Permit # 52472 LRK# 20040691 Page 1 of 11
Property Address: 135 Troys Pt., West End, NC 27376 Number of Bedrooms: 5

Moore County Health Department

Environmental Health Section
PO Box 279, Carthage, NC 27327
Phone: 910-947-6283 Fax: 910-947-5127

Improvement Permit

Owner: Ford Associates NC, LLC. Phone # 919-961-6611
Directions To Property: 135 Troys Pt., West End, NC 27376

Design Flow Units: 5 Bedrooms GPD per Unit: 120 Total Daily Design Flow: 600 gpd
Waste Strength: Domestic Number of Occupants: 10 Water Supply: Public
Tri-Party Agreement? Yes: ____ No: X Easements Required: Yes: ____ No: X

Initial System

Septic Tank Size: 1250 gal Pump Tank Size: 1250 gal Max Trench Depth: 30 in
LTAR: 0.6 Total Trench Length: 340 ft Trench Width: 3 ft
Media Depth: 12 in System Type: Conventional Gravel Distribution Method: Serial

Repair System

Septic Tank Size: 1250 gal Pump Tank Size: 1250 gal Max Trench Depth: 30 in
LTAR: 0.6 Total Trench Length: 150 ft Trench Width: 3 ft
Media Depth: 12 in System Type: 25% Reduction Tech. Distribution Method: Serial

Permit Conditions:

1) Distance to Water Supplies: Wells, Springs, Etc: >50' Lakes, Streams, Etc.: >50'
Water Lines: >10' Interceptor/Storm Drains: 10'/15'
2) Any underground utilities, irrigation components, accessory structures, or pools shall not be installed within the septic system area or septic repair area.
3) Maintain all applicable setbacks to septic system components.
4) All conditions of LSS report must be met.
5) Any alteration to location or system design will require written LSS approval.
6) See LSS permit requirement sheet.
7) Call EHD or LSS with any question at least 24 hours prior to installation.

Issued By: _____ **Date: 9/30/2024**

This Permit is Valid for a period of Sixty (60) Months unless the site, site plan, plat, or intended use of the property changes.

This Improvement Permit is issued pursuant to G.S. 130A-335 (a2), (a3), and (a4) using the signed and sealed LSS/LG evaluation(s) attached here.

Authorization to Construct Wastewater System

Issued By: _____ **Date: 9/30/2024**

The requirements of 15A NCAC 18E are incorporated by reference into this permit and shall be met. Systems shall be installed in accordance with the attached site sketch. This Construction Authorization is subject to revocation if the site plan, plat, or the intended use changes. The Construction Authorization shall not be affected by a change in ownership of the site. This Construction Authorization is subject to compliance with the provisions of 15A NCAC 18E, or 15A NCAC 18A .1900, as applicable, and to the conditions of this permit. This Authorization is Necessary Prior to Obtaining a Building or Electrical Permit and expires Sixty (60) Months from the date issued or immediately if the site, site plan, or intended use of the property changes.

X Do not grade, compact, or otherwise disturb soil in original system area or repair area

X Property lines/corners must be clearly marked at time of installation and inspection

X Divert downspouts and all surface water from system area

___ Install interceptor drain _____ inches deep

___ Install on contour

___ Authorization to construct permit will be issued after receiving final house/site plan

___ Six inches of approved soil over nitrification lines required

___ Rake trench sidewalls

___ Install pipe for copper sulfate. Add copper sulfate in system

___ Pump, crush, and fill existing tank

___ Filter fabric required

___ Seed and straw nitrification lines

___ Filter rated for grease removal

___ Filter rated for hair removal in wash tank

X Approved and properly rated effluent filter required

X Risers and openings must be sealed with mastic, butyl rubber, and fibered cement or hydraulic cement

X Must test electrical and pump components

___ 50 lbs. pressure for two hours on pressure line

___ Must water or vacuum test tanks

X Call health department before installing system (910) 947-6284

___ Meet health department onsite a minimum of 24 hours before installing system

PERMIT # 52472

"The LSS/LG evaluation(s) attached to this application is to be used to issue an Improvement Permit in accordance with G.S. 130A-335(a2) and (a3)."

Moore County Health Department
Environmental Health Section
PO Box 279, Carthage, NC 28327
Phone (910) 947-6283
Fax (910) 947-5127

RECEIVED
SEP 18 2024

52472
$245.20

APPLICATION FOR AN IMPROVEMENT PERMIT

Application will not be accepted without a site plan

Receipt #: 1458506/$245.20/cc
Parcel ID/LRK #: 20040691
Owner: Ford Associates NC LLC
Home Phone #:
Mailing Address: 4441 Six Forks Road; Suite 106-345
Raleigh, NC 27609
Cell #: 919-961-6611
Email: johnwfordsr@gmail.com

Representative/Buyer: Granholm Group LLC
Home #: 919-606-7219
Address: 10205 US 15-501 Hwy, Unit 26
Southern Pines, NC 28387
Cell #: 919-606-7219
Email: granholmgroup@gmail.com

Exact Directions to Property (911 address, if available): 135 Troys Point, West End, NC 27376
McLendon Hills Lot 157 Phase 3-B

New System: ✓
Permit Valid for five (5) years (attach site plan): ✓
Expansion/Relocation of Existing System:
Permit valid without expiration (attach plat):
Construction Authorization (valid for five [5] years):
Requested system type: Conventional _____ Other (Specify) (a2) Pump Conventional
Number, description, and use of structures and proposed structures on the property:
One 5-BR SFR
Number of bedrooms: 5 Number of people served: 10
Please describe any additional factors which may affect the amount of water used: None

Will wastewater, other than domestic sewage, be generated? Yes _____ No ✓
If so, please describe:
Is there a basement or construction below existing grade? Yes _____ No ✓
Indicate type of water supply: Public ✓ Private _____
Are there any wells on adjoining property? Yes _____ No ✓
Is there a geothermal/HVAC system planned? Yes _____ No ✓
Is there an irrigation system planned? Yes _____ No ✓
Are there designated wetlands on the property? Yes _____ No ✓
If yes, please indicate their location on the plat or site plan.
Are there any right of ways or easements on the property? Yes _____ No ✓
Required zoning or other public agency approval obtained? Yes ✓ No _____
Date property was originally deeded or platted and recorded: 12/10/2004
Is this property and proposed or existing structures under common or joint control (i.e. a condominium or other multiple ownership development)? Yes _____ No ✓

Date: 9/17/2024
Signature: _____ Scott Cole for Kyle Granholm
(Owner or Representative)

MCHD-ENV 6/15

SEE BACK

RECEIVED
SEP 27 2024
MOORE CO. HEALTH DEPT.

County of Moore
Health Department
705 Pinehurst Avenue • P.O. Box 279
Carthage, NC 28327

Matthew Garner
Director

Telephone: 910-947-3300
Medical Records Fax: 910-947-1663
Administration Fax: 910-947-5837

Designation of Legal Representative

I, Ford Associates NC LLC, hereby authorize
Property Owner (print)

Scott Cole, Licensed NC Soil Scientist #1263 to serve as my legal
Legal Representative (print)
representative for the purpose of obtaining a permit to install, repair or expand an on-site wastewater system and/or well. I understand that submittal of the application for evaluation will authorize the Moore County Health Department to perform said evaluation on my property.

Parcel ID/LRK #: 852500356870 / 2004091

Address of Property: 135 Troys Point, West End, NC 27376
McLendon Hills Lot 157 Phase 3-B

Signature: DocuSigned by: [signature] Date: 9/17/2024
Property Owner
John W Ford, Member/Mgr

Signature: [signature] Date: 9/17/2024
Legal Representative

"To Protect and Promote Health through Prevention and Control of Disease and Injury."
https://www.moorecountync.gov/291/Health-Department

Environmental Health
Telephone: 910-947-6283
Fax: 910-947-5127

WIC
Telephone: 910-947-3271
Fax: 910-947-2460

Permit/File #: _____

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES

ROY COOPER • Governor
KODY H. KINSLEY • Secretary
MARK BENTON • Chief Deputy Secretary for Health
SUSAN KANSAGRA • Assistant Secretary for Public Health
Division of Public Health

Submittal Includes: ■ (a2) Improvement Permit ☐ (a2) Construction Authorization ☐ Fee $_____

IMPROVEMENT PERMIT FOR G.S. 130A-335(a2)

County: Moore

PIN/Lot Identifier: 20040691

Issued To: Granholm Group LLC

Property Location: 135 Troys Point, West End, NC 27376

Subdivision (if applicable) McLendon Hills Lot #: 157 Block: 3-B Section: _____

LSS Report Provided: Yes ■ No ☐

If yes, name and license number of LSS: Scott Cole LSS #1263

New ■ Expansion ☐ System Relocation ☐ Change of Use ☐

Facility Type: Single Family Residence

Number of bedrooms: 5 Number of Occupants: 10 Other: _____

Design Wastewater Strength: ■ Domestic ☐ High Strength ☐ Industrial Process Wastewater

Proposed Design Daily Flow: 600 GPD Proposed LTAR (Initial): .600 Proposed LTAR (Repair): .600

Proposed Wastewater System Type*: IIIb - Pump to Conventional (Initial) Pump Required: ■ Yes ☐ No ☐ May be required

Proposed Wastewater System Type*: IIIb - Pump to Chamber (25% Red) (Repair) Pump Required: ■ Yes ☐ No ☐ May be required

**Please include system classification for proposed wastewater system types in accordance with Rule .1301 Table XXXII*

Effluent Standard: ■ DSE ☐ HSE ☐ NSF/ANSI 40 ☐ TS-I ☐ TS-II ☐ RCW

Saprolite System (Initial): ☐ Yes ■ No Saprolite System (Repair): ☐ Yes ☐ No

Fill System (Initial): ☐ Yes ■ No If yes, specify: ☐ New ☐ Existing (when adding more than 6 inches of fill to system area provide a fill plan)

Fill System (Repair): ☐ Yes ■ No If yes, specify: ☐ New ☐ Existing (when adding more than 6 inches of fill to system area provide a fill plan)

Usable Depth to LC (Initial)[x]: 42 Usable Depth to LC (Repair)[x]: 42 *[x] Limiting Condition*

Max. Trench Depth (Initial)[‡]: 30 Max. Trench Depth (Repair)[‡]: 30 *[‡] Measured on the downhill side of the trench*

Artificial Drainage Required: ☐ Yes ■ No If yes, please specify details: _____

Type of Water Supply: ☐ Private well ☐ Public well ☐ Shared well ■ Municipal Supply ☐ Spring ☐ Other: _____

Drainfield location meets requirements of Rule .0508: Yes ■ No ☐ Drainfield location meets requirements of Rule .0601: Yes ■ No ☐

Permit valid for: ■ Five years [site plan submitted pursuant to GS 130A-334(13a)] ☐ No expiration [plat submitted pursuant to GS 130A-334(7a)]

Permit conditions:
See Permitting Report.

Licensed Soil Scientist Print Name: Scott Franklin Cole

Licensed Soil Scientist Signature: _____ Date: 9/17/2024

The LSS evaluation is being submitted pursuant to and meets the requirements of G.S. 130A-335(a2).

See attached site sketch

Scott Cole, NCLSS
312 Copples Road Ext
Asheboro, NC 27205
(336) 460-4554

Granholm Group LLC
10205 US 15-501 Hwy; Unit 26
Southern Pines, NC 28387

September 17, 2024

Re: Soil evaluation for proposed 5-BR SFR septic tank system; 135 Troys Point, West End, NC 27376
McLendon Hills Lot 157, Phase 3-B; Moore County Pacel 20040691

The LSS evaluation is being submitted pursuant to and meets the requirements of G.S. 130A-335(a2).

Soil/site evaluation services were performed on the above referenced parcel to serve a proposed 5-Bedroom Residence with a daily wastewater flow of 600 gallons. Work was conducted in accordance with "15A NCAC 18E - Wastewater Treatment and Dispersal Systems". Detailed soil profile descriptions are included in this report with corresponding GPS-located soil borings shown on the attached site plan.

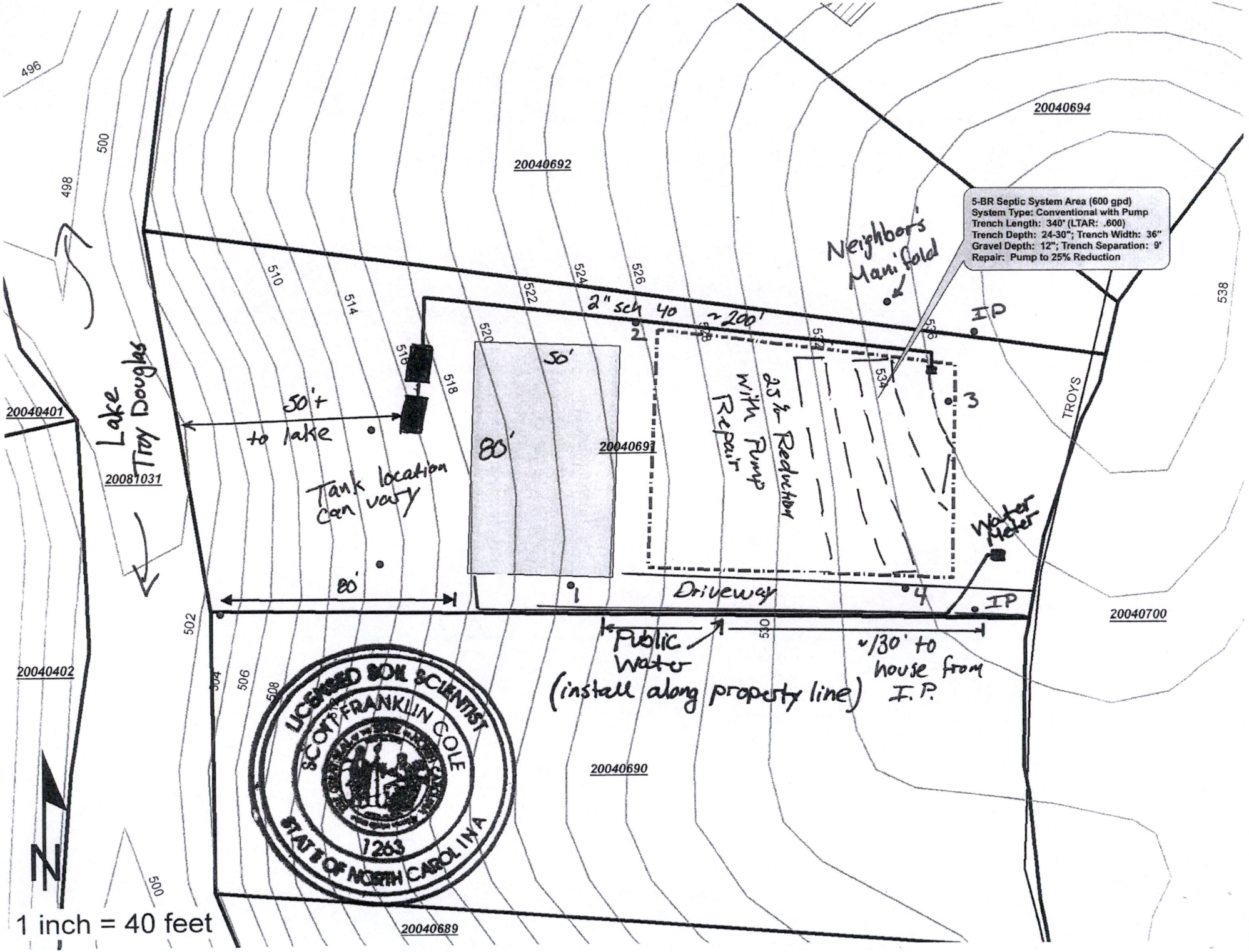
This report proposes the installation of 340' of Conventional with Pump distribution (System type IIIb) with the following specifications:

- Initial System: Pump to Conventional Trench (LTAR: .600)
  - **Nitrification field (drain field) length: 340'**
  - Repair System: Pump to 25% Reduction system (Chamber trench)
- Set **1,250-gallon septic tank and 1,250-gallon pump tank** behind/beside house as shown on site plan (Tank location can vary from what is shown on site plan)
  - Use 2" sch. 40 supply line (approximately 190')
    - Install supply line 18" deeper than the proposed water line depth
  - Pump Specifications: 25 gpm @ 35' TDH
  - Dose Volume: 155 gallons (pump run time: 6 minutes)
- NOTE: A control panel shall be provided in accordance with 15A NCAC 18E .1103 (attached)
  - The bottom of the control panel shall be at least 24" above final grade
- Trench Depth: 24-30"; Trench Width: 36"; Gravel Depth: 12"; Trench Separation: 9' centers
- Nitrification trenches to be installed on contour (contour may vary from site plan)
- Property lines/corners shall be clearly marked prior to system installation (as stated on site plan)
- **Owner responsible for maintaining flagging identifying approved septic system area**
- Unapproved grading, filling or compaction of approved soil area may result in permit revocation
- **Keep construction materials and equipment off approved soil area during all phases of construction**
- System shall be covered immediately after inspection to ensure proper drainage over and around system area
- Establish vegetation over system area to reduce erosion of system soil cover
- Contact Moore County Environmental Health Department to schedule inspection of installation

Please note, the wastewater system specified within this report is intended for Domestic Strength wastewater which is characterized as having BOD, TSS, TKN or FOG values less than 350, 100, 100, or 30 mg/l respectively. Waste disposal systems (garbage disposals) are not recommended to be installed in the residence served by this septic tank system.

Please contact Moore County Health Department or Scott Cole with questions regarding system specifications.

Scott Cole
North Carolina Licensed Soil Scientist #1263


5-BR Septic System Area (600 gpd)
System Type: Conventional with Pump
Trench Length: 340' (LTAR: .600)
Trench Depth: 24-30"; Trench Width: 36"
Gravel Depth: 12"; Trench Separation: 9'
Repair: Pump to 25% Reduction
Neighbors Manifold
2" sch 40 ~200'
IP
50'
80'
50'+ to lake
Lake Troy Douglas
Tank location can vary
25% Reduction with Pump Repair
Water Meter
Driveway
Public Water (install along property line)
~130' to house from I.P.
TROYS
20040694
20040692
20040401
20081031
20040697
20040700
20040402
20040690
20040689
LICENSED SOIL SCIENTIST
SCOTT FRANKLIN COLE
1263
STATE OF NORTH CAROLINA
1 inch = 40 feet

Ford Associates NC, LLC
4441 Six Forks Road Ste 106-345
Raleigh, NC 27609

Moore County NC Parcel 20040691

September 2024

Landscape Position	Linear	Linear	Linear	Linear
Slope	10%	8%	7%	7%
H1: Depth	**0-36**	**0-30**	**0-34**	**0-40**
H1: Texture	LS	LS	LS	LS
H1: Structure	GR	GR	GR	GR
H1: Consistency	VFR,SS,SP	VFR,SS,SP	VFR,SS,SP	VFR,SS,SP
H1: Mineralogy	SEXP	SEXP	SEXP	SEXP
H2: Depth	**36-48**	**30-48**	**34-45**	**40-48**
H2: Texture	SL	LS/SL	SCL	LS/SL
H2: Structure	GR	GR	WBK	GR
H2: Consistency	FR,SS,SP	FR,SS,SP	FI,SS,SP	FR,SS,SP
H2: Mineralogy	SEXP	SEXP	SEXP	SEXP
H3: Depth		**40**	**45-48**	
H3: Texture		AR	SC/C	
H3: Structure			BK	
H3: Consistency			FI, SS, SP	
H3: Mineralogy			SEXP	
H4: Depth				
H4: Texture				
H4: Structure				
H4: Consistency				
H4: Mineralogy				
Saprolite				
Wetness				
Classification	S	S	S	S
LTAR	.800	.800	.600	.800
Notes:				

5-BR / 600 gpd
Initial: Pump Conv @ 600
Length: 340'; Depth: 24-30"
Repair: Pump 25% Red.

PLAT CABINET 12 SLIDE 61

2004 DEC 10 P 3:16

MRS. JUDY D. MARTIN
REGISTER OF DEEDS MOORE COUNTY
CARTHAGE, NORTH CAROLINA 28327

PLAT CABINET 12 SLIDE 61

Certificate of Ownership and Dedication

Utilities Certificate

I hereby certify that the street, utilities and other improvements have been installed in an acceptable manner and in accordance with the requirements of the Subdivision Regulations of Moore County, North Carolina or that a performance bond or other sufficient surety has been provided to assure completion of the required improvements.

Signature of Authorized Agent Of Utility Provider — Date

SURVEY STATUS

Certificate of Warranty

NOTES:

1. TOTAL ACRES THIS TRACT = 597.35
2. TOTAL ACRES THIS SUBDIVISION = 23.479
3. LINEAR DIMENSION OF STREETS = 1763.93'
4. TOTAL NUMBER OF TRACTS = 13
5. ACREAGE OF SMALLEST TRACT = 0.690
6. SITE SERVED BY MOORE COUNTY WATER AND INDIVIDUAL SEPTIC SYSTEMS
7. PRIVATE ROADS (SEE RESTRICTIVE COVENANTS FOR ROAD MAINTENANCE RESPONSIBILITY)
8. MINIMUM BUILDING SETBACKS =
   NOTE: SETBACKS REQUIRED
   FY = 40' From Utility Easement
   SY = 15' FROM BRIDLE TRAIL OR SIDE PROPERTY LINE
   RY = 30' FROM PROPERTY LINE OR
   25' FROM ANY EXISTING EASEMENT
   SIDE STREET = 35' FROM UTILITY ESM'T.
9. This Site and the adjoining property is Zoned RA-LSB.
10. LOTS ARE SUBJECT TO PRIVATE COVENANTS & RESTRICTIONS OF RECORD
11. LOTS SUBJECT TO HOMEOWNERS ASSOCIATION AS DESCRIBED IN RESTRICTIONS OF RECORD
12. THIS SITE IS NOT LOCATED IN A DESIGNATED WATERSHED AREA.
13. THIS SITE LOCATED IN ZONE "X" AS PER FLOOD INSURANCE RATE MAP 3715C0075C, EFFECTIVE DATE 12/15/88.
14. LRK # 20000044

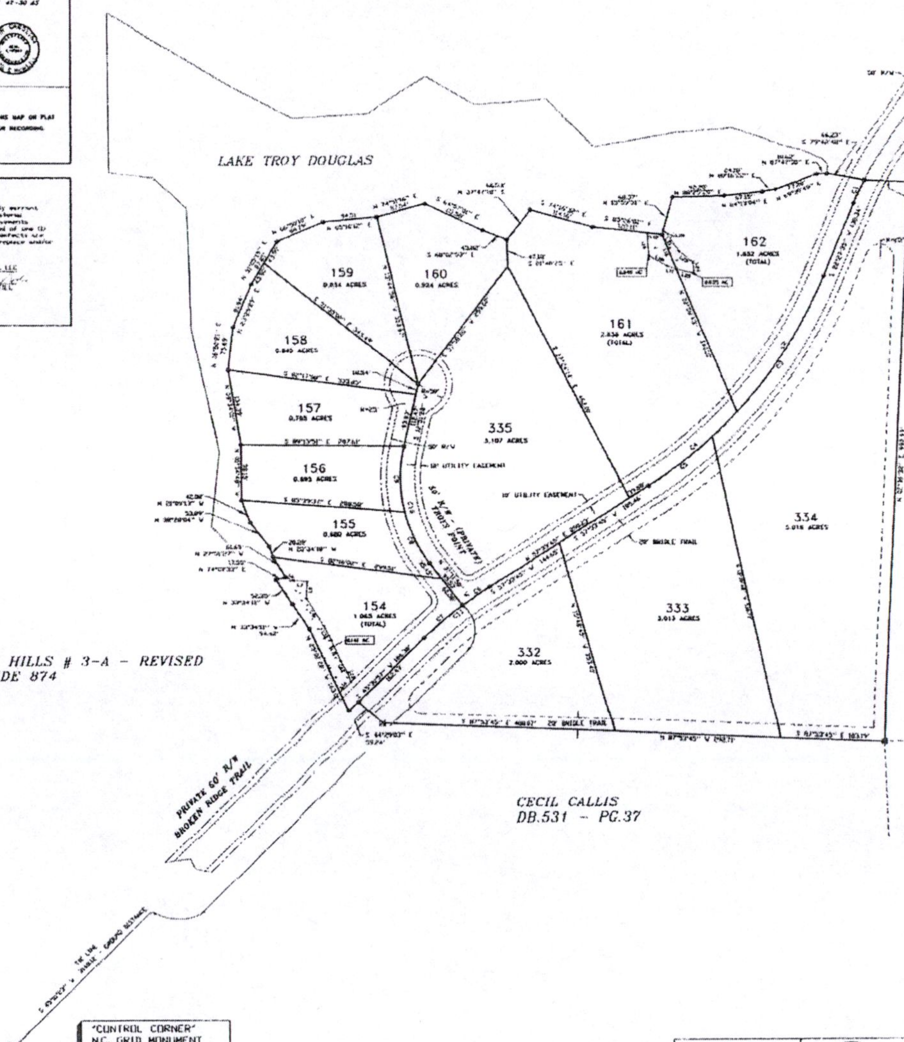
1. OWNER: EQUESTRIAN LAKES, LLC
275 McLENDON HILLS DRIVE
WEST END, NC 27376
2. ENGINEERS: HOBBS AND UPCHURCH
300 SOUTHWEST BROAD STREET
SOUTHERN PINES, NC 28387
3. SURVEYOR: McNEILL SURVEYING & LAND PLANNING
223 SOUTH HANCOCK STREET
ROCKINGHAM, NC 28379

WETLAND LINE TABLE

NUMBER	DIRECTION	DISTANCE
L6	S 67°24'20" E	16.23'
L7	S 84°24'45" E	23.49'
L8	S 02°06'09" W	29.74'
L9	S 31°07'46" E	50.98'
L10	S 26°25'00" E	20.79'
L11	S 24°32'36" E	41.19'
L12	S 38°19'50" E	22.98'
L13	S 10°04'51" E	17.84'
L14	S 45°30'57" W	27.09'
L15	S 03°26'02" E	25.39'
L16	S 22°58'47" E	65.26'
L17	N 73°55'41" W	16.53'
L18	N 60°24'03" W	27.85'
L19	N 03°42'57" W	40.20'
L20	N 15°59'31" E	10.47'
L21	S 34°50'52" E	47.88'
L23	S 53°01'36" E	32.03'
L24	S 04°32'17" E	21.07'
L25	N 73°55'41" W	33.37'

CURVE TABLE

NUMBER	Delta	Chord Brg	Tangent '	Radius '	Arc '	Chord '
C1	04°20'03"	S 24°37'36" W	22.70	600.00	45.39	45.38
C2	20°26'36"	S 32°40'53" W	144.25	800.00	285.44	283.93
C3	24°52'30"	S 34°53'50" W	176.44	800.00	347.32	344.68
C4	14°39'35"	S 50°17'58" W	102.91	800.00	204.69	204.13
C5	10°13'40"	S 52°26'55" W	71.59	800.00	142.81	142.62
C6	04°45'35"	S 55°10'58" W	29.09	700.00	58.15	58.14
C7	07°17'13"	S 49°09'33" W	44.57	700.00	89.03	88.97
C8	23°15'46"	N 25°35'57" W	51.31	250.00	101.21	100.52
C9	26°51'33"	N 08°34'10" W	59.69	250.00	117.19	116.12
C10	56°03'18"	N 12°10'11" W	136.72	250.00	258.43	233.53
C11	12°02'49"	S 51°32'29" W	73.86	700.00	147.20	146.58



N.C. GRID NORTH NAD 27

IRON STAKES AT ALL CORNERS OR REFERENCE IRONS SET AT INTERSECTION OF PROPERTY LINES AND ROAD EASEMENTS UNLESS OTHERWISE DESIGNATED

Scale 1" = 100'

"CONTROL CORNER"
N.C. GRID MONUMENT
"KITCHEN"
N = 553157.82
E = 1,821,620.52
NAD 27

ALL DISTANCES ARE HORIZONTAL FIELD MEASUREMENTS AND ARE NOT ADJUSTED BY A GRID FACTOR

LOCATION MAP (N.T.S.)

SITE

MCLENDON HILLS PHASE 3-B

PLAT OF PROPERTY SURVEYED FOR

OWNER: EQUESTRIAN LAKES, LLC
275 McLENDON HILLS DRIVE
WEST END, N.C. 27376

MINERAL SPRINGS TWSP. MOORE COUNTY, NC

McNEILL SURVEYING AND LAND PLANNING PLLC
223 SOUTH HANCOCK STREET ROCKINGHAM, N.C.

11/30/04 Rev. Lot Configurations

(1) gravity distribution cannot be achieved between the septic tank and dispersal field;
(2) the total lateral length exceeds 750 linear feet in a single system; or
(3) a pressure dosed gravity distribution or pressure dispersal system is used.

(b) Dosing systems with multiple alternating or sequencing pumps or siphons shall be used to discharge to separate dispersal fields when:

(1) DDF from a single system exceeds 3,000 gpd; or
(2) the total line length exceeds 2,000 linear feet in a single trench system or 5,000 linear feet in a drip dispersal system.

(c) If alternating pumps or siphons are not required in accordance with Paragraph (b) of this Rule, but used, then the alternating pumps or siphons may discharge to a single dispersal field.

(d) The dose volume to a dispersal field shall be calculated as follows:

(1) 66 to 75 percent of the volume of the installed linear lateral footage for pressure dosed gravity distribution systems;
(2) 66 to 75 percent of the volume of the installed linear lateral footage for LDP systems and trench products with a PIA approval based on lateral capacity equivalent to the capacity of a four-inch corrugated pipe;
(3) LPP systems in accordance with Rule .0907(e)(14)(B) of this Subchapter; and
(4) drip dispersal systems in accordance with Rule .1602(f)(3) of this Subchapter.

(e) The pump operating flow rate from a dosing system shall be designed to achieve scour velocity in the supply line and to distribute effluent in accordance with the dispersal field design.

(f) The pump operating flow rate or average pump run time shall be within 25 percent of the initial measurements collected during the final inspection.

(g) All dosing systems shall be tested using water prior to issuance of an OP. The test shall be conducted by the installer, LSS, authorized designer, AOWE, and PE, as applicable, witnessed by the LHD, and include a demonstration and documentation of the following:

(1) pump or siphon operating flow rate and dose volume delivered;
(2) float control levels;
(3) high-water alarm, including sound;
(4) operating pressure head, if applicable; and
(5) delivery of water to the dispersal field.

History Note: *Authority G.S. 130A-335(e), (f), and (f1).*

15A NCAC 18E .1102 PUMP DOSING

(a) The effluent pump shall be:

(1) capable of handling a minimum of one-half inch solids or be a screened, high head pump designed for effluent;
(2) designed to meet the pump operating flow rate and total dynamic head specified for the effluent distribution system;
(3) removable without requiring entrance into the tank; and
(4) listed by a third-party electrical testing and listing agency, such as Underwriter's Laboratory. A PE may propose a pump model not listed by a third-party electrical testing and listing agency. The Department shall approve the pump when review of documentation provided by the PE demonstrates that the pump model meets the performance requirements for the dispersal field design.

(b) A vent or anti-siphon hole of a 3/16-inch minimum diameter shall be used to prevent air locking of the pump and siphoning from the pump tank when pumping downhill. When a check valve is provided, the anti-siphon hole or vent shall be located between the pump and the check valve. Additional venting may be required at the high point in the pump force main to prevent siphoning.

(c) Each pump discharge line in a pump tank shall have a disconnect device, such as a pressure-rated threaded union, flange, or camlock.

(d) Check valves or other type valves shall prevent drainback from the dispersal field or supply line into the pump tank. A system may be designed and approved for the supply line to drain back to the pump tank based on site-specific considerations, such as freeze protection.

(e) An isolation valve shall be provided on the field side of the disconnect device when pumping uphill.

(f) The pump discharge piping shall be accessible within the tank or riser from finished grade.

(g) Fittings and valves shall be of compatible non-corrodible material. Isolation valves and disconnects shall be located within 18 inches of the top of the access riser opening.

(h) All submersible pumps shall be provided with a non-corrodible rope or chain attached to each pump enabling pump removal from the ground surface without requiring dewatering or entrance into the tank.

History Note: *Authority G.S. 130A-335(e), (f), and (f1).*

15A NCAC 18E .1103 CONTROL PANELS

(a) A control panel shall be provided for all systems that use a pump. The control panel enclosure shall be rated NEMA 4X at a minimum. A third-party electrical testing and listing agency shall list the control panel. The control panel shall include for each pump

(1) an independent overload protection, if not integral with the pump motor;
(2) circuit breaker(s);
(3) a motor contactor that disconnects all current to the pump or a solid-state relay that controls current to the pump;
(4) a hand-off-automatic (H-O-A) switch or alternate method to enable manual or automatic pump operation and for the pump to be deactivated manually;
(5) a pump run light;
(6) an elapsed time meter; and
(7) an event counter.

(b) An automatic pump sequencer shall be included in systems requiring multiple pumps in accordance with Rule .1101(b) of this Section and shall remain operable whenever any pump is inoperable.
(c) When telemetry is required in accordance with Sections .0800, .1500, .1600, and .1700 of this Subchapter, the control panel shall be connected to an active phone line, wireless internet router, dedicated cellular line, or another form of telemetry that allows the Management Entity to be notified and respond to alarm conditions. The telemetry shall remain active for the life of the wastewater system. The authorized designer, AOWE, or PE shall specify the minimum notification frequency based on site-specific conditions.
(d) The control panel bottom shall be mounted a minimum of 24 inches above finished grade, within 50 feet of and in the line of sight of the pump tank. The Management Entity and LHD shall be able to access the control panel and operate the pumps when the owner is not present.
(e) A NEMA 4X junction box shall be installed above grade or adjacent to the pump tank riser when the control panel is located more than 10 feet from the pump tank access riser and one or more electrical splices are used. Electrical splices shall not be used within the conduit piping.
(f) Wiring shall be conveyed to the control panel or outside junction box through waterproof, gasproof, and corrosion-resistant conduits, with no splices or junction boxes inside the tank. Wire and wire conduit openings inside the pump tank and disconnect enclosure shall be sealed.
(g) Dual and multiple fields shall be dosed by separate pumps that shall automatically alternate or sequence. The supply lines shall be "H" connected to permit manual alternation between fields dosed by each pump. "H" connection valving shall be accessible from the ground surface, either from the pump tank access manhole or in a separate valve chamber outside the pump tank. The Department shall approve other methods of dosing dual or multiple fields when the authorized designer or PE provides documentation of equivalent performance to this Paragraph.
(h) Liquid level detection devices, such as floats, shall be provided in the pump tank to control pump cycles and trigger notification of alarm conditions. The liquid level detection device configuration shall meet the following requirements:

(1) a minimum of 12 inches of effluent shall be maintained in the bottom of the pump tank;
(2) pump-off level shall be set to keep the pump submerged or in accordance with the manufacturer's written specifications;
(3) a separate control float shall be provided to activate the high-water alarm;
(4) the high-water alarm float shall be set to activate within six inches of the pump-on level or higher, if applicable, if providing design equalization capacity in a timed dosing system;
(5) the lag pump float switch, where provided, shall be located at or above the high-water alarm activation level; and
(6) floats shall be supported utilizing durable, corrosion resistant material, and designed to be adjustable, removable, and replaceable from the ground surface without requiring dewatering, entrance into the tank, or pump removal.

(i) The pump tank shall have a high-water alarm that shall:

(1) be audible and visible to the system users and the Management Entity;
(2) have a silencer button or silencer device that is located on the outside of the panel enclosure;
(3) provide for manual testing;
(4) automatically reset after testing and when an alarm condition has cleared;
(5) remain operable whenever the pump is inoperable;
(6) have an enclosure that is watertight, corrosion resistant, and shall be rated NEMA 4X at a minimum; and
(7) be mounted outside the facility and accessible.

(j) For systems designed, inspected, and certified by a PE, alternative panel construction and location criteria may be used if the alternative panel construction and location criteria meet the panel performance criteria, comply with local electrical codes, and are approved by the local electrical inspector.

History Note: *Authority G.S. 130A-335(e), (f), and (f1).*

15A NCAC 18E .1104 SIPHON DOSING

Siphons and siphon tanks may be used when a minimum of two feet of elevation drop is maintained between the siphon outlet invert and the inlet invert in the dispersal field distribution system. Siphons and siphon tanks shall meet the following criteria:

(1) Slope and size of the siphon discharge line shall be sufficient to handle the peak siphon discharge by gravity flow without the discharge line flowing full. Vents for the discharge lines shall be located outside of the siphon tank and shall not serve as an overflow for the tank.
(2) All siphon parts shall be installed in accordance with the manufacturer's specifications. All materials shall be corrosion-resistant, of cast iron, high-density plastic, fiberglass, stainless steel, or equal as approved by the Department when documentation is provided which shows the materials meet the requirements of this Rule.
(3) Siphon tanks shall have a functioning trip counter and high-water alarm. The high-water alarm shall be audible and visible by system users and weatherproof if installed outdoors in an enclosure rated as NEMA 4X at a minimum. The high-water alarm shall be set to activate within two inches of the siphon trip level.

History Note: *Authority G.S. 130A-335(e), (f), and (f1).*

15A NCAC 18E .1105 TIMED DOSING

(a) Timed dosing systems shall be used with the following:

(1) when a dosing system is required in accordance with Rule .1101 of this Section in conjunction with an adjusted DDF granted in accordance with Rule .0403 of this Subchapter;
(2) flow equalization systems;