# Carolina Soil & Septic Consulting, PLLC

P.O. Box 1703, Mooresville, NC 28115

Phone: (704) 202-5791 Email: adrianpruett@yahoo.com

NC Licensed Soil Scientist, SC Professional Soil Classifier,
Certified Septic System Operator, Licensed Septic Installer,
Certified Septic Inspector

**Proposed Design for a 25% Reduction Septic System**
**using Gravity distribution for a 4 bedroom single family residence**
**on River Hill Rd, PIN# 4776-03-4336**
**Statesville, Iredell County, North Carolina.**

**Contents:** **Page**

Information for the Installer---------- 1

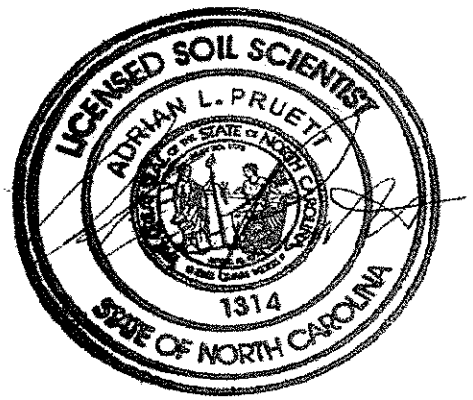
Design Information
Design Specifications---------- 2
Layout Specifications---------- 3

Site Plan/System Plan---------- 4

Dosing Calculations---------- 5

Soil Profile Descriptions---------- 6

**October 27, 2016**
**Project #: 2016-072**
**Design By: Adrian L. Pruett**



# INFORMATION FOR INSTALLER:

- The permit should be read very carefully prior to submitting bid. The following are details that must be considered along with all other considerations.
- Tanks shall be approved by NC DHHS, and certification supplied by the manufacturer.
- All tanks shall be properly back filled and compacted to prevent slump at a later date.
- The installer is responsible for final grades and returning that grade to original, with exception of added structural features.
- The supply trench shall be compacted to eliminate any cavities left during initial fill placement.
- Installation of the system shall be during dry conditions in order to protect the soil structure.
- All fittings shall be pressure rated fittings.
- All joints shall be cleaned with PVC pipe cleaner and a heavy bodied glue applied to weld all joints.
- Where required by the county health department, post installation inspections by the designer must be scheduled 5 week days in advance.
- Trenches shall be carefully excavated so the bottom has no more than 1/4"fall in 10 feet with no high or low areas within. If high or low areas do exist after trench excavation, high areas should be removed rather than filling in low areas. Do not over excavate trenches! Any fine grading should be completed by hand with a rake and shovel, leaving no loose material.
- All pipe openings in the tanks shall be properly grouted. This also applies to the joints around the riser.
- Earth dams, constructed of relatively impervious material, shall be installed at the beginning and end of each lateral to prevent unwanted lateral water movement.
- Elevations at pin flag locations should be checked by the installer prior to beginning trenches to insure accuracy.
- If septic tank risers are used they should be a minimum of 6" above finished grade or within 6" of final grade if buried.
- Design precludes use of foundation drains on the residence.
- System is specified as an Accepted 25% Reduction Gravity installation.
- Repair is specified as Gravity 25% Reduction installation.
- Trench width is specified as 36" wide, rake and lime all trench sidewalls
- **If grading for slab foundation is utilized do not grade/create greater than 2 ft of elevation difference within 15 ft of any component of the septic or repair. If back filling do not backfill over any initial or repair septic line.**

## OWNER INFORMATION

| | |
|---|---|
| **Owner:** | Julia Gillespie |
| **Address:** | 724 Stanfield Dr<br>Charlotte, NC 28210 |
| **Contact:** | Chis Handy |
| **Phone:** | 704-902-1385 |
| **County:** | Iredell |
| **Location:** | RIVER HILL RD, PIN # 4776-03-4336 |
| **Source of Wastewater Flow:** | 4 Bedroom Single Family Residence |
| **Estimated Gallons Per Day Flow:** | 480 |
| **System Flow:** | NA |

## 25% GRAVITY DESIGN INFORMATION

| | |
|---|---|
| **Drainfield Design Flow (gpd):** | 400 |
| **Loading/Soil Application Rate (gpd/ft.$^2$):** | 0.300 |
| **Depth of Gravel in Trench:** | NA (25% reduction ) |
| **Gravel Size:** | NA (25% reduction ) |
| **Total Lateral Length From Layout:** | 400 |
| **Total Lateral Length Required:** | 400 |
| **Trench Depth:** | 28 in. Lowside |
| **Trench Width:** | 36 in. |
| **TOTAL AREA TRENCH BOTTOM:** | 1200 |
| **Trench Spacing on Center:** | 9 ft. |
| **Repair Trench Spacing:** | 9 ft. |
| **Repair Trench Depth:** | 34 in. |
| **Septic Tank Size:** | 1000 gal. |
| **Estimated Supply Line Length:** | 6 |
| **Supply Line Diameter:** | 3 in. SCH 40 PVC |
| **Supply Line Volume:** | 2.16 |
| **Dosing Volume:** | NA |
| **Supply Manifold:** | SERIAL DISTRIBUTION |
| **Additional Comments:** | Soil suitability was performed by Adrian L. Pruett LSS |

# RIVER HILL RD, PIN # 4776-03-4336
# FIELD LAYOUT SPECIFICATIONS

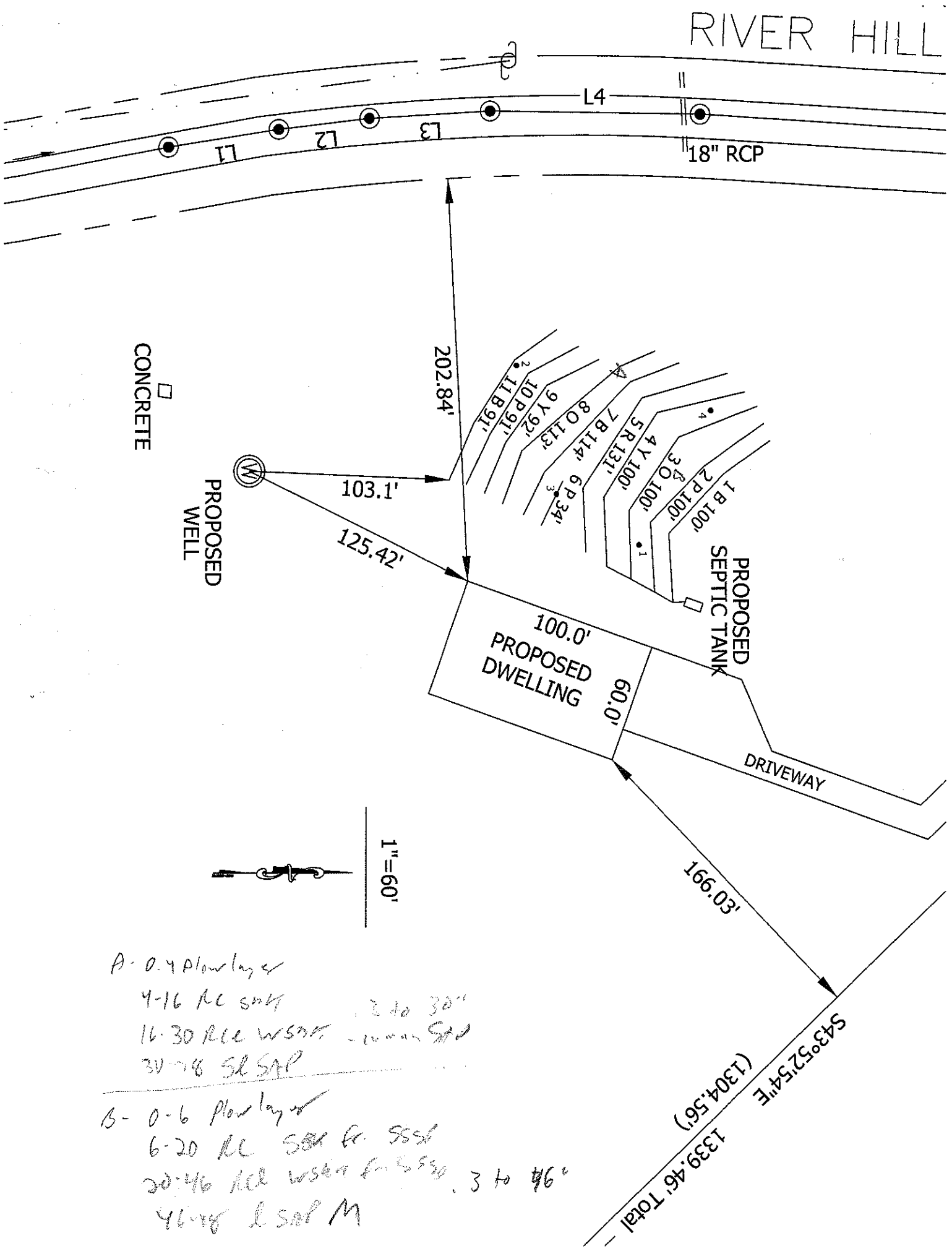
LAYOUT FOR 4 BEDROOM RESIDENCE — October 27, 2016

| LINE # | FLAG COLOR | FS | ELEVATION | FLAGGED LINE LENGTH | DESIGN LINE LENGTH |
|---|---|---|---|---|---|
| TBM | | | NA | | |
| HOUSE CRN | | NA | NA | | |
| P. TANK | | NA | NA | | |
| *1* | ***BLUE*** | ***NA*** | ***NA*** | ***104*** | ***100*** |
| *2* | ***PINK*** | ***NA*** | ***NA*** | ***109*** | ***100*** |
| *3* | ***ORANGE*** | ***NA*** | ***NA*** | ***121*** | ***100*** |
| *4* | ***YELLOW*** | ***NA*** | ***NA*** | ***130*** | ***100*** |
| 5 | RED | NA | NA | 131 | 131 |
| 6 | PINK | NA | NA | 24 | 24 |
| 7 | BLUE | NA | NA | 114 | 114 |
| 8 | ORANGE | NA | NA | 113 | 113 |
| 9 | YELLOW | NA | NA | 92 | 92 |
| 10 | PINK | NA | NA | 91 | 91 |
| 11 | BLUE | NA | NA | 91 | 91 |
| | | | **Total** | **1120** | **1056** |

| | LINE LENGTH | SYSTEM TYPE | SOIL LTAR GPD/FT$^2$ | TRENCH SYSTEM | DISTRIBUTION |
|---|---|---|---|---|---|
| ***System*** | ***400*** | ***ACCEPT.*** | ***0.300*** | ***25% RED.*** | ***GRAVITY*** |
| Repair | 656 | *ACCEPT.* | 0.300 | 25% RED. | GRAVITY |

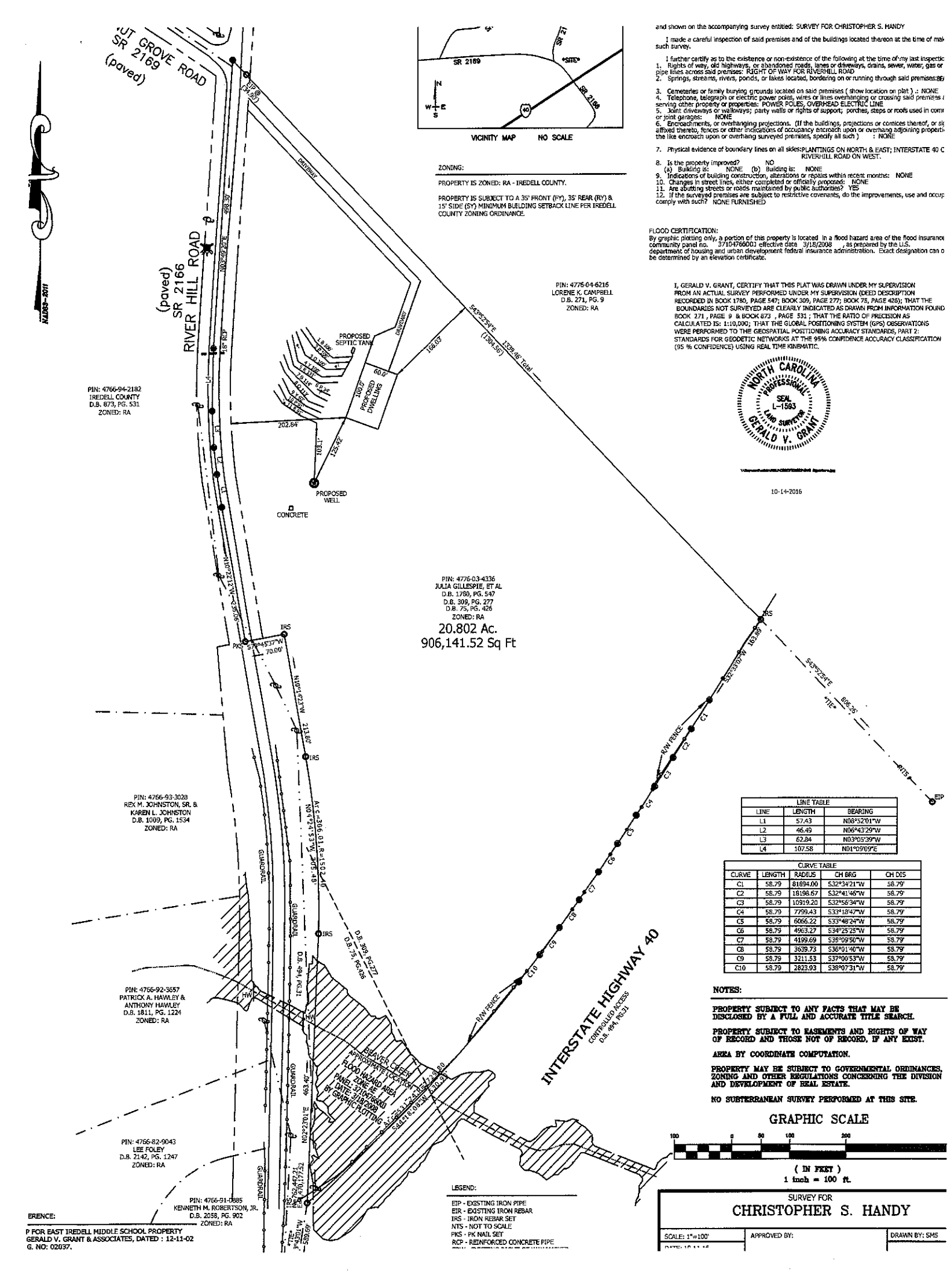
**Notes:** ** TBM Is Not Required.
**All measures in feet
**Nitrification lines are demonstrated on contour via colored pin flags

Comments: **Iredell County has CS&SC's permission to change septic tank location and distribution type**




A- 0-4 Plow layer
4-16 Rc SaCl
16-30 Rcc wSaCl
30-48 SR SaP

B- 0-6 Plow layer
6-20 Rc SaCl fr. SSaC
20-46 Rcc wSaCl fr. SSaC
46-48 R SaC M


SR 2169
(paved)
RIVER HILL ROAD
SR 2166
(paved)
VICINITY MAP NO SCALE
ZONING:
PROPERTY IS ZONED: RA - IREDELL COUNTY.
PROPERTY IS SUBJECT TO A 35' FRONT (FY), 35' REAR (RY) & 15' SIDE (SY) MINIMUM BUILDING SETBACK LINE PER IREDELL COUNTY ZONING ORDINANCE.
FLOOD CERTIFICATION:
By graphic plotting only, a portion of this property is located in a flood hazard area of the flood insurance
community panel no. 3710476600J effective date 3/18/2008 as prepared by the U.S.
department of housing and urban development federal insurance administration. Exact designation can o
be determined by an elevation certificate.
and shown on the accompanying survey entitled: SURVEY FOR CHRISTOPHER S. HANDY
I made a careful inspection of said premises and of the buildings located thereon at the time of mak
such survey.
I further certify as to the existence or non-existence of the following at the time of my last inspectio
1. Rights of way, old highways, or abandoned roads, lanes or driveways, drains, sewer, water, gas or
pipe lines across said premises: RIGHT OF WAY FOR RIVERHILL ROAD
2. Springs, streams, rivers, ponds, or lakes located, bordering on or running through said premises:NO
3. Cemeteries or family burying grounds located on said premises ( show location on plat ) .: NONE
4. Telephone, telegraph or electric power poles, wires or lines overhanging or crossing said premises
serving other property or properties: POWER POLES, OVERHEAD ELECTRIC LINE
5. Joint driveways or walkways; party walls or rights of support; porches, steps or roofs used in comm
or joint garages: NONE
6. Encroachments, or overhanging projections. (If the buildings, projections or cornices thereof, or sl
affixed thereto, fences or other indications of occupancy encroach upon or overhang adjoining properti
the like encroach upon or overhang surveyed premises, specify all such ) : NONE
7. Physical evidence of boundary lines on all sides:PLANTINGS ON NORTH & EAST; INTERSTATE 40 C
RIVERHILL ROAD ON WEST.
8. Is the property improved? NO
(a) Building is: NONE (b) Building is: NONE
9. Indications of building construction, alterations or repairs within recent months: NONE
10. Changes in street lines, either completed or officially proposed: NONE
11. Are abutting streets or roads maintained by public authorities? YES
12. If the surveyed premises are subject to restrictive covenants, do the improvements, use and occup
comply with such? NONE FURNISHED
I, GERALD V. GRANT, CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY PERFORMED UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN BOOK 1780, PAGE 547; BOOK 309, PAGE 277; BOOK 75, PAGE 426); THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND BOOK 271 , PAGE 9 & BOOK 873 , PAGE 531 ; THAT THE RATIO OF PRECISION AS CALCULATED IS: 1:10,000; THAT THE GLOBAL POSITIONING SYSTEM (GPS) OBSERVATIONS WERE PERFORMED TO THE GEOSPATIAL POSITIONING ACCURACY STANDARDS, PART 2: STANDARDS FOR GEODETIC NETWORKS AT THE 95% CONFIDENCE ACCURACY CLASSIFICATION (95 % CONFIDENCE) USING REAL TIME KINEMATIC.
NORTH CAROLINA PROFESSIONAL SEAL L-1593 LAND SURVEYOR GERALD V. GRANT
10-14-2016
PIN: 4766-04-6216
LORENE K. CAMPBELL
D.B. 271, PG. 9
ZONED: RA
PIN: 4766-94-2182
IREDELL COUNTY
D.B. 873, PG. 531
ZONED: RA
PIN: 4766-03-4336
JULIA GILLESPIE, ET AL
D.B. 1780, PG. 547
D.B. 309, PG. 277
D.B. 75, PG. 426
ZONED: RA
20.802 Ac.
906,141.52 Sq Ft
PIN: 4766-93-3028
REX M. JOHNSTON, SR. &
KAREN L. JOHNSTON
D.B. 1009, PG. 1534
ZONED: RA
PIN: 4766-92-3657
PATRICK A. HAWLEY &
ANTHONY HAWLEY
D.B. 1811, PG. 1224
ZONED: RA
PIN: 4766-82-9043
LEE FOLEY
D.B. 2142, PG. 1247
ZONED: RA
PIN: 4766-91-0885
KENNETH M. ROBERTSON, JR.
D.B. 2058, PG. 902
ZONED: RA
PROPOSED SEPTIC TANK
PROPOSED DWELLING
PROPOSED WELL
CONCRETE
DRIVEWAY
S43°35'25"E (1304.56') 1329.46' Total
INTERSTATE HIGHWAY 40
CONTROLLED ACCESS
D.B. 494, PG. 31
RW FENCE
BEAVER CREEK
APPROXIMATE LOCATION OF FLOOD HAZARD AREA ZONE AE PANEL: 3710476600J DATE: 3/18/2008 BY: GRAPHIC PLOTTING
D.B. 309, PG. 277
D.B. 75, PG. 426
D.B. 494, PG. 31
GRAVEL ROAD
HW
NTS
PK
IRS
EIP
*TIE*
LINE TABLE
LINE | LENGTH | BEARING
L1 | 57.43 | N08°52'01"W
L2 | 46.49 | N06°43'29"W
L3 | 62.84 | N03°05'39"W
L4 | 107.58 | N01°09'09"E
CURVE TABLE
CURVE | LENGTH | RADIUS | CH BRG | CH DIS
C1 | 58.79 | 81894.00 | S32°34'21"W | 58.79'
C2 | 58.79 | 18198.67 | S32°41'46"W | 58.79'
C3 | 58.79 | 10919.20 | S32°56'34"W | 58.79'
C4 | 58.79 | 7799.43 | S33°18'47"W | 58.79'
C5 | 58.79 | 6066.22 | S33°48'24"W | 58.79'
C6 | 58.79 | 4963.27 | S34°25'25"W | 58.79'
C7 | 58.79 | 4199.69 | S35°09'50"W | 58.79'
C8 | 58.79 | 3639.73 | S36°01'40"W | 58.79'
C9 | 58.79 | 3211.53 | S37°00'53"W | 58.79'
C10 | 58.79 | 2823.93 | S38°07'31"W | 58.79'
NOTES:
PROPERTY SUBJECT TO ANY FACTS THAT MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.
PROPERTY SUBJECT TO EASEMENTS AND RIGHTS OF WAY OF RECORD AND THOSE NOT OF RECORD, IF ANY EXIST.
AREA BY COORDINATE COMPUTATION.
PROPERTY MAY BE SUBJECT TO GOVERNMENTAL ORDINANCES, ZONING AND OTHER REGULATIONS CONCERNING THE DIVISION AND DEVELOPMENT OF REAL ESTATE.
NO SUBTERRANEAN SURVEY PERFORMED AT THIS SITE.
GRAPHIC SCALE
100 0 50 100 200
( IN FEET )
1 inch = 100 ft.
LEGEND:
EIP - EXISTING IRON PIPE
EIR - EXISTING IRON REBAR
IRS - IRON REBAR SET
NTS - NOT TO SCALE
PKS - PK NAIL SET
RCP - REINFORCED CONCRETE PIPE
SURVEY FOR
CHRISTOPHER S. HANDY
SCALE: 1"=100'
APPROVED BY:
DRAWN BY: SMS
ERENCE:
P FOR EAST IREDELL MIDDLE SCHOOL PROPERTY
GERALD V. GRANT & ASSOCIATES, DATED : 12-11-02
G. NO: 02037.

## DOSING CALCULATIONS

Location River Hill Rd
PIN #: 4776-03-4336
Address:

| | |
|---|---|
| No. of Bedrooms | 4 |
| Design Flow | 480 $^{gal}/_{day}$ |
| LTAR | 0.300 $^{gal}/_{ft^2\,day}$ |
| 25% RED. Expansion? (YES OR NO) | YES |
| Supply Line Length | 6 ft. |
| Supply Line Volume | 2.16 gal. |
| Required Feet of 25% RED. Line | 400 ft. |
| Amount of Line from Layout | 400 ft. |
| Gallons per Minute | NA $^{gal}/_{min}$ |
| Septic Tank Capacity | 1000 gal. |
| Minimum Septic Tank Capacity | 1000 gal. |
| Lateral Line Volume | 261.2 gal. |

DEPARTMENT OF HEALTH AND HUMAN SERVICES
DIVISION OF PUBLIC HEALTH, ENVIRONMENTAL HEALTH SECTION
ON-SITE WATER PROTECTION BRANCH

Sheet 1 of 1
PROPERTY ID #: 47726343336
COUNTY: Iredell

**SOIL/SITE EVALUATION**
***for* ON-SITE WASTEWATER SYSTEM**
(Complete all fields in full)

OWNER: Julia Gillespie
ADDRESS: 724 Stanfield Dr, Charlotte NC 28210
PROPOSED FACILITY: 4 Bm
PROPOSED DESIGN FLOW (.1949): 480 gpd
LOCATION OF SITE:
APPLICATION DATE: 10-27-16
DATE EVALUATED: 10/2016
PROPERTY SIZE:
PROPERTY RECORDED: yes

WATER SUPPLY: ☑ Private ☐ Public ☐ Well ☐ Spring ☐ Other
EVALUATION METHOD: ☑ Auger Boring ☐ Pit ☐ Cut
TYPE OF WASTEWATER: ☑ Sewage ☐ Industrial Process ☐ Mixed

| PROFILE # | .1940 LANDSCAPE POSITION/ SLOPE % | HORIZON DEPTH (IN.) | SOIL MORPHOLOGY (.1941) .1941 STRUCTURE/ TEXTURE | SOIL MORPHOLOGY (.1941) .1941 CONSISTENCE/ MINERALOGY | OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR | OTHER PROFILE FACTORS .1943 SOIL DEPTH | OTHER PROFILE FACTORS .1956 SAPRO CLASS | OTHER PROFILE FACTORS .1944 RESTR HORIZ | PROFILE CLASS & LTAR |
|---|---|---|---|---|---|---|---|---|---|
| B 1 | LSS 6% | 0-6 | B CL WFSBK | Fr SS SP SE xP | N/A | 48" | N/A | N/A | PS .3 |
| | | 6-26 | R C MFSBK | Fr SS SP SE xP | | | | | |
| | | 26-48 | R CL WFSBK | Fr SS SP SE xP | Com/many Sap | | | | |
| B 2 | LSS 5% | 0-4 | RB CL WFSBK | Fr SS SP SE xP | N/A | 45" | PS | N/A | PS .35 |
| | | 4-12 | R C WFSBK | Fr SP SE xP | | | | | |
| | | 12-45 | R CL WFSBK | Fr SS SP SE xP | Com/many Sap | | | | |
| | | 45-48 | Var SL Sap/M | Fr SS SP SE xP | few CL inc/ | | | | |
| B 3 | LSS 7% | 0-20 | R C MFSBK | Fr SP SE xP | N/A | 48" | N/A | N/A | PS .325 |
| | | 20-48 | R CL WFSBK | Fr SS SP SE xP | Com Sap | | | | |
| B 4 | LSS 6% | 0-32 | R C MFSBK | Fr S P SE xP | N/A | 48" | N/A | N/A | PS .3 |
| | | 32-48 | R CL WFSBK | Fr SS SP SE xP | Com Sap 1 WR inc/ | | | | |

| DESCRIPTION | INITIAL SYSTEM | REPAIR SYSTEM |
|---|---|---|
| Available Space (.1945) | PS | PS |
| System Type(s) | Gravity 25% | Gravity 25% |
| Site LTAR | 0.3 | 0.3 |

OTHER FACTORS (.1946): None
SITE CLASSIFICATION (.1948): PS
EVALUATED BY: ALP
OTHER(S) PRESENT: Chris Handy, SC

COMMENTS: