Mitchell Environmental, P.A.

SEPTIC SYSTEM DESIGN

for

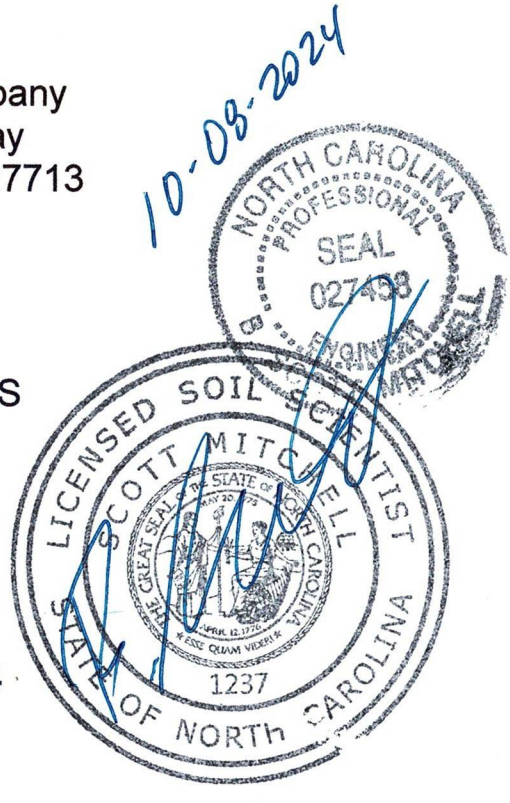
DUKE ENERGY – DUNN TRANSMISSION HQ

Jonesboro Road
Dunn, Harnett County, North Carolina

Submitted to:
Harnett County Health Department
307 Cornelius Harnett Blvd.
Lillington, NC 27546

Prepared for:
John R. McAdams Company
2905 Meridian Parkway
Durham, North Carolina 27713

Prepared by:
Scott Mitchell, PE, LSS
Adam Aycock, EI



DATE: October 8, 2024
PROJECT NO.: 2122

1501 Lakestone Village Lane, Suite 205
Fuquay-Varina, North Carolina 27526
919-669-0329

Print this page

Harnett COUNTY NORTH CAROLINA

Property Description:

34.74ACS HARNETT OPS CENTER MAP#2022-164

Harnett County GIS

PID: 021527 0273

PIN: 1527-91-9952.000

REID: 0031017

Subdivision:

Taxable Acreage: 34.740 AC ac

Caclulated Acreage: 34.21 ac

Account Number: 1500043875

Owners: ROTHWELL SHARON JOHNSON TRUSTEE & JOHNSON JESSE WOODROW TRUSTEE

Owner Address : 140 W FRANKLIN ST UNIT 711 CHAPEL HILL, NC 27516-2589

Property Address: JONESBORO RD DUNN, NC 28334

City, State, Zip: DUNN, NC, 28334

Building Count: 0

Township Code: 02

Fire Tax District: Dunn Averasboro

Parcel Building Value: 0

Parcel Outbuilding Value : 0

Parcel Land Value : 269230

Parcel Special Land Value : 34950

Market Value : 269230

Parcel Deferred Value : 234280

Total Assessed Value : 34950

Neighborhood: 00200C

Actual Year Built:

TotalAcutalAreaHeated: Sq/Ft

Sale Month and Year: 8 / 2021

Sale Price: $0

Deed Book & Page: 4028-0888

Deed Date: 1628812800000

Plat Book & Page: 2022-164

Instrument Type: WD

Vacant or Improved:

QualifiedCode: A

Transfer or Split: T

Within 1mi of Agriculture District: No

Prior Building Value: 0

Prior Outbuilding Value : 0

Prior Land Value : 199420

Prior Special Land Value : 30560

Prior Deferred Value : 168860

Prior Assessed Value : 199420

Duke Energy-Dunn Transmission Headquarters

Flow Equalization Septic System Operation Calculations and Schedule

County: Harnett
Address: Jonesboro Road
Dunn, NC

Project #: 2122
Date: December 2, 2022
PIN: 1527-91-9952

Wastewater Flow Per Office Employee (gpd):	25	(in office 8 hrs per day)
Wastewater Flow Per Hybrid Employee (gpd):	12.5	(in office 4 hrs per day)
Wastewater Flow Per Field Employee (gpd):	6.25	(in office 2 hrs per day)

Dose Cycle	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Office Employees ?	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No
Number of Office Employees	0	75	10	10	10	10	0	0	10	10	10	10	10	0
Hybrid Employees ?	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No
Number of Hybrid Employees	0	10	10	10	10	10	0	0	10	10	10	10	10	0
Field Employees ?	No	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	No
Number of Field Employees	0	20	20	20	20	20	0	0	20	20	20	20	20	0
Design Flow (gpd)	0	2125	500	500	500	500	0	0	500	500	500	500	500	0
Equalized Volume (gpd)	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21	-473.21
Effluent Remaining After Dose (gal)	0.00	1651.79	1678.57	1705.36	1732.14	1758.93	1285.71	812.50	839.29	866.07	892.86	919.64	946.43	473.21

Total Gallons Per Two Week Cycle:	6625	Total Pipe Length in Gravel Conventional Nitrification Field:	460
Equalized Gallons Per Day:	473.21	Minimum Percent of Pipe Volume Per Dose:	52.5
Doses Per Day:	3	Dose Rate (gal/min):	21.93
Calculated Gallons Per Dose:	157.74	Minimum Pump Run Time Per Dose (min):	7.19
Design Gallons Per Dose:	166.67	Design Pump Run Time Per Dose (min):	7.60

Tank Sizing Calculations

Septic Tank

Maximum Daily Wastewater Design Flow (gpd):	2125	Minimum Septic Tank Volume (gal):	2719

Equalization / Pump Tank

Effluent Depth for Pump Submergence (in):	15	Tank Gallons / Inch:	104.42
Pump Submergence Volume (gal):	1566.3	Dose Volume (gal):	166.67
Design Distance From Timer Over-Ride Float Activation Level to Effluent Surface at Storage of Pump Submergence Volume + Minimum Dose Volume + Equalization Volume (in):	3	Equalization Volume (gal):	2125
		Timer Over-Ride Volume (gal):	313.26
Emergency Storage Volume (gal):	2125	Minimum Pump Tank Volume (gal):	6296

PRESSURE MANIFOLD DESIGN

Name: McAdams **P.I.N. #:** 1527-91-9952 **D #:** N/A

Address: Jonesboro Road **Site:** Duke Energy - Dunn

Equalized Design Flow: 473.21 **gal/day** **L.T.A.R.:** 0.350 **gal/day/sq.ft**

Septic Tank: 2750 **gals (min.)** **Pump Tank:** 6370 **gals (min.)** **Sq. Foot:** 500 **Stone Depth:** 12" (Gravel)

Number of Taps: 4 **Length of Trenches:** Varies **ft(See Tap Chart for Details)**

Depth of Trenches: 18-24 **Manifold Length:** 42 **in**

Manifold Diameter: 4 in sch 80pvc (minimum) **Tap Configuration: 6 in spacing** 1 **side(s) of manifold**

Supply Line: length: 200 **ft** **Diameter:** 2 **in sch 40pvc**

Friction Loss + Fitting Loss: 3.15 **ft(supply line length + 70' for fittings in pump tank)**

Design Head: 2.0 **ft** **Elevation Head:** 5.00 **ft**

Vent Hole Size: 3/16 **in** **Orifice Coefficient of Discharge:** 0.60

Orifice Coefficient of Contraction: 0.62 **Orifice Coefficient of Velocity:** 0.97

Maximum Head Supplied by Selected Pump(s) at Total Design Flowrate: 27 **ft**

Orifice / Vent Hole Flowrate: 2.15 **gpm** **Head Loss at Orifice / Vent Hole:** 1.71 **ft**

Total Head: 11.87 **ft** **Pump to Deliver:** 24.07 **gals/min at** 11.87 **ft head**

Dosing Volume: 148.82 **gals.**

Drawdown: 148.82 **gals divided by** 104.42 **gals/in =** 1.43 **inches**

SJE Rhombus Installer Friendly Series simplex control panel, or equivalent, required
A septic tank filter, or equal is required.
Possible pumps: **Hydromatic:** **Goulds:** **Myers:**
Zoeller: 152 **Other:**

TAP CHART

Bench Mark	1.95	is = 100.00	set at	Top of telephone pedestal by cemetary entrance			**Design Head:**	2.0	
Pump tank elev.		5	96.95	**Pump elev.**	91.95		**Manifold elev.**	96.08	
line	**color**	**rod read**	**Elevation**	**length**	**hole size**	**flow/tap**	**gal/day**	**trench area**	**LINE LTAR**
5	Purple	6.87	95.08	125	1/2in SCH 80	5.48	118.30	375	0.3155
6	Lime	7.06	94.89	125	1/2in SCH 80	5.48	118.30	375	0.3155
7	Blue	7.25	94.70	125	1/2in SCH 80	5.48	118.30	375	0.3155
8	White	7.50	94.45	125	1/2in SCH 80	5.48	118.30	375	0.3155
		total	**feet =**	**500**	**gal/min =**	**21.9**		**LTAR =**	**0.3500**
% of Pipe Vol.		45.79		**Des. Flow**	473.21			**(ltar + 5%)**	0.3675
Dose Volume		148.82		**Pump Run=**	21.59				
Dose Pump Time		6.79		**Tank Gal/IN**	104.42				
Drawdown in Inches		1.43		**Elev. Head**	4.13				
Supply Line Length		200							

Comments:

PRESSURE MANIFOLD DESIGN

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Number of Taps: 4 **Length of Trenches:** Varies **ft(See Tap Chart for Details)**

Depth of Trenches: 18-24 **Manifold Length:** 42 **in**

Manifold Diameter: 4 in sch 80pvc (minimum) **Tap Configuration: 6 in spacing** 1 **side(s) of manifold**

Supply Line: length: 160 **ft** **Diameter:** 2 **in sch 40pvc**

Friction Loss + Fitting Loss: 3.90 **ft(supply line length + 70' for fittings in pump tank)**

Design Head: 2.0 **ft** **Elevation Head:** 5.00 **ft**

Vent Hole Size: 3/16 **in** **Orifice Coefficient of Discharge:** 0.60

Orifice Coefficient of Contraction: 0.62 **Orifice Coefficient of Velocity:** 0.97

Maximum Head Supplied by Selected Pump(s) at Total Design Flowrate: 23 **ft**

Orifice / Vent Hole Flowrate: 1.99 **gpm** **Head Loss at Orifice / Vent Hole:** 1.46 **ft**

Total Head: 12.36 **ft** **Pump to Deliver:** 28.80 **gals/min at** 12.36 **ft head**

Dosing Volume: 159.73 **gals.**

Drawdown: 159.73 **gals divided by** 104.42 **gals/in =** 1.53 **inches**

SJE Rhombus Installer Friendly Series simplex control panel, or equivalent, required
A septic tank filter, or equal is required.
Possible pumps: **Hydromatic:** **Goulds:** **Myers:**
Zoeller: 152 **Other:**

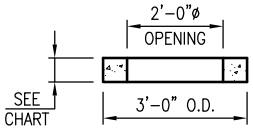
TAP CHART

Bench Mark	1.95	is = 100.00	set at	Top of telephone pedestal by cemetary entrance			**Design Head:**	2.0	
Pump tank elev.		5	96.95	**Pump elev.**	91.95		**Manifold elev.**	96.70	
line	**color**	**rod read**	**Elevation**	**length**	**hole size**	**flow/tap**	**gal/day**	**trench area**	**LINE LTAR**
1	Pink	6.25	95.70	120	1/2in SCH 40	7.11	125.50	360	0.3486
2	Yellow	6.32	95.63	100	1/2in SCH 80	5.48	96.72	300	0.3224
3	Orange	6.46	95.49	120	1/2in SCH 40	7.11	125.50	360	0.3486
4	Green	6.62	95.33	120	1/2in SCH 40	7.11	125.50	360	0.3486
		total	**feet =**	**460**	**gal/min =**	**26.8**		**LTAR =**	**0.3500**
% of Pipe Vol.		53.42		**Des. Flow**	473.21			**(ltar + 5%)**	0.3675
Dose Volume		159.73		**Pump Run=**	17.65				
Dose Pump Time		5.96		**Tank Gal/IN**	104.42				
Drawdown in Inches		1.53		**Elev. Head**	4.75				
Supply Line Length		160							

Comments:

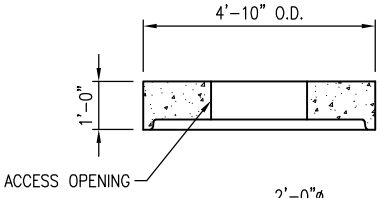
☐ GRADE RING

HEIGHT	WEIGHT (lbs)
4"	200
6"	300



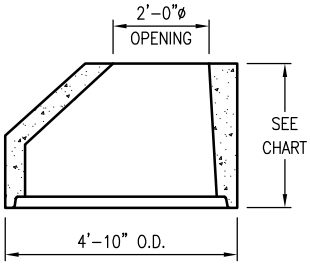
☐ FLAT TOP

WT = 1,700 LBS.



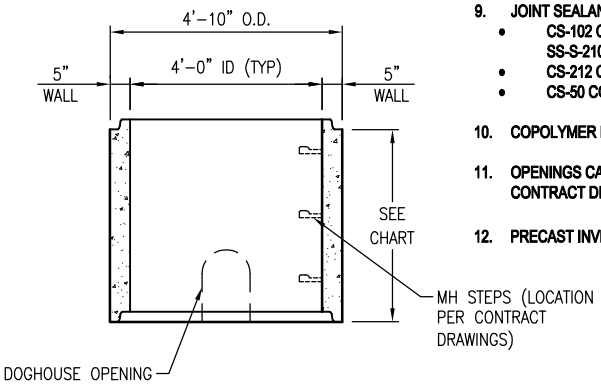
☑ CONE

HEIGHT	WEIGHT (lbs)
2.00'	1680
3.00'	2520
4.00'	3450
5.00'	4300
6.00'	5200



☑ RISER SECTION

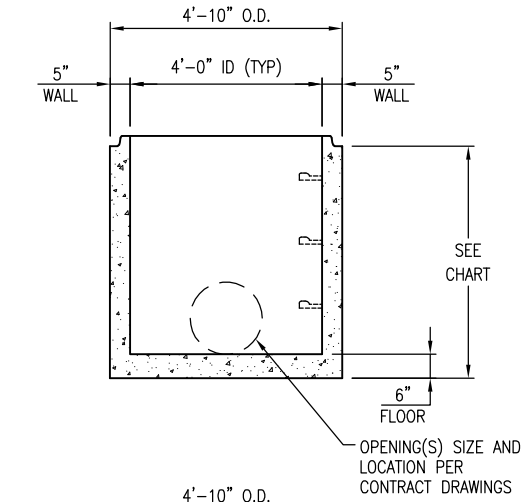
HEIGHT	WEIGHT (lbs)
1.00' RISER	875
1.33' RISER	1,165
2.00' RISER	1,750
2.67' RISER	2,350
3.00' RISER	2,625
4.00' RISER	3,500



☐ DOGHOUSE RISER SECTION

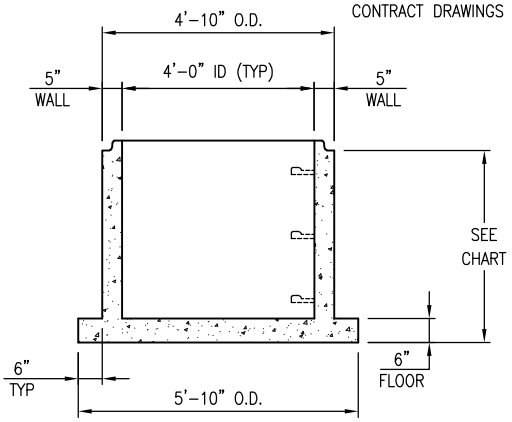
☑ STANDARD BASE SECTION

HEIGHT	WEIGHT (lbs)
2.00' BASE	2,800
2.50' BASE	3,200
2.67' BASE	3,350
3.00' BASE	3,650
3.50' BASE	4,100
4.00' BASE	4,500



☐ EXTENDED BASE SECTION

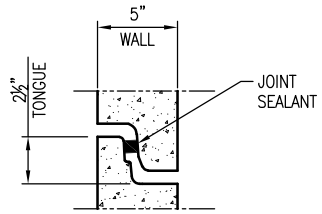
HEIGHT	WEIGHT (lbs)
2.00' BASE	3,450
2.50' BASE	3,850
2.67' BASE	4,000
3.00' BASE	4,300
3.50' BASE	4,750
4.00' BASE	5,150



SCALE (TYP): 1/4" = 1'-0"

GENERAL DESIGN NOTES:

1. STRENGTH DESIGN METHOD IN ACCORDANCE WITH (I.A.W.) ACI 318.
2. APPLICABLE DESIGN DOCUMENTS (CURRENT EDITIONS):
   - ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (MAIN DESIGN SPECIFICATION).
   - ASTM C890 STANDARD PRACTICE FOR MINIMUM STRUCTURAL LOADING FOR MONOLITHIC OR SECTIONAL PRECAST CONCRETE WATER AND WASTEWATER STRUCTURES (LOADING SPECIFICATION).
   - ASTM C478 STANDARD SPECIFICATION FOR PRECAST MANHOLES (PRODUCT SPECIFICATION).
3. PRECAST RATED FOR HS20-44 TRUCK LIVE LOAD W/ IMPACT I.A.W. ASTM C890.
4. MAX DEPTH TO INVERT OF MANHOLE (I.E. FLOOR) = 30'.
5. LATERAL DESIGN PRESSURES (AS APPLICABLE TO DESIGN):
   - EQUIV DRY SOIL FLUID PRESSURE = 47 PCF.
   - EQUIV SATURATED SOIL FLUID PRESSURE = 85 PCF.
   - HYDROSTATIC WATER PRESSURE = 62.4 PCF.
   - LIVE LOAD SURCHARGE = 80 PSF
7. DESIGN CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS = 4,000 PSI (MIN).
8. REINFORCEMENT:
   - CARBON-STEEL DEFORMED BARS: ASTM A615, fy = 60KSI (MIN).
   - WELDED WIRE REINFORCEMENT (PLAIN): ASTM A1064 fy = 65 KSI (MIN).
   - WELDED WIRE REINFORCEMENT (DEFORMED): ASTM A1064 fy = 70 KSI (MIN).
9. JOINT SEALANT (PER CONTRACT SPECIFICATIONS):
   - CS-102 CONSEAL BUTYL RUBBER SEALANT (OR EQUIV.) I.A.W. ASTM C990 FED. SPEC. SS-S-210.
   - CS-212 CONSEAL EXTERIOR JOINT WRAP (OR EQUIV.) I.A.W ASTM C877 AND ASTM C990.
   - CS-50 CONSEAL LIQUID BUTYL PRIMER (OR EQUIV.) AS NEEDED.
10. COPOLYMER POLY PROPYLENE STEEL REINFORCED STEPS I.A.W ASTM C478 SPACED 16" O.C.
11. OPENINGS CAST OR CORED IN MANHOLE TO DEFLECTIONS AND ELEVATIONS SPECIFICED ON CONTRACT DRAWINGS MAX HOLE SIZE IS 42" (30" RCP).
12. PRECAST INVERT PROVIDED UPON REQUEST: MIN ½" PER FT BENCH SLOPE FROM SPRINGLINE



JOINT DETAIL

SCALE: 1" = 1'-0"

Oldcastle Infrastructure
A CRH COMPANY
1431 PRODUCTS ROAD, NC
OFFICE 919-552-2252, FAX 1-844-866-7478
NC ENGINEERING LICENSE #F-1002

4' DIAMETER MANHOLE

SUMBITTAL LAYOUT

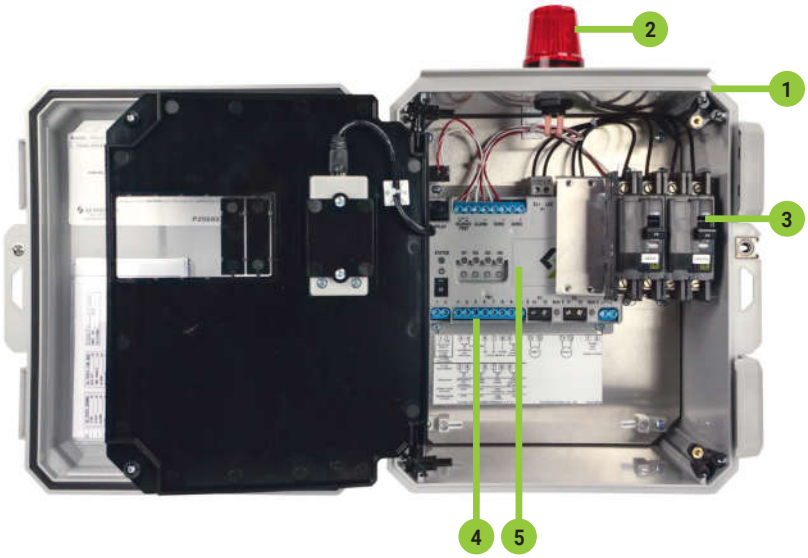
CUSTOMER
STANDARD

DATE	SALES	DRAWN	ENGINEER	CHECKED	SALES ORDER
2/2/24		PPS			

DRAWING NUMBER	REVISION	SHEET
4-MH-2017	REV DATE	1 OF 1

INSTALLER FRIENDLY SERIES® (IFS)
SINGLE PHASE DUPLEX

Demand Dose or Timed Dose, Float or C-Level™ Sensor Controlled System for Pump Control and System Monitoring



c UL us LISTED

5 YEAR LIMITED WARRANTY

Panel layout may vary with options.
Reg. Cdn Pat. & TM Off
C-Level™ Sensor US Patent No. 8,336,385; 8,567,242; 8,650,949

The Next Generation IFS duplex control panel utilizes an innovative circuit board design enclosed in a touch-safe housing to control two 120/208/240V single phase pumps in water and sewage applications. These newly redesigned IFS panels feature an easy-to use color LCD interface located on the inner door for programming and system monitoring. The panel configuration can be easily converted in the field to either a timed dose or demand dose through the LCD interface. Available with the EZconnex® float system.

The panel can easily be changed in the field to utilize either floats or the patented C-Level™ sensor for continuous level monitoring. The C-Level™ sensor senses the level in the tank and sends a signal to the panel. Pump activation levels can be adjusted by using the LCD interface. C-Level™ CL40 sensor operating range is 3-39.9 inches (7.6-101.3 cm). C-Level™ CL100 operating range is 3-99.5 inches (7.6-252.7 cm). The C-Level™ Sensor features a five year limited warranty.

LCD INTERFACE FEATURES

- Full color graphics and menu navigation encoder for easy setup
- Touch safe housing
- Pump Hand/Off/Auto Control selectable via menu navigation
- C-Level™ Sensor or Float operation selectable via menu navigation
- Demand or Timed Dose operation selectable via menu navigation
- Tank Level Indication and setpoint monitoring at-a-glance
- Lead pump is easily identified by a graphic ring around the current lead pump regardless of control mode (timed dose or demand)
- Displays remaining time in each active ON or OFF Timed Dose mode, as well as at-a-glance ON or OFF time elapsed graphic around lead pump
- RJ45 communication connector
- Flashing function for alarm beacon and horn (configurable)
- Manual alarm reset (configurable)

SJE RHOMBUS®

COMPONENTS

1. Enclosure measures 12 x 10 x 6 inches (30.48 x 24.4 x 15.24) NEMA 4X (ultraviolet stabilized thermoplastic, padlockable with integral mounting flanges, drip shield, heavy duty cover latches, and stainless steel ¼ turn set screw; for outdoor or indoor use)
2. Red Alarm Beacon provides 360° visual check of alarm condition
3. Circuit breakers provides pump power disconnect and branch circuit protection included as standard on all panels
4. C-Level™ Sensor and float connection terminal blocks
5. Controller Features:
   a. Incoming Control/Alarm Power terminal blocks
   b. Control/Alarm Power/System Status green LED indicators illuminate if control/alarm power is present and controller is operating*
   c. Controller status green LED indicators for: Power/Active, Float Input Status, Pump Run, C-Level Active*
   d. Normally open auxiliary alarm contacts included as standard
   e. Control Power On/Off switch
   f. Green LED Pump Run indicators illuminate when pump is called to run*
   g. Control panel able to operate if LCD interface fails or is disconnected
   h. Touch safe housing
6. Alarm Horn provides audible warning of alarm condition (not shown)
7. Exterior Alarm Test/Silence push button allows horn and light to be tested and horn to be silenced in an alarm condition; alarm automatically resets once alarm condition is cleared (not shown)
8. Modbus Port (RJ45) for future expansion - eg. seal fail modules, remote monitoring, valve control, In-Site®, logging, etc. (not shown)

*In fault condition, LED indicators will be red.

Note: Added options, voltage, and amp range selected may change enclosure size and enclosure features, and component layout.

Note: Schematic/Wiring Diagram and Pump Specification Label are located inside the panel.

9500054M Rev 10/22

INSTALLER FRIENDLY SERIES® SINGLE PHASE DUPLEX - Demand or timed dose float controlled system for pump control and system monitoring.

IFN	4	1	W	1	Note	4	Note	6A8AC10E
CONTROL PANEL	MODEL TYPE	ALARM PACKAGE	ENCLOSURE RATING	STARTING DEVICE	PUMP FULL LOAD AMPS	PUMP DISCONNECTS	FLOAT SWITCH APPLICATION	OPTIONS (LISTED BELOW)

CONTROL PANEL	✓	IFN	
MODEL TYPE	✓	4	Single Phase Duplex (includes Options 6A, 8AC and 10E as standard)
ALARM PACKAGE	✓	1	Alarm Package (includes test/normal/silence switch, fuse, red light, & horn)
ENCLOSURE RATING	✓	W	Weatherproof, NEMA 4X (engineered thermoplastic)
STARTING DEVICE	✓	1	120/208/240V
PUMP FULL LOAD AMPS		0	0 - 7 FLA
		1	7 - 15 FLA
		2	15 - 20 FLA
PUMP DISCONNECTS	✓	4	Circuit Breaker 120/208/240V
FLOAT SWITCH APPLICATION		H	Floats - Pump Down (select Option 17 below) Timed dose = redundant off, timer enable, alarm / Demand dose = stop, start, alarm (all systems will ship with 3 floats by default)
		E	EZconnex® Float Switch System (select Option 33 or 35 below)
		X	No Floats
		C	C-Level™ Sensor (select Option 24 or 29) Select Option 3E and/or 4D for high water alarm and/or redundant off floats

NOTE: Pump down applications only. Industry practices suggest that a secondary device, such as a float switch, be used for redundant activation of the high level alarm and pump shut off when using the C-Level™ sensor.

PRICING WORKSHEET

IFS Duplex Base Price	_____
Alarm Package	_____
Enclosure Rating	_____
Starting Device	_____
Pump Full Load Amps	_____
Pump Disconnects	_____
Float Switch Application	_____
Total Options	_____
TOTAL LIST PRICE	_____

	OPTIONS	DESCRIPTION
	1J	Duo Alarm Inputs
	3E	High Water Alarm Float (must also select Option 17) **Only Available with Float Switch Application = C**
	4D	Redundant Off Float (must also select Option 17) **Only Available with Float Switch Application = C**
✓	**6A**	**Auxiliary Alarm Contact, Form C included as standard)**
✓	**8AC**	**Display Board - Includes: ETM Counter, Events (Cycles) Counter, Alarm Counter, and Override Counter (Timed Dose Only) (included as standard)**
✓	**10E**	**Lockable Latch - NEMA 4X (included as standard)**
X	10F	Lightning Arrestor (must also select Option 15A)
	10K	Anti-condensation Heater (must also select Option 15A)
	11C	Additional NEMA 1 Remote Alarm Panel
	11D	Additional NEMA 4X Remote Alarm Panel
X	15A	Control/Alarm Circuit Breaker
	16A	10' Cord in Lieu of 20' Cord (per Float)
	16B	15' Cord in Lieu of 20' Cord (per Float)
	16C	30' Cord in Lieu of 20' Cord (per Float)
	16D	40' Cord in Lieu of 20' Cord (per Float)

	OPTIONS	DESCRIPTION
	17C	Sensor Float® / Internally Weighted (per Float) - Mercury
	17D	Sensor Float® / Externally Weighted (per Float) - Mercury
	17G	SJE MilliAmpMaster™ / Pipe Clamp (per Float) - Mechanical
	17H	SJE MilliAmpMaster™ / Externally Weighted (per Float) - Mechanical
	17J	Sensor Float® / Pipe Clamp (per Float) - Mercury
	19F	Additional 4th Float (Timer Override or Lag) **Only Available with Float Switch Application = H**
	24E	C-Level™ CL40 Sensor with 4' Vent Tube and 20' Cord
	24F	C-Level™ CL40 Sensor with 4' Vent Tube and 40' Cord
	24G	C-Level™ CL40 Sensor with 8' Vent Tube and 20' Cord
	24H	C-Level™ CL40 Sensor with 8' Vent Tube and 40' Cord
	24X	No C-Level™ CL40 Sensor
	29A	C-Level™ CL100 Sensor with 10' Vent Tube and 20' Cord
	29B	C-Level™ CL100 Sensor with 10' Vent Tube and 40' Cord
	29X	No C-Level™ CL100 Sensor
	33D ■	EZconnex® 3-Port, 25', with 10' Floats (3) / Pipe Clamp
	33E ■	EZconnex® 3-Port, 50', with 10' Floats (3) / Pipe Clamp
	33G ■	EZconnex® 3-Port, 25', with 20' Floats (3) / Pipe Clamp
	33H ■	EZconnex® 3-Port, 50', with 20' Floats (3) / Pipe Clamp
	35D ■	EZconnex® 4-Port, 25', with 10' Floats (4) / Pipe Clamp
	35E ■	EZconnex® 4-Port, 50', with 10' Floats (4) / Pipe Clamp
	35G ■	EZconnex® 4-Port, 25', with 20' Floats (4) / Pipe Clamp
	35H ■	EZconnex® 4-Port, 50', with 20' Floats (4) / Pipe Clamp

■ EZconnex® mechanically-activated, narrow angle float switches with quick release connections

Note: Starting device, pump full load amps, cord length, and float type to be selected by installer and their electrician upon selection of pump.

Trusted. Tested. Tough.®

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER® PUMP COMPANY

SECTION: 2.20.030
FM2789
0222
Supersedes
0621

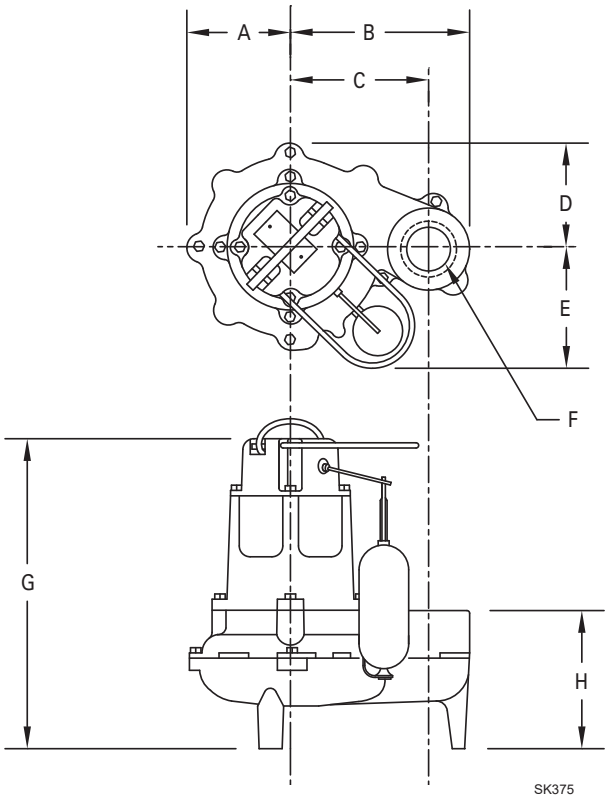
TECHNICAL DATA SHEET

WASTE-MATE SERIES

Models 266 & 267 Sewage/*Effluent or Dewatering Pumps

PRODUCT SPECIFICATIONS

MOTOR	Horse Power	1/2
	Voltage	115 - 460
	Phase	1 or 3 Ph
	Hertz	60 Hz
	RPM	1725
	Type	Permanent split capacitor
	Insulation	Class B
	Amps	2.0 - 9.4
PUMP	Operation	Automatic or nonautomatic
	Auto On/Off Points	12" (30 cm) / 4" (10 cm)
	Discharge Size	2" NPT
	Solids Handling	2" (50 mm) spherical solids
	Cord Length	10' (3 m) automatic or 15' (5 m) nonautomatic
	Cord Type	UL listed neoprene cord and plug
	Max. Head	21.5' (6.6 m)
	Max. Flow Rate	128 GPM (484 LPM)
	Max. Operating Temp.	130° F (54° C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload (1 Ph)
MATERIALS	Cap	Cast iron
	Motor Housing	Cast iron
	Pump Housing	Cast iron
	Base	Cast iron or engineered plastic
	Upper Bearing	Sleeve bearing
	Lower Bearing	Sleeve bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Non-clogging vortex
	Impeller	Engineered plastic w/ metal insert
	Hardware	Stainless steel
	Motor Shaft	AISI 1215 cold rolled steel
	Gasket	Neoprene
	Min. Basin Size	Simplex: 18" x 30" (45.7 x 76.2 cm) Duplex: 30" x 36" (76.2 x 91.4 cm)



NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps. See model comparison chart for specific details.

* May be used in those states where codes do not restrict solids size in effluent systems.

MODEL DIMENSIONS

MODEL	A	B	C	D	E	F	G	H
266	4-3/4″ (12.1 cm)	8-5/16″ (21.1 cm)	6-13/32″ (16.3 cm)	4-13/16″ (12.2 cm)	6-7/32″ (15.8 cm)	2″ NPT	14-1/4″ (36.2 cm)	6-3/8″ (16.2 cm)
267	4-3/4″ (12.1 cm)	8-5/16″ (21.1 cm)	6-13/32″ (16.3 cm)	4-13/16″ (12.2 cm)	6-7/32″ (15.8 cm)	2″ NPT	14-5/16″ (36.4 cm)	6-7/16″ (16.4 cm)

Tested to Standard UL778 and Certified to CSA Standard C22.2 No. 108

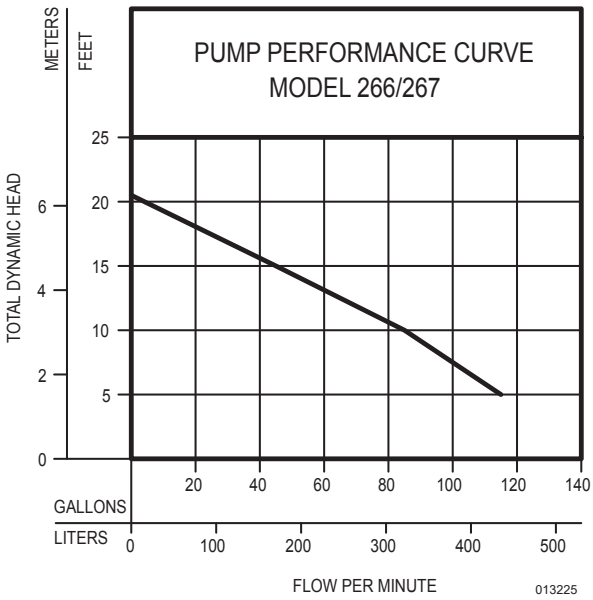
502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com

SELECTION GUIDE

1. Integral float operated mechanical switch, no external control required.
2. For automatic use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
3. See FM1228 for correct model of simplex control panel.
4. See FM0712 for correct model of duplex control panel or FM1663 for a residential alternator system.

SPECIAL MODEL FEATURES

- Model 266 features a plastic base.
- Model 267 feature a cast iron base.
- Model 267 is available with a cast iron impeller, which is standard on all 3 Ph units.
- BN and BE models include a variable level pump switch.
- Additional cord lengths are available in 15' (5 m), 35' (11 m) and 50' (15 m).



CONSULT FACTORY FOR SPECIAL APPLICATIONS

- Minimum recommended basin size (Small load applications)
  Simplex - 18" x 30" (45.7 x 76.2 cm)
  Duplex - 30" x 36" (76.2 x 91.4 cm)
- High water alarms available

Standard All Models:
266 - Weight 41 lbs. (18.6 kg)
267 - Weight 47.5 lbs. (21.5 kg)

For "M" and "D" models, the approximate volume pumped out per cycle are:

Tank Diameter	Volume Pumped
18" Simplex	8 Gal (30.2 L)
24" Simplex	15 Gal (56.8 L)
30" Duplex	22 Gal (83.3 L)
36" Duplex	33 Gal (124.9 L)
48" Duplex	60 Gal (227.1 L)

⚠ CAUTION Maximum temperature of sewage or dewatering must be limited to 130°F (54°C). For over 130°F (54°C), special quotation required.

MODEL		266/267	
Feet	Meters	Gal.	Liters
5	1.5	115	435
10	3.0	85	322
15	4.6	45	170
Shut-off Head:		20.5 ft.(6.2 m)	

Model	MODEL COMPARISON											CERTIFICATIONS
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex	cCSAus
M266/BN266	Single	Auto	115	1	9.4	1/2	60	41.0	19	1	4	Y
N266	Single	Non	115	1	9.4	1/2	60	41.0	19	2 or 3	2 or 4	Y
D266/BE266	Single	Auto	230	1	4.7	1/2	60	41.0	19	1	---	Y
E266	Single	Non	230	1	4.7	1/2	60	41.0	19	2 or 3	4	Y
H266	Single	Auto	200-208	1	6.2	1/2	60	41.0	19	1	---	Y
I266	Single	Non	200-208	1	6.2	1/2	60	41.0	19	3	4	Y
J266	Single	Non	200-208	3	3.6	1/2	60	41.0	19	3	4	Y
F266	Single	Non	230	3	3.3	1/2	60	40.0	18	3	4	Y
G266	Single	Non	460	3	2.0	1/2	60	40.0	18	3	4	Y
M267/BN267	Single	Auto	115	1	9.4	1/2	60	47.5	22	1	4	Y
N267	Single	Non	115	1	9.4	1/2	60	47.5	22	2 or 3	4	Y
D267/BE267	Single	Auto	230	1	4.7	1/2	60	47.5	22	1	---	Y
E267	Single	Non	230	1	4.7	1/2	60	47.5	22	2 or 3	4	Y
H267	Single	Auto	200-208	1	6.2	1/2	60	47.5	22	1	---	Y
I267	Single	Non	200-208	1	6.2	1/2	60	47.5	22	3	4	Y
J267	Single	Non	200-208	3	3.6	1/2	60	47.5	22	3	4	Y
F267	Single	Non	230	3	3.3	1/2	60	47.5	22	3	4	Y
G267	Single	Non	460	3	2.0	1/2	60	47.5	22	3	4	Y

⚠ CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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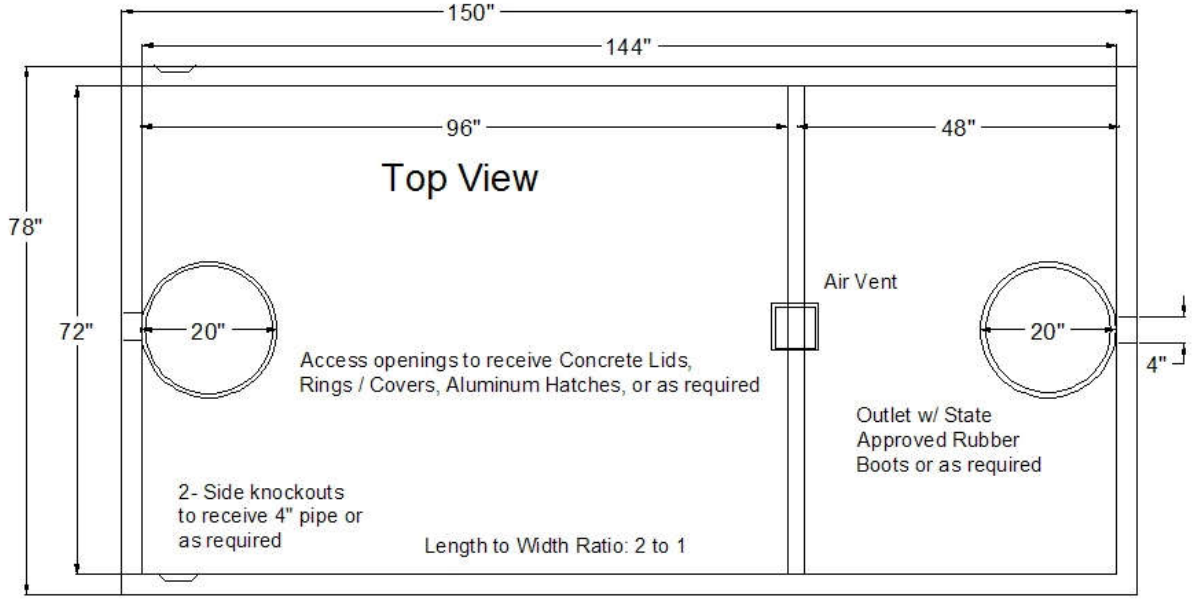


STB - 278 - Mid Seam

Approval Date: 8-14-97

Liquid Capacity 2065 Gallons

Non Traffic Rated

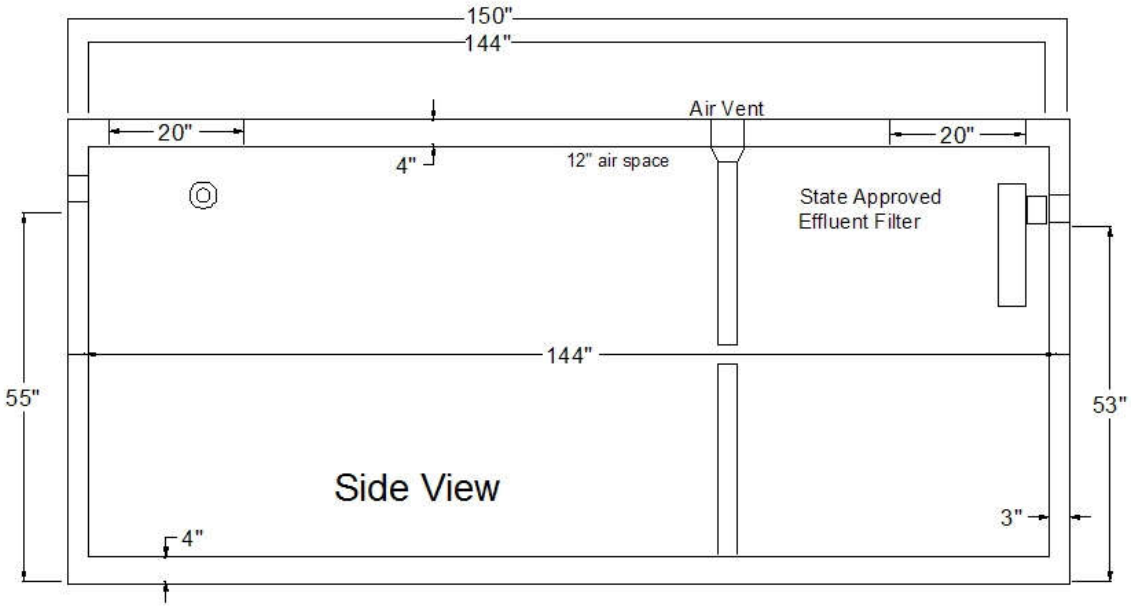
Reinforcement Schedule: # 3 Grade 60 Rebar

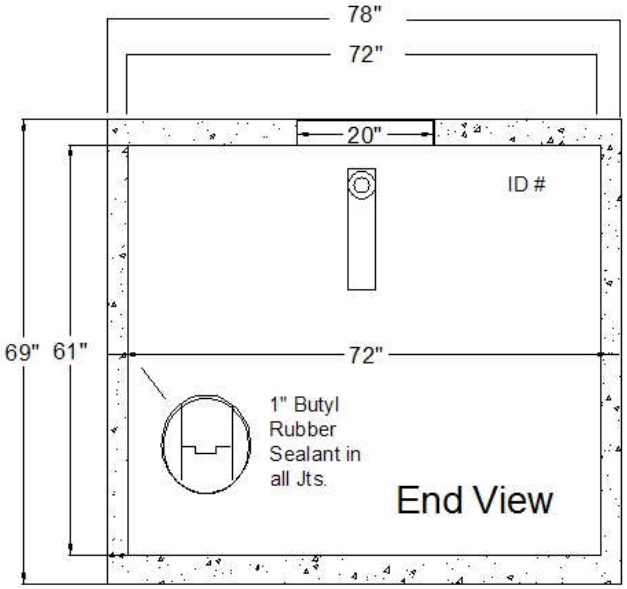
4500 PSI Concrete w/ State Approved Structural Fiber

4 Yds. *Est. Weigh: 16,000 lbs.*

Manufactured By:

GARNERS
Septic Tanks, Inc.
Eddie Garner, *President*
919-718-5181
121 Stanton Hill Road
Carthage, NC 28327
Fax 919-775-2229
Eddie@garnersseptictanks.com





STB - 345 - Top Seam

Approval Date: 12 - 09 - 99

Liquid Capacity 1007 Gallons

Non Traffic Rated

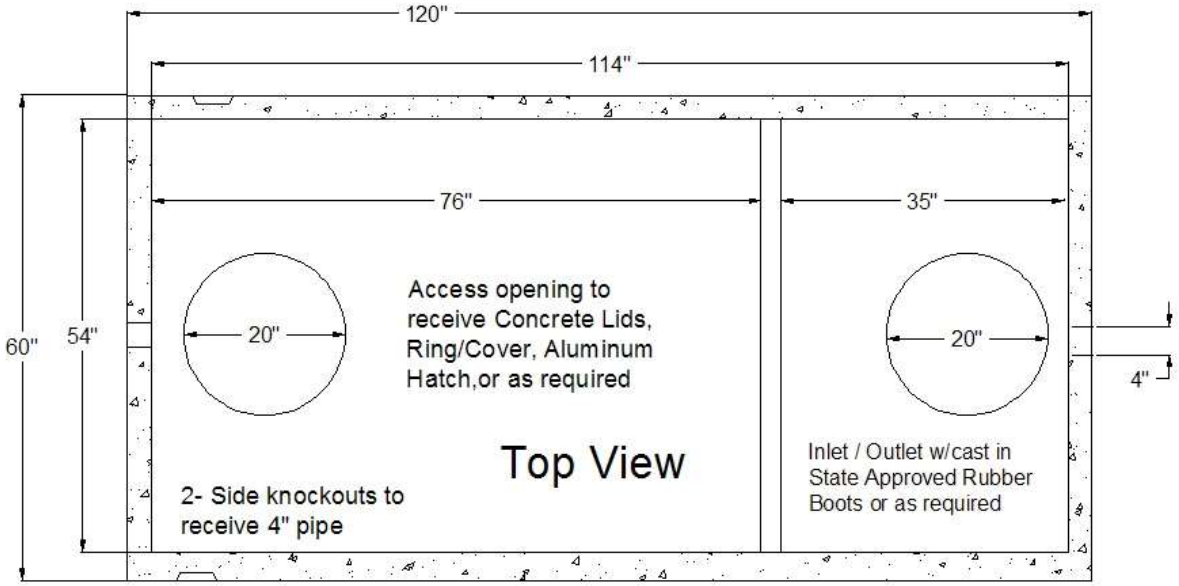
Reinforcing Schedule: # 3 Grade 60 Rebar

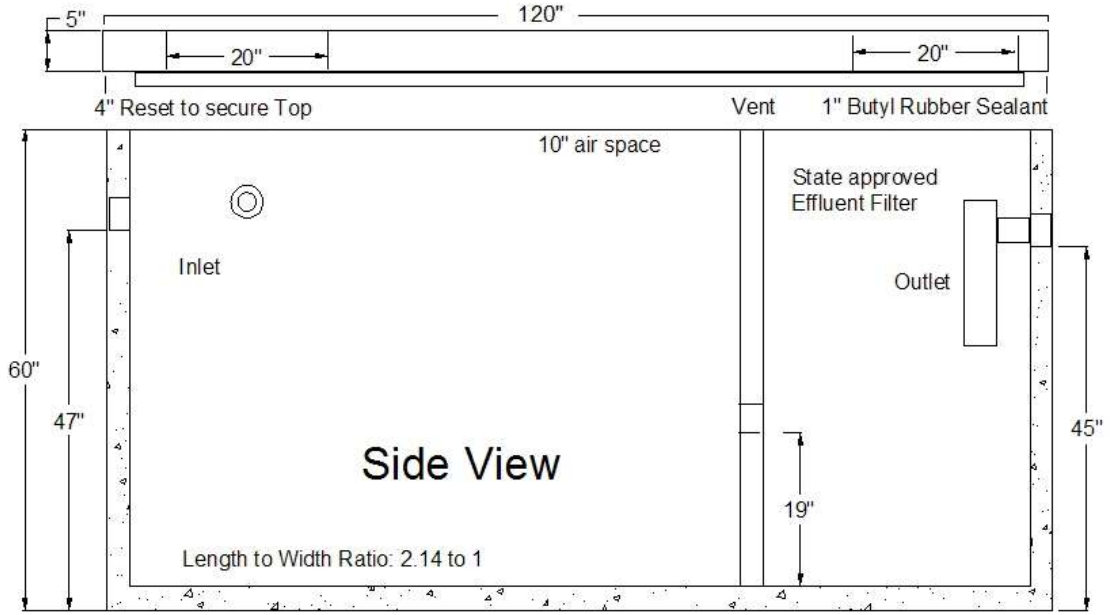
4500 PSI Concrete w/ State Approved Structural Fiber

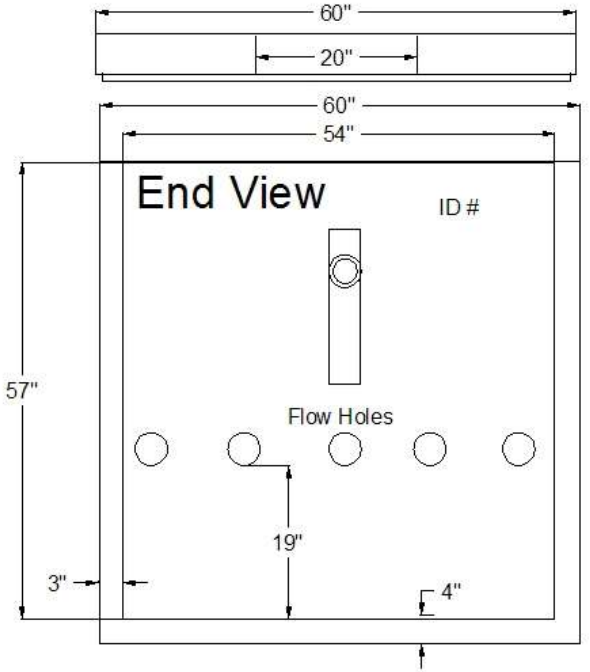
Est. Weight: 8,200 lbs.

Manufactured By:

GARNERS
Septic Tanks, Inc.
Eddie Garner, *President*
919-718-5181
121 Stanton Hill Road
Carthage, NC 28327
Fax 919-775-2229
Eddie@garnersseptictanks.com







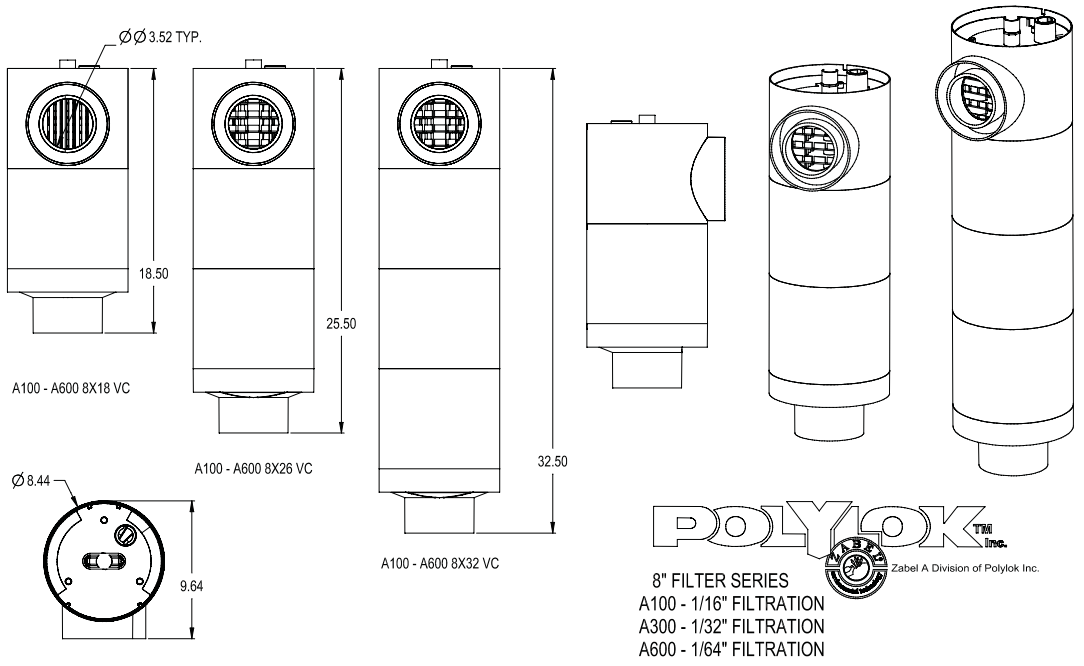
OutdoorSmart Filter Alarm

All Polylok/Zabel filters accept the SmartFilter® switch and alarm.

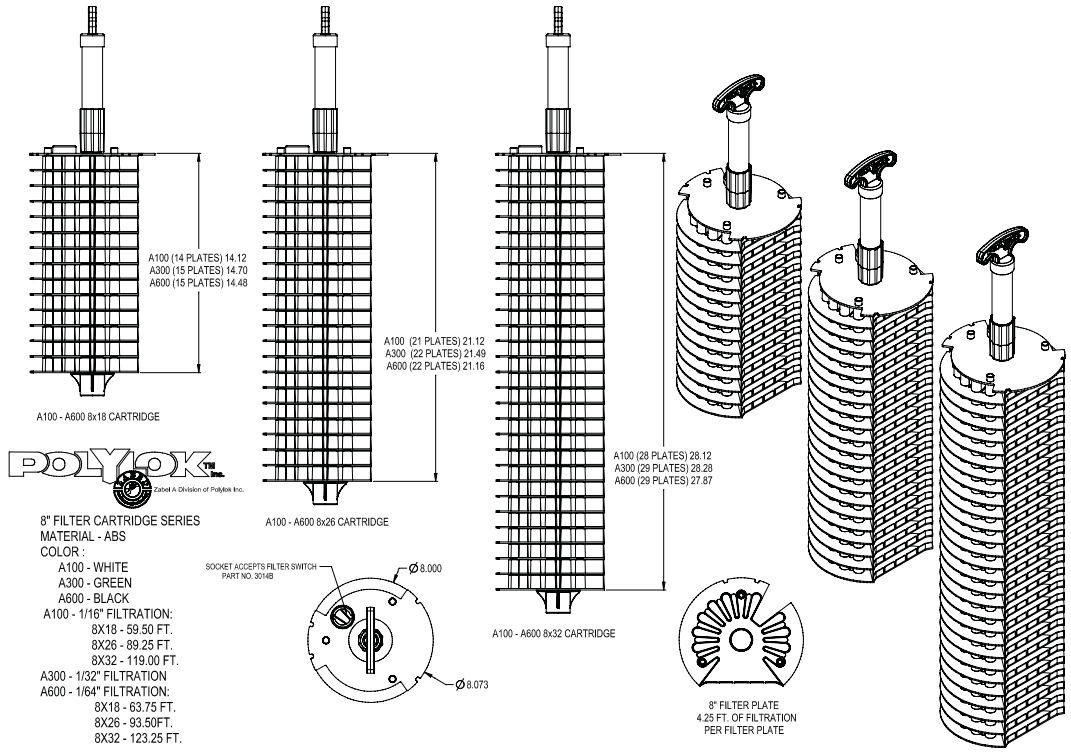
A1800 Series | A100 Series | A300 Series | A600 Series

Features	A1800 Series	A100 Series	A300 Series	A600 Series
Filtration	1/16"	1/16"	1/32"	1/64"
Gallons Per Day	800	1200 - 6000	1200 - 6000	1200 - 6000
Linear Feet of Filtration	80	78 - 338	78 - 338	78 - 338
SmartFilter Switch and Alarm	Available	Available	Available	Standard
Available Filter Dimensions	4x18, 4x22	8x18, 8x26, 8x32 12x20, 12x28, 12x36	8x18, 8x26, 8x32 12x20, 12x28, 12x36	8x18, 8x26, 8x32 12x20, 12x28, 12x36
Disc Dam Technology		x	x	x
Extend & Lok Compatible	x	x	x	x
NSF Certification	x	x	x	
Installed in Multiples for Larger Flows		x	x	x
Applications				
Residential	x	x	x	
Residential Multi-Family	x	x	x	
Commercial		x	x	x
Grease Traps			x	x
High TSS Removal	x	x	x	x
Benefits				
Extends Life of Leaching Fields	x	x	x	x
Keeps Solids in Septic Tank	x	x	x	x
Polylok Comparable Filter	PL-68	PL-122	PL-525 or PL-625	PL-525 or PL-625

ZABEL 8" CASES



ZABEL 8" FILTER SERIES

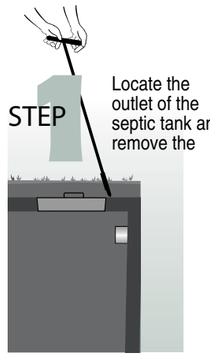


INSTALLATION

A100™, A300™, A600™-12 Series Filters

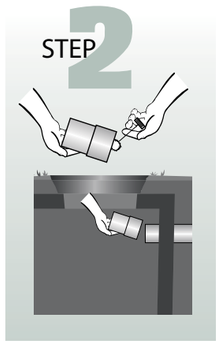
MADE IN

New System Installation



STEP 1 Locate the outlet of the septic tank and remove the

Note: Make sure tank is installed level.



STEP 2

Before installation place the filter case on the outlet pipe, to make sure it will be centered under the access opening. If not, Solvent weld (glue) additional pipe to the outlet pipe.

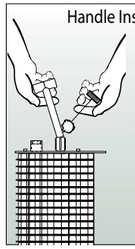
Note: Always clean and prime all pipe before solvent welding. Minimum of 3" drop required in tank for proper SmartFilter operation.

A100-12x20-VC

A300-12x20-VC

A600-12x20-VCF

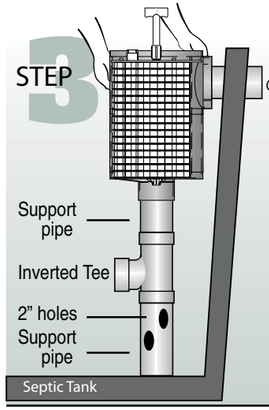
Handle Installation Instructions



Glue handle on top of 1/2" sch 40 pipe.

Glue the bottom of the 1/2" pipe and insert into the slip-slip on the filter top.

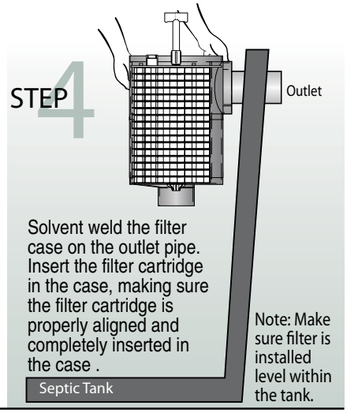
Notes: Always clean and prime all pipe before solvent welding. The handle assembly must be glued to the lid of the filter before installation.



STEP 3

For installations requiring the Supplementary Support Method only. If extra support for the filter is not needed, go to step four.

Solvent weld (glue) the reducer to the bottom of the filter case. Then weld a support pipe, an inverted tee, and another support pipe in the bottom of the reducer. Place the filter, reducer, and the support pipe on the outlet pipe. Adjust the support pipe so it rests level on the bottom of the tank. Remove and cut at least four 2" holes from top to bottom in the support pipe.



STEP 4

Solvent weld the filter case on the outlet pipe. Insert the filter cartridge in the case, making sure the filter cartridge is properly aligned and completely inserted in the case .

Note: Make sure filter is installed level within the tank.

Existing System Installation

- Same as New System, except the tank must be pumped before the installation of the filter.

NSF Residential Applications Certified to ANSI/NSF Standard 46

Notes:

- If you have purchased an A100/300/600-12x28 or larger model filter Zabel recommends using the Supplementary Support Method seen in step 3.
- If you have purchased a Zabel® Smartfilter®, additional installation instructions can be found in the Smartfilter Alarm System box.
- The outlet access opening of the tank, under which the filter is centered, should be at least 15" in diameter to allow for easy removal of the filter cartridge.
- A riser to grade over the outlet access opening is recommended and may be required in certain states.
- If the filter can not be installed in the existing tank, it can be installed using a Zeus® Basin System. In this case, the New System Installation instructions will be used.
- Minimum of 3" drop required in tank for proper SmartFilter operation

Call for a free ZABEL ZONE® • 1-800-221-5742 • Or Order Online: www.zabelzone.com

MAINTENANCE

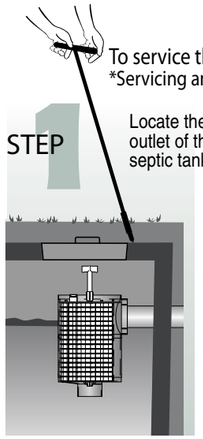
A100™, A300™, A600™-12 Series Filters

MADE IN

The interval for servicing septic tanks is set by state and local code. Throughout the United States there is a wide difference of opinion on what this interval should be, but most regulatory agencies suggest two to five years. The Zabel® filter, which does not increase the frequency of servicing for the tank, should be cleaned when the septic tank is normally inspected and pumped. However, our filter is virtually self-cleaning. The continued action of the anaerobic organisms on the Zabel filter causes lodged particles to disintegrate and fall to the bottom of the tank. If your filter contains a SmartFilter® alarm, you will be notified by an alarm when the filter needs servicing.

To service the filter:

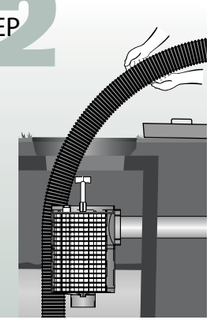
*Servicing any zabel filter should only be done by a certified septic tank pumper or installer.



STEP 1 Locate the outlet of the septic tank.

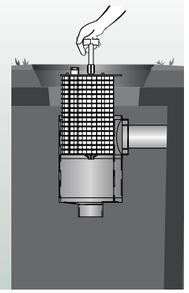
STEP 2

Remove the tank cover and pump the tank if necessary to prevent any solids from escaping to the field when the filter is removed.



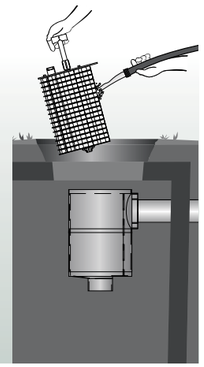
STEP 3

Firmly pull the filter handle and slide the cartridge out of the case.



STEP 4

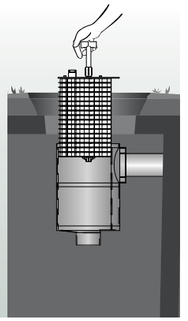
While holding the cartridge over the access opening rinse off the cartridge with fresh water, being careful to rinse all septage material back into the tank.



STEP 5

Insert the filter cartridge back in the case making sure the filter cartridge is properly aligned and completely inserted in the case.

Replace the septic tank cover.



Notes:

- If you have a Filtered Versa-Case™ Model Filter, be sure and spray clean the outlet opening before replacing the Filter.

NSF Residential Applications Certified to ANSI/NSF Standard 46

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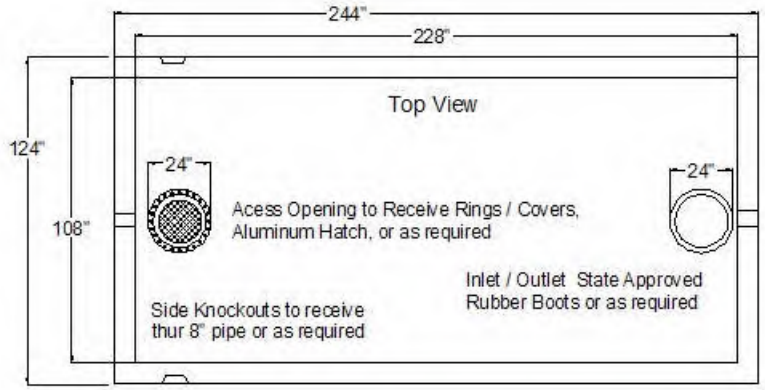
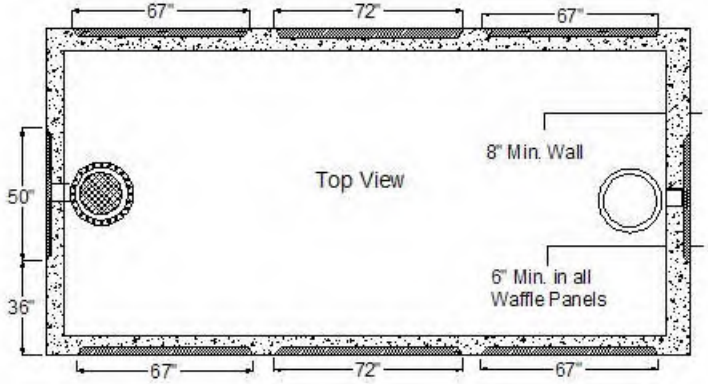
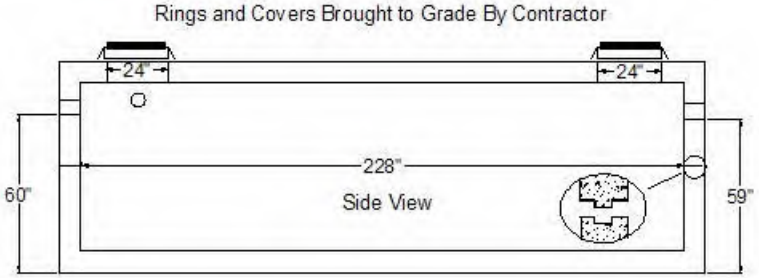
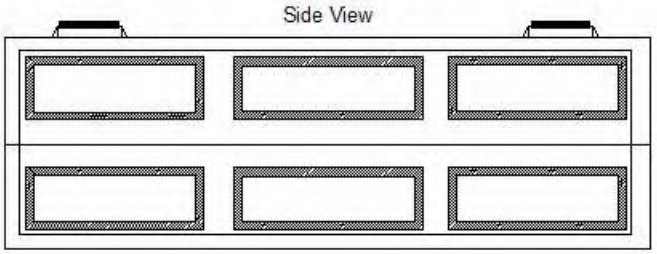
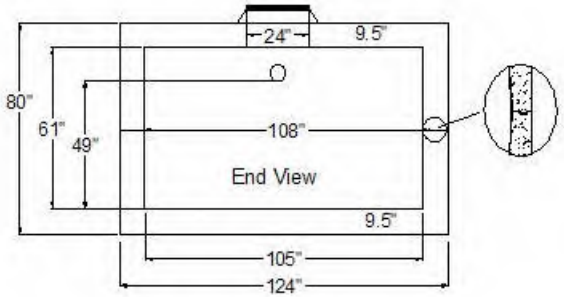
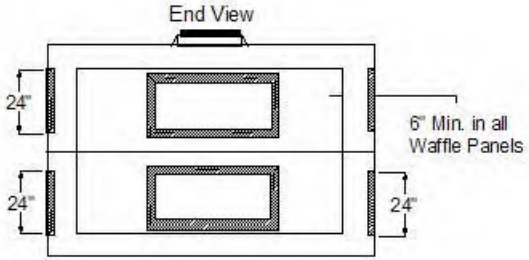












GARNERS
Septic Tanks, Inc.
Eddie Garner, *President*
919-718-5181
121 Stanton Hill Road
Carthage, NC 28327 Fax 919-775-2229
Eddie@garnersseptictanks.com

General Information

This form also manufactures our 8000 - 22,000 gallon tanks. Engineered and state approved panels are installed onto the form to manufacture our 4000 - 6000 gallon tanks. This will reduce the wall thickness from 8-$\frac{3}{4}$" down to 6" and still maintain Traffic Rated specifications. This will also reduce the weight and allow a smaller crane to set tanks which will be more cost effective to the consumer. Engineered Anti Flotation Brackets can be installed if needed.

PT- *548* Traffic Rated
North Carolina State approval Date: 6-04-07
Liquid Capacity **6370 Gallons**
Reinforcing Schedule: See Engineer Drawing
19.4 Yds.of 5000 PSI Concrete w/ State approved
Structural Fiber. Gallons per Inch 104.42
Est Total Weight 81,400 lbs.

North Carolina State Approved
Flow Equalization Installer Friendly Series™ Control Panel

The **NEW North Carolina State Approved Flow Equalization Installer Friendly Series**™ simplex control panel provides an **effective, reliable** means of controlling one single phase pump in water, wastewater and sewage installations.

This control panel features a **simple, easy-to-use touch pad** on the inner door for programming and monitoring pump control.

*They are that **installer friendly**!*

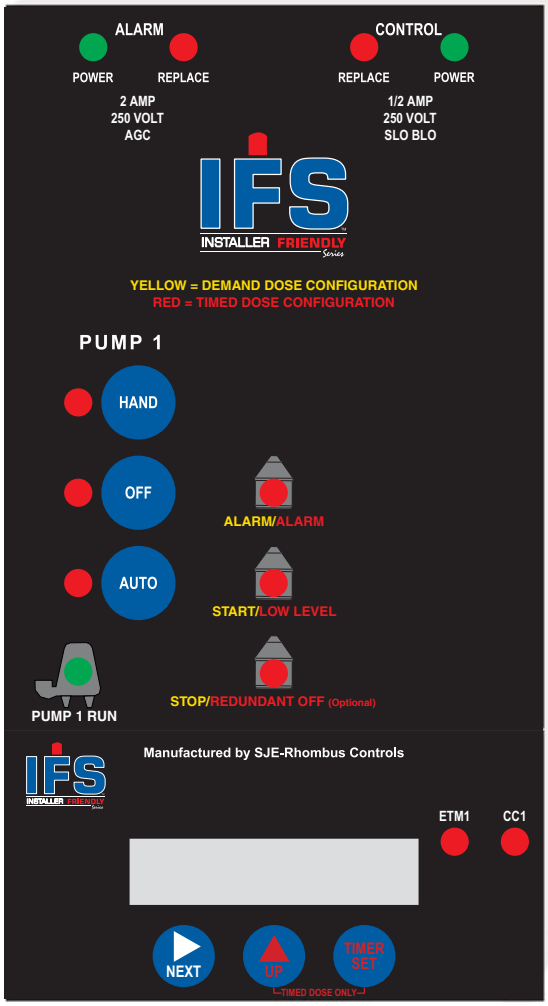
Model shown: IFS11W114H8AC10E15A

TOUCH PAD FEATURES:

- Simple-to-use touch pad for programming pump control
- Pump run indicator
- Float status indicators, including float out-of-sequence alarm
- Separate control and alarm fuses with power and replacement indicators
- HAND/OFF/AUTO pump control switch
- Optional: timer override and redundant off floats

DISPLAY BOARD FEATURES:*

- Six digit LED display
- Elapsed time meter with indicator
- Cycle counter with indicator
- Alarm counter
- Timer override counter
- Timed Dose Mode: program pump ON/OFF times



Note:* *With the new IFS design, the display board with built-in Elapsed Time Meters and Event Counters is now **optional for the Demand Dose models only. If your application requires these features, select option '8AC' when ordering. The display board can be added in the field, if necessary.*

IFS PANEL FEATURES:

- **NEMA 4X** weatherproof enclosure for indoor/outdoor use
- Inner door for added safety
- UL/cUL Listed
- Alarm beacon and horn (85 decibel rating) provides visual and audio warning of alarm condition
- Test / normal / silence switch
- Large, easy-to-use terminal blocks
- 120 VAC control/alarm breaker
- Locking latch
- 120/230 VAC pump circuit breaker for branch circuit protection and pump disconnect
- Float/pump wiring diagram mounted to backplate
- Includes float switches and step-by-step installation instructions
- Instruction label on inside cover for viewing and programming digital display
- Three-year limited warranty

c UL us LISTED

3 YEAR LIMITED WARRANTY

For pricing and availability, please contact:

HARRY WARREN, LLC

(800) 521-7377

111D Gralin Road, Kernersville, NC 27284

SJE-Rhombus CONTROLS

www.sjerhombus.com

Trusted. Tested. Tough.™

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER® PUMP COMPANY

SECTION: 2.15.080
FM2784
1017
Supersedes
0315

TECHNICAL DATA SHEET
DOSE-MATE SERIES
Models 151, 152, 153 Effluent Pumps

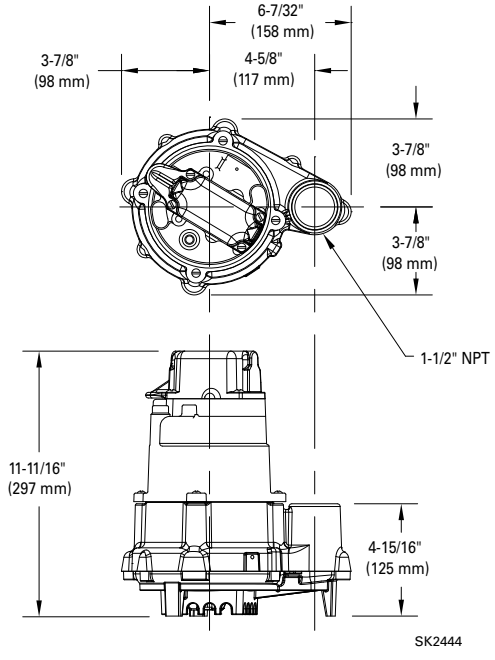
PRODUCT SPECIFICATIONS

MOTOR	Horse Power	1/3 (151), 4/10 (152), 1/2 (153)
	Voltage	115 or 230
	Phase	1 Ph
	Hertz	60 Hz
	RPM	3450
	Type	Permanent split capacitor
	Insulation	Class B
	Amps	3.0 - 10.5
PUMP	Operation	Automatic or nonautomatic
	Discharge Size	1-1/2" NPT
	Solids Handling	1/2" (12 mm), 3/4" (19 mm) spherical solids
	Cord Length	20' (6 m)
	Cord Type	UL listed power cord
	Max. Head	44' (13.4 m)
	Max. Flow Rate	77 GPM (291 LPM)
	Max. Operating Temp.	130 °F (54 °C)
	Cooling	Oil filled
	Motor Protection	Auto reset thermal overload
MATERIALS	Cap	Cast iron
	Motor Housing	Cast iron
	Pump Housing	Cast iron
	Base	Plastic or cast iron
	Upper Bearing	Sleeve bearing
	Lower Bearing	Ball bearing
	Mechanical Seals	Carbon and ceramic
	Impeller Type	Non-clogging vortex
	Impeller	Engineered thermoplastic
	Hardware	Stainless steel
	Motor Shaft	AISI 1215 steel
	Gasket	Neoprene

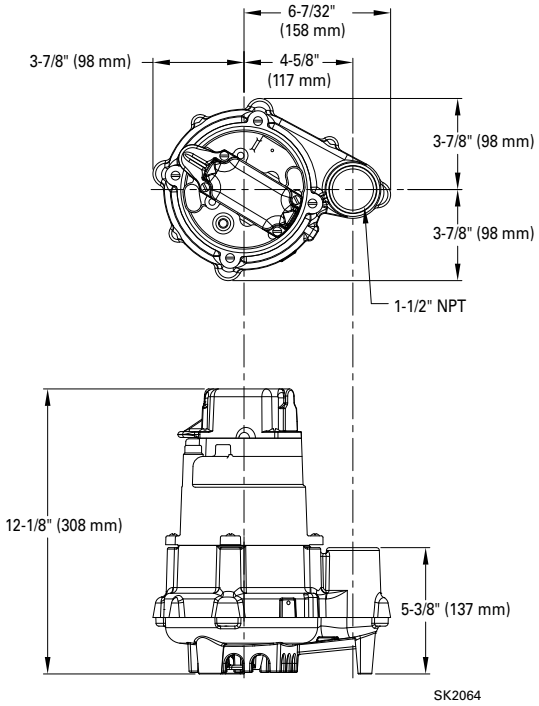
NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

NOTE: See model comparison chart for specific details.

MODEL 151



MODELS 152 & 153

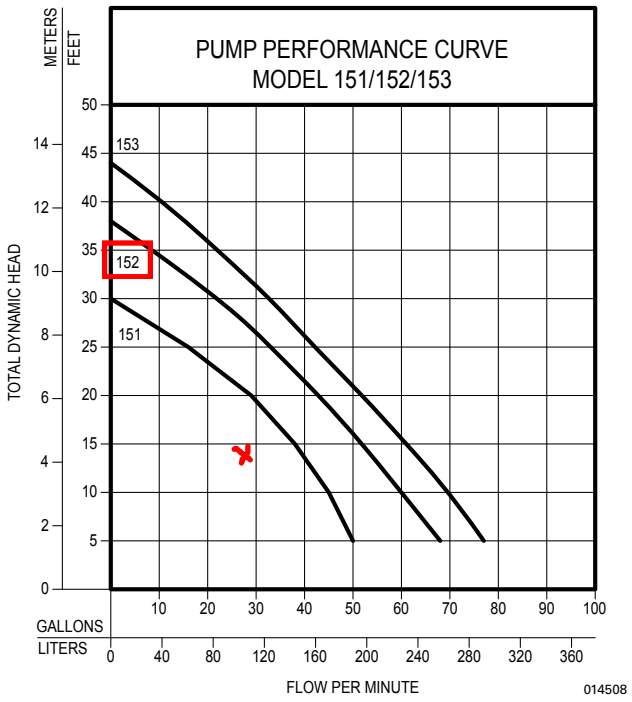


Tested to UL Standard UL778 and Certified to CSA Standard CSA22.2 No. 108

502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com

TOTAL DYNAMIC HEAD FLOW PER MINUTE

MODEL		151		152		153	
Feet	Meters	Gal.	Liters	Gal.	Liters	Gal.	Liters
5	1.5	50	189	69	261	77	291
10	3.0	45	170	61	231	70	265
15	4.6	38	144	53	201	61	231
20	6.1	29	110	44	167	52	197
25	7.6	16	61	34	129	42	159
30	9.1	--	--	23	87	33	125
35	10.7	--	--	--	--	22	85
40	12.2	--	--	--	--	11	42
Shut-off Head:		30 ft. (9.1m)		38 ft. (11.6m)		44 ft. (13.4m)	



Model	MODEL COMPARISON										
	Seal	Mode	Volts	Ph	Amps	HP	Hz	Lbs	Kg	Simplex	Duplex
N151	Single	Non	115	1	6.0	1/3	60	32	15	1	2 or 3
E151	Single	Non	230	1	3.0	1/3	60	32	15	1	2 or 3
BN151	Single	Auto	115	1	6.0	1/3	60	33	15	*	2 or 3
BE151	Single	Auto	230	1	3.0	1/3	60	33	15	*	2 or 3
N152	Single	Non	115	1	8.5	4/10	60	37	17	1	2 or 3
E152	Single	Non	230	1	4.3	4/10	60	37	17	1	2 or 3
BN152	Single	Auto	115	1	8.5	4/10	60	39	18	*	2 or 3
BE152	Single	Non	230	1	4.3	4/10	60	39	18	*	2 or 3
N153	Single	Non	115	1	10.5	1/2	60	37	17		
BN153	Single	Auto	115	1	10.5	1/2	60	39	18	*	2 or 3
E153	Single	Non	230	1	5.3	1/2	60	37	17	1	2 or 3
BE153	Single	Non	230	1	5.3	1/2	60	39	18	*	2 or 3

*BN and BE models include a 20' (6 m) piggyback variable level pump switch. Additional cord lengths are available in 25' (8 m) and 35' (11 m). 50' (15 m) cords are available for 230 V units only.

NOTE: Model 151 has a plastic base. Models 152 & 153 have a cast iron base.

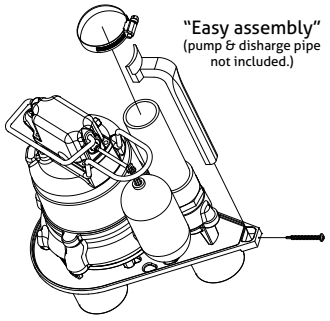
SELECTION GUIDE

1. For automatic, use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
2. See FM1228 for correct model of simplex control panel.
3. See FM0712 for correct model of duplex control panel.

OPTIONAL PUMP STAND P/N 10-2421

- Reduces potential clogging by debris
- Replaces rocks or bricks under the pump
- Made of durable, noncorrosive ABS
- Raises pump 2" (5 cm) off bottom of basin
- Provides the ability to raise intake by adding sections of 1½" or 2" (DN40 or DN50) PVC piping
- Attaches securely to pump
- Accommodates sump, dewatering and effluent applications

NOTE: Make sure float is free from obstruction.



⚠ CAUTION All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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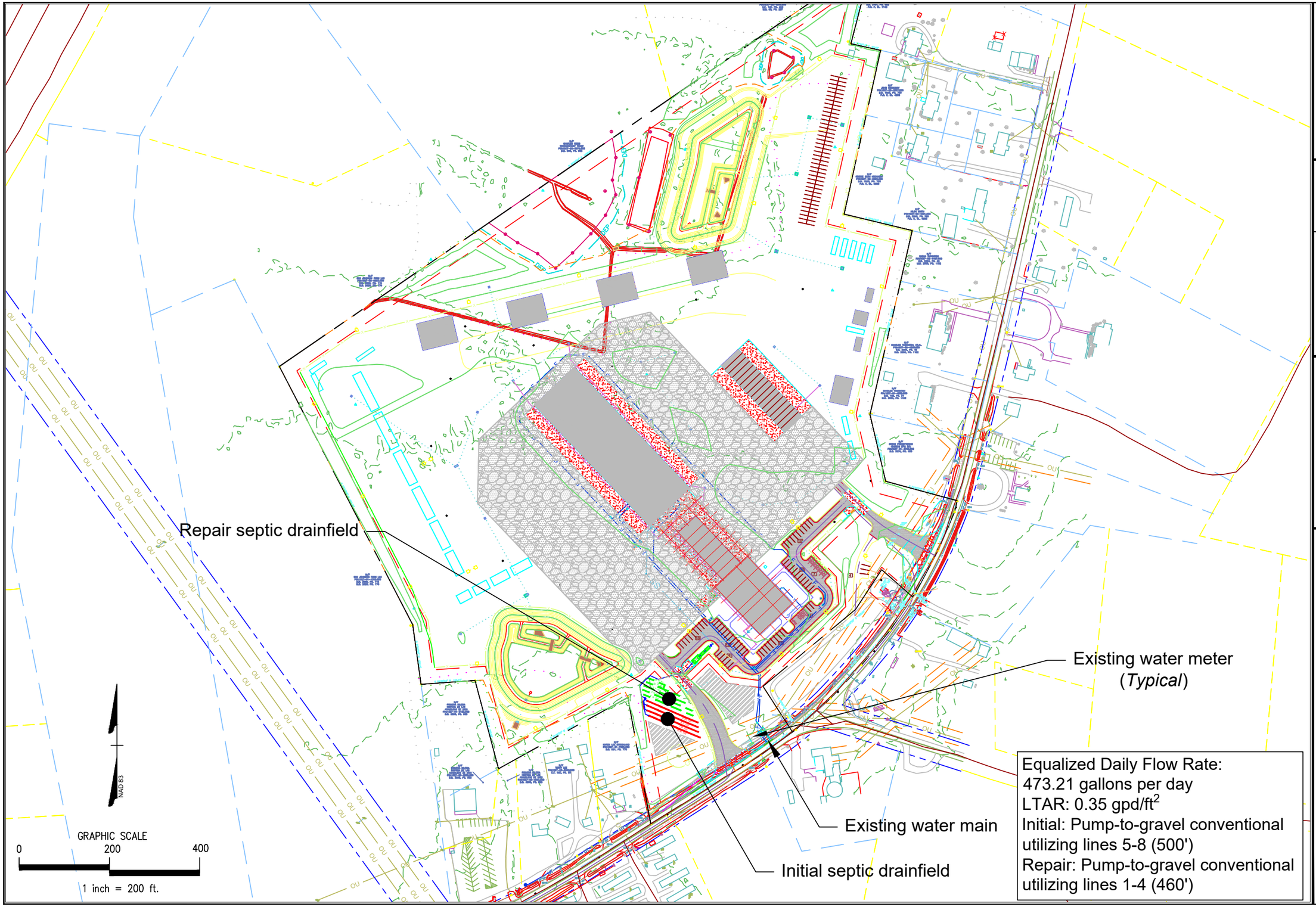

REVISION NO.	DATE
Original Submittal	December 2, 2022
Revision 1	July 5, 2023
Revision 2	September 20, 2024
Revision 3	-----
Master Set	-----

SHEET NUMBER

1 of 10

Project Number: 2122

Duke Energy
Dunn Site
Overall Septic

PREPARED FOR : McAdams
2905 Meridian Parkway
Durham, NC 27713

DATE : September 20, 2024

ENGINEER AND SOIL SCIENTIST CONTACT:
SCOTT MITCHELL, PE, LSS

DRAWN BY:
ADAM AYCOCK, EI

MITCHELL ENVIRONMENTAL, PA
C-2911

1501 LAKESTONE VILLAGE LANE
SUITE 205
FUQUAY VARINA, NC 27526

1a: nf: 40'
1b: Pi: 80'
2: Y: 100'
3: O: 120'
4: G: 120'
5: Pu: 125'
6: L: 125'
7: B: 125'
8: W: 125'

Repair Nitrification Field

Initial Nitrification Field

NAD 83

GRAPHIC SCALE
0 30 60
1 inch = 30 ft.

N 30°56'12" W 100.30'
S 54°05'10" W 96.14'

REVISION NO.	DATE
Original Submittal	December 2, 2022
Revision 1	July 5, 2023
Revision 2	September 20, 2024
Revision 3	-----
Master Set	-----

SHEET NUMBER
2 of 10

Project Number: 2122

Duke Energy
Dunn Site
Overall Septic - Zoom

PREPARED FOR : McAdams
2905 Meridian Parkway
Durham, NC 27713

DATE : September 20, 2024

ENGINEER AND SOIL SCIENTIST CONTACT:
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MITCHELL ENVIRONMENTAL, PA
C-2911

1501 LAKESTONE VILLAGE LANE
SUITE 205
FUQUAY VARINA, NC 27526

Duplex Pump Sewage Basin
(*4' Interior Dia. Manhole x 13' Interior Depth; approximate top elevation 229.4'*)

4" Sch 40 PVC Energy
Dissipation Device
(*see detail*)

6,370 Gallon
Pump Tank
(*minimum*)

4" D. I. Sleeve
(*Minimum 36" below finished grade*)

2 inch SCH 40 PVC

2,000 Gallon
Septic Tank 1
(*minimum*)

1,000 gallon
Septic Tank 2
(*minimum*)

Pressure
Manifold

3 inch SCH 40
PVC (typ.)

Property Line

5: Pu: 125'
6: L: 125'
7: B: 125'
8: W: 125'

Landscape Buffer

Power Line
Easement

NAD 83

GRAPHIC SCALE
0 30 60
1 inch = 30 ft.

SHEET NUMBER	3 of 10
Project Number: 2122	
Duke Energy Dunn Site Initial Nitrification Field	

REVISION NO.	DATE
Original Submittal	December 2, 2022
Revision 1	July 5, 2023
Revision 2	September 20, 2024
Revision 3	October 8, 2024
Master Set	-----

PREPARED FOR : McAdams
2905 Meridian Parkway
Durham, NC 27713

DATE : September 20, 2024

ENGINEER AND SOIL SCIENTIST CONTACT:
SCOTT MITCHELL, PE, LSS

DRAWN BY:
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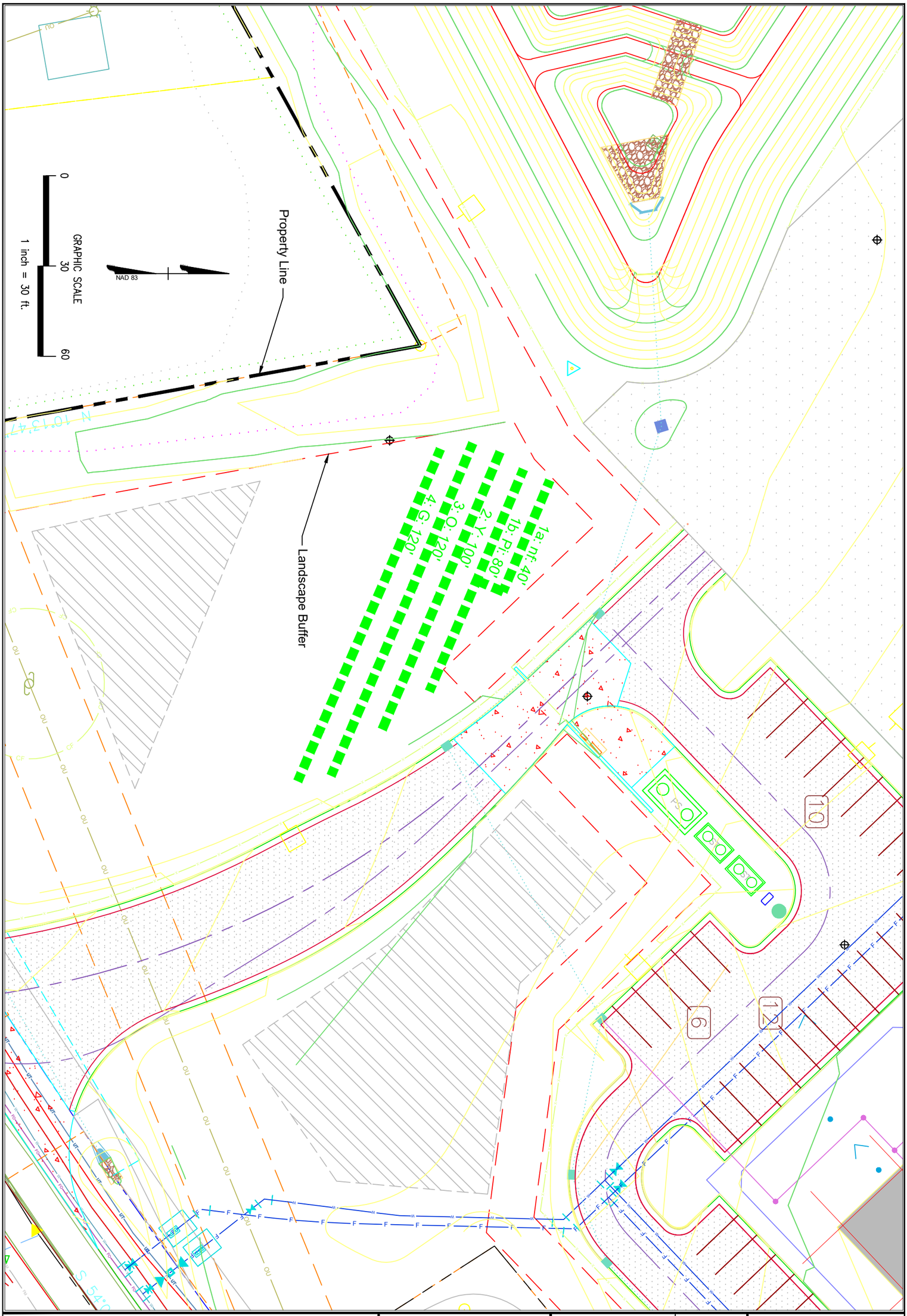
1501 LAKESTONE VILLAGE LANE
SUITE 205
FUQUAY VARINA, NC 27526



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1501 LAKESTONE VILLAGE LANE
SUITE 205
FUQUAY VARINA, NC 27526

PREPARED FOR : McAdams
2905 Meridian Parkway
Durham, NC 27713

DATE : September 20, 2024

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SCOTT MITCHELL, PE, LSS

DRAWN BY:
ADAM AYCOCK, EI

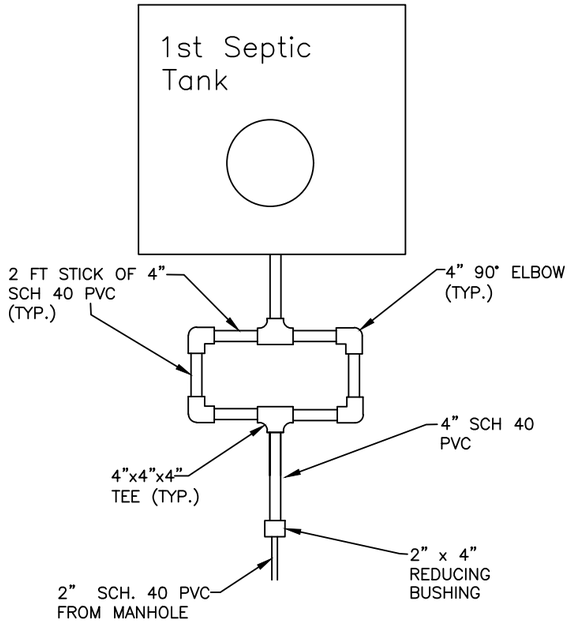
REVISION NO.	DATE
Original Submittal	December 2, 2022
Revision 1	July 5, 2023
Revision 2	September 20, 2024
Revision 3	-----
Master Set	-----

SHEET NUMBER

4 of 10

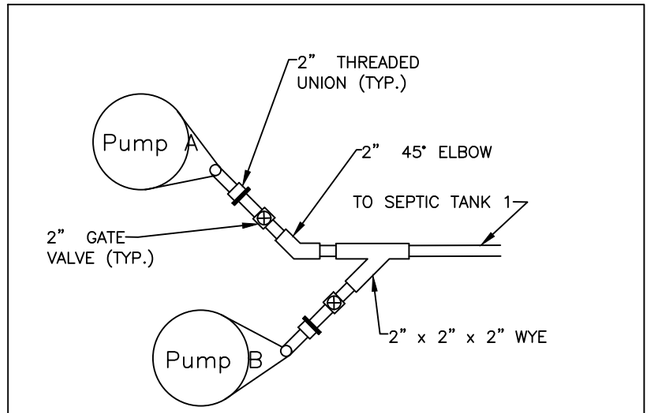
Project Number: 2122

Duke Energy
Dunn Site
Repair Nitrification Field



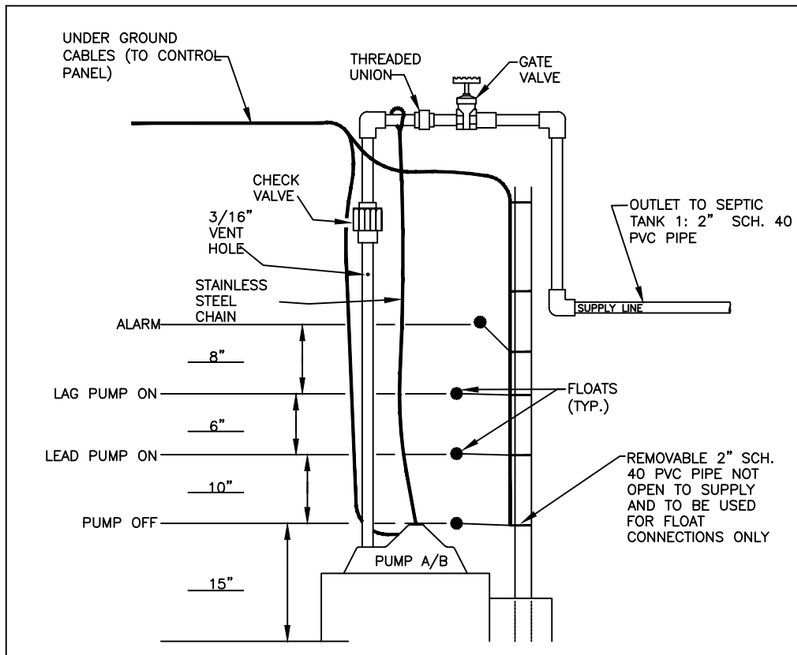
ENERGY DISSIPATION DETAIL

N.T.S.



DUPLEX PUMP FITTINGS DETAIL

N.T.S.



DUPLEX PUMP FLOATS DETAIL

N.T.S.

SHEET NUMBER 5 of 10

Project Number: 2122

Duke Energy
Dunn Site
Connection Details

REVISION NO.	DATE
Original Submittal	September 20, 2024
Revision 1	October 8, 2024
Revision 2	-----
Revision 3	-----
Master Set	-----

PREPARED FOR : McAdams, 2905 Meridian Parkway, Durham, NC 27713

DATE : September 20, 2024

ENGINEER AND SOIL SCIENTIST CONTACT: SCOTT MITCHELL, PE, LSS

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SUITE 205
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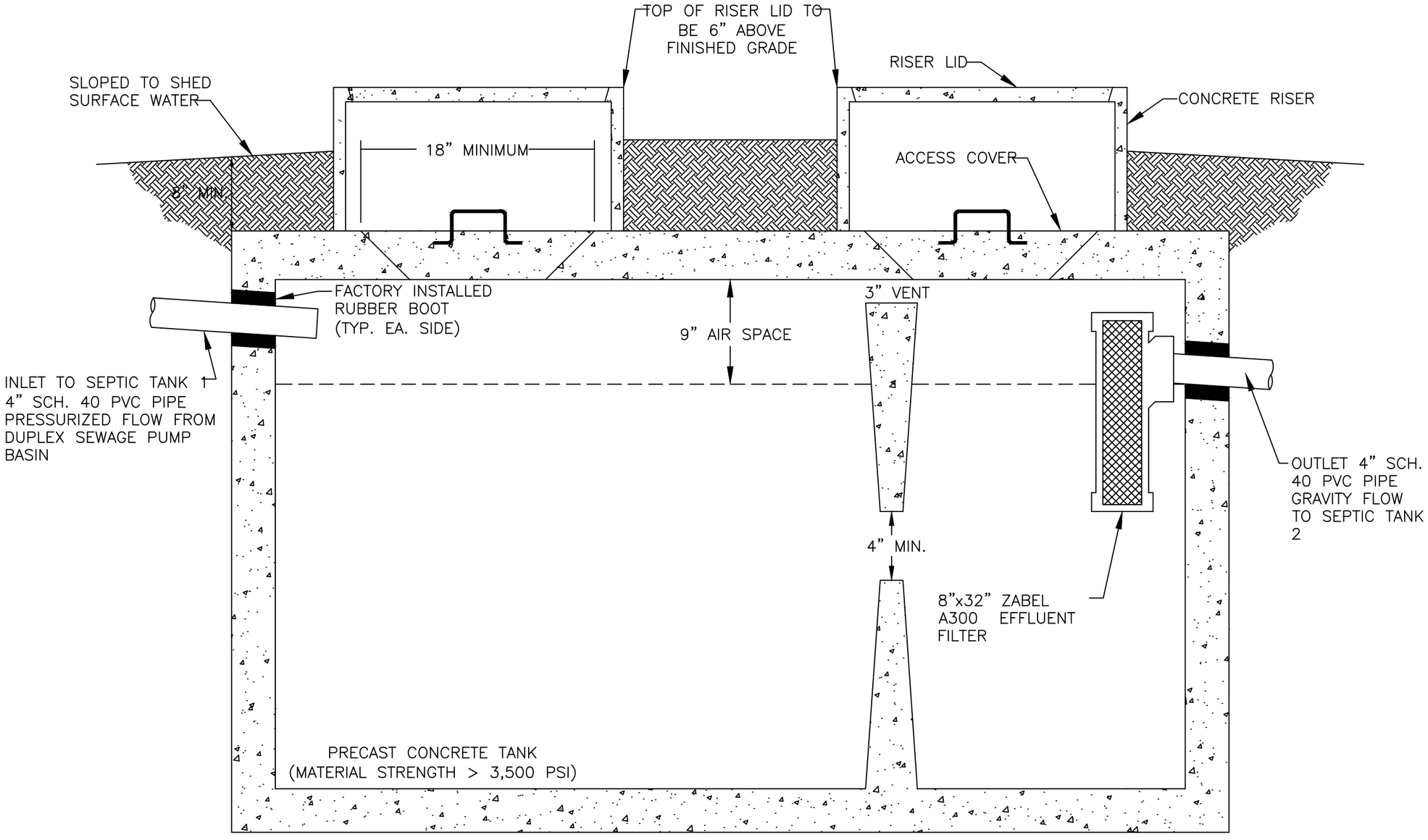

2,000 GALLON SEPTIC TANK (minimum)

SEPTIC TANK 1 DETAIL

N.T.S.

SHEET NUMBER 6 of 10

Project Number: 2122

Duke Energy
Dunn Site
Septic Tank 1 Detail

REVISION NO.	DATE
Original Submittal	December 2, 2022
Revision 1	July 5, 2023
Revision 2	September 20, 2024
Revision 3	-----
Master Set	-----

PREPARED FOR : McAdams
2905 Meridian Parkway
Durham, NC 27713

DATE : September 20, 2024

ENGINEER AND SOIL SCIENTIST CONTACT:
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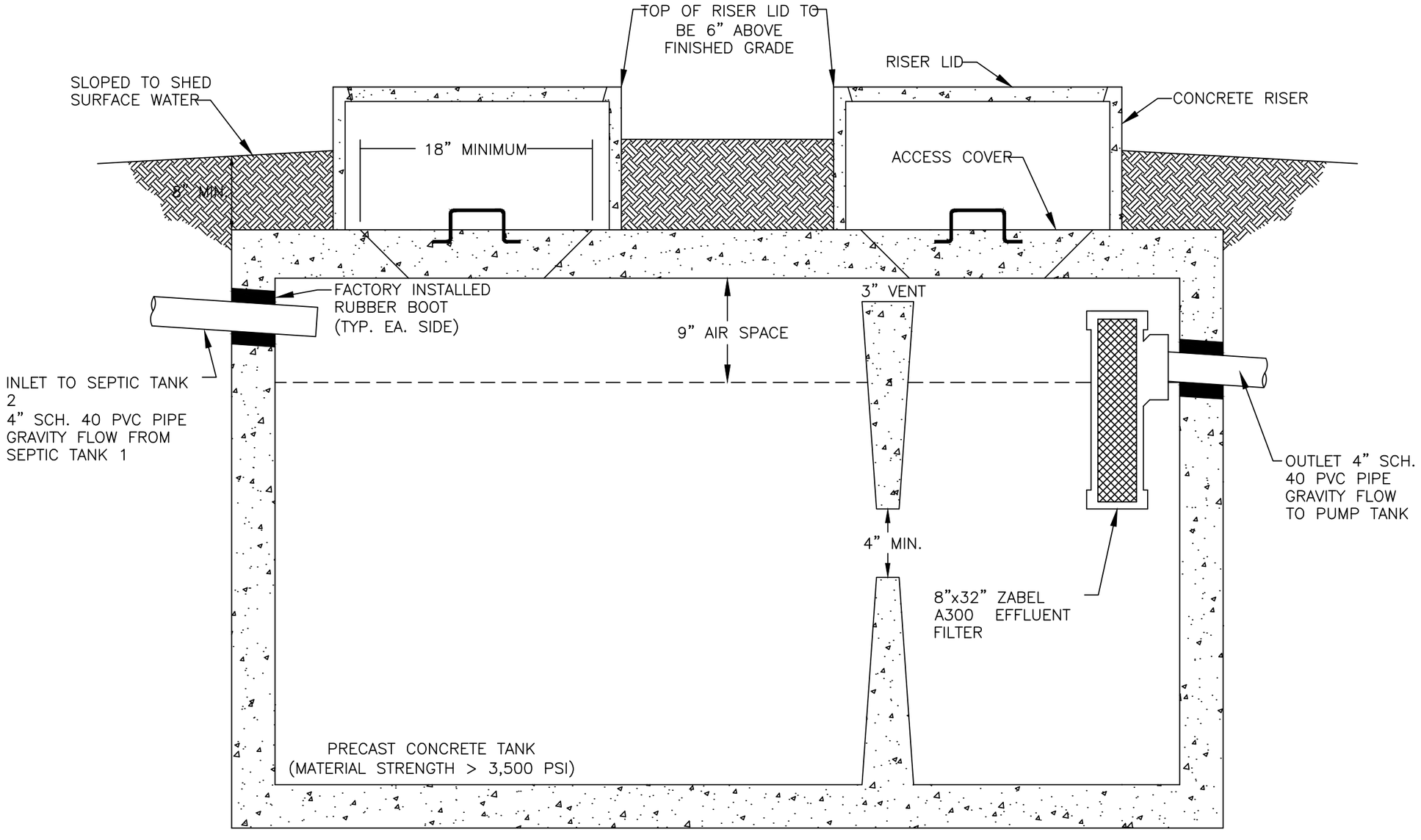

1,000 GALLON SEPTIC TANK (minimum)

SEPTIC TANK 2 DETAIL

N.T.S.

REVISION NO.	DATE
Original Submittal	September 20, 2024
Revision 1	-----
Revision 2	-----
Revision 3	-----
Master Set	-----

PREPARED FOR : McAdams
2905 Meridian Parkway
Durham, NC 27713

DATE : September 20, 2024

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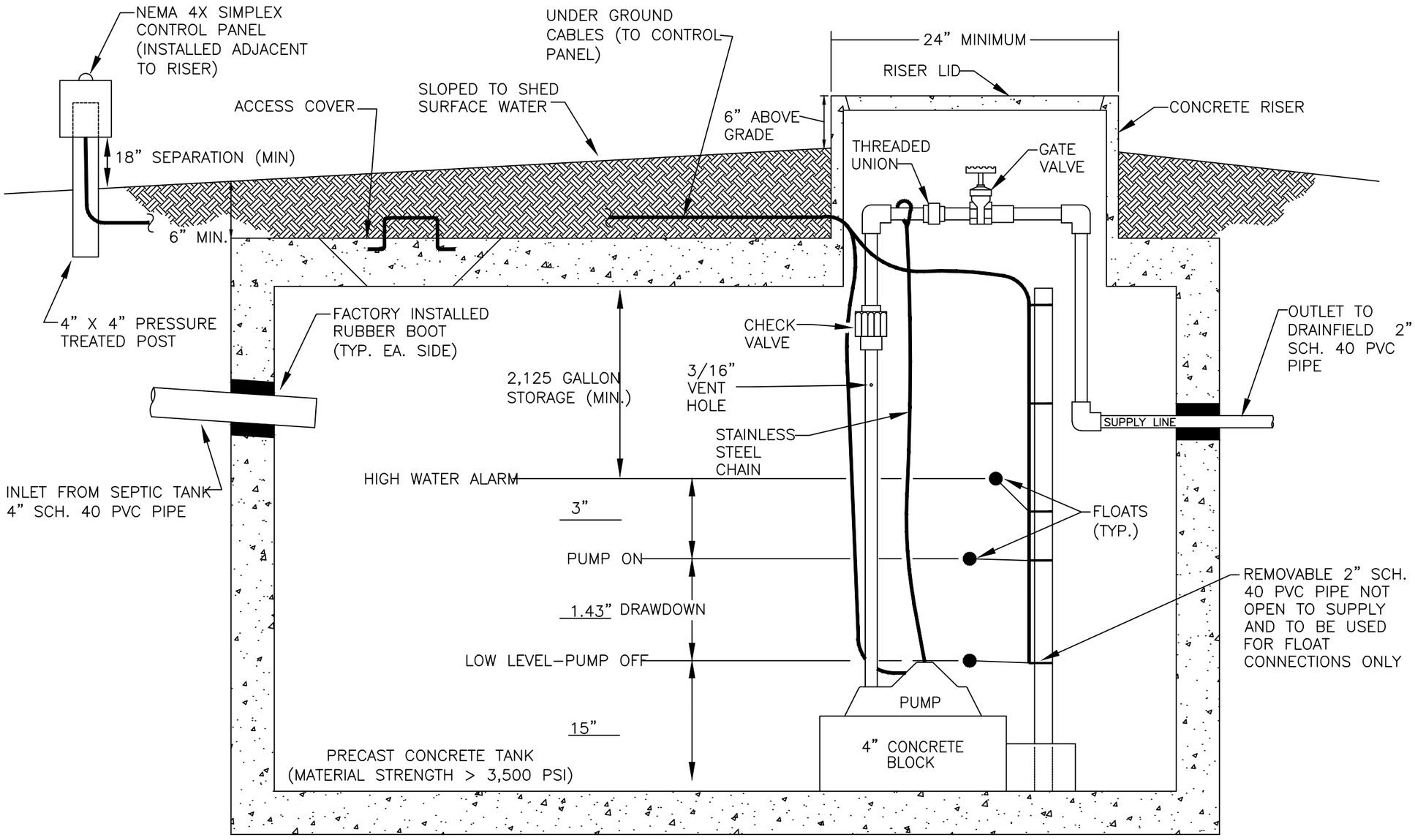
1501 LAKESTONE VILLAGE LANE
SUITE 205
FUQUAY VARINA, NC 27526

SHEET NUMBER
7 of 10

Project Number: 2122

Duke Energy
Dunn Site
Septic Tank 2 Detail

* DRAWDOWN SPECIFIED 104.42 GALLONS PER INCH



6,370 GALLON PUMP TANK (MINIMUM)

PUMP TANK DETAIL

N.T.S.

SHEET NUMBER *8 of 10*

Project Number: 2122

Duke Energy
Dunn Site
Pump Tank Detail

REVISION NO.	DATE
Original Submittal	December 2, 2022
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Revision 3	-----
Master Set	-----

PREPARED FOR : McAdams
2905 Meridian Parkway
Durham, NC 27713

DATE : September 20, 2024

ENGINEER AND SOIL SCIENTIST CONTACT:
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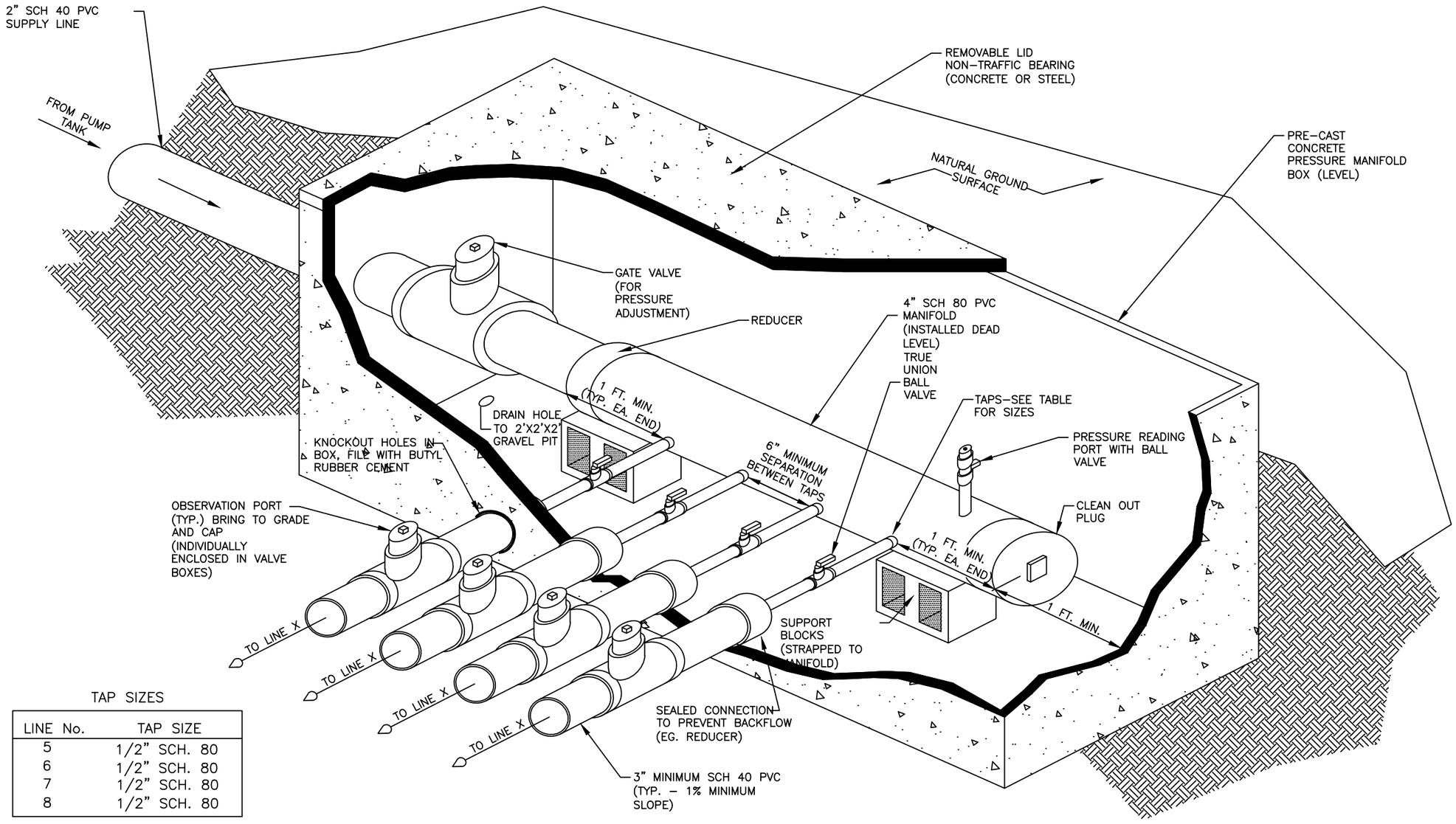
MITCHELL ENVIRONMENTAL, PA
C–2911
1501 LAKESTONE VILLAGE LANE
SUITE 205
FUQUAY VARINA, NC 27526

PRESSURE MANIFOLD DETAIL
FOR DUKE ENERGY – DUNN INITIAL SEPTIC SYSTEM

N.T.S.

NOTE: MANIFOLD MAY NEED TO BE FLIPPED SO THAT SUPPLY LINE ENTRANCE AND CLEANOUTS ARE REVERSED. SEE SITE PLAN.

NOTE: THE NUMBER OF TAPS MAY VARY FROM LOT TO LOT. SEE DESIGN SHEET FOR NUMBER OF TAPS.



TAP SIZES

LINE No.	TAP SIZE
5	1/2" SCH. 80
6	1/2" SCH. 80
7	1/2" SCH. 80
8	1/2" SCH. 80

SHEET NUMBER
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Project Number: 2122

Duke Energy
Dunn Site
Pressure Manifold Detail

REVISION NO.	DATE
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PREPARED FOR : McAdams
2905 Meridian Parkway
Durham, NC 27713

DATE : September 20, 2024

ENGINEER AND SOIL SCIENTIST CONTACT:
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ADAM AYCOCK, EI

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1501 LAKESTONE VILLAGE LANE
SUITE 205
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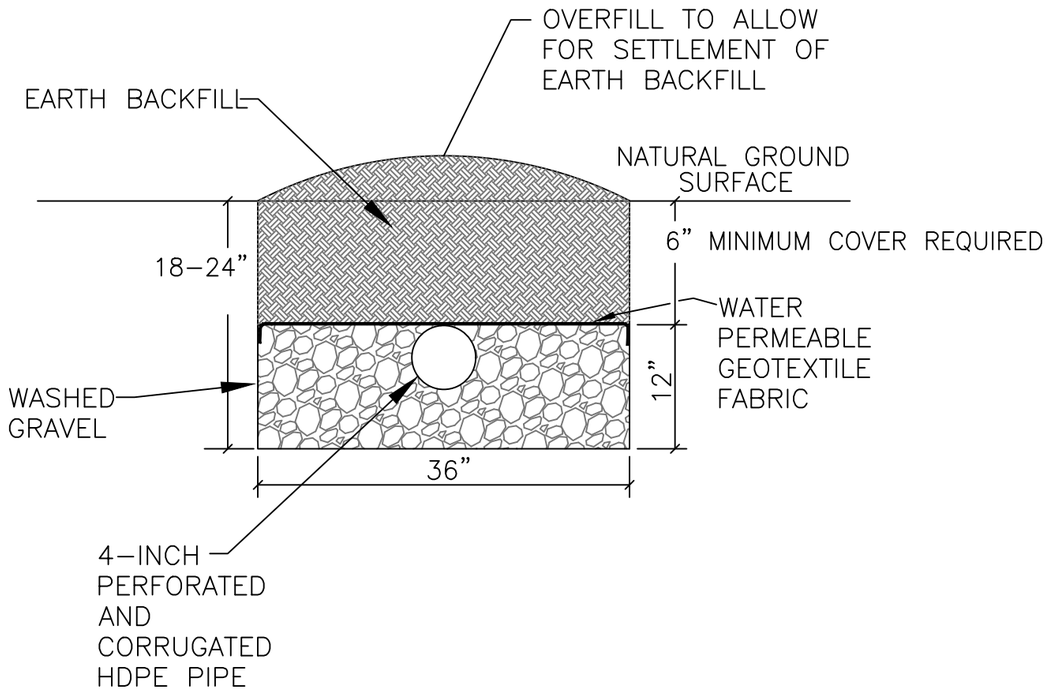
NITRIFICATION TRENCH
DETAIL FOR CONVENTIONAL GRAVEL



NOTES:

1. PERFORATED CORRUGATED PLASTIC PIPE SHALL MEET REQUIREMENTS OF ASTM D 2729.
2. PIPE SHALL BE LEVEL.
3. TRENCH BOTTOM SHALL BE LEVEL
4. WASHED GRAVEL SHALL BE CLASSIFICATION #3, 4, 5, 57 OR 6 OF ASTM D–448
5. HAND RAKE TRENCH WALLS PRIOR TO PLACEMENT OF TRENCH MEDIA IF SOIL SMEARING IS PRESENT.

SHEET NUMBER
10 of 10

Project Number: 2122

Duke Energy
Dunn Site
Trench Detail

REVISION NO.	DATE
Original Submittal	December 2, 2022
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2905 Meridian Parkway
Durham, NC 27713

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DRAWN BY:
ADAM AYCOCK, EI

MITCHELL ENVIRONMENTAL, PA
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1501 LAKESTONE VILLAGE LANE
SUITE 205
FUQUAY VARINA, NC 27526