RANDALL J. MILES
SOIL SCIENTIST
6500 GILLESPIE BRIDGE ROAD
COLUMBIA, MO 65203
573-445-8744

September 11, 2014

Phillip Wilson
Project Engineer
Shafer, Kline, and Warren, Inc
107 Butler
Macon, MO 63552

Dear Phillip:

Recently I performed a soil site evaluation at the Missouri Department of Transportation facility, Williamsburg, Callaway County. The purpose of this evaluation was for information to site, size, and design a new onsite wastewater system for the facility. My evaluation consisted of various satellite probe observations to assess soil variability, a detailed soil morphological description from a backhoe pit, and an assessment of the soil landscape position.

The results of the soil morphological description are given in Table 1. A conventional loading rate can be made to a depth of 13 inches with an unsuited loading rate below that because of the large amount of high shrink swell clay material. This site is well suited for a drip dispersal system with a default loading rate of 0.05 gal/ft2/day. This site is also well suited for a sewage lagoon. The occurrence of chroma 2 (gray) mottles at 8 inches is reflective of a seasonally high water table.

The site is on a 0 to 1 percent west sloping summit. I recommend the placement of a curtain drain to divert the lateral flow of surface water off of the soil absorption field from higher elevations east of the proposed field as well as the lateral flow of water within the soil landscape. I encourage you to use the east area north of the building as this is a slightly higher area for surface water to drain west off of the soil treatment area. There is ample room for a reserve area if needed in the future. I recommend that this area not be driven over or used as a parking area for vehicles or equipment.

Please note that I do not warrant nor represent the proper functioning of an installed system for any length of time. Please call on me if I can be of further assistance. Thank you for your business.

Sincerely,

Randall J. Miles
Soil Scientist (#10032)

TABLE 1.
PROFILE DESCRIPTION

LOCATION: Missouri Deptment of Transportation, Williamsburg, Callaway Co MO DATE: 09/11/2014

PIT NO.: 1 EXCAVATION DEPTH: 52 inches VEGETATIVE COVER: Fescue DESCRIPTION BY: R.J. Miles

HORIZON	DEPTH IN.	COLOR MUNSELL NOTATION	TEXTURE (USDA) (1)	o/o CLAY *	STRUCTURE (2)	ROOTS. (3)	CONSIS-TENCY (4)	MOTTLES & COATING	LOADING RATE (5)**	SOIL GROUP (5)	NOTES
Ap1	0-4	10YR 3/2	sil	14	2,m,gr	c,f	ss	none	0.50/0.25	III	
Ap2	4-8	10YR 3/2	sil	15	2,m,gr	f,f	ss	none	0.50/0.25	III	
A	8-10	10YR 3/2	sil	16	2,vf,sbk	f;f	ss	10YR 4/2,5/2	0.50/0.25	III	
EB	10-13	10YR 5/2	sil	23	2,f, pr to 2,f&m,sbk	f;f	ss	7.5YR 4/6 5YR 4/6	0.40/0.20	III	
2Bt1	13-19	10YR 4/3	c	42	2,f, pr to 2,f&m,sbk	f;f	vs	5YR 4/6 7.5YR 4/6	unsuited	IVb	
2Bt2	19-24	10YR 4/6	c	52	2,f, pr to 2,f&m,sbk	f;f	vs	5YR 4/6 7.5YR 4/6 10YR 5/2	unsuited	IVb	
2Bt3	24-31	10YR 5/3	c	55	2,f, pr to 2,f&m,sbk	f;f	vs	10YR 5/2,5/6	unsuited	IVb	
2Btg1	31-41	10YR 5/2	c	42	2,m,sbk	--	vs	10YR 5/4,5/6	unsuited	IVb	
2Btg2	41-52	10YR 5/2	sicl	37	2,m,sbk	--	vs	10YR 5/4,5/6	unsuited	IVb	

COMMENTS: TABLE 1 CONTINUED

** Loading rates are for conventional/Drip dispersal systems

Site is on a 0-1 % west facing summit landscape position; Need a curtain drain immediately above the soil absorption field (east) to divert surface runoff from higher elevations of the landscape as well as lateral flow of water within the soil landscape.

U: , texture; restrictive layer; wetness **PS**; Structure; landscape position; **S**; Profile Depth;

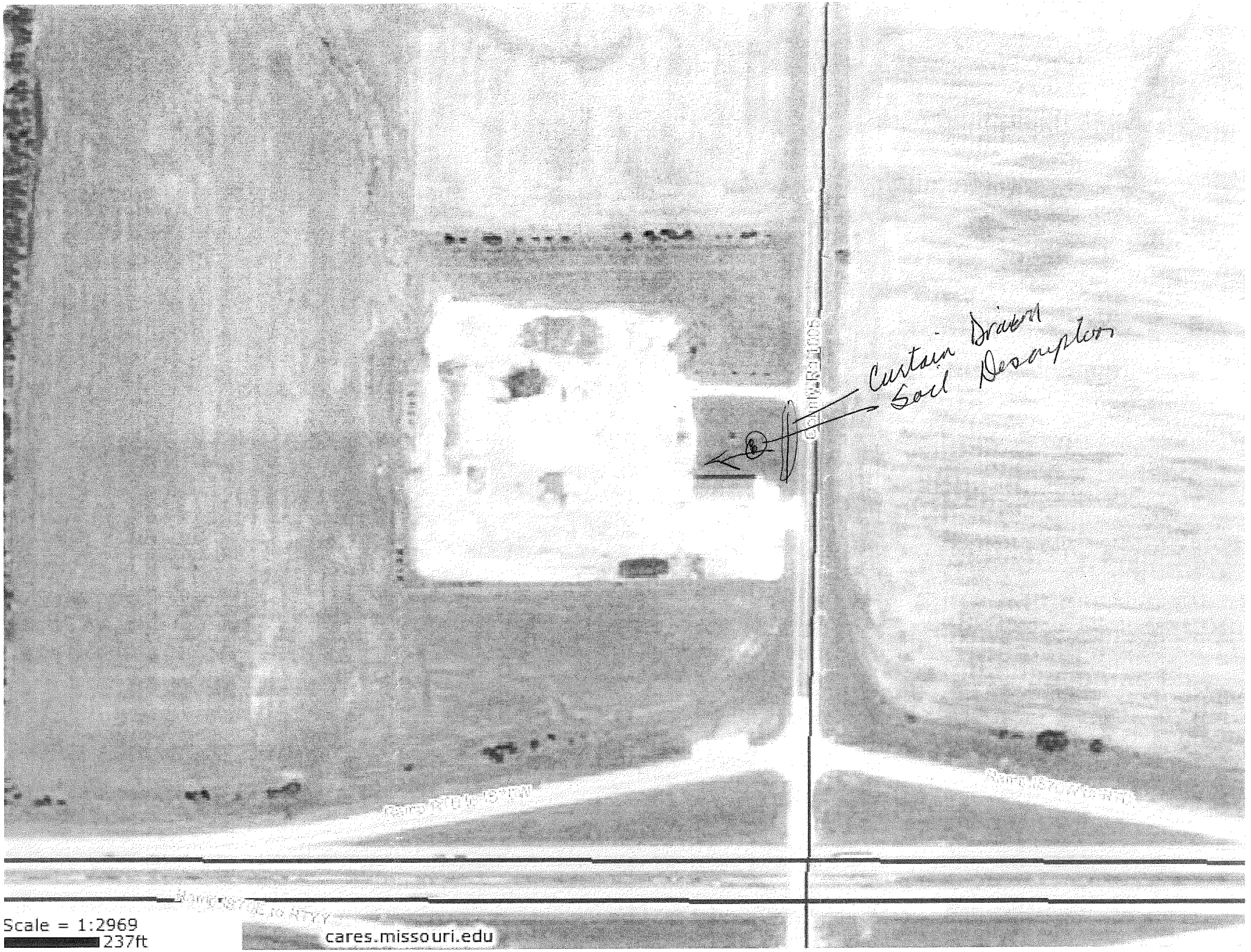
1 s-sand, ls-loamy sand, sl-sandy loam, l-loam, sil-silt loam, si-silt, scl-sandy clay loam, cl-clay loam*, sicl-silty clay loam*, sc-sandy clay, sic-silty clay, c-clay.
*Designate if estimated clay content >35%.

2 Record grade, size and shape. 1-weak, 2-moderate, 3-strong, sg-single grain, gr-granular, sbk-subangular block, abk-angular blocky, pr-prismatic, m-massive, pl-platy.

3 f-few, c-common, m-many, f-fine and/or very fine, m-medium, c-coarse.

4 Use wet conditions. ss-slightly sticky, s-sticky, vs-very sticky, sp-slightly plastic, p-plastic, vp-very plastic

5 Groups recorded in accordance with 19 CSR 20-3.060.


Custom Drawn
Soil Description
Scale = 1:2969
237ft
cares.missouri.edu