

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

DOCKET NO. 040384-WS

SANLANDO UTILITIES CORPORATION

REBUTTAL TESTIMONY OF

TERRY M. ZAUDTKE, P.E., BCEE

REGARDING THE APPLICATION FOR

AMENDMENT TO CERTIFICATES 247-W AND 189-S

IN SEMINOLE COUNTY, FLORIDA

DOCUMENT NUMBER / DATE

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FPSC-COMMISSION CLERK

TESTIMONY OF TERRY M. ZAUDTKE, P.E., BCEE

1 Q. Please state your name and business address.

2 A. My name is Terry M. Zaudtke and my business address is 1117 East
3 Robinson Street, Orlando, Florida 32801.

4 Q. By whom are you employed and in what capacity?

5 A. I am employed by CPH Engineers, Inc., as its Chief Operating
6 Officer.

7 Q. Please summarize your background and experience in the industry
8 of providing water and sewer service to the public.

9 A. I am a graduate of the University of Minnesota with a B. S. degree
10 in Civil Engineering and a Master of Science Degree in Civil Engineering
11 (Environmental Specialty). I have been a licensed Professional Engineer
12 in Minnesota since 1980 and in the State of Florida since 1982. I am a
13 Board Certified Environmental Engineer with the American Academy of
14 Environmental Engineers since 1990. In 2004, I served on the
15 environmental standard setting committee for the National Council of
16 Examiners for Engineering and Surveying. I have also served on a
17 technical advisory committee for FDEP for setting rules for the State
18 Revolving Fund (SRF) program.

19 I began work in 1977 as a research engineer at the City of Duluth
20 Water and Gas Department working on the removal of asbestiform fibers
21 from the drinking water source (Lake Superior). In 1979, I went to work

1 as a staff engineer for the Western Lake Superior Sanitary District and
2 continued my work on a part time basis at the water plant to complete the
3 research funded by EPA. Since 1982, I have been employed by CPH
4 Engineers. I have acted as Project Engineer and Project Manager for both
5 public and private projects since 1982, and have been involved in the
6 design of water and wastewater treatment facilities, risk management
7 planning, reclaimed water system design and the computer modeling of
8 collection and distribution systems. Some of my recent projects include
9 the current design of six miles of force main piping and 80,000 lineal feet
10 of collection system for the Keys, master planning updates for
11 comprehensive plan amendments due to the Wekiva Act, a 24 MGD lift
12 station, a 30 MGD master wastewater plant pump station, 100 percent
13 reuse systems for several clients, the expansion and permitting of a
14 wastewater treatment plant to 100% reuse, the conversion of several older
15 can lift stations to current standard submersible lift station configuration
16 the design of increased storage and pumping capacity and numerous other
17 water and wastewater projects. A copy of my current resume is attached
18 to my testimony. (TMZ -1)

19 Q. Mr. Zaudtke, have you reviewed the Direct Testimony of the
20 witnesses testifying on behalf of the Staff of the Florida Public Service
21 Commission (*Commission*) and the testimony of the witnesses testifying
22 on behalf of the City of Longwood (*City*), filed in this proceeding?

1 A. Yes, I have.

2 Q. What is the purpose of your testimony in this proceeding?

3 A. I will respond to the testimony of the witnesses for the City, Mr.
4 Richard Kornbluh and Mr. Thomas Jensen, with respect to the technical
5 and engineering effects of disconnecting the customers the Sleepy Hollow,
6 Windsor Manor, Devonshire and Moorings subdivisions (*Disputed Areas*),
7 especially the costs of ensuring service to Sanlando's remaining customers,
8 and in particular:

9 1. The estimated costs, as of 2006, of disconnecting and transferring
10 customers and constructing the facilities necessary for the City to provide
11 adequate hydraulic capacity and operational capability to maintain the
12 current level of water, wastewater and fire protection service to the
13 customers after the transfer of the customers in the Disputed Areas to the
14 City.

15 2. The estimated costs, as of 2006, of disconnecting and transferring
16 customers and constructing the facilities necessary to maintain adequate
17 hydraulic capacity and operational capability to enable Sanlando to
18 maintain the current level of water, wastewater and fire protection service
19 to its customers after the transfer of the customers in the Disputed Areas.

20 3. The technical impact on Sanlando's water and wastewater systems
21 of disconnecting the customers in the Disputed Areas.

22 4. The improvements which Sanlando will have to construct in order

1 to maintain the same level of water, wastewater and fire protection service
2 to Sanlando's remaining customers if the transfer of the customers in the
3 Disputed Areas is approved.

4 Q. What systems and facilities will be affected by the transfer of the
5 customers in the Disputed Areas to the City?

6 A. Water service to the area which would be affected by the transfer
7 of the customers in the Disputed Areas is primarily provided through the
8 Des Pinar water treatment plant (*WTP*) with water distribution
9 interconnects from the Wekiva and Knollwood WTPs and distribution
10 systems. Wastewater service to the Disputed Areas is provided solely
11 through the Des Pinar wastewater treatment plant (*WWTP*). These lines
12 and the plants which serve the Disputed Areas are shown on the maps
13 attached to the testimony of Mr. Flynn (PCF-8 and PCF-9).

14 All customers to whom Sanlando provides service through the Des
15 Pinar WTP and the Des Pinar WWTP, and the associated systems,
16 approximately 2,300 customers, including the approximately 475
17 customers in the Disputed Areas, will be affected. Disconnection of
18 customers in the Disputed Areas will have a profound and prolonged
19 impact on the remaining Sanlando customers.

20 Q. Please explain why and how these customers will be affected?

21 A. As shown on the maps attached to Mr. Flynn's testimony (PCF-5,
22 PCF-6, PCF-8 and PCF-9), these customers are served by the same water

1 distribution and wastewater collection systems. These systems comprise
2 an integrated arrangement of lines and facilities which are necessary to
3 provide service to Sanlando's entire service area. Transferring the
4 customers in the Disputed Areas is not just a simple matter of transferring
5 accounts. The Disputed Areas are not contiguous with each other and
6 therefore the disconnection of the customers in the Disputed Areas from
7 Sanlando's facilities will require the construction and installation of
8 parallel facilities in order for Sanlando to maintain the provision of service
9 to it's remaining customers. Disconnection will cause a disruption of
10 service to all 2,300 customers who are connected to the systems.
11 Additionally, new lines must be constructed to reestablish service,
12 including fire protection, to the remaining customers who are not
13 transferred.

14 Sanlando Utilities has the existing capability to provide fire flow
15 capacities in excess of the local codes and requirements in place at the
16 time of development. According to fire hydrant test records, the system
17 has the capability at each hydrant to supply 1,000 gpm at the flowing
18 hydrant with a residual in the upstream hydrant of 20 psi in accordance
19 with standard fire flow test procedures. In addition, the system has
20 interconnects with the Wekiva and Knollwood distribution systems and
21 complete high service pump redundancy in accordance with FDEP criteria
22 at the Des Pinar, Wekiva and Knollwood water treatment facilities.

1 Sanlando Utilities constantly maintains and improves its
2 distribution system. Sanlando has the financial resources available to
3 complete any project required to maintain the existing level of service and
4 to properly maintain the distribution and collection systems. FDEP
5 records show no deficiencies at Sanlando's facilities and indicate that the
6 system is well run. There is nothing to indicate that the systems need
7 improvement other than routine maintenance and repair as is usual and
8 customary with utility systems, both public and private.

9 Q. Please identify the improvements that Sanlando will have to
10 construct in order to maintain the same level of water, wastewater and
11 fire protection service to Sanlando's remaining customers if the transfer
12 of the customers in the Disputed Areas is approved.

13 A. The water improvements required are as follows:

14 1) A new 8 inch water main along Tarrytown Trail to replace the existing
15 line in order to provide service south of Sleepy Hollow.

16 2) A new 8 inch water main on SR 434 from Tollgate Trail to Palm
17 Springs Boulevard along SR 434 to re-establish the connection to the
18 southern part of the Sanlando service area.

19 3) Disconnect the line that serves the Rock Lake Middle School and
20 construct a new 8 inch water main from Sweet Briar Branch to the school
21 and a 4 inch water main down to re-establish service to Slade Drive.

22 4) Disconnect and sever the connection on Sweet Briar Branch as it

1 enters the Devonshire subdivision. Reconnect a new 8 inch water main
2 along Sweet Briar Branch to serve Tylers Cove and Reserve at Harbour
3 Isle.

4 The wastewater improvements required are as follows:

5 1) Acquire property and construct a new lift station in the Reserve at
6 Harbour Isle to re-establish service to Tylers Cove and Reserve at Harbour
7 Isle.

8 2) Acquire an easement from the School Board and construct a new
9 lift station to serve the Rock Lake Middle School and Slade Drive.
10 Construct a new collection system using small pump systems to re-
11 establish service to Slade Drive with the discharge to the new Rock Lake
12 Middle School lift station.

13 Q. What are the estimated costs of disconnecting and transferring the
14 customers in the Disputed Areas to the City?

15 A. Contrary to the testimony of Mr. Kornbluh, I estimate that the total
16 cost will be in excess of \$ 5.4 million. This figure is based on the data
17 from the City for their proposed facilities and the new facilities required
18 by Sanlando to maintain the same level of service to all other affected
19 customers while separating the customers in the Disputed Areas from the
20 other Sanlando customers. All figures have been updated to 2006
21 construction costs as significant cost changes have occurred in the last six
22 years. This amount is well over the City's estimated 25% increase over the

1 estimates of RMA Reese, Macon and Associates, Inc., prepared in 1999
2 and 2000, which is equivalent to approximately \$1.5 million.

3 The estimates provided by the City do not include normal and
4 customary costs such as mobilization/demobilization, contractor
5 overhead/markup/profit, engineering design and permitting services,
6 construction administration services (including certification required by
7 FDEP) and contingency. The City estimates are planning level estimates
8 and they do not reflect actual construction costs associated with more
9 detailed plans. Therefore a contingency amount is required. The
10 estimates also do not reflect additional costs that will most likely be
11 incurred due to lane closure restrictions of SR 434. No lane closures are
12 allowed between the hours of 6 A.M. to 9 P.M., Monday through Friday.
13 Work along the SR 434 corridor will have to take place on the weekend
14 or at night and this will result in extra construction costs. It is also my
15 understanding that the right of way is very congested and placement of
16 new facilities is very difficult.

17 The estimates provided by the City do not include the costs
18 necessary for Sanlando to sever the connection of these Disputed Areas
19 and still maintain service to the remaining customers within Sanlando's
20 service areas. There are two components of the actual cost of the transfer
21 of customers: (1) the cost of constructing the facilities needed by the City
22 to provide and maintain adequate flow and hydraulic pressure and sewer

1 service to the Disputed Areas, including the costs attributable to
2 disconnection and the resulting disruption in service; and (2) the cost of
3 constructing the facilities necessary to resume service to the remaining
4 customers when the customers in the Disputed Areas are reconnected to
5 the City's systems, also including the costs attributable to disconnection
6 and the resulting disruption in service.

7 In the engineering report and cost estimate, it was assumed that lift
8 station A6 (Sanlando Designation)/1 Sleepy Hollow (Report Designation)
9 would be acquired by the City. This lift station is actually in The Meadows
10 and serves many customers outside of the Disputed Areas and receives
11 flow from lift station A7. This station cannot be transferred and the City
12 would have to build a new station. The City's estimate does not include
13 land acquisition and site demolition/preparation for the new lift station
14 number 4, Devonshire, as it cannot be placed in the right of way. The City
15 cost estimate has been adjusted to reflect the new lift station (number 1
16 Sleepy Hollow) and includes the costs for land acquisition and site
17 demolition/preparation for both lift stations number 1 and 4. We have
18 not adjusted the costs to reflect the specific construction requirements of
19 working in a restricted zone such as SR 434 as discussed above.

20 Of course, if the Commission approves Sanlando's application, no
21 new or additional facilities are needed to provide service to the affected
22 area or the customers in the Disputed Areas. Sanlando will not incur these

1 costs as the area is presently served with facilities that meet the
2 requirements of the regulatory agencies.

3 Q. What are the estimated costs, as of 2006, of constructing the City
4 facilities needed to provide and maintain adequate water flow and
5 hydraulic pressure and sewerage facilities to the Disputed Areas,
6 including costs attributable to disconnection and the resulting disruption
7 in service?

8 A. Approximately \$3.9 million. (TMZ-2, TMZ-3, TMZ-4)

9 Q. What are the estimated costs, as of 2006, of constructing the
10 facilities necessary to maintain adequate operational capability to enable
11 Sanlando to maintain the current level of water, wastewater and fire
12 protection service to its remaining customers after the customers in the
13 Disputed Areas are reconnected to the City's systems?

14 A. Approximately \$1.6 million. (TMZ-5, TMZ-6, TMZ-7)

15 Q. Will Sanlando be able to provide continuous and uninterrupted
16 service to its remaining customers if the customers in the Disputed Areas
17 are transferred to the City?

18 A. Not without major capital improvements to assure adequate flow
19 and pressure.

20 Q. Does this conclude your direct testimony?

21 A. Yes it does.

22

REBUTTAL TESTIMONY OF
TERRY M. ZAUDTKE, P.E., BCEE
REGARDING THE APPLICATION FOR
AMENDMENT TO CERTIFICATES 247-W AND 189-S
IN SEMINOLE COUNTY, FLORIDA

LIST OF EXHIBITS

No.	Description	Pages
TMZ-1	Resume of Terry M. Zaudtke, P.E. , BCEE	1
TMZ-2	Preliminary Opinion of Probable Construction Cost - Longwood Water System	2
TMZ-3	Preliminary Opinion of Probable Construction Cost - Longwood Wastewater System	3
TMZ-4	Longwood Summary of Costs	4
TMZ-5	Preliminary Opinion of Probable Construction Cost - Sanlando Water System	5
TMZ-6	Preliminary Opinion of Probable Construction Cost - Sanlando Wastewater System	6
TMZ-7	Sanlando Summary of Costs	7

Academic Credentials

M.S. Civil Engineering
University of Minnesota, 1979
B.S. Civil Engineering
University of Minnesota, 1976

Licenses

Professional Engineer
States of Florida and Minnesota

Principal Areas of Expertise

Quality Assurance and Quality Control
Water Supply, Pumping and Treatment
Water Distribution
Wastewater Collection, Transmission and
Treatment
Reclaimed Water Treatment and
Distribution
Collection System Rehab
Municipal Engineering

Professional Activities

American Academy of Environmental
Engineers - Diplomat Environmental
Engineer
Listed in Who's Who in Environmental
Engineering
American Society of Civil Engineers, Past
Officer
Construction Specification Institute
American Concrete Institute
Concrete Reinforcing Institute
Chi Epsilon
Quill and Scroll, an honorary Journalism
Society
VITA - Volunteers in Technical Assistance
Water Environment Federation
ACI - Certified Structural Masonry
Inspector

Mr. Zaudtke serves the firm of CPH Engineers, Inc. as Chief Operating Officer and Project Manager/Engineer for both public and private civil projects in his areas of expertise of Environmental and Civil Engineering. These projects include work in land development, municipal engineering, water and sewer facilities, drainage, waste treatment, and water supply.

Mr. Zaudtke has served as the Project Manager and Engineer for the City of Casselberry, U.S. Navy, City of Orlando, City of Winter Springs, City of Lake Alfred, City of Eustis, Seminole County, Orange County, Key Largo Wastewater Treatment District, and Utilities, Inc.

Mr. Zaudtke has over 25 years of consulting engineering experience, with technical duties ranging from feasibility studies through construction engineering activities. He has directly worked on all aspects of civil engineering projects, including studies, designs, permitting, inspections, financing and construction administration. The range of projects includes wastewater treatment, water treatment, water supply, water distribution, wastewater collection, sewer system rehabilitation, reclaimed water, storm drainage, and other municipal engineering activities.

Major projects include the Guam Sewer project (ten miles of sewer reconstruction) and water reclamation systems for the Cities of Winter Springs and Casselberry, and a new sewer system in an existing neighborhood for the City of Orlando.

The Guam Sewer Project was performed for the US Naval Station under a design/build contract and included design, wetlands permitting, and EC&I work throughout the project.

For over 25 years, Mr. Zaudtke has been working with public and private utilities on wastewater and reclaimed water systems. This involves taking existing treatment facilities and upgrading them to public access criteria. The biological processes are improved and tertiary treatment is added to enhance the operation and reliability of the facility.

Prior to joining CPH, Mr. Zaudtke worked as the Research Engineer for the City of Duluth, Minnesota on a Direct Filtration water treatment plant for the removal of asbestos-like fibers. He was also the Staff Engineer for a 43 MGD advanced wastewater treatment facility for the Western Lake Superior Sanitary District. At both facilities, Mr. Zaudtke was responsible for improving operations.

Preliminary Opinion of Probable Construction Cost
Planning Level For City of Longwood Facilities
WATER SYSTEM

1	Water Main (PVC)				
	a. 8" (Tarry Town Trail)	1,550	LF	\$30.00	\$46,500.00
	b. 8" (Devonshire Blvd)	200	LF	\$30.00	\$6,000.00
	c. 12" (SR 434)	4,650	LF	\$50.00	\$232,500.00
2	Water Main (DIP)				
	a. 8"	100	LF	\$35.00	\$3,500.00
	b. 12"	300	LF	\$50.00	\$15,000.00
3	Valves (RSGV)				
	a. 8"	5	EA	\$2,000.00	\$10,000.00
	b. 12"	5	EA	\$3,500.00	\$17,500.00
4	D.I. Fittings	1.75	TN	\$7,000.00	\$12,250.00
5	Sample Points	10	EA	\$750.00	\$7,500.00
6	Directional Bore				
	a. 8" HDPE (Rangeline Road)	100	LF	\$90.00	\$9,000.00
7	Main Disconnects	5	EA	\$3,000.00	\$15,000.00
8	Main Tie In's	4	EA	\$3,000.00	\$12,000.00
9	12" x 8" Tapping Sleeve/Valve	1	EA	\$5,000.00	\$5,000.00
10	Air Release Valves	3	EA	\$2,500.00	\$7,500.00
11	Pavement Restoration (Asphalt)	300	SY	\$40.00	\$12,000.00
12	Concrete Driveway	200	SY	\$30.00	\$6,000.00
13	Concrete Sidewalk	2,000	SY	\$30.00	\$60,000.00
14	Sod	5,000	SY	\$3.50	\$17,500.00
15	Traffic Control (SR 434)	1	LS	\$10,000.00	\$10,000.00
16	Meter Replacement	475	EA	\$200.00	\$95,000.00
17	Miscellaneous	1	LS	\$10,000.00	\$10,000.00
18	Mobilization/Demobilization	5%	LS		\$30,487.50
19	Contractor Overhead/Markup/Profit	5%	LS		\$30,487.50
20	Engineering design and permitting	10%	LS		\$60,975.00
21	Bidding and CA services	10%	LS		\$60,975.00
22	Contingency (planning level)	10%	LS		\$60,975.00
Total					\$853,650.00

**Preliminary Opinion of Probable Construction Cost
Planning Level For City of Longwood Facilities
SEWER SYSTEM**

1 Force Main - PVC				
a. 4" (Sleepy Hollow)	2,300	LF	\$15.00	\$34,500.00
b. 4" (SR 434)	2,750	LF	\$15.00	\$41,250.00
c. 4" (Winsor Manor)	2,100	LF	\$15.00	\$31,500.00
d. 4" (Rangeline)	1,300	LF	\$15.00	\$19,500.00
e. 4" (Devonshire)	1,100	LF	\$15.00	\$16,500.00
f. 6" (SR 434)	1,700	LF	\$25.00	\$42,500.00
g. 6" (Easements)	7,100	LF	\$25.00	\$177,500.00
h. 6" (Bay Ave)	3,900	LF	\$25.00	\$97,500.00
2 Force Main - DIP				
a. 4"	200	LF	\$25.00	\$5,000.00
b. 6"	500	LF	\$35.00	\$17,500.00
3 Plug Valves				
a. 4"	4	EA	\$1,500.00	\$6,000.00
b. 6"	3	EA	\$2,000.00	\$6,000.00
4 Directional Bore - HDPE				
a. 4" (SR 434 @ Tarry Town Trail)	125	LF	\$90.00	\$11,250.00
b. 4" (SR 434 @ Sheridan Ave)	125	LF	\$90.00	\$11,250.00
c. 6" (SR 434 @ Winsor Manor)	150	LF	\$90.00	\$13,500.00
d. 6" (SR 434 @ Palm Springs Rd)	75	LF	\$90.00	\$6,750.00
e. 6" (Rangeline Road)	100	LF	\$90.00	\$9,000.00
5 DI Fittings	3.25	TN	\$7,000.00	\$22,750.00
6 Gravity Sewer Mods/Disconnects*	1	EA	\$10,000.00	\$10,000.00
7 Lift Station Modifications/Upgrades**				
a. LS #1 (Sleepy Hollow) Actually New Required	1	LS	\$125,000.00	\$125,000.00
Property Acquisition	1	LS	\$300,000.00	\$300,000.00
Demolition of House/site prep				
b. LS #2 (Winsor Manor)	1	LS	\$45,600.00	\$45,600.00
c. LS #3 (Devonshire)	1	LS	\$33,600.00	\$33,600.00
d. LS #6 (Medical Center)	1	LS	\$72,000.00	\$72,000.00
8 Lift Station (New)	1	LS	\$100,000.00	\$100,000.00
a. Sta. No. 4 (Devonshire)	1	LS	\$125,000.00	\$125,000.00
b. Property Acquisition	1	LS	\$300,000.00	\$300,000.00
c. Demolition of House/site prep	1	LS	\$100,000.00	\$100,000.00
9 Air Release Valves	4	EA	\$2,500.00	\$10,000.00
10 Tapping Sleeve & Valve				
a. 4" x 4"	1	EA	\$1,500.00	\$1,500.00
b. 6" x 6"	3	EA	\$2,000.00	\$6,000.00
c. 10" x 6"	1	EA	\$3,000.00	\$3,000.00
11 Pavement Restoration (Asphalt)	2,400	SY	\$40.00	\$96,000.00
12 Concrete Driveway	750	SY	\$30.00	\$22,500.00
13 Concrete Sidewalk	1,500	SY	\$30.00	\$45,000.00
14 Shellrock Road Restoration	2,750	SY	\$15.00	\$41,250.00
15 Sod	10,000	SY	\$3.50	\$35,000.00
16 Seed/Mulch	6,000	SY	\$0.45	\$2,700.00
17 Traffic Control	1	LS	\$10,000.00	\$10,000.00
18 Miscellaneous	1	LS	\$25,000.00	\$25,000.00
19 Mobilization/Demobilization	5%	LS		\$103,945.00
20 Contractor Overhead/Markup/Profit	10%	LS		\$207,890.00
21 Engineering design and permitting	10%	LS		\$207,890.00
22 Bidding and CA services	10%	LS		\$207,890.00
23 Contingency (Planning Level)	10%	LS		\$207,890.00
Total				\$3,014,405.00

* Includes one new manhole, 50LF DIP gravity sewer and disconnect from gravity sewer to the west.

** Includes new pumps(2), guide rails, float controls, control panel, disconnect from Sanlando system and site restoration.

Longwood Summary of Costs

Water Distribution System	\$853,650.00
Wastewater Coll./Transmission	<u>\$3,014,405.00</u>
TOTAL	\$3,868,055.00

Preliminary Opinion of Probable Construction Cost
Planning Level For Sanlando Utilities Facilities
WATER SYSTEM

1	Water Main (PVC)				
	a. 8" (Tarry Town Trail)	2,500	LF	\$30.00	\$75,000.00
	b. 8" (Sweet Briar Branch)	500	LF	\$30.00	\$15,000.00
	c. 8" (SR 434)	1,000	LF	\$30.00	\$30,000.00
	d. 8" (Slade Drive)	1,500	LF	\$30.00	\$45,000.00
	e. 4" (Slade Drive)	1,450	LF	\$15.00	\$21,750.00
2	Service Connections	14	EA	\$500.00	\$7,000.00
3	Valves (RSGV)				
	a. 8"	1	EA	\$2,000.00	\$2,000.00
	b. 4"	1	EA	\$3,500.00	\$3,500.00
4	D.I. Fittings	2.50	TN	\$7,000.00	\$17,500.00
5	Sample Points	10	EA	\$750.00	\$7,500.00
6	Main Disconnects	5	EA	\$3,000.00	\$15,000.00
7	Main Tie In's	0	EA	\$3,000.00	\$0.00
8	12" x 8" Tapping Sleeve/Valve	8	EA	\$5,000.00	\$40,000.00
9	Pavement Restoration (Asphalt)	50	SY	\$40.00	\$2,000.00
10	Concrete Driveway	550	SY	\$30.00	\$16,500.00
11	Concrete Sidewalk	1,667	SY	\$30.00	\$50,010.00
12	Sod	4,633	SY	\$3.50	\$16,215.50
13	Traffic Control (SR 434)	1	LS	\$10,000.00	\$10,000.00
14	Mobilization/Demobilization	5%	LS		\$18,698.78
15	Contractor Overhead/Markup/Profit	5%	LS		\$18,698.78
16	Engineering design and permitting	10%	LS		\$37,397.55
17	Bidding and CA services	10%	LS		\$37,397.55
18	Contingency (planning level)	10%	LS		\$37,397.55
Total					\$523,565.70

**Preliminary Opinion of Probable Construction Cost
 Planning Level For Sanlando Utilities Facilities
 SEWER SYSTEM**

1 Force Main - PVC				
a. 4" (Reserve at Harbor Cove)	1,450	LF	\$15.00	\$21,750.00
b. 3" (Slade Drive)	1,450	LF	\$12.00	\$17,400.00
2 Easement for School site (negotiations, etc.)	1	LS	\$5,000.00	\$5,000.00
3 Plug Valves				
a. 4"	4	EA	\$750.00	\$3,000.00
b. 3"	3	EA	\$550.00	\$1,650.00
5 DI Fittings	1.50	TN	\$7,000.00	\$10,500.00
6 Gravity Sewer Mods/Disconnects*	2	EA	\$5,000.00	\$10,000.00
8 Lift Station (New)	1	LS	\$100,000.00	\$100,000.00
a. Reserve at Harbor Cove	1	LS	\$125,000.00	\$125,000.00
b. Property Acquisition	1	LS	\$300,000.00	\$300,000.00
c. Demolition of House/site prep	1	LS	\$100,000.00	\$100,000.00
11 Pavement Restoration (Asphalt)	90	SY	\$40.00	\$3,600.00
12 Concrete Driveway	142	SY	\$30.00	\$4,260.00
13 Concrete Sidewalk	80	SY	\$30.00	\$2,400.00
15 Sod	1,600	SY	\$3.50	\$5,600.00
17 Traffic Control	3	EA	\$2,500.00	\$7,500.00
19 Mobilization/Demobilization	5%	LS		\$35,883.00
20 Contractor Overhead/Markup/Profit	10%	LS		\$71,766.00
21 Engineering design and permitting	10%	LS		\$71,766.00
22 Bidding and CA services	10%	LS		\$71,766.00
23 Contingency (Planning Level)	10%	LS		\$71,766.00
Total				\$1,040,607.00

Sanlando Utilities Summary of Costs

Water Distribution System	\$523,565.70
Wastewater Coll./Transmission	<u>\$1,040,607.00</u>
TOTAL	\$1,564,172.70