

MICHAEL ATHANAS & ASSOCIATES, INC.
LICENSED SOIL SCIENTIST
1999 CANDLEWICK DRIVE
FORT MILL, SC 29715
803-802-4403 (office)
803-802-4402 (fax)

Reference: Data Sheet for Westwinds, Lot 47/48
House Footprint: TBD
Building Setback: 35' front/back, 15' side
Water Source: Well
Number of Bedrooms: 3/360gpd
Proposed LTAR: 0.3 gpd/ft2 (initial), 0.25 gpd/ft2 (repair)
Suggested Initial System Type: Shallow 25% Reduction
Suggested Repair System Type: Shallow 25% Reduction
Distribution: Pressure Manifold (initial), Low Pressure (repair)
Septic/Pump Tank Size: 1000 gallons
Proposed Trench Bottom: 12"

Line	Design Length	Actual Length
Orange 1		*17'*
Blue 2		*24'*
Yellow 3		*33'*
Orange 4		*36'*
Blue 5		*48'*
Yellow 6		*51'*
Orange 7		*50'*
Yellow 8		*30'*
Blue 9		*52'*
Yellow 10		*53'*
Orange 11	**75'**	**85'**
Yellow 12	**75'**	**80'**
Blue 13	**75'**	**80'**
Yellow 14	**75'**	**75'**

Initial system: 300' ***Repair system:*** *394'*

Comments: The system must be covered with at least 6" of additional soil. "Soil cover above the original grade shall be placed at a uniform depth over the entire nitrification field and shall extend laterally five feet beyond the nitrification trench. The type and placement of soil cover shall be approved by the local health department. (Rule .1956(1))"

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH
ON-SITE WASTEWATER SECTION

PROPERTY ID #: _____
COUNTY: _____

SOIL/SITE EVALUATION
for ON-SITE WASTEWATER SYSTEM

OWNER: Johnny Craver
ADDRESS: _____ APPLICATION DATE _____
PROPOSED FACILITY: 3 bedroom _____ PROPOSED DESIGN FLOW (.1949): 360 gpd _____ DATE EVALUATED: _____
LOCATION OF SITE: Westwinds Lot 47/48 _____ PROPERTY SIZE: _____
WATER SUPPLY: ☐ Private ☐ Public ☒ Well ☐ Spring ☐ Other _____ PROPERTY RECORDED: _____
EVALUATION METHOD: ☒ Auger Boring ☒ Pit ☐ Cut TYPE OF WASTEWATER: ☒ 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 SAP CLASS	.1944 RESTR HORIZ	
AB 1	LS 3-5%	2-20	Br SCL/SL WSBK	VFr SS SP	Few YBs	40"			PS 0.25
		20-40	R SC WSBK	Fr SS SP					
AB 2	LS 3-5%	0-8	Br SCL WSBK	Fr SS SP		28"			PS 0.25
		8-28	R C SBK	Fr SS SP					
		28	SAP						
AB 4	LS 5%	0-4	Br SL WSBK	Fr SS SP	Few YBs	18"			US
		4-18	Br R SCL WSBK	Fr SS SP					
		18	Chr. 2						
Pit 1	LS 3%	0-14	Br LS/SL WSBK	VFr SS SP	YBs	27"			PS 0.25
		14-27	RY SC WSBK	Fr SS SP					
		27	Chr. 2/SAP						

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	1200 FT2	1440 FT2
System Type(s)	Shallow 25%	Shallow 25%
Site LTAR	0.3	0.25

OTHER FACTORS (.1946): _____
SITE CLASSIFICATION (.1948): PS _____
EVALUATED BY: Michael Athanas & Assoc., Inc, _____
OTHER(S) PRESENT: _____

COMMENTS: _____

SOIL/SITE EVALUATION

(Continuation Sheet)

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL HEALTH

PROPERTY ID #: _____
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PROFILE #	.1940 LANDSCAPE POSITION/ SLOPE %	HORIZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
Pit 2	LS 3%	0-14	Br LS Gr	VFr NS NP	YBs	27"/42"			PS 0.4 to 27" 0.2 to 42"
		14-27	Br SL WSBK	VFr SS SP					
		27-42	R SC WSBK	Fr S P					
		@27	Structure very weak	& lateral water					
Pit 3	LS 10%	0-12	Br SL WSBK	VFr SS SP		34"	F-C Sap Inc US		PS 0.25
		12-16	RBr SCL WSBK	Fr SS SP					
		16-34	RY C WABK	Fr SS SP					
		34	Hard SAP						
Pit 4	LS 3%	0-13	RY SCL WSBK	Fr SS SP		13"			US
		13	Chr. 2						
		NOT IN	SYSTEM AREA						
Pit 5	LS 5%	0-9	Br SCL WSBK	Fr SS SP	Few YBs	28"			PS 0.3
		9-28	YR SCL WSBK	Fr SS SP					
		28	Chr. 2						
Pit 6	LS 3%	0-17	RY SCL WSBK	Fr SS SP	Few YBs	28"			PS 0.3
		17-28	YR SCL WSBK	Fr SS SP					
		28	Chr. 2						

COMMENTS: _____

SOIL/SITE EVALUATION

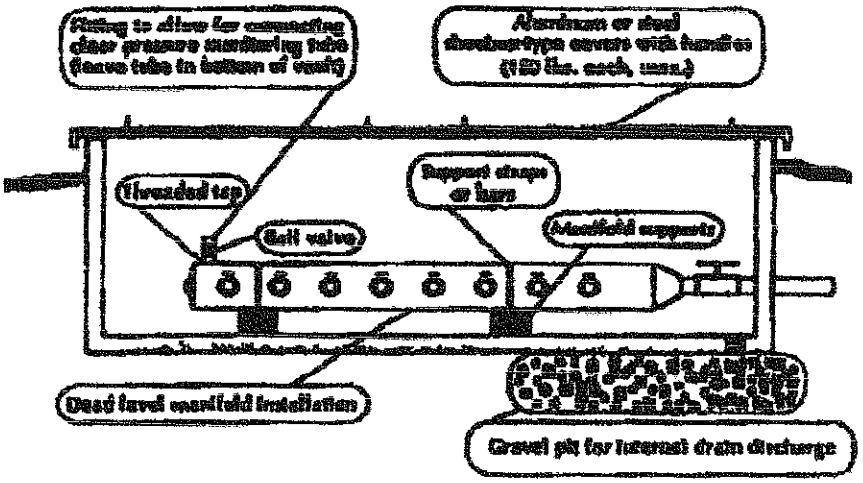
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DEPARTMENT OF ENVIRONMENT
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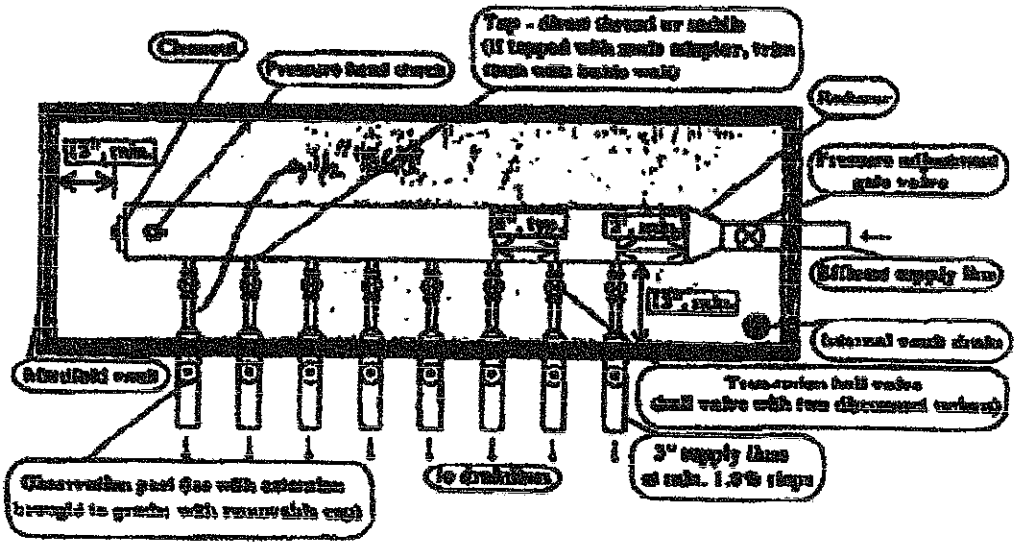
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Pit 7	LS 3%	0-11	Br SL WSBK	Fr SS SP	Few YBs	30"			PS 0.3
		11-30	RY SCL WSBK	Fr SS SP					
		30	Chr. 2						

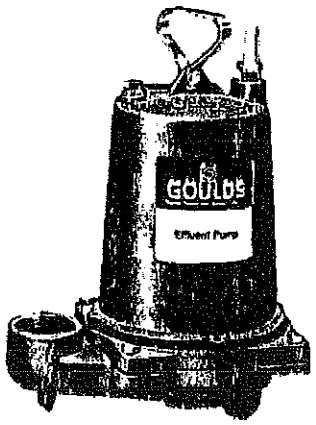
Lot 47
0.71 Ac.
Lot 48
0.89 Ac.
Lot 49
0.68 Ac.
Lot 50
0.54 Ac.
Baker Lane
DRIVE
50'
50'
well
well
Scale
1" = 50'



Profile View of Pressure Manifold for Sloping Site Installation

(not to scale)





Goulds

Submersible Effluent Pump

MODEL

3885

APPLICATIONS

Specifically designed for the following uses:

- Homes
- Farms
- Trailer courts
- Motels
- Schools
- Hospitals
- Industry
- Effluent systems

SPECIFICATIONS

Pump

- Solids handling capabilities: ¾" maximum.
- Discharge size: 2" NPT.
- Capacities: up to 128 GPM.
- Total heads: up to 123 feet TDH.
- Mechanical seal: silicon carbide-rotary seal/silicon carbide-stationary seat, 300 series stainless steel metal parts. BUNA-N elastomers.
- Temperature: 104°F (40°C) continuous 140°F (60°C) intermittent.
- Fasteners: 300 series stainless steel.
- Capable of running dry without damage to components.

Motor

Single phase:

- ⅓ HP, 115 V, 200 V, 230 V, 60 Hz, 1750 RPM; ½ HP, 115 V, 60 Hz, 3500 RPM; ½ HP – 1½ HP, 230 V, 60 Hz, 3500 RPM.
- Built-in overload with automatic reset.
- Class B insulation.

Three phase:

- ½ HP – 1½ HP 200/230/460 V, 60 Hz, 3500 RPM.
- Class B insulation.
- Overload protection must be provided in starter unit.
- Shaft: threaded, 400 series stainless steel.
- Bearings: ball bearings upper and lower.
- Power cord: 20 foot standard length (optional lengths available).

Single phase:

- ⅓ and ½ HP – 16/3 SJTO with 115 V or 230 V three prong plug.
- ¾-1½ HP – 14/3 STO with bare leads.

Three phase:

- ½-1½ HP – 14/4 STO with bare leads. On CSA listed models – 20 foot length SJTW and STW are standard.

FEATURES

■ **Impeller:** Cast iron, semi-open, non-clog with pump-out vanes for mechanical seal protection. Balanced for smooth operation. Silicon bronze impeller available as an option.

■ **Casing:** Cast iron volute type for maximum efficiency. 2" NPT discharge adaptable for slide rail systems.

■ **Mechanical Seal: SILICON CARBIDE VS. SILICON CARBIDE** sealing faces. Stainless steel metal parts, BUNA-N elastomers.

■ **Shaft:** Corrosion-resistant stainless steel. Threaded design. Locknut on three phase models to guard against component damage on accidental reverse rotation.

■ **Motor:** Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.

■ **Designed for Continuous Operation:** Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage.

■ **Bearings:** Upper and lower heavy duty ball bearing construction.

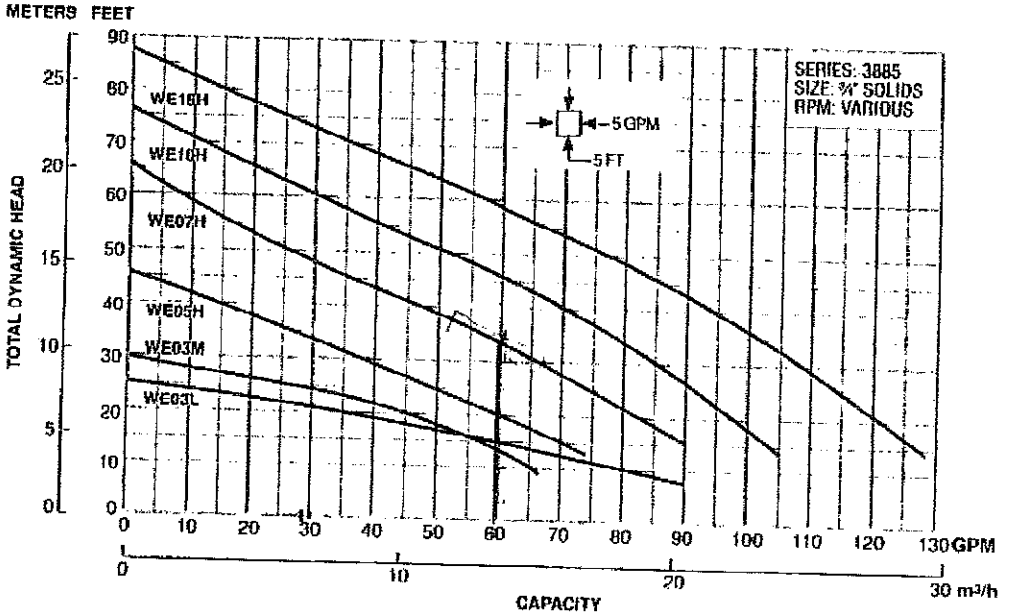
■ **Power Cable:** Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking.

■ **O-ring:** Assures positive sealing against contaminants and oil leakage.

AGENCY LISTINGS

Canadian Standards Association

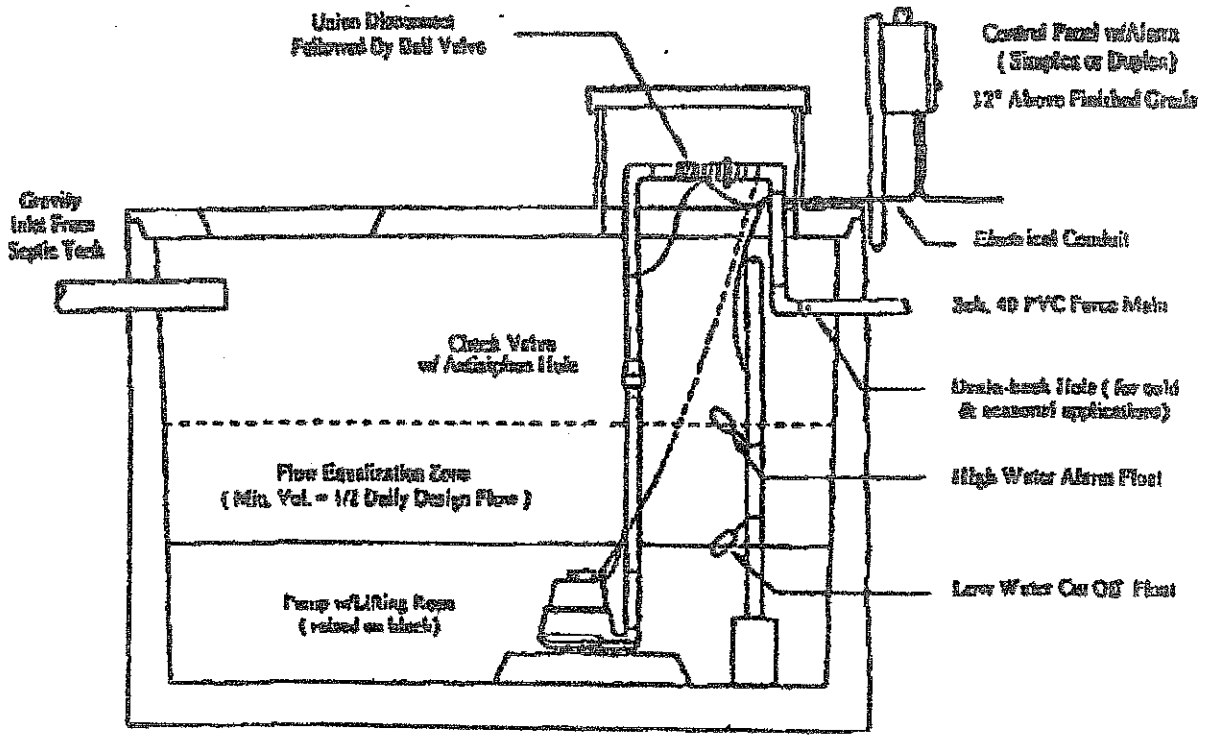
Underwriters Laboratories



© 1995 Goulds Pumps

TYPICAL PUMP TANK DETAIL

1. Pump tank shall have an access manhole extending at least 6 inches above finished grade.
2. Pump and control circuits shall be provided with manual circuit disconnects within a watertight, corrosion-resistant, outside enclosure (NEMA 4X or equivalent) adjacent to the pump tank, securely mounted at least 12 inches above finished grade. The pump(s) shall be manually operable without requiring the use of special tools or entrance into the tank for testing purposes. Conductors shall be conveyed to the disconnect enclosure through waterproof, gasproof, and corrosion-resistant conduits, with no splices or junction boxes provided inside the tank. Wire grips, duct seal, or other suitable material shall be used to seal around wire and wire conduit openings inside the pump tank and disconnect enclosure.
3. The pump tank shall have a properly functioning high-water alarm. The alarm circuit shall be supplied ahead of any pump overload and short circuit protective devices. The alarm shall be audible and visible by system users and included in the pump and control enclosure (Simplex or Duplex Control Panel).
4. Float switch for the high water alarm shall be set no more than 3 inches above the high water level of pump cycle.
5. Pump floats should be set so that level of water at end of pump cycle is above the top of the pump.
6. Float switch tie downs to be made of corrosion resistant material, no tape or metal hose clamps.
7. Pump discharge shall have a check valve.
8. Anti-siphon hole (three-sixteenth inch) is required between the pump and the check valve.
9. Watertight testing will be required on two piece pump tanks.



Day-to-Day Management

Don't use too much water.

- The drainfield does not have unlimited capacity.
- Typical daily water use is 50gallons per person.
- The soil drainfield usually has a maximum daily design capacity of120 gallons per bedroom, even for short periods of time.
- Overloads can occur seasonally, daily, or on the weekend.
- Water conservation will extend the life of your system.
- Repair dripping faucets and toilets.

Limit disposal to sewage.

- Don't use your septic tank as a trash can for cigarette butts, tissues, sanitary napkins, cotton swabs, cat box litter, coffee grounds, or disposable diapers.
- Restrict the use of your garbage disposal. These add quite a lot of extra solids.
- Don't pour grease or cooking oil down the drain.
- Don't poison your system with harmful chemicals such as solvents, oils, paints, thinners, discarded medications, disinfectants, pesticides, poisons, and other substances.
- Save money. Commercial septic tank additives are usually not necessary.

Protect the system from physical damage (site maintenance).

- Keep the soil over the drainfield covered with vegetation to prevent soil erosion.
- Don't drive vehicles over the system.
- Avoid construction over the system and repair area.
- Maintain the natural shape of the land immediately downslope of the system, and protect this area from excavation (cutting and filling).
- Don't cover the tank or drainfield with asphalt or concrete.

Dispose of all wastewater in an approved system.

- Don't put in a separate pipe to carry wash waters to a side ditch or the woods. This is illegal.

Periodic Maintenance and Repair

Home and yard (site maintenance):

- Protect and maintain the site of your septic tank and drainfield.
- Cut down and remove trees that like wet conditions. This includes willows, elms, sweetgums, and some maples.
- Landscape the yard to divert surface waters away from the tank and drainfield.
- Be sure that the water from the roof, gutters, and foundation drains does not flow over the system.
- If your system is at the base of a slope, then consider installing a french drain to divert underground waters.
- Maintain drainage ditches, subsurface tiles, and drainage outlets so that water can flow freely from them.

Septic tank:

- Install risers over the tank if it is buried 6 inches or deeper. They provide easy access for measuring and pumping solids as well as cleaning the effluent filter.
- Measure how quickly sludge and scum accumulate in the tank. Have your professional pumper record this information.
- Have solids pumped out of the tank as needed. Most septic tanks have two compartments; get both pumped.
- Cooperative Extension Service publication *AG-439-13, Septic Systems and Their Maintenance*, contains more information on pumping frequency.
- Don't wait until your drainfield fails to have your tank pumped. By then, the drainfield may be ruined. With septic systems, an ounce of prevention is worth a ton of cure!

Regulations and precautions:

- Hire a state-certified subsurface system operator for any system with a pump. One will be required by law for low pressure pipe (LPP) systems installed or repaired after July 1, 1992, any subsurface drip irrigation systems, aerobic treatment units (ATUs), peat biofolters, sand biofilters, textile biofilters, and other complex systems.
- A list of state-certified subsurface system operators can be obtained from the N.C. Water Pollution Control System Certification Commission at (919) 733-0026.
- Be sure the pump and electrical components continue working properly between scheduled maintenance visits.
- Sewage contains germs that can cause diseases. Never enter a septic tank. Toxic and explosive gases in the tank present a hazard. Old tanks may collapse. Electrical controls present a shock and sparkhazard. Secure the septic tank lid so that children cannot open it.
- Don't attempt to repair a failing system yourself. Get a repair permit and hire an experienced contractor.

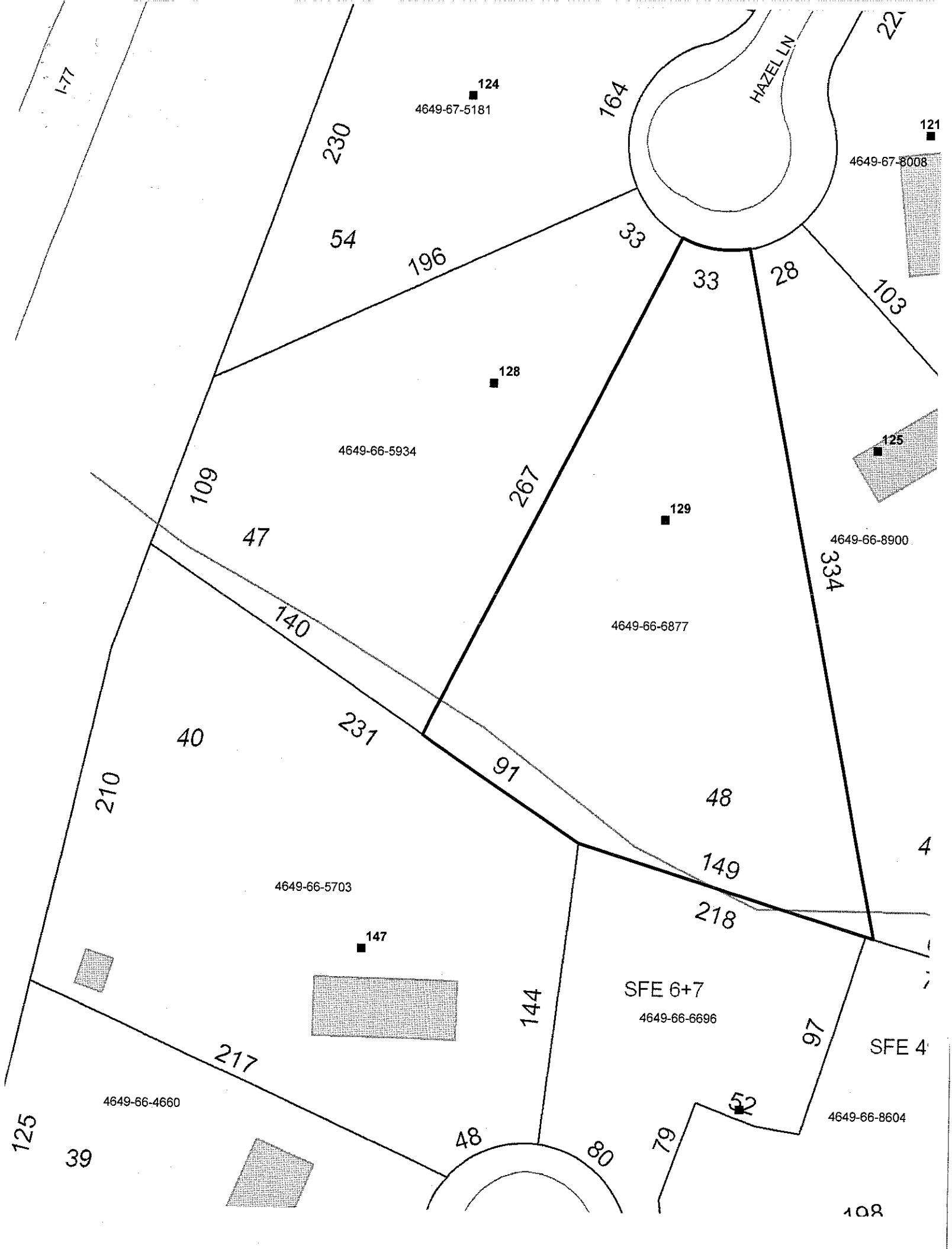
For more information about septic systems, contact your county Extension agent or local health department.

Prepared by

***Michael T. Hoover**, Extension Soil Science Specialist, Department of Soil Science, North Carolina State University*

Information for the Installer:

- The permit should be read very carefully prior to bidding. The following are details that must be considered along with all other considerations.
- Tanks shall be approved by DEHNR, and certification supplied by the manufacturer.
- Tanks shall be water tested prior to installation.
- The installer shall be responsible to the owner for placement of the tanks and to insure that final grades are returned to the original natural grade, with exception of added structural features.
- The supply trench shall be compacted to eliminate cavities left during initial fill placement.
- Installation of the system shall be during dry conditions in order to protect the soil structure.
- All fittings shall be pressure rated fittings.
- All joints shall be cleaned with PVC pipe cleaner and a heavy bodied glue applied to weld all joints.
- Where required by the county health department, post installation inspections by the designer must be scheduled 5 work days in advance.
- Trenches shall be carefully excavated so there is no more than ¼" of fall in 10' of trench length. If the bottom of the trench needs to be adjusted, it will be done by removing high points rather than filling low points. It is extremely important to insure that trenches are not over excavated during initial trenching. All fine grading within the trench will be hand done with a shovel. No loose material will be left in the trench.
- All pipe openings in the tanks shall be properly sealed. This also applies to the joints around the riser.
- All tanks shall be properly back filled and compacted to prevent slump at a later date.
- Earthen dams, constructed of relatively impervious material. Shall be installed at the beginning and end of each lateral.
- No heavy equipment shall be used on the field during or after the installation. The use of a small loader or a trencher may be used for installation.
- Elevations at pin flag locations should be checked by the installer prior to beginning trenches.
- Pump tank riser should be 6" above final grade. Control panel should be 12" above final grade.
- Septic tank should be a minimum of 6" and a maximum of 36" below final grade. Septic tanks should have risers or a marker that is visible at the ground surface.
- Trench sidewalls should be raked and limed. Trench should be installed at 36" width unless otherwise stated by the design.


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