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 5, 2014

To: Ben Aldridge, REHS
baldridge@co.iredell.nc.us

Ray Kelly
ray@kellycustombuilders.com

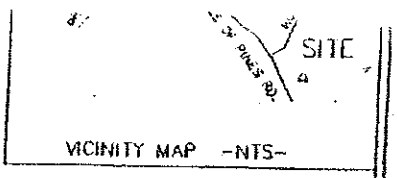
From: Toney Jacobs, LSS

Ref: Final system inspection and certification of plan completion for Jay Davis, 691 Isle of Pines Road, Mooresville NC

Preconstruction meeting was held, system components were reviewed and the final inspection was performed on November 5, 2014. Installation was completed as permitted on the plan.

Fig 2

Curve	Radius	Chord Bearing and Distance		Arc Length
C1	625.57'	N 9° 44' 52" W	153.86'	154.25'
C2	204.37'	N 18° 30' 55" W	112.68'	114.16'



I, Michael R. Bowden, certify that this plat was drawn by me from an actual field survey made under my direct supervision; that the boundaries shown are from the record information noted hereon; that the actual ratio of precision exceeds 1:10,000; and that this plat represents an existing parcel of land. Witness my original signature, seal, and license number this the 25th day of January, 2014

Professional Land Surveyor L-3811

1" = 40'

Repair Pretreatment pods

1500 gal pump tank

>50' to septic

PROPOSED WELL

146.15'

C2

S 34° 31' 25" E

760' CONTOUR AS FIELD LOCATED ON 1/24/14. ELEVATION OF LAKE NORMAN WAS 756.54' SHORELINE IS IMPROVED

Repair X-S-System

EXISTING 1/2" REBAR

EXISTING 1/2" REBAR

20 X 55 = 1400 sq ft

150.93'

S 81° 05' 58" E

BLUE

WHITE

BLUE

RED

EXISTING SEPTIC TANKS

WHITE

EXISTING SEPTIC LINES

25' X 30'

drive

1510 gal 75' septic tank

PROPOSED HOUSE

removed structural fill

Repair 85' X 20' = 1700 sq ft Ref

Repair 155 X 20 = 1100

Future Repair

ABANDON WELL

TREE

TREE

10' by to repair

EXISTING 1/2" REBAR

S 25° 25' E 57.78'

52.46'

EXISTING 1/2" REBAR

< N 44° 36' 30" W 154.85'

5' by PL 1.5' by

204.72'

< S 72° 12' 30" W

4 tap pressure manifold box 155 gpm

EXISTING 5/8" REBAR

LOT 25

EXISTING 1/2" REBAR

< N 23° 51' 04" W 115.64'

6 tap pressure manifold box

4 taps 3/8 sch 80 (lea, 1 ext hose)

2 taps 1/2 sch 80 (to field)

60' PUBLIC RIGHT OF WAY

LOT 26
HARRY H. DAVIS Jr. and wife CAROLYN D. DAVIS
DEED BK. 2206 PG. 1995
PIN #4635-44-5595

C1	625.57'	N 9° 44' 52" W	153.86'	154.25'
C2	204.37'	N 18° 30' 55" W	112.68'	114.16'

Fig. 2
VICINITY MAP –NTS–

1"=50'

I, Michael R. Bowden, certify that this plat was drawn by me from an actual field survey made under my direct supervision; that the boundaries shown are from the record information noted hereon; that the actual ratio of precision exceeds 1:10,000; and that this plat represents an existing parcel of land. Witness my original signature, seal, and license number this the 25th day of January, 2014

Professional Land Surveyor L-3811

EXISTING 1/2" REBAR

PROPOSED WELL

S 34° 31' 25" E 146.15'

780' CONTOUR AS FIELD LOCATED ON 1/24/14. ELEVATION OF LAKE NORMAN WAS 756.54' SHORELINE IS IMPROVED

existing well to be Abandoned

EXISTING 1/2" REBAR

150.93' S 81° 05' 58" E

EXISTING 1/2" REBAR

ISLE OF PINES ROAD

60' PUBLIC RIGHT OF WAY

NORTH PLAT BK. 11 PG. 29

2x3½ Adjustment 6x22.5 Adjustment

tree

BLUE 35' BLUE 32.0' RED 10' WHITE

EXISTING SEPTIC TANKS

EXISTING SEPTIC LINES

PROPOSED HOUSE

New 1500 gal septic >5' from house

New 1500 gal pump & A toward road

Repair

TREE

TREE

S 25° 25' 57.78" E 50'

52.46'

Repair EXISTING 1/2" REBAR

TS2 treatment unit location

< N 44° 36' 30" W 154.85'

15'

18.0'

204.72'

drive

< S 72° 12' 30" W

EXISTING 5/8" REBAR

LOT 25

EXISTING 1/2" REBAR

Shaded Area lost to house + setback

LOT 26
HARRY H. DAVIS Jr. and wife CAROLYN D. DAVIS
DEED BK. 2206 PG. 1995
PIN #4635-44-5595

< N 23° 51' 04" W 115.64'

EXISTING 5/8" REBAR

10 tap pressure manifold

3/4

65 x 20 = 1300
95 x 20 = 1900
3200

u = PT - POINT NOTHING SET
c = EXISTING IRON AS NOTED
C = 1/2" REBAR SET
— P — P — = OVERHEAD UTILITY LINES

40 20 0 40 80
SCALE OF DRAWING IS 1 INCH = 40 FEET

NOTES:

1. TRAVERSE ADJUSTED BY COMPASS RULE ADJUSTMENT METHOD.
2. AREAS DETERMINED BY COORDINATE COMPUTATIONS.
3. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.
4. THIS PLAT IS OF A SURVEY OF AN EXISTING PARCEL OR PARCELS OF LAND.

REFERENCES: DEEDS AND MAPS ARE SHOWN HEREON

217/67 = 3.2

Survey For:

KELLY CUSTOM HOMES

691 ISLE OF PINES ROAD
DAVIDSON TOWNSHIP
IREDELL CO., N. C.

Project # 140012-1 Date: 24 JANUARY, 2014
FIRM # F-0902

BOWDEN SURVEYING & MAPPING
704-691-5256
317 SOUTH LAUREL ST.
LINCOLNTON, N.C. 28092

Calculations

Old field

25 x 30 identified (outside row + 5' buffer

25 x 30 = 750 ft² ÷ 1.5 = 500 ft² available ÷ 3 = 166.7 ft² permitted

@ 0.3 167 ft²/BR = 1.25 Bedrooms capacity in place

Need FT for 2.75 BR x 120 = 330 gpd

330 ÷ .3 = 1100 ft² ÷ 3 = 367 ft² conv. x 5 = 1835 ft FT

use plan 8 x 23' lines = 184'

Loading: FT 330 gpd 2.75 x 120 = 330

Bed 150 gpd 1.25 x 120 = 150

---

330 ÷ 6 lines = 41.25 gpd ÷ 2 ft/ft = 20.6 FT

150 made 217 ÷ 2 = 108.5 gpd for bedroom FT

FT $\begin{cases} \frac{20.6 \text{ gpd/ln}}{2.97 \text{ 3/8 inch ID}} = 6.9 \text{ min/line} \end{cases}$

Bed $\frac{10.85 \text{ gpd/ln}}{5.5} = 2$ ea ½ inch ID tape

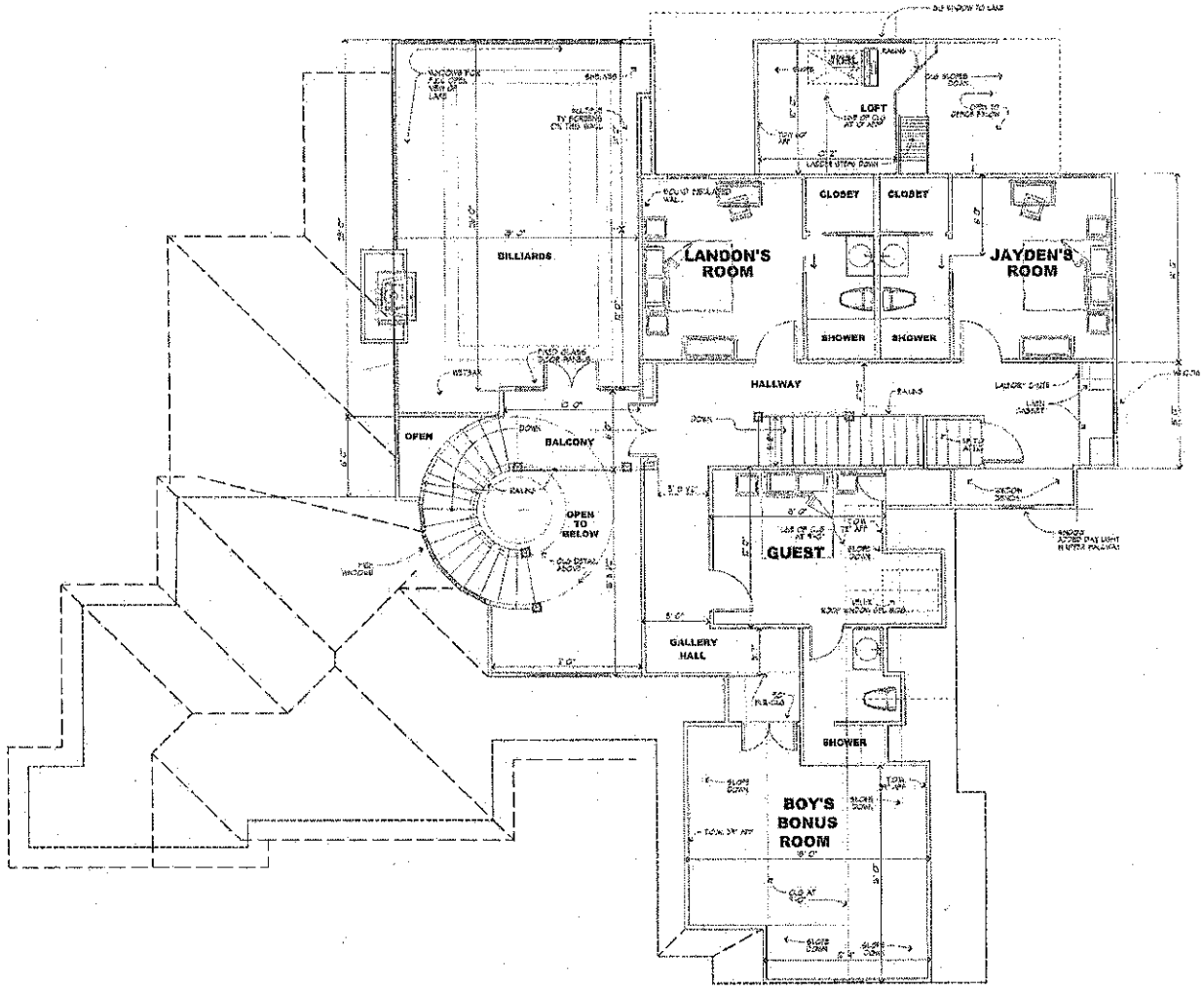
Repair — Soil Group III Fine loam 0.15 480 ÷ 0.15 = 3200 ft² Need

55 x 20 = 1100 ft²

65 x 20 = 1700 ft²

20 x 55 = 1100 x ½ (gas tank + other dist end 350

= 3350 ft²



The MND Group
Mike Novak Designs
www.mndgroup.com

5806 FROSTBRIAR CHURCH ROAD
SUITE 103-08
CHARLOTTE, NC 28269
704-448-8836

MIKE NOVAK, DESIGNER

DAVIS
RESIDENCE
JAY + CAROLYN DAVIS
JEFF + LINDSEY
JAYDEN + LANDON
CARLY

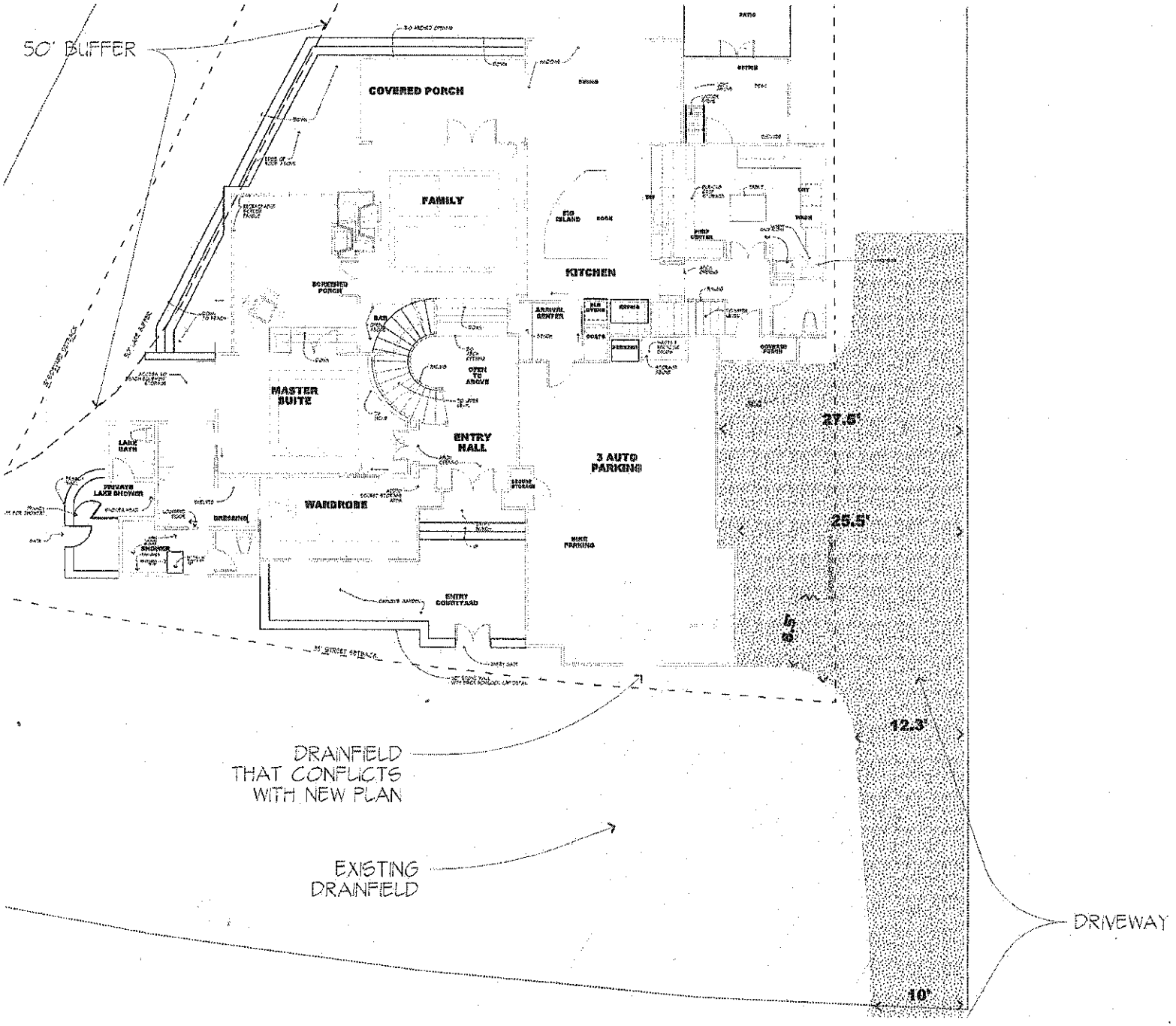
MOORESVILLE
NORTH CAROLINA
LAKE NORMAN

FOR REVIEW
12 FEBRUARY, 2014

UPPER LEVEL PLAN

A4.0

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All Work Shall Conform to Local Professional Practice Standards.
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The MND Group Mike Novak Designs Are Instruments of Service of The MND Group
www.mndgroup.com


50' BUFFER
COVERED PORCH
FAMILY
KITCHEN
SCREENED PORCH
MASTER SUITE
ENTRY HALL
3 AUTO PARKING
WARDROBE
LAKE BATH
PRIVATE LAKE SHOWER
SHOWER
BIKE PARKING
ENTRY COURTYARD
27.5'
25.5'
12.3'
10'
DRAINFIELD THAT CONFLICTS WITH NEW PLAN
EXISTING DRAINFIELD
DRIVEWAY

Property ID# _____

County _____

Owner/client Jay Davis

Proposed facility 4BR Design flow 480

Site location (on) Blue Ridge Rd Property size _____

Soil described by TD Others present _____

Antecedent moisture moist Weather cold, snow

Water supply: ( ) public ( ) community (✓) on-site well ( ) spring ( ) other Evaluation method: (✓) auger boring ( ) pit ( ) cut

Type of wastewater: (✓) sewage ( ) industrial process ( ) mixed

SOIL/SITE EVALUATION WORKSHEET

Sheet 1 of 1

Date evaluated 2/6/14

Site LTAR int. 0.3 rep. 0.15 and 1

Site classification B

PROFILE #	LANDSCAPE/SLOPE	DEPTH INCHES	HORIZON	COLOR	MUNSELL	TEXTURE	STRUCTURE	CONSISTENCY MOIST	CONSISTENCY WET	MOTTLES	INCLUSIONS	INCLUSIONS	BOUNDARY	COMMENTS
1	LS	0-4		Br		sl	gr	fri	fri					
		4-32		red		scl	mod blk	fri	S P					
		32-50		br		scl	mod "	fri	SS SP					

IREDELL COUNTY

PO Box 788
349 North Center St.
Statesville, NC 28677

APPLICATION NUMBER
201689
Issue Date: 02/12/2014

ZONING PERMIT

Parcel Number	Street Address	Jurisdiction
4635445595.000	691 ISLE OF PINES ROAD, MOORESVILLE, NC	MOORESVILLE

Owner Information	Applicant Information
Owner: DAVIS HARRY H JR+CAROLYN D	Applicant: TONEY JACOBS & ASSOCIA
Address: ,	Address: 168 BROADBILL DRIVE MOORESVILLE, NC 28117
Phone:	Phone: 704-663-6905

Use Requested	Zone Code
DEMO HOUSE AND RE BUILD NEW HOME r side has a 50 ft setback from 760 line per wa	R20

Lot Acreage	F Setback	B Setback	L Setback	R Setback	Watershed	Flood Zone
.470	35.00	50.00	50.00	15.00	CACL	AE

Remarks:

The applicant certifies that there are no deed restrictions, contractual agreements or governmental regulations of any kind that interfere with or prohibit the use of the property or the use for which this permit is requested. The applicant further acknowledges that enforcement of deed restrictions, plat conditions and other contractual agreements will not be undertaken by Iredell County and is the sole responsibility of the affected parties.

Applicant: _____ Date: _____

Permit Number	6313	TOTAL FEES:	$ 77.25

Re Construct and inspection w/ Tony J. Paid $850.00 DW Statesville 2-12-14

IREDELL COUNTY HEALTH DEPARTMENT

ENVIRONMENTAL HEALTH DIVISION

PAGE 1: *APPLICATION FORM*

Application For:

(✓) New Well Permit ( ) Well Repair Permit (✓) Well Abandonment
( ) Septic Improvement Permit (✓) Authorization to Construct ( ) Existing System Inspection ( ) Septic System Repair

THE ABOVE PERMIT DOCUMENTS WILL BECOME INVALID IF INFORMATION PROVIDED ON THIS APPLICATION IS FALSIFIED OR CHANGED, OR IF THE SITE IS ALTERED. THE IMPROVEMENT PERMIT IS VALID FOR EITHER 60 MONTHS OR WITHOUT EXPIRATION DEPENDING UPON DOCUMENTATION SUBMITTED APPLICATION WITH SITE PLAN 60 MONTHS, APPLICATION WITH COMPLETE, SCALED PLAT WITHOUT EXPIRATION. SEE 15A NCAC 18A .1937(f) FOR DETAILS.

Page 2: *Site Plan Worksheet* form MUST accompany this application

The following optional attachments may also be submitted: (✓) Survey Plat, scaled no more than 1 inch = 60 feet
Place an (X) *beside whichever is submitted if applicable* ( ) Custom Site Plan, scaled no more than 1 inch = 60 feet

Applicant Information:

Applicant Name: JAY DAVIS **Address:** 691 Isle of Pines Rd Mooresville NC 28117 **Phone:** 7046577801

Owner Name: " **Address:** " **Phone:**

Property Information:

Street Address: 691 Isle of Pines Rd

Subdivision Name: Isle of Pines Rd **Section/Phase:** 2 **Lot Number:** 26

Driving Directions: S Brawley School, TL Isle of Pines, on L 691 At end

Site Development Information: *(check or complete ALL that apply)*

(✓) New Single Family Residence
( ) New Multi-Family Residence
( ) Accessory Building
( ) Bedroom(s) Addition

Maximum Number of Bedrooms: 4
Maximum Number of Occupants: 8
( ) Swimming Pool
( ) Other Addition/Structure:

(✓) Crawl Space Foundation
( ) Concrete Slab Foundation
( ) Basement with Plumbing
( ) Basement without Plumbing

Non-Residential Site Development:

Type of Business:
Square Footage of Building:
Maximum Number of Employee:
Maximum Number of Seats/Beds/Other:

Water Supply:

(✓) New Well ( ) Existing Well ( ) Community Well ( ) City Water ( ) Other Public Water

Desired Septic System Type: *(you may rank in order of preference)* **Year existing system installed:** 1975

( ) No Preference ( ) Alternative ( ) Conventional ( ) Innovative (✓) Modified Conventional ( ) Other:

Please answer the following to the best of your ability:

( ) Yes (✓) No **Does the site contain any jurisdictional wetlands?**
( ) Yes (✓) No **Is any non-domestic sewage (i.e. industrial) to be generated?**
( ) Yes (✓) No **Is the site subject to approval by any other public agency?**

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.

Signature: Tony C Jones JR 2/12/14

Property owner or owner's legal representative signature (SIGNATURE REQUIRED) DATE

IREDELL COUNTY HEALTH DEPARTMENT

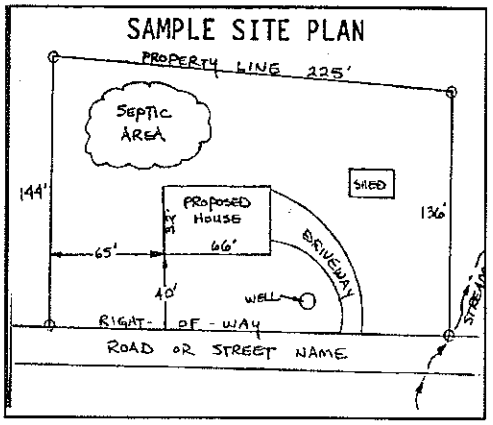
ENVIRONMENTAL HEALTH DIVISION

PAGE 2: *SITE PLAN WORKSHEET*

SEE THE "SAMPLE SITE PLAN" BELOW. *INCOMPLETE SITE PLANS WILL BE RETURNED TO YOU FOR COMPLETION AND MAY RESULT IN A DELAY IN THE ISSUANCE OF YOUR SEPTIC SYSTEM PERMIT!!!*

Place an (X) beside each item as you complete the site plan:

- (✓) **Property Line measurements are clearly identified**
- (✓) **All proposed structures are indicated**
- (✓) **Front and side setbacks from property line**
- (✓) **Preferred driveway location and well location**
- (✓) **Area you prefer your septic system to be placed**
- (✓) **North arrow, or other sufficient indicator of direction**



Circle N/A on the following if appropriate:

Location of septic systems and wells within 100' of your property	**N/A**
Location of easements and rights of ways on your property	**N/A**
Location of any designated wetlands on the property	**N/A**

USE THIS SPACE TO DRAW YOUR SITE PLAN

Show: proposed house or business footprint, wells, water lines, patios, pools and decks, and any other item that will occupy space on the site

See Attached Plat
by Tracey C Jacobs, LSS

Signature: Tracey C Jacobs, LSS

Property owner or owner's legal representative signature (SIGNATURE REQUIRED)

2/12/14

DATE

Fig 1

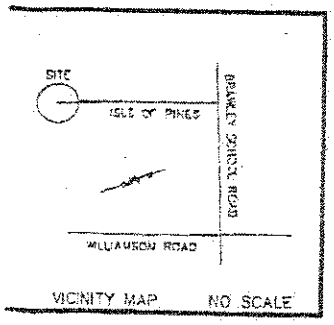
DAS DON ALLEN & ASSOCIATES, P.A.
"Since 1971"
Commercial * Residential * Mortgage Surveys * Multi-Family
Construction Staking * Subdivision Design * Topographical
111-B Raceway Drive * Mooresville * NC * 28117
(704) 664-7029 (704) 664-8041 Fax

I, certify that this map was drawn under my supervision from an actual survey made under my supervision recorded in deed book 546, page 04, and/or plat book 11, page 29, that the ratio of precision is 1:10,000, that this map was prepared in accordance with the General Statutes of North Carolina Chapter 89C. my hand and seal on the 07, day of AUGUST, A.D. 2007.

WILLIAM M. ALLEN, P.L.S. L-3499

CURVE TABLE				
CURVE	RADIUS	LENGTH	BEARING	CHORD
C1	625.57'	156.07'	S 10°21'28" E	154.67'
C2	204.37'	114.14'	N 19°15'23" W	112.66'

LINE TABLE		
LINE	BEARING	LENGTH
L1	S 25°25'00" E	57.80'



-- Solid fence

ingress + egress

NOTES

LOW PRESSURE MANIFOLD EXPANSION OF BED SYSTEM
WITH T & J PANELS
FOR
SUBSURFACE WASTEWATER DISPOSAL
691 ISLE OF PINES ROAD
MOORESVILLE, NC 28117

Prepared for
Jay and Carolyn Davis
691 Isle of Pines Road
Mooresville, NC 28117
704 657-7801

Prepared by:
Toney C. Jacobs, LSS
Jacobs On-Site Development, Inc.
Mooresville, North Carolina 28117
704 662-9845
toneycjacobs@gmail.com

February 12, 2014
Revised: February 27, 2014

Copy: Brady Freeman, REHS, Supervisor
Iredell County Health Dept.
bfreeman@co.iredell.nc.us
704 902-4491

Toney C. Jacobs, LSS

WARNING . . . . WARNING . . . . WARNING

The ultimate success of this new home will depend on a tremendous amount of care in preserving both the existing and future additional septic and repair areas. All ingress and egress across the front of the lot will have to be in 12' wide proposed new drive and on the existing concrete drive (Figure 1). All septic and repair should be fenced (except drives) before any demolition or construction begins. If the septic area is damaged, even after the house is built, the septic permit can be voided and occupancy not allowed. Parking, staging, and material storage are going to be a challenge for the builder, but these activities must not be on the area designated for septic. This fence should be maintained during the entire building until final landscaping. Many general contractors mark the fence with signage such as "septic area-do not enter" which is usually effective. Builder supervision of subcontractors makes this effective.

If in doubt, ask questions!

BACKGROUND

This permit request is for a new four bedroom single family residence. The soil was evaluated to a depth of 48 inches and found to have usable soil. The LTAR of the soil described by Toney Jacobs, LSS was 0.3 for initial and 0.15 LTAR for repair.

The proposed system will be a Type III(b) and does not require a maintenance contract with a certified operator; however, the designer always recommends management on some frequency to protect this valuable asset.

APPLICATION INFORMATION

1. Prepared for:

   Jay and Carolyn Davis
   169 Isle of Pines Road
   Mooresville, NC 28117

   Soil Scientist and Designer:
   Toney C. Jacobs, LSS
   Jacobs On-Site Development, Inc.
   168 Broadbill Drive
   Mooresville, NC 28117

2. Water supply is provided by a new on-site well. The old well will be abandoned.
3. Facility to be served by the proposed system is a four bedroom permitted as 480gpd.

LOCATION

The property is a 0.47 acre tract located on the left near the end of Isle of Pines Road. Figure 2 shows lot and system.

REFERENCES

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

DESIGN SPECIFICATIONS

691 Isle of Pines Road

Daily design flow	480 gpd.
Septic tank size	1500 gal. (2 compartments)
Pumping tank size	1500 gal.
Initial system	750sq.ft. of recycled bed, 184' of T&J panels
Effluent loading rate, Initial system	0.3 gpd/ft^2 by soil evaluation
Total length and diameter of supply pipe	approx. 230 ft. 2" SCH 40 PVC to two manifolds
Existing bed	750 sq. ft.
Number and length of laterals	8 @ 23', end-fed from two pressure manifolds gravity distribution
Flow rate through the system	35 gpm from four (4) each 3/8" Sch 80 taps, from a 4" manifold for back and four (4) each 3/8" Sch 80 and two (2) each ½ Sch 80 to existing bed. There must be a gate valve at each manifold box to adjust heads simultaneously.
Elevation head	Approx. 12' (to be verified by installer)
Pressure head	2.0'
Friction head	4.0'
20% contingency	1.9'
Total head	19.9'
Pump requirements	35 gpm at 19.9' of head; use Gould WEO3M pump or equivalent with compatible electrical
Dosing volume	240 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. 6.9 min
Check valve	yes - This has to be placed before split to front and rear manifold to get proper distribution
Siphon break hole	no
Effluent loading rate, Repair system	0.15 gpd/ft^2 aerial
Repair system	3200 sq. ft. of pretreatment (TS2) subsurface drip, most in buffer. Space designated on plan for treatment unit in old drive area

Property ID# _____

County _____

Owner/client Jay Davis

Proposed facility 4BR Design flow 480

Site location (61 Tate Williams Rd Property size _____

Soil described by TG Others present _____

Antecedent moisture moist Weather cold, rainy

Water supply: ( ) public ( ) community (✓) on-site well ( ) spring ( ) other Evaluation method: (✓) auger boring ( ) pit ( ) cut

Type of wastewater: (✓) sewage ( ) industrial process ( ) mixed

SOIL/SITE EVALUATION WORKSHEET

Sheet 1 of 1

Date evaluated 2/6/24

Site LTAR int. 0.3 rep. 0.15 and 1

Site classification PS

PPROFILE #	LANDSCAPE/SLOPE	DEPTH INCHES	HORIZON	COLOR	MUNSELL	TEXTURE	STRUCTURE	CONSISTENCY MOIST	CONSISTENCY WET	MOTTLES	INCLUSIONS	INCLUSIONS	BOUNDARY	COMMENTS
1	4 5	0-4		Br		scl	gr	fri	fri					
		4-36		red		cl	mod blk	fri	S P					
		36-50		br		cl	mod "	fri	SS SP					
		50+ bedrock												23 - 0.25
2	4 5	0-9		br		scl	gr	fri	fri					
		9-44		red		cl	mod blk	fri	SS SP					
		upper 4 inches												0.3-0.35
3	4 5	0-13		mixed		scl	gr	fri	fri					
		13-36		red		cl	mod blk	fri	SS SP					
		36-41		br		scl	mod blk	fri	SS SP					
		upper 4 inches												0.3-0.35
4		0-6		br		scl	gr	fri	fri					
		6-48		red		cl/scl	mod blk	fri	SS SP					
		48+ bedrock												0.3-0.35
5		0-7		br		scl	gr	fri	fri					
		7-46		red		cl	mod blk	fri	SS SP					
		46+ bedrock												0.3-0.35