

March 28, 2018

Lamoureux & Dickinson  
Consulting Engineers, Inc.  
Brian Tremback  
14 Morse Drive  
Essex Junction, VT 05452

RE: Ballek Subdivision - Four Meadows Farm – 5222 Mt. Philo Road

Dear Brian:

This response is to address the wastewater review comments made on 03/09/18. The plans have been modified to reflect changes associated with these comments. The modified plans are attached. The comments and responses are as follows:

1. When I observed test pits on the property with Tom Wawrzeniak on 6/22/17, we logged 6 profiles in the ww system area (TP-5 to 10). I recorded 3 of the pits with profiles entirely of silty clay loam, the other 3 being loam (TP-10 had dense silty clay subsoil). I recall discussing this with Tom without disagreement but, in the soils data presented with the application, it shows different profiles of loam over silty clay loam for every test pit. If lab particle size testing has confirmed different soil textures, I would yield to the more exacting methodology, but there should be enough sampling locations to present a convincing case. As it is, there are only 2 tests presented and no indication of the location or depth they were sampled from. The consultant should contact me regarding reaching an agreement on soil textures. Because soil textures are the basis for hydraulic conductivity values in the groundwater mounding evaluation, any changes in those textures may affect that evaluation.

As discussed, Tom W. confirmed that he opted to make edits to the test pit logs based on the soil classification and sieve analysis received from Knight Consulting Engineers. The original, unedited data logs are attached and should match yours from that day. Tom's comments are as follows:

**From:** [twarsaw1@aol.com](mailto:twarsaw1@aol.com) [<mailto:twarsaw1@aol.com>]  
**Sent:** Thursday, March 15, 2018 10:17 AM  
**To:** Jeremy Matosky, P.E.  
**Subject:** Re: 17-072 Ballek WW App Review Comments for VLD

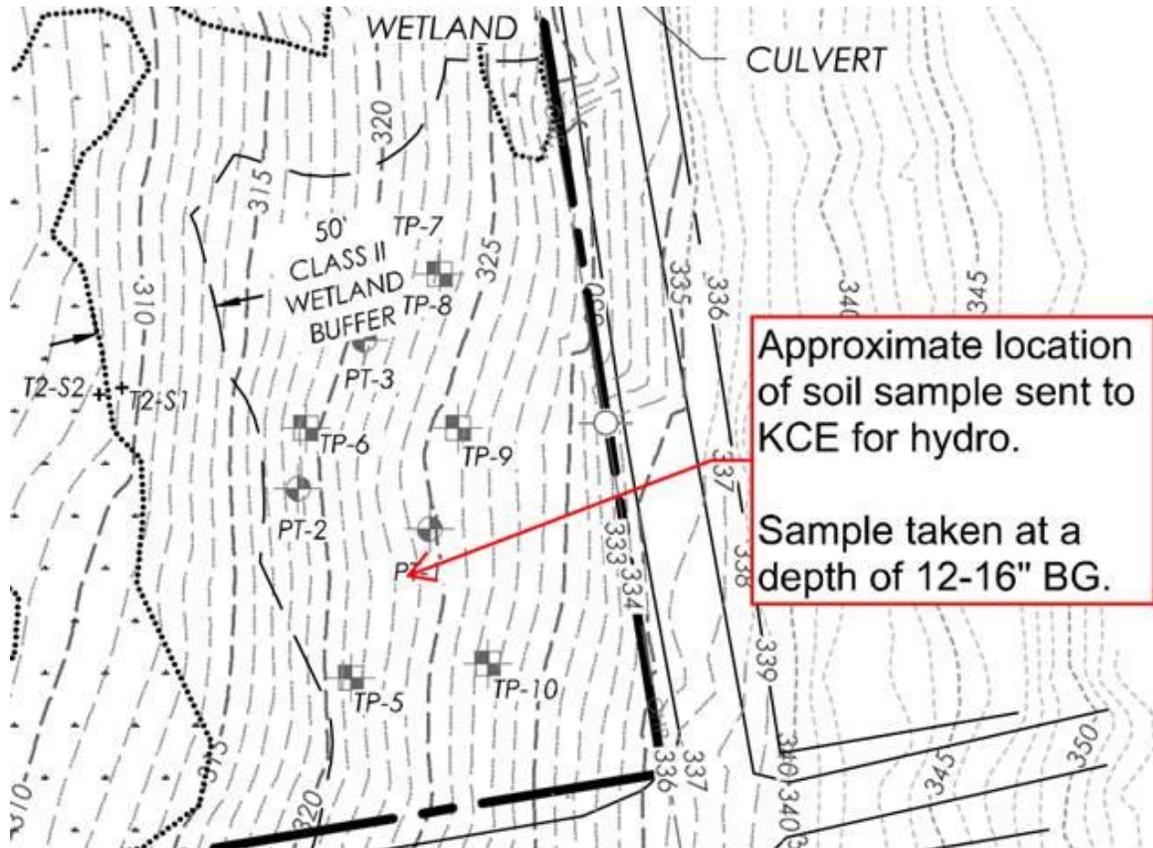
Hello Jeremy,

I have attached the soils profile information which test pits 1 thru 10 were revised to show what was logged during 6/22/17 with Brian. Unfortunately I did change the results based on the sieve analysis for those 6 test pits, and do apologize for this error. Test pits 11 and 12 were based on what the sieve results were.

Let me know how I can further assist you.

Tom W

The location and depth of the soil sample used for Knight's lab testing is shown below:



Based on the lab results from Knight Consulting Engineers, it is believed that the loam soil texture is suitable to use and the hydraulic conductivity values in John Kelliher's analysis are still valid and correct.

2. I'm comfortable with the groundwater mounding methodology where it's used to calculate the height of the mound beneath each system; it yields a result similar to what would be obtained using Darcy or the State's Desktop Method. However, using it to model dissipation of the groundwater mound between the upslope and downslope system pairs may be making some assumptions that don't accurately represent the site. Dissipation of groundwater into the substratum might be a reasonable assumption if a shallow aquifer were perched on an unsaturated impeding layer, but it appears that the substratum is saturated. This is supported by the presence of seeps and redox features in the lower part of the test pits. The consultant should make a case for the applicability of the model to the site. Also see comment above regarding soil textures.

The hydrogeologic study relative to groundwater mounding due to the proposed septic design has been revised by NRC East Environmental Services, Inc. and this updated study is attached for your reference.

3. The Water Supply Rule designates 200 ft of separation between wells and “concentrated livestock holding areas”. Because it seems that a horse paddock would qualify but have not had experience with that particular requirement, I checked with Ernie Christianson. He was also of the opinion that paddocks would meet the definition of livestock holding area. Therefore, the well should meet the 200-ft setback. If the consultant feels that the well or the paddocks cannot be relocated, but thinks that site hydrogeology offers protection to the aquifer, they should consider making a case using Section 11.4.2.0.2 of the Water Supply Rule.

The drilled well, for the barn and caretaker’s apartment on lot 3, has been relocated to meet all required isolation distances. This well relocation will result in a new overshadowing of neighboring property. ANR Form 2 has been sent to the overshadowed landowner and certified mail receipts are included with this response. An updated ANR Form 4 is also included. All plans have been updated to show this relocated well. These updated plans have been included for your reference.

4. Test pits 11 and 12 are shown in two different places: in the proposed ww system area in the southwest corner of the property (Sheet C3-02), and near the proposed house site on Lot 2 (Sheet C1-02) in the northeast corner.

Plan Sheet C3-02 correctly showed the location of test pits 11 & 12 in the southwest corner of the property. The test pits located in the northeast corner of lot 2, on Sheet C1-02, were incorrectly numbered. These test pits have been renumbered 11A & 12A. Plan Sheet C1-02, Existing Conditions Plan, has been updated accordingly.

5. The Component Sheet should list all ws and ww components: final disposal, pump station, pretreatment, building, water supply. If multiple lots have the same components, they only need to be listed once with a component name like “\_\_\_\_\_ for Lots 1, 2, and 3”.

While each lot contains the same components, each system is separate, with individual buildings, pump stations, pretreatment systems, water supplies, and final disposal mounds. As each component is separate, each is individually listed on the components sheet. As such, changes have been made to this Component Sheet.

6. Check the project plan reference table in the application – it doesn’t match the plan set. The table lists revision dates for every sheet but none are shown on the sheets themselves, except the title sheet which only has a revision date but no plan date.

The project plan reference table has been updated to show the accurate revision dates listed on the plan sheets. This updated application is attached.

After modification, it is believed that all plans are in accordance with Vermont DEC regulations and requirements. The updated plans and referenced attachments are included for your reference. Please feel free to contact me with any questions or comments.

Regards,

Jeremy Matosky, P.E.  
President

Encl. Original Test Pit Logs  
ANR Form 4  
Certified Mail Receipts  
Permit Application  
Hydro Study  
C1-00 Legend and Notes  
C1-02 EC Plan  
C3-01 Overall Sanitary Plan  
C3-02 Sanitary Plan  
C3-03 Sanitary Plan  
C8-02 Sanitary Details  
C8-03 Sanitary Details  
C8-04 Water Details  
C1-01 Subdivision Plat

# SOILS TEST PIT INFORMATION

SOILS PROFILES CONDUCTED ON 6/22/17 BY THOMAS WAWRZENIAK  
CHARLOTTE CONSULTANT BRIAN TREMBACK

-  TP 5 0 - 5 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
5 - 15 10YR 5/2, MEDIUM BROWN, SILTY-CLAY-LOAM, LOOSE, PERMEABLE AND CRUMBLY  
15- 48 10YR 3/2, GRAY BROWN, CLAY-LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 15", NO BEDROCK TO 48"
-  TP 6 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 14 10YR 5/2, MEDIUM BROWN, SILTY-CLAY-LOAM, LOOSE, PERMEABLE AND CRUMBLY  
14- 48 10YR 3/2, GRAY BROWN, CLAY-LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 14", NO BEDROCK TO 48"
-  TP 7 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 14 10YR 5/2, MEDIUM BROWN, SILTY-CLAY-LOAM, LOOSE, PERMEABLE AND CRUMBLY  
14- 48 10YR 3/2, GRAY BROWN, FINE CLAY-LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 14", WATER SEEP @ 36", NO BEDROCK TO 48"
-  TP 8 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 9 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
9 -16 10YR 4/2, RED BROWN, SILTY-CLAY-LOAM, LOOSE, PERMEABLE AND CRUMBLY  
16-48 10YR 3/2, GRAY BROWN, FINE CLAY-LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 14", WATER SEEP @ 36", NO BEDROCK TO 48"
-  TP 9 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 19 10YR 5/2, MEDIUM BROWN, SILTY-CLAY-LOAM, LOOSE, PERMEABLE AND CRUMBLY  
19- 48 10YR 3/2, GRAY BROWN, SILT-CLAY-LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 16", WATER SEEP @ 36", NO BEDROCK TO 48"
-  TP 10 0 - 5 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
5 - 8 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
8 -22 10YR 4/2, RED BROWN, SILTY-CLAY-LOAM, LOOSE, PERMEABLE AND CRUMBLY  
22-48 10YR 3/2, GRAY BROWN, FINE CLAY LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 15", WATER SEEP @ 38", NO BEDROCK TO 48"

SOILS BORINGS CONDUCTED ON 8/4/17 BY THOMAS WAWRZENIAK

-  TP 11 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 14 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
14- 30 10YR 3/2, GRAY BROWN, SILT-CLAY-LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 14", NO BEDROCK TO 48"
-  TP 12 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 14 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
14- 30 10YR 3/2, GRAY BROWN, SILT-CLAY-LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 14", NO BEDROCK TO 48"

# PERCOLATION TEST RESULTS

TESTS WERE CONDUCTED ON 9/14/17 BY THOMAS WAWRZENIAK IN ACCORDANCE  
WITH APPENDIX 4-A OF THE STATE OF VERMONT RULES

-  P-1 44 M.P.I. DOWN 18"
-  P-2 41 M.P.I. DOWN 18"
-  P-3 45 M.P.I. DOWN 18"
-  P-4 42 M.P.I. DOWN 18"

Department of Environmental Conservation  
Wastewater System & Potable Water Supply Permit Application

**ANR Form 4: Certification Statement for Notification of Overshadowed Property Owners pursuant to the Wastewater System & Potable Water Supply Program**

A person submitting an application to the Secretary for a Wastewater System and Potable Water Supply Permit where the proposed project has isolation distances (overshadowing) that extend onto property owned by persons other than the permit applicant shall submit the following certification with the application.

**Note:** When the property subject to the permit application is owned by more than one person, only one of the landowners must sign this certification statement even though all landowners must sign the permit application itself.

Landowner Certification		
<p><i>I hereby certify that the individual(s) that own property that is overshadowed by my proposed project have been sent by certified mail a copy of the required notification form and the site plan(s) that accurately depicts all isolation distances. I also certify that I attached to this certification form a copy of all certified mail receipts for notifications that were sent to the affected property owners.</i></p>		
<p> Landowner Signature</p>	<p>Susan Ballek Print Landowner Name</p>	<p>03-30-2018 Certification Date</p>
<p>5222 Mount Philo Road Charlotte, VT 05445 Property Address or Property Tax ID#</p>		

Property Owners Notified by Certified Mail	
<p>Please list all of the property owners who were sent a notification by certified mail.</p>	
<p>VT State Forest and Parks Property Owner Name</p>	<p>111 West Street Essex Junction, VT 05452 Property Owner Address</p>

U.S. Postal Service™  
**CERTIFIED MAIL® RECEIPT**  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)®.

ESSEX JUNCTION, VT 05452

Certified Mail Fee	\$ 3.45	\$3.45
Extra Services & Fees (check box, add fee as appropriate)		
<input type="checkbox"/> Return Receipt (hardcopy)	\$ 0.00	
<input type="checkbox"/> Return Receipt (electronic)	\$ 0.00	
<input type="checkbox"/> Certified Mail Restricted Delivery	\$ 0.00	
<input type="checkbox"/> Adult Signature Required	\$ 0.00	
<input type="checkbox"/> Adult Signature Restricted Delivery	\$ 0.00	

Postage \$ 1.42.00

Total Postage and Fees \$ 4.45 \$4.45

Sent To VT State Forests & Parks

Street and Apt. No., or PO Box No.  
111 West St.

City, State, ZIP+4®  
Essex Jct, VT 05452

0781  
05

Postmark  
Here

03/29/2018

7016 0910 0001 0698 7753



280 Commerce Street  
Williston, VT 05495  
Phone: 802-488-3900  
Fax: 802-488-3950  
www.nrcc.com

April 2, 2018

Mr. Jeremy Matosky, P.E.  
Trudell Consulting Engineers  
478 Blair Park Road  
Williston, VT 05495

Re: Revised Desktop Hydrogeologic Study  
Ballek Property, 5222 Mount Philo Road, Charlotte, VT

Dear Jeremy:

NRC East Environmental Services, Inc. (NRC) is pleased to present this revised desktop hydrogeologic study relative to induced groundwater mounding due to proposed septic disposal systems at the Ballek property in Charlotte, VT (**Figure 1**). The revised assessment was requested by Brian Tremback who reviews these studies for the Town of Charlotte. This study considers a different desktop model to estimate induced groundwater mounding resultant from the proposed disposal areas. The study was based in part by materials provided by your office and Trudell Consulting Engineers (TCE), including: test pit logs (**Attachment 1**), and Site Plans showing the overall project as well as the proposed disposal areas (**Overall Sanitary Plan, C3-01** and **Sanitary Plan, C3-02**). Local well completion records were also examined during the analysis.

The Ballek property is comprised of 51.9 +/- acres at 5222 Mount Philo Road in Charlotte, VT. The current proposal is to subdivide the lot into three distinct lots. Lots #1 and #2 will be 5.1-acre parcels, each with a four-bedroom residence. Lot #3 will comprise the remaining 41.7 acres and will consist of a four-bedroom residence, a one-bedroom apartment, and a horse barn. As shown on **C3-01** and **C3-02**, there are four proposed septic disposal systems, all to be situated on Lot #3. Each proposed disposal system is designed to handle 490 gallons per day (65.5 ft<sup>3</sup>/day). Work to date completed by your office and TCE has included site visits, installation and description of test pits, wetlands assessment, and preliminary site design.

For this study, NRC utilized the method described by Poeter<sup>1</sup> to mathematically approximate induced groundwater mounding on the regional water table below the proposed wastewater disposal systems. The Poeter model employs a mathematical solution first derived by Hantush<sup>2</sup> which assumes that the aquifer in question is isotropic, homogeneous, and bounded by a horizontal water table overlying a horizontal impermeable base. Infiltrating water percolates vertically downward through the vadose zone to the water table and thereby creates the induced groundwater mound. As the mound grows with continued input, it begins to “pancake” and migrates laterally in a downgradient direction. The Hantush solution does not account for slope.

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<sup>1</sup> Poeter E., J. McCray, G. Thyne, and R. Siegrist. 2005. *Guidance for Evaluation of Potential Groundwater Mounding Associated with Cluster and High-Density Wastewater Soil Absorption Systems*. Project No. WU-HT-02-45. Prepared for the National Decentralized Water Resources Capacity Development Project, Washington University, St. Louis, MO, by the International Groundwater Modeling Center, Colorado School of Mines, Golden, CO.

<sup>2</sup> Hantush, M. S. 1967. “Growth and Decay of Groundwater Mounds in Response to Uniform Percolation.” *Water Resources Research*, 3, 227–234.

Mr. Jeremy Matosky, P.E.

Page 2 of 2

April 2, 2018

Surficial soils are classified as “loam” per soil classification data (**Attachment 2**). Lower permeability silt clay loams are present at and below the water table. The Estimated Seasonal High Water Table (ESHWT) is reported to be approximately 14 inches below grade. Local well completion reports indicate a significant overburden thickness.

Poeter provides a spreadsheet solution to the Hantush equations which is simple to use and provides very conservative assumptions. Users input site-specific variables into the spreadsheet and estimated groundwater mounding heights are calculated. The model also conveniently calculates an estimated lateral extent of the groundwater mounding. This is critical for this site because of the downgradient disposal areas which require consideration of the Principle of Superposition with respect to induced groundwater mounding.

As shown on **Sheet C3-02**, each of the four proposed disposal systems is comprised of a single lateral with a length of 64 feet, and an effective width of 4 feet. An estimated hydraulic conductivity value of 5 ft/day was used for the analysis, as was an estimated initial saturated thickness of 50 feet. The model assumes a time frame of 10 years for the calculations.

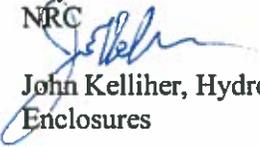
Model output is included as **Attachment 3**, and indicates:

- An induced groundwater mounding height of 0.340 feet (4.08 inches) is predicted directly below each of the proposed wastewater disposal systems. This is a conservative estimate because the model does not account for slope (estimated at 11%). Accounting for slope would *reduce* the estimated height of the induced mound;
- The induced groundwater mound extends downgradient of each of the disposal systems;
- Downgradient disposal systems are present at 35 feet and 37 feet;
- The model predicts that the induced groundwater mound will have decayed to 0.282 feet (3.38 inches) and 0.281 feet (3.37 inches), respectively;
- At the downgradient disposal systems, the Principle of Superposition requires us to consider the induced mounding caused by that system specifically, *as well as* induced groundwater mounding from the upgradient disposal systems. Thus, the induced groundwater mounding at the downgradient systems is the sum of the estimated induced mound caused by the system itself *plus* the estimated height of the decaying induced mound from the upgradient system;
- The induced groundwater mounding below the downgradient systems is calculated to be 4.08 inches + 3.38 inches = 7.46 inches;
- Since the ESHWT is estimated to be 14” below grade, the calculations indicate that each of the proposed disposal systems will maintain a minimum of 6 inches of unsaturated soils as required.

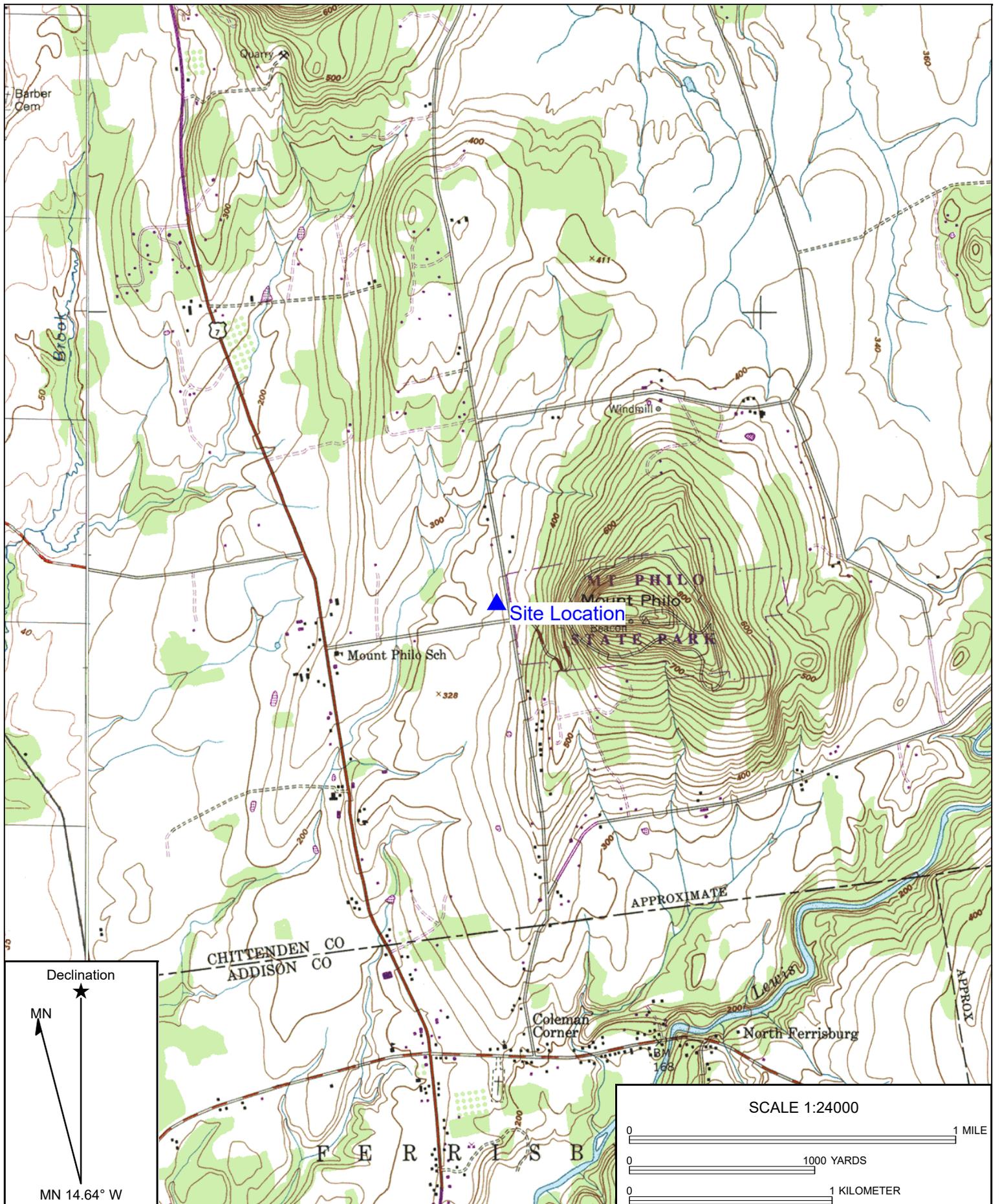
The model considered herein utilizes assumptions which may not be realized in the field but provides a conservative approach to desktop hydrogeological modeling. Please do not hesitate to contact me at [jkelliher@nrcc.com](mailto:jkelliher@nrcc.com) or at (802) 923-1445 with any questions or comments about this analysis.

Regards,

NRC

  
John Kelliher, Hydrogeologist

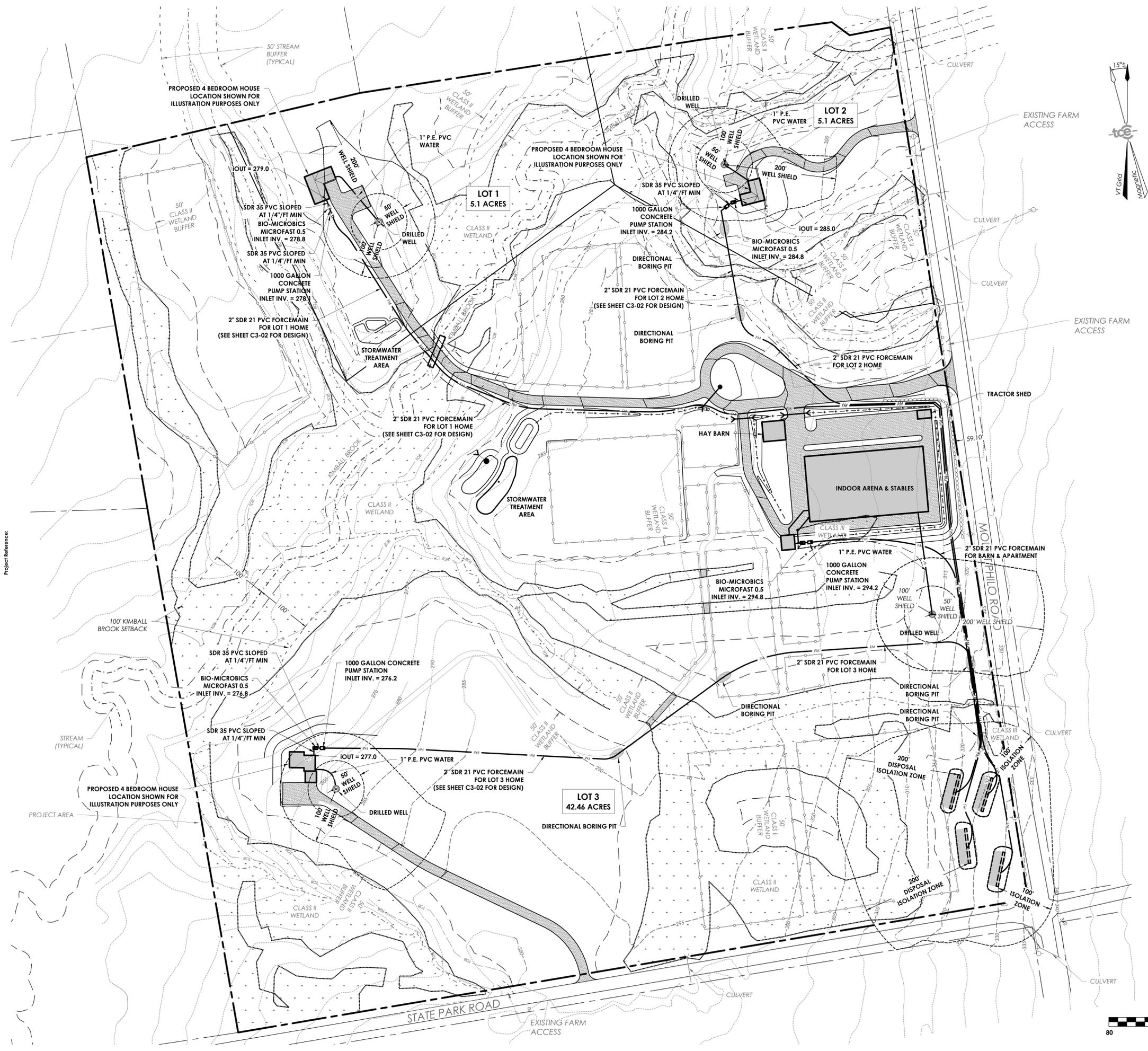
Enclosures



Name: Ballek Property  
 Date: 09/19/17  
 Scale: 1 inch = 2,000 ft.

FIGURE 1: GENERAL LOCATION MAP  
 5222 Mount Philo Road  
 Charlotte, VT  
 044° 16' 43.45" N 073° 13' 27.12" W





Revisions	No.	Description	Date	By
△	1	Revise Drive Locations	03/22/18	JMM
△	2	Revisions to Lot 3 Barn Well Location	03/28/18	JMM

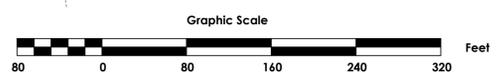
TAX ID: 00027-5223  
 Use of these Drawings  
 1. Unless otherwise noted, these Drawings are intended for preliminary planning, coordination with other disciplines or utilities, and/or approval from the regulatory authorities. They are not intended as construction drawings unless noted as such or marked approved by a regulatory authority.  
 2. By use of these drawings for construction of the Project, the Owner represents that they have reviewed, approved, and accepted the drawings, obtained all necessary permits, and have met with all applicable parties/disciplines, including but not limited to, the Engineer and the Architect, to insure these plans are properly coordinated including, but not limited to, contract documents, specifications, owner/contractor agreements, building and mechanical plans, private and public utilities, and other pertinent permits for construction.  
 3. Owner and Architect, are responsible for final design and location of buildings shown, including an area measured a minimum five (5) feet around any building and coordinating final utility connections shown on these plans.  
 4. Prior to using these plans for construction layout, the user shall contact TCE to ensure the plan contains the most current revisions.  
 5. These Drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by TCE are its exclusive property. Charges to the drawings may only be made by TCE. If errors or omissions are discovered, they shall be brought to the attention of TCE immediately.  
 6. It is the User's responsibility to ensure this copy contains the most current revisions. If unsure, please contact TCE.



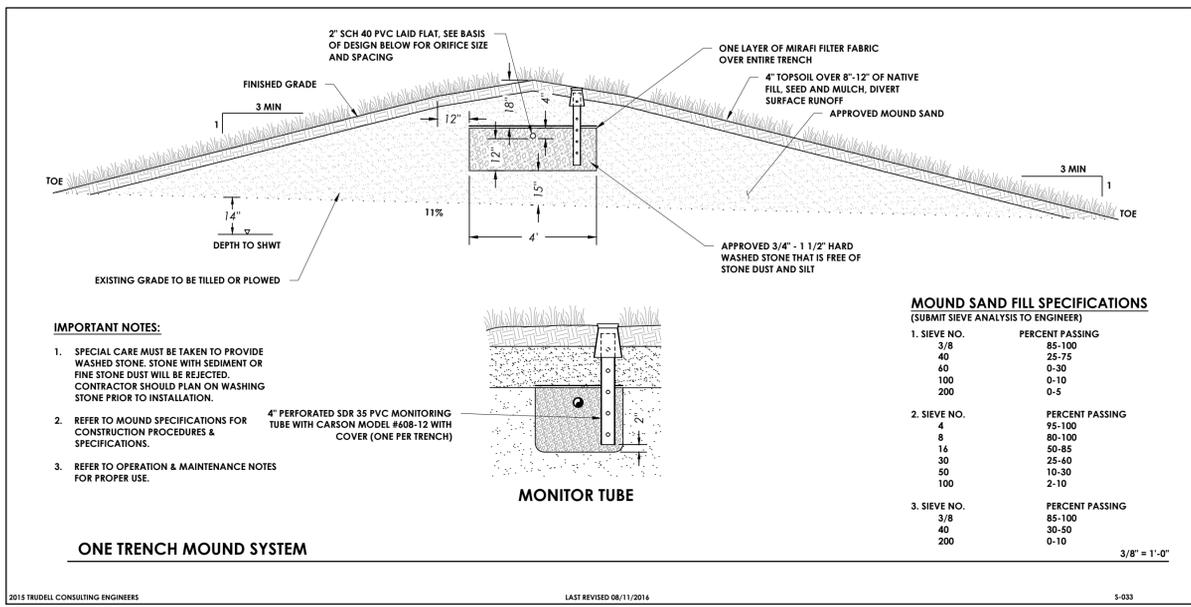
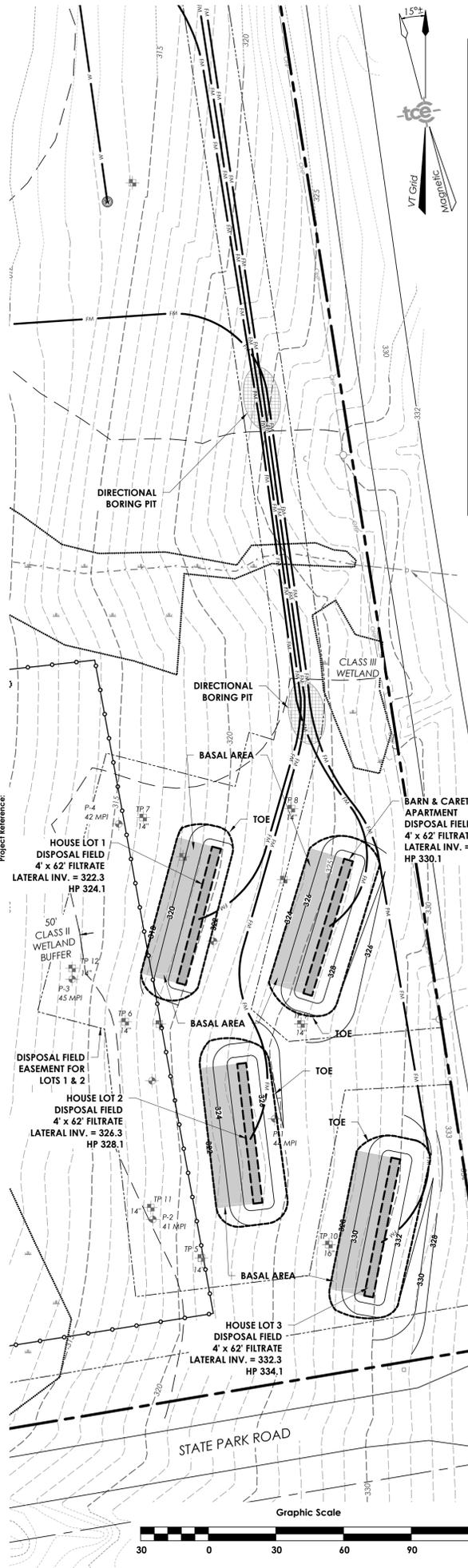
Project Title  
**Four Meadows Farm**  
 5222 Mount Philo Road  
 Charlotte, Vermont

Sheet Title  
**Overall Sanitary Plan**

Date:	02/14/2018
Scale:	1" = 80'
Project Number:	17-072
Drawn By:	RMP
Project Engineer:	JMM
Approved By:	
Field Book:	337



**C3-01**



- IMPORTANT NOTES:**
- SPECIAL CARE MUST BE TAKEN TO PROVIDE WASHED STONE. STONE WITH SEDIMENT OR FINE STONE DUST WILL BE REJECTED. CONTRACTOR SHOULD PLAN ON WASHING STONE PRIOR TO INSTALLATION.
  - REFER TO MOUND SPECIFICATIONS FOR CONSTRUCTION PROCEDURES & SPECIFICATIONS.
  - REFER TO OPERATION & MAINTENANCE NOTES FOR PROPER USE.

**MOUND SAND FILL SPECIFICATIONS**  
(SUBMIT SIEVE ANALYSIS TO ENGINEER)

1. SIEVE NO.	PERCENT PASSING
3/8	85-100
40	25-75
60	0-30
100	0-10
200	0-5

2. SIEVE NO.	PERCENT PASSING
4	95-100
8	80-100
15	50-85
30	25-60
50	10-30
100	2-10

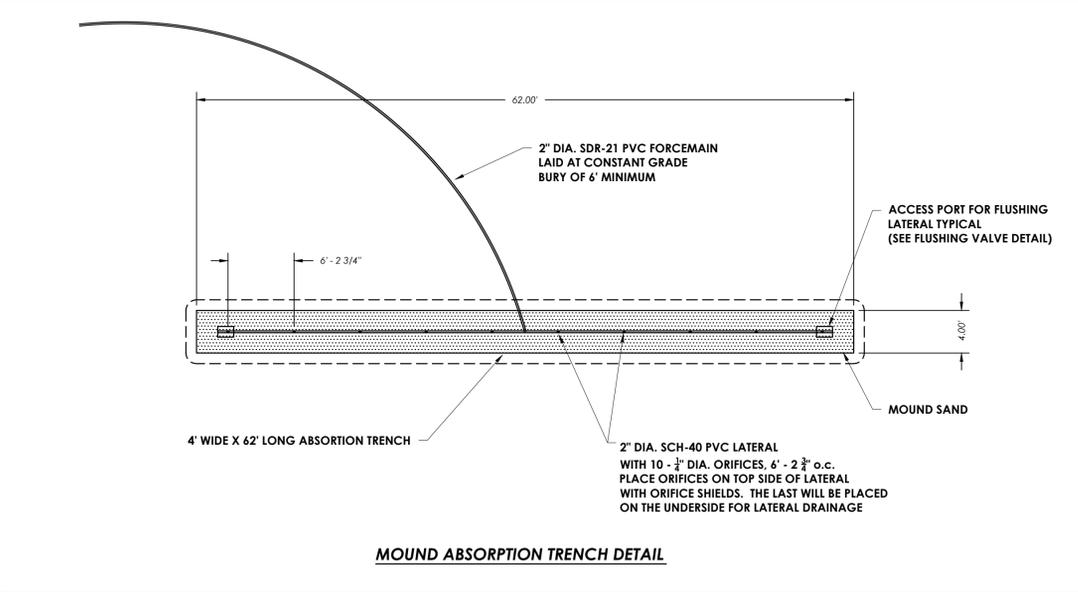
  

3. SIEVE NO.	PERCENT PASSING
3/8	85-100
40	30-50
200	0-10

3/8" = 1'-0"

**ONE TRENCH MOUND SYSTEM**

2015 TRIDELL CONSULTING ENGINEERS LAST REVISED 08/11/2016 S-033



**MOUND ABSORPTION TRENCH DETAIL**

**SOILS TEST PIT INFORMATION**  
SOILS PROFILES CONDUCTED ON 4/22/2017 BY THOMAS WAWRZENIAK CHARLOTTE CONSULTANT BRIAN TREMBACK

TP 5	0-5	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	5-15	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	15-48	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 15'; NO BEDROCK TO 48'

TP 6	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-14	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	14-48	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'

TP 7	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-14	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	14-48	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; WATER SEEP @ 36'; NO BEDROCK TO 48'

TP 8	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-9	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	9-16	10 YR 4/2	RED BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	16-48	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; WATER SEEP @ 36'; NO BEDROCK TO 48'

TP 9	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-19	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	19-48	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 16'; WATER SEEP @ 36'; NO BEDROCK TO 48'

TP 10	0-5	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	5-8	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	8-19	10 YR 4/2	RED BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	19-48	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 15'; WATER SEEP @ 38'; NO BEDROCK TO 48'

SOILS BORING CONDUCTED ON 9/14/2017 BY THOMAS WAWRZENIAK

TP 11	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-14	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	14-30	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'

TP 12	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-14	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	14-30	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'

**PERCOLATION TEST RESULTS**  
TESTS WERE CONDUCTED ON 9/14/2017 BY THOMAS WAWRZENIAK IN ACCORDANCE WITH APPENDIX 4-A OF THE STATE OF VERMONT RULES

P-1	44 M.P.I., DOWN 18"
P-2	41 M.P.I., DOWN 18"
P-3	45 M.P.I., DOWN 18"
P-4	42 M.P.I., DOWN 18"

**BASIS OF DESIGN FOR WATER SYSTEM**

PROPOSED FOUR BEDROOM HOUSE AVERAGE DAILY DEMAND BASED ON 2 PERSONS/BEDROOM @ 70 GPD X 3 BEDROOMS = 420 GPD, PLUS THE FOURTH BEDROOM @ 70 GPD (A.D.D.)

THE MAXIMUM DAILY DEMAND (M.D.D.) BASED ON A 12 HOUR DAY = 490 GPD/720 MIN = 0.68 GPM

THE INSTANTANEOUS PEAK DEMAND (I.P.D.) FOR A SINGLE FAMILY HOME = 5 GPM

BARN & CARETAKERS APARTMENT  
AVERAGE DAILY DEMAND (A.D.D.) = 490 GPD  
MAXIMUM DAILY DEMAND (M.D.D.) = 0.68 GPM  
INSTANTANEOUS PEAK DEMAND (I.P.D.) = 23.81 GPM

**BASIS OF WASTEWATER DESIGN**

THE TYPE OF WASTEWATER SYSTEM DESIGN USED WILL BE PERFORMANCE BASED USING THE DESKTOP HYDROGEOLOGIC STUDY DATED 9/21/17 BY JOHN KELLEHER (NRC).

METHOD USED TO MATHEMATICALLY APPROXIMATE INDUCED GROUNDWATER MOUNDING IS DESCRIBED BY KHAN. THE MODEL PREDICTS THE MAXIMUM INDUCED MOUNDING HEIGHT WILL BE 10.3 INCHES PER NRC'S HYDROGEOLOGIC STUDY. THE EQUATION ALSO INDICATES THAT THE MOUNDING WOULD DISSIPATE AND RETURN TO STATIC CONDITION WITHIN 10.2 FEET. THEREFORE, THE UP GRADIENT SYSTEMS WILL HAVE NO EFFECT ON THE DOWN GRADIENT SYSTEMS.

MINIMUM EFFECTIVE BASAL AREA REQUIRED = 490 / 0.74 = 662 SQ. FT.  
PROVIDED = 20' X 62' = 1240 SQ. FT.

SINGLE FAMILY FLOW ANALYSIS:  
4 BEDROOM HOME:  
140 GPD/BEDROOM X 3 BEDROOMS + 70 GPD/DAY X 1 BEDROOM = 490 GPD

BARN AND CARETAKERS APARTMENT DESIGN FLOW ANALYSIS:  
CARETAKER'S ONE BEDROOM APARTMENT = 140 GPD  
FULL TIME EMPLOYEES = 10 X 15 GPD = 150 GPD  
2 CLOTHES WASHERS FOR HORSE BLANKETS @ 50 GPD = 100 GPD  
20 RIDING GUESTS FOR 2 HOURS / DAY @ 5 GPD = 100 GPD  
**TOTAL DESIGN FLOW = 490 GPD**

"I HEREBY CERTIFY THAT THE DESIGN RELATED INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT, AND THAT, IN THE EXERCISE OF MY REASONABLE PROFESSIONAL JUDGMENT, THE DESIGN INCLUDED IN THIS APPLICATION FOR A PERMIT COMPLIES WITH THE VERMONT WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES AND THE VERMONT WATER SUPPLY RULES" (REF. ENVIRONMENTAL PROTECTION RULES CHAPTER 1 S 1-302 (b)(1)).

LAST REVISED 11/17/16

Revisions

No.	Description	Date	By
1	Revisions to Lot 3 Barn Well Location	03/28/18	JMM

TAX ID: 00027-5223

Use of these Drawings  
1. Unless otherwise noted, these Drawings are intended for preliminary planning, coordination with other disciplines or utilities, and/or approval from the regulatory authorities. They are not intended as construction drawings unless noted as such or marked approved by a regulatory authority.

2. By use of these drawings for construction of the Project, the Owner represents that they have reviewed, approved, and accepted the drawings, obtained all necessary permits, and have met with all applicable parties/disciplines, including but not limited to, the Engineer and the Architect, to insure these plans are properly coordinated including, but not limited to, contract documents, specifications, owner/contractor agreements, building and mechanical plans, private and public utilities, and other pertinent permits for construction.

3. Owner and Architect, are responsible for final design and location of buildings shown, including an area measured a minimum five (5) feet around any building and coordinating final utility connections shown on these plans.

4. Prior to using these plans for construction layout, the user shall contact TCE to ensure the plan contains the most current revisions.

5. These Drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by TCE are its exclusive property. Changes to the drawings may only be made by TCE. If errors or omissions are discovered, they shall be brought to the attention of TCE immediately.

6. It is the User's responsibility to ensure this copy contains the most current revisions. If unsure, please contact TCE.



Project Title  
**Four Meadows Farm**  
5222 Mount Philo Road  
Charlotte, Vermont

Sheet Title  
**Sanitary Plan**

Date:	2/14/2018
Scale:	1" = 30'
Project Number:	17-072
Drawn By:	RMP/CMJ
Project Engineer:	JMM
Approved By:	
Field Book:	337

# Attachment 1

## Test Pit Information

# SOILS TEST PIT INFORMATION

SOILS PROFILES CONDUCTED ON 6/22/17 BY THOMAS WAWRZENIAK  
CHARLOTTE CONSULTANT BRIAN TREMBACK

TP 5 0 - 5 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
5 - 15 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
15- 48 10YR 3/2, GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 15", NO BEDROCK TO 48"

TP 6 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 14 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
14- 48 10YR 3/2, GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 14", NO BEDROCK TO 48"

TP 7 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 14 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
14- 48 10YR 3/2, GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 14", WATER SEEP @ 36", NO BEDROCK TO 48"

TP 8 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 9 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
9 -16 10YR 4/2, RED BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
16-48 10YR 3/2, GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 14", WATER SEEP @ 36", NO BEDROCK TO 48"

TP 9 0 - 2 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
2 - 19 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
19- 48 10YR 3/2, GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 16", WATER SEEP @ 36", NO BEDROCK TO 48"

TP 10 0 - 5 10YR 4/1, DARK BROWN, LOAM, LOOSE, ORGANIC TOPSOIL  
5 - 8 10YR 5/2, MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
8 -19 10YR 4/2, RED BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY  
19-48 10YR 3/2, GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING  
ESWHT @ 15", WATER SEEP @ 38", NO BEDROCK TO 48"

TP

TP

P-

P-

Attachment 2

Soil Classification



**TRANSMITTAL**

**TO:** Trudell Consulting Engineers  
Attn: Andre Lambert

**DATE:** August 8, 2017  
**KCE #:** 17309  
**PROJECT:** Ballek Residence, Charlotte, VT

We are sending you the following items:

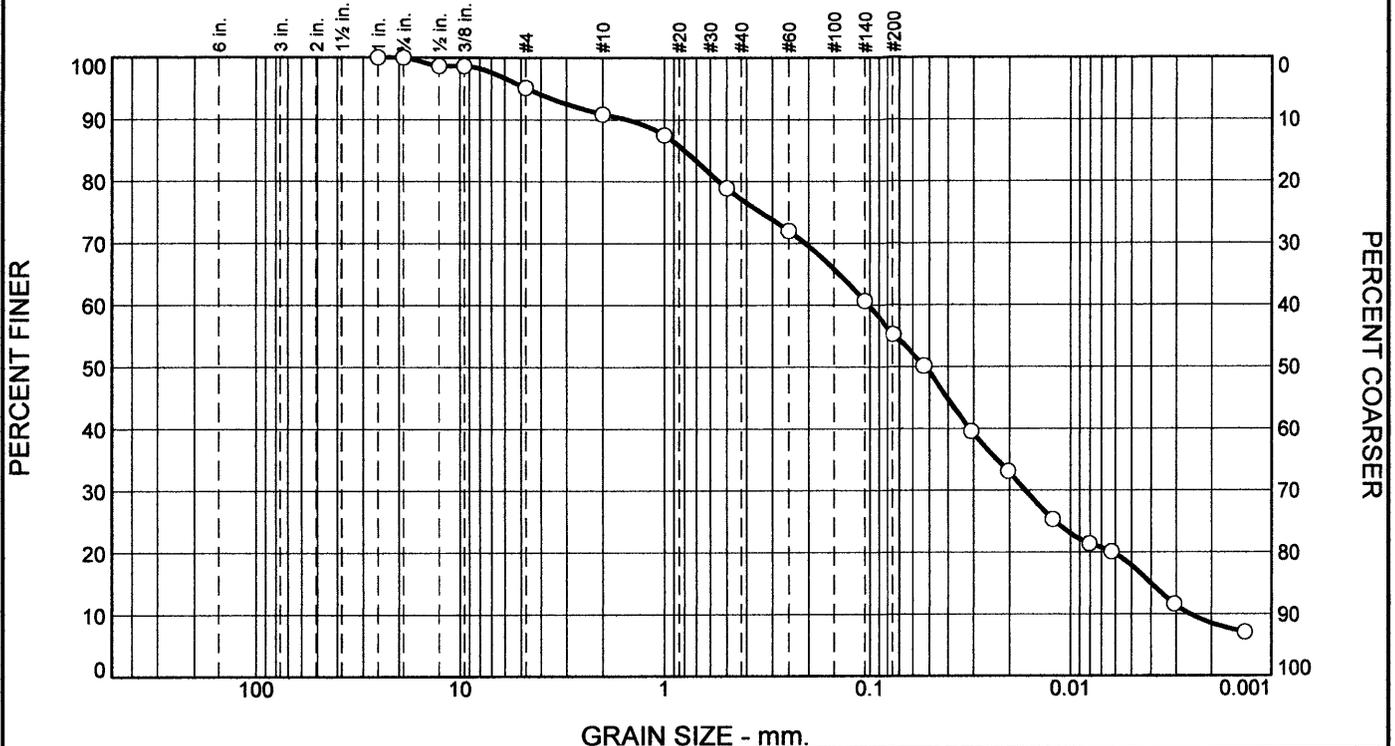
<u>COPIES</u>	<u>DATE</u>	<u>NO. OF PAGES</u>	<u>DESCRIPTION</u>
1	08-08-2017	3	USDA Hydrometer w/Soil Classification

Signed: Peter H. Rixford  
Testing and Lab Coordinator

PHR/nmv

S:\17\17309\Transmittal 08-08-2017.doc

# Grain Size Distribution Report



GRAIN SIZE - mm.

% Stones	% +3"	% Gravel			% Sand					% Silt		% Clay
		Coarse	Medium	Fine	V. Crs.	Crs.	Med.	Fine	V. Fine	Crs.	Fine	
0	0	0	5	4	4	8	7	12	11	16	25	8

Results reflect soil gradation only and not other specification requirements.

TEST RESULTS			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100		
3/4"	100		
1/2"	99		
3/8"	99		
#4	95		
#10	91		
#18	87		
#35	79		
#60	72		
#140	61		
#200	55		
#270	50		
0.0309 mm.	40		
0.0203 mm.	33		
0.0122 mm.	25		
0.0080 mm.	21		
0.0063 mm.	20		
0.0031 mm.	12		
0.0014 mm.	7.1		

\* (no specification provided)

**Material Description**

Loam

**Atterberg Limits (ASTM D 4318)**

PL=                      LL=                      PI=

**Classification**

USCS (D 2487)=                      AASHTO (M 145)=

**Coefficients**

D<sub>90</sub>= 1.5330      D<sub>85</sub>= 0.7973      D<sub>60</sub>= 0.1014  
D<sub>50</sub>= 0.0524      D<sub>30</sub>= 0.0167      D<sub>15</sub>= 0.0040  
D<sub>10</sub>= 0.0026      C<sub>u</sub>= 39.51      C<sub>c</sub>= 1.07

**Remarks**

Sampled and Delivered by Client on 8-4-17  
F.M.=1.05

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Date Received: 8-4-17                      Date Tested: 8-8-17  
Tested By: PHR

---

Checked By: P.Rixford

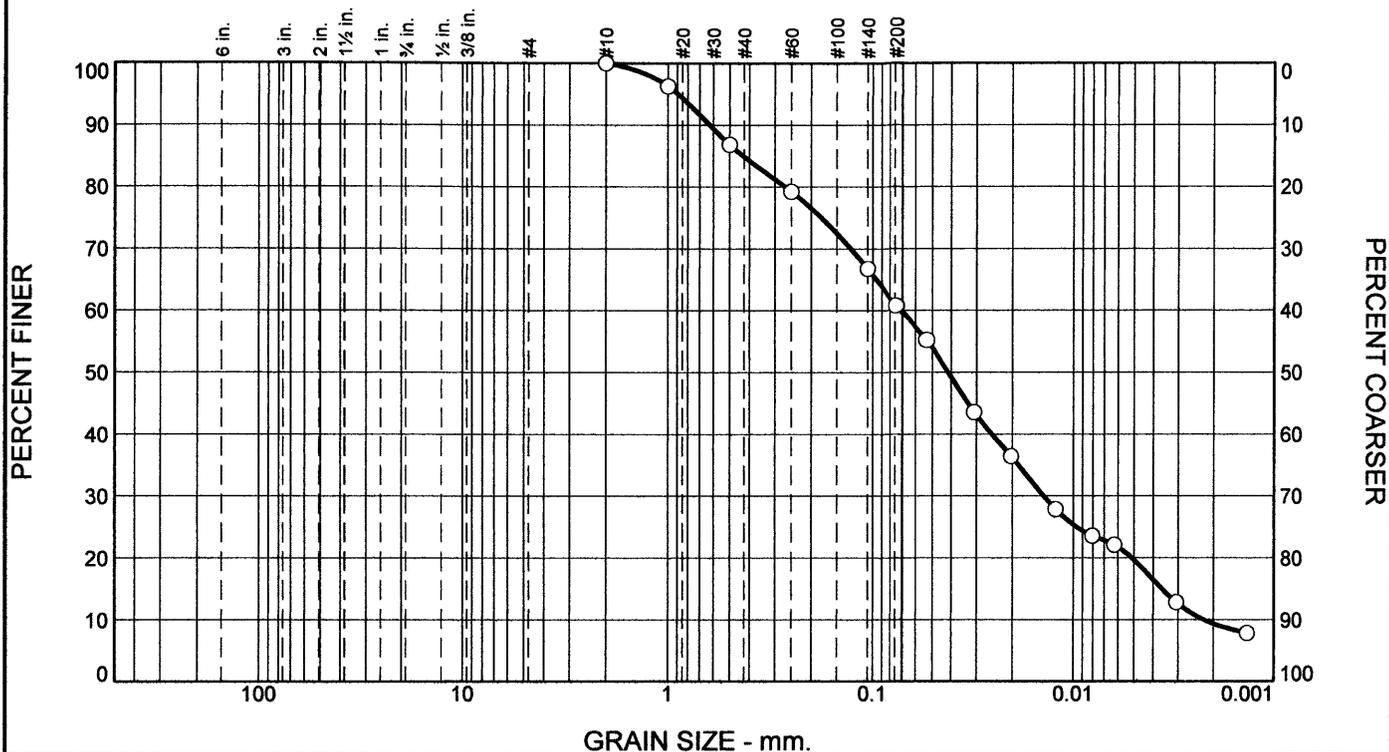
---

Title: Testing and Lab Coordinator

Source of Sample: On Site                      Date Sampled: 8-4-17  
Sample Number: 2

<b>Knight Consulting Engineers, Inc.</b> <b>Williston, Vermont</b>	<b>Client:</b> Trudell Consulting Engineers <b>Project:</b> Ballek Residence, Charlotte, VT  <b>Project No:</b> 17309 <b>Figure</b> 1-3
-----------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------

# Grain Size Distribution Report



GRAIN SIZE - mm.

% Stones	% +3"	% Gravel			% Sand					% Silt		% Clay
		Coarse	Medium	Fine	V. Crs.	Crs.	Med.	Fine	V. Fine	Crs.	Fine	
0	0	0	0	0	4	9	8	13	12	18	27	9

TEST RESULTS			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#10	100		
#18	96		
#35	87		
#60	79		
#140	67		
#200	61		
#270	55		
0.0309 mm.	44		
0.0203 mm.	36		
0.0122 mm.	28		
0.0080 mm.	24		
0.0063 mm.	22		
0.0031 mm.	13		
0.0014 mm.	7.8		

\* (no specification provided)

**Material Description**

Loam

**Atterberg Limits (ASTM D 4318)**

PL=                      LL=                      PI=

**Classification**

USCS (D 2487)=                      AASHTO (M 145)=

**Coefficients**

D<sub>90</sub>= 0.6258      D<sub>85</sub>= 0.4298      D<sub>60</sub>= 0.0713  
D<sub>50</sub>= 0.0414      D<sub>30</sub>= 0.0140      D<sub>15</sub>= 0.0036  
D<sub>10</sub>= 0.0022      C<sub>u</sub>= 31.76      C<sub>c</sub>= 1.23

**Remarks**

Sampled and delivered by client on 8-4-17.  
F.M.=0.59

---

Date Received: 8-4-17                      Date Tested: 8-8-17  
Tested By: PHR  
Checked By: Pete Rixford  
Title: Testing and Lab Coordinator

Source of Sample: On Site  
Sample Number: 2

Date Sampled: 8-4-17

**Knight Consulting  
Engineers, Inc.  
Williston, Vermont**

Client: Trudell Consulting Engineers  
Project: Ballek Residence, Charlotte, VT

Project No: 17309

Figure 2-3

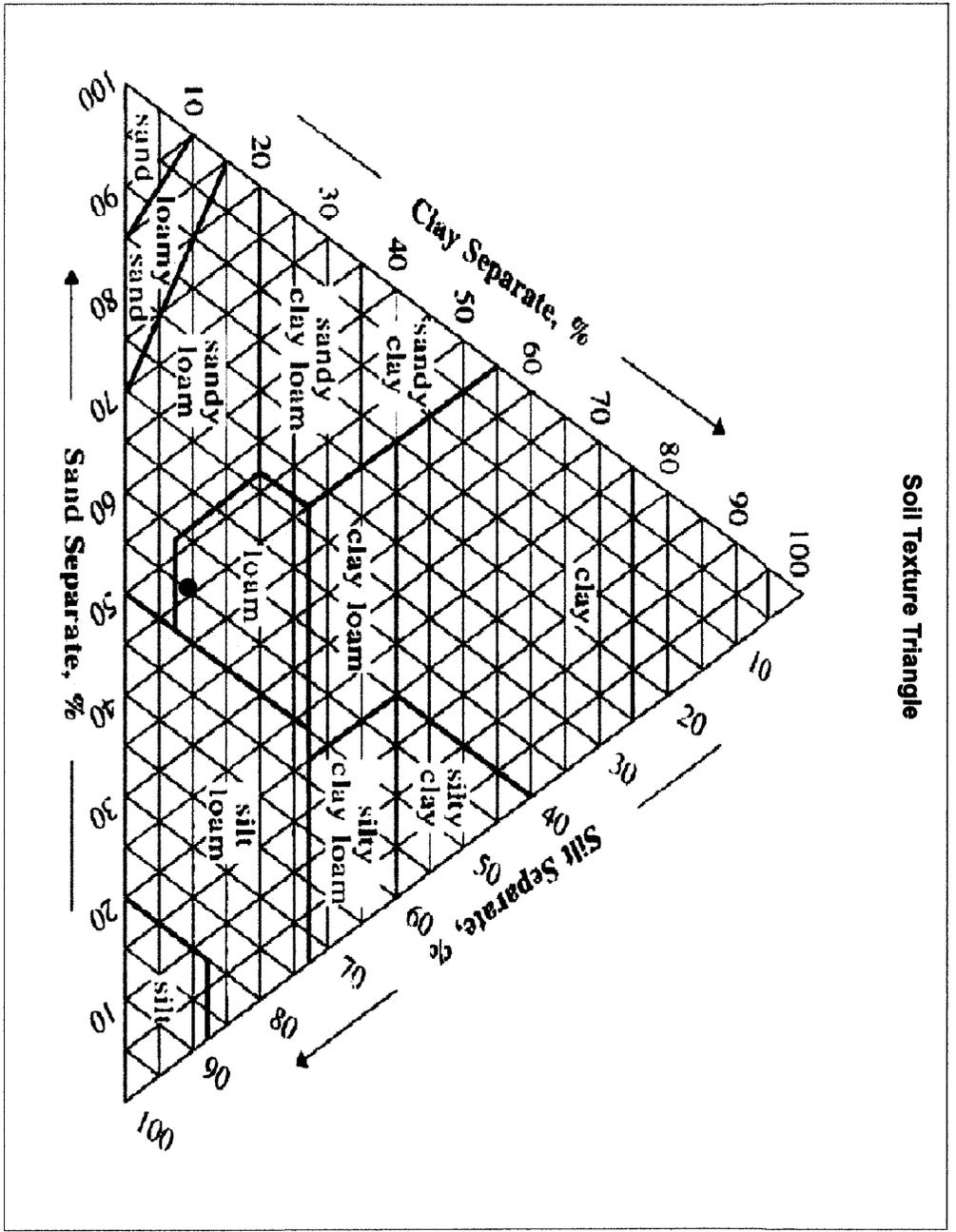
Results reflect soil gradation only and not other specification requirements.

<b>Sand</b>	<b>Clay</b>	<b>Silt</b>	<b>USDA Texture</b>
% Sand 1	% Clay 1	% Silt 1	LOAM
46.00%	9.00%	45.00%	

Site Test Pit

<b>Optional Sand 1</b>	
% Very Coarse	4.00%
% Coarse	9.00%
% Medium	8.00%
% Fine	13.00%
% Very Fine	12.00%

Soil Texture Triangle



Attachment 3

Model Output

**Water Table Mounding calculated based on Hantush 1967, WRR**

Enter data in green cells as per their yellow labels, other values will be computed from those entries.

Results are highlighted in pink.

Zmax Beneath Center of Entire Drain Field (L*W)								
Meters and Days	Length of Drain Field Subunit	Width of Drain Field Subunit		Separation between Drain Field Subunits	Fraction of Drain Field Subunit that is Trench Area	Horizontal Hydraulic Conductivity	Specific Yield use 0.001 to approximate steady state at 10 years	time use 10 years to approximate steady state
	$l_s$	$w_s$		$Sp$	$f$	$Kh$	$Sy$	time
	ft	ft		ft		ft/days	none	days
	64	4		0	1	5	0.001	3650
Number of subunits, n	L	W	q effective in subunit $l_s \times w_s$	q in trenches	q' effective on LxW	Q	Zmax 12 iterations	Initial Saturated Thickness
	ft	ft	ft/day	ft/day	ft/day	gallons/day	ft	ft
1	64	4	0.2559	0.2559	0.2559	490	0.340	50
1	64	4	0.2559	0.2559	0.2559	490	0.340	50
1	64	4	0.2559	0.2559	0.2559	490	0.340	50
1	64	4	0.2559	0.2559	0.2559	490	0.340	50

alpha

0.000529668  
0.000529668  
0.000529668  
0.000529668

copy an entire row from above and insert copied cells above this line to evaluate various loading rates and numbers of subunits

**Water Table Rise on Side Slope**

**Uses Subunit Geometry and Material Properties from Zmax Table**

	L	W	q effective in subunit $l_s \times w_s$	q in trenches	q' effective on LxW	Q l/day	Zsx 12 iterations	Distance from Center of Drain Field in Long Dimension (x in figure)	Distance from Center of Drain Field in Wide Dimension (y in figure)
Number of subunits, n	ft	ft	ft/day	ft/day	ft/day	gallons/day	ft	ft	ft
1	64	4	0.2559	0.2559	0.2559	490	0.282	35	35
1	64	4	0.2559	0.2559	0.2559	490	0.282	35	35
1	64	4	0.2559	0.2559	0.2559	490	0.281	35	37
1	64	4	0.2559	0.2559	0.2559	490	0.281	35	37

copy an entire row from above and insert copied cells above this line to evaluate various loading rates and numbers of subunits at various distances x,y from the center of the drain field

SITE	LINE		
	EXISTING	PROPOSED	REMOVED/ABANDONED
PAVED DRIVE OR ROAD	=====	=====	-----
GRAVEL DRIVE OR ROAD	-----	-----	-----
PAVED DRIVE OR ROAD WITH CURB	=====	=====	-----
TREE LINE	~~~~~	~~~~~	-----
WETLAND LIMIT	-----	-----	-----
WETLAND BUFFER	-----	-----	-----
SURVEYED TOPOGRAPHIC CONTOURS	----- 124	----- 124	-----
LIDAR TOPOGRAPHIC CONTOURS	----- 124	-----	-----
STREAM	-----	-----	-----
GUARD RAIL	-----	-----	-----
<b>UTILITIES</b>			
SEWER MAINS AND SERVICES	----- S	----- S	----- S
SEWER FORCEMAIN	----- FM	----- FM	----- FM
WATER MAINS AND SERVICES	----- W	----- W	----- W
STORM DRAINAGE	----- D	----- D	----- D
CURTAIN DRAIN	----- CD	----- CD	----- CD
UNDERDRAIN	----- UD	----- UD	----- UD
ROOF DRAIN	----- RD	----- RD	----- RD
FOOTING DRAIN	----- FD	----- FD	----- FD
LIQUID PROPANE OR NATURAL GAS	----- G	----- G	----- G
OVERHEAD POWER	----- OHP	----- OHP	----- OHP
UNDERGROUND POWER	----- UP	----- UP	----- UP
OVERHEAD TELEPHONE	----- OHT	----- OHT	----- OHT
UNDERGROUND TELEPHONE	----- UT	----- UT	----- UT
OVERHEAD POWER & TELEPHONE	----- OHP&T	----- OHP&T	----- OHP&T
UNDERGROUND POWER & TELEPHONE	----- UP&T	----- UP&T	----- UP&T
OVERHEAD POWER, TELEPHONE & CABLE	----- OHP&T&C	----- OHP&T&C	----- OHP&T&C
UNDERGROUND POWER, TELEPHONE & CABLE	----- UP&T&C	----- UP&T&C	----- UP&T&C
CABLE TELEVISION	----- CTV	----- CTV	----- CTV
FIBER OPTIC	----- FO	----- FO	----- FO
<b>SURVEY</b>			
PROPERTY LINE	=====	=====	-----
ADJOINING PROPERTY LINE	-----	-----	-----
EASEMENTS	-----	-----	-----
FENCE	----- X	----- X	----- X
STONEWALL	-----	-----	-----
SETBACKS	-----	-----	-----
WELL CONE / WASTEWATER CONE OF INFLUENCE	-----	-----	-----

**LEGEND NOTE:**

SOME INFORMATION MAY BE PROVIDED BY OTHERS AND COULD BE SHOWN WITH A DIFFERENT SYMBOL NOT SHOWN ON THIS LEGEND. HOWEVER, THEY ARE LABELED ON RESPECTIVE PLANS. IN SOME CASES A CHANGE IN SCALE OR PRINTER CAN ALTER INFORMATION TO NOT SHOW AN EXACT MATCH ON THIS LEGEND. IF ANY QUESTIONS EXIST CONTACT THE ENGINEER TO CLARIFY. ADDITIONAL LEGEND INFORMATION IS SUPPLIED SEPARATELY ON EROSION CONTROL PLANS AND SOME SURVEY PLATS.

**PROJECT INFORMATION:**

- OWNER OF RECORD: SUSAN BALLEK & IMANOL ECHEVERRIA  
90 MOUNT ARCHER ROAD  
LYME, CT 06371
- TAX PARCEL ID: 00027-5223
- PHYSICAL ADDRESS OF PROPERTY: 5222 MOUNT PHILO ROAD  
CHARLOTTE, VERMONT 05445
- PARCEL SIZE: 52.66 ACRES
- ZONING DISTRICT: RURAL

**SPECIAL NOTE:**  
FOR CLARITY, ALL ORIGINAL COLOR SHEETS  
MUST BE REPRODUCED IN COLOR

**LEGEND**

SITE	SYMBOL		
	EXISTING	PROPOSED	REMOVED/ABANDONED
SIGN	◊	◊	◊
<b>UTILITIES</b>			
SEWER, STORM OR TELEPHONE MANHOLE (SMH/STHM/TMH)	○	●	○
CLEANOUT (CO)	○	●	○
CATCH BASIN (CB)	□	■	□
OUTLET OR END SECTION	<	<	<
VALVE	⊕	⊕	⊕
CURB STOP (CS)	⊗	●	⊗
FIRE HYDRANT (HYD)	⊕	⊕	⊕
WATER SUPPLY WELL	⊕	⊕	⊕
END CAP	┌	┌	┌
BLOWOFF	⊗	⊗	⊗
UTILITY POLE	○	●	○
MTC OR TRANSFORMER	□	■	□
TELEPHONE OR TELEVISION PEDESTAL (TEL-PED/TV-PED)	□	■	□
LUMINAIRE	◊	◆	◊
BOLLARD LIGHT	◊	◆	◊
<b>FIELD</b>			
TCE CONTROL POINT	▲		
STEEL REBAR	●	○	⊘
TCE CONTROL POINT	●		
MAG NAIL	●		
OBSERVATION WELL	△		
PERCOLATION TEST	⊕		
SOIL TEST PIT	⊕		
SOIL BORING	⊕		
BENCHMARK	⊕		
<b>SURVEY</b>			
	<b>FOUND</b>	<b>TO BE SET</b>	<b>SET</b>
IRON PIPE	●		
STEEL REBAR	⊕	○	⊘
CONCRETE MONUMENT	■	□	⊠
MARBLE OR STONE MONUMENT	■		
IRON PIN (IP)	⊕		
CALCULATED POINT	△		

**EXISTING CONDITIONS NOTES:**

- THE PURPOSE OF THE EXISTING CONDITIONS PLAN IS TO DEPICT PERTINENT EXISTING CONDITIONS AS OF THE DATE OF SURVEY 06/02/2017 & 07/26/2017.
- BEARINGS SHOWN ARE BASED UPON VERMONT GRID NORTH.
- VERTICAL DATUM IS BASED ON NAVD88 (GEOID 12). A TRIMBLE R6 RTK GPS UNIT WAS EMPLOYED FOR THESE OBSERVATIONS.
- COORDINATE SYSTEM IS BASED ON VERMONT STATE PLANE (U.S. SURVEY FEET).
- THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS SHOWN ARE BASED ON RESEARCH, UTILITY PLANS PROVIDED BY OTHERS, AND/OR SURFACE EVIDENCE ENCOUNTERED AND WERE OBTAINED IN A MANNER CONSISTENT WITH THE ORDINARY STANDARD OF PROFESSIONAL CARE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE DESIGN ENGINEER. ADDITIONAL UTILITIES NOT SHOWN MAY EXIST. ENGINEER SHALL BE NOTIFIED IF ANY DISCREPANCIES ARE ENCOUNTERED. ACTUAL LOCATION OF UNDERGROUND UTILITIES MAY VARY. DIGSAFE MUST BE CONTACTED PRIOR TO ANY EXCAVATION. CALL 1-888-DIG SAFE (344-7233).
- PERIMETER BOUNDARIES SHOWN HEREON BASED ON A PLAT BY TCE ENTITLED "BOUNDARY PLAT, ALLMON CHARLES W. & GWEN D. TRUSTEES, TAX MAP NO. M09802L69, 5222 MOUNT PHILO ROAD, CHARLOTTE, VERMONT" DATED 08/04/2017.
- THE WETLAND DELINEATION SHOWN ON THIS PLAN WAS PERFORMED ON JUNE 15, 16 & 22, 2017, ACCORDING TO STANDARDS OF THE 1987 US ARMY CORPS OF ENGINEERS WETLAND DELINEATION MANUAL AND THE NORTHEAST REGIONAL SUPPLEMENT. THIS DELINEATION WAS PERFORMED BY KARINA DAILEY OF TRUDELL CONSULTING ENGINEERS AND CONFIRMED BY THE STATE JULY 18, 2017.

**RECORD DRAWING REQUIREMENTS:**

- A CLEAN SET OF UP TO DATE RECORD DRAWINGS IS TO BE AVAILABLE FOR REVIEW ON SITE AT ALL TIMES. FOR JOBS LASTING MORE THAN 4 WEEKS A REVIEW OF THE RECORD DRAWINGS WILL BE DONE BY THE ENGINEER EVERY 2 WEEKS AND COMMENTS OR DEFICIENCIES MAY BE PROVIDED.
- TIES TO ALL BENDS, VALVES, JOINTS, CONNECTIONS AND DESIGN FEATURES SHALL BE PROVIDED. TIES SHALL BE PULLED FROM EASILY LOCATABLE PERMANENT ABOVE GROUND FEATURES THAT ARE VISIBLE YEAR AROUND SUCH AS BUILDING CORNERS, HYDRANTS, SEWER AND STORM DRAIN COVERS THAT WILL BE CLEARED IN WINTER. UTILITY POLES, ETC. REFRAIN FROM PROVIDING TIES WITH ACUTE ANGLES. TIES SHOULD BE PULLED AT ANGLES AS CLOSE TO 90 DEGREES AS POSSIBLE. TIES WITH ANGLES TOO ACUTE MAY BE REJECTED.
- RECORD INFORMATION NEEDS TO BE PROVIDED ON THE APPROPRIATE DESIGN PLANS ON A WEEKLY BASIS. RECORD INFORMATION REGARDING TCE DESIGN ITEMS PLACED ON INAPPROPRIATE DESIGN PLANS WILL NOT BE ACCEPTED.
- TCE WILL ACCEPT ELECTRONIC RECORD COORDINATE INFORMATION, REFERENCED TO THE PROJECT DATUM. ELECTRONIC DATA SHALL BE COMPUTER-AIDED DESIGN (CAD) FILES INCLUDING NATIVE FILE FORMATS (DWG).
- IF ENGINEERING SERVICES FOR BI-WEEKLY REVIEW OF RECORD INFORMATION HAVE NOT BEEN OBTAINED FOR THE PROJECT ALL RECORD INFORMATION FOR TCE DESIGN ITEMS SHALL BE PROVIDED TO TCE WITHIN 7 BUSINESS DAYS OF THE COMPLETION OF THE WORK.
- PLANS SUBMITTED AT THE END OF THE PROJECT SHALL BE REVIEWED FOR COMPLETENESS. ALL REQUIREMENTS LISTED ABOVE APPLY.
- IF DESIGN FEATURES WERE INSTALLED EXACTLY PER THE DESIGN PLANS TIES TO THE FEATURE ARE STILL REQUIRED TO BE PROVIDED BY THE CONTRACTOR FOR THE OWNERS USE. ANY FEATURE NOT INDICATED AS DIFFERENT IN RED WILL BE CONSIDERED TO BE EXACTLY PER DESIGN.
- RECORD INFORMATION SHALL INCLUDE BOTH VERTICAL AND HORIZONTAL LOCATIONS. THIS INCLUDES BUT IS NOT LIMITED TO FINISHED FLOOR ELEVATIONS, RIMS AND INVERTS OF STRUCTURES AND PIPING, INVERTS AT CROSSINGS, ETC.
- ANY UTILITIES ENCOUNTERED THAT ARE NOT SHOWN ON THE PLANS SHALL BE ADDED TO THE PLANS WITH APPROPRIATE TIES.
- TIES SHALL INCLUDE ALL UTILITIES INSTALLED BY CONTRACTOR WHICH INCLUDE BUT ARE NOT LIMITED TO SEWER, WATER, STORM, ELECTRIC, CABLE, TELEPHONE, GAS, ETC.
- RECORD DRAWINGS SHALL BE SUPPLIED ON BOTH HARD COPY AND ELECTRONIC DATA. ELECTRONIC DATA SHALL BE COMPUTER-AIDED DESIGN (CAD) FILES INCLUDING NATIVE FILE FORMATS (DWG).
- THE CONTRACTOR SHALL SUBMIT ON A WEEKLY BASIS PROJECT PHOTOGRAPHS. THE INFORMATION WILL BE SUBMITTED TO THE ENGINEER IN ELECTRONIC FORMAT WITH EACH PICTURE BEING LABELED BY DATE, LOCATION AND ACTIVITY. AT A MINIMUM THE CONTRACTOR WILL SUBMIT PICTURES OF ALL THRUST BLOCKS, CONNECTIONS TO EXISTING FACILITIES AND STRUCTURES BEFORE AND AFTER BACKFILL. PROVIDE AUXILIARY LIGHTING AS REQUIRED TO PRODUCE CLEAR, WELL-LIT PHOTOGRAPHS WITHOUT OBSCURING SHADOWS. THE CONTRACTOR SHALL MAINTAIN ONE CHECK SET OF PHOTOGRAPHS AT THE SITE FOR REFERENCE. UPON REQUEST THE CONTRACTOR SHALL PROVIDE PICTURES OF VARIOUS AREAS DEEMED NECESSARY BY THE ENGINEER OR OWNER.
- CERTIFICATIONS BY THE ENGINEER AND SUCCESSFUL TEST RESULTS DO NOT RELIEVE THE CONTRACTOR OF FULL COMPLIANCE WITH THE DESIGN PLANS, SPECIFICATIONS AND PERMITS SHOULD A DEFICIENCY BE DISCOVERED AFTER SAID CERTIFICATION OR TESTING.

**CONSTRUCTION NOTES FOR CONTRACTOR & CLIENT/OWNER:**

- CONTRACT DOCUMENTS: THESE PLANS WERE PREPARED BY TRUDELL CONSULTING ENGINEERS (TCE) AND ARE INTENDED TO BE USED IN CONJUNCTION WITH THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT, #C-700 PREPARED BY THE ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE (EJCDC), LATEST EDITION. COPIES ARE AVAILABLE AT [WWW.NSPE.ORG/EJCDC](http://WWW.NSPE.ORG/EJCDC).
- UNDERGROUND IMPROVEMENTS: THE LOCATION OF EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS SHOWN ARE ASSUMED BASED ON RESEARCH, UTILITY PLANS PROVIDED BY OTHERS, AND/OR SURFACE EVIDENCE AVAILABLE AND WERE OBTAINED IN A MANNER CONSISTENT WITH THE ORDINARY STANDARD OF PROFESSIONAL CARE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR THE DESIGN ENGINEER.
- DIFFERING SUBSURFACE OR PHYSICAL CONDITIONS: IF CONTRACTOR BELIEVES THAT ANY SUBSURFACE OR PHYSICAL CONDITION AT OR CONTIGUOUS TO THE SITE THAT IS UNCOVERED OR REVEALED EITHER: (1) IS OF SUCH A NATURE AS TO ESTABLISH THAT ANY "TECHNICAL DATA" ON WHICH CONTRACTOR RELIED IS MATERIALLY INACCURATE; OR (2) IS OF SUCH A NATURE AS TO REQUIRE A CHANGE IN THE PLANS/CONTRACT DOCUMENTS; OR (3) DIFFERS MATERIALLY FROM THAT SHOWN OR INDICATED IN THE PLANS/CONTRACT DOCUMENTS; OR (4) IS OF AN UNUSUAL NATURE, AND DIFFERS MATERIALLY FROM CONDITIONS ORDINARILY ENCOUNTERED AND GENERALLY RECOGNIZED AS INHERENT IN WORK OF THE CHARACTER PROVIDED FOR IN THE PLANS/CONTRACT DOCUMENTS; THEN CONTRACTOR SHALL, PROMPTLY AFTER BECOMING AWARE THEREOF AND BEFORE FURTHER DISTURBING THE SUBSURFACE OR PHYSICAL CONDITIONS OR PERFORMING ANY WORK IN CONNECTION THEREWITH (EXCEPT IN AN EMERGENCY), NOTIFY OWNER AND ENGINEER ABOUT SUCH CONDITION. CONTRACTOR SHALL NOT FURTHER DISTURB SUCH CONDITION OR PERFORM ANY WORK IN CONNECTION THEREWITH (EXCEPT AS AFORESAID) UNTIL RECEIPT OF WRITTEN ORDER TO DO SO. ALL PARTIES INVOLVED (OWNER, ENGINEER, ARCHITECT, AND MUNICIPALITY IF APPLICABLE) SHALL AGREE UPON HOW TO PROCEED AND ANY RELATED COST IMPLICATIONS.
- UTILITIES: PRIVATE AND PUBLIC UTILITIES SUCH AS ELECTRIC, TELEPHONE, GAS, CABLE, FIBER OPTIC ETC., ARE THE RESPONSIBILITY OF THE RESPECTIVE UTILITY COMPANY. ANY INFORMATION SHOWN BY TCE SHOULD BE CONSIDERED PRELIMINARY (USUALLY TO ASSIST WITH PERMITTING.) FINAL DESIGN, CONSTRUCTION AND MAINTENANCE ARE THE RESPONSIBILITY OF RESPECTIVE UTILITY COMPANIES. COMPLIANCE WITH EASEMENTS AND REGULATIONS (STATE AND LOCAL) ARE THE RESPONSIBILITY OF RESPECTIVE UTILITY COMPANY.
- DIGSAFE: IN ACCORDANCE WITH VERMONT STATE LAW (VSA TITLE 30 CHAPTER 86 AND PSR RULE 3.800) THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT DIGSAFE SYSTEMS, INC., "DIGSAFE" AT LEAST 48 HOURS, EXCLUDING SATURDAYS, SUNDAYS, AND LEGAL HOLIDAYS, BUT NOT MORE THAN 30 DAYS BEFORE COMMENCING EXCAVATION ACTIVITIES, EXCEPT IN AN EMERGENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRE-MARKING THE SITE AND MAINTAINING DESIGNATED MARKINGS. FOR MORE INFORMATION ON DIGSAFE REQUIREMENTS SEE [WWW.DIGSAFE.COM](http://WWW.DIGSAFE.COM).
- JOB SITE SAFETY: NEITHER THE PROFESSIONAL ACTIVITIES OF TRUDELL CONSULTING ENGINEERS (TCE), NOR THE PRESENCE OF TCE OR ITS EMPLOYEES AND SUB CONSULTANTS AT A CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. TCE AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR OTHER ENTITY OR THEIR EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PRECAUTIONS. THE CLIENT AGREES THAT THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SITE SAFETY, AND WARRANTS THAT THIS INTENT SHALL BE MADE EVIDENT IN THE CLIENT'S AGREEMENT WITH THE GENERAL CONTRACTOR. THE CLIENT ALSO AGREES THAT THE CLIENT, TCE AND TCE'S CONSULTANTS SHALL BE INDEMNIFIED AND SHALL BE MADE ADDITIONALLY INSURED UNDER THE GENERAL CONTRACTOR'S GENERAL LIABILITY INSURANCE POLICY.
- CODES AND STANDARDS COMPLIANCE: TCE SHALL EXERCISE USUAL AND CUSTOMARY PROFESSIONAL CARE IN ITS EFFORTS TO COMPLY WITH CODES, STANDARDS, REGULATIONS AND ORDINANCES IN EFFECT. THE OWNER ACKNOWLEDGES THAT SUCH REQUIREMENTS MAY BE SUBJECT TO VARIOUS AND CONTRADICTIONARY INTERPRETATIONS. TCE, THEREFORE, WILL USE ITS REASONABLE PROFESSIONAL EFFORTS AND JUDGMENT TO INTERPRET APPLICABLE REQUIREMENTS AS THEY APPLY TO THE PROJECT. TCE, HOWEVER, CANNOT AND DOES NOT WARRANT OR GUARANTEE THAT THE PROJECT WILL COMPLY WITH ALL INTERPRETATIONS OF SUCH REQUIREMENTS.
- CONSTRUCTION OBSERVATION: TCE MAY VISIT THE PROJECT AT APPROPRIATE INTERVALS DURING CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE CONTRACTOR'S WORK AND TO DETERMINE IF THE WORK IS PROCEEDING IN GENERAL ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE OWNER HAS NOT RETAINED TCE TO MAKE DETAILED INSPECTIONS OR TO PROVIDE EXHAUSTIVE OR CONTINUOUS PROJECT REVIEW AND OBSERVATION SERVICES. TCE DOES NOT GUARANTEE THE PERFORMANCE OF, AND SHALL NOT HAVE RESPONSIBILITY FOR, THE ACTS OR OMISSIONS OF ANY CONTRACTOR, SUB-CONTRACTOR, SUPPLIER OR ANY OTHER ENTITY FURNISHING MATERIALS OR PERFORMING ANY WORK ON THE PROJECT. TCE SHALL NOT SUPERVISE, DIRECT OR HAVE CONTROL OVER THE CONTRACTOR'S WORK NOR HAVE ANY RESPONSIBILITY FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OF THE CONTRACTOR. IF THE OWNER DESIRES MORE EXTENSIVE PROJECT OBSERVATION OR FULL-TIME PROJECT REPRESENTATION, THE OWNER SHALL REQUEST SUCH SERVICES BE PROVIDED BY TCE AS ADDITIONAL SERVICES.
- UTILITIES SHOWN ARE APPROXIMATE AND DO NOT NECESSARILY REPRESENT ALL UTILITIES LOCATED ON OR ADJACENT TO THE AREA SURVEYED. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITY CONFLICTS. ALL DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER.
- ALL EXISTING UTILITIES NOT INCORPORATED INTO THE FINAL DESIGN ARE TO BE REMOVED OR PROPERLY ABANDONED AS INDICATED ON THE PLANS.
- THE CONTRACTOR SHALL MAINTAIN AS-BUILT PLANS (WITH TIES) FOR ALL UNDERGROUND UTILITIES. THOSE PLANS SHALL BE SUBMITTED TO THE OWNER AT THE COMPLETION OF THE PROJECT.
- THE CONTRACTOR SHALL REPAIR/RESTORE ALL DISTURBED AREAS (ON OR OFF THE SITE) AS A DIRECT OR INDIRECT RESULT OF THE CONSTRUCTION.
- ALL GRASSED AREAS SHALL BE MAINTAINED UNTIL FULL VEGETATION IS ESTABLISHED.
- MAINTAIN ALL TREES OUTSIDE OF CONSTRUCTION LIMITS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY FOR COMPLETE AND OPERABLE FACILITIES AND UTILITIES.
- IN ADDITION TO THE REQUIREMENTS SET IN THESE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL COMPLETE THE WORK IN ACCORDANCE WITH ALL PERMIT CONDITIONS, LOCAL PUBLIC WORKS STANDARDS AND ALL CONSTRUCTION SAFETY REGULATIONS.
- ANY DEWATERING NECESSARY FOR THE COMPLETION OF THE SITEWORK SHALL BE CONSIDERED AS PART OF THE CONTRACT AND SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- IF THERE ARE ANY CONFLICTS OR INCONSISTENCIES WITH THE PLANS OR SPECIFICATIONS, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR VERIFICATION BEFORE WORK CONTINUES ON THE ITEM(S) IN QUESTION.
- ALL SYSTEM COMPONENTS (TANKS, PIPES, JOINTS) SHALL BE WATERTIGHT.
- IF CONTRACTOR IS TO ADJUST ANY POTABLE WATER LINE CROSSINGS THEY SHALL CONSULT WITH ENGINEER TO MEET REQUIREMENTS SHOWN ON THE DETAIL SHEET "WATER/SEWER CROSSING" DETAIL.
- SEWER LATERAL CONNECTIONS ARE SOMETIMES NOT SHOWN FOR CLARITY. CONTRACTOR TO CONSULT WITH ENGINEER AND SUPPLY BENDS, CLEANOUTS, ETC., AS NECESSARY TO FACILITATE PROPER CONNECTION BETWEEN FOUNDATION WALL AND SEWER MAIN LINE.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH ALL RELATED PARTIES (INCLUDING, BUT NOT LIMITED TO OWNER, ARCHITECT AND UTILITY COMPANIES) TO DETERMINE FINAL LAYOUT AND DESIGN.
- DESIGN AND CONSTRUCTION OF PEDESTRIAN WALKS, RAMPS AND DECKS BETWEEN BUILDINGS AND PARKING LOTS IS PROVIDED BY THE ARCHITECT AND INCORPORATED INTO THE BUILDING DESIGN, UNLESS INDICATED OTHERWISE.
- ALL CURB STOP VALVES TO BE INSTALLED WITH ACCESS COVER AT FINISHED GRADE.
- ALL WATER LINE TAPS SHALL BE LIVE TAPS; EXISTING WATER LINE MUST REMAIN IN SERVICE DURING CONNECTION, UNLESS INDICATED OTHERWISE.
- ROOF DOWNSPOUT CAN CONNECT TO ROOF DRAIN MANFOLD (RDJ) AS DETERMINED BY ARCHITECT AND OWNER. THIS CONNECTION PIPE IS INCLUDED AS PART OF THE DESIGN PLAN BUT NOT SHOWN TO ALLOW FLEXIBILITY IN LOCATION AS NEEDED.
- THRUST BLOCKS FOR PRESSURE LINES ARE NOT SHOWN FOR CLARITY PURPOSES. PROVIDE THRUST BLOCKS AT ALL BENDS, TEE AND REDUCES. PROJECT ENGINEER TO OBSERVE ALL THRUST BLOCKS PRIOR TO BACKFILL.
- ROCK REMOVAL WORK FOR BOLDERS UNDER 2.5 CUBIC YARDS IS INCLUDED AS PART OF EXCAVATION. ANY ROCK REMOVAL FOR 2.5 CUBIC YARDS OR GREATER SHALL BE TREATED AS LEDGE REMOVAL. THIS SHOULD BE REVIEWED AND AGREED UPON BY OWNER PRIOR TO CONDUCTING ROCK REMOVAL.
- THE GENERAL CONTRACTOR IS REQUIRED TO CONFORM TO THE STRICTEST INTERPRETATION OF THE CONTRACT DRAWING, SPECIFICATION, PERMITS AND CONSTRUCTION CONTRACT. ALL EARTH MATERIAL RECEIVED OR DISPOSED FROM OUTSIDE SOURCES SHALL COMPLY WITH APPLICABLE PERMITS AND REGULATIONS. SHOP DRAWINGS SUBMITTALS SHALL INCLUDE CONTRACTOR'S CERTIFICATION STATEMENT OF COMPLIANCE AND COPIES OF RELEVANT PERMITS FOR OUTSIDE SOURCES.
- CONTRACTOR SHALL PAY FOR ALL REQUIRED TESTING. THIS SHALL INCLUDE BUT IS NOT LIMITED TO: SOIL TESTING, COMPACTION TESTING, SIEVE ANALYSIS, CONCRETE TESTING, ASPHALT PENETRATION TESTING, BACTERIOLOGICAL TESTING FOR WATER AND OTHER TESTINGS AS PART OF STANDARD PRACTICE FOR A CONSTRUCTION PROJECT OF THIS NATURE, UNLESS INDICATED OTHERWISE AND APPROVED BY THE OWNER.



**ENGINEERING • SURVEY**  
PLANNING • ENVIRONMENTAL  
478 BLAIR PARK ROAD | WILLINGTON, VERMONT 05495  
802.879.6331 | WWW.TCEVT.COM

Revisions			
No.	Description	Date	By

TAX ID: 00027-5223

Use of These Drawings  
1. Unless otherwise noted, these Drawings are intended for preliminary planning, coordination with other disciplines or utilities, and/or approval from the regulatory authorities. They are not intended as construction drawings unless noted as such or marked approved by a regulatory authority.

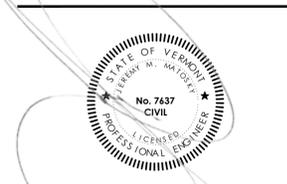
2. By use of these drawings for construction of the Project, the Owner represents that they have reviewed, approved, and accepted the drawings, obtained all necessary permits, and have met with all applicable parties/disciplines, including but not limited to, the Engineer and the Architect, to insure these plans are properly coordinated including, but not limited to, contract documents, specifications, owner/contractor agreements, building and mechanical plans, private and public utilities, and other pertinent permits for construction.

3. Owner and Architect, are responsible for final design and location of buildings shown, including an area measured a minimum five (5) feet around any building and coordinating final utility connections shown on these plans.

4. Prior to using these plans for construction layout, the user shall contact TCE to ensure the plan contains the most current revisions.

5. These Drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by TCE are its exclusive property. Changes to the drawings may only be made by TCE. If errors or omissions are discovered, they shall be brought to the attention of TCE immediately.

6. It is the User's responsibility to ensure this copy contains the most current revisions. If unsure, please contact TCE.



Project Title

**Four Meadows Farm**  
5222 Mount Philo Road  
Charlotte, Vermont

Sheet Title

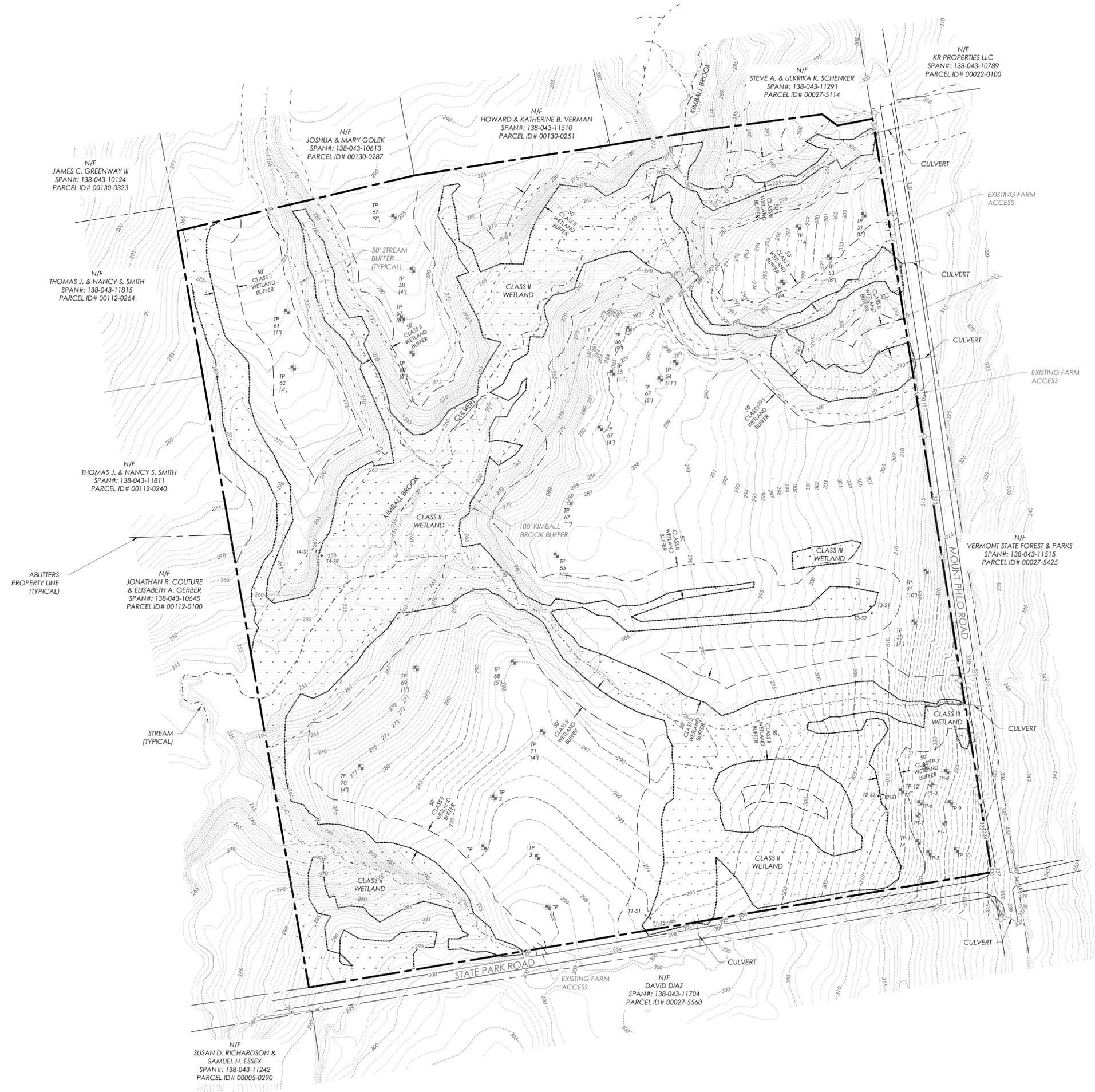
**Legend and Notes**

Date:	02/14/2018
Scale:	Shown
Project Number:	17-072
Drawn By:	RMP
Project Engineer:	JMM
Approved By:	
Field Book:	337

**C1-00**



Revisions	No.	Description	Date	By
Revisions to TP Numbering			03/28/18	JMM



Project Reference:

TAX ID: 00027-5223

- Use of these Drawings
- Unless otherwise noted, these Drawings are intended for preliminary planning, coordination with other disciplines or utilities, and/or approval from the regulatory authorities. They are not intended as construction drawings unless noted as such or marked approved by a regulatory authority.
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  - Owner and Architect, are responsible for final design and location of buildings shown, including an area measured a minimum five (5) feet around any building and coordinating final utility connections shown on these plans.
  - Prior to using these plans for construction layout, the user shall contact TCE to ensure the plan contains the most current revisions.
  - These Drawings are specific to the Project and are not transferable. As instruments of service, these drawings, and copies thereof, furnished by TCE are its exclusive property. Changes to the drawings may only be made by TCE. If errors or omissions are discovered, they shall be brought to the attention of TCE immediately.
  - If the User's responsibility to ensure this copy contains the most current revisions. If unsure, please contact TCE.



Project Title

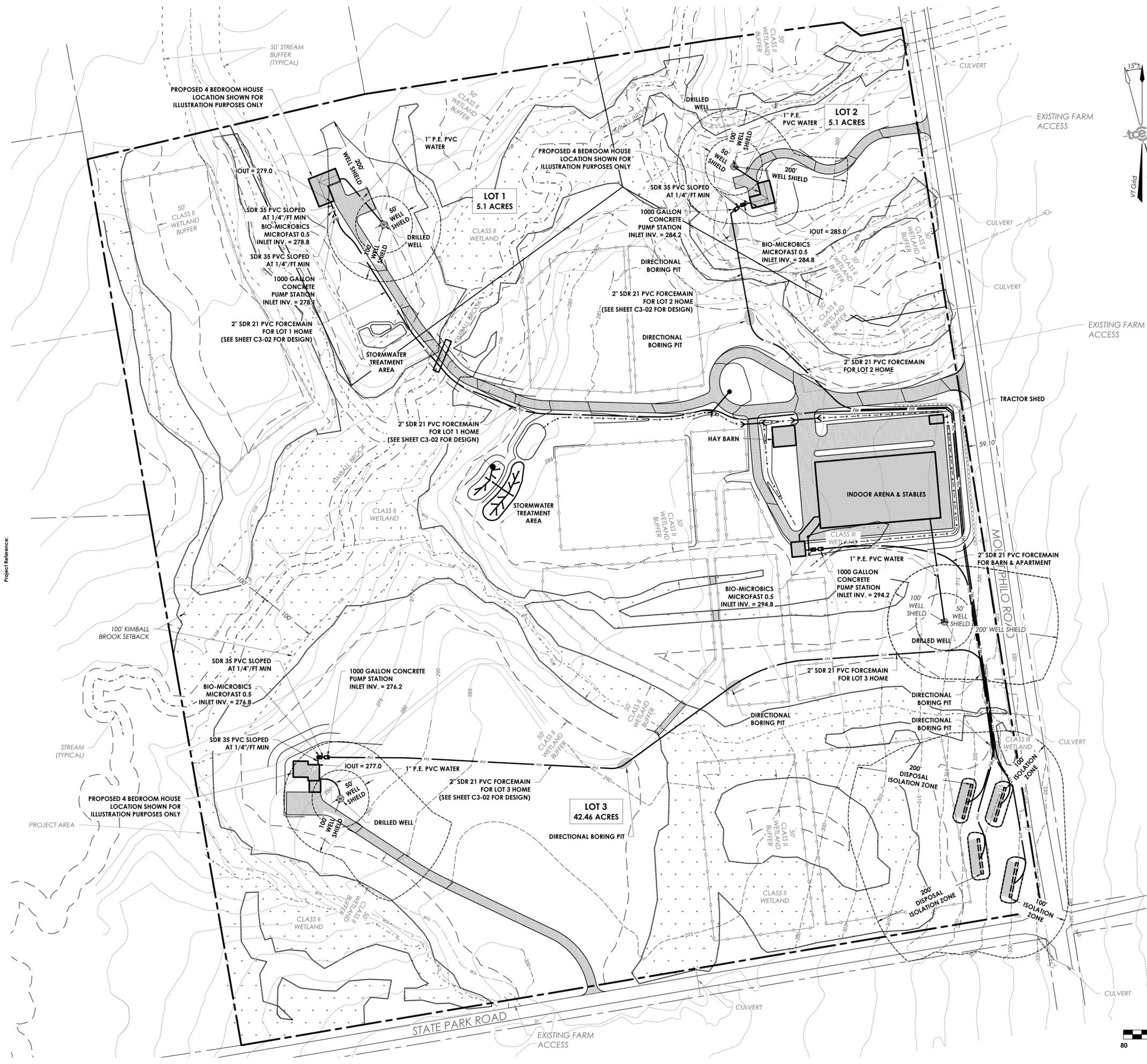
**Four Meadows Farm**  
 5222 Mount Philo Road  
 Charlotte, Vermont

Sheet Title

**Existing Conditions Plan**

Date:	02/14/2018
Scale:	1" = 100'
Project Number:	17-072
Drawn By:	RMP
Project Engineer:	JMM
Approved By:	
Field Book:	337

**C1-02**



No.	Description	Date	By
1	Driveaway, Well Location & Stormwater Edits	03/29/18	JMM

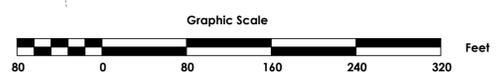
TAX ID: 00027-5223  
 Use of these Drawings  
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 3. Owner and Architect, are responsible for final design and location of buildings shown, including an area measured a minimum five (5) feet around any building and coordinating final utility connections shown on these plans.  
 4. Prior to using these plans for construction layout, the user shall contact TCE to ensure the plan contains the most current revisions.  
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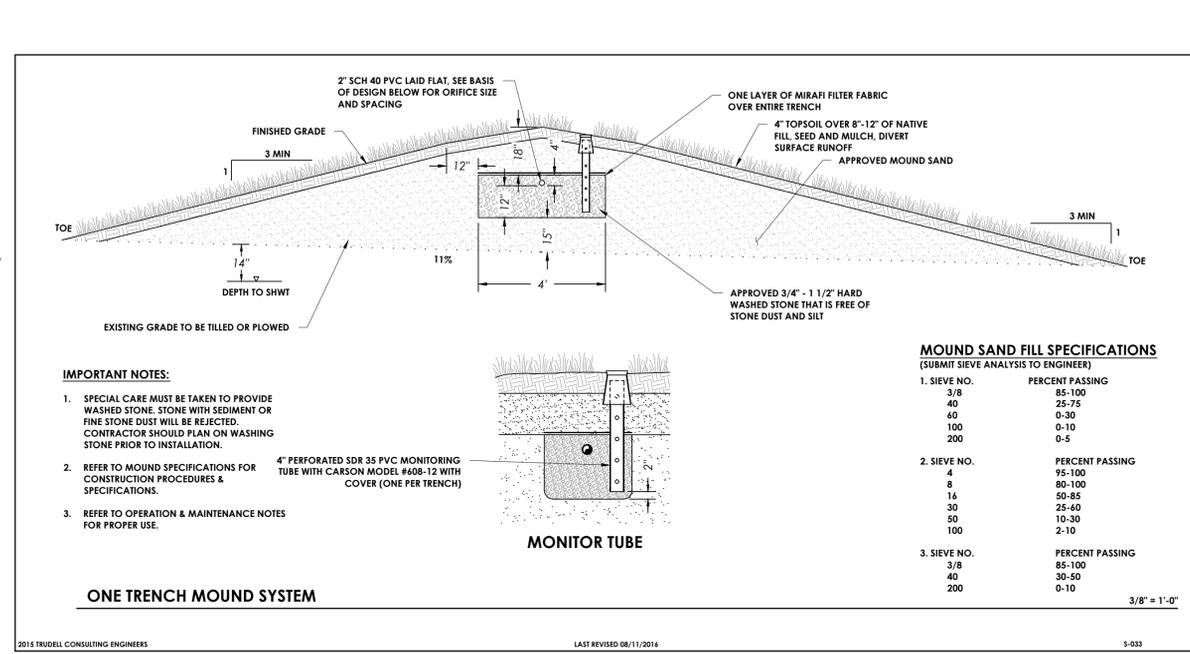
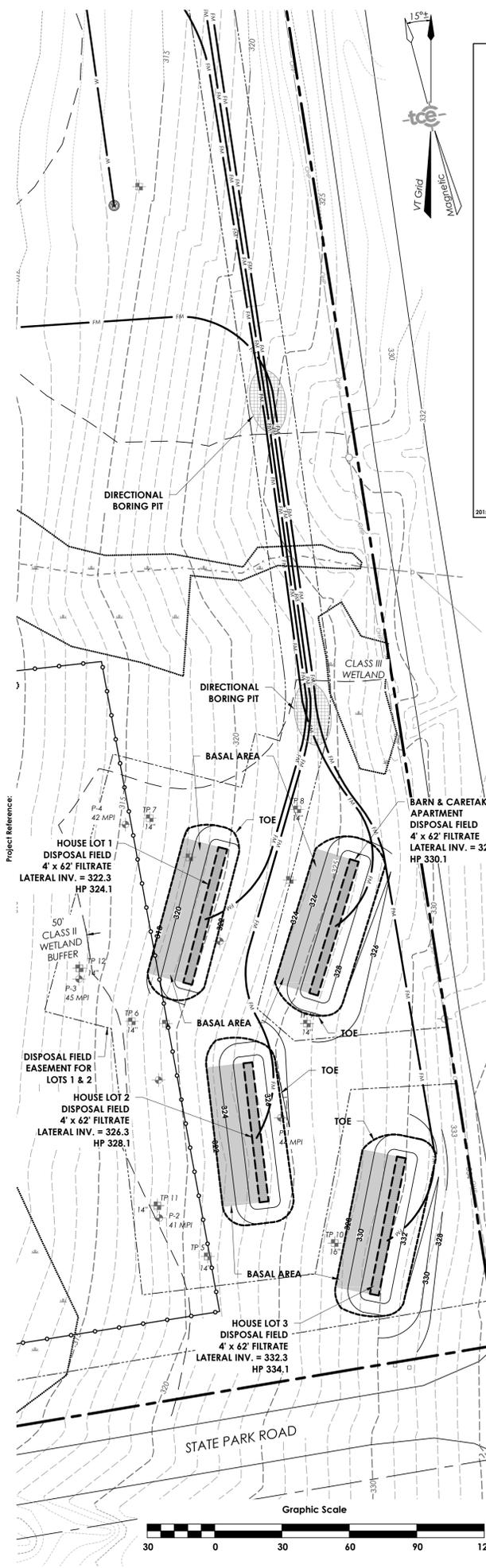
Project Title  
**Four Meadows Farm**  
 5222 Mount Philo Road  
 Charlotte, Vermont

Sheet Title  
**Overall Sanitary Plan**

Date:	02/14/2018
Scale:	1" = 80'
Project Number:	17-072
Drawn By:	RMP
Project Engineer:	JMM
Approved By:	
Field Book:	337

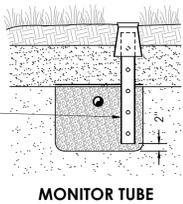


**C3-01**



- IMPORTANT NOTES:**
- SPECIAL CARE MUST BE TAKEN TO PROVIDE WASHED STONE, STONE WITH SEDIMENT OR FINE STONE DUST WILL BE REJECTED. CONTRACTOR SHOULD PLAN ON WASHING STONE PRIOR TO INSTALLATION.
  - REFER TO MOUND SPECIFICATIONS FOR CONSTRUCTION PROCEDURES & SPECIFICATIONS.
  - REFER TO OPERATION & MAINTENANCE NOTES FOR PROPER USE.

4" PERFORATED SDR 35 PVC MONITORING TUBE WITH CARSON MODEL #608-12 WITH COVER (ONE PER TRENCH)



**MOUND SAND FILL SPECIFICATIONS**  
(SUBMIT SIEVE ANALYSIS TO ENGINEER)

1. SIEVE NO.	PERCENT PASSING
3/8	85-100
40	25-75
60	0-30
100	0-10
200	0-5

2. SIEVE NO.	PERCENT PASSING
4	95-100
8	80-100
15	50-85
30	25-60
50	10-30
100	2-10

3. SIEVE NO.	PERCENT PASSING
3/8	85-100
40	30-50
200	0-10

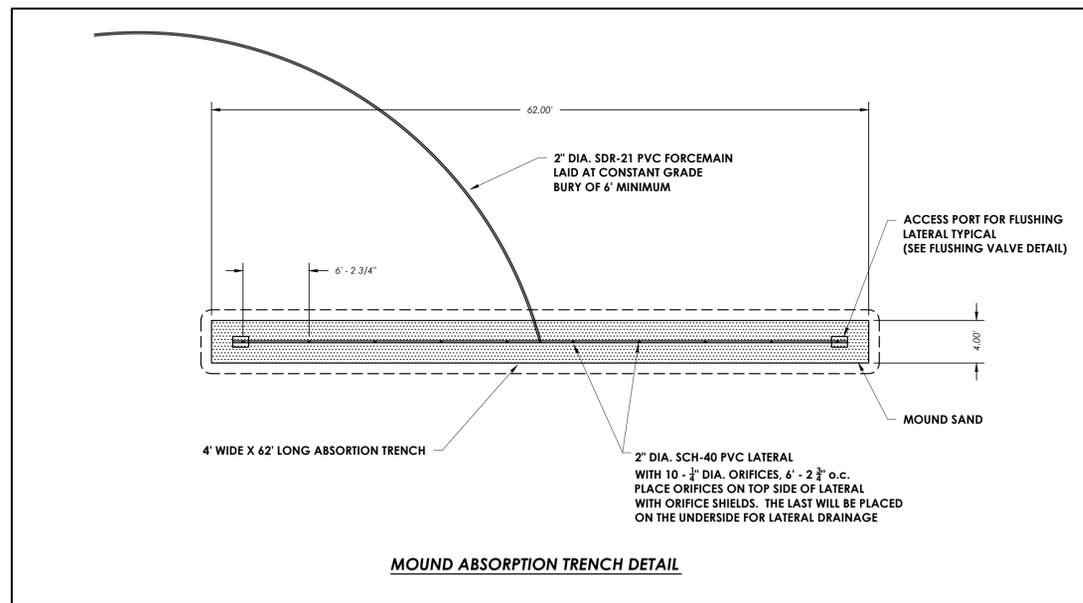
3/8" = 1'-0"

**ONE TRENCH MOUND SYSTEM**

2015 TRIDELL CONSULTING ENGINEERS

LAST REVISED 08/11/2016

S-033



**MOUND ABSORPTION TRENCH DETAIL**

**SOILS TEST PIT INFORMATION**  
SOILS PROFILES CONDUCTED ON 4/22/2017 BY THOMAS WAWRZENIAK CHARLOTTE CONSULTANT BRIAN TREMBACK

TP 5	0-5	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	5-15	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	15-48	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 15'; NO BEDROCK TO 48'

TP 6	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-14 <td>10 YR 5/2</td> <td>MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	14-48 <td>10 YR 3/2</td> <td>GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'</td>	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'

TP 7	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-14 <td>10 YR 5/2</td> <td>MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	14-48 <td>10 YR 3/2</td> <td>GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; WATER SEEP @ 36'; NO BEDROCK TO 48'</td>	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; WATER SEEP @ 36'; NO BEDROCK TO 48'

TP 8	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-9 <td>10 YR 5/2</td> <td>MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	9-16 <td>10 YR 4/2</td> <td>RED BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 4/2	RED BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	16-48 <td>10 YR 3/2</td> <td>GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; WATER SEEP @ 36'; NO BEDROCK TO 48'</td>	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; WATER SEEP @ 36'; NO BEDROCK TO 48'

TP 9	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-19 <td>10 YR 5/2</td> <td>MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	19-48 <td>10 YR 3/2</td> <td>GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 16'; WATER SEEP @ 36'; NO BEDROCK TO 48'</td>	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 16'; WATER SEEP @ 36'; NO BEDROCK TO 48'

TP 10	0-5	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	5-8 <td>10 YR 5/2</td> <td>MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	8-19 <td>10 YR 4/2</td> <td>RED BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 4/2	RED BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	19-48 <td>10 YR 3/2</td> <td>GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 15'; WATER SEEP @ 38'; NO BEDROCK TO 48'</td>	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 15'; WATER SEEP @ 38'; NO BEDROCK TO 48'

SOILS BORING CONDUCTED ON 9/14/2017 BY THOMAS WAWRZENIAK

TP 11	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-14 <td>10 YR 5/2</td> <td>MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	14-30 <td>10 YR 3/2</td> <td>GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'</td>	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'

TP 12	0-2	10 YR 4/1	DARK, BROWN, LOAM, LOOSE, ORGANIC TOPSOIL
	2-14 <td>10 YR 5/2</td> <td>MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY</td>	10 YR 5/2	MEDIUM BROWN, LOAM, LOOSE, PERMEABLE AND CRUMBLY
	14-30 <td>10 YR 3/2</td> <td>GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'</td>	10 YR 3/2	GRAY BROWN, SILT CLAY LOAM, FIRM, NO ROOTS, MOTTLING ESHWT @ 14'; NO BEDROCK TO 48'

**PERCOLATION TEST RESULTS**  
TESTS WERE CONDUCTED ON 9/14/2017 BY THOMAS WAWRZENIAK IN ACCORDANCE WITH APPENDIX 4-A OF THE STATE OF VERMONT RULES

P-1	44 M.P.I., DOWN 18"
P-2	41 M.P.I., DOWN 18"
P-3	45 M.P.I., DOWN 18"
P-4	42 M.P.I., DOWN 18"

**BASIS OF DESIGN FOR WATER SYSTEM**

PROPOSED FOUR BEDROOM HOUSE AVERAGE DAILY DEMAND BASED ON 2 PERSONS/BEDROOM @ 70 GPD X 3 BEDROOMS = 420 GPD, PLUS THE FOURTH BEDROOM @ 70 GPD (A.D.D.)

THE MAXIMUM DAILY DEMAND (M.D.D.) BASED ON A 12 HOUR DAY = 490 GPD/720 MIN = 0.68 GPM

THE INSTANTANEOUS PEAK DEMAND (I.P.D.) FOR A SINGLE FAMILY HOME = 5 GPM

BARN & CARETAKERS APARTMENT  
AVERAGE DAILY DEMAND (A.D.D.) = 490 GPD  
MAXIMUM DAILY DEMAND (M.D.D.) = 0.68 GPM  
INSTANTANEOUS PEAK DEMAND (I.P.D.) = 23.81 GPM

**BASIS OF WASTEWATER DESIGN**

THE TYPE OF WASTEWATER SYSTEM DESIGN USED WILL BE PERFORMANCE BASED USING THE DESKTOP HYDROGEOLOGIC STUDY DATED 9/21/17 BY JOHN KELLEHER (NRC).

METHOD USED TO MATHEMATICALLY APPROXIMATE INDUCED GROUNDWATER MOUNDING IS DESCRIBED BY KHAN. THE MODEL PREDICTS THE MAXIMUM INDUCED MOUNDING HEIGHT WILL BE 10.3 INCHES PER NRC'S HYDROGEOLOGIC STUDY. THE EQUATION ALSO INDICATES THAT THE MOUNDING WOULD DISSIPATE AND RETURN TO STATIC CONDITION WITHIN 10.2 FEET. THEREFORE, THE UP GRADIENT SYSTEMS WILL HAVE NO EFFECT ON THE DOWN GRADIENT SYSTEMS.

MINIMUM EFFECTIVE BASAL AREA REQUIRED =  $490 / 0.74 = 662$  SQ. FT.  
PROVIDED =  $20' \times 62' = 1240$  SQ. FT.

SINGLE FAMILY FLOW ANALYSIS:  
4 BEDROOM HOME:  
140 GPD/BEDROOM X 3 BEDROOMS + 70 GPD/DAY X 1 BEDROOM = 490 GPD

BARN AND CARETAKERS APARTMENT DESIGN FLOW ANALYSIS:  
CARETAKER'S ONE BEDROOM APARTMENT = 140 GPD  
FULL TIME EMPLOYEES = 10 X 15 GPD = 150 GPD  
2 CLOTHES WASHERS FOR HORSE BLANKETS @ 50 GPD = 100 GPD  
20 RIDING GUESTS FOR 2 HOURS / DAY @ 5 GPD = 100 GPD  
**TOTAL DESIGN FLOW = 490 GPD**

"I HEREBY CERTIFY THAT THE DESIGN RELATED INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT, AND THAT, IN THE EXERCISE OF MY REASONABLE PROFESSIONAL JUDGMENT, THE DESIGN INCLUDED IN THIS APPLICATION FOR A PERMIT COMPLIES WITH THE VERMONT WASTEWATER SYSTEM AND POTABLE WATER SUPPLY RULES AND THE VERMONT WATER SUPPLY RULES" (REF. ENVIRONMENTAL PROTECTION RULES CHAPTER 1 S 1-302 (b)(1)).

LAST REVISED 11/17/16

Revisions

No.	Description	Date	By
1	Driveway, Well Location & Stormwater Edits	03/29/18	JMM

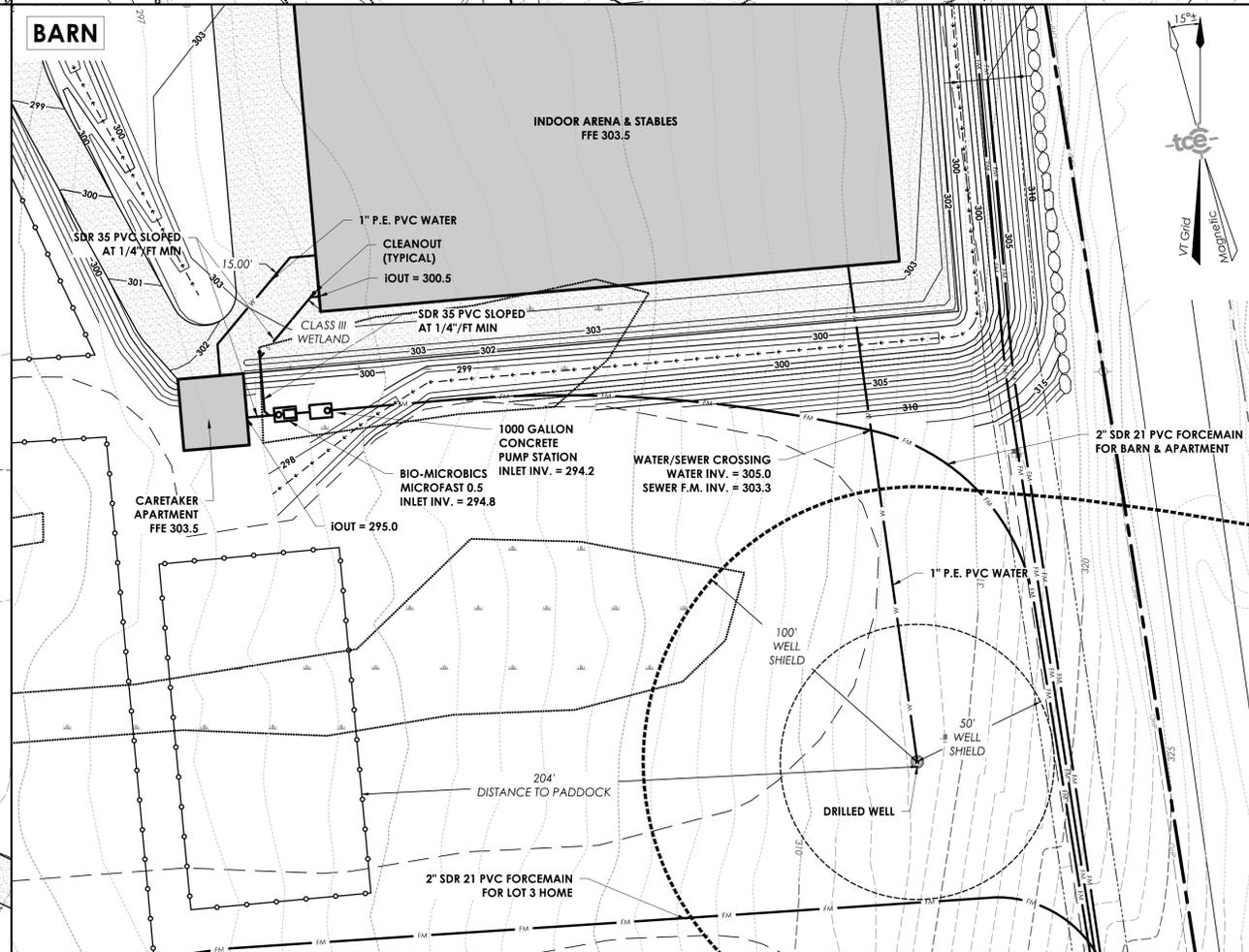
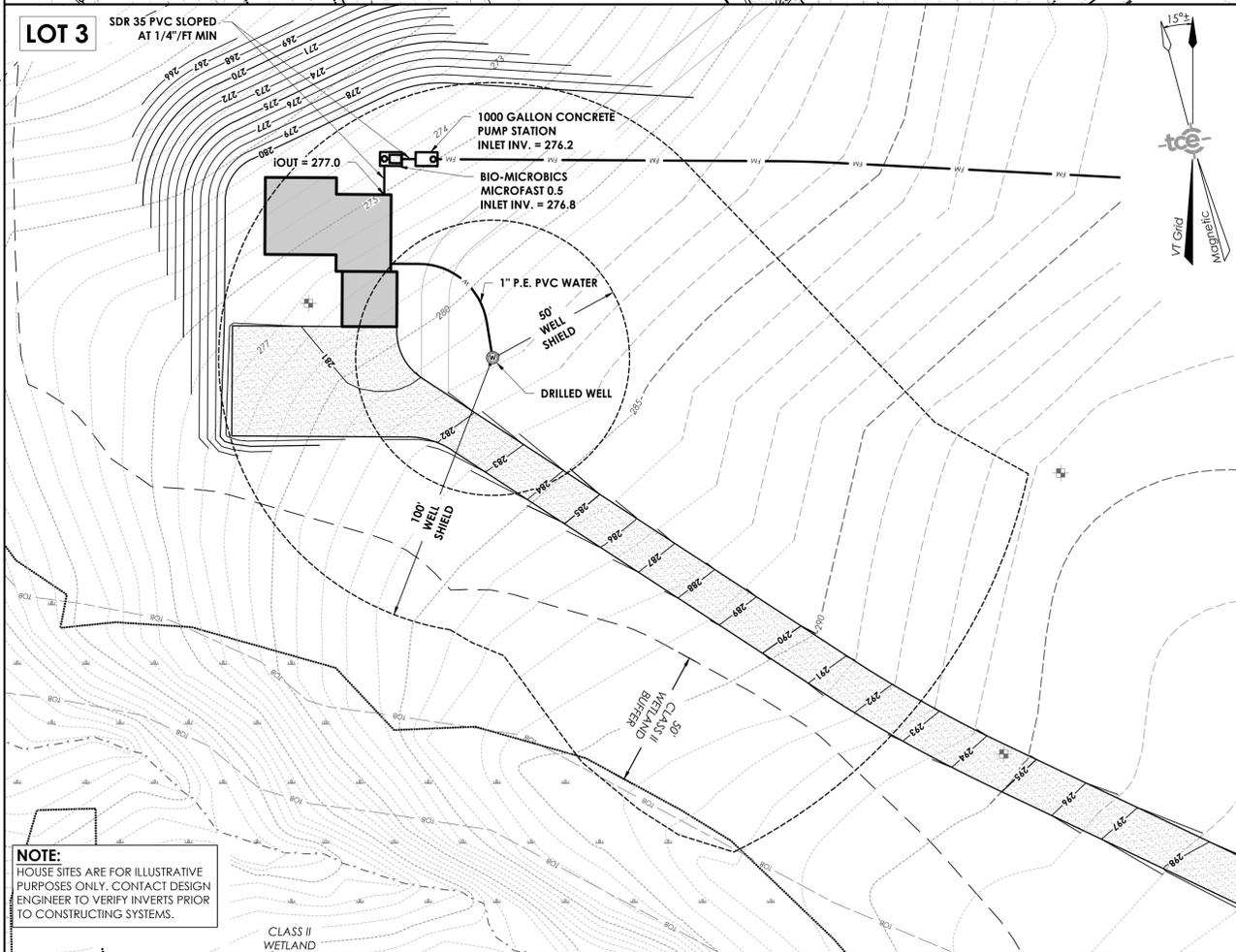
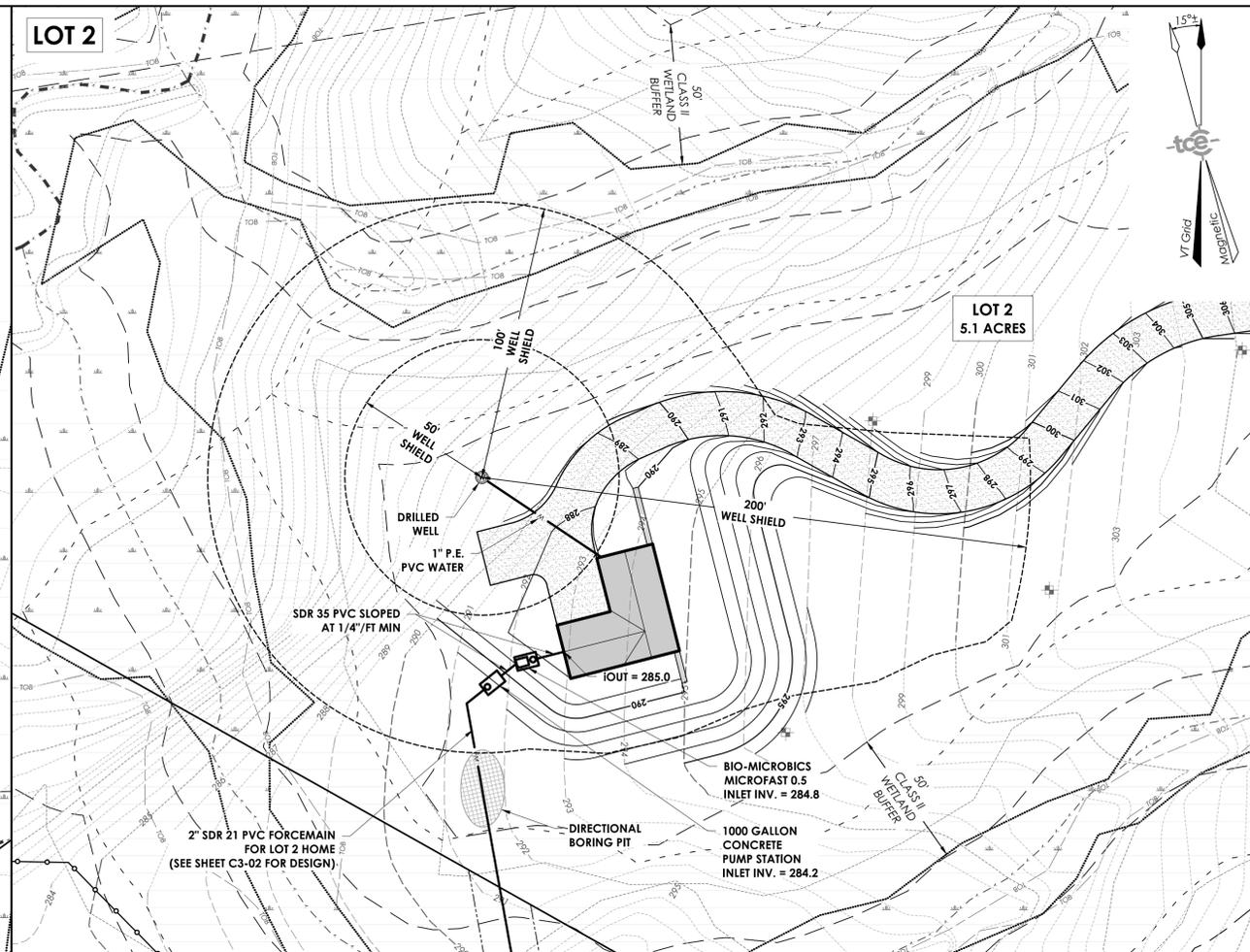
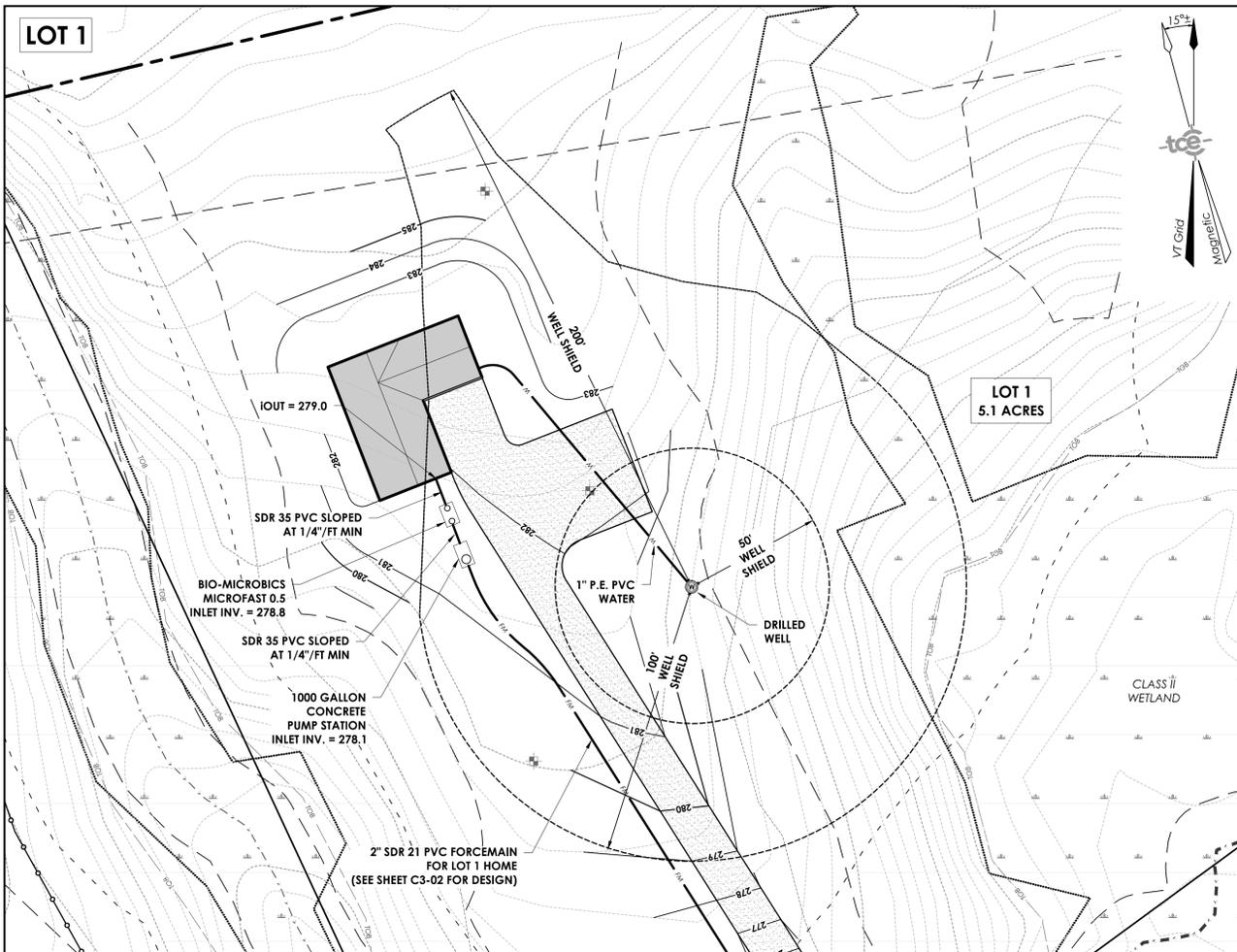
- TAX ID: 00027-5223
- Use of these Drawings
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  - By use of these drawings for construction of the Project, the Owner represents that they have reviewed, approved, and accepted the drawings, obtained all necessary permits, and have met with all applicable parties/disciplines, including but not limited to, the Engineer and the Architect, to insure these plans are properly coordinated including, but not limited to, contract documents, specifications, owner/contractor agreements, building and mechanical plans, private and public utilities, and other pertinent permits for construction.
  - Owner and Architect, are responsible for final design and location of buildings shown, including an area measured a minimum five (5) feet around any building and coordinating final utility connections shown on these plans.
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  - It is the User's responsibility to ensure this copy contains the most current revisions. If unsure, please contact TCE.



Project Title  
**Four Meadows Farm**  
5222 Mount Philo Road  
Charlotte, Vermont

Sheet Title  
**Sanitary Plan**

Date: 2/14/2018  
Scale: 1" = 30'  
Project Number: 17-072  
Drawn By: RMP/CMJ  
Project Engineer: JMM  
Approved By:  
Field Book: 337



**NOTE:**  
HOUSE SITES ARE FOR ILLUSTRATIVE PURPOSES ONLY. CONTACT DESIGN ENGINEER TO VERIFY INVERTS PRIOR TO CONSTRUCTING SYSTEMS.

Revisions	No.	Description	Date	By
	1	Driveway, Well Location & Stormwater Edits	03/29/18	JMM

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Project Title

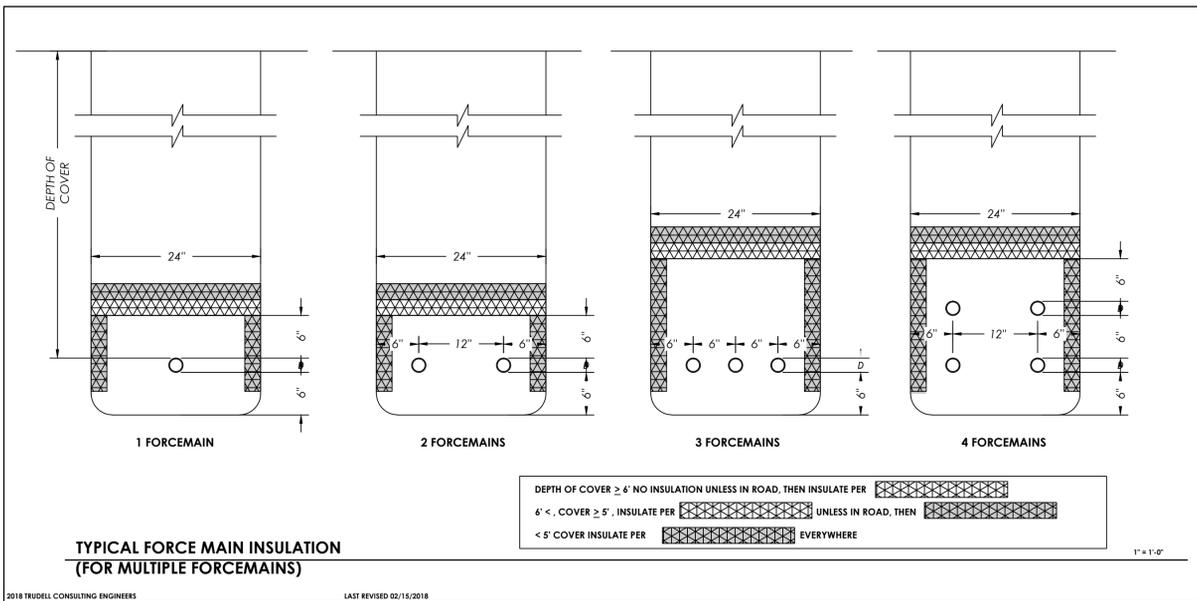
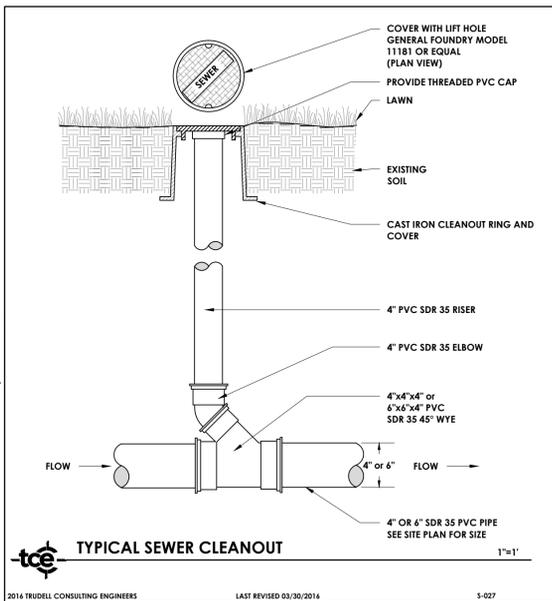
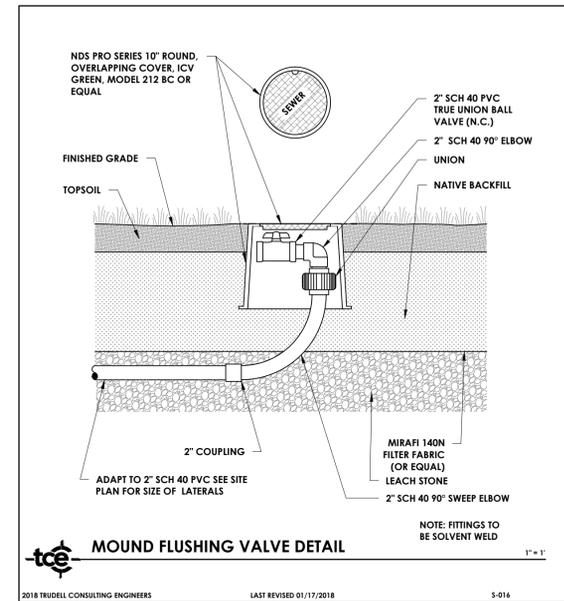
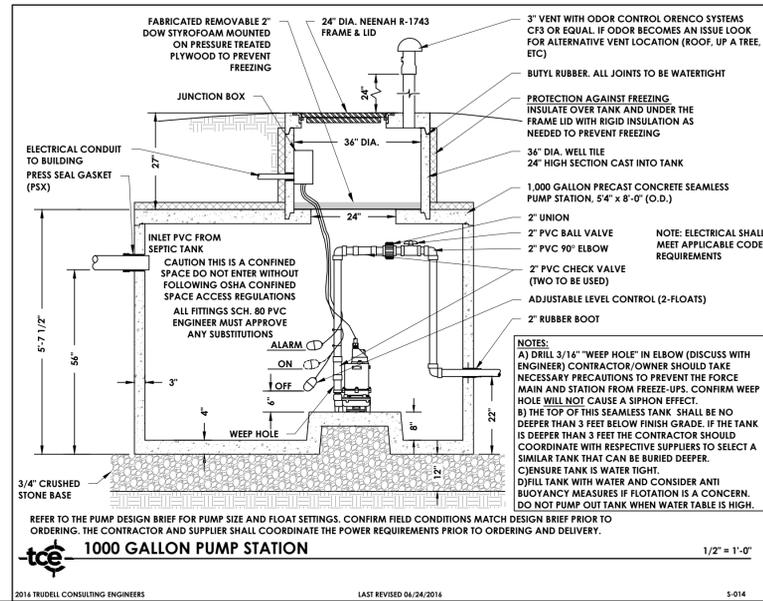
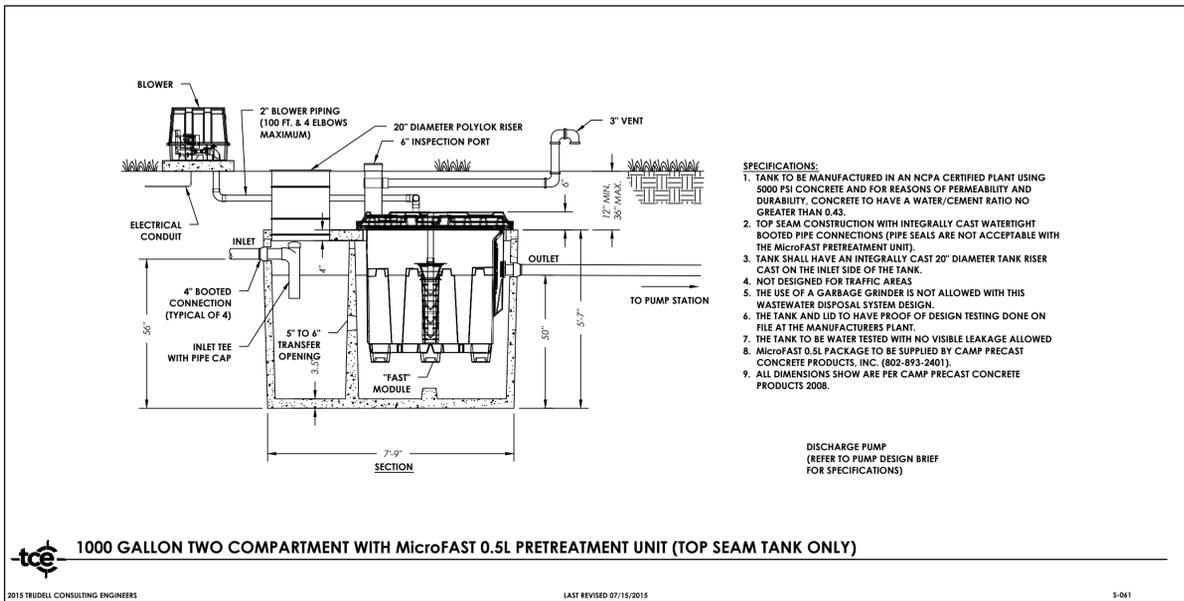
**Four Meadows Farm**  
5222 Mount Philo Road  
Charlotte, Vermont

Sheet Title

**Sanitary Plans**

Date:	02/14/2018
Scale:	1" = 30'
Project Number:	17-072
Drawn By:	CMJ/RMP
Project Engineer:	JMM
Approved By:	
Field Book:	337

**C3-03**



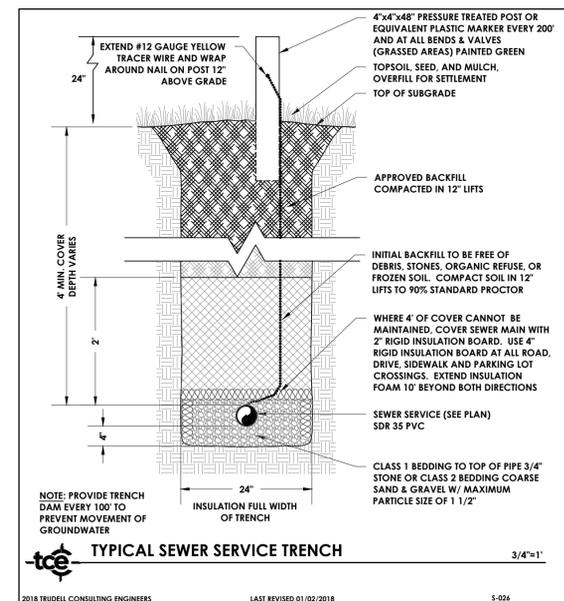
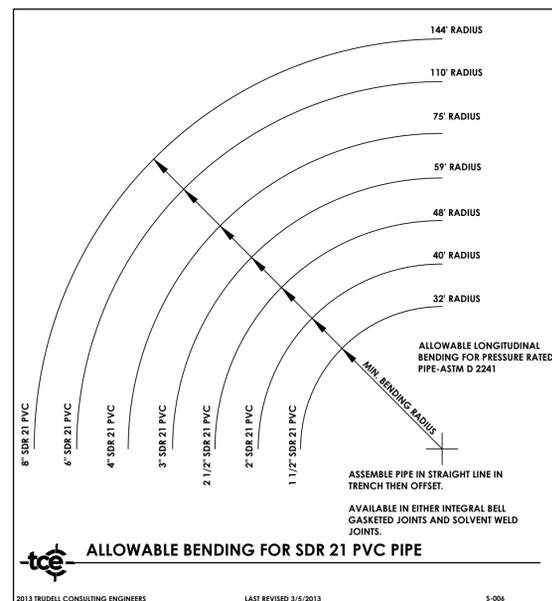
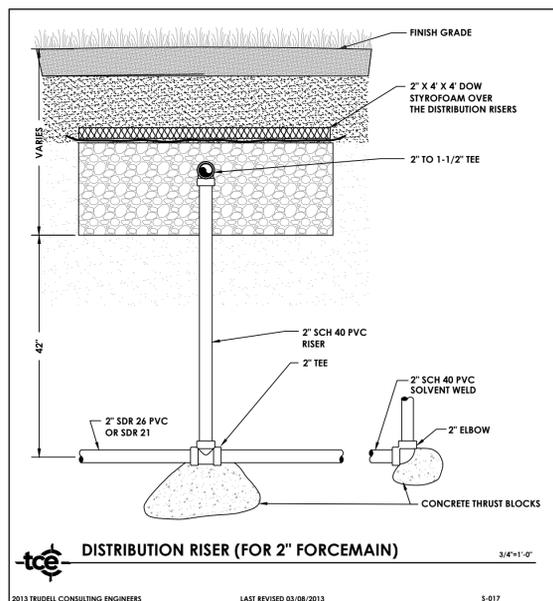
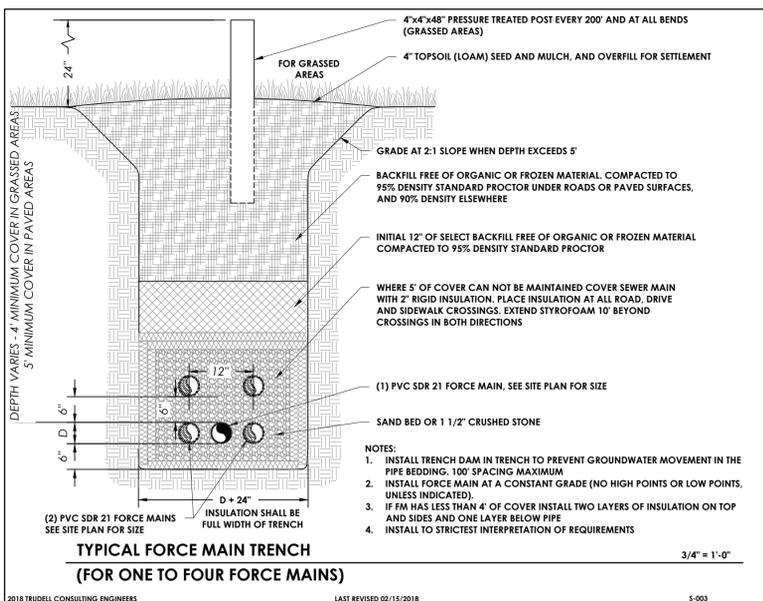
USE CLASS D (2500 PSI) CONCRETE FOR THRUST BLOCKS. PLACE 4 MIL. POLYETHYLENE BETWEEN FITTING AND THRUST BLOCK. PLACE THRUST BLOCK AGAINST UNDISTURBED TRENCH WALL - CONCRETE BEARING AREA ON FITTING TO BE A MINIMUM OF 1/2 SQUARE FOOT. THRUST BLOCKS BASED ON 50 PSI TEST PRESSURE IF CHANGE IN ELEVATION BETWEEN ANY 2 POINTS IN THE LINE IS GREATER THAN 110' THRUST BLOCKS WILL HAVE TO BE ENLARGED.

SOIL TYPE	SAFE BEARING LOAD LBS/FT. 2	MINIMUM BEARING AREA IN SQUARE FEET ON UNDISTURBED TRENCH WALL											
		2'			2 1/2'			3'			4'		
		TEE	90°	45°	TEE	90°	45°	TEE	90°	45°	TEE	90°	45°
CLAY	1000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SAND	2000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
GRAVEL	3000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
SHALE	10000	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

NOTE: ENGINEER TO OBSERVE ALL THRUST BLOCKS PRIOR TO BACKFILL.

**FORCE MAIN THRUST BLOCK SPECIFICATIONS**

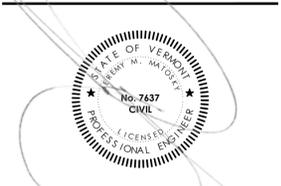
2013 TRUDELL CONSULTING ENGINEERS LAST REVISED 03/08/2013 S-015



No.	Description	Date	By

TAX ID: \_\_\_\_\_

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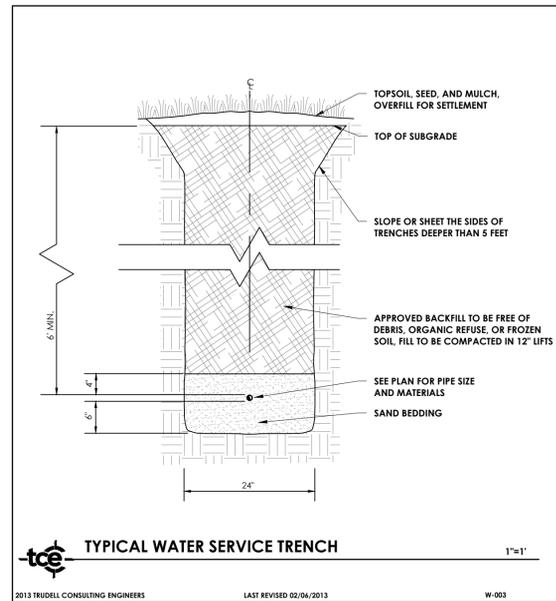
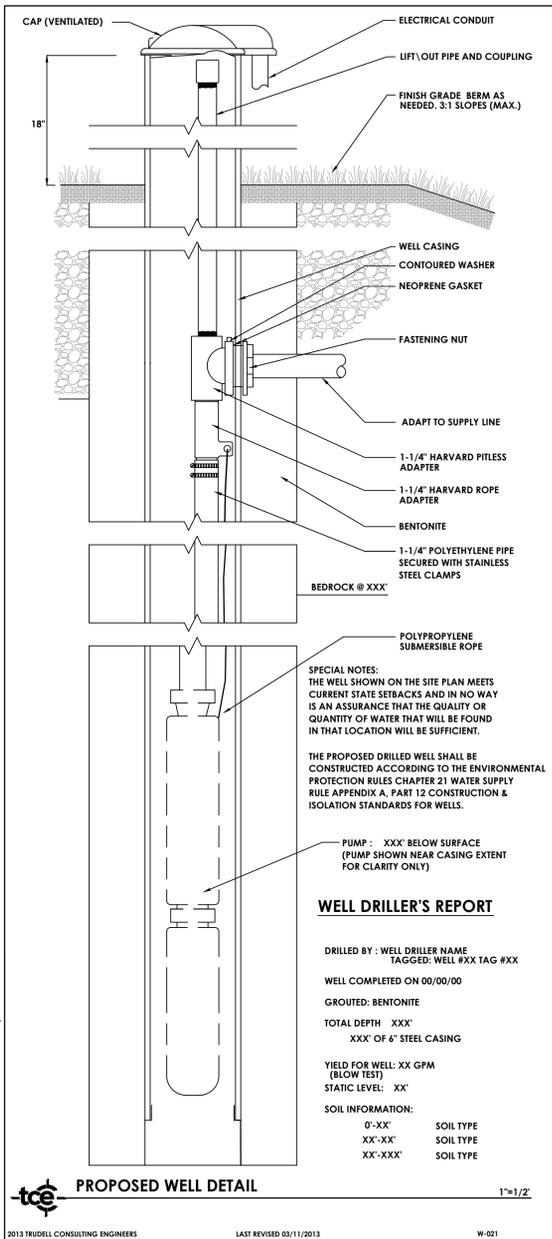


Project Title  
**Four Meadows Farm**  
5222 Mount Philo Road  
Charlotte, Vermont

Sheet Title  
**Sanitary Details**

Date: 01-2-2018  
Scale: Shown  
Project Number: 17-072  
Drawn By: RMP  
Project Engineer: JMM  
Approved By: JPP  
Field Book: 337

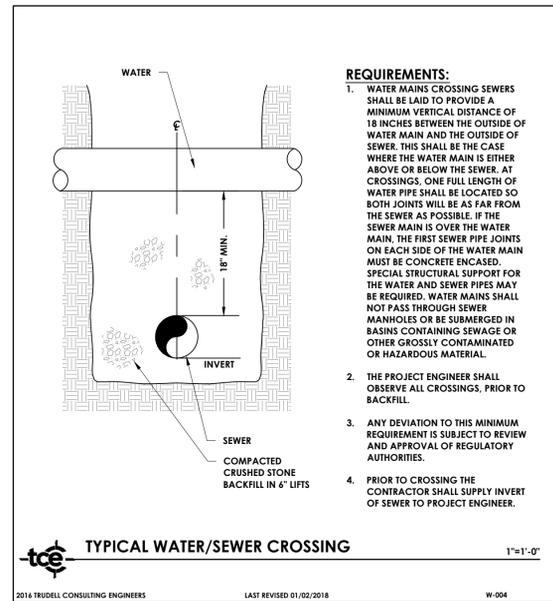




**POTENTIAL SOURCE OF CONTAMINATION**      **MINIMUM ISOLATION DISTANCES**

ROADWAY, PARKING LOT (OUTER EDGE OF SHOULDER)	25'
DRIVEWAY (<3 RESIDENCES)	15'
SEWAGE SYSTEM DISPOSAL FIELDS	(A)
SUBSURFACE WASTEWATER PIPING AND RELATED TANKS	50'
PROPERTY LINE	10' (B)
LIMIT OF HERBICIDE APPLICATION ON UTILITY R.O.W.	100' (C)
SURFACE WATER	10' (D)
FLOOD WAYS	(E)
BUILDINGS	10'
CONCENTRATED LIVESTOCK HOLDING AREA AND MANURE STORAGE SYSTEMS	200'
HAZARDOUS OR SOLID WASTE DISPOSAL SITE	(F)
NON-SEWAGE WASTEWATER DISPOSAL FIELDS	(F)

**WELL ISOLATION DISTANCES**  
(ENVIRONMENTAL PROTECTION RULES CH 21, WATER SUPPLY RULE REVISION DATE 12/07/10, APPENDIX A, PART 11.4)  
2013 TRUDELL CONSULTING ENGINEERS      LAST REVISED 09/17/2015      WN-005



**CONTRACTOR'S CERTIFICATION REQUIRED**

PRIOR TO THE DESIGN ENGINEER CERTIFYING THAT THE INSTALLATION HAS BEEN INSTALLED IN ACCORDANCE WITH THE PERMITTED DESIGN, THE CONTRACTOR SHALL PROVIDE A CERTIFICATION THAT THE WATER SYSTEM WAS INSTALLED AND TESTED IN ACCORDANCE WITH THE APPROVED DESIGN PLANS. STATE PERMITS REQUIRE THERE SHALL BE NO DEVIATIONS FROM THE APPROVED PLANS WITHOUT PRIOR APPROVALS. THE DESIGN ENGINEER SHALL BE NOTIFIED AND ALLOWED TO OBSERVE THE CRITICAL PHASES OF CONSTRUCTION INCLUDING ANY REQUIRED TESTS. LIKEWISE, THE DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DEVIATIONS FROM THE APPROVED PLANS. SINCE THE DESIGN ENGINEER DOES NOT CUSTOMARILY OBSERVE ALL PHASES OF THE WORK, OR ALL TESTING, HE MAY RELY ON THE CONTRACTOR'S CERTIFICATION AS THE BASIS FOR FINAL CERTIFICATION. THE CONTRACTOR SHALL THEREFORE SIGN AND RETURN A COPY OF THE FOLLOWING CERTIFICATION UPON COMPLETION OF THE WORK:

"I HEREBY CERTIFY THAT I HAVE INSTALLED, PROPERLY TESTED, AND SUCCESSFULLY PASSED THOSE TESTS, AND THE WATER SYSTEM(S) ARE BUILT IN ACCORDANCE WITH THE APPROVED DESIGN PLANS AND APPLICABLE PERMIT CONDITIONS."

CONTRACTOR NAME: \_\_\_\_\_

AUTHORIZED AGENTS NAME: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

NOTE ANY DEVIATIONS FROM APPROVED PLANS HERE: \_\_\_\_\_

**CONTRACTOR'S CERTIFICATION FOR POTABLE WATER SYSTEMS**  
2013 TRUDELL CONSULTING ENGINEERS      LAST REVISED 3/4/2013      WN-002

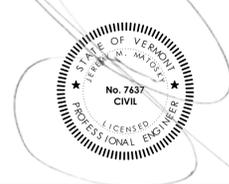
Revisions

No.	Description	Date	By
1	Addition of Water/Sewer Crossing Detail	03/28/18	JMM

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Project Title

**Four Meadows Farm**  
5222 Mount Philo Road  
Charlotte, Vermont

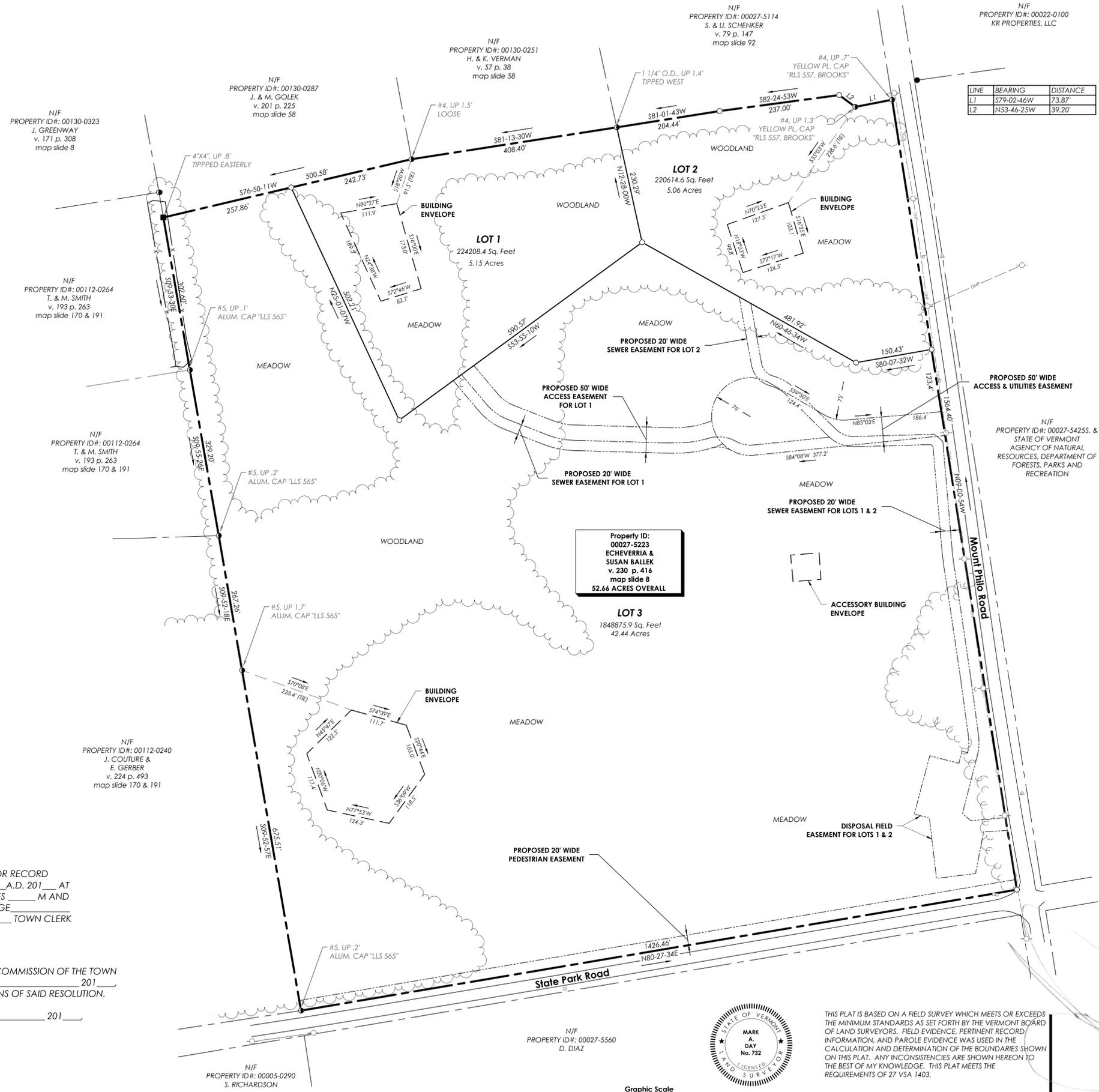
Sheet Title

**Water Details**

Date: 02/14/2018  
Scale: Shown  
Project Number: 17-072  
Drawn By: RMP/CMJ  
Project Engineer: JMM  
Approved By: \_\_\_\_\_  
Field Book: 337



PROJECT LOCATION



LINE	BEARING	DISTANCE
L1	S79-02-46W	73.87'
L2	N53-46-25W	39.20'

Property ID:  
00027-5223  
ECHEVERRIA &  
SUSAN BALLEK  
v. 230 p. 416  
map slide 8  
52.66 ACRES OVERALL

N/F  
PROPERTY ID#: 00027-5425S. &  
STATE OF VERMONT  
AGENCY OF NATURAL  
RESOURCES, DEPARTMENT OF  
FORESTS, PARKS AND  
RECREATION

**TOWN OF CHARLOTTE ZONING CRITERIA**  
CHAPTER II, PG. 12

ZONING DISTRICT - RURAL (RUR)  
FRONT YARD SETBACK - 50'  
SIDE YARD SETBACK - 50' FROM ROW  
REAR YARD SETBACK - 50'  
MAXIMUM BUILDING HEIGHT - 35'  
MAXIMUM LOT COVERAGE - 30%  
EXISTING LOT COVERAGE - N/A  
MAXIMUM BUILDING COVERAGE - 20%  
EXISTING BUILDING COVERAGE - N/A

**NOTES:**

- THIS PLAT IS BASED ON DEEDS RESEARCHED IN THE TOWN OF CHARLOTTE LAND RECORDS AND A CLOSED FIELD TRAVERSE CONDUCTED WITH A TOTAL STATION ON 08/03/2017.
- BEARINGS ARE BASED ON VERMONT STATE PLANE GRID NORTH ESTABLISHED WITH RTK OBSERVATIONS FROM VERMONT CORS STATION VTM (MIDDLEBURY).
- THIS PARCEL WAS CONVEYED TO IMANOL ECHEVERRIA SUSAN BALLEK IN VOLUME 230, PAGE 416.
- REBAR SET ARE NO. 5 REINFORCING BARS WITH ALUMINUM CAPS STAMPED "TRUDELL CONSULTING ENGINEERS, LLS 732".
- DISTANCES ARE SHOWN TO THE HUNDRETH OF A FOOT AND BEARINGS ARE SHOWN TO THE SECOND FOR MATHEMATICAL CLOSURE PURPOSES ONLY.
- AN ATTEMPT HAS BEEN MADE TO IDENTIFY OR DELINEATE EASEMENTS, RIGHTS OF WAY, LEASE LANDS, ENCROACHMENTS, ETC. OBSERVED IN THE FIELD OR READILY FOUND IN THE LAND RECORDS. ADDITIONAL ENCUMBRANCES MAY EXIST WHICH ARE NOT SHOWN ON THIS PLAT.
- THIS PARCEL MAY BE SUBJECT TO AN EASEMENT TO GREEN MOUNTAIN POWER FOR UNDERGROUND UTILITIES. SEE VOLUME 54, PAGE 229 OF THE TOWN OF CHARLOTTE LAND RECORDS.
- UNDERGROUND UTILITY LINES SHOWN ARE BASED ON ABOVE GROUND STRUCTURES AND PLANS OF RECORD. ACTUAL LOCATION OF UNDERGROUND LINES MAY VARY.

**PLAT REFERENCES:**

- "PLAT OF SURVEY FOR G.S.O. PROFIT SHARING PLAN TRUST IN THE TOWN OF CHARLOTTE, VT." SURVEYED BY PETER BERNHARDT, MAY, 1975. RECORDED AS MAP SLIDE 8 IN THE CHARLOTTE LAND RECORDS.
- "FINAL PLAT, MAJOR SUBDIVISION MODIFICATION, WINDEVER FARM, PROPERTIES OF JONATHAN COUTURE, KIMBERLY ANDERSON, AND TOMAS J. AND NANCY S. SMAITH, 173 STATE PARK ROAD, CHARLOTTE VERMONT" SURVEYED BY STUART J. MORROW, APRIL, 2015. RECORDED AS MAP SLIDE 191 IN THE CHARLOTTE LAND RECORDS.
- "PLAT OF SURVEY OF THE ROMO BULDOC FARM FOR CHARLES ALLMON IN THE TOWN OF CHARLOTTE, VT" SURVEYED BY PETER BERNHARDT, AUGUST, 1975. RECORDED AS MAP SLIDE 8 IN THE CHARLOTTE LAND RECORDS.
- "BOUNDARY LINE ADJUSTMENT FOR DAVID AND DOROTHY WALLER IN THE TOWN OF CHARLOTTE, VERMONT," SURVEYED BY BROOKS LAND SURVEYING, DECEMBER, 1993. RECORDED AS MAP SLIDE 92 IN THE CHARLOTTE LAND RECORDS.
- "MAP OF BOUNDARY SURVEY FOR JAMES & MAIDA ATKINS IN SHELburne, VERMONT." SURVEYED BY STEVE BROOKS, APRIL, 1987. RECORDED AS MAP SLIDE 58 IN THE CHARLOTTE LAND RECORDS

**LEGEND**

- REBAR ( TO BE SET )
- IRON PIPE ( FOUND )
- CONCRETE MONUMENT ( FOUND )
- CONCRETE MONUMENT ( TO BE SET )
- ⊙ "T" SURVEY MARKER ( FOUND )
- ⊙ REINFORCING BAR ( FOUND )
- ⊙ STONE MONUMENT ( FOUND )
- △ CALCULATED POINT
- UTILITY POLE
- OVERHEAD UTILITY LINES
- x FENCING
- - - EXISTING BOUNDARY LINE
- — — PROPOSED BOUNDARY LINE
- - - PROPOSED EASEMENT
- - - PROPOSED BUILDING ENVELOPE

CHARLOTTE TOWN CLERK'S OFFICE RECEIVED FOR RECORD  
THIS \_\_\_\_\_ DAY OF \_\_\_\_\_ A.D. 201\_\_ AT \_\_\_\_\_  
O'CLOCK \_\_\_\_\_ MINUTES \_\_\_\_\_ M AND  
RECORDED IN HANGING FILE \_\_\_\_\_ ON PAGE \_\_\_\_\_  
ATTEST: \_\_\_\_\_ TOWN CLERK

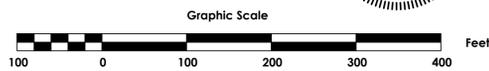
APPROVED BY RESOLUTION OF THE PLANNING COMMISSION OF THE TOWN OF CHARLOTTE, VT. ON THE \_\_\_\_\_ DAY OF \_\_\_\_\_ 201\_\_  
SUBJECT TO THE REQUIREMENTS AND CONDITIONS OF SAID RESOLUTION.

SIGNED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_ 201\_\_  
BY \_\_\_\_\_ CHAIRMAN

N/F  
PROPERTY ID#: 00027-5560  
D. DIAZ



THIS PLAT IS BASED ON A FIELD SURVEY WHICH MEETS OR EXCEEDS THE MINIMUM STANDARDS AS SET FORTH BY THE VERMONT BOARD OF LAND SURVEYORS. FIELD EVIDENCE, PERTINENT RECORD INFORMATION, AND PAROLE EVIDENCE WAS USED IN THE CALCULATION AND DETERMINATION OF THE BOUNDARIES SHOWN ON THIS PLAT. ANY INCONSISTENCIES ARE SHOWN HEREON TO THE BEST OF MY KNOWLEDGE. THIS PLAT MEETS THE REQUIREMENTS OF 27 VSA 1403.



Revisions	#	Description	Date	By

**Subdivision Plat**  
**IMANOL ECHEVERRIA & SUSAN BALLEK**  
Property ID: 00027-5223  
5222 Mount Philo Road  
Charlotte, Vermont

Date:	08/04/2017
Scale:	1" = 100'
Project Number:	17-072
Drawn By:	JRK
Surveyed By:	BGP, JRK, BM
Date of Survey:	08/03/2017
Field Book:	337
Crd file:	17-072.crd
Sheet:	<b>C1-01</b>

**TRUDELL CONSULTING ENGINEERS**  
478 BLAIR PARK ROAD | WILLISTON, VERMONT 05495 802.879.6331 | WWW.TCEVT.COM

This is an original inkjet on mylar.

This map has been reduced.