IN THE TENNESSEE PUBLIC UTILITY COMMISSION
AT NASHVILLE, TENNESSEE

IN RE:	)	
	)	
PETITION OF TENNESSEE	)	
WASTEWATER SYSTEMS, INC., TO	)	**DOCKET NO.** 18-00107
AMEND ITS CERTIFICATE OF	)	
CONVENIENCE AND NECESSITY	)	

PETITION TO AMEND CERTIFICATE OF CONVENIENCE AND NECESSITY

Tennessee Wastewater Systems, Inc. ("TWSI" or "Company") petitions the Tennessee Public Utility Commission ("TPUC") to amend its Certificate of Convenience and Necessity to expand its service area to include a residential subdivision in Montgomery County known as Warrioto Hills. As demonstrated in the application and attached exhibits, there is a public need for service and TWSI has the requisite management experience, financial capability, and technical expertise to provide such service pursuant to the rules and regulations of the Commission. In support of its Petition, TWSI states as follows:

1. TWSI is a leader in decentralized wastewater systems and technology in the Southeastern United States. TWSI has been a regulated provider of wastewater services in Tennessee since receiving its initial CCN from this Commission in 1994; currently holding over 100 certificates for territories in Middle and East Tennessee and

providing service to over 3000 customers across the State. TWSI is a corporation in good standing with the State of Tennessee (See Exhibit A).

2. The proposed service area for this amendment encompasses a residential subdivision located in Clarksville, Montgomery County, Tennessee, known as Warrioto Hills and is identified on Montgomery County tax maps at Map 90, Parcel 54.00. A map of the location for the development is attached as Exhibit B.

3. The proposed wastewater treatment facility will be known as Warrioto Hills Treatment Facility and will be a septic tank effluent pump ("STEP") system consisting of watertight effluent collection, recirculating media filter treatment, and subsurface drip dispersal. The system will be constructed to serve approximately 57 single family residences. This type of system is in the majority of those owned and operated by TWSI. A State Operating Permit from the Tennessee Department of Environment and Conservation has been applied for and is pending approval (see attached Exhibit C). The land for the treatment facility will be deeded to TWSI at the time the final plat is signed prior to recording.

4. TWSI has the management and technical experience to operate the proposed system as evidenced in part by the over 100 certificates it has been issued by this Commission to operate wastewater systems across Middle and East Tennessee. The Company will handle system operations, inspection, maintenance, and repair services

through its Certified Operators. The system will be monitored continuously through remote telemetry and the HAWKMS system. HAWKMS gives operators the ability to remotely monitor and control their plants by means of status and override values. The technology is also able to generate performance reports that can be delivered to utility management to highlight key performance indicators. HAWKMS is the most advanced system of its type in the country and can sense and adapt to certain aspects of plant operation to optimize energy consumption and plant conditions. There are currently over 300 wastewater facilities utilizing this technology.

5. TWSI has the financial capabilities to provide wastewater service to the proposed development. TWSI currently has filed with the Commission a bond in the amount of $300,000 which the Commission has determined to be sufficient and in the public interest. The system is being constructed by the developer of the property and will be conveyed to the utility upon it passing both utility and state inspections. Please see Exhibit D for TWSI's 2016 UD-20 as filed with the Commission, Exhibit E which is the estimated construction budget for the system, and Exhibit F which is the 5-year build out projection for the subdivision.

6. TWSI has received letters from the Cunningham Utility District and Montgomery County Mayor stating neither sanitary sewer nor wastewater service is presently available, nor will it be provided to this subdivision (see attached Exhibit G and H) as well as a letter from the developer requesting TWSI provide sewer service to

the Warrioto Hills development (see attached Exhibit I). The Developer has also signed a Letter of Understanding with TWSI for the utility to provide service to the subdivision (see Exhibit J).

7. Residential Customers at Warrioto Hills will be charged according to Rate Class 1 of TWSI's tariff. That rate is currently set at $48.25 as of the date of this filing (see attached Exhibit K).

THEREFORE, having shown that TWSI has the requisite managerial experience, technical experience, and financial capabilities – as well as establishing that a need exists for the Company to provide service to the Warrioto Hills subdivision, TWSI respectfully requests the Commission to approve TWSI's request to amend its CCN to include Warrioto Hills.

RESPECTFULLY SUBMITTED,

Jeff Risden (BPR No. 32769)
General Counsel
Tennessee Wastewater Systems, Inc.
851 Aviation Parkway
Smyrna, TN 37167
(615) 220-7171
jeff.risden@adenus.com

Ex. A

Tre Hargett
Secretary of State

Division of Business Services
Department of State
State of Tennessee
312 Rosa L. Parks AVE, 6th FL
Nashville, TN 37243-1102

JEFF RISDEN
JEFF RISDEN
849 AVIATION PARKWAY
SMYRNA, TN 37167

September 28, 2018

Request Type: Certificate of Existence/Authorization
Request #: 0291081

Issuance Date: 09/28/2018
Copies Requested: 1

Document Receipt

Receipt # : 004309886 — Filing Fee: $20.00

Payment-Credit Card - State Payment Center - CC #: 3740674901 — $20.00

Regarding: **TENNESSEE WASTEWATER SYSTEMS, INC.**

Filing Type: For-profit Corporation - Domestic
Formation/Qualification Date: 03/16/1993
Status: Active
Duration Term: Perpetual
Business County: RUTHERFORD COUNTY

Control # : 263854
Date Formed: 03/16/1993
Formation Locale: TENNESSEE
Inactive Date:

CERTIFICATE OF EXISTENCE

I, Tre Hargett, Secretary of State of the State of Tennessee, do hereby certify that effective as of the issuance date noted above

TENNESSEE WASTEWATER SYSTEMS, INC.

* is a Corporation duly incorporated under the law of this State with a date of incorporation and duration as given above;

* has paid all fees, interest, taxes and penalties owed to this State (as reflected in the records of the Secretary of State and the Department of Revenue) which affect the existence/authorization of the business;

* has filed the most recent annual report required with this office;

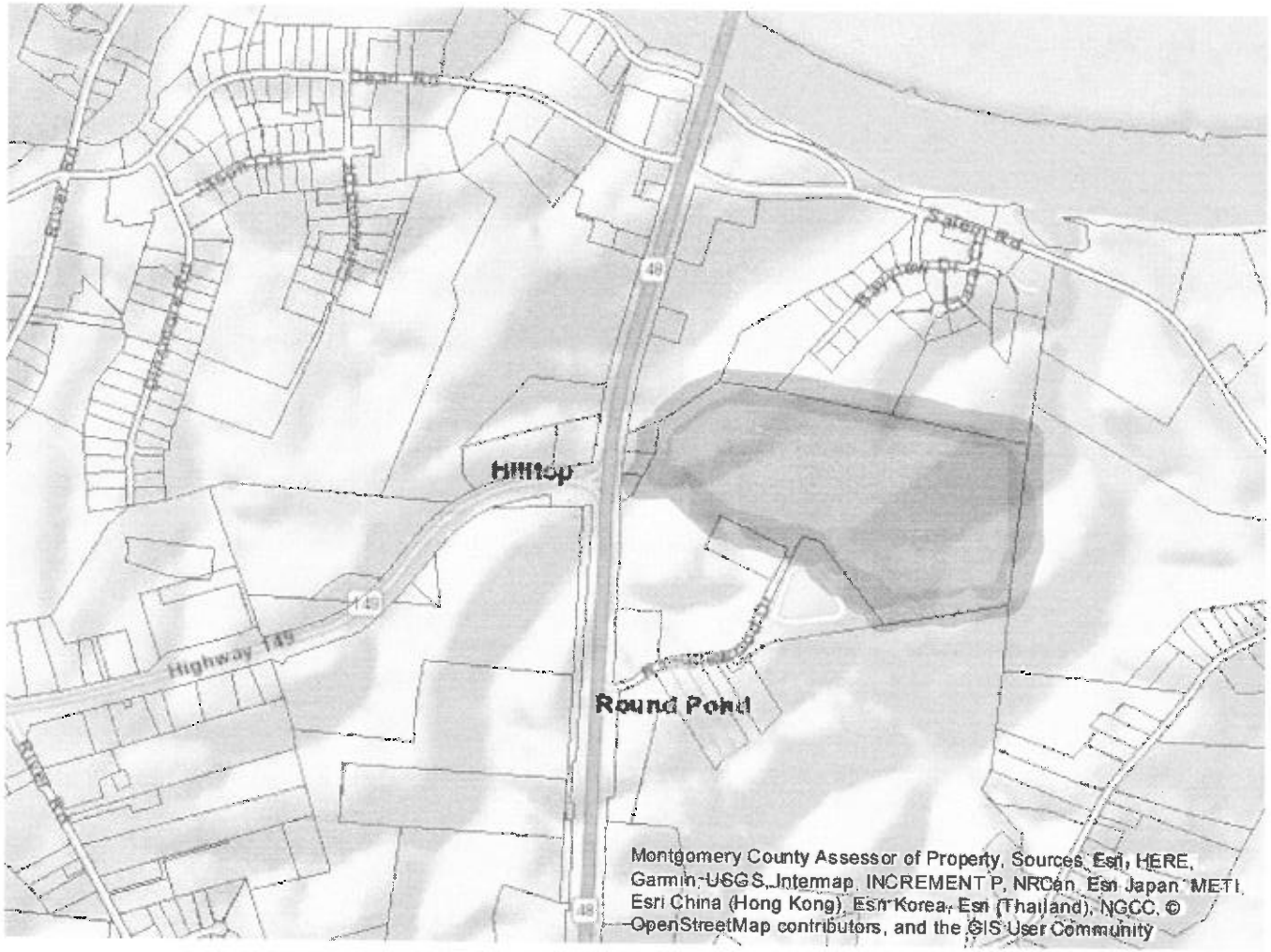
* has appointed a registered agent and registered office in this State;

* has not filed Articles of Dissolution or Articles of Termination. A decree of judicial dissolution has not been filed.

Tre Hargett
Secretary of State

Processed By: Cert Web User

Verification #: 029786231


Hilltop
Highway 149
Round Pond
Montgomery County Assessor of Property, Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

Ex. 28

Ex. C

Tennessee Department of Environment and Conservation
Division of Water Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 11th Floor
Nashville, Tennessee 37243
(615) 532-0625

APPLICATION FOR A STATE OPERATION PERMIT (SOP)

Type of application: ☒ New Permit ☐ Permit Reissuance ☐ Permit Modification

Permittee Identification: (Name of city, town, industry, corporation, individual, etc., applying, according to the provisions of Tennessee Code Annotated Section 69-3-108 and Regulations of the Tennessee Water Quality Control Board.)	
Permittee Name (applicant):	**Tennessee Wastewater Systems, Inc.**
Permittee Address:	**849 Aviation Parkway Smyrna, TN 37167**

Official Contact: **Charles Hyatt**	Title or Position: **President**		
Mailing Address: **849 Aviation Parkway**	City: Smyrna	State: **TN**	Zip: **37167**
Phone number(s): **615-220-7200**	E-mail:		

Optional Contact: **Brian Carter**	Title or Position: **Operator**		
Address: **849 Aviation Parkway**	City: **Smyrna**	State: **TN**	Zip: **37167**
Phone number(s): **615-220-7200**	E-mail:		

Application Certification (must be signed in accordance with the requirements of Rule 1200-4-5-.05)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and title; print or type	Signature	Date
Charles Hyatt, President	C R. M	9-21-18

Permit Number: SOP-_____

Facility Identification:		**Existing Permit No.**	**N/A**
Facility Name:	**Warrioto Hills Treatment Facility**	County:	**Montgomery**
Facility Address or Location:	**Located off Ramblewood Drive Montgomery Co. TN 37040**	Latitude:	**36.4694444**
		Longitude:	**-87.371388**

Name and distance to nearest receiving waters: **Unnamed tributary to Cumberland River– 1,800'**

If any other State or Federal Water/Wastewater Permits have been obtained for this site, list their permit numbers:
N/A

Name of company or governmental entity that will operate the permitted system: **Tennessee Wastewater Systems, Inc.**

Operator address: **849 Aviation Parkway, Smyrna, TN 37167**

Has the owner/operator filed for a Certificate of Convenience & Necessity (CCN), or an amended CCN, with the Tennessee Regulatory Authority (TRA) (may be required for collection systems and land application treatment systems)? ☐ Yes ☒ No ☐ N/A

If the applicant listed above does not yet own the facility/site or if the applicant will not be the operator, explain how and when the ownership will be transferred or describe the contractual arrangement and renewal terms of the contract for operations.
Owner of property for the proposed treatment and drip irrigation site has committed to transfer the land to Tennessee Wastewater Systems Inc. in the event a State Operating Permit is issued for the proposed facility. The land will be transferred by warranty deed, or recorded plat.

Complete the following information explaining the entity type, number of design units, and daily design wastewater flow:

Entity Type	Number of Design Units		Flow (gpd)
☐ City, town or county	No. of connections:		
☒ Subdivision	No. of homes:	Avg. No. bedrooms per home: 3	43,000
☐ School	No. of students:	Size of cafeteria(s): No. of showers: **0**	
☐ Apartment	No. of units:	No. units with Washer/Dryer hookups: No. units without W/D hookups:	
☐ Commercial Business	No. of employees:	Type of business:	
☐ Industry	No. of employees:	Product(s) manufactured:	
☐ Resort	No. of units:		
☐ Camp	No. of hookups:		
☐ RV Park	No. of hookups:	No. of dump stations:	
☐ Car Wash	No. of bays:		
☐ Other			

Describe the type and frequency of activities that result in wastewater generation.
Residential Subdivision

Permit Number: SOP-_____

Engineering Report (required for collection systems and/or land application treatment systems):	☐ N/A
☐ Prepared in accordance with Rule 1200-4-2-.03 and Section 1.2 of the Tennessee Design Criteria (see website for more information) ☒ Attached, or ☐ Previously submitted and entitled: Approved? ☐ Yes. Date: ☐ No	

Wastewater Collection System:	☐ N/A
System type (i.e., gravity, low pressure, vacuum, combination, etc.): STEP/STEG small diameter sewer system	
System Description: STEP/STEG small diameter sewer system	
Describe methods to prevent and respond to any bypass of treatment or discharges (i.e., power failures, equipment failures, heavy rains, etc.): **Tanks and sewers are watertight. There are no bypass points in the system. TWSI also has emergency generators to run the pumps.**	
In the event of a system failure describe means of operator notification: **Cellular telemetry notification**	
List the **emergency** contact(s) (name/phone): **Brian Carter – 615-220-7200**	
For low-pressure systems, who is responsible for maintenance of STEP/STEG tanks and pumps or grinder pumps (list all contact information)? **There are no grinder pumps. All notifications come to TWSI at 615-220-7200**	
Approximate length of sewer (excluding private service lateral): **As Needed**	
Number/hp of lift stations: 0 /0 Number/hp of lift pumps 0/0	
Number/volume of low pressure and or grinder pump tanks 0/0 Number/volume septic tanks 57 / 1,500	
Attach a schematic of the collection system. ☐ Attached **Previously submitted and approved**	
If this is a satellite sewer and you are tying in to another sewer system complete the following section, listing tie-in points to the sewer system and their location (attach additional sheets as necessary):	

Tie-in Point	Latitude (xx.xxxx°)	Longitude (xx.xxxx°)
N/A		

Permit Number: SOP-_____

Land Application Treatment System:	☐ N/A
Type of Land Application Treatment System: ☒ Drip ☐ Spray ☐ Other, explain:	
Type of treatment facility preceding land application (recirculating media filters, lagoons, other, etc.): Recirculating Media Filter	
Attach a treatment schematic. ☒ Attached	
Describe methods to prevent and respond to any bypass of treatment or discharges (i.e., power failures, equipment failures, heavy rains, etc.): Same as above	
For New or Modified Projects: Name of Developer for the project: Existing permit	
Developer address and phone number: Existing permit	
For land application, list: Proposed acreage involved: 4.97 +/- acres Inches/week gpd/sq.ft loading rate to be applied: 2 inchs/week	
Is wastewater disinfection proposed?	
☐ Yes Describe land application area access:	
☒ No Describe how access to the land application area will be restricted: Fence	

Attach required additional Engineering Report Information (see website for more information)

☒ Topographic map (1:24,000 scale presented at a six inch by six inch minimum size) showing the location of the project including quadrangle(s) name(s) GPS coordinates, and latitude and longitude in decimal degrees should also be included.

☒ Scaled layout of facility showing the following: lots, buildings, etc. being served, the wastewater collection system routes, the pretreatment system location, the proposed land application area(s), roads, property boundaries, and sensitive areas such as streams, lakes, springs, wells, wellhead protection areas, sinkholes and wetlands.

☒ Soils information for the proposed land disposal area in the form of a Water Pollution Control (WPC) Soils Map per Chapter 16 and 17 State of Tennessee Design Criteria for Sewage Work. The soils information should include soil depth (borings to a minimum of 4 feet or refusal) and soil profile description for each soil mapped.

☒ Topographic map of the area where the wastewater is to be land applied with no greater than ten foot contours presented at a minimum size of 24 inches by 24 inches.

☐ Describe alternative application methods based on the following priority rating: (1) connection to a municipal/public sewer system, (2) connection to a conventional subsurface disposal system as regulated by the Division of Groundwater Protection, and/or (3) land application.

For Drip Dispersal Systems Only: Unless otherwise determined by the Department, sewage treatment effluent wells, i.e, large capacity treatment/drip dispersal systems after approval of the SOP Application, will be issued an UIC tracking number and will be authorized as Permit by Rule per UIC Rule 1200-4-6-.14(2) and upon issue of a State Operating Permit and Sewage System Construction Approval by the Department. Describe the following:	☐ N/A
The area of review (AOR) for each Drip Dispersal System shall, unless otherwise specified by the Department, consist of the area lying within a one mile radius or an area defined by using calculations under 1200-4-6-.09 of the Drip Dispersal System site or facility, and shall include, but not be limited to general surface geographic features, general subsurface geology, and general demographic and cultural features within the area. Attach to this part of the application a general characterization of the AOR, including the following: (This can be in narrative form)	
☒ A general description of all past and present groundwater uses as well as the general groundwater flow direction and general water quality.	
☒ A general description of the population and cultural development within the AOR (i.e. agricultural, commercial, residential or mixed)	
☒ Nature of injected fluid to include physical, chemical, biological or radiological characteristics.	
☒ If groundwater is used for drinking water within the area of review, then identify and locate on a topographic map all groundwater withdrawal points within the AOR, which supply public or private drinking water systems. Or supply map showing general location of publicly supplied water for the area (this can be obtained from the water provider)	
☐ If the proposed system is located within a wellhead protection area or source water protection area designated by Rule 1200-5-1-.34, show the boundary of the protection area on the facility site plan.	
☒ Description of system, Volume of injected fluid in gallons per day based upon design flow, including any monitoring wells	
☒ Nature and type of system, including installed dimensions of wells and construction materials	

Pump and Haul:	☒ N/A
Reason system cannot be served by public sewer:	
Distance to the nearest manhole where public sewer service is available:	
When sewer service will be available:	
Volume of holding tank: gal.	
Tennessee licensed septage hauler (attach copy of agreement):	
Facility accepting the septage (attach copy of acceptance letter):	
Latitude and Longitude (in decimal degrees) of approved manhole for discharge of septage:	
Describe methods to prevent and respond to any bypass of treatment or discharges (i.e., power failures, equipment failures, heavy rains, etc.):	

Permit Number: SOP-_____

Holding Ponds (for non-domestic wastewater only):	☒ N/A
Pond use: ☐ Recirculation ☐ Sedimentation ☐ Cooling ☐ Other (describe):	
Describe pond use and operation:	
If the pond(s) are existing pond(s), what was the previous use?	
Have you prepared a plan to dispose of rainfall in excess of evaporation? ☐ Yes ☐ No	
If so, describe disposal plan:	
Is the pond ever dewatered? ☐ Yes ☐ No	
If so, describe the purpose for dewatering and procedures for disposal of wastewater and/or sludge:	
Is(are) the pond(s) aerated? ☐ Yes ☐ No	
Volume of pond(s): gal. Dimensions:	
Is the pond lined (Note if this is a new pond system it must be lined for SOP coverage. Otherwise, you must apply for an Underground Injection Control permit.)? ☐ Yes ☐ No	
Describe the liner material (if soil liner is used give the compaction specifications):	
Is there an emergency overflow structure? ☐ Yes ☐ No	
If so, provide a design drawing of structure.	
Are monitoring wells or lysimeters installed near or around the pond(s)? ☐ Yes ☐ No	
If so, provide location information and describe monitoring protocols (attach additional sheets as necessary):	

Permit Number: SOP-_____

Mobile Wash Operations: ☒ N/A

☐ Individual Operator ☐ Fleet Operation Operator

Indicate the type of equipment, vehicle, or structure to be washed during normal operations (check all that apply):

☐ Cars
☐ Trucks
☐ Trailers (Interior washing of dump-trailers, or tanks, is prohibited.)
☐ Other (describe):
☐ Parking Lot(s): sq. ft.
☐ Windows: sq. ft.
☐ Structures (describe):

Wash operations take place at (check all that apply):

☐ Car sales lot(s)
☐ Private industry lot(s)
☐ County(ies), list:
☐ Public parking lot(s)
☐ Private property(ies)
☐ Statewide

Wash equipment description:

☐ Truck mounted
☐ Rinse tank size(s) (gal.):
☐ Collection tank size(s) (gal.):
☐ Trailer mounted
☐ Mixed tanks size(s) (gal.):
Number of tanks per vehicle:

Pressure washer: psi (rated) gpm (rated)
☐ gas powered ☐ electric

Vacuum system manufacturer/model: Vacuum system capacity: inches Hg

Describe any other method or system used to contain and collect wastewater:

List the public sewer system where you are permitted or have written permission to discharge waste wash water (include a copy of the permit or permission letter):

Are chemicals pre-mixed, prior to arriving at wash location? ☐ Yes ☐ No

Describe all soaps, detergents, or other chemicals used in the wash operation (attach additional sheets as necessary):

Chemical name:	Manufacturer:	Primary CAS No. or Product No.

APPLICATION FOR A STATE OPERATION PERMIT (SOP)
INSTRUCTIONS

Purpose of this form A completed SOP application must be submitted to obtain SOP coverage. This permit is required to operate a sewage, industrial waste or other waste collection and/or treatment system that does not have a point source discharge to any surface or subsurface waters. This form must be submitted at least 180 days before starting any new activity, before an existing permit expires, or when renewing a permit.

Complete the form Type or print clearly, using black or blue ink; not markers or pencil. Answer each item or enter "N/A," for not applicable. If you need additional space, attach a separate piece of paper to the SOP application. Applicants may be required to submit engineering reports, plans and specifications. Contact the division for the applicable items, or visit the Division of Water Pollution Control world wide web site at: http://www.tn.gov/environment/wpc for more information. **The application will be considered incomplete without supplying all of the required information, Engineering Reports, and an original signature.**

Permittee Identification/Facility Identification Describe and locate the project, use the legal or official name of the facility or site. Provide the latitude and longitude (expressed in decimal degrees) of the center of the site, which can be located on USGS quadrangle maps. The quadrangle maps can be obtained at 1-800-USA-MAPS, or at the Census Bureau world wide web site: http://www.census.gov/cgi-bin/gazetteer. Attach a copy of a portion of a 7.5 minute quad map, showing location of site, with boundaries at least one mile outside the site boundaries. If business is mobile give the owner of operations' home, or business office address, and list all current areas of operation by city and county.

Wastewater Collection System These types of systems require engineering reports, refer to the website (http://www.tn.gov/environment/wpc/) for more information.

Land Application Treatment System These types of systems require engineering reports, refer to the website (http://www.tn.gov/environment/wpc/) for more information. Public access to the treatment area must be restricted, if disinfection is not part of the treatment. Applicants completing this section of the application must also complete the Wastewater Collection System section.

Pump and Haul These types of systems may require engineering reports, refer to the website (http://www.tn.gov/environment/wpc/) for more information.

Holding Ponds Given that annual rainfall onto open ponds exceeds annual evaporation (in Tennessee), the permittee must develop a written plan (to be retained on site and be available to the division upon request) that addresses how excess rainfall will be disposed of in compliance with the no discharge requirement of this permit. Treatment ponds are not to be used for stormwater treatment or storage. All new and existing point source industrial stormwater discharges associated with industrial activity require coverage under the Tennessee industrial stormwater multi-sector general permit TMSP, refer to the website (http://www.tn.gov/environment/permits/strmh2o.shtml) for more information. Describe the system for re-routing surface runoff away from ponds in the rainfall disposal plan.

Mobile Wash Operations Indicate whether the operation is run by an individual or a corporation with a fleet of vehicles equipped to wash and collect waste waters. If a corporation, indicate the home office as the "Official Contact". Indicate if operations take place at specific sites and list those counties that apply. Note that this permit covers operations for all of Tennessee. Operations indicated as "statewide" generally apply as a fleet type operation and each office location shall be individually permitted. Equipment may be truck or trailer-mounted, or both, indicate all that applies. Soaps, detergents, and other chemicals used should be non-toxic and biodegradable. All "chemically enhanced" (soaps, detergents, and other chemicals) waste-wash waters must be collected for proper disposal. If no chemically enhanced washwaters are used, clear-wash waters may travel by sheet flow to a gravel or grassy area where there is no opportunity to enter waters of the

state. There should be no discharge to a storm water inlet, ditch, conveyance, stream, etc. If you are unsure of your wash area drainage, contact the area Environmental Field Office (EFO) prior to setting up your wash operation.

Fees There is no application fee for this permit. An annual maintenance fee is required and you will be invoiced at a later date.

Submitting the form and obtaining more information Note that this form must be signed by the chief executive officer, owner, or highest ranking elected official. For more information, contact your local EFO at the toll-free number 1-888-891-8332 (TDEC). Submit three complete applications (keep a copy for your records) to the appropriate EFO for the county(ies) where the facility is located, addressed to **Attention: WPC, Permit Section Manager**.

EFO	Street Address	Zip Code	EFO	Street Address	Zip Code
Memphis	2510 Mt. Moriah Road STE E-645	38115-1520	Cookeville	1221 South Willow Ave.	38506
Jackson	1625 Hollywood Dr	38305-4316	Chattanooga	540 McCallie Avenue STE 550	37402-2013
Nashville	711 R S Gass Boulevard	37243	Knoxville	3711 Middlebrook Pike	37921
Columbia	2484 Park Plus Drive	38401	Johnson City	2305 Silverdale Road	37601

Upon receipt of the required items, the division conducts a review of the material, and the applicant is notified of any deficiencies. When all the deficiencies have been corrected, the division makes a determination of whether to publish a draft permit. When a draft permit is generated, a public notice is issued and published in a local newspaper. The draft permit is then reviewed by the applicant, and division field staff. The general public also has an opportunity to review the permit. Based on public response, a public hearing may be held. After considering public comments and a final review, the permit may be issued. The entire process normally takes from five (5) to nine (9) months. Permits are normally valid for five (5) years, except those for pump and haul systems, which are generally valid for one (1) year.

The division has the right to inspect a facility when deemed necessary. In addition, the division has the right to revoke or suspend any permit for violation of permit conditions or any other provisions of the Tennessee Water Quality Control Act and other water pollution control rules.

The division is responsible for regulating any activity, which involves a potential discharge in order to protect waters of the State from pollution and to maintain the highest possible standards in water quality.

PRELIMINARY ENGINEERING REPORT

FOR

TENNESSEE Wastewater
[An Adenus Utility]

WARRIOTO HILLS

TREATMENT FACILITY
&
DRIP DISPOSAL

MONTGOMERY COUNTY, TN

SOP – APPLICATION

September 25, 2018

MARSHALL D FALL
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 118465
STATE OF TENNESSEE

Adenus

849 Aviation Parkway
Smyrna, TN 37167

WARRIOTO HILLS
TREATMENT FACILTY & DRIP DISPOSAL
MONTGOMERY COUNTY, TN

Overview

The proposed Warrioto Hills Treatment Facility will be sited off HWY-48, south of HWY-12, in Montgomery County, Tennessee. The proposed Warrioto Hills Treatment Facility will consist of a PVC effluent collection system, one 5,000-gallon recirculation chamber, one recirculating media filter (RMF), one 1,500-gallon final dose tank, and approx. 216,803± SF of drip disposal irrigation. This facility will be designed to serve the sewage needs of the proposed Warrioto Hills Subdivision, consisting of approximately 57 proposed residential Equivalent Dwelling Units (EDU's). Each EDU will have a STEP tank to convey the effluent to the inlet of the RMF via watertight PVC collection system. Flow for the proposed development is figured thus:

Equivalent Dwelling Units or Single-Family Homes (EDU's)
57 EDU's @ 300 GPD / EDU: 17,100 GPD
Total 17,100 GPD

This RMF will be designed @ 5GPD/SF with a 4:1 recirculation rate.
17,100 GPD / 5 GPD/SF = 3,420 SF media area (min)

The nearest standard sizing for this media area requirement is:
65 LF x 55 LF = 3,575 SF media area
3,575 SF x 5 GPD/SF = 17,875 GPD capacity

A 5,000-gallon pre-cast tank will be used as a recirculation chamber. The recirculation chamber will house 2 effluent pumps that will pump effluent to the top of the RMF after it has traveled through the bottom of the RMF. The effluent will be distributed over the entire surface area of the RMF using solenoid valves and a PVC piping system. During normal operation, the final discharge pumps will dispose of 20% of each recirculation cycle. When treated water is dosed to drip fields, it will be filtered through an Adenus dual arkal filtration system before dispersal. The filtration system will contain two (2) disc filters that will filter out particles larger than 100 micron. Dripper lines will periodically be flushed, and flush water will be returned to the recirculation tank.

Collection Lines

The proposed sewer collection system will consist of SDR21 schedule 40 watertight PVC ranging from 2"Ø in size to 4"Ø in size.

STEP Systems:

Each EDU will require one 1,500-gal STEP tank that will pump to the RMF via collection system. The following pumping system will be used, or equal as approved by the Service Provider (Adenus Operations).

- PUMP – model S10P4JP05121, 115V, 7-stage pump, as manufactured by Sta-Rite
- MOTOR – model P42B0005A1 as manufactured by Sta-Rite
- 1500 GALLON STEP TANK - 1500 gallon, structurally sound, watertight tank as manufactured by Jarrett Concrete Products
- SF1-ETM Control Panel - as manufactured by Adenus Technologies

Drip Irrigation Disposal Soils

The drip system will be constructed using Netafim Bioline 0.570 ID (1/2") pipe, with 2-foot orifice spacing of emitters, will be plowed-in-place on approximately 5-foot pipe centers. Actual installation will be dictated by existing grade, and at the direction of the design engineer. Actual installed LF of piping should be expected to range from a minimum of 35,000± LF of pipe, to a maximum of 42,000± LF of pipe.

Normal dosing pressure will be minimum of 25 PSI (58 ft of head) and a maximum of 60 PSI (138 ft of head). If possible, design will stay in this range without pressure reducers and multiple pumps.

The drip system will be supplied with filtered effluent via an Adenus dual arkal filtration system. Drip irrigation fields will have automatic flushing capabilities, controlled by the PLC panel. The drip piping will automatically flush a minimum of once per month, or more often as directed by the operator. During periods of low, or no flows (when the water level in the recirculation side of the RMF falls below 8" in depth), the PLC panel will turn "off" the final dose pumps and go into 100% recirculation mode, until the water level in the recirculation side of the RMF returns (rises) to 8" in depth.

Installation Specifications:

Installation of all components of the wastewater collection system will conform to the specifications of Adenus Operations.

Installation contractors should contact David Foster at:

david.foster@adenus.com, or at (615) 220-7200 ext. 135 - for a PDF copy of the specifications.

Ex. D

TENNESSEE PUBLIC UTILITY COMMISSION
STATEMENT OF GROSS EARNINGS AND COMPUTATION OF INSPECTION FEE
DUE DATE: April 1, 2018

COMPANY ID #: #N/A
COMPANY NAME:

State the gross receipts from all sources of the utility for the calendar year 2017 per T.C.A. § 65-4-303:

Energy & Water Gross Receipts IN TENNESSEE:

Gas Revenues	
Electric Revenues	
Water Revenues	
Wastewater Revenues	$ 1,953,067
Miscellaneous	
TOTAL TENNESSEE INTRASTATE GROSS RECEIPTS	$ 1,953,067

COMPUTATION OF FEE

1. Tennessee Intrastate Gross Receipts	$ 1,953,067.(
2. Less Exemption	$ (5,0(
3. Net Tennessee Gross Receipts (Line 1 minus Line 2)	$ 1,948,0(
4. Computed Fee (Line 3 x 0.425%)	$ 8,279.2
5. TOTAL INSPECTION FEE (THE GREATER OF LINE 4 *OR* $100)	$ 8,279.2

NOTE: **A PENALTY OF 10% PER MONTH OR FRACTION THEREOF, PURSUANT TO T.C.A. § 65-4-308, WILL BE ASSESSED FOR LATE PAYMENT IF NOT PAID ON OR BEFORE APRIL 1st.**

I attest that I have the authority to submit this form on behalf of the regulated entity and that the figures above accurately sta the gross receipts from all sources of the utility in Tennessee for the Calendar Year 2017.

NAME: Charles Hyatt (Please Print)

SIGNATURE: [signature]

TITLE: President

TELEPHONE: 615-220-7200

DATE: 2-15-18

EMAIL:

2017

Area For Internal Use Only

Please Remit Form To:
Tennessee Public Utility Commission
4th Floor, Andrew Jackson Building
Nashville, TN 37243-0001

Post Marked ___/___/___

Ex. E

Warrioto Hills Subdivision
Montgomery County
25-Sep-18

Design, Engineering & Construction Budget

Task	Units	Cost		Sub-Total Budget	
Design & Engineering					
State Operating Permit	1	$ 2,500.00		$ 2,500.00	
Engineering Coordination	1	$ 3,000.00		$ 3,000.00	
		SUBTOTAL			***$ 5,500.00***
Construction of Treatment, Filter & Drip					
Infrastructure Access	1	$ 3,500.00		$ 3,500.00	
Filter System	1	$ 18,500.00		$ 18,500.00	
Monitoring System	1	$ 18,900.00		$ 18,900.00	
Double Dual Arkal	1	$ 19,250.00		$ 19,250.00	
Tanks	1	$ 9,500.00		$ 9,500.00	
Pumps & Equipment	1	$ 63,750.00		$ 63,750.00	
Drip Field	1	$ 28,225.00		$ 28,225.00	
Fence - high tensile	1900	$ 4.50	foot	$ 8,550.00	
		SUBTOTAL			***$ 170,175.00***
Construction Inspections					
Line Inspections	10	$ 600.00	each	$ 6,000.00	
Tank Inspections - Preliminary	57	$ 225.00	each	$ 12,825.00	
Tank Inspections - Final	57	$ 225.00	each	$ 12,825.00	
		SUBTOTAL			***$ 31,650.00***
Regulatory TDEC and TPUC					
Filing Fees	1	$ 1,000.00		$ 1,000.00	
Legal Fees	1	$ 4,500.00		$ 4,500.00	
Coordination & Revisions	1	$ 3,000.00		$ 3,000.00	
		SUBTOTAL			***$ 8,500.00***
					$ 215,825.00
Overhead - 12%	$ 215,825.00	12%		$ 25,899.00	
Profit - 6%	$ 241,724.00	6%		$ 14,503.44	
					$ 40,402.44
			TOTAL		***$ 256,227.44***

Ex. F

Warrioto Hills Subdivision

25-Sep-18

Projected Income Statement

Line No.	Item	Year 1	Year 2	Year 3	Year 4	Year 5
	Number of Sewer Customers	15	30	45	50	57
	Access Fees					
	Number of lots with sewer access but no customer	42	27	12	7	0
	Access fee revenue ($120 x lots)	$ 5,040.00	$ 3,240.00	$ 1,440.00	$ 840.00	$ -
	Operating Revenue					
1	Service Revenue	$ 8,307.00	$ 16,614.00	$ 24,921.00	$ 27,690.00	$ 31,566.60
2	Re-connect Fees	$ -	$ -	$ -	$ -	$ -
3	Returned Check Charge	$ -	$ -	$ -	$ -	$ -
4	Late Payment Charge	$ -	$ -	$ -	$ -	$ -
5	Total Operating Revenue (sum of Line 1 through 4)	$ 8,307.00	$ 16,614.00	$ 24,921.00	$ 27,690.00	$ 31,566.60
	Operating Expenses [1]					
6	Total salaries and wages and payroll taxes (employees only)	$ 7,500.00	$ 8,000.00	$ 8,500.00	$ 9,000.00	$ 9,500.00
7	Outside labor expenses (non-employee)	$ -	$ -	$ -	$ -	$ -
8	Administrative and office expenses	$ 2,000.00	$ 2,200.00	$ 2,400.00	$ 2,600.00	$ 2,800.00
9	Maintenance and repair expense [2]	$ 2,000.00	$ 2,250.00	$ 2,500.00	$ 2,750.00	$ 3,000.00
10	Purchased water	$ -	$ -	$ -	$ -	$ -
11	Purchased sewerage treatment	$ -	$ -	$ -	$ -	$ -
12	Electric power expense [3]	$ 1,500.00	$ 1,700.00	$ 1,900.00	$ 2,100.00	$ 2,300.00
13	Chemical expense	$ -	$ -	$ -	$ -	$ -
14	Testing fees	$ 600.00	$ 650.00	$ 700.00	$ 750.00	$ 800.00
15	Transportation expense	$ 800.00	$ 900.00	$ 1,000.00	$ 1,100.00	$ 1,200.00
16	Other operating expense	$ -	$ -	$ -	$ -	$ -
17	Telemetry	$ 1,320.00	$ 1,320.00	$ 1,320.00	$ 1,320.00	$ 1,320.00
18	Total operation and maintenance expenses (sum of Line 6 through Line 17)	$ 15,720.00	$ 17,020.00	$ 18,320.00	$ 19,620.00	$ 20,920.00
19	Annual depreciation expense	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
20	Property taxes paid on utility property	$ 3,500.00	$ 3,500.00	$ 3,500.00	$ 3,500.00	$ 3,500.00
21	Franchise (gross receipts tax)	$ 2,160.00	$ 2,160.00	$ 2,160.00	$ 2,160.00	$ 2,160.00
22	Annual NCUC regulatory fee	$ 353.05	$ 706.10	$ 1,059.14	$ 1,176.83	$ 1,341.58
23	Total operating expenses (sum of Line 18 through Line 22)	$ 23,233.05	$ 24,886.10	$ 26,539.14	$ 27,956.83	$ 29,421.58
24	Income taxes	$ -	$ -	$ -	$ -	$ -
25	State income taxes	$ -	$ -	$ -	$ -	$ -
26	Federal income taxes	$ -	$ -	$ -	$ -	$ -
27	Total income taxes	$ -	$ -	$ -	$ -	$ -
28	Net operating income	$ (9,886.05)	$ (5,032.10)	$ (178.14)	$ 573.17	$ 2,145.02
29	Interest expense	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00	$ 1,000.00
30	Net income	$ (10,886.05)	$ (6,032.10)	$ (1,178.14)	$ (426.83)	$ 1,145.02

1. Expenses were estimated using comparisons to known expenses from similar sewer systems.
2. It is assumed that maintenance expense will increase due to more homes sending wastewater flow into the sewer system.
3. It is assumed that electric power expense will increase due to the sewer system treating more wastewater flow.

EX. 4

Cunningham Utility District

P.O. Box 90, Cunningham, TN 37052 (931) 387-3387 office info@cunninghamutilitydistrict.com

TO: Matthew Nicks, Adenus
FROM: John M. Atkins
REF: AVAILABILITY OF SEWER SERVICE FOR WARRIOTO HILLS SUBDIVISION
DATE: April 27, 2018

The Cunningham Utility District is structured as a potable water distribution system. The District provides only drinking water to the customers in our system.

Please accept this letter as our statement that we are not capable of providing any sewage drainage or treatment to the proposed subdivision referenced above.

Please feel free to contact me at 931-387-3387 if you have any questions or need further documentation.

John M. Atkins
General Manager

jma/JMA

cc: CUD file
Bryce Powers (via email)

Ex. H

Montgomery County Government

Jim Durrett
County Mayor

1 Millennium Plaza, Suite 205
P.O. Box 368
Clarksville, Tennessee 37041-0368

Phone: (931) 648-5787
Fax: (931) 553-5177
mayordurrett@mcgtn.net

September 17, 2018

Tennessee Wastewater Systems, Inc.

Re: Availability of Sewer Service for Warrioto Hills Subdivision

To Whom It May Concern

Please accept this letter as our statement that Montgomery County Government does not provide sanitary sewer and/or wastewater treatment for any residents of Montgomery County.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Jim Durrett
Montgomery County Mayor

Ex. I

Providence BUILDERS
MATTHEW 7: 24-27
46 Union Street, Clarksville, TN 37040

September 25, 2018

Mr. Matthew Nicks
Tennessee Wastewater Systems, Inc.
849 Aviation Parkway
Smyrna, Tennessee 37167

Re: Warrioto Hills Subdivision
Montgomery County, Tennessee

Dear Matthew,
On behalf of the owners of the property, Riverland Partners and Powers & Atkins, LLC, we are hereby requesting that Tennessee Wastewater Systems, Inc. provide sanitary sewer service to the planned 57 Lot subdivision referenced above.

If you have any questions or need additional information, please don't hesitate to contact me.

Sincerely,

Bryce Powers

TENNESSEE Wastewater
851 Aviation Parkway
Smyrna, TN 37167

EX. J

Letter of Understanding

This Letter of Understanding ("LOU") outlines the fundamental terms of agreement and intentions between Tennessee Wastewater Systems, Inc. ("TWS"), and Warrioto Hills / Bryce Powers ("Developer").

Questions and comments should be directed to Matthew Nicks at (615) 220-7166 or matthew.nicks@adenus.com

Effective Date: August 10, 2018

The fundamental terms of agreement and intention between TWS and Developer are as follows:

1. Developer desires to develop a residential subdivision in Montgomery County, Tennessee on approximately 58.35 +/- acres of property, located on Ramblewood Drive (Montgomery County Tax Map 90, Parcel 54.00, the "Property"). This property is proposing to accommodate approximately +/- 57 single-family residential lots (Equivalent Dwelling Units, or EDU's). This lot count will be used for this Letter of Understanding only

2. TWS is a public wastewater utility regulated by the Tennessee Public Utility Commission ("TPUC"). TWS will apply to TPUC for a Certificate of Convenience and Necessity (CCN) which if approved will allow TWS to provide wastewater service to the Property. TWS's performance under this or any other agreement pertaining to the Property is contingent upon the CCN being granted to TWS to serve the Property.

3. TWS will accept, own, and operate the wastewater treatment facility to serve this property under the terms and conditions contained in this LOU and as stated more fully in the Sewer Service Agreement to be executed by and between the Developer and TWS.

4. Regarding the design of the wastewater system, Developer agrees TWS shall approve the Developer's site engineer and the Developer further agrees to require its own site engineer to design the residential subdivision site plan to accommodate the wastewater collection system, the reuse distribution system (easements, buffers, etc.), to the specifications of TWS, and to provide a copy of the site plans to TWS for review, and inclusion into the wastewater system plans;

5. TWS requires that it review and approve all plans and any other submissions prior to submission to the Tennessee Department of Environment and Conservation ("TDEC") and/or the Montgomery County Planning Department ("MCPD") for review and approval.

6. TWS may require the installation of additional piping infrastructure through the development to accommodate future development and/or expansion of the collection, treatment, or disposal system. Developer agrees to provide TWS any easements necessary for the extension of this infrastructure. TWS has the right to extend the piping infrastructure at any time and in its sole discretion. TWS will be responsible for any costs associated with extending the piping infrastructure.

7. The Developer will select and retain any consultants/engineers/soils scientists necessary to perform the following work:

   * A soil scientist to evaluate the Property for soils suitable for the disposal of treated wastewater effluent.

   * Design of the wastewater collection system that services the individual lots

8. TWS will select and retain any consultants/engineers/soils scientists necessary to perform the following work:

   * Prepare or have prepared the SOP application for TDEC

   * Design of the wastewater treatment system

   TWS will initially pay for the above listed work subject to reimbursement from the Developer in accordance with Item 19.

9. Developer or its assignee will pay to TWS a $5,000 plan review fee payable at time the plans are delivered to TWS for approval prior to submission to TDEC. Developer or its assignee will pay to TWS a $800.00 per lot review and inspection fee payable at time the final plat is presented to TWS for signature for each lot identified on the plat to be signed.

10. Developer acknowledges, understands, and agrees that for all cash and property contributions provided to TWS, a gross up factor shall be applied in order to recover the corporate federal income taxes associated with those contributions. The formula used to gross up contributed cash and property is as follows:

    * Tax Impact = TR / (1-TR) * (C+P)
      TR = Marginal tax rate of federal corporate income tax.
      C = Dollar amount of charges (cash) paid to the utility as a contribution.

P = Dollar amount of property (plant, land…) conveyed to the utility to be recorded at the construction cost of the property conveyed to the utility.

*No home will be released to connect to the sewer collection system, or to the treatment and disposal system, until the Developer has paid all fees as required by TWS.

11. Developer agrees to pay or require as a condition of sale that the owner of each lot shown on the final plat for which a service connection to the wastewater system is available, installed, or expanded but for which no residence, building, or structure has been attached to the service connection, shall pay TWS a yearly sewer access fee of $140.00. Such yearly sewer access fees for each lot shown on the final plat shall be payable on or before December 15 of each year for all owners of record as of December 1 of that year. Once residences, buildings, or structures on each lot are connected to the sewer system through a service connection, the owner of such property shall no longer be liable for the sewer access fee for that calendar year and thereafter the annual access fee shall no longer apply.

12. Developer agrees to require as a condition of sale or lease of each lot that any residence, building, or structure constructed on the lot to be attached to the sewer system have a lockable shut off valve installed on the property owner's side of the water meter on the water supply line to the structure.

13. TWS will inspect the construction and installation of the collection, treatment and disposal system to ensure the treatment and collection system meets TWS' requirements. Upon approval of the system, TWS will accept ownership of the system.

14. TWS will not place the wastewater treatment system into operation until all payments have been made and all easements and deeds have been transferred to TWS in accordance with Developer's agreement with the utility.

15. Developer agrees to post any bond amounts required by the MCPD for the collection system on the property, prior to final plat being signed by TWS.

16. Developer and/or home builder is responsible for tankage, components, etc., for each individual residence site.

17. Developer will be responsible for all costs associated with obtaining any easements required to provide service to the development including any condemnation costs if necessary. Condemnation costs to include, but not limited to reasonable attorney fees, court costs, and payment for the condemned property. TWS will incur any costs in procuring easements or pursuing condemnation without Developer's written approval.

18. Developer understands and agrees that changes made to federal and state law, TDEC regulations, or to TPUC rules, or to Montgomery County regulations after the date of this understanding are beyond the control of TWS and could likely cause a change to the proposed costs.

19. In the event the property fails to be developed, either Party may terminate this agreement upon written notice to the other. In the event the property fails to be developed and the agreement is terminated, Developer agrees to reimburse TWS for all out-of-pocket costs related to all services that have been performed in the effort to provide wastewater services to the proposed development including, but not limited to, reimbursement for expenses, filing and review fees, regulatory fees, construction costs, and all legal fees incurred in the pursuit of obtaining regulatory approval to provide wastewater services to the development.

Developer acknowledges and accepts the aforementioned terms of agreement and intention.

Warrioto Hills
Developer – Bryce Powers

Title: Partner

Date: 8/15/18

Tennessee Wastewater Systems, Inc.
Charles Hyatt

Title: President

Date: 9-22-18

Ex. K

RESIDENTIAL RATE SHEET EXPLANATION

FFR.D:	Standard Base RSF/Fixed Film Reactor Treatment Rate	**$34.02**	
DCP.D:	Standard Base Deep Cell Pont Treatment/Drip Dispersal Rate	**$30.71**	
DCP2.D:	Original Standard Base Deep Cell Pont Treatment/Drip Dispersal Rate	**$22.55**	
DCP.P:	Standard Base Deep Cell Pont Treatment/Point Discharge Rate	**$30.71**	
E1:	RSF Escrow Rate	**$10.13**	
E2:	DCP Escrow Rate	**$8.43**	
E3:	Southridge Escrow Rate	**$6.35**	
B1:	Statewide bonding charge	**- $0.11**	
			(D)
			(D)
F1:	3% City of Coopertown Franchise Fee on the Rate Class 1	**$1.32**	
F2:	3% City of Coopertown Franchise Fee on the Rate Class 5	**$1.17**	
LC:	Loan amortization costs for the Southridge treatment facility	**$21.33**	
LL:	Land Lease costs for the Southridge treatment facility	**$2.67**	
SOU:	Standard base Collection Rate for Southridge Subdivision	**$17.59**	
TC:	Treatment costs passed through from the city of Clarksville	**pass-through amt.**	
ER	Environmental Tariff Rider	**$3.76**	**(N)**
LR	Legal Expense Rider	**$0.45**	**(N)**

FFR.D.E1.B1.ER.LR	= **$48.25**	=	**RATE CLASS 1 (34.02 + 10.13 - 0.11+3.76+0.45)**	**(N)**
FFR.D.E1.B1.F1.ER.LR	= **$49.57**	=	**RATE CLASS 2 (34.02 + 10.13 - 0.11 + 1.32+3.76+0.45)**	**(N)**
FFR.D.E1.B1.ER.LR	= **$48.25**	=	**RATE CLASS 3 (34.02 + 10.13 - 0.11+3.76+0.45)**	**(N)**
FFR.D.E1.B1.ER.LR	= **$48.25**	=	**RATE CLASS 4 (34.02 + 10.13 - 0.11+3.76+0.45)**	**(N)**
DCP.D.E2.B1.ER.LR	= **$43.24**	=	**RATE CLASS 5 (30.71 + 8.43 - 0.11+3.76+0.45)**	**(N)**
DCP.D.E2.B1.F2.ER.LR	= **$44.41**	=	**RATE CLASS 6 (30.71 + 8.43 - 0.11 + 1.17+3.76+0.45)**	**(N)**
DCP.P.E2.B1.ER.LR	= **$43.24**	=	**RATE CLASS 7 (30.71 + 8.43 - 0.11+3.76+0.45)**	**(N)**
DCP.D.E2.B1.ER.LR	= **$43.24**	=	**RATE CLASS 8 (30.71 + 8.43 - 0.11+3.76+0.45)**	**(N)**
SOU.E3.TC.B1.ER.LR	= **$28.04 + tc**	=	**RATE CLASS 9 (17.59 + 6.35 - 0.11+3.76+0.45) + tc**	**(N)**
DCP2.D.E2.LC.LL.B1.ER.LR = **$59.08**		=	**RATE CLASS 10 (22.55 + 8.43 + 21.33 + 2.67 -0.11+3.76+0.45)**	**(N)**

Fees: Non-Payment – 5% of total bill amount
Disconnection – $40
Reconnection – $50
Returned Check (NSF Fee) – $25
Credit Card Convenience Fee – 3%
Access Fee – $120/yr (See Rules and Regulations for Explanation)
Tap Fee: E. Montgomery Fac. - $3,000 Pre-Construction, $3,500 Post-Construction

WASTEWATER UTILITY SERVICE

Service Territory	County	TRA Docket #	Rate Class
Scales Project	Williamson	14-00006	RATE CLASS 1
Clovercroft Acres	Williamson	14-00062	RATE CLASS 1
Enclave at Dove Lake	Williamson	15-00025	RATE CLASS 1
Lighthouse Pointe	Grainger	17-00146	RATE CLASS 1
Warrioto Hills	Montgomery	18-XXXXX	RATE CLASS 1 (T)