LandDesign.

urban design planning civil engineering branding landscape architecture

December 03, 2013

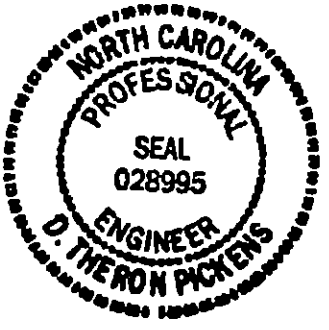
To: Kimberly Garrett, REHS
Tim Cooksey

From: Theron Pickens

Ref: Final system certification of plan completion for
Tim Cooksey, 15328 June Washam Road, Davidson, North Carolina

Dear Ms. Garrett,

This letter is to certify, based upon periodic inspections by myself, and/or others under my supervision, the above referenced project with pressure septic system was completed in accordance with the approved design.



Sincerely,
LandDesign, Inc.

D. Theron Pickens, PE for LandDesign, Inc.
Principal

223 North Graham Street
Charlotte, NC 28202

V: 704.333.0325
F: 704.332.3246

www.LandDesign.com

Washington DC
Charlotte NC
Raleigh NC
Dallas TX

JACOBS ON-SITE DEVELOPMENT, INC.

Toney C. Jacobs, MS, LSS, CPSS

Licensed by the North Carolina Board for Licensing of Soil Scientists
Certified by South Carolina Dept. of Natural Resources as a Soil Classifier
Certified by the American Registry of Certified Professionals in Agronomy, Crops and Soils

168 Broadbill Drive
Mooresville, NC 28117
(704) 662-9845 (704) 582-9219 cell
toneycjacobs@gmail.com

November 25, 2013

To: Kimberly Garrett, REHS
Tim Cooksey

From: Toney Jacobs

Ref: Final system inspection and certification of plan completion for
Tim Cooksey, 15328 June Washam Road, Davidson - MCHD file #5221B

System components were checked interim on August 27, 2013 and I performed my final inspection on November 22, 2013. Installation was completed as permitted on the plan.

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

OPERATION PERMIT for an ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

File #: 5221B Permit #: 30006048 Tax Parcel #: 007-431-16

Property Owner: Tim Cooksey

Job Location Address: 15328 Jim Washam

City: Davidson State: NC Zip Code: 28036

Operation Permit Issuance Date: 11/21/2013 Contractor Name: Brad Russell

Permitted Design Flow: 600 GPD

Liquid Capacity of Septic Tank: 1500 gallons

Liquid Capacity of Dosing Tank: 1500 gallons

Effluent Pump Model: Meyers P102

Drainfield Installation ☐ N/A

Trench Depth: 24a inches

Trench Width: 3 feet

Line Spacing: 9 feet (O.C.)

Total line length: 514 feet

# of Lines: 4 @ 122, 135, 134, 123 feet

Depth of Media: 12 inches (Type) Infiltrator @ Lock 4

Depth of Cover: 12 inches

Distribution Device: pressure manifold

Bed Installation *(For Repair Installations ONLY.)* ☒ N/A

Bed Depth: _____ inches

Bed Width: _____ feet

Total line length: _____ feet

# of Lines: _____ @ _____ feet

Depth of Media: _____ inches (Type) _____

Depth of Cover: _____ inches

Distribution Device: _____

Water Supply Source

☐ Municipal ☒ Private Well ☐ Community Well

☐ Other _____

System Installation Setbacks

Distance from Building Foundation: 75 feet

Distance from Property Line: 210 feet

Distance from Water Supply Source: 750 feet

Inspection Dates

Tank(s) Inspected: 8/27/2013

Excavation Inspected: 8/27/2013

Pump & Controls Inspected: 11/21/2013

SKETCH OF SYSTEM INSTALLATION
(As-Built Drawing)

Installed As Designed Per Toney Jacobs 3/9/2013

The undersigned has inspected the Septic Tank System described above, and certifies it has been ☒ installed ☐ altered ☐ repaired ☐ as detailed in the plot above in accordance with the permit issued and meets the provisions of 15A NCAC 18A. 1900, "Laws and Rules for Sewage Treatment and Disposal Systems" in effect on the date of issuance of the permit. The issuance of this Operation Permit does not in any way guarantee that the system will operate properly or relieve any person now or hereafter owning, controlling, or using such system from any liability resulting from the failure of the system to operate properly. This document is issued subject to those restrictions and conditions shown on the permit(s) and the provisions of 15A NCAC 18A. 1900 in addition to those listed below under "Comments." This document shall be null and void if any information contained in the application is untrue or if any additions are made to the property which would increase the requirements for said system.

Notice: Disturbance of the designated repair area may result in the Suspension or Revocation of this permit.

Comments: System Classification & Type: IIIb, 25% reduction, pump, n/a, n/a IQW4 IQ4W

DENR Authorized Agent: Kim Garrett, REHS Signature: Kim Garrett REHS

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

OPERATION PERMIT for an
ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

File #: 5221B Permit #: 30006048 Tax Parcel #: 007-431-16

Property Owner: Tim Cooksey

Job Location Address: 15328 Jute Washam Rd

City: Davidson State: NC Zip Code: 28036

OPERATION PERMIT CONDITIONS:

I. Performance: System shall perform in accordance with 15A NCAC 18A .1961.

II. Monitoring: System shall be monitored as required by 15A NCAC 18A .1961.

III. Maintenance: Ground absorption sewage treatment and disposal systems shall be checked, and the contents of the septic tank removed, periodically from all compartments, to ensure proper operation of the system. The contents shall be pumped whenever the solids level is found to be more than 1/3 of the liquid depth in any compartment.

IV. Operation: System shall be operated in accordance with 15A NCAC 18A .1961.

System Classification: TVb

*Operation Permits for Type V and VI systems expire five (5) years from the date of issuance (in accordance with Table V(a)). The system owner must contact GWS six (6) months prior to expiration for permit renewal.

Subsurface system operator required: Yes ☐ ~~No~~ ☒

☐ This type of system requires the system owner to maintain a contract with a certified operator to perform system inspection, maintenance, and reporting as required in 15A NCAC 18A .1961. and Table V(a). The system owner is responsible for all fees associated with these services.

☐ System does not require inspection by GWS on a routine frequency.

☒ System requires inspection by GWS once every five (5) years. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every three (3) years. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every twelve (12) months. The system owner is responsible for all fees associated with the inspection.

☐ System requires inspection by GWS once every six (6) months. The system owner is responsible for all fees associated with the inspection.

V. Other:

DENR Authorized Agent: Kim Garrett, REHS Date: 11/21/2013

Signature: Kim Garrett, REHS

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

INSTALLATION APPROVAL for an ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

File #: 5221B Permit #: 30006048 Tax Parcel #: 027-431-16

Property Owner: _____

Job Location Address: 15328 Jane Vasham

City: Davidson State: NC Zip Code: 28036

Installation Approval Issuance Date: 8-23-13

Permission is hereby given to ☒ install ☐ alter ☐ repair an on-site wastewater treatment & and disposal system, with subsurface soil absorption and effluent discharge, as specified herein at the described location. This approval is granted based upon the application information submitted to our office. All work shall be completed on or before 8-23-13, after which date this approval shall be null and void. The system shall meet all of the construction requirements of 15A NCAC 18A. 1900 which are in effect on the date of granting this approval. An **Operation Permit** must be obtained from the Mecklenburg County Health Department before any system can be covered up or placed into service. The issuance of this permit does not in any way guarantee that the system anticipated to be constructed will operate properly, or relieve any person now of hereafter owning, controlling or using such system from any liability resulting from the failure of the system to operate properly.

***NOTICE: This system shall not be installed while soils are in a wet condition.**

Permitted Design Flow: 600 GPD

Site LTAR: 0.3 GPD/ft² (For new installations only.)

Liquid Capacity of Septic Tank: 1500 gallons

Liquid Capacity of Dosing Tank: 1500 gallons

Drainfield Design ☐ N/A

Trench Depth: <36 inches

Trench Width: 3 feet

Line Spacing: 9 feet (O.C.)

Total line length: 514 feet

# of Lines: 4 @ 122, 135, 134, 123 feet

Depth of Media: 12 inches (Type) Infiltrator Quick4

Distribution Device: PM

Bed Design *(For Repair Installations ONLY.)* ☒ N/A

Bed Depth: _____ inches

Bed Width: _____ feet

Total line length: _____ feet

# of Lines: _____ @ _____ feet

Depth of Media: _____ inches (Type) _____

Distribution Device: _____

Water Supply Source

☐ Municipal ☒ Private Well ☐ Community Well

☐ Other _____

Minimum System Setbacks

Distance from Building Foundation: >5 feet

Distance from Property Line: >10 feet

Distance from Water Supply Source: >100 feet

SKETCH OF SYSTEM LAYOUT
(Proposed Layout)

Install per consultant's design

Comments: System Classification & Type: IIIb,

DENR Authorized Agent: Jacob Presley Signature: _____

5221B

MECKLENBURG COUNTY HEALTH DEPARTMENT App#6048

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: 007-431-15

STREET ADDRESS: 15335 Jake Alexander Rd

CITY: Davidson

STATE: NC ZIP: 28036

SUBDIVISION NAME: Cambray Woods

LOT #: 4 LOT SIZE (acres): 2.51 Ac + offsite

TOWNSHIP:

○ MECKLENBURG ○ CORNELIUS ⊘ HUNTERSVILLE
⊘ DAVIDSON ○ CHARLOTTE ○ PINEVILLE
○ MATTHEWS ○ MINT HILL

4. **BUILDING INFORMATION:**

BUILDING TYPE:

○ SINGLE MOBILE HOME ○ MODULAR HOME
○ DOUBLE WIDE ○ MULTIPLE FAMILY
⊘ HOUSE ○ OTHER _____

HEATED SQUARE FOOTAGE: 8K

NUMBER OF BEDROOMS: 5

NUMBER OF OCCUPANTS: 10

FOUNDATION TYPE:

○ CONCRETE SLAB ○ BASEMENT WITH PLUMBING
⊘ CRAWL SPACE ○ BASEMENT 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 Tot J

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?** 2004 ☐ UNKNOWN

11. **WHAT IS THE ANTICIPATED CLOSING DATE FOR THIS PROPERTY?** end March 17 ☐ N/A

12. **PROPERTY OWNER:**

NAME: Tim Cooksey

ADDRESS: 16937 Elm Row Ct.

CITY: Davidson

STATE: NC ZIP: 28036

WORK PHONE: 704 892-4513

MOBILE PHONE: _____

FAX: _____

E-MAIL: _____

13. **OWNER'S LEGAL REPRESENTATIVE, IF APPLICABLE:**

NAME: Tovey Lacks

ADDRESS: 125 Broadbill Dr

CITY: Mooresville

STATE: NC ZIP: 28117

WORK PHONE: 704 662 9845

MOBILE PHONE: 704 562 9219

FAX: _____

E-MAIL: _____

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

Revised on: 12/15/10

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 labeling 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.

_____ (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 labeling 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. A PROPOSED PLOT PLAN is required to be submitted with each application.

_____ 2/28/13

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

OFFICE USE ONLY

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

SEPTIC APPLICATION FEE RECEIVED: $ 250 DATE FEE RECEIVED: 2/28/13

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

APPLICATION PROCESSED BY: lws

GWS FILE NUMBER ASSIGNED: 5221B

APPLICATION ID NUMBER ASSIGNED: 6048

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: 12/15/10

File #: 5223B

PROPOSED PLOT PLAN

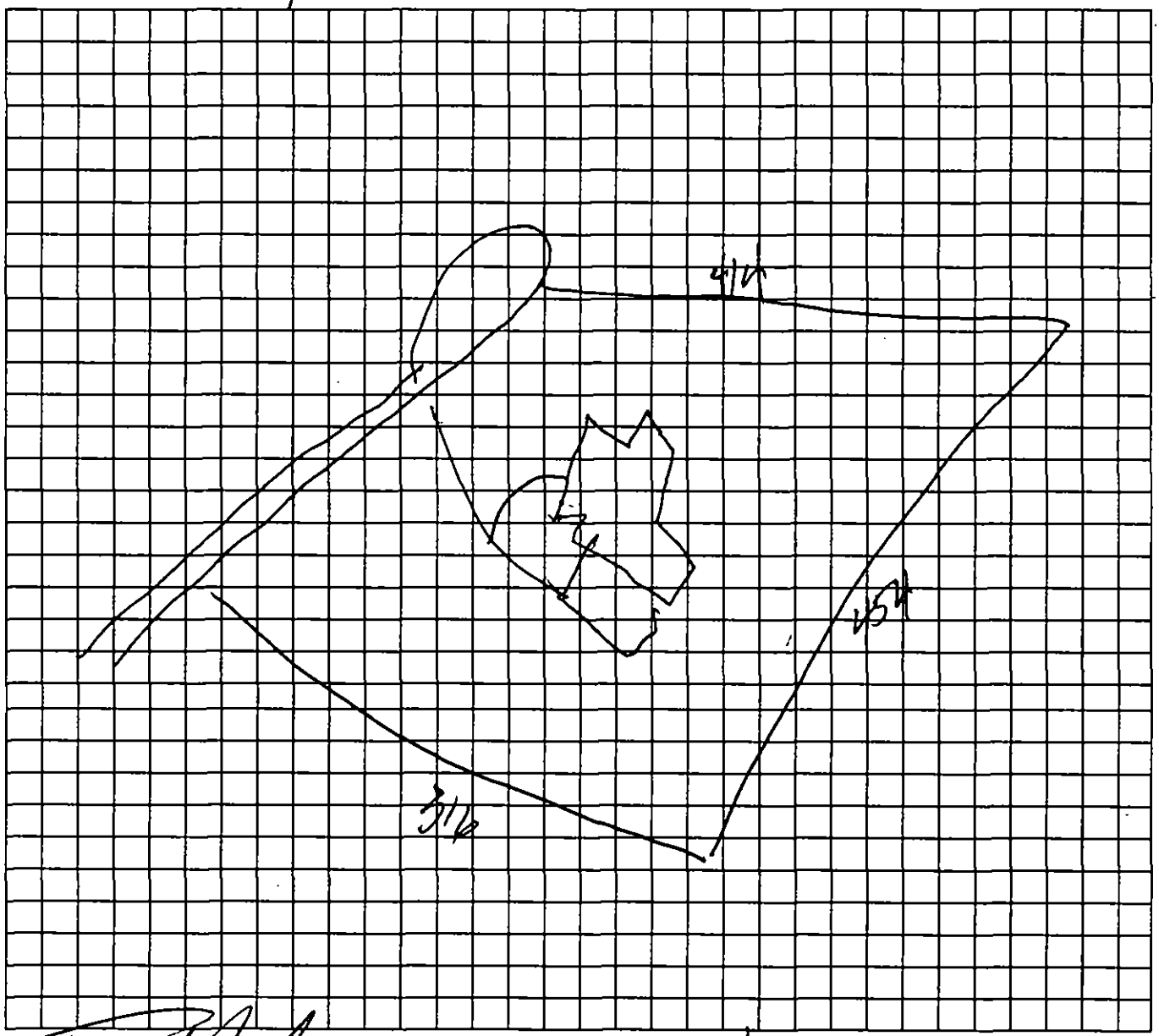
A drawing showing the locations of the following items is required: existing and proposed property lines with dimensions, easements or right-of-ways, proposed building pad(s) or existing building footprint(s), all appurtenances (garage, driveway, deck, pool, etc.), location of existing or proposed well(s), location of existing or proposed sewer lines and sewage disposal systems, surface water bodies, and any aboveground or underground storage tanks. Provide names for all roads that adjoin the property.

Street Address: 15326 Vance Wilson Rd

Tax Parcel #: 007-431-15

Subdivision Name: Cranbrook Woods

Lot #: 4



Property Owner's or Owner's Legal Representative Signature

2/28/13
Date

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

Revised on: 12/15/10

FEE: 200.00
DATE: 12/10/2013

CONSTRUCTION AUTHORIZATION FOR AN ON-SITE WASTEWATER TREATMENT & DISPOSAL SYSTEM

MECKLENBURG COUNTY
GROUNDWATER & WASTEWATER SERVICES

FILE NUMBER: 5221B

PERMIT NUMBER: 30006048

PARCEL NUMBER: 00743116

JOB LOCATION INFORMATION

ADDRESS: 15328 JUNE WASHAM RD

CITY: DAVIDSON **STATE: NC** **ZIP:** 28036

ISSUED TO: Tim Cooksey

CONSTRUCTION AUTHORIZATION ISSUANCE DATE: 3/5/2013

CONSTRUCTION AUTHORIZATION CONDITIONS

1. WASTEWATER SYSTEM CONSTRUCTION AND INSTALLATION MUST MEET ALL CONDITIONS AND SPECIFICATIONS AS SET FORTH IN IMPROVEMENT PERMIT NUMBER 30006048, AND THE ATTACHED SITE PLAN WITH SYSTEM DETAILS. CONSTRUCTION AND INSTALLATION MUST ALSO MEET ALL REQUIREMENTS SET FORTH IN THE RULES GOVERNING SANITARY SEWAGE COLLECTION, TREATMENT, AND DISPOSAL AND ANY OTHER APPLICABLE RULES AND LAWS.

2. AN INSTALLATION APPROVAL MUST BE SECURED PRIOR TO INSTALLATION OF THE SEPTIC TANK SYSTEM. THE INSTALLER OF THE SYSTEM SHALL BE A REGISTERED SEPTIC TANK CONTRACTOR WITH THE MECKLENBURG COUNTY HEALTH DEPARTMENT.

3. ANY ALTERATION IN SITE OR SOIL CONDITIONS (INCLUDING LOCATION OF STRUCTURES AND APPURTENANCES) OR MODIFICATION IN USE, DESIGN WASTEWATER FLOW, OR WASTEWATER CHARACTERISTICS AS SPECIFIED IN THE ASSOCIATED IMPROVEMENT PERMIT AND APPLICATION, MAY SUBJECT THIS CONSTRUCTION AUTHORIZATION AND ASSOCIATED PERMIT(S) TO REVOCATION.

4. THIS CONSTRUCTION AUTHORIZATION AS PROVIDED IN G.S. 130A-335(f) AND G.S. 130A-336(b) SHALL BE VALID FOR A PERIOD EQUAL TO THE VALIDITY OF THE IMPROVEMENT PERMIT, NOT TO EXCEED 60 MONTHS.
   *CONSTRUCTION AUTHORIZATION EXPIRATION DATE: 3/15/2018

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 #: **30006048** GWS File #: **5221B** Tax Parcel #: **007-431-16**

- 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):** 3/15/2018

Type of Installation: Residential - New System Lot Number: 4

Structure Type: HOUSE Size (ft^2): 8000 # Bedrooms: 5 # Occupants: 10

Building Foundation: Crawl Space Water Supply: Private Well

II. Initial System Type: Pump to Approved **System Classification:** IIIb

Initial System Specifications:

Design Flow (gpd):	600	LTAR (gpd/ft^2):	0.3	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1500	Total Trench Length (ft):	500
Maximum Trench Depth (in):	36	Depth of Media (in):	12	Distribution Device:	Pressure Manifold		

III. Repair System Type: PPBPS (pressurized) **System Classification:** IVa

Repair System Specifications:

Design Flow (gpd):	600	LTAR (gpd/ft^2):	0.3	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1000	Total Trench Length (ft):	333
Maximum Trench Depth (in):	36	Depth of Media (in):	12	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: Jacob Presley

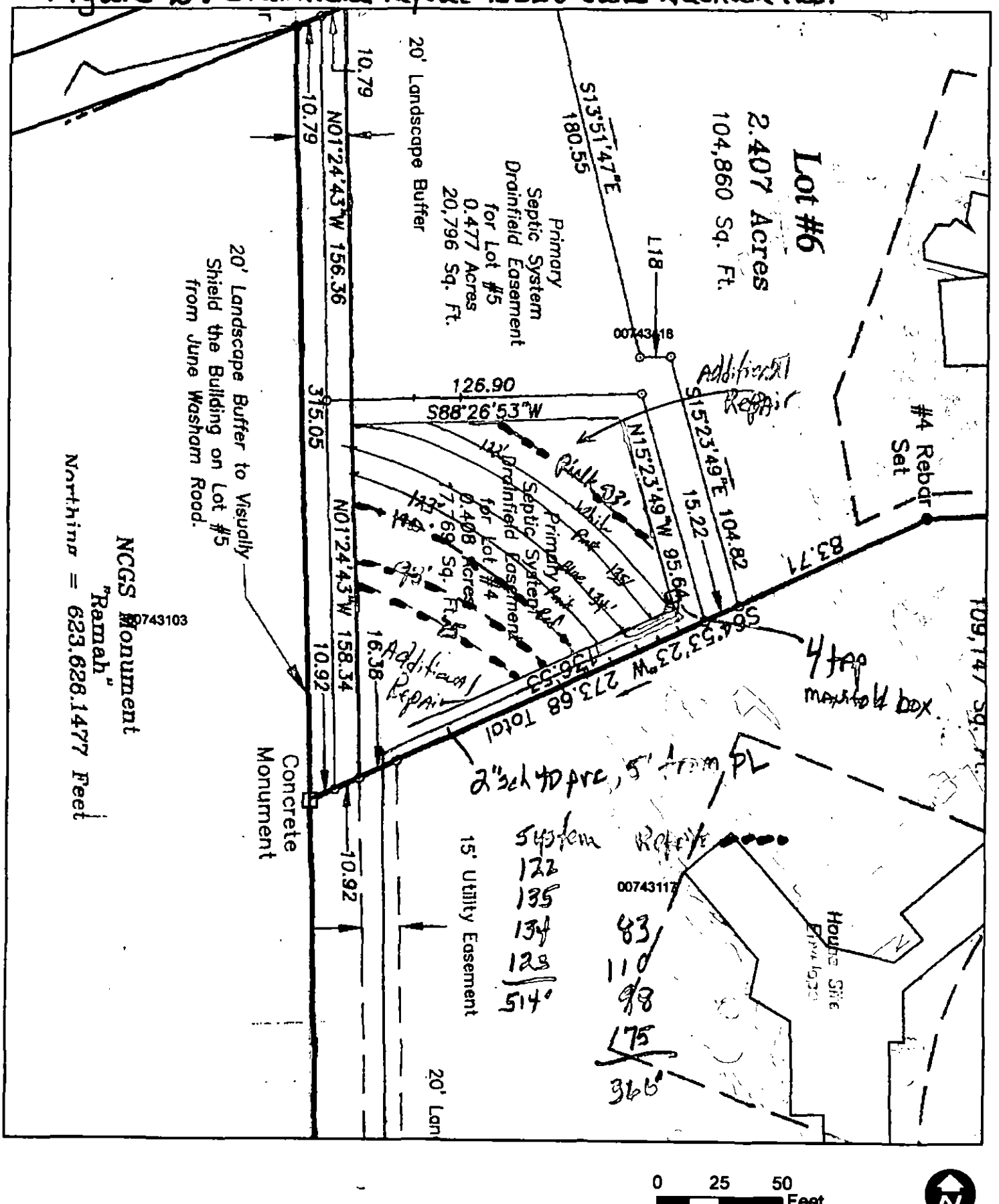
Signature: JAP

Date Issued: 3/15/2013

Owner/Legal Agent: Tony C Jacobs, LSS
Print Name

Signature: Tony C Jacobs

Figure 2: Drainfield layout 15328 June Washam Rd.



PUMP TO A REMOTE DRAINFIELD
RESIDENTIAL LOW PRESSURE MANIFOLD DISTRIBUTION
25% REDUCTION SEPTIC SYSTEM
FOR
SUBSURFACE WASTEWATER DISPOSAL
15328 June Washam Road
Davidson, NC 28036

MCHD FILE #5221B
Tax Parcel #00743116

GWS Septic System Design Review

GWS File #: 5221B Approved ☒ Disapproved ☐

Design Review: ☒ ☐

Field Review: ☒ ☐

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

Prepared for:
Tim Cooksey
18939 Elm Row Court
Davidson, North Carolina 28036
704 892-4513

Prepared by:
Theron Pickens, PE
Land Design
223 N. Graham Street
Charlotte, NC 28202
704 376-7777
tpickens@landdesign.com

Toney C. Jacobs, LSS
Jacobs On-Site Development, Inc.
168 Broadbill Drive
Mooresville, North Carolina 28117
704 662-9845
toneycjacobs@gmail.com

Soil Scientist
Toney C. Jacobs
1063
State of North Carolina

March 9, 2013

Copy: Jacob Presley, REHS, LSS (704 336-5440)
Mecklenburg County Health Dept.-IWWS
700 N. Tryon Street
Charlotte, N.C. 28202
jacob.presley@mecklenburgcountync.gov

North Carolina Professional Seal 028995 Engineer Theron Pickens 03-12-13

Theron Pickens, PE

Toney C. Jacobs, LSS

BACKGROUND

This lot had been previously determined to have unsuitable soil. It was rechecked and this most recent evaluation concurred that soils on-site were not usable for septic. The house will be a 5-bedroom so the design was made to pump to an off-site where good soils were located. Water supply will be an on-site well. The off-site soil was evaluated to a depth of 48 inches and found to have usable soil. Soils described by Jacob Presley, LSS with MCHD and Toney Jacobs.

The proposed system will be a Type III(b) and does not require a maintenance contract with a certified operator. Plan does require engineering certification because of horizontal run and this is included in design. Off-site recording had been done prior to the 2008 initial permitting.

APPLICATION INFORMATION

1. Prepared for:

Owner:	Tim Cooksey LKW Properties, LLC 18937 Elm Row Court Davidson, North Carolina 28036 704 892-4513
Engineer:	Theron Pickens, PE Land Design Charlotte, NC 28202 704 376-7777
Soil Scientist and Designer:	Toney C. Jacobs, LSS Jacobs On-Site Development, Inc. 704 662-9845

2. Water supply is provided by an on-site well located in front of home. It is greater than 50' from any part of the septic.
3. Facility to be served by the proposed system is a 5-bedroom single family residence with crawl space.

LOCATION

The property is located off June Washam Road, on the right, near the end.

REFERENCES

Law and Rules for Sewage Treatment and Disposal Systems, 15A NCAC 18A, Section .1900, Department of Environmental Health and Natural Resources, August 1, 1998.

CONSTRUCTION NOTES

Figure 1 shows site plan with house, tank and pipe run to off-site septic area. Both the initial and repair systems areas are remotely located and should not be subject to any construction activities occurring on the lot. Access to the drainfield will be only for installation. This should preserve this valuable asset to home construction. Should questions arise about this report, ask! The site is currently maintained as mowed lawn and not subject to any clearing. The owner of the home where the easement is located has asked that anyone working on-site notify her before beginning work!

PLANS AND SPECIFICATIONS FOR SPECIFIC SYSTEM COMPONENTS

Septic Tank

1. The 1500 gallon State approved 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 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 equivalent to a Zabel Model A1800 or other State approved unit supplied by the tank manufacturer.

Pumping Tank

1. The 1500 gallon State approved 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 (Simplex Panel). 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 home) 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. Approved pressure bell may be used with compatible panel 8, 9, 10 above.
12. Watertight testing per .1900 rules shall be required on two piece pump tanks.
13. Wiring between the pumping tank and the house should meet State and local code requirements.

Pipe and Fittings

1. All pipes and fitting 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 manifold box.
5. Approved manifold and gate valve box, either constructed or commercially purchased. Reference upon request.

CONSTRUCTION INSTALLATION

Site Preparation

No site preparation is required for installation

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. 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.

25% Reduction Laterals

1. Install per cited reference material and this plan. Figure 2 shows details and colors of septic lines.
2. Trenches shall be 36" wide equivalent, and 9' minimum on center. Trenches shall be "level" from end to end.
3. Trench bottoms should not exceed 36 inches on the high side.

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 manifold.

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.

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. The adjacent septic field has considerable settling. New installation should be compacted and mounded to prevent settling from occurring on this field.

QUALITY ASSURANCE REQUIREMENTS

The system must be installed by a qualified and competent contractor. Critical stages of the installation which should be checked are:

1. System layout staked with 3 flags per line.
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 600 gallons per day. Homeowners 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 III(b) and DOES NOT require a maintenance contract with a certified operator. Management is recommended, but is not required by code. If not managed homeowner should check or be aware of the following:

- 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.
- Pressure head for manifold should be checked and adjusted 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.

HOMEOWNER SUGGESTIONS

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 homeowner 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, toilets and showers to reduce the rate at which the water flows from the fixture.
7. Dishwashers and washing machines should only be run with full loads.
8. 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.
9. Roof drains, basement sump pumps, foundation drains, and other such drains should not empty into or onto the surface above the septic tank. These drains should be directed to another part of the lot away from tanks.

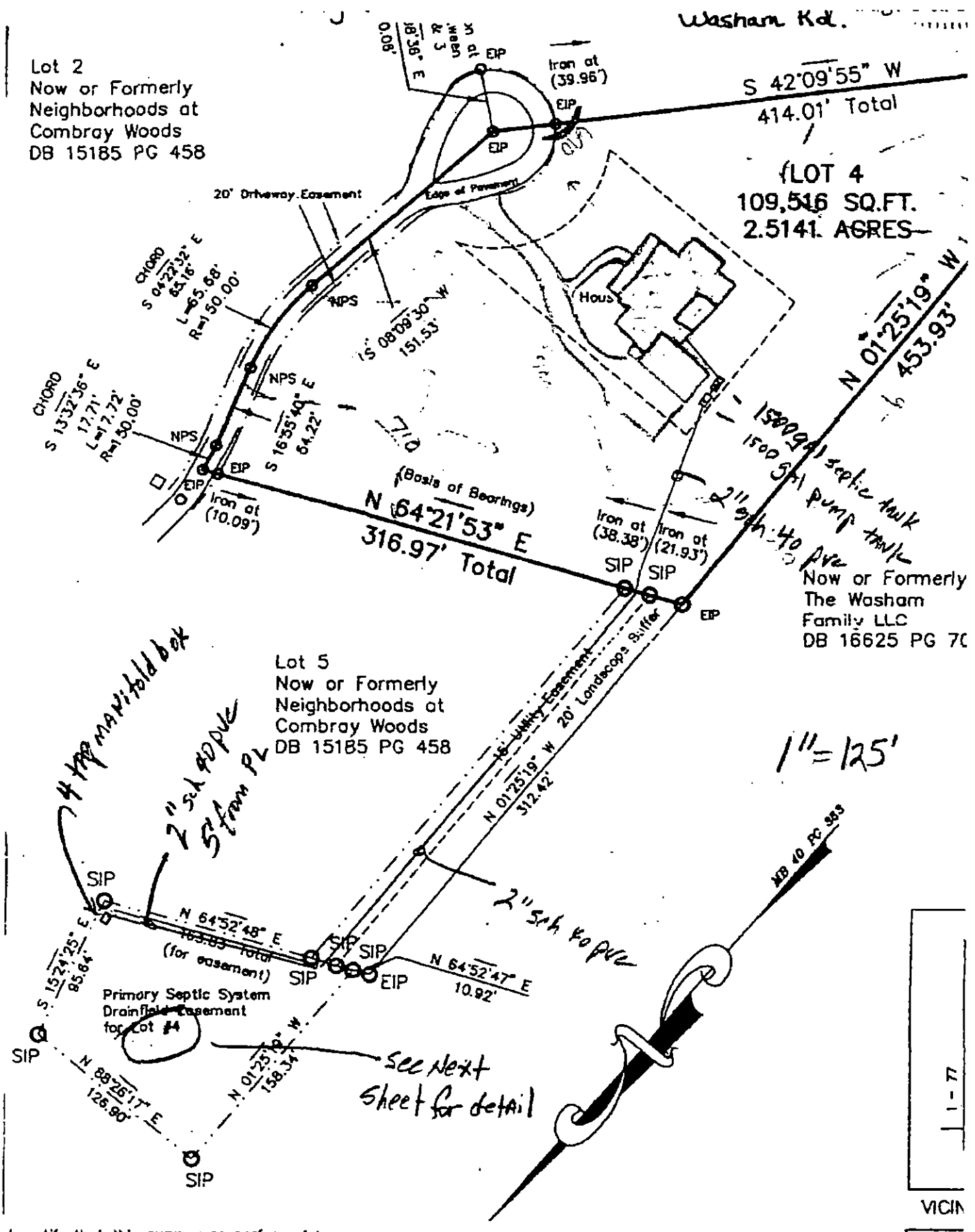
A new Mecklenburg County Health Dept. policy requires the system designer to complete an on-site inspection of the work and certify that everything is installed per plan approval. This should be scheduled 3 days before planned installation completion. Time incurred on this on-site inspection will be billed to owner or builder at prevailing rate.

Design Specifications

115328 June Washam Road

file #5221B

Daily design flow:	600 gpd.
Septic tank size:	1500 gal. (2 compartments)
Pumping tank size:	1500 gal.
Effluent loading rate, Initial system:	0.3 gpd/ft^2 by evaluation, loaded at 0.292
Effluent loading rate, Repair system:	0.3 gpd/ft^2
Initial system:	25% reduction
Repair system:	T&J Panel
Total length and diameter of supply pipe:	approx. 700 ft. 2" SCH 40 PVC
Number and length of laterals:	4 @122', 135', 134', 123' end fed from 4 each ½" SCH 80 taps (total 514')
Flow rate through the system:	22 gpm – 4 ½" SCH 80 taps from a 4" manifold
Elevation head:	Approx. 45' (to be verified by installer)
Pressure head:	2.0'
Friction head:	7.0'
20% contingency:	11.0'
Total head:	65.0'
Pump requirements:	22 gpm at 65.0' of head; use Gould WE15H pump or equivalent with compatible electrical
Dosing volume:	300 gal. – 2.0 doses/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. 13.6 min
Check valve:	yes
Siphon break hole:	no



I certify that this survey was performed by me (Klaus E. Krueger), under my supervision.

This survey is of an existing parcel of land.

The Row Error of Closure was better than 1:10,000.

0 50 100 200

2/28/2013

Mecklenburg County File #5231B

Tax Parcel # 007-431-16

Sketch of Bored Supply Line under lawn pond in easement.

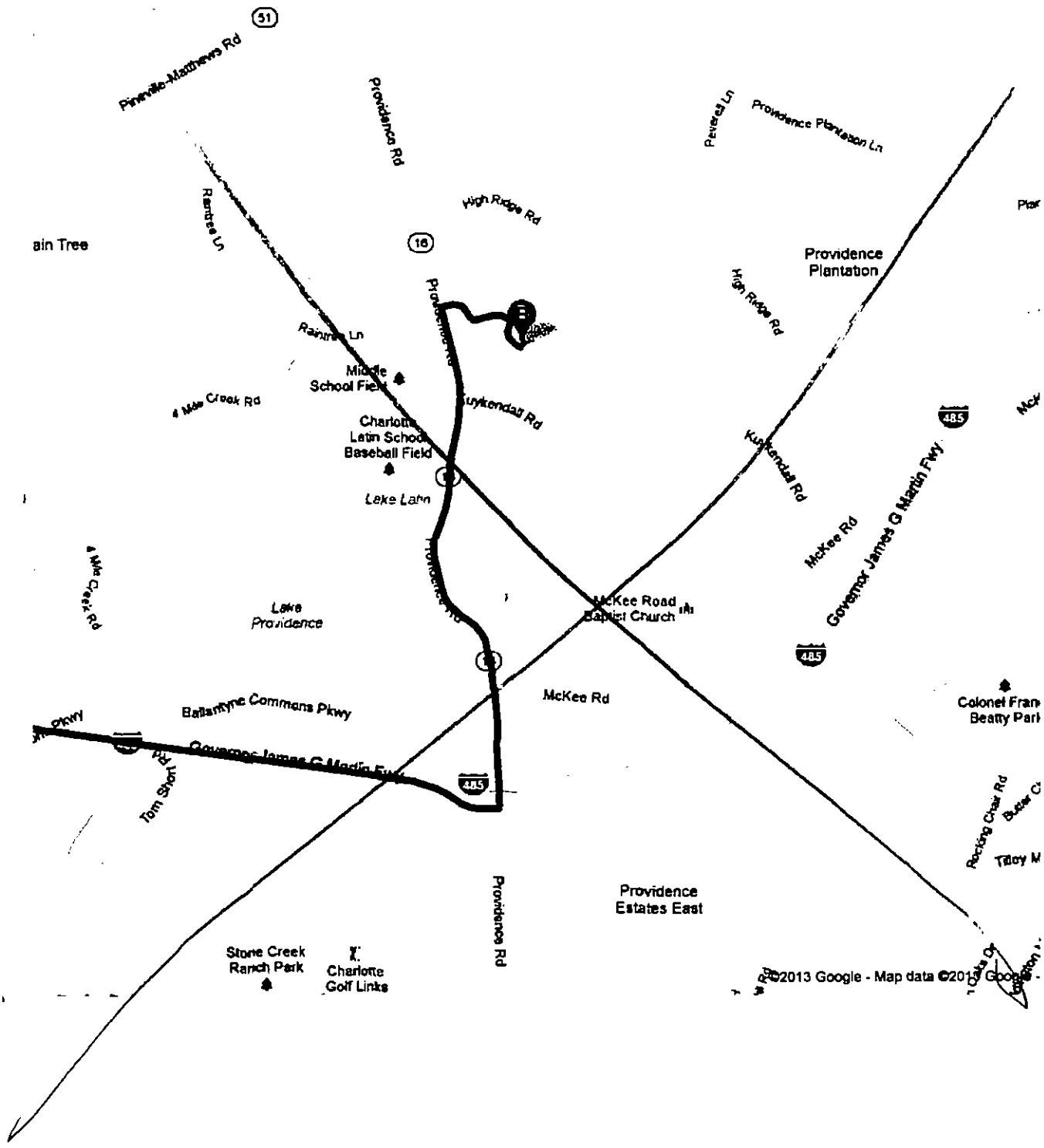
Drawn by: Jacob Prostov

3-27-13

Mecklenburg County File #5221B
Tax Parcel #007-431-16
Sketch of Bored Supply Line under lawn pond in easement.
Drawn by: Jacob Presley
3-27-13

Google

[redacted] NC
[redacted] mins



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 #: **30006048** GWS File #: **5221B** Tax Parcel #: **007-431-16**

- 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):** 3/15/2018

Type of Installation: Residential - New System Lot Number: 4

Structure Type: HOUSE Size (ft^2): 8000 # Bedrooms: 5 # Occupants: 10

Building Foundation: Crawl Space Water Supply: Private Well

II. Initial System Type: Pump to Approved **System Classification:** IIIb

Initial System Specifications:

Design Flow (gpd):	600	LTAR (gpd/ft^2):	0.3	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1500	Total Trench Length (ft):	500
Maximum Trench Depth (in):	36	Depth of Media (in):	12	Distribution Device:	Pressure Manifold		

III. Repair System Type: PPBPS (pressurized) **System Classification:** IVa

Repair System Specifications:

Design Flow (gpd):	600	LTAR (gpd/ft^2):	0.3	Septic Tank Size (gal):	1500	Pump Tank Size (gal):	1500
Trench Width (ft):	3	Trench Spacing (ft):	9	Absorption Area (ft^2):	1000	Total Trench Length (ft):	333
Maximum Trench Depth (in):	36	Depth of Media (in):	12	Distribution Device:	Manifold (LPP Distrl		

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: Jacob Presley

Signature: _____

Date Issued: 3/15/2013

Owner/Legal Agent: _____ Print Name

Signature: _____

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 #: **30006048** GWS File #: **5221B**

IV. Permit Conditions/Comments:

- This type of septic system requires an inspection once every 5 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 repair system requires the property owner to obtain a contract with a Certified Operator to perform routine inspections and maintenance on the system.
- 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.
- All waterlines must be located a minimum of 10 ft. from any part of the septic system.
- 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.
- Foundation drains shall be constructed 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 per Jacobs On-Site Development, Inc. report and figures dated March 9, 2013. Report and figures are attached to this permit.

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:

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- The permitted system shall be installed in accordance with the included PLOT PLAN.
- This IMPROVEMENT PERMIT is transferable.

DENR Authorized Agent: Jacob Presley

Signature: _____

Date Issued: 3/15/2013

Owner/Legal Agent: Tonley C Jacobs
Print Name

Signature: _____

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

Sheet: 1 of 2
Property ID: 007-431-16
Lot #: 4
File #: 5221B
AppID: 6048

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Owner: Tim Cooksey
Address: 18937 Elm Row Ct., Davidson, NC 28036
Proposed Facility: 5BR Home
Location of Site: 15328 June Washam Rd, Davidson, NC 28036
Water Supply: [ ] Public [ ] Individual [X] Well [ ] Spring [ ] Other
Evaluation Method: [X] Auger Boring [ ] Pit [ ] Cut
Type of Wastewater: [X] Sewage [ ] Industrial Process [ ] Mixed

Applicant: Toney Jacobs, LSS
Date Evaluated: 3/07/2013
Design Flow (.1949): 600 GPD
Property Size: 2.51 ac + 0.4 ac offsite Easement
Property Recorded: 2004

PROFILE #	.1940 Landscape Position/ Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY .1941 .1941 Structure/ Texture	.1941 Consistence Mineralogy	b PROFILE FACTORS .1942 Soil Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr Horiz	General Comments	Profile Class & LTAR	Maximum Trench Bottom Depth for 3' Wide Conventional Trench
Boring #1	LS 6%	0 - 13	wfsbk SCL	SS SP FR SEXP	>54"	54	NA	S	Saprolite inclusions from 33 - 54"	PS IV 0.3	36"
		13 - 33	mfsbk C	S P FI SEXP							
		33 - 46	wfsbk C	S P FR SEXP							
		46 - 54	wfsbk CL	SS SP FR SEXP							
Boring #2	LS 4%	0 - 6	wfsbk SCL	SS SP FR SEXP	>52"	52	NA	S	Common Mica from 6 - 52"	PS IV 0.3	36"
		6 - 26	mfsbk C	S P FR SEXP							
		26 - 52	wfsbk CL	SS SP FR SEXP							
Boring #3	LS 6%	0 - 12	wfsbk SCL	SS SP FR SEXP	>51"	51	NA	S	Saprolite inclusions from 36 - 51"	PS IV 0.3	36"
		12 - 36	mfsbk C	S P FI SEXP							
		36 - 51	wfsbk C	S P FR SEXP							
Boring #4	LS 5%	0 - 9	wfsbk SCL	SS SP FR SEXP	>51"	51	NA	S	Common Mica from 9 - 51"	PS IV 0.3	36"
		9 - 44	mfsbk C	S P FR SEXP							
		44 - 51	wfsbk CL	S P FR SEXP							

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)	IIIb	IVa
Site LTAR (GPD/SQ FT)	0.3	0.3

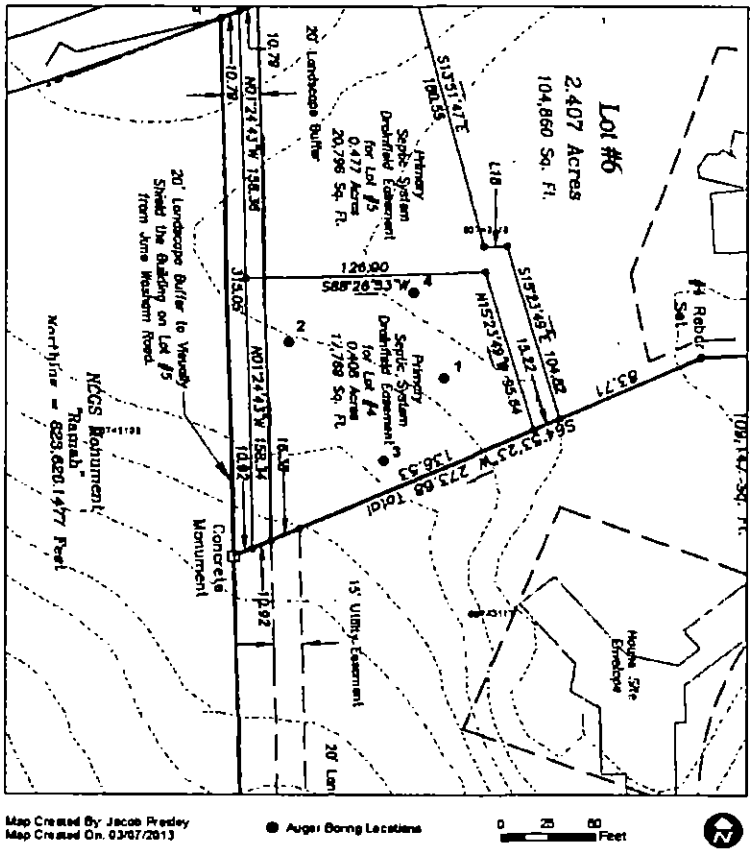
Other Factors (.1946):
Soil Evaluation By: Jacob Presley, LSS, REHSI
Others Present: Toney Jacobs, LSS
Site Classification (.1948): Provisionally Suitable
Site Evaluation By: Jacob Presley, LSS, REHSI
Others Present: Toney Jacobs, LSS

COMMENTS:

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		mass-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		CL-Clay Loam		
FP-Flood Plain		SCL-Sandy Clay Loam		**Structure Prefixes**
D-Drainage Way		SiL-Silt Loam		w-weak
				m-moderate
	IV	SC-Sandy Clay	0.4 - 0.1	s-strong
		SiC-Silty Clay		f-fine
		C-Clay		m-medium
				c-coarse

Consistence Moist	Consistence Wet	Mineralogy
VFR-Very Friable	SS-Slightly Sticky	SEXP-Slightly Expansive
FR-Friable	S-Sticky	EXP-Expansive
FI-Firm	VS-Very Sticky	
VFI-Very Firm	NP-Non-Plastic	**Classification**
EFI-Extremely Firm	SP-Slightly Plastic	US-Unsuitable
	P-Plastic	PS-Provisionally Suitable
	VP-Very Plastic	S-Suitable
		NA-Not Applicable

SOIL EVALUATION LOCATIONS FOR
PARCEL #: 007-431-16
WAPSPS APPLICATION #: 6048



Map Created By: Jacob Presley
Map Created On: 03/07/2013

● Auger Boring Locations

0 40 80 Feet

JACOBS ON-SITE DEVELOPMENT, INC.

Toney C. Jacobs, MS, LSS, CPSS

Licensed by the North Carolina Board for Licensing of Soil Scientists
Certified by South Carolina Dept. of Natural Resources as a Soil Classifier
Certified by the American Registry of Certified Professionals in Agronomy, Crops and Soils

168 Broadbill Drive
Mooresville, NC 28117
(704) 662-9845 (704) 582-9219 cell
toneycjacobs@gmail.com

March 29, 2013

To: Jacob Presley. LSS & REHS
Mecklenburg County Health Dept. – IWWS
700 N. Tryon St.
Charlotte, NC 28202

From: Toney Jacobs, LSS

Ref: Pond bore for 15328 June Washam Road – file #5221B
(additional information to plan)

A small (41' long and 24" deep) landscape pond (appendix 1) was placed on the dedicated utility easement that was to be used for the septic pipe run. To minimize impact to the pond, a 110' cased horizontal bore was made beneath the pond. The casing was High Density Polyethylene (HDPE) pipe from the lot to the off-site septic area. At the upper end of the pond the minimum separation of pond sub-bottom to the casing was 48" and increased to 72" at the dam (appendix 2). These values were supplied by Greg Goodman of G Campbell Construction in Mooresville, NC (704 663-0008 or m. 704 201-7148)

Pipe fittings were supplied by pipe supplier to adapt HDPE pipe to schedule 40 PVC. This was a physical attachment, not a chemical, solvent, or thermo weld.

Mecklenburg County, North Carolina

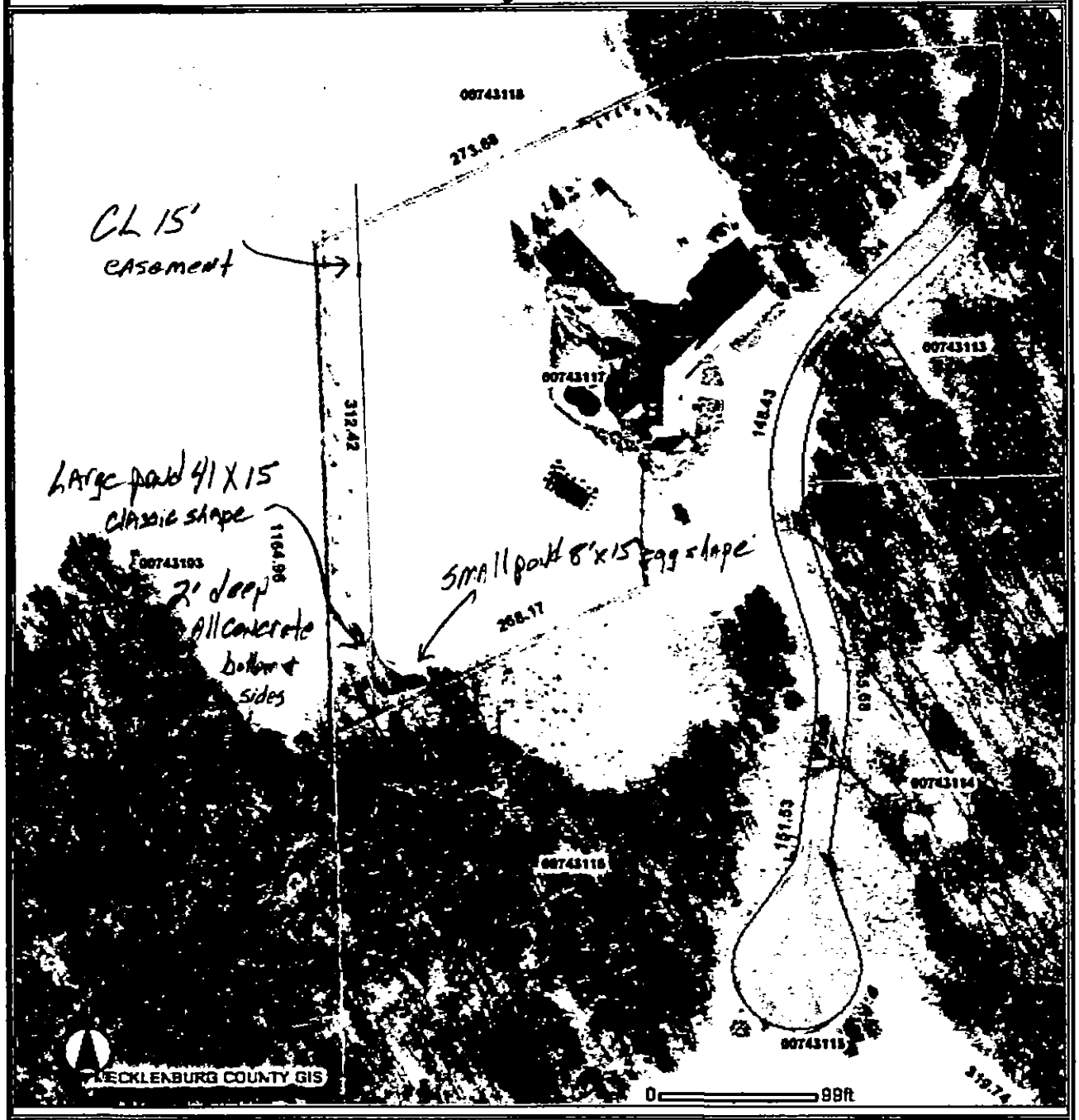
POLARIS

#5221B

Property Ownership Land Records Information System

Date Printed: Wed Mar 20 16:09:44 EDT 2013

cooksey easement

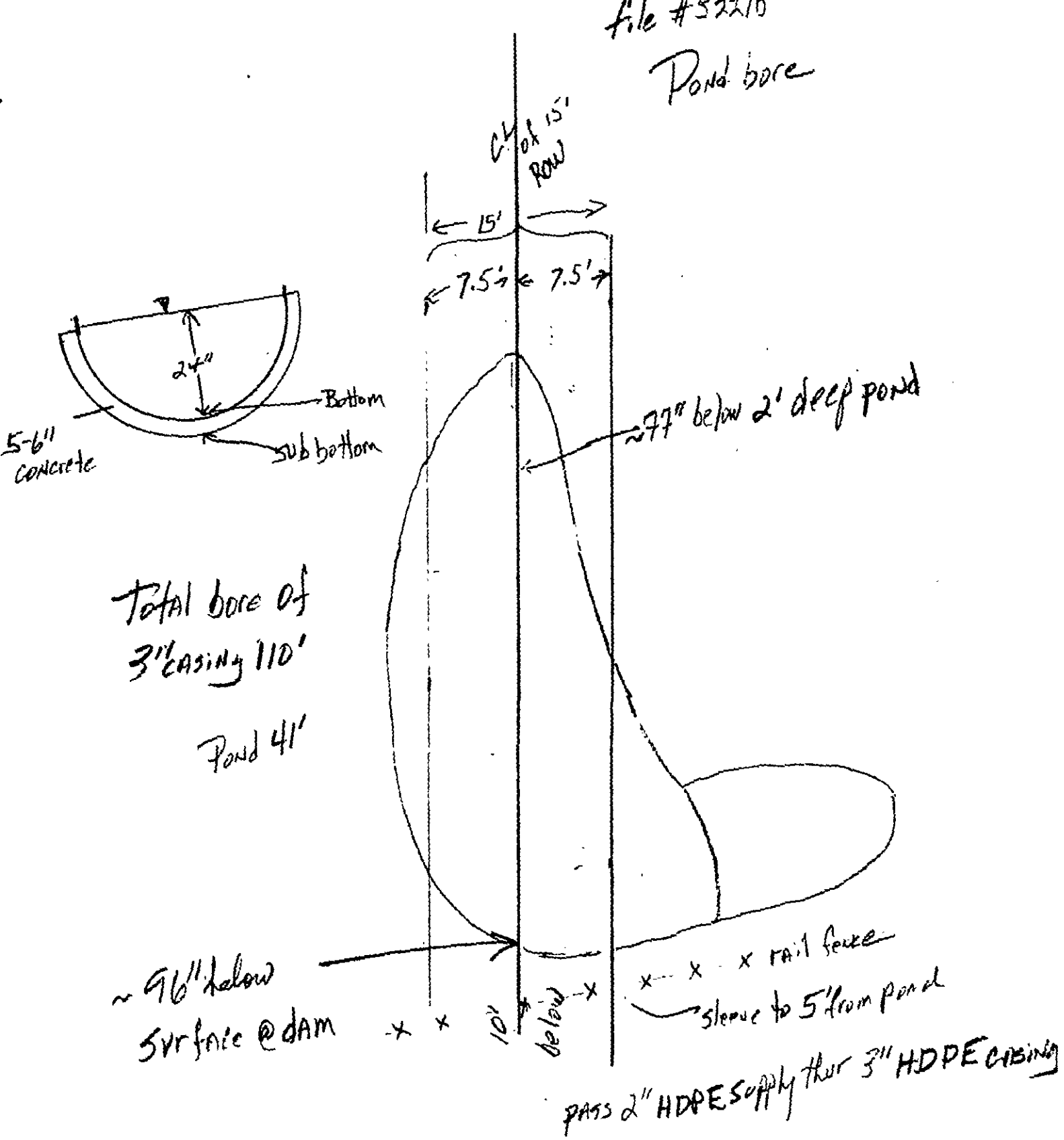


This map is prepared for the inventory of real property within Mecklenburg County and is compiled from recorded deeds, plats, tax maps, surveys, planimetric maps, and other public records and data. Users of this map are hereby notified that the aforementioned public primary information sources should be consulted for verification. Mecklenburg County and its mapping contractors assume no legal responsibility for the information contained herein.

3/20/2013

file #52210

Pond bore



~ 1" = 10'