Tel: 828-221-7000
Fax: 828-635-5820
Email: ncsoil@gmail.com
622 Coon Mountain Lane, Taylorsville, NC 28681

Memo

To: Iredell County Environmental Health Department

From: Steven Price

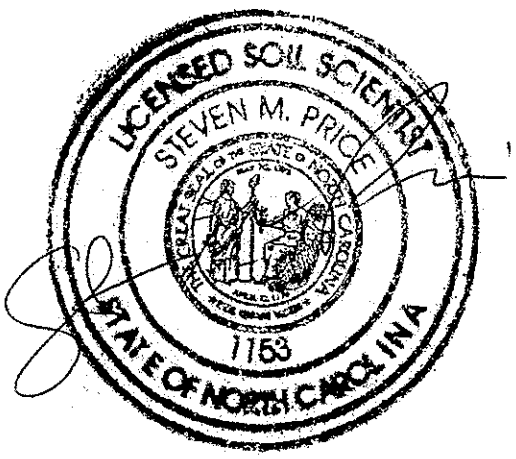
cc:

Date: April 25, 2016

Re: Expedited review Process for Proposed Dollar General near intersection of US Hwy 21, NC 115

Revised

Attached is information regarding a soils evaluation and septic system layout for a Dollar General store proposed to be located south of the intersection of US Hwy 21 and NC Hwy 115, on US Hwy 21. The site is located adjacent to Sheperds Fire/Rescue. The initial system proposed is for a 25% reduction septic system gravity fed with stepdowns from two 1,000 gallon septic tanks placed in series. The trench depth is proposed to be 14 inches with a minimum of 6 inches of cover over the system. Wastewater from the building will be collected in a 36" x 96" fiberglass basin with a sewage pump to get the wastewater to the septic tank. This is based on recommendations from engineers involved with this project. The proposed repair is to be a TS-1 pretreated drip system. This is due to varying depths of saprolite at the site.



PUMP FROM FIBERGLASS BASIN TO GRAVITY SYSTEM FOR WASTEWATER TREATMENT

Owner: Jennifer Holt

Address: PO Box 539
Mooresville, NC 28115
Phone: 704 664- 3113
County: Iredell
Location: US Hwy 21

Source of Wastewater Flow: Dollar General
Estimated Daily Wastewater Production: 200 gpd

Design Specifications

Drainfield Size: 200
Loading Rate: 0.25 gpd/ft.^{2}
Trench Depth: 14 in.
Trench Width: 36 in.
Septic Tank Size: (2) 1,000 gallon tanks in series
Pump Tank Size: none

Estimated Supply Line Length: 210
Supply Line Diameter: 2 in. SCH 40 PVC
Supply Line Volume: 36.54
Dosing Volume: 100.00

Recommended Float Controls: SJE Sensor Float Control Switches as Required for Control Panel or County Approved Equivalents
Recommended Control Panel: SJE-Rhombus Model 112 (NEMA 4x) Control Panel or County Approved Control Panel.

Pressure Head: 2 ft.
Friction Head: 2.67
Elevation Head: 10.00
Total Dynamic Head: 16.87

Threaded Union: In basin
Gate Valves: In basin
Check Valves: In basin
Anti-Siphon Hole: NA

Recommended Pump: Pentair hydromatic submersible sewage Model SKV40 or county approved pump capable of delivering 16.87ft of Head at 20 gpm total flow

Additional Comments: From building to basin which will pump to septic tank which will gravity flow to (4) 50 ft lines fed by stepdowns. System installed at 14" with minimum of 6" of cover over system.

HWY 21 DOLLAR GENERAL
DESIGN

DESIGN FLOW:	200
SOIL APPLICATION RATE:	0.25 gpd/ft.^{2}
TOTAL AREA TRENCH BOTTOM:	800
TOTAL LATERAL LENGTH:	200
NUMBER OF FIELDS:	1
LATERAL LENGTH REQUIRED PER FIELD:	200
SUPPLY LINE LENGTH:	210
TOTAL DYNAMIC HEAD:	16.87
DOSING VOLUME:	100.00
BASIN DRAW DOWN*:	22.7
SEPTIC TANK SIZE:	(2) 1,000 gallon tanks in series
PUMP TANK SIZE:	none, using 36" x 96" fiberglass basin to get effluent to septic tank using sewage pump,
RECOMMENDED PUMP:	Pentair hydromatic submersible sewage Model SKV40 or county approved pump capable of delivering 16.87ft of Head at 20 gpm total flow

**Fiberglass basin draw down based on a volume basis of 4.41 gallons per inch. Draw down may vary among basin manufacturers.*

Mooresville Dollar General Initial System Layout

APPROVED APR 2 5 2016

BA

Client: Blue Ridge Environmental Consultants
Project Name: Hwy 21 Mooresville Dollar General
Estimated design daily flow: 200 gpd
System type: 25% reduction
Proposed System LTAR: 0.25 gpd/ft2
Line length needed for initial system: 200 linear feet
Trench bottom depth: 14 inches with 6" cover

Line #	Color	Rod reading	Relative elevation	Laid out Line length (ft)	Will utilize Line length (ft)
1	blue	3.6	927	63	**50**
2	pink	3.4	927.2	62	**50**
3	blue	3.2	927.4	62	**50**
4	pink	3.3	927.3	50	**50**
TBM		0.6	930		
			System Line Length:	237	**200**

Ground elevation at Fiberglass basin at Dollar General front corner 925

TBM is top of fire hydrant at western edge of property

Mooresville Dollar General Repair System Layout

Client: Blue Ridge Environmental Consultants
Project Name: Hwy 21 Mooresville Dollar General
Estimated design daily flow: 200 gpd
Repair type: TS-1 pretreated drip
Proposed System LTAR: 0.125 gpd/ft2
Line length needed for initial system: 800 linear feet
Trench bottom depth: 36 inches

Line #	Color	Rod reading	Relative elevation	Laid out Line length (ft)	Will utilize Line length (ft)
i				70	59
i				70	59
1	yellow	3.5	927.1	70	59
i				70	59
i				70	59
2	blue	3.7	926.9	70	59
i				70	58
i				70	58
3	pink	3.9	926.7	70	58
i				70	58
i				70	58
4	yellow	4.3	926.3	70	58
i				70	47
i				70	36
5	blue	4.9	925.7	70	36
TBM		0.6	930		
			System Line Length:	1050	**821**

TBM is top of fire hydrant at western edge of property
Lines are laid out on 6 feet centers with 2 inferred lines between
i = inferred

APPROVED APR 2 5 2016

SOIL/SITE EVALUATION DESCRIPTIONS

Client: BREC / MOORESVILLE DG Date Evaluated: Feb-16

Location of site: HWY 21

Water Supply: [ ] Public [ ] Individual [ ] 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
B1	R 2%	0-8	WSBK/ SCL	FR SE	na	32	need pits	na	PS 0.275
		8-25	ABK / C	FI SE					
		25-32	WABK / C	FI SE					
		32-48	SLESS SAP SL	FR SE					
			w/ clay lenses						
B2	R 2%	0-18	ABK / C	FI SE	NA	26	UN	NA	PS W/ COVER 0.25
		18-26	WABK / CL	FI SE					
		26-48	SLESS SAP SL	FR SE					
			w/ clay lenses						
B3	R 2%	0-6	WSBK/ SCL	FR SE	NA	36	UN	NA	PS 0.275
		6-28	ABK / C	FI SE					
		28-36	WABK / CL	FI SE					
		36-48	SLESS SAP SL	FR SE					
			w/ clay lenses						
B4	LS 15%	0-3	WSBK/ SCL	FR SE	11	40	NA	NA	UN
		3-11	ABK / C	FI SE					
		11-30	ABK / C	FI SE	10YR 7/2				
		30-40+	WABK / C	FI SE					
B5	FS 15%	0-5	WSBK / SCL	FR SE	18	23	need pits	NA	PS DRIP 0.1
		5-18	ABK /C	FI SE					
		18-23	W ABK / CL	FI SE	10YR 7/2				
		23-36+	SLESS SAP L	FR SE					
			w/ clay lenses						
B6	N 15%	0-6	W SBK / SCL	FR SE	17	32	NA	NA	PS PRETREAT DRIP 0.1
		6-17	ABK /C	FI SE					
		17-32+	W ABK / C	FI SE	10YR 7/2				
B7	LS 15%	0-6	W SBK / SCL	FR SE	28	42	NA	NA	PS DRIP 0.1
		6-28	ABK / C	FI SE					
		28-42+	W ABK / C	FI SE	10YR 7/2				

COMMENTS: All borings have a large amount of mica in the profile

APPROVED APR 25 2016

BA

SOIL/SITE EVALUATION DESCRIPTIONS

Client: BREC / MOORESVILLE DG — Date Evaluated: Feb-16

Location of site: HWY 21 — 2/18/2016 & 4/18/2016

Water Supply: [ ] Public [ ] Individual [ ] Well [ ] Spring [ ] Other

Evaluation Method: [ ] Auger Boring [X] 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
P1	R 2%	0-3	GR / SL	FR SE	36	36	UN	NA	PS 0.25
		3-8	WSBK/ SCL	FI SE					
		8-24	ABK / C	FI SE	MINERAL ↓				
		24-36	WABK / CL	FR SE					
		36-56	SAP/ SCL w/	clay lenses FR SE	10YR 7/2				
P2	R 2%	0-2	GR / SL	FR SE	2	29	UN	NA	UN
		2-20	WABK / C	VFI (S, VP) E	10YR 7/2 fill				
		20-29	ABK / C	FI SE					
		29-54	SAP/ SCL w/cl	clay lenses FR SE					
P3	R 2%	0-3	GR / SL	FR SE	21	32	UN	NA	PS DRIP 0.1
		3-6	WSBK/ SCL	FR SE					
		6-21	ABK / C	FI SE					
		21-32	WABK / CL w	sap&WR FI (S P) SE	10YR 7/2				
		32-50	SAP/ SCL w/	clay lenses FR SE					
P4	LS 15%	0-3	GR / SL	FR SE	NA	25	PS	NA	PS
		3-12	ABK / C	VFI (S P)SE	COMPACTED		PRETREAT		DEEP PLACED PRETREATED USING SAP 0.2
		12-25	WABK / CL w	sap&WR FI (S P) SE					
		25-45	SAP/ SCL w/cl	clay lenses FR SE					
		45-60	SAP / SL	FR SE					
P5	S 5%	0-6	GR / SL	FR SE	17	22	NA	NA	UN
		6-17	WABK / C	VFI (S P)SE					
		17-22	WABK / C	VFI (S P)SE	10YR 7/2				
P6	LS 5%	0-24	ABK C	VFI SE (compacted)	NA	55	NA	NA	PS 0.25
		24-55	W SBK CL	FR SE					
P7	LS 5%	0-20	ABK C	VFI SE (compacted)	NA	49	NA	NA	PS 0.25
		20-49	W SBK CL	FR SE					
			w/sap						
		49-61	SLESS SAP	FR SE					
			SL						

COMMENTS: Pit 4 located off of the property.

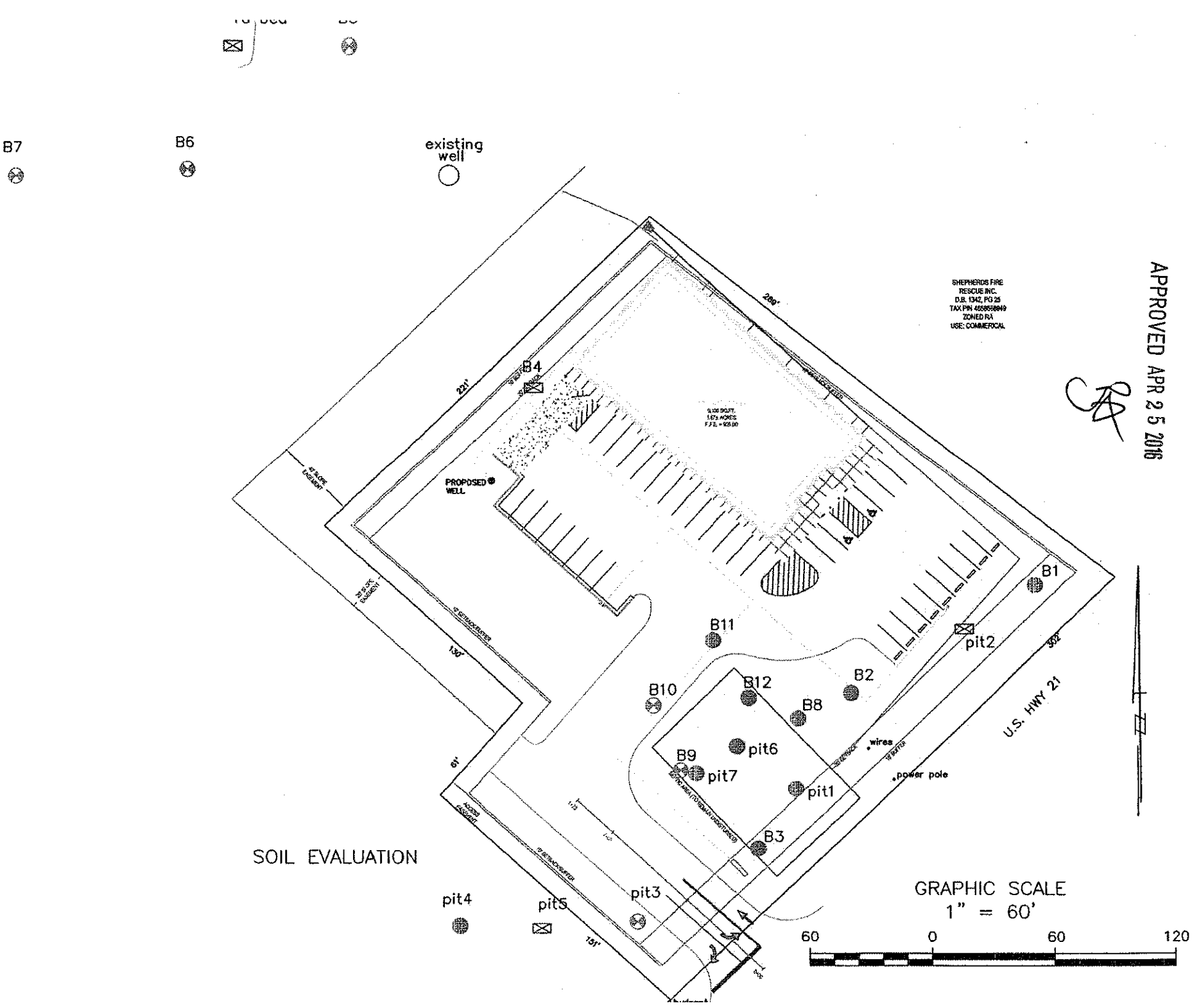
APPROVED APR 2 5 2016
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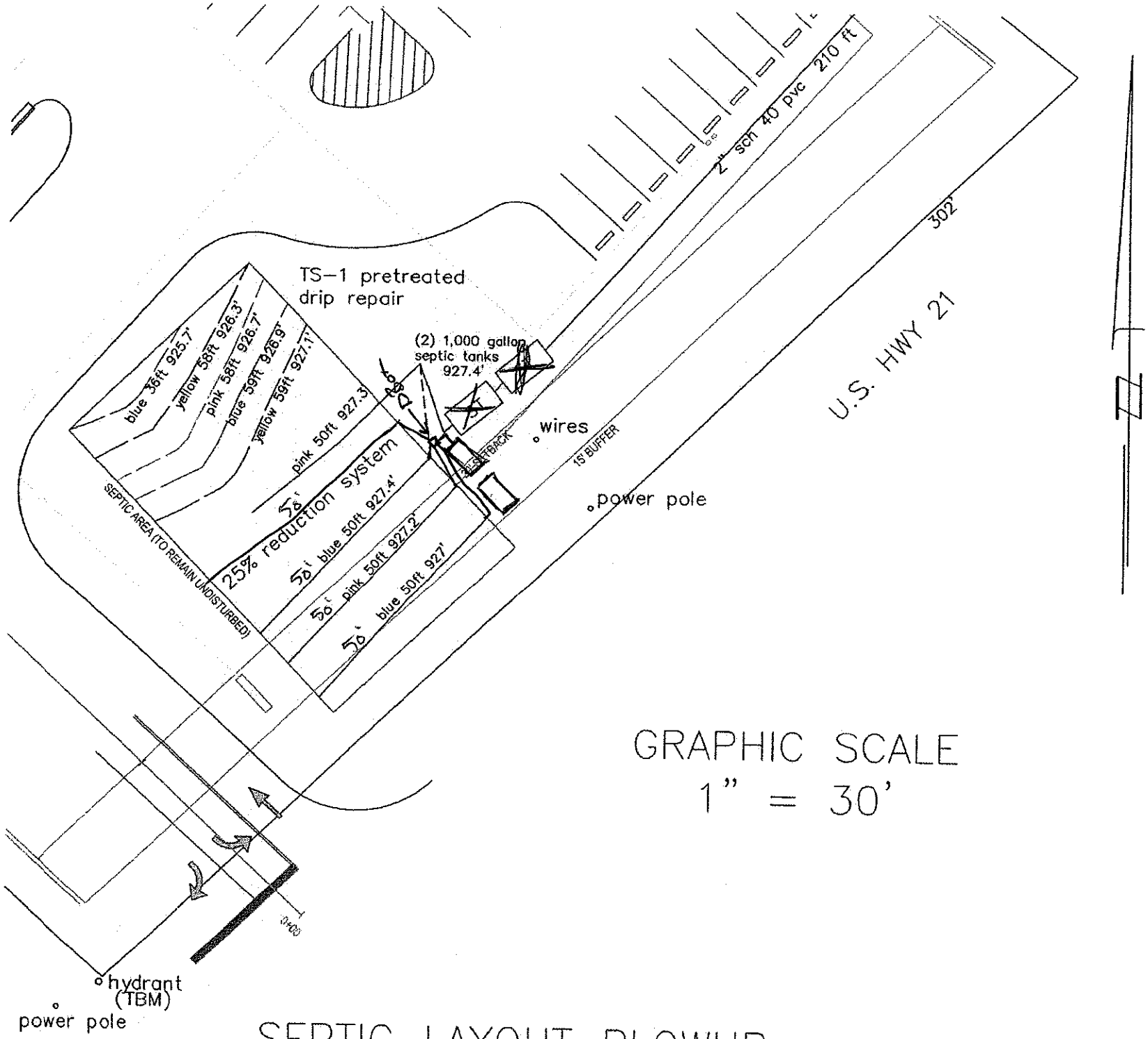
SOIL/SITE EVALUATION DESCRIPTIONS

Client: BREC / MOORESVILLE DG — Date Evaluated: Feb-16, 2/20/2016
Location of site: HWY 21
Water Supply: [ ] Public [ ] Individual [ ] Well [ ] Spring [ ] Other
Evaluation Method: [x] Auger Boring [ ] Pit [ ] Cut
Type of Wastewater: [x] Sewage [ ] Industrial Process [ ] Mixed

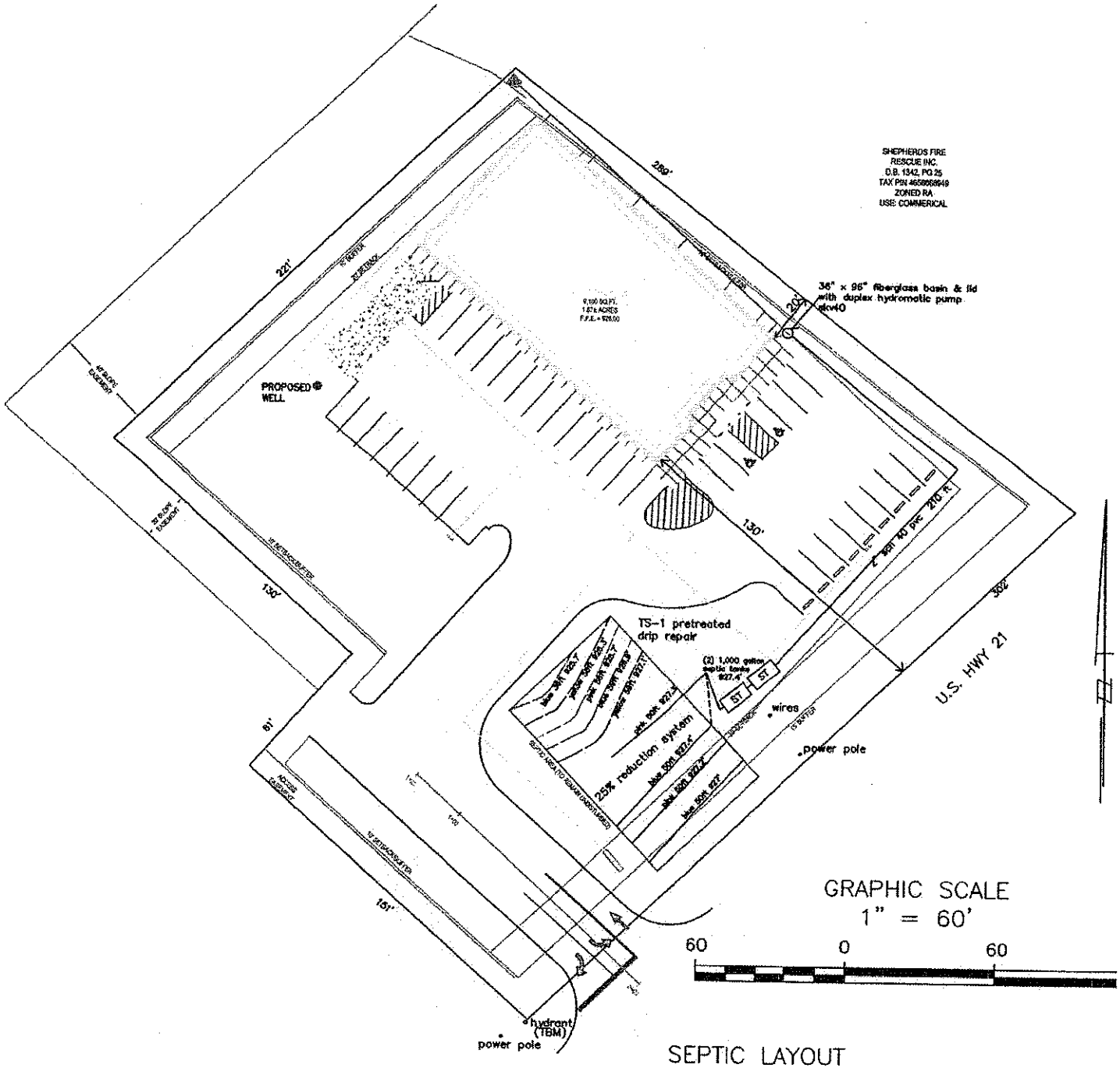
PROFILE #	.1940 Landscape Position/ Slope%	Horizon Depth (IN.)	SOIL MORPHOLOGY .1941 .1941 Structure/ Texture	.1941 Consistence Mineralogy	b PROFILE FACTORS .1942 Soil Wetness/ Color	.1943 Soil Depth (IN.)	.1956 Sapro Class	.1944 Restr Horiz	Profile Class & LTAR
B8	R 2%	0-2	GR / SL	FR SE	NA	30	UN	NA	PS 0.25
		2-16	ABK / C	FI SE					
		16-30	WABK / CL	FR SE	w/ saprolite				
		30-47	SAP / CL	FR SE					
			w/ clay lenses						
B9	R 5%	0-6	ABK / C	compacted VFI SE	NA	24	need pits	NA	PS DRIP 0.15 TS-1 PRETREAT
		6-15	ABK / C	FI SE					
		15-24	WABK / CL	FR SE	w/ saprolite				
		24-48	SAP / L	FR SE					
			w/ few clay	lenses					
B10	LS 10%	0-8	ABK / C	VFI SE	NA	30	need pits	NA	PS DRIP 0.15 TS-1 PRETREAT
		8-17	ABK / C	FI SE					
		17-30	WABK /CL	FR SE	w/ saprolite and rock frag				
		30-48	SLESS SAP L	FR SE					
			w/ few clay	lenses					
B11	LS 5%	0-3	WSBK/ SCL	FR SE	NA	30	UN	NA	PS 0.25
		3-18	ABK / C	FI SE					
		18-30	WABK / CL	FR SE	w/ saprolite				
		30-39	SAP / CL	FR SE					
			w/ clay lenses						
		39-48	SLESS SAP L	FR SE					
B12	R 2%	0-4	WSBK / SCL	FR SE	NA	33	UN	NA	PS 0.25
		4-24	ABK /C	FI SE					
		24-33	W ABK / CL	FI SE	w/ saprolite				
		33-48	SAP / CL	FR SE					
			w/ clay lenses						

COMMENTS: All borings have a large amount of mica in the profile


B7
B6
existing well
B4
PROPOSED WELL
SHEPHERDS FIRE RESCUE INC.
D.B. 1342, PG 25
TAX PIN 4558558849
ZONED RA
USE: COMMERCIAL
280'
221'
130'
61'
151'
302'
B1
B11
pit2
B10
B12
B2
B8
B9
pit6
pit7
pit1
B3
pit4
pit5
pit3
wires
power pole
U.S. HWY 21
APPROVED APR 25 2016
SOIL EVALUATION
GRAPHIC SCALE
1" = 60'
60
0
60
120



SEPTIC LAYOUT BLOWUP



SEPTIC LAYOUT