

TENNESSEE REGULATORY AUTHORITY



460 James Robertson Parkway
Nashville, Tennessee 37243-0505

Date: August 9, 2011

TO: Docket File

From: Patsy Fulton, Utilities Division

RE: Docket No. 10-00145 Petition Of Aqua Green Utility Inc. To Amend
Its CCN And Expand Its Service Area To Include A Portion Of
Jefferson County In Tennessee, Known As Stonebridge On Douglas
Lake

Copies of the attached e-mail and Soils Map concerning Stonebridge, Jefferson County, Tennessee in reference to SOP-10042 were received by TRA Staff via e-mail from TDEC on February 2, 2011.



January 25, 2011

Southeastern Development Group Inc.
9131 Cross Park Dr., Suite 100
Knoxville, TN 37923

ATTENTION: Mr. Sam Pinner

Subject: **REPORT FOR EXTRA HIGH INTENSITY SOIL MAPPING
FOR PROPOSED DECENTRALIZED WASTEWATER SYSTEM**
Stonebridge Development
Jefferson County, Tennessee
S&ME Project No. 1434-08-434

Dear Mr. Pinner:

S&ME, Inc. (S&ME) is pleased to provide you with our final soils report for the extra high intensity soils evaluation for the proposed decentralized wastewater system at Stonebridge Development located in Dandridge, Tennessee.

PROJECT INFORMATION

S&ME understands that Stonebridge is a planned community development consisting of approximately 110 acres. Southeastern Development Group plans on utilizing a decentralized waste water system to service the proposed subdivision. You requested that S&ME complete the extra high intensity soils map required by the Tennessee Department of Environment and Conservation (TDEC), Division of Water Pollution Control (DWPC) to determine the compatibility of onsite soils with the use of drip irrigation as a waste water disposal method.

At your request, we met with TDEC officials, along with Jefferson County officials, Mr. Bob Faulhaber, PE, and representatives from AquaGreen Utilities on January 4, 2011. The purpose of this meeting was to have the preliminary soil map that S&ME compiled in August 2008 for the site reviewed by the TDEC Soil Scientist. For continuity, S&ME contracted with Kevin Davis, a registered soil scientist and former S&ME employee, to conduct the field activities for the soil map review meeting. Following this review, S&ME has addressed the TDEC comments and concerns and made adjustments to the soil map deemed necessary by TDEC.

GEOLOGY

The project site, as most of East Tennessee, lies in the Appalachian Valley and Ridge Physiographic Province. The Province is characterized by elongated, northeasterly-trending ridges formed on highly resistant sandstone and shale. Between ridges, broad valleys and rolling hills are formed primarily on less resistant limestone, dolomite, and shale.

Published geologic information indicates the site is underlain by bedrock of the Sevier Shale formation. This formation generally consists of bluish gray to black calcareous shale with minor amounts of limestone. The Sevier shale typically weathers to produce a thin acidic yellowish-brown residual soil containing varying amounts of weathered shale fragments.

Strike and dip measurements were collected along the recently completed roadway for the Stonebridge Development. The test pit location south of grid point C-1 contained shale bedrock 3.0 feet below ground surface striking 64° east, dipping 55° south. Shale bedrock observed in the utility trench at lot 100/99 had a strike measuring 275° east and a dip of 21° south. The shale bedrock observed at lot 96 had a strike of 52° east and 55° south. A cut bank existing north of lot 87 contained limestone striking 250° east, dipping 54° south.

SOIL DESCRIPTIONS

On the attached soils map, three different soil series have been identified within the proposed drip irrigation site. Those series are Dandridge, Sequoia, and Muskingum. In the following paragraphs, we have described the soils as they were observed in the field. Pit descriptions were made of multiple pit faces to document the test pit variability.

The Dandridge Soil Series consists of shallow, excessively drained soils. These soils are classified as clayey-skeletal, mixed, active, mesic, shallow Ruptic-Alfic Eutrudepts. These soils form from weathered calcareous shale. Due to the nature of the geology, shale ledges may extend to the surface. Auger refusal was not encountered within 24" of the surface throughout the site. However, in the test pit, depths to restrictive horizons were less than 24". With the skeletal nature and weathering processes, depth to restrictive horizons varies throughout the pit face, which is typical for the Dandridge Soil Series. Multiple pit descriptions were made to show the variable depth to the restrictive root depth or the Cr horizon. NRCS Soil Descriptions forms are attached.

The Sequoia soil series consists of moderately deep, well drained soils with low permeability. These soils are classified as fine, mixed, semiactive, mesic Typic Hapludults. NRCS Soil Descriptions forms are attached.

The Muskingum Soil Series is derived from residuum and colluvium from interbedded siltstone, sandstone, and shale. These soils are classified as fine-loamy, mixed, semiactive, mesic Typic Dystrudepts. This soil unit was classified as Apison on the original 2008 soil map. After review by TDEC, an agreement was made that the soil is a mixture of the Apison and Muskingum soil series. Soils contained more sand than typical for the Apison Soil Series. NRCS Soil Descriptions forms are attached.

We recommend that you consult with your wastewater design engineer to determine whether and/or to what degree the described soil units are appropriate for use for the proposed wastewater disposal system.

CLOSING

Thank you for the opportunity to be of service to you on this project. If you should have any questions, or need any further information, please do not hesitate to contact us.

Sincerely,
S&ME, Inc.



Kevin Davis
Soil Scientist



Eric M. Solt, P.G.
Environmental Services Manager

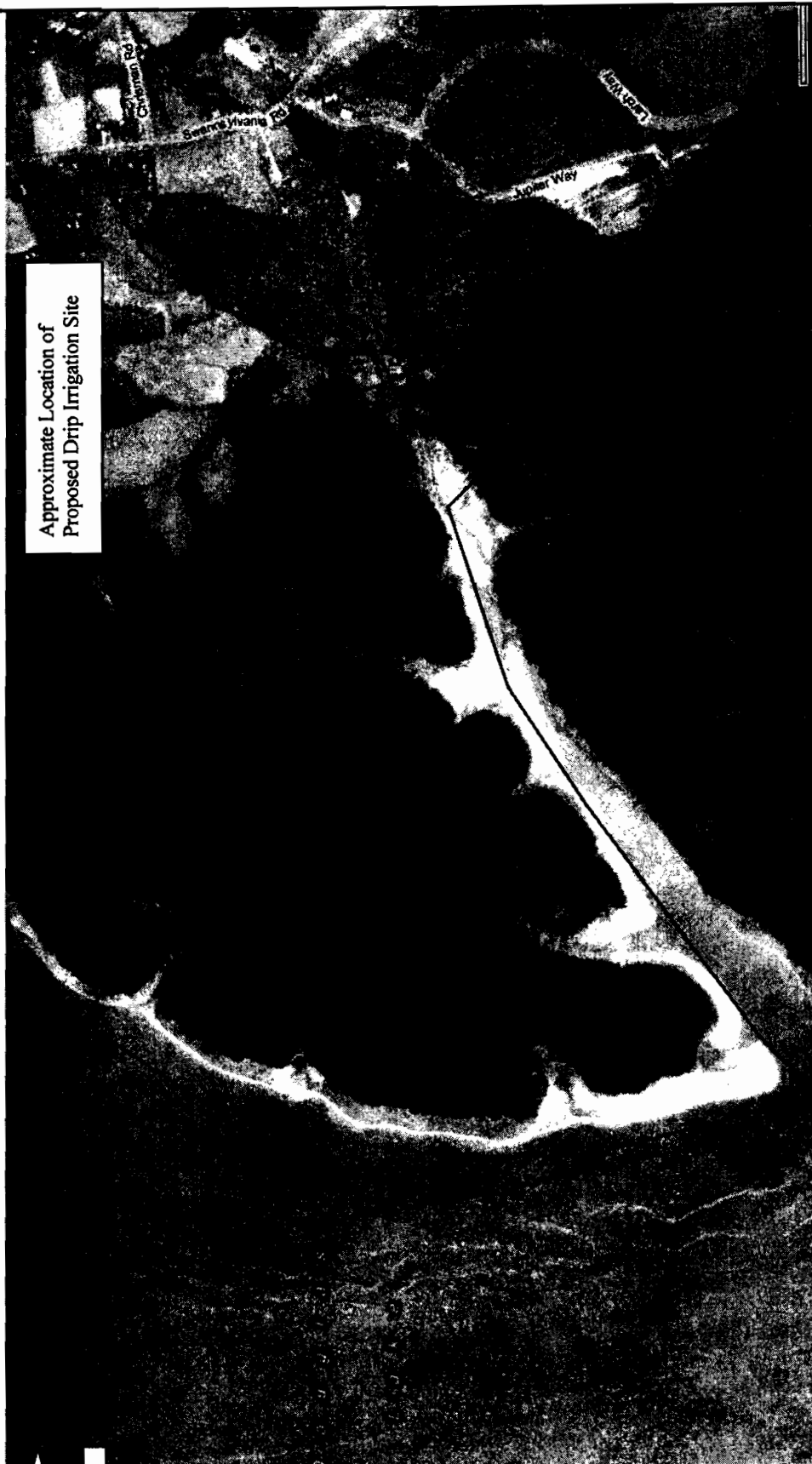
Attachments: Extra High Intensity Soils Map
Vicinity Map
Soil Series Description Forms

KFD:ems

S:\2008 Projects\1434\3408434doc



Approximate Location of
Proposed Drip Irrigation Site



Scale: Not to Scale

Checked By: EMS

Drawn By: MKP

Date: 1/25/11



Site Map
StoneBridge Development
Dandridge, Tennessee

Project No: 1434-08-434

Figure

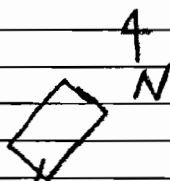
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* Control section average[illegible]

SOIL DESCRIPTION

Soil type		Dandridge		File No.	
Area		Ridge		Date	1/4/2011
Classification		Clayey skeletal, mixed, active mesic, shallow Ruptic-Alfic Entrodepts			
Location		Pit 0			
N. veg. (or crop)		Forest		Climate	
Parent material		Shale			
Physiography					
Relief		Drainage		Salt or alkali	
Elevation		Gr. water		Stoniness	
Slope		Moisture			
Aspect		Root distrib.		% Clay *	
Erosion		% Coarse fragments *		% Coarser than V.F.S. *	
Permeability					
Additional notes					

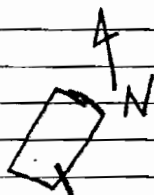


Description site

* Control section average

[illegible]

Soil type Dandridge		File No.
Area Side Slope	Date 1/4/2011	Stop No.
Classification Clayey skeletal, mixed, active, mesic, shallow Ruptic - Alfic Entrodepts		
Location Pit #E		
N. veg. (or crop) Grass/Hay	Climate	
Parent material Shale		
Physiography		
Relief	Drainage	Salt or alkali
Elevation	Gr. water	Stoniness
Slope 15-25%	Moisture	
Aspect	Root distrib.	% Clay *
Erosion	% Coarse fragments *	% Coarser than V.F.S. *
Permeability		
Additional notes		



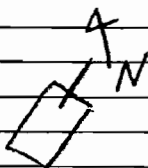
Description Site

* Control section average

[illegible]


SOIL DESCRIPTION

Soil type		Dandridge		File No.	
Area		Sideslope		Date 1/4/2011	
Classification		Clayey skeletal mixed active mesic shallow		Ruptic Afc ic Extrudepts	
Location		pit 0 E			
N. veg. (or crop)		Grass/Hay		Climate	
Parent material					
Physiography					
Relief		Drainage		Salt or alkali	
Elevation		Gr. water		Stoniness	
Slope 15-25%		Moisture			
Aspect		Root distrib.		% Clay *	
Erosion		% Coarse fragments *		% Coarser than V.F.S. *	
Permeability					
Additional notes		Pit described in most restrictive side of pit			

[illegible]

SOIL DESCRIPTION

Soil type <u>Dandridge</u>		File No.
Area <u>Ridge</u>	Date <u>1/4/2011</u>	Stop No.
Classification <u>Clayey-skeletal mixed, active mesic, shallow Ruptic-Alic Entrodepts</u>		
Location <u>pit #D</u>		
N. veg. (or crop) <u>Forest</u>	Climate	
Parent material <u>Shale</u>		
Physiography		
Relief	Drainage	Salt or alkali
Elevation	Gr. water	Stoniness
Slope <u>0-10%</u>	Moisture	
Aspect	Root distrib.	% Clay *
Erosion	% Coarse fragments *	% Coarser than V.F.S. *
Permeability		
Additional notes <u>Pit described in most restrictive side of pit</u>		



* Control section average

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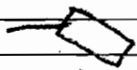
Soil type		Muskingum		File No.	
Area		Side slope		Date 1/4/2011	
Classification		Fine-loamy, mixed, semiactive, mesic Typic Dystrudepts		Stop No.	
Location		pit • C			
N. veg. (or crop)		Forest		Climate	
Parent material		Sandstone and shale			
Physiography					
Relief		Drainage		Salt or alkali	
Elevation		Gr. water		Stoniness	
Slope 35%		Moisture			
Aspect		Root distrib.		% Clay *	
Erosion		% Coarse fragments *		% Coarser than V.F.S. *	
Permeability					
Additional notes					

Description
Site

A hand-drawn diagram of a rectangular box with an arrow pointing upwards from its top center, labeled 'N'.

[illegible]

SOIL DESCRIPTION

Soil type	Sesuvium		File No.
Area	Sideslope	Date	1/4/2011
Classification	Fine, mixed, semiactive, Mesic Typic Hapludults		
Location	pit A		
N. veg. (or crop)			Climate
Parent material	shale		
Physiography			
Relief	Drainage	Salt or alkali	
Elevation	Gr. water	Stoniness	
Slope	25-35%	Moisture	
Aspect	Root distrib.	% Clay *	
Erosion	% Coarse fragments *	% Coarser than V.F.S. *	
Permeability			
Additional notes	Pit described in most restrictive side of pit		
		A	
		N	
Description site			

* Control section average

[illegible]

From: Dart Kendall <dartken@att.net>
To: Vojin.Janjic@tn.gov; dart@adseptic.com
CC: Patsy.Fulton@tn.gov; bob@fesconsulting.com; Robert.Odette@tn.gov
Date: 2/2/2011 1:20 PM
Subject: Stonebridge soil report SOP-10042
Attachments: Soils Report 1-25-2011.pdf; scan0001.jpg

Hard copies of these attachments are in the mail Thanks Dart

*Hard copies were received!
Forward Email to Docket File!*

Patsy Fulton - Stone Bridge Update

From: Dart Kendall <dartken@att.net>
To: lgale4667@bellsouth.net; dart@adseptic.com
Date: 2/1/2011 5:07 PM
Subject: Stone Bridge Update
CC: mayor@jeffersoncountyttn.gov; Robert.Odette@tn.gov; RTucker@CaseClerk.com...

Louise could you please forward this

Dear Stonebridge Homeowners,

We finally received a finalized soils map required by TDEC with the necessary changes from S&ME yesterday. This would not have been possible without the extensive help and effort made by Sam Pinner. Bob Faulhaber (Aqua Green's engineer) and I met with Bob O'Dette from TDEC today. To make a very long story short, we came to a consensus the proposed solution for the wastewater needs at Stonebridge including 107 homes. Though this does not guarantee a permit, it is now very likely we will be receiving a draft permit in a few weeks. The first step, a basic sewer plant, will be built and have capacity for treating the wastewater to the standards currently in use by plants in the area directly discharging into the lake or rivers. Next, we will install some proprietary automation that assures this very high treatment standard is consistently met. Then we will furnish additional proprietary automation that will distribute the high quality effluent to soil already set aside in Stonebridge subdivision in the most efficient manner possible.

I appreciate your patience during the past few months and hope to be building a plant as soon as possible. There is a 30 day wait period after the permit draft is issued before the construction can begin.

I would also like you to know how much Michael Sorrolls has helped and been involved in this process. Additionally, your commissioners, Tucker and Dockery, have been invaluable and very involved through the process. I only wish the commissioners in my district cared this much. I can assure you that without the help of these four people, I probably would have thrown in the towel on this project.

Dart Kendall

Aqua Green Utility Inc.