VTrans Fall 2023 Transportation Alternatives (TAP)
and
Municipal Highway and Stormwater Mitigation Program Grant (MHSMP)
Combined Application

Thoroughly read the TAP and MHSMP application guidebooks before you begin your application. It includes important program information and step-by-step instructions. Pay particular attention to the application process requirements. **Applications are due by e-mail by December 8, 2023.** Please e-mail the completed application to: Ross.gouin@vermont.gov and Scott.robertson@vermont.gov.

French Hill Road TH#: 14
(Project Name/Title)

July Medina-Triana
(Municipality contact person responsible for the management of this project)

Saint Albans Town
(Town)

05478
(Zip Code)

398 Georgia Shore Road
(Mailing Address)

(802) 524-7589 ext:109
(Phone)

j.medina-triana@stalbanstown.com
(e-mail address)

$ 248,000
Amount of **Federal Funds requested** (no more than 80% of the project cost estimate).

$ 62,000
Amount of Local Match. Example:
Federal Award = $600,000 (*80% of total*)
Local Match = $150,000 (*20% of total*)
Total Project Cost = $750,000 (*100% of the total*)

County: Franklin

Town/Village/City: Saint Albans Town

Specific location, street, or road: French Hill Road TH:14

Regional Planning Commission: Northwest Regional Planning Commission

If a linear project, what is the length in feet? 120

Is the project on or intersecting to a State maintained highway? Yes ☐ No ☒

- *Note: If yes, be sure to include documentation that you have notified the VTrans District Transportation Administrator of the intent to apply for TA funding and have provided them with a brief (one paragraph) description of the proposed project.*

Project type being applied for: ☐ **Scoping** ☒ **Design/Construction**

The municipality understands that a typical construction project utilizing TAP or MHSMP Program funds will take roughly three years (min.) in the Design and ROW phases prior to going to construction (as pointed out in the TAP and MHSMP Application Guides)? Yes ☒ No ☐

Does this project have a previously completed scoping or feasibility study? Yes ☒ No ☐

Note:
Attach a map(s) of the project area and clearly show the limits of the project as well as surrounding benefits from the proposed improvement. If the project is within or adjacent to a designated downtown, village or growth center, clearly indicate the relationship of the proposed project to the boundary of the designated area. Color photos of the area are also recommended.

Fiscal Information:

Accounting System Automated ☐ Manual ☐ Combination ☒

SAM Unique Identifier # JNWNJMVKDZZ9

Fiscal Year End Month JUNE

Property Ownership:

If the proposed project is on private property that will need to be acquired by the Municipality through purchase, easement, or eminent domain (includes temporary construction rights) in accordance with the "Uniform Act", then the municipality is committed to exercising its right of ***eminent domain*** to acquire the rights to construct the project if necessary. Yes ☐ No ☒

Funding:
Does this project already have existing funding? If so, please describe. Yes ☐ No ☒
Click here to enter text.

Please note that existing projects will not be considered for additional funding without a current NEPA clearance and ROW clearance. Please provide date of clearances below:
Click here to enter text.

Will you accept an award less than you applied for? Yes ☐ No ☒

1. If yes, please indicate whether local funds will be used to make up the shortfall, or if the project scope will be reduced. If the project scope is to be reduced, describe what part of the project (please be specific) you would accept partial funding for.
   Click here to enter text.

A support letter from the governing body of the applicant municipality or organization and an acknowledgement and source of the local match and commitment to future maintenance responsibility for construction projects is required (must be dated within 1 year of the application). Is a letter of support attached?

Yes ☒ No ☐

Regional Planning Commission Letter of Support:
In order to apply, the project must have a letter of support from the regional planning commission. Is a letter of support attached?

Yes ☒ No ☐

PLEASE NOTE*:* If this application is for salt or sand shed funding, the applicant must read and understand the ***Municipal Assistance Section Salt Shed Application Guide***. All of the following scoring questions below must thoroughly convey an understanding of the salt and sand guidance provided.

Application Scoring Criteria:

1. **Please give a brief description of the project (be sure to indicate the primary facility type being applied for and be concise).**
   (10 points max.)
   The existing $8_{1/2}$-ft wide 6-ft high metal culvert at the site on French Hill Road has steep side slopes, and has completely rusted through on the bottom. Soil beneath the culvert can be seen through large, jagged holes eroded through the metal, which is allowing water to flow beneath the culvert and causing additional erosion. The invert of this culvert is approximately 10-ft below the elevation of the road, so it will need to be a deep excavation, with bypass pumping for stream water. This culvert should be replaced in the late August through early October time frame, when stream flows are low. This culvert clearly needs to be replaced. French Hill is a Class 3 road, with a 3-rod ROW (49.5-ft). It is highly likely construction and maintenance easements will be required from the adjacent land owners to construct the project and for future maintenance. The existing guardrail will need to be removed and reinstalled. The road is settling on the east side of the culvert location.

2. **What is the feasibility of this project? Feasibility (or Scoping) study applications will not be scored on this criterion. Also, please describe the extent of project development to date.**
   (10 points max.)
   This project will replace a failing culvert, stop existing erosion around the culvert, and protect French Hill Road from falling apart above the culvert. The bottom of this metal culvert has rusted through, is allowing water to flow beneath the culvert, and is causing local erosion, roadway settling and stream degradation. Replacing this culvert will benefit the French Hill Road in the long term by stopping the erosion in the area, and will stop the road from settling.

3. **Does this project address a need identified in a local or regional planning document? If so, please describe.**
   (5 points max.)
   The 2020 St. Albans Town Plan mentions the impact of excess stormwater on stream geomorphology, streambank erosion, hydric soils, wetlands, and water quality. The Town Plan has outlined policies which include taking regulatory actions, installing stormwater infrastructure, and working with partners to provide stormwater flow mitigation. Additionally, the Plan references the Road Standards Ordinance which provides the minimum construction standards by which all roads, driveways, entrances, culverts, bridges, and other road items should be constructed within the Town of St. Albans. The Town of St. Albans recognizes the responsibilities and duties to enforce the policies of the Town of St. Albans Town Plan in full accord to Vermont Statue and for the citizens of the Town of St. Albans.

4. **Does this project:**
   A. **Benefit a State Designated Center per the link below (i.e., downtowns, villages, or neighborhood growth centers recognized by the Vermont Department of Economic, Housing and Community Development?**
   Not applicable for Environmental Mitigation Categories **(5 points max.)**
   http://maps.vermont.gov/ACCD/PlanningAtlas/index.html?viewer=PlanningAtlas
   This project will benefit all the community that uses the French Hill Road daily to commute to the town.

   B. **Benefit mobility for disadvantaged populations to include elderly, disabled, minorities, and low-income residents. Please describe this impact (if applicable) in detail. Supporting documentation, including recent data must be included.**
   Not applicable for Environmental Mitigation Categories **(10 points max.)**
   Click here to enter text.

5. **Provide a project cost estimate below (project costs below include both federal dollars and local dollars). Projects will be scored based on whether the cost appears realistic for the size and scope of the project. For scoping studies, use PE and Local Project Management lines only.**
   Note: If you are applying for additional funds for an existing project, show the amount being requested for this grant in the PE, ROW, Construction, Construction Engineering, and Municipal Project Management rows below. Also, be clear regarding total project cost and other funding amounts and sources in the additional funding comments box below.
   (10 points max.)

Right-of-way / Acquisition (ROW) *(appraisals, land acquisition and legal fees)*	$ **0.00**
Construction *(construction costs with reasonable contingency)*	$ **290,000**

Construction Engineering
(cost to provide inspection during construction) $ **20,000**

Municipal Project Management Costs
(minimum of 10% of total PE, ROW and Construction Phases). $ **0.00**

Total Project Cost ***$*** **310,000**

Addition Funding Comments: (ex. Total and additional funding for existing projects)
Local match to be provided through the Town of Saint Albans Stormwater Budget.

6. **Select the eligibility category below (A, B, C or D) that best fits your project and answer the corresponding questions for that category (choose only one category). 10 bonus points will be awarded to projects that are primarily Bicycle or Pedestrian facilities.**

☐ **A. Bicycle and Pedestrian Facilities (includes Safe Routes for Non-Drivers and Conversion of abandoned railroad corridors.**

(i) Will the project contribute to a system of pedestrian and/or bicycle facilities? **(10 points max.)**
Click here to enter text.

(ii) Will the project provide access to likely generators of pedestrian and/or bicyclist activity? **(10 points max.)**
Click here to enter text.

(iii) Will the project address a known, documented safety concern? **(10 points max.)**
Click here to enter text.

☐ **B. Community Improvement Activities:**

i. Explain how the project improves the economic wellbeing of the community and/or provide a benefit to state tourism? **(10 points max.)**
Click here to enter text.

ii. Describe the anticipated impact to the public; degree of visibility, public exposure and/or public use. **(10 points max.)**
Click here to enter text.

iii. Answer only one of the following based on the type of project:

a) Construction of turnouts, overlooks, and viewing areas as related to scenic or historic sites. *To what extent will the project provide a view of a highly unique and scenic area?*
b) **(10 points max.)**

Click here to enter text.

c) Preservation or rehabilitation of historic transportation facilities. *Describe the historic significance of the historic transportation facility and the importance of the facility to the state.* **(10 points max.)**
Click here to enter text.

d) Archeological planning and research related to impacts from a transportation project. *Describe the associated transportation project and benefit of the proposed activities.* **(10 points max.)**
Click here to enter text.

e) Vegetation management in transportation rights of way to improve roadway safety, prevent invasive species, and provide erosion control. *Describe the extent of the current problem and the impact on the site and surrounding area.* **(10 points max.)**
Click here to enter text.

☒ **C. Environmental Mitigation Activity Related to Stormwater and Highways (Including Salt and Sand Sheds)**

i. Please describe how this application provides environmental mitigation relating to stormwater and highways. **(10 points max.)**

The new box culvert structure has been sized with respect to hydraulic, hydrology and environmental standards. The project will mitigate erosion in the stream banks and debris blockage in this section of stream. To minimize maintenance and ensure constructability, it is recommended that the structure height be adequate for installation of E-Stone and passage of debris. A properly sized culvert will not only protect the stream, but ensure French Hill Road is stable for decades.

ii. What information or data is provided to substantiate the current stormwater problem and associated environmental impacts? **(10 points max.)**

The existing structure is a corrugated metal pipe arch with a clear span of 8.4 feet and a clear height of 3 feet, providing an approximate waterway opening of 40 square feet. VTrans's calculations, field observations and measurements indicate the existing structure does meet current standards of the VTrans Hydraulic Manual. Additionally, it does not meet the state stream equilibrium standards for bank full width (span length). The existing structure constricts the channel width, resulting in an increased potential for debris blockage. This structure results in a headwater depth of approximately 2.9 feet at 4% AEP and 3.7 feet at 1% AEP.

iii. What substantiating data or information is provided to show that the proposed application is an effective and maintainable solution to the problem? **(10 points max.)**

This is an excerpt from the VTrans Hydraulics & Hydrology Report for this culvert:

"In sizing a new structure, we attempt to select structures that meet both the current VTrans hydraulic standards, state environmental standards with regard to span length and opening height, and allow for roadway grade and other site constraints. Based on the considerations and the information available, we recommend any of the following structures as a replacement at this site:

A concrete box with an inside opening span of 12 feet and minimum height of 7 feet. The box inverts should be buried 2 feet. This will result in a clear height of 5 feet above streambed, providing 60 sq feet of waterway area. Bed retention sills should be added in the bottom of the structure. Sills should be 12 inches high at the edges of the box and 6 inches high in the center, creating a V-shape across the fill width of the box. Sills should be spaced no more than 8 feet apart throughout the structure with one sill placed at both the inlet and the outlet. The structure should be filled level to the streambed with E-Stone, Type II, allowing flow to be kept above the surface, providing the conditions necessary for aquatic organism passage. This structure results in a headwater depth of 2.1 feet at 4% AEP and 2.7 feet at 1% AEP.

A pipe arch with a clear span of 142 inches and height of 9l inches. The invert should be buried 2 feet. This will result in a clear height of 5.6 feet above streambed, providing 51 square feet of waterway area. Bed retention sills need to be added and filled as described for the box above. This structure results in a headwater depth of 2.2 feet at 4% AEP and 2.9 feet at 1% AEP.

To match the approximate existing structure slope, the structures recommended above have been modeled with

a culvert slope of 4.6%. This slope should be verified in the field prior to construction. With this slope, the channel at the outlet will need to be built up to connect E-Stone through the culvert to the upstream end. When complete, there should be no drop at the outlet.
Stone Fill, Type II 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. Prior to any action toward the implementation of any recommendations received from VTrans, stream type and structure size must be confirmed, and may be modified, by the VT ANR River Management Engineer to ensure compliance with state environmental standards for stream crossing structures. Regulatory authorities including the US Army Corps of Engineers may have additional concerns or requirements regarding this structure."

☐ **D. Environmental Mitigation Activity Related to Wildlife**

i. Please describe how this application will reduce vehicle-caused wildlife mortality or will restore and maintain connectivity among terrestrial or aquatic habitats. **(10 points max.)**
Click here to enter text.

ii. What information or data is provided to substantiate the current problem and associated environmental impacts? **(10 points max.)**
Click here to enter text.

iii. What substantiating data or information is provided to show that the proposed application is an effective and manageable solution to the problem? **(10 points max.)**
Click here to enter text.

1. The culvert is getting crushing from the pressure of route above.

2) Metal culvert is overwhelmed in the middle, and the water has rusted the bottom creating holes and erosion under the culvert.

3. The digital level shows how French Hill Road is settling over the culvert.

P.O. Box 37
St. Albans Bay
Vermont 05481

Phone
802-524-7589
Fax
802-524-5816
Website
www.stalbanstown.com

December 1st, 2023

Scott Robertson, P.E.
VTrans Municipal Assistance Bureau
219 North Main St.
Barre, VT 05641

RE: Municipal Highways and Stormwater Mitigation Program grant for French Hill Road in St. Albans.

Mr. Robertson,

I am writing on behalf of the Town of St. Albans Selectboard. The Selectboard supports the application for the Municipal Highways and Stormwater Mitigation Program grant for French Hill Road in the Town of St. Albans.

This project will replace a failing 8.5' x 6' metal culvert, stop existing erosion around the culvert, and protect French Hill Road from falling apart above the culvert. The bottom of this metal culvert has rusted through, is allowing water to flow beneath the culvert, and is causing local erosion, roadway settling and stream degradation. Replacing this culvert will benefit the French Hill Road in the long term by stopping the erosion in the area, and will stop the road from settling.

This culvert clearly needs to be replaced and should be replaced between late August and early October, 2024 when stream flows are low. French Hill is a Class 3 road, with a 3-rod ROW (49.5-ft). It is highly likely construction and maintenance easements will be required from the adjacent land owners to construct the project and for future maintenance. The existing guardrail will need to be removed and reinstalled.

The Selectboard is committed to supporting 20% of the project cost with the other 80% coming from the VTrans Municipal Highways and Stormwater Mitigation Program. The Town of St. Albans is commitment to future maintenance responsibility for future construction projects.

Sincerely,

Sean Adkins, Town Manager
Town of St. Albans

Northwest
Regional Planning Commission

75 Fairfield Street • St. Albans, VT 05478 • (802) 524-5958 • Fax (802) 527-2948

November 28, 2023

Joel Perrigo
Municipal Assistance Bureau – Local Projects Group
Vermont Agency of Transportation
One National Life Drive
Montpelier, VT 05633-5001

Re: Letter of Support for the St. Albans Town French Hill Road Project

Dear Mr. Perrigo:

The Northwest Regional Planning Commission (NRPC) is pleased to support St. Albans Town's application to the Municipal Highway and Stormwater Mitigation Program. This project is in direct alignment with our regional goals of improving infrastructure and enhancing disaster resilience as outlined in our comprehensive regional planning document.

The urgent replacement of the deteriorated culvert on French Hill Road is not only vital for maintaining safe and reliable transportation networks but also crucial for effective stormwater management. This aligns seamlessly with our policies aimed at ensuring resilient and sustainable infrastructure, particularly in the face of escalating climate change impacts. By addressing the erosion and structural integrity issues, this project directly contributes to our commitment to protect and manage our natural water resources, as well as to maintain the safety and integrity of our transportation systems.

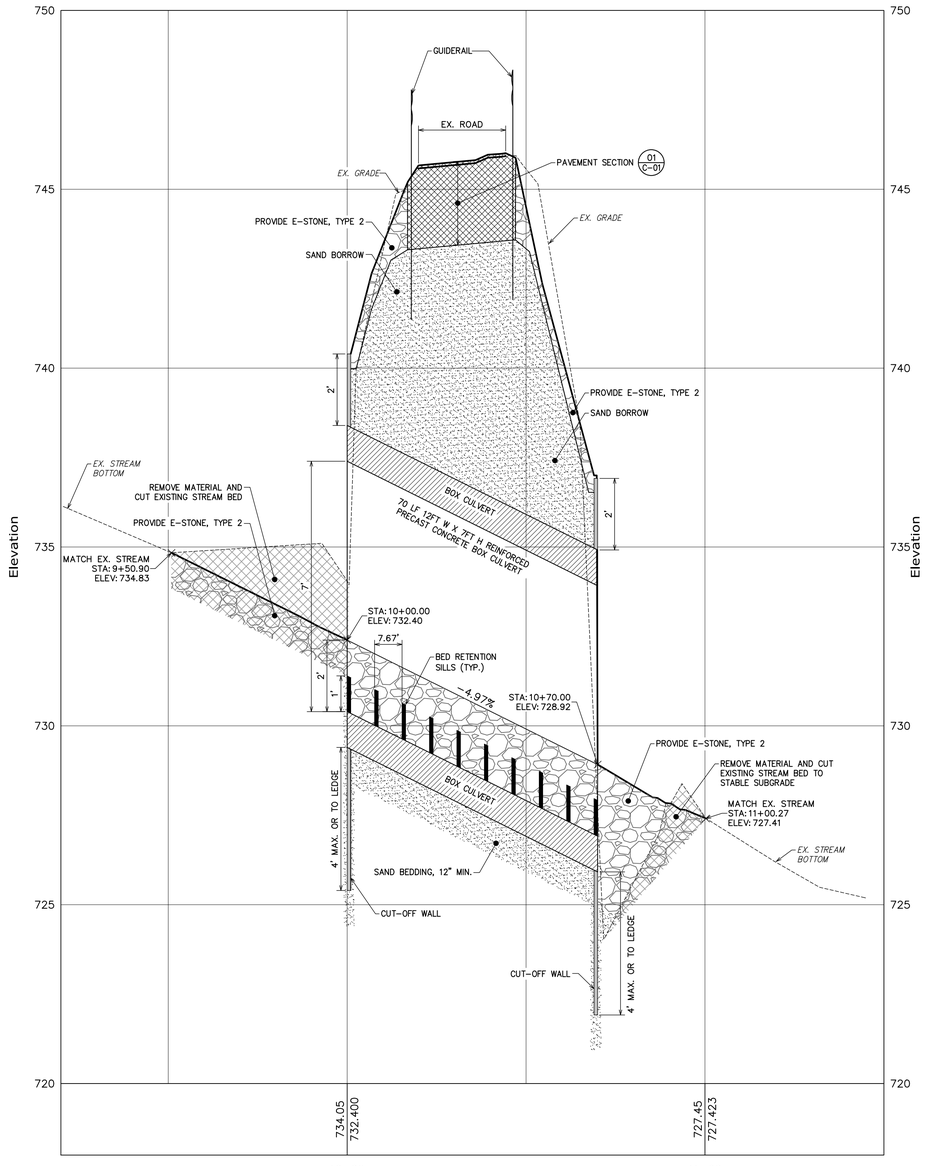
Language in the regional plan includes the following:
"Support efforts to bring in additional public and private resources to expand and upgrade infrastructure."
"Ensure the transportation network enhances residents' overall quality of life, supports regional land-use goals, and expands economic opportunities."

It is also worth noting that St. Albans Town has an adopted Municipal Hazard Mitigation Plan (covering the period July 25, 2022 through July 24, 2027) with language recognizing the need for "Identifying & upgrading undersized culverts." NRPC strongly supports this project and will continue to work with the Town to address stormwater and hazard mitigation projects.

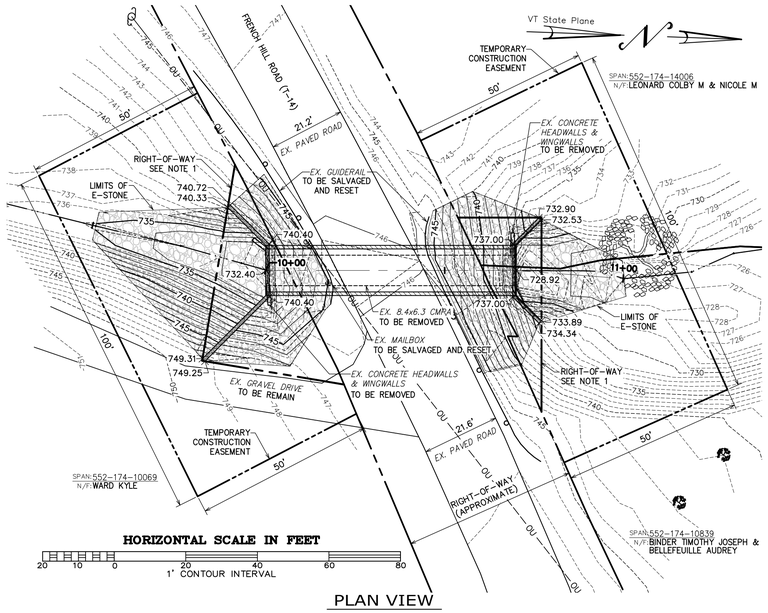
Thank you for your consideration.

Sincerely:

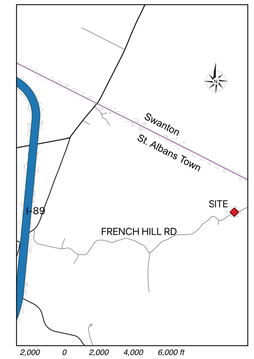
Dean Pierce
Senior Planner

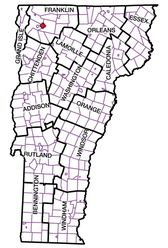


Stream 9+20 to 11+50 Profile
Horizontal Scale: 1" = 20'
Vertical Scale: 1" = 2'



PLAN VIEW



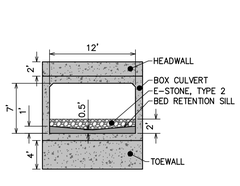


LEGEND

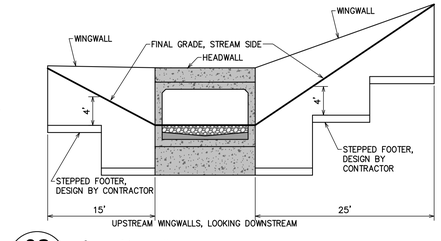
	EXISTING	PROPOSED
DRAINAGE MANHOLE	Ⓓ	Ⓓ
CATCH BASIN	▥	▥
END SECTION	▽	▽
SEWER MANHOLE	Ⓢ	Ⓢ
SEWER CLEANOUT	⊖	⊖
HYDRANT	🔥	🔥
END CAP	[	[
CURB STOP	⊗	⊗
GATE VALVE	Ⓦ	Ⓦ
WELL	Ⓦ	Ⓦ
UTILITY POLE	○	○
GUY WIRE	←	←
LIGHT POLE	☼ ☼	☼ ☼
WALL PACK LIGHT	▭	▭
TRANSFORMER BOX	▲	▲
TELEPHONE BOX	◫	◫
ELEVATION BENCHMARK	◆	◆
PROPERTY LINE	———	———
RIGHT-OF-WAY	———	———
CENTERLINE OF ROAD	—— — ——	—— — ——
STORMDRAIN	——SD——	———
UNDERDRAIN	——UD——	——UD——
GRAVITY SANITARY SEWER	——SS——	——SS——
PRESSURE SANITARY SEWER	——PS——	——PS——
WATER MAIN/SERVICE	——W——	——W——
GAS MAIN/SERVICE	——G——	——G——
OVERHEAD UTILITY	——OU——	——OU——
UNDERGROUND UTILITY	——UU——	——UU——
OVERHEAD ELECTRICAL	——OE——	——OE——
UNDERGROUND ELECTRICAL	——UE——	——UE——
OVERHEAD TELEPHONE	——OT——	——OT——
UNDERGROUND TELEPHONE	——UT——	——UT——
STREAM/DRAINAGE SWALE	——···——	——···——
WETLAND DELINEATION	——···——	——···——
WETLAND BUFFER	— — — — —	— — — — —
EDGE OF WOODS	∿∿∿∿∿	∿∿∿∿∿
CONTOURS	——450——	——450——

NOTE: LEGEND MAY INCLUDE SYMBOLS AND LINES NOT RELEVANT TO THIS PROJECT

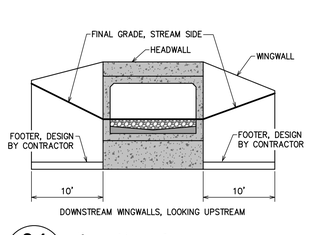
01 C-01 Pavement Section
NOT TO SCALE



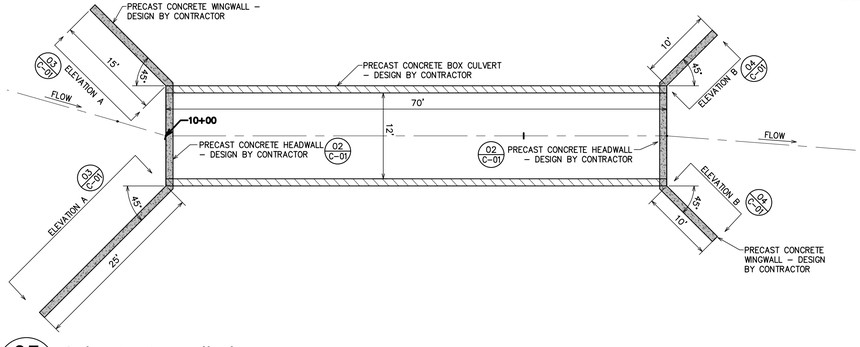
02 C-01 Headwall
NOT TO SCALE



03 C-01 Elevation A
NOT TO SCALE



04 C-01 Elevation B
NOT TO SCALE



05 C-01 Culvert Wingwall Alignment
NOT TO SCALE

GENERAL NOTES

TOPOGRAPHY PROVIDED BY:
Cross Consulting Engineers, P.C.
103 Fairfax Road
St. Albans, VT 05478

1. Town of St. Albans to acquire right-of-way and construction easements from the following property owners:

Property	Right-of-way Area	Temp. Easement Area
KYLE	1130 SF	3926 SF
LEONARD	275 SF	2167 SF
BINDER	332 SF	2129 SF

Note: Temp. Easement Area does not include right-of-way Area. Areas are approximate.

2. Verify and determine the location, size and elevation of existing utilities shown or not shown on this plan prior to the start of construction. Notify the Engineer in writing, of utilities found interfering with the proposed construction and take appropriate remedial action before proceeding with the work. Verify dimensions and elevations in the field before commencing construction and notify the engineer, in writing, of discrepancy found.
3. Notify DigSafe (1-888-DIG-SAFE or 811) before commencing construction to verify utility locations. Website at www.digsafe.com

811 DigSafe MA ME NH RI VT

Permitting

PROJECT: 22012
DATE: 2023-02-06
DESIGN: PJG
DRAWN: DW/NRB
CHECKED: PJG
APPROVED: PJG

Tel. 802-524-2113
Fax. 802-524-9681
CCE CROSS CONSULTING ENGINEERS, P.C.
103 Fairfax Rd.
St. Albans, Vermont 05478

Site Plan

Town Of St. Albans
St. Albans, VT
Culvert Replacement
St. Albans, VT
French Hill Road

CIVIL
C-01

VERMONT

State of Vermont
Structures and Hydraulics Section
One National Life Drive
Montpelier, Vermont 05633-5001
vtrans.vermont.gov

Agency of Transportation

[phone] 802-371-7326
[fax] 802-828-3566
[ttd] 800-253-0191

TO: James Cota, District 8 Project Manager
John Wilkin, District 8 Technician

CC: Chris Brunelle, ANR River Management Engineer

FROM: Christian Boisvert, Hydraulics Project Engineer

DATE: August 19, 2021

SUBJECT: Saint Albans TH-14, French Hill Road, over unnamed tributary to Fairfield Pond
Site location: 0.2 miles northeast of TH-53
Coordinates: 44.817342, -73.016872

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

Hydrology

The following physical characteristics are descriptive of this drainage basin:

Drainage Area	1.12 square miles
Land Cover	Forested
Water Bodies and Wetlands (NLCD 2006)	4.4 %

Using the USGS hydrologic method, the following design flow rates were selected:

Annual Exceedance Probability (AEP)	Flow Rate in Cubic Feet per Second (cfs)	
43 %	38	
10 %	71	
4 %	95	Design Flow – Local Road
2 %	120	
1 %	140	Check Flow

Channel Morphology

The channel for this perennial stream is straight with an estimated local channel slope of 6%. Field measurements of bankfull width varied from 11 to 13 feet at a bankfull depth of 0.5 to 1.5 feet upstream and downstream of the structure.

Existing Conditions

The existing structure is a corrugated metal pipe arch with a clear span of 8.4 feet and a clear height of 6.3 feet, providing an approximate waterway opening of 40 square feet. Our calculations, field observations and measurements indicate the existing structure does meet current standards of the VTrans Hydraulic Manual. However, it does not meet the state stream equilibrium standards for bankfull width (span length). The existing

structure constricts the channel width, resulting in an increased potential for debris blockage.

This structure results in a headwater depth of approximately 2.9 feet at 4% AEP and 3.7 feet at 1% AEP.

Replacement Recommendations

In sizing a new structure, we attempt to select structures that meet both the current VTrans hydraulic standards, state environmental standards with regard to span length and opening height, and allow for roadway grade and other site constraints.

Based on the above considerations and the information available, we recommend any of the following structures as a replacement at this site:

- A concrete box with an inside opening span of 12 feet and minimum height of 7 feet. The box invert should be buried 2 feet. This will result in a clear height of 5 feet above streambed, providing 60 square feet of waterway area. Bed retention sills should be added in the bottom of the structure. Sills should be 12 inches high at the edges of the box and 6 inches high in the center, creating a V-shape across the full width of the box. Sills should be spaced no more than 8 feet apart throughout the structure with one sill placed at both the inlet and the outlet. The structure should be filled level to the streambed with E-Stone, Type II, allowing flow to be kept above the surface, providing the conditions necessary for aquatic organism passage. This structure results in a headwater depth of 2.1 feet at 4% AEP and 2.7 feet at 1% AEP.

- A pipe arch with a clear span of 142 inches and height of 91 inches. The invert should be buried 2 feet. This will result in a clear height of 5.6 feet above streambed, providing 51 square feet of waterway area. Bed retention sills need to be added and filled as described for the box above. This structure results in a headwater depth of 2.2 feet at 4% AEP and 2.9 feet at 1% AEP.

Note: Any similar structure that fits the site conditions could be considered.

To match the **approximate** existing structure slope, the structures recommended above have been modeled with a culvert slope of 4.6%. This slope should be verified in the field prior to construction. With this slope, the channel at the outlet will need to be built up to connect E-Stone through the culvert to the upstream end. When complete, there should be no drop at the outlet.

Stone Fill, Type II 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.

Prior to any action toward the implementation of any recommendations received from VTrans, stream type and structure size must be confirmed, and may be modified, by the VT ANR River Management Engineer to ensure compliance with state environmental standards for stream crossing structures. Regulatory authorities including the US Army Corps of Engineers may have additional concerns or requirements regarding this structure.

General Comments

It is always desirable for a new structure to have flared wingwalls, matched into the channel banks at the inlet and outlet, to smoothly transition flow and protect the structure and roadway approaches from erosion. It is also recommended that full height concrete headwalls be constructed at the inlet and outlet. Any closed bottom structure should also be equipped with cutoff walls, extending to a depth equal to the culvert rise, up to 4 feet, or to ledge, to serve as undermining prevention. Any new structure should be properly aligned with the channel,

span the natural channel width, and be constructed on a grade that matches the channel.

The structures recommended above have been sized with respect to hydraulic and environmental standards and do not consider debris blockage complications. To minimize maintenance and ensure constructability, it is recommended that the structure height be adequate for installation of E-Stone and passage of debris.

Please note 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 replacement of this structure must comply with state regulatory standards, and should take into consideration matching natural channel conditions, roadway grade, environmental concerns, safety, and other requirements.

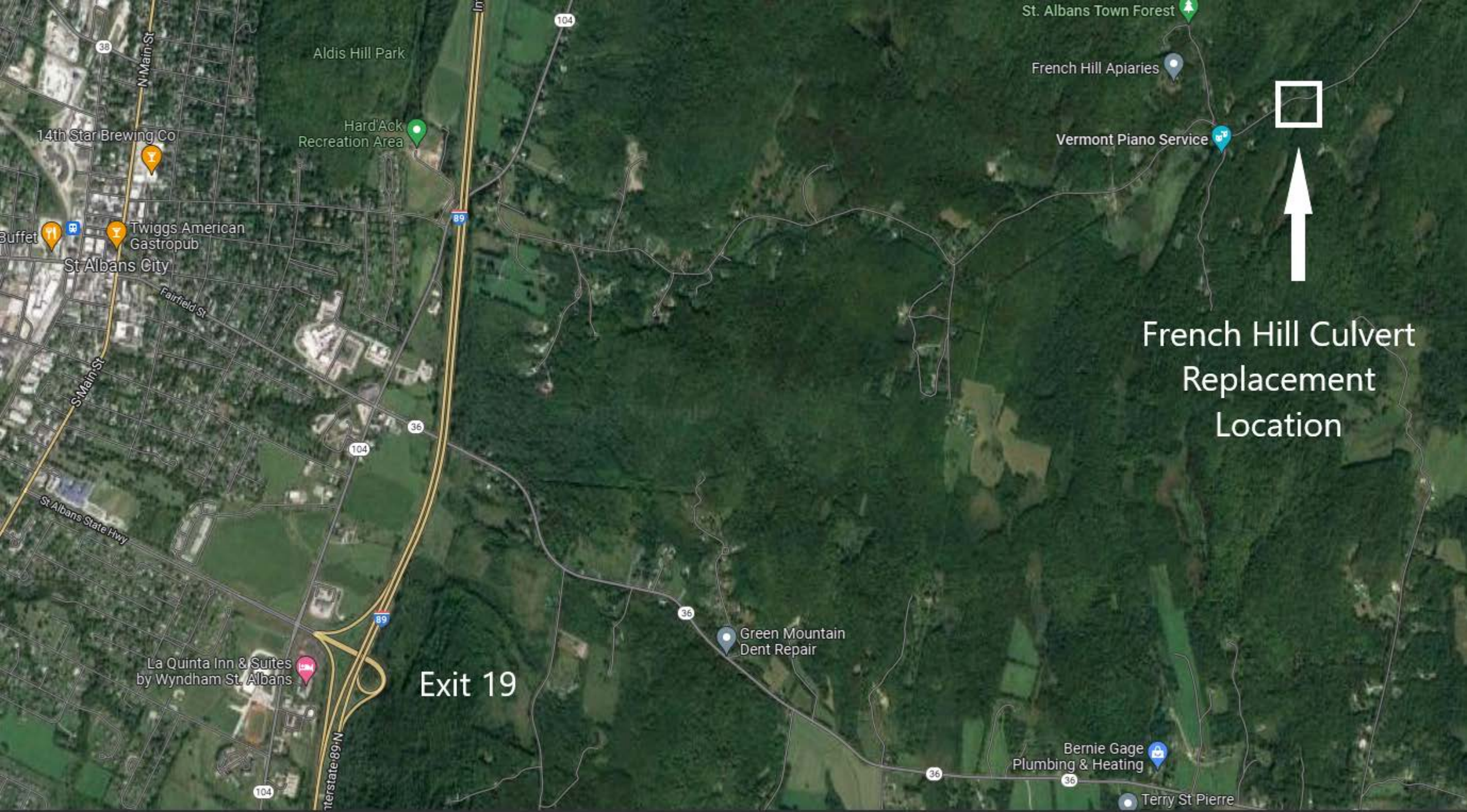
Please contact us if you have any questions or if we may be of further assistance.

Town of St. Albans - Box Culvert - French Hill Rd.
Engineer's Opinion of Probable Construction Cost

CCE Project No.: 22012
Date: February 6, 2023

Item No.	Description/Item	Estimated Quantity	Units	Unit Price	Total Cost
1	Mobilization	1.0	EA	$10,000	$10,000
2	Topsoil Stripping	20.0	CY	$4.00	$80
3	Earthwork	200.0	CY	$15.00	$3,000
4	Sand Borrow	311.0	CY	$32.00	$9,952
5	E-Stone Type 2	205.0	CY	$50.00	$10,250
6	Asphalt Paving with Subbase	1100.0	SF	$9.00	$9,900
7	Concrete Wing Walls	60.0	LF	$25.00	$1,500
8	Concrete Toewall and Wingwall	56.0	LF	$25.00	$1,400
9	Concrete Box Culvert	1.0	LS	$200,000.00	$200,000
10	Landscaping	1.0	LS	$5,000.00	$5,000
11	Rough and Fine grade of topsoil, Seed and Mulch	20.0	CY	$28.00	$560
	Subtotal				**$251,642.00**
	10% Contingency				**$25,164.20**
	TOTAL				**$276,806**

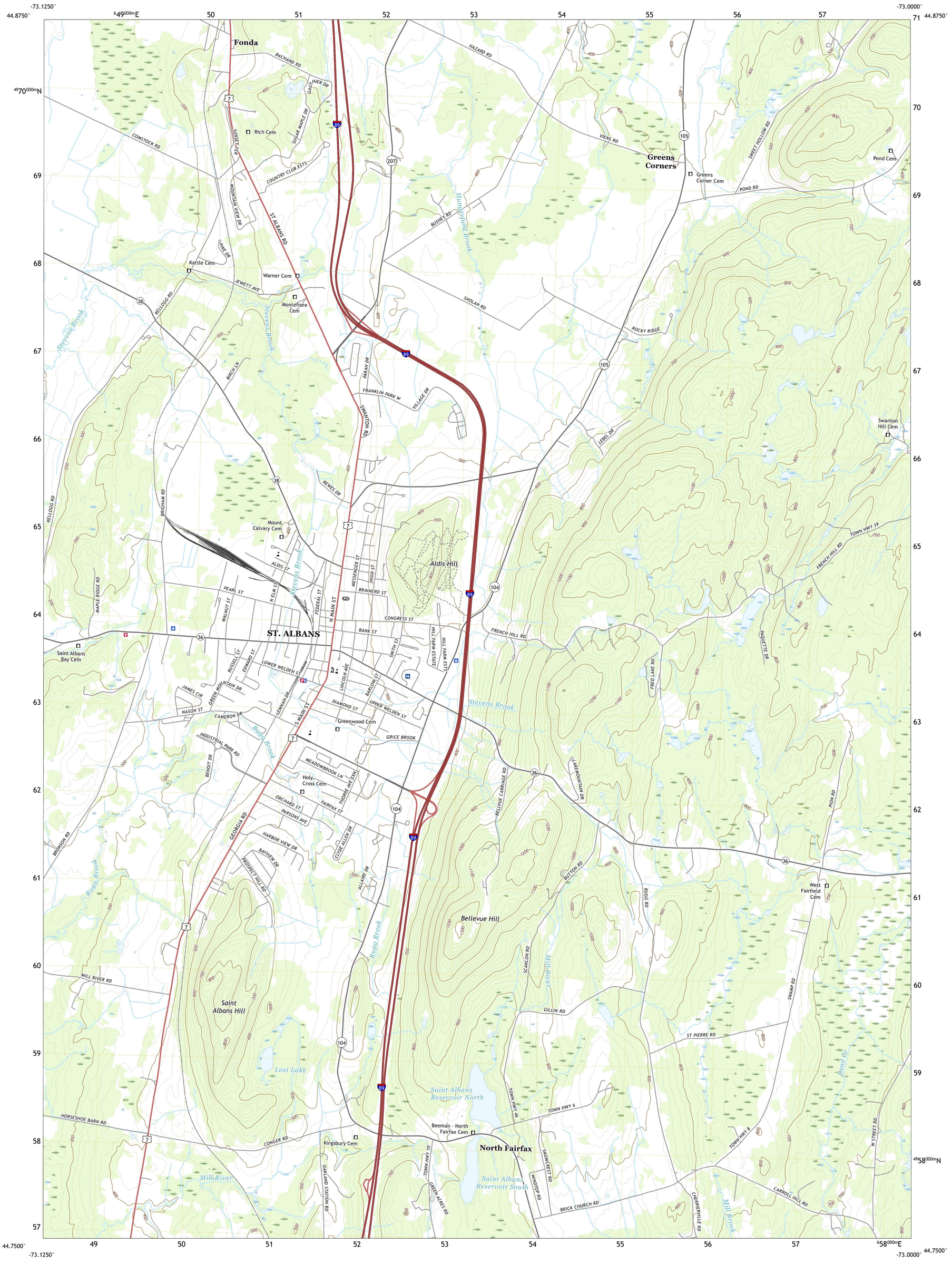
Cross Consulting Engineers, P.C. (CCE), is not a construction cost estimator nor a construction contractor, nor should CCE's rendering an opinion of probable construction costs be considered equivalent to the nature and extent of service a construction estimator or construction contractor would provide. CCE's opinion is based solely upon his or her own experience with construction. This requires CCE to make a number of assumptions to actual conditions that will be encountered on site; the specific decisions of other design professionals engaged; the means and methods of construction the contractor will employ; contractors techniques in determining prices and market conditions at the time; and other factors over which CCE has no control. Given these assumptions that must be made, CCE states that the above probable construction cost opinion is a fair and reasonable estimate for construction costs of the required site improvements in accordance with the applicable rules and regulations.


St. Albans Town Forest
French Hill Apiaries
Vermont Piano Service
Aldis Hill Park
Hard'Ack Recreation Area
14th Star Brewing Co
Twiggs American Gastropub
St Albans City
N Main St
S Main St
Fairfield St
St Albans State Hwy
104
89
36
38
La Quinta Inn & Suites by Wyndham St. Albans
Exit 19
Green Mountain Dent Repair
Bernie Gage Plumbing & Heating
Terry St Pierre
French Hill Culvert Replacement Location

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

SAINT ALBANS QUADRANGLE
VERMONT - FRANKLIN COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 18T

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, August 2016 - October 2016
Roads.....U.S. Census Bureau, 2017
Names.....GNIS, 1980 - 2017
Hydrography.....National Hydrography Dataset, 2011 - 2018
Contours.....National Elevation Dataset, 2011
Boundaries.....Multiple sources; see metadata file 2016 - 2017

Wetlands.....FWS National Wetlands Inventory 2003

MN
GN
14°29'
257 MILS
1°22'
24 MILS
UTM GRID AND 2017 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
XQ
Grid Zone Designation
18T

SCALE 1:24 000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

VERMONT
QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 East Alburg
2 Highgate Center
3 Sheldon Springs
4 Saint Albans Bay
5 Fairfield
6 Georgia Plains
7 Milton
8 Gilson Mountain

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

SAINT ALBANS, VT
2018

NSN 7643016401368
NGA REF NO. USGSX24K39213