BEFORE THE TENNESSEE REGULATORY AUTHORITY
NASHVILLE, TENNESSEE

MAY 31, 2007

In re: Petition of Tennessee Wastewater Systems, Inc. to Amend its Certificate of Convenience and Necessity	)))	Docket No. 06-00259

TENNESSEE WASTEWATER SYSTEMS, INC.'S RESPONSES TO SMOKEY COVE LOG HOME RESORT'S, LYNN HENDRICK'S, and HP DEVELOPMENT'S FIRST SET OF REQUESTS FOR PRODUCTION OF DOCUMENT

The Tennessee Wastewater Systems, Inc. ("TWS") hereby submits the following responses to the First Set of Requests for Production of Documents from Smoky Cove Log Home Resort, Lynn Hedrick and HP Development propounded upon TWS.

II. DOCUMENT REQUESTS

REQUEST NO. 1: Copies of each and every Document identified in response to any interrogatory propounded in FIRST SET OF INTERROGATORY REQUESTS TO TENNESSEE WASTEWATER SYSTEMS, INC., or used to answer any such Interrogatory.

RESPONSE: These documents are included with the responses to the interrogatories.

REQUEST NO. 2: Copies of any and all files or documents maintained copies, reviewed, or crated in anyway related to any property owned, controlled or maintained by Smoky Cove Log Home Resort, Lynn Hedrick and/or HP Development.

RESPONSE: See attached. This does not include each customer's actual bills. To produce all bills would be burdensome and irrelevant.

REQUEST NO. 3: Copies of any and all contracts or agreements executed by and between Petitioner and Smoky Cove Log Home Resort, Lynn Hedrick, and/or HP Development which in any way control the nature of the relationship between the parties, create any duties on the part of either party, or create any rights or obligations between the parties..

RESPONSE: See attached.

REQUEST NO. 4: Copies of any reports prepared by any individual or organization that is expected to be called at trial in this matter and upon which the expert intends to rely..

RESPONSE: Not applicable.

REQUEST NO. 5: Copies of any reports, tests, studies or other document prepared by any individual, employee, independent contractor or agent of Petitioner who has inspected or otherwise conducted tests or research or who has compiled numbers or data regarding wastewater usage for any property owned, controlled or maintained by Smoky Cove Log Home Resort, Lynn Hedrick and/or HP Development.

RESPONSE: See response to interrogatories.

REQUEST NO. 6: Copies of any document which tends to establish the wastewater usage attributable to each property owned, controlled, or maintained by Smoky Cove Long Home Resort, Lynn Hedrick and/or HP Development.

RESPONSE: See response to interrogatories.

Respectfully submitted,

BOULT, CUMMINGS, CONNERS & BERRY, PLC

By: _____

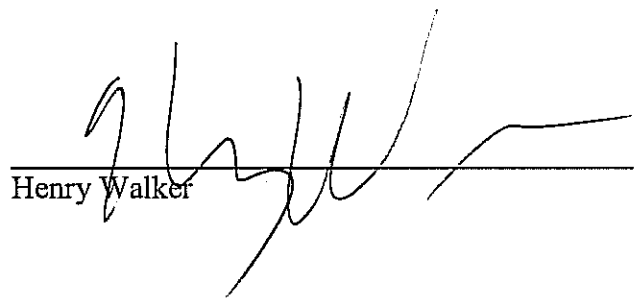
Henry Walker (No.)
1600 Division Street, Suite 700
P.O. Box 340025
Nashville, Tennessee 37203
(615) 252-2363

CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing is being forwarded via U.S. Mail, to:

Christopher W. Conner
Garner & Conner
250 High Street
P.O. Box 5059
Maryville, TN 37802
c_conner@gkfclaw.com

on this the 31 day of May, 2007.



Henry Walker

TENNESSEEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL
6th Floor, L & C Annex
401 Church Street
Nashville, TN 37243-1534

Permit No. SOP - 03021

PERMIT
For the operation of Wastewater Treatment Facilities

In accordance with the provision of Tennessee Code Annotated section 69-3-108 and Regulations promulgated pursuant thereto:

PERMISSION IS HEREBY GRANTED TO
On-Site Systems, Inc.
Smoky Cove Subdivision
Sevier County, Tennessee

FOR THE OPERATION OF
STEP/STEG collection system, recirculating trickling filter and drip irrigation facility located at latitude 35^0 47' 42" and longitude 83^0 38' 20" in Sevier County, Tennessee. The design capacity of the system is 40,000 gallons per day.

This permit is issued as a result of the application filed on May 30, 2003, in the office of the Tennessee Division of Water Pollution Control and in conformity with approved plans, specifications and other data submitted to the Department in support of the above application, all of which are filed with and considered as a part of this permit, together with the following named conditions and requirements.

This permit shall become effective on: October 1, 2003

This permit shall expire on: August 29, 2008

Issuance date: August 29, 2003

Robert L. Haley for

Paul E. Davis
Director
Division of Water Pollution Control

CN-0759

RDAs 2352 & 2366

PART I

A. GENERAL REQUIREMENTS

The treatment system shall be monitored by the permittee as specified below:

Parameter	Sample Type	Daily Maximum	Sampling Point	Measurement Frequency
Flow	instantaneous		*	1/month
BOD_5	grab	45 mg/l	*	1/quarter
Ammonia as N	grab	Report	*	1/quarter

* Effluent to the drip irrigation plots.

Sludge or any other material removed by any treatment works must be disposed of in a manner which prevents its entrance into or pollution of any surface or subsurface waters. Additionally, the disposal of such sludge or other material must be in compliance with the Tennessee Solid Waste Disposal Act, TCA 68-31-101 et seq. and Tennessee Hazardous Waste Management Act, TCA 68-46-101 et seq.

This permit allows the operation of a wastewater drip irrigation system. The operation should be such that there is no contamination of and no wastewater discharge to any surface or subsurface stream because of collected pools of water called "ponding" or because of improper irrigation. Any runoff due to improper operation must be reported in writing to the Division of Water Pollution Control, Environmental Assistance Center - Knoxville within 5 days of the incident. In addition, the drip irrigation system must be operated in a manner preventing the creation of a public health hazard or a public/private nuisance.

B. MONITORING PROCEDURES

1. Representative Sampling

Samples and measurements taken in compliance with the monitoring requirements specified above shall be representative of the volume and nature of the monitored discharge, and shall be taken at the following location(s):

Effluent to drip irrigation plots.

C. DEFINITIONS

The "daily maximum concentration" is a limitation on the average concentration, in milligrams per liter, of the discharge during any calendar day.

A "grab sample" is a single influent or effluent sample collected at a particular time.

A "quarter" is defined as any one of the following three-month periods: January 1 through March 31, April 1 through June 30, July 1 through September 30, and/or October 1 through December 31.

D. REPORTING

1. Monitoring Results

Monitoring results shall be recorded quarterly and submitted quarterly using Operation Report Forms supplied by the Division of Water Pollution Control. Submittals shall be postmarked no later then 15 days after the completion of the reporting period. A copy should be retained for the permittee's files. Operation Reports and any communication regarding compliance with the conditions of this permit must be sent to:

Division of Water Pollution Control
Environmental Assistance Center - Knoxville
2700 Middlebrook Pike
Suite 220
Knoxville, TN 37921

The First Operation Report is due **November 15, 2003**

2. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monthly Operation Report Form (MOR). Such increased frequency shall also be indicated.

3. Falsifying Reports

Knowingly making any false statement on any report required by this permit may result in the imposition of criminal penalties as provided for in Section 69-3-115 of the Tennessee Water Quality Control Act.

E. SCHEDULE OF COMPLIANCE

Full operational level shall be attained from the effective date of this permit.

PART II

A. GENERAL PROVISIONS

1. Duty to Reapply

The permittee is not authorized to discharge after the expiration date of this permit. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit such information and forms as are required to the Director of Water Pollution Control (the "Director") no later than 180 days prior to the expiration date.

2. Right of Entry

The permittee shall allow the Director, or authorized representatives, upon the presentation of credentials:

a. To enter upon the permittee's premises where an effluent source is located or where records are required to be kept under the terms and conditions of this permit, and at reasonable times to copy these records;

b. To inspect at reasonable times any monitoring equipment or method or any collection, treatment, pollution management, or discharge facilities required under this permit; and

c. To sample at reasonable times any discharge of pollutants.

3. Availability of Reports

All reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Division of Water Pollution Control.

4. Proper Operation and Maintenance

a. The permittee shall at all times properly operate and maintain all facilities and systems (and related appurtenances) for collection and treatment which are installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance also includes adequate laboratory and process controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit. Backup continuous pH and flow monitoring equipment are not required.

The monitoring frequency stated in this permit shall not be construed as specifying a minimum level of operator attention to the facility. The permittee shall ensure that the certified operator is in responsible charge of the facility and observes the operation of the system frequently enough to ensure its proper operation and maintenance regardless of the effluent monitoring frequency stated in the permit."

b. Dilution water shall not be added to comply with effluent requirements

5. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

6. Severability

The provisions of this permit are severable. If any provision of this permit due to any circumstance, is held invalid, then the application of such provision to other circumstances and to the remainder of this permit shall not be affected thereby.

7. Other Information

If the permittee becomes aware that he failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, then he shall promptly submit such facts or information.

B. CHANGES AFFECTING THE PERMIT

1. Planned Changes

The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

2. Permit Modification, Revocation, or Termination

a. This permit may be modified, revoked and reissued, or terminated for cause as described in section 69-108-(F) The Tennessee Water Quality Control Act as amended.

b. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

3. Change of Ownership

This permit may be transferred to another person by the permittee if:

a. The permittee notifies the Director of the proposed transfer at least 30 days in advance of the proposed transfer date;

b. The notice includes a written agreement between the existing and new permittees containing a specified date for transfer of permit responsibility, coverage, and liability between them; and

c. The Director, within 30 days, does not notify the current permittee and the new permittee of his intent to modify, revoke or reissue, or terminate the permit and to require that a new application be filed rather than agreeing to the transfer of the permit.

4. Change of Mailing Address

The permittee shall promptly provide to the Director written notice of any change of mailing address. In the absence of such notice the original address of the permittee will be assumed to be correct.

C. NONCOMPLIANCE

1. Effect of Noncompliance

Any permit noncompliance constitutes a violation of applicable State laws and is grounds for enforcement action, permit termination, permit modification, or denial of permit reissuance.

2. Reporting of Noncompliance

a. 24-Hour Reporting

In the case of any noncompliance which could cause a threat to public drinking supplies, or any other discharge which could constitute a threat to human health or the environment, the required notice of non-compliance shall be provided to the appropriate Division environmental assistance center within 24 hours from the time the permittee becomes aware of the circumstances. (The environmental assistance center should be contacted for names and phone numbers of emergency response personnel.)

A written submission must be provided within five days of the time the permittee becomes aware of the circumstances unless this requirement is waived by the Director on a case-by-case basis. The permittee shall provide the Director with the following information:

i. A description of the discharge and cause of noncompliance;

ii. The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and

iii. The steps being taken to reduce, eliminate, and prevent recurrence of the non complying discharge.

b. Scheduled Reporting

For instances of noncompliance which are not reported under subparagraph 2.a. above, the permittee shall report the noncompliance on the Monthly Operation Report. The report shall contain all information concerning the steps taken, or planned, to reduce, eliminate, and prevent recurrence of the violation and the anticipated time the violation is expected to continue.

D. LIABILITIES

1. Civil and Criminal Liability

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Notwithstanding this permit, the permittee shall remain

liable for any damages sustained by the State of Tennessee, including but not limited to fish kills and losses of aquatic life and/or wildlife, as a result of the discharge of wastewater to any surface or subsurface waters. Additionally, notwithstanding this Permit, it shall be the responsibility of the permittee to conduct its wastewater treatment and/or discharge activities in a manner such that public or private nuisances or health hazards will not be created.

2. Liability Under State Law

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law.

PART III
OTHER REQUIREMENTS

A. CERTIFIED OPERATOR

The waste treatment facilities shall be operated under the supervision of a Biological natural system operator and the collection system operated under the supervision of a Grade I Collection System certified operator in accordance with the Water Environmental Health Act of 1984.

B. PLACEMENT OF SIGNS

The permittee shall place a sign at all approaches to the drip irrigation lot. The sign should be clearly visible to the public. The minimum sign size should be two feet by two feet (2' x 2') with one inch (1") letters. The sign should be made of durable material and have a white background with black letters.

TREATED DOMESTIC WASTEWATER
DRIP IRRIGATED LOTS
(PERMITTEE'S NAME)
(PERMITTEE'S PHONE NUMBER)
TENNESSEE DIVISION OF WATER POLLUTION CONTROL
ENVIRONMENTAL ASSISTANCE CENTER - KNOXVILLE
PHONE NUMBER: 1-888-891-8332

No later than sixty (60) days from the effective date of the permit, the permittee shall have the above sign(s) on display in the location specified.

C. ADDITION OF WASTE LOADS

The permittee may not add wasteloads to the existing treatment system without the knowledge and approval of the Division.

D. SEPTIC TANK OPERATION

The proper operation of this treatment system depends, largely, on the efficient use of the septic tank. The solids that accumulate in the tank shall be removed at a frequency that is sufficient to insure that the treatment plant will comply with the discharge requirements of this permit.

E. SEPTAGE MANAGEMENT PRACTICES

The permittee must comply with the provisions of 40 CFR Part 503. If the septage is transported to another POTW for disposal, the permittee shall note the amount of septage wasted in gallons, % solids of septage wasted and the name of the facility to which the septage was taken on the monthly operation report.

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

401 CHURCH STREET
L & C ANNEX 6TH FLOOR
NASHVILLE TN 37243-1534

August 29, 2003

Mr. Michael Hines M.S., P.E.
Vice President
On-Site Systems, Inc.-Smoky Cove Subdivision
1920 Breezy Ridge Trail
Concord, TN 37922

Re: State Operating Permit No. SOP-03021
On-Site Systems, Inc.-Smoky Cove Subdivision
Pigeon Forge, Sevier County, Tennessee

Dear Mr. Hines:

In accordance with the provisions of the "Tennessee Water Quality Control Act" (Tennessee Code Annotated Sections 69-3-101 through 69-3-120) the enclosed State Operating Permit is hereby issued by the Division of Water Pollution Control. The continuance and/or reissuance of this Permit is contingent upon your meeting the conditions and requirements as stated therein.

Please be advised that you have the right to appeal any of the provisions established in this State Permit, in accordance with Tennessee Code Annotated, Section 69-3-110, and the General Regulations of the Tennessee Water Quality Control Board. If you elect to appeal, you should file a petition within thirty (30) days of the receipt of this permit.

If you have questions, please contact the Division of Water Pollution Control at your local Environmental Assistance Center at 1-888-891-TDEC; or, at this office, please contact Mr. Hari Akunuri at (615) 532-0650 or by E-mail at *Hari.Akunuri@state.tn.us*.

Sincerely,

Robert L. Haley for

Saya Ann Qualls, P.E.
Manager, Permit Section
Division of Water Pollution Control

SOP-03021
P/WAT/5S

Enclosure

cc: Division of Water Pollution Control, Permit Section
Division of Water Pollution Control, Environmental Assistance Center - Knoxville

Southeast
Environmental Engineering, LLC
Michael Hines, M.S., P.E., Principal

August 8, 2003

Mr. Hari Akunuri
Division of Water Pollution Control
Tennessee Department of Environment
and Conservation
6th Floor, L& C Tower
401 Church Street
Nashville, TN 37243

RE: SOP-03021
Smoky Cove Subdivision
Public Notice

Dear Mr. Akunuri:

Enclosed is a copy of the Public Notice which was posted on July 7 through August 7, 2003 at the Sevier County Courthouse and the entrance to the Smoky Cove Subdivision in Sevier County, TN.

If you have any questions, please do not hesitate to contact me at (865) 675-5917.

Sincerely,

Michael Hines, M.S., P.E.
Principal

Enc.

1920 Breezy Ridge Trail Concord, Tennessee 37922 (865) 675-5917 Fax (865) 966-1762
mikehines@mindspring.com

DIVISION OF WATER POLLUTION CONTROL
401 CHURCH STREET
L&C ANNEX, SIXTH FLOOR
NASHVILLE, TN 37243-1534
(615) 532-0625

Name of Applicant or Facility:	On-Site Systems, Inc. - Smoky Cove Subdivision		Permit Number: SOP-03021
Location of Facility:	Bluff Mountain Road, Southwest Edge of Pigeon Forge		
County Facility is Located:	Sevier		
City Facility is Located:	Pigeon Forge	Zip Code of Facility:	37863
Description of Treatment	Septic tanks, effluent collection system, recirculating trickling filter, and drip irrigation		
Type of Effluent:	No discharge system		
Name of Receiving Stream:	Adjacent to Unnamed Tributary of Nichols Branch		
Latitude of Facility:	N35° 47.703'	Longitude of Facility:	W83° 38.337'
Name of Permit Writer:	Hari Akunuri		
Environmental Assistance Center:	Knoxville		

How to Comment:
TDEC is requesting public comment on this permit action. Obtaining a broad range of facts and opinions on agency actions is one of the best ways to ensure quality decisions. Persons wishing to comment on the proposed action are invited to submit comments in writing to the Division of Water Pollution Control at 6th Floor, L&C Tower, 401 Church Street, Nashville, TN 37243, Attn: Public Notice Coordinator, by fax number (615) 532-0686, or by e-mail at ask.tdec@state.tn.us . Comments must be received by August 7, 2003.

How to Request a Public Hearing:
Interested persons may request in writing that the Director of the Division of Water Pollution Control hold a public hearing on any application. The request must be filed within the comment period and must indicate the interest of the party filing it and the reasons why such a hearing is warranted. When there is significant public interest for a hearing, a hearing will be conducted according to Division of Water Pollution Control Rule 1200-4-1-.05(3)(g). Public hearings will be announced through another public notice.

How the Department will proceed:
The Director of the Division of Water Pollution Control will determine the final permit action after considering comments submitted during the comment period, the hearing record, if any, and the requirements of the Federal and State acts and regulations.

To Obtain Permit Details:
Draft permits or decisions regarding applications submitted to TDEC may be available electronically on the TDEC Internet site: http://www.state.tn.us/environment. Copies of the applications(s) and draft permit(s) are also available for public inspection by contacting TDEC at ask.tdec@state.tn.us, by calling 1-888-891-TDEC(8332), or by visiting following location during normal business hours: Environmental Assistance Center - Knoxville, 2700 Middlebrook Pike, Suite 220, Knoxville, TN 37921, (865) 594-6035.

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
401 CHURCH STREET
L & C ANNEX 6TH FLOOR
NASHVILLE TN 37243-1534

JUL 1 0 2003

Mr. Michael Hines M.S., P.E.
Vice President
On-Site Systems, Inc.-Smoky Cove Subdivision
1920 Breezy Ridge Trail
Concord, TN 37922

Re: State Operating Permit No. SOP-03021
On-Site Systems, Inc.-Smoky Cove Subdivision
Pigeon Forge, Sevier County, Tennessee

Dear Mr. Hines:

Enclosed please find one copy of the draft state permit which the Division of Water Pollution Control (the division) proposes to issue. The issuance of this permit is contingent upon your meeting all of the requirements of the Tennessee Water Quality Control Act and the rules and regulations of the Tennessee Water Quality Control Board.

Also enclosed is a copy of the public notice that announces our intent to issue this permit. The notice affords the public an opportunity to review the draft permit and, if necessary, request a public hearing on this issuance process. **In accordance with 1200-4-1-.05(3)(c) you must provide the public notice in one of three ways: (1) posting in the post office and in one other public place of the municipality, such as the local courthouse or city hall, that is nearest the premises in which your effluent source is located; or (2) post the notice near the entrance to your premises and in one additional place within one mile of your premises; or (3) publish the notice in a local newspaper and periodical, or in a daily newspaper of general circulation. If the notice is posted, you must then send to the division a signed and notarized affidavit identifying the locations at which the notice was posted and the dates on which the notice was in posted. If the notice is published, you must then send to the division a signed and notarized affidavit identifying the publication in which the notice was published and the date on which the notice was published.** The division will not finalize the proposed permit action until the affidavit is received. For your convenience, this package contains examples of an advertisement, a publisher's affidavit and an affidavit to be used when the notice is physically posted.

If you disagree with the provisions and requirements contained in the draft permit, you have twenty-five (25) days from the date of this correspondence to notify the division of your objections. If your objections cannot be resolved, you may appeal the issuance of this permit. This appeal should be filed in accordance with Section 69-3-110, Tennessee Code Annotated. If you have questions, please contact the division's local Environmental Assistance Center at 1-888-891-TDEC; or, at this office, please contact Mr. Hari Akunuri at (615) 532-0650 or by E-mail at *Hari.Akunuri@state.tn.us*.

Sincerely,

Saya Ann Qualls

Saya Ann Qualls, P. E.
Manager, Permit Section
Division of Water Pollution Control

P/WAT/3S
cc: DWPC, Permit Section & EAC - Knoxville

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

DIVISION OF WATER POLLUTION CONTROL
401 CHURCH STREET
L & C ANNEX 6TH FLOOR
NASHVILLE TENNESSEE 37243-1534

June 26, 2003

Ms. Earleen Teaster, City Manager
City of Pigeon Forge
P.O. Box 1350
Pigeon Forge, TN 37868-1350

Re: SOP-03021
Smoky Cove Subdivision
Sevier County

Dear Ms. Teaster:

We have reviewed the plans and engineering reports submitted for a sewerage system proposed to serve Smoky Cove Subdivision. The plans and the design of the system represented meet our design criteria. Additionally an engineering report and application for the required State Operation Permit (SOP) have been received and reviewed. A draft SOP has been prepared and the required 30 day opportunity for public comment will begin on July 7. If no substantive comments or requests for public hearing are received from the public prior to August 7, we will close the comment period at that time. Authorization to proceed with construction will be implicit with the closure of the public comment period.

If you have questions concerning this correspondence or if we may be of assistance to you, please do not hesitate to contact the division at (615) 532-0625.

Sincerely,

Paul E. Davis, P.E.
Director

cc: Municipal Facilities Section
Permit Section

7-3-03
Jared J. Joggers
M. Jessmen
L. Hedrick

STATE OF TENNESSEE

FAX TRANSMITTAL MEMO

TO: Mike Hines

FAX NUMBER: 865 - 966-1762

FROM: Sara Qualls
WPC

SUBJECT: City of Pigeon Forge

DATE: 7/3/03

NUMBER OF PAGES INCLUDING THIS ONE: 2

IF YOU DO NOT RECEIVE THIS ENTIRE DOCUMENT OR HAVE ANY QUESTIONS, CALL Kathryn Mitchell

TELEPHONE NO. 615 532-0667

MESSAGE:

GP-0094

Southeast
Environmental Engineering, LLC
Michael Hines, M.S., P.E., Principal

May 18, 2003

Mr. Woodson L. Smith
Engineer
Tennessee Department of Environment & Conservation
Knoxville Environmental Assistance Center
2700 Middlebrook Pike
Knoxville, TN 37921

Dear Mr. Smith:

I have been retained to design a STEP/STEG collection system, recirculating trickling filter, and drip dispersal to serve the sewage reuse needs of Smoky Cove Subdivision, a 200 unit residential community, to be located on Bluff Mountain Road near Pigeon Forge, Sevier County. Enclosed are two signed original State Operating Permit applications and Preliminary Engineering Reports. By copy of this letter, I am supplying additional copies to Roger Lemasters and Hari Akunuri of the central office.

I will contact you in the next few days to schedule a site visit. Detailed plans will follow shortly. Call me if you have any questions.

Sincerely,

Michael Hines, M.S., P.E.
Principal

Enclosures

cc: ROGER D. LEMASTERS, P.E. & HARI AKUNURI
TENNESSEE DEPARTMENT OF ENVIRONMENT & CONSERVATION
6TH FLOOR, L&C ANNEX
401 CHURCH STREET
NASHVILLE, TN 37243-1540

1920 Breezy Ridge Trail Concord, Tennessee 37922 (865) 675-5917 Fax (865) 966-1762

(Letter Only)
Mike Blazer, Director
Sevier County Environmental Health Department
329 Cedar
Sevierville, TN 37862

SEE

State of Tennessee
Department of Environment and Conservation
DIVISION OF WATER POLLUTION CONTROL
401 Church Street - L&C Annex - Sixth Floor
Nashville, Tennessee 37243-1534

APPLICATION FOR STATE OPERATION PERMIT

To Operate a Sewage, Industrial Waste or Other Waste Treatment System that does not discharge to any surface or subsurface waters.

In accordance with the provisions of Tennessee Code Annotated Section 69-3-108 and Regulations of the Tennessee Water Quality Control Board, application is hereby made by:

On-Site Systems, Inc.
Name of City, Town, Industry, Corporation, Individual, Etc.

of Knoxville in Knox
Name of Municipality Name of County

Mailing Address: Street: 1920 Breezy Ridge Trail

City Knoxville ZipCode 37922

Located at Smoky Cove Subdivision
Location of Facility

Latitude N35° 47.703' Longitude W83°38.337'

adjacent to Unnamed tributary of Nichols Branch
Name of Nearest Stream of Tributary (including mile point)

100' to unnamed tributary, 1000' to Nichols Branch
Distance of Stream from facility

If additional information is required or when a field visit is made contact the following official:

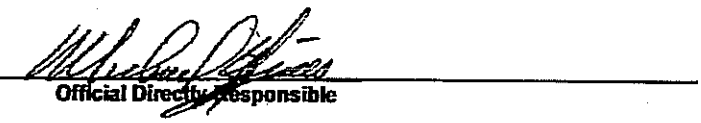
Michel Hines, M.S., P.E. Vice President 865-675-5917
Name Title Phone

Previous State of Federal Water Quality Permits N/A
Number

Current State or Federal Water Quality Permits None
Number

Other State or Federal Permits (e.g. APC, SWM) N/A
Number

Date May 18, 2003 Signed On-Site Systems, Inc.
City, Corporation, or Other

By 
Official Directly Responsible

Vice President
Title

FILE THIS FORM IN DUPLICATE

WATER SUPPLY

1.	SOURCE		LOCATION	VOLUME (MGD)
	A.	Public Water Supply	City of Pigeon Forge	Varies
	B.	Surface Water (stream mile)		
	C.	Groundwater (well, spring)		
	D.	Other		
			Total	

GENERAL INFORMATION

2. Specify any toxic or hazardous materials kept on the premises which could, via spillage, reach a surface stream or contaminated the groundwater.

If the facility doses not treat domestic waste, please complete the following:

3. Domestic wastewater is discharge to:

   a) Septic tank(s) and tile fields

   b) Package plant

   c) Public sanitary sewerage system (Specify)

   d) Other (Specify)

Please attach any necessary additional information. (Drawings, diagrams, additional pages, etc.)

Detailed design drawings to follow.

INDUSTRIAL WASTEWATER TREATMENT SYSTEM

1. Products(s) and/or Process(es) _____

2. Generally describe the process(es) from which wastewater is discharged/used.

3. Total employed _____

WASTE FLOW

4. For each waste stream entering the treatment system, indicate:

   A) Type of Wastewater (sanitary, cooling water, process water, other)

   B) Wastewater characteristics (e.g.: BOD_5, Metals, pH, solids, ammonia, etc.)

   C) Toxic substances present

   D) Flow or amount of waste handled

WASTE FLOW #1	A	Domestic Sanitary
	B	Typical Domestic: BOD 150 mg/l; TSS 80 mg/l
	C	None
	D	40,000 gpd
WASTE FLOW #2	A	
	B	
	C	
	D	

If other waste streams are present, please provide the above information on an additional page.

5. Is there any runoff entering the system? No

If yes, what is drainage area? _____

Possible contaminants _____

Flow or amount of runoff _____

TREATMENT SYSTEM

6. Type of Facility (lagoon holding pond, recycle, tank, pump and haul, sediment basin, spray application, other)

STEP/STEG collection system discharging to package, recirculating trickling filter, thence to drip irrigation on heavily wooded slopes with inhibited access

7. Treatment system operator Michael Hines

Phone number (865) 675-5917

8. Is there any possibility of overflow or discharge? No
(power failures, equipment failures, heavy rains, etc.)

If so, what measures are taken to prevent overflow? _____

9. Please provide and attach a diagram of treatment system showing components sizes and influent and effluent location(s).

Detailed plans to be submitted later.

If spray application, list acreage involved and show gallons/acre applied 5.0 acre of drip irrigation area dosed at 65,200 gallon maximum per acre per wee k

If pump and haul, list disposal location and approval documentation

SLUDGE DISPOSAL

10. Frequency of disposal Every few years from STEP/STEG tanks

11. Volume disposed of Varies

12. Characteristics (include contaminants and moisture content) Typical septage

13. Approved ultimate disposal site Via licensed septage pumper/haulers

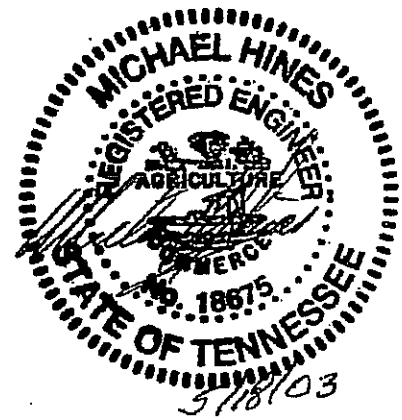
Southeast Environmental Engineering, LLC

Michael Hines, M.S., P.E., Principal

Preliminary Engineering Report

Smoky Cove Subdivision
Sevier County, Tennessee

May 15, 2003



General

This proposed project will consist of approximately 160 residential/resort homes located on Bluff Mountain Road in Sevier County. The development will be located on approximately 95 acres of a wooded ridges near the southwest edge of the City of Pigeon Forge. The development will be built in phases and will be served by a small diameter Septic Tank Effluent Collection (STEC) sewer system consisting of approximately 10,000 feet of collection lines. The STEC system effluent will be treated in a Bioclere™ Recirculating Trickling Filter (RTF) system designed at 0.026 #$CBOD_5$/sq.ft./day at a design flow of 40,000 gpd. Effluent from the Bioclere™ units will be reused through a drip dispersal field at a rate of 2.0 - 2.4 inches per week.

The site occupies approximately 95 acres of a forested ridges with approximately 350 feet of elevation difference. The treatment and reuse site is located in the middle of a local drainage basin that discharges through wet-weather conveyances to unnamed tributaries thence to Nichols Branch and thence to Walden Creek.

The sewage collection, treatment, and reuse system will be owned and operated by On-Site Systems, Inc.. A State Operation Permit application is included as part of this submittal. This preliminary report addresses the hydraulic and nutrient loading of the drip dispersal fields. The report demonstrates that State Operation Permit (SOP) nitrate limits are not required.

Hydraulic and Nutrient Loading of Drip Dispersal Area

Background

Recirculating trickling filters are designed to maximize the oxidation of the applied organic load. As a result, they achieve essentially complete nitrification of the ammonia and organic nitrogen in the influent waste water. The design effluent

1920 Breezy Ridge Trail Concord, Tennessee 37922 (865) 675-5917 Fax (865) 966-1762
mikehines@mindspring.com

nitrate concentrations to the disposal fields will be approximately 25 mg/l at full load and low levels of ammonia are expected.

Effluent nitrogen applied to the root zone can take a variety of fate pathways. Some can be volatilized or adsorbed onto the soil matrix as ammonia. A portion is incorporated into new microbial cell material or mineralized into stable organic material. These pathways account for only a small fraction of the applied nitrogen and mainly affect the ammonia. Applied nitrate nitrogen will be taken up by the site vegetation, denitrified by soil microbes, or leached into the deeper ground water system.

In order to maximize removal of nitrate nitrogen from the applied effluent, the hydraulic loading rate and the nutrient loading rate must be carefully controlled. The applied effluent must be dosed into the root zone at rates that do not result in surface flooding or exceed the nitrogen uptake rate of the site vegetation. Factors affecting these loading rates are denitrification rates, plant uptake rates, rainfall and evapotranspiration, ground water dilution, and soil profile and characteristics.

Chapter 16 of the Tennessee Division of Water Pollution Control Design Criteria contains a methodology for proposed spray irrigation site evaluation. That methodology has been modified and is presented here in evaluation of the drip dispersal fields for this project.

Hydraulic Loading Rate

The rate at which effluent can be applied to a soil column without surface flooding is dependent on the hydraulic conductivity of the soil, the amount of rainfall, and the amount of water lost through evapotranspiration. This relationship can be defined as:

Lwh = (PET + Perc) - Pr, where Lwh = hydraulic loading rate
PET = potential evapotranspiration
Perc = available hydraulic conductivity
Pr = 5-yr return monthly rainfall

PET is described using the Thornthwaite Equation in Chapter 16 (Table A-2) for a representative Tennessee site. Pr is likewise described in Chapter 16 (Table A-3). The most accurate method of determining Perc is through field testing using one of the acceptable methodologies for measuring saturated vertical hydraulic conductivity and then using only 10% of that available capacity as a safety factor. These test methods are valid only for the immediate test location. In large drip systems, many such test sites would be required, at the cost of much time and expense. Because the soils at this site are all described as 45 to

60 MPI clay loam soils at the 18" depth, the Perc term was derived by assuming the existence of a 240 MPI restrictive layer beneath the site. This assumption results in further conservatism in calculating the available hydraulic loading rate, Lwh.

Table 1 is a spreadsheet showing the calculation of the Lwh term. The available hydraulic conductivity (the Perc term) was determined on an inch per day basis and distributed monthly based on the total number of days per month. As shown, the minimum available hydraulic loading rate will be in the month of March at 2.42 inches/week and the maximum will be in August at 4.26 inches/week. The March value will be used as the design loading rate.

Nutrient Loading Rate

The effluent nitrogen (nitrate in our case) must be applied to the soil at or below the combined rate of denitrification and plant uptake. A mass balance can be written that evaluates all of the fate pathways available to the nitrogen. Chapter 16 presents that mass balance in the following form, modified to add the (Aws/Adf) term to account for the dilution effect of rainfall on that portion of the property watershed tributary to and from the drip field area:

$$Lwn = \frac{Cp\left(Aws/Adf\right)\left(\mathrm{Pr} - PET\right) + 4.424 N_U}{\left(1-f\right)Cn - Cp}$$

where Lwn = available hydraulic loading rate based on nitrogen limits
Cp = leachate nitrogen limit (10 mg/l)
A_{ws} = watershed area to and from drip field within property boundaries
A_{df} =drip field area
Pr = 5-yr return monthly rainfall
PET = potential evapotranspiration
N_U = monthly vegetation nitrogen uptake
Cn = effluent nitrogen concentration
f = fraction of effluent nitrogen removed by denitrification and volatilization

The nitrogen concentration in the leachate, Cp, must be less than or equal to 10 mg/l at the property line. To increase the conservatism of the evaluation, it is assumed that all impacts on the nitrogen occur at the effluent disposal site. No credit for denitrification or vegetation uptake is taken down-gradient of the drip

field sites. Nitrogen concentration in the RSF effluent applied to the drip fields is assumed to be 25 mg/l for this facility. Pr and PET terms are derived as described in the preceding section.

Values for vegetation uptake of nitrogen are found in various sources in the literature. The annual uptake rates shown represent the mid-range of reported values for forested areas, specific to the southeastern United States where available. The annual rates are distributed as monthly percentages in the spreadsheet based on the distribution shown in Chapter 16 (Table A-5).

The rate of biological denitrification of the applied nitrate is temperature dependent with ideal conditions existing at soil temperatures above 50°F. Literature data reports warm weather denitrification rates up to 95% in organic soils. Even though Tennessee soil temperatures at the 20" depth average greater than 59°F and are likely never to fall below 50°F, the following calculation assumed a distribution of denitrification rates ranging from 25% in February to 80% in August.

Table 2 is a spreadsheet showing the calculation of the Lwn term. At the project site, the drip fields are located on a slope near the middle of the large watershed passing through and beyond the drip dispersal field to an unnamed tributary of Nichols Branch, thence to Walden Creek. At the down-gradient property line, the watershed above and below the drip field is many times the area of the drip field itself. For additional conservancy, it was assumed that the ratio of the area of the watershed outside of the drip field to that of the drip field itself is only 2:1. Still, the available hydraulic loading rate based on nitrogen application varies from a low of 4.4 inches/week in February to a high of 573 inches/week in July.

Depending on site specific conditions, either the hydraulic or the nutrient loading rate will be the controlling loading rate. At this site, the nutrient loading rate necessary to ensure compliance with SDWA nitrate limits in the ground water at the property boundary is always higher than the available hydraulic loading rate. The available hydraulic loading rate will, therefore, be the controlling parameter. As has been shown in the previous section, the maximum design hydraulic loading rate at this site will be 2.42 inches per week.

Conclusions

Based on the assumptions and site conditions, the Smoky Cove Subdivision drip dispersal system can be operated at hydraulic loading rates up to the levels shown in Table 1 and maintain ground water nitrate concentrations at the property boundaries at or below drinking water limits. The system is designed to operate at or below the

loading rates shown in Table 1. Therefore, a permit limit for nitrate nitrogen in the RSF effluent is not required.

Table 1

Smoky Cove Subdivision - Waste Water Reuse System

Sevier County, Tennessee

May 17, 2003

Water Balance Using Thornthwaite Equation for Evapotranspiration

Hydraulic Loading Rate = Lwh = (PET + Perc) - Pr

Lwh	=	**Calculated**	available hydraulic loading rate based on soils, (in/unit of time)
PET	=	**Table A-2 Ch. 16**	potential evapotranspiration, in/mon
Pr	=	**Table A-3 Ch. 16**	5-year return monthly precipitation, in/mon
K (MPI)	=	**240**	hydraulic conductivity of restrictive layer, minutes/in
K (in/day)	=	**6**	hydraulic conductivity of restrictive layer, in/day
Perc (in/day)	=	**0.6**	10% of available hydraulic conductivity, in/day

	Pr (in/mo)	PET (in/mo)	PERC (in/mo)	Lwh (in/mo)	Lwh (in/wk)	Lwh (gal/sf/day)
Jan	7.62	0.10	18.60	11.08	2.50	0.22
Feb	6.72	0.27	16.80	10.35	2.59	0.23
Mar	8.85	0.97	18.60	10.72	2.42	0.22
Apr	6.59	2.30	18.00	13.71	3.20	0.28
May	6.13	3.59	18.60	16.06	3.63	0.32
Jun	5.52	4.90	18.00	17.38	4.06	0.36
July	6.85	5.44	18.60	17.19	3.88	0.35
Aug	4.73	5.00	18.60	18.87	4.26	0.38
Sept	5.54	3.79	18.00	16.25	3.79	0.34
Oct	4.47	1.98	18.60	16.11	3.64	0.32
Nov	6.11	0.82	18.00	12.71	2.97	0.26
Dec	7.55	0.27	18.60	11.32	2.56	0.23
Totals	**76.68**	**29.43**	**219**	**171.75**		

Table 2
Smoky Cove - Waste Water Reuse System
Sevier County, Tennessee
May 17, 2003

Nutrient Loading Rate using Nitrogen Mass Balance

Nutrient Loading Rate = $L_{wn} = (C_p(A_{ws}/A_{df})(Pr-PET)+N_u(4.424))/(((1-f)*C_n)-C_p)$

L_{wn}	=	**Calculated**	allowable loading rate based on nitrogen limits, (units as shown)
C_p	=	**10**	maximum nitrogen concentration in leachate, (mg/l)
C_n	=	**25**	nitrogen concentration in applied wastewater
Pr	=	**Table A-3 (Ch. 16)**	5-year return monthly precipitation, (in/mon)
PET	=	**Table A-2 (Ch. 16)**	potential evapotranspiration, (in/mon)
U	=	**300**	annual nitrogen uptake rate of site vegetation, (lbs/acre/yr)
N_{uptake}	=	**Table A-5 (Ch. 16)**	monthly nitrogen uptake by vegetation (units as shown)
f	=		applied nitrogen fraction removed by denitrification and volatilization
constant	=	**4.424**	combined conversion factor
A_{df}	=	**1**	area of drip field (acres)
A_{ws}	=	**2**	area of site watershed draining through and beyond drip field

	Pr (in/month)	PET (in/month)	N_{uptake} (%/month)	N_{uptake} (lb/ac/mo)	$N_{denitrification}$ (%/month)	Lwn (in/mo)	Lwn (in/wk)
Jan	7.62	0.10	1	3	30	22	4.93
Feb	6.72	0.27	2	6	25	18	4.44
Mar	8.85	0.97	4	12	30	28	6.34
Apr	6.59	2.30	8	24	35	31	7.17
May	6.13	3.59	12	36	40	42	9.49
Jun	5.52	4.90	15	45	50	85	19.74
July	6.85	5.44	17	51	75	2538	573.15
Aug	4.73	5.00	15	45	80	1937	437.34
Sept	5.54	3.79	12	36	75	1943	453.28
Oct	4.47	1.98	8	24	70	1560	352.20
Nov	6.11	0.82	4	12	50	64	14.83
Dec	7.55	0.27	2	6	40	34	7.77
Totals	**76.68**	**29.43**	**100**	**300.00**			

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL

QOR/DMR QUARTERLY OPERATION REPORT FOR BIOCLERE™ /DRIP IRRIGATION PLANTS

FACILITY: Smoky Cove Resort
NPDES PERMIT NO. 03-021
PERITTEE: On-Site Systems, Inc QUARTER : Jan-Mar, 06

CITY: Pigeon Forge,Tn. COUNTY: Sevier

			INFLUENT						EFFLUENT										COMMENTS ABOUT OPERATION AND COMPLIANCE
DATE	TIME OF SAMPLING	WASTEWATER FLOW (gpd)	BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)		BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)	FECAL COLIFORM (organisms/100 ml)	DISSOLVED OXYGEN (mg/l)	PH (Standard Units)	ORP (mV)		Please document importantevents such as discharges of untreated waste water, down equipment or plant upsets which may impact effluent quality.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
15-Feb	11:00 AM								5		5.8	7							
TOTAL																			
PERMIT AVG LIMIT																			
ACTUAL AVG VALUE		4,860																	
PERMIT MAX LIMIT									45		Report								
ACTUAL MAX VALUE																			
PERMIT FREQUENCY OF ANALYSIS		Inst.							Quarterly		Quarterly								
ACTUAL FREQUENCY OF ANALYSIS		Run Time							Quarterly		Quarterly								
PERMIT SAMPLING TYPE			GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	
ACTUAL SAMPLE TYPE																			
NO. OF VIOLATIONS																			

I certify that the submitted information is accurate and complete. I further certify that all sampling was performed in accordance with approved procedures and all analyses were performed in accordance with 40 CFR Part 136. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OPERATOR

DATE 4/15/06

LICENSE NO. 358-40-7993
PHONE NO. 865-675-5917

ANALYSIS PERFORMED BY OUTSIDE LABORATORIES:
Pickney Brothers, Inc.
Mt. Juliet, TN

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER

DATE 4/15/06

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL

QOR/DMR QUARTERLY OPERATION REPORT FOR BIOCLERE™ /DRIP IRRIGATION PLANTS

FACILITY: Smoky Cove Resort
NPDES PERMIT NO. 03-021
PERITTEE: On-Site Systems, Inc QUARTER : Apr-Jun, 05

CITY: Pigeon Forge,Tn. COUNTY: Sevier

			INFLUENT						EFFLUENT										COMMENTS ABOUT OPERATION AND COMPLIANCE
DATE	TIME OF SAMPLING	WASTEWATER FLOW (gpm)	BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)		BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)	FECAL COLIFORM (organisms/100 ml)	DISSOLVED OXYGEN (mg/l)	PH (Standard Units)	ORP (mV)		Please document importantevents such as discharges of untreated waste water, down equipment or plant upsets which may impact effluent quality.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
27-Apr	3:30 PM	40																	
9-May	9:05 AM	0																	
7-Jun	6:20 PM	40							18		6.5	7.4							
TOTAL																			
PERMIT AVG. LIMIT		Instantaneous																	
ACTUAL AVG. VALUE																			
PERMIT MAX. LIMIT									45		Report								
ACTUAL MAX. VALUE																			
PERMIT FREQUENCY OF ANALYSIS		Inst.							Quarterly		Quarterly								
ACTUAL FREQUENCY OF ANALYSIS		Run Time							Quarterly		Quarterly								
PERMIT SAMPLE TYPE			GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	
ACTUAL SAMPLE TYPE																			
NO. OF VIOLATIONS																			

I certify that the submitted information is accurate and complete. I further certify that all sampling was performed in accordance with approved procedures and all analyses were performed in accordance with 40 CFR Part 136. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OPERATOR

DATE 7/15/05

LICENSE NO. [illegible]7893
PHONE NO. 865-675-5917

ANALYSIS PERFORMED BY OUTSIDE LABORATORIES:
Pickney Brothers, Inc.
Mt. Juliet, TN

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER

DATE 7/15/05

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL

QOR/DMR QUARTERLY OPERATION REPORT FOR BIOCLERE™ /DRIP IRRIGATION PLANTS

FACILITY: Smoky Cove Resort
NPDES PERMIT NO. 03-021
PERITTEE: On-Site Systems, Inc QUARTER : Jul-Sep, 06

CITY: Pigeon Forge,Tn. COUNTY: Sevier

			INFLUENT						EFFLUENT									
DATE	TIME OF SAMPLING	WASTEWATER FLOW (gpm)	BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)		BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)	FECAL COLIFORM (organisms/100 ml)	DISSOLVED OXYGEN (mg/l)	PH (Standard Units)	ORP (mV)	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
6-Jul	1:00 PM	0 gpm																
3-Aug	8:30 AM	40 gpm																
12-Sep	9:45 AM	0 gpm							23.4		26.2	0.09						
TOTAL																		
PERMIT AVG. LIMIT		Instantaneous																
ACTUAL AVG. VALUE																		
PERMIT MAX. LIMIT		Third Quarter							45		Report							
ACTUAL MAX. VALUE																		
PERMIT FREQUENCY OF ANALYSIS		Inst.							Quarterly		Quarterly							
ACTUAL FREQUENCY OF ANALYSIS		Run Time							Quarterly		Quarterly							
PERMIT SAMPLE TYPE			GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB
ACTUAL SAMPLE TYPE																		
NO. OF VIOLATIONS																		

COMMENTS ABOUT OPERATION AND COMPLIANCE

Please document importantevents such as discharges of untreated waste water, down equipment or plant upsets which may impact effluent quality.

I certify that the submitted information is accurate and complete. I further certify that all sampling was performed in accordance with approved procedures and all analyses were performed in accordance with 40 CFR Part 136. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OPERATOR

DATE 10/11/06

LICENSE NO. [redacted]-34-7893
PHONE NO. 865-675-6917

ANALYSIS PERFORMED BY OUTSIDE LABORATORIES:
Pickney Brothers
Mt. Juliet, TN

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER

DATE 10/11/06

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL

QOR/DMR QUARTERLY OPERATION REPORT FOR BIOCLERE™ /DRIP IRRIGATION PLANTS

FACILITY: Smoky Cove Resort
NPDES PERMIT NO. 03-021
PERITTEE: On-Site Systems, Inc QUARTER : Oct-Dec, 06
CITY: Pigeon Forge,Tn COUNTY: Sevier

			INFLUENT						EFFLUENT										COMMENTS ABOUT OPERATION AND COMPLIANCE
DATE	TIME OF SAMPLING	WASTEWATER FLOW (gpm)	BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)		BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)	FECAL COLIFORM (organisms/100 ml)	DISSOLVED OXYGEN (mg/l)	PH (Standard Units)	ORP (mV)		Please document importantevents such as discharges of untreated waste water, down equipment or plant upsets which may impact effluent quality.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
19-Oct	10:45 AM	40							3.74		13.5	<0.05							
6-Nov	1:50 PM	41																	
7-Dec	11:15 AM	0																	
TOTAL																			
PERMIT AVG. UNIT		Instantaneous																	
ACTUAL AVG. VALUE																			
PERMIT MAX. LIMIT									45		Report								
ACTUAL MAX. VALUE																			
PERMIT FREQUENCY OF ANALYSIS		Inst.							Quarterly		Quarterly								
ACTUAL FREQUENCY OF ANALYSIS		Run Time							Quarterly		Quarterly								
PERMIT SAMPLING TYPE			GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	
ACTUAL SAMPLE TYPE																			
NO. OF VIOLATIONS																			

I certify that the submitted information is accurate and complete. I further certify that all sampling was performed in accordance with approved procedures and all analyses were performed in accordance with 40 CFR Part 136. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OPERATOR

DATE 1.5.07

LICENSE NO. [illegible]-7893
PHONE NO. 865-675-5917

ANALYSIS PERFORMED BY OUTSIDE LABORATORIES:
Pickney Brothers, Inc.
Mt. Juliet, TN

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER

DATE 1.5.07

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF WATER POLLUTION CONTROL

QOR/DMR QUARTERLY OPERATION REPORT FOR BIOCLERE™ /DRIP IRRIGATION PLANTS

FACILITY: Smoky Cove Resort
NPDES PERMIT NO. 03-021
PERITTEE: On-Site Systems, Inc QUARTER : Jan-Mar, 07

CITY: Pigeon Forge,Tn. COUNTY: Sevier

			INFLUENT						EFFLUENT										COMMENTS ABOUT OPERATION AND COMPLIANCE
DATE	TIME OF SAMPLING	WASTEWATER FLOW (gpm)	BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)		BOD_5 (mg/l)	SUSPENDED SOLIDS (mg/l)	AMMONIA NITROGEN (mg/l)	NITRATE NITROGEN (mg/l)	TOTAL KJEDAHL NITROGEN (mg/l)	FECAL COLIFORM (organisms/100 ml)	DISSOLVED OXYGEN (mg/l)	PH (Standard Units)	ORP (mV)		Please document importantevents such as discharges of untreated waste water, down equipment or plant upsets which may impact effluent quality.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
11-Jan	1:30 PM	30							124		45	<0.05							
27-Feb	10:00 AM	0							22		3.66	<0.05							
16-Mar	2:00 PM	30																	
TOTAL																			
PERMIT AVG. LIMIT																			
ACTUAL AVG. VALUE		Instantaneous																	
PERMIT MAX. LIMIT									45		Report								
ACTUAL MAX. VALUE																			
PERMIT FREQUENCY OF ANALYSIS		Inst.							Quarterly		Quarterly								
ACTUAL FREQUENCY OF ANALYSIS		Run Time							Quarterly		Quarterly								
PERMIT SAMPLING TYPE			GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	GRAB	
ACTUAL SAMPLE TYPE																			
NO. OF VIOLATIONS									1										

I certify that the submitted information is accurate and complete. I further certify that all sampling was performed in accordance with approved procedures and all analyses were performed in accordance with 40 CFR Part 136. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SIGNATURE OF OPERATOR

DATE 4/12/07

LICENSE NO. 36[illegible]693
PHONE NO. 865-675-5917

ANALYSIS PERFORMED BY OUTSIDE LABORATORIES:
Pickney Brothers, Inc.
Mt. Juliet, TN

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER

DATE 4/12/07

Customer ID	Cabin Name	# Sleeps	# Bedrooms	911 Address
SMCO 000-001	Mountain Jubilee	26	8	1806 Smoky Cove Ro
SMCO 000-002	Office	0	2	1810 Smoky Cove Ro
SMCO 000-003	Pool Site	0		1809 Smoky Cove Ro
SMCO 000-004	Among The Hemlocks	4		2810 Ridge Creek Cir
SMCO 000-005	Adventureous Escape	12	5	2806 Ridge Creek Cir
SMCO 000-006	Sweet Dreams Retreat	13	4	2801 Ridge Creek Cir
SMCO 000-007	Mountain Gem	5		2829 Ridge Creek Cir
SMCO 000-008	About Time...	4		2809 Ridge Creek Cir
SMCO 000-009	N/A	4		2816 Ridge Creek Cir
SMCO 000-012	Great Escape	8	2	2824 Ridge Creek Cir
SMCO 000-013	Easy Does It	4		2828 Ridge Creek Cir
SMCO 000-014	Rustic Retreat	18	6	2920 Raven Fork Circl
SMCO 000-015	Lovin' Life Lodge	6	3	2924 Raven Fork Circl
SMCO 000-021	TBD	6	2	2810 Turkey Court
SMCO 000-023	Brother Bear	8	2	2814 Turkey Court
SMCO 000-024	Bluff Mountain Hideaway	4	1	2738 Murray Ridge Ro
SMCO 000-025	Bluff Mountain Vista	8	4	2813 Turkey Court
SMCO 000-026		6	2	2809 Turkey Court
SMCO 000-027	Smoky Bear	8	2	2807 Turkey Court
SMCO 000-028	On Solid Ground	13	4	2805 Turkey Court
SMCO 000-038	Cedar Elegance	10	2	2959 Raven Fork Circl
SMCO 000-039	Not a rental	6	2	2955 Raven Fork Circl
SMCO 000-040	Tenn-Ya-See	8	4	2951 Raven Fork Circl
SMCO 000-041	Bearadise	8	4	2947 Ravenfork Circle
SMCO 000-042	Mountain Majesty	8	4	2954 Ravenfork Circle
SMCO 000-056	Honey Hole	8	2	2759 Murray Ridge Ro
SMCO 000-090	Bearly Creek Side	8	2	1955 Smoky Cove Ro
SMCO 000-096	TBD	6	2	2752 Murray Ridge Ro
SMCO 001-718	Raven's Nest	12	5	2930 Raven Fork Circl

5/30/07

Customer ID	Cabin Name	# Sleeps	# Bedrooms	911 Address
SC 000-002	Mt. Seduction		2	2011 Starr Crest Drive
SC 000-003	Country Starr Lodge		4	2013 Starr Crest Drive
SC 000-004	Mountain Majesty	8	4	2019 Starr Crest Drive
SC 000-005	Among The Starrs	4	1	2020 Starr Crest Drive
SC 000-006	Above the Starrs	4	1	2022 Starr Crest Drive
SC 000-007	All Starr Lodge		3	2024 Starr Crest Drive
SC 000-008	Sugar Shack	4	2	2026 Starr Crest Drive
SC 000-009	Moose Tracks			2010 Starr Crest Drive
SC 000-010	Serene Peak	4	1	2032 Starr Crest Drive
SC 000-012	Dixie's Pride	4	1	2036 Starr Crest Drive
SC 000-013	Endless Love	6	1	2038 Starr Crest Drive
SC 000-015	Love Shack	6	1	2042 Starr Crest Drive
SC 000-016	Angel's View	4	1	2044 Starr Crest Drive
SC 000-520HS	Tequila Sunrise		2	1902 North Star Way
SC 000-564HS			1	1937 North Star Way
SC 000-568-HS			2	North Star Way
SC 000-570HS	Endless View		1	1943 North Star Way
SC 000-572HS	An Escape To The View	10	4	1945 North Star Way
SC 000-574HS	Blue Clear Sky		1	1975 North Star Way
SC 000-576HS	A Breathtaking View		4	1949 North Star Way
SC 000-580HS	All About The View		4	1951 North Star Way
SC 000-582HS	50 Mile View		2	1983 North Star Way
SC2 001-001	Whispering Woods	6	2	2121 Lone Eagle Driv
SC2 001-002	Bear Heaven	12	4	1916 Starr Ridge Driv
SC2 001-003	Candy Kisses	6	2	1910 Starr Ridge Driv
SC2 001-004	Eagle's View Lodge	12	4	2131 Lone Eagle Driv
SC2 001-005	Starr Crest Lodge	16	4	2141 Lone Eagle Driv
SC2 001-006	Villa Italia	14	4	2145 Lone Eagle Driv
SC2 001-007	Playhouse	6	1	2320 Rand Road
SC2 001-011	Sugar Shack	6	2	2306 Rand Road
SC2 001-012	Beary Special	4	1	2304 Rand Road
SC2 001-013	Bear Hugs	10	4	2302 Rand Road
SC2 001-014	Picture Perfect	6	1	2301 Rand Road
SC2 001-015	Mountain Dream	8	2	2303 Rand Road
SC2 001-016	Sugar and Spice	10	3	2305 Rand Rd.
SC2 001-019	Eagle's Point	4	1	2149 Lone Eagle Driv
SC2 001-020	Love Nest	4	1	2155 Lone Eagle Driv
SC2 001-021	Good Times	6	1	2056 Mikey Street
SC2 001-023	Angel's Choice	6	1	2048 Mikey Street
SC2 001-024	High Expectations	7	2	2044 Mikey St.
SC2 001-025	Smokey Mountain High	6	2	2040 Mikey Street
SC2 001-027	Smoky Safari	4	1	2030 Mikey Street
SC2 001-028	Angel's Corner	4	1	2026 Mikey Street
SC2 001-029	Bearadise	10	4	2022 Mikey Street
SC2 001-030	Nestled Inn	6	1	2004 Mikey Street
SC2 001-031	Hawk's Nest Lodge	14	4	2002 Mikey Street
SC2 001-032	Bluebirds Over The Smoki	20	5	2001 Mikey Street
SC2 001-033	Love Shack	8	1	2005 Mikey Street
SC2 001-034	Amazing View	18	7	2007 Mikey Street
SC2 001-035	Mountain Splendor	6	1	2031 Mikey Street
SC2 001-036	Above The Bears	5	1	2025 Mikey Street
SC2 001-037	Diamond In The Sky	26	8	2035 Mikey Street
SC2 001-038	Mountaintop Lodge	36	8	1907 Legacy Drive
SC2 001-039	Grand View Lodge	14	4	1909 Legacy Drive

5/30/07

Customer ID	Cabin Name	# Sleeps	# Bedrooms	911 Address
SC2 001-040	High Adventure	30	7	1919 Legacy Drive
SC2 001-041	A Top The Starrs	4	1	1923 Legacy Drive
SC2 001-042	High Mountain Mist	6	2	1927 Legacy Drive
SC2 001-043	Castle On A Cloud	7	2	1931 Legacy Drive
SC2 001-044	Star Dust	6	1	1935 Legacy Drive
SC2 001-045	Rejuvenation	10	2	1939 Legacy Drive
SC2 001-046	For Your Eyes Only	4	1	1938 Legacy Drive
SC2 001-047	A Spectacular View	4	1	1934 Legacy Drive
SC2 001-048	Away To The Stars	4	1	1932 Legacy Drive
SC2 001-049	Majestic Wonder	4	1	1930 Legacy Drive
SC2 001-050	Funny Bear	7	2	1928 Legacy Drive
SC2 001-051	A Bear's View	6	1	1926 Legacy Drive
SC2 001-052	Midnight Wonder	4	1	1922 Legacy Drive
SC2 001-053	Summits View	6	2	1918 Legacy Drive
SC2 001-056	The Sun Also Rises	4	2	2047 Mikey Street
SC2 001-060	It's Got It All	16	8	2211 Lone Eagle Driv
SC2 001-061	Mountain Extasy	7	2	2215 Lone Eagle Driv
SC2 001-062	Cloud 9	4	1	2219 Lone Eagle Driv
SC2 001-063	Wine & Roses	4	1	2225 Lone Eagle Driv
SC2 001-064	Enchanted	6	2	2229 Lone Eagle Driv
SC2 001-065	Rocky Top Retreat	6	1	2233 Lone Eagle Driv
SC2 001-066	Starry Hope	12	3	2235 Lone Eagle Dr.
SC2 001-067	Absolute Tranquility	4	2	2237 Lone Eagle Driv
SC2 001-069	Wind Dancer	6	2	2249 Lone Eagle Driv
SC2 001-070	Cedar Lodge	2		2250 Lone Eagle Driv
SC2 001-071	Absolute High	6	2	2248 Lone Eagle Driv
SC2 001-072	Admidst the Beauty	6	1	2016 Mikey Street
SC2 001-073	Bearly Awake	6	2	2012 Mikey Street
SC2 002-078	Victoria's Secret	6	1	1839 Starr Street
SC2 002-079	Stairway To Heaven	6	1	1835 Starr Street
SC2 002-083	Moonstruck	6	1	1825 Starr Street
SC2 002-084	Amidst The Smokies	10	3	1821 Starr Street
SC2 002-085	On Eagles' Wings	12	3	1817 Starr Street
SC2 002-093	The Party Hut	22	5	1727 Angela Starr Dri
SC2 002-098	Lonesome Dove	6	2	1730 Angela Starr Dri
SC2 002-105	Always & Forever	6	1	1758 Angela Starr Dri
SC2 002-109	An Unforgettable View	4	1	1779 Angela Starr Dri
SC2 002-110	A Bears Den	6	2	1811 Starr Street
SC2 002-111	Mnt. LeConte View	12	5	1941 Starr View Drive
SC2 002-115	Mountain Paradise	6	1	1761 Starr Street
SC2 002-116	Talladega Nights	6	1	1759 Starr Street
SC2 002-129	Four Seasons	4	1	1937 Starr View Drive
SC2 002-130	A True Dream	7	1	1935 Starr View Drive
SC2 002-133	Born To Be Wild	11	3	1905 Starr View Drive
SC2 002-134	Smoky Mountain Lookout	14	4	1901 Starr View Drive
SC2 002-135	Mountain Bravo	4	1	1902 Starr View Drive
SC2 002-136	Heavenly Sunrise	6	2	1906 Starr View Drive
SC2 002-137	Safari Hideaway	6	1	1912 Starr View Drive
SC2 002-138	Totally Awesome	6	2	1916 Starr View Drive
SC2 002-139	A View From Above	20	5	1920 Starr View Drive
SC2 002-140	Window To Heaven	12	5	1926 Starr View Drive
SC2 002-141	Enchanted View	6	2	1942 Starr View Drive
SC2 002-142	Heavenly View	6	1	1944 Starr View Drive
SC2 003-001	Smokey Mountain Hideaw	6	1	1919 Starr Ridge Driv

Customer ID	Cabin Name	# Sleeps	# Bedrooms	911 Address
SC2 003-002	A Time 4 Us	6	2	1915 Starr Ridge Driv
SC2 003-003	Animal House	4	2	1913 Starr Ridge Driv
SC2 003-008	As Good As It Gets	10	4	2144 Lone Eagle Driv
SC2 003-009	Secret Hideaway	6	2	2148 Lone Eagle Driv
SC2 003-012	Almost Heaven	4	1	2208 Lone Eagle Driv
SC2 003-013	Almost Perfect	4	1	2210 Lone Eagle Driv
SC2 003-014	Lucky Break	4	1	2212 Lone Eagle Driv
SC2 003-015	Awesome View	6	2	2216 Lone Eagle Dr.
SC2 003-016	Sunset Sensation	6	1	2220 Lone Eagle Driv
SC2 003-017	Sky High	6	1	2224 Lone Eagle Driv
SC2 003-018	Live With Passion	6	1	2226 Lone Eagle Driv
SC2 003-019	A Gift From Heaven	6	1	2230 Lone Eagle Driv
SC2 003-020	Tree Top Haven	6	1	2232 Lone Eagle Driv
SC2 003-024	Afternoon Delight	4	1	2504 Rand Road
SC2 003-027	Lookout Lodge	10	4	2509 Runt Road
SC2 003-028	Dreamview	6	2	2503 Runt Road
SC2 003-029	Champion's Run	6	2	2412 Breezy Ridge Dri
SC2 003-030	Majestic Mountain Lodge	16	4	2414 Breezy Ridge Dri
SC2 003-031	A Shining Starr	4	1	2420 Breezy Ridge Dri
SC2 003-032	A Five-Starr Retreat	10	3	2422 Breezy Ridge Dri
SC2 003-033	A Home For The Starrs	12	4	2424 Breezy Ridge Ro
SC2 003-034	A Starry Night	4	1	2421 Breezy Ridge Dri
SC2 003-035	Heavenly Hideaway	18	4	2411 Breezy Ridge Dri
SC2 003-036	The Big House	10	4	2405 Breezy Ridge Dri
SC2 004-001	A Little Bit of Heaven	6	2	1927 Starr Ridge Driv
SC2 004-008	Chocolate Moose	8	1	1949 Starr Ridge Driv
SC2 004-011	Over The Top	4	1	1959 Starr Ridge Driv
SC2 004-012	Wild Thing	8	1	1963 Starr Ridge Driv

PROJECT: 40 Smokey Cove

DATE OF INSPECTION: 10-24-2005

NOTE AND RECORD CONDITIONS OF FOLLOWING UNITS:

CONTROL PANEL: SETTINGS, LOGS, ETC.

good

BIOCLERE: FAN RUNNING, MEDIA CONDITION, PUMPS OPERABLE, RECIRC SETTINGS

yes good

BLEND TANK: WATER CLARITY; ETC. good

DRIP DOSE TANK: DRIP PUMPS; BIOTUBE FILTERS; WATER CLARITY; CONTROL PANEL SETTINGS, ETC.

good

ARKAL FILTER: good

FLOW METER READING: 007876

DRIP FIELDS: HYDROTECHS/SOLENOIDS; VEGETATIVE COVER; LEAKS/BREAKOUTS; ETC.

good No

GENERAL OBSERVATIONS/COMMENTS good

PROJECT: Smoky Cove

DATE OF INSPECTION: 1 11 2005

NOTE AND RECORD CONDITIONS OF FOLLOWING UNITS:

CONTROL PANEL: SETTINGS, LOGS, ETC. Ok

BIOCLERE: FAN RUNNING, MEDIA CONDITION, PUMPS OPERABLE, RECIRC SETTINGS
Yes

BLEND TANK: WATER CLARITY; ETC. good

DRIP DOSE TANK: DRIP PUMPS; BIOTUBE FILTERS; WATER CLARITY; CONTROL PANEL SETTINGS, ETC.
good good

ARKAL FILTER: Ok

FLOW METER READING: 001561

DRIP FIELDS: HYDROTECHS/SOLENOIDS; VEGETATIVE COVER; LEAKS/BREAKOUTS; ETC.
good NO

GENERAL OBSERVATIONS/COMMENTS good

PROJECT: Smokey cove

DATE OF INSPECTION: 12 15 2004

NOTE AND RECORD CONDITIONS OF FOLLOWING UNITS:

CONTROL PANEL: SETTINGS, LOGS, ETC. OK

BIOCLERE: FAN RUNNING, MEDIA CONDITION, PUMPS OPERABLE, RECIRC SETTINGS

Yes Yes

BLEND TANK: WATER CLARITY; ETC. good

DRIP DOSE TANK: DRIP PUMPS; BIOTUBE FILTERS; WATER CLARITY; CONTROL PANEL SETTINGS, ETC.

good good

ARKAL FILTER: OK

FLOW METER READING: 001230

DRIP FIELDS: HYDROTECHS/SOLENOIDS; VEGETATIVE COVER; LEAKS/BREAKOUTS; ETC.

good No No

GENERAL OBSERVATIONS/COMMENTS good

PROJECT: Smoky Cove

DATE OF INSPECTION: 11 18 2004

NOTE AND RECORD CONDITIONS OF FOLLOWING UNITS:

CONTROL PANEL: SETTINGS, LOGS, ETC.
OK

BIOCLERE: FAN RUNNING, MEDIA CONDITION, PUMPS OPERABLE, RECIRC SETTINGS
Yes Yes

BLEND TANK: WATER CLARITY; ETC. good

DRIP DOSE TANK: DRIP PUMPS; BIOTUBE FILTERS; WATER CLARITY; CONTROL PANEL SETTINGS, ETC.
good clear

ARKAL FILTER: OK

FLOW METER READING: 000863

DRIP FIELDS: HYDROTECHS/SOLENOIDS; VEGETATIVE COVER; LEAKS/BREAKOUTS; ETC.
good NO

GENERAL OBSERVATIONS/COMMENTS good

PROJECT: Smokey Cove

DATE OF INSPECTION: 10 13 2004

NOTE AND RECORD CONDITIONS OF FOLLOWING UNITS:

CONTROL PANEL: SETTINGS, LOGS, ETC. OK

BIOCLERE: FAN RUNNING, MEDIA CONDITION, PUMPS OPERABLE, RECIRC SETTINGS

Yes Yes

BLEND TANK: WATER CLARITY; ETC. good

DRIP DOSE TANK: DRIP PUMPS; BIOTUBE FILTERS; WATER CLARITY; CONTROL PANEL SETTINGS, ETC.

good good

ARKAL FILTER: OK

FLOW METER READING: 000578

DRIP FIELDS: HYDROTECHS/SOLENOIDS; VEGETATIVE COVER; LEAKS/BREAKOUTS; ETC.

good NO NO

GENERAL OBSERVATIONS/COMMENTS good

PROJECT: Smoky Cove

DATE OF INSPECTION: 9 13 04

NOTE AND RECORD CONDITIONS OF FOLLOWING UNITS:

CONTROL PANEL: SETTINGS, LOGS, ETC.

BIOCLERE: FAN RUNNING, MEDIA CONDITION, PUMPS OPERABLE, RECIRC SETTINGS
yes yes

BLEND TANK: WATER CLARITY; ETC. good

DRIP DOSE TANK: DRIP PUMPS; BIOTUBE FILTERS; WATER CLARITY; CONTROL PANEL SETTINGS, ETC.
good good

ARKAL FILTER: OK

FLOW METER READING: 000257

DRIP FIELDS: HYDROTECHS/SOLENOIDS; VEGETATIVE COVER; LEAKS/BREAKOUTS; ETC.
good grass NO NO

GENERAL OBSERVATIONS/COMMENTS good

Smokey Cove

8 23 2004

DATE OF INSPECTION

NOTE AND RECORD CONDITIONS OF FOLLOWING UNITS:

CONTROL PANEL: SETTINGS, LOGS, ETC

good

BIOCLERE: FAN RUNNING, MEDIA CONDITION, PUMPS OPERABLE, RECIRC SETTINGS

Yes good

BLEND TANK: WATER CLARITY; ETC. good

DRIP DOSE TANK: ~~DRIP PUMPS;~~ BIOTUBE FILTERS; WATER CLARITY; CONTROL PANEL SETTINGS, ETC.

ARKAL FILTER: good

FLOW METER READING: 000166

DRIP FIELDS: HYDROTECHS/SOLENOIDS; VEGETATIVE COVER; LEAKS/BREAKOUTS; ETC.

good good NO NO

GENERAL OBSERVATIONS/COMMENTS

Tennessee Wastewater Systems, Inc.

P.O. Box 22771
Knoxville, TN 37933-0771
Phone (865) 675-5917
Fax (865) 966-1762

October 10, 2006

Mr. Bill Bradley, Chairman
City of Pigeon Forge Regional Planning Commission
P.O. Box 1350
Pigeon Forge, TN 37868-1350

Dear Chairman Bradley:

This letter addresses the relationship of Tennessee Wastewater Systems, Inc. (TWSI) and its public sewer system to Smoky Cove Subdivision. TWSI has contracted with the developer to provide public utility sewer service to Smoky Cove Subdivision in perpetuity. On February 24, 2004, TWSI was granted a Certificate of Public Convenience and Necessity by the Tennessee Regulatory Authority (TRA) to provide said public utility sewer service to the Smoky Cove Subdivision. That certificate, a copy of which is attached, is in effect for the entire development site of approximately 106 acres.

Subsequently, the developer retained Utility Capacity Corporation, Inc. to design and build a wastewater collection, treatment, and effluent dispersal system to serve the development. The Tennessee Department of Environment and Conservation approved construction and operation of a wastewater system in permits issued in September and October 2003.

In summary, TWSI owns the public sewer utility within Smoky Cove Subdivision and owns the rights to provide sewer utility service throughout the 106 acres of the project. Sewage collection, treatment, and effluent dispersal capacity is in place or anticipated to serve the 106 acres.

If you have any questions, please contact me at 675-5917 or by cell phone at 740-7994.

Sincerely,

Michael Hines, M.S., P.E.
Vice President

cc: TWSI

UTILITY CAPACITY CORPORATION, INC.

1920 BREEZY RIDGE TRAIL
CONCORD, TENNESSEE 37922
(865) 675-5917

May 5, 2005

Mr. Lynn E. Hedrick
HP Development LLC/HP Construction LLC
P.O. Box 908
Seymour, TN 37865

Dear Mr. Hedrick:

Section 18 of the construction contract signed by you and I on September 30, 2003 for the wastewater reuse system to serve your Smoky Cove subdivision holds you responsible for installation of interceptor tanks and appurtenances to serve each lot. It further requires that those tanks and appurtenances be as specified and approved by Tennessee Wastewater Systems, Inc.

On November 4, 2004, Jim Magill of my staff and I met with you and identified interceptor tanks installed at lots 7, 8, 12, and 13 as unacceptable tanks and required that they be disconnected from the sewer system and replaced with approved tanks. Specifically, each of the four tanks is made of polyethylene material that does not meet Tennessee Wastewater Systems, Inc. specifications to ensure water-tightness and structural soundness.

These tanks are to be replaced no later than June 30, 2005 with tanks approved by Tennessee Wastewater Systems, Inc.. If they are not replaced, Tennessee Wastewater Systems, Inc. will deny access to its sewer system from those lots. As I explained last year, polyethylene tanks will not provide satisfactory water-tight and structurally sound service over the 50 year operational life required in Tennessee Wastewater Systems, Inc. systems.

The non-approved tanks can be left in place, new tanks set adjacent to or in the vicinity of the existing tanks, and influent lines rerouted to the new tanks ***with no interruption of service to the residences***. We will work with your construction forces to site the replacement tanks and ensure an orderly transition from the old to new tanks.

Additionally, please note section 5 of the maintenance and management contract signed by you and I on September 30, 2003 requiring you to install a water shut off valve on the property side of the water line serving each lot. This valve is required for use by Tennessee Wastewater

Systems, Inc. in cases where the property owner fails to pay the monthly sewer utility fee. Please call me with any questions.

Sincerely,

Michael Hines, M.S., P.E.
President

cc: TWSI Files

=2

Date 11 5 04

Smoky Cove: Jim & I met with Lynn 2.0
Wedrick & discussed replacement tanks
at the 4 lots with poly tanks. Lynn
said Carl had told him that any
tank was OK so long as it was
water tight. I repeated our specs
& pointed out that the brochure
on the poly tank made no mention
of watertight except for the riser.
Further, it stated that the warranty
would be voided if the tank was
installed in high ground water.

We also talked with Dal of Harley
Construction 865-617-3434 who
is building lots 15 & 16 & will be
building several more lots. He had
been told that gravity tanks would
work. I explained why they
would not & showed him where
to get tanks so Berger could
set them in the hole.

Lynn has talked about fiberglass
tanks. I approved but discouraged
because of cost. I paid $1800
to the hole. He quoted Bruce @
$18,000 for 7 tanks or $2571 per tank.

Tennessee Wastewater Systems, Inc.

P.O. Box 22771
Knoxville, TN 37933-0771
Phone (865) 675-5917
Fax (865) 966-1762

August 3, 2004

Mr. Lynn E. Hedrick
HP Development LLC/HP Construction LLC
P.O. Box 908
Seymour, TN 37865

Dear Lynn:

On July 29, I inspected the sewerage system designed and installed to serve Smoky Cove Subdivision. The system has been installed in essential compliance with the plans and specifications previously approved by TWSI. TWSI accepts ownership of the system as installed and will be responsible for its future operation and maintenance.

The collection and treatment system installed is intended to serve the 42 lots platted as the first phase of this development. As additional lots are platted, additional collection sewers and treatment capacity will be required. TWSI notes that you have contractual arrangements with Utility Capacity Corporation, Inc. To provide those additions as required. Adequate land area for the required future drip dispersal fields must be preserved.

If you have any questions, please call me.

Sincerely,

Michael Hines, M.S., P.E.
Vice President

Michael Hines

From: Peter Annunziato [pannunz@aquapoint.com]
Sent: Wednesday, January 14, 2004 2:27 PM
To: mikehines@charter.net
Subject: RE: Smoky Cove

36-30 GA.dwg (146 KB)

Hi Mike,

Please note a couple of points about the model 36/30:

1) A schematic of unit that will be delivered is attached.
2) 230V single phase power, 30 amp feed is required for each unit.
3) The inlet and outlet are 180 degrees apart.
4) If the unit is installed in groundwater it will have to be surrounded in concrete to offset buoyant forces.

Please let me know if the splitter box design is OK so we can begin manufacturi ng.

Sincerely, Peter

==========

From: "Michael Hines" <mikehines@charter.net>
To: Internet Mail::["'Peter Annunziato'" <pannunz@aquapoint.com>]

Subject: RE: Smoky Cove
Date: 1/13/04 6:43 PM

Thanks, Peter. I will peruse and let you know if I have any questions. Attached is the plan view of the treatment units. Note that twin 30/32's are shown. Subsequently, the developer upped the number of lots he wants. That is why I am going with twin 36/30's.

Mike

-----Original Message-----
From: Peter Annunziato [mailto:pannunz@aquapoint.com]
Sent: Tuesday, January 13, 2004 6:04 PM
To: mikehines@charter.net
Subject: Re: Smoky Cove

Mike,

We will use flocor media with a specific surface area of 140 m2/m3 in place of the 230 m2/m3.
At specific surface areas of greater than 140, treatment efficiency MAY decrease due to several factors. We generally use the 230 m2/m3 media for nitrification purposes or combined CBOD/nitrification filters.

There is 30 cubic meters of media in the Bioclere model 36/30.

Peter

==========

From: "Michael Hines" <mikehines@charter.net>
To: Internet Mail::["'Peter Annunziato'" <pannunz@aquapoint.com>]

Subject: Smoky Cove
Date: 1/13/04 5:06 PM

Aquapoint, Inc.

Corporate Office
241 Duchaine Boulevard
New Bedford, MA 02745
PH: 508-998-7577
FX: 508-998-7177
www.aquapoint.com

To: Mike Hines-Utility Capacity Corporation, Inc.
Fm: Steve Sedgwick
Date: January 13, 2004
Subj: **Smoky Cove Subdivision**

We are in receipt of your order. Thank you. We have begun processing your order and expect the unit to be available the week of **March 15, 2004.** We will inform you of any changes if they occur. We are excited about your decision to proceed with our equipment and services. With 500+ Bioclere units in the field you have committed to an effective and increasingly selected treatment solution.

Our experience has taught us that certain procedures are critical both during and after the installation to ensure a smooth and effective startup. Those critical elements are:

- Our installation team is headed by John Braga / Operations Manager. He will coordinate the installation from this point forward. John and his team have a comprehensive understanding of what is necessary for a successful installation. Please contact John with your questions at (508-998-7577 / ext. 20).

- If you or the project design engineer has not already provided us with a final site plan please send one **ASAP** to our engineering department, attention Peter Annunziato. It is important that our engineering group review the final site plan to avoid problems during the installation process.

- Please note that your contract requires the second payment of 60% plus freight and applicable taxes be available at the time of delivery. We will contact you approximately (1-2) weeks in advance of the delivery date to confirm your site preparation is complete. At that time we will also confirm that the delivery payment will be available. We reserve the right to retain our equipment if payment is not made. We also reserve the right to charge a storage fee if you do not take delivery of your equipment within 30 days of the date specified above.

- This letter will serve as notification that an Operation & Maintenance (O&M) Operator must be under contract to service our equipment before we fully commission the system. Please start immediately to identify and contract with a licensed operator. In many geographic areas we can recommend effective, responsible operators. Let us know if we can help you in this regard. **We cannot emphasize enough the importance of an O&M contract in place prior to the final commissioning of our equipment.**

Once again, thank you for your commitment to Aquapoint. We pledge our full resources to supporting you through the installation process. Feel free to call us at 508-998-7577.

BIOCLERE SYSTEM DESIGN CRITERIA

DATE: 12/30/03 Faxed to Lynnpoint on 12/30/03

Engineer:	Client/Site Address:
Michael Hines, P.E. President Utility Capacity Corporation, Inc Tel: 865-675-5917 Fax: 966-1762	Utility Capacity Corporation, Inc 1920 Breezy Ridge Trail Concord, TN 37922 for: Smoky Cove Subdivision

A) Application: (1) Residential 2) Commercial 3) Other
Description:

B) Description of proposed treatment components:
STEP/STEG to Bioclere to drip dispersal

C) Permiting Requirements: TN NPDES SOP
non-discharge

Design Flow:

BOD5= ~~250 mg/l~~ 150
TSS= ~~250 mg/l~~ 100
TKN= 45 mg/l

Design Flow = # of ~~bedrooms~~ lots (80) * (250 gpd)= ~~20k~~ gpd

Actual Flow= Pop. Equivalent (NA) * (55 gpd)= NA gpd

This is phase 1, Phase 2 will add another 80 lots in later years.

*Please specify effluent requirements under EFFLUENT DATA.

Commercial, Industrial or Other Residential Applications*
*Please obtain composite samples at the septic tank effluent tee for parameters listed under INFLUENT DATA
*Please provide AWT Environmental with all applicable Material Safety Data Sheets (MSDS)

INFLUENT DATA	EFFLUENT DATA
Specify test location:	Please specify location of effluent requirements: Prior to drip
Flow data (gpd): Design 20,000 Av. Peak	
Seasonal Flows: Y (N) when?	
Are low flow devices utilized?: (Y) N Will they be used?: Y N	
Are garbage grinders utilized?: (Y) N	
pH: 6-9	pH:
BOD5: 120-150	BOD5: 20
COD:	COD:
TSS: < 100	TSS: 20
TKN:	TKN: NA Ammonia-N: < 100
Ammonia-N:	Nitrate-N: < 25 Total Nitrogen: < 200
Oil & Grease (omit if traps are included):	Oil & Grease:
Phosphorus:	Phosphorus:
Alkalinity:	Other:

NOTES: * *Commercial installations require baffled septic tanks and a gas baffle under the effluent tee*

X I want to order ASAP & make down payment by COB 12/31.

Signature: Michael Hines

AquaPoint
241 Duchaine Blvd.
New Bedford, MA 02746
Tel. 508-998-7577 Fax: 508-998-7177

Rev. I don't know if 2-30/32 units for 30,000 gpd of 120-150 mg/l BOD wastewater. A single 30/32 would handle this flow & be well within EPA & NEF local design guidelines. Mike

Fax

To:	MIKE HINES	**From:**	RAY CULLUM
Fax:	865 966-1762	**Pages:**	3
Phone:		**Date:**	12-29-03
Re:		**CC:**	

☐ Urgent ☐ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

MIKE

PROPOSAL FOR SMOKY COVE SUBDIVISION PROJECT.

PLEASE CALL IF YOU HAVE ANY QUESTIONS.

RAY CULLUM

To: Eric Berger

From: Mike Hines

Smoky Cove

Smoky Cove

Panel Wiring Diagram
Model VCOM-DAX/S1 DAX/S1 DAX2

Quote #032004C1 Custom #278772

From Main Power Panel
230/115 VAC, 1 Phase, 60 Hz.
main disconnect
provided by others.

— = Factory Wire
— = Field Wire

Orenco Systems®
Incorporated

814 AIRWAY AVENUE
SUTHERLIN, OREGON
97479-9012

TELEPHONE:
(541) 459-4449

FACSIMILE:
(541) 459-2864

Ground Wire

Bioclere Unit #1

Recirc Pump 1 115VAC 1Ø — CB 20A — CS1 COIL — L1 T1 / L2 T2 — M1 — 63 / 64 — 1 — PUMPS 115 VAC 1Ø 3/4 Hp

Recirc Pump 2 115VAC 1Ø — CB 20A — CS2 COIL — L1 T1 / L2 T2 — M2 — 65 / 66 — 2 — PUMPS 115 VAC 1Ø 3/4 Hp

Sludge Pump 3 115VAC 1Ø — CB 20A — CS3 COIL — L1 T1 / L2 T2 — M3 — 67 / 68 — 3 — PUMPS 115 VAC 1Ø 3/4 Hp

F1 FUSE 5A — 69 / 70 — F1 — Fan

Bioclere Unit #2

Recirc Pump 4 115VAC 1Ø — CB 20A — CS4 COIL — L1 T1 / L2 T2 — M4 — 71 / 72 — 4 — PUMPS 115 VAC 1Ø 3/4 Hp

Recirc Pump 5 115VAC 1Ø — CB 20A — CS5 COIL — L1 T1 / L2 T2 — M5 — 73 / 74 — 5 — PUMPS 115 VAC 1Ø 3/4 Hp

Sludge Pump 6 115VAC 1Ø — CB 20A — CS6 COIL — L1 T1 / L2 T2 — M6 — 75 / 76 — 6 — PUMPS 115 VAC 1Ø 3/4 Hp

F2 FUSE 5A — 77 / 78 — F2 — Fan

Discharge Tank

Disch. Pump 7 230VAC 1Ø — CB 20A — CS7 COIL — L1 T1 / L2 T2 — M7 — 79 / 80 — 7 — PUMPS 230 VAC 1Ø 2 Hp

Disch. Pump 8 230VAC 1Ø — CB 20A — CS8 COIL — L1 T1 / L2 T2 — M8 — 81 / 82 — 8 — PUMPS 230 VAC 1Ø 2 Hp

L2 — L2

N — N

L1 — L1 — CB 20A — SA (1, 2, 3, 4, 5, 6) — CB 15A — GFCI

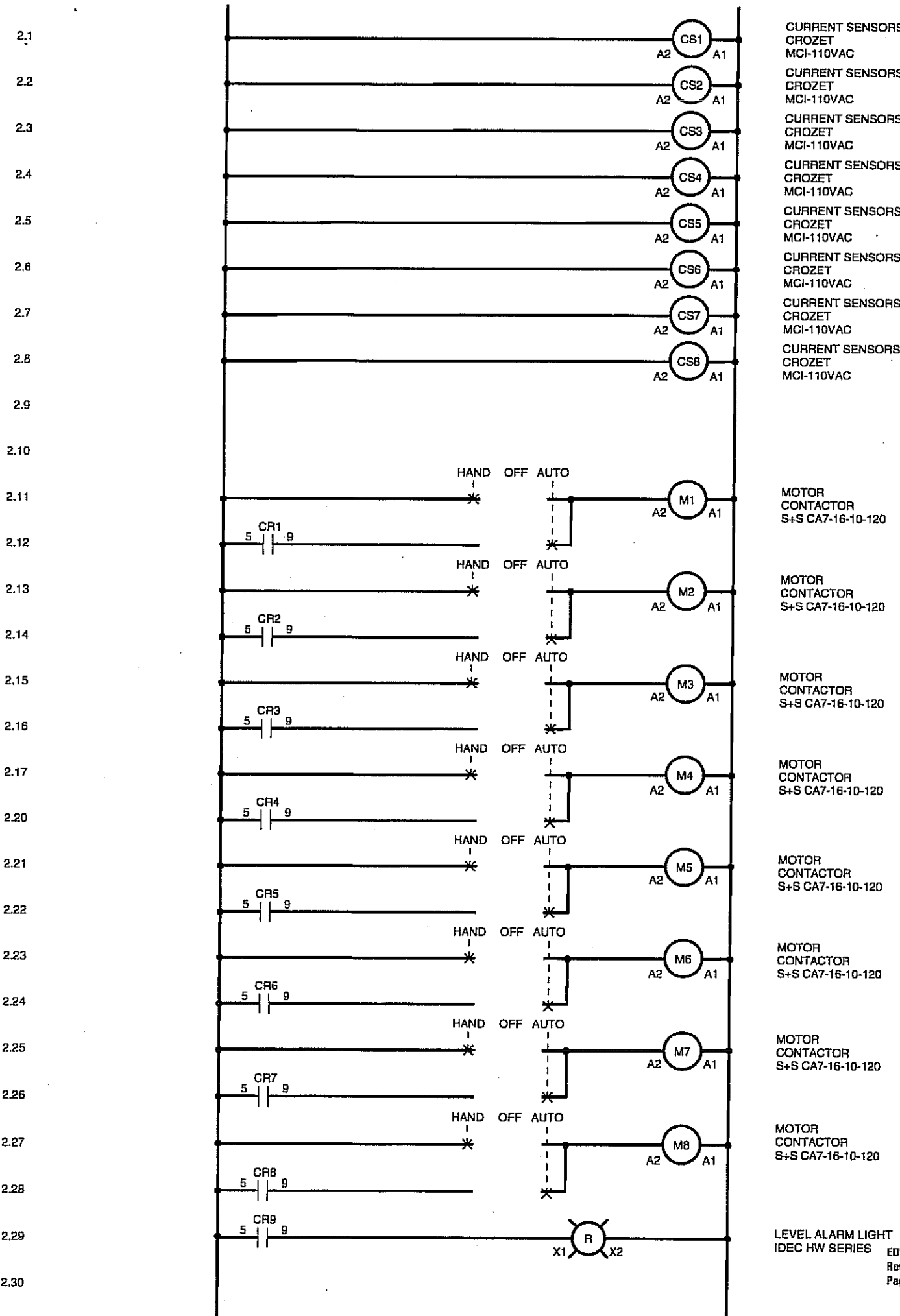
SURGE ARRESTOR
PHOENIX CONTACT
PT-2-PE/S-120VAC-ST

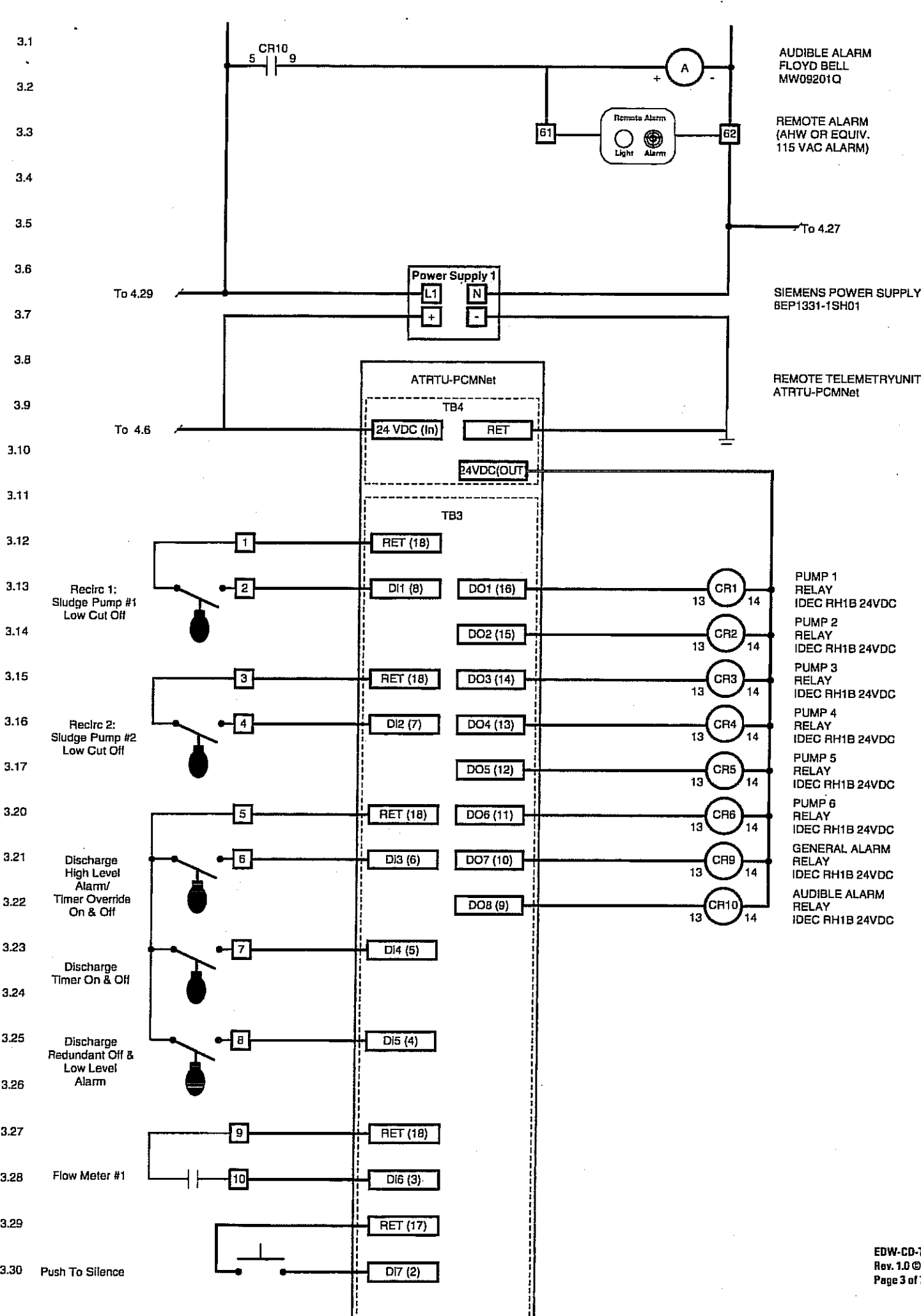
GFCI
LEVITON
34621

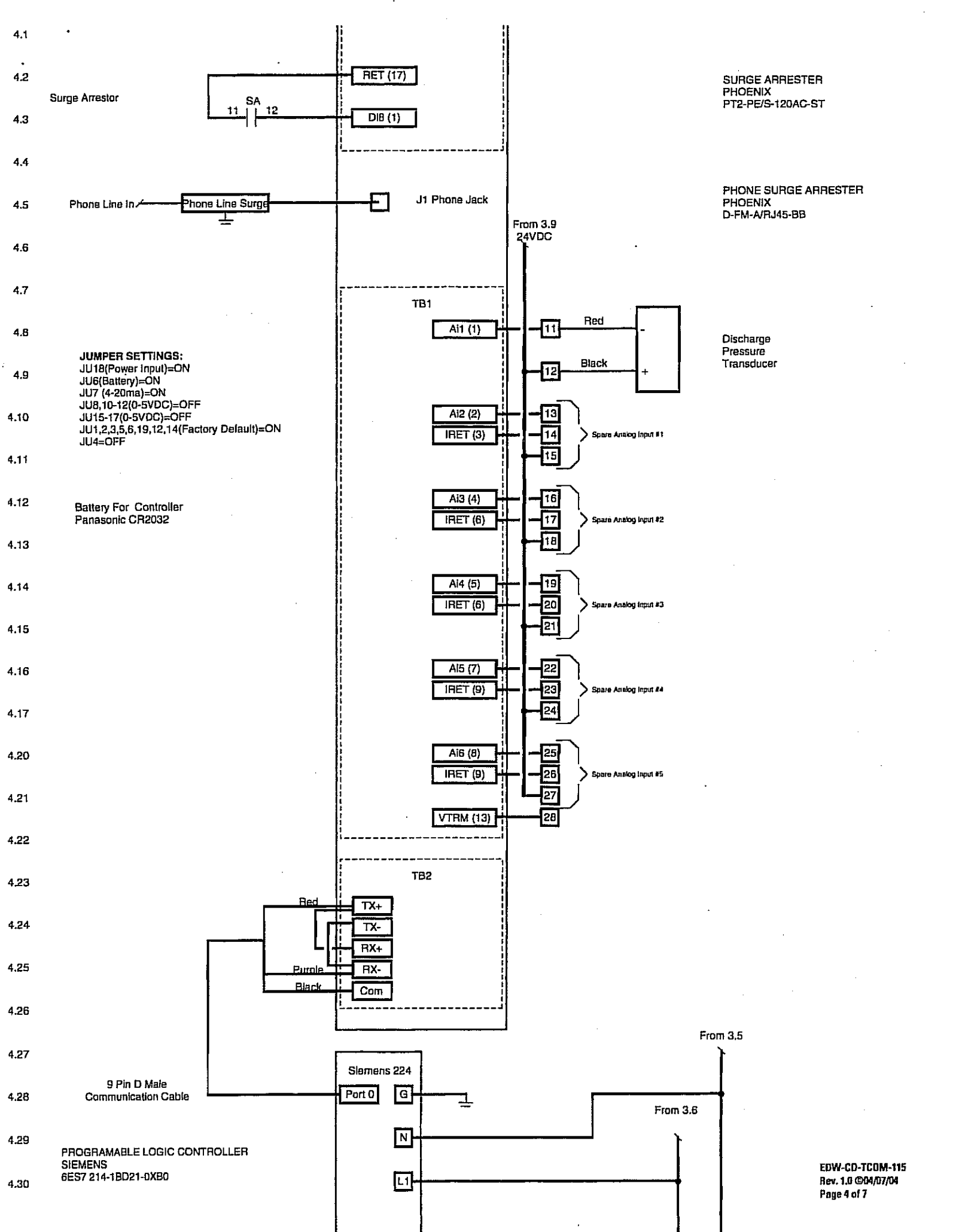
CB 10A

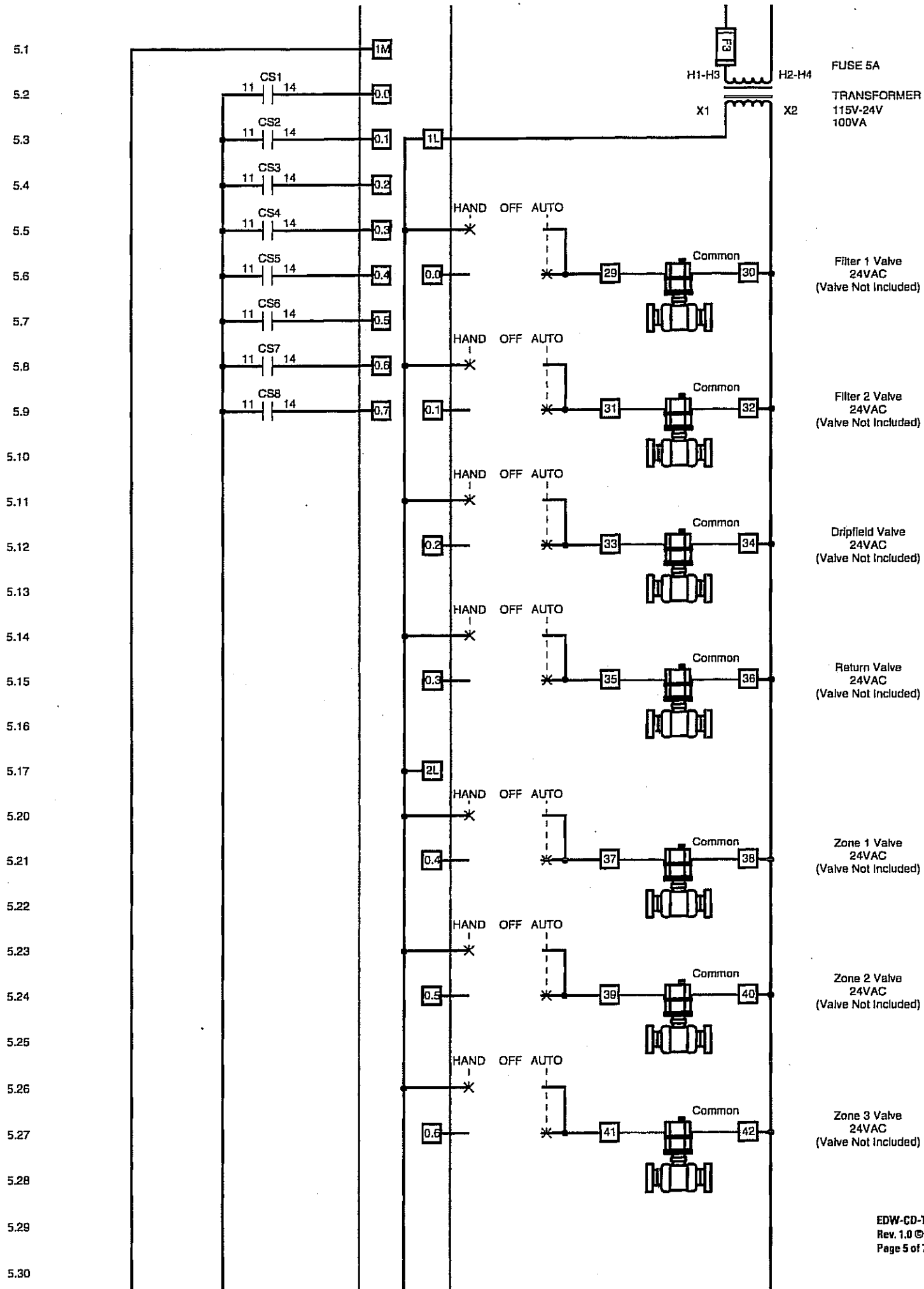
HT — HEATER HARTFORD 300435

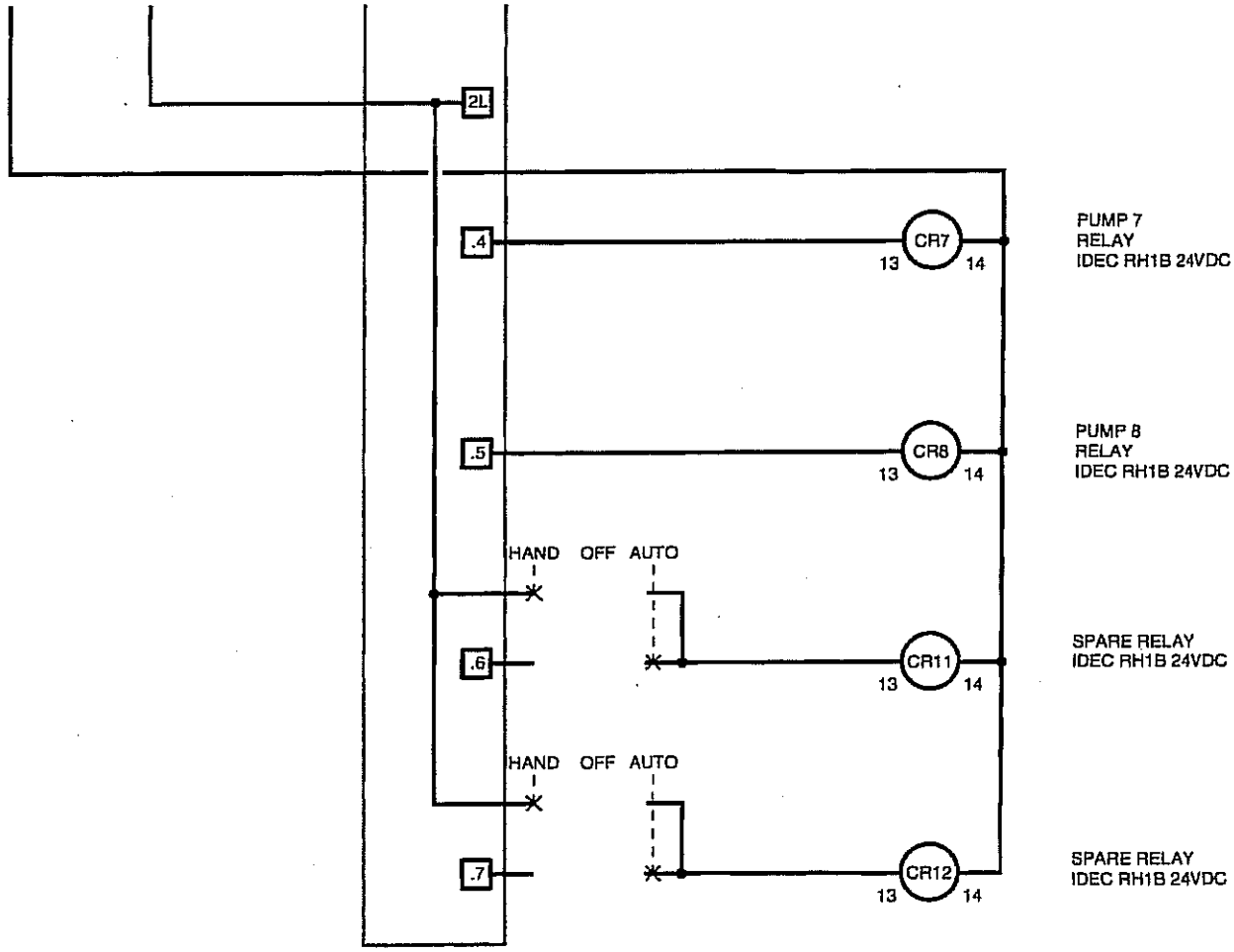
HT — HEATER HARTFORD 300435

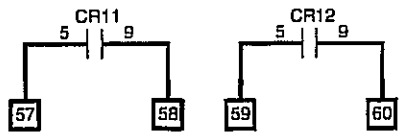

2.1
CS1
A2
A1
CURRENT SENSORS
CROZET
MCI-110VAC
2.2
CS2
CURRENT SENSORS
CROZET
MCI-110VAC
2.3
CS3
CURRENT SENSORS
CROZET
MCI-110VAC
2.4
CS4
CURRENT SENSORS
CROZET
MCI-110VAC
2.5
CS5
CURRENT SENSORS
CROZET
MCI-110VAC
2.6
CS6
CURRENT SENSORS
CROZET
MCI-110VAC
2.7
CS7
CURRENT SENSORS
CROZET
MCI-110VAC
2.8
CS8
CURRENT SENSORS
CROZET
MCI-110VAC
2.9
2.10
HAND OFF AUTO
2.11
M1
MOTOR
CONTACTOR
S+S CA7-16-10-120
CR1
5
9
2.12
HAND OFF AUTO
2.13
M2
MOTOR
CONTACTOR
S+S CA7-16-10-120
CR2
2.14
HAND OFF AUTO
2.15
M3
MOTOR
CONTACTOR
S+S CA7-16-10-120
CR3
2.16
HAND OFF AUTO
2.17
M4
MOTOR
CONTACTOR
S+S CA7-16-10-120
CR4
2.20
HAND OFF AUTO
2.21
M5
MOTOR
CONTACTOR
S+S CA7-16-10-120
CR5
2.22
HAND OFF AUTO
2.23
M6
MOTOR
CONTACTOR
S+S CA7-16-10-120
CR6
2.24
HAND OFF AUTO
2.25
M7
MOTOR
CONTACTOR
S+S CA7-16-10-120
CR7
2.26
HAND OFF AUTO
2.27
M8
MOTOR
CONTACTOR
S+S CA7-16-10-120
CR8
2.28
CR9
2.29
R
X1
X2
LEVEL ALARM LIGHT
IDEC HW SERIES
2.30


CR10
5
9
A
+
-
AUDIBLE ALARM
FLOYD BELL
MW09201Q
61
Remote Alarm
Light
Alarm
62
REMOTE ALARM
(AHW OR EQUIV.
115 VAC ALARM)
To 4.27
To 4.29
Power Supply 1
L1
N
+
-
SIEMENS POWER SUPPLY
6EP1331-1SH01
ATRTU-PCMNet
TB4
To 4.6
24 VDC (In)
RET
24VDC(OUT
REMOTE TELEMETRYUNIT
ATRTU-PCMNet
TB3
1
RET (18)
Recirc 1:
Sludge Pump #1
Low Cut Off
2
DI1 (8)
DO1 (16)
CR1
13
14
PUMP 1
RELAY
IDEC RH1B 24VDC
DO2 (15)
CR2
PUMP 2
RELAY
IDEC RH1B 24VDC
3
RET (18)
DO3 (14)
CR3
PUMP 3
RELAY
IDEC RH1B 24VDC
Recirc 2:
Sludge Pump #2
Low Cut Off
4
DI2 (7)
DO4 (13)
CR4
PUMP 4
RELAY
IDEC RH1B 24VDC
DO5 (12)
CR5
PUMP 5
RELAY
IDEC RH1B 24VDC
5
RET (18)
DO6 (11)
CR6
PUMP 6
RELAY
IDEC RH1B 24VDC
Discharge
High Level
Alarm/
Timer Override
On & Off
6
DI3 (6)
DO7 (10)
CR9
GENERAL ALARM
RELAY
IDEC RH1B 24VDC
DO8 (9)
CR10
AUDIBLE ALARM
RELAY
IDEC RH1B 24VDC
7
DI4 (5)
Discharge
Timer On & Off
Discharge
Redundant Off &
Low Level
Alarm
8
DI5 (4)
9
RET (18)
Flow Meter #1
10
DI6 (3)
RET (17)
Push To Silence
DI7 (2)


Surge Arrestor
SA
11
12
RET (17)
DI8 (1)
SURGE ARRESTER
PHOENIX
PT2-PE/S-120AC-ST
Phone Line In
Phone Line Surge
J1 Phone Jack
PHONE SURGE ARRESTER
PHOENIX
D-FM-A/RJ45-BB
From 3.9
24VDC
TB1
AI1 (1)
11
Red
12
Black
-
+
Discharge
Pressure
Transducer
JUMPER SETTINGS:
JU18(Power Input)=ON
JU6(Battery)=ON
JU7 (4-20ma)=ON
JU8,10-12(0-5VDC)=OFF
JU15-17(0-5VDC)=OFF
JU1,2,3,5,6,19,12,14(Factory Default)=ON
JU4=OFF
AI2 (2)
IRET (3)
13
14
15
Spare Analog Input #1
Battery For Controller
Panasonic CR2032
AI3 (4)
IRET (6)
16
17
18
Spare Analog Input #2
AI4 (5)
IRET (6)
19
20
21
Spare Analog Input #3
AI5 (7)
IRET (9)
22
23
24
Spare Analog Input #4
AI6 (8)
IRET (9)
25
26
27
Spare Analog Input #5
VTRM (13)
28
TB2
Red
TX+
TX-
RX+
RX-
Com
Purple
Black
From 3.5
Siemens 224
9 Pin D Male
Communication Cable
Port 0
G
From 3.6
N
L1
PROGRAMABLE LOGIC CONTROLLER
SIEMENS
6ES7 214-1BD21-0XB0


5.1
5.2
5.3
5.4
5.5
5.6
5.7
5.8
5.9
5.10
5.11
5.12
5.13
5.14
5.15
5.16
5.17
5.20
5.21
5.22
5.23
5.24
5.25
5.26
5.27
5.28
5.29
5.30
1M
CS1
11
14
0.0
CS2
0.1
CS3
0.2
CS4
0.3
CS5
0.4
CS6
0.5
CS7
0.6
CS8
0.7
1L
F3
H1-H3
H2-H4
FUSE 5A
TRANSFORMER
115V-24V
100VA
X1
X2
HAND
OFF
AUTO
Common
29
30
Filter 1 Valve
24VAC
(Valve Not Included)
31
32
Filter 2 Valve
24VAC
(Valve Not Included)
33
34
Dripfield Valve
24VAC
(Valve Not Included)
35
36
Return Valve
24VAC
(Valve Not Included)
2L
37
38
Zone 1 Valve
24VAC
(Valve Not Included)
39
40
Zone 2 Valve
24VAC
(Valve Not Included)
41
42
Zone 3 Valve
24VAC
(Valve Not Included)





Fuse Table

F1	5A
F2	5A
F3	5A

Control Panel Wiring Diagram
TCOM-DAX2 RO
Quote #091003K7

From Main Power Panel
240/120 VAC, 1 Phase, 60 Hz.
Main disconnect
provided by others.

= Factory Wire
= Field Wire

Orenco Systems Incorporated
814 AIRWAY AVENUE
SUTHERLIN, OREGON
97479-9012
TELEPHONE:
(541) 459-4449
FACSIMILE:
(541) 459-2884

GND / PE

1.1 Pump 1 240V 1Ø — L1, L2 — CB 20A — M1 (L1 T1, L2 T2) — 9, 10 — 1
1.2
1.3 Pump 2 240V 1Ø — L1, L2 — CB 20A — M2 (L1 T1, L2 T2) — 11, 12 — 2

PUMPS
230 VAC
1Ø 2Hp
16Amp MAX

Note: Motors must have internal overload protection

1.4 Controls 120V 1Ø — N, L1
1.5 CB 10A
1.6 SA — SURGE ARRESTOR AG2401
1.7 HT — HEATER Hanford Eichenauer 300435
1.8 FUSE 1A
1.9 TRANSFORMER 115VAC-36VAC (W/ CENTER TAP) — 1,5 2,6 7 8 11 12

ATRTU-100 — REMOTE TELEMETRY UNIT ORENCO ATRTU-100
1.10 18VAC (1)
1.11 J3 RET (3), 18VAC (2)

(HAND) OFF AUTO

1.12 COM (5) TB2 — MOTOR CONTACTOR SS CA7-16-10 (M1, A2, A1)
1.13 DO1 (1)

(HAND) OFF AUTO

1.14 MOTOR CONTACTOR SS CA7-16-10 (M2, A2, A1)

AL

1.15 TB1 DI6 (14) — DO2 (2) — PUSH TO SILENCE
1.16 RET (18) — DO3 (3) — ALARM LIGHT IDEC HW SERIES (AL, R, X1, X2)
1.17 6 RET (17) — DO4 (4) TB2 — AUDIBLE ALARM FLOYD BELL MW09201Q (A, +, -)
1.18 High Level Alarm — 5 DI5 (13)
1.19
1.20 Lag Pump On — 4 DI4 (12)
1.21 Lead Pump On — 3 DI3 (11) — J1 RJ11 — Phone Line — PHONE PROTECTION DATATRAB D-FM-A/RJ45-BB
1.22
1.23 Pump(s) Off — 2 DI2 (10)
1.24 Redundant Off/ Low Level Alarm — 1 DI1 (9)
1.25

7 — Remote Alarm (Light, Alarm) — 8 — REMOTE ALARM (AHW OR EQUIV. 115 VAC ALARM)

Smoky Cove Lift Station

Custom TCOM System Settings

Orenco Systems®
Incorporated

814 AIRWAY AVENUE

SUTHERLIN, OREGON

97479-9012

TELEPHONE:

(541) 459-4449

FACSIMILE:

(541) 459-2884

Orenco's Custom TCOM Control Panels includes a number of user adjustable parameters that can be adjusted at the panel or remotely via modem connection. If your Custom TCOM Control Panel uses an PCM 100 Board, see document EIN-CP-TCOM-1 on how to access and change your adjustable parameters. If your Custom TCOM Control Panel uses an PCM 400 or 1600 Board, see document EIN-CP-TCOM-2 on how to access and change your adjustable parameters.
This TCOM program uses point numbers(Pt#) to identify the various program functions. The following point numbers(w/corresponding page letters) are adjustable by the system operator:

Adjustable Parameters	Factory Default
Page D: Adjustable Settings	
Pt#49: Min Dose Time	30.0 seconds
Pt#51: Pump 1 GPM	15 GPM
Pt#52: Pump 2 GPM	15 GPM
Pt#55: Audible Alarm Delay	120.0 minutes
Pt#56: Audible Reactivate Delay	720.0 minutes
Pt#57: Page Interval	30.0 minutes

For instructions on how to override a numeric point value see page 14 of document EIN-CP-TCOM-1 (for PCM 100 Boards) or page 14 of document EIN-CP-TCOM-2 (for PCM 400 or 1600 Boards).

MEMORANDUM

To: Bruce Dixon
From: Mike Hines
Date: June 22, 2004
Subject: Equipment Order

I need the following items for the Smoky Cove Project. They should be billed to Barger.

- Dual Super 2" Arkal assembly with flow meter
- Concrete box with lid for Arkal
- 2 P 501512 Effluent Pumps with 30' cords
- 2 - 2" High Pressure hose extensions
- 2 PVU 84 3536 L Pump Vaults
- 1 Float Tree with three pump collars
- 3 Blue Connery Floats with 30' cords
- 10 - 1" Geoflow CAV valves (red mushroom cap)

10-1000' rolls drip tube 24"

The following are to be billed to me for stock.

- 2 - 100 telemetry boards
- 3 Blue Connery floats with 50' cords
- 2 - 1 HP Franklin motors
- 1 dozen ½" grommets
- 6 float collars
- 1 A1 Control Panel
- 2 Yellow Connery floats with 30' cords

Mike MH

BEFORE THE TENNESSEE REGULATORY AUTHORITY AT

NASHVILLE, TENNESSEE

February 24, 2004

IN RE:	)	
	)	
PETITION OF ON-SITE SYSTEMS, INC. TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY	)	**DOCKET NO. 03-00377**

ORDER APPROVING PETITION OF ON-SITE SYSTEMS, INC. TO AMEND ITS CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

This matter came before Chairman Deborah Taylor Tate, Director Pat Miller and Director Sara Kyle of the Tennessee Regulatory Authority (the "Authority" or "TRA"), the voting panel assigned to this docket, at a regularly scheduled Authority Conference held on October 21, 2003 to consider the Petition (the "Petition") of On-Site Systems, Inc ("On-Site") to amend its Certificate of Public Convenience and Necessity ("CCN") to expand its service area to include an area known as Smoky Cove in Sevier County, Tennessee

Legal Standard for Granting CCN

No public utility is permitted to begin construction or operation of a new utility facility or service before obtaining the approval of the TRA. The procedure for obtaining such approval is outlined in Tenn. Code Ann § 65-4-201(a), which reads in pertinent part as follows

> No public utility shall establish or begin the construction of, or operate any line, plant, or system, or route in or into a municipality or other territory already receiving a like service from another public utility, or establish service therein, without first having obtained from the authority, after written application and hearing, a certificate that the present or future public convenience and necessity require or will require such construction, establishment, and operation, and no person or corporation not at the time a public utility shall commence the construction of any plant, line, system or route to be operated as a public utility, or the operation of which would constitute the same, or the owner or operator

thereof, a public utility as defined by law, without having first obtained, in like manner, a similar certificate . . .

Background

On April 6, 1994, On-Site received a CCN in Docket No 93-09040 from the Tennessee Public Service Commission to provide wastewater service to the Oakwood Subdivision in Maury County. Since that time, through various other dockets, On-Site has been granted approval to expand its service territory to include other areas in Tennessee

Petition to Amend CCN

On March 28, 2003, On-Site filed its Petition to amend its CCN to expand its service area to include Smoky Cove A map showing the area to which On-Site proposes to extend service is attached to its Petition On-Site filed a rate schedule with its Petition in this docket which states that residential rates for Smoky Cove will be as follows:

Total monthly charge	$35 11
Non-payment fee	5% of monthly charge
Disconnection fee	$10
Reconnection fee	$15
Returned check fee	$20
Access fee	$84/year

This rate schedule comports with the rate schedule for On-Site approved by the TRA in Docket No 99-00393

In its Petition, On-Site contends that neither Sevier County nor the City of Pigeon Forge have the desire to provide wastewater service to Smoky Cove In support of this contention, On-Site submitted a letter dated May 27, 2003 from Kim L Maples, Assistant Sevier County Executive, stating that Sevier County does not intend to provide sewer service to this area at this time. On-Site also submitted a May 16, 2003 letter from Earlene Teaster, City Manager of Pigeon Forge, stating that the City does not have plans to provide wastewater service to the Smoky Cove area within the next twelve months.

October 21, 2003 Authority Conference

The Directors of this voting panel considered On-Site's Petition at the regularly scheduled Authority Conference held on October 21, 2003 and voted unanimously to approve the Petition.

IT IS THEREFORE ORDERED THAT:

1 The Petition of On-Site Systems, Inc to amend its Certificate of Public Convenience and Necessity to expand its service area to include an area known as Smoky Cove in Sevier County, Tennessee, as shown in the map attached to the Petition, is approved.

2 On-Site's rates for wastewater service to Smoky Cove shall be as listed in the rate schedule filed with On-Site's Petition and as set forth in this Order

Deborah Taylor Tate, Chairman

Pat Miller, Director

Sara Kyle, Director

ON-SITE SYSTEMS, INC.

A PUBLIC UTILITY CO.

June 2, 2003

Honorable Sara Kyle
Chairman
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, TN 37243-0505

RE: Petition to amend Certificate of Convenience and Necessity 03-00377

Dear Chairman Kyle:

On-Site Systems Inc. desires to expand its service area to include a development in Sevier County, Tennessee known as Smoky Cove Subdivision (described as Parcel 3 on Map 92 and extending 9 onto Maps 81 and 93 and parcel 261 on Map 81 and extending onto Map 92) The attached Petition is in support of our request.

Sincerely,

Charles Pickney, Jr., President
On-Site Systems, Inc.

7638 River Road Pike Nashville TN 37209-5733
(615) 356-7294 Fax (615) 356-7295

BEFORE THE TENNESSEE REGULATORY AUTHORITY
NASHVILLE, TENNESSEE

_____, 2003

IN RE: PETITION OF ON-SITE SYSTEMS, INC. TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY

DOCKET No._____

Petition of On-Site Systems, Inc.
To amend its Certificate of Convenience and Necessity

On-Site Systems, Inc. ("On-Site") petitions the Tennessee Regulatory Authority ("TRA") to amend On-Site's Certificate of Convenience and Necessity to expand its service area to include a portion of Sevier County known as Smoky Cove Subdivision, said parcel is identified as Parcel 3 on Map 92 and extending onto Maps 81 and 93 and parcel 261 on Map 81 and extending onto Map 92 on the attached map. At present, neither the City of Pigeon Forge nor the County of Sevier has the desire or ability to provide sewer service to this area. (See attached letters.)

The proposed service area is shown in Exhibit A attached hereto.

Respectfully submitted,

Charles Pickney Jr., President
On-Site Systems, Inc.

Telephone (865) 453-6136
Fax (865) 453-6830
E-mail: sevcoexec@yahoo.com

Sevier County
TENNESSEE

125 Court Avenue
Suite 201E
Sevierville, TN 37862

Larry Waters *County Executive*

May 27, 2003

Mr. Michael Hines
Southeast Environmental Engineering, LLC
1920 Breezy Ridge Trail
Concord, TN 37922

RE: Sanitary Sewer Service for Smoky Cove Subdivision – Bluff Mountain Road

Dear Mr. Hines:

As per your request concerning sanitary sewer service for Smoky Cove Subdivision - Bluff Mountain Road, Sevier County, TN does not intend to provide sewer service for this area at this time.

Thank you for your time and interest in Sevier County.

Sincerely,

Kelli L Maples
Asst. County Executive

PIGEON FORGE
T·E·N·N·E·S·S·E·E

May 16, 2003

Mr. Michael Hines
On-Site Systems, Inc.
P. O. Box 22771
Knoxville, TN 37933-0771

Subject: Smoky Cove Subdivision

Dear Mr. Hines:

This letter will serve to advise that the City of Pigeon Forge has no plans to extend city sewer service to the above referenced area within the next twelve (12) months.

Thanks for your interest and if I can answer further questions, please let me know.

Sincerely,

CITY OF PIGEON FORGE

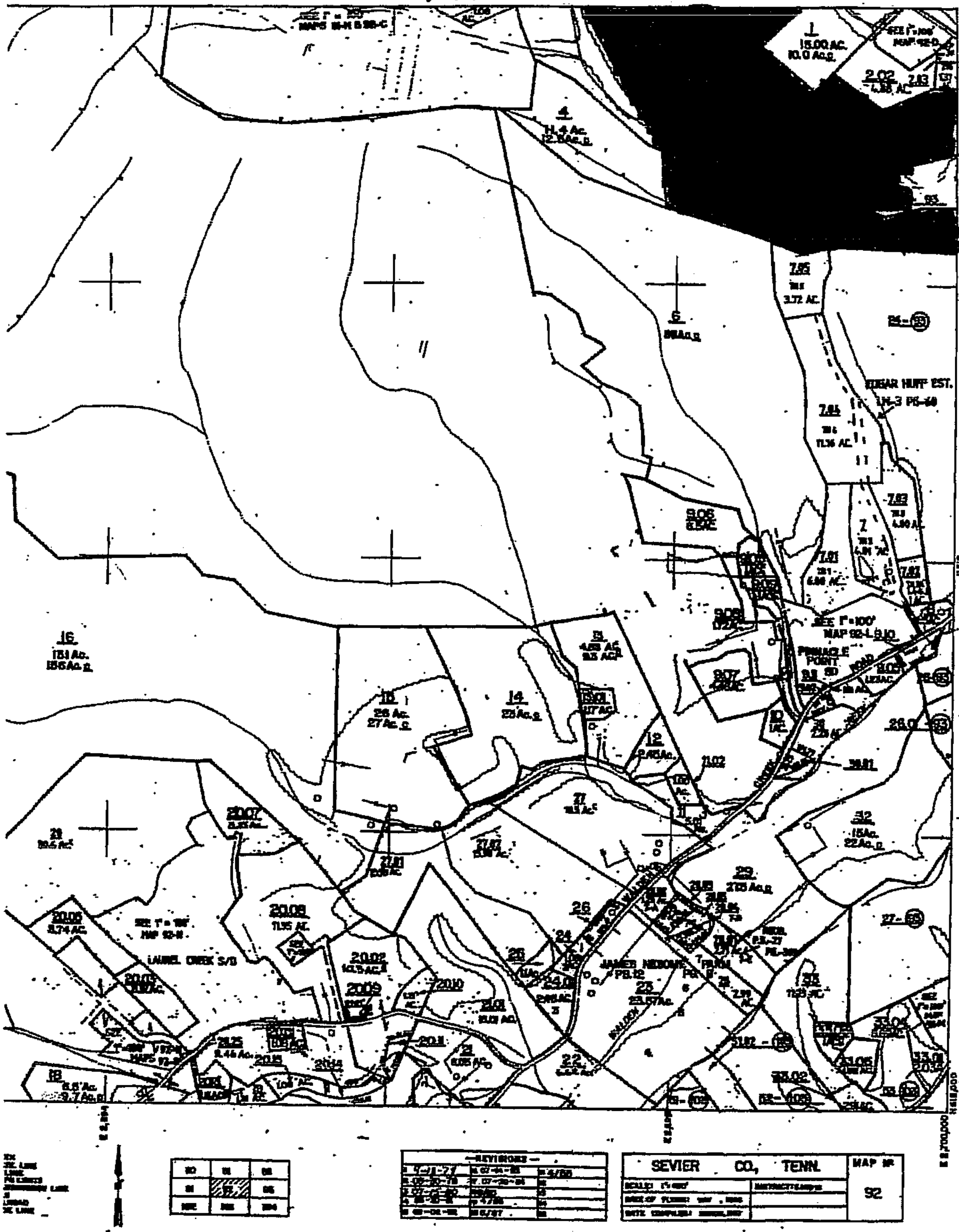
Earlene Teaster

Earlene M. Teaster
City Manager

EMT:sg

xc: Mike Blazer, Director
Sevier County Health Department
John Jagger, Director
P.F. Community Development

Exhibit A



EDGAR HUFF EST.
PINNACLE POINT S/D
SEE 1" = 100' MAP 92-L
LAUREL CREEK S/D
JAMES NEBORNE
SEVIER CO., TENN.
MAP NO.
92

Exhibit A

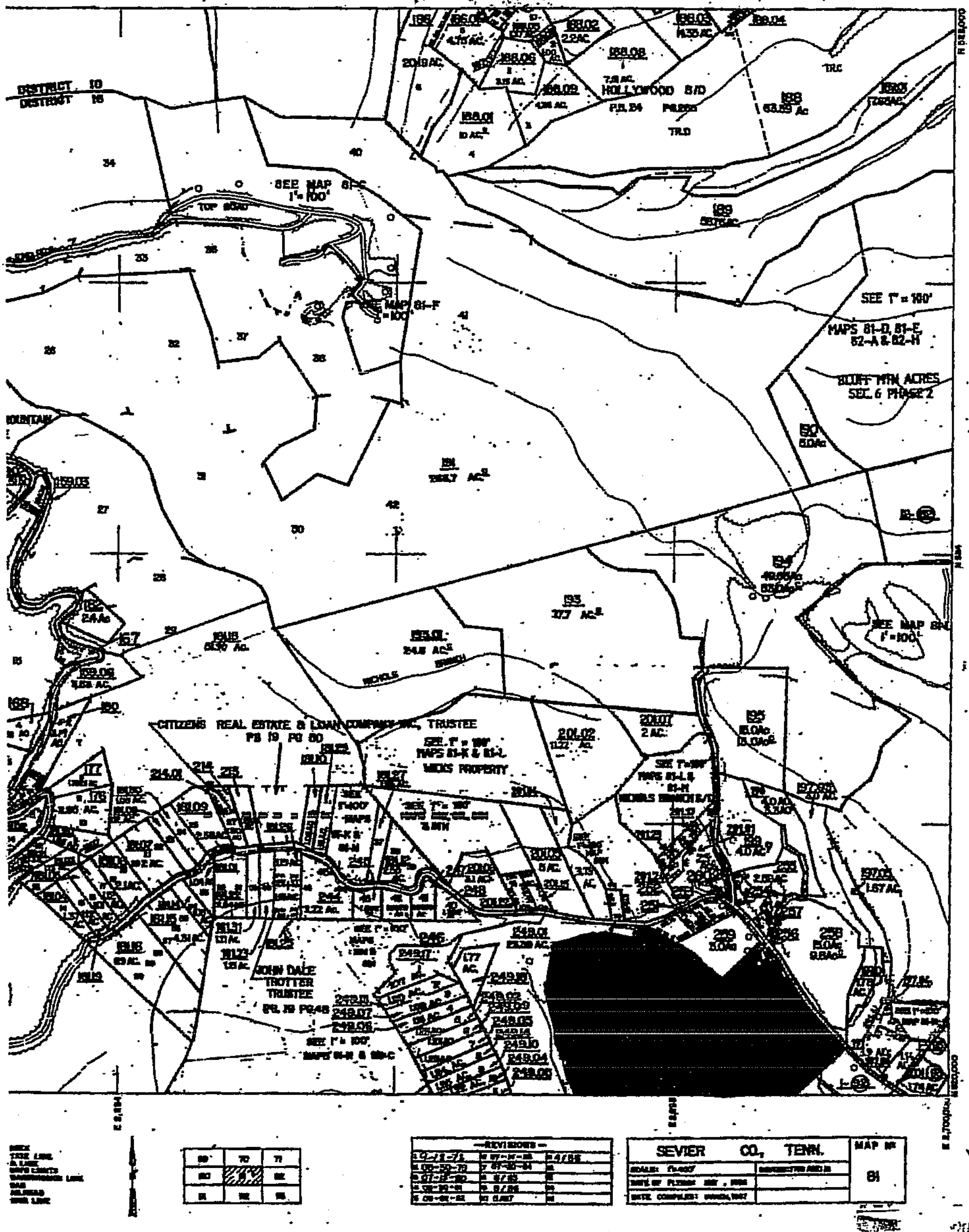

DISTRICT 10
DISTRICT 16
HOLLYWOOD S/D
SEE MAP 81-C 1" = 100'
SEE MAP 81-F 1" = 100'
SEE 1" = 100'
MAPS 81-D, 81-E, 82-A & 82-H
BLUFF MTN ACRES
SEC. 6 PHASE 2
SEE MAP 81-I 1" = 100'
CITIZENS REAL ESTATE & LOAN COMPANY INC, TRUSTEE
PB 19 PG 80
SEE 1" = 100'
MAPS 81-K & 81-L
WEEKS PROPERTY
NICHOLS BRANCH
JOHN DALE
TROTTER
TRUSTEE
SEE 1" = 100'
MAPS 81-N & 88-C
SEVIER CO., TENN.
MAP NO
81
REVISIONS

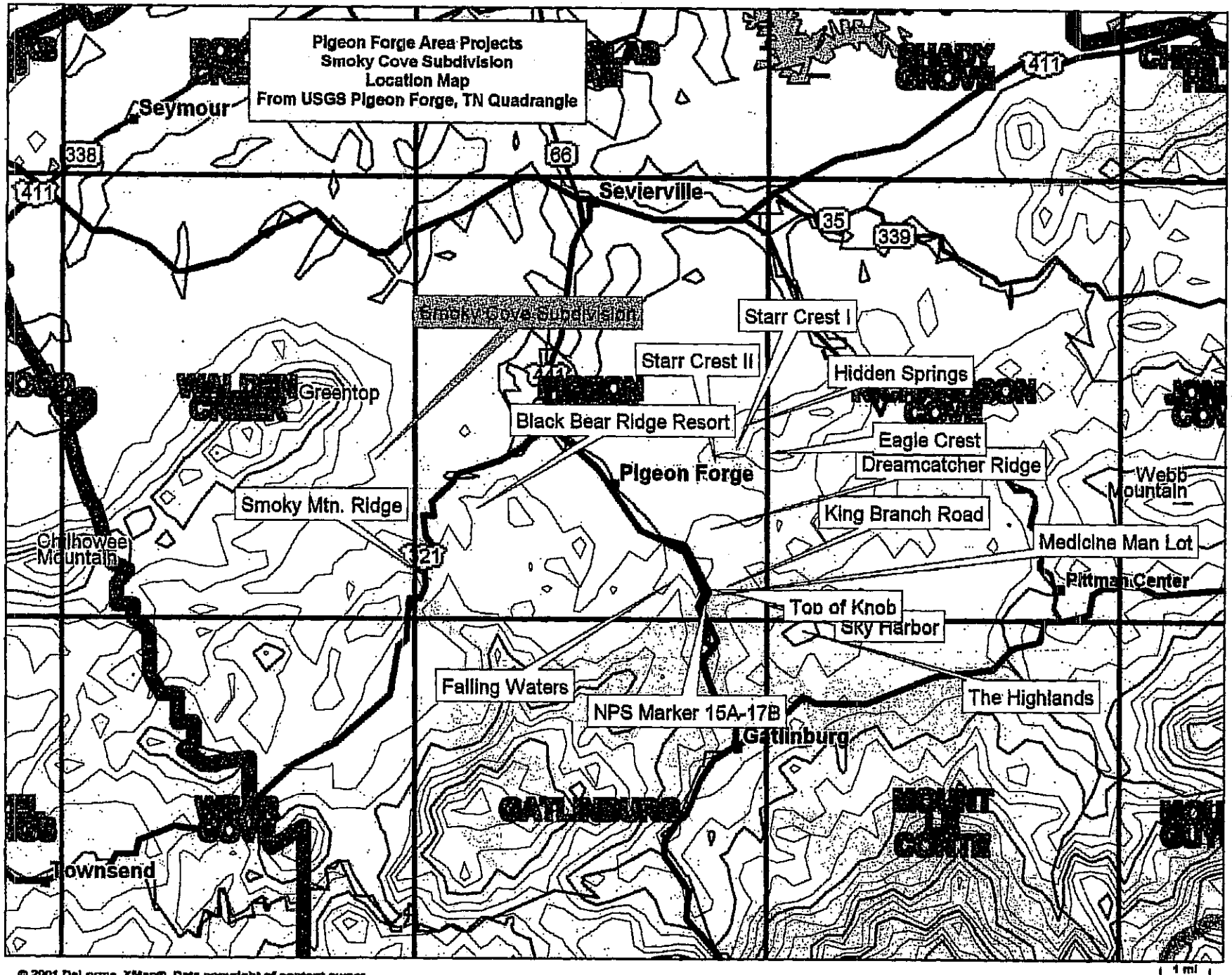
Exhibit A

Sevier County Map 2002

UNITED AERIAL MAPPING

PROPERTY MAP PROVIDED BY
SABRE SYSTEMS & SERVICE

Exhibit A



Scale: 1 : 162,500 Zoom Level: 9-3 Datum: WGS84 Map Rotation: 0° Magnetic Declination: 4.8°W

On-Site Systems, Inc.
Sewer Service Billing Summary
Residential Sewer Rates

System	Monthly Charge
Oakwood Subdivision – Maury County	$35.11
Southridge Subdivision – Montgomery County	$23.94 + actual costs
Swan Harbor – Roane County	$35.11
River Road Utility District – Cheatham County	$31.15
Milcrofton Utility District – Williamson County	$37.21
Tall Oaks Subdivision – Blount County	$35.11
Yoakum Hollow Dev. (Windsor Pt) – Campbell County	$35.11
Shreibman Development – Cannon County	$35.11
Cornerstone of Mitchell Creek – Overton County	$35.11
Bolton Area – Shelby County	$32.68
Ussery #1- Sevier County	$35.11
Harbor Pointe – Dekalb County	$35.11
Hidden Springs Resort – Sevier County	$35.11
Eagle Crest Development – Sevier County	$35.11
Legacy Bay – Hawkins County	$35.11
Dollywood Project – (Dream Catcher Ridge) - Sevier County	$35.11
Homestead Subdivision – Sevier County	$35.11
Rice Property (Blue Water Bay) – DeKalb County	$35.11
East Stewart – Stewart County	$30.98 – Lagoon $35.11 – Sand Gravel Filter

Fees: Nonpayment – 5%, Disconnection - $10,
Reconnection - $15, Return Check - $20, Access - $84/yr

On-Site Systems, Inc.
Sewer Service Billing Summary
Residential Sewer Rates

Eagle Springs Subdivision – Sevier County		$35.11
Jackson Bend Subdivision – Blount County		$35.11
Browning Subdivision – Knox County		$35.11
Starr Crest II – Sevier County		$35.11
City of Coopertown - Robertson County	- Lagoon	$30.98 + 3% Franchise fee
	- Sand-Gravel Filter	$35.11 + 3% Franchise fee
Horseshoe Bend – Bedford County		$35.11
Eagle Crest II - Sevier County		$35.11
Gnatty Branch Retreat – Sevier County		$35.11
Airbase Road Condominiums – Blount County		$35.11
Goose Creek Area – Lagoon -Williamson County		$35.50
	Sand Gravel Filter	$40.71
Falling Waters – Sevier County		$35.11
Stewart County West – Stewart County		$35.11
Lighthouse Point Condominiums – Jefferson County		$35.11
The Highlands – Sevier County		$35.11
Highland Cove – Dekalb County		$35.11
Tims Ford State Park Area-Franklin County -	Lagoon	$30.98
	Sand Gravel Filter	$35.11
Sunnybrook – Robertson County		$35.11
Smokey Mountain Ridge Resort – Sevier County		$35.11
Sevier County – Sevier County	Lagoon	$30.98
	Sand Gravel Filter	$35.11

Fees: Nonpayment – 5%, Disconnection - $10,
Reconnection - $15, Return Check - $20, Access - $84/yr

On-Site Systems, Inc.
Sewer Service Billing Summary
Residential Sewer Rates

System	Monthly Charge
Smoky Cove Subdivision – Sevier County	$35.11

Fees: Nonpayment – 5%, Disconnection - $10,
Reconnection - $15, Return Check - $20, Access - $84/yr

On-Site Systems, Inc.
Sewer Systems with Commercial Customers

System	County
Townsend Town Square	Blount County
Coopertown	Robertson County
East Stewart	Stewart County
Highway 31 Project (Herndon's BP)	Robertson County
Lyles Texaco	Hickman County
Topside Business Park	Blount County
Stewart County West	Stewart County
Cedar Hill Baptist Church	Robertson County
Tims Ford Area	Franklin County
Sunnybrook	Robertson County
Smokey Mountain Ridge Resort	Sevier County
Sevier County	Sevier County
Smoky Cove Subdivision	Sevier County

EFFECTIVE DATE: 5/9/2003

Tariff Rate Sheet

Commercial Sewer Rates – with food service

The monthly sewer charge per customer is based on the design daily flow expected from the type of establishment being served. A minimum of $100 per month will be charged for up to the first 300 gallons per day of design flow expected. (Except off-site which will have a $94.00 minimum plus pass through costs.) For each additional 100 gallons per day of design flow expected, up to a total of 1,000 gallons per day, an additional charge of $18.00 per month per 100 gallons will be levied. For design flows expected over 1,000 gallons per day, up to 3,000 gallons per day, the following monthly charges per 1,000 gallons of daily flow will apply.

Disposal

Treatment	Drip Irrigation	Point Discharge	Off Site
Sand-Gravel Filter	$170.00	$192.00	N/A
Lagoon	$142.00	$163.00	N/A
* Off Site	N/A	N/A	Pass through costs & $94.00

For design daily flows over 3,000 gallons, the monthly charge on all system configurations will be $142.00 per 1000 gallons of daily flow.

Additional surcharges will apply when customers exceed their expected design flows. For any month that a customer's water meter reading exceeds the expected design flow, the following surcharges will apply:

Excess water usage	Surcharge
1 gallon to 1,000 gallons above expected design flow	$210.00
1,001 gallons to 2,000 gallons above expected design flow	$220.00
Over 2,000 gallons above expected design flow	$220.00/1000 gallons

If the water meter readings exceed the design flow for any three consecutive months, the monthly charge will be revised to reflect the increased usage and any capital costs associated with increasing the capacity of the system will be paid by the customer.

*Off Site means treatment and disposal by another entity such as a city or utility district

Fees: Nonpayment – 5%
Disconnection - $10
Reconnection - $15
Returned Check - $20
City of Coopertown Franchise Fees: 3%

Tariff Rate Sheet

Commercial Sewer Rates – without food service

The monthly sewer charge per customer is based on the design daily flow expected from the type of establishment being served. A minimum of $75 per month will be charged for up to the first 300 gallons per day of design flow expected. (Except off-site which will have a $73.00 minimum plus pass through costs.) For each additional 100 gallons per day of design flow expected, up to a total of 1,000 gallons per day, an additional charge of $15.00 per month per 100 gallons will be levied. For design flows expected over 1,000 gallons per day, up to 3,000 gallons per day, the following monthly charges per 1,000 gallons of daily flow will apply.

		Disposal		
Treatment		Drip Irrigation	Point Discharge	Off Site
	Sand-Gravel Filter	$140.00	$165.00	N/A
	Lagoon	$116.00	$140.00	N/A
	* Off Site	N/A	N/A	Pass through costs & $73.00

For design daily flows over 3,000 gallons, the monthly charge on all system configurations will be $116.00 per 1000 gallons of daily flow.

Additional surcharges will apply when customers exceed their expected design flows. For any month that a customer's water meter reading exceeds the expected design flow, the following surcharges will apply:

Excess water usage	Surcharge
1 gallon to 1,000 gallons above expected design flow	$175.00
1,001 gallons to 2,000 gallons above expected design flow	$200.00
Over 2,000 gallons above expected design flow	$200.00/1000 gallons

If the water meter readings exceed the design flow for any three consecutive months, the monthly charge will be revised to reflect the increased usage and any capital costs associated with increasing the capacity of the system will be paid by the customer.

* Off Site means treatment and disposal by another entity such as a city or utility district

Fees: Nonpayment – 5%
Disconnection - $10
Reconnection - $15
Returned Check - $20
City of Coopertown Franchise Fees: 3%

UTILITY CAPACITY CORPORATION, INC.

1920 BREEZY RIDGE TRAIL
CONCORD, TENNESSEE 37922
(865) 675-5917

May 6, 2003

Mr. Lynn E. Hedrick
HP Development LLC/HP Construction LLC
P.O. Box 908
Seymour, TN 37865

By Facsimile

Dear Mr. Hedrick:

This letter confirms and augments our conversations regarding provision of sewerage facilities to serve your proposed Smoky Cove subdivision development. UCC is prepared to contract with you for a sewerage system to serve your proposed development on Bluff Mountain Road. As we discussed, there are other environmental permits and clearances required such as approvals for water main extensions, sediment and erosion control plans, drainage plans, and any stream crossings or disturbances. Engineering support related to those activities is being provided by others and will not be included in our agreements.

Pigeon Forge has implemented a requirement that utility contracts must be signed and Tennessee Department of Environment and Conservation (TDEC) construction approval issued before the City will issue final plat approval. In order to avoid considerable delay, I need to proceed with obtaining TDEC and Tennessee Regulatory Authority (TRA) approvals. While I am doing that, you can be making decisions regarding water supply, working on financing, etc. and we can be negotiating construction and utility contracts.

In obtaining the aforementioned approvals, I will incur costs. These costs will be covered by the tap fees paid under any subsequent agreements executed between us for this project. However, in the event that such contracts are not executed, UCC will bill you for these costs based on my normal consulting rate of $125 per hour plus expenses such as soils mapping, surveying, legal fees, or fees paid to the State of Tennessee. These costs will not exceed $3,500.

If this arrangement is agreeable to you, please sign the bottom of one copy of this letter and return to me. Please have your engineer provide me an AutoCAD compatible file showing the lots, other utilities, roads, and topography of the project. Please call me if you have any questions.

Sincerely,

Michael Hines, M.S., P.E.
President

Smoky Cove Subdivision
Initial Proposal and Letter of Agreement

I agree to the arrangements contained herein:

MANAGING Member

Lynn Hedrick
HP Development LLC

Date: 5/7/03

Southeast Environmental Engineering, LLC
Michael Hines, M.S., P.E., Principal

May 26, 2003

Charles Pickney, Jr., P.E.
President
On-Site Systems, Inc.
7638 River Road Pike
Nashville, TN 37209-5733

Dear Charles:

Enclosed is documentation to support TRA designation of Smoky Cove subdivision as On-Site Systems, Inc. territory. I have included tax maps for the project. The project is located in Sevier County just southwest of Pigeon Forge and is being developed by HP Development, LLC. The proposed project encompasses about 94 acres described as various parcels as shown on in orange on the enclosed tax maps 81, 92 and 93.

Also enclosed is a letter from the Pigeon Forge City Manager stipulating that City of Pigeon Forge does not intend to provide sewer service to either of these developments. A letter from the County Executive is forthcoming and will be forwarded to you upon receipt.

Please proceed to obtain TRA Certificate of Convenience and Necessity for this project. Please provide me a copy of the Certificate upon receipt.

Sincerely,

Michael Hines, M.S., P.E.
Principal

Enclosures

1920 Breezy Ridge Trail Concord, Tennessee 37922 (865) 675-5917 Fax (865) 966-1762

On-Site Systems, Inc.

P.O. Box 22771
Knoxville, TN 37933-0771
Phone (865) 675-5917
Fax (865) 966-1762

May 14, 2003

Mr. Larry Waters
County Executive
Sevier County Executive
Sevier County Courthouse
Sevierville, TN 37862

Dear Mr. Waters:

On-Site Systems, Inc. has been requested to provide sewage collection, treatment, and reuse systems to serve Smoky Cove subdivision on Bluff Mountain Road. The areas are identified as parcel 3 on Map 92 and extending onto Maps 81 and 93 and parcel 261 on Map 81 and extending onto Map 92. These areas are shown in orange on the enclosed tax maps. Before I can proceed, I need a statement from Sevier County as to whether or not the county will provide said services to these properties within the next 12 months. Could you please provide me a written response at your earliest convenience?

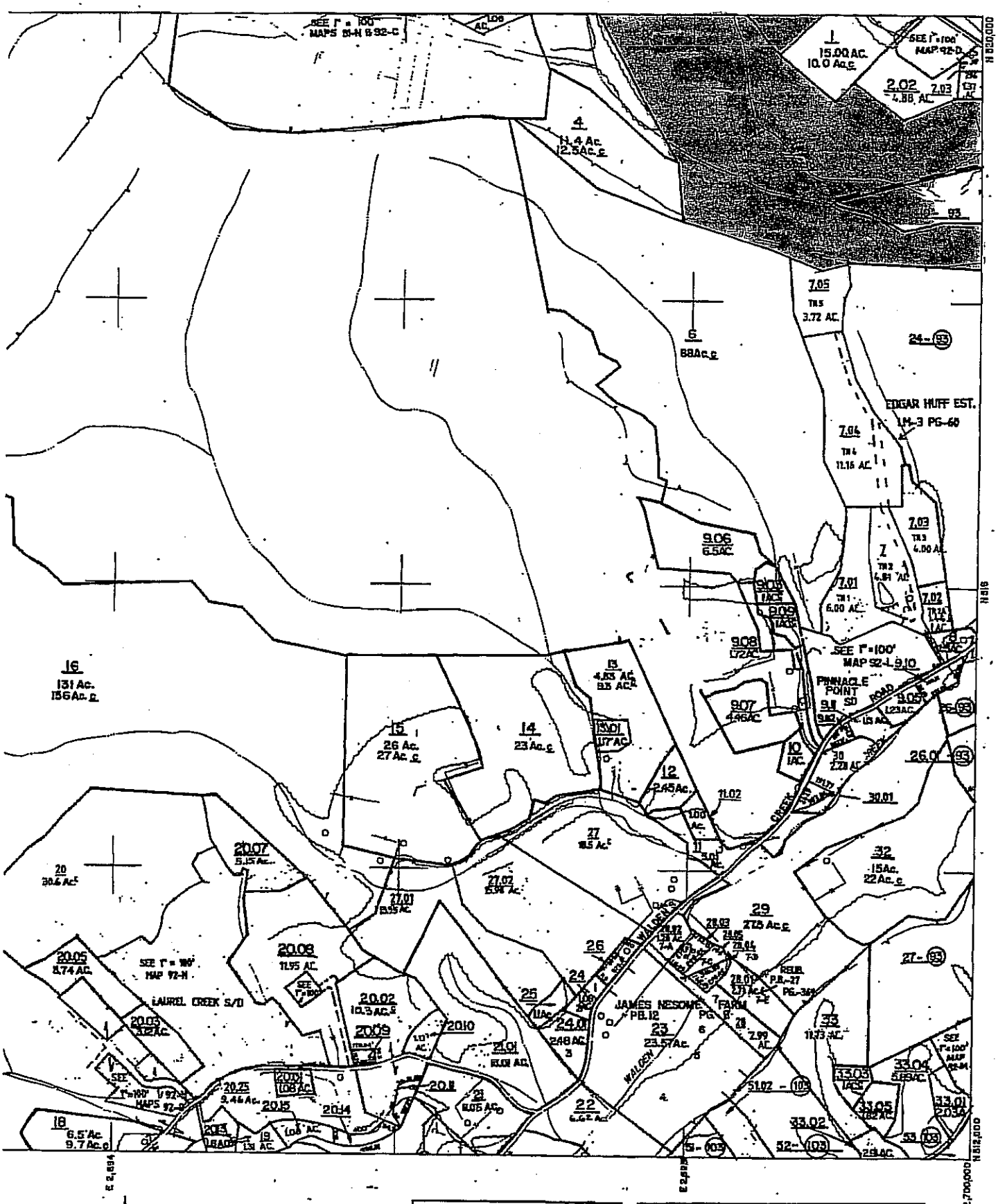
Should you have any questions, please do not hesitate to call me at 675-5917 in Knoxville.

Sincerely,

Michael Hines, M.S., P.E.
Vice President

cc: Michael Blazer, Director
Sevier County Environmental Health Department
329 Cedar
Sevierville, TN 37862

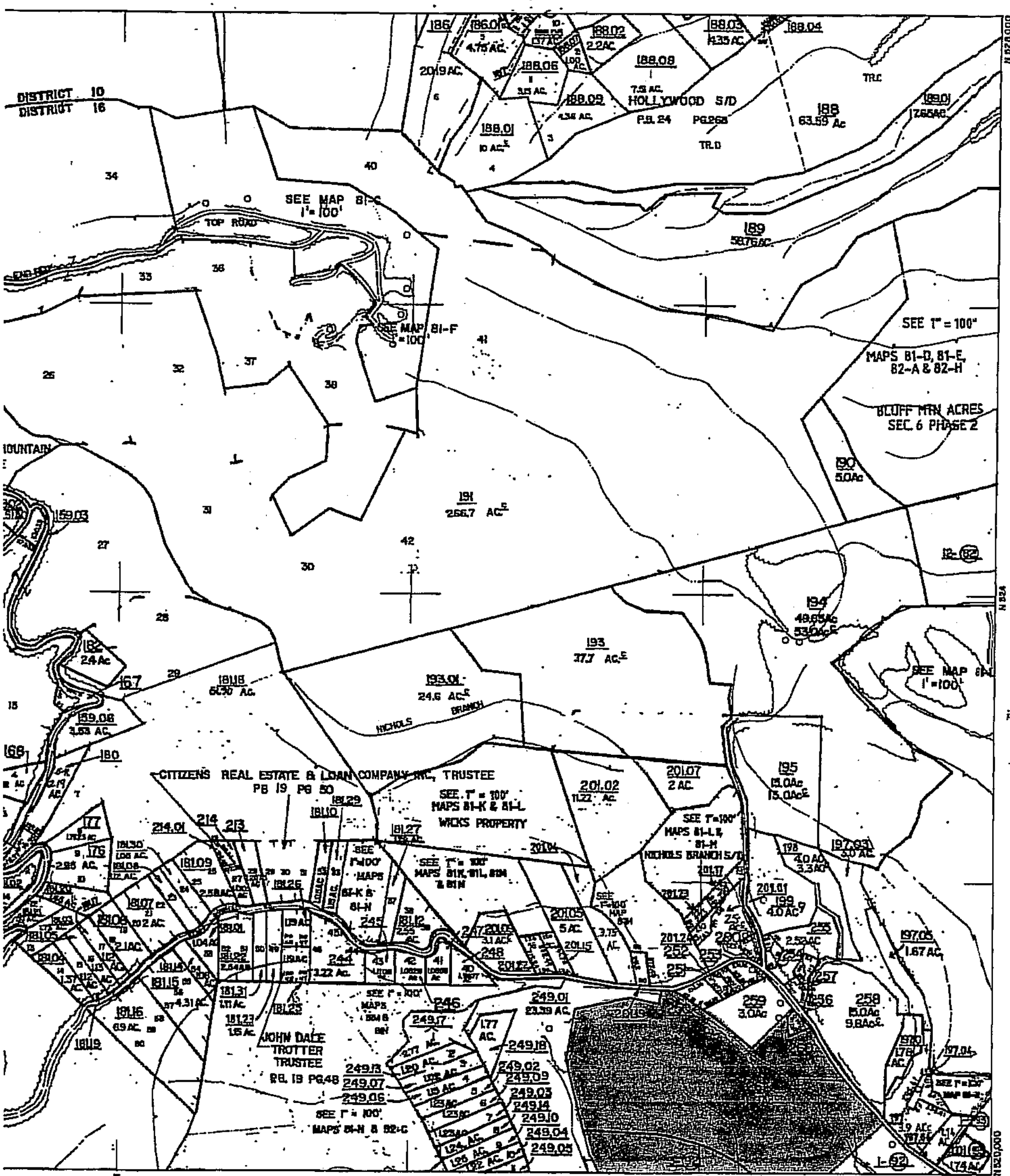
SEE Files



80	81	82
91	92	93
102	103	104

—REVISIONS—		
1 4-18-77	6 07-14-83	12 4/88
2 06-30-79	7 07-20-84	13
3 07-15-80	8 8/85	13
4 06-30-81	9 4/86	14
5 06-02-82	10 5/87	15

SEVIER CO., TENN.		MAP NO.
SCALE: 1"=400'	DISTRICT: 6 SEVIER	92
DATE OF FLYING: MAY , 1986		
DATE COMPILED: MARCH, 1987		

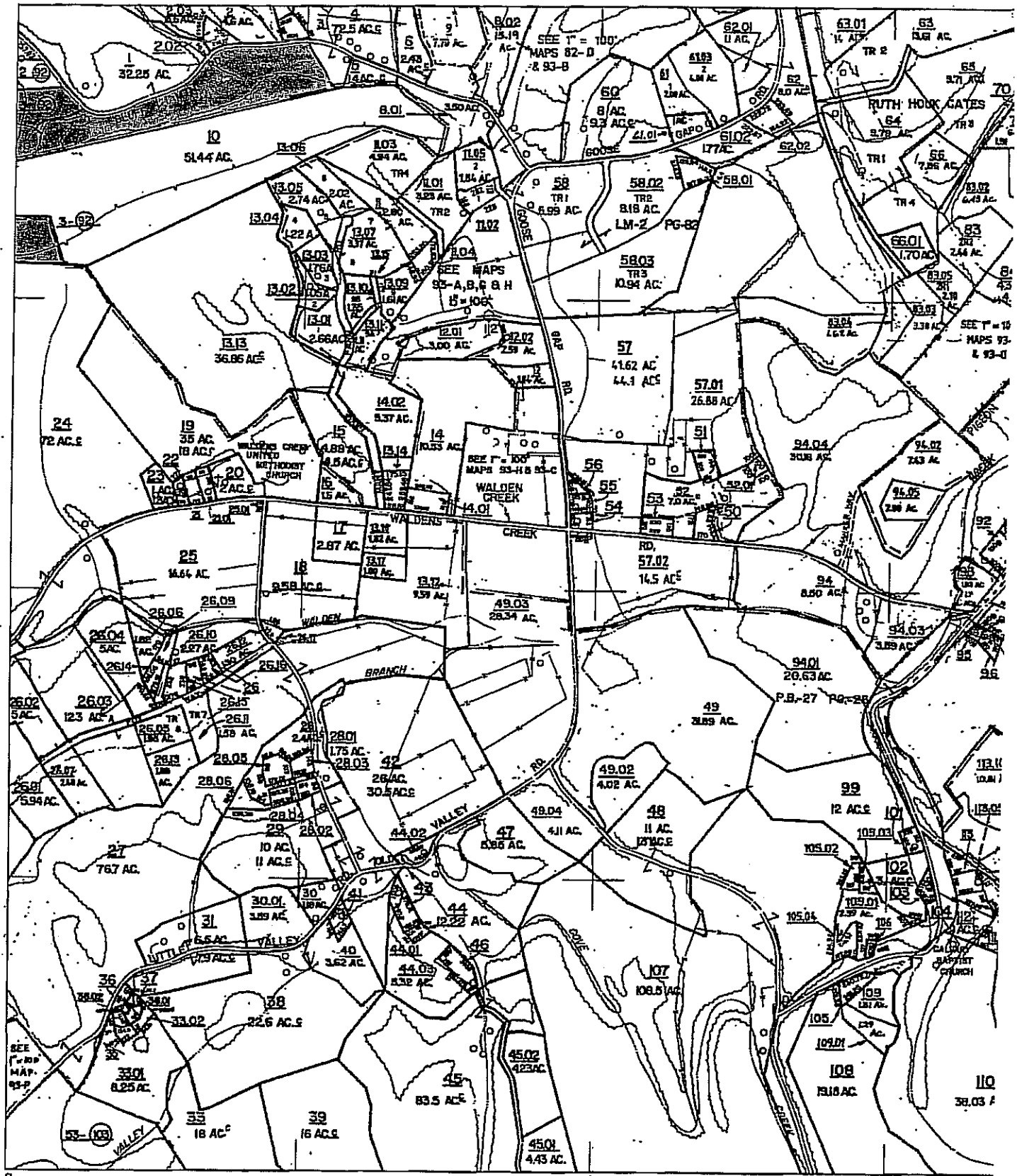


INDEX
STATE LINE
CO. LINE
CORPS LIMITS
TRANSMISSION LINE
ROAD
RAILROAD
ZONE LINE

69	70	71
80	81	82
91	92	93

— REVISIONS —		
1 9-18-78	6 07-14-83	11 4/88
2 06-30-79	7 07-20-84	12
3 07-13-80	8 8/85	13
4 06-30-81	9 8/86	14
5 06-02-82	10 5/87	15

SEVIER CO., TENN.		MAP No
SCALE: 1"=400'	DISTRICT 10 AND 16	81
DATE OF FLYING: MAY, 1966		
DATE COMPILED: MARCH, 1967		



Sevier County
Map 2002

UNITED AERIAL MAPPING
SAN ANTONIO, TEXAS

PROPERTY MAP PREPARED BY
SABRE SYSTEMS & SERVICE

On-Site Systems, Inc.

P.O. Box 22771
Knoxville, TN 37933-0771
Phone (865) 675-5917
Fax (865) 966-1762

May 14, 2003

Ms. Earleen Teaster,
City Manager
City of Pigeon Forge
225 Pine Mountain Road
Pigeon Forge, TN 37863

Dear Ms. Teaster:

On-Site Systems, Inc. has been requested to provide sewage collection, treatment, and reuse systems to serve Smoky Cove subdivision on Bluff Mountain Road. The areas are identified as parcel 3 on Map 92 and extending onto Maps 81 and 93 and parcel 261 on Map 81 and extending onto Map 92. These areas are shown in orange on the enclosed tax maps. Before I can proceed, I need a statement from Pigeon Forge as to whether or not the city will provide said services to these properties within the next 12 months. Could you please provide me a written response at your earliest convenience?

Should you have any questions, please do not hesitate to call me at 675-5917 in Knoxville.

Sincerely,

Michael Hines, M.S., P.E.
Vice President

cc: Michael Blazer, Director
Sevier County Environmental Health Department
329 Cedar
Sevierville, TN 37862

SEE Files

Telephone (865) 453-6136
Fax (865) 453-6830
E-mail: sevcoexec@yahoo.com

Sevier County
TENNESSEE

125 Court Avenue
Suite 201E
Sevierville, TN 37862

Larry Waters *County Executive*

May 27, 2003

Mr. Michael Hines
Southeast Environmental Engineering, LLC
1920 Breezy Ridge Trail
Concord, TN 37922

RE: Sanitary Sewer Service for Smoky Cove Subdivision – Bluff Mountain Road

Dear Mr. Hines:

As per your request concerning sanitary sewer service for Smoky Cove Subdivision - Bluff Mountain Road, Sevier County, TN does not intend to provide sewer service for this area at this time.

Thank you for your time and interest in Sevier County.

Sincerely,

Ken L Maples
Asst. County Executive

PIGEON FORGE
T·E·N·N·E·S·S·E·E

May 16, 2003

Mr. Michael Hines
On-Site Systems, Inc.
P. O. Box 22771
Knoxville, TN 37933-0771

Subject: Smoky Cove Subdivision

Dear Mr. Hines:

This letter will serve to advise that the City of Pigeon Forge has no plans to extend city sewer service to the above referenced area within the next twelve (12) months.

Thanks for your interest and if I can answer further questions, please let me know.

Sincerely,

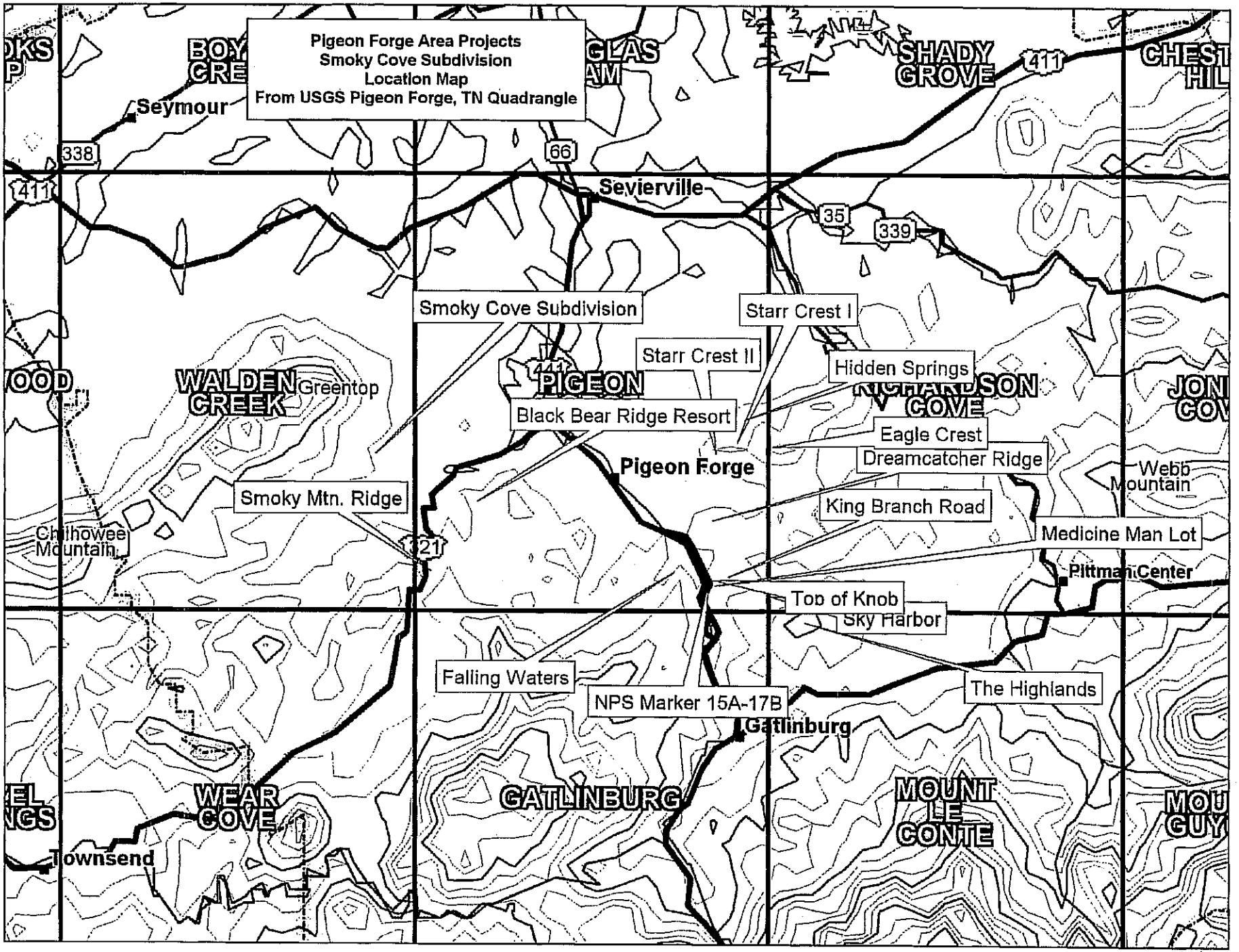
CITY OF PIGEON FORGE

Earlene Teaster

Earlene M. Teaster
City Manager

EMT:sg

xc: Mike Blazer, Director
Sevier County Health Department
John Jagger, Director
P.F. Community Development



Scale: 1 : 162,500 Zoom Level: 9-3 Datum: WGS84 Map Rotation: 0° Magnetic Declination: 4.8°W

SMOKY COVE SUBDIVISION WASTEWATER SYSTEM MAINTENANCE AND MANAGEMENT CONTRACT

This wastewater system maintenance and management contract, made and entered as of this 30th day of September, 2003, by and between, Tennessee Wastewater Systems, Inc., a Tennessee corporation, having a principle place of business in Nashville, Davidson County, Tennessee, herein referred to as "TWSI" and HP Development, LLC, a Tennessee limited liability company, having a principle place of business in Seymour, Sevier County, Tennessee, herein referred to as "HP Development, LLC":

WHEREAS, HP Development, LLC is developing a tract of real property located in Sevier County, Tennessee and is generally referred to herein as the Smoky Cove Subdivision project; and

WHEREAS, HP Development, LLC requires maintenance and management of a wastewater treatment, collection, and disposal system for the Smoky Cove Subdivision project, such that the wastewater system can become constructed and operational in phases to allow for the orderly development and sale of the property at various intervals as more fully described herein.

WHEREAS, Tennessee Wastewater Systems, Inc. is a utility recognized and regulated by the Tennessee Regulatory Agency and has the capability to manage and maintain the wastewater treatment, collection, and disposal system for the Smoky Cove Subdivision project, the parties hereto have entered into the following agreements:

WITNESSETH

1. HP Development, LLC is developing a tract of real property in Sevier County, Tennessee, containing approximately 94 acres more or less and such property is generally referred to herein as the Smoky Cove Subdivision development. The plat for the Smoky Cove Subdivision development as recorded in the Register's Office for Sevier County is attached hereto as Exhibit 1.

2. Upon completion by HP Development, LLC of all of TWSI's requirements as set forth herein, TWSI hereby agrees to own, operate, maintain, and manage the wastewater system for the property identified in Exhibit 1 and HP Development, LLC agrees for TWSI to have exclusive responsibility for the ownership, operation, maintenance, and management of the wastewater system as installed and as may be expanded from time to time.

3. HP Development, LLC agrees to provide TWSI with copies of all plans, specifications, drawings, and other documentation accompanying the design, construction, and installation and any expansion of the wastewater system. TWSI shall secure all necessary local, state, and federal permits, licenses, or other written approvals necessary for the operation of a wastewater system on the property identified as Exhibit 1.

4. The owner of record for each planned unit or parcel of property shown on Exhibit 1 or any future final platted lot for which a service connection to the wastewater system is installed or expanded, but for which no residence, building, or structure, has been constructed or attached to such service connection, shall pay TWSI a yearly sewer access fee of $84.00 to defray the cost of testing and reporting for the sewer system to the State of Tennessee, in addition to any tap on fees or construction fees paid to Utility Capacity Corporation, Inc., in association with the connection between the wastewater system and service lines to any structures or units on each parcel of property. Such yearly sewer access fees for each unit or lot shown on Exhibit 1 shall be first payable on or before December 15, 2003, for all owners of record of December 1, 2003 and annually thereafter. Once residences, buildings, individual units, or structures on each parcel of property shown on Exhibit 1 or future final platted lots are connected to the wastewater system through a service connection, thereafter the annual sewer access fee referenced herein shall not apply. When HP Development, LLC, their designated developer or authorized realtor, sells a lot or a planned unit, it expressly agrees to include and disclose in the sales contract with the purchaser, the requirement to pay the annual aceess fee to TWSI for any units, lots, or undeveloped lots.

5. HP Development, LLC agrees to require as a condition of sale of each unit or lot that any building, residence, or other structure, constructed on the lot to be attached to the wastewater system, shall have a lockable shut off valve installed on the property owners side of the water meter on the water supply line to the unit, building, residence, or other structure. This shut off valve is for the exclusive use of Tennessee Wastewater Systems, Inc. in accordance with its wastewater service agreement with the property or unit owner and is to be used to shut off water supply to the unit, building, or structure, in the event that the monthly sewer fee is not paid.

6. To allow for maintenance and management of the initial wastewater system, HP Development, LLC, shall provide TWSI an all weather access road, the necessary power lines, and the necessary power drop to the initial wastewater treatment site and any sewer lift stations constructed as a component of the initial wastewater system. HP Development, LLC shall provide a written, platted, and recorded, five (5) foot sewerage and wastewater easement on each side of the center line of all wastewater structures

installed in the development other than those sewers and those wastewater connections which are located along the public right of way.

7. Tennessee Wastewater Systems, Inc. shall approve all plans and drawings accompanying the initial wastewater system and any additions or expansions to the system as installed or the additional capacity associated with the wastewater system. The actual construction and installation of the wastewater system and any expansions to same shall be subject to the final approval and final inspection of Tennessee Wastewater Systems, Inc. TWSI shall require a one (1) year warranty from the contractor installing the wastewater system, such that the contractor shall warrant that, for the first year after the initial wastewater system is accepted by TWSI, the contractor shall immediately repair, or cause to be repaired, all breaks, leaks, or defects of any type in the installation, construction, or materials included in the wastewater system. After the expiration of the one (1) year period, TWSI shall be responsible for the repair of all breaks, leaks, or defects of any type in the installation, construction, or materials used in the wastewater system.

8. HP Development, LLC agrees that Utility Capacity Corporation shall hold, manage, and access any excess capacity for the undeveloped or unimproved property for future use and expansion of the wastewater system consistent with the development plan identified and attached hereto. Once the wastewater system, or necessary sections thereof, are installed, completed, and functioning, those elements of the wastewater system shall be turned over or dedicated by the contractor to Tennessee Wastewater Systems, Inc. for ownership, operation, management, and maintenance of the wastewater system operations. Prior to the delivery or the turn over of the ownership, operation, maintenance, and management of the wastewater system to TWSI and the acceptance of same by TWSI, TWSI shall inspect and approve the initial wastewater system as installed and any expansions of such system as it may be expanded from time to time.

9. HP Development, LLC hereby grants TWSI an exclusive right to operate all of the wastewater collection, treatment, and disposal systems and the land on which said systems are located in the development shown on Exhibit 1 and HP Development, LLC hereby conveys to TWSI said exclusive right to operate all of said systems on lands therein without the necessity of any further contract, deed, conveyance, covenant, or easement, for a period of 99 years or so long as said system property is used and operated for wastewater collection, treatment, and disposal, whichever shall first occur. TWSI shall have the right to renew at any time said exclusive rights to operate all of the wastewater collection, treatment, and disposal systems, and the land on which said systems are located in the HP Development, LLC development shown on Exhibit 1. The wastewater

system and its related above ground and below ground components, including the areas they occupy, shall be shown on the final plat prepared by the Developer.

10. Upon installation, testing, approval, and acceptance for use by TWSI, all wastewater system improvements up to the property line of any lot shall become and remain the sole property of TWSI without the necessity of a formal conveyance from HP Development, LLC to TWSI. HP Development, LLC does hereby warrant that title to the same shall be free and unencumbered except for any encumbrances related to the development of the property.

11. HP Development, LLC agrees to execute, acknowledge, and deliver to TWSI any and all easements that may be necessary or appropriate as determined by TWSI for the construction, operation, and maintenance of TWSI's wastewater system, or portion thereof.

1. The HP Development, LLC warrants that, should its development include marketing brochures or other marketing materials, said brochures, materials, or agreements shall include paragraphs regarding and disclosing the development's wastewater system as operated by TWSI.

2. This agreement is valid only so long as HP Development, LLC remains the developer or owner of the project or the owner of the common areas of the project. This agreement is not assignable to or for the benefit of any other person or entity without TWSI's prior written consent. The HP Development, LLC commitments and covenants contained in Paragraph 4 shall survive the termination of this agreement as to HP Development, LLC. Nothing in this agreement shall be pledged, mortgaged, hypothecated, or utilized as collateral for any obligations of HP Development, LLC to any lenders, creditors, or third parties.

3. This agreement shall be governed and interpreted under the laws of the State of Tennessee without regard to any other choice of law statutes or procedures.

4. Should any part of this agreement be found or held invalid or unenforceable by any court or government agency, regulatory body, or utility regulatory commission, such invalidity or unenforceability shall not affect the remainder of this agreement which shall survive and be construed as if such invalidity or unenforceability part had not been contained therein.

HP Development, LLC

Lynn Headrick, Chief Manager
HP Development, LLC

Tennessee Wastewater Systems, Inc.

Michael W. Hines, M.S., P.E., Vice-President
Tennessee Wastewater Systems, Inc.

Southeast
Environmental Engineering, LLC
1920 Breezy Ridge Trail Concord, TN 37922

PROJECT Smoky Cove DATE 9/22/03 SHEET ___ OF ___

For 42 lots in Phase I, it would require sewer as follows:

- 5775' ± sewer
- 3900' " force main
- Lift Station
- 42 service connections
- etc

} ~ $70,000 (No Treatment)

For tank & pump at treatment site:

- 1 - 2000 gal tank
- 1 - pump (Loaner - no cost)
- 1 - vault etc
- 1 - temp circuit box
- 1 - " drain line

} ~ $5,000

DIVISION OF WATER POLLUTION CONTROL
401 CHURCH STREET
L & C ANNEX 6TH FLOOR
NASHVILLE TENNESSEE 37243-1534

June 26, 2003

Ms. Earleen Teaster, City Manager
City of Pigeon Forge
P.O. Box 1350
Pigeon Forge, TN 37868-1350

Re: SOP-03021
Smoky Cove Subdivision
Sevier County

Dear Ms. Teaster:

We have reviewed the plans and engineering reports submitted for a sewerage system proposed to serve Smoky Cove Subdivision. The plans and the design of the system represented meet our design criteria. Additionally an engineering report and application for the required State Operation Permit (SOP) have been received and reviewed. A draft SOP has been prepared and the required 30 day opportunity for public comment will begin on July 7. If no substantive comments or requests for public hearing are received from the public prior to August 7, we will close the comment period at that time. Authorization to proceed with construction will be implicit with the closure of the public comment period.

If you have questions concerning this correspondence or if we may be of assistance to you, please do not hesitate to contact the division at (615) 532-0625.

Sincerely,

Paul E. Davis, P.E.
Director

cc: Municipal Facilities Section
Permit Section

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
KNOXVILLE ENVIRONMENTAL FIELD OFFICE
2700 MIDDLEBROOK PIKE, SUITE 220
KNOXVILLE, TENNESSEE 37921-5602
(615) 594-6035 FAX (615) 594-6105

May 23, 2003

Mr. Michael Hines, M. S., P. E.
Southeast Environmental Engineering
1920 Breezy Ridge Trail
Concord, Tennessee 37922

RE: Smoky Cove
Proposed Wastewater Treatment Plant
Sevier County

Dear Mr. Hines:

On May 21, 2003, I came to the above site where a drip irrigation system for disposal of effluent from a wastewater treatment system was being considered. A subdivision of up to 200 lots with wastewater flows up to 40,000 gallons per day is being considered.

Please note the following general comments and conditions applicable to a wastewater treatment plant with drip irrigation:

1. Plans must show neighboring residents and other land uses, and placement of sewage treatment facilities must be made as to minimize the effect to such neighbors.

2. Wetlands and other waters of the State must be avoided and protected. Sinkholes will also be avoided.

3. Plans, including the soils report by a certified soil scientist, must be approved by the central office in Nashville. The site is not approved until the soils plan and other plans are approved and a State Operating Permit issued.

4. A certified operator for the treatment plant is required.

5. The system must have a State Operating Permit. The permit will require laboratory monitoring, submission of operation reports, etc. The permittee will be liable for any violations of the permit or the Tennessee Water Quality Control Act including civil penalties up to $10,000 per day, per violation, and fines up to $25,000 per day, per violation, under Section 69-3-115 of the Act. The permit should be applied for 180 days in advance of it being needed. This permit will have a public notice comment period associated with it, and therefore a possibility of public hearings.

6. It is our understanding that the proposed permittee is On-Site Systems, Inc.

7. The central office's recent policy is to place a permit limit of 10 milligrams per liter for nitrates (as nitrogen) on facilities of this type where effluent is applied to land, unless the applicant can show that sufficient denitrification in the soil can occur and that the effluent will not leave the property containing nitrates in excess of this number. We would encourage you to make certain this is addressed because meeting this limit at the permitted sampling point (before application to land) is likely to be difficult.

8. Please submit one set of plans to this office in addition to the usual submittal to Nashville.

9. Construction of the subdivision is likely to require a construction stormwater permit.

Your cooperation with this office is appreciated. Should you have any questions please do not hesitate to call me at 594-5521.

Sincerely,

Woodson L. Smith
Division of Water Pollution Control

cc: Municipal Facilities Section, DWPC, Nashville
Sevier County Health Department

Michael Hines, M.S., P.E.

From: Michael Hines, M.S., P.E. [mikehines@charter.net]
Sent: Wednesday, June 25, 2003 08:20 PM
To: paul.estill.davis@state.tn.us
Cc: saya.qualls@state.tn.us
Subject: Smoky Cove

Paul:

Per our discussion with Jim Gass this morning, we are seeking to craft language that would allow Pigeon Forge to interpret as saying they have a letter of TDEC approval while allowing TDEC to interpret as saying SOP must be issued prior to final project approval. Below is my attempt to capture the kernel of what Jim Gass said Pigeon Forge could accept. In thinking further, you might consider addressing the letter to Earleen Teaster rather than to me. That would distance the project one step from the letter.

"We have reviewed the plans and engineering reports submitted for a sewerage system proposed to serve Smoky Cove Subdivision. The plans and the design of the system represented meet our design criteria. Additionally an engineering report and application for the required State Operation Permit (SOP) have been received and reviewed. A draft SOP has been prepared and the required 30 day opportunity for public comment will begin on July 7. If no substantive comments or requests for public hearing are received from the public prior to August 7, we expect the SOP could be issued in a timely fashion."

I will be available on my cell phone tomorrow @ 865-740-7994. If and when a letter goes out, a copy should be faxed to Jim Gass at 865-429-1540 and to me at 865-966-1762.

Again, thank you for your patience and assistance.

Mike

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

June 23, 2003

Mr. Michael Hines
Southeast Environmental Engineering, LLC
1920 Breezy Ridge Trail
Concord, TN 37922

Re: Smokey Cove
WPC Project No. 03-0554.M
Sevier County

Dear Mr. Hines:

We reviewed the four sets of plans we received on June 23, 2003, for the construction of an on-site wastewater treatment system for the Smoky Cove development. This review indicates these plans met our design criteria and may be approved in the future. However, the division cannot give you final approval of these plans until the state permit for the operation of this system is drafted and an opportunity for public participation in its issuance has occurred. This may be several months in the future.

If you have any questions concerning this correspondence or if I may be of any further assistance in any way, please feel free to give me a call at 615-532-0625

Sincerely,

M. B. Salehzadeh
Municipal Facilities Section
Division of Water Pollution Control

File copy: Knoxville EAC, Division of Water Pollution Control
Sevier County

Southeast Environmental Engineering, LLC
Michael Hines, M.S., P.E., Principal

June 24, 2003

By Facsimile:

Paul E. Davis, P.E., Director
Division of Water Pollution Control
Tennessee Department of Environment & Conservation
401 Church Street
6th Floor, L&C Annex
Nashville, TN 37243-1540

Dear Paul:

I appreciate your efforts and those of your staff regarding the Smoky Cove sewerage project. The City of Pigeon Forge is trying to grant final plat approval to Smoky Cove subdivision. There is a law or regulation that requires them to have a letter from the health or environmental regulatory officials stating that the proposed sewerage system is approved.

I have enclosed the letter Mr. Salehzadeh faxed to me yesterday. Unfortunately, it is worded such that I am certain Pigeon Forge will not be able to accept it as an approval letter. We all understand that your agency policy will not allow construction until the SOP is processed. However, can the letter be reworded to approve the system as proposed but stipulating that construction of the system cannot begin until the SOP is processed? I have suggested wording below.

"We have reviewed the plans submitted dated June 8, 2003, for the construction of an on-site wastewater treatment and reuse system to serve the Smoky Cove subdivision. The plans meet our design criteria and are approved for construction with the provision that no construction of the described system can begin until the State Operation Permit has been drafted and an opportunity for public hearing has occurred."

The Pigeon Forge Planning Commission is meeting toady at 5:00 pm. If the letter can be reworded and faxed to the office of the City Attorney, Mr. James Gass at 865-429-1540 it would be greatly appreciate.

Again, thank you for your efforts to date and I apologize for any inconvenience.

Sincerely,

Michael Hines, M.S., P.E.
Principal

1920 Breezy Ridge Trail Concord, Tennessee 37922 (865) 675-5917 Fax (865) 966-1762
mikehines@mindspring.com

Southeast Environmental Engineering, LLC

Michael Hines, M.S., P.E., Principal

June 24, 2003

Midge, if there is any way that the TDEC letter can be interpreted as approval, please do so & forward to Jim Gass. Otherwise, we can only hope Paul Davis is in today & willing to rewrite the letter.

Mike

By Facsimile:

Paul E. Davis, P.E., Director
Division of Water Pollution Control
Tennessee Department of Environment & Conservation
401 Church Street
6th Floor, L&C Annex
Nashville, TN 37243-1540

Dear Paul:

I appreciate your efforts and those of your staff regarding the Smoky Cove sewerage project. The City of Pigeon Forge is trying to grant final plat approval to Smoky Cove subdivision. There is a law or regulation that requires them to have a letter from the health or environmental regulatory officials stating that the proposed sewerage system is approved.

I have enclosed the letter Mr. Salehzadeh faxed to me yesterday. Unfortunately, it is worded such that I am certain Pigeon Forge will not be able to accept it as an approval letter. We all understand that your agency policy will not allow construction until the SOP is processed. However, can the letter be reworded to approve the system as proposed but stipulating that construction of the system cannot begin until the SOP is processed? I have suggested wording below.

"We have reviewed the plans submitted dated June 8, 2003, for the construction of an on-site wastewater treatment and reuse system to serve the Smoky Cove subdivision. The plans meet our design criteria and are approved for construction with the provision that no construction of the described system can begin until the State Operation Permit has been drafted and an opportunity for public hearing has occurred."

The Pigeon Forge Planning Commission is meeting toady at 5:00 pm. If the letter can be reworded and faxed to the office of the City Attorney, Mr. James Gass at 865-429-1540 it would be greatly appreciate.

Again, thank you for your efforts to date and I apologize for any inconvenience.

Sincerely,

Michael Hines, M.S., P.E.
Principal

1920 Breezy Ridge Trail Concord, Tennessee 37922 (865) 675-5917 Fax (865) 966-1762
mikehines@mindspring.com

STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
401 CHURCH STREET
L & C ANNEX SIXTH FLOOR
NASHVILLE TN 37243-1534

October 2, 2003

Mr. Michael Hines
Southeast Environmental Engineering, LLC
1920 Breezy Ridge Trail
Concord, TN 37922

Re: Sevier Co. Wastewater System
County: Sevier
Water Pollution Control Number 03-0554
Project: Smokey Cove S/D

Dear Mr. Hines:

The Tennessee Department of Environment and Conservation, Division of Water Pollution Control, acknowledges the receipt of four (4) set(s) of construction documents on June 10, 2003.

The project consists of 11,100 lf of Step/Steg effluent collection system, twin 16,000 gpd Bioclere recirculating fixed film reactor and final disposal via drip irrigation.

Approval is granted in accordance with certain requirements of the Water Quality Control (WQC) Act of 1977 and Regulations of the Water Quality Control Board. **The SITE set of plans and specifications will be stamped with the APPROVAL and APPROVAL EXPIRES STAMPS on the cover sheets only. Any indication of tampering with the bound set of documents will be subject to investigation and prosecution**. One complete set of construction documents, bearing the official stamp, must be kept at the construction site.

Approval expires one year from the stamped approval date unless construction is either underway or complete. Any request for extension must be made prior to this expiration date. Significant deviations from the approved plan documents must be submitted and approved in writing before such changes are made. Minor changes made during construction need not have prior written approval. Modifications, however, may be required by this Department should the changes be deemed inappropriate. It is advisable, therefore to obtain prior approval in cases where the significance of the change is uncertain.

The Division of Water Pollution Control is authorized to inspect the construction work to verify compliance with the approved plans and specifications, which are on the site. **Therefore, the engineer shall notify the Water Pollution Control Office at the Knoxville Assistance Center (865) 594-6035 of the start of construction**.

Approval of these construction documents should not be construed as a permit for any activities related to this project. Activities which may require a permit under the WQC Act and Regulations include, but are not limited to, the following: streambank vegetation removal; creek crossing(s) for equipment or utility lines; construction within twenty (20) feet of a stream bank; construction in or near a marshy area or wetland, and/or land disturbance greater than one acre. **The Water Pollution Control Office previously referenced should be contacted for determinations regarding whether an Aquatic Resource Alteration Permit (ARAP) and/or a National Pollutant Discharge Elimination System (NPDES) Construction Storm water permit will need to be obtained prior to the beginning of construction of this project.**

To expedite matters, please reference the assigned Water Pollution Control number on any future correspondence. If we may be of any assistance, please contact us at **(615) 532-0625**.

Sincerely,

M. B. Salehzadeh
Environmental Protection Specialist, Municipal Facilities Section
Division of Water Pollution Control

Enclosures

cc: Sevier Co. Wastewater System
Knoxville Environmental Assistance Center, Water Pollution Control

Southeast Environmental Engineering, LLC
Michael Hines, M.S., P.E., Principal

June 8, 2003

Mr. Mo Salehzadeh
Division of Water Pollution Control
Tennessee Department of Environment and Conservation
6th Floor, L&C Tower
401 Church Street
Nashville, TN 37243

In Re: Sevier County
Smoky Cove Subdivision
Sewage Collection, Treatment, and Dispersal System Plans

Dear Mr. Salehzadeh:

Enclosed are plan documents and fees for a proposed sewerage system to serve the Smoky Cove Subdivision development in Sevier County. This system will consist of 11,100 linear feet of STEP/STEG effluent collection system, twin 16,000 gpd Bioclere™ recirculating fixed film reactors, and final disposal via drip irrigation at a loading rate of 2.0 -2.4 inches per week. Application for a State operation Permit was submitted with the Preliminary Engineering Report on May 18.

Upon acceptance of the system design and construction, On-Site Systems, Inc. will assume ownership and operational responsibility for the system. The enclosed documents include four each of the following:

- Engineering report
- Engineering plans (6 pages)
- Soils map prepared by Mr. Eddie McCrosky

Also enclosed is our check for plan review fees in the amount of $1,475.00 calculated as follows:

■ Plan review fee for sewage treatment system <75,000 gpd	$250.00
■ Sewer system review; 11,100 feet @ $25/250 ft	1,125.00
■ Pumping systems; 2 @ $50	100.00
Total Review Fee	**$1,475.00**

1920 Breezy Ridge Trail Concord, Tennessee 37922 (865) 675-5917 Fax (865) 966-1762
mikehines@mindspring.com

This project was to have been served by the City of Pigeon Forge public sewer system upon annexation of the project area into the city. However, after many months of evaluation, the City recently determined that it would not proceed with the annexation. As a result, the developer cannot obtain plat approval from the Pigeon Forge Planning Commission until TDEC issues construction approval for the project described in this submission. He cannot sell any lots until that approval is issued. ***The developer, the City of Pigeon Forge, I, and the Knoxville EAC staff would appreciate an expedited review.***

By copy of this letter, one additional set of plan documents is being sent to Mr. Woody Smith for his review and comment. If there are any questions or comments, please contact me as indicated above. Please send me a receipt for the above fees.

Sincerely,

Michael Hines, M.S., P.E.
Principal

Enclosures

cc:

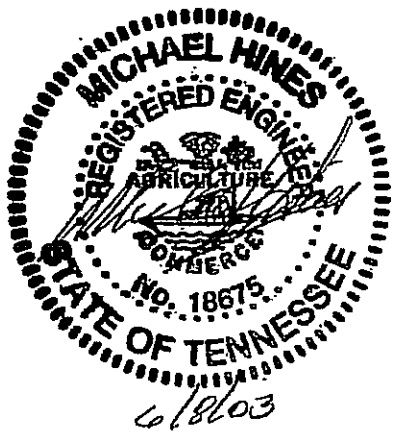
(with enclosures)
Woody Smith
Knoxville Environmental Assistance Center
2700 Middlebrook Pike
Knoxville TN 37921

SEE Files

Final Engineering Report

Smoky Cove Subdivision
Sevier County, Tennessee

June 8, 2003



General

This proposed project will consist of approximately 160 resort chalets located on Bluff Mountain Road in Sevier County. The development will be located on approximately 95 acres of a wooded ridges near the southwest edge of the City of Pigeon Forge. The development will be served by a small diameter Septic Tank Effluent Collection (STEC) sewer system consisting of approximately 11,100 feet of collection lines, a lift station, and approximately 5,000 feet of force main. The STEC system effluent will be treated in a Bioclere™ Recirculating Trickling Filter (RTF) system designed at 0.03 #$CBOD_5$/sq.ft./day at a design flow of 32,000 gpd. Effluent from the Bioclere™ units will be reused through a drip dispersal field at a rate of 2.0 - 2.4 inches per week. 50% is for 40,000 gpd

The site occupies approximately 95 acres of forested ridges with approximately 400 feet of elevation difference. The treatment and reuse site is located near the top of a large local drainage basin that discharges through wet-weather conveyances to unnamed tributaries thence to Nichols Branch and thence to Walden Creek.

The sewage collection, treatment, and reuse system will be owned and operated by On-Site Systems, Inc. (OSSI). The preliminary report dated May 18 addressed the hydraulic and nutrient loading of the drip dispersal fields. This final report describes the design of the system.

Alternative Systems Analyses

Four sewerage system options were considered: (1) conventional, onsite septic tank seepage fields at each lot, (2) STEC collection, RTF treatment with discharge to area water courses, (3) STEC collection, RTF treatment with disposal by subsurface drip dispersal, and (4) connection of a conventional sewage collection system to the Pigeon Forge municipal sewer system.

Conventional, Onsite Systems: The project terrain contains a large area of 50% slopes. The area could not support septic tank/seepage field systems on each lot. The

resulting reduction in lot density would have made the project economically unviable. This alternative was, therefore, rejected.

STEC, RTF, Surface Discharge: This type of system can produce an effluent quality suitable for discharge to flowing streams. It also could be eligible for ownership and operation by a public utility such as the On-Site Systems, Inc.. However, because area receiving streams are already adversely impact by siltation and septic tank discharges, the Tennessee Department of Environment and Conservation (TDEC) is reluctant to issue NPDES permits for additional discharges to tributary water courses. Additionally, operation and monitoring costs would be quite high as a result of the daily and weekly monitoring requirements that would be imposed by the NPDES permit. The associated onsite operator time requirements would also be expensive compared to the following option. Therefore, this option was rejected

STEC, RTF, Drip Dispersal: This is the selected option. It would produce no effluent for discharge to waters of the state. As a result, it would be regulated by a Tennessee State Operation Permit. The monitoring requirements would be simple and relatively infrequent by comparison to a surface discharge system under NPDES permit. Minimal onsite operator time would be required. Capital costs for construction would be higher than the first two options but lower than the fourth. The increased capital costs would be offset by the reduced monitoring and operating costs.

Connection to Pigeon Forge Municipal Sewer System: In addition to being considerably higher in capital costs than any other option, this option was not available. The City determined that it could not, in the foreseeable future, extend a Pigeon Forge sewer main far enough to pick up this subdivision. This option also was rejected.

Effluent Collection System Design

Design Basis

Upon completion of construction, ownership of the sewerage system will pass to On-Site Systems, Inc. (OSSI) to own and operate as a public sewer utility. The system is therefore designed to comply with OSSI requirements and TDEC design guidelines. Design basis was chosen to be 160 lots at an average of two bedrooms per lot and a flow of 100 gpd per bedroom. This results in a conservative design flow of 32,000 gpd. Actual flows from similar rental chalet communities in Sevier County average closer to 125 gpd per lot.

STEC/STEP System Design

Design Flow: 160 Lots x 200 gpd/lot = 32,000 gpd

All branch lines are designed to be 2", 3", or 4" HDPE or SDR 21 Class 200 PVC lines. Approximately ⅓ of the lots will be able to drain to the lift station by gravity. The remainder will require STEP units to reach the sewer main. The maximum TDH for any STEP pump will be approximately 70 feet at lot #124. All the rest of the STEP units will have only the difference in elevation resulting from the slope of the lot on which the unit is located. A 3,000 gallon lift station will be provided with maximum pumping capacity rated at 80 gpm at design TDH. The station will discharge to the treatment site through approximately 3,000 feet of 3" force main.

Each lot will be served by a 1,000 or 1,500 gallon interceptor tank. A 4" screened effluent filter will be installed in the discharge end of each STEG tank. Where screened STEP units will be required, each will include an Orenco P100511 high-head turbine pump equipped with a ¼ " flow controller and located in a screened pump vault. The flow controller ensures that the pumping rate will not exceed eight gpm at design heads.

Elevation differences between the sewer at lots and the hydraulic grade line range from near <10' to ~70'. Head calculations for the STEP pumps in the interceptor tanks are based on a maximum pump rate of 8 gpm, tank effluent 10' below sewer elevations, 1" discharge assembly, 25 ft of service line, and Orenco calculations of pump and discharge assembly losses.

$$TDH = h_{static} + h_{pressure} + h_{service\ line\ loss} + h_{discharge\ assembly\ loss}$$

From Orenco design catalogue, $h_{service\ line\ loss} = (4.727L/D4.87)(Q/C)1.85$,
and $h_{discharge\ assembly\ loss} = 0.023Q^2$

$$TDH = 10'_{max} + 70'_{max} + \{(4.727)(25')/(1.19")^{4.87}\}(8\ gpm/150)^{1.85} + (.023 \times 64)$$

$$= 10\ ft + 70\ ft + 0.22\ ft + 1.47\ ft$$

$$TDH = 82\ ft\ max$$

The ORENCO P100511 pump selected provides about 7 gpm at 82' TDH.. The pump curve for that pump is attached.

Lift Station

All sewers will flow down to the low end of the project to a lift station to be installed in the common area across the road from lots 2 and 3. The lift station will utilize a 3,000 gallon, water tight, structurally sound concrete wet STEP tank as a wet well. The tank will be equipped with a fail-safe valve on the inlet line that will close to prevent overflow in the event of power failure.

Twin Orenco P505012 five horsepower high-head turbine pumps will be provided. Each pump will deliver approximately 50 gpm at maximum design head (both pumps running). A three inch force main approximately 3,000 feet in length will convey the STEP effluent to the treatment site. Total dynamic head calculations with both pumps running are:

TDH:

Transport line losses:	
Elevation difference @ 70'	30 psi
Friction 3,000' of 3" @ 1.39ft/100ft @ 80 gpm	42 psi
Discharge assembly	2 psi
Safety Factor	10 psi

Total Dosing TDH 83 psi = 192' TDH

Fixed Film Reactor Treatment System

The treatment system will consist of a series of blend tanks followed by twin Bioclere™ package trickling filters that overflow into a drip dispersal dose tank. Final effluent will be dispersed into adjacent drip dispersal fields. A hydraulic profile of the treatment system is shown in the enclosed plans.

Blend Tanks

The lift station force main will discharge into three 2,000 gallon STEG tanks installed in series. These tanks also receive recirculated flow from the bottom of the Bioclere™ settling tanks. The recirculation rate is fully adjustable and is controlled by the computerized control panel. Overflow from the blend tanks is to the Bioclere™ influent lines.

Bioclere™

36/30 installed

Treatment will be provided by two Bioclere™ Model 30/32/2300 units operating in parallel. Initially, one unit will be installed with the second unit to be added as part of Phase 2 of the development project. Each unit is a proprietary trickling filter tower with an integral settling chamber. It contains 636 ft^3 of PVC media with a specific surface area of 70.0 ft^2/ft^3. The media has an open tube structure with a large surface area to volume ratio. The unit loading is designed at 0.028 #$CBOD_5$/cubic-ft./day at a design flow of 16,000 gpd at 120 mg/l influent $CBOD_5$, and 40% recycle at 30 mg/l $CBOD_5$. This is an extremely conservative loading rate compared to the accepted range of 0.05 - 0.2 #$CBOD_5$/cubic-ft./day for plastic media trickling filters. A pump in the bottom of the hoppered settling compartment returns sludge and settled liquid back to the blend tank. In addition to providing sludge removal from the Bioclere™ unit, this return allows for nitrogen reduction through denitrification in the blend tank.

Drip Dispersal System

Drip dispersal will be used to distribute the Bioclere™ effluent into the shallow soil horizon in areas adjacent to the treatment site.

Soils

Soils in the drip dispersal fields were mapped by certified soils scientist Eddie McCrosky. Copies of his report and high-intensity soils map are attached to this report. The soils are located on a pasture area and adjacent heavily wooded slopes beneath the developed ridges. The slopes range from 0%-35%. The mapped soils are classified primarily as Junaluska and Ranger series soils with minor amounts of Shouns, Shelocta, and Cotaco series. All are loam or silty loam soils rated at 30MPI to 60 MPI.

The Junaluska series consists of moderately deep, well drained, moderately permeable soils on ridges and side slopes of the Southern Appalachian Mountains. They formed in residuum that is affected by soil creep in the upper part, and is weathered from low grade metasedimentary rocks, such as phyllite, slate, and low grade, thinly bedded metasandstone.

The Ranger soils consist of brownish silt loam with significant amounts of small to medium (6 inches) rock fragments. The soils are silty loam and are well drained with moderate permeability. Structure is moderate, weak medium granular in the upper horizons and subangular blocky in the lower horizons.

The Shouns series consists of very deep, well drained, moderately permeable soils on uplands. These soils formed in colluvium from sandstone, siltstone, and shale. They are on the lower part of hillsides, benches, and foot slopes. The Shelocta series consists of deep and very deep, well drained, moderately permeable soils formed in mixed colluvium from shale, siltstone, and sandstone or colluvium and residuum. They are on steep concave mountain sides, foot slopes, and benches. The Cotaco series consists of very deep, moderately well or somewhat poorly drained, moderately permeable soils formed in loamy sediments of acid sandstone, siltstone, and shale origin. These soils are on foot slopes, colluvial fans, and low stream terraces.

All of the mapped soils were located at least 36" above rock.

Drip Dispersal

Dispersal Flow:

32,000 gpd x 7days/wk = 224,000 gal/week

Dispersal Area:

@ a dose rate of 2.4 inches per week:

Area = (224,000 gal/wk / 7.48 gal/ft^3) / (2.4"/wk / 12"/ft) = 149,750 ft^2 = 3.5 acre

Available Area = 8.0 acre mapped plus additional area that could be used

Will use approximately 4.0 acres

Dose Rate = 224,000 gal/wk / 149,750 ft^2 = 1.5 gal/ft^2/wk = 0.21 gal/ft^2/day

Lines and Orifices:

Drip dispersal will utilize the Netafim system. Dispersal lines will be installed up to 1 ft deep and on 5 ft centers. Orifices will be located on 2 ft centers with each orifice dosing 10 ft^2 of field.

149,750 ft^2 of dispersal area and 10 ft^2/orifice:

# of orifices = 149,750ft^2 / 10 ft^2/orifice = 14,900 orifices

@orifices on 2 ft centers:

Length of dispersal tubing = 14,900 orifices x 2 ft/orifice= 29,800 ft.

Drip Lines:

Maximum topographic change in the field will be 4 ft - 5 ft on any line. The field will be installed on the contours as much as possible, with lines not to exceed 350 ft in length. The drip dispersal fields will use 0.57" ID dripper tube with 24" orifice spacing operating @ 0.61 gal/hr per orifice. The total length of drip line will be divided among eight fields of relatively equal size. Each field will have approximately 2,483 orifices for a total pumping rate of 25 gpm @ 0.61 gal/hr/orifice:

Drip field dosing head calculations (high head field):

Pump capacity = @0.61 gal/hr/orifice /60 min/hr x 2,483 orifices = 25 gpm

TDH:

Transport line losses:	
Elevation difference @ 20'	9 psi
Friction 500' of 3" @ 0.13ft/100ft @ 25 gpm	1 psi
Arkal	5 psi
Discharge assembly	1 psi
Solenoid	7 psi
350' of drip pipe	35 psi
Safety Factor	10 psi

Total Dosing TDH 68 psi = 157' TDH

Drip Field Flushing

Pump Capacity = 8 lines x 1.6 gpm per line = 13 gpm. Both pumps operating during flushing need to produce 38 gpm to meet the combined orifice flow and the flushing flow requirements.

TDH:

Transport line losses:	
Elevation difference	0 psi
Friction 500' of 3" @ 0.39ft/100ft @ 38 gpm	2 psi
Friction 500' of 2" @ 1.1ft/100 ft @ 25 gpm	6 psi
Arkal	5 psi
Discharge assembly	1 psi
Solenoid (two solenoids, one dose and one return)	14 psi
Inlet pressure at field for flushing	35 psi
Safety Factor	10 psi
Total Flushing TDH	73 psi = 169' TDH

Drip Pumps

Pumps selected are two Orenco Model P301512 pumps each rated at 24 gpm at 169 ft TDH and approximately 26 gpm at the dosing head of 157' TDH. This provides more than the required 1.6 gpm at the distal end of each drip line for flushing. Flushing back to the recirculation tank will occur at each pumping cycle and will be controlled by solenoid valves operated through the Smart Panel. Pump curves for these pumps are enclosed.

Each pump will alternate between the six zones or both pumps can be operated simultaneously to dose two zones at once. A 2,000 gal STEG tank will serve as the wet well and pumps will be operated by the programmable control panel to provide numerous, small doses to the fields.

Arkal Filter

Each drip pump discharges through an Arkal disk filter. The filters are connected through lines valved with electric solenoid valves. These valves are operated by the control panel to automatically backwash each filter using filtrate from the opposite filter. The backwash scheduling and length are programmable by the operator. The filter elements are sel cleaning, plastic discs grooved to provide 100 micron openings.

During backwash, these disks separate and spin under high-pressure spray from internal nozzles.

Control Panel

An Orenco Smart Panel with remote data telemetry will be configured by Orenco and the engineer to control and monitor the pumps and operating system. The trickling filter recirculation pumps will be operated by the control panel based on time cycles selected by the operator. The final effluent drip dose pumps will be operated by programmable timers actuated by water level floats in the dose chamber.

All water levels, float conditions, pump on/off, and alarm conditions will be monitored by the Smart Panel and information stored for remote retrieval using personal computers. The panel will have the capability of notifying telephones or pagers of any alarm conditions.

State Operation Permit

Upon completion and acceptance, the sewage collection, treatment, and disposal system will be taken over by OSSI, a Tennessee public utility. OSSI submitted an application for an SOP and the preliminary engineering report to TDEC on May 18, 2003.

Monthly Focus: Change—
What can you change to lead your life forward?

Colors, like features, follow the changes of the emotions.
— Pablo Picasso

Daily Record of Events

Smoky Cove – @ Entrance @ stream crossing 2.0
[illegible] 35°47.703'N
83°38.337'W
El 1040

Met with Lynn Hedrick & Carl. Repeated info on siting, design etc. Carl is tight with Blalock. Also knows where to get fiberglass for ~$400 more than concrete. I told him he would have to convince Bob. He wants to negotiate price on tanks as he expects to use ~200+. He also wanted to spec out pumps & I told him no.

Black Bear – Keith & Mike starting to cut 1.0
sewer road behind lots 1&2.

It is always difficult to pose as something that one is not.
—Arnold Lobel

Monthly Focus: Values—
Are the things you value most governing your decisions?

29
Tuesday
April 2003

Daily Record of Events

119th Day 246 Left Week 18

Lynn Hedrick – Smoky Cove. ~250 lot 1.5
high end homes, residential & rental.
Phase I is ~ 40 lots was approved as
preliminary by P.F. for "public water"
& RSF but under pre-March rules,
i.e., no rules requiring PF water.
Water is @ Goose Gap / Bluff Mtn
road intersection. Sewer is at
BJ's @ Walden Ck / Goose Gap.

I told him worst case would be
well on each lot but might "win"
with STEP system.

I agreed we probably could work
a deal for his highly qualified
contractor partner (Cecil) to
install sewer. I quoted him ~$3,500
per lot for design & construction
of treatment system. I told him
to plan on $1750/lot for STEG &
$4500/lot for STEP.

Treatment site up toward top of
parcel, ~250' El. difference.
Higher ridges won't be developed
due to access.

Will make decisions following tomorrow's
PF City Council work session on
water.

Black Bear – Norville surveyors laid out 2.5
back lot corners on lots above Bear
Sub. Crew ran 3" down Bear Ck to
old house. (Jack Moore)

Starr Crest II – Dave installed pump in tank 2.5
@ 45/46. Sewer ended at 49/50
service connections. Frog dug ditch to
connect 45/46 to one of those.

Southeast
Environmental Engineering, LLC
1920 Breezy Ridge Trail Concord, TN 37922

PROJECT DATE SHEET OF

36/30

Flocor media

$$140\ m^2/m^3 = \frac{140\ m^2(10.76\ ft^2)}{m^3(35.31\ ft^3)} = 42.7\ ft^2/ft^3$$

$$30\ m^3 = 30\ m^3(35.31\ ft^3) = 1{,}059\ ft^3 = 47{,}232\ ft^2$$

Loading @ 20,000 gpd & 150 mg/l BOD

$$\#BOD = 150(8.34)(.02) = 25.02\ \#BOD$$

$$\frac{25.02\ \#BOD}{1.059} = 24\ \#BOD/1{,}000\ ft^3\ of\ media$$

Note: 30/32 @ 150 mg/l BOD & 14,000 gpd = $\frac{28\#}{1000}$

Southeast Environmental Engineering, LLC
1920 Breezy Ridge Trail Cleveland, TN 37322

PROJECT Black Bear Ridge/Stone Crest II DATE 3/12/03 SHEET 1 OF 2

Crites & George T. and Metcalf & Eddy agree that high rate trickling filters using plastic media can achieve 65-80% BOD removal at organic & hydraulic loading rates much higher than conventional media. Crites has the following in a table on P. 485.

65-80% BOD removal @

50-200 # BOD/1000 ft³ of media with 24-60 ft²/ft³,

15-90 MG/Ac-day, and

0.2-1.2 gpm/ft²

Using BOD_{in} = 120 mg/l, BOD_{out} = 20 mg/l (85% removal) & the middle of the recommended organic & hydraulic loading rates, acceptable flows to the Bioclere can be calculated. Aquapoint rates this unit at a maximum of 14,000 gpd @ 150 mg/l BOD_{in}. The 30/32 has 635.58 ft³ of Floccon media with a specific surface area of 70 ft²/ft³ for a total of 44,491 ft².

30/32 Capacity @ 125 # BOD_{in}/1000 ft³

$$125\ \#/1000\ ft^3 \times \frac{636\ ft^3}{1000} = 79.5\ \#\ BOD_{in}$$

@ BOD_{in} = 120 mg/l

$$Flow \times \frac{120 \times 8.34}{10^6} = 79.5$$

$$Flow = 79,436\ gpd$$

30/32 Capacity @ 52.5 MG/Ac-Day

@ Bioclere diam = 10.2'

$$Flow = 52,500,000\ \frac{gpd}{Acre} \times \frac{(10.2)^2(3.14)}{43,560}$$

$$Flow = 98,433\ gpd$$

Michael Hines

From: Peter Annunziato [pannunz@aquapoint.com]
Sent: Tuesday, January 13, 2004 6:04 PM
To: mikehines@charter.net
Subject: Re: Smoky Cove

Mike,

We will use flocor media with a specific surface area of 140 m2/m3 in place of the 230 m2/m3.
At specific surface areas of greater than 140, treatment efficiency MAY decrease due to several factors. We generally use the 230 m2/m3 media for nitrification purposes or combined CBOD/nitrification filters.

There is 30 cubic meters of media in the Bioclere model 36/30.

Peter

==========

From: "Michael Hines" <mikehines@charter.net>
To: Internet Mail::["'Peter Annunziato'" <pannunz@aquapoint.com>]

Subject: Smoky Cove
Date: 1/13/04 5:06 PM

Peter, my AutoCAD service is e-mailing me the files so I can send you the site plan. In the meantime, can you send me info on how much media is in the 36-30. I assume it is the same Flocor media with 70sq.ft. of surface area per cubic foot of media.

Mike

Black Bear - No flow into Blend #1, D.6 level below #3 overflow.

~~Smoky~~ Cove - Strapped lift station, valves together. Installed ... sch valves, Connected in flow... line. Installed temp drain field of 60' & 40' 10" gravelless pipe.

Carl & Scott told me they hope to be approved to start on electric next week.

Tank @ #7 ~1/3 full. Tank @ #4 full. Tank @ #9 1/2 full. Tanks @ #4 & #9 sit and forced discharging to a common 4" drain that runs ~500' to Y just above sve connection @ #5 ... runs through crawl space of #4. Both inlet T's missing & both outlet T's OK. Risers are exposed the all risers on.

I explained to Scott & Carl how T's & all filters must be installed.

Stone II - Randy said laundry guy said D.4 100 gal machine & septic tank would not handle load. Randy said average load ~ 4-5 loads/day/machine @ 4 day WT = 6,000 gallons. I told him I would talk with John & equipment ...

Hidden Springs - #77R sewer moved to below D.8 tank & straight across slope to connect with sewer from R. 2" from @ tank is line from R above these lots. Need to cut 77R discharge & cap it.

Smoky Cove

SEVIER COUNTY EMERGENCY COMMUNICATIONS DISTRICT
911

Your New Address Will Be:
Pump station 1819 Smoky Cove Rd

Name: Sewage System 1935 Bluff Mountain Rd.

VINCE LOVEDAY
911 Coordinator

Address: _____

City: Sevierville Zip: _____

Please notify our office of your new phone number so we may add it to your 911 record.

In an attempt to provide the most efficient emergency service to the residents in Sevier County, we are providing the following suggestions of what you can do to help us locate you if you ever have an emergency requiring an ambulance, the fire department or law enforcement at your location:

1. Always call 911 if you have an emergency. With the enhanced 911 service your call to 911 will automatically provide the dispatcher answering your call with your phone number, address/house number, and the name of the person the phone is registered to.

2. The Post Office requires that you post your house number of on both sides of your mailbox or on the front if the box is in a cluster of boxes.

3. If your mailbox is not at the entrance to your driveway, it is in your best interest to identify your home with a sign at your driveway with your house number posted in three-inch reflective numbers. You can purchase these numbers at most hardware stores. We suggest you post the house number so an approaching emergency vehicle can easily see the number.

4. When more than one home uses a driveway, each home should have the house number prominently displayed so that an approaching emergency vehicle can immediately find the number they are responding to.

A house number can save the emergency response team valuable time in finding you when you call 911. Display your house number prominently so that an approaching emergency vehicle can quickly and clearly see it. It could mean the difference between life and death for you or one of your family members.

Phone: (865) 428-5542
Phone: (865) 428-0310

245 Bruce Street
P.O. Box 4572
Sevierville, TN 37864

FAX (865) 429-4911
E-mail: sevco911@planetc.com