

PROJECT SCOPE & RATIONALE:

The scope of work is to construct two agricultural housing unit each with 3 BR to be served by a new pressure-dosed septic system.

A pressure-dosed trench alternative type septic system was selected for this project because the average percolation rate (44 MPI) requires a 5 ft vertical separation of conventional trench bottom to the highest seasonal groundwater level. Wet weather testing indicated that the highest groundwater level is 7 1/2 ft below grade.

The proposed trench depth of 2 1/2 ft would just barely meet the 5 ft vertical separation to groundwater. Pressure-dosing requires 3 ft separation to GW and is selected for this design to ensure that groundwater is protected.

ALL PVC IS SCHEDULE 40, SOLVENT-WELDED, & 150 PSI RATED

INSTALLATION STEPS:

STEP BY STEP INSTALLATION PROCEDURES

- Stake out all components of system and mark setbacks lines.
- Prepare drainfield trenches area by removing brush and small shrubs (using care to minimizing soil disturbance when removing roots)
- FENCE OFF DRAINFIELD AREAS to prevent disturbance/compaction of soil.
- Excavate pump & septic tanks pit. Install pump tank & septic tank, including risers to grade.
- at least one inch into risers and check for water drop over one hour.

- Assemble PD laterals piping and drill orifices as specified on OWTS 2.
- Excavate drainfield trenches to specified depth keeping trench bottom level within 1"/100"
- Connect supply pipes to PD laterals, install adjusting/purge valves & orifice shields. 1. Conduct hydraulic "squirt" test, verify proper operation of float switches in pump tank,
- and test control panel audible and visual alarms.
- 12. Place 2" rock over laterals, cover with filter fabric, backfill trenches & pump tank, restore proper grading, cover with straw mulch and seed areas to prevent wind and water erosion.

Coordinate all installation steps with DEH and Designer

ANNUAL SEPTIC & PUMP TANKS INSPECTION REQUIRED:	ON-SITE WATER TIGHTNESS TESTING		
1) Access risers & lids in good condition.	(REQUIRED PRIOR TO SEPTIC TANK & PUMP TANK USE)		
Structural Integrity - probe interior walls/baffles, inlet/outlet T-pipes.	1. FILL TANK TO TOP OF RISER 1 INCH FROM LID		
Check Tuf-Tite effluent filter and clean if needed.	2. LET TANK SIT FOR 1 HOUR		
 Septic tank liquid level - should be at outlet invert in tank. 	3. OBSERVE WATER LEVEL IN RISER BEFORE AND AFTER 1 HR PERIOD		
Pump tank electrical & signal wires in good condition.	4. IF LEVEL HAS FALLEN , INSPECT FOR LEAKS		
Pump tank proper operation of float switches.	5. REPAIR ANY LEAKS AND REPEAT TEST		
SEPTIC TANK SHALL BE PUMPED OUT WHENEVER SOLIDS or FLOATING			
MATERIAL EXCEED 30% OF TANK VOLUME OR ENCROACH ON INLET/OUTLET T's.			
MINIMUM SEPTIC TANK PUMPING FREQUENCY IS 3 TO 5 YEARS.	Construction Inspections Required w/ Designer & DEH:		
PUMP TANK to be pumped out when debris may encroach on pump intake.	1. Layout Inspection - All components staked or painted		
	2. Open Trench Inspection - Components in & not covered		
ONGOING MONTORING & REPORTING REQUIREMENTS:	3. Septic,, Pump & Treatment Tank Water Tight Testing		
(must be performed by licensed professional or service provider)	4. Hydraulics (squirt) and Alarms Tests		
YEARS 1 - 4: Semi-annually // YEARS 5+ of operation: Annually	5. Final inspection - All components covered.		
1) Record wastewater flow based on water meter readings or other method	Owner Reponsiblity for Alternative Type Septic System:		
Measurement and recording of water levels in inspection wells.	Owner will acknowledge that the property is served by an		
 Inspection of pump and valves operation, including squirt test. 	alternative pressure-dosed trench type septic system		
Inspection of dispersal fields for seepage, erosion, etc.	requiring an ongoing service contract, maintenance, and		
MONITORING REPORT SHALL BE SIGNED BY LICENSED PROFESSIONAL AND SUBMITTED TO DEH IN ACCORDANCE WITH THE SYSTEM OPERATING PERMIT.	an annual DEH operating permit.		

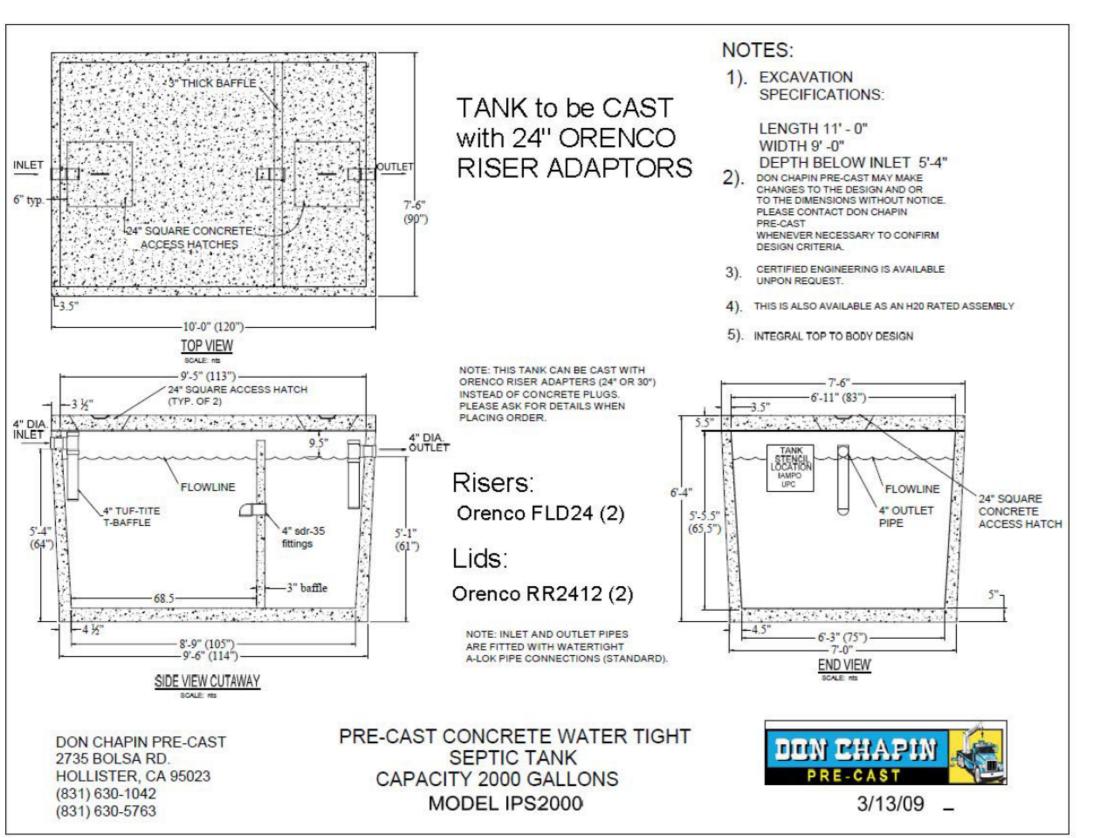
Table PD-3. Shallow Pressure Distribution System Management Requirements

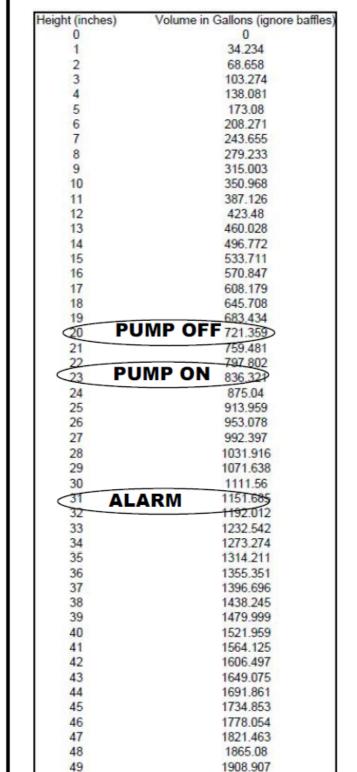
	Work	Frequency	
Inspection	 Conduct routine visual observations of disposal field and downslope area and surroundings for wet areas, pipe leaks or damage, soil erosion, drainage issues, abnormal vegetation, or other problems. Perform all inspections of pump and appurtenances (per O&M manual and Performance Evaluation Guidelines, Part 5 of this Manual). 	• Every 6 to 12 months.	
Maintenance	 Purge laterals, squirt and balance. Exercise valves to ensure functionality. Perform all maintenance work as recommended by equipment manufacturer for any special valves or other components. Investigate and repair erosion, drainage or other disposal field problems, as needed. Investigate and perform distribution system corrective work, as required. Record work done. 	 Distribution system maintenance annually. Other maintenance as required. 	
Water Monitoring & Sampling • Measure and record water levels in trench observation wells. • Measure and record water levels in dispersal field monitoring wells, as applicable, per permit requirements. • Obtain and analyze water samples from monitoring wells, as applicable, per permit requirements.		 Measure trench water levels annually. Other monitoring according to permit conditions, as applicable. 	
Reporting	 Report findings to DEH per permit requirements. Standard report to include dates, observation well and monitoring well readings and other data collected, work performed, corrective actions taken, and performance summary. Report public health/water quality emergency to DEH immediately. 	 According to permit conditions, typically every 1 to 2 years, depending on system size, usage, history, location. 	

AUG ORIG 23 / REV 1: 8 / REV 2:

95020

SEPTIC TANK & PUMP TANK:





1952.942 1997,188

2041.643

2086.309

2131.186

PUMP TANK DIAGRAM:

DOSE VOLUME

Vol. Pump On (836) - Pump Off (721)

(NOT TO SCALE)

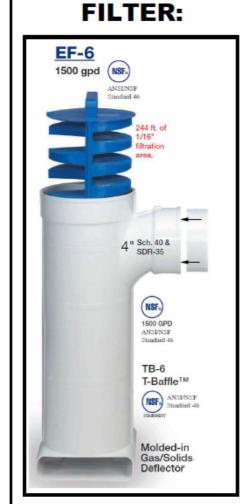
TANK RISERS TO GRADE

EMERGENCY STORAGE:

TANK FULL

55.8 ft

EFFLUENT



NO BAFFLE IN PUMP TANK

ELECRICAL JUNCTION

BOX ABOVE GRADE

pump intake

is 10" above

base of the

2" PVC OUTLET

TANKS BURIAL DEPTHS ARE: SEPTIC TANK: 12" PUMP TANK: 18" (TO TOP OF UNITS)

Float Valve Assembly:

1.5 days @ peak flow of 900 gpd

ISTANCES FROM TANK BOTTOM

Tank Volume @ FULL (2,221) - Tank Volume @ PUMP ON (836)

Orenco MF3PPP-57V

23"

20"

FLOAT POLE

ASSEMBLY

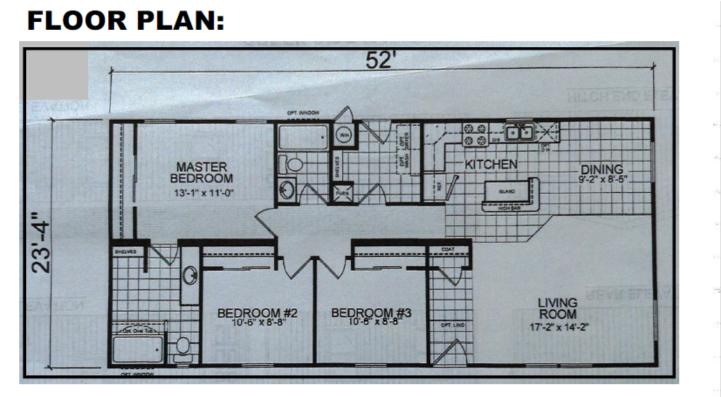
PUMP SELECTION CALCULATIONS:

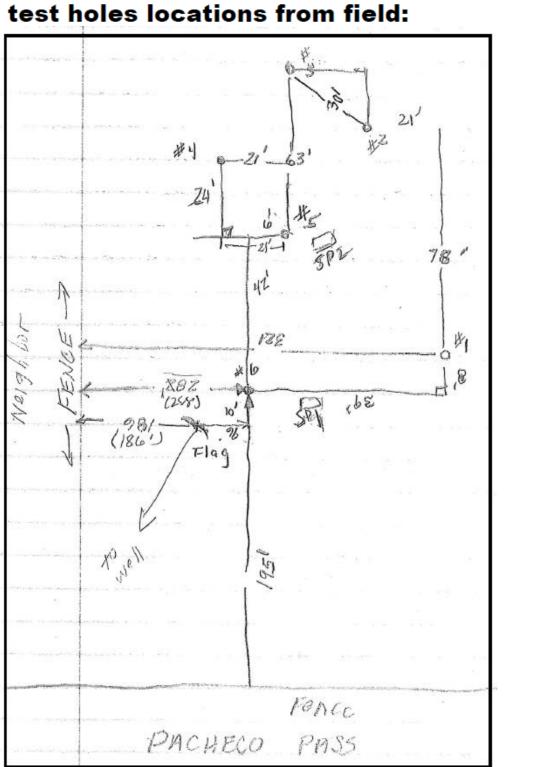
FLOW RATE - The orifice discharge rate for 3/16" diameter at 5 ft residual head is 0.93 gpm (SOURCE: COWA PD Design Manual, p. 153) Calculaton of hydraulics is hybrid of both sides of diverter using most orifices, longest pipe run, and most pipe fittings. 100 ft DF 18 gpm 489 ft DF 88 gpm Flow (# orifices):

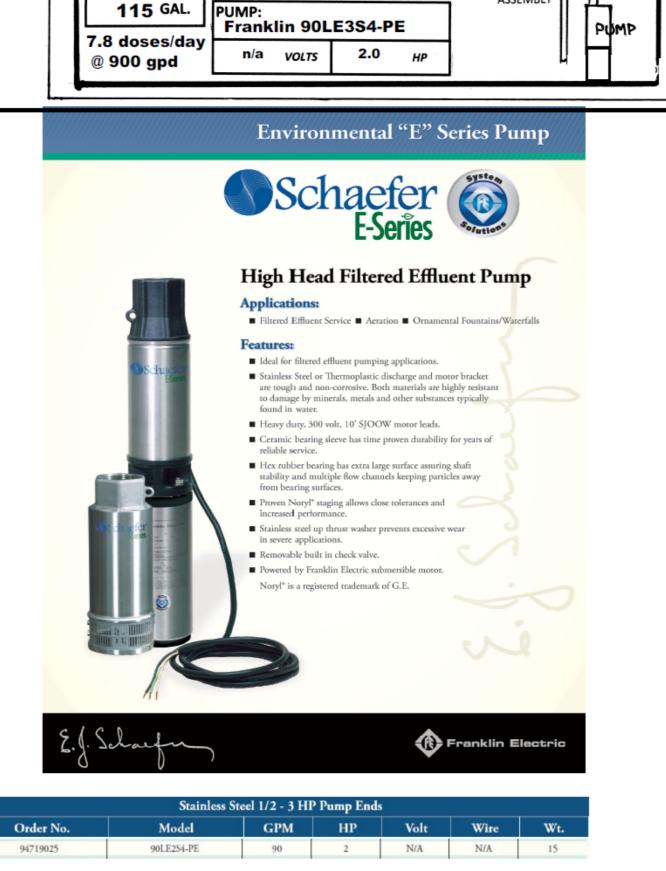
PRESSURE -		Note: All PVC is Schedule 40.	f = L (Q/K) ^{1.85} (SOURCE: COWA Manual, p. 154)	NOTE THAT FLOWS, LENGTHS & ELEVATIONS ARE	
				ORCE: COWA Manual, p. 154	EXAGGERATED FOR CONSERVATIVE
1. Lift in pump tank from pump discharge to outlet:					5.0 ft
2.	2. Elevation lift to PD laterals:				1.0 ft
3.	2"PVC Supply Ler	ngth & Fittings: 220 ft pipe length	+		

365 ft (88 gpm/284.5)^{1.85}= (1xCheck valve 19ft, 8x90o 44ft, 4 x 45° 10ft, 3 x T-branch 36ft, 8 x T-thru 32ft, 2xgate valve 4 ft) 41.6 ft 60 ft (18 gpm/284.5)^{1.85}= . Pipe size reduction at PD lateral (2" to 1 1/2" coupler fitting) equivalent length is 60 ft. 0.4 ft 139 ft (18 gpm/147.5)^{1.85} = . 1 1/2" PVC PD Lateral: 100 ft Pipe + 39 ft fittings (90 degree sweep 3 ft + ball valve 36 ft) 2.8 ft . Residual Head 5.0 ft

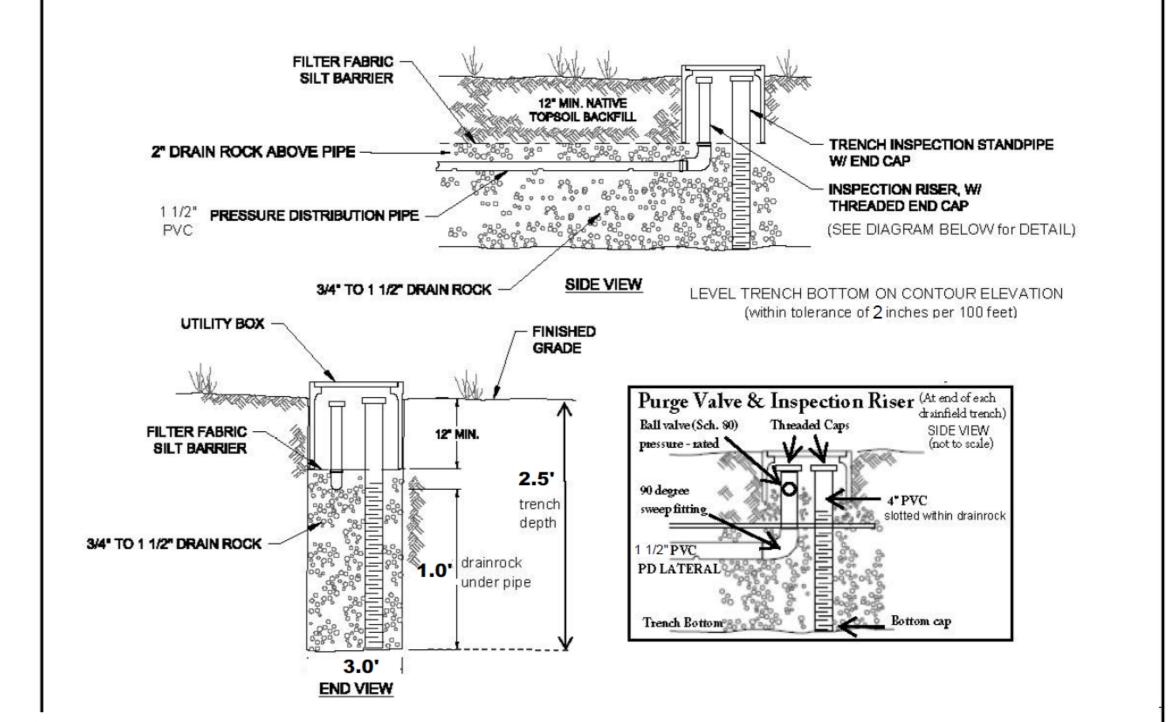
This design point (88 gpm @ 56 ft) are labeled on the pump performance curve for the selected pump

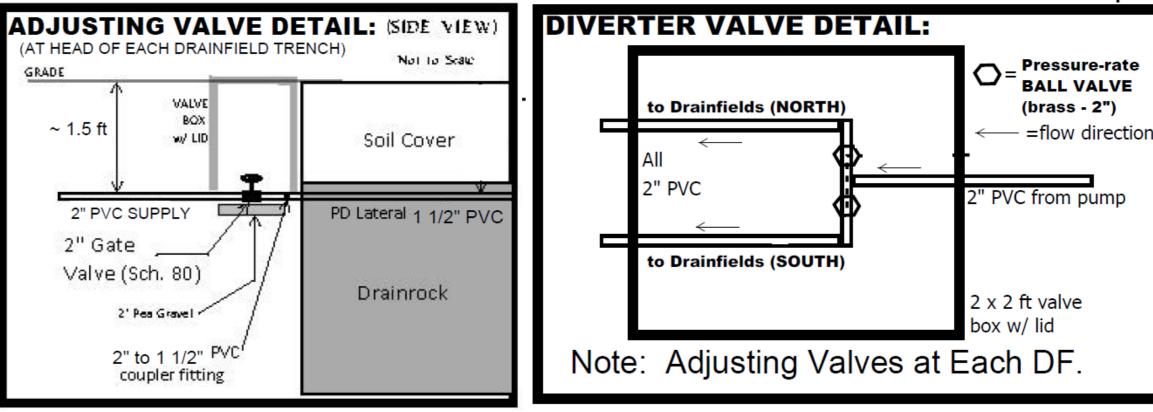


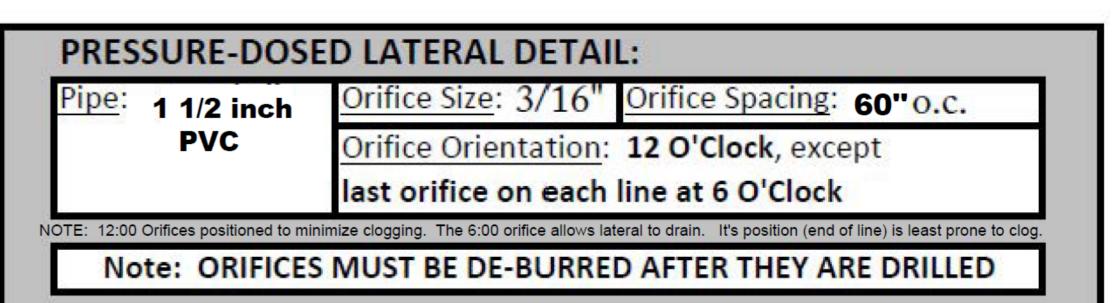


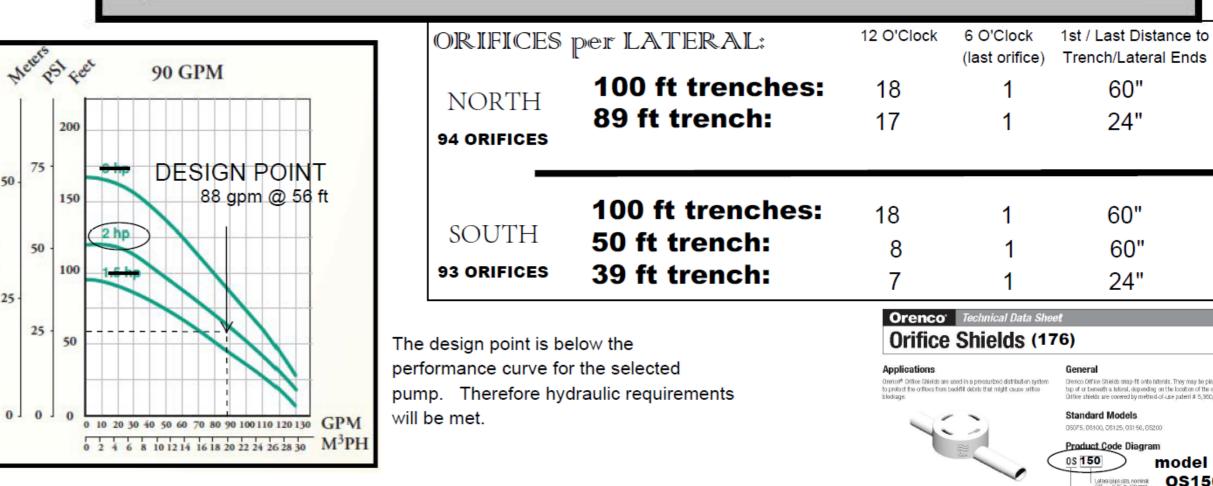


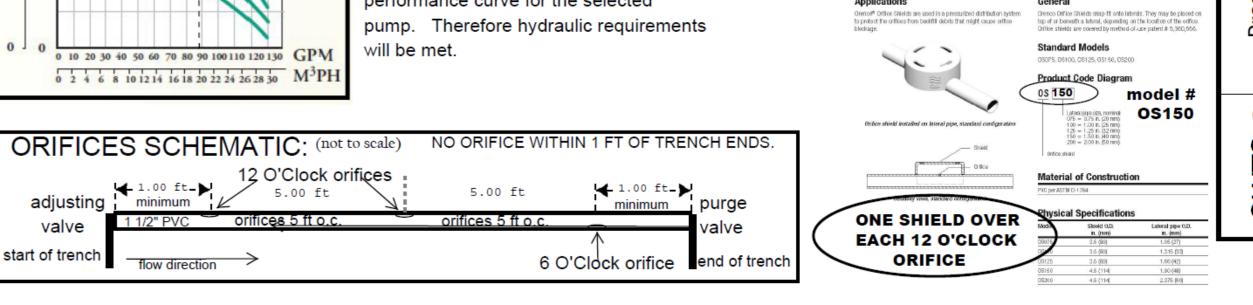
PRESSURE-DOSED TRENCH & LATERALS:











Pressure-rate

BALL VALVE (brass - 2")

Trench/Lateral Ends

(last orifice)

Gilroy R0867

on Pac APN 8