

Town of St. Albans New Town Garage

St. Albans, Vermont

FEASIBILITY STUDY FOR NEW TOWN GARAGE ❖ JANUARY 26, 2015



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TABLE OF CONTENTS

1 Introduction 2

2 Site Evaluation 2

 Parcel Description 2

 Utilities and Drainage..... 3

 Wastewater Disposal Potential 3

3 Borings and Test Pits Information 5

 Soil Test Pits 5

4 Existing Conditions and Conceptual Plan..... 6

 Existing Conditions Plan 6

 Conceptual Plan..... 6

5 Appendix 6

 ANR Wetland Map 7

 ANR Soil Map..... 7

 ANR Ag Soils Map 7

 Boring Logs..... 7

 Test Pit Logs 7

 Existing Conditions Plan, C-1 7

 Concept Plan 3, C-4..... 7



1 Introduction

The Town of St. Albans public works garage is currently located on property directly adjacent to St. Albans Bay. The current facility is not adequate for the Town's expanding needs. The Town would like to relocate the facility away from the Bay in a more central location within the Town and construct a new facility meeting current and future needs of the Town.

The Town Selectboard is interested in presenting a plan to the voters for a new Town Garage. Cross Consulting Engineers, P.C. (CCE) was commissioned to prepare this report to evaluate Town property located on Brigham Road for the possible development of a new public works facility.

2 Site Evaluation

Parcel Description

The existing Town owned parcel on Brigham Road is relatively flat with a slope ranging from 0-4% to the southwest. The rear of the property is mostly mapped class II wetlands, and an area of hydric soil is located at the approximate midpoint of the western and eastern halves of the parcel. The parcel also contains both Prime and Prime(b) agricultural soils. A 125' deep area parallel to Brigham Road contains both Prime and Prime(b) soils. A larger area of Prime(b) soils is located approximately 700-800' to the east of Brigham Road. The western side of the property is largely open with a few small clumps of trees and fill/compost waste piles. Wetland growth and mature trees dominate the eastern portion of the property.

Utilities and Drainage

Overhead power and telephone are located within the Brigham Road right of way and available to the parcel. Drainage facilities are extremely limited. The site is relatively flat and drainage runs southwesterly to a roadside swale and under Brigham Road through a culvert near Railroad property.

The most ideal location for a new stormwater pond (should one be needed) is at the southwest corner of property near Brigham Road. The property naturally drains to this area within the likely developable area and would allow for a proper discharge location.

A City of St. Albans water main exists under Brigham Road. The 16 inch ductile iron main has high static pressure and is adequate to supply a fire supply main to the site as well as domestic water supply should the town choose to pursue it. If the Town chooses to request fire supply only, a drilled well could be located on site to serve domestic demand. A sprinkler system will be needed for the new garage as fire code requires one for this use within a structure over 5000 square feet and a new Town Garage will likely exceed 5000 square feet.

Wastewater Disposal Potential

CCE performed soil test pits to evaluate the potential for onsite wastewater disposal. The results of soil testing are described in section 3 below. Three systems within the western most area of the property have been sized and the capacity of each area is estimated as follows:

Area A: North of Garage Site

Type: Mound wastewater disposal area.

Capacity: 345 gallons per day (7 employees & 48 meeting room seats).

Description: 2.5 feet of sand fill beneath a 235 foot long washed stone leaching bed. Wastewater will be directed from the building to a 1000 gallon septic tank and a 1000 gallon pump station. The settled wastewater will be directed to the mound leaching area.

The size of this leaching area is limited by the slope of the ground, soil texture, and seasonal high water table. There is not much potential of expansion of this area. If added, a pre-treatment system would lower the overall height of the mound, but will not change the length required. Additional potential for expansion may be determined by a hydrogeologist. A study of this type could add \$3,000 or more to the cost and the results are not guaranteed.

Area B: West of Garage Site.

Type: Mound wastewater disposal area.

Capacity: 150 gallons per day (10 employees).

Description: 2.5 feet of sand fill beneath a 90 foot long washed stone leaching bed. Wastewater will be directed from the building to a 1000 gallon septic tank and a 500 gallon pump station. The settled wastewater will be directed to the mound leaching area.

Area C: Southwest of Garage Site.

Type: Mound wastewater disposal area.

Capacity: 255 gallons per day (17 employees).

Description: 2.5 feet of sand fill beneath a 140 foot long washed stone leaching bed. Wastewater will be directed from the building to a 1000 gallon septic tank and an 800-1000 gallon pump station. The settled wastewater will be directed to the mound leaching area.

Permits Required

There are several local and State permits that would be required in order to construct a new town garage at this site. There are currently no permits on this property that could be located. The following permits will be required:

- a) Town of St. Albans Conditional Use and Site Plan Approval from the DRB
- b) State of Vermont Wastewater System and Potable Water Supply Permit
- c) State of Vermont Operational Stormwater Permit
- d) State of Vermont Construction General Permit
- e) Vermont Fire Safety Permit (for the building)
- f) **Possible permits** - Wetlands, Act 250 (depending on total area impacted), State of Vermont Public Water Supply

3 Borings and Test Pits Information

Borings

Three borings were performed by Mike's Boring & Coring LLC and their logs are included in the appendix. The borings resulted in refusal (glacial till) at a depth of 8-14 feet with silty fine to medium sand above. The soil conditions on site are suitable for spread footings designed to support a structure above with a slab on grade. A full basement foundation is not recommended due to relatively high groundwater conditions. Dewatering during foundation excavation is likely needed.

Soil Test Pits

Soil texture: Fine Sandy Loam

Seasonal High Groundwater: the seasonal high groundwater table was determined through soil mottling. Values were found to be in the range of 6 to 14 inches below ground surface. The depth to seasonal high groundwater table was generally greater in areas with increased ground slope toward the western side of the parcel.

Soil Structure: Sub-Angular Blocky Soil structure was found in A and B soil horizons in all test pits.

The slope of the ground, soil texture, and seasonal high water table, and soil structure all factor in to the size and position of the potential leaching areas described above.

4 Existing Conditions and Conceptual Plan

Existing Conditions Plan

An existing conditions plan (C-1) is located in the appendix and illustrates the natural areas as well as existing site features and topographic contours. Contours are shown and labeled at 1 foot intervals.

Conceptual Plan

Cross Consulting Engineers, P.C. (CCE) has compiled 3 conceptual layouts of a new Dept. of Public Works (DPW) Garage. After exploring and revising each, a general agreement between CCE and the DPW Committee of the most desirable layout was reached. This concept is titled Concept 3 and is included in the appendix as plan C-4.

5 Conclusion

The Town property of approximately 75 acres as identified in this report contains both Class II wetlands and prime agricultural soils. The majority of the rear of the parcel is not ideally suited for development. However, there is approximately a 9 acre area close to Brigham Road relatively flat and open. Within the 9 acre area, wastewater capacity (within 3 separate areas) totals 750 gallons per day. Water and utilities services are close by on Brigham Road.

After review of the information obtained throughout work associated with this report, Cross Consulting Engineers concludes this site has good potential for development and specifically a new Town Garage.

6 Appendix

ANR Wetland Map

ANR Soil Map

ANR Ag Soils Map

Boring Logs

Test Pit Logs

Existing Conditions Plan, C-1

Concept Plan 3, C-4



Vermont Agency of Natural Resources
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LEGEND

- Wetlands - VSWI
 - Class 1 Wetland
 - Class 2 Wetland
- Soils - Hydric
- Waterbody
- Parcels (where available)



1: 5,224
 1 in = 435 ft
 1 cm = 52 meters

NOTES
 Map created using ANR's Natural Resources Atlas

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

THIS MAP IS NOT TO BE USED FOR NAVIGATION





Vermont Agency of Natural Resources
 Vermont Agency of Natural Resources

vermont.gov



- LEGEND**
- Soils - Hydric
 - Soils
 - < all other values >
 - Association
 - Classification
 - Undifferentiated group
 - Complex
 - Parcels (where available)
 - Town Boundary



1:4,815
 1in = 401 ft
 1cm = 48 meters



NOTES
 Map created using ANR's Natural Resources Atlas

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802.0 0 401.00 802.0 Feet
 WGS 1984 Web Mercator Auxiliary Sphere
 © Vermont Agency of Natural Resources, January 8, 2015



LEGEND

Soils - Prime Agricultural

- Local
- Local (b)
- Agritrace
- Prime
- Prime (b)
- Prime (f)
- Statewide (a)
- Statewide (b)
- Statewide (c)
- Waterbody
- Parcels (where available)

1: 3,382

1in = 282 ft
1cm = 34 meters

NOTES

Map created using ANR's Natural Resources Atlas

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THIS MAP IS NOT TO BE USED FOR NAVIGATION



MIKE'S BORING & CORING LLC.
 PO Box 75 ° East Barre, Vermont 05649 ° 802 476-5073

TO: Peter Garceau Cross Consulting Engineering P.C. 103 Fairfax Road St. Albans, VT 05478	PROJECT NAME:	Brigham Rd.	SHEET:	1
	LOCATION:	St. Albans, VT	DATE:	1-15-15
	MBC JOB #:	15007	HOLE #:	B-1
			LINE & STA. OFFSET:	

Ground Water Observations Dry at _ hours	Augers-Size I.D.	2 5/8"	Surface Elevation:	
	Split Spoon	2"	Date Started:	1-15-15
	Hammer Wt.	140#	Date Completed:	1-15-15
	Hammer Fall	30"	Boring Foreman:	Mike McGinley
			Inspector:	
			Soils Engineer:	

LOCATION OF BORING: As staked

Sample Depths From/To (Feet)	Type of Sample	Blows per 6" on Sampler	Moisture Density or Consist.	Strata Change Elev.	Soil Identification	Sample		
						No.	Pen. Inches	Rec. Inches
0'-2'	Dry	15/6/7/7	Frozen/damp	1'	Brown fine sand and fine shale fragments	1	24	18
2'-4'	Dry	9/9/9/11	Wet	2'	Brown silty fine sand with some medium gravel	2	24	18
4'-6'	Dry	7/14/17/21	Damp		Brown silty fine sand with some rock fragments	3	24	24
6'-8'	Dry	33/24/31/34	Damp		Brown silty fine sand with some rock fragments	4	24	20
8'-10'	Dry	35/43/41/61	Damp		Brown medium fine sand with some medium gravel and a trace of silt	5	24	18
10'-12'	Dry	24/30/40/70	Damp		Brown medium fine sand with some medium gravel and a trace of silt	6	24	23
12'-14'	Dry	100 for 5"	Wet		Brown medium fine sand with some medium gravel and a trace of silt	7	5	4

Ground Surface to 12'

Used 2 5/8"

augers: Then SS to refusal at 12.5'

Earth Boring 12.5'
 Rock Coring
 Samples: 7
 HOLE NUMBER B-1

MIKE'S BORING & CORING LLC.
 PO Box 75 ° East Barre, Vermont 05649 ° 802 476-5073

TO: Peter Garceau Cross Consulting Engineering P.C. 103 Fairfax Road St. Albans, VT 05478	PROJECT NAME: Brigham Rd.	SHEET: 2
	LOCATION: St. Albans, VT	DATE: 1-15-15
	MBC JOB #: 15007	HOLE #: B-2
		LINE & STA. OFFSET:

Ground Water Observations Dry at _ hours	Augers-Size I.D. 2 5/8"	Surface Elevation:
	Split Spoon 2"	Date Started: 1-15-15
	Hammer Wt. 140#	Date Completed: 1-15-15
	Hammer Fall 30"	Boring Foreman: Mike McGinley
		Inspector:
		Soils Engineer:

LOCATION OF BORING: As staked

Sample Depths From/To (Feet)	Type of Sample	Blows per 6" on Sampler	Moisture Density or Consist.	Strata Change Elev.	Soil Identification	Sample		
						No.	Pen. Inches	Rec. Inches
0'-2'	Dry	4/6/6/6	Frozen	8"	Topsoil into brown sand, silt, and small stones	1	24	19
2'-4'	Dry	6/6/8/8	Wet		Brown sand, silt and small stones	2	24	18
4'-6'	Dry	11/17/21/24	Wet		Brown sand, silt and small stones	3	24	23
6'-8'	Dry	34/65/100 for 4"	Wet		Brown fine sand with some silt and small stones	4	16	12

Ground Surface to 6' Used 2 5/8" augers: Then SS to refusal at 7'4"

Earth Boring 7'4"
 Rock Coring
 Samples: 4
 HOLE NUMBER B-2

MIKE'S BORING & CORING LLC.
 PO Box 75 ° East Barre, Vermont 05649 ° 802 476-5073

TO: Peter Garceau Cross Consulting Engineering P.C. 103 Fairfax Road St. Albans, VT 05478	PROJECT NAME: Brigham Rd.	SHEET: 3
	LOCATION: St. Albans, VT	DATE: 1-15-15
	MBC JOB #: 15007	HOLE #: B-3 LINE & STA. OFFSET:

Ground Water Observations Dry at _ hours	Augers-Size I.D. 2 5/8"	Surface Elevation:
	Split Spoon 2"	Date Started: 1-15-15
	Hammer Wt. 140#	Date Completed: 1-15-15
	Hammer Fall 30"	Boring Foreman: Mike McGinley
		Inspector:
		Soils Engineer:

LOCATION OF BORING: As staked

Sample Depths From/To (Feet)	Type of Sample	Blows per 6" on Sampler	Moisture Density or Consist.	Strata Change Elev.	Soil Identification	Sample		
						No.	Pen. Inches	Rec. Inches
0'-2'	Dry	6/3/3/4	Frozen	8"	Topsoil into brown silt, some sand and a trace of clay	1	24	18
2'-4'	Dry	6/8/10/8	Wet	2'	Brown silty fine sand with clay and small stones	2	24	16
4'-6'	Dry	11/19/30/40	Dry		Brown sandy till	3	24	22
6'-8'	Dry	47/100 for 5"	Damp		Brown silty fine sand with some silt and stones (fill)	4	11	10

Ground Surface to 6'

Used 2 5/8"

augers: Then SS to refusal at 6'11"

Earth Boring 6'11"
 Rock Coring
 Samples: 4
 HOLE NUMBER B-3

For: Town of St. Albans
 Site: Brigham Road

Project: 14136
 Date: 1/14/15
 Page 1 of 3

Soil Evaluation

By: Peter Mazurak, P. E.

TP 1	Mottles = 14"		Common, Medium Distinct	Orange/Brown
0-14"	Ap	Fine Sandy Loam	SAB, Weak	Brown
14-23"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
23-40"	C	Very Fine Sandy Loam		Tan/Gray

TP 2	Mottles = 10"		Common, Medium Distinct	Orange/Brown
0-10"	Ap	Fine Sandy Loam	SAB, Weak	Brown
10-13"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
13-48"	C	Very Fine Sandy Loam		Tan/Gray

TP 3	Mottles = 10"		Common, Medium Distinct	Orange/Brown
0-10"	Ap	Fine Sandy Loam	SAB, Weak	Brown
10-15"	B	Fine Sandy Loam	SAB, Weak	Lt. Brown
15-49"	C	Very Fine Sandy Loam		Tan/Gray

TP 4	Mottles = 9"		Common, Medium Distinct	Orange/Brown
0-9"	A	Very Fine Sandy Loam	SAB, Weak	Brown
9-46"	C	Very Fine Sandy Loam	SAB, Weak	Lt. Brown

TP 5	Mottles = 6"		Common, Medium Distinct	Orange/Brown
0-6"	A	Fine Sandy Loam	SAB, Weak	Brown
6-17"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
17-52"	C	Very Fine Sandy Loam	Gritty	Tan/Gray

TP 6	Mottles = 11"		Common, Medium Distinct	Orange/Brown
0-11"	Ap	Fine Sandy Loam	SAB, Weak	Brown
11-16"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
16-52"	C	Fine Sandy Loam	Gritty	Tan/Gray

TP 7	Mottles = 14"		Common, Medium Distinct	Orange/Brown
0-14"	Ap	Fine Sandy Loam	SAB, Weak	Brown
14-19"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
19-48"	C	Fine Sandy Loam	Gritty	Tan/Gray

TP 8	Mottles = 14"		Common, Medium Distinct	Orange/Brown
0-14"	Ap	Fine Sandy Loam	SAB, Weak	Brown
14-18"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
18-49"	C	Fine Sandy Loam	Gritty	Tan/Gray

For: Town of St. Albans
Site: Brigham Road

Project: 14136
Date: 1/14/15
Page 2 of 3

TP 9	Mottles = 11"	Common, Medium Distinct	Orange/Brown	
0-11"	A	Fine Sandy Loam	SAB, Weak	Brown
11-18"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
18-58"	C	Fine Sandy Loam		Tan/Gray

January 23, 2015

TP B1	Mottles = 12"		Common, Medium Distinct	Orange/Brown
0-12"	Ap	Fine Sandy Loam	SAB, Weak	Brown
12-14"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
14-38"	C	Fine Sandy Loam	Gritty	Tan/Gray

TP B2	Mottles = 10"		Common, Medium Distinct	Orange/Brown
0-10"	Ap	Fine Sandy Loam	SAB, Weak	Brown
10-13"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
13-47"	C	Fine Sandy Loam	Gritty	Tan/Gray

TP B3	Mottles = 14"		Common, Medium Distinct	Orange/Brown
0-14"	Ap	Fine Sandy Loam	SAB, Weak	Brown
14-18"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
18-40"	C	Fine Sandy Loam	Gritty	Tan/Gray

TP B4	Mottles = 11"		Common, Medium Distinct	Orange/Brown
0-11"	Ap	Fine Sandy Loam	SAB, Weak	Brown
11-15"	B/C	Fine Sandy Loam	SAB, Weak	Lt. Brown
15-49"	C	Fine Sandy Loam	Gritty	Tan/Gray

TP B5	Mottles = 13"		Common, Medium Distinct	Orange/Brown
0-8"	A	Fine Sandy Loam	SAB, Weak	Brown
8-13"	B	Sandy Loam	SAB, Weak	Lt. Brown
13-42"	C	Sandy Loam	SAB, Weak	Tan/Gray

TP B6	Mottles = 12"		Common, Medium Distinct	Orange/Brown
0-12"	Ap	Fine Sandy Loam	SAB, Weak	Brown
12-15"	B	Sandy Loam	SAB, Weak	Lt. Brown
15-48"	C	Sandy Loam	SAB, Weak	Tan/Gray

TP B7	Mottles = 11"		Common, Medium Distinct	Orange/Brown
0-11"	Ap	Fine Sandy Loam	SAB, Weak	Brown
11-15"	B	Sandy Loam	SAB, Weak	Lt. Brown
15-48"	C	Sandy Loam	SAB, Weak	Tan/Gray

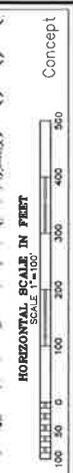
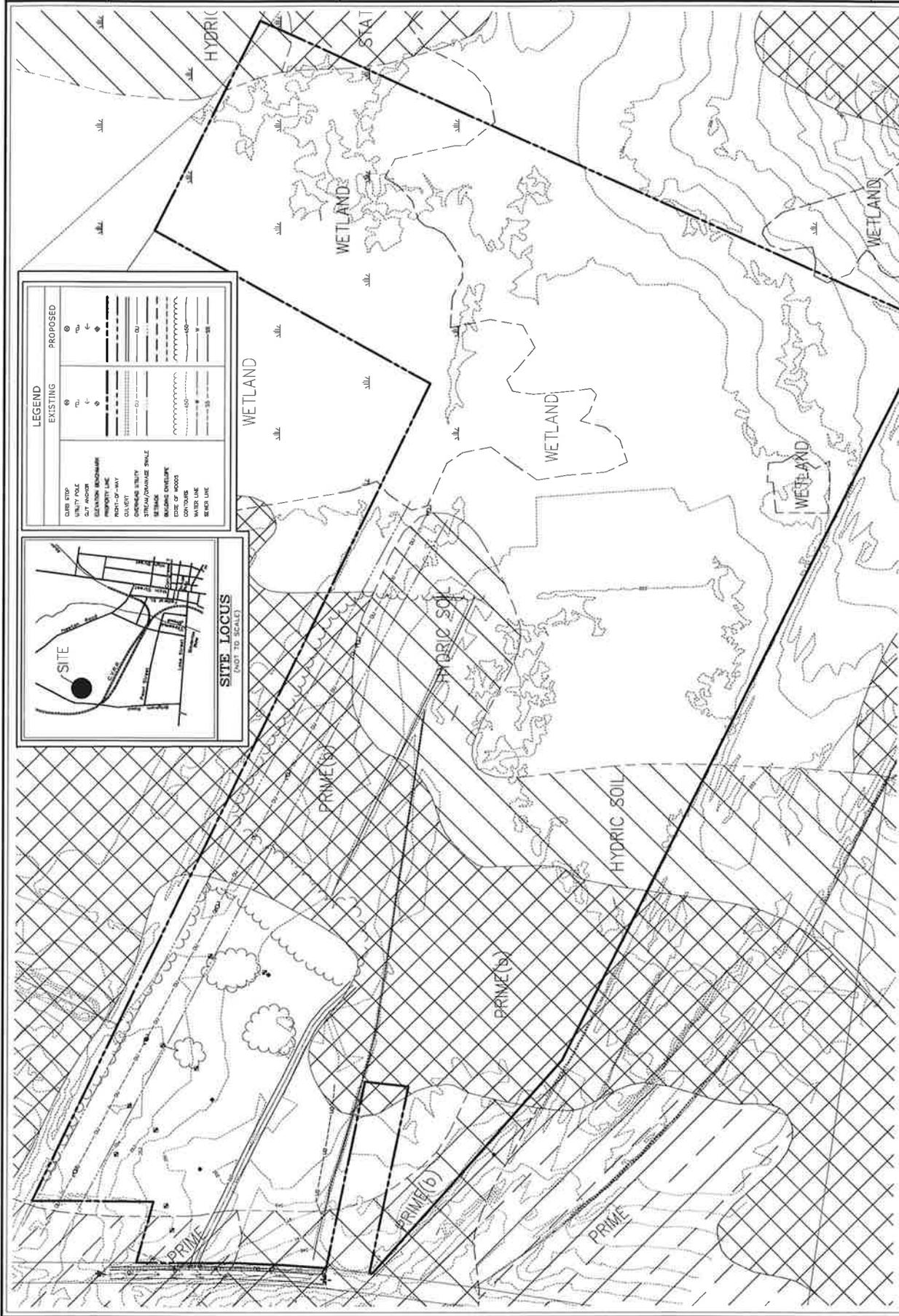
TP B8	Mottles = 12"		Common, Medium Distinct	Orange/Brown
0-12"	Ap	Fine Sandy Loam	SAB, Weak	Brown
12-15"	B	Sandy Loam	SAB, Weak	Lt. Brown
15-46"	C	Sandy Loam	SAB, Weak	Tan/Gray

PROJECT: 14126
 DATE: 11/5/2015
 DESIGN: PJG
 DRAWN: PJG
 CHECKED: PJG
 APPROVED: PJG

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Town Of St. Albans
 St. Albans, VT
 Public Works Garage
 St. Albans, VT
 Brigham Road

CIVIL
C-1
 SHEET C-1 OF 4





NO.	DESCRIPTION	PROPOSED
1	EXISTING DRIVEWAY	EXISTING
2	EXISTING DRIVEWAY	EXISTING
3	EXISTING DRIVEWAY	EXISTING
4	EXISTING DRIVEWAY	EXISTING
5	EXISTING DRIVEWAY	EXISTING
6	EXISTING DRIVEWAY	EXISTING
7	EXISTING DRIVEWAY	EXISTING
8	EXISTING DRIVEWAY	EXISTING
9	EXISTING DRIVEWAY	EXISTING
10	EXISTING DRIVEWAY	EXISTING
11	EXISTING DRIVEWAY	EXISTING
12	EXISTING DRIVEWAY	EXISTING
13	EXISTING DRIVEWAY	EXISTING
14	EXISTING DRIVEWAY	EXISTING
15	EXISTING DRIVEWAY	EXISTING
16	EXISTING DRIVEWAY	EXISTING
17	EXISTING DRIVEWAY	EXISTING
18	EXISTING DRIVEWAY	EXISTING
19	EXISTING DRIVEWAY	EXISTING
20	EXISTING DRIVEWAY	EXISTING
21	EXISTING DRIVEWAY	EXISTING
22	EXISTING DRIVEWAY	EXISTING
23	EXISTING DRIVEWAY	EXISTING
24	EXISTING DRIVEWAY	EXISTING
25	EXISTING DRIVEWAY	EXISTING
26	EXISTING DRIVEWAY	EXISTING
27	EXISTING DRIVEWAY	EXISTING
28	EXISTING DRIVEWAY	EXISTING
29	EXISTING DRIVEWAY	EXISTING
30	EXISTING DRIVEWAY	EXISTING
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45	EXISTING DRIVEWAY	EXISTING
46	EXISTING DRIVEWAY	EXISTING
47	EXISTING DRIVEWAY	EXISTING
48	EXISTING DRIVEWAY	EXISTING
49	EXISTING DRIVEWAY	EXISTING
50	EXISTING DRIVEWAY	EXISTING

