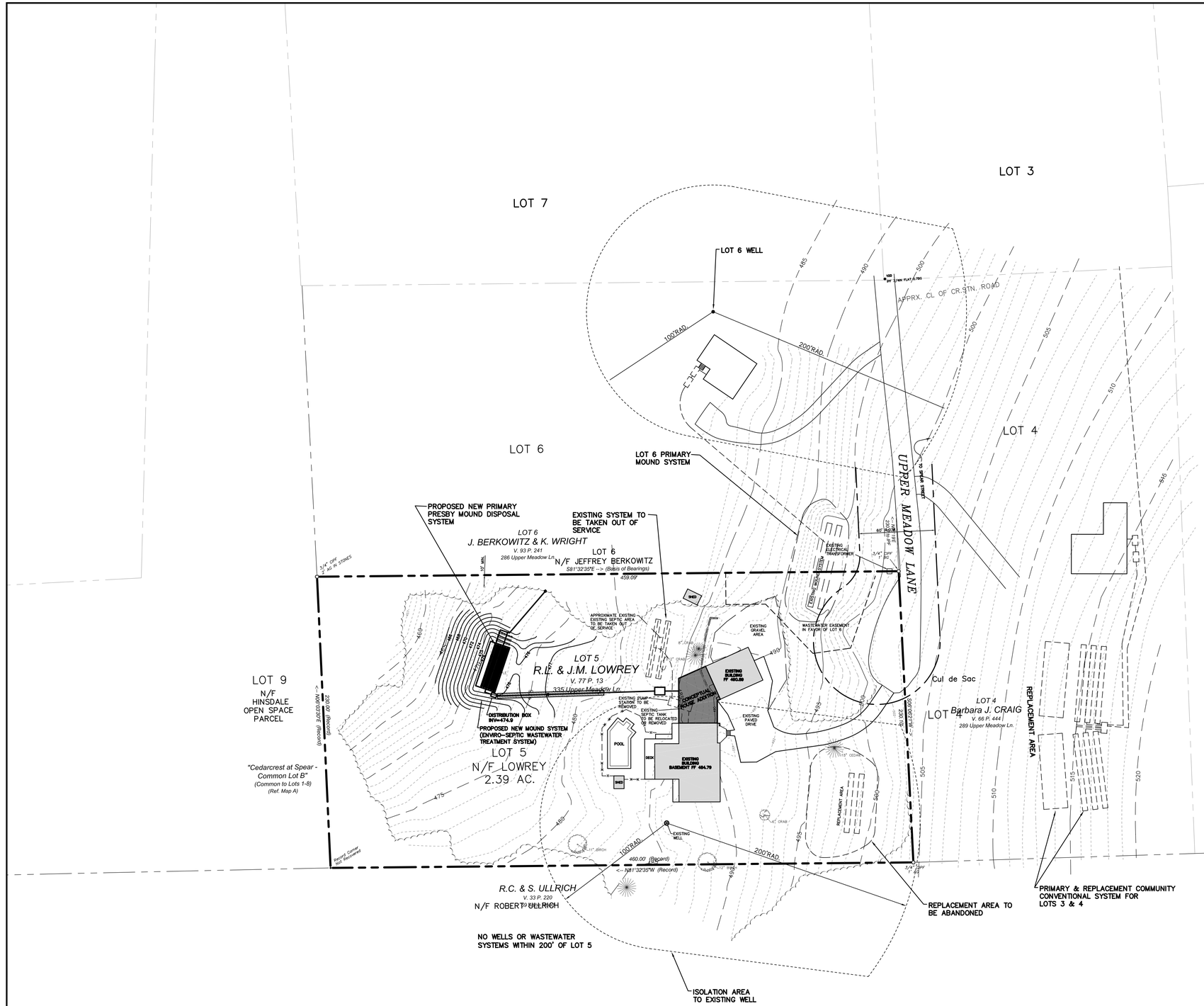

SITE ENGINEER:

CIVIL ENGINEERING ASSOCIATES, INC.
10 MANSFIELD VIEW LANE SO. BURLINGTON, VT 05403
802-864-2323 FAX: 802-864-2271 web: www.cea-vt.com

DRAWN
PJM/ACL

CHECKED
DSM

APPROVED
DSM

CLIENT:

RICHARD and JILL LOWREY

335 UPPER MEADOWS LANE
CHARLOTTE
VERMONT

PROJECT:

REPLACEMENT WASTEWATER DISPOSAL SYSTEM

CHARLOTTE
VERMONT

LOCATION MAP
1" = 4000'

DATE	CHECKED	REVISION
11-20-09	DSM	REV'D DISPOSAL SYSTEM FROM 4 TO 3 BEDROOMS

SITE LOCATION PLAN

DATE
DEC., 2008

SCALE
1" = 40'

PROJ. NO.
08199

DRAWING NUMBER
C1.0

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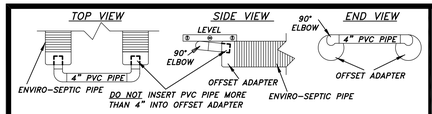


RAISED CONNECTION DETAIL (NOT TO SCALE)

ENVIRO-SEPTIC PIPE ELEVATIONS										
LINE NUMBER										
TOP OF PIPE										
BOTTOM OF PIPE										

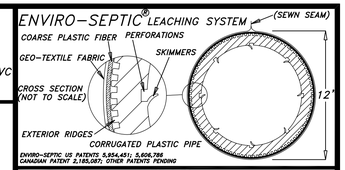
DESIGN INTENT

SPOT ELEVATIONS

(A)	(E)
(B)	(F)
(C)	(G)
(D)	(H)

PIPE INDEX

- (A) 4" SCH 40 PVC
- (B) 4" SOLID S&D PVC
- (C) 4" PERFORATED S&D PVC
- (D)



Enviro-Septic Disposal System

PART 1 – GENERAL

1.01 Summary

A Section Includes

1. *Wastewater Disposal Field*
2. *Sewer line and appurtenances*

1.02 References

A. All work shall be completed in accordance with the State of Vermont Environmental Protection Rules effective September 12, 2007 and the Presby Environmental Enviro-Septic Leaching Field approval dated October 27, 2008.

PART 2 – PRODUCTS

2.01 General

Materials

1. *System Sand shall comply with ASTM Standard C-33 (concrete sand) or VT Environmental Protection Rules mound sand type #2.*
2. *Sand fill shall comply with VT Environmental Protection Rules mound sand types 1, 2 or 3.*
3. *System cap material shall include a 30% minimum of silt (passing #200 sieve).*
4. *Topsoil shall be a suitable growing medium and shall be amended as necessary to support the establishment of a stabilized surface of grass.*
5. *Gravity sewer pipe shall be SDR 35 PVC. Joints shall be push-on type using elastomeric gaskets factory installed conforming to ASTM Specification D-3212.*
6. *Septic Tank shall be 1000 gallon precast concrete as manufactured by Camp Precast or ST Griswold. Polyethylene tanks may be accepted as an approved equal.*
7. *Effluent Filter shall be 4" x 18" Zabel A1800 or Polylok PL-68. The outlet baffle shall be installed with a second tee in the upright position.*
8. *Distribution box shall be 6 outlet precast concrete unit as manufactured by Camp Precast or ST Griswold.*
9. *Distribution box equalizers shall be EqualizerTM manufactured by PolyLok.*
10. *Manifold piping shall be 4" Schedule 40 PVC meeting the latest revisions of the requirements of ASTM Specification D-1785. Fittings shall be compatible with distribution line material..*
11. *Low venting pipe shall be 4" Schedule 40 PVC meeting the latest revisions of the requirements of ASTM Specification D-1785. Fittings shall be compatible with distribution line material..*
12. *Distribution piping shall be Enviro-Septic pipe manufactured by Presby Environmental.*
13. *Crushed Stone Bedding shall be of durable stone with diameter not exceeding 2".*

PART 3 – EXECUTION

3.01 INSPECTION AND TESTING

A. The disposal system shall inspected during critical stages of construction by a Professional Engineer or his authorized representative trained in the installation of the Enviro-Septic System. The Contractor shall be responsible for contacting the Engineer to set up the inspection schedule. The inspections shall include:

1. *Staking of the mound*
2. *The plowed surface prior to sand placement.*
3. *Installation of the Enviro-Septic Pipe and manifolds prior to full backfill.*
4. *Installation of the distribution box prior to backfill.*
5. *Vertical alignment of sewer main from septic tank to distribution box prior to backfill.*
6. *Vertical alignment of all vent piping*

B. Prior to the use of the system, the qualified professional engineer shall submit a written report to the Town of Charlotte stating that the system has been installed according to the accepted plans and permit. The report shall include as-built ties to the septic tank access risers, distribution box, and corners of the system sand.

3.02 SITE PREPARATION

A. Above ground vegetation shall be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material. Tree stumps shall be cut flush with the surface of the ground and roots should not be pulled.

B. Remove the grass mat from the topsoil under the system footprint and place 3" of system fill sand over the prepared topsoil surface.

C. Till the fill sand and topsoil the same as required for mound systems. Do not smear or compact soils while preparing site. Tilling is not permitted when the native soils are wet. The area shall be plowed to a depth of 7 to 8 inches, parallel to the land contour with the plow throwing the soil upslope to provide a proper interface between the native soil and the fill material.

D. To prevent compaction, construction equipment shall not be moved across the plowed field area of 25' downgradient of the toe of the system. Minimize machine movement to avoid soil compaction and destruction of the soil structure under and around the system. .

E. Add the sand fill on the same day as the preparation of the topsoil tilling or the tilled soil will need to be protected from precipitation or overnight condensation. After placement of 6" of sand fill, tracked construction equipment may be driven over the surface to expedite construction.

F. Do not allow water to run into or over the system during construction. Protect the site from erosion by proper grading, surface water diversion, mulching and seeding. Work is not permitted on wet or frozen soils. Keep mud, grease, oil, etc., from all system components. Avoid dragging pipe through wet or muddy areas.

3.03 INSTALLATION

A. The outer fabric of the Enviro-Septic pipe is ultra-violet stabilized. However, the protection breaks down after a period of time in direct sunlight. To prevent damage to the fabric, cover the pipe with opaque tarp.

B. Store pipe on high and dry areas to prevent surface water and soil from entering the pipe or contaminating the fabric prior to installation.

C. All Enviro-Septic pipe shall be laid level. Construction tolerance is +0.5".

D. The system sand shall extend a minimum of one foot beyond the ends of each row. Pipe connectors will extend each ten foot length by one to two inches. The Contractor shall take this into account when placing the underlying system sand.

E. Sand shall be tamped under the bell of the pipe. Ensure that there is adequate on top of the pipe to keep it from displacing vertically during the tamping operation.

F. Spread a minimum of 6" of system sand over the pipe. Spread the remaining fill. Final grading should shed water away from the system. NOTE: a tracked vehicle may be used to spread the system sand and topsoil as long as it maintains at least 12" of cover over the pipe.

G. For the raised connections on the end of the Enviro-Septic Pipe, insert the PVC pipe between 2" and 4" into the offset adaptor to prevent air locking.

H. Install the raised connection so that the top of the 90 degree bend is level with the top of the offset adaptor.

I. Pack sand under and around the raised connection to prevent movement.

J. All distribution box outlets used shall be installed with a EqualizerTM flow equalizer.

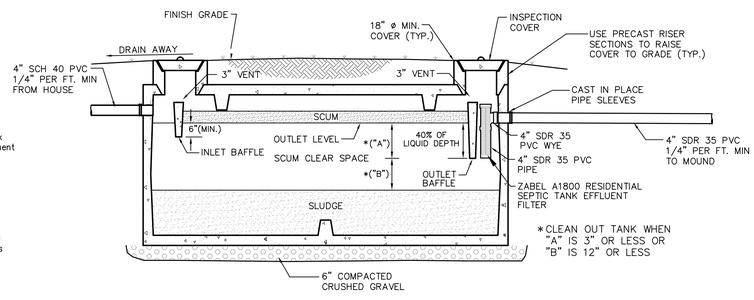
K. A minimum 2" elevation difference between the distribution box outlet invert and the offset adaptor of the Enviro-Septic pipe.

L. To minimize movement, the distribution box shall be placed stable soil or a concrete pad.

M. Vent piping is to slope toward the system to prevent moisture from collecting in the piping and blocking air passage. See venting detail for remote vent locations.

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.
3. Recommendations
   - 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.
   - Minimize the amount of water used in the household. 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 stagger their use to reduce peak flows, i.e. stagger 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.



1000 GALLON SEPTIC TANK

N.T.S.

NOTES

1) SYSTEM TO BE INSTALLED IN ACCORDANCE WITH PRODUCT DESIGN AND INSTALLATION MANUAL, STATE AND LOCAL REGULATIONS. FOR PRODUCT INFORMATION OR THE NEAREST DEALER CONTACT PRESBY ENVIRONMENTAL, INC. 143 AIRPORT ROAD, WHITEFIELD, NH 03598, PHONE 1-800-473-5298 WWW.PRESBYENVIRONMENTAL.COM

2) MINIMUM OF 6" OF MEDIUM TO COARSE SAND, WITH LESS THAN 2% PASSING A # 200 SIEVE, REQUIRED AROUND CIRCUMFERENCE OF ENVIRO-SEPTIC PIPES. (SEE DESIGN AND INSTALLATION MANUAL FOR COMPLETE SAND AND FILL SPECIFICATIONS.)

3) INSTALLER ADVISED TO CONTACT DIG SAFE PRIOR TO CONSTRUCTION

4) DO NOT INSTALL SYSTEM ON FROZEN GROUND OR LEAVE SYSTEM UNCOVERED FOR EXTENDED PERIODS OF TIME.

5) NO DRAINS, HOT TUBS, SAUNAS, GARBAGE DISPOSALS ETC.. SHALL BE INCORPORATED INTO THIS SYSTEM UNLESS OTHERWISE SPECIFIED

6) MAINTENANCE: RECOMMEND INSPECTION OF SEPTIC TANKS AT LEAST ONCE EVERY TWO YEARS AND CLEAN IF COMBINED THICKNESS OF SLUDGE AND SCUM EQUALS MORE THAN 1/4 OF THE LIQUID DEPTH INSIDE THE TANK.

7) THIS DOCUMENT IS FOR THE CONSTRUCTION OF THE EFFLUENT DISPOSAL SYSTEM SHOWN. ANYONE USING INFORMATION FROM THIS DOCUMENT FOR ANY OTHER PURPOSE DOES SO AT THEIR OWN RISK.

DESIGN CRITERIA

- LOADING: 560 GPD MAX. LIN. LOADING RATE=18.7 GPD/LF
- PERCOLATION RATE: 28 MPI 14% SLOPE
- ENVIRO-SEPTIC PIPE REQUIRED: 195 LINEAR FEET
- ENVIRO-SEPTIC PIPE PROVIDED: 204 LINEAR FEET
- INSTALL (6) LINES OF ENVIRO-SEPTIC PIPE 44' LONG
- SEPTIC TANK VOLUME REQUIRED: 1000 GALLONS
- SEPTIC TANK VOLUME PROVIDED: 1000 GALLONS
- NO PRODUCT SUBSTITUTIONS PERMITTED WITHOUT PRIOR APPROVAL OF DESIGNER.

SOIL INFORMATION – SEE SHEET C2.0

DETAIL & SPECIFICATIONS

PREPARED BY:

CIVIL ENGINEERING ASSOCIATES, INC.
10 MANSFIELD VIEW LANE SO. BURLINGTON, VT 05403
802-864-2323 FAX: 802-864-2271 web: www.cea-vt.com

EFFLUENT DISPOSAL SYSTEM DESIGN FOR:

RICHARD and JILL LOWREY
335 UPPER MEADOWS LANE
CHARLOTTE
VERMONT

DATE: DEC., 2008
DRAWN BY: ACL
PLAN NO. 08199

C4.0

PEI 8.17.07

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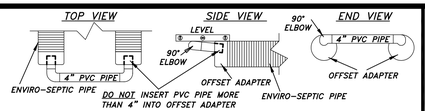
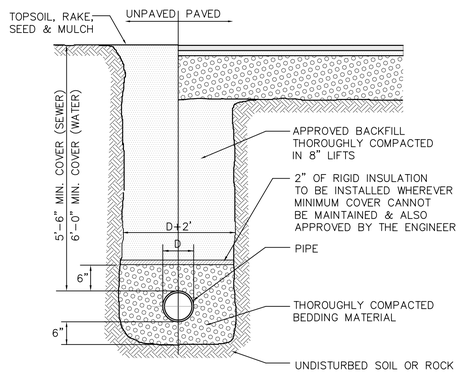


RAISED CONNECTION DETAIL (NOT TO SCALE)



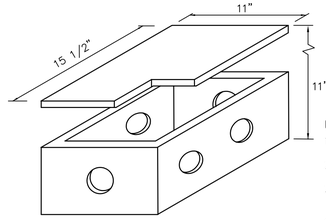
TYPICAL TRENCH DETAIL
N.T.S.

NOTES:

1. Typical trench for water, sewer, and drainage pipe.
2. Compaction of backfill and bedding shall be a minimum of 90% (95% under roadway surfaces) of maximum dry density determined in the standard proctor test (ASTM D698).
3. Bedding material shall not be placed on frozen subgrade.
4. Approved backfill shall not contain any stones more than 6" in largest dimension, 2" maximum diameter within 2' of the outside of the pipe, or any frozen, or organic material.
5. Trenches shall be completely dewatered prior to placing of pipe bedding material and kept dewatered during installation of pipe and backfill.
6. The sides of trenches 4' or more in depth entered by personnel shall be sheeted or sloped to the angle of repose as defined by O.S.H.A. standards.
7. Bedding material for wastewater lines shall consist of crushed stone or gravel with maximum size of 3/4". For water lines bedding material shall be sand. Submit a sample to the Engineer for approval.

ENVIRO-SEPTIC PIPE ELEVATIONS										
LINE NUMBER	1	2	3	4	5	6				
TOP OF PIPE										
BOTTOM OF PIPE	474.0	474.0	474.0	474.0	474.0	474.0				

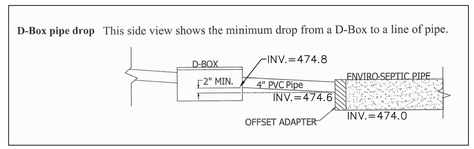
1 INLET, 5 OUTLETS



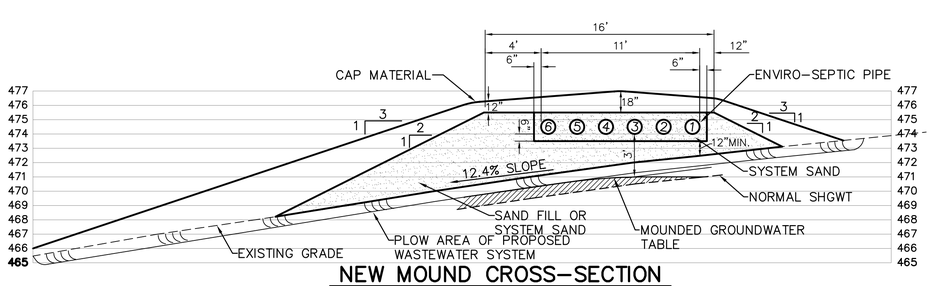
DESIGN NOTES:

1. CONCRETE 4000psi, 28 DAY STRENGTH
2. REINFORCED AS REQUIRED
3. LOW PRESSURE SEAL DESIGNED TO ACCEPT 4" C.I. OR PVC PIPE
4. INSTALL ON 6" CRUSHED STONE BEDDING
5. PLACE POLYOK EQUALIZER IN EACH ACTIVE OUTLET

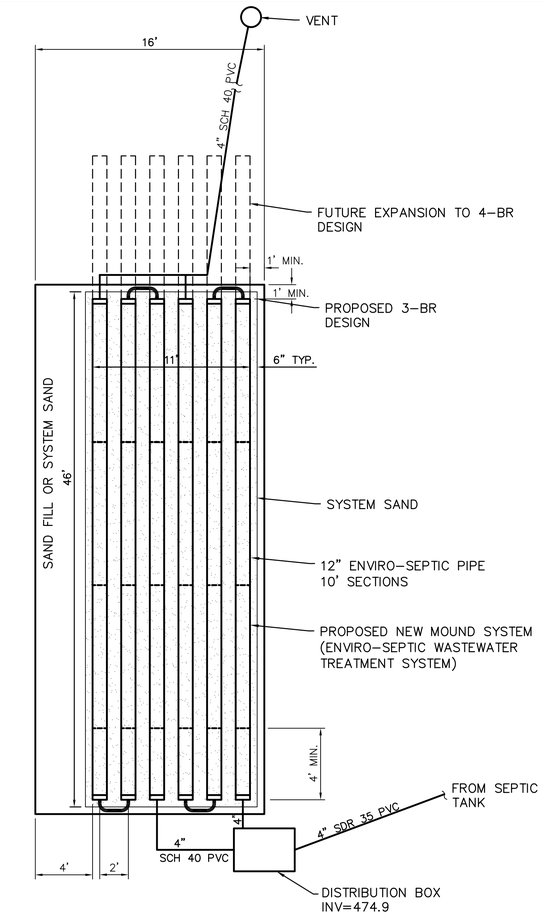
DISTRIBUTION BOX DETAIL
N.T.S.



DISTRIBUTION BOX PIPE DROP DETAIL
N.T.S.



NEW MOUND CROSS-SECTION
N.T.S.



BASIC SERIAL SYSTEM PLAN
REVSIED 11-20-09 N.T.S.

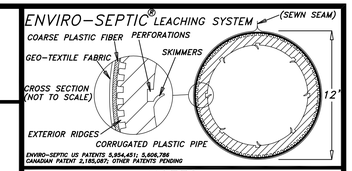
DESIGN INTENT

SPOT ELEVATIONS

(A) (E)
(B) (F)
(C) (G)
(D) (H)

PIPE INDEX

(A) 4" SCH 40 PVC
(B) 4" SOLID S&D PVC
(C) 4" PERFORATED S&D PVC
(D)



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3) INSTALLER ADVISED TO CONTACT DIG SAFE PRIOR TO CONSTRUCTION
4) DO NOT INSTALL SYSTEM ON FROZEN GROUND OR LEAVE SYSTEM UNCOVERED FOR EXTENDED PERIODS OF TIME.
5) NO DRAINS, HOT TUBS, SAUNAS, GARBAGE DISPOSALS ETC.. SHALL BE INCORPORATED INTO THIS SYSTEM UNLESS OTHERWISE SPECIFIED
6) MAINTENANCE: RECOMMEND INSPECTION OF SEPTIC TANKS AT LEAST ONCE EVERY TWO YEARS AND CLEAN IF COMBINED THICKNESS OF SLUDGE AND SCUM EQUALS MORE THAN 1/4 OF THE LIQUID DEPTH INSIDE THE TANK.
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SEE SHEET C4.0 FOR ADDITIONAL REQUIREMENTS.

DESIGN CRITERIA

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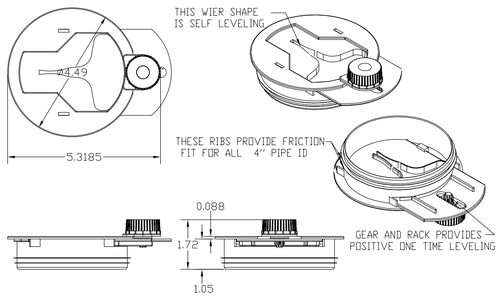
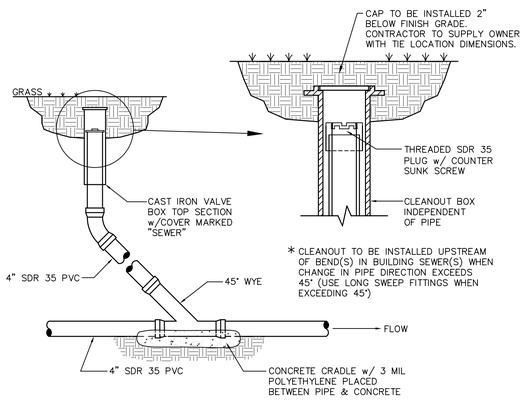
- PERCOLATION RATE: 28 MPI 14% SLOPE
- ENVIRO-SEPTIC PIPE REQUIRED: 195 LINEAR FEET
- ENVIRO-SEPTIC PIPE PROVIDED: 204 LINEAR FEET
- INSTALL (6) LINES OF ENVIRO-SEPTIC PIPE 44' LONG
- SEPTIC TANK VOLUME REQUIRED: 1000 GALLONS
- SEPTIC TANK VOLUME PROVIDED: 1000 GALLONS
- NO PRODUCT SUBSTITUTIONS PERMITTED WITHOUT PRIOR APPROVAL OF DESIGNER.

SOIL INFORMATION - SEE SHEET C2.0

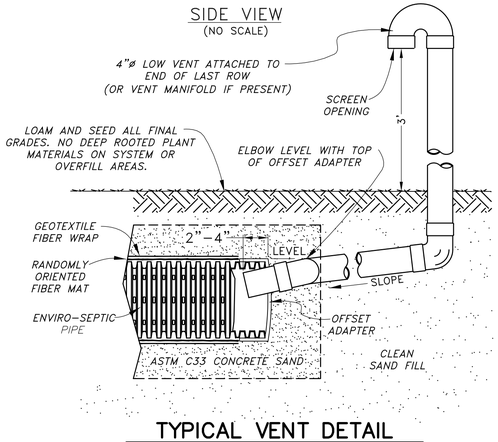
DETAILS



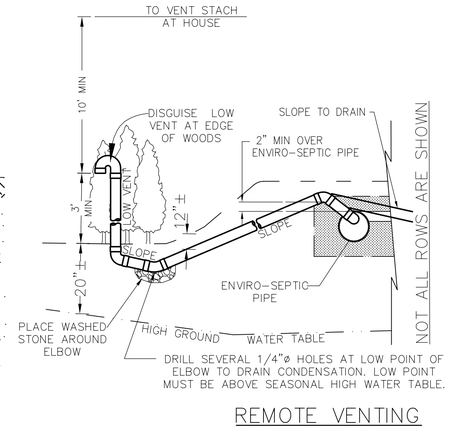
POLYLOK EQUALIZER PART NO, - 3049 MATERIAL - FILLED POLYPROPYLENE
N.T.S.



TYPICAL CLEANOUT DETAIL
N.T.S.



TYPICAL VENT DETAIL
N.T.S.



REMOTE VENTING
(NOT TO SCALE)

PREPARED BY:

CIVIL ENGINEERING ASSOCIATES, INC.
10 MANSFIELD VIEW LANE SO. BURLINGTON, VT 05403
802-864-2323 FAX: 802-864-2271 web: www.cea-vt.com

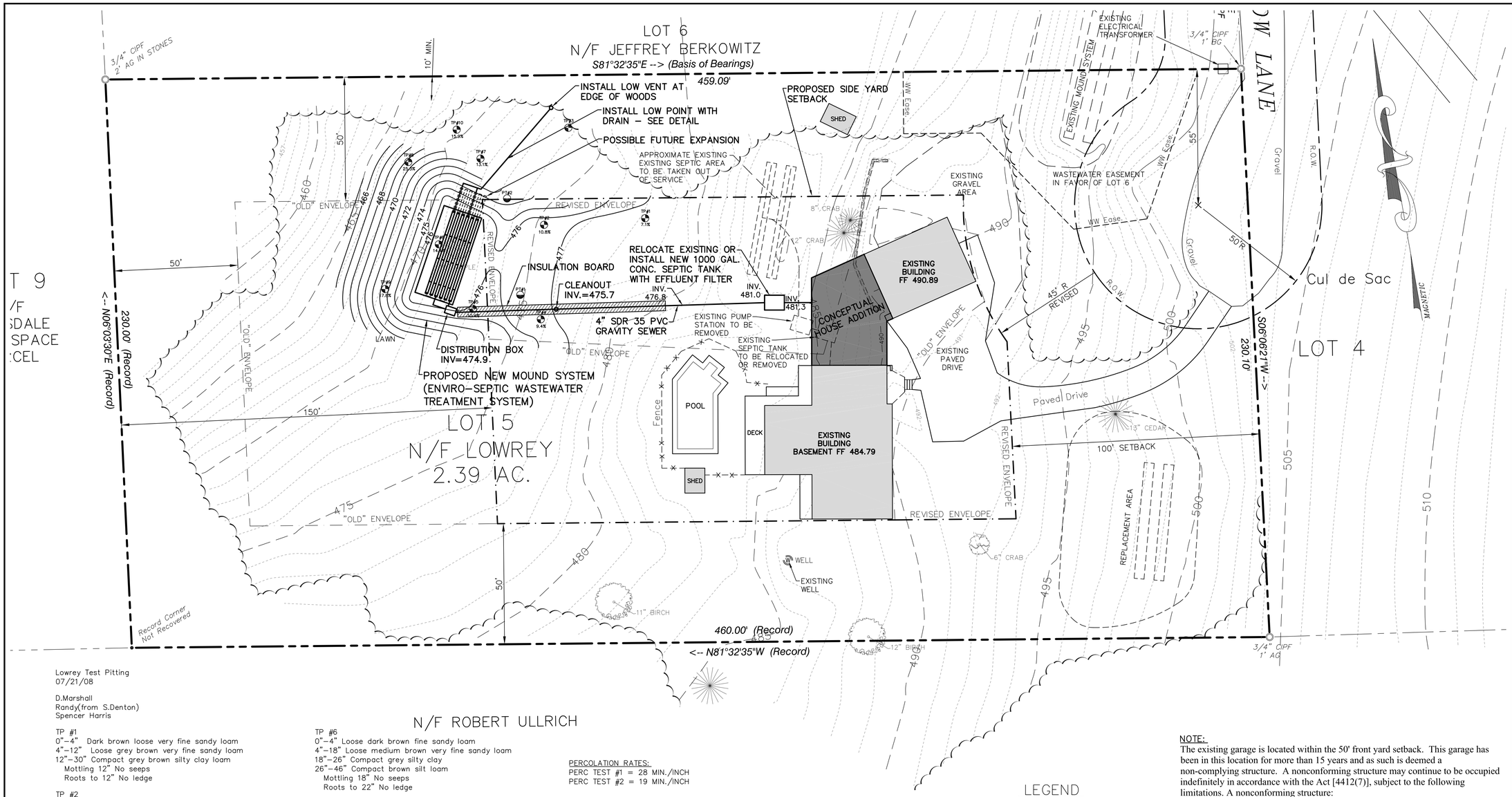
EFFLUENT DISPOSAL SYSTEM DESIGN FOR:

RICHARD and JILL LOWREY
335 UPPER MEADOWS LANE
CHARLOTTE
VERMONT

DATE: DEC., 2008
DRAWN BY: ACL
PLAN NO. 08199

C3.0

PEI 8.17.07



Lowrey Test Pitting
07/21/08

D.Marshall
Randy(from S.Denton)
Spencer Harris

TP #1
0"–4" Dark brown loose very fine sandy loam
4"–12" Loose grey brown very fine sandy loam
12"–30" Compact grey brown silty clay loam
Mottling 12" No seeps
Roots to 12" No ledge

TP #2
0"–5" Loose medium brown fine sandy loam
5"–24" Loose medium brown & grey fine sandy loam
24"–36" Compact brown fine sandy loam
Mottling 12" No seeps
Roots to 24" No ledge

TP #3
0"–7" Loose Dark brown very fine sandy loam
7"–14" Loose orange brown very fine sandy loam
14"–38" Medium compact light brown sandy loam
Mottling 15" No seeps
Roots to 20" major No ledge
32" minor

TP #4
0"–8" Dark brown loose sandy loam
8"–18" Loose grey brown very fine sandy loam
18"–21" Medium compact grey brown loam
21"–27" Loose tan sand
27"–42" Compact grey brown silty clay
Mottling 17" No seeps
Roots to 17" No ledge

TP #5
0"–5" Loose dark brown loam
5"–16" Medium compact grey brown very fine sandy loam
16"–42" Medium compact grey brown loam
Mottling 18" No seeps
Roots to 17" No ledge

TP #6
0"–4" Loose dark brown fine sandy loam
4"–18" Loose medium brown very fine sandy loam
18"–26" Compact grey silty clay
26"–46" Compact brown silt loam
Mottling 18" No seeps
Roots to 22" No ledge

TP #7
0"–3" Loose dark brown sandy loam
3"–14" Loose tan fine sandy loam
14"–20" Medium compact tan fine sandy loam & cobbles
20"–42" Compact light brown sandy loam
Mottling 20" No seeps
Roots to 26" No ledge

TP #8
0"–3" Loose light brown fine sandy loam
3"–12" Loose light brown sandy loam
12"–26" Loose tan fine sandy loam & cobbles
26"–42" Compact brown fine sandy loam
42"–50" Medium compact brown very fine sandy loam
Mottling 26" No seeps
Roots to 26" major No ledge
34" minor

TP #9
0"–5" Loose dark brown fine sandy loam
5"–12" Loose light brown very fine sandy loam
12"–20" Loose grey brown fine sandy loam
20"–44" Compact grey silt loam
Mottling 16" Seeps at 34"
Roots to 18" No ledge

TP #10
0"–2" Loose brown fine sandy loam
2"–16" Loose light brown very fine sandy loam
16"–26" Loose light brown fine sandy loam
26"–42" Medium compact light brown fine sandy loam & cobbles
Mottling 24" No seeps
Roots to 24" No ledge

PERCOLATION RATES:
PERC TEST #1 = 28 MIN./INCH
PERC TEST #2 = 19 MIN./INCH

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- APPROXIMATE PROPERTY LINE
- EXISTING BUILDING ENVELOPE
- PROPOSED BUILDING ENVELOPE
- IRON PIN
- TEST PIT
- PERCOLATION TEST
- DECIDUOUS TREE
- CONIFEROUS TREE
- EDGE OF BRUSH/WOODS
- WELL
- BENCHMARK
- FORCE MAIN
- GRAVITY SEWER
- FENCE
- DRAINAGE SWALE

NOTE:
The existing garage is located within the 50' front yard setback. This garage has been in this location for more than 15 years and as such is deemed a non-complying structure. A nonconforming structure may continue to be occupied indefinitely in accordance with the Act [4412(7)], subject to the following limitations. A nonconforming structure:

(1) may undergo routine maintenance and repair, provided that such action does not increase the degree of noncompliance;

(2) may only be structurally modified or moved in a manner that will not increase the degree of noncompliance, unless approved by the Board of Adjustment in association with conditional use review under Section 5.4. For purposes of these regulations, any structural alteration which extends the footprint, height or volume of a structure within any required setback or above the required maximum height (i.e., the amount of encroachment), shall be considered to increase the degree of noncompliance. Any structural alteration of a nonconforming structure which extends the footprint, height or volume of a structure outside of any required setback or below the required maximum height shall not be considered to increase the degree of noncompliance.

REFERENCE PLANS:

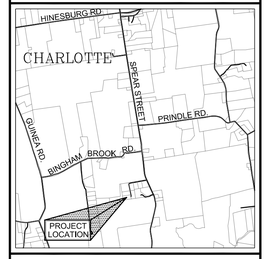
1. CEDARCREST AT SPEAR 9–LOT SUBDIVISION PLAT PINKHAM ENGINEERING ASSOCIATES, 4–9–87 LAST REVISED 8–18–89 SHEET 1 OF 1.
2. CEDAR CREST AT SPEAR LOT 3 THRU 9 – DESIGN PLAN, PINKHAM ENGINEERING. DATED 7–5–88 LAST REVISED 9–27–88 SHEET 2 OF 4.
3. JEFF BERKOWITZ & KRISTIN WRIGHT SITE PLAN PINKHAM ENGINEERING ASSOCIATESDATED 11–30–99 SHEET 1 OF 2

SITE ENGINEER:
CIVIL ENGINEERING ASSOCIATES, INC.
10 MANSFIELD VIEW LANE SO. BURLINGTON, VT 05403
802-864-2323 FAX: 802-864-2271 web: www.cea-vt.com

DRAWN PJM/ACL
CHECKED DSM
APPROVED DSM

CLIENT:
RICHARD and JILL LOWREY
335 UPPER MEADOWS LANE
CHARLOTTE
VERMONT

PROJECT:
REPLACEMENT WASTEWATER DISPOSAL SYSTEM
CHARLOTTE
VERMONT



LOCATION MAP
1" = 4000'

DATE	CHECKED	REVISION
11-20-09	DSM	REV'D DISPOSAL SYSTEM FROM 4 TO 3 BEDROOMS

PROPOSED CONDITIONS SITE PLAN

DATE DEC., 2008
SCALE 1" = 20'
PROJ. NO. 08199

DRAWING NUMBER
C2.0