

**MINIMUM ISOLATION DISTANCES**

(Contact Engineer for any Clarifications or Conflicts)

Horizontal Distance (feet)	Leachfield	Septic Tank	Sewer
Dried Well Serving 1 Home - Up Slope of Disposal Field	100 (Min.)	50	50
Dried Well Serving 1 Home Slope of Disposal Field	200 (Min.)	50	50
Shallow Well or Spring Down Slope of Disposal Field	150 (Min.)	75	75
Lakes, Ponds and Impoundment	500 (Min.)	75	75
Rivers, Streams	50	25	25
Drainage Swales, Roadway Ditches	25	25	25
Municipal Water Main	50	50	50
Service Water Lines	25	25	25
Roadways, Driveways, Buildings	5	5	5
Top of embankment or slope > 30%	10 (25 Downslope) <sup>2</sup>	10	10
Tree Trunks	10	10	10
Foundation, Footing Drains	35 (75 Downslope) <sup>3</sup>	10	10

1. Isolation distances to well locations may vary due to site conditions - contact Engineer for verification with the Vermont Water Supply Rule Regulations.
2. For mound disposal systems, the limit of mound fill must be 25 feet from any downhill property line and 10 feet from side or uphill property lines.
3. If a curtain or foundation drain is downslope of the leachfield, the leachfield cannot be closer than 75 feet to the drain. If the drain is upslope of the leachfield, it shall be 35 feet possible and 20' minimum.
4. Sewers under roads, driveways or parking lots may require protective conduits or sleeves.

**GENERAL NOTES**

1. Utilities shown do not purport to constitute or represent all utilities located on or adjacent to the surveyed premises. Existing utility locations are approximate only. The Contractor shall verify all utility conflicts. All discrepancies shall be reported to the Engineer. The Contractor shall contact Dig Safe (888-344-7233) prior to any construction.
2. All existing utilities not incorporated into the final design shall be removed or abandoned as indicated on the plans or directed by the Engineer.
3. 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.
4. The Contractor shall repair/restore all disturbed areas (on or off the site) as a direct or indirect result of the construction.
5. All graded areas shall be maintained until full vegetation is established.
6. Maintain all trees outside of construction limits.
7. The Contractor shall be responsible for all work necessary for complete and operable facilities and utilities.
8. The Contractor shall submit shop drawings for all items and materials incorporated into the site work. Work shall not begin on any item until shop drawing approval is granted.
9. In addition to the requirements set in these plans and specifications, the Contractor shall comply with all applicable laws, regulations, codes, ordinances and any local Public Works Standards.
10. The tolerance for finish grades for all pavement, walkways and lawn areas shall be 0.1 feet.
11. Any dewatering necessary for the completion of the sitework shall be considered as part of the contract and shall be the Contractor's responsibility.
12. The Contractor shall coordinate all work within Town Road R.O.W. with Town authorities.
13. The Contractor shall install the electrical, cable and telephone services in accordance with the utility companies requirements.
14. Existing pavement and tree stumps to be removed shall be disposed of at an approved off-site location. All pavement cuts shall be made with a pavement saw.
15. 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 in question.
16. Property line information is approximate and based on existing tax map information. This plan is not a boundary survey and is not intended to be used as one.

VERMONT WATER SUPPLY RULE - CHAPTER 21  
TABLE A - REQUIRED MINIMUM SEPARATION DISTANCES

Potential Source of Contamination and other Siting Limitations	Separation Distance
Roadway, Parking Lot (outer edge of shoulder)	25'
Driveway (less than 3 residences)	15'
Sewage System Disposal Fields	a. 50'
Subsurface Wastewater Piping and Related Tanks	100'
Property Line	100'
Limit of Herbicide Application on Utility R.O.W.	10'D
Surface Water	b. 10'
Flood ways	6. 200'
Buildings	f. 200'
Concentrated Livestock Holding Area & Manure Storage Systems	1. 200'
Hazardous or Solid Waste Disposal Site	1. 200'
Non-Sewer Sanitary Disposal Fields	1. 200'
Non-Sewer Septic Systems	1. 200'

- a. Increased to 50' when adjacent to agricultural cropland.
- b. Increased to 50' when adjacent to agricultural cropland.
- c. Applies to rights-of-way (ROW) where herbicides have been applied in the past 12 months or may be applied in the future. This distance may be increased to 200' depending on the active ingredient in the herbicide according to Vermont Regulations for Control of Pesticides.
- d. For Public water sources, see Appendix A, part 3, Subpart 3.3.8.
- e. Water sources shall not be located in a flood way.
- f. If a water source is potentially downgradient of a source of contamination, then the Agency shall apply the criteria in 11.4.2.2.



SITE ENGINEER:



CIVIL ENGINEERING ASSOCIATES, INC.  
10 MAUNFIELD VIEW LANE, SOUTH BURLINGTON, VT 05403  
802-864-2323 FAX: 802-864-2271 WWW.CEAA-INC.COM

CONTRACTOR: © 2013 - ALL RIGHTS RESERVED

DESIGNER:

MAB/JDL

CHECKED

DSM

APPROVED

DSM

OWNER:

SCOTT & AMANDA

LABERGE

LIME KILN ROAD

CHARLOTTE, VERMONT

05445

PROJECT:

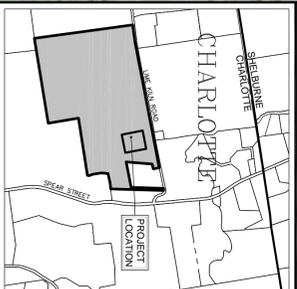
WASTEWATER

SITE PLAN

LIME KILN ROAD

CHARLOTTE, VERMONT

05445



LOCATION MAP T' = 200'

DATE	CHECKED	REVISION

**OVERALL SITE PLAN**

DATE

MAY, 2013

SCALE

1" = 200'

PROJ. NO.

13148

DRAWING NUMBER

**C1.0**

**Scott & Amanda Laberge Property Test Pitting**

May 13, 2013  
D. Marshall

TP #1 0'-3" 0'-3" 13'-26" 26'-29" 29'-48" SHGWT 28" No seeps	Medium compact brown sandy loam Loose orange brown sandy loam Loose tan sandy loam Loose tan sand Compact gray brown sandy loam Roots to 28" No ledge	TP #4 0'-4" 4'-8" 8'-17" 17'-22" 22'-29" SHGWT 18" No seeps	Loose brown sandy loam Loose orange brown sandy loam Medium compact orange fine to medium sand Medium compact brown sandy loam Compact gray brown silty clay Roots to 18" No ledge	TP #5 0'-2" 2'-9" 9'-20" 20'-30" 20'-54" SHGWT 18" No seeps	Loose brown sandy loam Loose orange brown sandy loam Loose tan medium sand, trace of silt Compact brown sandy loam Compact gray brown silty clay Roots to 18" No ledge	TP #6 0'-8" 8'-19" 19'-29" 29'-33" 33'-41" 41'-47" SHGWT 22" No seeps	Loose brown sandy loam Loose orange brown fine sand Loose orange brown fine sand Medium compact gray brown course sand Medium compact gray brown loam Compact gray brown silty clay Roots to 22" No ledge
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**Percolation Test Results**

On: 5-17-2013  
By: Jason Burt  
Becky Gilson  
12' holes  
Perc Test #1: 28.0 min/in  
Perc Test #2: 12.0 min/in

**Basis of Design**

**Design Flow**  
4-BR Home  
Total Flow  
490 GPD  
490 GPD

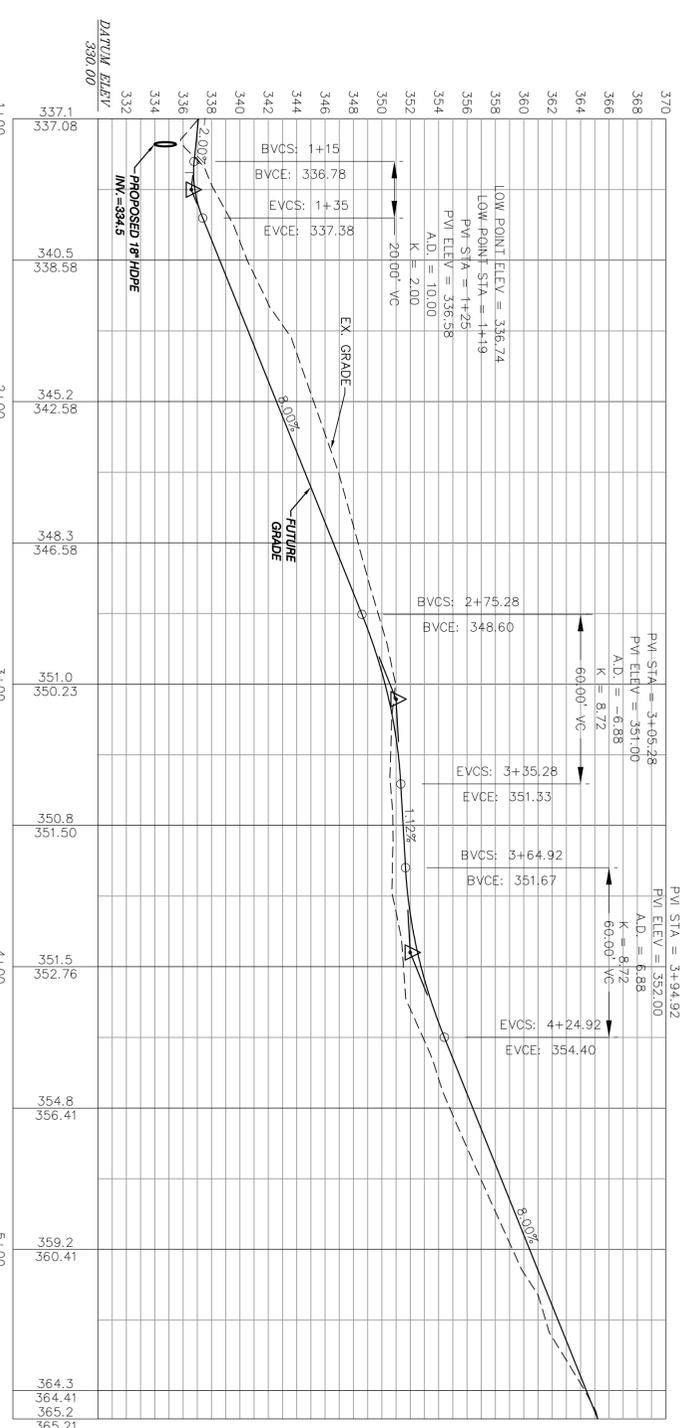
**Performance Based Design Approach**  
Limiting Soil Condition - Sandy Loam  
Limiting Slope Condition - 6.4%  
Linear Loading Rate - 26.2 GPD/UF/VF

**Design Trench** - 10-foot Seepage Bed  
Standard Effluent Application Rate = 1 GPD/SF  
Design Linear Loading Rate - 10 GPD/UF

**Resulting Groundwater Mounding**  
(10 GPD/UF/28.2 GPD/UF) = 0.38 ft = 4.6"  
Limiting Depth to SHGWT under Bed/Trench = 20"  
Resulting Unsaturated Depth = 18" - 4.6" = 13.4"  
Required Separation to Mounded SHGWT = 36"  
Min. Required Depth of Sand under Bed 36" - 13.4" = 22.6"  
Limiting Depth to SHGWT at Toe of Mound = 18"  
Resulting Unsaturated Depth = 18" - 4.6" = 13.4"  
Limiting Depth to SHGWT at 25' below Toe of Mound = 18"  
Resulting Unsaturated Depth = 18" - 4.6" = 13.4"

**Disposal Field**  
Min Required Length of Bed - 490 GPD / (10 GPD/UF) = 49 feet  
Limiting Percolation Rate = See Above  
Required Effluent Basal Area = 490 GPD / (0.74 GPD/SF) = 662 SF  
Basal Area Provided = 1,045 SF  
Separation Distance to Property Line  
10 FT to Top, 10 FT provided  
25 FT to Bed, 27 FT provided  
Required Separation to Bedrock = 4 FT min. provided  
Pressure Distribution System  
Minimum Required Number of Offices  
49 LF Bed x 10 FT width / (25 GPD/SF) = 19.6 Use 20.  
Provide Two 1.5" Distribution Pipes, 44.5 FT long  
See Detail for Office Sizing and Layout  
Fill Volume of Distribution Piping = 7.0 Gal  
Minimum Required Dose Volume = 7.0 Gal x 5 = 35 Gal  
Minimum Number of Doses per Day = 4  
Maximum Dose Size = 490 GPD/4 = 123 Gal

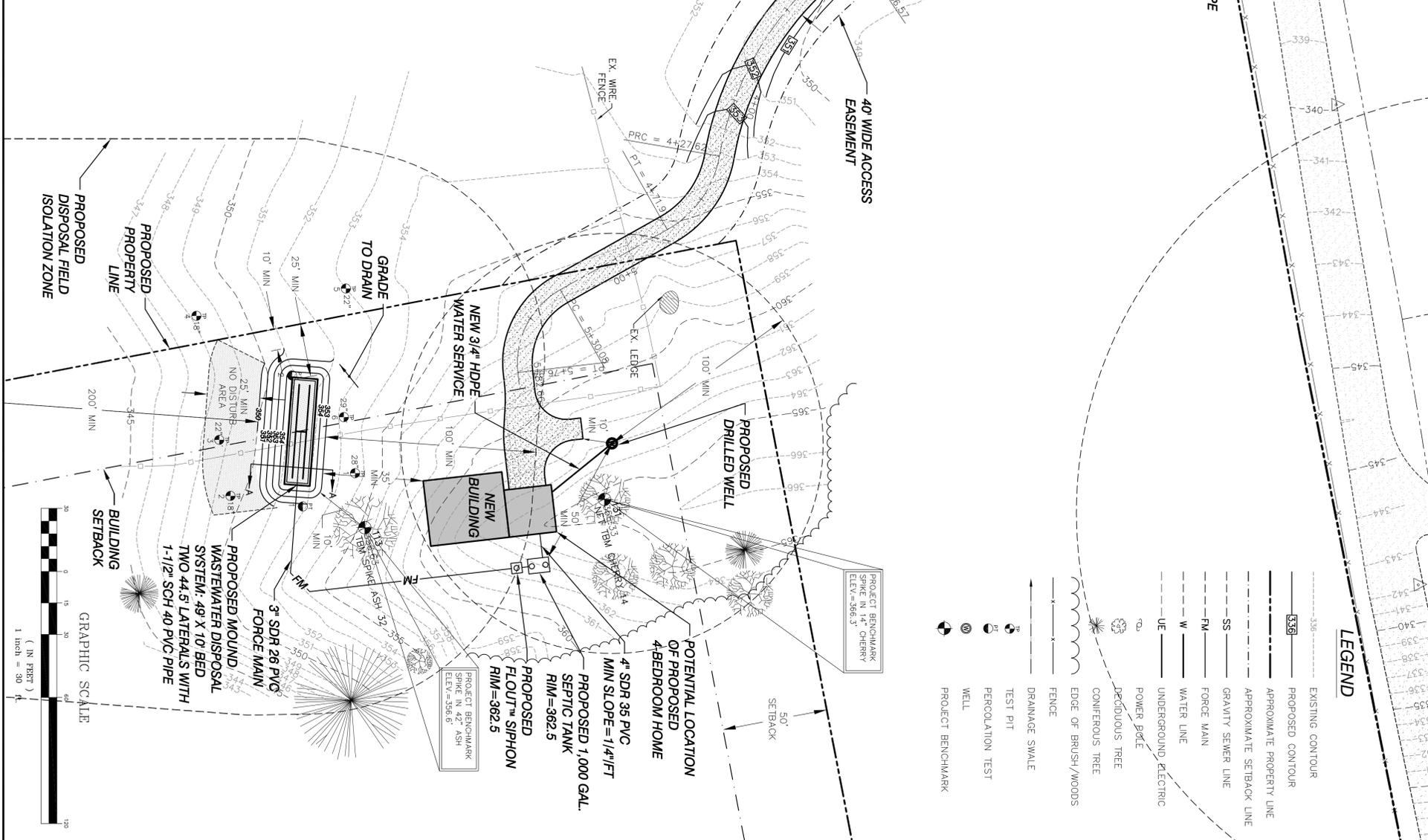
Use Single 3" Outlet Foul@Type 1131 Dosing Chamber Type 1131  
Septic Tank  
Minimum Size Required = 1,000 Gall for Design Flows <math>< 667 \text{ GPD}</math>  
Effluent Filter Required



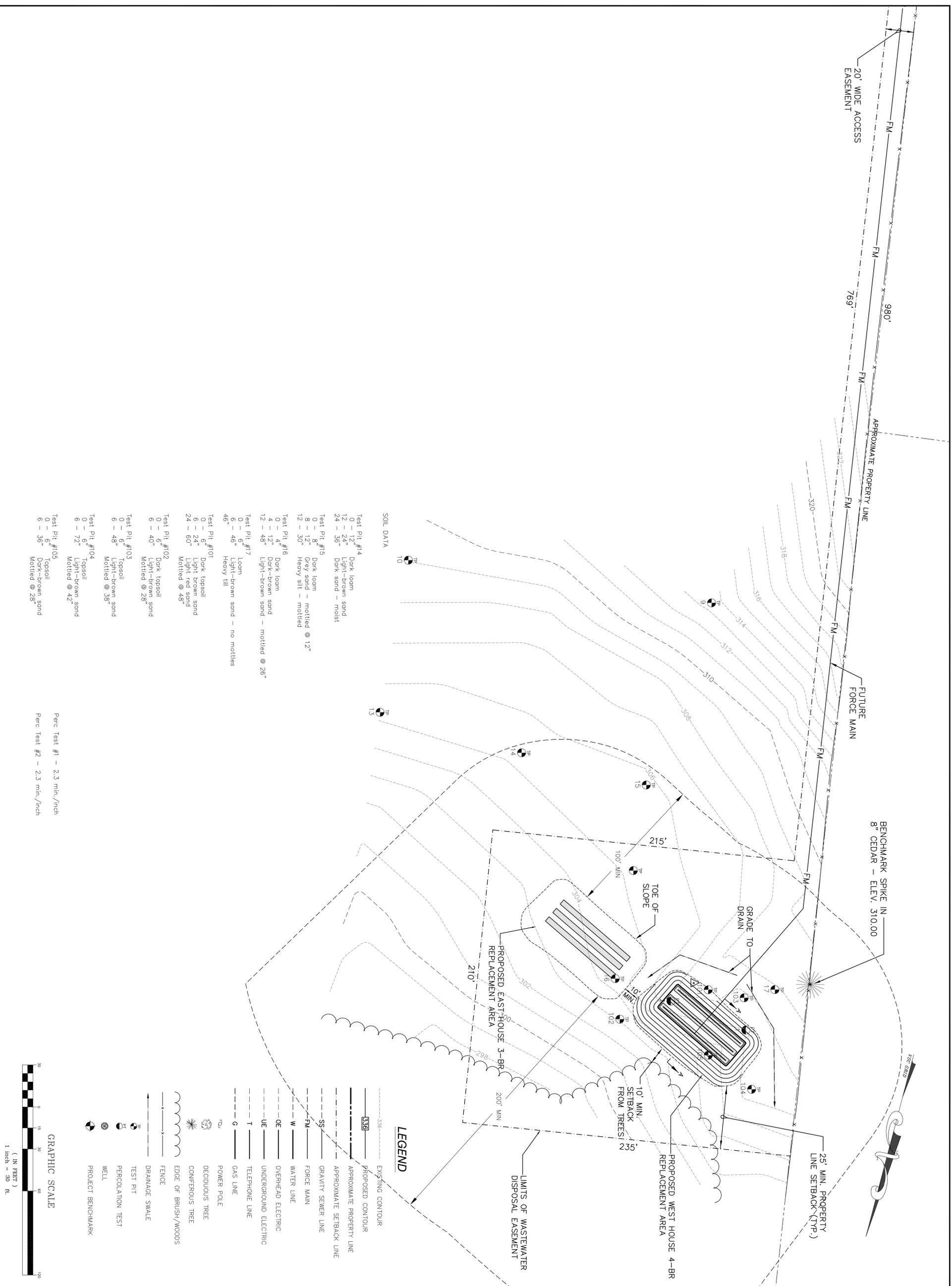
**DRIVEAWAY PROFILE**  
1" = 30' HORIZ. SCALE  
1" = 6' VERT. SCALE

**LEGEND**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- APPROXIMATE PROPERTY LINE
- APPROXIMATE SETBACK LINE
- GRAVITY SEWER LINE
- FORCE MAIN
- WATER LINE
- UNDERGROUND ELECTRIC
- POWER POLE
- PENDULOUS TREE
- CONFEROUS TREE
- EDGE OF BRUSH/WOODS
- FENCE
- DRAINAGE SWALE
- TEST PIT
- PERCOLATION TEST
- WELL
- PROJECT BENCHMARK



<p><b>CIVIL ENGINEERING ASSOCIATES, INC.</b> 10 MANFIELD VIEW LANE, SOUTH BURLINGTON, VT 05403 802-864-2833 FAX: 802-864-2271 WWW.CEAA-USA.COM</p>		<p><b>SITE ENGINEER:</b> SCOTT &amp; AMANDA LABERGE</p>
<p><b>OWNER:</b> SCOTT &amp; AMANDA LABERGE</p>		<p><b>PROJECT:</b> LIME KILN ROAD CHARLOTTE, VERMONT 05445</p>
<p><b>WASTEWATER SITE PLAN</b></p>		<p><b>LOCATION MAP</b> LIME KILN ROAD CHARLOTTE, VERMONT</p>
<p><b>PROPOSED SITE PLAN</b></p>		<p><b>DATE:</b> MAY, 2013 <b>SCALE:</b> 1" = 30' <b>PROJ. NO.:</b> 13148</p>



SITE ENGINEER:



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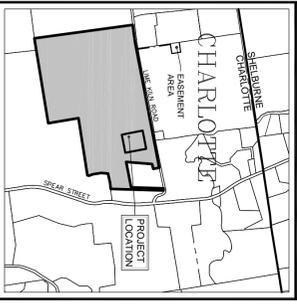
CONVERTED © 2013 - ALL RIGHTS RESERVED  
 DRAWN: MAB/JDL  
 CHECKED: DSM  
 APPROVED: DSM

OWNER:

**SCOTT & AMANDA LABERGE**  
 LIME KILN ROAD  
 CHARLOTTE, VERMONT  
 05445

PROJECT:

**WASTEWATER SITE PLAN**  
 LIME KILN ROAD  
 CHARLOTTE, VERMONT



**LOCATION MAP**  
 T = 200'

DATE	CHECKED	REVISION

**PROPOSED REPLACEMENT SITE PLAN**

DATE: MAY, 2013  
 SCALE: 1" = 30'  
 PROJ. NO: 13148  
 DRAWING NUMBER: **C2.1**

**MOUND DISPOSAL FIELDS & FORCE MAINS**

**PART 1 – GENERAL**

1.01 Summary

- A. Section Includes:
  - 1. Wastewater Disposal Field
  - 2. Force Main Materials

1.02 References

- A. All work shall be done in accordance with the State of Vermont Environmental Protection Rules effective September 29, 2007.

**PART 2 – PRODUCTS**

2.01 General

- A. Disposal Fields: Schedule 40 PVC pipe meeting the requirements of the latest edition of ASTM Specification D-2452. Flanges used in the disposal fields shall be compatible with distribution lines materials.
- B. Force Mains: PVC pipe shall conform in all respects to the latest revisions of ASTM Specification D-2452.
  - Manufacturer's Name and Trademark
  - Molding Designation
  - Molding Pipe Size (as shown on plans)

**PART 3 – EXECUTION**

- 3.01 Mound Construction
  - A. The mound system shall be inspected during critical stages of construction by a qualified consultant from Civil Engineering Associates. This shall include the staking of the distribution piping, and a final inspection of the entire system. The contractor will be responsible for contacting the Engineer to set up the inspection schedule.
  - B. Aboveground vegetation shall be clearly cut and removed from the ground surface through the area to be utilized for the placement of the fill. The contractor or dozing chamber to the point of connection with the distribution piping header shall be installed. The area shall then be plowed to a depth of 12 inches. Tree stumps should be cut flush with the surface of the ground and roots should not be pulled. Once plowing of the mound area is complete, the area shall be graded to prevent vehicles and equipment from entering the disposal area.

- 3.02 Testing Notes
  - A. The wastewater system shall be inspected during critical stages of construction by a qualified consultant. This shall include at a minimum the staking of the distribution piping, and a final inspection of the entire system. The contractor will be responsible for contacting the Engineer to set up the inspection schedule.
  - B. Testing of pressure distribution shall be done in the Engineer's presence. Pressure shall be measured to insure a minimum of 1 psi. (See section E above).
  - C. The distribution line shall then be carefully placed on the bedding with no slope. Office shields snapped into place, and covered with at least 2" of crushed stone.
  - D. All work shall be done in accordance with the State of Vermont Environmental Protection Rules and the Towns Sewage Ordinance Standards.

3.03 Pressure Pipe Leakage Testing

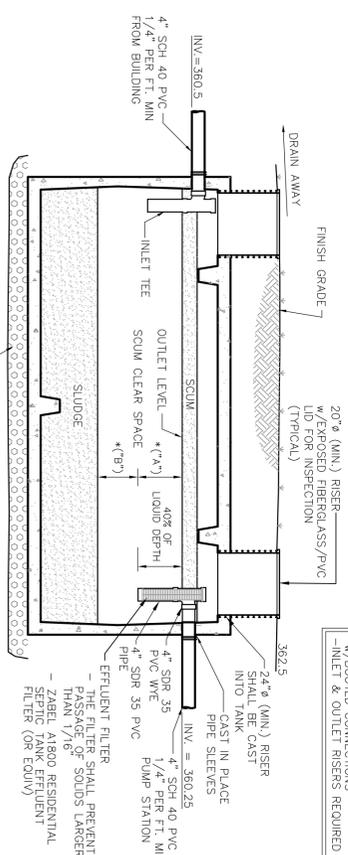
- A. General: All force mains shall pass the hydrostatic pressure test and leakage test described herein. Prior to testing, all anchors and braces shall be installed. All concrete thrust blocks and restraints shall be in place and cured at least 28 days. All force mains shall be installed in accordance with the approved plans and permit. The report shall specifically address the inspection of the site preparations and include numerical results of the office discharge rate comparison.
- B. Hydrostatic Test: The following procedure shall be used:
  - 1. All air release valves shall be opened and the pipe shall be filled with water at a rate not to exceed the venting capacity of the air release valves.
  - 2. The water pressure shall be raised to 150 percent of the designed operating pressure for the two hour period constitutes a failure of the section tested.
  - 3. Failure to hold the designated pressure within 5 psi of the specified test pressure for the two hour period constitutes a failure of the section tested.
- C. Leakage Test: The following procedure shall be used:
  - 1. Leakage shall be defined as the quantity of water that must be supplied into the pipe during the test to maintain a constant pressure within 5 psi of the specified test pressure.
  - 2. No pipe installation shall be accepted if the leakage is greater than that determined by the following formula:
 
$$L = \frac{ND^3PS}{7,400}$$
 whichever is less
 
$$L = \frac{SD^3PS}{143,000}$$

- E. Prior to use of the system, the qualified consultant shall submit a written report of the test results. The report shall include the test results, the location of the inspection of the site preparations and include numerical results of the office discharge rate comparison.

- 3.03 Pressure Pipe Leakage Testing
  - A. General: All force mains shall pass the hydrostatic pressure test and leakage test described herein. Prior to testing, all anchors and braces shall be installed. All concrete thrust blocks and restraints shall be in place and cured at least 28 days. All force mains shall be installed in accordance with the approved plans and permit. The report shall specifically address the inspection of the site preparations and include numerical results of the office discharge rate comparison.
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$$L = \frac{ND^3PS}{7,400}$$
 whichever is less
 
$$L = \frac{SD^3PS}{143,000}$$

- S = Length of Pipe Testing (ft)
- N = Number of Joints in the Pipeline Tested
- D = Nominal Diameter of Pipe (in)
- P = Average Test Pressure (psi)
- N = Number of Joints in the Pipeline Tested

All testing shall be conducted in accordance with AWWA C600-87 or latest revision.



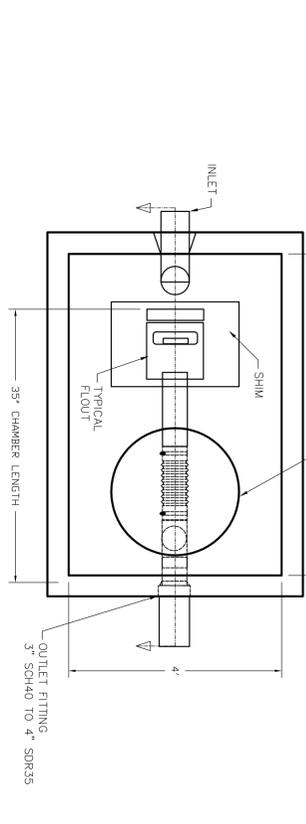
**1000 GALLON SEPTIC TANK**  
M.T.S.

**Septic Tank Notes**

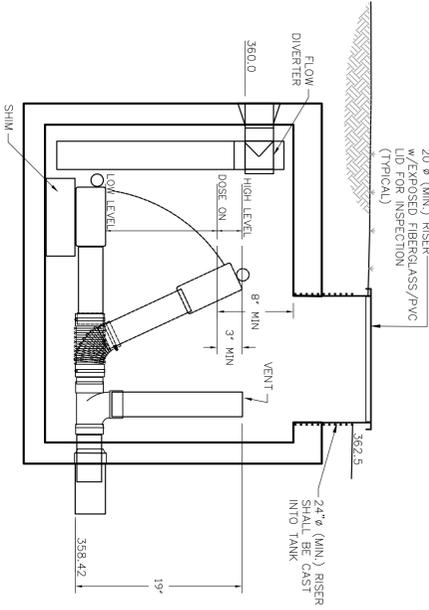
1. Septic tank shall be a precast concrete tank, unless otherwise approved.
2. Maintenance
  - At least once a year, the depth of sludge and scum in the septic tank should be measured. The tank should be pumped if:
    - The sludge is closer than twelve inches to the outlet baffle or;
    - The scum layer is closer than three inches to the outlet baffle.
  - Under no circumstances should anyone enter a septic tank.

**Recommendations**

3. – The use of garbage grinders is discouraged as sludge accumulation in the septic tank can be increased by up to 40%. If used, the septic tank will require more frequent pumping.
  - The septic system is designed to handle human waste and toilet paper, plus water from plumbing fixtures such as toilets, baths and sinks. Moderate use of household cleaners, detergents and bleach should not damage your system; however, indiscriminate use may cause problems. Non-degradable paper products and any other non-biodegradable substances should not be put in your wastewater system.
  - Excessive water could flush solids from the septic tank to the disposal field which leads to clogging or plugging of the piping. When dishwashers and washers are used, make sure loads are full and stogger their use to reduce peak flows, i.e. stogger loads of laundry over several days instead of one day.
  - 4. Walkways, patios and decks or other permanent structures should not be constructed over the septic tank.
  - 5. There should be no need to use commercial "starter", "bacterial feeds", or "cleaners", etc. Bacteria in a septic tank system occurs naturally.



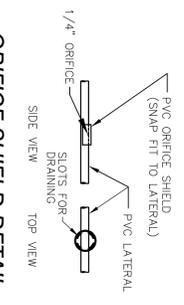
**PLAN**



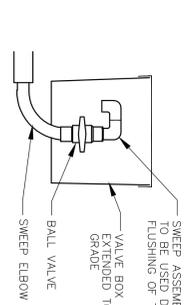
**SINGLE OUTLET FLOUT @ 1131 DOSING CHAMBER**  
M.T.S.

**NOTES:**

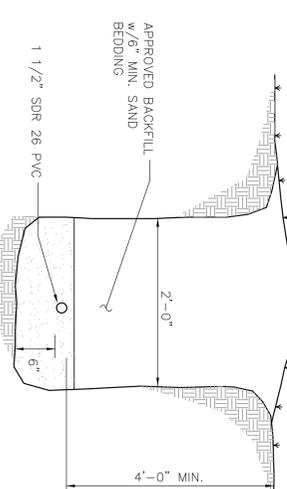
1. Dimensions are required minimums. All dimensions originate from inside of chamber. All dimensions in inches. MINIMUM DRAWDOWN available for this arrangement: 6"
2. MINIMUM DRAWDOWN available for this arrangement: 6"
3. SHIM: Float devices shall not drop lower than the outlet. Excessive drop will result in slow or no shut-off of flow. Install a shim to support float if floor is lower than outlet. Shims may be made of masonry or other suitable material. Plastic shim arrangements are available. Shims must support floats completely and be non-perforated to provide a water cushion. Shims must be wide enough to accommodate drift unless drift control is used. Consult Risay for shim and drift control options.
4. FLOW DIVERTER: Inlet flow shall not enter or interfere with the float. Direct inlet flow with a tee, elbow, or similar baffle to a level equal to or slightly below low liquid level.
5. Flow rates and capacities depend on size of tank and drawdown used. This diagram is for a TYPICAL system.
6. This detail was obtained from Risay Plastics LLC, Torrington Connecticut.



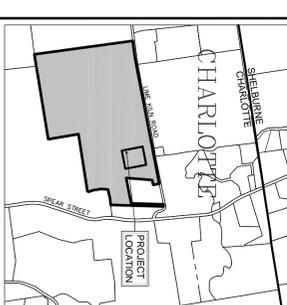
**ORIFICE SHIELD DETAIL**  
M.T.S.



**FLUSHING VALVE DETAIL**  
M.T.S.



**FM TRENCH SECTION**  
M.T.S.



**LOCATION MAP**  
1" = 200'

DATE	CHECKED	REVISION

**WASTEWATER DETAILS**

DATE	SCALE	DRAWING NUMBER
MAY, 2013	AS SHOWN	C3.0

**SITE ENGINEER:**



**SCOTT & AMANDA LABERGE**  
LIME KILN ROAD  
CHARLOTTE, VERMONT  
05445

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**OWNER:**  
**SCOTT & AMANDA LABERGE**  
LIME KILN ROAD  
CHARLOTTE, VERMONT  
05445

**PRODUCT:**  
**WASTEWATER SITE PLAN**  
LIME KILN ROAD  
CHARLOTTE, VERMONT  
05445

DATE: MAY, 2013  
SCALE: AS SHOWN  
PROJ. NO: 13148  
DRAWING NUMBER: C3.0

