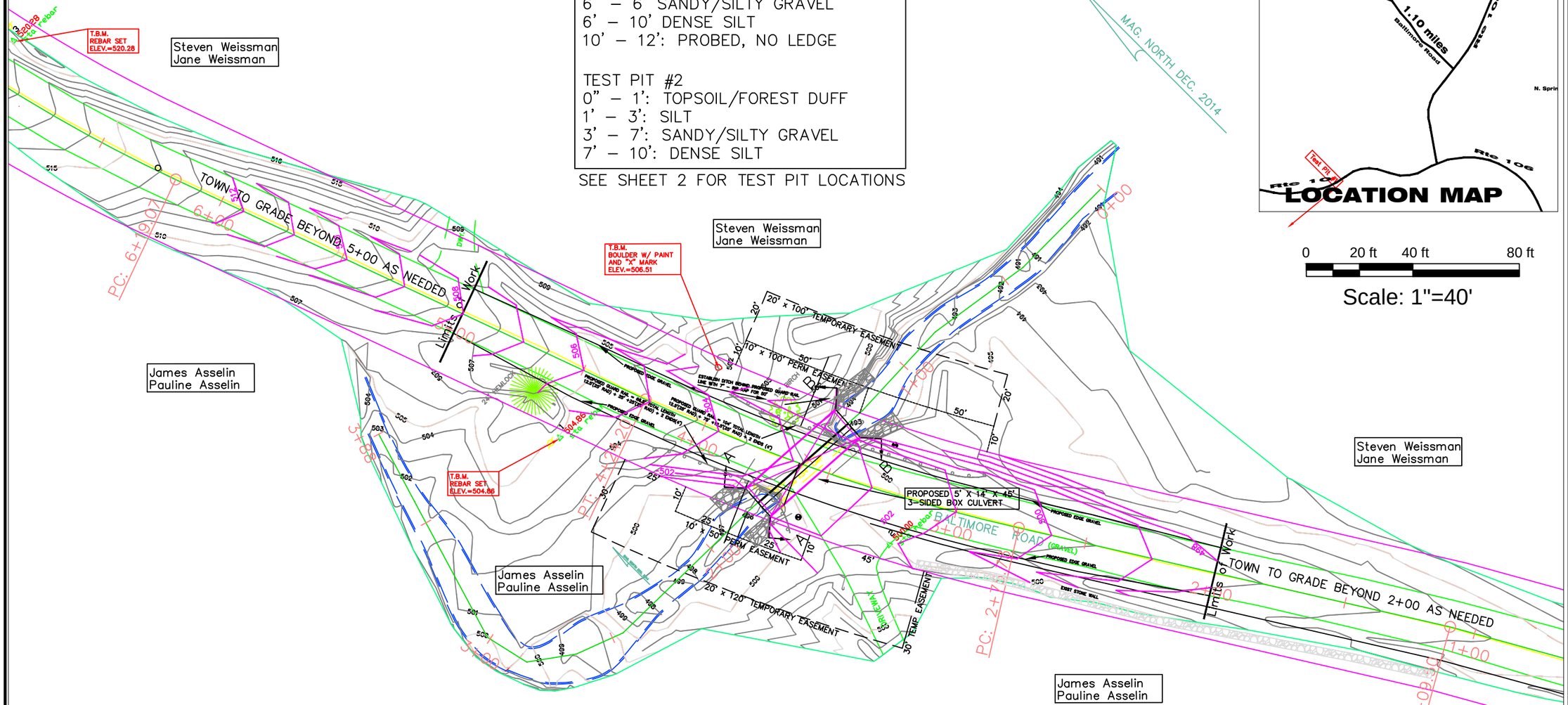
Notes

- The streambed stone fill shall be hard, blasted, angular rock other than serpentine rock containing the fibrous variety chrysotile (asbestos). Similar sized river sediment is an acceptable alternative as is a mixture of angular material and river sediment.
- Stone placed inside of a closed structure shall be placed such that the structure is not damaged.
- Care shall be taken to limit segregation of the materials.
- Add sand borrow item as needed to seal the bed and prevent subsurface flow.
- There shall be no subsurface flow upon final inspection.

TEST PIT #1
0 – 0'6": TOPSOIL/FOREST DUFF
6" – 6' SANDY/SILTY GRAVEL
6' – 10' DENSE SILT
10' – 12': PROBED, NO LEDGE

TEST PIT #2
0" – 1': TOPSOIL/FOREST DUFF
1' – 3': SILT
3' – 7': SANDY/SILTY GRAVEL
7' – 10': DENSE SILT

SEE SHEET 2 FOR TEST PIT LOCATIONS

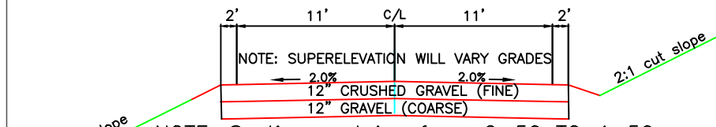


0 20 ft 40 ft 80 ft

Scale: 1"=40'

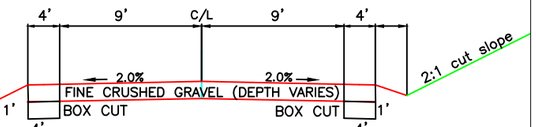
GENERAL CONSTRUCTION NOTES

1. Contractor to call DIGSAFE at least 72 hours prior to construction.
2. VTRANS Specifications shall be adhered to.
3. All Materials to be installed in accordance with manufacturers' specifications and instructions.
4. It shall be the contractor's responsibility to comply with OSHA and VOSHA requirements.
5. Construction signs shall conform to MUTCD Standards.
6. Box shall be designed for HL–93 loading with 1' of cover.
7. Box shall be anchored to footing at inlet/outlet sections (see detail); external hardware shall remain on the box
8. Bypass piping shall be installed, pumping will not be allowed.
9. Contractor shall protect any existing stone walls which may be encountered.
10. Type 3 Rip–Rap shall be installed at the inlet and outlet ends of the box at locations steeper than a 2:1 slope.



NOTE: Section pertains from 2+50 TO 4+50

BOX CULVERT EXCAVATION
nts



NOTE: DEPTH OF FINE GRAVEL VARIES (2+00 to 2+50 and 4+50 to 5+00)

ROAD FILL SECTION
nts

Project No. BALTIMORE_ROAD_BOX_110 NOV_2016

Scale 1"=40'

Date 11/25/2015

1/4

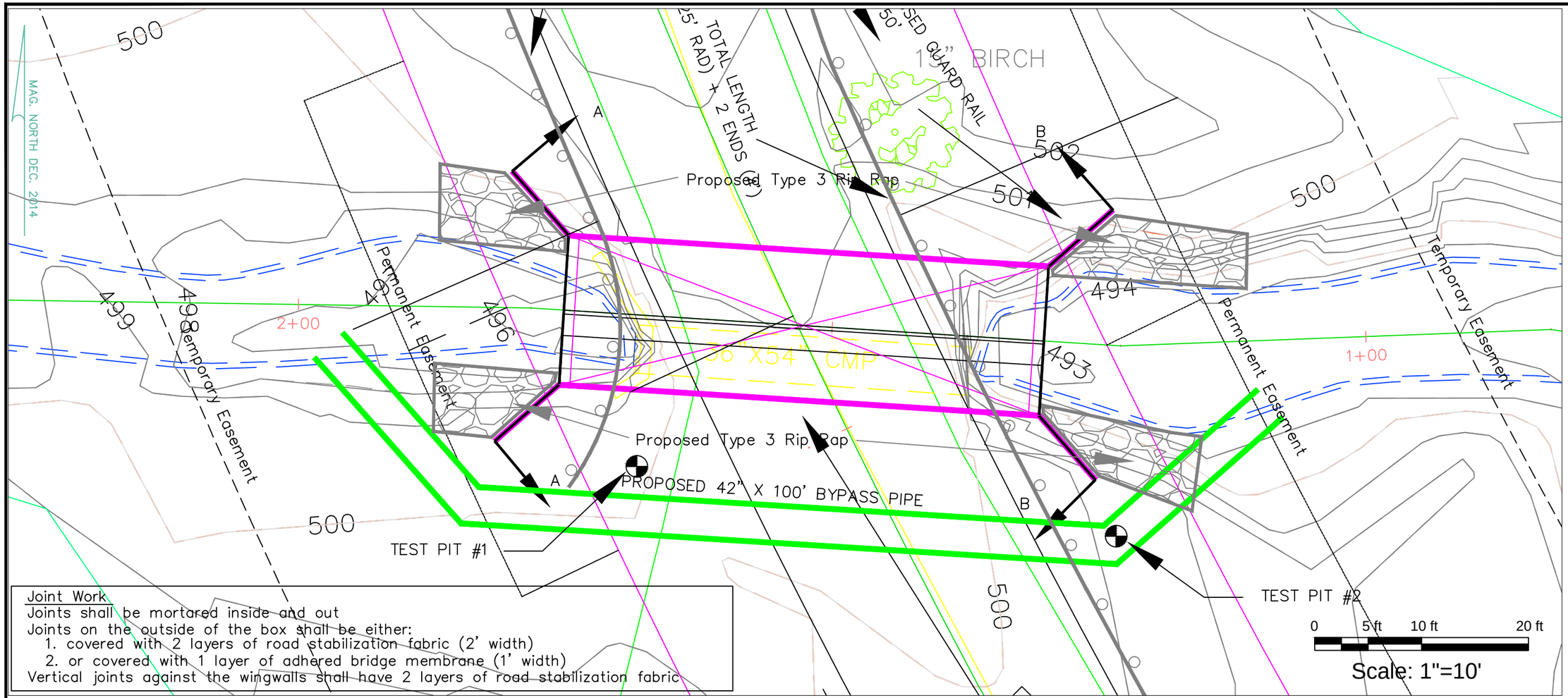
Date	Revision

Town of Weathersfield, VT
PO Box 550, Ascutney, VT 05030

Baltimore Road Culvert 1.10

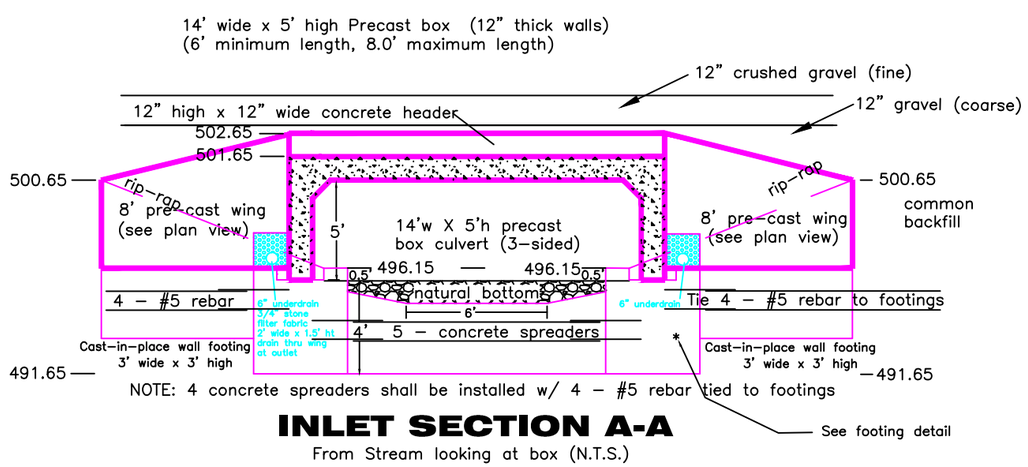
Site Plan

Hammond Engineering
Everett T. Hammond, PE
5 Lincoln St, Springfield, VT 05156
Phone: (802) 376-0042

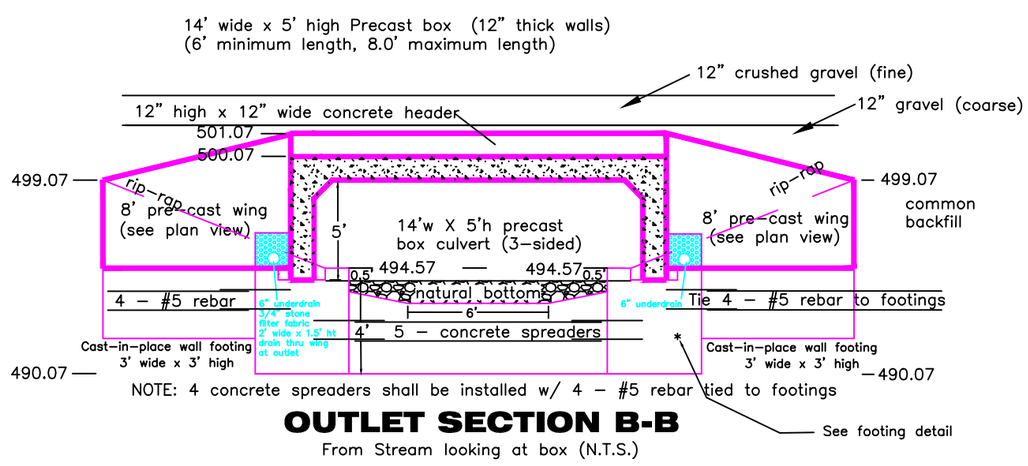


Joint Work
Joints shall be mortared inside and out
Joints on the outside of the box shall be either:
1. covered with 2 layers of road stabilization fabric (2' width)
2. or covered with 1 layer of adhered bridge membrane (1' width)

Vertical joints against the wingwalls shall have 2 layers of road stabilization fabric



INLET SECTION A-A
From Stream looking at box (N.T.S.)



OUTLET SECTION B-B
From Stream looking at box (N.T.S.)

Project No. BALTIMORE_ROAD_BOX_110
NOV_2016
Scale 1"=10'
Date 11/25/2015

2/4

Date	Revision

Town of Weathersfield, VT
PO Box 550, Ascutney, VT 05030

Baltimore Road Culvert 1.10

Detail Plan & Sections

Hammond Engineering
Everett T. Hammond, PE
5 Lincoln St, Springfield, VT 05156
Phone: (802) 376-0042

ROAD PROFILE

TA: 5+99.98
LEV: 512.25
: 33.53
C: 78.50

BVCS: 5+60.72
BVCE: 510.56
EVCS: 5+34.99
EVCE: 509.45

PVI STA: 3+59.99
PVI ELEV: 501.92
K: 164.93
LVC: 350.00

PROPOSED BOX CULVERT

BVCS: 1+84.99
BVCE: 498.10
EVCS: 1+59.63
EVCE: 497.55

PVI STA: 1+09.63
PVI ELEV: 496.46
K: 110.90
LVC: 100.00

BVCS: 0+59.63
BVCE: 494.92

4.30%
2.18%
3.0

	6+00		5+00		4+00		3+00		2+00		1+00
EXISTING	512.5		509.9 EX		507.7 EX		505.3 EX		502.9 EX	501.0 EX	499.6 EX	499.1 EX	498.0 EX		
PROPOSED	512.50		510.10 PROP		508.00 PROP		506.02 PROP		504.20 PROP	502.53 PROP	501.01 PROP	499.65 PROP	498.00 PROP		

0 20 ft 40 ft 80 ft

Scale: 1"=40'

STREAM PROFILE

515 512 510 508 505 502 500 498 495 492 490 488 485 482 480

LONG STREAM PROFILE
PROPOSED GROUND
EXISTING GROUND
FILL POOL WITH TYPE E3
SEE SPECIFICATIONS THIS PAGE
SLOPE = 3.50%
EXISTING STREAM

TYPE E3 SPECIFICATIONS
THE LONGEST DIMENSION OF THE STONE SHALL BE AT LEAST 36", AND AT LEAST 50% OF THE VOLUME OF STONE IN PLACE SHALL HAVE A LEAST DIMENSION OF 24", AND AT LEAST 25% OF THE PARTICLES SHALL HAVE A MAXIMUM DIMENSION OF 2" AND BE WELL GRADED.

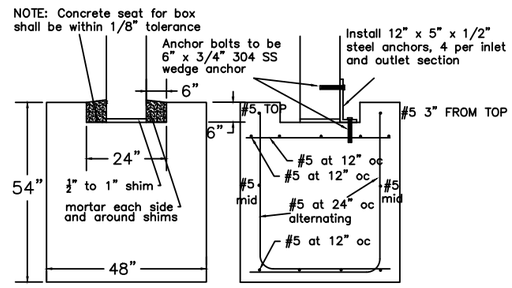
495.65 CL STREAM
496.15 TOP FOOTING
494.07 CL STREAM
494.57 TOP FOOTING

0 20 ft 40 ft 80 ft

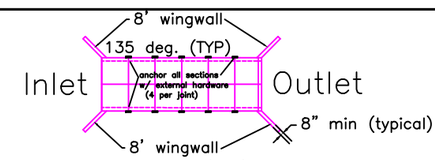
Scale: 1"=40'

3+88 3+00 2+00 1+00 0+00

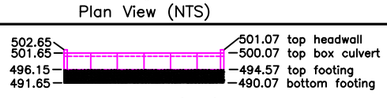
NOTE: Concrete seat for box shall be within 1/8" tolerance



Section Dimensions Reinforcement Section
*Cast In Place Footing details



Plan View (NTS)



Profile View (NTS)

14' wide x 5' high x 45' length precast box

DETAILS

Project No. BALTIMORE_ROAD_BOX_110 NOV_2016
Scale 1"=40'
Date 11/25/2015

3/4

Revision	Date

Town of Weathersfield, VT
PO Box 550, Ascutney, VT 05030

Baltimore Road Culvert 1.10
Road & Stream Profile

Hammond Engineering
Everett T. Hammond, PE
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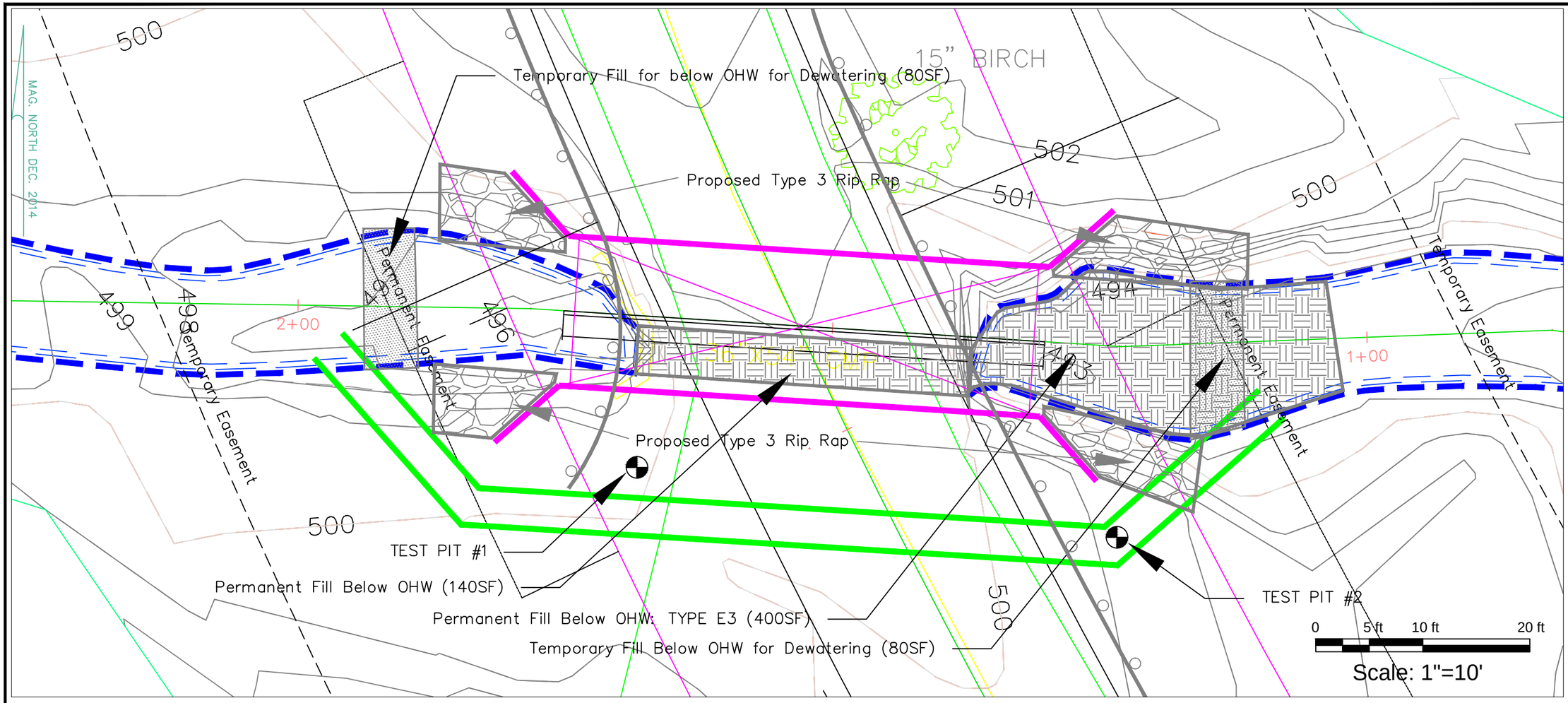
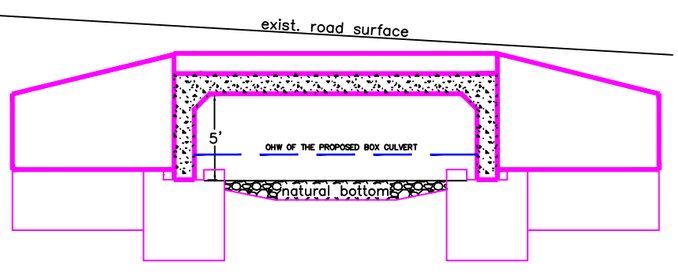


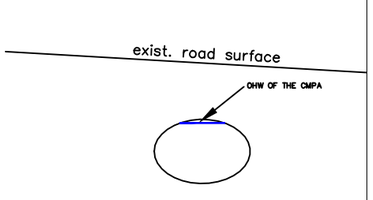


INLET SECTION A-A

From Stream looking at box (N.T.S.)

Proposed 14' x 5' Precast Box Section

SCALE: NTS



EXISTING 57" x 38" CMPA

SCALE: NTS

LEGEND

PERMANENT Type 2/3 RIP RAP ABOVE OHW: 300 SF

PERMANENT FILL BELOW OHW: 540 SF

TEMPORARY FILL BELOW OHW FOR DEWATERING: 160 SF

ORDINARY HIGH WATER

PROPOSED TEMPORARY BYPASS

Project No. BALTIMORE_ROAD_BOX_110 NOV_2016

Scale 1"=10'

Date 11/25/2015

4/4

Date | Revision

Town of Weathersfield, VT
PO Box 550, Ascutney, VT 05030

Baltimore Road Culvert 1.10

Permit Plan

Hammond Engineering
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