S&ME

May 26, 2015

Mr. Jeff Blair
112 Marlow Cove Lane
Mooresville, North Carolina 28117

Reference: **Technical Assistance with Septic Permitting**
Lot 2 Copper Ridge Subdivision
116 Sienna Pace Court
Iredell County, North Carolina
S&ME Project No. 1584-13-067

Dear Mr. Blair:

S&ME, Inc. (S&ME) has provided technical assistance in regard to obtaining a possible septic Improvement Permit for the above referenced property in Iredell County, North Carolina. The evaluation was performed in general accordance with S&ME Proposal No. 1584-13-P175 dated July 1, 2013 and email authorization to provide additional services dated April 20, 2015.

BACKGROUND

The referenced property is a 0.79 acre waterfront lot on Lake Norman located at the end of Sienna Pace Court in Iredell County, North Carolina. The Iredell County Health Department (ICHD) issued an Improvement Permit for a four bedroom T&J Panel Septic System for Lot 2 on April 22, 2006 to Burke Brothers, LLC. In 2013 you submitted an application for a system relayout to the ICHD for a revised house location showing a proposed pool. A new 4 bedroom Improvement Permit was issued by the ICHD on July 22, 2013 and a Construction Authorization was issued on August 14, 2013 for a four bedroom T&J Panel System. We understand the ICHD reviewed your lot during the training of a new ICHD staff member. We understand that the State Regional Soil Specialist and Mr. Adrian Pruett, ICHD Supervisor visited the lot together after the training review and that a new Improvement Permit was issued on December 8, 2014 with the following note: "Remove 12" cover max across drainfield area. If more than 12" is to be removed then the ICHD will have to do deeper soil borings to determine suitable soil".

You recently contacted S&ME to inquire about placing the repair area for Lot 2 Copper Ridge on the lot you own to the north (112 Marlowe Cove Lane) to expand the permitted system for Lot 2 to six bedrooms prior to installation.

SUMMARY OF PROPOSED SEPTIC SYSTEM

S&ME made several site visits to review and discuss the proposed system expansion with you. The existing 2014 ICHD permit shows that 560 feet of T&J Panel line are approved in the proposed primary and the 100 Percent repair area (total of 8 bedrooms) on Lot 2. Your surveyor has re-staked the primary septic lines that were permitted by the ICHD in 2013 and 2014. We are proposing 400 feet of T&J Panel for the 6 bedroom primary septic system on Lot 2. Mr. Parks Cornelius has granted you an easement to encroach on the 10 foot property line setback at the system area. The proposed system utilizes the same 0.3 gallons per day per square foot (gpd/sqft) Long Term Acceptance Rate (LTAR). Per the 2014 ICHD permit, if no more than 12 inches of soil cover is removed to smooth the proposed septic area, no additional soil evaluation will be required in this septic area. This soil removal should be performed by the installer at the direction of the ICHD.

You have granted yourself an easement on the 0.787 acre lot to the north for the 6 bedroom T&J Panel repair area. Mr. Parks Cornelius has granted you an easement to cross his 10 foot strip between your lots and also to place your drainfield lines closer than 10 feet to his property line. S&ME placed four hand auger borings in the proposed repair area and flagged 400 feet of proposed T&J Panel line for the 100 percent repair area. Your surveyor located the flagged septic lines as shown on the attached site plan. The repair should be at least 20 feet from the exiting bed system on the lot. All easements shall be recorded at the register of deeds prior to the ICHD issuing a Construction Authorization.

CLOSURE

S&ME appreciates the opportunity to provide these services to you. The attached information is not an Improvement Permit or Authorization to Construct, and is only to assist you and the ICHD with the Fast Track site evaluation. The ICHD may show any changes or modifications they want to the proposed system on the permit or attached site plan. The attached plan is not intended to be a Professional Engineer design. The ICHD should verify all soils and system specifications, required setbacks, and whether a professional engineer plan is required before permitting and/or septic system installation. Soil evaluations and system layouts are done based on interpretations of the rules governing wastewater treatment and disposal systems and are not guarantees for site approval or future septic system performance.

Please call if you have any questions.

Sincerely,

S&ME, Inc.

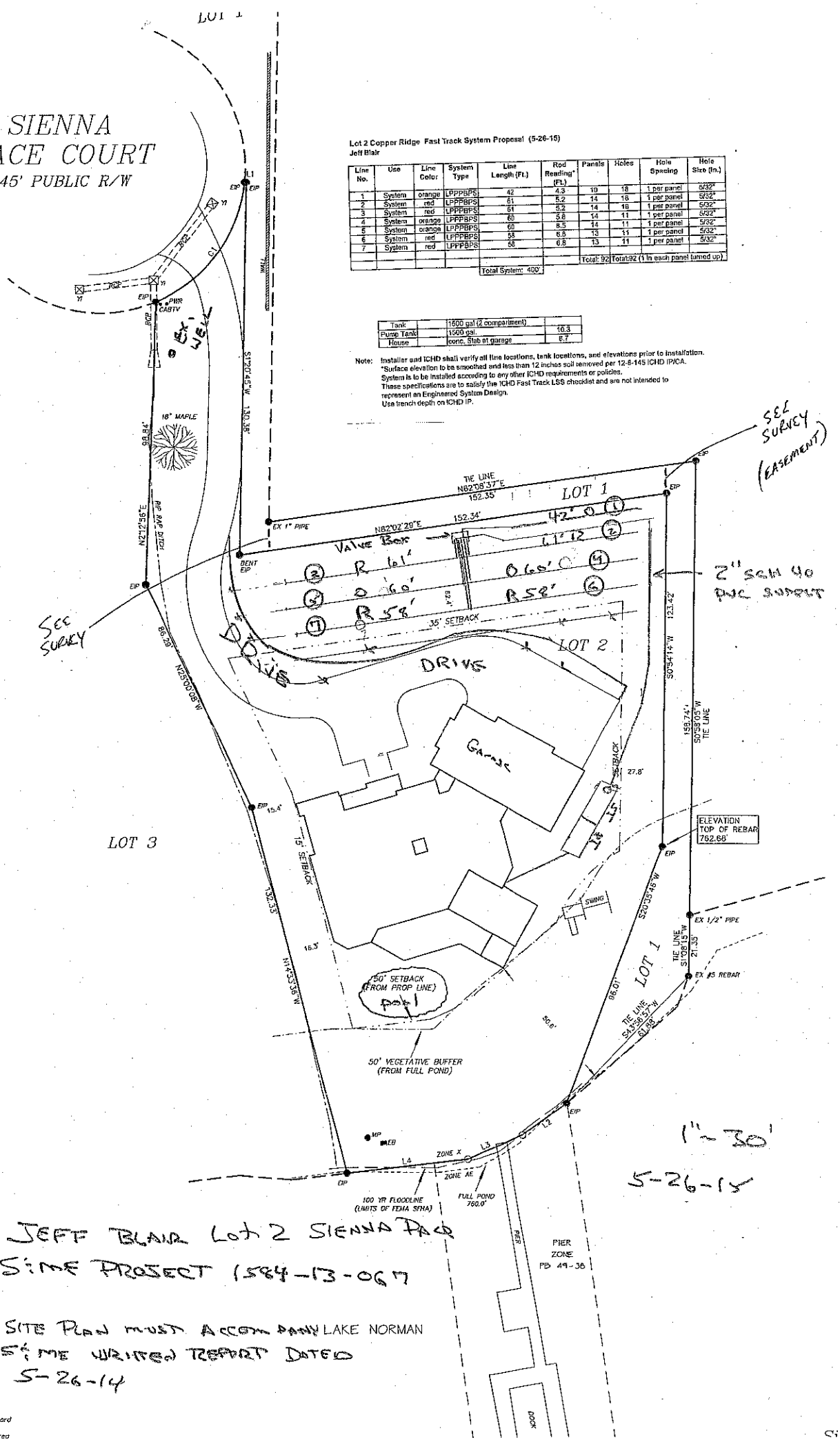
Paul G. Penninger, LSS
Licensed Soil Scientist

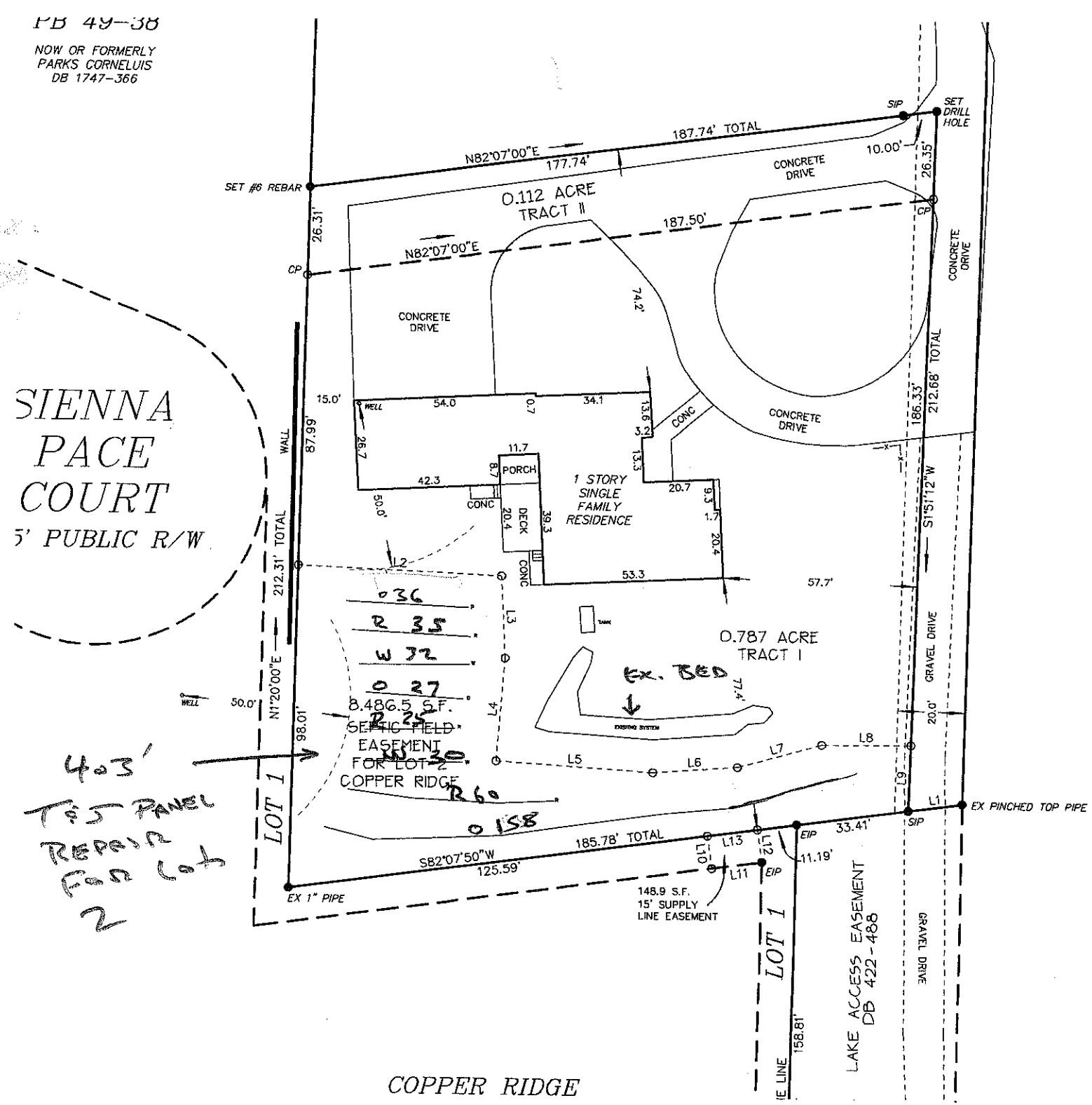
Rob Willcox, LSS
Senior Project Manager / Soil Scientist

Attachments:

1. ICHD Application
2. Site Plan and Proposed System Information
3. Easements
4. 2006, 2013, and 2014 ICHD Improvement Permits

T:\Projects\2013\ENV\1584-13-067 Jeff Blair - Copper Ridge Lot 2\Jeff Blair Summary Report.doc


LOT 1
SIENNA
PACE COURT
45' PUBLIC R/W
Lot 2 Copper Ridge Fast Track System Proposal (5-26-15)
Jeff Blair
Line No. | Use | Line Color | System Type | Line Length (Ft.) | Rod Reading* (Ft.) | Panels | Holes | Hole Spacing | Hole Size (In.)
1 | System | orange | LPPPBPS | 42 | 4.3 | 10 | 18 | 1 per panel | 5/32"
2 | System | red | LPPPBPS | 61 | 5.2 | 14 | 18 | 1 per panel | 5/32"
3 | System | red | LPPPBPS | 61 | 5.2 | 14 | 18 | 1 per panel | 5/32"
4 | System | orange | LPPPBPS | 60 | 5.8 | 14 | 11 | 1 per panel | 5/32"
5 | System | orange | LPPPBPS | 60 | 6.5 | 14 | 11 | 1 per panel | 5/32"
6 | System | red | LPPPBPS | 58 | 6.5 | 13 | 11 | 1 per panel | 5/32"
7 | System | red | LPPPBPS | 58 | 6.8 | 13 | 11 | 1 per panel | 5/32"
Total: 92 Total: 92 (1 in each panel turned up)
Total System: 400'
Tank | 1600 gal (2 compartment) |
Pump Tank | 1500 gal. | 16.3
House | conc. Slab at garage | 6.7
Note: Installer and ICHD shall verify all line locations, tank locations, and elevations prior to installation.
*Surface elevation to be smoothed and less than 12 inches soil removed per 12-8-145 ICHD IP/CA.
System is to be installed according to any other ICHD requirements or policies.
These specifications are to satisfy the ICHD Fast Track LSS checklist and are not intended to represent an Engineered System Design.
Use trench depth on ICHD IP.
SEE SURVEY (EASEMENT)
TIE LINE N82°08'37"E 152.35
LOT 1
EX 1" PIPE
N82°02'29"E 152.34'
Valve Box
42.0'
61.12'
2" SCH 40 PVC SUPPLY
BENT
R 61'
O 60'
O 60'
R 58'
35' SETBACK
LOT 2
DRIVE
SEE SURVEY
N21°21'55"E 99.84'
RIP RAP DITCH
N25°00'08"W 66.28'
S17°07'45"W 130.38'
18" MAPLE
PIER CABTV
EX. WELL
123.42'
S03°41'13"W
159.74'
S0°58'05"W
TIE LINE
GARAGE
27.8'
SETBACK
ELEVATION TOP OF REBAR 762.66'
LOT 3
15.4'
7.5' SETBACK
132.53'
N14°33'36"W
16.3'
SWING
S20°35'46"W
EX 1/2" PIPE
TIE LINE S1°08'13"W 21.35'
EX #5 REBAR
LOT 1
95.01'
50' SETBACK (FROM PROP LINE)
Pad
50' VEGETATIVE BUFFER (FROM FULL POND)
TIE LINE S43°56'57"W 61.98'
50.6'
MP
EB
ZONE X
ZONE AE
L1
L2
L3
L4
100 YR FLOODLINE (LIMITS OF FEMA SFHA)
FULL POND 760.0'
PIER
PIER ZONE PB 49-36
DOCK
1" = 30'
5-26-15
JEFF BLAIR Lot 2 SIENNA PACE
SITE PROJECT 1584-13-067
* SITE PLAN MUST ACCOMPANY LAKE NORMAN SITE WRITTEN REPORT DATED 5-26-14
- a full
d Ways of record
ood Hazard Area
Site


PB 49-38
NOW OR FORMERLY
PARKS CORNELUIS
DB 1747-366
SIENNA
PACE
COURT
5' PUBLIC R/W
SET #6 REBAR
SIP
SET DRILL HOLE
N82°07'00"E
177.74'
187.74' TOTAL
10.00'
26.35'
26.31'
CP
0.112 ACRE
TRACT II
187.50'
N82°07'00"E
CONCRETE DRIVE
74.2'
15.0'
WELL
54.0
0.7
34.1
13.6
3.2
CONC
186.33'
212.68' TOTAL
WALL
87.99'
29.7'
11.7
PORCH
8.7
42.3
CONC
1 STORY
SINGLE
FAMILY
RESIDENCE
DECK
20.4
39.3
13.3
20.7
9.3
1.7
20.4
50.0'
212.31' TOTAL
L2
53.3
57.7'
S1°51'12"W
036
R 35
W 32
027
R 25
R 30
R 60
158
L3
L4
L5
L6
L7
L8
L9
L1
0.787 ACRE
TRACT I
Ex. BED
77.4'
EXISTING SYSTEM
GRAVEL DRIVE
20.0'
WELL
50.0'
N1°20'00"E
98.01'
8,486.5 S.F.
SEPTIC FIELD
EASEMENT
FOR LOT 2
COPPER RIDGE
LOT 1
403'
T.S. PANEL
REPAIR
FOR LOT
2
EX PINCHED TOP PIPE
SIP
EIP
33.41'
185.78' TOTAL
S82°07'50"W
125.59'
L13
L12
L10
L11
EIP
11.19'
EX 1" PIPE
148.9 S.F.
15' SUPPLY
LINE EASEMENT
LOT 1
158.81'
LAKE ACCESS EASEMENT
DB 422-488
GRAVEL DRIVE
COPPER RIDGE

Lot 2 Copper Ridge Fast Track System Proposal (5-26-15)

Jeff Blair	
Number of Bedrooms	6
Basement or Crawl	**Crawl**
Design Flow (gpd)	720
Primary LTAR (gpd/ft2)	0.3 per ICHD 2014 permit
Primary System Type	**LP PPBPS**
No. Lines	7 (See Table)
Total Linear Feet	400
Trench Width	2' min.
Trench Spacing	8' min.
Pump Required	Yes
Distribution Device	Gate Valve Box w/ LPP Distribution
Maintenance Agreement Required	Yes
Length and Diameter of Supply Pipe	approx. 150' of 2 " SCH 40 PVC
Size of laterals	1 1/4" SCH 40 PVC
Flow Rate through the system	46 gpm
Elevation head	*Approx. 14'
Pressure head	3.0'
Friction head	approx. 7'
20% Contingency	approx. 5'
Total Head	29'
Pump Requirements	46 gpm @ 29' of head* *To be verified by installer and ICHD prior to installaton
Maximum Dosing Volume	*330 gallons max
Volume 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. 7.2 min.
Check Valve	yes
Siphon Break hole	no
Repair System	**LP PPBPS on easement**
Repair LTAR	0.3
Total Lineal Feet	403 shown, 400 required

***Before placement of cap block, one panel on each line near the center of the field should be observed filling to make certain that it does not overflow top chamber into air chambers of panel. If overflow occurs, reduce floats by 25 gallons and reset until no overflow is observed.**
Note: The ICHD has requested the valve box at the upper line on similar systems and endfed distribution.

Lot 2 Copper Ridge Fast Track System Proposal (5-26-15)
Jeff Blair

Line No.	Use	Line Color	System Type	Line Length (Ft.)	Rod Reading* (Ft.)	Panels	Holes	Hole Spacing	Hole Size (In.)
1	System	orange	LPPPBPS	42	4.3	10	18	1 per panel	5/32"
2	System	red	LPPPBPS	61	5.2	14	18	1 per panel	5/32"
3	System	red	LPPPBPS	61	5.2	14	16	1 per panel	5/32"
4	System	orange	LPPPBPS	60	5.8	14	11	1 per panel	5/32"
5	System	orange	LPPPBPS	60	8.5	14	11	1 per panel	5/32"
6	System	red	LPPPBPS	58	6.8	13	11	1 per panel	5/32"
7	System	red	LPPPBPS	58	6.8	13	11	1 per panel	5/32"
						Total: 92	Total:92 (1 in each panel turned up)		
				Total System: 400'					

Tank		1500 gal (2 compartment)	
Pump Tank		1500 gal.	10.3
House		conc. Slab at garage	8.7

Note: **Installer and ICHD shall verify all line locations, tank locations, and elevations prior to installation.**
*Surface elevation to be smoothed and less than 12 inches soil removed per 12-8-145 ICHD IP/CA.
System is to be installed according to any other ICHD requirements or policies.
These specifications are to satisfy the ICHD Fast Track LSS checklist and are not intended to represent an Engineered System Design.
Use trench depth on ICHD IP.

CAN REMOVE 24" MAX OF SOIL FROM DRAINFIELD AREA.

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

Sheet ___ *of* ___
PROPERTY ID #: _____
COUNTY: _____

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

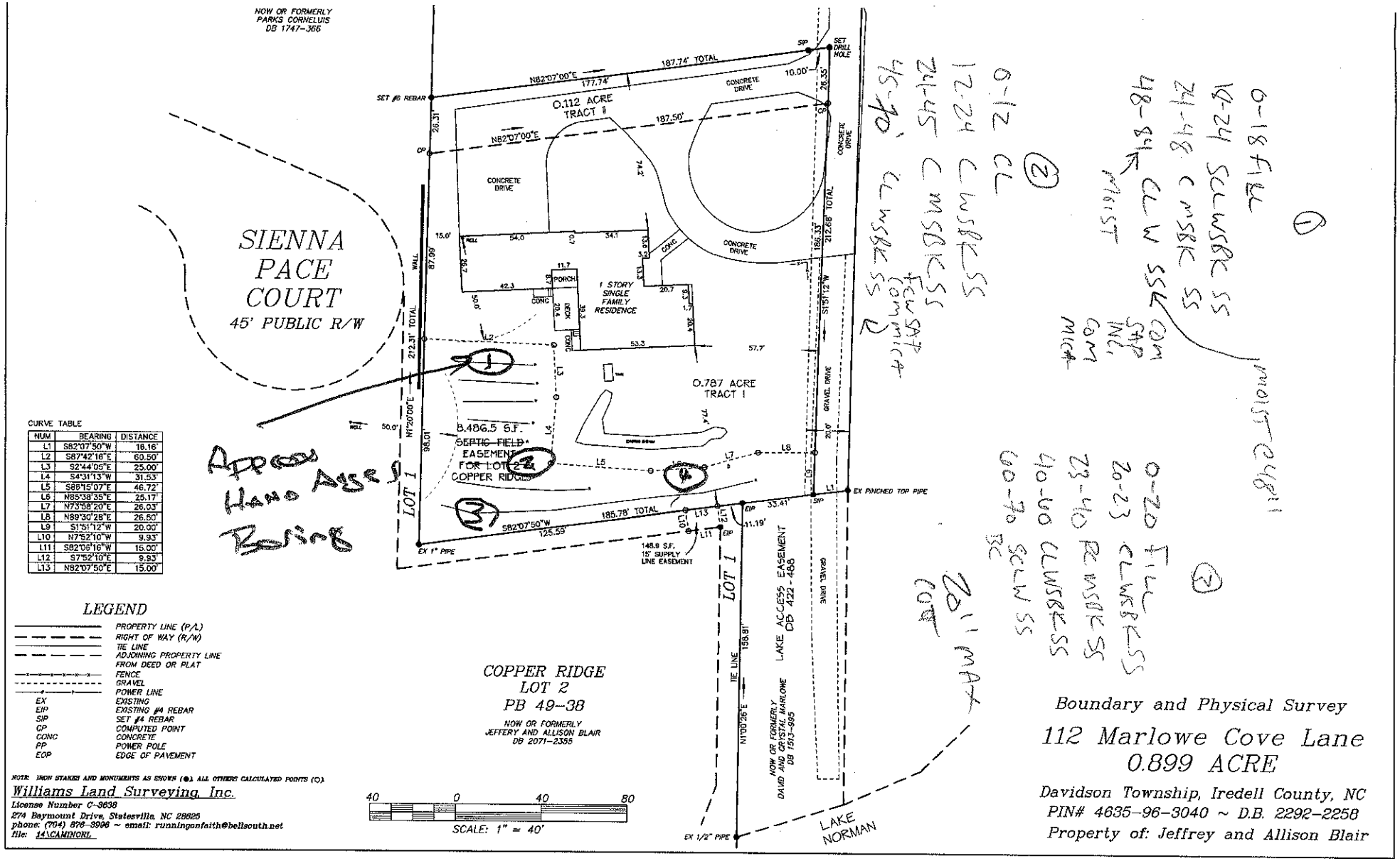
OWNER: Jeep Bland — APPLICATION DATE: May 15
ADDRESS: 116 Sienna Place — DATE EVALUATED: 2015
PROPOSED FACILITY: 6 Bdrm Residence — PROPOSED DESIGN FLOW (.1949): 720 — PROPERTY SIZE: _____
LOCATION OF SITE: Lot 2 Copper Ridge — PROPERTY RECORDED: Easement
WATER SUPPLY: ☒ Private ☐ Public ☐ Well ☐ Spring ☐ Other _____ — 2015
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	.1941 CONSISTENCE/ MINERALOGY	OTHER PROFILE FACTORS .1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	PROFILE CLASS & LTAR
1	L ~5	0-15	WSBK cl	fr s/p	red br				PS .3
		15-36	mf SBK C	fi s/p	red f	n/a	stks		
		36-50	WSBK cl	fr ss/sp	red yel	f – c	SAP	n	
2	L ~5	0-15	WSBK cl	fr s/p	red br				PS .3
		15-24	mf SBK C-cl	fr s/p	red br				
		24-40	mSBK C	fr ss/sc	red f	SAP	n	ff	n/a
		40-89	WSBK H cl	fr ss/sc	red yel	C	SAP	C	n/a
3	L ~5	0-25	SG WSBK cl	fr ss/sc	br – pass thru LCH				PS .3
		25-40	mf SBK C	fr ss/sp	red	f	SAP	f	n/a
		40-66	WSBK cl	fr ss/sp	yel red	C	SAP	C	n/a
4	L ~5	0-18	WSBK cl	fr ss/sp	red br				PS .3
		18-36	WSBK C	fr s/p	red f	SAP	–	n	n/a
		36-62	WSBK cl-sCl	fr ss/sp	yel red	C	SAP	f	n/a

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM
Available Space (.1945)	~ Lot 2	PS
System Type(s)	T + S	T + S
Site LTAR	.3	.3

OTHER FACTORS (.1946): _____
SITE CLASSIFICATION (.1948): _____
EVALUATED BY: RBP
OTHER(S) PRESENT: must be approved by LHD

COMMENTS: _____



REPAIR AREA HAND AUGER BORINGS

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

Sheet: 1 OF 1
PIN #: 4635-95-3823
Lot #: 2
Permit #: 210822
AppID:

SOIL/SITE EVALUATION for ON-SITE WASTEWATER SYSTEM

Owner: JEFF BLAIR
Applicant: SAME
Address: 112 MARLOW COVE LN.
Date Evaluated: 6/2/2015
Proposed Facility: Design Flow (.1949)
Property Size: .76 AC
Location of Site: COPPER RIDGE LOT 2
Property Recorded: YES
Water Supply: [ ] Public [X] Individual [X] Well [ ] Spring [ ] Other
Evaluation Method: [X] Auger Boring [ ] Pit [ ] Cut
Type of Wastewater: [X] Sewage [ ] Industrial Process [ ] Mixed

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	Profile Class & LTAR
AB 1	LINEAR 4%	0-18	FILL		NA	84"	COMM INC @ 48"	84"	.3
		18-24	SCL,W,SBK	SS					
		24-48	C,M,SBK	SS					
		48-84	CL,W,SBK	SS					
AB 2	LINEAR 4%	0-12	FILL		NA	70"	COMM INC @ 45"	70"	.3
		12-24	C,W,SBK	SS					
		24-45	C,M,SBK	SS					
		45-70	CL,W,SBK	SS					
AB 3	LINEAR 4%	0-20	FILL		NA	70"	COMM INC @ 60"	70"	.3
		20-23	CL,W,SBK	SS					
		23-40	C,M,SBK	SS					
		40-60	CL,W,SBK	SS					
		60-70	SCL,W,SBK	SS					

Description	Initial System	Repair System
Available Space (.1945)	PS	PS
System Type(s)	LP PANEL	LP PANEL
Site LTAR	.3	.3

Other Factors (.1946): REMOVE MAX 24" SOIL FROM DRAIN FIELD AREA
Soil Evaluation By: BEN ALDRIDGE, PAUL PENNINGER
Others Present: JEFF & ALLISON BLAIR
Site Classification (.1948): PS
Site Evaluation By: BEN ALDRIDGE, PAUL PENNINGER
Others Present: JEFF & ALLISON BLAIR