FLOW CALCULATIONS:

DAILY DESIGN FLOW: 50 PEOPLE TIMES 11.28 GALLONS/DAY = 564 GPD

TRENCH BOTTOM AREA: 564 GPD/0.3 LTAR = 1880 SF

LINEAR FOOTAGE: 1880 sf/3' WIDE TRENCHES = 627 LF

25% REDUCTION: 0.75 TIMES 627 = 471 LINEAR FEET

USE 5 LINES AT 100 LF = 500 LF OF NITRIFICATION LINES

DOSE VOULME: 333 GALLONS (66% OF 4" LINE CAPACITY)

PUMP TANK SIZING:

PUMP HEIGHT IS 12" AND TANK WITH 27 GALLONS PER INCH:

PUMP SUBMERGENCE VOLUME	= 1053 GALLONS
DOSE VOLUME	= 333 GALLONS
EMERGENCY STORAGE	= 1500 GALLONS
PUMP TANK SIZE (MIN.)	= 1500 GALLONS

PUMP CALCULATIONS:

PUMP DESIGN FLOW=7.11X4	= 28.44 GPM
PUMP DESIGN RUN TIME=333 GALLONS/28.44GPM	= 11.71 MINUTES
ELEVATION HEAD	= 0 FEET
PRESSURE HEAD	= 2 FEET
FRICTION HEAD=1110'X0.866FT/100FT	= 10 FEET
TOTAL DESIGN HEAD	= 12 FEET

CONTROL PANEL:

THE CONTROL PANEL SHALL MEET STATE APPROVAL AND MEET THE SPECIFICATIONS SET FORTH IN RULE .1952(c)(6) WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:

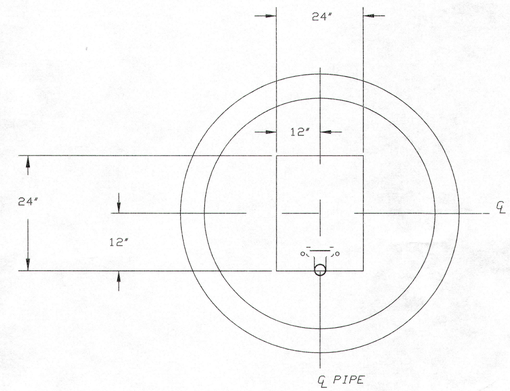
1. HIGH WATER LEVEL ALARM EVENT COUNTER
2. PUMP EVENT COUNTER
3. PUMP ELAPSED TIME METER
4. MAGNETIC MOTOR CONTACTOR
5. HOA SWITCH
6. CONTROL CIRCUIT FUSE
7. ALARM CIRCUIT FUSE
8. FLOAT SWITCH TERMINAL BLOCK
9. CIRCUIT BREAKER FOR EACH PUMP
10. CIRCUIT BREAKER FOR THE ALARM/CONTROL CIRCUIT
11. NEMA 4X ALARM STROBE BEACON
12. NEMA 4X ALARM HORN (83 DECIBELS @ 3' MINIMUM) WITH AUTO RESET
13. NEMA 4X EXTERIOR HORN TEST/NORMAL/SILENCE SWITCH
14. GROUND LUG
15. 2 LOCKABLE HASPS OR ONE LOCKABLE HASP & 2 CAPTIVE SCREWS OPPOSITE THE HINGES OF THE NEMA 4X ENCLOSURE
16. PUMP RUN LIGHT

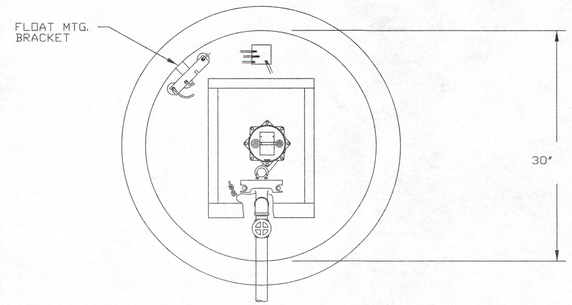
CONTROLS SHALL REQUIRE THE PUMP ENABLE FLOAT SWITCH TO BE ACTIVATED (MINIMUM DOSE VOLUME PRESET) BEFORE THE START OF ANY PUMP CYCLE. CYCLES SHALL BE SHUT OFF BY THE RUN TIMER OR THE LOW-WATER CUT-OFF FLOAT (NOT BY DEACTIVATION OF THE ENABLE FLOAT).

PT- 333

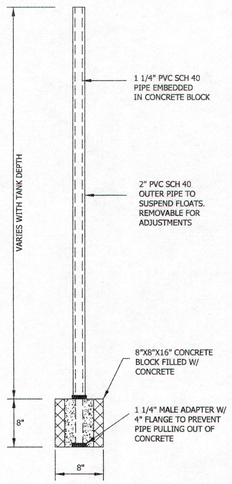
Approval Date 2-28-01
Liquid Capacity 1500 Gallons
Traffic Rated
Reinforcing Schedule: See Engineer Drawing
4500 PSI Concrete w/ State Approved Structural Fiber
5 Yds. Est Weight 20,000 lbs. 43 Gallons per in.

Manufactured By:
Blackwelder Tank Service, Inc.
121 Stanton Hill Rd.
Carthage NC 28327
Phone 919-718-5181
Fax 919-775-2229
blackwelder tank . com





TYPICAL INSTALLATION
SIMPLEX SUBMERSIBLE SEWAGE PUMP



FLOAT PUMP DETAIL
NOT TO SCALE

Flow Through Orifices, Pressure Manifolds

A. Sch 40 taps.

Holes Size

Head (ft)	½ -inch (.622)	3/4-inch (.824)	1-inch (1.049)	1-1/4 inch (1.38)	1-1/2 inch (1.61)	2-inch (2.067)
1.5	6.16	10.8	17.5	30.3	41.3	68.0
2	7.11	12.5	20.2	35.0	47.7	78.5
2.5	7.95	14.0	22.6	39.1	53.3	87.8
3	8.71	15.3	24.8	42.9	58.4	96.2
3.5	9.41	16.5	26.8	46.3	63.0	104
4	10.1	17.7	28.6	49.5	67.4	111

B. Sch 80 taps.

Hole Size

Head (ft)	½ -inch (.546)	3/4-inch (.742)	1-inch (.957)	1-1/4 inch (1.278)	1-1/2 inch (1.50)	2-inch (1.939)
1.5	4.75	8.77	14.6	26.0	35.8	59.9
2	5.48	10.1	16.8	30.0	41.4	69.1
2.5	6.13	11.3	18.8	33.6	46.2	77.3
3	6.71	12.4	20.6	36.8	50.7	84.7
3.5	7.25	13.4	22.3	39.7	54.7	91.4
4	7.75	14.3	23.8	42.5	58.5	97.8

$Q = 13\ d^2\ h^{.5}$
Where Q=flow per orifice (gpm)
d=diameter of orifice (inches)
h=pressure head (feet)

S:\OSWW\OSWW_HOME\LARGEOSW\FLOWTHRO.WPD

NORTH CAROLINA PROFESSIONAL SEAL 6786 ENGINEER GERALD V. GRANT

06-20-2016

Site Planning · Engineering · Surveying

GV GRANT & ASSOCIATES
P.O. BOX 268
STATESVILLE, NC 28687
PHONE: (704) 872-3136
matt@gvgrant.com

OWNER/DEVELOPER:
M. WILLIAM McCOMBS, III
BUFFALO SHOALS FAMILY LIMITED PARTNERSHIP
117 SLINGSHOT ROAD,
STATESVILLE, NC 28677
704-873-7563

PUMP TANK DETAILS FOR
BUFFALO SHOALS PROPERTIES
FAMILY LIMITED PARTNERSHIP

DEED REF: ILLUSTRATED PIN: ILLUSTRATED
STATESVILLE INSIDE / OUTSIDE TOWNSHIP IREDELL COUNTY NORTH CAROLINA

REVISIONS:

NO.	DATE	DESCRIPTION	
1	6/20/16	ISSUED FOR PERMIT	GV

DRAWN	SMS
CHECK	GVG
DATE	06-20-
SCALE	1" =
PROJ. NO.	G1

SHEET:
C-