BM

**MECKLENBURG COUNTY**
**GROUNDWATER & WASTEWATER SERVICES**

**APPLICATION FOR A RESIDENTIAL SITE IMPROVEMENT PERMIT/ CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER SYSTEM, NEW WELL INSTALLATION, OR REPAIR OF EXISTING WELL**

1. SEPTIC / TYPE APPLICATION: ☐ N/A ☑ NEW SYSTEM ☐ ALTERATION ☐ REPAIR ☐ MODIFIED PLOT PLAN

2. WELL / TYPE APPLICATION: ☐ N/A ☐ NEW WELL ☐ MAJOR REPAIR ☐ ABANDONMENT

3. JOB LOCATION INFORMATION:

TAX PARCEL NUMBER: 137 09823
STREET ADDRESS: 6034 Lake Rd
CITY: Charlotte
STATE: NC ZIP: 28227
SUBDIVISION NAME:
LOT #: LOT SIZE (acres): .72
TOWNSHIP:

☐ 0-MECKLENBURG ☐ 3-CORNELIUS ☐ 6-HUNTERSVILLE
☐ 1-CHARLOTTE ☐ 4-PINEVILLE ☑ 7-MINT HILL
☐ 2-DAVIDSON ☐ 5-MATTHEWS

4. BUILDING INFORMATION:

BUILDING TYPE:

☐ SINGLE MOBILE HOME ☐ MODULAR HOME
☐ DOUBLE WIDE ☐ MULTIPLE FAMILY
☑ HOUSE ☐ OTHER _____

HEATED SQUARE FOOTAGE: 3000
NUMBER OF BEDROOMS: 4
NUMBER OF OCCUPANTS: 5
FOUNDATION TYPE:

☐ CONCRETE SLAB ☐ BASEMENT WITH PLUMBING
☑ CRAWL SPACE ☐ BASMENT WITH NO PLUMBING

5. IF PLANNING TO EXPAND OR ALTER THE EXISTING SEPTIC SYSTEM PLEASE COMPLETE THE FOLLOWING SECTION: ☐ N/A

NUMBER OF BEDROOMS TO BE ADDED: _____ NUMBER OF ADDITIONAL OCCUPANTS IN THE RESIDENCE: _____

6. WATER SUPPLY: ☑ MUNICIPAL ☐ PRIVATE WELL ☐ PUBLIC WELL ☐ SHARED WELL ☐ OTHER _____

7. PROPOSED USE OF WELL: ☐ N/A ☐ IRRIGATION ☐ POTABLE (DRINKING WATER) ☐ OTHER _____

8. PLEASE INDICATE AND RANK DESIRED SEPTIC SYSTEM TYPE(S) IN ORDER OF PREFERENCE *(1-MOST DESIRED 5-LEAST DESIRED)*:

☐ N/A ☒ ANY TYPE ☐ CONVENTIONAL ☐ ACCEPTED ☐ INNOVATIVE ☐ ALTERNATIVE ☐ OTHER _____

8A. RANK: ____ ____ ____ ____ ____

9. DO ANY OF THE FOLLOWING APPLY TO THE PROPERTY IN QUESTION? IF "YES" PLEASE ATTACH SUPPORTING DOCUMENTATION.

| | | | | | |
|---|---|---|---|---|---|
| BURIED CABLES, LANDFILLS, STUMPHOLES | ☐ YES | ☑ NO | GRADING/SOIL REMOVAL PERFORMED | ☐ YES | ☑ NO |
| EXISTING WASTEWATER (SEPTIC) SYSTEMS | ☐ YES | ☑ NO | JURISDICTIONAL WETLANDS | ☐ YES | ☑ NO |
| WELLS, SPRINGS, OR WATER LINES | ☐ YES | ☑ NO | APPROVAL REQUIRED BY ANY OTHER PUBLIC AGENCY | ☐ YES | ☑ NO |
| EASEMENTS OR RIGHT-OF-WAYS | ☐ YES | ☑ NO | WASTEWATER OTHER THAN DOMESTIC SEWAGE | ☐ YES | ☑ NO |
| CHEMICAL/PETROLEUM STORAGE TANKS | ☐ YES | ☑ NO | KNOWN UNDERGROUND CONTAMINATION | ☐ YES | ☑ NO |
| WASTE STORAGE | ☐ YES | ☑ NO | GROUNDWATER USE RESTRICTIONS/VARIANCES | ☐ YES | ☑ NO |

10. WHAT DATE WAS THE PROPERTY ORIGINALLY DEEDED AND RECORDED? 1979 ☐ UNKNOWN

11. WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY? _____ ☑ N/A

12. PROPERTY OWNER:

NAME: Shiloh Truelight Church
ADDRESS: 5614 Truelight church Rd
CITY: Charlotte
STATE: NC ZIP: 28227
HOME PHONE:
WORK PHONE: 704-573-1553
MOBILE PHONE: 704-535-2961
FAX: 866-337-8964

13. OWNER'S LEGAL REPRESENTATIVE, IF APPLICABLE:

NAME:
ADDRESS:
CITY:
STATE: ZIP: Same
HOME PHONE:
WORK PHONE:
MOBILE PHONE:
FAX:



MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
700 N. TRYON ST. SUITE 211 CHARLOTTE, NC 28202, OFFICE: 704-336-5103, FAX: 704-336-6894

Revised on: 7/1/08

001
12/30/22 FRI 03:13 FAX

Soil work for this lot has been completed under file #7889B

**14. SEPTIC SYSTEM PERMIT APPLICATION:**

If the information in this application is falsified, changed, or the site is altered, then the Improvement Permit and Authorization to Construct shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labelling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for either sixty (60) months or is non-expiring depending upon the documentation submitted: complete site plan = 60 months, complete plat = non-expiring. WL (Initial here for septic system applications)

**15. WELL PERMIT APPLICATION:**

If the information in this application is falsified, changed, or the site is altered, then the Well Permit shall become invalid. I have read this application and certify that the information provided herein is true, complete and correct. Authorized county and state officials are granted right of entry to conduct necessary inspections to determine compliance with applicable laws and rules. I understand that I am solely responsible for the proper identification and labelling of all property lines and corners and making the site accessible so that a complete site evaluation can be performed. The permit is valid for a period of twelve (12) months from the date of issuance.

_____ (Initial here for well applications)

**16. APPLICATION SIGNATURE SECTION:**

ONLY COMPLETE APPLICATIONS WILL BE PROCESSED. A proper signature is required in order to process your application. Please review the application carefully and sign in the space provided below.

Wendell Long _____ _____

Property Owner's or Owner's Legal Representative Signature — Date

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*OFFICE USE ONLY*

☐ SURVEY PLAT TO SCALE SUBMITTED ☐ SCALED SITE PLAN SUBMITTED ☐ UN-SCALED SITE PLAN SUBMITTED

SEPTIC APPLICATION FEES RECEIVED: $ 250.00 DATE FEE RECEIVED: 8-18-08

WELL APPLICATION FEES RECEIVED: $ _____ DATE FEE RECEIVED: _____

APPLICATION PROCESSED BY: Annette G

GWS FILE NUMBER ASSIGNED: 7889B

APPLICATION ID NUMBER ASSIGNED: 3805

COMMENTS:



MECKLENBURG COUNTY – GROUNDWATER & WASTEWATER SERVICES
700 N. TRYON ST. SUITE 211 CHARLOTTE, NC 28202, OFFICE: 704-336-5103, FAX: 704-336-6894

Revised on: 7/1/08

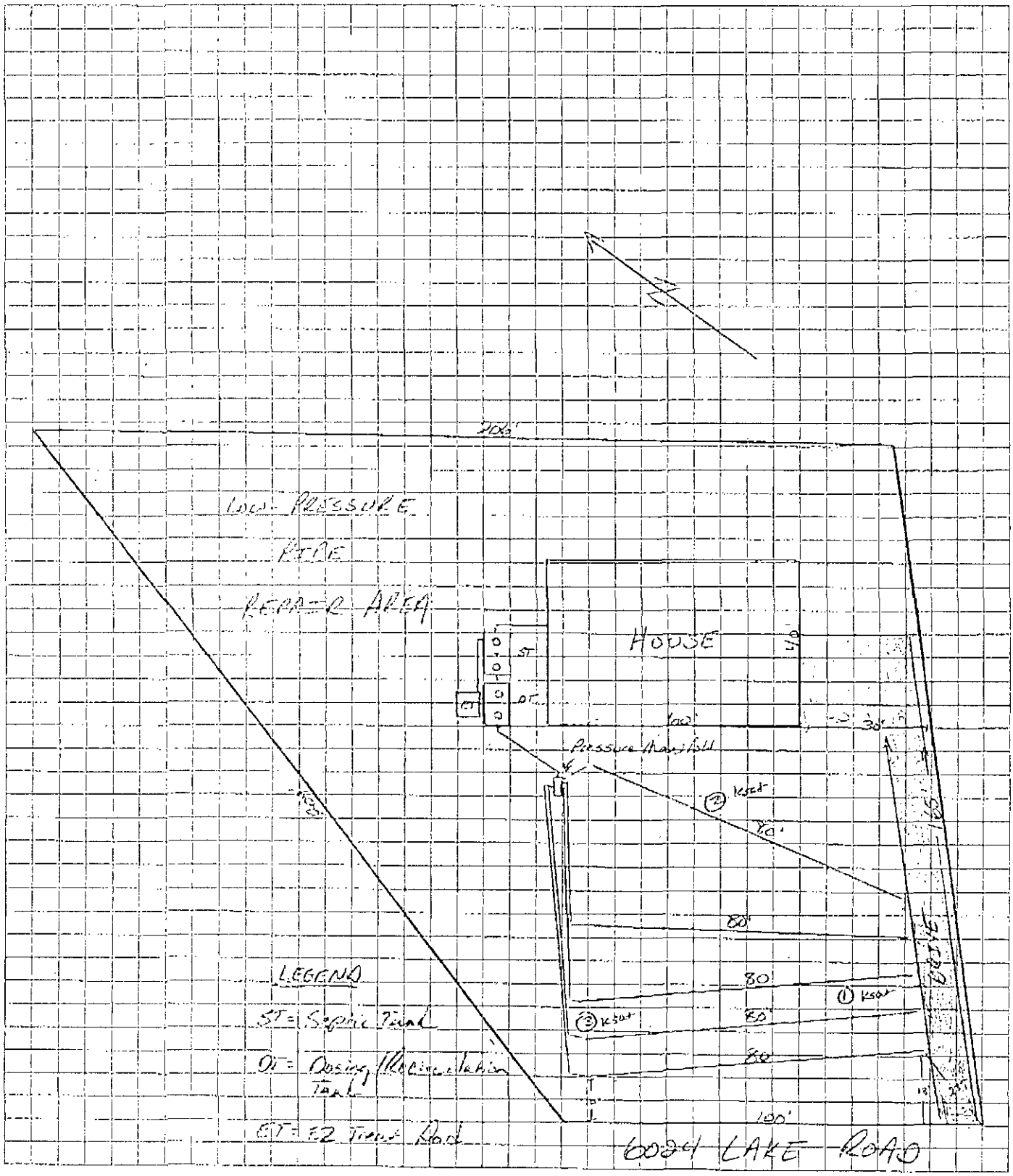
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Thompson Environmental Consulting, Inc.
114 Orchard Ridge Road
Locust, NC 28097-8748

File Number:

Location: 6024 Lake Road

Date: July 26, 2008



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

Sheet: 1 of 3
Property ID: 137-098-24
Lot #:
File #: 7042B
AppID: 2094

# SOIL/SITE EVALUATION
# for ON-SITE WASTEWATER SYSTEM

Owner: Shiloh Truelight Church
Applicant: Alan D. Little
Address: 8614 Truelight Church Road, Charlotte, N. C. 28227
Date Evaluated: 4/3/2007
Proposed Facility: Residence
Design Flow (.1949): 480gpd
Property Size: 1.2a
Location of Site: 6016 Lake 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 Structure/ Texture | SOIL MORPHOLOGY .1941 Consistence Mineralogy | b PROFILE FACTORS 1942 Soil Wetness/ Color | 1943 Soil Depth (IN.) | 1956 Sapro Class | 1944 Restr Horiz | Profile Class & LTAR |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LS, 8 | 0-6 | GR/SCL | FR/SEXP/SS/SP | >46" TO SOIL WETNESS | 27 | US | NONE | US, IV .1GPD/FT$^2$ LPP |
| | | 6-27 | SBK/C | FI/SEXP/S/P | | | | | |
| | | 27-46 | M/CL | FR/SEXP/SS/SP | | | | | |
| 2 | " | 0-4 | GR/SCL | " | >21" TO SOIL WETNESS | 17 | " | " | US, IV |
| | | 4-17 | SBK/C | FI/SEXP/S/P | | | | | |
| | | 17-21 | M/SL | VFI/SEXP/NS/NP | | | | | |
| 3 | " | 0-4 | GR/SCL | FR/SEXP/SS/SP | >30" TO SOIL WETNESS | 30+ | N/A | " | US |
| | | 4-18 | ABK/SBK/C | FI/SEXP/S/P | | | | | |
| | | 18-30 | SBK/ABK/C | VFI/EXP/VS/VP | | | | | |
| 4 | " | 0-2 | GR/SCL | FR/SEXP/SS/SP | >48" TO SOIL WETNESS | 48 | " | " | " |
| | | 2-30 | SBK/ABK/C | VFI/EXP/VS/VP | | | | | |
| | | 30-48 | M/CL | FR/SEXP/SS/SP | | | | | |
| 5 | " | 0-20 | COMPACTED | FILL | >55" TO SOIL WETNESS | 55 | " | " | PS, IV .2GPD/FT$^2$ |
| | | 20-24 | GR/SCL | FR/SEXP/SS/SP | | | | | |
| | | 24-55 | SBK/ABK/C | FI/SEXP/S/P | | | | | |
| 6 | " | 0-20 | COMPACTED | FILL | >43" TO SOIL WETNESS | 43 | " | " | PS, IV .15GPD/FT$^2$ |
| | | 20-25 | GR/CL | FR/SEXP/SS/SP | | | | | |
| | | 25-43 | SBK/ABK/C | FI/SEXP/S/P | | | | | |
| | | | | | SITE LTAR .18 CONV. .09 LPP | | | | |

| Description | Initial System | Repair System |
|---|---|---|
| Available Space (.1945) | PS | N/A |
| System Type(s) | Va | |
| Site LTAR | **0.45GPD/FT$^2$ | N/A |

**Based upon Hydraulic Conductivity Evaluation included in consultant report.

Other Factors (.1946):
Soil Evaluation By: W. R. Martin, LSS, 4/4/2007,
Others Present:
Site Classification (.1948): Provisionally Suitable
Site Evaluation By: David Cornelius, RS
Others Present:

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

Sheet: 3 of 3
File #: 7042B

# SOIL/SITE EVALUATION
# for ON-SITE WASTEWATER SYSTEM
# CONTINUED

| 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 (IN.) | .1956 Sapro Class | .1944 Restr Horiz | Profile Class & LTAR |
|---|---|---|---|---|---|---|---|---|---|
| 7 | LS, 8 | 0-10 | COMPACTED | FILL | >51" TO SOIL WETNESS | 51+ | N/A | NONE | PS, IV |
| | | 10-14 | GR/SCL | FR/SEXP/SS/SP | | | | | .15GPD/FT$^2$ |
| | | 14-40 | SBK/ABK/C | FI/SEXP/S/P | | | | | |
| | | 40-51 | " | VFI/EXP/VS/VP | | | | | |
| 8 | " | 0-18 | GR/SCL | FR/SEXP/SS/SP | " | 43 | " | " | PS, IV |
| | | 18-43 | SBK/ABK/C | FI/SEXP/S/P | | | | | .2GPD/FT$^2$ |
| | | 43-51 | M/CL | FR/SEXP/SS/SP | | | | | |
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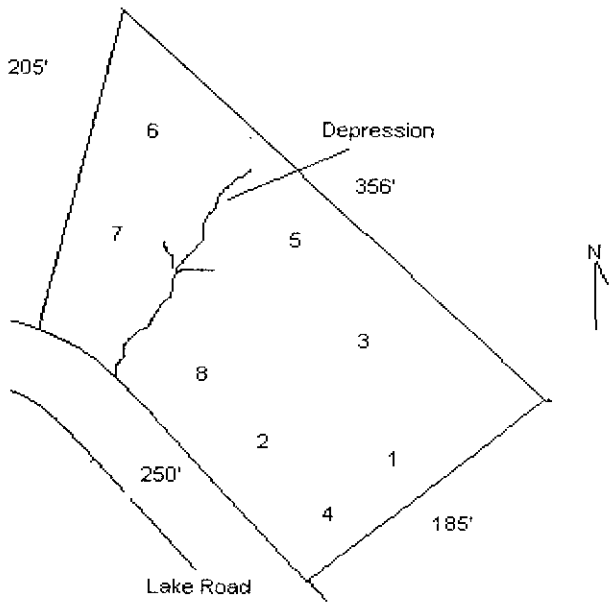
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**COMMENTS:** FILE #:

| 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**



# Residential Subsurface Wastewater Treatment and Disposal System Design

**for**

**6024 Lake Road**
**Charlotte, North Carolina**

Tax Parcel # 137-098-23
Mecklenburg County File #
July 26, 2008

GWS Septic System Design Review — Approved ☒ Disapproved ☐

GWS File #: 78893

Design Review: 10/2/08 TCT

Field Review: 10/16/08

*Projects are not considered "APPROVED" until both sections above

**Prepared for:**

Mr. Wendell Long
421 Clontz Road
Indian Trail, NC 28079
248-701-8616

LICENSED SOIL SCIENTIST
LARRY B. THOMPSON JR.
1287
STATE OF NORTH CAROLINA

**Prepared by:**

Larry Thompson, RS, PWS, LSS
Thompson Environmental Consulting, Inc.
114 Orchard Ridge Road
Locust, NC 28097-8748
Phone: 704-301-4881
Fax: 704-888-1496
larry@thompsonenv.com

NORTH CAROLINA REGISTERED SEAL 1208 SANITARIAN
LARRY B. THOMPSON, JR.

cc: Mr. David Cornelius, RS
Mecklenburg County Environmental Health

## Details

Thompson Environmental Consulting, Inc. (TEC) submitted a proposal to Mecklenburg County Environmental Health Groundwater and Wastewater Section on April 16, 2007 for a shallow placed Type III innovative system (**EZ*flow* 1203H**) for a 3-bedroom residence (Type IVa Low-Pressure Pipe repair). The house was to be placed at 6016 Lake Road while the septic drain field and its repair were to be placed on 6024 Lake Road.

Since that time, the property owner has requested that TEC pursue an approval for both a house and septic system at 6024 Lake Road. To that end, TEC has conducted a hydraulic assessment of the property and is proposing that the wastewater be pretreated in an effort to obtain a higher long term acceptance rate for the soils. It is our understanding that the repair area requirement of Paragraph (b) of 15A NCAC 18A .1945 is not applicable based upon the age of the lot. There is, however, repair area available for a low-pressure pipe system should the need ever arise.

At this time, TEC would like to request that an Improvement Permit be issued for a 4-bedroom residence that will be served by municipal water based upon the following proposal.

Location

The subject property is located at 6024 Lake Road near the town of Mint Hill. From Mint Hill, travel north on Wilgrove-Mint Hill Road, turn right onto Truelight Church Road and left onto Lake Road. 6024 Lake Road is located on the right.

References

*Laws and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A, Section .1900, Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section,* August 2007.

*Onsite Wastewater Treatment and Disposal Systems;* EPA 625/R-00/008 Design Manual, February 2002.

*Controlled Demonstration Number: CDWS 2006-02-R1*; North Carolina Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section, December 5, 2007.

*Innovative Wastewater System Approval: IWWS-93-2-R11*; North Carolina Department of Environment and Natural Resources, Division of Environmental Health, On-Site Wastewater Section, December 21, 2006.

## Plans and Specifications

***It should be noted that the contractor for this system must be certified by the E-Z Set Company, Inc. (contact Mike Stidham at: 252-442-4047).***

Septic Tank

- The septic tank shall meet State regulations and those of E-Z Set Company, Inc. made under E-Z Treat specifications.
- The septic tank must be watertight, structurally sound, and at least 1500 gallons in capacity.
- It is the responsibility of the septic contractor to thoroughly inspect the septic tank prior to accepting delivery to assure that the tank has had time to properly cure and is free of cracks or other structural deficiencies.

Pump/Recirculation Tank

- The pump/recirculation tank shall be approved by the state and E-Z Set Systems, Inc. specifically for the use with E-Z Treat system. The Pump/Recirculation tank shall house the E-Z Treat Recirculation Chamber.
- The pump/recirculation tank should be, at a minimum, 1800 gallons in capacity.
- An Effluent Bypass Valve shall be installed to transfer effluent from the media pod to the discharge chamber.
- The dosing/recirculation tank shall have an inlet sanitary tee.
- A Spin Filter Assembly shall be provided by E-Z Set Company and installed to return slough off to the Return Area.
- A Recirculation Pump shall be provided by E-Z Set Company and installed to charge the media filter(s).
- A Discharge Pump shall be provided by E-Z Set Company for discharge to the next system component (dispersal field). Different model pumps may be required to effectively charge the system. All model selections shall be approved by E-Z Set Company.
- The Control Panel from the E-Z Treat System will consist of: (1) Recirculation pump load sensor/alarm, (2) two on/off timers, (3) discharge pump alarm, (4) high/low water alarm, and (5) RMSYS monitoring system.
- RMSYS Monitoring System provides 24/7 monitoring and notification. This system is web-based and may be used to notify the operator, owner, and local health department of alarm notices.
- Separate control and alarm circuits will be provided.

E-Z Treat Media Pod (TS-I Treatment Standards)

- The E-Z Treat media pod is constructed of ¼ inch fiberglass with a smooth gel coat applied to the interior surfaces. The pod is 7 ft 9 inches square having a surface area of 60 square feet and is 34 inches in depth. The pod is fitted with a weatherproof cover secured with stainless steel screws. The pod is designed and constructed to

receive ambient air flow through vent ports in the pod and under the lid. The pod is designed and constructed to create channels down the sidewalls and across the bottom. The sidewall channels provide airspace to the bottom of the pod. The bottom channels provide total drainage of the treated effluent back to the recirculation chamber. Splash plates located at the top sidewalls prevent short-circuiting of the effluent.

- As the effluent enters the Pump/Recirculation Tank, the first compartment acts to further separate the septic tank effluent. The crossover through the baffle wall occurs at an elevation that will ensure a 24-hour emergency holding volume. The effluent entering the Recirculation Chamber is charged by the Recirculation Pump to the media pod. The effluent is sprayed over the media mattress using a spray manifold with 12 evenly spaced wide-angle spray nozzles. The nozzles are manufactured of brass with a free passage of 0.0625 diameter. The Recirculation Pump is housed in the Recirculation Chamber and doses at a rate of 2 minutes on, 4 minutes off. The resulting spray will deliver 20-25 gpm through the media pod for a total dose of 40 to 50 gallons. The unit is set for a maximum of 6 discharges per day. The system is set to recirculate effluent through the media pod on an average of 40 times prior to discharge.
- The effluent is sprayed onto a mattress measuring 7.75 feet square by 2 feet thick. The mattress is fabricated from a non-biodegradable, chemically resistant, loose weave polypropylene material. The openings in the weave allows for effluent and air flow while containing the media. The media inside the mattress is a uniform styrene material. The lightweight, non-biodegradable material spheres have a specific gravity of approximately 0.02. The biological contact surface area of the media-filled mattress is 85,000 square feet. The specific gravity of this material is (1) light enough to prevent compaction which results in a loss of effective surface area, and (2) provides a reduction in channeling across the media (short-circuiting).
- Effluent passes through the media and enters the channeled bottom of the pod. The effluent gravity feeds back to the Recirculation Tank through a 4-inch pipe. This effluent passes through the Spin Filter and slough is returned to the first compartment of the Pump/Recirculation Tank. The effluent from the Spin Filter continues to be recirculated.
- The Effluent Bypass Valve is piped to intercept filtered wastewater and deliver it to the recirculation chamber or the discharge chamber, based on liquid levels.
- Treatment Performance Standards (TS-I): Tertiary treatment with nitrogen reduction.
- The E-Z Treat system shall be designed, installed and operated to meet the following standards:
    1. Biochemical Oxygen Demand, 5-day ($BOD_5$) <15 mg/l
    2. Total Suspended Solids (TSS) <15 mg/l
    3. Ammonia-Nitrogen ($NH_4$-N) <10 mg/l
    4. Fecal Coliform Bacteria Densities < 10,000 colonies/100 ml (MPN)
       Standards are arithmetic means, except fecal coliforms is a geometric mean.

Hydrostatic Tank Check

- All tanks shall undergo a 24 hour hydrostatic check after installation and backfill. A water level change of 1/2 inch or more, within a 24" riser, over 24 hours, or visual observation of leakage shall be cause for failure of the water tightness test. Initial water level shall be to 2" above the riser/adapter seam.

Pipes and Fittings

- All discharge piping, connectors and supply lines should be made of Sch. 40 PVC.
- All joints must be properly "welded" utilizing the appropriate PVC cement for each application.

Pressure Manifold

- The pressure manifold shall be contained within an adequately sized box/vault that is designed to allow for drainage of effluent that may accumulate in it during flushing and head pressure adjustments. The box should be placed upon a gravel base.
- A gate valve shall be provided at the Pressure Manifold box to allow for final pressure adjustment (2 foot of head pressure as per design).
- There shall be 5 taps (SCH. 80 PVC - direct thread or saddle), ½ inch in diameter, each to have a true union ball valve that will allow for future removal/replacement.
- The connecting pipe between the Pressure Manifold taps and the drain field shall be constructed of PVC.

Drain Field Installation

- The drain field has been previously laid out on-site utilizing metal stemmed flags. **Once the drain field area has been approved by the MCHD, the property owner/builder should visibly mark this area and isolate it from construction traffic. The proposed drain field area must be left undisturbed to prevent the septic and building permits from being revoked.**
- Under no circumstances shall any construction take place within the drain field area while the soil is in a wet condition. If the installer has doubts as to whether or not the drain field area is dry enough to begin construction, the MCHD should be contacted for permission to proceed with the installation.
- The specified system is a Type III Innovative, specifically the **Infiltrator chamber nitrification trench system**.
- The drain field consists of (5) lateral trenches to be constructed 3 foot wide by 80 feet in length.
- Trenches to be installed at 9 feet on-center.
- The maximum trench depth for this system shall be 29 inches.
- The laterals are to be installed on contour with the land, keeping the individual trench bottoms level from beginning to end.
- The trenches should be left open for the final inspection by the MCHD.

Final Landscaping

- Finished soil cover must be at least 6 inches deep over the entire drain field area.
- The drain field shall be shaped to shed rainwater and be free from low spots.
- The drain field area should be planted with grass as soon as possible to prevent erosion. The soil should be properly tilled, limed (if necessary) and fertilized prior to planting. After applying grass seed, the area should be heavily mulched with straw or other suitable material.

Utility Conflicts

- The builder and property owner must take special care in planning for water, power, gas, telephone and cable lines. These utilities shall be kept clear of all parts of the septic system and its proposed repair area. Improper planning for underground utilities can negatively impact the installation and, in some cases, cause irreparable damage. If there are any questions regarding preferred routes, contact the MCHD as soon as possible.

## Maintenance

Operation and Maintenance

The designed system is classified as a Type V wastewater treatment and disposal system and requires ongoing maintenance. State regulations require that a system of this type be managed by a person certified by the North Carolina Department of Environment and Natural Resources to operate subsurface wastewater systems (Section .1961 Maintenance of Sewage Systems). A "Maintenance Contract" between the system owner and a Certified Operator will be required by the UCHD prior to the issuance of a final system approval or Operation Permit.

- The minimum inspection/maintenance and reporting frequency for a Type V system is once every 6 months by the Certified Operator. The local health department is required to inspect the system once (1) a year.
- At least once per year the ORC shall, at a minimum, measure and report to the health department:
    a. sludge and scum levels in the septic tank,
    b. sludge level and grease presence in the pump tank,
    c. drain field pump delivery rate (drawdown test), and
    d. drain field dosing volume and measure or calculate average pump run time.
- The ORC shall also conduct other additional observations, measurements, monitoring, and maintenance activities as specified in the Operation Permit and as recommended by the manufacturer.
- It should be noted that the septic and dosing tanks may need to be pumped every 4 years (in some situations, the tank may need to be pumped more frequently). At a minimum the tanks should be pumped when the solids within the septic tank reach an elevation that is equivalent to 1/3 of the volume of the tank.

- Effluent filters should be inspected semi-annually. When it becomes necessary to clean the effluent filters, the filters should be removed and the accumulated debris washed back into the septic or pump tank – not onto the lawn.
- All piping and valves should be inspected semi-annually for damage and corrections/repairs made immediately.
- The pump and float controls/switches should be inspected semi-annually to assure proper operation
- The drain field area should be maintained to prevent over growth of vegetation. Any damp areas, leakages or malfunctions should be addressed immediately.

Effluent Sampling

- E-Z Treat Treatment System effluent samples shall be collected by the ORC. These samples shall be taken for at least a 6-month period, after an initial 2-month start-up period.
- Samples shall be taken from the second compartment of the septic tank as well as the from the drain field dosing tank. The pump discharge piping should be fitted with a 2 inch tee with a gate valve to facilitate effluent sampling from the drain field dosing tank.
- The system shall be tested for effluent $CBOD_5$, TSS, NH3-N, TKN, NOx-N, and fecal coliform bacteria.
- All samples shall be obtained, preserved, and analyzed in accordance with 40 CFR 136. A state wastewater laboratory shall analyze samples for the treatment performance standards specified.
- All costs of sampling during the initial monitoring period shall be the responsibility of E-Z Treat Treatment Systems.

## Design Specifics

| | |
|---|---|
| Daily Design Flow: | 480 GPD – 4 bedroom house |
| Septic Tank Size: | 1500 gallons |
| Dosing/Recirculation Tank Size: | 1800 gallons |
| Effluent Loading Rate: | Design = 0.3 gpd/ft$^2$ |
| Drain Field Type: | EZflow 1203H |
| Supply Length and Diameter: | 160 feet of 2 in. SCH 40 PVC |
| Distribution Method: | Pressure Manifold |
| Drain Lines: | (5) 3' W x 33" D x 80' L |
| Dosing Volume: | 240 gallons per dose |
| Flow Rate Through System: | 27.4 gallons per minute |
| Elevation Head: | 2 feet |
| Pressure Head: | 2 feet |
| Pump Requirements: | 29.4 GPM at 4.0 TDH<br>(2 GPM added for Vapor Lock) |
| Depth of Water Pumped: | 11.43" |
| Pump Run: | 8.76 minutes |
| Check Valve: | Yes |
| Vapor Lock Hole: | Yes |
| EZ Treat Recirculation Info: | 6.5 Times ADF |
| EZ Treat Cycles per Day: | 50 |
| EZ Treat Volume Per Dose | 63 Gallons |
| Recirculation Timer "ON": | 2.5 Minutes |
| Recirculation Timer "OFF": | 27 Minutes |

**Designer:** Larry Thompson, RS, LSS

**Client:** Wendell Long
**Project:**
**Project No.:**
**Location:** 6024 Lake Road
**Subject: Year Round Residential Properties (3 to 12 Bedrooms)**
**Date:** 7/28/2008

**Assumptions And Calculations:**

| | |
|---|---|
| **Number of Bedrooms:** | 4 **Bedrooms** |
| **Average Daily Flow per Bedroom:** | 120 **Gallons/Day** |
| **Design Flow:** | 480 **Gallons/Day** |
| **Minimum Septic Tank Volume:** | 1,500 **Gallons** |
| **Septic Tank Detention:** | 3.13 **Days** |
| **E-Z Treat Pods Required:** | 1 **Pod** |
| **E-Z Treat Re-Circulation Ratio:** | 6.5 **Times ADF** |
| **Total E-Z Treat Flow per Day:** | 3,120 **Gallons** |
| **E-Z Treat Re-Circulation Cycles per Day:** | 50 **Cycles** |
| **E-Z Treat Volume per Dose:** | 63 **Gallons** |
| **Re-Circulation Timer On:** | 2.5 **Minutes** |
| **Re-Circulation Timer Off:** | 27 **Minutes** |
| **Minimum Pump/Re-Circulation Tank Volume:** | 1,000 **Gallons** |
| **Spin Filter Gallons Returned:** | 720 **Gallons/Day** |
| **Spin Filter Return Setting:** | 6 **GPM** |
| **E-Z Treat Surface Area:** | 60 **Square Feet** |
| **E-Z Treat Loading Rate:** | 8 **GPD/Square Foot** |

**Pump Selection per Manufacturer:**

Thompson Environmental Consulting, Inc.
114 Orchard Ridge Road
Locust, NC 28097-8748

Location: 6024 Lake Road

Date: July 26, 2008

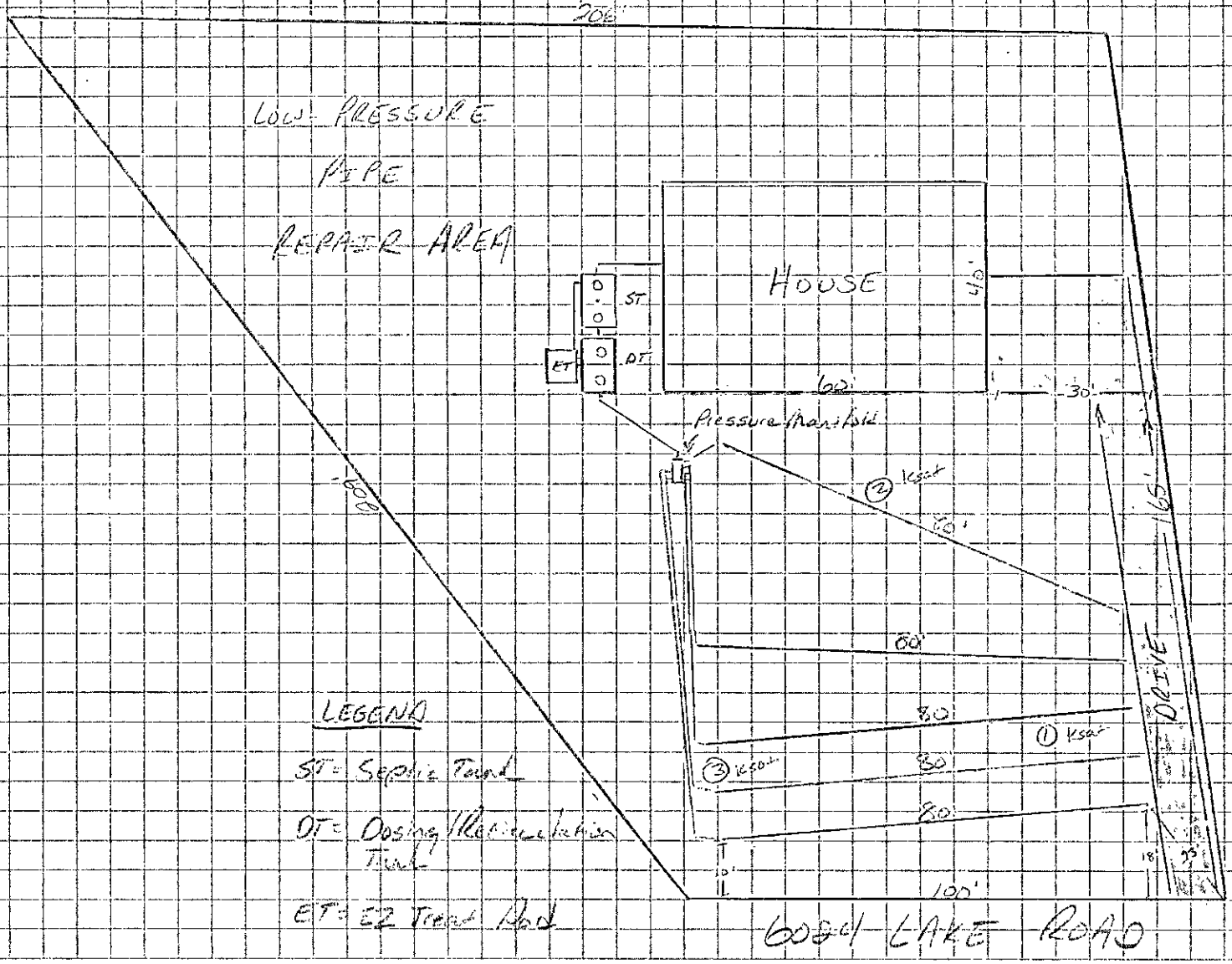
**GWS Septic System Design Review**

**GWS File #:** 7889B **Approved** **Disapproved**

**Design Review:** 10/2/08 TGT ☒ ☐

**Field Review:** 10/16/09 ☒ ☐

***Projects are not considered "APPROVED" until both sections above are completed and indicate an APPROVED status.**



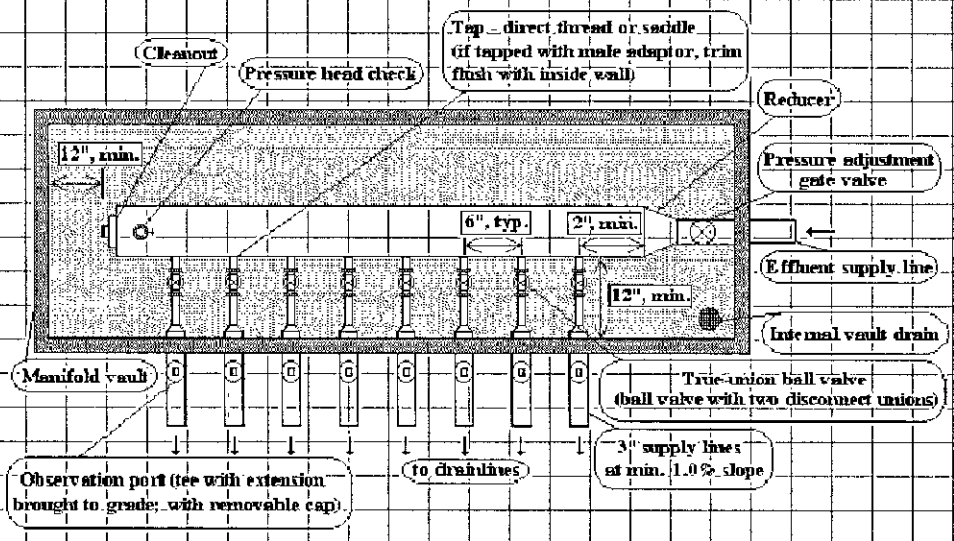
Thompson Environmental Consulting, Inc.
114 Orchard Ridge Road
Locust, NC 28097

File Number:

Location: 6024 Lake Road

Date: July 26, 2008

# Recommended Pressure Manifold Design



**Subject:** FW: Lake Road lots
**From:** "wendell" <wendell@desus.biz>
**Date:** Fri, 1 Aug 2008 17:21:24 -0400
**To:** <larry@thompsonenv.com>

**From:** Tony Johnson [mailto:tcjlawyer@bellsouth.net]
**Sent:** Friday, August 01, 2008 4:11 PM
**To:** wendell@desus.biz
**Subject:** Lake Road lots

Wendell,

Attached are the deeds which evidence that the lots have been combined since at least 1972 and 1979, respectively.

Tony

**Untitled.pdf** **Content-Type:** application/pdf
**Content-Encoding:** base64

of the County of Mecklenburg and State of North Carolina, part_ies_ of the second part:

WITNESSETH, That the said part_y_ of the first part in consideration of ONE HUNDRED DOLLARS AND OTHER VALUABLE CONSIDERATIONS to _him_ paid by the part_ies_ of the second part, the receipt of which is hereby acknowledged, ha_s_ bargained and sold, and by these presents do_ grant, bargain, sell and convey unto the said part_ies_ of the second part, _their_ heirs, successors or assigns, all that certain lot or parcel of land, situate, lying and being in _Clear Creek_ Township, Mecklenburg County, State of North Carolina, and more particularly described and defined as follows:

Being all of Lots 1 and 2 in Block L of the subdivision known as WILGROVE FARMS as the same is shown on a map thereof recorded in the Office of the Register of Deeds for Mecklenburg County, North Carolina, in Map Book 6 at Page 395, refence to said map being made for a more particular description.

Being the same property which was conveyed to Eric Lotan Woods and wife, Margaret R. Woods, and Eric Leon Woods by deed of Warren D. Blair, Executor, dated February 27, 1970, and recorded in the Office of the Register of Deeds for Mecklenburg County, North Carolina, in Book 3181 at Page 402. This deed is given for the purpose of removing the said Eric Leon Woods, and vesting complete title in the said Eric Lotan Woods and wife, Margaret R. Woods.

PRESENTED FOR REGISTRATION
79 FEB 2 PM 4 11
CHARLES R. CROWDER
REGISTER OF DEEDS
MECKLENBURG CO., N.C.

TO HAVE AND TO HOLD the aforesaid lot_ or parcel of land and all privileges and appurtenances thereto belonging to the said part_ies_ of the second part, _their_ heirs, successors or assigns, to _their_ only use and behoof forever.

And the said part_y_ of the first part for _himself, his_ heirs, successors, executors and administrators, covenant with the said part_ies_ of the second part, _their_ heirs, successors and assigns, that _he is_ seized of said premises in fee and ha_s_ the right to convey the same in fee simple, that the same are free and clear from all encumbrances, and that _he_ will warrant and defend the said title to the same against the lawful claims of all persons whomsoever.

HOWEVER, there is excepted from these warranties all such valid and enforceable easements, conditions and restrictions as may appear of record and the lien of ad valorem taxes for the current year, which the grantee(s) hereby assumes and agrees to pay.

IN TESTIMONY WHEREOF, The said part_y_ of the first part to these Presents ha_s_ hereunto set _his_ hand_ and seal_ the day and year above written.

Signed, Sealed and Delivered in presence of

Eric Leon Woods (Seal)

(Seal)

(Seal)

STATE OF NORTH CAROLINA, COUNTY OF MECKLENBURG

I, Louise H. Patterson a Notary Public for said County and State, do hereby certify that ERIC LEON WOODS personally appeared before me this day, and acknowledged the due execution of the foregoing (or annexed) instrument.

Witness my hand and notarial seal, this 1 day of February A. D., 19 79

My Commission Expires 1-24-81 Louise H. Patterson Notary Public

STATE OF NORTH CAROLINA, COUNTY OF MECKLENBURG

The foregoing (or annexed) Certificate of Louise H. Patterson a Notary Public for said County and State, is certified to be correct.

This 2nd day of February A. D., 19 79

Charles R. Crowder Reg. of Deeds, By: Linda B. Adams Deputy

Presented for registration o'clock, M., on the day of A. D., 19

and verified Register of Deeds.

Drawn By: Warren D. Blair, Attorney at Law

Mail To: Grantee; Route 1, Box 440-A 28212

E-Z Set Company
1700 Davis Street
Rocky Mount, NC 27803

Larry Thompson
Thompson Environmental Consulting, Inc.
Locust, NC 28097
Attention: Mr. Larry Thompson

Subject: 6024 Lake Road (Mecklenburg County)

E-Z Set Company has reviewed your proposed plan for the E-Z Treat TSI system for the above referenced property. As designed, the E-Z Treat system will perform to the parameter listed below provided it is installed, operated and maintains to the manufactures specifications.

Flow Characteristic

Design Flow 480 GPD

Influent Parameters

BOD5 <= 300 mg/l

TSS<=200 mg/l

TKN<=100 mg/l

Effluent Parameters

CBOD5<= 15 mg/l

TSS<= 15 mg/l

Fecal Coliform<= 10000 cfu

Ammonia-Nitrogen(NH4-N)<10mg/l

These parameters are based on no other environmental factors being introduced to the waste stream to be treated. Not to be limited to but to include chemotherapy agents, excessive cleaners, paints and paint thinners, petroleum products, antibiotics, non biodegradable products, ect.

Thank You,

Michael Stidham, VP
E-Z Set Company
703-408-2916

THOMPSON ENVIRONMENTAL CONSULTING, INC.
*WATER ♦ WASTEWATER ♦ WETLANDS*

# HYDRAULIC CONDUCTIVITY EVALUATION

6024 Lake Road
Tax Record: 137-098-23
Mint Hill, North Carolina

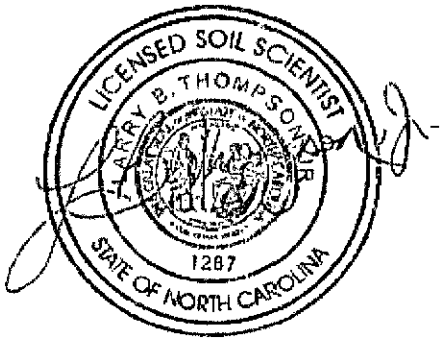
Prepared For:

Wendell Long
6002 Lake Rd
Charlotte, NC 28227-5525

Prepared By:

Thompson Environmental Consulting, Inc.
114 Orchard Ridge Road
Locust, NC 28097-8748

July 3, 2008




114 ORCHARD RIDGE ROAD• LOCUST, NC • 28097-8748
PHONE: 704-301-4881 • FAX: 704-888-1496
E-MAIL: LARRY@THOMPSONENV.COM
WEB: WWW.THOMPSONENV.COM

## INTRODUCTION

This Hydraulic Conductivity Evaluation report is submitted to assist in a site assessment for 6024 Lake Road, Mint Hill, North Carolina. A soil and site evaluation of the combined parcels 137-098-23 and 137-098-24 was performed by Mecklenburg County Environmental Health (MCHD File No. 7042B) on April 4, 2007 revealed a limited area of suitable group IV soils on parcel 137-098-23. Shortly thereafter, Thompson Environmental Consulting, Inc. (TEC) was contracted by Shiloh Truelight Church to design a system for 6016 Lake Road that utilized the soils identified on 6024 Lake Road. A proposal was prepared by TEC and approved by the MCHD in April of 2007.

Since that time the property owner has requested that TEC investigate the possibility of reducing the size of the previously approved drain field area in the hopes that a drain field and house site might be located at 6024 Lake Road. Based upon this request, TEC recommended that a hydraulic study of the soils be undertaken and a proposal for a TS-I pretreated system be made to reduced the overall square footage for the septic drain field. To this end, the hydraulic conductivity (Ksat) of the soil was measured to assist with the design; the results of the investigation follow.

## SOIL

The lot was investigated on July 1 and 2, 2008 in the area previously approved for a septic drain field. Three saturated hydraulic conductivity tests were performed in shallow Bt Horizons (40 inches deep) which is typically the most hydraulically limited horizon. A compact constant-head permeameter (Amoozemeter) was used to measure the Ksat values.

## RESULTS

The result of the combined saturated hydraulic conductivity tests in the Bt horizon is 2.336 gpd/ft$^2$. Given the fact that the septic tank effluent will be pretreated, a LTAR of 0.45 gpd/ft$^2$ (approximately 20% of the measured Ksat) is recommended for this lot.

## HYDRAULIC CONDUCTIVITY STUDY
Lake Road

Date: 7/1/2008
Location: Ksat 1

**SET UP**

| | cm | inches |
|---|---|---|
| Hole Depth (cm): | 101.6 | 40.0 |
| Reference (cm): | + 10.2 | 4.0 |
| Head (cm): | - 15.2 | 6.0 |
| CHT Tube(s) setting: | = 96.5 | |

Valve Setting: x
1-ON 2-ON

| | cm | inches |
|---|---|---|
| Target Water Level: | 86.4 | 34.0 |
| Beginning Water Level: | 87.6 | 34.5 |
| Ending Water Level: | 87.6 | 34.5 |

Hole diameter (cm): 5.0
Hole radius (r): 2.5
coefficient A: 0.00129237

**NOTE:** Readings based on Ending Water Level

Coversion Factor (C.F.): 20.0

| Water Reading | change in water level | Chamber C.F. | clock time (min) | Elapsed Time (min) | (hr) | Q (cm3/hr) | K (cm/hr) | K (in/hr) | K (gpd/sq foot) |
|---|---|---|---|---|---|---|---|---|---|
| 42 | 0.0 | 20.0 | 65.0 | | | | | | |
| 39.1 | 2.9 | 20.0 | 75.0 | 10.00 | 0.167 | 348.0 | 0.4497 | 0.1771 | 2.649 |
| 36.4 | 2.7 | 20.0 | 85.0 | 10.00 | 0.167 | 324.0 | 0.4187 | 0.1649 | 2.466 |
| 33.6 | 2.8 | 20.0 | 95.0 | 10.00 | 0.167 | 336.0 | 0.4342 | 0.1710 | 2.558 |
| 30.8 | 2.8 | 20.0 | 105.0 | 10.00 | 0.167 | 336.0 | 0.4342 | 0.1710 | 2.558 |
| 27.9 | 2.9 | 20.0 | 115.0 | 10.00 | 0.167 | 348.0 | 0.4497 | 0.1771 | 2.649 |
| 25.2 | 2.7 | 20.0 | 125.0 | 10.00 | 0.167 | 323.4 | 0.4179 | 0.1645 | 2.462 |
| 22.5 | 2.7 | 20.0 | 135.0 | 10.00 | 0.167 | 324.0 | 0.4187 | 0.1649 | 2.466 |
| | | | | | | **Final Ksat** | **0.429** | **0.169** | **2.526** |

## HYDRAULIC CONDUCTIVITY STUDY
Clontz Road - Lot 1

Date: 7/1/2008
Location: Ksat 2

**SET UP**

| | cm | inches |
|---|---|---|
| Hole Depth (cm): | 101.6 | 40.0 |
| Reference (cm): | + 10.2 | 4.0 |
| Head (cm): | - 15.2 | 6.0 |
| CHT Tube(s) setting: | = 96.5 | |

Valve Setting: x
1-ON 2-ON

| | cm | inches |
|---|---|---|
| Target Water Level: | 86.4 | 34.0 |
| Beginning Water Level: | 88.9 | 35.0 |
| Ending Water Level: | 88.9 | 35.0 |

Hole diameter (cm): 5.0
Hole radius (r): 2.5
coefficient A: 0.00148574

**NOTE:** Readings based on Ending Water Level

Coversion Factor (C.F.): 20.0

| Water Reading | change in water level | Chamber C.F. | clock time (min) | Elapsed Time (min) | (hr) | Q (cm3/hr) | K (cm/hr) | K (in/hr) | K (gpd/sq foot) |
|---|---|---|---|---|---|---|---|---|---|
| 36.1 | 0.0 | 20.0 | 60.0 | | | | | | |
| 33.3 | 2.8 | 20.0 | 70.0 | 10.00 | 0.167 | 336.0 | 0.4342 | 0.1710 | 2.558 |
| 30.4 | 2.9 | 20.0 | 80.0 | 10.00 | 0.167 | 348.0 | 0.4497 | 0.1771 | 2.649 |
| 27.6 | 2.8 | 20.0 | 90.0 | 10.00 | 0.167 | 336.0 | 0.4342 | 0.1710 | 2.558 |
| 24.9 | 2.7 | 20.0 | 100.0 | 10.00 | 0.167 | 324.0 | 0.4187 | 0.1649 | 2.466 |
| 22 | 2.9 | 20.0 | 110.0 | 10.00 | 0.167 | 348.0 | 0.4497 | 0.1771 | 2.649 |
| 19.3 | 2.7 | 20.0 | 120.0 | 10.00 | 0.167 | 323.4 | 0.4179 | 0.1645 | 2.462 |
| 16.5 | 2.8 | 20.0 | 130.0 | 10.00 | 0.167 | 336.0 | 0.4342 | 0.1710 | 2.558 |
| | | | | | | **Final Ksat** | **0.434** | **0.171** | **2.556** |

## HYDRAULIC CONDUCTIVITY STUDY
Lake Road

Date: 7/2/2008
Location: Ksat 3

**SET UP**

| | cm | inches |
|---|---|---|
| Hole Depth (cm): | 101.6 | 40.0 |
| Reference (cm): | + 10.2 | 4.0 |
| Head (cm): | - 15.2 | 6.0 |
| CHT Tube(s) setting: | = 96.5 | |

Valve Setting: x
1-ON 2-ON

| | cm | inches |
|---|---|---|
| Target Water Level: | 86.4 | 34.0 |
| Beginning Water Level: | 87.6 | 34.5 |
| Ending Water Level: | 86.4 | 34.0 |

Hole diameter (cm): 5.0
Hole radius (r): 2.5
coefficient A: 0.00113623

**NOTE:** Readings based on Ending Water Level

Coversion Factor (C.F.): 20.0

| Water Reading | change in water level | Chamber C.F. | clock time (min) | Elapsed Time (min) | Elapsed Time (hr) | Q (cm3/hr) | K (cm/hr) | K (in/hr) | K (gpd/sq foot) |
|---|---|---|---|---|---|---|---|---|---|
| 35.8 | 0.0 | 20.0 | 52.0 | | | | | | |
| 33.3 | 2.5 | 20.0 | 62.0 | 10.00 | 0.167 | 300.0 | 0.3409 | 0.1342 | 2.008 |
| 30.9 | 2.4 | 20.0 | 72.0 | 10.00 | 0.167 | 288.0 | 0.3272 | 0.1288 | 1.928 |
| 28.3 | 2.6 | 20.0 | 82.0 | 10.00 | 0.167 | 312.0 | 0.3545 | 0.1396 | 2.088 |
| 25.8 | 2.5 | 20.0 | 92.0 | 10.00 | 0.167 | 300.0 | 0.3409 | 0.1342 | 2.008 |
| 23.3 | 2.5 | 20.0 | 102.0 | 10.00 | 0.167 | 300.0 | 0.3409 | 0.1342 | 2.008 |
| 21 | 2.3 | 20.0 | 112.0 | 10.00 | 0.167 | 275.4 | 0.3130 | 0.1232 | 1.844 |
| 18.6 | 2.4 | 20.0 | 122.0 | 10.00 | 0.167 | 288.0 | 0.3272 | 0.1288 | 1.928 |
| | | | | | | **Final Ksat** | **0.327** | **0.129** | **1.926** |

## HYDRAULIC CONDUCTIVITY STUDY

Date:
Location:

**SET UP**

| | cm | inches |
|---|---|---|
| Hole Depth (cm): | 0.0 | |
| Reference (cm): | + 0.0 | |
| Head (cm): | - 0.0 | |
| CHT Tube(s) setting: | = 0.0 | |

Valve Setting: x
1-ON 2-ON

| | cm | inches |
|---|---|---|
| Target Water Level: | 0.0 | 0.0 |
| Beginning Water Level: | 0.0 | |
| Ending Water Level: | 0.0 | |

Hole diameter (cm): 5.0
Hole radius (r): 2.5
coefficient A: #DIV/0!

**NOTE:** Readings based on Ending Water Level

Coversion Factor (C.F.): 20.0

| Water Reading | change in water level | Chamber C.F. | clock time (min) | Elapsed Time (min) | Elapsed Time (hr) | Q (cm3/hr) | K (cm/hr) | K (in/hr) | K (gpd/sq foot) |
|---|---|---|---|---|---|---|---|---|---|
| | 0.0 | 20.0 | | | | | | | |
| | 0.0 | 20.0 | | 0.00 | 0.000 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 0.0 | 20.0 | | 0.00 | 0.000 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 0.0 | 20.0 | | 0.00 | 0.000 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 0.0 | 20.0 | | 0.00 | 0.000 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 0.0 | 20.0 | | 0.00 | 0.000 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 0.0 | 20.0 | | 0.00 | 0.000 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 0.0 | 20.0 | | 0.00 | 0.000 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | 0.0 | 20.0 | | 0.00 | 0.000 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| | | | | | | **Final Ksat** | **#DIV/0!** | **#DIV/0!** | **#DIV/0!** |

1 - 2.526
2 - 2.556
3 - 1.926

7.008/3 = 2.336

(x) 2.336 = 0.4
X = 0.179

17.9%

**Thompson Environmental Consulting, Inc.**
**114 Orchard Ridge Road**
**Locust, NC 28097-8748**
**704-301-4881**

SHEET _____ OF _____

COUNTY: Mack
TAX ID:

OWNER: W. Long
LOCATION: 6024 Lake Road

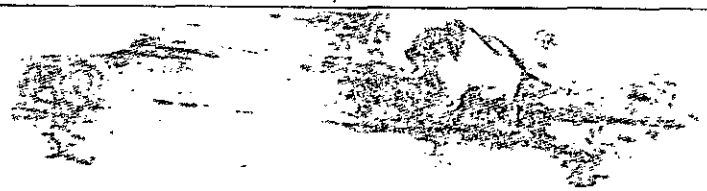
DATE: 7-1-08
7-2-08

| PROFILES | | Ksoil1 | KSoil2 | Ksoil3 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LANDSCAPE POSITION | .1940 | ls | ls | ls | | | | | | | |
| SLOPE (%) | .1940 | 1 | 1 | 7 | | | | | | | |
| **HORIZON 1 DEPTH** | .1943 | 0-16 | 0-14 | 0-18 | | | | | | | |
| TEXTURE | .1941 (a)(1) | Sol | Sol | Sol | | | | | | | |
| CONSISTENCE | .1941 | VF | VF | Fr | | | | | | | |
| STRUCTURE | .1941 (a)(2) | Gr | Gr | 3F | | | | | | | |
| CLAY MINERALOGY | .1941 (a)(3) | 1:1 | 1:1 | 1:1 | | | | | | | |
| **HORIZON 2 DEPTH** | .1943 | 16-40 | 14-40 | 18-40 | | | | | | | |
| TEXTURE | .1941 (a)(1) | C | C | C | | | | | | | |
| CONSISTENCE | .1941 | VF | VF | VF | | | | | | | |
| STRUCTURE | .1941 (a)(2) | SBk | SBk | SBk | | | | | | | |
| CLAY MINERALOGY | .1941 (a)(3) | Sm | Sm | Sm | | | | | | | |
| **HORIZON 3 DEPTH** | .1943 | | | | | | | | | | |
| TEXTURE | .1941 (a)(1) | | | | | | | | | | |
| CONSISTENCE | .1941 | | | | | | | | | | |
| STRUCTURE | .1941 (a)(2) | | | | | | | | | | |
| CLAY MINERALOGY | .1941 (a)(3) | | | | | | | | | | |
| **HORIZON 4 DEPTH** | .1943 | | | | | | | | | | |
| TEXTURE | .1941 (a)(1) | | | | | | | | | | |
| CONSISTENCE | .1941 | | | | | | | | | | |
| STRUCTURE | .1941 (a)(2) | | | | | | | | | | |
| CLAY MINERALOGY | .1941 (a)(3) | | | | | | | | | | |
| SOIL WETNESS | .1942 | | | | | | | | | | |
| RESTRICTIVE HORIZON | .1944 | | | | | | | | | | |
| SAPROLITE | .1943/.1956 | | | | | | | | | | |
| CLASSIFICATION | .1948 | | | | | | | | | | |
| L.T.A.R. (gpd/ft$^2$) | .1955 | | | | | | | | | | |

OTHER FACTORS (.1946):
AVAILABLE SPACE (.1945):
SITE CLASSIFICATION (.1948):
EVALUATED BY:

**SITE LTAR (gpd/ft$^2$):**
SYSTEM TYPE:
OTHERS PRESENT:

COMMENTS: X Ksoils ran @ 90°



# 6024 Lake Road
# Ksat Locations



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 #: **30003805** GWS File #: **7889B** Tax Parcel #: **137-098-23**

- 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):** 10/19/2014

Type of Installation: Residential - New System Lot Number: 0

Structure Type: HOUSE Size ($ft^2$): 3000 # Bedrooms: 4 # Occupants: 5

Building Foundation: Crawl Space Water Supply: Municipal

**II. Initial System Type:** Innovative **System Classification:** Va

Initial System Specifications:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Design Flow (gpd): | 480 | LTAR ($gpd/ft^2$): | 0.45 | Septic Tank Size (gal): | 1500 | Pump Tank Size (gal): | 1800 |
| Trench Width (ft): | 3 | Trench Spacing (ft): | 9 | Absorption Area ($ft^2$): | 1067 | Total Trench Length (ft): | 356 |
| Maximum Trench Depth (in): | 29 | Depth of Media (in): | N/A | Distribution Device: | Manifold (LPP Distri | | |

**III. Repair System Type:** N/A **System Classification:**

Repair System Specifications:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Design Flow (gpd): | 0 | LTAR ($gpd/ft^2$): | 0 | Septic Tank Size (gal): | 0 | Pump Tank Size (gal): | 0 |
| Trench Width (ft): | 0 | Trench Spacing (ft): | 0 | Absorption Area ($ft^2$): | 0 | Total Trench Length (ft): | 0 |
| Maximum Trench Depth (in): | 0 | Depth of Media (in): | 0 | Distribution Device: | N/A | | |

**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: _____
Print Name

Signature: _____ Signature: _____

Date Issued: 10/19/2009

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 #: **30003805** GWS File #: **7889B**

**IV. Permit Conditions/Comments:**

- This type of septic system requires an inspection once every year 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.
- 100% repair area is not required for this property. However, the maximum feasible area shall be allocated for a repair area.
- This Improvement Permit is being issued based on a supplemental soil investigation performed by staff from our office.
- The septic system shall be installed in accordance with the plans submitted by the wastewater system design consultant.
- This septic system design requires pretreatment equipment to be installed. This equipment shall be installed as specified 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.
- Upon completion of the project the system designer shall provide Groundwater & Wastewater Services with a letter certifying that the system was installed in accordance with the approved design.
- Flow from all gutters and downspouts shall be directed not to discharge water onto or across any part of the septic system.
- The septic system shall be located at least 10 feet from any foundation drain.
- Install according to plans on file submitted by Larry Thompson. A full set of house plans must be on file before CA will be issued.

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: _____

Date Issued: 10/19/2009

Owner/Legal Agent: _____
Print Name

Signature: _____