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 August 16, 2002.

PART 2 – PRODUCTS

2.01 General

A. Disposal Fields: Schedule 40 PVC pipe meeting the requirements of the latest revision of ASTM Specification D–1785. Fittings used in the disposal fields shall be compatible with distribution lines material.

B. Force Mains: PVC pipe shall conform in all respects to the latest revisions of ASTM Specifications D–2241. All pipe fittings shall be SDR 26 (or SCH 40) clearly marked as follows:

– Manufacturer's Name and Trademark
– Nominal Pipe Size (as shown on plans)
– Material Designation

Joints shall be push–on type using elastomeric gaskets factory installed conforming to ASTM Specification D–3212.

C. Crushed stone shall be clean, durable and no smaller than 3/4" or larger than 1 1/2 inches in diameter.

PART 3 – EXECUTION

MOUND CONSTRUCTION

A. Aboveground vegetation shall be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material. Prior to plowing, the dosing pump discharge line from the pump chamber or dosing chamber to the point of connection with the distribution piping header shall be installed. The area shall then be plowed to a depth of seven to eight inches, parallel to the land contour with the plow throwing the soil upslope to provide a proper interface between the fill and natural soils. 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 completed, the area shall be fenced to prevent vehicles and equipment from entering the plowed area.

B. To prevent compaction, construction equipment shall not be moved across the plowed surface or the effluent disposal area. However, after placement of a minimum of six inches of sand fill over the plowed area, construction equipment may be driven over the protected surface to expedite construction. Construction equipment shall be kept off the area down gradient of the disposal field. Construction and/or plowing shall not be initiated when the soil moisture content is high.

C. Construction should be initiated immediately after preparation of the soil interface by placing all of the sand fill needed for the mound to a minimum depth of 21 inches. This depth will permit excavation of trenches to accommodate the crushed stone (12 inches) necessary for the distribution piping.

D. The pressure distribution pipe should be laid level on top of the stone and flushing valves installed at the ends of the pipe. Upon completion of the distribution piping, the qualified consultant shall test the system with clean water. The test shall show that a minimum pressure of three feet of head is present at the ends of the pipe and that the difference in discharge rate between the two orifices with the greatest difference in discharge rates is not greater than 15 percent. After connecting the distribution pipe to the force main, the distribution pipe shall be covered with at least two inches of clean stone aggregate. The stone aggregate shall be covered completely with filter fabric.

E. After installation of the distribution system, crown the entire mound with cover of soil less permeable than the mound fill, covering with 12 inches on the side slopes and a minimum of 18 inches over the center of the mound. Native soil from the site is normally suitable for cover material, though the top two to four inches of this cover should be topsoil. The entire mound shall be seeded, sodded or otherwise provided with vegetative cover to assure stability of the installation.

F. The area surrounding the disposal field shall be graded to provide diversion of surface runoff waters if required.

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 disposal field, the trenches after the initial 12 inches of stone and distribution piping is placed, the installation and pressure test of 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 D above).

C. The distribution line shall then be carefully placed on the bedding with no slope, orifice 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.

E. Prior to use of the system, the qualified consultant shall submit a written report to the Town of Lyndon stating that the system has been installed according to the approved plans and permit. The report shall specifically address the inspection of the site preparations and include numerical results of the orifice discharge rate comparison.

MINIMUM ISOLATION DISTANCES

(Contact Engineer for any Clarifications or Conflicts)

	Horizontal Distance (Ft.) Toe of Mound	Septic Tank
Shallow Well or Spring, Up Slope of Disposal Field	150*(Min.)	75
Shallow Well or Spring, Down Slope of Disposal Field	500*(Min.)	--
Drilled Well Serving 1 Home – Up Slope of Disposal Field	100*(Min.)	50
Drilled Well Serving 1 Home – Down Slope of Disposal Field	200*(Min.)	--
Municipal Water Main	50	50
Service Water Lines	25	25
Roadways, Driveways, Buildings	10 (25 Downslope)	5
Stream, Watercourse, Lake or Impoundment	50	25
Drainage Swales, Roadway Ditches	25	--
Top of embankment or slope > 30%	25	10
Trees	10	10
Foundation, Footing Drains	35 (75 Downslope)	10
Replacement Area – Sides	10	--
Replacement Area – Uphill or Downhill	25	--
Property Line – 10' from toe (or 25' from edge of disposal system, whichever is greater.)	10 (25 Downslope)	

*Isolation distances to well locations may vary due to site conditions – contact Engineer for verification with the Vermont Water Supply Rule Regulations.

VERMONT WATER SUPPLY RULE – CHAPTER 21

TABLE A – REQUIRED MINIMUM SEPARATION DISTANCES

Single Family Drilled Well

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	See Well Shield
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 & Manure Storage Systems	200'
Hazardous or Solid Waste Disposal Site	f.
Non–sewage Wastewater Disposal Fields	f.

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.

Dept. of Environmental Conservation
Approved
Permit #: WW-7-1589
Date: 4/29/05

SITE ENGINEER:

CIVIL ENGINEERING ASSOCIATES, INC.
P.O. BOX 485 SHELBURNE, VT 05482
802-985-2323 FAX: 802-985-2271 web: www.cea-vt.com

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DRAWN PJM
CHECKED BCE
APPROVED BCE

STATE OF VERMONT CHARLES GLAZIER REGISTERED PROFESSIONAL ENGINEER

OWNER:

STATE OF VERMONT
VERMONT AGENCY OF TRANSPORTATION
MONTPELIER, VERMONT

PROJECT:

CALEDONIA COUNTY STATE AIRPORT

PUDDING HILL ROAD LYNDON, VERMONT

DATE	CHECKED	REVISION
4/6/05	BCE	MINOR TEXT REVISION

WASTEWATER NOTES

DATE JAN., 2005
SCALE AS SHOWN
PROJ. NO. 03146.03

DRAWING NUMBER C2.1

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