

# TEST PIT LOGS

REFER TO ATTACHED LOGS PREPARED BY DAVID W. BURKE DATED 12-28-11  
 GROUNDWATER MONITORING

TEST RESULTS CONDUCTED 12/27/11 AND 6/4/12 BY JASIM KULS

TEST RESULTS CONDUCTED	DATE	NO. OF TESTS	DATE
CONDUCTED	12/27/11	7	7
NUMBER	18"	0.5"	7
P1	18"	0.5"	7
P2	18"	0.5"	7
P3	18"	0.5"	7
CONDUCTED	6/4/12	7	7
NUMBER	24"	0.5"	7
P4	24"	0.5"	7
P5	24"	0.5"	7
PERSON NAME			

# SEWAGE DESIGN INFORMATION

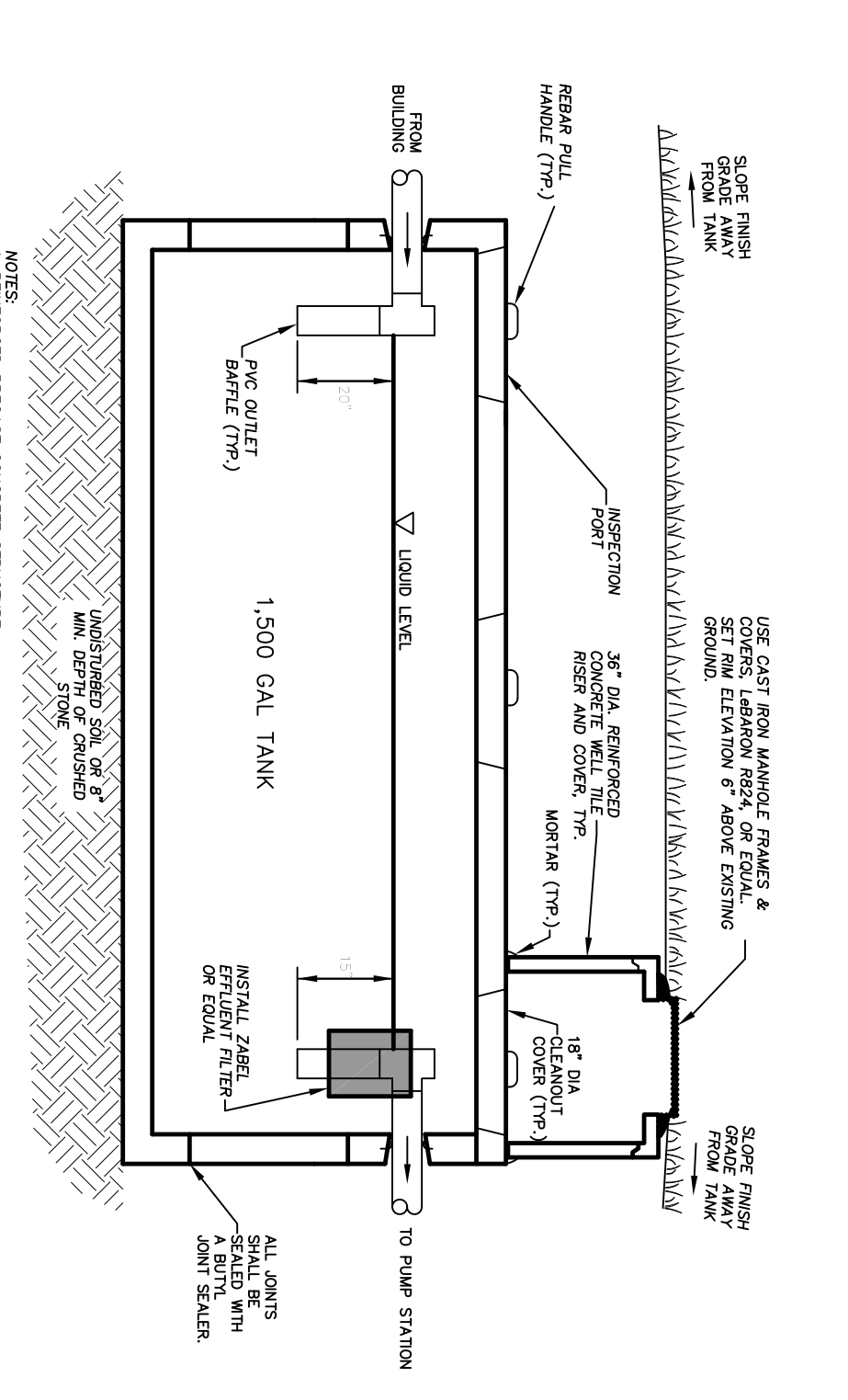
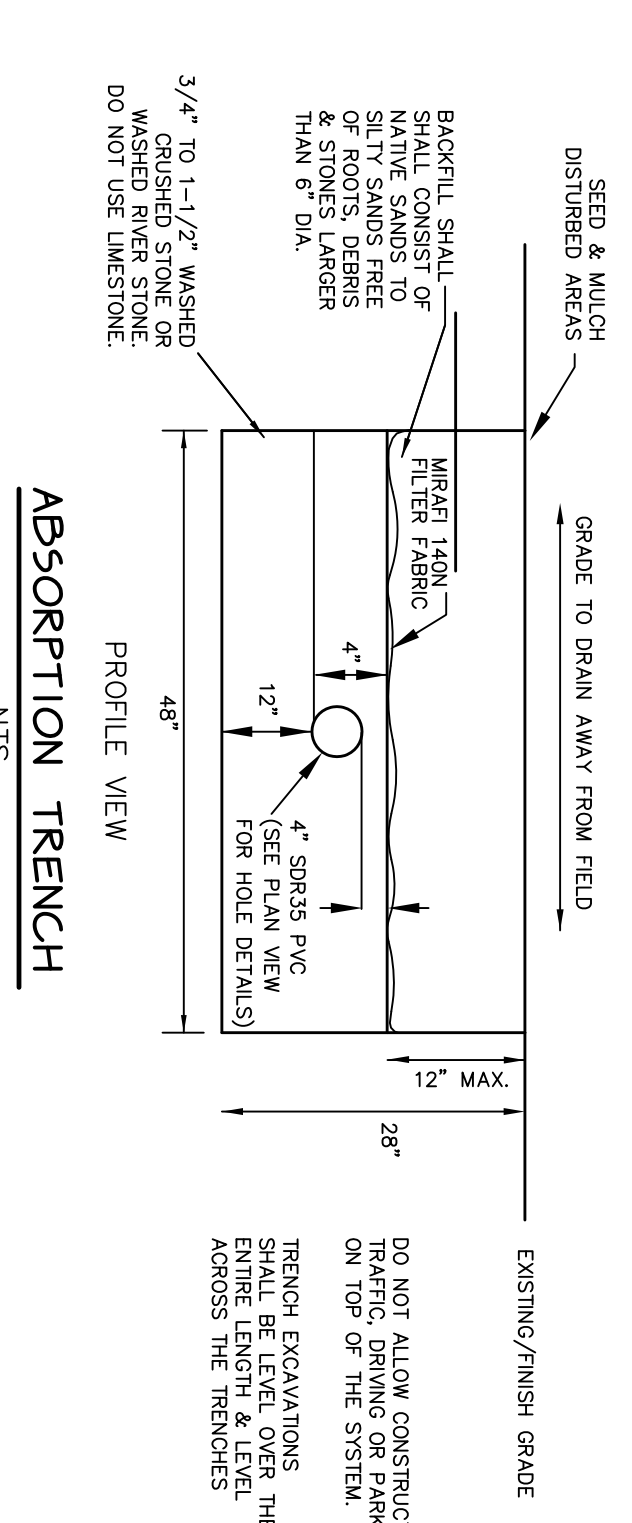
1. IT IS THE OPINION OF THE ENGINEER THAT THE SOIL CONDITIONS WITHIN THE PROPOSED SEWAGE DISPOSAL AREAS MEET THE STATE OF VERMONT EPR RULES & ARE SUITABLE FOR CONVENTIONAL SUBSURFACE SEWAGE DISPOSAL, AS SHOWN ON THESE PLANS.

2. THE FOLLOWING MINIMUM ISOLATION DISTANCES SHALL BE MAINTAINED FROM THE DISPOSAL AREA TO:

- WATER MAIN \_\_\_\_\_ 50 FEET
- PROPERTY LINE \_\_\_\_\_ 25 FEET
- WATER SERVICE \_\_\_\_\_ 25 FEET
- BUILDING (AND FLOORING DRAIN) \_\_\_\_\_ 25 FEET
- SEWER LINES \_\_\_\_\_ 10 FEET
- DRIVEWAYS & PARKING LOTS \_\_\_\_\_ 10 FEET
- OTHER \_\_\_\_\_ 10 FEET

### 3. BASIS OF DESIGN:

- LOT #1 FLOWS (APPROVED BY WM-4-3790-2)
- OFFICE: 10 EMPLOYEES @ 15 GPD = 150 GPD
  - STUDIO: 1 TRAINER @ 32 GPD = 32 GPD
  - 12 PARTICIPANTS @ 4 GPD = 48 GPD
  - TOTAL = 230 GPD
- LOT #2 FLOWS
- READ OFFICE (2,360 SF) 4 EMPLOYEES @ 15 GPD = 60 GPD
  - REAR SHOP (5,500 SF) 3 EMPLOYEES @ 15 GPD = 45 GPD
  - RENTAL OFFICE (5,000 SF): 14 EMPLOYEES @ 15 GPD = 210 GPD
  - BAR/RESTAURANT (1,500 SF) = 20 SEATS X 30 GPD/SEAT FOR LUNCH & OFFICE (1,282 SF) = 20 EMPLOYEES X 15 GPD/EMPLOYEES = 300 GPD
  - TOTAL = 1,215 GPD
- TOTAL SYSTEM DESIGN FLOWS = 1,445 GPD
- PERCOLATION RATE = 6.0 MIN/IN
- APPLICATION RATE = 3 / SQUARE FOOT(9 MIN/IN) = 1.24 GAL/SF/D
- TRENCH SF REQUIRED = 1,145 SF / 1.24 GAL/SF/D = 1,166 SF REQUIRED
- PRESSURIZED SYSTEM (190" \* REQUIRED TRENCH SF) = 1,148 SF
- PROPOSED SYSTEM: NINE 4" X 60' LONG TRENCHES \* = 2,160 SF PROPOSED



### CONCRETE SEPTIC TANK

1. DESIGNATED PROJECT CONCRETE FUNDING.
2. SEWER LINES SHALL BE 12" DIA. AND DEEPER THAN TANK SIZE.
3. EXCAVATION MUST BE AT LEAST 1'2" ABOVE AND LOWER THAN TANK SIZE.
4. PROVIDE MIDSPAN PIPE CONNECTIONS USING 90° PLASTIC GOOTS OR NON-SHINK GROUT.

### INDIVIDUAL DRILLED WELL DESIGN DATA

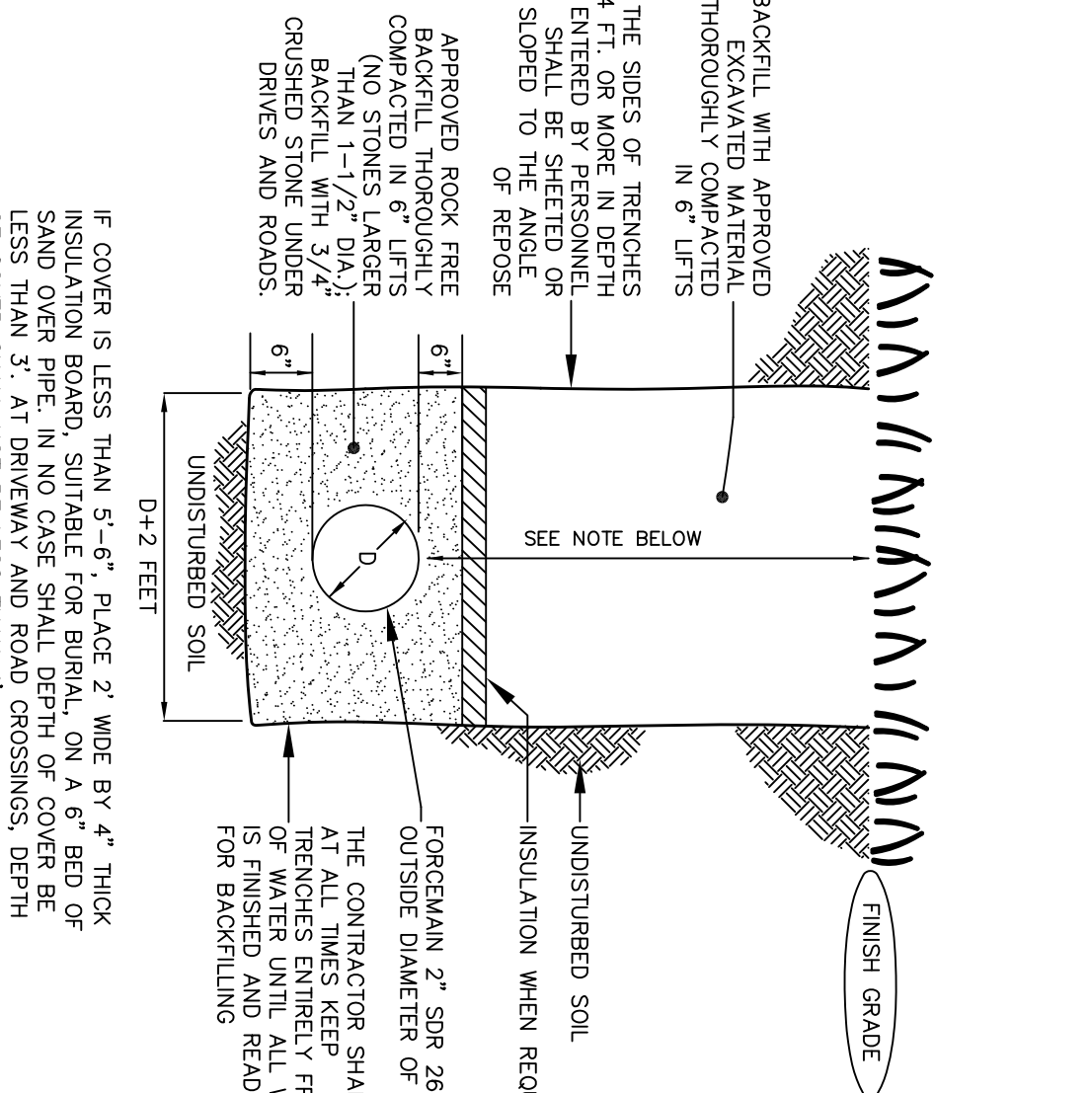
1. THE DRILLED WELL(S) CONSTRUCTION, LOCATION, DISINFECTION AND TESTING SHALL BE IN ACCORDANCE WITH THE STATE OF VERMONT - WATER SUPPLY REGULATIONS
2. THE BASIS OF DESIGN FOR EACH DRILLED WELL IS:
  - A. AVG. DAY DEMAND : 230-1215 GPD/DAY = 0.32-1.62 GPM
  - B. MAX. DAY DEMAND : 230-1215 GPD/720 MIN/DAY = 0.32-1.62 GPM
  - C. INSTANTANEOUS PEAK DEMAND: 5 GPM
  - D. SOURCE CAPACITY: TO BE DETERMINED AREA WELL LOSS
  - E. STORAGE CAPACITY: SIZE TO BE DETERMINED BASED ON
  - F. PUMP CAPACITY (5 REQUIRED MINIMUM)
  - G. OPERATING PRESSURE RANGE: 40 - 60 PSI AT PRESSURE SWITCH

#### DRILLED WELL ISOLATION DISTANCES

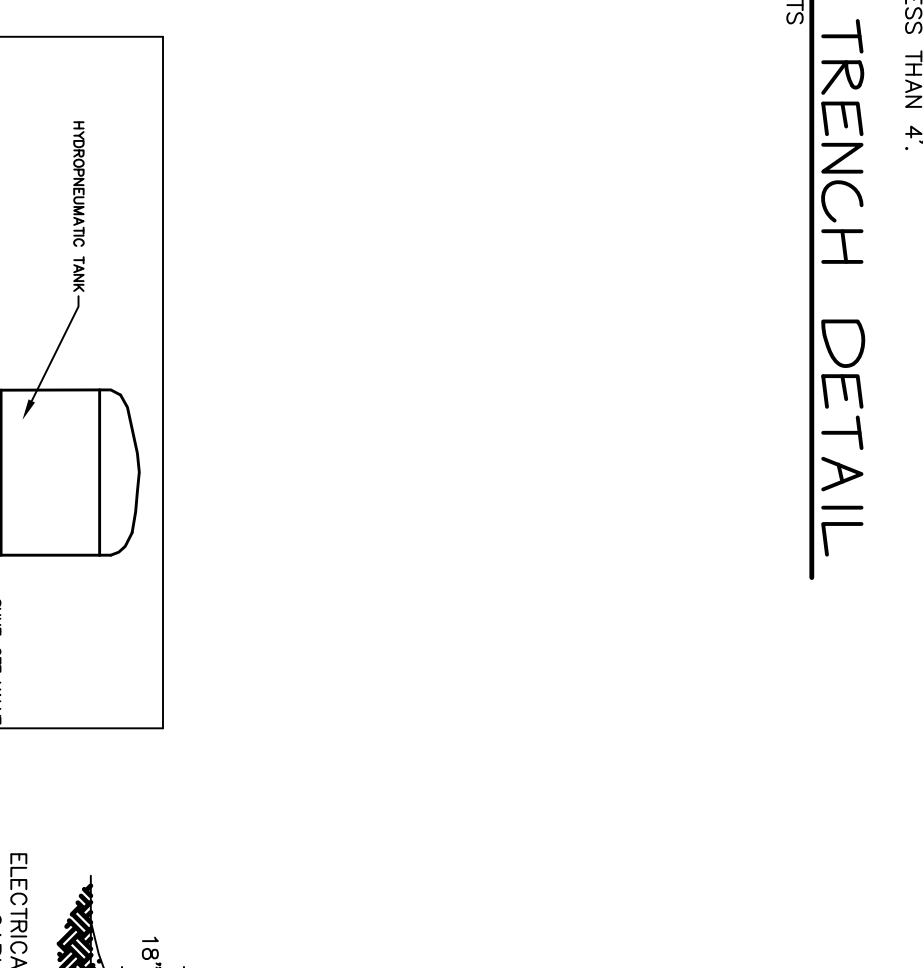
ROADWAY, PARKING DRIVEWAY, < 3 RESIDENCES	25 FEET
SEWAGE PIPING / TANKS	15 FEET
PROPERTY LINE	50 FEET
SURFACE WATER	10 FEET
BUILDINGS	10 FEET

SEWAGE SYSTEM:  
 DOWNSLOPE WELL  
 200 FEET  
 100 FEET

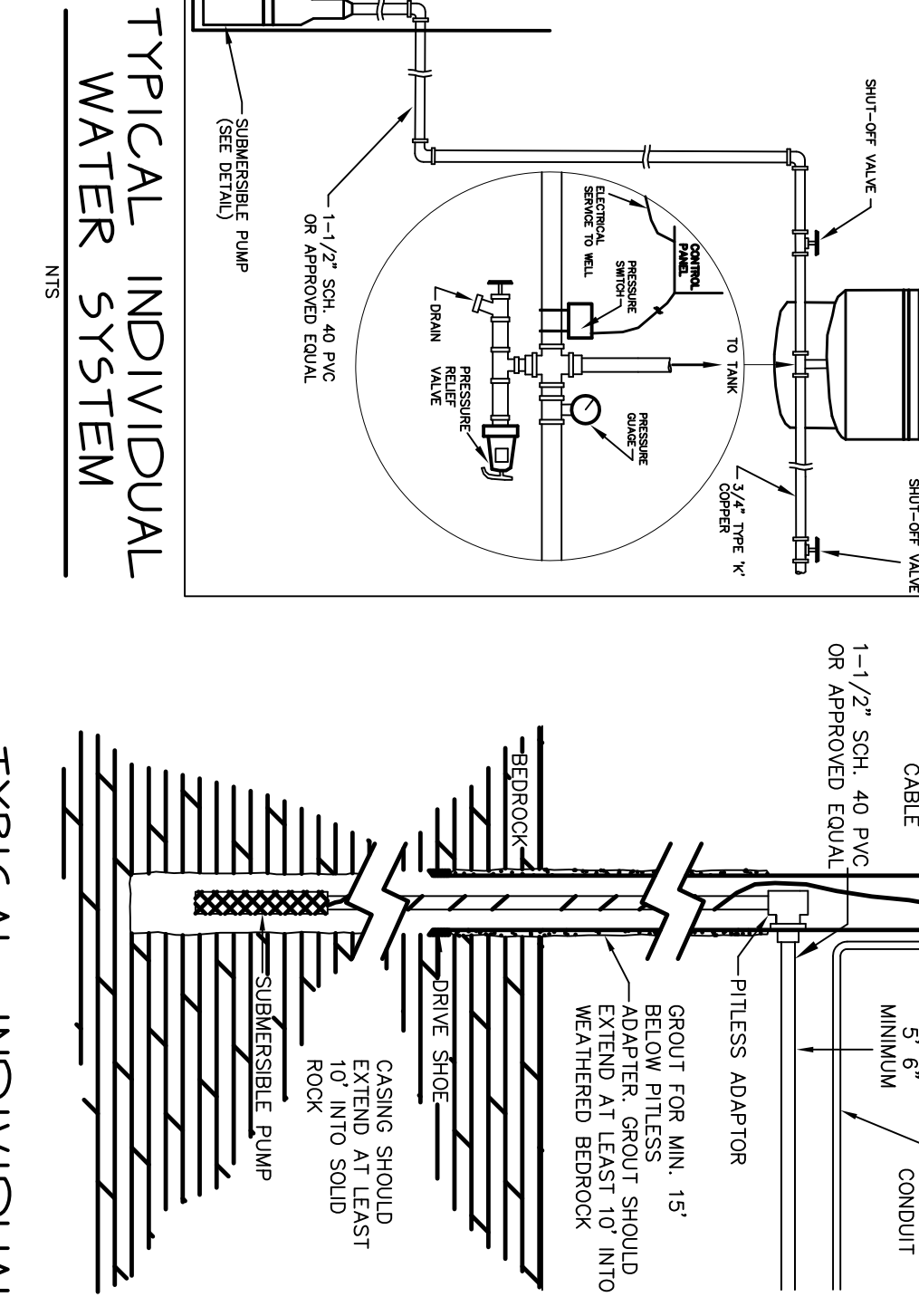
### FORCE MAIN TRENCH DETAIL



### TYPICAL INDIVIDUAL WATER SYSTEM



### TYPICAL INDIVIDUAL DRILLED WELL



### STAKE - OUT REQUIREMENTS

#### CONSTRUCTION REQUIREMENTS

1. THE SEWAGE SYSTEM LOCATIONS SHALL BE STAKED OR VERGED BY O'LEARY-BURKE CIVIL ASSOCIATES, P.C. PRIOR TO CONSTRUCTION.
1. THE SOLE PIPE FROM THE SEPTIC TANK TO THE DISTRIBUTION BOX SHALL BE ON UNDISTURBED GROUND OR PROPERLY BEDDED.
2. DISTRIBUTION BOX SHALL BE INSTALLED BETWEEN THE SEPTIC TANK OR PUMP STATION, IF APPLICABLE, AND THE ABSORPTION TRENCHES. THE DISTRIBUTION BOX EFFLUENT TO EACH DISTRIBUTION LINE AT ADEQUATE PROVISIONS SHALL BE TAKEN TO ASSURE THE STABILITY AND ACCESSIBILITY OF THE DISTRIBUTION BOX.
3. EACH DISTRIBUTION LINE SHALL BE WIDENED BY THE ENGINEER & AN AUTHORIZED TOWN REPRESENTATIVE.
4. THE DISTRIBUTION BOX AND EXHAUST SHALL CONNECT INDIVIDUALLY TO THE DISTRIBUTION BOX AND EXIT AT THE SAME LEVEL AS THE FIRST 5 FEET TO 10 FEET TO THE PIPE CONNECTING THE DISTRIBUTION BOX TO THE TRENCH.
5. WHEN THE TRENCHES HAVE BEEN EXCAVATED, THE SIDES AND BOTTOM SHALL BE BAKED TO LOOSEN ANY SWEATED SOIL SURFACES.
6. CONSTRUCTION EQUIPMENT SHALL BE KEPT OFF THE AREA TO BE USED FOR SEWAGE DISPOSAL AS MUCH AS POSSIBLE TO PREVENT COMPACTION OF THE SOILS.
7. PLACEMENT OF CRUSHED STONE IN THE TRENCHES SHALL BE INSTATED IMMEDIATELY AFTER TRENCH EXCAVATION IS SPECIFICALLY INSPECTED FOR COMPLETION OF TRENCH EXCAVATION (SEE INSPECTION SPECIFICATIONS).
8. 12" OR 6" OF CLEAN CRUSHED STONE (3/4" TO 1-1/2") INCHES SHALL BE PLACED IN THE BOTTOM OF THE TRENCHES IN ACCORDANCE WITH AT A MINIMUM 12" NON-PER TO FEED) AND COVERED WITH AT LEAST 6 INCHES OF STONE. THE ENDS OF THE DISTRIBUTION LINES SHALL BE CARPED.
9. THE GRADING SHALL DIRECT RAIN-OFF AWAY FROM THE SEPTIC SYSTEM AREAS AND BE SMOOTH AND FREE OF POCKETS WITH SUFFICIENT SLOPE TO ENSURE DRAINAGE.

#### TESTING REQUIREMENTS

1. THE CONTRACTOR SHALL FURNISH ALL FACILITIES AND PERSONNEL FOR THE CONDUCTING THE FOLLOWING TESTS:

1. STRUCTURES TEST: THE SEPTIC TANK SHALL BE TESTED BY FILLING WITH WATER TO A POINT ONE (1) FOOT BELOW THE ACCESS TO TOP JOINT TANK, IS USED FOR ABSORPTION PERIOD, THE PERMEABILITY TEST SHALL ALLOW THE STRUCTURES SHALL BE REFILLED IF NECESSARY TO ONE (1) FOOT BELOW THE ACCESS TO TOP AND THE TEST PERIOD OF 24 HOURS SHALL BEGIN AT EXHAUSTION OF INFILTRATION, OR THE TEST SHALL BE CONSIDERED FAILED. IF THE TEST FAILS, THE CONTRACTOR SHALL REPAIR OR WATERPROOF AND RE-TEST AT NO EXTRA EXPENSE TO THE OWNER.
2. FORCE MAIN PRESSURE TEST: THE PVC FORCE MAIN SHALL BE FILLED WITH WATER AND TESTED BY THE CONTRACTOR TO A MINIMUM PRESSURE OF 50 PSI AT THE HIGHEST POINT VARY MORE THAN 5 PSI. THE NEW LINES SHALL NOT BE ACCEPTED IF THE LEAKAGE DURING THE TWO-HOUR TEST IS GREATER THAN THAT DETERMINED BY THE FOLLOWING FORMULA:
 
$$L = \frac{100 \cdot Q \cdot T}{P \cdot D \cdot L}$$

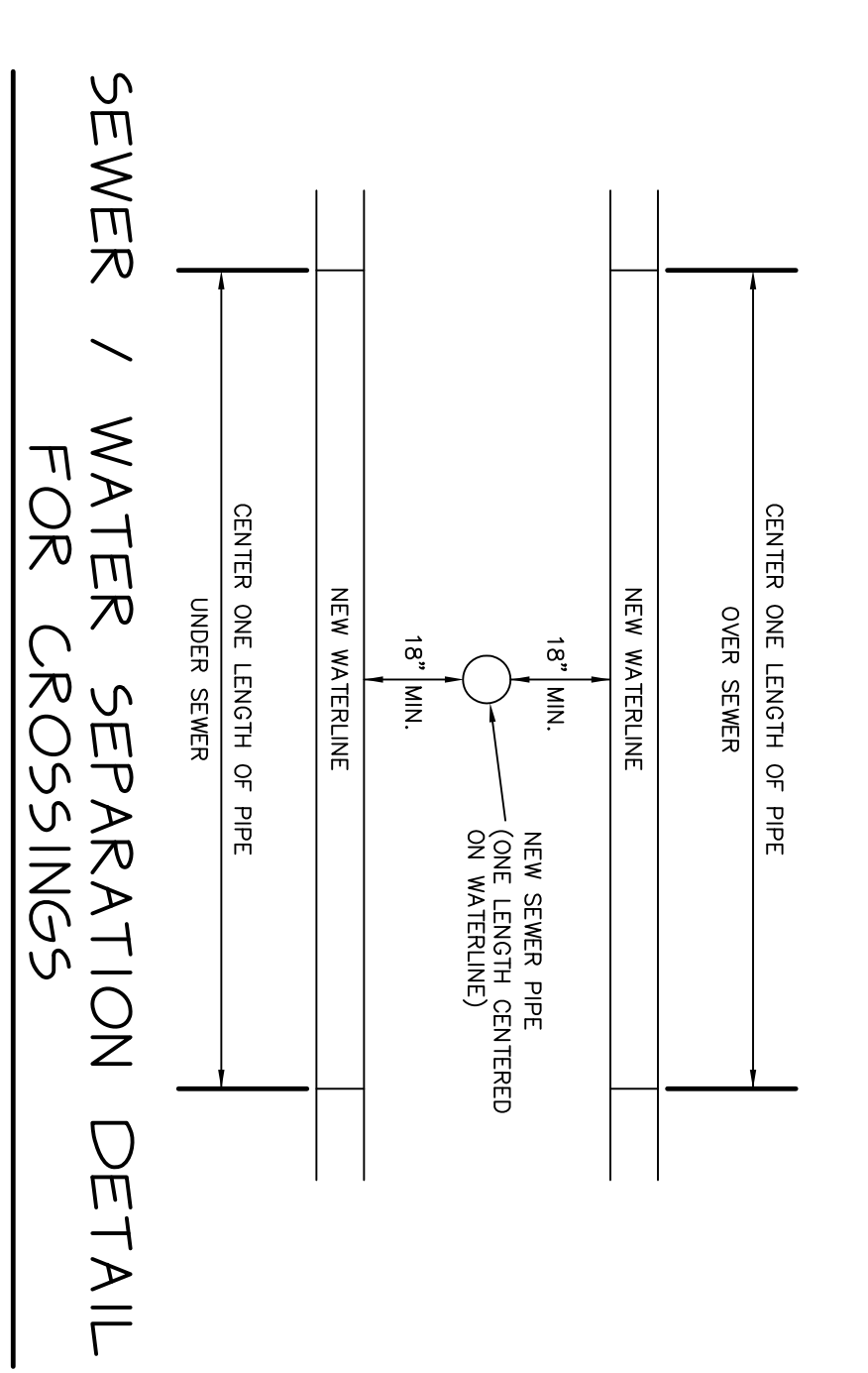
WHERE  
 L = THE ALLOWABLE LEAKAGE IN GALLONS PER HOUR  
 Q = THE NUMBER OF JOINTS IN THE LENGTH OF PIPELINE  
 D = THE NOMINAL DIAMETER OF THE PIPE IN INCHES  
 P = TEST IN POUNDS PER SQUARE INCH

LEAKAGE IS DEFINED AS THE QUANTITY OF WATER THAT MUST BE SUPPLIED INTO THE NEWLY Laid PIPE TO MAINTAIN THE PRESSURE OF 50 PSI. THE ACCEPTABLE LIMIT AT NO EXTRA CHARGE TO THE OWNER.

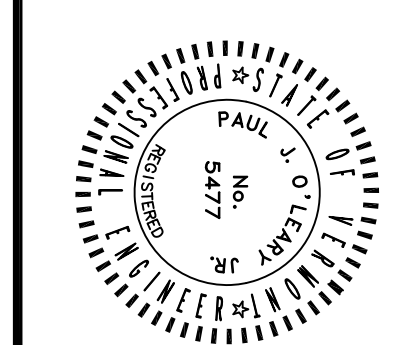
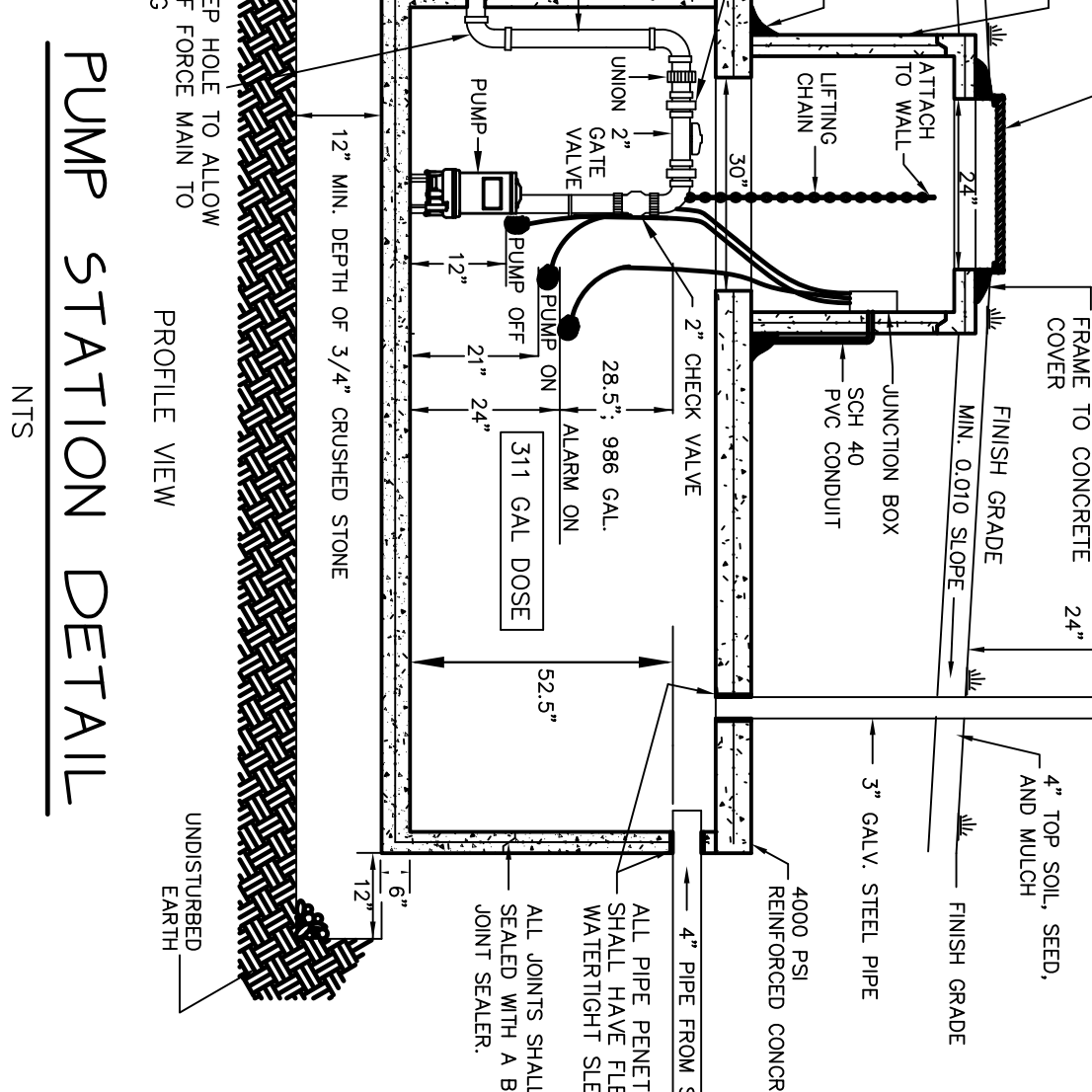
#### OPERATION & MAINTENANCE RECOMMENDATIONS

1. THE SEPTIC TANKS SHOULD BE TO REMOVE SOLIDS CONTAIN THE SAND AND PANS TREATED EFFLUENT INTO THE SEPTIC TANK HELDS DECOMPOSE THE SOLIDS. SHOULD ANY SOLIDS PASS THROUGH THE SEPTIC TANK INTO THE TRENCHES TO OCCUR, ONLY HUMAN WASTES SHOULD ENTER THE SEWAGE SYSTEM. WATER USE SHOULD BE CONSERVATIVE AND CLEANING AGENTS CAN NOT ENTER THE SYSTEM, AS THEY WILL BACTERIA.
2. THE STATE FLOW FIGURES OF ARE BASED ON SHORT TERM.
3. ONCE PER YEAR, THE OPEN OF TANK AND SLOPE IN THE SEPTIC TANK SHOULD BE MEASURED AND THE TANK SHALL BE PUMPED IF:
  - a) THE SLUDGE LEVEL IS WITHIN 12 INCHES OF THE BOTTOM OF THE
  - b) THE SOLID LAYER IS WITHIN 3 INCHES OF THE TOP OF THE OUTLET
  - c) IF A OR B IS ANTICIPATED TO OCCUR PRIOR TO THE NEXT INSPECTION.
  - d) IN ANY CASE, THE TANK SHALL BE PUMPED AT A MAXIMUM 5 YEAR INTERVAL.
4. ONCE A YEAR, THE DISTRIBUTION BOX SHOULD BE INSPECTED AND ANY ABOVE ITEMS, 1 - 4 ARE INTENDED TO PROTECT THE LIFE OF THE SYSTEM, NOT GUARANTEE IT. A PROPERLY OPERATED & MAINTAINED SYSTEM GENERALLY FUNCTIONS PROPERLY FOR 8 - 25 YEARS.

### SEWER / WATER SEPARATION DETAIL



### PUMP STATION DETAIL



## Owner/Applicant

ROBERT AND JOY REAP  
 PO BOX 442  
 RICHMOND, VT 05477

DATE	05-23-17
DESCRIPTION	FINAL
BY	OTHERS
DATE	07/14/14
DESCRIPTION	OTHERS
BY	OTHERS
DATE	11-20
DESCRIPTION	OTHERS
BY	OTHERS

RECORD DRAWING PRELIMINARY SHEET/CONCEPT

**ROBERT & JOY REAP**  
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SEWAGE DISPOSAL AND WATER DETAILS

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