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FY17 Vermont Better Roads Grant Application

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

Town/Organization: Town of Calais Contact Person(s): Toby Talbot/Alfred Larrabee

Address: 3120 Pekin Brook Rd. East Calais VT 05650

Email: toby_talbot@comcast.net Phone: (802) 371 - 7592

DUNS #: 35974021 Fiscal Year End Month (MM): 6

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, VTrans 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



1



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 Calais

Project Name: Apple Hill Rd culvert

Road Name: Apple Hill Rd TH #: 27 Structure # (if applicable): 458

Road Type: Unpaved Uncurbed
Class 3

Watershed: Apple Hill

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

Collapsed 40 inch instream culvert, threat of blockage to cause overtopping and erosion of roadway into stream and nearby pond on Emslie Rd. VOBCIT rates as critical.

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):

Replace culvert with properly sized pipe arch and header.

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

Threat of catastrophic failure in T25 event.



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

Progress to Date:
None.

Is there an emergency reason this project must be completed quickly? If yes, please explain:
The culvert is collapsed and is barely passing existing stream flow.

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: VOBCIT

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.):
Engineer Doug Newton, have requested hydrology study from VTrans.

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

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



Describe how the grant funds will be spent and/or attach a project budget:
See attached engineers estimate

How do you plan to meet the required 20% match on this grant?:
Town crew to do most of the work

Requested Grant Amount (\$20,000 max Category B, \$40,000 max Categories C & D): \$ 39,696.00
Estimated Total Project Cost (including 20% local match): \$ 49,619.00
Estimated Completion Date: 11/01/2016

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).
- 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: *Jody Talbot* Title: Operations manager



Cost Estimate Worksheet
 Town and Road Name: Calais Apple Hill Rd culvert

Project Name: Apple Hill Rd culvert

Labor	Rate	# Hours	Total (Rate x Hours)
Manpower	30.00	320	9600
Labor Total			9600
Equipment	Rate	# Hours	Total (Rate x Hours)
Excavator	95.00	80	7600
10 wheel truck	70.00 per hour	80	5600
Grader	225.00	3	675
Equipment Total			13875
Materials	Rate	Amount	Total (Rate x Amount)
Concrete footing			7000
Open bottom arch	179 per foot	36 ft	6444
Shipping			500
Headwall and wingwalls			6000
Stone			3000
Gravel			3000
Materials Total			25944
Miscellaneous	Rate	Amount	Total (Rate x Hours)
Seed and mulch			200
Miscellaneous Total			

Grand Total 49,619
 Match 9,923

Toby,

Here's what I've found out:

The drainage area for this site is 1.44 times the drainage area for the site on Jack Hill Road.

When you apply that factor of 1.44 to both the Q25 and the Q100 discharges from the site on Jack Hill, you get almost exactly the discharges that StreamStats shows for the same discharges at the site on Apple Hill.

The biggest difference with the site on Apple Hill is that it has nearly 75% more storage in that watershed than the Jack Hill site does.

Taking all of that into account, and knowing that we ended up with a structure that provided 22 sf of waterway area (even after it was buried 2' below streambed grade) on the Jack Hill site, I estimated that we'd need around 32 sf of waterway area on this site.; that may be slightly conservative knowing that we have some additional storage at the Apple Hill but at this point that's probably ok.

Alfred said that he estimated the bankfull width of the stream to be about 6' or so, and also told me that there was ledge showing on the inlet end.

Because of the ledge involved, I looked into using a 9'-0" span x 4'-8" rise Single Radius Arch; that structure has 33.6 sf of waterway area and is an open-bottom type of structure that would be supported on concrete footings; if ledge is available, those footings can be pinned to the ledge.

The nice thing about an open-bottom arch is that you don't lose any area by having to bury the invert; it does involve some formwork, rebar, concrete, etc. to build the footings to support it.

I had called Steve Wolf earlier in the week to get some prices on some options; he had been in UT skiing and called me last night. The single radius arch is \$179 per foot and then there's a shipping charge of \$500 on top of that. For a 36' structure, that comes to \$6944; the concrete, rebar, etc. would probably be another \$4000 - \$5000 for an overall total of \$11K to \$12K.

I know there are no borings and it's hard to know but if you thought that you could get a structure down 1.5' to 2' before you hit ledge, the other option might be to use a 9'-6" wide x 6'-5" rise pipe arch; if buried 2', that structure has 32.7 sf of area.

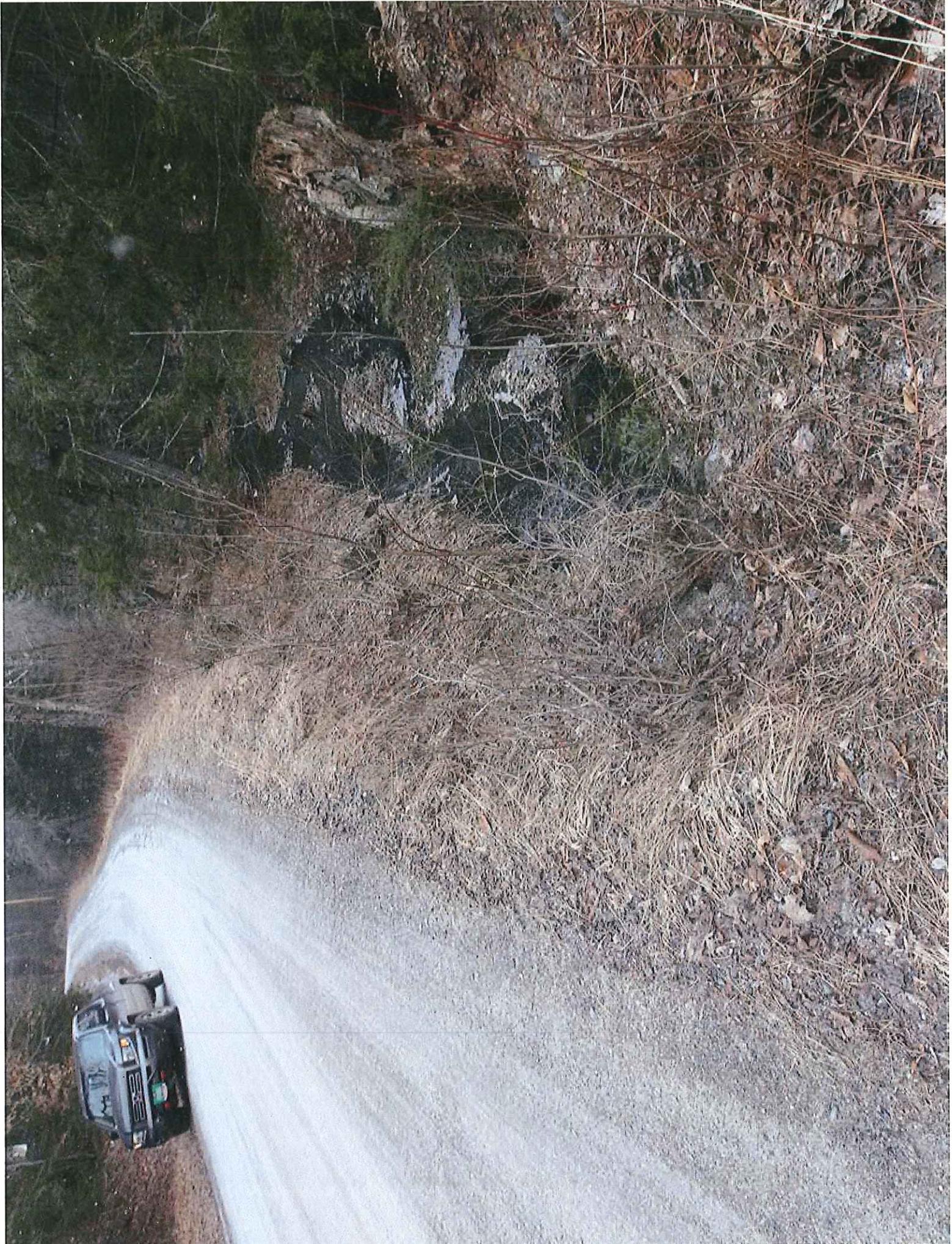
That pipe arch is \$310 per foot so when you get 36 lf of it and add in the shipping that would cost about \$11,500 and no concrete footings.

Neither the single radius arch or the pipe arch include a price for any headwalls or wingwalls.

The cover isn't as deep as it is on Jack Hill, the new culvert is somewhat shorter than Jack Hill, and there is no guardrail to remove and reset, but there may be some concrete involved if you decide to use the single radius arch.

I hope this helps; let me know if you have any questions.

Doug Newton







Home

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View Structure

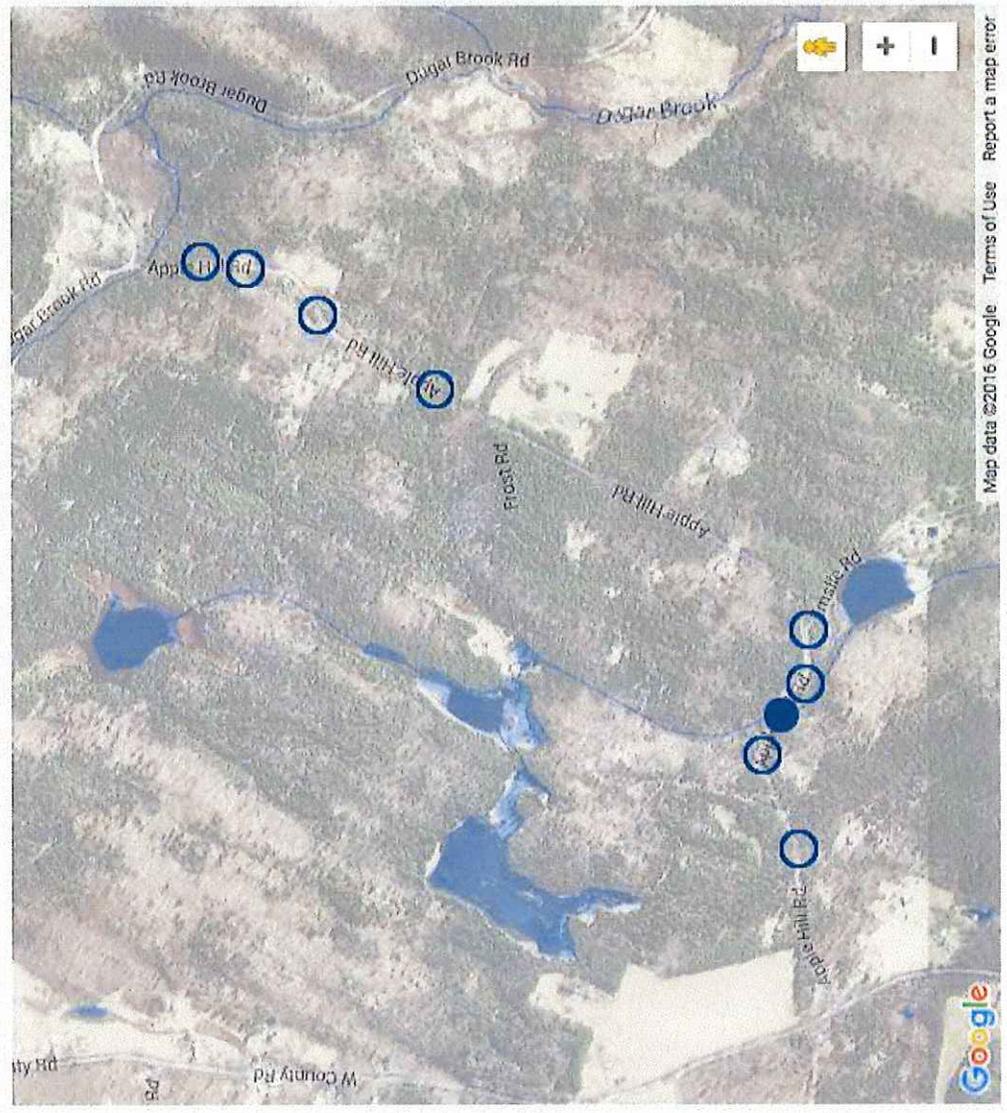
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Expand fields Help Close

Municipality	CALAIS
Road	APPLE HILL RD
Local ID	0458
X-coordinate (or lat)	501679
Y-coordinate (or lng)	209090
Inventory date	8/1/2012
Culvert type	Round
Culvert material	Tank
Height	40 in
Width	40 in
Length	30 ft
Overall condition	Critical
	Photos

Latitude: 44.382041313658505
Longitude: -72.47893009040437

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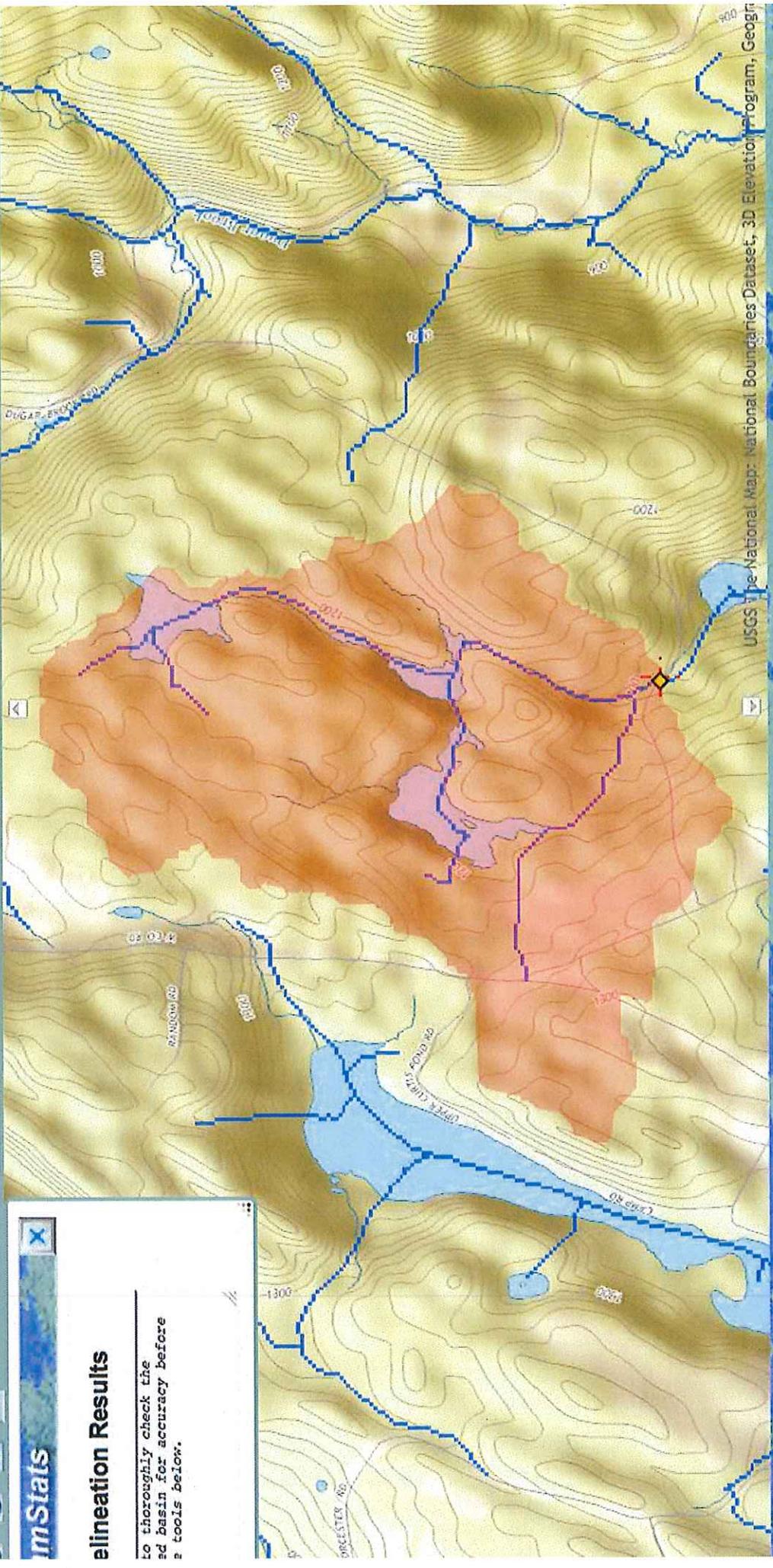
Map data ©2016 Google. Terms of Use Report a map error



StreamStats Version 3.0: Vermont

Zoom To: [dropdown]

stream stats



StreamStats

Elevation Results

To thoroughly check the elevation results for a watershed, please check the elevation data for accuracy before using the tools below.

Taskbar with icons for applications including Ps, Firefox, W, X, O, and various utility tools.