111 Milledge DR Mooresville CLT Lot #163 Phase # 10

BLDR-2023-16129

Engineer Option Permit Common Form

LHD Reference: OSWP-2023-13880

PART 3: **Authorization to Operate (ATO)**

LHD USE ONLY: Initial submittal of this ATO received: 5/13/24 (Date) by dw/bb (Initials)

The following items are included in this Authorization to Operate for an EOP:

1.	Signed and sealed copy of the Engineer's report that includes the information in G.S. 130A-336.1(k)(1)	[X] Yes	[ ] No
2.	Operation and management program and ORC contract, if applicable	[X] Yes	[ ] No
3.	Letter documenting Owner's acceptance of the system from the PE	[X] Yes	[ ] No
4.	Owner meets requirements control of the system per 15A NCAC 18E .0301(b)	[X] Yes	[ ] No
5.	Easement, right of way, or encroachment agreement required per 15A NCAC 18E .0301(c)	[ ] Yes	[X] No
6.	Multi-party agreements required, as applicable, per 15A NCAC 18E .0204(g)	[ ] Yes	[X] No

If yes, agreements filed in _____ County Register of Deeds in Deed Book _____ Page _____

Attestation by the Owner or the PE for Authorization to Operate

I, Donald Munday (*Print name of Owner or Professional Engineer*) hereby attest that all items indicated above have been provided and the system meets applicable federal, State, and local laws, regulations, rules, and ordinances in accordance with G.S. 130A-336-.1(e)(6).

Donald L. Munday
Signature of Owner or Professional Engineer

05/09/2024
Date

NORTH CAROLINA PROFESSIONAL SEAL 17327 ENGINEER DONALD L. MUNDAY

NOTES:

LIABILITY: The Department, the Department's authorized agents, or local health departments shall have no liability for wastewater systems designed, constructed, and installed pursuant to an Engineer Option Permit [G.S. 130A-336.1(f)]

PIEDMONT DESIGN ASSOCIATES, P.A.
125 East Plaza Drive | Suite #101
Mooresville, NC 28115
Phone: 704-664-7888 | Fax: 704-664-1778
Email: dmunday@pdapa.com

Engineering
Surveying
Planning

May 7, 2024

Iredell County Health Department
610 East Center Avenue
Mooresville, NC 28115
Attn: Danielle Wieberg, REHS

RE: LP PPBPS Subsurface Effluent Disposal System
111 Milledge Drive, Mooresville, Iredell County, North Carolina

Dear Mrs. Wieberg:

ENGINEERS CERTIFICATION

I, **Donald L. Munday**, as a duly registered Professional Engineer in the State of North Carolina, having been authorized to observe periodically the construction of the referenced project, a Low Pressure PPBPS Subsurface Effluent Disposal System; 111 Milledge Drive, located in Mooresville, Iredell County, NC, hereby state that, to the best of my abilities, due care and diligence was used in the observation of the construction such that the construction was observed to be built within substantial compliance and intent of the approved plans and specifications.

Sincerely,

PIEDMONT DESIGN ASSOCIATES, P.A.

Donald L. Munday, P.E.
N.C. Registration No. 17327



05/09/2024

PIEDMONT DESIGN ASSOCIATES, P.A.
125 East Plaza Drive | Suite #101
Mooresville, NC 28115
Phone: 704-664-7888 | Fax: 704-664-1778
Email: ddecaron@pdapa.com

Engineering
Surveying
Planning

May 7, 2024

Chris LaMack
111 Milledge Drive
Mooresville, NC 28117

RE: Subsurface LP PPBPS Effluent Disposal System
111 Milledge Drive, Mooresville, Iredell County, North Carolina

Dear Mr. LaMack:

OWNER'S ACCEPTANCE OF SYSTEM

The following is a list of documents that are required for the submittal to the Owner or their Representative by the Engineer.

- Engineer to Owner package
- EOP Engineer's Certification for ATO (Authorization to Operate)
- As Built Plans
- Engineer's Report Which Includes:
  - Soils Report
  - Plans
  - Operation and Maintenance Form
  - Contract for ORC
  - Project Installation Notes
  - Installer Certification Form

The Owner, by their signature below, documents their acceptance of the wastewater system from the Engineer.

Signature: _____

Chris LaMack, Owner, 111 Milledge Drive, Mooresville, Iredell County, NC

Sincerely,

PIEDMONT DESIGN ASSOCIATES, P.A.

David DeCaron
Project Manager

April 22, 2024

Iredell County Health Department
610 East Center Avenue
Mooresville, NC 28115
Attn: Ben Botkins, REHS

RE: LP-PPBPS Effluent Disposal System
111 Milledge Drive, Mooresville, Iredell County, North Carolina

Dear Mr. Botkins:

CONTRACTOR'S STATEMENT

I, ***Scott Simmons, Greenway Waste Solutions, Inc.,*** having been present during the septic system installation of referenced project, a Subsurface LP PPBPS Effluent Disposal System; 111 Milledge Drive, located in Mooresville, Iredell County, NC, hereby state that, to the best of my abilities, the system has been installed as designed and shown on the engineered plans and specifications and as intended by the manufacturer's and by the State of NC requirements.

Sincerely,

Greenway Waste Solutions, Inc.



Scott Simmons, Owner

ENGINEER'S REPORT

FOR

LOW PRESSURE T&J PANEL EFFLUENT

DISPOSAL SYSTEM

111 MILLEDGE DRIVE

MOORESVILLE, IREDELL COUNTY, NC

Report #: 2022-11-22

May 6, 2024

PREPARED FOR:

Chris LaMack
111 Milledge Drive
Mooresville, NC 28117
(704) 363-6109

PREPARED BY:

Piedmont Design Associates, P.A.
125 East Plaza Drive, Suite 101
Mooresville, NC 28115
Phone: (704) 664-7888
Fax: (704) 664-1778
NCBELS #: C-1007



October 23, 2023
Preconstruction meeting held with Piedmont Design Associates, PA, Installer Greenway Waste Solutions.

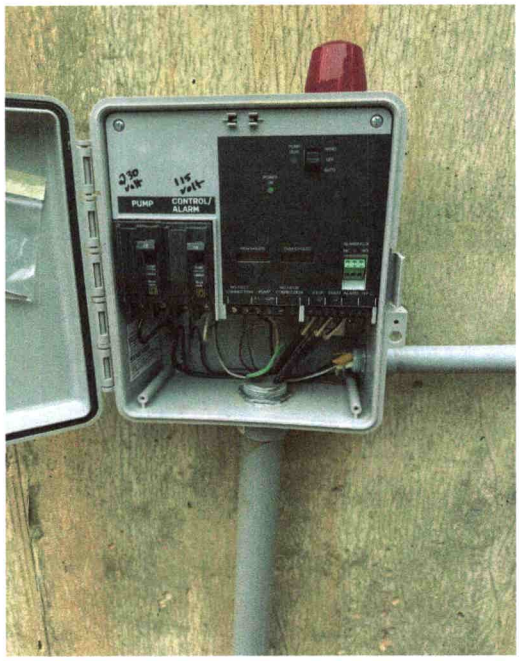
Gave notice to proceed to installer after walking drainfield and site with installer and LSS

October 24, 2023
Tanks installed. No need to witness vacuum test. Plastic Infiltrator tanks installed in lieu of concrete due to site accessibility.

April 19, 2024
At startup, the Installer, Owner and Engineer went through the entire system and verified operation of the treatment and disposal system. Drawdown of pump tank set at 6 inches based on dipstick chart provided by tank manufacturer. Recommended installer get downspout drains diverted around new drain field.

May 6, 2024
O&M Contract Received from Greenway Waste Solutions between Property Owner and ORC





Control Panel



Control Panel #2

DESIGN SPECIFICATIONS - T & J PANEL SYSTEM

111 Milledge Drive, Mooresville, Iredell County, NC

Daily design waste flow:	480 G/D
Septic tank size:	1,000 gallon (2 compartment) *Infiltrator*
Septic tank filter:	Orenco model FTPS0436-28-NC *FTP0854-36*
Pumping tank size:	1,000 gallons *Infiltrator*
Pressure Filter:	Sim-Tech Filter 100 Series
Control Panel:	Orenco Control Panel Model MVP-S2RODM *SJE Rhombus NXT*
Effluent loading rate:	0.30 G/D/SF (0.30 G/D/SF Repair)
Total linear feet and diameter:	268 LF of 1-1/2" dia. PVC of laterals and T & J panels (Allow 4.33 ft per panel) (Does not inc. pipe from manifold to lateral)
Total length & diameter of supply manifold:	+/-15 LF 2" Dia. SCH 40 PVC
Number and length of laterals:	Line 1 – 11 Panels — Actual LF 60 LF Line 2 – 15 Panels — 64 LF Line 3 – 21 Panels — 82 LF Line 4 – 16 Panels — 48 LF **Total Panels = 70 panels** — 23 LF
Hole size:	5/32"
Hole spacing:	1 hole per panel
Total number of holes:	70
Flow per hole at 3' head	0.50 G/M
Flow rate through the system:	35.0 G/M
Elevation head:	7.0'
Pressure head:	3.0'
Friction head:	4.11'
Total head:	14.11'
Pump requirements:	35.0 G/M at 14.11' use Gould's 3885 Series WE0512H 1/2 HP - 230 V - 1PH or approved equal
Dosing volume:	160 gal.
Depth of water pumped per dose:	7.33"
Pump run per dose:	4.57 min.
Check valve:	yes
Siphon break hole:	yes

4 Bedroom LP Vertical Panel Block System
116 Milledge Drive
Mooresville, Iredell County, North Carolina

Original Date: January 4, 2023
Revised Date: January 4, 2023

Design Flow

Bedrooms	4	Bedrooms
Flow per Day per Bedroom	120	Gal./Day/Bedroom
Daily Design Flow (DDF)	480	Gal./Day

Use PPBPS Laterals for 50% Reduction in Drainfield Size

New LTAR for New Laterals	0.30	G/D/SF	Per Michael Athanas, LSS
Sq. Ft. Trench Bottom	1600	Sq. Ft.	DDF x LTAR
	3		
Field Sizing	533	LF Conventional Lines	(SF Trench Bottom/3)
PPBPS Sizing	267	LF 50% Reduction System	(LF Conv. Line x 0.5)

	LF	No of Panels	Pipe to Panel	LTAR	Gallons per Day	
Orange (1) (Upper)	48.00	11.00	86.00	0.30	86.40	Primary
Blue (2)	65.00	15.00	74.00	0.30	117.00	Primary
Yellow (3)	85.00	21.00	53.00	0.30	153.00	Primary
White (4)	70.00	16.00	4.00	0.30	126.00	Primary
Pink (5)	*57.00*	*14.00*		*0.30*	*102.60*	*Repair*
Blue (6)	*125.00*	*29.00*		*0.30*	*225.00*	*Repair*
Yellow (7)	*100.00*	*24.00*		*0.30*	*180.00*	*Repair*
	577.00	**LF Total**			**482.40**	**G/D Primary**
					548.10	**G/D Primary**

Dose Volume

No. of Panels	70	Panels	(Per Panel Design Manual)
Panel Volume (Max)	3.60	Gal./Panel	(Per Panel Design Manual)
Flow Rate	160.00	Gal./Dose	3 Doses per Day
Actual Panel Volume per Dose	2.29	Gal./Panel	
Pump Run Time	4.57	Minutes	Actual Volume to Panel/Dose
Percent of Panel Volume	63.49%		
Operation Head	3.00	Feet	(Orifice Flow Rate x # of Panels)
Use 5/32" Diameter Hole			(Per Panel Design Manual)
Flow Rate per Panel	0.50	G/M	(Per Panel Design Manual)
Field Flow Rate	35.00	G/M	(No. of Panels x Orifice Flow Rate)
Force Main Static Head	7.00	Feet	

Friction & Minor Loss Calculations for 2.0" Force Main and 1.50" Supply Laterals

Pipe Run	Friction Loss (Feet)	Pipe Length (Feet)	Q (GPM)	Pipe I.D. (Inches)
Orange (1) (Upper)	0.42	134.00	5.50	1.610
Blue (2)	0.77	139.00	7.50	1.610
Yellow (3)	1.43	138.00	10.50	1.610
White (4)	0.46	74.00	8.00	1.610
2.0" Supply Force Main	1.05	45.00	31.50	2.067
Total Friction & Minor Loss	4.95	Feet		

Total Dynamic Head	14.95	Feet	(Static HD + Friction HD + Oper. HD)	
Pump Required	**35.00**	G/M at	**14.95**	TDH

Use Orenco PF3005-12
230 V /1/2 HP / 1 Phase
Contractor to Verify Power Requirements before Ordering Pump

Operations and Maintenance
Sanitary Wastewater Treatment
& Disposal System

For

111 Milledge Drive
Mooresville
Iredell County
North Carolina

Prepared for:

Chris LaMack
111 Milledge Drive
Mooresville, NC 28117
(704) 363-6109

May 6, 2024

OPERATION AND MAINTENANCE

The system is classified as a Type IVa. The Regulations requires that the system be operated by a licensed ORC. Visitation is 2 times per year and reporting once per year. The Regulation further requires the system be reviewed by the health department at a frequency of every 3 years.

Procedures shall include but not be limited to the following:

- Minimum inspection/maintenance frequency by ORC shall be 2 times/year.
- Inspect and clean the effluent filter & pump filter on an as required basis (a minimum on 1 time per year).
- Septic tank shall be pumped every 5 years or when solids accumulate to 1/3 the volume of the tank.
- All piping and fittings shall be checked annually for damage and/or proper operation and corrections made immediately.
- The property should be inspected to ensure all surface water is diverted away from the fields and tank. Any ponding of surface water should be corrected immediately by placing topsoil in low spot, seeding and mulching immediately.
- Grasses shall be mowed & maintained and any erosion shall be corrected promptly. A healthy stand of grass shall be maintained by periodic liming and seeding.
- The nitrification field area shall be checked for leakages, blowouts or malfunction, indications of damp or mushy areas compared to surrounding area or evidence of noticeable odor of sewage. Repairs shall be made immediately.
- Float switches shall be checked for free operation and proper level set.
- Check septic tank and pump tank for evidence of damage or leakage. Check the quality of effluent including grease and sludge accumulation.
- Check and reset pressure head on each lateral. (See pressure head adjustment).

PRESSURE HEAD ADJUSTMENT: The pressure head must be adjusted to match that specified in the design. The pressure head is measured, as the height liquid will rise above the turn-up elbow when the pump is running. To adjust the head:

(a) Glue a 3' length of pipe (preferably clear) to a threaded adapter that will screw onto the turn-up adapters. (Call this the "test tube".)

(b) Replace the turn-up cap with the "test tube".

(c) Turn the pump on to allow liquid to rise in the "test tube".

(d) Adjust the valve at the head of each lateral in central valve box until the effluent reaches the desired height in the "test tube". Remember to include the distance below the ground surface to the lateral line when measuring the height. The pressure head should be 4' for each line. This is the height above the lateral the liquid should be in the temporary "test tube". Continue to adjust valves until all "test tubes" have an equal amount of liquid.

Operational Checklist: Septic tanks (ST)

Service provided on: Date:_____ Time:_____ Reference #:_____
Service provided by: Company:_____ Employee:_____
Date of last service:_____ By: ☐ You ☐ Other:_____
Date of last inspection: _____

1. Type:
   ☐ Septic tank ☐ Trash tank
   ☐ Processing tank ☐ Pump vault present

2. Conditions at the tank
   a. Evaluate presence of odor within 10 ft of perimeter of system:
      ☐ None ☐ Mild ☐ Strong ☐ Chemical ☐ Sour
   b. Source of odor, if present: _____
3. Tank description
   a. Material: ☐ Concrete ☐ Fiberglass ☐ Plastic
   b. Capacity: _____gal
   c. Compartmented. Yes____No_____
   d. Capacities for compartmented system: 1)_____gal 2)_____gal
4. Tank access
   a. Access location: ☐ Inlet ☐ Outlet ☐ Center
   b. Located at grade. Yes____No_____
   c. If 'No', how deep is lid buried. _____
   d. Risers on tank. Yes____No_____
   e. Evidence of infiltration in risers. Yes____No_____
   f. Lids securely fastened. Yes____No_____
   g. Lid in operable condition. Yes____No_____
5. Alarm(s)
   a. Alarm(s) present. Yes____No_____
   b. Audio alarm operational. N.A.____Yes____No_____
   c. Visual alarm operational. N.A.____Yes____No_____
   d. Remote telemetry operational. N.A.____Yes____No_____
   e. Electronic monitoring operational. N.A.____Yes____No_____
6. Current tank operating conditions
   a. Liquid level relative to outlet: _____in
      ☐ At ☐ Above ☐ Below
   b. Maximum liquid level of tank (invert of inlet pipe):_____in
   c. Height at which alarm is activated as measured from invert of inlet: _____in
   d. Evidence liquid level has been higher. Yes____No_____
   e. Evidence liquid level dropped without pumping. Yes____No_____
   f. Evidence of continuous inflow. Yes____No_____
   g. Date of last pumpout:_____
   h. Presence of flocculant in clear zone. Yes____No_____
   i. Evaluation of layers in tank:

Compartment Number	Scum (in)		Clear Zone (in)		Sludge (in)		Odor	Other
	Depth	Color*	Depth	Color	Depth	Color		
1								
2								

*Color Choices: ☐ Clear ☐ Flocced ☐ Milky ☐ Muddy ☐ Grainy
☐ Black ☐ Brown ☐ Mustard ☐ Gray ☐ White

7. Tank pumping recommended. Yes____No_____

NOTES

2. ☐ Acceptable
   ☐ Unacceptable

4. ☐ Acceptable
   ☐ Unacceptable

5. ☐ Acceptable
   ☐ Unacceptable

6. ☐ Acceptable
   ☐ Unacceptable

Reference #:_____

8. Baffles currently structurally sound. Yes____No_____
   a. Inlet baffle in place. Yes____No_____
   b. Outlet baffle in place. Yes____No_____
   c. Compartment baffle in place. N.A._____Yes____No_____
   d. Effluent screen. Yes____No_____
      Manufacturer:_____Model:_____
   e. Is screen accessible from ground surface. Yes____No_____
   f. If screened, percent plugged: _____%
   g. Was screen cleaned. Yes____No_____
9. Tank structural condition (evaluate if tank pumped): N.A._____
   a. Appears to be watertight (no visual leaks). Yes____No_____
   b. Rebar exposed. Yes____No_____
   c. Corrosion present. Yes____No_____
   d. Spalling present. Yes____No_____
   e. Cracks present. Yes____No_____
   f. Root intrusion. Yes____No_____
   g. Deflection noted. N.A.____Yes____No_____
10. Contractor responsible for pumping: _____
    a. Gal removed:_____ Date:_____
11. Lab samples collected for monitoring. Yes____No_____
    Types of analysis:_____
    _____
    _____

8. ☐ Acceptable
   ☐ Unacceptable

9. ☐ Acceptable
   ☐ Unacceptable

Operational Checklist: Pump tank (PT)

Service provided on: Date:_____ Time:_____ Reference #:_____
Service provided by: Company:_____ Employee:_____
Date of last service:_____ By: ☐ You ☐ Other:_____
Date of last inspection: _____

1. Type:
   ☐ Pump tank ☐ Siphon tank ☐ Surge/Flow equalization tank
   ☐ Processing tank ☐ Recirculation tank ☐ Internal pump basin sump
   a. Pump intake depth:_____
2. Conditions at the pump tank
   a. Evaluate presence of odor within 10 feet of perimeter of system:
      ☐ None ☐ Mild ☐ Strong ☐ Chemical ☐ Sour
   b. Source of odor, if present: _____
3. Tank description
   a. Material: ☐ Concrete ☐ Fiberglass ☐ Plastic
   b. Capacity: _____gal
   c. Surface area: _____sq ft
   d. Operational depth: _____in
   e. Gallons per inch (GPI): _____gal/in
4. Tank access
   a. Access location: ☐ Inlet ☐ Outlet ☐ Center
   b. Located at grade. Yes____No_____
   c. If 'No', how deep is lid buried. _____
   d. Risers on tank. Yes____No_____
   e. Evidence of infiltration in risers. Yes____No_____
   f. Lids securely fastened. Yes____No_____
   g. Lid in operable condition. Yes____No_____
5. Current tank operating conditions
   a. Liquid level relative to outlet: _____in
      ☐ At ☐ Above ☐ Below
   b. Maximum liquid level of tank (invert of inlet pipe):_____in.
   c. Height at which alarm is activated as measured from top of maximum liquid level: _____in
   d. Evidence liquid level has been higher. Yes____No_____
   e. Evidence liquid level dropped without pumping. Yes____No_____
   f. Evidence of continuous inflow. Yes____No_____
   g. Date of last pumpout:_____
6. Pump/Siphon
   a. Pump/Siphon under access. Yes____No_____
   b. Pull chain or rope present. N.A.____Yes____No_____
7. Discharge assembly: N.A._____
   a. Anti siphon/air release device. Yes____No_____
   b. Backflow prevention (check valve) present. Yes____No_____
   c. Air release located below check valve. Yes____No_____
   d. Drain back device present. Yes____No_____
   e. Quick disconnect present. Yes____No_____
   f. Isolation valve present. Yes____No_____
   g. Inline filters present. Yes____No_____
8. Electrical components sealed and watertight. N.A.____Yes____No_____
9. Tank structural condition (evaluate if tank pumped): N.A._____
   a. Appears to be watertight (no visual leaks). Yes____No_____
   b. Rebar exposed. Yes____No_____
   c. Corrosion present. Yes____No_____
   d. Spalling present. Yes____No_____

NOTES

2. ☐ Acceptable ☐ Unacceptable
3. ☐ Acceptable ☐ Unacceptable
4. ☐ Acceptable ☐ Unacceptable
5. ☐ Acceptable ☐ Unacceptable
6. ☐ Acceptable ☐ Unacceptable
7. ☐ Acceptable ☐ Unacceptable
8. ☐ Acceptable ☐ Unacceptable
9. ☐ Acceptable ☐ Unacceptable

Reference #:_____

e. Cracks present. Yes____No_____
f. Root intrusion. Yes____No_____

10. Solids accumulation:

Scum (in)	Sludge (in)	Odor	Color	Other

11. Tank pumping recommended. Yes____No_____
12. Contractor responsible for pumping: _____
    a. Gal removed:_____Date:_____
13. Screen(s)
    a. Type of screen: ☐Vault with basket ☐ Vault with filter ☐ In-line screen
    b. Was screen cleaned. Yes____No_____
14. Lab samples collected for monitoring. Yes____No_____
    Types of analysis:_____
    _____
    _____

Operational Checklist: Pump

Service provided on: Date:_____Time:_____Reference #:_____
Service provided by: Company:_____Employee:_____
Date of last service:_____By: ☐ You ☐ Other:_____
Date of last inspection: _____

System type: ☐ Pump ☐ Siphon

NOTES

1. Controls
   a. Type: ☐ Piggy back ☐ Control panel
   b. Controls operating properly. Yes_____No_____
   c. Is enclosure watertight. Yes_____No_____
   d. Alarm test switch working properly. Yes_____No_____
   e. At time of inspection, control switch (HAND-OFF-AUTO) was set at:
      "Hand/Manual"_____
      "Auto"_____
      "Off"_____
   f. Electrical meter readings:

		Reading (this)	Reading (last)	Difference	N.A.
i)	ETM			min	
ii)	Cycles/events			Events (NC)	

   Calculate cycles/day:_____[NC] / [Days] =_____[CPD]
   g. Telemetry operational. N.A.:_____Yes_____No_____
   Type:_____

1. ☐ Acceptable ☐ Unacceptable

2. Pump/Siphon
   a. Siphon operating properly. N.A.:_____Yes_____No_____
   b. Pump operating properly. Yes_____No_____
   c. Type of pump: ☐ Multi-stage ☐ Single-stage
   d. Amps measured: _____amps
   e. Voltage measured: _____volts
   f. Pump turns on/turns off. Yes_____No_____

2. ☐ Acceptable ☐ Unacceptable

3. Water level sensors
   a. Type of water level sensor: ☐ Floats ☐ Pressure transducers ☐ Ultrasonic ☐ Other: _____
   b. Pump floats/sensors functioning properly. Yes_____No_____
   c. Alarm float/sensor operating both audible and visible. Yes _____No_____

3. ☐ Acceptable ☐ Unacceptable

4. Sensor settings:

Sensor Number*	Function	Operational	Set At**		Secured
			Inches	Datum	
1		Yes___No___			Yes___No___
2		Yes___No___			Yes___No___
3		Yes___No___			Yes___No___
4		Yes___No___			Yes___No___
5		Yes___No___			Yes___No___

**(Designate starting from bottom of tank)*
*** (Measurements are taken from a fixed point ("Datum") near the surface or bottom of float tree in inches)*

5. Dose volume (DV)
   a. Pump Off – Pump On =_____in pumped (dose)
   b. GPI:_____ (Form 6.1 – Item 3.e)
      _____dose (in) x_____GPI =_____DV(gal)

Reference #:_____

6. Pump delivery rate (PDR)
    a. Dose volume (from Item 5): _____gal

    b. Verified pump run time "On": _____min
    _____gal pumped ÷_____min =_____GPM
7. Total gallons
    a. Method to activate pump: ☐ Water added ☐ Lifted float
    b. Total gallons (from elapsed time meter)
    [_____(PTR) -_____(LTR)] x_____(GPM) =_____Total Gal
    OR Total gallons (from event/cycle counter)
    [_____(PCR) -_____(LCR)] x_____(DV) =_____Total Gal
8. Gallons per day (GPD)
    a. _____Total gal ÷ _____No. of days =_____Gal/day (GPD)

CPD: Cycles per day
DV: dose volume
ETM: Elapsed time meter
GPI: gallons per inch
GPM: gallons per minute
GPD: gallons per day
HAND-OFF-AUTO: Hand-Off-Auto Switch
LCR: last cycle reading
LTR: last time reading
PCR: present cycle reading
PDR: pump delivery rate
PTR: present time reading

Operational Checklist: Low-pressure drainfield (LPD)

Service provided on: Date:_____Time:_____Reference #:_____
Service provided by: Company:_____Employee:_____
Date of last service:_____By: ☐ You ☐ Other:_____
Date of last inspection: _____

1. Effluent quality: ☐ Aerobic ☐ Septic tank effluent (anaerobic)
   Type of low-pressure drainfield: ☐ Low-pressure pipe ☐ Shallow narrow drainfield
2. Conditions at the LPD
   a. Topography: ☐ Level ☐ Sloping:_____% slope
   b. Evaluate presence of odor within 10 ft of perimeter of system:
      ☐ None ☐ Mild ☐ Strong ☐ Chemical ☐ Sour
   c. Source of odor, if present: _____
   d. Indications of leaks around/above system. Yes____No_____
   e. Vegetation appropriate. Yes____No_____
   f. Excessive vegetative growth. Yes____No_____
   g. Vegetation adequately maintained. Yes____No_____
   h. Preventing accessibility for maintenance. Yes____No_____
3. Supply line
   a. Line drains freely. Yes____No_____
   b. Ponding or saturation present along parts of the supply line. N/A____Yes____No_____
   c. Air relief(s) valve operating. N/A____Yes____No_____
4. Switching valves
   a. Switching valve present. Yes____No_____
   b. Type of valve:_____
   c. Operating properly. Yes____No_____
   d. Action taken if not:_____
   e. Laterals/zones in operation: _____

NOTES

2. ☐ Acceptable ☐ Unacceptable
3. ☐ Acceptable ☐ Unacceptable
4. ☐ Acceptable ☐ Unacceptable

5. Soil treatment area information:

Zone #	Lateral #	Distal Head		Ponding Yes - No (in)	Surfacing Effluent		Lateral Ends			Root Intrusion (Yes – No)	Other Obstruction (Specify)
		Operating at (in)	Adjusted to (in)		(Yes – No)	Distance Traveled (in)	Intact	Protected	Accessible		

Reference #:_____

6. Orifices
   a. Position: ☐ 6 o'clock ☐ 12 o'clock
   b. Orifices cleaned. Yes____No_____
   c. Method: ☐ Hydrojetted ☐ Bottlebrushed
      ☐ Flushed ☐ Other:_____
7. Elevated system: N/A_____
   a. Surfacing effluent present. Yes____No_____
8. Lab samples collected for monitoring. Yes____No_____
   Types of analysis:_____
   _____
   _____

6. ☐ Acceptable
   ☐ Unacceptable

7. ☐ Acceptable
   ☐ Unacceptable

111 Milledge Dr.

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
HELEN WOLSTENHOLME • Interim Deputy Secretary for Health
MARK T. BENTON • Assistant Secretary for Public Health
Division of Public Health

COMMON FORM FOR ENGINEERED OPTION PERMIT

See Instructions for Use in Appendix A

Except for "Date received", this Section to be completed by the Professional Engineer licensed in accordance with G.S. 89C

LHD USE ONLY: Initial submittal of this NOI received: 1-27-2023 (Date) by BB (Initials)

PART 1: Notice of Intent to Construct (NOI) - Please check all that apply

[X] Single System or [ ] Multiple Systems

AND

[X] New [ ] Expansion [ ] Relocation of all or part of the Existing System [ ] Relocation of Repair Area

[ ] Repair – LHD Permit Number _____ [ ] Repair – EOP/LSS COVID 19/AOWE Permit Number _____

1. Facility Owner's name: (Owner, Company Name, Utility, Partnership, Individual, etc.): Chris La Mack - Individual

Mailing address: 111 Milledge Drive City: Mooresville State: NC Zip: 28117

Telephone number: 704-363-6109 E-mail Address: clamack65@gmail.com

2. Professional Engineer (PE) name: Donald L. Munday License number: 17327

Mailing address: 125 East Plaza Drive, Suite 101 City: Mooresville State: NC Zip: 28117

Telephone number: 704-664-7888 E-mail Address: dmunday@pdapa.com

3. Licensed Soil Scientist (LSS) name: Michael Athanas License number: 1252

Mailing address: 556 Walden Trail City: Weddington State: NC Zip: 28173

Telephone number: 704-576-3887 E-mail Address: mike@michaelathanas.com

4. Licensed Geologist (LG) (if applicable) name: _____ License number: _____

Mailing address: _____ City: _____ State: _____ Zip: _____

Telephone number: _____ E-mail Address: _____

5. On-Site Wastewater Contractor name: Jay Ervin License number: 2968

Mailing address: 380 Mackwood Road City: Mooresville State: NC Zip: 28115

Telephone number: 704-664-5418 E-mail Address: dirtandpipe@gmail.com

6. Proof of Errors and Omissions or other appropriate liability insurance for the following persons is attached that includes the name of the insurer, name of the insured and the effective dates of coverage:

[X] PE [X] LSS [ ] LG [X] On-site Wastewater Contractor

7. Property location (physical address, tax parcel identification number or subdivision lot, block number of the property to be permitted): 111 Milledge Drive, Mooresville, NC

   County Name: Iredell

8. Type of facility: [X] Place of residence No. Bedrooms: 4 No. Occupants: 8 Maximum
   [ ] Place of business Basis for flow calculation: _____
   [ ] Place of public assembly Basis for flow calculation: _____

9. Factors that would affect the wastewater load: No More than 2 Persons per Bedroom, use of garbarge disposal is not recommended. No backwash of water softening system, no condensate discharge ~~no disposal of cleaning solutions or pharmaceuticals into waste stream.~~

10. Type and location of proposed wastewater system: Low Pressure PPBPS (Primary b/t house and 50' buffer. Repair is b/t 50' buffer and 30' buffer & will be TS-II Type system)

11. Design wastewater flow: 480 gpd *(For flow > 3,000 gpd and industrial process, duplicate plans shall be sent to the State.)*

    Design wastewater strength: [X] domestic [ ] high strength [ ] industrial process

12. A plat as defined in G.S. 130A-334(7a) is attached: [X] Yes [ ] No

13. Location of proposed or existing wells (drinking water, irrigation, geothermal, groundwater monitoring, sampling, etc.) and any potable and non-potable water conveyance lines is indicated on attached plans and complies with 15A NCAC 18A .1950: [X] Yes [ ] No

    This is a saprolite system. [X] Yes [ ] No

14. Evaluation(s) of soil conditions and site features in accordance with G.S. 130A-335(a1) signed and sealed by a LSS is attached: [X] Yes [ ] No

15. Evaluation of geologic and hydrogeologic conditions signed and sealed by a LG is attached [ ] Yes [X] NA

16. Proposed landscape, site, drainage, or soil modifications are attached: [ ] Yes [X] NA

Attestation by Professional Engineer licensed in North Carolina pursuant to G.S. 89C

I, Donald L. Munday, PE hereby attest that the information required to be included with
Registered Professional Engineer (Print Name)
this Notice of Intent to Construct is accurate and complete to the best of my knowledge and that the proposed system shall meet applicable federal, State, and local laws, regulations, rules, and ordinances in accordance with G.S. 130A-336-.1(e)(6).

Donald L. Munday Digitally signed by Donald L. Munday DN: C=US, E=dmunday@pdapa.com, O="Piedmont Design Associates, PA", CN=Donald L. Munday Date: 2023.01.16 08:44:22-05'00' 01/16/2023

Signature of Licensed Professional Engineer *Date*

This section is for Owner use to either designate PE as their legal representative or to self-submit the NOI.

Designation of Registered Professional Engineer as legal representative of Owner for this Notice of Intent:

I, _____ hereby designate _____
Print Name of Owner *Print Name of Registered Professional Engineer*

as my legal representative for purposes of this Notice of Intent pursuant to G.S. 130A-336.1.

_____ _____
Signature of Owner *Date*

Owner self-submittal of NOI:

I, Chris LaMack hereby submit this NOI prepared by Donald L. Munday, PE
Print Name of Owner *Print Name of Licensed PE*

pursuant to G.S. 130A-336.1.

_____ _____
Signature of Owner *Date*

NOTES:

LIABILITY: The Department, the Department's authorized agents, or local health departments shall have no liability for wastewater systems designed, constructed, and installed pursuant to an Engineer Option Permit [G.S. 130A-336.1(f)]

RIGHT OF ENTRY: The submittal of this **Notice of Intent to Construct** *grants right of entry to the Local Health Department and the State to the referenced property.*

ISSUANCE OF BUILDING PERMIT: Once the LHD deems that the Notice of Intent to Construct is complete via signature in the section below, the owner may apply to the local permitting agency for a permit for electrical, plumbing, heating, air conditioning or other construction, location, or relocation activity under any provision of general or special law pursuant to G.S. 130A-338.

This section for Local Health Department use only.

PART 2: *LHD Completeness Review of the Notice of Intent to Construct*

"(c) Completeness Review for Notice of Intent to Construct. – The local health department shall determine whether a notice of intent to construct, as required pursuant subsection (b) of this section, is complete within 15 business days after the local health department receives the notice of intent to construct. A determination of completeness means that the notice of intent to construct includes all of the required components. If the local health department determines that the notice of intent to construct is incomplete, the department shall notify the owner or the professional engineer of the components needed to complete the notice. The owner or professional engineer may submit additional information to the department to cure the deficiencies in the notice. The local health department shall make a final determination as to whether the notice of intent to construct is complete within 10 business days after the department receives the additional information from the owner or professional engineer. If the department fails to act within any time period set out in this subsection, the owner or professional engineer may treat the failure to act as a determination of completeness."

The review for completeness of this Notice of Intent was conducted in accordance with G.S. 130A-336.1(c). This NOI is determined to be:

☐ INCOMPLETE (If box is checked, Information in this section is required.)

Based upon review of information submitted in Part 1, the following items are missing: _____

_____

Copies of this form listing missing items were sent to the design PE and the Owner on _____
Date

via _____ with directions to re-submit missing items using Page 5 of this form.
Email, FAX, USPS, hand-delivered

_____ _____ _____
Print Name of Authorized Agent of the LHD *Signature of Authorized Agent of the LHD* *Date*

☑ COMPLETE (If box is checked, information in this section is required.)

Based upon review of information submitted in Part 1 of this form, this NOI is deemed COMPLETE.

Copies of this signed form were sent to the design PE and the Owner on 1/30/23 via Email.
Date *Email, FAX, USPS, hand-delivered*

A copy of this NOI and tracking information was sent to the State on 1/30/23 via Email.
Date *Email, FAX, USPS, hand-delivered*

Benjamin A. Botkins _____ 1/30/2023
Print Name of Authorized Agent of the LHD *Signature of Authorized Agent of the LHD* *Date*

Re-submittal of NOI with missing items included

This Section is for use by the owner or PE to submit items noted as missing during LHD Completeness Review above. Resubmittals must be accompanied by a cover letter from the PE.

LHD USE ONLY: This NOI resubmittal received: _____ by _____
Date *Initials*

Item # from initial NOI	Resubmittal description

Attestation by Professional Engineer licensed in North Carolina pursuant to G.S. 89C

I, _____ hereby attest that the information re-submitted for this Notice of
Licensed Professional Engineer (Print Name)
Intent to Construct is accurate and complete to the best of my knowledge and that the proposed system shall meet applicable federal, State, and local laws, regulations, rules and ordinances in accordance with G.S. 130A-336-.1(e)(6).

_____ _____
Signature of Licensed Professional Engineer *Date*

The section below is for Local Health Department use after submittal of items noted as missing above.

LHD Follow-up Completeness Review of Notice of Intent to Construct

This follow-up review for completeness of this Notice and Intent was conducted in accordance with G.S. 130A-336.1(c). This NOI is determined to be:

☐ INCOMPLETE
Based upon review of information submitted in the RESUBMITTAL above, this Notice of Intent remains INCOMPETE because the following items from Part 1 of this form remain missing: _____
_____.

Copies of this signed form were sent to the design PE and the Owner on _____ via _____.
Date *Email, FAX, USPS, Hand-delivered*

_____ _____ _____
Print name of authorized Agent of the LHD *Signature of authorized Agent of the LHD* *Date*

☐ COMPLETE
Based upon review of information submitted in the RESUBMITTAL above in addition to information provided in Part 1 of this form, this NOI is deemed complete.

Copies of this signed form were sent to the PE and the Owner on _____ via _____.
Date *Email, FAX, USPS, Hand-delivered*

A complete copy of this form with tracking information was sent to the State: _____ via _____.
Date *Email, FAX, USPS, hand-delivered*

_____ _____ _____
Print name of authorized Agent of the LHD *Signature of authorized Agent of the LHD* *Date*

PART 3: Authorization to Operate (ATO)

Except for date received, the Section below is to be completed by the Owner or the PE.

LHD USE ONLY: Initial submittal of request for ATO received: _____ (Date) by _____ (Initials)

Date of Post-construction Conference: _____

Post-construction Conference waived in accordance with G.S. 130A-336.1(j): _____

The following items are included in this submittal for an Authorization to Operate under an EOP:

1. Signed and sealed copy of the Engineer's report that includes the information in G.S. 130A-336.1(k)(1) and 15A NCAC 18A .1971(f) ☐ Yes ☐ No
2. Operation and management program and ORC contract, if applicable ☐ Yes ☐ No
3. Fee (as applicable) ☐ Yes ☐ No
4. Notarized letter documenting Owner's acceptance of the system from the PE ☐ Yes ☐ No
5. Owner meets requirements of ownership or control of the system per 15A NCAC 18A .1938(j) ☐ Yes ☐ No
6. Easement, right of way, or encroachment agreement required per 15A NCAC 18A .1938(j) ☐ Yes ☐ No
7. Multi-party agreements required, as applicable, pursuant to 15A NCAC 18A. .1937(h) ☐ Yes ☐ No
   If yes, agreements filed in _____ County Register of Deeds in Deed Book _____ Page _____

Attestation by the Owner or the PE for Authorization to Operate

I, _____ hereby attest that all items indicated above have been provided to the
Print name of Owner or Professional Engineer
_____County LHD and the system shall meet applicable federal, State, and local laws, regulations, rules and ordinances in accordance with G.S. 130A-336-.1(e)(6).

_____ _____
Signature of Owner or Professional Engineer *Date*

This section for LHD Use Only.

LHD Review of required information for the ATO

☐ INCOMPLETE

Based upon review of information submitted in the Section above, the following items are missing from the information required for an Authorization to Operate for an EOP: _____
_____.

Copies of this signed form were sent to the design PE and the Owner on _____ (Date) via _____ (Email, FAX, USPS, Hand-delivered).

_____ _____ _____
Print name of authorized Agent of the LHD *Signature of authorized Agent of the LHD* *Date*

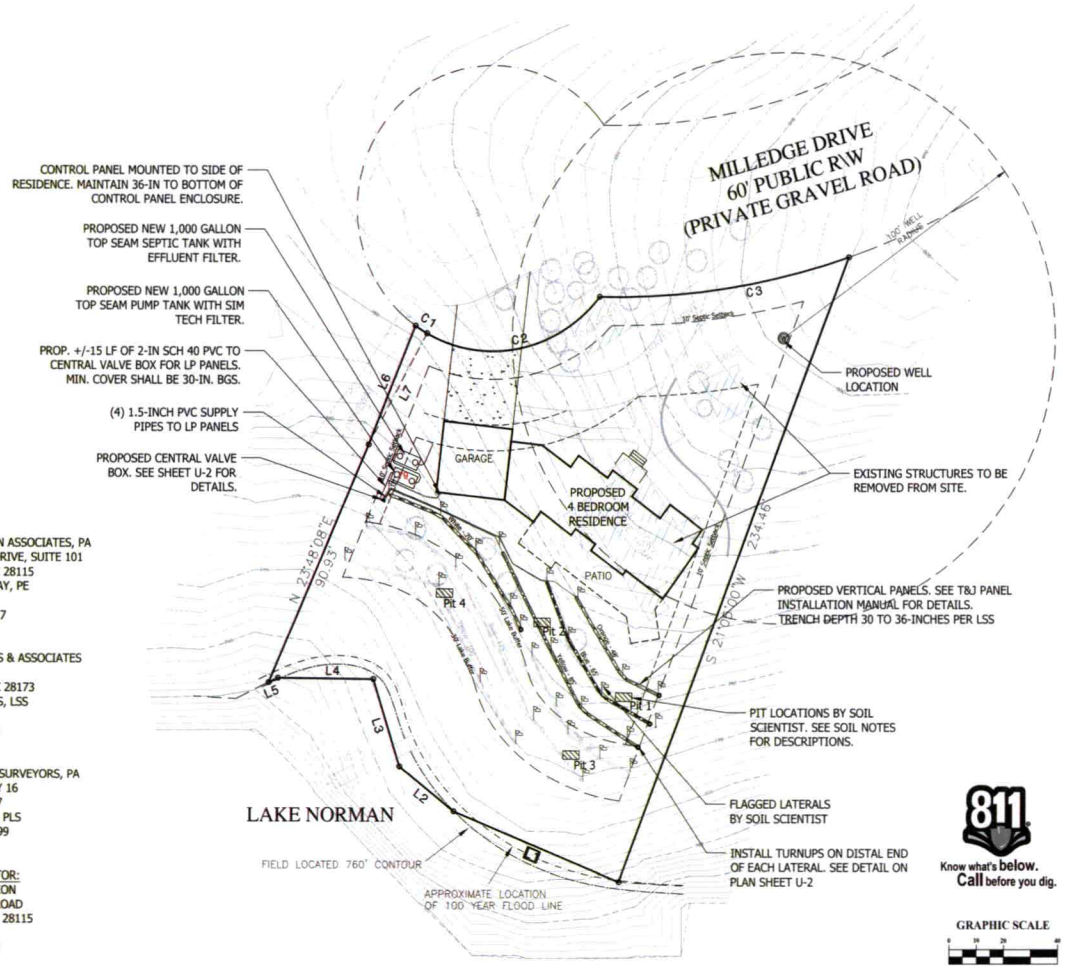
☐ COMPLETE

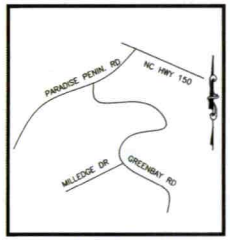
Based upon review of information submitted in the Section above, this Authorization to Operate is hereby issued in accordance with G.S. 130A-336.1(m).

A copy of this complete NOI/ATO with tracking information was sent to the State on _____ (Date) via _____ (Email, FAX, USPS, Hand-delivered).

_____ _____ _____
Print name of authorized Agent of the LHD *Signature of authorized Agent of the LHD* *Date*

ISSUANCE OF CERTIFICATE OF OCCUPANCY: Once the LHD determines completeness based upon the ATO submission, the owner may apply to the local permitting agency for permanent electrical service to a residence, place of business or place of public assembly pursuant to G.S. 130A-339.





VICINITY MAP
NO SCALE

DESIGN NOTES:	
DESIGN FLOW:	480 G/D
LTAR:	0.30 GD/SF
SEPTIC TANK SIZE:	1,000 GALLON (BAFFLED)
EFFLUENT FILTER:	OSI MODEL FTPS0436-2S-NC
PUMP TANK SIZE:	1,000 GALLON (NON-BAFFLED)
PUMP FILTER:	(1) SIM TECH FILTER MODEL A100
ADVANCED TREATMENT:	ORENCO ADVANTEX AX-20RTUV (FOR REPAIR ONLY)
FIELD DOSING PUMP:	GOULDS 3885 SERIES MODEL WE0512
SUBSURFACE DISTRIBUTION:	LP PPBPS (VERTICAL)
FORCEMAIN SIZE:	2-INCH SCH 40 PVC
NO. OF LATERALS:	4 (VARIOUS LENGTHS)
TRENCH BOTTOM:	30 TO 36 INCHES
TIME PER DOSE:	4.57 MINUTES
PUMP FLOW:	35.0 GPM
TOTAL DOSE VOLUME:	160 GAL./DOSE
VOL. PER PANEL PER DOSE:	2.29 GALLONS OR 63.49% OF PANEL VOLUME

NOTES:
- SOILS WORK PROVIDED BY MICHAEL ATHANAS & ASSOCIATES
- REFER TO SHEET U-2 FOR SYSTEM DETAILS & ELEVATIONS AND SPECIFICATION PACKAGE FOR INSTALLATION ROMTS.
- PRIOR TO ANY CONSTRUCTION, BARRICADE ALL DISPOSAL AREAS FROM CONSTRUCTION TRAFFIC
- CLEAR DRAIN FIELD OF ALL DEBRIS, LIMBS, ETC. LIGHTLY HAND SMOOTH ANY IRREGULAR SURFACES. REDO PRIOR TO INSTALLATION OF LATERALS, ENSURE THAT DISPOSAL AREAS ARE CAPABLE OF SHEDDING RAINWATER AND FREE OF ANY LOW AREAS
- SEED ALL DISPOSAL AREAS.
- MAINTAIN 9' MINIMUM SEPARATION ON ALL VERTICAL PANELS
- OBSERVE ALL SETBACKS.
- WATER TO THE RESIDENCE WILL BE SUPPLIED BY A WELL LOCATED MORE THAN 50 FEET FROM THE SYSTEM COMPONENTS.
- SURVEY INFORMATION PROVIDED BY DEDMON SURVEYING.
- REPAIR OF THE CURRENT DRAINFIELD WILL REQUIRE THE USE OF A TS-II ADVANCED TREATMENT UNIT TO BE INSTALLED IN PLACE OF THE NEW PUMP TANK.

811 Know what's below. Call before you dig.

ENGINEER:
PIEDMONT DESIGN ASSOCIATES, PA
125 EAST PLAZA DRIVE, SUITE 101
MOORESVILLE, NC 28115
DONALD L. MUNDAY, PE
(704) 664-7888
LICENSE NO: 17327

SOIL SCIENTIST:
MICHAEL ATHANAS & ASSOCIATES
561 ENNIS ROAD
WEDDINGTON, NC 28173
MICHAEL ATHANAS, LSS
(704) 576-3887
LICENSE NO: 1252

SURVEYOR:
RONNIE DEDMON SURVEYORS, PA
4837 NC HIGHWAY 16
DENVER, NC 28037
ROBERT DEDMON, PLS
LICENSE NO: L-3899
(704) 483-4908

SEPTIC CONTRACTOR:
FJ ERVIN CONSTRION
380 MACKWOOD ROAD
MOORESVILLE, NC 28115
(704) 664-5418
LICENSE NO: 2968

PROPERTY OWNER:
CHRIS LAMACK
111 MILLEDGE DRIVE
MOORESVILLE, NC 28117
(704) 363-6109

PUBLICATION OR REUSE OF THESE DRAWINGS OR ANY DETAILS WITHIN MUST BE WITH THE WRITTEN CONSENT OF PIEDMONT DESIGN ASSOCIATES, P.A. Owner: _____ Approved: _____ Date of Issue: _____

PIEDMONT DESIGN Associates, P.A.
Suite 101 Woodfield Center, 125 East Plaza Drive
Mooresville, NC 28115 Fax (704) 664-1712 www.pdapa.com
Phone (704) 664-7888 NC FIRM LICENSE C-1487

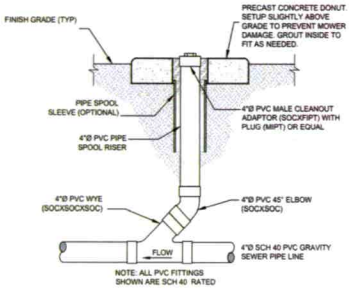
PREPARED FOR:
CHRIS LAMACK
111 MILLEDGE DRIVE
MOORESVILLE, NC 28117
704-363-6109

SEPTIC SYSTEM SITE PLAN
4 BEDROOM RESIDENCE
111 MILLEDGE DRIVE
MOORESVILLE, IREDELL COUNTY, NORTH CAROLINA

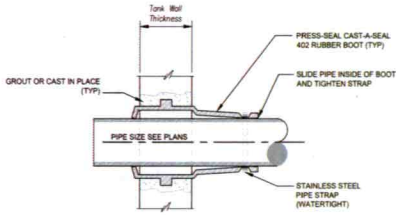
REVISIONS	BY

Date: 1/4/23
Scale: 1" = 20 FT
1' CONTOURS
Drawn: DMD
Checked: DLM
Project: 2022-11-22
Job: 2022-11-22
Sheet: U-1
of 2 Sheets

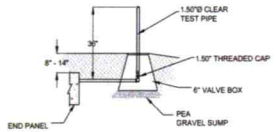
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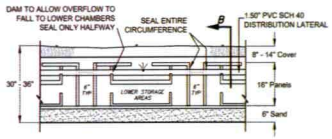
SECTION VIEW - GRAVITY CLEANOUT
N.T.S.

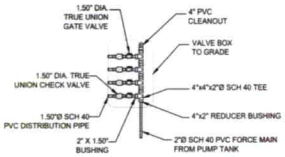


STANDARD PIPE PENETRATIONS
N.T.S.

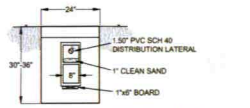


DISTAL END TURN UP DETAIL
N.T.S.



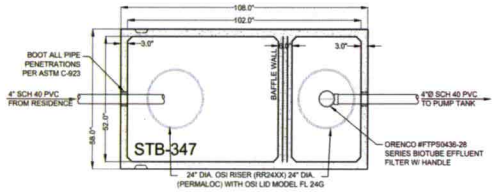


VALVE BOX DETAIL
N.T.S.

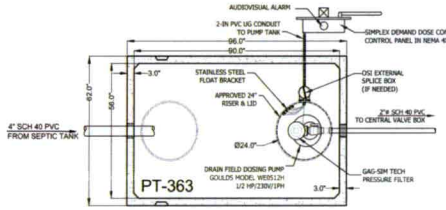


CUTAWAY OF PRESSURE PANEL
N.T.S.

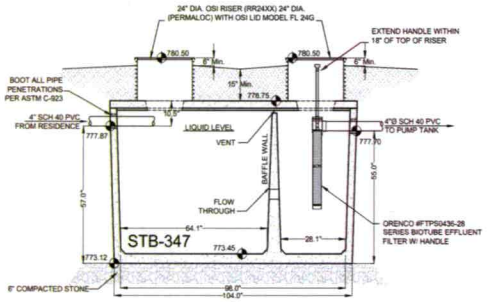
TANK ELEVATIONS
NOTE TANK DIMENSIONS & ELEVATIONS BASED ON SHOAF PRECAST COMPANY INC. OTHER STATE APPROVED TANKS MAY BE SUBSTITUTED BUT NOT WITHOUT PRIOR APPROVAL FROM THE ENGINEER. CONTRACTOR SHALL VERIFY DIMENSIONS AND ADJUST GRADES AND FLOAT SETTINGS AS REQUIRED TO CAUSE FLOW AND DOSING AS CALLED FOR.
TANKS SHALL NOT BE PUMPED DURING EXTREMELY WET CONDITIONS.



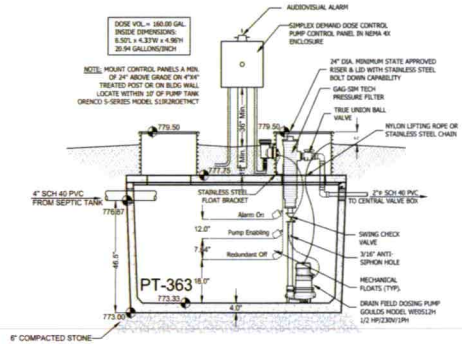
PLAN VIEW - 1,000 GAL SEPTIC TANK
N.T.S. Top Seam Tank Only



PLAN VIEW - 1,000 GAL PUMP TANK
N.T.S. Top Seam Tank Only



SECTION VIEW - 1,000 GAL SEPTIC TANK
N.T.S. Top Seam Tank Only



SECTION VIEW - 1,000 GAL PUMP TANK
N.T.S. Top Seam Tank Only



CONTROL PANEL DETAIL
N.T.S.

GENERAL NOTES:
1. NOTIFY UNDERGROUND UTILITIES LOCATOR PRIOR TO ANY EXCAVATION. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL TRADES AND SUBCONTRACTORS. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS, ELEVATIONS, AND LOCATION OF ALL EXISTING CONDITIONS AND UTILITIES.
2. ALL PIPING SHALL BE SCH 40 PVC UNLESS OTHERWISE NOTED ON PLANS. ALL PVC PIPES SHALL BE BURIED A MINIMUM OF 3 FEET UNLESS SHOWN OTHERWISE.
3. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS.
4. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OSHA, NCDOT, AND OTHER RELATED SAFETY REQUIREMENTS.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ALL CONSTRUCTION DAMAGE EXPEDITIOUSLY AND AT NO ADDITIONAL COST TO THE OWNER.
6. SEPTIC TANK SHALL BE CONSTRUCTED WITH A BAFFLE WALL DIVIDING THE TANK INTERIOR 2/3rd TO 1/3rd. THE BAFFLE WALL SHALL BE CONSTRUCTED TO PERMIT PASSAGE OF EFFLUENT THROUGH A SLOT OR HOLES LOCATED BETWEEN 45 & 55 PERCENT OF THE INTERIOR DEPTH.
7. ALL TANKS SHALL HAVE A MINIMUM 28-DAY CONCRETE STRENGTH OF 4,500 PSI.
8. TANK SHALL MEET REINFORCING REQUIREMENTS TO ACCOMMODATE 3,000 POUNDS PER SQ. FT. EITHER STEEL REINFORCING WIRE. REBAR OR APPROVED FIBER MAY BE USED.
9. ALL SERVICE ACCESS OPENINGS SHALL BE A MINIMUM OF 24 INCHES.
10. RISERS TO BE CAST IN PLACE AT TIME OF TANK CONSTRUCTION
11. ALL TANKS AND EFFLUENT FILTERS SHALL BE APPROVED BY ENGINEER & NCDHHS. EFFLUENT FILTERS SHALL BE SIZED FOR DESIGN FLOW AND EXTEND DOWN TO 50-PERCENT OF LIQUID LEVEL.
12. ALL JOINTS (MID-SEAM, TOP-SEAM) SHALL BE SEALED USING CONCRETE SEALANTS BUTYL SEALANT # CS-102 MEETING ASTM C-990.
13. TANKS SHALL BE LEAK-TESTED PRIOR TO SYSTEM START UP BY APPLYING A VACUUM OF 5-INCHES OF MERCURY WITH RISER ASSEMBLIES IN PLACE OR A 24-HOUR STATIC WATER TEST IN ACCORDANCE WITH ASTM STANDARDS.
14. ALL PIPE PENETRATIONS THROUGH PRECAST CONCRETE TANKS SHALL BE PRESS-SEAL CAST-A-SEAL 402 RUBBER BOOTS AND GROUTED.
15. ALL TANK RISERS AND LIDS SHALL EXTEND A MINIMUM OF 6" ABOVE THE FINISHED GRADE.
16. ALL METAL INSTALLED IN TANKS SHALL BE STAINLESS STEEL.
17. ALL MANHOLES NOT INSTALLED NOT IN TRAFFIC AREAS SHALL HAVE TAMPER RESISTANT BOLTS ON LIDS.
18. CONTROL PANELS SHALL BE INSTALLED A MINIMUM OF 36 INCHES FROM FINISHED GRADE TO BOTTOM OF PANEL BOX. SEAL OFF ALL CONDUITS BETWEEN TANKS AND PANEL.
19. CONTRACTOR TO VERIFY EXISTING SITE POWER SUPPLY (VOLTAGE) BEFORE ORDERING PUMPS, CONTROLS, ETC.

REFER TO SPECIFICATION PACKAGE FOR MATERIALS SELECTION & INSTALLATION REQUIREMENTS

PUBLICATION OR REUSE OF THESE DRAWINGS OR ANY DETAILS WITHIN MUST BE WITH THE WRITTEN CONSENT OF PIEDMONT DESIGN ASSOCIATES, P.A.

Owner: _____ Approved: _____ Date of Issue: _____

PIEDMONT DESIGN Associates, P.A.
Suite 101 Woodland Corner 125 Iron Plaza Drive
Mooresville, NC 28115 Phone (704) 664-7688 Fax (704) 664-1778 e-mail: pda@pdamail.com
NC Firm License # C-1580

PREPARED FOR:
CHRIS LAMACK
111 MILLEDGE DRIVE
MOORESVILLE, NC 28117
704-363-6109

SEPTIC SYSTEM DETAILS
4 BEDROOM RESIDENCE
111 MILLEDGE DRIVE
MOORESVILLE, IREDELL COUNTY, NORTH CAROLINA

REVISIONS	BY

Date: 1/4/23
Scale: AS SHOWN
Drawn: DMD
Checked: DLM
Project: 2022-11-22
Job: 2022-11-22
Sheet: U-2
of 2 Sheets

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NOTES:

- PROPERTY MAY BE SUBJECT TO RECORDED OR UNRECORDED RIGHTS OF WAYS OR EASEMENTS NOT OBSERVED
- OWNER TO VERIFY ALL SETBACKS AND ZONING REGULATIONS PRIOR TO ANY PLANNING OR CONSTRUCTION.
- DIMENSIONS OF ALL IMPROVEMENTS SHOWN ON THIS PLAT SHOULD NOT BE SCALED OR RELIED UPON FOR DESIGN OR CONSTRUCTION WITHOUT A FIELD VERIFICATION OF ALL DIMENSIONS.
- DIGITAL COPIES OF THIS FILE ARE FOR REFERENCE ONLY AND MAY NOT BE USED FOR DESIGN WORK.
- A PORTION OF THIS PROPERTY IS LOCATED IN A 100 YEAR FLOOD PLAIN.
- NO PORTION OF THE RESIDENTIAL STRUCTURE IS LOCATED IN THE 100 YEAR FLOOD PLAIN.

40 0 40 80 120

GRAPHIC SCALE – FEET



LEGEND

R\W	RIGHT–OF–WAY
E\P	EDGE OF PAVEMENT
C\L	CENTERLINE
PDE	PERMANENT DRAINAGE EASEMENT
	UTILITY POLE
	LIGHT POLE
	SANITARY SEWER MANHOLE
	OVERHEAD UTILITY LINE

PLAT BOOK 15–17

Curve	Radius	Length	Chord	Chord Bear.
C1	50.00'	5.02'	5.02'	S 58°15'37" E
C2	50.00'	70.34'	64.68'	N 78°33'46" E
C3	267.76'	93.39'	92.92'	N 81°24'36" E

Course	Bearing	Distance
L1	N 67°54'00" W	65.56'
L2	N 51°42'00" W	25.42'
L3	N 17°29'00" W	32.02'
L4	N 89°23'27" W	35.28'
L5	S 66°18'33" W	3.70'
L6	N 22°18'06" E	45.03'
L7	S 28°41'25" W	44.48'

PHYSICAL SURVEY
FOR

CHRIS & HEIDI LaMACK

111 MILLEDGE DR - MOORESVILLE, NC
LOT #163, SECTION 10, MAP BOOK 15-17
& A SMALL STRIP OF LAND

DAVIDSON TOWNSHIP, IREDELL COUNTY, NC
SCALE: 1" = 40'

DEDMON SURVEYS

CHUCK POOVEY, PLS #3762
ROBERT DEDMON, PLS #3899
3704 NC HIGHWAY #16 NORTH
P.O. BOX 494 - DENVER, NC 28037
PHONE: 704/483/4908
FAX: 704/483/2170
WWW.DEDMONSURVEYS.COM

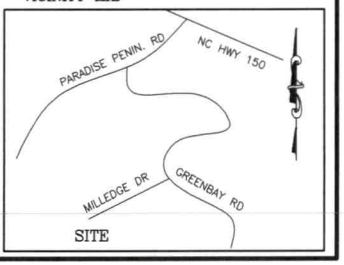
NORTH CAROLINA PROFESSIONAL SEAL L-3899 LAND SURVEYOR ROBERT J. DEDMON

I, ROBERT J. DEDMON, CERTIFY THAT THIS PLAT WAS DRAWN FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DB 2268, PG 671)(PB 15, PG 17); THAT THE RATIO OF PRECISION AS CALCULATED EXCEEDS 1:10,000'; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH GS 47–30 AS AMENDED. WITNESS MY ORIGINAL SIGNATURE, NOVEMBER 21, 2018. UPDATED ON 12–6–21 TO SHOW SITE PLAN. UPDATED ON 12–19–22 TO SHOW SEPTIC FLAGS.

Robert J. Dedmon — PROFESSIONAL LAND SURVEYOR
3899 — LICENSE NO.

SURV. BY: MP	DRAWN: RD	JOB# MPMD1

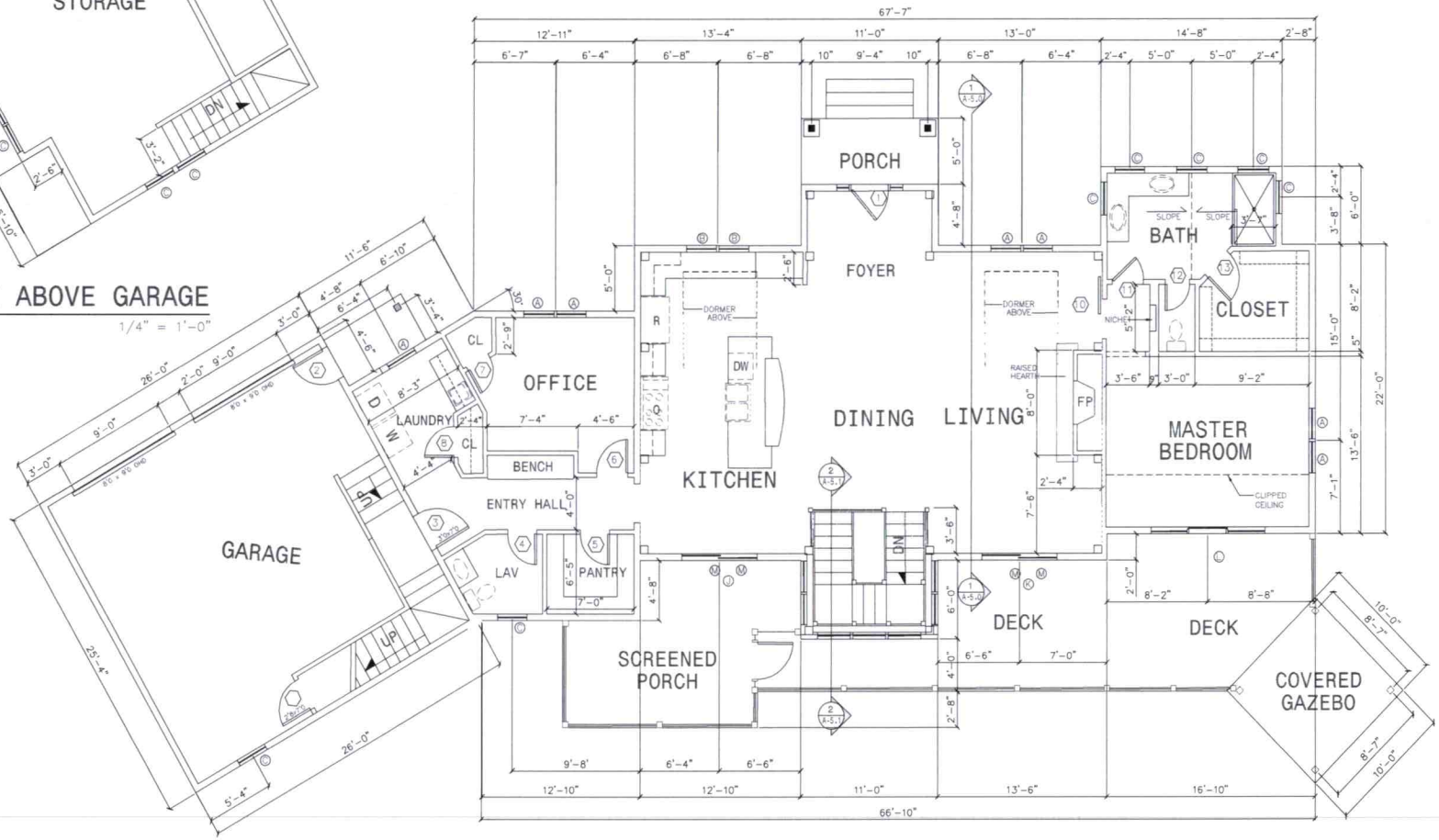
VICINITY MAP





STORAGE ABOVE GARAGE

1/4" = 1'-0"



MAIN FLOOR PLAN

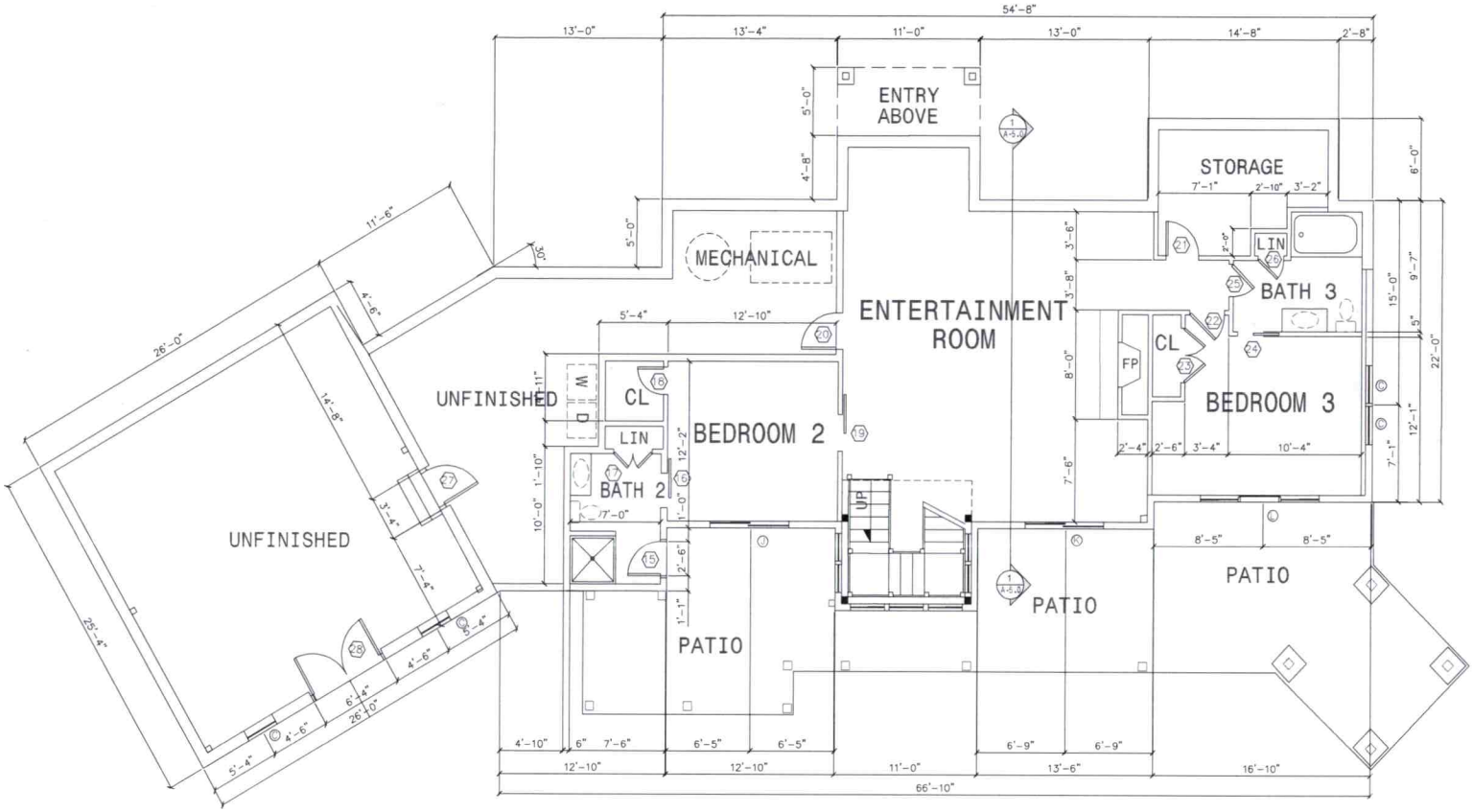
1/4" = 1'-0"

Chris & Heidi La Mack Residence
111 Milledge Drive
Mooresville, N.C. 28117

DATE: 11/10/22
REVISIONS:

MAIN FLOOR PLAN

A-1.0



LOWER FLOOR PLAN

1/4" = 1'-0"

Chris & Heidi La Mack Residence
111 Milledge Drive
Mooresville, N.C. 28117

DATE: 11/10/22

REVISIONS:

LOWER FLOOR PLAN

A-1.1

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 01/11/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER

InSouth Insurance Services LLC
PO Box 769, 111 Kilson Dr. Suite 202
Mooresville, NC 28115

CONTACT NAME: Todd Elwell, CBIA, CISR
PHONE (A/C, No, Ext): (704)948-7730 FAX (A/C, No): (704)948-7443
E-MAIL ADDRESS: todd@insouthins.com

INSURER(S) AFFORDING COVERAGE		NAIC #
INSURER A :	Donegal Insurance Group	13692
INSURER B :	Donegal Mutual Insurance Co	13692
INSURER C :	Donegal Insurance Group	26867
INSURER D :	Donegal Insurance Group	22586
INSURER E :		
INSURER F :		

INSURED

FJ Ervin Construction and Supply Co LLC
380 Mackwood Rd.
Mooresville, NC 28115

COVERAGES **CERTIFICATE NUMBER: 00015166-843519** **REVISION NUMBER: 43**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:			CPP9243293	09/10/2022	09/10/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ $ $ $ $ $	1,000,000 100,000 5,000 1,000,000 2,000,000 2,000,000
B	AUTOMOBILE LIABILITY ANY AUTO OWNED AUTOS ONLY X SCHEDULED AUTOS X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY			CA9243293	09/10/2022	09/10/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $	1,000,000
C	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $			CXS9243293	09/10/2022	09/10/2023	EACH OCCURRENCE AGGREGATE	$ $	1,000,000 1,000,000
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: Y (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		1000003410	09/10/2022	09/10/2023	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $	500,000 500,000 500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Piedmont Design Associates, P.A.
125 East Plaza Drive, Suite 101
Mooresville, NC 28115

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Todd D. Elwell (TDE)

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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 4/14/2022

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IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Higginbotham Insurance Agency, Inc.
PO Box 52534
Tulsa OK 74152-0534

CONTACT NAME: David Vaughan
PHONE (A/C, No, Ext): 918-779-7880 **FAX (A/C, No):** 918-779-7885
E-MAIL ADDRESS: dlvjr@higginbotham.net

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Mid-Continent Casualty Company	23418
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED MICHATH-01
Michael Athanas & Associates, Inc.
556 Walden Trail
Waxhaw NC 28173

COVERAGES **CERTIFICATE NUMBER:** 1966574828 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY	Y		04-GL-001075615	2/28/2022	2/28/2023	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE [X] OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 100,000
	X Professional						MED EXP (Any one person)	$ Excluded
	GEN'L AGGREGATE LIMIT APPLIES PER:						PERSONAL & ADV INJURY	$ 1,000,000
	X POLICY [ ] PRO-JECT [ ] LOC						GENERAL AGGREGATE	$ 3,000,000
	OTHER:						PRODUCTS - COMP/OP AGG	$ 3,000,000
								$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						PER STATUTE / OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? [ ] N / A	N/A					E.L. EACH ACCIDENT	$
	(Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
30 Day Notice of Cancellation Applies.

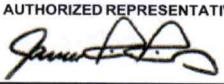
CERTIFICATE HOLDER

KCI Technologies, Inc.
936 Ridgebrook Road
Sparks MD 21152

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE



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CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 05/17/2022

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PRODUCER Klein Agency, LLC P.O. Box 219 Timonium MD 21094	**CONTACT NAME:** **PHONE (A/C, No, Ext):** (410) 832-7600 **FAX (A/C, No):** (410) 832-1849 **E-MAIL ADDRESS:** ljones@kleinagencyllc.com
INSURED Piedmont Design Associates, P.A. 125 East Plaza Drive, Suite 101 Mooresville NC 28115	**INSURER(S) AFFORDING COVERAGE** / **NAIC #** **INSURER A :** RLI Insurance Company 13056 **INSURER B :** **INSURER C :** **INSURER D :** **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** 21-23 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE	$
	CLAIMS-MADE OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
							MED EXP (Any one person)	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PERSONAL & ADV INJURY	$
	POLICY PRO-JECT LOC						GENERAL AGGREGATE	$
	OTHER:						PRODUCTS - COMP/OP AGG	$
								$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE	$
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$
	DED RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N						PER STATUTE OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N / A (Mandatory in NH)						E.L. EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$
							E.L. DISEASE - POLICY LIMIT	$
A	Professional Liability			RDP0042420	02/18/2021	02/18/2023	Per Claim	$2,000,000
							Aggregate	$2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Evidence of Coverage

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Justin R. Klein

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SPECIFICATIONS, CALCULATIONS, & SUPPORTING MATERIAL

FOR A GROUND ABSORPTION SEWAGE DISPOSAL SYSTEM

USING SEPTIC TANK, PUMP TANK,

AND A LOW-PRESSURE PANEL BLOCK SYSTEM

TO SERVE A 4 BEDROOM RESIDENCE

111 MILLEDGE DRIVE

MOORESVILLE, IREDELL COUNTY, NORTH CAROLINA

January 4, 2023

Prepared for:
Chris and Heidi La Mack
111 Milledge Drive
Mooresville, NC 28117
Phone: 704-363-6109

Prepared by:
PIEDMONT DESIGN ASSOCIATES, P.A.
125 East Plaza Drive, Suite 101
Mooresville, NC 28115
Phone: 704-664-7888
Fax: 704-664-1778
NCBELS No.: C-1007



Ground Absorption Sewage Disposal System
111 Milledge Drive, Mooresville, Iredell County, North Carolina

INTRODUCTION AND DESIGN CONSIDERATIONS

Chris and Heidi La Mack are constructing a new 4-bedroom residence located at 111 Milledge Drive in Mooresville, Iredell County, North Carolina. Michael Athanas, LSS evaluated the soils on the site and determined that a Low Pressure PPBPS system be used. Since a portion of the proposed septic system's repair will be installed within the 50-foot buffer for Lake Norman, TS-II advanced treatment will be used to allow for disposal of subsurface effluent within this buffer. This will only be required for the repair.

Directions to the property are as follows: Take Highway 150 toward Catawba County. Turn left on Paradise Peninsula Road before McCrary Access Area. Turn left at second road on Greenbay Road. Turn right on Milledge Drive. Proposed house located in cul de sac.

The new system, along with proper care and maintenance, should provide many years of quality effluent treatment and disposal.

The Engineer is proposing a new 1,000-gallon septic tank with baffle wall and effluent filter, a 1,000-gallon pump tank with pump filter, force main, central valve box, and low pressure PPBPS laterals installed with a 30 to 36-Inch trench bottom per recommendation by the Soil Scientist.

There will be an onsite well serving this site. The well shall be located more than 100 feet from any of the septic system components.

The residence's sewer collection system shall comply with the latest Volume II NC Plumbing Code.

Before any further site construction, the area of the nitrification field, shall be barricaded with orange barricade fence to prevent any access by vehicles, grading equipment and there shall be no earth disturbance of this area except by the system installer.

The following publications shall be a part of these specifications. Any deviation between them and these specifications shall be brought to the attention of the engineer for clarification.

(1) LAWS AND RULES FOR GROUND ABSORPTION SEWAGE TREATMENT & DISPOSAL SYSTEMS. NC Department of Health and Human Services; On-Site Water Protection Section; Administrative Code Section 15A NCAC 18A.1900, amended effective date: August 2007.
(2) GUIDANCE MATERIAL, Onsite Wastewater Management, March 1996, NC DENR Onsite Wastewater Section.
(3) INNOVATIVE WASTEWATER SYSTEM APPROVAL IWWS-2004-3-R3. (Orenco Systems, Inc. Advantex Systems)
(4) DESIGN AND INSTALLATION (Manual) OF LOW-PRESSURE PIPE WASTEWATER TREATMENT SYSTEMS By: Craig Cogger; Bobby L. Carlisle; Dennis Osborne; Ed Holland Published by: UNC Sea Grant College Pub. UNC-SC-82-03 May 1982.

CERTIFICATION:

The Contractor shall notify the Engineer and Licensed Soil Scientist to make timely observations and inspections of the project during construction. Upon completion of the project, the Contractor shall provide the Engineer an "as built" plan of the project. The Engineer shall certify that the project has been constructed in accordance with the plans and specifications. A copy of the "as-built" plan (data collected by PLS) and certification shall be provided to the County Health Department at time of startup.

COMPONENTS OF THE SYSTEM AND CONSTRUCTION SEQUENCE:

Refer to T & J Panel System's manufacturing and installment manual. Furnish and install all items required for a complete system in accordance with plans and specifications; for requirements of the County Dept. of Environmental Health (CDEH); the N. C. Dept. of Environmental Health (NCDEH); the N. C. Building Code, Plumbing Code and Electrical Code; and the National Electric Code. System must be professionally installed by a qualified, competent contractor.

COMPONENTS OF SYSTEM:

- 1,000-gallon two compartment septic tank with effluent filter
- 1,000-gallon pumping tank with access
- Submersible effluent pump, SIM TECH filter and float controls
- Pump Control and high-water alarm signals (audible and visible)
- 2-Inch Supply Pipe
- 1.50-Inch Gate Valves
- T & J vertical panels & distribution laterals

Approvals: The tank designs shall have been approved by NC DHHS and shall have the approval number imprinted on the delivered tank. The tank shall be State Approved and equal to that manufactured by Shoaf Precast, Inc. Openings or inserts shall be cast in during manufacture. Concrete shall have a minimum compressive strength of 4,000 PSI @ 28 days. Shop drawings shall be submitted to the Engineer for approval. If tanks are to be in traffic area, then tanks shall be constructed to meet H-20 highway loadings. All tanks shall be top seam only.

Precast Tank Installation: Installer shall excavate for and install the precast concrete tank as per plans. Installer shall ensure that the tank remains level and true to grade after placement and filling with water. The precast tanks shall be evaluated for water tightness by an approved method such as 24-hour water tightness test with maximum allowable leakage not to exceed a maximum of 1/2-inch rise or fall in 24 hours or vacuum test. Contractor shall use clean, potable water free of any sediment for water testing. Either test method shall be run with risers/and inlet/outlet pipes in place. Testing shall begin after the water level in the tank has stabilized. Each tank shall be installed in the location and to the elevations shown on the plans. A 6" undercut shall be made to allow for washed stone leveling course for the tank to rest on.

Once testing of the tank has been completed, the tanks shall be backfilled in lifts with well compacted, debris free earth to a level, which directs surface water away from the tanks. Tank access holes in the yard shall be installed and grouted watertight and the earth raked smooth for grassing. All tank lids shall be lockable or constructed to prevent easy removal. Tank access in traffic areas shall be 24" cast iron manhole frame and lid. Tanks shall not be pumped during extremely wet conditions.

SEPTIC TANK The septic tank shall consist of a 1,000-gallon capacity, reinforced, precast concrete tank with full baffle and shall have easy access to each chamber from ground level for checking and pumping. The first chamber of the septic tank shall consist of 2/3 to 3/4 of the volume of the total tank and the baffle shall contain a horizontal opening across the tank at about midway its height. The outlet of the tank shall have an effluent filter as specified herein. Locate the septic tank at such height as to provide approximately 15" of cover over top of the tank.

SLOTTED-FILTER An Orenco 4" Biotube effluent filter shall be installed in the PVC outlet tee of the septic tank. The filter shall be manufactured by Orenco System Incorporated. Filter shall be Orenco model FTPS0436-28-NC.

PUMP TANK shall consist of a 1,000-gallon capacity, reinforced, precast concrete tank. Access shall be provided for entry into the tank directly over the pump location and inlet side as called for on the plan.

The tank shall be supplied by a manufacturer approved by NC DHHS and bear the manufacturer's serial number. The tank shall be positioned to allow gravity flow of the effluent from the septic tank. Immediately downstream from the pump shall be an approved effluent filter system Sim-Tech 100 Series manufactured by Sim-Tech.

All tanks shall be tested for water tightness by an approved method such as 24-hour water tightness test with maximum allowable leakage not to exceed ½ inch per 24 hours. Testing shall begin after the water level in the tank has stabilized. Any leaking shall be corrected, and the tanks retested.

Once testing of the tank has been completed, the tank shall be backfilled in lifts with well compacted, debris free earth to a level, which directs surface water away from the tanks. Tank access holes shall be installed and grouted watertight and the earth raked smooth for grassing. Grade over the tank shall be sloped to prevent surface water from entering the tank through the access.

PIPING All piping and fittings shall be Schedule 40 PVC except LPP piping in the panels shall be PR160 PVC. Glue for all PVC pipe joints shall be as recommended by the pipe manufacturer.

PUMP The submerged pump shall be Gould's 3885 Series Model WE0512H manufactured by Xylem or approved equal, 1/2 HP, 230V/1PH: capable of pumping 35.0 G/M at a 14.11' head.

EFFLUENT PUMP FILTER The effluent filter shall be connected directly to the pump outlet. The filter shall be equal to the GAG Sim Tech Filter, Boyne City, Michigan, 49712, telephone 1-888-999-3290. The contractor shall furnish the following with the filter: STF 100 Filter, an STF 102 Filter Screen, an STF 103 Wrench, and an STF 104 Sock.

PUMP CONTROL PANEL: The pump shall be powered by a demand dose simplex control panel with standard features including: a NEMA 4X corrosion resistant enclosure, an aluminum back panel, silver cadmium contacts (IEC Contactor), an IEC motor starter, a 100VA control circuit transformer, a main circuit breaker, a 1 amp control circuit fuse, a 1 amp alarm circuit fuse, a Hand-Off-Auto switch, an alarm test switch, a pump run light, terminal blocks for pump and float connections, a ground lug, an alarm light and an alarm buzzer. Panel shall be Orenco Control Panel Model MVP-S2RODM.

PUMP ON-OFF FLOATS: In the extended position this float switch shall create an open circuit and prevent operation of the pumps. When the circuit is closed the float switch shall allow activation of the pump transferring wastewater to the downstream disposal field.

HIGH WATER ALARM SWITCH: The high-level alarm float switch shall activate the audio/visual alarm when the circuit is closed.

PUMP INSTALLATION: Details of pump installation are shown on the plan. The pump must be placed on two concrete blocks next to each other on the bottom of the tank. This prevents the pumping of any solid particles, which can clog the system. A piece of nylon rope or other non-corrodible material should be attached to the pump and to the outlet pipe for lifting the pump in and out of the chamber. (The PVC outlet pipe is too fragile to support the pump.)

The pump outlet pipe should be connected to the supply manifold with a threaded PVC union (or dresser coupling) to allow quick removal. A check valve shall also be installed in the supply line (within the pump chamber). A 3/16" siphon-breaker hole must be drilled in the bottom of the supply line before it leaves the pump tank. This breaks any vacuum in the system and prevents the inadvertent siphoning of effluent out of the tank. This hole is especially important.

ELECTRICAL CONNECTIONS: The pump and high-water alarm must be placed on separate electrical circuit breakers. (If the pump circuit fails, the alarm must still be able to operate.) Follow the manufacturers' recommendations for the proper fuses or circuit-breakers. All electrical connections must be made outside the pumping chamber. Power cords from the pumps and controls shall extend to a NEMA 4X approved outdoor control panel mounted outside of the pumping chamber. There are to be no junction boxes inside the tank. Power and control conductors shall be conveyed through 2" conduit with Seal-off(s).

Wiring between the pumping chamber and the house should meet State and local code requirements. Conductors from the tank to the control panel shall be conveyed through 2-inch diameter conduit with duct seal or Seal Off.

A "HOMEOWNER'S WARNING SIGN" shall be located within the house to inform the owner of what action to take in case the "High Water Alarm" is activated. This sign shall contain the name, address, telephone number, and emergency telephone number of the person to contract immediately upon malfunction of the system.

CONSTRUCTION SEQUENCE:

(1) Lay out T&J panel system network area with stakes and flagging to ten feet (minimum) beyond the limits of the network. As soon as the absorption area is designated, it shall be flagged, roped off and isolated from construction traffic. This barrier should be maintained until the system is accepted by the Owner. Refer to site plan for the size of absorption area. See site plan for lateral locations.

(2) Prior to beginning construction of the system, carefully locate, lay out and identify disposal site, manifolds and the lateral panel piping networks, using a tripod mounted engineer's leveling instrument to accurately establish each lateral along a level contour. Note: Lateral panel runs which conflict with cut-off-in-place stumps or trees shall "snake" by with a 12" minimum trench clearance and then continue along its projection run. (The 8' (vertical) minimum trench separation must be maintained.)

(4) Excavate lateral network trenches per T&J Panel Manual. Remove loose soil from bottom of trench.

(5) Install sand in bottom of the lateral trench to the depth as directed by T&J Panel manual.

(6) Follow the manufacturer's guidelines for installing the T & J Panel System.

(7) All joints in lateral and the manifold piping shall be watertight connections to ensure that the only source of the water seepage from the system is through the orifices as designed. See layout and details. Carefully install manifold and lateral network according to the attached designed layout. A larger diameter protective sleeve with cap or approved box with lid shall be placed over the turned up lateral and positioned level with the ground surface (so as not to be damaged by mowing machine.)

(8) Carefully backfill manifold trenches to finish grade with clean (debris free earth (no stone).

(9) Leave absorption area with a raked surface, free of any low areas, ready for grassing.

(10) The installation contractor shall stabilize the area of construction by planting and seeding with Kentucky 31 tall fescue and shall keep the planted area watered and mulched until such time that a hardy stand of grass is established. (See Seeding Specification.)

(11) **PROPER OPERATION CHECK**: After all components have been installed and connected, the system should be checked for proper operation. With electrical power turned off, fill the pumping chamber with water from a garden hose (or allow effluent to accumulate) until the liquid rises to half of pump tank. Turn on the electrical power. The alarm light should go on in the house, and the pump should start operating. The alarm light should go off when the liquid level falls below the set pressure level on the control panel. The pump should turn off when the liquid reaches the pump off setting on the control panel. Be sure the pump is still completely submerged.

(12) **PRESSURE HEAD ADJUSTMENT**: The pressure head must be adjusted to match that specified in the design. The pressure head is measured, as the height liquid will rise above the turn-up elbow when the pump is running. To adjust the head:

(a) Glue a 4' length of pipe (preferably clear) to a threaded adapter that will screw onto the turn-up adapters. (Call this the "test tube".)
(b) Replace the turn-up cap with the "test tube".
(c) Turn the power on to allow liquid to rise in the "test tube".
(d) Adjust the ball valve at the head of each lateral until the effluent reaches the desired height in the "test tube". Remember to include the distance below the ground surface to the lateral line when measuring the height. The pressure head should be 3' for each line. This is the height above the lateral the liquid should be in the temporary "test tube". Continue to adjust valves until all "test tubes" have an equal amount of liquid.

(13) **FINAL LANDSCAPING**: After the T & J System is installed, the following should be checked to ensure the system will not be overloaded with excess rainwater and run off:

(a) The distribution field is shaped to shed rainwater and is free of low area.
(b) Gutter and downspout drains are directed away from the system.

Any problems should be corrected before approving the system.
Finally, the entire area should be planted with grass according to specifications.

OPERATION AND MAINTENANCE:

The system is classified as a Type IV(a). The Regulations require that the system to be managed by a certified operator. Operating, Maintenance and Inspection procedures shall be conducted by the Operator on a timely basis. Procedures shall include but not be limited to the following:

- Minimum inspection/maintenance frequency shall be conducted on a timely and routine basis.
- Septic system shall be pumped every 5 years or when solids accumulate to the volume of the tank.
- Effluent and pump filters shall be cleaned on routine basis as required.
- The PPBPS system should be observed by the regulatory agency once every 3 years. An inspection report should be completed and filed each time the system is checked. This system does require a licensed operator. Minimum inspection frequency is twice a year and reporting required one time per year.
- All laterals shall be pressure back-washed annually with clean water.
- Pressure head for upper and lower laterals should be checked and adjusted one month after installation and every six months thereafter.
- All piping, fittings turn-ups and valve boxes shall be checked annually for damage and/or proper operation and corrections made immediately.
- The property should be inspected to ensure all surface water is deflected away from the fields and tank. Any ponding of surface water should be corrected.
- Grasses shall be mowed and maintained, and any erosion shall be corrected promptly.
- The nitrification field area shall be checked for leakages, blowouts or malfunction, indications of damp or mushy areas compared to surrounding area or evidence of noticeable odor of sewage. Repairs shall be made immediately.
- The pump electrical should be checked to insure tight, clean connections with no corrosion and proper operation.
- Pump switches shall be checked for free operation and proper level set.
- Check septic tank and pump tank for evidence of damage or leakage. Check the quality of effluent including grease and sludge accumulation.

  At every inspection by the ORC, clean and inspect effluent filter in the septic tank and the sock filter in the pump tank. When washing the filter, debris must be sprayed directly back into the septic and pump tank and not onto the lawn.
- The management entity in conjunction with the local Health Department shall establish an operation and maintenance program and procedure based on experience obtained from similar installations.

DESIGN SPECIFICATIONS - T & J PANEL SYSTEM

111 Milledge Drive, Mooresville, Iredell County, NC

Daily design waste flow:	480 G/D
Septic tank size:	1,000 gallon (2 compartment)
Septic tank filter:	Orenco model FTPS0436-28-NC
Pumping tank size:	1,000 gallons
Pressure Filter:	Sim-Tech Filter 100 Series
Control Panel:	Orenco Control Panel Model MVP-S2RODM
Effluent loading rate:	0.30 G/D/SF (0.30 G/D/SF Repair)
Total linear feet and diameter:	268 LF of 1-1/2" dia. PVC of laterals and T & J panels (Allow 4.33 ft per panel) (Does not inc. pipe from manifold to lateral)
Total length & diameter of supply manifold:	+/-15 LF 2" Dia. SCH 40 PVC
Number and length of laterals:	Line 1 – 11 Panels Line 2 – 15 Panels Line 3 – 21 Panels Line 4 – 16 Panels **Total Panels = 70 panels**
Hole size:	5/32"
Hole spacing:	1 hole per panel
Total number of holes:	70
Flow per hole at 3' head	0.50 G/M
Flow rate through the system:	35.0 G/M
Elevation head:	7.0'
Pressure head:	3.0'
Friction head:	4.11'
Total head:	14.11'
Pump requirements:	35.0 G/M at 14.11' use Gould's 3885 Series WE0512H 1/2 HP - 230 V - 1PH or approved equal
Dosing volume:	160 gal.
Depth of water pumped per dose:	7.33"
Pump run per dose:	4.57 min.
Check valve:	yes
Siphon break hole:	yes

SEEDING SPECIFICATIONS
SLOPES 3:1 or FLATTER

1. Apply agricultural lime at the rate of 90 lb./1000 sf.
2. Apply 10-10-10 commercial fertilizers at the rate of 20 lb./1000 sf.
3. Seed in accordance with the following schedule and application rate:

DATE	TYPE	PLANTING RATE
Aug 15 - Nov 1	Tall Fescue	200 lb./ac or 7 lb./1000 sf
Nov 1 - Mar 1*	Tall Fescue and	200 lb./ac or 7 lb./1000 sf
	Abruzzi Rye	25 lb./ac or 2 lb./1000 sf
Mar 1 - Apr 15	Tall Fescue	200 lb./ac or 7 lb./1000 sf
Apr 15 - Jul 30	Hulled Common or Bermuda	30 lb./ac or 1 lb./1000 sf
Jul 15 - Aug 15	Tall Fescue and	200 lb./ac or 7 lb./1000 sf
	Brown Millet or	35 lb./ac or f lb./1000 sf
	Sorghum-Sudan Hybrids	30 lb./ac or: lb./1000 sf

4. Mulch with straw applied at the rate of 75-100 lb./1000 sf.

* Heavily mulched during January - March period.

SLOPES GREATER THAN 3:1 TO 2:1

1. Apply agricultural lime at the rate of 90 lb./1000 sf.
2. Apply 10-10-10 commercial fertilizers at the rate of 20 lb./1000 sf.
3. Seed in accordance with the following schedule and application rate.

DATE	TYPE	PLANTING RATE
Mar 1 - Jun 1	Sericea Lespedeza (scarified) &	50 lb./ac or 11 lb./1000 sf
Mar - Apr	Add Tall Fescue or	150 lb./ac or 32 lb./1000 sf
Mar - Jun	Add Weeping Lovegrass	5 lb./ac or c lb./1000 sf
Jun - Sep 1**	Tall Fescue and	60 lb./ac or 12 lb./1000 sf
	Brown Top Millet	35 lb./ac or f lb./1000 sf
	Sorghum Sudan Hybrids	30 lb./ac or: lb./1000 sf
Sep - Mar 1	Sericea Lespedeza (Unhulled-unscarified)	70 lb./ac or 1: lb./1000 sf
	Tall Fescue	150 lb./ac or 32 lb./1000 sf
	Millet or Sudan	20 lb./ac or 2 lb./1000 sf

** Temporary - Reseed September 1 at recommended rates.

4. Mulch with 3" straw applied at the rate of 50-90 lb./1000 sf and anchor with asphalt emulsion tack coat applied at the rate of 3-5 gal/1000 sf or 200-300 gal/ac.

4 Bedroom LP Vertical Panel Block System
116 Milledge Drive
Mooresville, Iredell County, North Carolina

Original Date: January 4, 2023
Revised Date: January 4, 2023

Design Flow

Bedrooms	4	Bedrooms
Flow per Day per Bedroom	120	Gal./Day/Bedroom
Daily Design Flow (DDF)	480	Gal./Day

Use PPBPS Laterals for 50% Reduction in Drainfield Size

New LTAR for New Laterals	0.30	G/D/SF	Per Michael Athanas, LSS
Sq. Ft. Trench Bottom	1600	Sq. Ft.	DDF x LTAR
	3		
Field Sizing	533	LF Conventional Lines	(SF Trench Bottom/3)
PPBPS Sizing	267	LF 50% Reduction System	(LF Conv. Line x 0.5)

	LF	No of Panels	Pipe to Panel	LTAR	Gallons per Day	
Orange (1) (Upper)	48.00	11.00	86.00	0.30	86.40	Primary
Blue (2)	65.00	15.00	74.00	0.30	117.00	Primary
Yellow (3)	85.00	21.00	53.00	0.30	153.00	Primary
White (4)	70.00	16.00	4.00	0.30	126.00	Primary
Pink (5)	*57.00*	*14.00*		*0.30*	*102.60*	*Repair*
Blue (6)	*125.00*	*29.00*		*0.30*	*225.00*	*Repair*
Yellow (7)	*100.00*	*24.00*		*0.30*	*180.00*	*Repair*
	577.00	**LF Total**			**482.40**	**G/D Primary**
					548.10	**G/D Primary**

Dose Volume

No. of Panels	70	Panels	(Per Panel Design Manual)
Panel Volume (Max)	3.60	Gal./Panel	(Per Panel Design Manual)
Flow Rate	160.00	Gal./Dose	3 Doses per Day
Actual Panel Volume per Dose	2.29	Gal./Panel	
Pump Run Time	4.57	Minutes	Actual Volume to Panel/Dose
Percent of Panel Volume	63.49%		
Operation Head	3.00	Feet	(Orifice Flow Rate x # of Panels)
Use 5/32" Diameter Hole			(Per Panel Design Manual)
Flow Rate per Panel	0.50	G/M	(Per Panel Design Manual)
Field Flow Rate	35.00	G/M	(No. of Panels x Orifice Flow Rate)
Force Main Static Head	7.00	Feet	

Friction & Minor Loss Calculations for 2.0" Force Main and 1.50" Supply Laterals

Pipe Run	Friction Loss (Feet)	Pipe Length (Feet)	Q (GPM)	Pipe I.D. (Inches)
Orange (1) (Upper)	0.42	134.00	5.50	1.610
Blue (2)	0.77	139.00	7.50	1.610
Yellow (3)	1.43	138.00	10.50	1.610
White (4)	0.46	74.00	8.00	1.610
2.0" Supply Force Main	1.05	45.00	31.50	2.067
Total Friction & Minor Loss	4.95	Feet		

Total Dynamic Head	14.95	Feet	(Static HD + Friction HD + Oper. HD)	
Pump Required	**35.00**	G/M at	**14.95**	TDH

Use Orenco PF3005-12
230 V /1/2 HP / 1 Phase
Contractor to Verify Power Requirements before Ordering Pump

4 Bedroom LP Vertical Panel Block System
116 Milledge Drive
Mooresville, Iredell County, North Carolina

Original Date: January 4, 2023
Revised Date: January 4, 2023

TANK ANTI-BUOYANCY CALCULATIONS

1,000 Gallon Septic Tank — *Based on Shoaf Precast* **STB-347**

Outer Length	9.00	Ft.		
Inner Length	8.50	Ft.		
Outer Width	4.83	Ft.		
Inner Width	4.33	Ft.		
Outer Height	5.63	Ft.		
Inner Height	4.88	Ft.		
Wt of Water Displaced	15,268.50	Lbs.		Outer Length x Outer Width x Outer Length x 62.4 Lb/CF (Wt of Water)
Wt of Tank	4,306.50	Lbs.	Top & Bottom	Outer Length x Outer Width x 150 Lb/CF x 2 (Top & Bottom) x Slab Thickness
	1,767.19	Lbs.	Ends	Inner Width x Inner Height x 150 Lb/CF x 2 (Ends) x Wall Thickness
	3,107.81	Lbs.	Sides	Outer Height x Outer Length x 150 Lb/CF x 2 (Sides) x Wall Thickness
	1,009.87	Lbs.	Baffle	Inner Width x (Inner Height-3 Inches) x 150 Lb/CF x x Wall Thickness
	10,191.37	Lbs.	Total Tank Wt.	Sum Above four
Wt of Overburden	6,525.00	Lbs.	15" Cover	Outer Length x Outer Width x 120 Lb/CF (Saturated Soil Wt) x Soil Thickness
Total	16,716.37	Lbs.		Sum of Total Tank Wt. & Soil Overburden

Water	**15,268.50**	<	**16,716.37**	Tank

**Buoyancy Calculations Account for Fluid in Tank, Do Not Pump When Ground is Saturated or During Extremely Wet Conditions.*

1,000 Gallon Pump Tank — *Based on Shoaf Precast* **PT-363**

Outer Length	8.00	Ft.		
Inner Length	7.50	Ft.		
Outer Width	5.17	Ft.		
Inner Width	4.67	Ft.		
Outer Height	4.75	Ft.		
Inner Height	4.17	Ft.		
Wt of Water Displaced	12,251.20	Lbs.		Outer Length x Outer Width x Outer Length x 62.4 Lb/CF (Wt of Water)
Wt of Tank	4,092.00	Lbs.	Top & Bottom	Outer Length x Outer Width x 150 Lb/CF x 2 (Top & Bottom) x Slab Thickness
	1,614.58	Lbs.	Ends	Inner Width x Inner Height x 150 Lb/CF x 2 (Ends) x Wall Thickness
	2,343.75	Lbs.	Sides	Outer Height x Outer Length x 150 Lb/CF x 2 (Sides) x Wall Thickness
	8,050.33	Lbs.	Total Tank Wt.	Sum Above four
Wt of Overburden	6,200.00	Lbs.	15" Cover	Outer Length x Outer Width x 120 Lb/CF (Saturated Soil Wt) x Soil Thickness
Total	14,250.33	Lbs.		Sum of Total Tank Wt. & Soil Overburden

Water	**12,251.20**	<	**14,250.33**	Tank

**Buoyancy Calculations Account for Fluid in Tank, Do Not Pump When Ground is Saturated or During Extremely Wet Conditions.*

MA&A
SOIL & ENVIRONMENTAL CONSULTANTS

MICHAEL ATHANAS & ASSOCIATES
LICENSED SOIL SCIENTIST
556 Walden Trail
Weddington, NC 28173
(704) 576-3887
12/6/2022

Reference: Data Sheet for 111 Milledge Dr, CL&T Sec 10 Lot 163
House Footprint: See attached plan
Building Setbacks: 35' front/rear, 15' side, 50' lake
Water Source: Private well
Number of Bedrooms/Daily Flow: 4/480 GPD
Proposed LTAR: 0.3 GPD/FT^2
Proposed System Type: PPBPS
Proposed Repair System Type: TSII PPBPS
Distribution: Low Pressure-Central Valve Box
Septic/Pump Tank Size: 1000/1000 gallons
Proposed Trench Bottom: 30-36"

Line	Design Length	# of Panels	Actual Length
Orange 1	**50'**	**12**	**50'**
Blue 2	**70'**	**16**	**70'**
Yellow 3	**80'**	**18**	**85'**
White 4	**70'**	**16**	**75'**
Pink 5			57'
Blue 6			125'
Yellow 7			100'

Initial System: 270' **Repair System:** 282'

Comments:
Do not grade in the septic area.

PROPERTY ID #: 4627773901
COUNTY: Iredell

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Chris LaMack APPLICATION DATE
ADDRESS: 111 Milledge Dr, Mooresville, NC 28117 DATE EVALUATED: 10/2021
PROPOSED FACILITY: 3 BDRM PROPOSED DESIGN FLOW (.1949): 360 GPD PROPERTY SIZE: 0.580 AC
LOCATION OF SITE: 111 Milledge Dr, CL&T Sec 10 Lot 163 PROPERTY RECORDED: 5/1977
WATER SUPPLY: X Private ☐ Public X Well ☐ Spring ☐ Other
EVALUATION METHOD: ☐ Auger Boring X Pit ☐ Cut TYPE OF WASTEWATER: X Sewage ☐ Industrial Process ☐ Mixed

PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
1	LS 20%	0-12	Br CL WSBK	FR SS SP SXP	N/A	42"	F-C SAP PS	N/A	PS 0.3
		12-28	R C SBK	FR SS SP SXP					
		28-42	R CL WSBK	FR SS SP SXP					
		42-50	VER L SAP M	VFR SS SP SXP					
2	LS 20%	0-8	Br CL WSBK	FR SS SP SXP	N/A	44"	F-C SAP PS	N/A	PS 0.3
		8-24	R C SBK	FR SS SP SXP					
		24-44	R CL WSBK	FR SS SP SXP					
		44-55	VER L SAP M	VFR SS SP SXP					
3	LS 20%	0-12	Br CL WSBK	FR SS SP SXP	N/A	42"	F-C SAP PS	N/A	PS 0.3
		12-28	R C SBK	FR SS SP SXP					
		28-42	R CL WSBK	FR SS SP SXP					
		42-60	VER L SAP M	VFR SS SP SXP					
4	LS 15%	0-15	Br L WSBK	FR SS SP SXP	N/A	55"	N/A	N/A	PS 0.3
		15-50	R C SBK	FR SS SP SXP					
		50-55	R CL WSBK	FR SS SP SXP					

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	540 FT^2	564 FT^2
System Type(s)	PPBPS	TSII PPBPS
Site LTAR	0.3	0.3

OTHER FACTORS (.1946):
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: MA&A
OTHER(S) PRESENT:

COMMENTS: