

TOWN OF EDEN
71 Old Schoolhouse Road
Eden Mills, VT 05653

Phone: (802) 635-2528
Fax: (802) 635-1724
Website: www.edenvt.org

April 11, 2016

Alan May
Better Backroads Coordinator
Municipal Assistance Bureau
Highway Division
1 National Drive
Montpelier, VT 05633

To the Review Committee:

The Town of Eden is applying for a 2017 Better Back Roads Grant, Category D for the purpose of completing the first steps (design, scope and permitting) in replacing a failed culvert on Knowles Flat Rd.

In 2011, flooding at Whitney Lane resulted in a similar culvert being sufficiently damaged and in need of replacement. Eden hired an engineer to prepare plans per the hydraulic study. Cost estimates were higher than anticipated. An alternate route, discontinuing the bridge, was researched and due to the cost of road construction, cost of long term maintenance and the preference of the residents on this road, Eden chose to proceed with bridge replacement. The project was put to bid with results being higher than anticipated and exceeding funds available. Alternate ideas received in the first bid process (box culvert) were put to bid with similar results. After consulting with AOT, ANR and the engineer Eden took another approach – act as general contractor and oversee the project and construction. The project was broken down into segments and quotes solicited for those various segments. This was a cost saving measure for the Town of Eden. The lowest bid with overruns, box culvert, engineering and layout came in at \$602,820.65. Eden completed the project for a cost \$397,219.90. This included \$53,744.10 for the temporary bridge which was moved to Tree Farm Rd to replace another failing structure. Over all the savings to the town, including its use of town equipment and labor was \$205,600.75.

Over the four year course of this project Eden spent \$14,991.88 on engineering, not including the additional \$10,000 for box culvert engineering. We have since determined that the proposed project on Knowles Flat Rd could be done similarly but without the extensive engineering costs. We have consulted with ANR, AOT and Consultant, Randy Reed on how Eden wishes to repeat the Whitney Lane process with modifications to the engineering portion of the project. Eden feels this is the most feasible option to replace failing infrastructure at the best cost for the taxpayers, improving upon the results attained through the Whitney Lane project.

Thank you for considering our request.

Eden Selectboard: *Ricky Morin*, Chairman *Jubal Durivage*
George Sheldrick

Town Clerk: cveareden@myfairpoint.net

Assistant Town Clerk: dwhitcombeden@myfairpoint.net

Selectboard Assistant: sbadmin@edenvt.org



FY17 Vermont Better Roads Grant Application

Please complete this page ONCE and return with your Grant Category Application(s)

Town/Organization: Town of Eden Contact Person(s): _____

Address: 71 Old Schoolhouse Rd Eden Mills, VT 05653
Street Address Town Zip

Email: sbadmin@edenvt.org Phone: (802-635-2528)

DUNS #: 032424574 Fiscal Year End Month (MM): 06

Accounting System: Automated Manual Combination

Please use the suggested documentation checklist below to ensure that all of the relevant items regarding your application have been included.

- Grant application cover sheet (Only submit one)
- Grant application form (One per category/project)
- Itemized Cost estimate for labor, equipment, and materials (see enclosed Cost Estimate Worksheet). If applicable, please break down funding by source (i.e. different grant sources)
- Project Location Map (please show location of affected water)
- Sketch of proposed erosion control measures or other management practices, including distances in feet
Also show approximate location of town/other right-of-way and/or property lines
- Photo(s) of the project area
- Letters of Support (RPC, VT Trans District Technical Staff, ANR Rivers and Streams Engineers, etc.)
- If Category C River/Road Conflict or Category D River/Stream Structure or Culvert, you must attach ANR/ACOE consultation



Vermont Better Roads Grant Program Application

Please complete one application per category and/or project you are applying for. You may make copies of the application for multiple applications per category and/or multiple categories.

Please check the Category you are applying for:

- B. Correction of a Road Related Erosion Problem and/or Stormwater Mitigation Retrofit for both gravel and paved roads
- C. Correction of a Stream Bank or Slope Related Problem
- D. Structure/culvert upgrades

Town/Organization: Town of Eden

Project Name: BC13-8 Culvert Replacement Design & Scope

Road Name: Knowles Flat Rd TH #: 13 Structure # (if applicable): 13-8

Road Type: Paved or Unpaved (circle one) Curbed or Uncurbed (circle one)
Class 1 Class 2 Class 3 Class 4 (circle one)

Watershed: _____

Please provide a thorough description of the problem (ex. Roadway has steep slope with no ditch which is causing roadway erosion):

Existing CGMPPA is failing. Stabilization of banks at culvert inlet and outlet were
addressed in 2004 with Better Back Roads funding. Hydraulic study recommends
either a bridge or other structure with min span of 28' and at least 160 sq ft of waterway.

Description of Project and how you plan to complete the work (ex. Stone line 500' of ditch by reshaping ditch and stone lining, working from the top of the project down to the bottom):

Work with hwy technician who will provide design, scope of work, budgeting, permitting and
soliciting of engineering of box culvert from vendors

Expected Effects (+ & -) on water quality (ex. Erosion will be eliminated by placing the stone ditch):



Distance from end of project to nearest water (stream, lake, or stormwater system that outlets directly to water). Please circle one: 0-50' 50-250' 250'+

Progress to Date:

Hydraulic study obtained in 2010; site visit and consultation with highway technician & ANR

Is there an emergency reason this project must be completed quickly? If yes, please explain:

Roadway continues to settle and sag at this location. Structure failing.

Has this project been identified through a municipal road inventory, capital budget plan, tactical basin plan, culvert inventory, or other management plan? If yes, please list which.

Yes: Culvert Inventory & LCPC Water Quality Infrastructure Plan No

Please list any professionals you may have contacted for assistance with this project (ANR River Management Engineer, Army Corps of Engineers, VTrans District Technical staff, Basin Planner etc.):

ANR - Chris Brunelle

AOT - Jim Cota

Consultant - Randy Reed

Is the project located in the town "Right of Way?" Yes, No, Both (if "Both" please explain further).

Work will be done in the town right of way with some access to adjoining property
needed to complete project. Permission is being sought from the property owner.

Will the town road crew complete this work? Yes, No, Some (if "some" please explain further).

Based upon the success of recent Whitney Lane project, it is our hope to repeat
that process at this site: hwy dept will work with hwy tech to gather information

needed to complete design, scope, budgeting & permitting needed to proceed with
construction in 2017.



Describe how the grant funds will be spent and/or attach a project budget: _____
see attached cost estimate

How do you plan to meet the required 20% match on this grant?:
Eden allocates funds annually for summer construction projects.

Requested Grant Amount (\$20,000 max Category B, \$40,000 max Categories C & D): \$19,696.80

Estimated Total Project Cost (including 20% local match): \$24,621.00

Estimated Completion Date: Dec. 31, 2017

REQUIRED ATTACHMENTS:

- Itemized Cost Estimate (labor, equipment, materials)
(For assistance, call Better Backroads at 802-828-4585)
- Project Location Map
(Please show location of affected water; 1:12,000 USGS map, if possible)
- Sketch of proposed erosion control measures, including:
 - Distances (ft.)
 - Estimate of waste & borrow quantities
 - Approx. location of town/other right-of-way and/or property lines
- Photo(s) of the project area.
- Agreement for Entry and/or Deed of Easement (if project is outside Town ROW). **Letter of request attached.**
- If project involves stream or river/road conflict, include documentation of consultation with a River Management Engineer.
- Other appropriate supporting documents.

By signing this application I certify that all the information provided is accurate to the best of my knowledge. We will comply with all the requirements of the grant including making our books available for audit if required.

SIGNATURE OF APPLICANT: (Must be Town Administrator/Manager or Select Board Chair)

Name: *Ruby Mann* Title: Selectboard Chair

Town Of Eden
TH#13 Structure #13-8
Engineering Cost Estimate

Survey:	3days	24HRS@\$40/hr	=	\$960
		24HRS@\$20/hr	=	\$480
Total Station Rental:			=	\$500
Breaking Down Survey Notes:		8HRS@\$40/hr	=	\$320
Design:		8HRS@\$40/hr	=	\$320
Layout/Staking:	2days	16HRS@\$40/hr	=	\$640
		16HRS@\$20/hr	=	\$320
PE Stamped Calculations/Drawings:			=	\$5000
Milage (one way, 5times):		150 miles@ <u>\$0.54/mi</u>	=	<u>\$81.00</u>
TOTAL ENGINEERING ESTIMATE:			=	<u>\$8621</u>



WHITE MOUNTAIN PRECAST LLC

WHITE MOUNTAIN PRECAST

INVOICE NUMBER:

0000444-IN

MAKE CHECK
PAYABLE TO:
WHITE MOUNTAIN PRECAST,
LLC

6-7-5-38.01-00

Town of Eden, VT
71 Old School House Road
Eden Mills, VT 05653

ACCOUNT DATE
0002573 6/9/15

JOB:

TH 25 Whitney Lane over Gimon

CUSTOMER P.O.:

SLIP#	DATE	ITEM	DESCRIPTION	QTY	UNIT MEAS	UNIT PRICE	EXTENDED AMOUNT
Q6243	6/9/15	716806	Engineering Charge-VT	1.00	EA	10,000.00	10,000.00
Q6243	6/9/15	710002	30% Precast Deposit	1.00	EA	19,914.77	19,914.77

RECEIVED
JUN 30 2016
TOWN OF EDEN

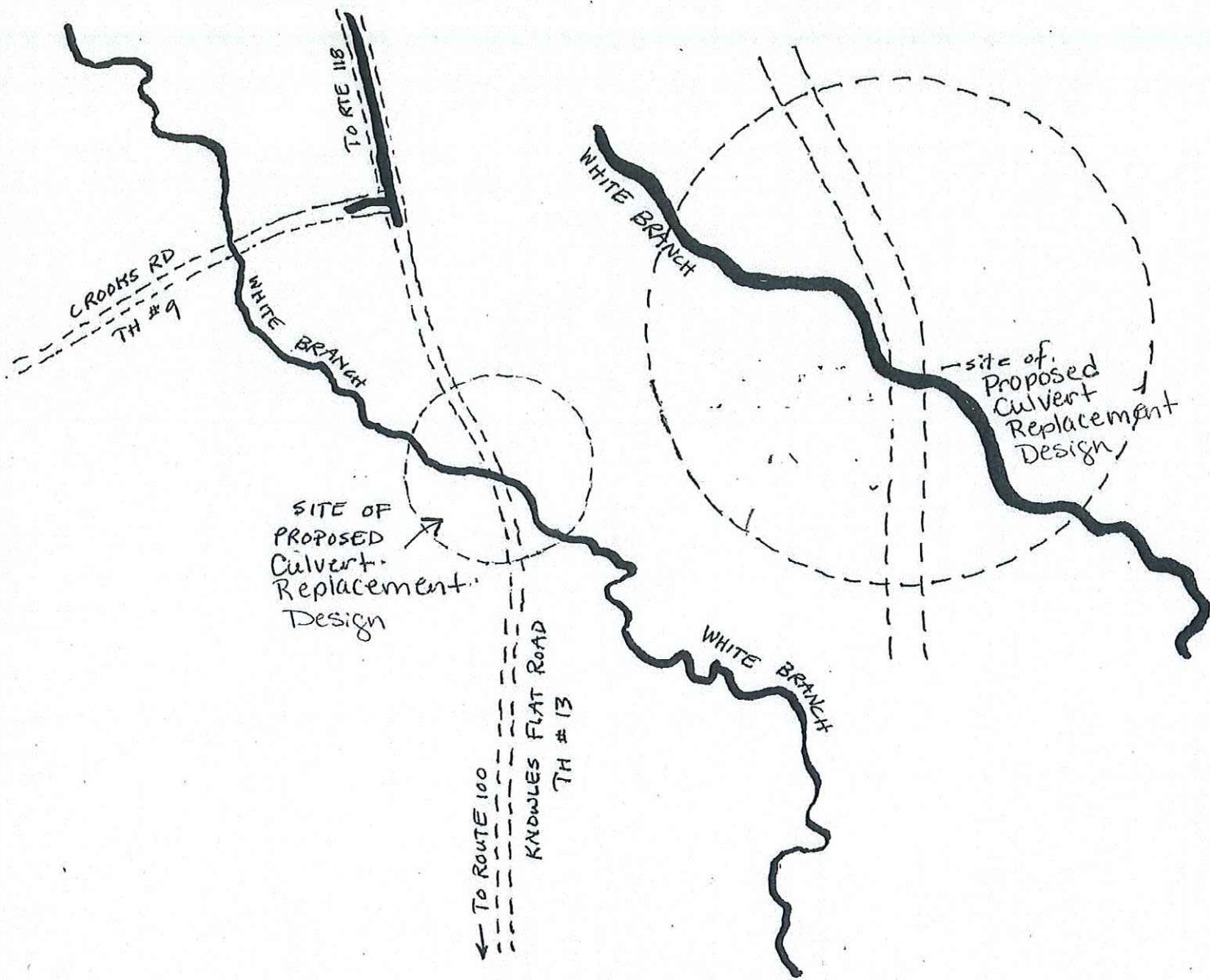
ADDRESS: PO BOX 870 HENNIKER, NH 03242

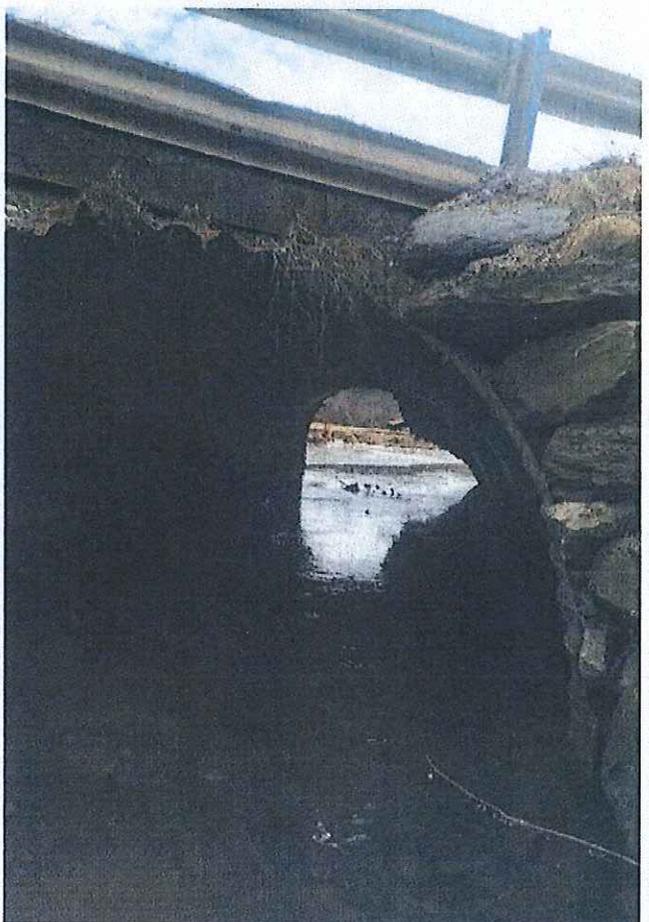
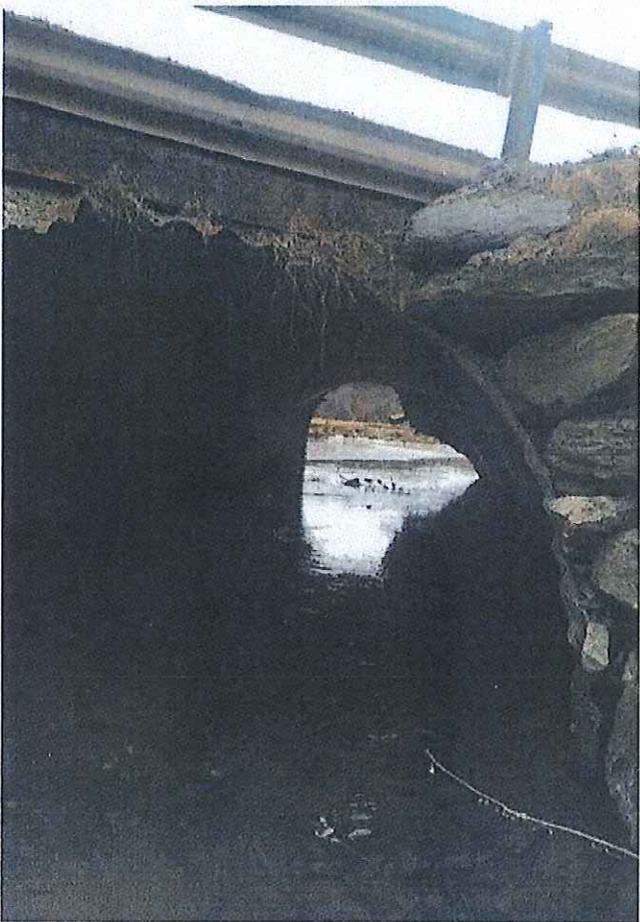
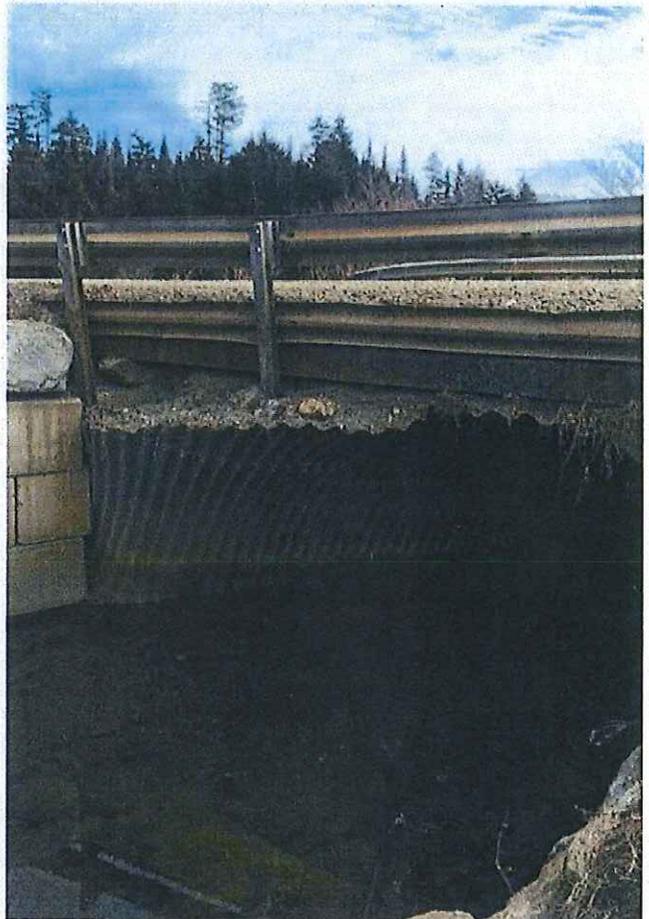
NET INVOICE: 29,914.77
FREIGHT 0.00
SALES TAX: 0.00

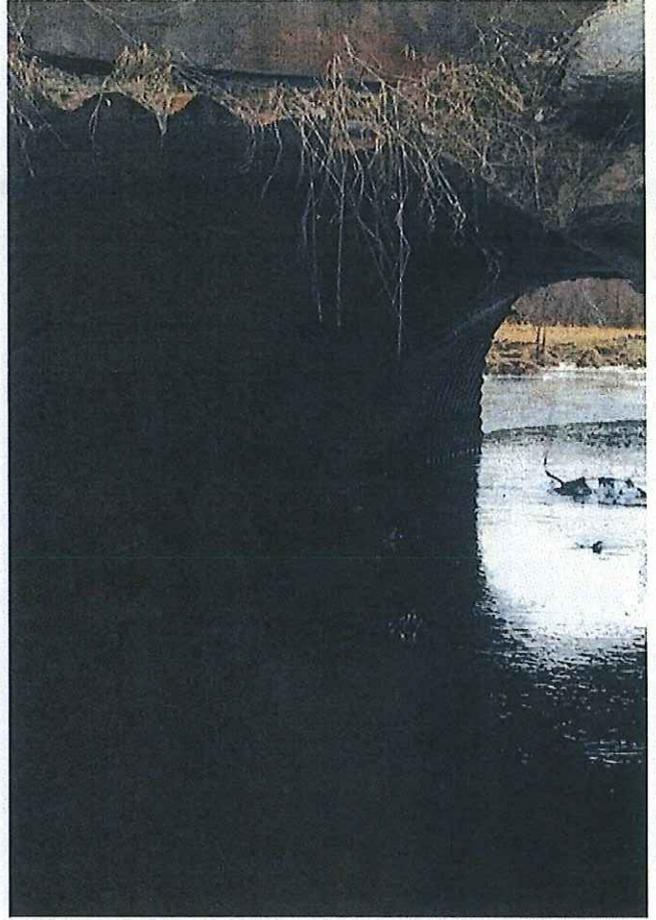
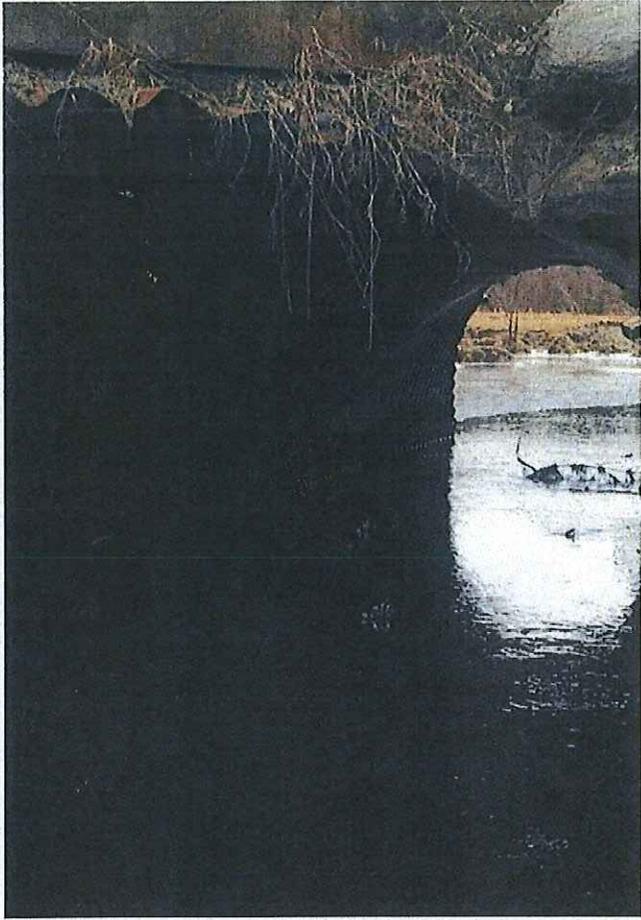
INVOICE TOTAL: \$29,914.77

Terms: Net 30 days. 1.5% interest per month on monthly balance over 30 days from date of statement (18% per year), plus all collection charges including attorney's fees.









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71 Old Schoolhouse Road
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Website: www.edenvt.org

April 11, 2016

Hayden & Doris Morin
Tina & Dale McKnight
1221 Crooks Rd
Eden, VT 05652

RE: Entry Agreement – Knowles Flat Rd & Crooks, Rd.

Dear Hayden & Doris:

The Town of Eden is planning two projects for the upcoming construction season which will require work outside of the town ROW on property which you own. To do so, we need to have on file a signed "Agreement for Entry". We have enclosed this form for your review and signature.

One project is to replace the culvert on Knowles Flat Rd near the intersection with Crooks Rd. Phase 1 is planned for this construction season which will consist of surveying, layout and design for the placement of a box culvert. Phase 2, excavation and construction, will not take place until 2017 or 2018 depending upon funding.

The other project is to replace and clean/daylight two culverts on Baker Road.

We would like to work with you to make these projects happen, causing you the least amount of inconvenience possible. We are willing to make any necessary changes or modifications to the form to satisfy any concerns you may have on how this project will affect the pasture land and any animals in these areas. Please note any concerns or special conditions you would like us to address in the space allotted under Number 2.

If you have questions or concerns about these projects, feel free to contact us. If not, please complete the form, sign it and return it to us at your earliest convenience. Thank you for working with us to address these two problem areas on our roadways.

Sincerely,
Eden Selectboard:

Jubal Durivage
George Sheldrick
Ricky Morin, Chairman

Enclosure

Town Clerk: cveareden@myfairpoint.net

Assistant Town Clerk: dwhitcombeden@myfairpoint.net

Selectboard Assistant: sbadmin@edenvt.org

TOWN OF EDEN

AGREEMENT FOR ENTRY; LIMITED RELEASE

THIS AGREEMENT, made and entered into this 11th day of April, 2016 by and between the Town of Eden, in the State of Vermont, (hereinafter "Town"), and Hayden & Doris Morin (Name), of 1221 Crooks Rd (address), and Tina & Dale McKnight (Name), of 345 Baker Rd (address), in the Town of Eden, Vermont (hereinafter "Owner").

WHEREAS, the Owner owns certain land and premises in the Town of Eden, which adjoin Town Highway No. 13 (Knowles Flat Rd) and Town Highway No. 10 (Baker Rd) maintained by the Town; and

WHEREAS, the Town desires, at its own expense, to perform certain work on or for the benefit of the highway (described more particularly below) (hereinafter "the Work"), which Work also will be of benefit to the Owner's property; and

WHEREAS, performance of the Work may require the Town, with its own forces or those of contractors, to enter upon the Owner's property, in areas outside the existing highway right-of-way;

NOW, THEREFORE, the parties, intending to be legally bound, hereby agree as follows:

1. **Description of the Work.** The Work will consist of the following:
 - a. Knowles Flat Rd: 2016 Phase 1: Surveying, layout & design for placement of a box culvert.
 - b. Knowles Flat Rd: 2017/2018 Phase 2: Excavation and construction to place box culvert.
 - c. Baker Rd: 2016 Replace and clean/daylight two culverts

2. **Concerns or Special Conditions** of Owner to be addressed, adhered to by the Town, its workers and equipment, its contractors or other parties during the performance of the Work.

3. **Right of Entry; Limited Release.** The Owner hereby grants the Town, with its own forces or those of contractors, the right to enter upon the Owner's property, with workers and equipment, for the purpose of undertaking the Work, and hereby waives, releases and discharges any claims, whether styled as trespass or otherwise, that may arise from such entry.

4. **Retention of Certain Other Rights.** Notwithstanding paragraph 2 of this Agreement, the Owner retains the right to assert against the Town, its contractors or other parties any claims that may arise from negligent acts or omissions during performance of the Work.

5. **Waiver:** The Owner having been informed of its right to an appraisal to estimate the value of the right-of-entry herein granted and to receive just compensation based on that appraisal, hereby waives these rights.

6. This Agreement for Entry; Limited Release is not binding unless one of the parties signing below receives a Better Backroads grant to perform the Work set forth above in Paragraph 1.

Owner:

Signature

Printed Name (must be owner)

Owner:

Signature

Printed Name (must be owner)

Owner:

Signature

Printed Name (must be owner)

Owner:

Signature

Printed Name (must be owner)

In Presence of:

Signature

Name of Witness (as to Owners)

For The Town:

Signature

Printed Name

Title (must be authorized agent)

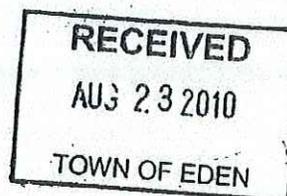
In Presence of:

Signature

Name of Witness (as to Town)

HYDRAULICS UNIT

TO: Jim Cota, District 8 Project Manager
FROM: Nick Wark, P.E., Hydraulics Engineer
DATE: August 17, 2008
SUBJECT: Eden TH13 Br20 over White Branch



We have completed our preliminary hydraulic study for the above referenced site, and offer the following information for your use:

Hydrology

This site has a hilly to mountainous drainage basin. It is mostly forested with some clearings and ponds and wetlands. The total contributing drainage area is about 6.3 sq. mi. There is an overall length of 21,200' from the divide to the site, with a 1050' drop in elevation, giving an average slope of 5%. The slope at the site is less than 1%. Using several hydrologic methods, we determined the following design flow rates:

<u>Recurrence Interval in Years</u>	<u>Flow Rate in Cubic Feet per Second (CFS)</u>
Q2.33	225
Q10	525
Q25	725 - Town Highway Design Flow
Q50	875
Q100	1000 - Check flow

Existing Structure

The existing CGMPPA has a span of 13'-5" and a rise of 8'-5", providing a waterway opening of about 89 sq. ft. Our calculations show this structure to be hydraulically inadequate. Headwater to depth ratios are not within the state standards. This structure results in headwater depths at Q25 = 8.6' and Q100 = 12.0'.

Recommendations

In sizing a new structure we attempted to select structures that meet the hydraulic standards, fit the natural channel width, the roadway grade and other site conditions. Based on these considerations the following would best fit the site:

- A bridge with a 28' minimum clear span between abutments, measured perpendicular to the abutments. The bridge should have a clear height of at least 6' from the average stream bed to the bottom of the deck, and should have a minimum waterway opening of 168 sq. ft. This

structure would result in a headwater depth at Q25 = 4.7' and at Q100 = 5.8'. Thus it would have the required 1' of freeboard at Q25.

- Other structures with a minimum span of 28' and at least 160 sq. ft. of waterway area that fits the site could be considered.

General Comments

If a new bridge is installed, the bottom of abutment footings should be at least six feet below the channel bottom, or to ledge, to prevent undermining.

It is always desirable for any new structure to have flared wingwalls at the inlet and outlet, to smoothly transition flow through the structure, and to protect the structure and roadway approaches from erosion. The wingwalls should match into the channel banks. Any new structure should be properly aligned with the channel.

Stone Fill, Type III should be used to protect any disturbed channel banks or roadway slopes at the structure's inlet and outlet, up to a height of at least one-foot above the top of the opening. The stone fill should not constrict the channel or structure opening.

The Agency of Natural Resources (ANR), Corps of Engineers, or other permitting agency may have additional concerns regarding repair or replacement of this structure, or any channel work. The Stream Alteration Engineer should be contacted with respect to those concerns, before a new structure is ordered.

Please keep in mind that while a site visit was made, these recommendations were made without the benefit of a survey and are based on limited information. The final decision regarding the replacement of this structure should take into consideration matching the natural channel conditions, the roadway grade, environmental concerns, safety, and other requirements of the site.

A structure of this size warrants a more detailed hydraulic study.

Please contact us if you have any questions or if we may be of further assistance.

NJW

cc: Chris Brunelle, A.N.R. Stream Alteration Engineer
Mike Hedges, Structures Engineer
Hydraulics Project File
Hydraulics Chrono File

Tracey Morin

From: Brunelle, Chris <Chris.Brunelle@vermont.gov>
Sent: Wednesday, April 13, 2016 11:32 AM
To: Tracey Morin
Subject: RE: Knowles Flat Rd Culvert

I remember the site. Replacement of this culvert with a structure that meets our equilibrium and connectivity standards will greatly reduce the conflict between river dynamics and the existing the stream crossing structure. Hopefully I got this email to you in time.

Sincerely,



VERMONT DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
WATERSHED
MANAGEMENT DIVISION
RIVERS PROGRAM

Christopher Brunelle, River Management Engineer

111 West Street, Essex Jct., VT 05452

Cell/text: 802-777-5328

Email: chris.brunelle@vermont.gov

homepage: www.watershedmanagement.gov

Flood ready: www.floodready.vermont.gov

From: Tracey Morin [mailto:sbadmin@edenvt.org]
Sent: Tuesday, April 05, 2016 11:17 AM
To: Brunelle, Chris <Chris.Brunelle@vermont.gov>
Subject: Knowles Flat Rd Culvert

Chris:

Eden is applying for a Better Back Road grant for design, scope, budgeting & permitting of replacement of the culvert Knowles Flat Rd. It is the single CGMPPA near the intersection with Crooks Rd. This is the culvert you looked at with Ricky last fall. He thought you had sent an email on this site, but I do not find one. Would you be able to send us a quick email stating that you have reviewed the project, consulted with us on the stream/road conflict and if you support our efforts to replace the culvert. Thank you for your help on this project.

Tracey Morin

Tracey Morin

Town Administrative Assistant

Town of Eden

sbadmin@edenvt.org



Lamoille County Planning Commission

PO Box 1637
Demars Building, 52 Portland Street, Second Floor
Morrisville, Vermont 05661
www.lcpevt.org

(802) 888-4548 • e-mail: lcpc@lcpevt.org • fax: (802) 888-6938

April 6, 2016

Alan May
Agency of Transportation
Municipal Assistance Bureau
1 National Life Drive
Montpelier, Vermont 05633
Phone (802) 828-4585

To the Review Committee:

The Lamoille County Planning Commission is pleased to offer our support for the Town of Eden's FY17 Better Roads grant proposal to initiate a culvert improvement project on Knowles Flat Road. Eden is strategically applying for funds to hire a consulting engineer to scope, design and permit the project; with the defined scope, constructible design, and permits in hand, Eden can make informed decisions on how best to implement the upsizing of a culvert for the benefit of water quality in the Gihon River. The proposed project will address water quality degradation related to excessive sediment being carried from gravel roads into streams, by identifying erosion problems and developing remediation strategies to correct these problems. The development of a thoughtfully phased approach to implementation will help the Town execute this work in a manageable way.

Erosion from gravel roads has been documented as a significant source of sediment and nutrients to Vermont's waterways. This project will result in better road management, improved water quality and habitat, and local residents informed on erosion issues related to town roads.

Best regards,

Robert Moore
Regional Transportation Planner

CC: Jim Cota, VTrans District 8