Chk 5103

#1249

GWS – RES. APP 07/05

SEPTIC FEE: 260
DATE: 8/7/06
CRT [ ] gc

PERMIT APPLICATION FOR A RESIDENTIAL SITE
IMPROVEMENT PERMIT / CONSTRUCTION AUTHORIZATION
FOR ON-SITE WASTEWATER SYSTEM
NEW WELL INSTALLATION OR REPAIR OF EXISTING WELL
MECKLENBURG COUNTY GROUNDWATER & WASTEWATER SERVICES

FILE # 6703B

WELL FEE: _____
DATE: _____
CRT [ ]

SEPTIC / TYPE APPLICATION: ☐ NONE ☒ NEW SYSTEM ☐ ALTERATION ☐ REPAIR ☐ MODIFY PLOT PLAN

WELL / TYPE APPLICATION: ☐ NONE ☐ NEW WELL ☐ MAJOR REPAIR ☐ ABANDONMENT

JOB LOCATION INFORMATION:
TAX/PARCEL #: 19715501 PP
STREET ADDRESS: Brief Rd
CITY: Mint Hill
STATE: NC ZIP: 28227
SUBDIVISION OR MOBILE HOME PARK NAME:
LOT #: 82
TOWNSHIP:
☐ 0-MECKLENBURG ☐ 4-PINEVILLE
☐ 1-CHARLOTTE ☐ 5-MATTHEWS
☐ 2-DAVIDSON ☐ 6-HUNTERSVILLE
☐ 3-CORNELIUS ☒ 7-MINT HILL

BUILDING INFORMATION:
TYPE OF BUILDING:
☐ SINGLE MOBILE HOME (S) ☐ MODULAR HOME (M)
☐ DOUBLE WIDE (D) ☐ MULTIPLE FAMILY (U)
☒ HOUSE (H) ☐ OTHER
HEATED SQUARE FOOTAGE:
NUMBER OF BEDROOMS: 4
NUMBER OF OCCUPANTS:

FOUNDATION FOR RESIDENCE:
☐ CONCRETE SLAB ☐ BASEMENT WITH PLUMBING
☒ CRAWLSPACE ☐ BASEMENT WITH NO PLUMBING

IF PLANNING TO EXPAND/ALTER THE EXISTING SYSTEM INDICATE THE FOLLOWING CHANGES:
NUMBER OF BEDROOMS TO BE ADDED: NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE:
WILL THERE BE A HOME BUSINESS IN THE RESIDENCE? ☐ YES ☐ NO TYPE:

WATER SUPPLY:
☐ MUNICIPAL (M) ☐ PUBLIC (C) ☒ PRIVATE WELL (P) ☐ SHARED WELL (S) ☐ OTHER 'SPRINGS' (O)
PROPOSED USE OF WELL: ☐ N/A ☐ IRRIGATION ☒ POTABLE ☐ GEOTHERMAL ☐ OTHER

ARE ANY OF THE FOLLOWING LOCATED ON THE PROPERTY? IF SO, PLEASE SHOW LOCATION ON SITE PLAN/PLAT.

BURIED CABLES, LANDFILLS, STUMPHOLES	☐ YES	☒ NO	WELLS, SPRINGS, OR WATER LINES	☐ YES	☒ NO
EXISTING WASTEWATER SYSTEMS	☐ YES	☒ NO	DESIGNATED WETLANDS	☐ YES	☒ NO
EASEMENTS OR RIGHT-OF-WAYS	☐ YES	☒ NO	GRADING/SOIL REMOVAL PERFORMED	☐ YES	☒ NO

PROPERTY OWNER:
NAME: Allin Faye % Sally Fairs
ADDRESS: 10417 Cobble Dr
CITY: Midland
STATE: ZIP: 28107
HOME PHONE: WORK PHONE:
MOBILE PHONE: FAX:

LEGAL AGENT FOR PROPERTY OWNER, IF APPLICABLE:
NAME: Land Sales Inc
ADDRESS: 6619 Wheeler Dr
CITY: Charlotte
STATE: NC ZIP: 28211
HOME PHONE: 704-366-8891 WORK PHONE: 366-8891
MOBILE PHONE: 704-574-6000 FAX: 704-442-0171

WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED?
WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY? September 06

*An Improvement Permit is subject to suspension or revocation if site plans or the intended use change or if information submitted in this application is falsified or changed. The undersigned, owner, or legal agent for the owner, of the property described above as the "Job Location" has read the foregoing application, acknowledges that the contents of same are true, and authorizes the Mecklenburg County Health Department to enter onto the property for the purpose of processing this request.

Jeff Casey 8-7-06
Owner's/Agent's Signature Date

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT & NATURAL RESOURCES DIVISION
OF ENVIRONMENTAL HEALTH ON-SITE
WASTEWATER SECTION

*A Well Permit is subject to suspension or revocation if site plans or the intended use change or if information submitted in this application is falsified or changed. The undersigned, owner, or legal agent for the owner, of the property described above as the "Job Location" has read the foregoing application, acknowledges that the contents of same are true, and authorizes the Mecklenburg County Health Department to enter onto the property for the purpose of processing this request.

Owner's/Agent's Signature Date

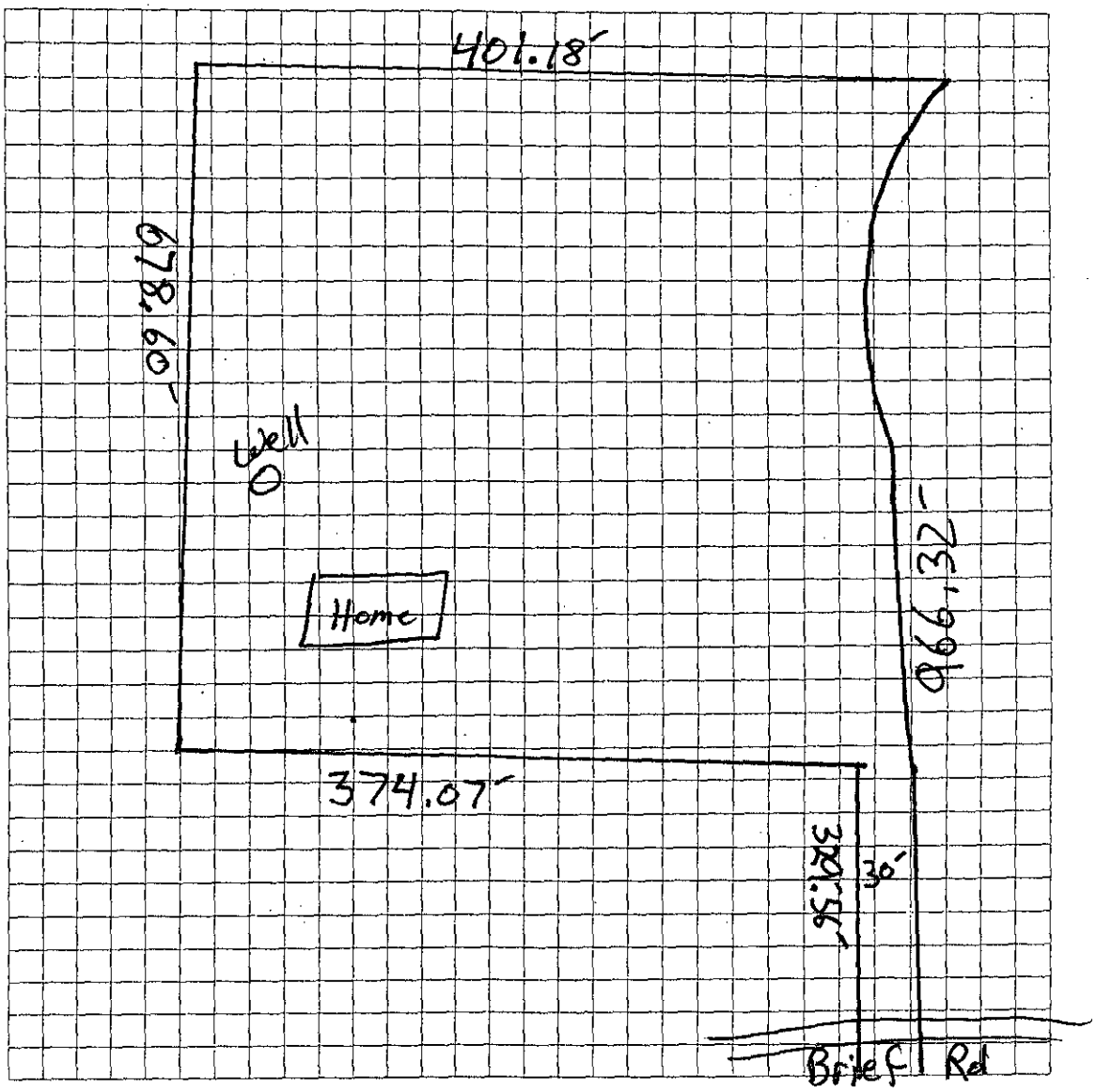
MECKLENBURG COUNTY HEALTH DEPARTMENT
GROUNDWATER & WASTEWATER SERVICES
700 N. TRYON ST., SUITE 211
CHARLOTTE, NC 28202 704-336-5103 / FAX: 704-336-6694

Mecklenburg County
Land Use & Environmental Service Agency
Groundwater & Wastewater Services
700 N. Tryon St., Suite 211
Charlotte, NC 28202
Phone: (704) 336-5103
Fax: (704) 336-6894

File # 6703B
Date_____

PROPOSED PLOT PLAN

A map showing existing and proposed property lines and easements with dimensions, the location of the single family residence, non-single family residence, or other facility, and appurtenances, the site for the proposed well, and the location of existing or proposed sewer lines and/or sewage disposal systems, surface water bodies, aboveground or underground storage tanks. Name all roads adjoining the property. If this a repair indicate the type of repair.



Owner/Agent Signature	Jeff Casey
Date	8-7-06

LBC 12/15/04

Department of Environment, Health, and Natural Resources
Division of Environmental Health
On-site Wastewater Section

Sheet: 1 of 2
Property ID: PO 197-155-01
Lot #: 52
File #: 6703B
AppID: 1247
Code: 2

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Owner: Faye Allen & Sally Faires
Applicant: Land Sales, Inc.
Address: 1647 Cobbler Drive, Midland, N. C. 28107
Date Evaluated: 8/24/06
Proposed Facility: Residence
Design Flow (.1949): 480gpd
Property Size: Approx. 7a inv.
Location of Site: Brief Road
Property Recorded:
Water Supply: [ ] Public [x] Individual [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		b PROFILE FACTORS				Profile Class & LTAR
			1941 Structure/ Texture	1941 Consistence Mineralogy	1942 Soil Wetness/ Color	1943 Soil Depth (IN.)	1956 Sapro Class	1944 Restr Horiz	
61	LS, 8	0-8	GR/SICL	FR/SEXP/SS/SP	>24" TO SOIL WETNESS	24	N/A	NONE	US, IV
A		8-24	SBK/C	FI/SEXP/S/P					.125GPD/FT
85	"	0-10	GR/SICL	FR/SEXP/SS/SP	>30" TO SOIL WETNESS	30	"	"	US, IV
		10-30	SBK/SIC	FI/SEXP/S/P					.25GPD/FT^2
86	"	0-7	GR/SICL	FR/SEXP/SS/SP	>38" TO SOIL WETNESS	38	"	"	PS, IV
		7-38	SBK/SIC	FI/SEXP/S/P					.275GPD/FT^2
87	"	0-8	GR/SICL	FR/SEXP/SS/SP	>27" TO SOIL WETNESS	27	"	"	US, IV
		8-27	SBK/SIC	FI/SEXP/S/P					.12GPD/FT^2
94	"	0-5	GR/SICL	FR/SEXP/SS/SP	>30" TO SOIL WETNESS	30	"	"	US, IV
		5-30	SBK/SIC	FI/SEXP/S/P					.25GPD/FT^2

Description	Initial System	Repair System
Available Space (.1945)	US	US
System Type(s)		
Site LTAR	.25GPD/FT^2	.25GPD/FT^2

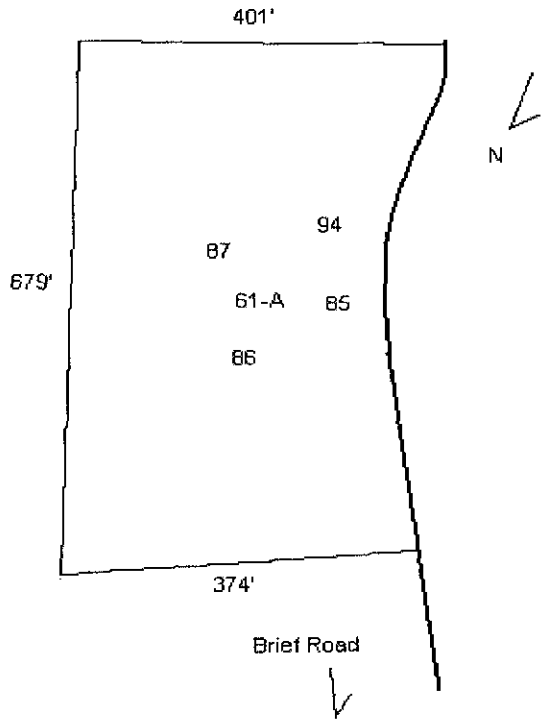
Other Factors (.1946):
Site Classification (.1948): UNSUITABLE
Evaluated By: W. R. Marlin, LSS, 8/29/2006, W. R. Marlin
Others Present: J. Casey, P. Penninger, W. Jones

COMMENTS:
100% repair

Landscape Position	Group	Texture	.1955 LTAR	Structure
R-Ridge	I	S-Sand	1.2 - 0.8	SG-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		M-Massive
LS-Linear Slope				CR-Crumb
FS-Foot Slope	II	SL-Sandy Loam	0.8 - 0.6	GR-Granular
NS-Nose Slope		L-Loam		SBK-Subangular Blocky
HS-Head Slope				ABK-Angular Blocky
CC-Concave Slope	III	SI-Silt	0.6 - 0.3	PL-Platy
CV-Convex Slope		SICL-Silty Clay Loam		PR-Prismatic
T-Terrace				
FP-Flood Plain		CL-Clay Loam		
		SCL-Sandy Clay Loam		
	IV	SC-Sandy Clay	0.4 - 0.1	
		SIC-Silty Clay		
		C-Clay		

Consistence Moist	Consistence Wet	Mineralogy
VFR-Very Friable	NS-Non-Sticky	SEXP-Slightly Expansive
FR-Friable	SS-Slightly Sticky	EXP-Expansive
FI-Firm	S-Sticky	
VFI-Very Firm	VS-Very Sticky	
EFI-Extremely Firm	NP-Non-Plastic	
	SP-Slightly Plastic	
	P-Plastic	
	VP-Very Plastic	

Sketch of Soil Evaluation Locations



LOW PRESSURE PIPE
SEPTIC SYSTEM
FOR
SUBSURFACE WASTEWATER DISPOSAL
Lot 2 Brief Estates
Mecklenburg County, North Carolina
S&ME Project No. 1588-06-035

MCHD FILE # 6703B

Prepared for:
Mr. Wiley Jones
Brief Estates, LLC
6619 Wheeler Drive
Charlotte, North Carolina 28211

APPROVED ON 12-5-06 TREW

Prepared by:
S&ME Inc.
385 Timber Road Suite 104
Mooresville, North Carolina 28115
office (704) 662-8625
fax (704) 662-8735
www.smeinc.com

November 28, 2006

Copy: Mecklenburg County Env. Health

Paul G. Penninger, LSS

Kathleen Saunders for Rob Willcox
Rob Willcox, LSS

BACKGROUND

The soils on the 6.11 acre lot were evaluated on August 24, 2006 by Mr. Bill Marlin, LSS of the Mecklenburg County Health Department (MCHD). Based on Mr. Marlin's evaluation, a Low Pressure Pipe (LPP) septic system with a LPP repair was considered the best option for the proposed 4-bedroom house. The main soil limitations were depth to soil wetness, weathered rock, and/or mixed mineralogy clays. Mr. Marlin proposed a LTAR of 0.125 gpd/ft^2 for a LPP system with useable soil depths ranging from 24 to 30 inches deep in the system area. Some unsuitable pits were also described adjacent to the proposed LPP system area.

S&ME reviewed the site with Bill Marlin on August 24, 2006 and flagged the proposed LPP system on November 3, 2006. Mr. Wiley Jones and Mr. Jeff Casey were also present for these site visits. Using the proposed LTAR of 0.125 gpd/ft^2, 768 feet of LPP trenches are required with a 13" trench bottom depth for the primary and repair system. The trenches shall be 18" wide. The primary system and repair has been flagged in the field. The proposed house location was flagged in the field. We recommend permanently marking the boundaries of the LPP field area to protect the area so it can be identified for future use. Flags in the field will supersede locations on attached site plan sketch.

The proposed system will be a Type IV and require a maintenance contract with a certified operator. Two additional site meetings are required by this plan, as a condition of the Improvement permit and Authorization to construct. No time limit is set for these, but one will be a pre-installation meeting to review each aspect of the plan, expectations of the Health Department, and requirements of the installer. The second meeting (final inspection) will be to certify that all design criteria are met in the design. We and the Health Dept. want all systems to function properly, and because of the soil and site limitations present, this extra effort is included. A representative from S&ME will not be present at these meetings unless required by a condition on the Improvement Permit.

APPLICATION INFORMATION

1. Owner: Mr. Wiley Jones
   Brief Estates, LLC
   6619 Wheeler Road
   Charlotte, NC 28211

   Soil Scientist and Designer: Mr. Paul Penninger, LSS
   S&ME, Inc.
   385 Timber Road Suite 104
   Mooresville, NC 28115
   (704) 662-8625 (Office)
   (704) 662-8735 (fax)
   www.smeinc.com

2. Water supply is provided by a private well.

3. Facility to be served by the proposed system is a 4-bedroom single-family residence.

LOCATION

The property is located off Brief Road.

REFERENCES

Design and Installation of Low Pressure Pipe Waste Treatment Systems by: Craig Cogger, Bobby L. Carlile, Dennis Osborne, Ed Holland; published by UNC Sea Grant College Pub. UNC-SC-82-03, May 1982.

Law and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A, Section .1900, Department of Environment Health and Natural Resources, April 17, 2002.

PLANS AND SPECIFICATIONS FOR SPECIFIC SYSTEM COMPONENTS

Septic Tank

1. The septic tank receives wastewater directly from the house.
2. A septic tank shall be watertight, structurally sound, and not subject to excessive corrosion or decay.
3. The septic tank must be of two-compartment design for maximum solids retention. The inlet compartment of the two-compartment tank shall hold between two-thirds and three-fourths of the total tank capacity.
4. Effluent from the two-compartment septic tank flows by gravity through a State approved effluent filter and a four-inch solid PVC pipe to the pumping tank.
5. Both the septic tank and pumping tank must be provided with above ground approved manhole risers to provide easy access for clean-out and pump service.
6. When prefabricated concrete tanks or tanks of other material are used, they shall be constructed in accordance with the plans which have been approved by the State and shall comply with all requirements of Section .1953 of 15A NCAC 18A.
7. On the outlet tee of the septic tank an effluent filter must be installed. This filter should be s State approved unit supplied by the tank manufacturer.

Pumping Tank

1. The pumping tank shall have an access manhole extending at least 6 inches above finished grade.
2. A septic tank effluent pump that will not be corroded by sewage shall be used in the pumping tank.
3. The pump must be placed on two concrete blocks set next to each other on the bottom of the tank. This prevents the pumping of any solid particles that can clog the system.
4. 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.
5. The lower level control or "pump-off" must be positioned above the pump, so that the pump remains submerged at all time.
6. The pump outlet pipe should be connected to the supply manifold with a threaded PVC union to allow quick removal.
7. Pump and Simplex 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. Pump control (Simplex) may be mounted on side of house if long cord pump is used. The pump 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 water proof, gas proof, 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. There shall be two electric circuits for controls: one for pump power, one for the alarm. These will require 2 circuit breakers.

8. 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. It should be on a separate electrical circuit from the pump power line. The alarm shall be audible and visible by system users and included in the pump and control enclosure. The alarm is activated if the water level in the pump tank rises above the "pump-on" float control. The tank provides at least one day or more of excess storage capacity (depending on water use in the house) during which time the system must be repaired.
9. Float switch for the high water alarm shall be set no more than 3 inches above the high water level of pump cycle.
10. Float switch tie downs to be made of corrosion resistant material, no tape or metal hose clamps. For maintenance flexibility, tree must be used to set floats.
11. Watertight testing per .1900 rules shall be required on two piece pump tanks.
12. Wiring between the pumping tank and the house should meet State and local code requirements.

Pipe and Fittings

1. All pipes and fittings should be made of SCH 40 PVC.
2. All joints must be sealed with appropriate PVC-solvent cement.
3. There should be a threaded PVC union above the pump to allow easy removal or replacement.
4. A gate valve for final pressure adjustment is installed in the supply line inside the pumping tank.
5. Manifold and valve as shown in specifications. **The proposed system uses 6 laterals and 6 gate valves at the valve box.**
6. Lateral lines are made of 1 1/4 inch SCH 40 PVC sleeved in 4 inch corrugated pipe. Holes in laterals are drilled on-site.
7. The end of each lateral is equipped with a capped "turn-up" that provides above ground access for clean-out or back flushing of the laterals. Using (2) 45-degree elbows rather than a 90-degree elbow for the turn-ups will make clean-out easier.

CONSTRUCTION INSTALLATION

Site Preparation

1. One of the most important concerns for an on-site system is to protect the site from soil disturbance by heavy equipment.
2. Now that the absorption area has been designed and flagged, **it should be roped off and**

protected from construction traffic. No site preparation or construction work should occur if the soil is wet. **Do Not Grade!** Care should be used in removing trees from the field area. Stumps should be ground out or cut flush with the soil surface. Any stump holes or minor depressions should be filled with clean, imported soil material.

3. Provisions must be made for intercepting or diverting surface water away from the absorption area.
4. After the area has been cleared and shaped, the location of the lateral lines and supply manifold should be accurately re-flagged according to design specifications. Each lateral line must be laid out along a level contour using a transit. This step can be completely avoided if flags are protected during clearing.

Tank Installation

1. The two-compartment septic tank is installed.
2. The pumping tank is installed next to the septic tank.
3. The tanks are connected with an appropriate length of solid, four-inch PVC pipe.

Supply Manifold

1. The supply manifold conveys effluent from the pump to the distribution laterals.
2. Design of the manifold is shown on attached diagrams.
3. The supply manifold joins each lateral through a short riser pipe connecting a reducing tee on the manifold to a 1 1/4 inch elbow or tee on the lateral. This assembly places each lateral pipe about six inches higher than the supply manifold and helps prevent the back-flow of effluent from a higher lateral to a lower lateral. Use a 2" x 2" x 1 1/4" tee rather than "bushing down" when connecting laterals to the manifold.
4. After the supply manifold has been placed in its trench and lateral lines connected, it should be backfilled with tightly tamped soil. The supply manifold trench must not be backfilled with gravel, or the trench may become a conduit for downslope flow effluent from the laterals.

Low Pressure Pipe Lateral Lines

1. Lateral lines shall be constructed from 1 1/4" SCH 40 PVC and sleeved in 4 inch corrugated drain pipe.
2. Trenches shall be 18" wide, and 5' minimum on center. Trenches shall be "level" from end to end. Trenches shall be only 13" deep from the original soil surface (see trench diagram). Small earthen dams should be placed at the beginning of each lateral trench to help maintain uniform distribution of effluent along each trench.
3. Holes drilled in the laterals shall be 5/32 inch with the holes pointed up. (Note this system uses six valves)
4. Sleeve laterals in 4" corrugated pipe.
5. A short turn-up with a capped end is at the end of each lateral. The capped end must be brought up above or flush with the final grade. Using two 45-degree elbows for constructing cleanouts is recommended. A larger diameter sleeve with cap or approved box with lid shall be placed over the turn-up.

PROPER OPERATION CHECK AND PRESSURE HEAD ADJUSTMENT

1. After all connections have been installed and connected, the system should be checked for proper operation. With electrical power turned off, fill the pump tank with a garden hose until the liquid rises to the level of the high-water alarm float.
2. Turn on the electrical power. The alarm light should go off when the liquid level falls below the high-water float. The pump should turn off when the liquid reaches the lowest float control. Be sure the pump is still completely submerged.
3. The pressure head is measured as the height liquid will rise above the turned-up elbow when the pump is running. To set or check the pressure head:
   -
   - Glue a three-foot length of pipe (preferable clear) to a threaded adapter that will screw onto the turn-ups at the end of each lateral.
   - Replace each turn-up cap with the pipe and adapter.
   - Turn the power on to allow liquid to rise in the pipe.
   - Adjust the gate valves until the effluent reaches the desired height in the pipe. Remember to include the distance below the ground surface to the lateral line when measuring the height.

FINAL LANDSCAPING

1. After the system is installed, the following should be checked to ensure that the system will not be overloaded with excess rainwater and runoff:
   - The distribution field is shaped to shed rainwater and is free of low areas.
   - Grassy swales or ditches for diverting surface water are properly installed.
   - Gutter and downspout drains are directed away from the system.

2. Finally, the entire area should be planted with grass in order to prevent erosion. The soil should be properly tilled, limed (if necessary) and fertilized before planting. After applying an appropriate grass seed, the area should be heavily mulched with straw or other suitable material.

QUALITY ASSURANCE REQUIREMENTS

The system must be installed by a qualified, contractor that is on the Mecklenburg County list of competent contractors. Critical stages of the installation, which should be checked, are:

1. System layout
2. Septic and pump tank installation prior to backfilling.
3. Manifold and lateral installation prior to backfilling.
4. Final landscaping, operation and pressure head check.

The system design is based on a maximum waste flow of 480 gallons per day. The homeowner should pay particular attention to the section titled Homeowner Suggestions for ways to minimize the burden on the system.

OPERATION AND MAINTENANCE PROCEDURE

The system is classified as **Type IV and DOES require a maintenance contract** with a certified operator. The contract shall be executed between the system owner and a management entity prior to the issuance of an Operation Permit. The contract shall include the specific requirements for maintenance and operation, responsibilities of the owner and system operator, and provisions that the contract shall be in effect for as long as the system in use.

Operating, Maintenance and Inspection procedures shall include, but not be limited to the following:

- Minimum inspection/maintenance frequency shall be 2 times per year, with reporting frequency every 6 months to the local health department.
- Septic system shall be pumped every 4 years or when solids accumulate to 1/3 the volume of the tank.
- At 6 month intervals, inspect the effluent filter. When washing the filter, debris must be sprayed directly back into the septic tank and not onto the lawn.
- All laterals shall be checked and if necessary, flushed annually with clean water.
- Pressure head for laterals should be checked and adjusted one month after installation and semi-annually thereafter.
- All piping and fittings shall be checked annually for damage and/or proper operation and corrections made immediately.
- The property should be inspected to insure all surface water is diverted 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.
- Pump draw down depth and delivery rate shall be checked each year.
- Check septic tank and pump tank for evidence of damage or leakage. Check the quality of effluent including grease and sludge accumulation.

The system operator, in conjunction with the local Health Department shall establish an operation and maintenance program and procedure based on experience obtained from similar installations.

OWNER SUGGESTION

Most systems do not require much effort to operate and maintain. Even though the effort is small, the system must be maintained properly so that it operates reliably and at a minimum cost. Following are suggestions for the owner to minimize the burden on the septic system.

1. Garbage disposals should not be used in on-site systems. The ground garbage adds large amounts of solids to a septic tank, causing sludge to build up at a quicker rate than without. If disposal is installed, use should be limited.
2. Grease, cooking oils and coffee grounds should never be put into a septic tank.
3. Items such as disposable diapers, cigarettes, facial tissues and other solid or paper wastes should not be flushed into the on-site system.
4. Used motor oil and other such oily liquids should not be put into a septic tank.
5. Using less water can reduce the amount of water flowing to the treatment and disposal field.
6. Water-saving fixtures and devices can be installed on sinks and toilets to reduce the rate at which the water flows from the fixture.
7. Leaky faucets and toilets can add large volumes of water to the daily flow of water into the on-site system. Repair the leaks to save water and give the treatment and disposal field a rest.
8. Roof drains, foundation drains, and other such drains should not empty into or onto the surface above the on-site system. These drains should be directed to another part of the lot away from the treatment and disposal field.
9. Dishwashers and washing machines should only be run with full loads.

DESIGN SPECIFICATIONS FOR PRIMARY SYSTEM (LOT 2 BRIEF ESTATES (MCHD FILE # 6703B)

Daily design flow:	480 gpd. (4-bedroom)
Septic tank size:	1500 gal. (2 compartments)
Pumping tank size:	1500 gal.
Effluent loading rate:	0.125 gpd/ft^2 for LPP primary and repair
Total length and diameter of supply pipe:	approx 310' of 2" SCH 40 PVC
Number and length of laterals:	6 @ 130' for total of 780' (768' required) see table (1¼ " SCH 40 PVC sleeved in 4" corrugated pipe) [CENTER FED] *120 65'
Hole size:	5/32"
Hole spacing:	see table
Total number of holes:	see table
Flow rate through the system:	49.2 gpm
Elevation head:	Approx. 18' **
Pressure head:	2.0-3.0'
Friction head:	Approx. 16'
20% contingency	7.4'
Total head:	44.4'
Pump requirements:	50 gpm at 45' of head; use Goulds WE10H pump or equivalent with compatible electrical**
Dosing volume:	300 gal. – 1.6 dose/day at design flow
Depth of water pumped per dose:	calculated to specific tank by measure or dealer engineering specifications (1 cubic ft. of water equals 7.48 gal.)
Pump run per dose:	approx. 6 min
Check valve:	YES
Siphon break hole:	NO

** to be verified by installer

Low pressure design specifications for Brief Estates Lot 2

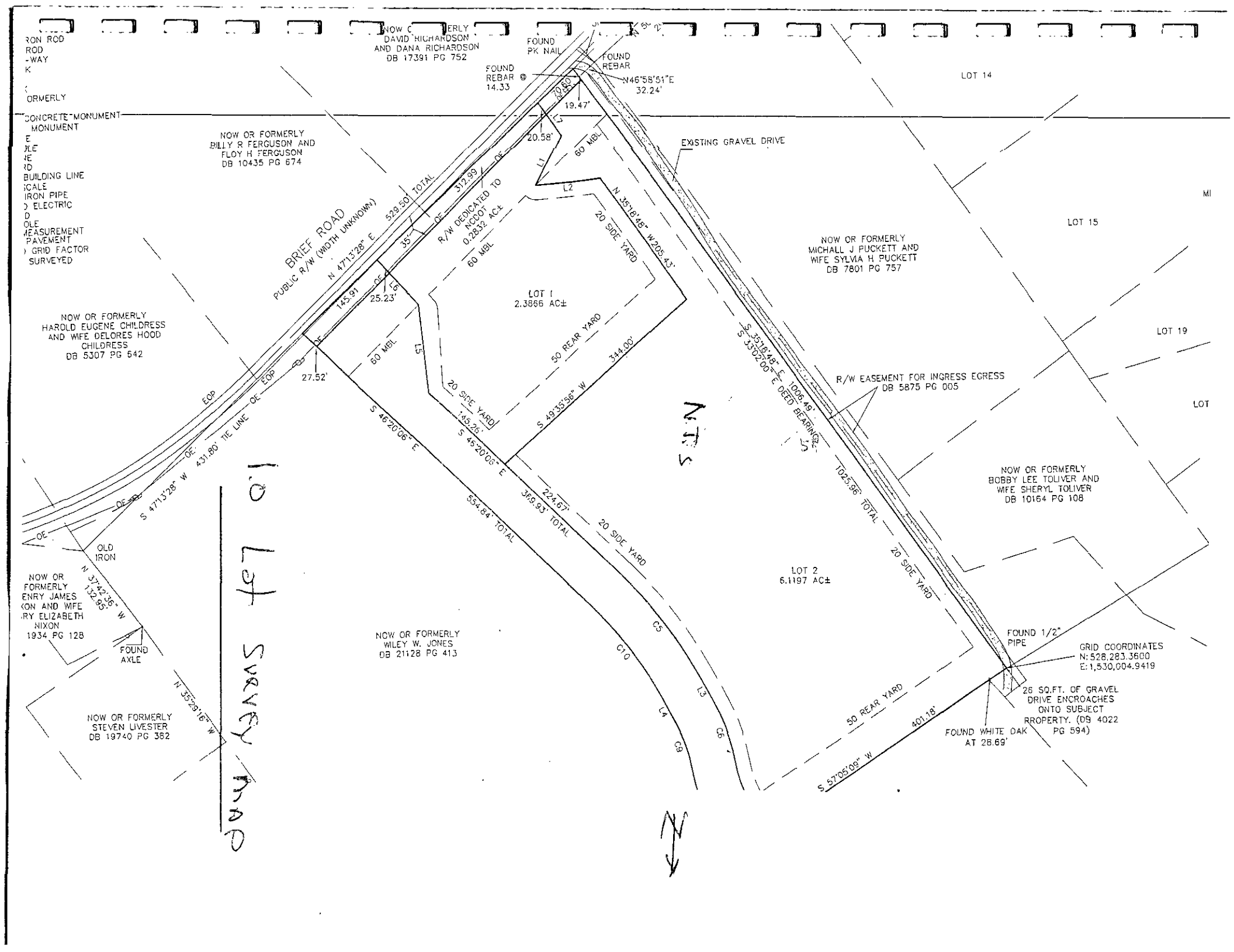
line	color	length (ft)	design head (ft)	hole size (in)	hole spacing (ft)	number holes	flow per hole (gpm)	flow per line (gpm)	flow per ft. line (gpm)
1	yellow	130	2	5/32	7.2	18	0.409	7.36	0.057
2	white	130	2.2	5/32	7.2	18	0.429	7.72	0.059
3	red	130	2.4	5/32	7.2	18	0.448	8.06	0.062
4	yellow	130	2.6	5/32	7.2	18	0.466	8.39	0.065
5	white	130	2.8	5/32	7.2	18	0.484	8.71	0.067
6	red	130	3	5/32	7.2	18	0.501	9.02	0.069
	Total	780						49.266	

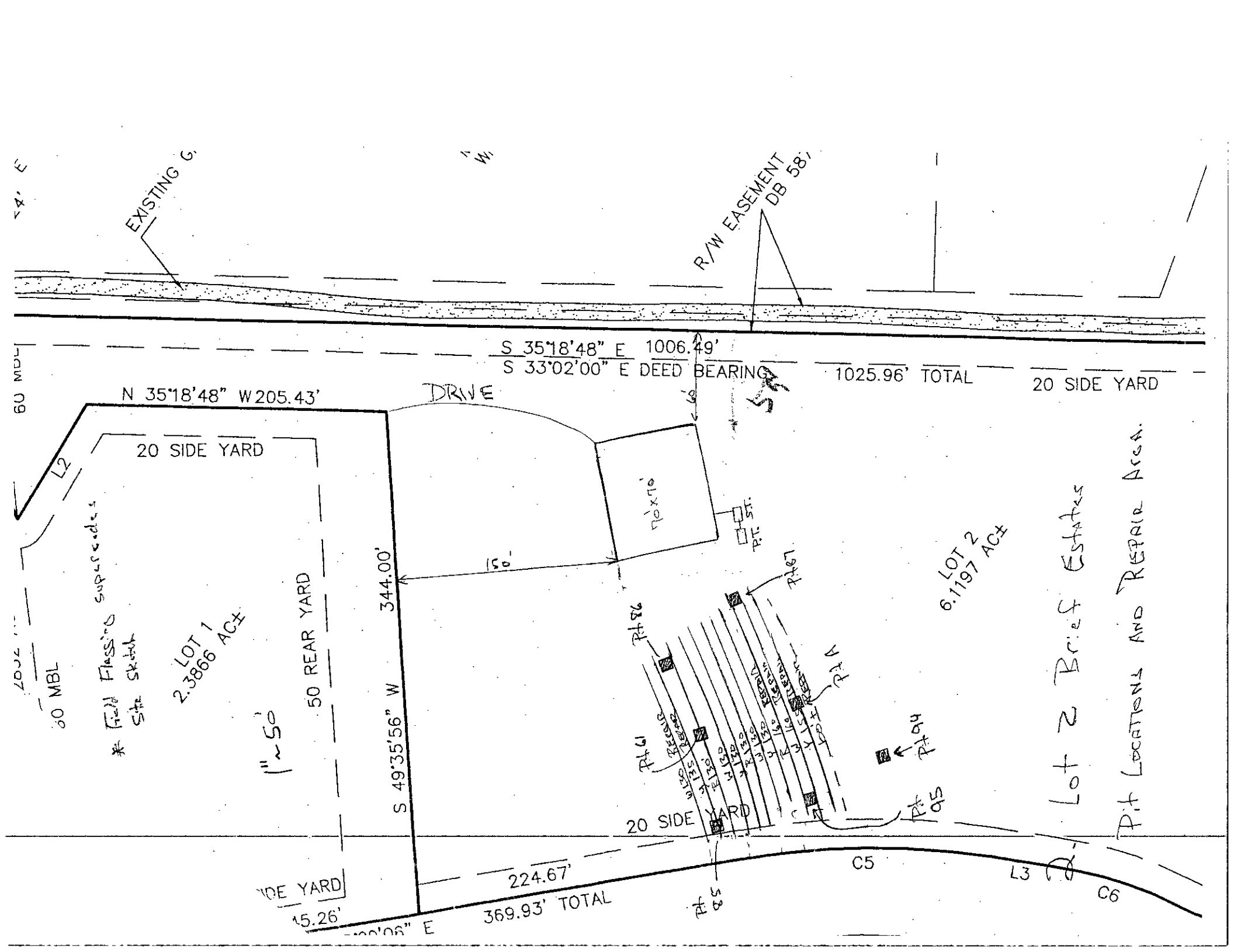
✓ (15)

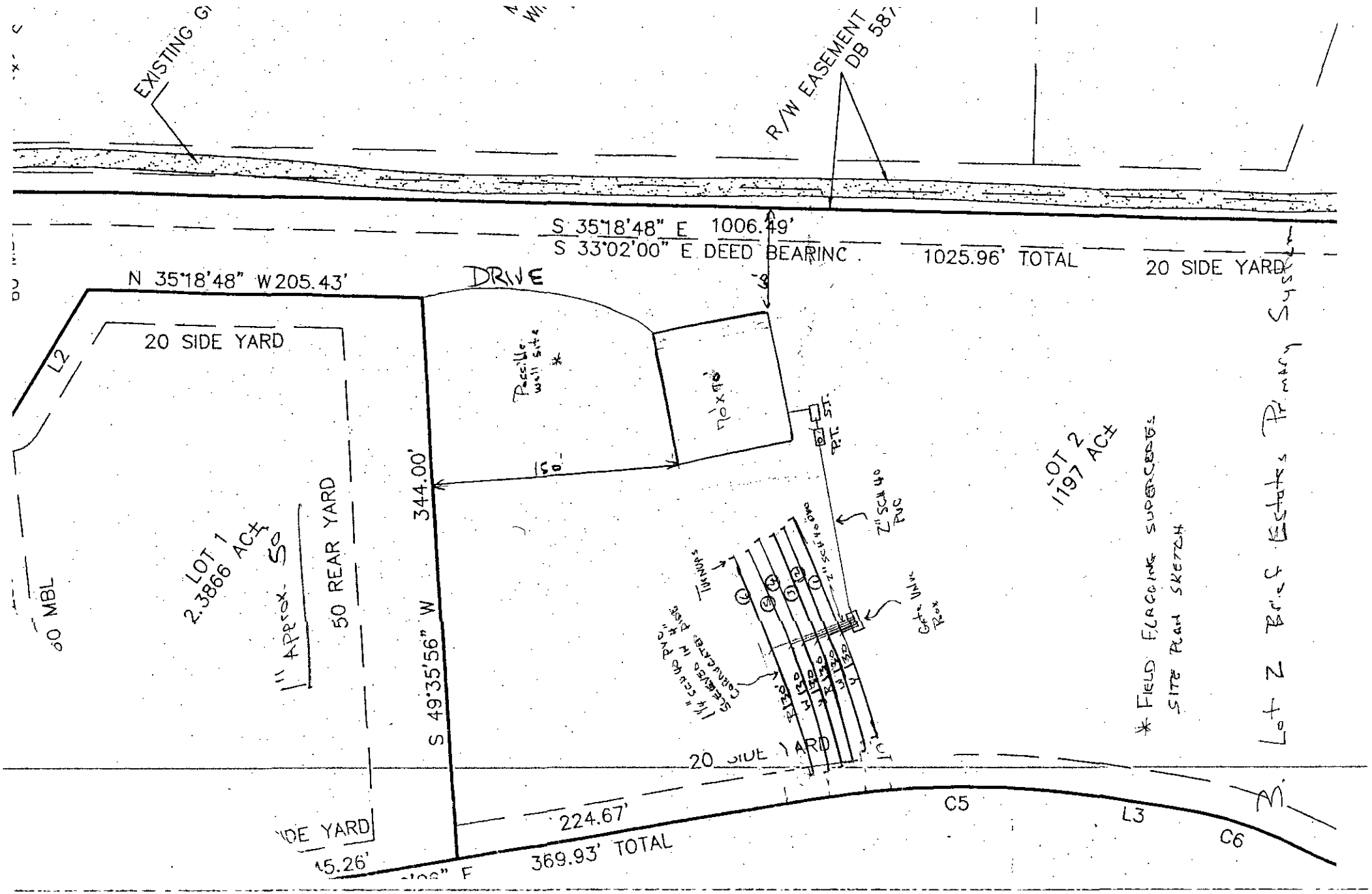
* LATERALS MUST BE CENTERFED TO KEEP LENGTHS ≤ 70 FT.

List of Attachments

1. Lot Survey Map
2. Site plan showing system and repair areas, and pit locations.
3. Primary system detail site plan.
4. MCHD Bill Marlin soil evaluation
5. System Component Details
    a. Tank Detail
    b. Turn-ups
    c. Trench Detail
    d. Central Valve Box Detail
    e. Trench and Distribution Pipe Detail
    f. Pump Curve


IRON ROD
ROD
-WAY
K
ORMERLY
CONCRETE MONUMENT
MONUMENT
E
DLE
NE
RD
BUILDING LINE
SCALE
IRON PIPE
ELECTRIC
D
OLE
MEASUREMENT
PAVEMENT
GRID FACTOR
SURVEYED
NOW O ERLY
DAVID RICHARDSON
AND DANA RICHARDSON
DB 17391 PG 752
FOUND
PK NAIL
FOUND
REBAR
FOUND
REBAR
14.33
N46°58'51"E
32.24'
70.80'
19.47'
20.58'
L1
L2
L7
60 MBL
EXISTING GRAVEL DRIVE
LOT 14
LOT 15
LOT 19
LOT
MI
NOW OR FORMERLY
BILLY R FERGUSON AND
FLOY H FERGUSON
DB 10435 PG 674
BRIEF ROAD
PUBLIC R/W (WIDTH UNKNOWN)
N 47°13'28" E
529.50' TOTAL
312.99'
35'
OE
R/W DEDICATED TO
NCDOT
0.2832 AC±
60 MBL
N 35°18'48" W 205.43'
20 SIDE YARD
NOW OR FORMERLY
MICHALL J PUCKETT AND
WIFE SYLVIA H PUCKETT
DB 7801 PG 757
LOT 1
2.3866 AC±
50 REAR YARD
344.00'
S 49°35'56" W
NOW OR FORMERLY
HAROLD EUGENE CHILDRESS
AND WIFE DELORES HOOD
CHILDRESS
DB 5307 PG 642
145.91'
25.23'
L6
L5
27.52'
EOP
OE
S 47°13'28" W 431.80' TIE LINE
S 46°20'06" E
145.26'
S 46°20'06" E
554.84' TOTAL
369.93' TOTAL
224.67'
20 SIDE YARD
S 35°18'48" E
S 33°02'00" E DEED BEARING
1006.49'
1025.96' TOTAL
20 SIDE YARD
R/W EASEMENT FOR INGRESS EGRESS
DB 5875 PG 005
NOW OR FORMERLY
BOBBY LEE TOLIVER AND
WIFE SHERYL TOLIVER
DB 10164 PG 108
OLD
IRON
N 37°42'36" W
132.95'
NOW OR
FORMERLY
ENRY JAMES
KON AND WIFE
RY ELIZABETH
NIXON
1934 PG 128
FOUND
AXLE
NOW OR FORMERLY
WILEY W. JONES
DB 21128 PG 413
LOT 2
6.1197 AC±
C10
C5
L3
L4
C9
C6
50 REAR YARD
401.18'
S 57°05'09" W
FOUND 1/2"
PIPE
GRID COORDINATES
N: 528,283.3600
E: 1,530,004.9419
26 SQ.FT. OF GRAVEL
DRIVE ENCROACHES
ONTO SUBJECT
RROPERTY. (DB 4022
PG 594)
FOUND WHITE OAK
AT 28.69'
N 35°29'16" W
NOW OR FORMERLY
STEVEN LIVESTER
DB 19740 PG 362
N 15
10 Left Survey Road


EXISTING G
R/W EASEMENT DB 58
S 35°18'48" E 1006.49'
S 33°02'00" E DEED BEARING
1025.96' TOTAL
20 SIDE YARD
N 35°18'48" W 205.43'
DRIVE
20 SIDE YARD
L2
60 MBL
* Full Plans superceded Site Sketch
LOT 1
2.3866 AC±
50 REAR YARD
1"=50'
344.00'
S 49°35'56" W
10'x10'
15'
LOT 2
6.1197 AC±
Lot 2 Brick Estates
Pit Locations And Repair Area
Pit 67
Pit 86
Pit 4
Pit 61
Pit 64
Pit 65
Pit 85
20 SIDE YARD
224.67'
369.93' TOTAL
15.26'
C5
L3
C6


EXISTING G
R/W EASEMENT DB 587
S 35°18'48" E 1006.49'
S 33°02'00" E DEED BEARING
1025.96' TOTAL
20 SIDE YARD
N 35°18'48" W 205.43'
DRIVE
20 SIDE YARD
L2
Pacific Well Site *
100'x100'
15'
344.00'
S 49°35'56" W
50 REAR YARD
LOT 1
2.3866 AC±
APPROX. 50'
60 MBL
LOT 2
1197 AC±
* FIELD FLAGGING SUPERCEDES SITE PLAN SKETCH
Lot 2 Bruce Estates Phase 1
2" SCH 40 PVC
Gate Valve Box
Turnout
Concrete Pad 4" Thick
20 SIDE YARD
224.67'
369.93' TOTAL
C5
L3
C6
15.26'

Department of Environmental...
Division of Environmental Health
On-site Wastewater Section

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Property ID: PO [illegible]
Lot #: 5
File #: 6703B
AppID: 1247
Code: 2

Owner: Faye Allen & Sally Faires
Address: 1647 Cobbler Drive, Midland, N. C. 28107
Proposed Facility: Residence Design Flow (.1949): 480gpd
Location of Site: Brief Road

Applicant: Land Sales, Inc.
Date Evaluated: 8/24/06
Property Size: Approx. 7a inv.
Property Recorded:

Water Supply: [ ] Public [x] Individual [x] Well [ ] Spring [ ] Other
Evaluation Method: [ ] Auger Boring [x] Pit [ ] Cut
Type of Wastewater: [x] Sewage [ ] Industrial Process [ ] Mixed

PROFILE #	SOIL MORPHOLOGY .1941			PROFILE FACTORS b				
	1940 Landscape Position/ Slope%	Horizon Depth (IN.)	.1941 Structure/ Texture	.1941 Consistence Mineralogy	1942 Soil Wetness/ Color	1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr Horiz.	Profile Class & LTAR
61	LS, 8	0-8	GR/SICL	FR/SEXP/SS/SP	>24" TO SOIL WETNESS	24	N/A	NONE	US, IV
A		8-24	SBK/C	FI/SEXP/S/P					.125GPD/FT
85	"	0-10	GR/SICL	FR/SEXP/SS/SP	>30" TO SOIL WETNESS	30	"	"	US, IV
		10-30	SBK/SIC	FI/SEXP/S/P					.25GPD/FT^2
86	"	0-7	GR/SICL	FR/SEXP/SS/SP	>38" TO SOIL WETNESS	38	"	"	PS, IV
		7-38	SBK/SIC	FI/SEXP/S/P					.275GPD/FT^2
87	"	0-8	GR/SICL	FR/SEXP/SS/SP	>27" TO SOIL WETNESS	27	"	"	US, IV
		8-27	SBK/SIC	FI/SEXP/S/P					.12GPD/FT^2
94	"	0-5	GR/SICL	FR/SEXP/SS/SP	>30" TO SOIL WETNESS	30	"	"	US, IV
		5-30	SBK/SIC	FI/SEXP/S/P					.25GPD/FT^2

Description	Initial System	Repair System
Available Space (.1945)	US	US
System Type(s)		
Site LTAR	.25GPD/FT^2	.25GPD/FT^2

Other Factors (.1946):
Site Classification (.1948): UNSUITABLE
Evaluated By: W. R. Marlin, LSS, 8/29/2006, W. R. Marlin
Others Present: J. Casey, P. Pennlnger, W. Jones

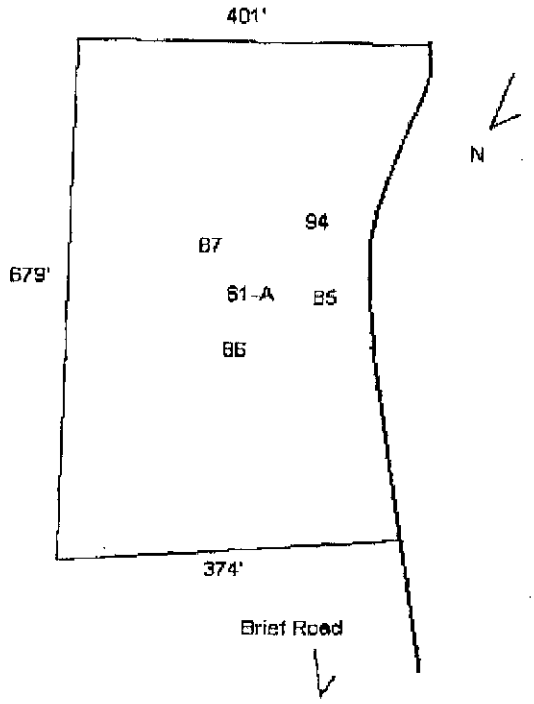
Sheet: 2 of 2
FILE #: 6703B

COMMENTS:
100% repair

Landscape Position	Group	Texture	.1995 LTAR	Structure
R-Ridge	I	S-Sand	1.2 - 0.8	SG-Single Grain
SS-Shoulder Slope		LS-Loamy Sand		M-Massive
LS-Linear Slope				CR-Crumb
FS-Foot Slope	II	SL-Sandy Loam	0.8 - 0.6	GR-Granular
NS-Nose Slope		L-Loam		SBK-Subangular Blocky
HS-Head Slope				ABK-Angular Blocky
CC-Concave Slope	III	SI-Silt	0.6 - 0.3	PL-Platy
CV-Convex Slope		SICL-Silty Clay Loam		PR-Prismatic
T-Terrace				
FP-Flood Plain		CL-Clay Loam		
		SCL-Sandy Clay Loam		
	IV	SC-Sandy Clay	0.4 - 0.1	
		SIC-Silty Clay		
		C-Clay		

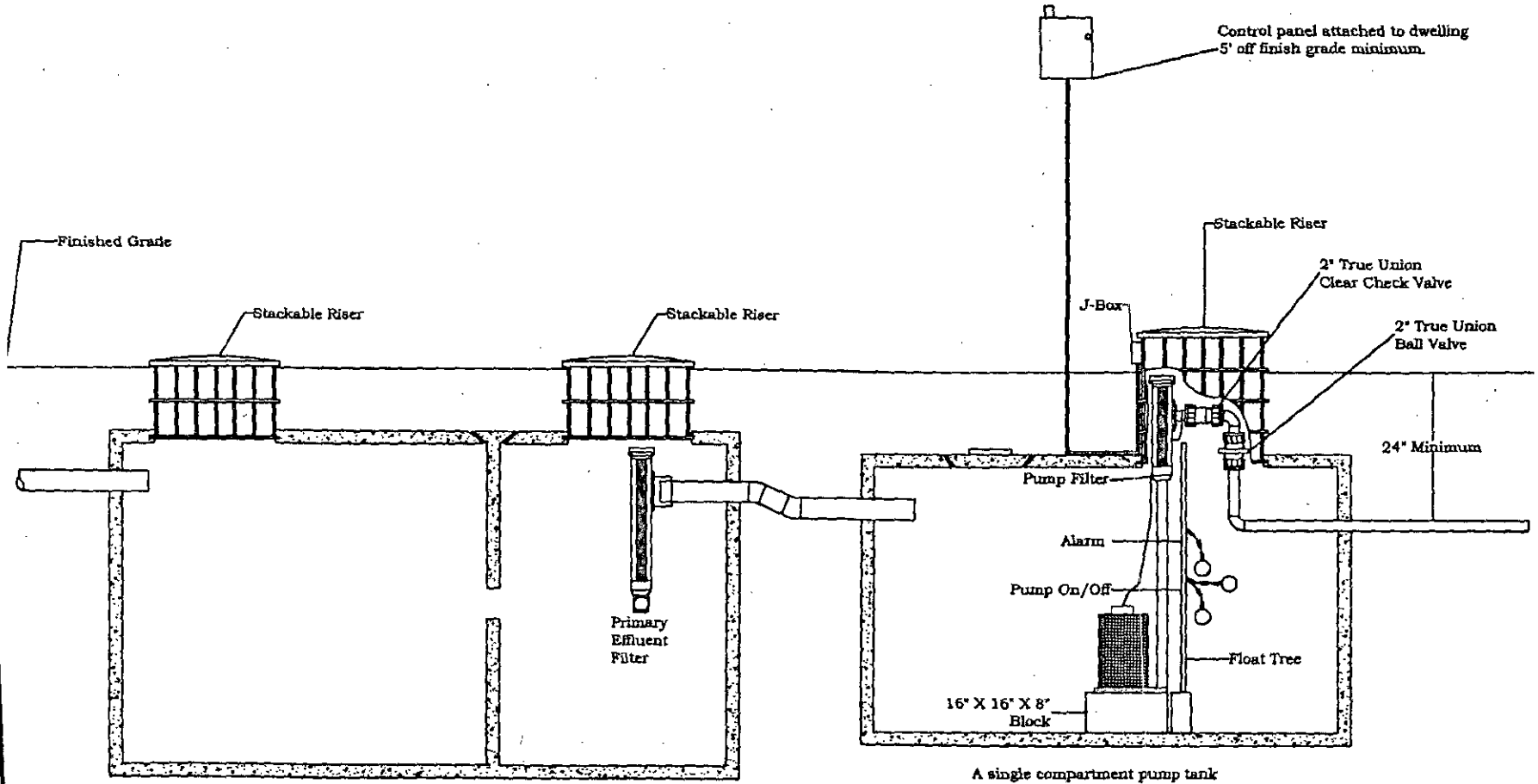
Consistence Moist	Consistence Wet	Mineralogy
VFR-Very Friable	NS-Non-Sticky	SEXP-Slightly Expansive
FR-Friable	SS-Slightly Sticky	EXP-Expansive
FI-Firm	S-Sticky	
VFI-Very Firm	VS-Very Sticky	
EFI-Extremely Firm	NP-Non-Plastic	
	SP-Slightly Plastic	
	P-Plastic	
	VP-Very Plastic	

Sketch of Soil Evaluation Locations



5a

SEPTIC TANK AND PUMP TANK

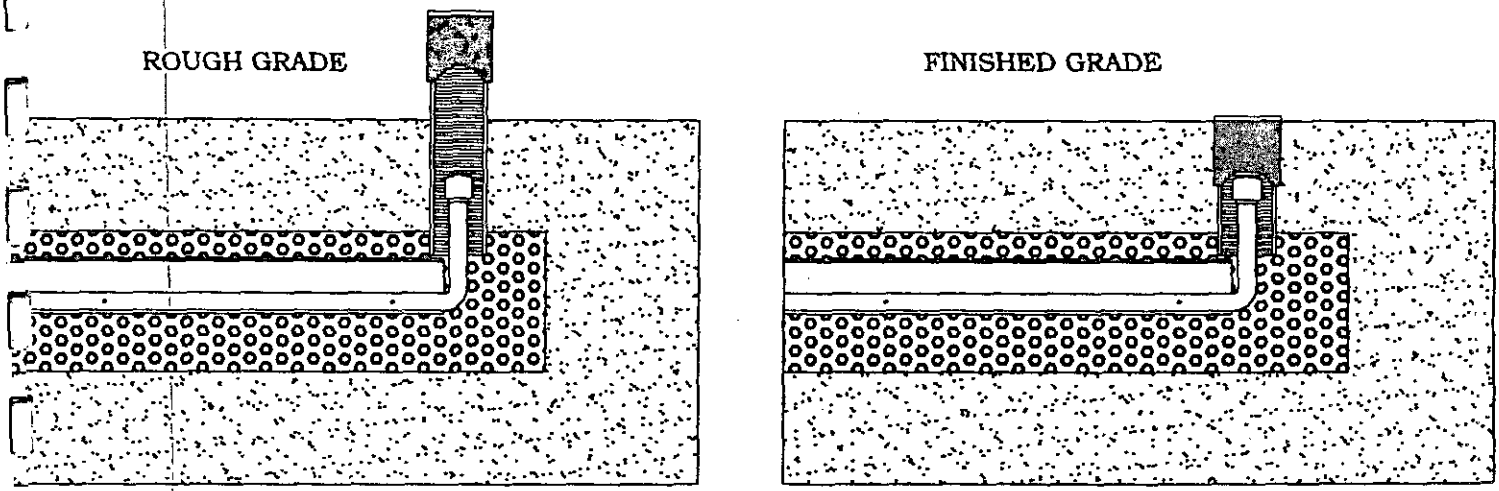


A two-compartment septic tank
1500 gallon

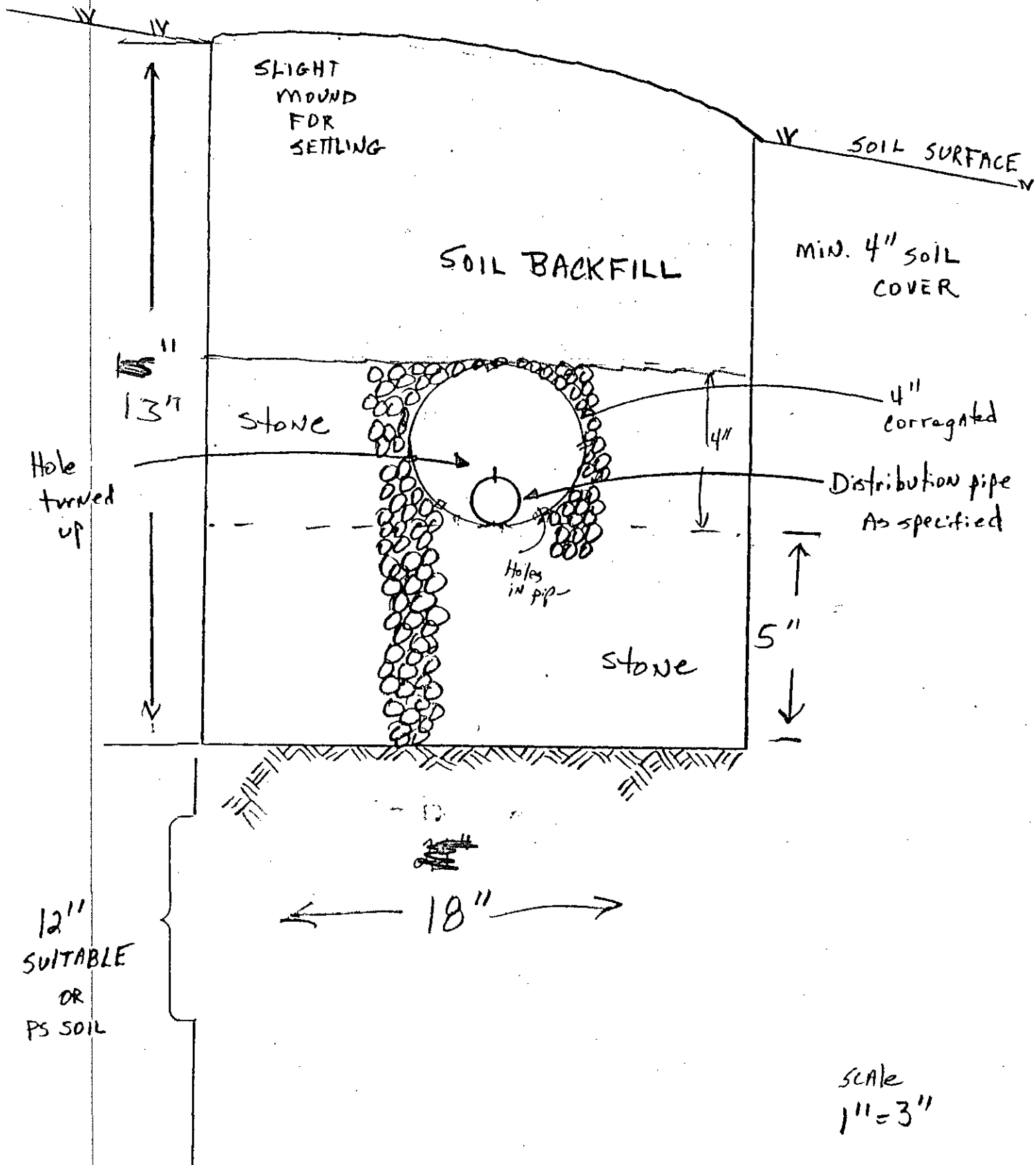
A single compartment pump tank
~~1500~~ gallon

1500

S6 TURN-UPS



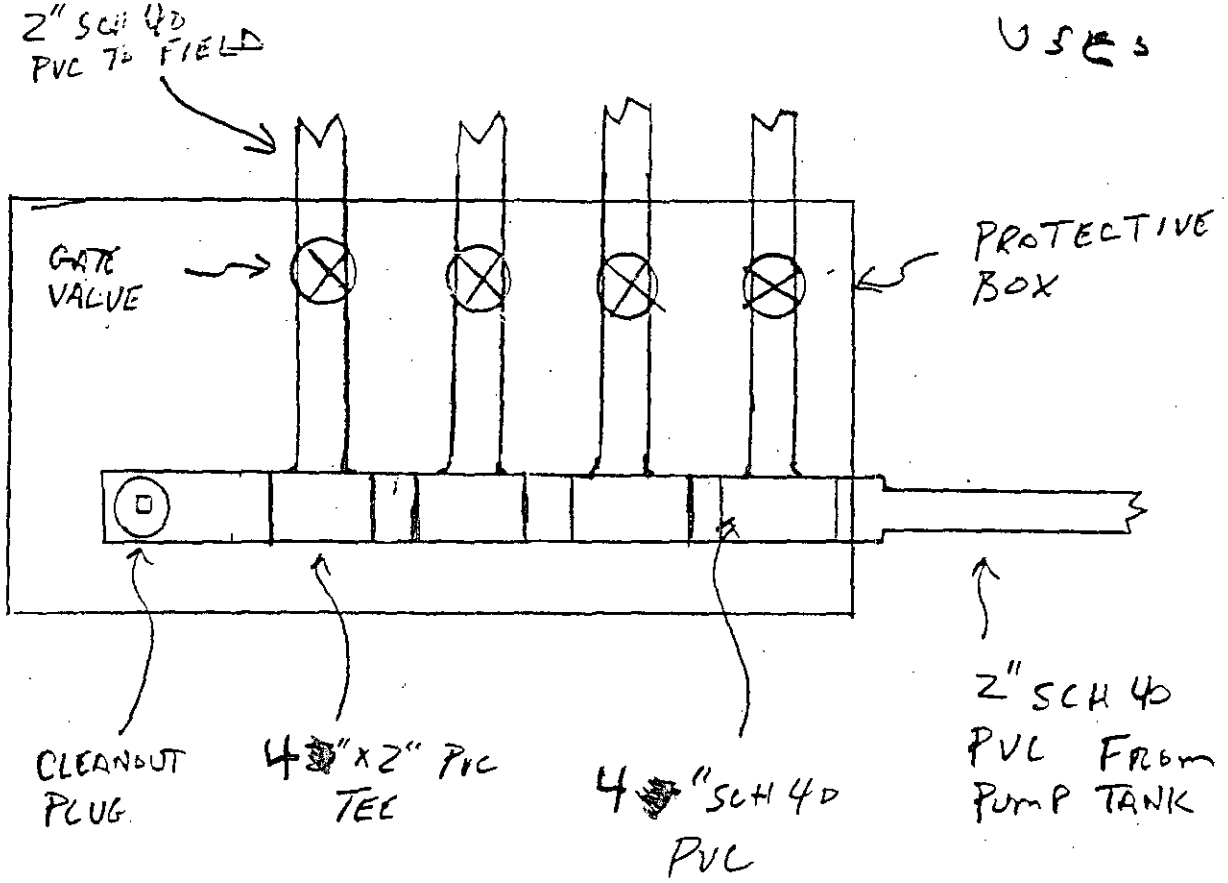
5c. LPP Trench Design typical.



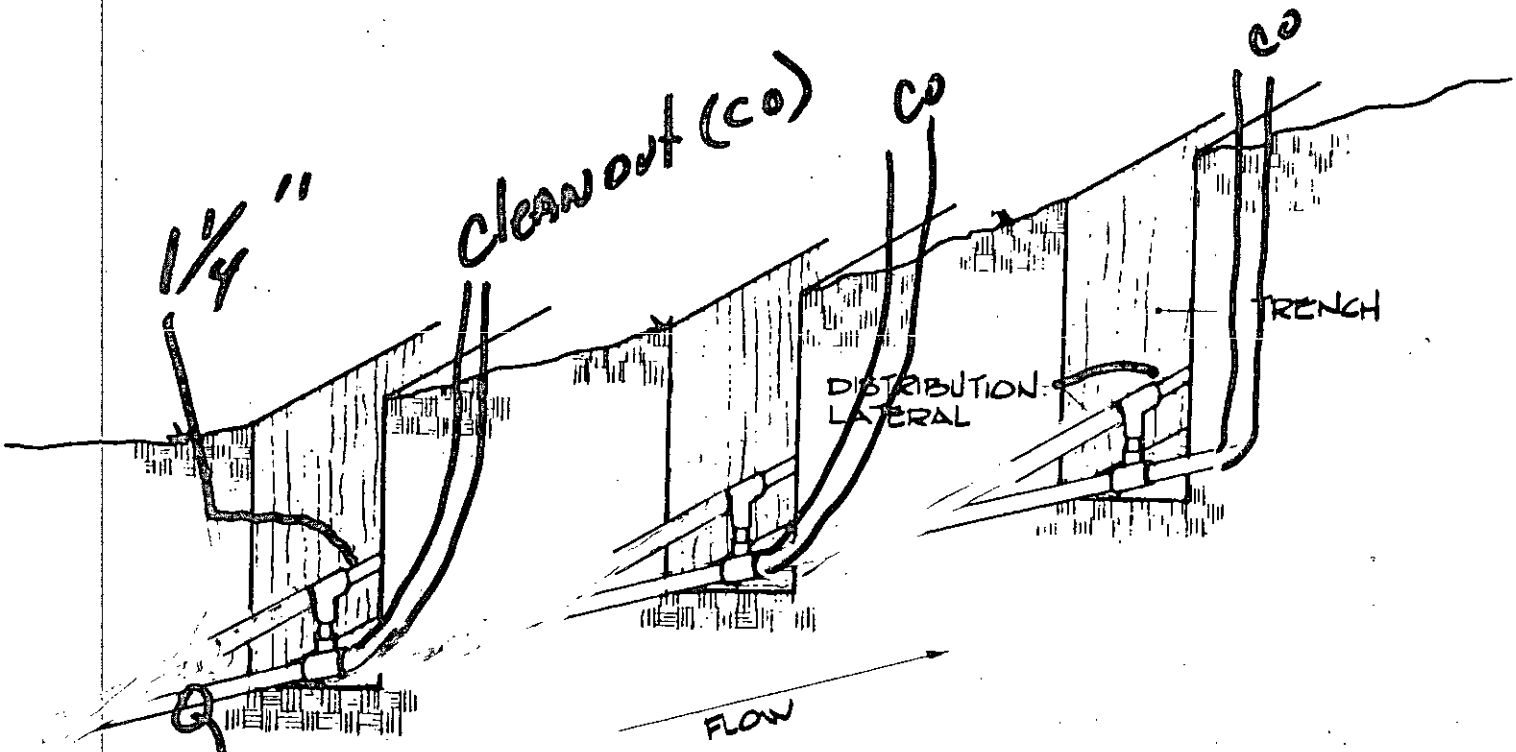
scale
1" = 3"

5d. CENTRAL VALVE BOX DETAIL

* Proposed system uses 6 valves



5e.



A. PUMPING UPHILL

from Cogger et al, 1982)

2" from VALVE BOX

GOULDS PUMPS



Submersible Effluent Pump

MODEL 3885

WE Series

PROSURANCE AVAILABLE FOR RESIDENTIAL APPLICATIONS.

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 140 GPM.
- Total heads: up to 128 feet TDH.
- Temperature: 104°F (40°C) continuous 140°F (60°C) intermittent.
- See order numbers on reverse side for specific HP, voltage, phase and RPM's available.

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.

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 all models to guard against component damage on accidental reverse rotation.

Fasteners: 300 series stainless steel.

Capable of running dry without damage to components.

Designed for continuous operation when fully submerged.

MOTORS

Fully submerged in high-grade turbine oil for lubrication and efficient heat transfer.

Class B insulation on ⅓-1½ HP models.

Class F insulation on 2 HP models.

Single phase (60 Hz):

- Capacitor start motors for maximum starting torque.
- Built-in overload with automatic reset.
- SJTOW or STOW severe duty oil and water resistant power cords.
- ⅓ and ½ HP models have NEMA three prong grounding plugs.
- ¾ HP and larger units have bare lead cord ends.

Three phase (60 Hz):

- Class 10 overload protection must be provided in separately ordered starter unit.
- STOW power cords all have bare lead cord ends.

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

Bearings: Upper and lower heavy duty ball bearing construction.

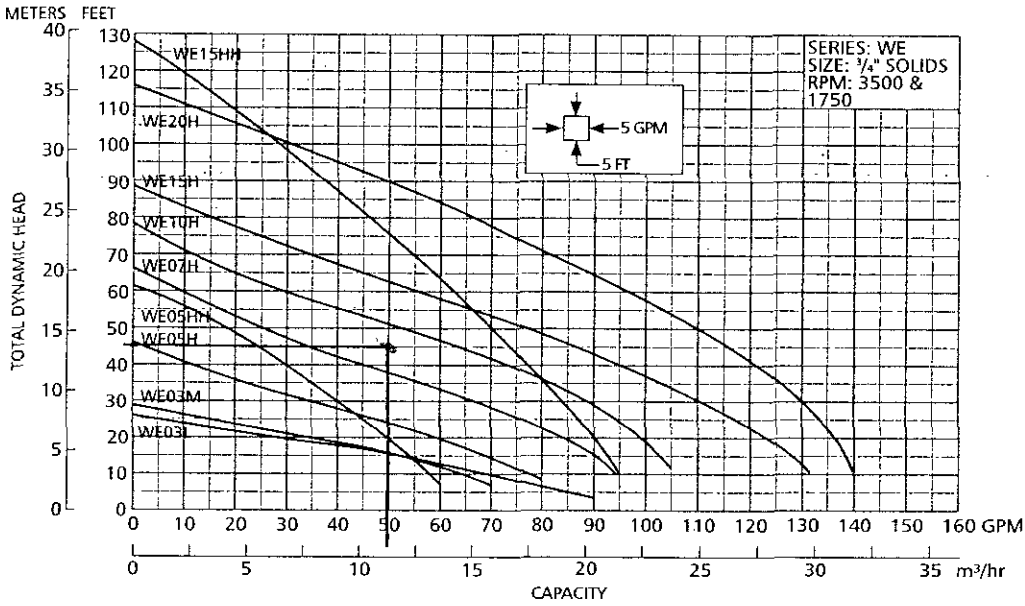
Power Cable: Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking. Standard cord is 20'. Optional lengths are available.

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

AGENCY LISTINGS

Tested to UL 778 and CSA 22.2 108 Standards By Canadian Standards Association File #LR38549

Goulds Pumps is ISO 9001 Registered.



Goulds Pumps

ITT Industries

© 2003 Goulds Pumps
Effective July, 2003
B3885

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30001249** GWS File #: **6703B** Tax Parcel #: **197-155-01**

- This IMPROVEMENT PERMIT is subject to revocation if site plans or the intended use change. There is to be **NO** grading, filling, or disturbance of the soil in the area of the septic tank system or repair area.
- CONSTRUCTION AUTHORIZATION must be obtained prior to receiving a Building Permit. The Construction Authorization is **NOT** transferable. Do not clear, grade, fill or disturb soil prior to obtaining a Construction Authorization.
- Domestic-type wastewater only. No industrial process wastewater may be discharged into the system.

I. This Improvement Permit Shall: Expire in Five (5) Years **Expiration Date (If Applicable):** 12/8/2011

Type of Installation: Residential - New System Lot Number: 52

Structure Type: HOUSE Size (ft^2): 0 # Bedrooms: 4 # Occupants: 3

Building Foundation: Crawl Space Water Supply: Private Well

II. Initial System Type: Low Pressure Pipe (LPP) **System Classification:** IVa

Initial System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.125	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	18	Trench Spacing (ft):	5	Absorption Area (ft^2):	13824	Total Trench Length (ft):	768
Maximum Trench Depth (in):	13	Depth of Media (in):	N/A	Distribution Device:	Manifold (LPP Distri		

III. Repair System Type: Low Pressure Pipe (LPP) **System Classification:** IVa

Repair System Specifications:

Design Flow (gpd):	480	LTAR (gpd/ft^2):	0.125	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	18	Trench Spacing (ft):	5	Absorption Area (ft^2):	13824	Total Trench Length (ft):	768
Maximum Trench Depth (in):	13	Depth of Media (in):	N/A	Distribution Device:	Manifold (LPP Distri		

IV. Permit Conditions/Comments:

(Please See the Following Page for Permit Conditions.)

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment, and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: David Cornelius Owner/Legal Agent: Jeff Casey

Signature: David Cornelius, RS Signature: Jeff Casey

Print Name

Date Issued: 12/8/2006

Lot 2

Mecklenburg County Groundwater & Wastewater Services
700 N. Tryon St, Suite 211 Charlotte, NC 28202
Phone: (704) 336-5103 Fax: (704) 336-6894

NC DENR
Division of Environmental Health
On-Site Wastewater Section

IMPROVEMENT PERMIT for a RESIDENTIAL ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

Permit #: **30001249** GWS File #: **6703B**

IV. Permit Conditions/Comments:

- Owner agreement forms for site reclassification shall be on file prior to issuance of Construction Authorization.
- This type of septic system requires an inspection once every 3 years by our office. The system owner is responsible for any fees, as determined by the Mecklenburg County Board of Commissioners, associated with this inspection.
- This type of septic system requires a Certified Operator to maintain the system. A system maintenance contract with a Certified Operator must be on file prior to issuance of an Operation Permit.
- Additional soil cover, as specified on the plot plan, required over the drain field must be inspected and approved prior to issuance of an Operation Permit.
- This type of repair system requires the property owner to obtain a contract with a Certified Operator to perform routine inspections and maintenance on the system.
- This type of repair system requires periodic inspections by our office. The system owner is responsible for any fees, as determined by the Mecklenburg County Board of Commissioners, associated with this inspection.
- The septic system shall be installed in accordance with the plans submitted by the wastewater system design consultant.
- All components of the septic system must be installed in accordance with the required setbacks listed on the corresponding plot plan.
- All components of the septic system must be located at least 100 ft. (50 ft. minimum) from all private wells.
- The system must be water tested during the final inspection to verify proper operation and set system pressure.
- Maintenance Contract with a certified operator required before CO release. Install system according to plans on file submitted by Paul Penniger and S&ME.

The undersigned, an authorized agent of the MECKLENBURG COUNTY HEALTH DEPARTMENT, certifies that the Department is issuing an IMPROVEMENT PERMIT for the above referenced property. This permit is being issued in accordance with the *Laws and Rules For Sewage Treatment and Disposal Systems* and is subject to the following provisions:

- No work shall be conducted on the septic system until an INSTALLATION APPROVAL is granted by the Department.
- The septic system installer shall be a registered septic contractor with Mecklenburg County Health Department.
- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: David Cornelius

Signature: David Cornelius RS

Date Issued: 12/8/2006

Owner/Legal Agent: Jeff Casey
Print Name

Signature: Jeff Casey