October 24, 2007

Mr. Lorne Cook, R.S.
Iredell County Health Department
Statesville, NC 28677

Attention: Mr. Cook

Reference: Proposed Redraw for Mr. Mike Seadorf (Randall Construction Co.), Lot 6, Twin Creeks Subdivision
S&ME, Inc. Project No. 1588-07-082

Dear Mr. Cook:

S&ME, Inc. (S&ME) evaluated the soils and flagged a proposed revision to the Iredell County Health Department (ICHD) septic permit on Mr. Seadorf's Lot 6 in Twin Creeks subdivision on October 17, 2007. This evaluation and proposed revision took place at the request of Mr. Seadorf in order to find a less expensive solution for septic system type on the lot and also to remove the maintenance contract requirement. The lot is currently permitted by the ICHD for a four (4) bedroom single family residence utilizing a shallow placed (28" max trench depth) LP PPBPS system with a soil cover cap placed over it for the initial system, designed at a 0.25 GPD/ft² LTAR. This system is a type IV system which requires a maintenance contract. The current repair system is an LPP system.

S&ME reviewed the soils and the proposed septic system revision for Mr. Seadorf's lot with you on October 22, 2007. The soils on the lot were described as provisionally suitable to depths of approximately 36 inches at a 0.25 gpd/ft² LTAR. We (S&ME and you) also established a boundary for the fill area (see site plan). The proposed new system design is an "Easy Flow" 25% reduction system using a 24 inch trench bottom depth. There are six (6) proposed drain lines. The effluent is proposed to be distributed by use of a pressure manifold and drop boxes (see site plan). This system will be a type III system which does not require a maintenance contract and also no cap will be needed. The proposed repair system area is the same as shown on the original ICHD permit (low pressure pipe system). Assuming the repair area design LTAR originally assigned by the ICHD was 0.125 GPD/ft², using this LTAR would require approximately 3,840 ft² of area to be set aside for repair. The repair area shown on S&ME's site plan and on the original ICHD permit is approximately 7,500+ ft² in size. A drip system may also be used in this repair area.

If the ICHD wishes to change tank locations, distribution devices, etc., this can be shown on the Permit.

Thanks for your time in reviewing this proposal. Please call if you have any questions concerning this proposal.

Sincerely,

S&ME, Inc.



Kathleen Saunders, LSS-IT
Soil Scientist

Patrick Mitchell, RS, LSS-IT
Soil Scientist

Paul Penninger,LSS
Senior Soil Scientist

Copy: Mike Seadorf

Attachments

1. Site Plan
2. System Specifications
3. Calculations Sheet
4. Soil Profile Descriptions
5. Original ICHD Permit

Lot 6 Twin Creeks Subdivision — Septic System Information

Number of Bedrooms	**4**
Basement or Crawl	**Basement w/ Plumbing**
Design Flow (gpd)	**480**
Primary System LTAR (gpd/ft2)	**0.3**
Primary System Type	**25% Reduction**
No. Lines	6 (See Table)
Total Linear Feet	480'
Trench Width	3' min.
Trench Spacing	9' min.
Pump Required	Yes
Distribution Device	Pressure Manifold & Drop Boxes
Maintenance Agreement Required	No
Length and Diameter of Supply Pipe	70' of 2" SCH 40 PVC
Flow Rate through the system	39.08 gpm
Elevation head	Approx. 14'
Pressure head	2.0'
Friction head	1.0'
20% Contingency	1.0'
Approx. Total Head	18.0'
****Pump Requirements**	39 gpm @ ~18' of head **** Pump requirements must be verified by installer at time of installation**
Maximum Dosing Volume	209 gal -2.3 doses/day @ design flow
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. 5.4 min.
Check Valve	No
Siphon Break hole	Yes
Repair System	**Low Pressure Pipe**

Table: Summary of Primary and Repair Nitrification Line Specifications

Line No.	Line Color	System Type	Line Length (Ft.)	
1	White	25% Reduction	25'	Use one 1/2" Sch 80 Tap (5.48 GPM/tap)
	Orange	25% Reduction	47'	
2	Blue	25% Reduction	89'	Use one 1" Sch 80 Tap (16.8 GPM/tap)
	Orange & White	25% Reduction	121'	
3	Blue	25% Reduction	135'	Use one 1" Sch 80 Tap (16.8 GPM/tap)
	Orange	25% Reduction	65'	
			Total System: 480'	

Manifold Information	
Tap Size (In.)	½ & 1 (see above table)
Tap Material	SCH 80 PVC
No. Taps	3
Barrel Size (In.)	4
Barrel Material	SCH 80 PVC

*** Pump specifications should be verified by installer**

NOTES:

1) Use a 24" maximum trench depth
2) System must be installed using "Easy Flow" system
3) Pump to pressure manifold using three (3) taps as shown
4) Use three (3) drop boxes at end of lines as shown

Calculations

Line Lengths

(White) 25 ft. + (Orange) 47 ft. = **72 ft.**

(Blue) 89 ft. + (Orange & White) 121 ft. = **210 ft.**

(Blue) 135 ft. + (Orange) 65 ft. = **200 ft.**

Tap Calculations

- For 72 ft. line use ½ inch Sch 80 tap @ 5.48 GPM
- For both the 210 ft. and 200 ft. lines use 1 inch Sch 80 taps @ 16.8 GPM

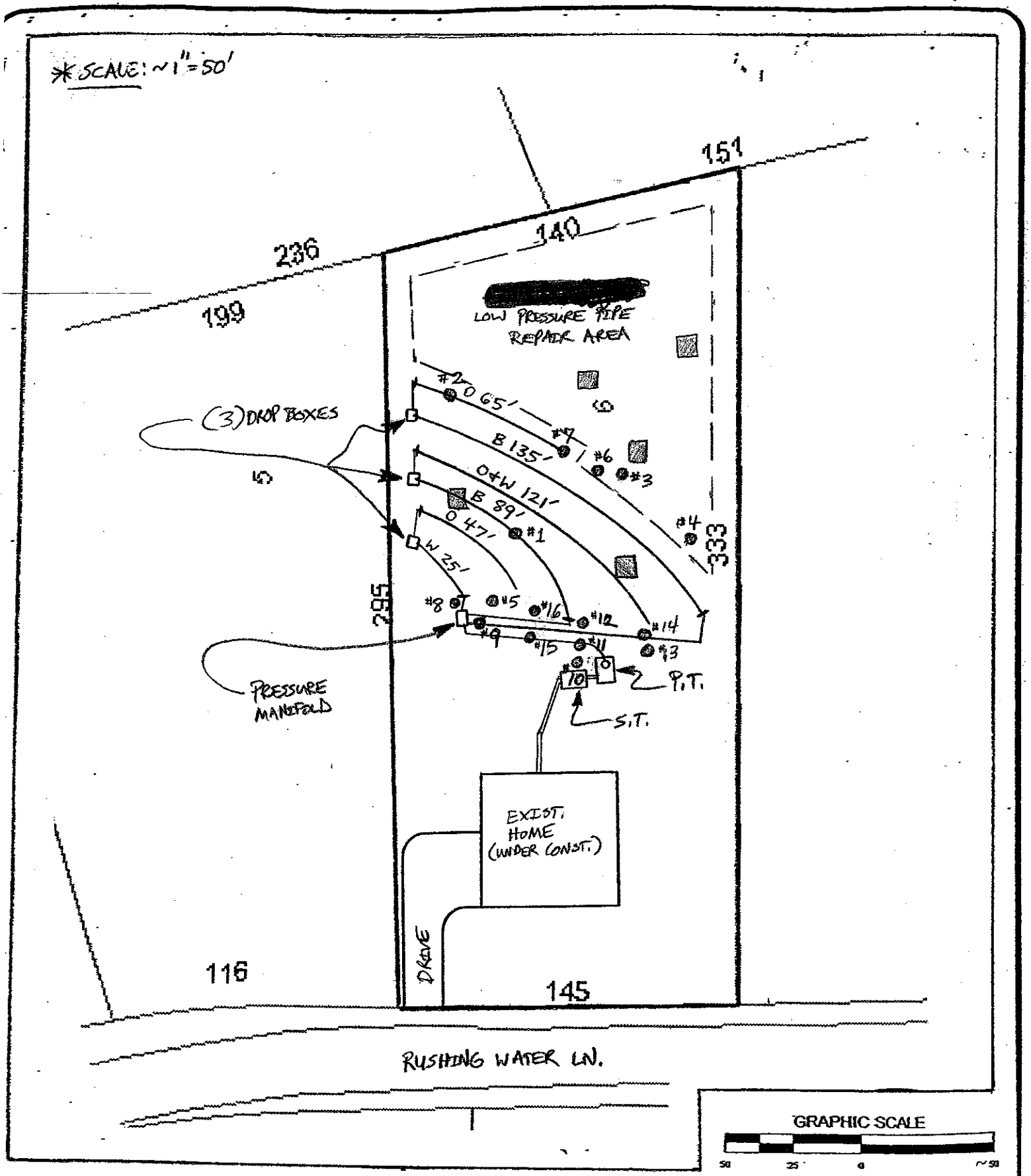
5.48 GPM / 72 ft. = **0.076 GPM/ft.**

16.8 GPM / 210 ft. = **0.080 GPM/ft.**

16.8 GPM / 200 ft. = **0.084 GPM/ft.**

Verifying flow rate to each line is within 10% tolerable variance

0.076 GPM/ft. / 0.080 GPM/ft. = 0.95 or 95% so (5% difference) **≤ 10% variance**
0.080 GPM/ft. / 0.084 GPM/ft. = 0.95 or 95% so (5% difference) **≤ 10% variance**
0.076 GPM/ft. / 0.084 GPM/ft. = 0.90 or 90% so (10% difference) **≤ 10% variance**



SCALE:	AS SHOWN
DATE:	10-23-2007
DRAWN BY:	PLM
PROJECT NO:	1588-07-082

S&ME
WWW.SMEINC.COM

PRELIMINARY

FIGURE NO.

S&ME, INC.
SITE/SOIL EVALUATION

Project No. _____ **Phone No.** _____ **Date:** _____
Location _____ **Pin** _____ **County:** _____ **Property Size** _____

Proposed Facility: _____ **Water Supply:** **On-Site Well** ☐ **Community** ☐ **Public** ☐ **Evaluation:** **Auger Boring** ☐ **Pit** ☐ **Cut** ☐

Weather: _____ **Antecedent Moisture** _____ **Surface Water:** _____

FACTORS	PROFILE 1	PROFILE 2	PROFILE 3	PROFILE 4
Landscape Position %				
Horizon Depth I	0-5	0-14	0-6	0-10
Color Munsell	Red Br	Br	Br	Br Red
Texture	SCL	SCL	L	SCL
Structure	WK SBK	mo GR	mo GR	WK SBK
Consistence	FR SS/SP	FR SS/SP	FR SS/SP	FR SS/SP
Boundary				
Horizon Depth II	5-22	14-36	6-30	10-21
Color – Munsell	Red	Red Br	Red Br	Br Red
Texture	C	SCL/CL	L/CL	CL
Mottles	C Mica	F-C Mn	C Sap	—
Structure	mo SBK	mo SBK	WK SBK	mo SBK
Consistence	FR SS/SP	FR SS/SP	FR SS/SP	FR SS/SP
Boundary				
Horizon Depth III	22-28	36-48	30-48	21-27
Color – Munsell	Red	Red Br	Br	Br Red
Texture	CL	SCL	L Sap	CL
Mottles	C Mica/sap	C Mn, f-c/lor	F/C 2 Chroma	C Sap
Structure	WK SBK	WK SBK	MA	WK SBK
Consistence	FR SS/SP	FR SS/SP	FR SS/SP	FR SS/SP
Boundary				
Horizon Depth IV	28-48			27-30
Color – Munsell	Mul H			Br Red
Texture	L Sap			L Sap
Mottles	F Quan Hz 38"			F-C Chroma 2 C-4/lor
Structure	MA			MA
Consistence	FR SS/SP			FR SS/SP
Boundary				
Soil Wetness			@30+	@27+
Restrictive Horizon				
Saprolite				
PAR	0.3	0.25	0.3 to 30"	
Classification				

LEGEND

LANDSCAPE POSITION

R	Ridge Interfluve
S	Shoulder
L	Linear Slope
S	Foot Slope
N	Nose Slope
H	Head Slope
Cc	Conclave Slope
Cv	Convex Slope
T	Terrace
P	Flood Plain

TEXTURE

s	sand
ls	Loamy sand
sl	sandy loam
l	loam
si	silt
sil	silt loam
sicl	silty clay loam
cl	clay loam
scl	sandy clay loam
sc	sandy clay
sic	silty clay
c	clay

CONSISTENCE WET

Ns	non-sticky
Ss	slightly sticky
S	sticky
Vs	very sticky
Np	non-plastic
Sp	slightly plastic
P	plastic
Vp	very plastic

MOIST

vfr	Very friable
fr	friable
fi	firm
vfi	Very firm

STRUCTURE

sg	single grain
m	massive
cr	crumb
gr	granular
sab	subangular blocky
ab	angular blocky
pl	platy

S&ME, INC.
SITE/SOIL EVALUATION

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Weather: _____ **Antecedent Moisture** _____ **Surface Water:** _____

FACTORS	PROFILE 5	PROFILE 6	PROFILE 7	PROFILE 8
Landscape Position %				
Horizon Depth I	0-10	0-6	0-6	
Color Munsell	fill	Red-Brwn.	Red-Brwn.	
Texture		SCL	SCL	Natural
Structure		WK, Sbk	WK, Sbk	Soil
Consistence		Fr, SS, SP	Fr, SS, SP	
				w/ ~5"
Boundary				
Horizon Depth II	10-20	6-30	6-36	of fill
Color – Munsell	Red	Red	Red	
Texture	CL	SCL/SC	SCL/SC	on top,
Mottles	f Sap	F-Sap.	F-Sap. & Mn	
Structure	WK SBK	WK, Sbk	WK, Sbk	
Consistence	FR SS SP	Fr, SS, SP	Fr, SS, SP	
Boundary				
Horizon Depth III	20-45	30-48	36-48	
Color – Munsell	yellow red	Red	Red	
Texture	L	SCL	SCL	
Mottles		C-Sap F-C Chroma 2	C-Sap. F-C Chroma 2	
Structure	MA SAP	WK, SBK	WK, SBK	
Consistence	FR SS SP	Fr, SS, SP	Fr, SS, SP	
Boundary				
Horizon Depth IV				
Color – Munsell				
Texture				
Mottles				
Structure				
Consistence				
Boundary				
Soil Wetness		@ 30"	@ 36"	
Restrictive Horizon				
Saprolite				
PTAR	0,30	0,25-0,30 <30"	0,25	0,30
Classification				

Sap? 0,30 Likely

Looked @ w/ ICHD

LEGEND

LANDSCAPE POSITION

R	Ridge Interfluve
S	Shoulder
L	Linear Slope
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H	Head Slope
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P	Flood Plain

TEXTURE

s	sand
ls	Loamy sand
sl	sandy loam
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si	silt
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sicl	silty clay loam
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MOIST

vfr	Very friable
fr	friable
fi	firm
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STRUCTURE

sg	single grain
m	massive
cr	crumb
gr	granular
sab	subangular blocky
ab	angular blocky
pl	platy
pr	prismatic

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Community ☐ Pit ☐
Public ☐ Cut ☐

Veather: _____ Antecedent Moisture _____ Surface Water: _____

ACTORS	PROFILE 9	PROFILE 10	PROFILE 11	PROFILE 12
andscape Position %				
orizon Depth I				
olor Munsell				
exture	Fill	Fill	10" of fill	
tructure				Natural Soil
onsistence				
oundary			> 10" Natural Soil	
orizon Depth II				
olor -- Munsell				
exture				
lottles				
tructure				
onsistence				
oundary				
orizon Depth III				
olor -- Munsell				
exture				
lottles				
tructure				
onsistence				
oundary				
orizon Depth IV				
olor -- Munsell				
exture				
lottles				
tructure				
onsistence				
oundary				
oil Wetness				
estrictive Horizon				
aprolite				
TAR				
lassification	US	US	0,30	0,30

Looked @ w/ IcHD

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Weather: _____ **Antecedent Moisture** _____ **Surface Water:** _____

FACTORS	PROFILE #3	PROFILE #5	PROFILE	PROFILE
Landscape Position %				
Horizon Depth I				
Color Munsell				
Texture	Fill (US)	Fill (US)		
Structure				
Consistence				
	#14	#16		
Boundary				
Horizon Depth II				
Color – Munsell				
Texture				
Mottles	~6" Fill	<4" Fill		
Structure				
Consistence				
	>6" Natural Soil	>4" Natural Soil		
Boundary				
Horizon Depth III				
Color – Munsell				
Texture				
Mottles				
Structure				
Consistence				
	(0,30)	(0,30)		
Boundary				
Horizon Depth IV				
Color – Munsell				
Texture				
Mottles				
Structure				
Consistence				
Boundary				
Soil Wetness				
Restrictive Horizon				
Saprolite				
PAR				
Classification				

Looked @ w/ ItHD

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