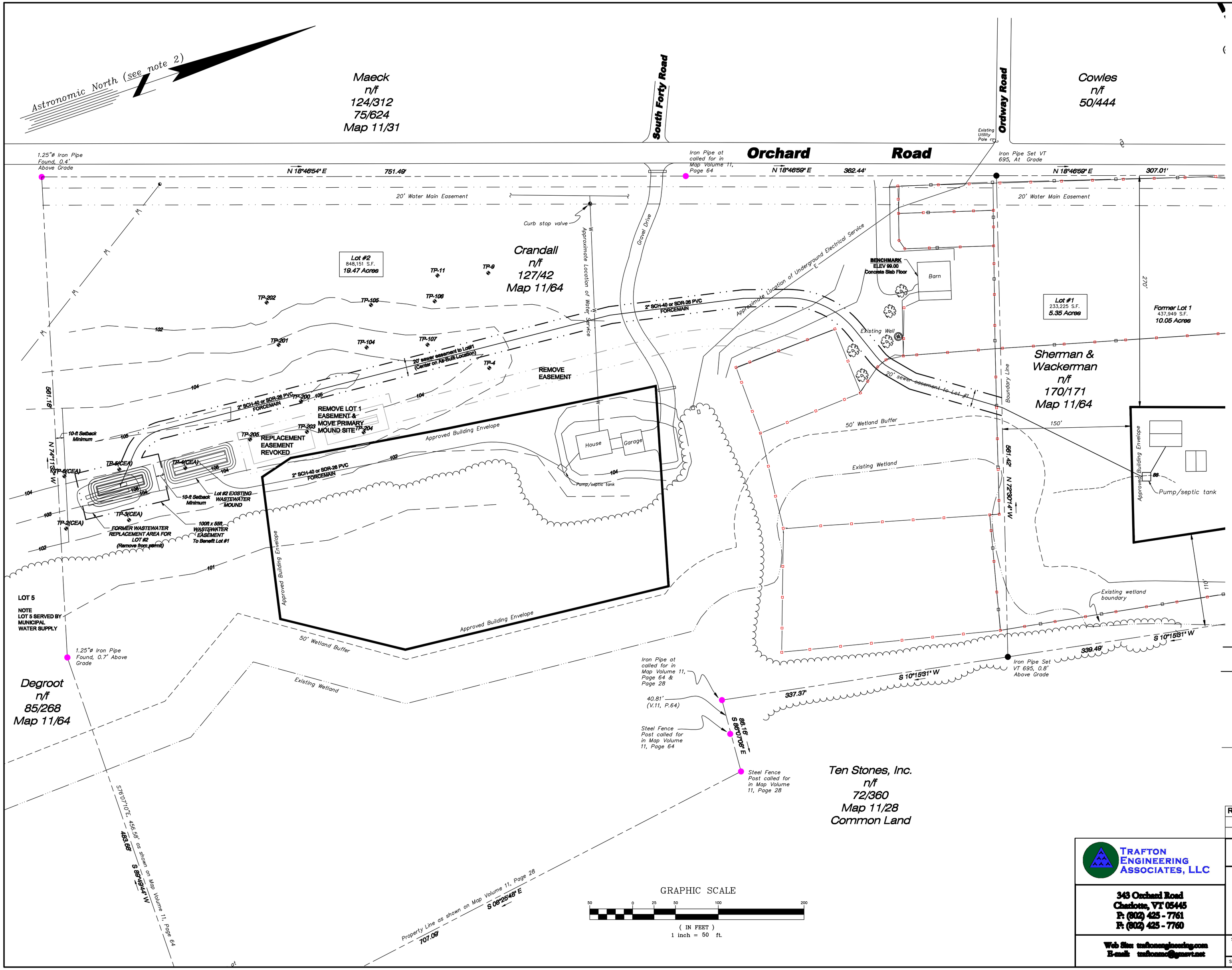

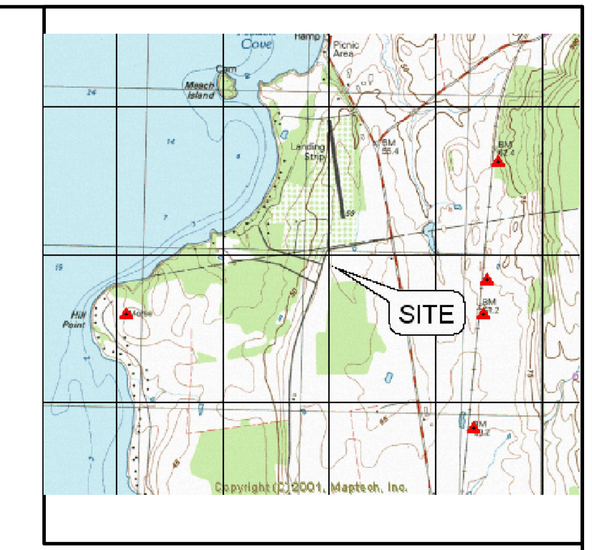

LOCATION MAP
NTS

NOTES

OWNER:	Mark Sherman and Linda Wackerman P.O. Box 43, Hinesburg VT 05461
Lot Size:	5.35 Acres
Parcel ID:	001 01 002-2
Deed:	Vol 170, Pgs 171-172
Zoning District:	Rural Residential

1. This Site Plan depicts site layout and wastewater design and is not for any other purpose. This is not a survey. Survey information is taken from a Plat Plan titled Crandall Residence, Subdivision Modification, dated 04/10/04 and signed 11/02/04, by Button Professional Land Surveyors, PC.

2. Project Description: The approved replacement areas for residential lots, Lot 1 and Lot 2, are to be eliminated and the easement for the primary mound serving Lot 1 is to be relocated to the former approved replacement area for Lot 2.

3. Stormwater and Erosion Control: Best management stormwater and erosion control practices shall be employed by the excavation contractor during construction of the wastewater system.

LEGEND

	Property Line
	Easement/Right of Way
366	Existing Contour
366	Proposed Finish Contour
W	Municipal Water Line
	Utility Pole

Revision #	Description	Date
00	x	x

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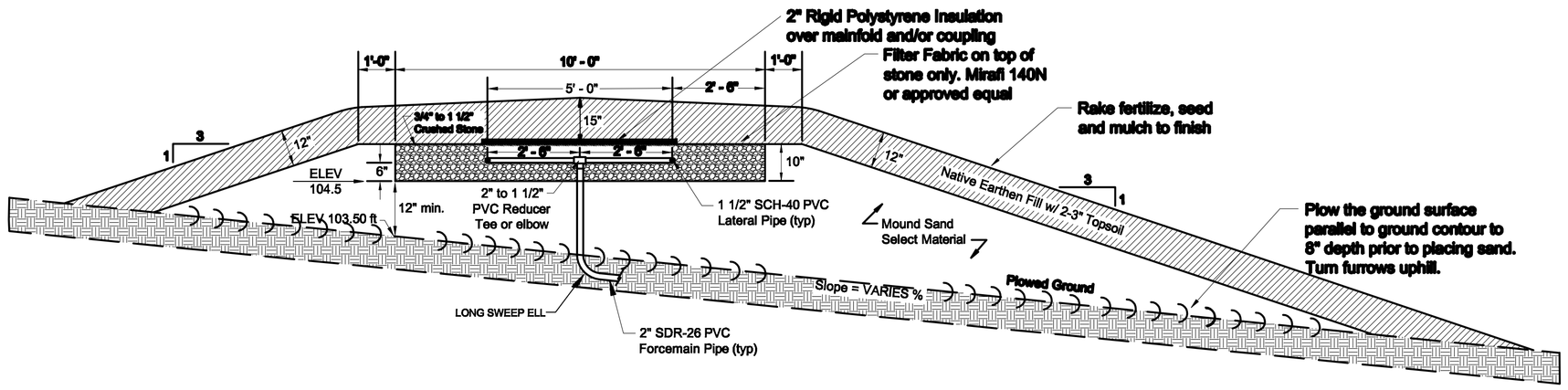
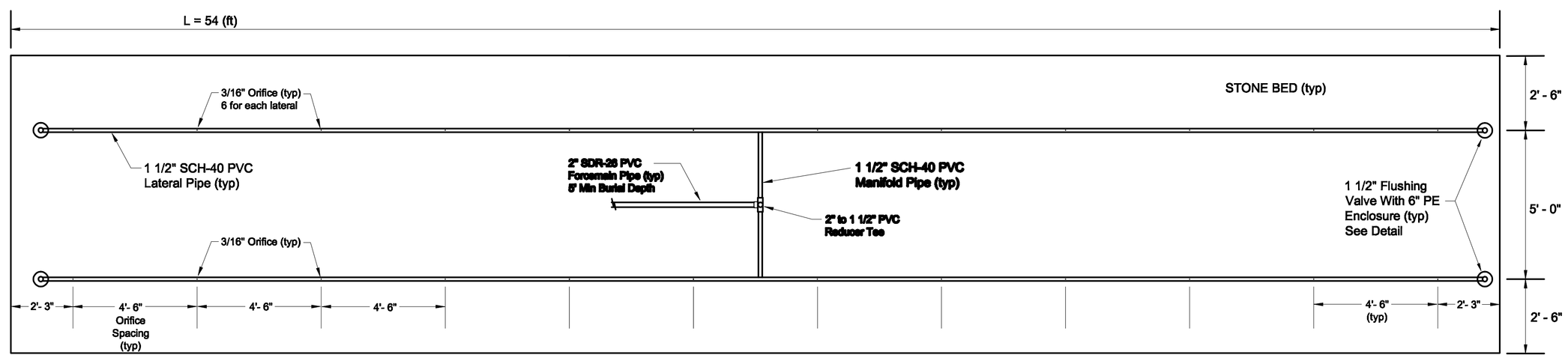
SITE PLAN

Sherman Wastewater
Orchard Road, Charlotte, VT 05445

SIZE	DWG Date:	DWG NO.	REV
D	04/07/11	CHL 10009.01	0
SCALE 1" = 50'	Drawn by: TMC	SHEET 1 of 2	

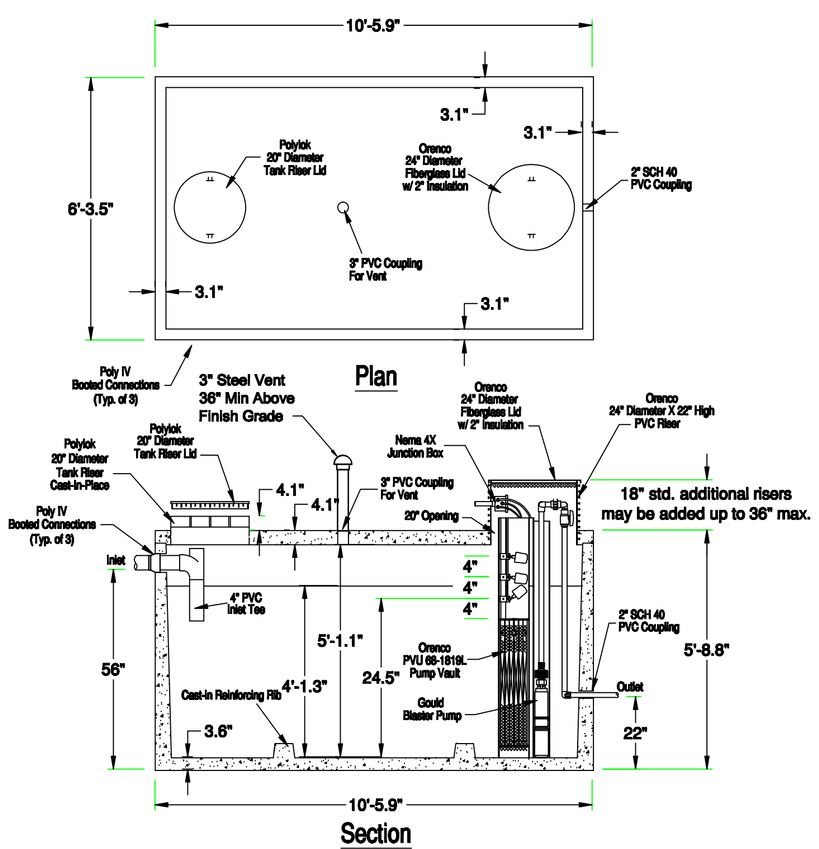


WASTEWATER MOUND PROFILE DETAIL
nts

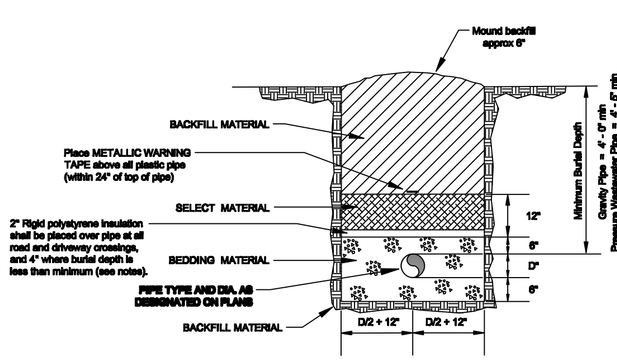


STONE BED & PIPING DETAIL - MOUND
nts

NOTE: After residual pressure testing of lateral pipe orifices with effluent pump,turn last orifice downward to six-o'clock position before final gluing. This will allow lateral pipes to drain between dosing to prevent freezing.



1,500 GALLON PUMPING SEPTIC STEP TANK
nts

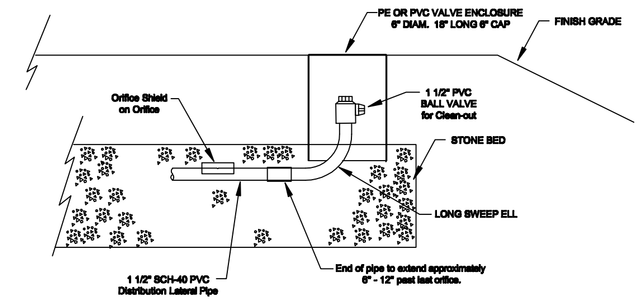


MATERIAL	SANITARY SEWER	WATER MAIN
Bedding Material	Type I, II or Sand	Type I or Sand
Select Material	Approved backfill free of stones greater than 1 1/2" diam. Compact in 6 - inch lifts.	
Backfill Material	Approved excavated material compacted in 12" lifts.	

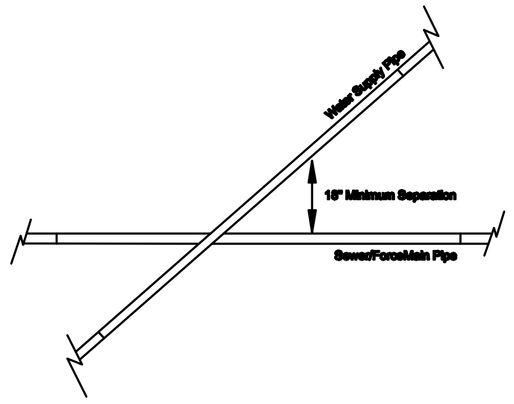
NOTES

1. Backfill material shall contain no stones greater than 3" in diameter, no frozen lumps, and only minimal amounts of clay or organic material. All material to be placed in maximum of 12" lifts and compacted before placing next lift.
   - Type I Material shall be 3/4" clean, hard crushed stone with no frozen lumps, clay or organic material.
   - Type II Material shall be clean, hard crushed stone with a gradation by weight of: 100% passing a 1 1/2" square opening, 25% passing a 3/4" square opening and 5% passing a 1/2" square opening.
   - Sand shall be free from silt, clay, loam or organic materials, conforming to VAOT 703.30 and shall not have any stones greater than 2". Gradation must be: 90% passing a 1 1/2" sieve, not less than 70% passing a 1" sieve, not less than 60% passing a #4 sieve, not more than 20% passing a #100 sieve, and not more than 5% passing a #200 sieve.
2. Backfill designated "compacted" is to 90% - 95% standard proctor, AASHTO T-99. All fill placed below and around any pipes and below pavement must meet this requirement.
3. For all trenches with a longitudinal grade of greater than 4% and/or where groundwater is present, install clay dams around pipe at 100' intervals.
4. Ductile iron pipe may be laid in an excavated trench without 6" bedding below the pipe only if the native material conforms to Type I or Sand.
5. Insulate water or sewer pipe with 4" rigid polystyrene insulation if cover is less than the Minimum Burial Depth. In no case may cover be less than 4 feet for sewer or 5 feet for water mains.

PIPE TRENCH DETAIL
nts



FLUSHING VALVE & VALVE ENCLOSURE DETAIL
nts



WATER/SEWER PIPE CROSSING DETAIL
nts

BASIS OF DESIGN - WASTEWATER LOT #1

DESCRIPTION:
4-bedroom SFR residential home on 5.35 acre lot with off-site septic (by easement on Lot #2) and on-site drilled well water supply.

Wastewater disposal to be mound system and STEP type 1,500 gallon septic tank/pump station. Prescriptive based design.
Minimum depth to ESHWT = 24" in mound area.
Potable water supply to consist of a drilled bedrock well (on site, not shared)

DESIGN: Mound Disposal Field (Prescriptive)
DESIGN FLOW Q based on VT EPR Chapter 1
4 bedroom house = 150 GPD x 4 = 600 GPD, minus 10% allowance for low-flow fixtures
TOTAL Design Flow Q = 600 - 60 = 540 GPD
Loading Rate Lr (assume mound) = 1.0 GPD/Sq Ft (maximum allowed)
Total Disposal Area Required = Q/LR = 540.0 Sq Ft per EPR Section 1-916 (a) (3) (B)

DESIGN
Area = 540.0 Sq Ft minimum. Stone bed shall be **10.0 feet wide by 54 feet in length.**
Use stone bed with 6" stone depth below distribution lateral pipe.
Use 2" SDR-26 Forcemain pipe to a central manifold pipe, reduced to a 1 1/2" SCH-40 PVC lateral pipe.
Four 1 1/2" lateral pipes 25 ft in length, each with 6 orifices 3/16" dia, spaced 4' - 6" on center .
Total number of orifices = 24 (see detail).

STEP-TYPE SEPTIC TANK & PUMP STATION
Design is 540 GPD capacity. A one-compartment 1,500 gallon combination pumping septic tank is to be used with a 1,000 gallon septic capacity with effluent filter and pump. Pump to have on/off and high level alarm float controls with NEMA 4x control panel. Pump Compartment Design Volume: Provide minimum daily flow volume for emergency storage volume = 540 gallons above the high alarm float level. Mount control panel in basement or on house exterior. Panel to have visual and audible high level alarm.

DOSING VOLUME
Dosing of effluent from septic tank to mound to be a minimum of four (4) times per day.
Use 100 gallons per dose plus volume of force main (approx 225 gallons) = 325 gallons.
Set pump on and off floats to provide 325 gal per pump cycle. Forcemain drains to septic tank.

DISCHARGE PUMP
24 total 3/16 dia orifices, spaced 4'-6" on center, (4 laterals, 6 orifices each)
Flow Q = 0.87 GPM/orifice x 24 orificies = 20.88 GPM. Flow differential 0.2% max.
Residual head at last orifice on each lateral = 4.0 ft

Total lift	ΔH	=	21.0 ft
Friction Loss	f	=	11.2 ft
Residual Head	Hr	=	4.0 ft
	TDH	=	36.2 ft

Pump requirements: 36.2 ft TDH @ 20.9 GPM Elevations as noted on Details Sheet.

DESIGN BASIS WATER SYSTEM DEMAND
Average Day Demand ADD = 540 GPD (per Chap 1)
Maximum Day Demand MDD = ADD/720min = 540/720 = 0.75 gpm
Instantaneous Peak Demand IPD = 5 gpm per residential unit (minimum)
If the well yield (gpm) or drillers yield is less than the minimum IPD, then adequate storage must be provided in accordance with Chapter 21 Apendix 11.8.2.3.1.
Storage requirement can be satisfied by 55% of ADD = 0.55x(540) = 297 gallons.

EROSION PREVENTION AND SEDIMENT CONTROL
All areas disturbed during construction that will not be covered by buildings or pavement shall be mulched and seeded as soon as practicable. Mulching shall consist of loose hay or straw applied at a rate of two (2) tons per acre. This shall occur on aweekly basis during active construction. If soil disturbance activities are not expected to occur in an area for more than one week, cover (i. e. mulch) shall be provided. If if soil disturbance activities are not expected to occur in an area for three weeks or more (e. g. topsoil stockpile), cover and temporary vegetation (e. g. rye grass) shall be provided. When final grading of a portion of the site is completed and the topsoil layer is established, mulching and seeding activities shall commence within 48 hours. Seed mixture shall be Conservation Mix, pasture mix for hay fields or a suitable lawn grass mixture for lawn areas.

Revision #	Description	Date
00	xx	x/x/xx

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WW DETAILS

Sherman Wastewater
Orchard Road, Charlotte, VT 05445

SIZE	FROM NO.	DWG NO.	REV
D	04/21/11	CHL 10009.02	0
SCALE	Drawn by: TMC	SHEET 2 of 2	