Department of Environmental Protection

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Jeb Bush
Governor

David B. Struhs
Secretary

CERTIFIED
7099 3400 0010 0518 4283

Mr. John Buttrey
Buttrey Development, LLC
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32810

OCD-SW-00-0555

Orange County - SW
Keene Road Disposal/Buttrey Development
Class III Landfill - Construct & Operate
Permit Application Nos. SC48-0165969-001 and SO48-0165969-002

Dear Mr. Buttrey:

This is to acknowledge receipt of your application for the subject facility. The status of your application is as follows:

() Your application for permit received on is incomplete. Please provide the information listed on the attached sheet promptly. Evaluation of your application will be delayed until all the requested information has been received.

(X) The additional information received on November 17, 2000 was reviewed, however, the items listed on the attached memo remain incomplete. Evaluation of your application will continue to be delayed until we receive all requested information.

Pursuant to Section 120.60(2), Florida Statutes, the Department may deny an application, if the applicant, after receiving timely notice, fails to correct errors, omissions or supply additional information within a reasonable period of time. Please submit three copies of the requested information to the Department and reference the above application permit number in your correspondence.

If you have any questions, please contact me at (407) 893-3328.

Sincerely,

James N. Bradner, P.E.
Program Manager
Solid Waste

Date: 12/12/2000

JNB/gc/ew
Enclosure
cc: Ed Chesney, P.E. - Buttrey Development, LLC

1. Please provide specifications for manufacturing and installing the geomembrane that meet the requirements of Rule 62-701.400(3)(e), Florida Administrative Code (F.A.C.).

2. Please provide a construction quality assurance plan for the project that meets the requirements of Rule 62-701.400(7), F.A.C.

3. In the section of the subject plan for destructive testing of the geomembrane seams, the standards proposed for the seams are 63 pounds per inch for shear testing and 35 pounds per inch for peel testing. These values appear low for a 60-mil HDPE geomembrane. Please revise these values or document that the proposed standards are appropriate.

Memorandum

Florida Department of Environmental Protection

TO: Jim Bradner, P.E.
Central District

FROM: Richard B. Tedder, P.E.
Solid Waste Section

DATE: December 11, 2000

SUBJECT: Buttrey Development Project
Deflection Liner Installation Plan
Revised November 16, 2000

About one week ago, I called Ken Derick of Universal Engineering Sciences and asked him to submit some additional information for the subject project. Since they may not submit it before our 30-day clock to request additional information expires, I am providing these comments to you.

1. Please provide specifications for manufacturing and installing the geomembrane that meet the requirements of Rule 62-701.400(3)(e), Florida Administrative Code (F.A.C.).

2. Please provide a construction quality assurance plan for the project that meets the requirements of Rule 62-701.400(7), F.A.C.

3. In the section of the subject plan for destructive testing of the geomembrane seams, the standards proposed for the seams are 63 pounds per inch for shear testing and 35 pounds per inch for peel testing. These values appear low for a 60-mil HDPE geomembrane. Please revise these values or document that the proposed standards are appropriate.

RBT/rt

cc: Mary Jean Yon
Chris McGuire
George Cheryan

Buttrey Development Two L.L.C.

November 17, 2000

Mr. James Bradner, P.E.
FDEP Solid Waste
Central District
3319 Maguire Blvd., Ste. 232
Orlando, Florida 32803-3767

Subject: Request for additional information
Application Nos. SC48-0165969-001 & SO48-0165969-002

Dear Mr. Bradner:

The attached Universal Engineering Sciences Revised Report is intended to satisfy the request for additional information dated November 3, 2000. All of the comments have been addressed to the best of my understanding and interpretation of intent. Attached along with this response are the requested copies.

If you have any questions concerning these responses or need clarification or additional information please feel free to contact me at 407-296-0016.

Sincerely,

Ed Chesney, P.E.
Project Engineer

Attachments: as noted

C:\MyFiles\pit91L\FDEP8.WPD

P.O. Box 1029 Clarcona, Florida 32710
Telephone: (407) 296-0016; FAX: (407) 294-8090

UNIVERSAL
ENGINEERING SCIENCES
Consultants in: Geotechnical Engineering • Threshold Inspection
Environmental Sciences • Construction Materials Testing

Offices in
• Orlando
• Gainesville
• Fort Myers
• Rockledge
• St. Augustine
• Daytona Beach
• West Palm Beach
• Jacksonville
• Ocala
• Tampa
• Debary

October 31, 2000
Revised November 16, 2000

Buttrey Development, LLC
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32810-4747

Attn: Mr. Ed Chesney, P.E.

Re: Deflection Barrier
B&B #91 (Keene Road Landfill Site)
Orange County, Florida
UES Project No. 17862-085-05
UES Correspondence No. 141764

Dear Mr. Chesney:

This letter is intended to respond to your request for information regarding the FDEP comments dated 10/19/00 and QA/QC testing and installation recommendations for a geosynthetic deflection liner to utilized along the side slopes of this proposed Class III waste site. Our understanding of your needs, along with our recommendations for liner design and testing, are presented in the following paragraphs.

PROJECT DESCRIPTION

We understand you are required by the State of Florida Department of Environmental Protection to install a deflection liner to prevent infiltration of stormwater in the landfill area within 100 feet of the property boundaries. In order to provide assurance that stormwater will not infiltrate the site within the required horizontal distance, a deflection side liner will be installed. The original liner was to be made of clay, but due to the difficulty of compacting clay on the side slopes, you have decided to utilize a 60-mil, textured HDPE side liner. Universal Engineering Sciences has been requested to provide guidance for the design and construction of the liner.

DESIGN CONSIDERATIONS

The proposed HDPE liner will be a textured geosynthetic capable of withstanding the vertical stress imposed. The selected geosynthetic should be evaluated for stability to ensure the sand cover will not slide off the liner. A direct shear test using the synthetic liner and soil to be placed above the liner should be performed to assess the friction angle which is developed. A factor of safety against sliding of 1.5 is recommended.

The side slopes must be properly prepared prior to placing the geosynthetic. This will include the placement of 18 inches of clean sand over the slope prior to liner placement. The sand should have less than 5% passing the No. 200 sieve, and have a permeability of greater than 20 feet per day. The purpose of this sand layer is to prevent build up of pore pressure in the

perched groundwater layers, and allow proper cushioning below the geosynthetic liner; the sand must be free of rocks, sticks, or any deleterious material which could puncture the liner.

Once the liner is properly installed, it should be covered as soon as practical with a 12 inch thick sand blanket to prevent puncture in the areas where a light dozer (Cat D-3 or Cat D-6 wide track) will operate; in the ramp areas and other similarly trafficked areas, soil cover thickness shall be at least 2 feet. This sand should be free of rocks, sticks, or any deleterious material which could puncture the liner. This sand should also be tested for stability in the same manner prescribed in the previous paragraph for the sand cushion below the liner.

The liner must be properly anchored to prevent pull-out, and possible sliding down the slope. The top anchor trench should be at least 18 inches wide and 2 feet deep, and be positioned at least 2 feet from the crest of the slope. At the lower end of the liner trench, the liner should be tailed into the toe of the slope approximately 2 feet in order to prevent erosional washout at the toe.

LINER QA/QC

General

The assembly of the deflection liner should be in accordance with the liner installation plan prepared by the Geosynthetic Liner installer (GLI), which should be reviewed by UES for approval 2 weeks prior to the installation. The liner should only be walked on by tennis shoes (no street or hard soled shoes) and it should be assembled with a double-tracked fusion welder. No rocks or other hard objects larger than 3/8 inch shall be present in the top 1 inch of the subgrade. Surfaces to be lined shall be smooth and free of debris of any kind. Each panel to be placed shall be numbered consistent with the layout plan. Welding shall not take place during any precipitation, in the presence of excessive moisture, or in the presence of excessive winds, in the opinion of the independent third party inspector. The liner installation and quality control testing shall be observed at all times by the designated Quality Assurance inspector on behalf of the owner for final liner installation certification and assure the liner is installed in accordance with the approved plan and specifications .

Field Seaming

All seams should be oriented parallel to the maximum slope direction. In corners and in odd-shaped geometrical locations, the number of seams should be minimized. No horizontal seams should be less than 5 feet from the toe of the slope or areas of potential stress concentrations. Field joints shall be made by overlapping adjacent sheets a minimum of 3 inches for extrusion welding. The fusion welding device must be an automatic vehicular-mounted device which produces a double seam with an enclosed air space. The device shall also be equipped with gages giving the applicable temperatures. The GLI shall verify that the equipment used for seaming will not damage the geomembrane.

The welder should be warmed up each day by performing a 5 foot long trial seam. The trial seam shall be at least 1 foot wide, with two adjoining specimens , each 1 inch wide, shall be cut from the trial seam sample by the GLI. The specimens shall be tested in shear and peel, respectively, using a field tensiometer.

"Fishmouths" or wrinkles at the seam overlaps shall be cut along the ridge of the wrinkle in order to achieve a flat flap overlay. The cut at the "fishmouth" shall be seamed and any portion where the overlap is inadequate shall be patched with an oval or round patch of the same geomembrane extending a minimum of 6 inches beyond the cut in all directions.

QUALITY CONTROL / QUALITY ASSURANCE (QA/QC) TESTING

Vacuum Seam Testing

The GLI shall nondestructively inspect all field seams over their full length using a vacuum box test unit. The vacuum box assembly shall consist of a rigid box housing, a transparent viewing window, a soft neoprene gasket attached to the bottom, port hole or valve assembly, and a gage to indicate the chamber vacuum. The following procedures shall be utilized in vacuum seam testing:

1. Energize the vacuum pump and reduce the tank pressure to about 5 psia.

2. Wet a strip of geomembrane approximately 12 inches wide by 48 inches in length with the soapy solution.

3. Place the box over the wetted area.

4. Close the bleed valve and open the vacuum valve.

5. Ensure that a tight seal is created.

6. For a period of approximately 5 to 10 seconds, examine the geomembrane through the viewing window for the presence of soap bubbles.

7. If no bubbles appear after 10 to 15 seconds, close the vacuum valve and open the bleed valve, move the box to the next adjoining section with a 3 inch minimum overlap and repeat the process until the entire seam is examined.

8. All areas where soap bubbles appear shall be sequentially marked and repaired as outlined for patching "fishmouths".

Air Pressure Testing (For double fusion seam)

The equipment needed for air pressure testing of the seams includes an air pump (manual or motor driven) capable of generating and sustaining a pressure of 25 to 30 psia, a rubber hose with fittings and connections, a hollow needle, or other approved pressure feed device. The following procedures shall be followed:

1. Seal both ends of the seam to be tested.

2. Insert the needle into one end of the tunnel created by the fusion weld.

3. Energize the air pump to a pressure of between 25 and 30 psi, close the valve, and sustain the pressure for 5 minutes.

4. If the pressure loss in 5 minutes is 3 psi, or less, the seam passes the test; if not, locate the faulty area and repair as outlined in the preceding paragraphs.

5. Remove the needle and seal.

Destructive Testing

Destructive tests shall be performed at random locations selected by the QA testing firm. The purpose is to ensure that the welds are fully integrated with each other and to evaluate the seam strength. Seam strength testing shall be performed as the work progresses, not at the completion of all field seaming. The destructive testing shall be performed as follows:

1. The QA laboratory shall select the test locations. The destructive tests shall be performed at a frequency of 1 sample for every 500 feet, but at least one sample for every seam created.

2. Samples shall be cut by the GLI. He will assign a number to each sample based on the seam and sample number and mark it accordingly. Record sample locations on a panel layout drawing.

3. All holes in the geomembrane shall be repaired as outlined in the previous paragraphs.

4. At a given sample location, two types of samples shall be obtained by the GLI. First, two samples are taken for field testing of the peel and shear and shall not fail in the seam. The pass/ fail criteria for 60-mil HDPE seams will be that the seam has 100% film tear bond (FTB) and 63 pounds per inch width of shear, and 35 pounds of peel per inch width. If the field tests pass the liner shall be considered acceptable; if not, then the seam shall be marked and numbered by the GLI and repaired in the area that fails. Seams that fail shear and/or peel shall be capped with similar geomembrane that is a minimum of 12 inches larger in all directions than the area to be repaired. Any holes shall be repaired in the same manner. The patch shall be spot bonded thermally.

CONSULTATION

There may be questions that come up after the report is read. Please feel free to contact the writer if you should have any questions, or would like to arrange a meeting. It has been a pleasure working with you on this project, and we look forward to being of continued service to Buttrey Development, LLC.

Sincerely,

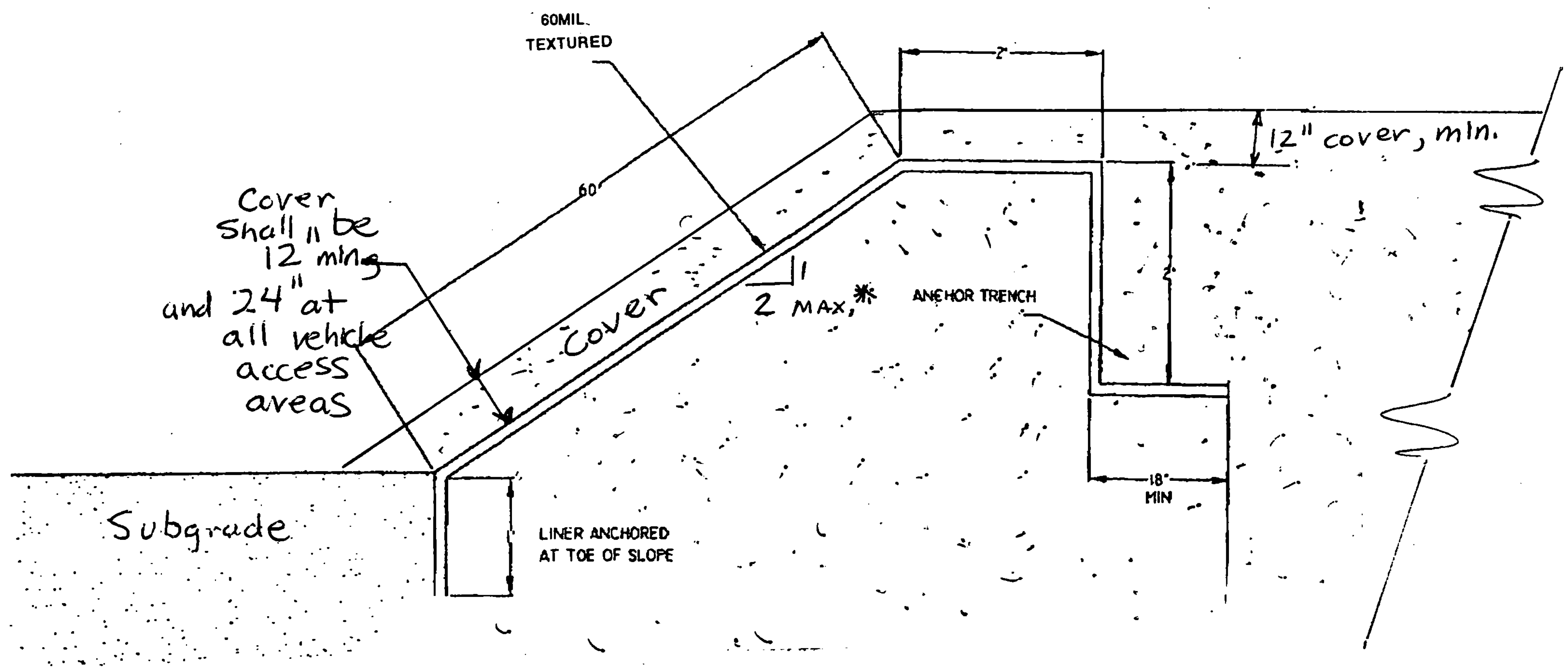
Universal Engineering Sciences, Inc.

R. Kenneth Derrick, PE
Florida PE No. 37711
Senior Vice President

RKD/rw

cc: Client (4) copies

Attachment: Deflection Liner Profile



Deflection Liner Profile

Not To Scale

*** Notes**

1) Side slope shall be determined from direct shear test with geosynthetic, subgrade, & cover soils
2) Refer to Liner QA/QC Plan for all testing requirements.

FOR: Buttrey Development, LLC. Orlando, Florida

DRAWN BY: DGW DATE: 11/1/00

CHECKED BY: [illegible] DATE: 11/2/00

SCALE: Noted

ORDER NO: 17863-08505 REPORT NO: 147764

Deflection Liner Profile
Typical Section
Keene Road Site

Orange County, Florida

UNIVERSAL
ENGINEERING SCIENCES

PAGE NO:

584788

Department of Environmental Protection

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Jeb Bush
Governor

David B. Struhs
Secretary

CERTIFIED
7099 3400 0010 0518 4429

Mr. John Buttrey
Buttrey Development, LLC
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32810

OCD-SW-00-0507

Orange County - SW
Keene Road Disposal/Buttrey Development
Class III Landfill - Construct & Operate
Permit Application Nos. SC48-0165969-001 and SO48-0165969-002

Dear Mr. Buttrey:

This is to acknowledge receipt of your application for the subject facility. The status of your application is as follows:

() Your application for permit received on is incomplete. Please provide the information listed on the attached sheet promptly. Evaluation of your application will be delayed until all the requested information has been received.

(X The additional information received on November 3, 2000, was reviewed, however, the items listed on the attached memo remain incomplete. Evaluation of your application will continue to be delayed until we receive all requested information.

Pursuant to Section 120.60(2), Florida Statutes, the Department may deny an application, if the applicant, after receiving timely notice, fails to correct errors, omissions or supply additional information within a reasonable period of time. Please submit three copies of the requested information to the Department and reference the above application permit number in your correspondence.

If you have any questions, please contact me at (407) 893-3328.

Sincerely,

James N. Bradner, P.E.
Program Manager
Solid Waste

Date: 11/14/2000

JNB/gc/ew
Enclosure
cc: Ed Chesney, P.E.

1. The proposed liner has been revised from using clay to using a 30-mil textured HDPE geomembrane. Since this is a bottom liner application, the liner thickness should be no less than 60-mil. A 30-mil thick HDPE geomembrane is too thin when welding the seams. Please revise the proposal to include the installation of a 60-mil thick textured HDPE geomembrane.

2. Testing the slope stability using the direct shear test is appropriate for the geomembrane and the overlying cover soils. However, the text states the test will be for the geomembrane and the underlying soils. Please clarify.

3. The text suggests that the geosynthetic liner installer (GLI) will be in charge of the geomembrane installation. Will a full time QA inspector be on-site at all times to monitor construction activities of the GLI on behalf of the owner (Rule 62-701.400(7)(a), F.A.C.)?

Florida Department of
Memorandum — Environmental Protection

TO: Jim Bradner, P.E.
Central District

FROM: Richard B. Tedder, P.E.
Solid Waste Section

DATE: November 9, 2000

SUBJECT: Buttrey Development Project
Deflection Liner Installation Plan
Dated October 31, 2000

As requested, I have reviewed the subject Plan to install an high density polyethylene (HDPE) geomembrane liner along the western, southern and eastern perimeters of the borrow area for the Buttrey project. This property is planned for use as a Class III landfill. It is my understanding that the purpose of this project is to ensure that any leachate generated by the waste placed over the HDPE liner will be released to the unlined areas at a distance no closer than 100 feet to their adjacent property boundaries.

My comments on this submittal are as follows:

1. The proposed liner has been revised from using clay to using a 30-mil textured HDPE geomembrane. I think it is a good idea to use a geomembrane in this application, but I do not believe a 30-mil thickness is adequate. Since this is a bottom liner application, the liner thickness should be no less than 60-mil. It is my understanding that a 30-mil thick HDPE geomembrane is too thin when welding the seams. Please revise the proposal to include the installation of a 60-mil thick textured HDPE geomembrane.

2. Testing the slope stability using the direct shear test is appropriate for the geomembrane and the overlying cover soils. However, the text states the test will be for the geomembrane and the underlying soils. Please clarify.

3. The text suggests that the geosynthetic liner installer (GLI) will be in charge of the geomembrane installation. Will a full time QA inspector be on-site at all times to monitor construction activities of the GLI on behalf of the owner (Rule 62-701.400(7)(a), F.A.C.)?

RBT/rt

cc: Mary Jean Yon
Chris McGuire

State of Florida
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Interoffice Memorandum

CENTRAL DISTRICT

TO: Jim Bradner, P.E. OCD-WCU-00-0429
Solid Waste Program Manager

FROM: George Houston II, P.G.
Environmental Specialist III

DATE: November 6, 2000

SUBJECT: Orange County – Waste Cleanup
Keene Road Disposal/ Buttrey Development Class III Landfill
Response to Comments

I have reviewed the Response to Comments, received November 6, 2000, and find the response to comment 20 acceptable and complete. An MPIS is forthcoming.

Attachment:

Buttrey Development Two L.L.C.

11/6/2000

November 3, 2000

Mr. James Bradner, P.E.
FDEP Solid Waste
Central District
3319 Maguire Blvd., Ste. 232
Orlando, Florida 32803-3767

Subject: Request for additional information
Application Nos. SC48-0165969-001 & SO48-0165969-002

Dear Mr. Bradner:

The following discussion is intended to satisfy the request for additional information dated October 19, 2000. All of the comments have been addressed to the best of my understanding and interpretation of intent. Attached along with this response are the requested copies.

If you have any questions concerning these responses or need clarification or additional information please feel free to contact me at 407-296-0016.

Sincerely,

Ed Chesney, P.E.
Project Engineer

Comment 9. This item on financial assurance remains incomplete until it is approved by the Department's Financial Coordinator.

As requested in a letter from the applicant dated September 27, 2000, financial assurance will be provided at least 60 days prior to the acceptance of solid waste at the proposed facility. In addition, no solid waste shall be accepted at the facility until the following requirements have been fulfilled, and the Department has provided a letter of acknowledgment and approval:

The permittee shall establish and maintain financial assurance in accordance with the requirements of Rule 62-701.730(11)(a), F.A.C. Proof that the financial mechanisms are established and funded in accordance with Rule 62-701.630, F.A.C. and 40 CFR Part 264, Subpart H as adopted by reference in Rule 62-701.630, F.A.C. shall be submitted to the Department sixty (60) days prior to

the acceptance of any solid waste at the facility. All submittals in response to this condition shall be sent to:

Florida Department of Environmental Protection
Financial Coordinator - Solid Waste Section
Twin Towers Office Building
2600 Blair Stone Road MS 4565
Tallahassee, Florida 32399-2400

The permittee shall adjust the closure and long-term care cost estimates in accordance with Rule 62-701.700(11)(b), F.A.C. prior to submitting proof of financial assurance. The cost estimates shall be signed and sealed by a professional engineer, and shall address any additional ground water monitoring wells or other expenses that may be incurred after resolution of all ground water monitoring issues.

Response 9. We acknowledge and accept the requirements to establish financial assurance prior to the acceptance of solid waste at this proposed facility and will act accordingly.

With respect to the resolution of ground water monitoring issues (as detailed in comment 20) and adjustments to closure and long-term care cost estimates the following applies:

Monitor wells will all be installed prior to closure and were not included in the closure cost estimate. Therefore, no adjustments to the earlier accepted Closing Cost Estimates will be required.

The Long Term Care Cost Estimate as previously accepted included monitoring estimates based on the earlier proposed plan. Attached as Exhibit A is a revised Long Term Care Cost Estimate based on the revised "clustered" monitoring plan.

Comment 15. This item on the variance request for the 100 feet setback remains incomplete until it is approved by the Florida Department of Environmental Protection - Solid Waste Section in Tallahassee.

Response 15. We acknowledge the request as incomplete until the official pending approval is received from Tallahassee.

Comment 20. Comment 20 is incomplete. Based on analysis of the "perched" and surficial aquifer ground water elevations and flow directions and the site lithology, the technical review staff does not concur with the number of proposed monitoring wells, the proposed monitoring network are recommended:

- Based on the surficial aquifer ground water flow direction, monitoring wells MW-4 and MW-6 are not necessary.
- Move MW-7 approximately 250 feet north of the proposed location.
- Based on the ground water flow direction in the "perched" aquifer, monitoring well MW-1 will not be needed as a ground water monitoring well, but will need to be retained as piezometer. Additionally, the water level network will need to include existing piezometers PZ-13A, PZ-13B, PZ-30, and PZ-31.

- While staff concurs with proposed locations for the monitoring wells MW-2, MW-5, MW-8, MW-9a and MW-9B, monitoring well clusters are only proposed at two (2) of these locations, existing background monitoring well MW-2 and monitoring well MW-9. Based on review of the onsite lithologic conditions, monitoring well clusters are needed at all monitoring well locations.

- The water table monitoring wells are proposed to be constructed with 15 feet of well screen. Analysis of the ground water elevations indicates that ground water can fluctuate from 44 to 55 feet as referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Since ground water levels can fluctuate 10 feet, it is recommended that the shallow water table well screens be 20 feet in length. These wells should be screened from 57 to 35 feet NGVD to ensure that is sufficient amount of water in the well. The lower surficial monitoring wells should be screened from 20 to 10 feet NGVD.

- Existing monitoring well MW-3 is screened from 57 to 42 feet NGVD. Ground water elevations in monitoring well MW-3 have ranged from 44.87 to 53.60 feet NGVD. When the ground water level was at 44.87 feet NGVD, there was only 2.87 feet of water in the well. This is not enough water to adequately monitor the upper portion of the aquifer. Therefore, it is recommended that existing monitoring well MW-3 be properly abandoned and a new well installed with a well screen 20 feet in length. This well should be screened from 57 to 35 feet NGVD to ensure there is sufficient amount of water in the well.

Response 20. The revised Figure 4 and Table 2 from the proposed Monitoring Plan are attached as Exhibit B and include the following changes in the order described above:

- MW-4 & MW-6 as previously shown on Figure 4 have been deleted.

- The location of MW-7 has been shifted 250 feet to the north of it's originally proposed location. MW-7 has been renamed as MW-7A.

- MW-1 has been renamed PZ-1. Earlier references to a PZ-1 were for an off-site well/piezometer used of ground water level information only. This well/piezometer which is located just south of the property line will no longer be used or referenced as PZ-1 and has been removed from Figure 4. In addition to newly assigned PZ-1, site piezometers PZ-13A, PZ-13B, PZ30, & PZ31 are shown on Figure 4. These five piezometers will be used as ground water level stations for "perched" ground water conditions.

- Groundwater monitoring "clusters" are now proposed at each monitor well location. As shown on Figure 4, seven monitor well cluster locations are shown.

- Each of the seven shallow wells (denoted by A) are screened for twenty feet from elevation 57 to 37 NGVD. Each of the deeper wells (denoted by B) are screened for ten feet from elevation 20 to 10 feet NGVD. Refer to the revised Table 2 found in Exhibit B for more details.

- The existing MW-3 will be properly abandoned and replaced by the cluster MW-3A & MW-3B.

- The revised Figure 4 shows each cluster location as well as the renumbering scenario used.

Attached as Exhibit C is a revised report prepared by Universal Engineering Sciences, Inc. which covers the comments on the deflection liner requirements.

Attachments: as noted

C:\MyFiles\pit91L\FDEP7.WPD

P.O. Box 1029 Clarcona, Florida 32710
Telephone: (407) 296-0016; FAX: (407) 294-8090

EXHIBIT A

B and B
Keene Rd. Disposal
Long Term Care Cost Estimate

Estimated Annual Long Term Care Costs					
Description	Unit	Quantity	Unit Cost	Total	Category Subtotals
Groundwater Monitoring					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea	28	$600.00	$16,800.00	
Annual	ea			$0.00	
Monitoring Well Maintenance	LS	1	$2,500.00	$2,500.00	
Subtotal, Groundwater Monitoring					$19,300.00
Gas Monitoring					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea			$0.00	
Annual (explosivity monitoring)	ea	10	$500.00	$5,000.00	
Subtotal, Gas Monitoring					$5,000.00
Leachate Monitoring	Not applicable				
Surface Water Monitoring (no surface water monitoring required)					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea			$0.00	
Annual	ea			$0.00	
Subtotal, Surface Water Monitoring					$0.00
Landscape Maintenance					
Mowing	LS	2	$2,000.00	$4,000.00	
Fertilizer	LS	1	$2,000.00	$2,000.00	
Irrigation	ac			$0.00	
Subtotal, Landscape Maintenance					$6,000.00
Benchmark Maintenance					
Benchmark Repairs, etc.	ea	1	$500.00	$500.00	
Subtotal, Benchmark Maintenance					$500.00
Administrative					
Site Supervisor	hr	60	$20.00	$1,200.00	
Subtotal, Administrative					$1,200.00
Electricity					
Includes, pumps, lights, etc.	LS			$0.00	
Subtotal, Electricity					$0.00
Maintenance of Cover and Erosion Control					
Sodding	sy	4840	$1.25	$6,050.00	
Regrading	LS	2	$2,000.00	$4,000.00	
Liner Repair	cy	500	$3.00	$1,500.00	
Clay	cy	500	$8.34	$4,170.00	
Subtotal, Maintenance of Cover					$15,720.00
Surface Water Drainage Maintenance					
Ditch Cleaning	LS	1	$2,000.00	$2,000.00	
Storm Water Conveyance Maintenance	LS	1	$1,000.00	$1,000.00	
Subtotal, Surface Water Drainage Maintenance					$3,000.00
Security System Maineneance					
Fencing	LS	1	$1,000.00	$1,000.00	
Gates	LS	1	$500.00	$500.00	
Sign(s)	LS	1	$100.00	$100.00	
Subtotal, Security System					$1,600.00
Site Specific Costs (explain)					
				$0.00	
				$0.00	
				$0.00	
				$0.00	
Subtotal, Site Specific Costs					$0.00
Subtotal, Annual Long Term Care Costs					**$52,320.00**
Subtotal, Annual Long Term Care Costs				$52,320.00	
Contingency					
Contingency Estimate (% of total)	%	10		$5,232.00	
Total, Annual Long Term Care Costs					$57,552.00
Total, 30-Year Long Term Care Costs					$1,726,560.00

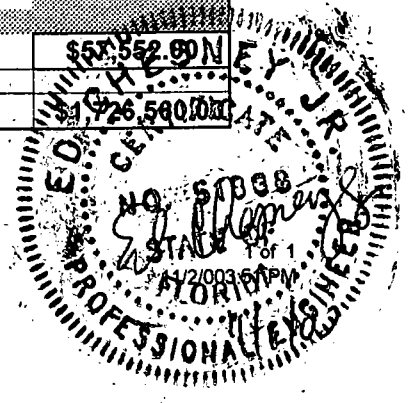
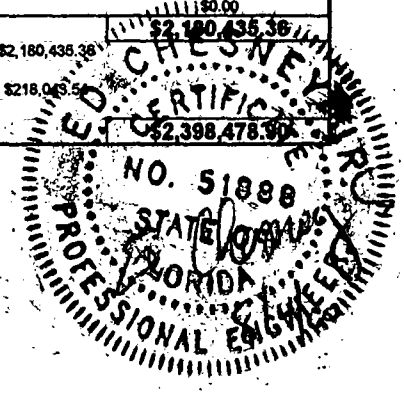


EXHIBIT B

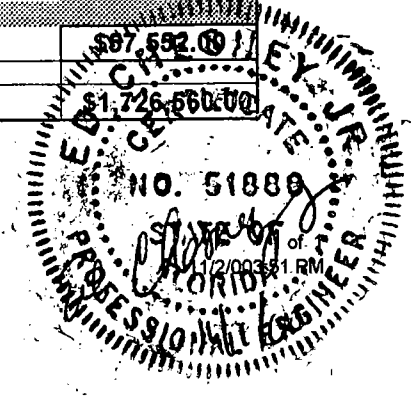
B and B
Keene Rd. Disposal
Closure Cost Estimate

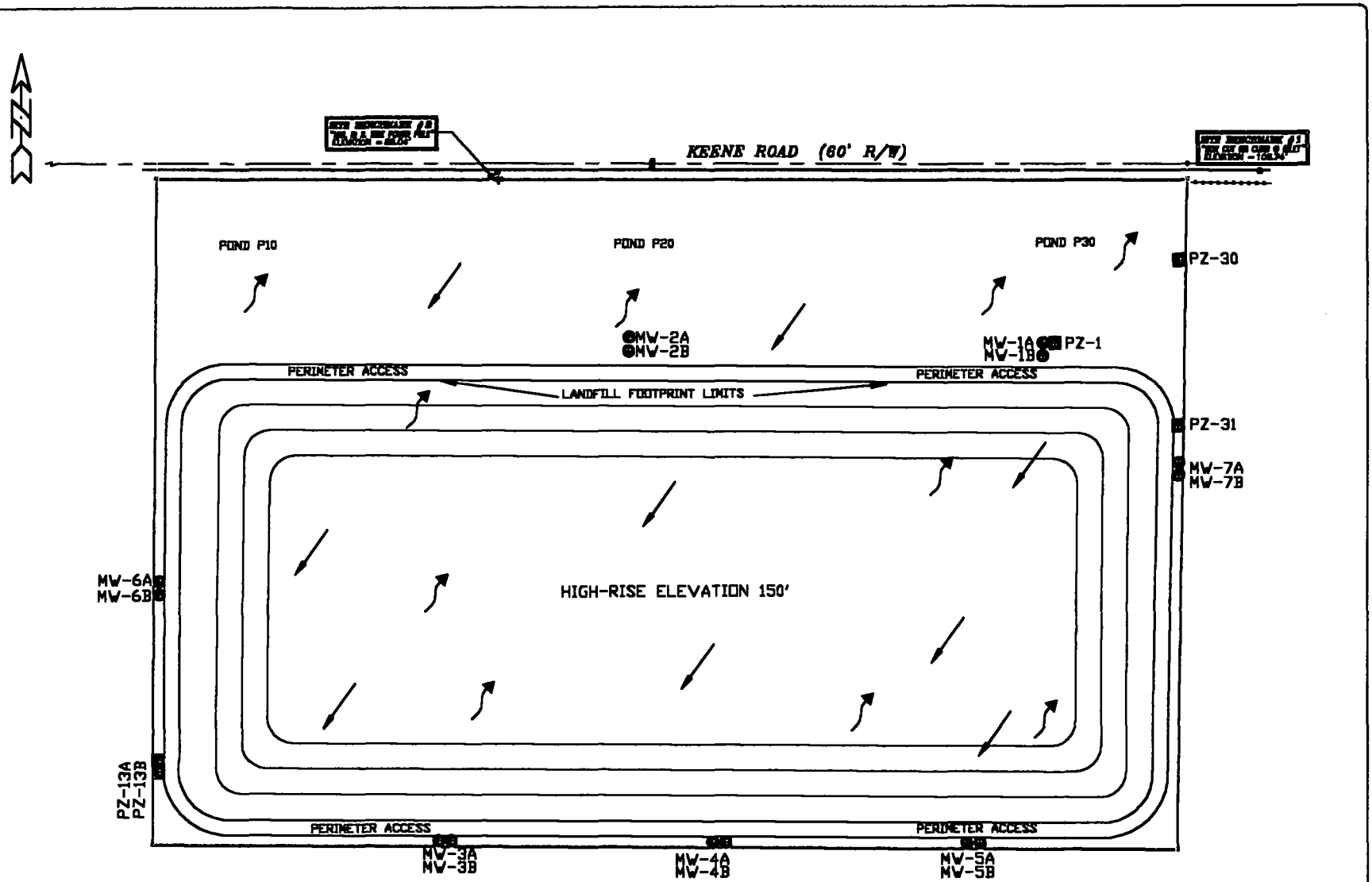
Estimated Closure Cost					
Description	Unit	Quantity	Unit Cost	Total	Category Subtotals
Monitoring Wells *(all monitoring wells installed prior to closure)*					
Borehole Excavation	cy			$0.00	
Backfill	cy			$0.00	
Gravel Pack	cy			$0.00	
Casing	lf			$0.00	
Screen	ea			$0.00	
Cap	ea			$0.00	
Subtotal Monitoring Well					$0.00
Intermediate Cover (Slope and Fill)					
Delivered Fill Dirt Cover Material	cy	9,680.0	$5.03	$48,690.40	
Placement and Dressing	cy	9,680.0	$0.75	$7,260.00	
Cap System					
Delivered Clay Material (10^{-5} clay, 18" layer)	cy	110,352.0	$8.34	$920,335.68	
Placement, Compaction and Dressing	cy	110,352.0	$3.00	$331,056.00	
Delivered Sand Cover (12" layer)	cy	73,568.0	$5.03	$370,047.04	
Placement and Dressing	cy	73,568.0	$0.75	$55,176.00	
Delivered Top Soil Component	cy	36,784.0	$6.11	$224,750.24	
Placement and Dressing	cy	36,784.0	$0.75	$27,588.00	
Sod (side slopes)	sy	82,280.0	$1.25	$102,850.00	
Seed and Mulch (top slopes)	sy	101,640.0	$0.30	$30,492.00	
Subtotal, Cap System					$2,118,245.36
Storm Water Control *(all storm water controls installed prior to closure)*					
Excavation, Grading, Recontouring	cy			$0.00	
Storm Water Conveyances (side slope)	ea			$0.00	
Ditch/Swale Construction	cy			$0.00	
Berm Construction	cy			$0.00	
30" CPP	Lf			$0.00	
Infiltration Galleries	ea			$0.00	
Drop BoxesFDOT Index #232 type D	ea			$0.00	
Drop BoxesFDOT Index #232 type E	ea			$0.00	
18" Perforated Drain Pipe	Lf			$0.00	
Rip-Rap	cy			$0.00	
Subtotal, Storm Water Control					$0.00
Revegetation					
Sodding	sy	9,680.0	$1.25	$12,100.00	
Soil Preparation/Grading	sy	9,680.0	$0.50	$4,840.00	
Hydro Seeding	sy			$0.00	
Fertilizer	ac			$0.00	
Mulch	ac			$0.00	
Trees (10')	ea	25.0	$30.00	$750.00	
Subtotal, Revegetation					$17,690.00
Landscape and Irrigation System *(no irrigation system proposed)*					
Pipe and Fittings	Lf			$0.00	
Pumps	ea			$0.00	
Irrigation Wells	ea			$0.00	
Subtotal, Landscape and Irrigation Systems					$0.00
Security System *(all security systems installed prior to closure)*					
Fencing	Lf			$0.00	
Gates	ea			$0.00	
Sign(s)	ea			$0.00	
Subtotal, Security System					$0.00
Engineering					
Closure Plan Report	LS	1.0	$10,000.00	$10,000.00	
Certified Engineering Documents (closure construction	LS	1.0	$4,000.00	$4,000.00	
Closure Permit	LS	1.0	$5,000.00	$5,000.00	
NSPS/Title V Air permit	LS	NA		NA	
QA/QC, on site construction engineering	LS	1.0	$10,000.00	$10,000.00	
Other				$0.00	
Other				$0.00	
Other				$0.00	
Subtotal, Engineering					$29,000.00
Surveying					
Benchmark Installation	ea	1.0	$1,000.00	$1,000.00	
Final Survey	ac	60.0	$200.00	$12,000.00	
Subtotal, Surveying					$13,000.00
Certification of Closure					
Engineer's Certification	LS	1.0	$2,500.00	$2,500.00	
Subtotal, Certification of Closure					$2,500.00
Site Specific Costs (explain)				$0.00	
Mobilization	LS			$0.00	
Removal of Recovered Materials	cy			$0.00	
Other (Details)				$0.00	
Subtotal, Site Specific Costs					$0.00
Subtotal, Closure Costs					$2,180,435.36
Subtotal, Closure Costs				$2,180,435.36	
Contingency					
Contingency Estimate (% of total)	%	10		$218,043.54	
Total, Closure Costs					$2,398,478.90



B and B
Keene Rd. Disposal
Long Term Care Cost Estimate

Estimated Annual Long Term Care Costs					
Description	Unit	Quantity	Unit Cost	Total	Category Subtotals
Groundwater Monitoring					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea	28	$600.00	$16,800.00	
Annual	ea			$0.00	
Monitoring Well Maintenance	LS	1	$2,500.00	$2,500.00	
Subtotal, Groundwater Monitoring					$19,300.00
Gas Monitoring					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea			$0.00	
Annual (explosivity monitoring)	ea	10	$500.00	$5,000.00	
Subtotal, Gas Monitoring					$5,000.00
Leachate Monitoring	[illegible]				
Surface Water Monitoring (no surface water monitoring required)					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea			$0.00	
Annual	ea			$0.00	
Subtotal, Surface Water Monitoring					$0.00
Landscape Maintenance					
Mowing	LS	2	$2,000.00	$4,000.00	
Fertilizer	LS	1	$2,000.00	$2,000.00	
Irrigation	ac			$0.00	
Subtotal, Landscape Maintenance					$6,000.00
Benchmark Maintenance					
Benchmark Repairs, etc.	ea	1	$500.00	$500.00	
Subtotal, Benchmark Maintenance					$500.00
Administrative					
Site Supervisor	hr	60	$20.00	$1,200.00	
Subtotal, Administrative					$1,200.00
Electricity					
Includes, pumps, lights, etc.	LS			$0.00	
Subtotal, Electricity					$0.00
Maintenance of Cover and Erosion Control					
Sodding	sy	4840	$1.25	$6,050.00	
Regrading	LS	2	$2,000.00	$4,000.00	
Liner Repair	cy	500	$3.00	$1,500.00	
Clay	cy	500	$8.34	$4,170.00	
Subtotal, Maintenance of Cover					$15,720.00
Surface Water Drainage Maintenance					
Ditch Cleaning	LS	1	$2,000.00	$2,000.00	
Storm Water Conveyance Maintenance	LS	1	$1,000.00	$1,000.00	
Subtotal, Surface Water Drainage Maintenance					$3,000.00
Security System Maineneance					
Fencing	LS	1	$1,000.00	$1,000.00	
Gates	LS	1	$500.00	$500.00	
Sign(s)	LS	1	$100.00	$100.00	
Subtotal, Security System					$1,600.00
Site Specific Costs (explain)					
				$0.00	
				$0.00	
				$0.00	
				$0.00	
Subtotal, Site Specific Costs					$0.00
Subtotal, Annual Long Term Care Costs					**$52,320.00**
Subtotal, Annual Long Term Care Costs				$52,320.00	
Contingency					
Contingency Estimate (% of total)	%	10		$5,232.00	
Total, Annual Long Term Care Costs					$57,552.00
Total, 30-Year Long Term Care Costs					$1,726,560.00





LEGEND

- GROUND WATER LEVEL PIEZOMETER
- GROUND WATER MONITORING WELL
- FLORIDAN AQUIFER FLOW DIRECTION
- SURFICIAL AQUIFER FLOW DIRECTION

S. 1/4 CORNER, SECTION 09-01-28

REFER TO GROUNDWATER MONITORING PLAN (TABLE 2) FOR SPECIFIC WELL DETAILS

300 0 300

Scale 1" = 300'

BISHOP & BUTTREY, INC.

KEENE ROAD DISPOSAL CLASS III LANDFILL
BUTTREY DEVELOPMENT TWO, L.L.C.

GROUNDWATER MONITORING WELL LAYOUT

JOB NO.	
DATE	
SCALE	
DRAWN BY	EC
CHKD BY	EC

REVISIONS	
1	MAY 2000 FDEP
2	JULY 2000 ORANGE CO.
3	OCT. 2000 FDEP
4	
5	
6	

MONITOR WELL LOCATIONS

FIGURE 4

TABLE 2
MONITOR WELL DESIGN

WELL NO.	MW-1A	MW-2A*	MW-3A	MW-4A
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
GROUND ELEV.	106' NGVD	83' NGVD	93' NGVD	79' NGVD
TOTAL DEPTH bls	69 - FEET	40 - FEET	56 - FEET	42 - FEET
CASING LENGTH	49 - FEET	25 - FEET	36 - FEET	22 - FEET
SCREEN LENGTH	20 - FEET	15 - FEET	20 - FEET	20 - FEET
SLOT SIZE	** INCH	.01 INCH	** INCH	**
SCREEN INTERVAL	57' to 37' NGVD	43' to 58' NGVD	57' to 37' NGVD	57' to 37' NGVD
FILTER SAND	***	30/45 SILICA	***	***
FILTER SEAL	3' FINE SAND SEAL	BENTONITE	3' FINE SAND SEAL	3' FINE SAND SEAL

WELL NO.	MW-5A	MW-6A	MW-7A	MW-1B
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
GROUND ELEV.	76' NGVD	98' NGVD	106' NGVD	106' NGVD
TOTAL DEPTH bls	39 - FEET	61 - FEET	69 - FEET	96 - FEET
CASING LENGTH	19 - FEET	41 - FEET	49 - FEET	86- FEET
SCREEN LENGTH	20 - FEET	20 - FEET	20- FEET	10- FEET
SLOT SIZE	** INCH	** INCH	** INCH	** INCH
SCREEN INTERVAL	57' to 37' NGVD	57' to 37' NGVD	57' to 37' NGVD	20' to 10' NGVD
FILTER SAND	***	***	***	***
FILTER SEAL	3' FINE SAND SEAL	3' FINE SAND SEAL	3' FINE SAND SEAL	3' FINE SAND SEAL

WELL NO.	MW-2B	MW-3B	MW-4B	MW-5B
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
GROUND ELEV.	83' NGVD	93' NGVD	79' NGVD	76' NGVD
TOTAL DEPTH bls	73 - FEET	83 - FEET	69 - FEET	66 - FEET
CASING LENGTH	63 - FEET	73 - FEET	59 - FEET	56 - FEET
SCREEN LENGTH	10 - FEET	10 - FEET	10 - FEET	10 - FEET
SLOT SIZE	** INCH	** INCH	** INCH	** INCH
SCREEN INTERVAL	20' to 10' NGVD	20' to 10' NGVD	20' to 10' NGVD	20' to 10' NGVD
FILTER SAND	***	***	***	***
FILTER SEAL	3' FINE SAND SEAL	3' FINE SAND SEAL	3' FINE SAND SEAL	3' FINE SAND SEAL

Notes: All wells constructed of schedule 40 PVC. All wells protected above the surface with locking 4 x 4 protective metal well casings. * indicates a previously installed well. ** slot size pending laboratory testing. *** filter sand pending laboratory testing. C:\MyFiles\pit91L\MW_TAB.WPD

TABLE 2 (continued)
MONITOR WELL DESIGN

WELL NO.	MW-6B	MW-7B		
DIAMETER	2 - INCH	2 - INCH		
GROUND ELEV.	98' NGVD	106' NGVD		
TOTAL DEPTH bls	88 - FEET	96 - FEET		
CASING LENGTH	78 - FEET	86 - FEET		
SCREEN LENGTH	10 - FEET	10- FEET		
SLOT SIZE	** INCH	** INCH		
SCREEN INTERVAL	20' to 10' NGVD	20' to 10' NGVD		
FILTER SAND	***	***		
FILTER SEAL	3'FINE SAND SEAL	3' FINE SAND SEAL		

WELL NO.				
DIAMETER				
GROUND ELEV.				
TOTAL DEPTH bls				
CASING LENGTH				
SCREEN LENGTH				
SLOT SIZE				
SCREEN INTERVAL				
FILTER SAND				
FILTER SEAL				

WELL NO.				
DIAMETER				
GROUND ELEV.				
TOTAL DEPTH bls				
CASING LENGTH				
SCREEN LENGTH				
SLOT SIZE				
SCREEN INTERVAL				
FILTER SAND				
FILTER SEAL				

Notes: All wells constructed of schedule 40 PVC. All wells protected above the surface with locking 4 x 4 protective metal well casings. * indicates a previously installed well. ** slot size pending laboratory testing. *** filter sand pending laboratory testing. C:\MyFiles\pit91L\MW_TAB.WPD

EXHIBIT C

UNIVERSAL
ENGINEERING SCIENCES
Consultants in: Geotechnical Engineering • Threshold Inspection
Environmental Sciences • Construction Materials Testing

Offices in
• Orlando
• Gainesville
• Fort Myers
• Rockledge
• St. Augustine
• Daytona Beach
• West Palm Beach
• Jacksonville
• Ocala
• Tampa
• Debary

October 31, 2000

Buttrey Development, LLC
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32810-4747

Attn: Mr. Ed Chesney, P.E.

Re: Deflection Barrier
B&B #91 (Keene Road Landfill Site)
Orange County, Florida
UES Project No. 17862-085-05
UES Correspondence No. 141764

Dear Mr. Chesney:

This letter is intended to respond to your request for information regarding the FDEP comments dated 10/19/00 and QA/QC testing and installation recommendations for a geosynthetic deflection liner to utilized along the side slopes of this proposed Class III waste site. Our understanding of your needs, along with our recommendations for liner design and testing, are presented in the following paragraphs.

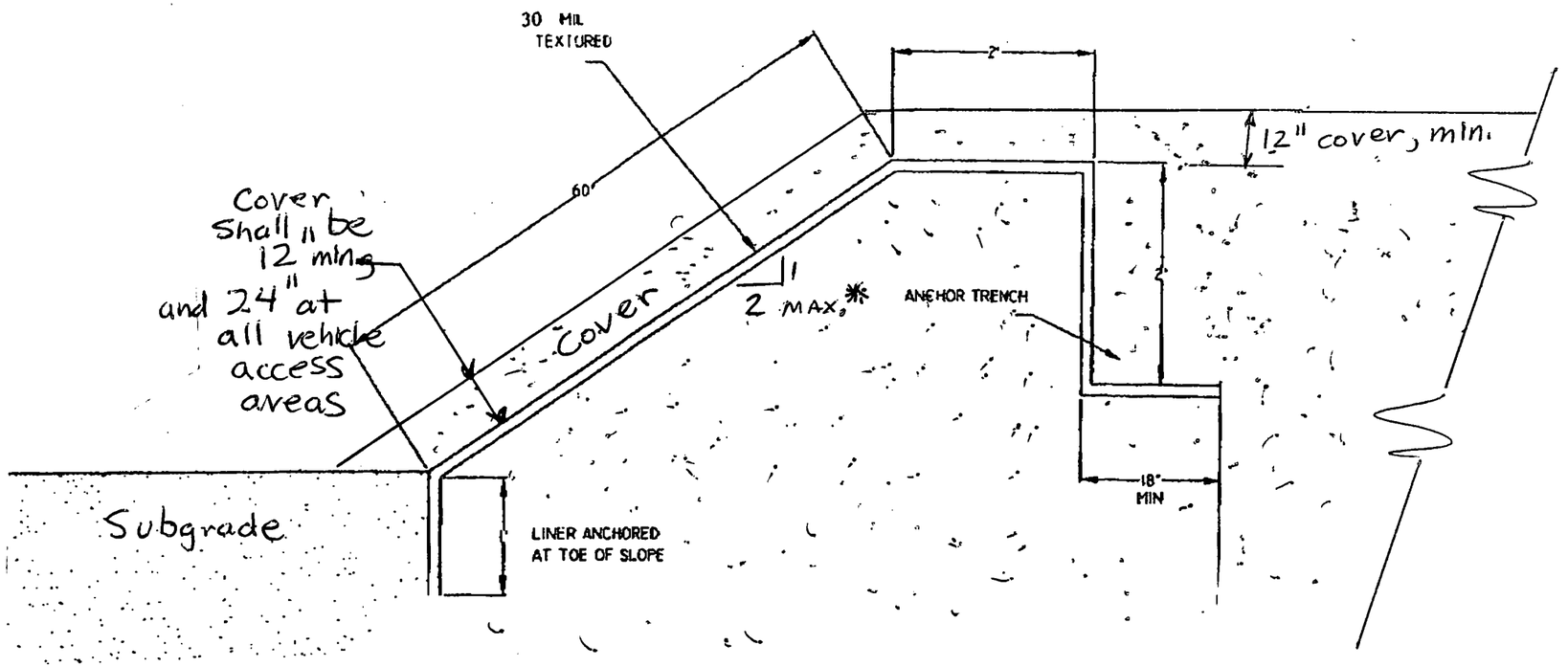
PROJECT DESCRIPTION

We understand you are required by the State of Florida Department of Environmental Protection to install a deflection liner to prevent infiltration of stormwater in the landfill area within 100 feet of the property boundaries. In order to provide assurance that stormwater will not infiltrate the site within the required horizontal distance, a deflection side liner will be installed. The original liner was to be made of clay, but due to the difficulty of compacting clay on the side slopes, you have decided to utilize a 30-mil, textured HDPE side liner. Universal Engineering Sciences has been requested to provide guidance for the design and construction of the liner.

DESIGN CONSIDERATIONS

The proposed HDPE liner will be a textured geosynthetic capable of withstanding the vertical stress imposed. The selected geosynthetic should be evaluated for stability on the slope to ensure it will not slide under the imposed stress from the waste material. A direct shear test using the synthetic liner and soil to be placed below the liner should be performed to assess the friction angle which is developed. A factor of safety against sliding of 1.5 is recommended.

The side slopes must be properly prepared prior to placing the geosynthetic. This will include the placement of 18 inches of clean sand over the slope prior to liner placement. The sand should have less than 5% passing the No. 200 sieve, and have a permeability of greater than 20 feet per day. The purpose of this sand layer is to prevent build up of pore pressure in the perched groundwater layers, and allow proper cushioning below the geosynthetic liner; the sand



DEFLECTION LINER PROFILE

NOT TO SCALE

*** NOTES**

1) Side slope shall be determined from direct shear test with geosynthetic, subgrade, & cover soils
2) Refer to Liner QA/QC Plan For all testing requirements.

584768

FOR: BUTTREY DEVELOPMENTS LLC. Orlando, Florida

DRAWN BY: DGW	DATE: 11/11/06		
CHECKED BY: AHD	DATE: 11/21/06		
SCALE: Noted			
ORDER NO:		REPORT NO:	

DEFLECTION LINER PROFILE
TYPICAL SECTION
KEENE ROAD SITE
ORANGE COUNTY, FLORIDA

UNIVERSAL ENGINEERING SCIENCES

PAGE NO:

must be free of rocks, sticks, or any deleterious material which could puncture the liner.

Once the liner is properly installed, it should be covered as soon as practical with a 12 inch thick sand blanket to prevent puncture in the areas where a light dozer (Cat D-3 or Cat D-6 wide track) will operate; in the ramp areas and other similarly trafficked areas, soil cover thickness shall be at least 2 feet. This sand should be free of rocks, sticks, or any deleterious material which could puncture the liner. This sand should also be tested for stability in the same manner prescribed in the previous paragraph for the sand cushion below the liner.

The liner must be properly anchored to prevent pull-out, and possible sliding down the slope. The top anchor trench should be at least 18 inches wide and 2 feet deep, and be positioned at least 2 feet from the crest of the slope. At the lower end of the liner trench, the liner should be tailed into the toe of the slope approximately 2 feet in order to prevent erosional washout at the toe.

LINER QA/QC

General

The assembly of the deflection liner should be in accordance with the liner installation plan prepared by the Geosynthetic Liner installer (GLI), which should be reviewed by UES for approval 2 weeks prior to the installation. The liner should only be walked on by tennis shoes (no street or hard soled shoes) and it should be assembled with a double-tracked fusion welder. No rocks or other hard objects larger than 3/8 inch shall be present in the top 1 inch of the subgrade. Surfaces to be lined shall be smooth and free of debris of any kind. Each panel to be placed shall be numbered consistent with the layout plan. Welding shall not take place during any precipitation, in the presence of excessive moisture, or in the presence of excessive winds, in the opinion of the independent third party inspector.

Field Seaming

All seams should be oriented parallel to the maximum slope direction. In corners and in odd-shaped geometrical locations, the number of seams should be minimized. No horizontal seams should be less than 5 feet from the toe of the slope or areas of potential stress concentrations. Field joints shall be made by overlapping adjacent sheets a minimum of 3 inches for extrusion welding. The fusion welding device must be an automatic vehicular-mounted device which produces a double seam with an enclosed air space. The device shall also be equipped with gages giving the applicable temperatures. The GLI shall verify that the equipment used for seaming will not damage the geomembrane.

The welder should be warmed up each day by performing a 5 foot long trial seam. The trial seam shall be at least 1 foot wide, with two adjoining specimens , each 1 inch wide, shall be cut from the trial seam sample by the GLI. The specimens shall be tested in shear and peel, respectively, using a field tensiometer.

"Fishmouths" or wrinkles at the seam overlaps shall be cut along the ridge of the wrinkle in order to achieve a flat flap overlay. The cut at the "fishmouth" shall be seamed and any portion where the overlap is inadequate shall be patched with an oval or round patch of the same geomembrane extending a minimum of 6 inches beyond the cut in all directions.

QUALITY CONTROL / QUALITY ASSURANCE (QA/QC) TESTING

Vacuum Seam Testing

The GLI shall nondestructively inspect all field seams over their full length using a vacuum box test unit. The vacuum box assembly shall consist of a rigid box housing, a transparent viewing window, a soft neoprene gasket attached to the bottom, port hole or valve assembly, and a gage to indicate the chamber vacuum. The following procedures shall be utilized in vacuum seam testing:

1. Energize the vacuum pump and reduce the tank pressure to about 5 psia.
2. Wet a strip of geomembrane approximately 12 inches wide by 48 inches in length with the soapy solution.
3. Place the box over the wetted area.
4. Close the bleed valve and open the vacuum valve.
5. Ensure that a tight seal is created.
6. For a period of approximately 5 to 10 seconds, examine the geomembrane through the viewing window for the presence of soap bubbles.
7. If no bubbles appear after 10 to 15 seconds, close the vacuum valve and open the bleed valve, move the box to the next adjoining section with a 3 inch minimum overlap and repeat the process until the entire seam is examined.
8. All areas where soap bubbles appear shall be sequentially marked and repaired as outlined for patching "fishmouths".

Air Pressure Testing (For double fusion seam)

The equipment needed for air pressure testing of the seams includes an air pump (manual or motor driven) capable of generating and sustaining a pressure of 25 to 30 psia, a rubber hose with fittings and connections, a hollow needle, or other approved pressure feed device. The following procedures shall be followed:

1. Seal both ends of the seam to be tested.

2. Insert the needle into one end of the tunnel created by the fusion weld.

3. Energize the air pump to a pressure of between 25 and 30 psi, close the valve, and sustain the pressure for 5 minutes.

4. If the pressure loss in 5 minutes is 3 psi, or less, the seam passes the test; if not, locate the faulty area and repair as outlined in the preceding paragraphs.

5. Remove the needle and seal.

Destructive Testing

Destructive tests shall be performed at random locations selected by the QA testing firm. The purpose is to ensure that the welds are fully integrated with each other and to evaluate the seam strength. Seam strength testing shall be performed as the work progresses, not at the completion of all field seaming. The destructive testing shall be performed as follows:

1. The QA laboratory shall select the test locations. The destructive tests shall be performed at a frequency of 1 sample for every 500 feet, but at least one sample for every seam created.

2. Samples shall be cut by the GLI. He will assign a number to each sample based on the seam and sample number and mark it accordingly. Record sample locations on a panel layout drawing.

3. All holes in the geomembrane shall be repaired as outlined in the previous paragraphs.

4. At a given sample location, two types of samples shall be obtained by the GLI. First, two samples are taken for field testing of the peel and shear and shall not fail in the seam. The pass/ fail criteria for 30 mil HDPE seams will be that the seam has 100% film tear bond (FTB) and 63 pounds per inch width of shear, and 35 pounds of peel per inch width. If the field tests pass the liner shall be considered acceptable; if not, then the seam shall be marked and numbered by the GLI and repaired in the area that fails. Seams that fail shear and/or peel shall be capped with similar geomembrane that is a minimum of 12 inches larger in all directions than the area to be repaired. Any holes shall be repaired in the same manner. The patch shall be spot bonded thermally.

CONSULTATION

There may be questions that come up after the report is read. Please feel free to contact the writer if you should have any questions, or would like to arrange a meeting. It has been a pleasure working with you on this project, and we look forward to being of continued service to Buttrey Development, LLC.

Sincerely,

Universal Engineering Sciences, Inc.

R. Kenneth Derick, PE
Florida PE No. 37711
Senior Vice President

RKD/rw

cc: Client (4) copies

Department of
Environmental Protection

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Jeb Bush
Governor

David B. Struhs
Secretary

CERTIFIED
7099 3400 0010 0158 4641

Mr. John Buttrey
Buttrey Development, LLC
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32810

OCD-SW-00-0452

Orange County - SW
Keene Road Disposal/Buttrey Development
Class III Landfill - Construct & Operate
Permit Application Nos. SC48-0165969-001 and SO48-0165969-002

Dear Mr. Buttrey:

This is to acknowledge receipt of your application for the subject facility. The status of your application is as follows:

() Your application for permit received on is incomplete. Please provide the information listed on the attached sheet promptly. Evaluation of your application will be delayed until all the requested information has been received.

(X) The additional information received on September 11, 20 and 29, 2000, was reviewed, however, the items listed on the attached memo remain incomplete. Evaluation of your application will continue to be delayed until we receive all requested information.

Pursuant to Section 120.60(2), Florida Statutes, the Department may deny an application, if the applicant, after receiving timely notice, fails to correct errors, omissions or supply additional information within a reasonable period of time. Please submit three copies of the requested information to the Department and reference the above application permit number in your correspondence.

If you have any questions, please contact me at (407) 893-3328.

Sincerely,

James N. Bradner

James N. Bradner, P.E.
Program Manager
Solid Waste

Date: 10/19/2000

JNB/gc/ew

Enclosure

cc: Ed Chesney, P.E.

9. This item on financial assurance remains incomplete until it is approved by the Department's Financial Coordinator.

As requested in a letter from the applicant dated September 27, 2000, financial assurance will be provided at least 60 days prior to the acceptance of solid waste at the proposed facility. In addition, no solid waste shall be accepted at the facility until the following requirements have been fulfilled, and the Department has provided a letter of acknowledgment and approval:

The permittee shall establish and maintain financial assurance in accordance with the requirements of Rule 62-701.730(11)(a), F.A.C. Proof that the financial mechanisms are established and funded in accordance with Rule 62-701.630, F.A.C. and 40 CFR Part 264, Subpart H as adopted by reference in Rule 62-701.630, F.A.C. shall be submitted to the Department sixty (60) days prior to the acceptance of any solid waste at the facility. All submittals in response to this condition shall be sent to:

Florida Department of Environmental Protection
Financial Coordinator - Solid Waste Section
Twin Towers Office Building
2600 Blair Stone Road MS 4565
Tallahassee, Florida 32399-2400

The permittee shall adjust the closure and long-term care cost estimates in accordance with Rule 62-701.700(11)(b), F.A.C. prior to submitting proof of financial assurance. The cost estimates shall be signed and sealed by a professional engineer, and shall address any additional ground water monitoring wells or other expenses that may be incurred after resolution of all ground water monitoring issues.

15. This item on the variance request for the 100-foot setback remains incomplete until it is approved by the Florida Department of Environmental Protection - Solid Waste Section - in Tallahassee.

20. Comment 20 is incomplete. Based on analysis of the "perched" and surficial aquifer ground water elevations and flow directions and the site lithology, the technical review staff does not concur with the number of proposed monitoring wells, the proposed monitoring well locations, nor their construction. The following changes to the proposed monitoring network are recommended:

- Based on the surficial aquifer ground water flow direction, monitoring wells MW-4 and MW-6 are not necessary.
- Move monitoring well MW-7 approximately 250 feet north of the proposed location.
- Based on the ground water flow direction in the "perched" aquifer, monitoring well MW-1 will not be needed as a ground water monitoring well, but will need to be retained as piezometer. Additionally, the water level network will need to include existing piezometers PZ-13A, PZ-13B, PZ-30, and PZ-31.
- While staff concurs with proposed locations for the monitoring wells MW-2, MW-5, MW-8, MW-9A and MW-9B, monitoring well clusters are only proposed at two (2) of these locations, existing background monitoring well MW-2 and monitoring well MW-9. Based on review of the onsite lithologic conditions, monitoring well clusters are needed at all monitoring well locations.
- The water table monitoring wells are proposed to be constructed with 15 feet of well screen. Analysis of the ground water elevations indicates that ground water can fluctuate from approximately 44 to 55 feet as referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Since ground water levels can fluctuate 10 feet, it is recommended that the shallow water table well screens be 20 feet in length. These wells should be screened from 57 to 35 feet NGVD to ensure there is sufficient amount of water in the well. The lower surficial monitoring wells should be screened from 20 to 10 feet NGVD.

- Existing monitoring well MW-3 is screened from 57 to 42 feet NGVD. Ground water elevations in monitoring well MW-3 have ranged from 44.87 to 53.60 feet NGVD. When the ground water level was at 44.87 feet NGVD, there was only 2.87 feet of water in the well. This is not enough water to adequately monitor the upper portion of the aquifer. Therefore, it is recommended that existing monitoring well MW-3 be properly abandoned and a new well installed with a well screen 20 feet in length. This well should be screened from 57 to 35 feet NGVD to ensure there is sufficient amount of water in the well.
- Since some of the proposed monitoring wells will not be part of the monitoring network, please renumber the remaining monitoring wells. Additionally, it is suggested that water table monitoring wells be designated with an "A" and that lower surficial monitoring wells be designated with a "B" after the well number. For example use MW-1A for the water table well in the MW-1 cluster.

Please revise the proposed Monitoring Plan Implementation Schedule to address these comments.

The following comments are based upon the deflection liner requirements proposed by Universal Engineering Sciences, dated September 18, 2000, and received by the Department on September 20, 2000.

- The Plan includes some of the key elements required but should be expanded to address the requirements of Rules 62-701.400(7) and (8), Florida Administrative Code. For example, there is no discussion of a field test strip to ensure the target hydraulic conductivity can be achieved in the field. Also, some of the required tests are missing such as moisture content, thickness measurements and percent fines.
- What pass/fail criteria will be used to evaluate the test results from installing the clay to ensure it meets the required specifications? If it is determined that areas of the liner do not meet specifications, what repair steps will be taken?
- What borrow source is anticipated for the clay? Is there any data to support the suggestion in the Plan that a 90% Modified Proctor density will be adequate to achieve the target hydraulic conductivity?
- Please describe the construction preparation planned for the 2:1 subbase before placement of the clay.
- How will the clay be protected from desiccation cracks after compaction? If cover soils are planned for the compacted clay, please provide more details explaining the placement of these soils and their expected stability before waste is placed on the slopes.
- Will a full time QA inspector be on-site at all times during construction?
- What steps will be used during construction to ensure there is good contact between the clay lifts?
- What compaction equipment is planned for this project? Due to possible difficulty of compacting clays on a 2:1 slope, what special precautions will be taken to ensure that the clay lifts are properly compacted?

Please provide responses to all the comments noted above as expeditiously as possible. Failure to provide the necessary information to complete the permit application will require the Department to propose final action based upon information received to date.

State of Florida
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Interoffice Memorandum

CENTRAL DISTRICT

TO: Jim Bradner, P.E. OCD-WCU-00-0389
Solid Waste Program Manager

THROUGH: G. Bret LeRoux, P.G. GBL 9/29/2000
Waste Cleanup Program Manager

FROM: George Houston II, P.G. GH
Environmental Specialist III

DATE: September 29, 2000

SUBJECT: Orange County – Waste Cleanup
Keene Road Disposal/ Buttrey Development Class III Landfill
Response to Comments

I have reviewed the Response to Comments, received September 12, 2000, and have the following comments:

The response to comment 17 is acceptable and complete.

Comment 20 is incomplete. Based on analysis of the "perched" and surficial aquifer ground water elevations and flow directions and the site lithology, I do not concur with the number of proposed monitoring wells, the proposed monitoring well locations, nor their construction. I recommend the following changes to the proposed monitoring network:

- Based on the surficial aquifer ground water flow direction, monitoring wells MW-4 and MW-6 are not necessary.
- Please move monitoring well MW-7 approximately 250 feet north of the proposed location.
- Based on the ground water flow direction in the "perched" aquifer, monitoring well MW-1 will not be needed as a ground water monitoring well, but will need to be retained as piezometer. Additionally, the water level network will need to include existing piezometers PZ-13A, PZ-13B, PZ-30, and PZ-31.
- While I concur with proposed locations for the monitoring wells MW-2, MW-5, MW-8, MW-9A and MW-9B, monitoring well clusters are only proposed at two (2) of these locations, existing background monitoring well MW-2 and monitoring well MW-9. Based on review of the onsite lithologic conditions, monitoring well clusters are needed at all monitoring well locations.
- The water table monitoring wells are proposed to be constructed with 15 feet of well screen. Analysis of the ground water elevations indicate that ground water can fluctuate from approximately 44 to 55 feet as referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Since ground water levels can fluctuate 10 feet, it is recommended that the shallow

water table well screens be 20 feet in length. These wells should be screened from 57 to 35 feet NGVD to ensure there is sufficient amount of water in the well. The lower surficial monitoring wells should be screened from 20 to 10 feet NGVD.

- Existing monitoring well MW-3 is screened from 57 to 42 feet NGVD. Ground water elevations in monitoring well MW-3 have ranged from 44.87 to 53.60 feet NGVD. When the ground water level was at 44.87 feet NGVD, there was only 2.87 feet of water in the well. This is not enough water to adequately monitor the upper portion of the aquifer. Therefore, it is recommended that existing monitoring well MW-3 be properly abandoned and a new well installed with a well screen 20 feet in length. This well should be screened from 57 to 35 feet NGVD to ensure there is sufficient amount of water in the well.
- Since some of the proposed monitoring wells will not be part of the monitoring network, please renumber the remaining monitoring wells. Additionally, it is suggested that water table monitoring wells be designated with an "A" and that lower surficial monitoring wells be designated with a "B" after the well number. For example use MW-1A for the water table well in the MW-1 cluster.

Please revise the proposed Monitoring Plan Implementation Schedule to address these comments.

Attachment:

Buttrey Development Two L.L.C.

9/26/2000

September 20, 2000

Mr. James Bradner, P.E.
FDEP Solid Waste
Central District
3319 Maguire Blvd., Ste. 232
Orlando, Florida 32803-3767

Subject: Application Nos. SC48-0165969-001 & SO48-0165969-002

Dear Mr. Bradner:

Attached is the Universal Engineering Report which details the impermeable barrier discussed in Comment 15 from the September 11, 2000 correspondence.

If you have any questions concerning these responses or need clarification or additional information please feel free to contact me at 407-296-0016.

Sincerely,

Ed Chesney

Ed Chesney, P.E.
Project Engineer

Attachments: as noted

C:\MyFiles\pit91L\FDEP6.WPD

P.O. Box 1029 Clarcona, Florida 32710
Telephone: (407) 296-0016; FAX: (407) 294-8090

UNIVERSAL
ENGINEERING SCIENCES
Consultants in: Geotechnical Engineering • Threshold Inspection
Environmental Sciences • Construction Materials Testing

Offices in
• Orlando
• Gainesville
• Fort Myers
• Rockledge
• St. Augustine
• Daytona Beach
• West Palm Beach
• Jacksonville
• Ocala
• Tampa
• Debary

September 18, 2000

Buttrey Development Two, LLC
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32801

Attn: Mr. Ed Chesney, PE

Re: Deflection Liner Recommendations
B&B #91-Keene Road Landfill
Orange County, Florida
UES Project No. 17862-073-02
UES Report No. 134414

Dear Mr. Chesney:

At your request, Universal Engineering Sciences has prepared this document to detail the recommendations for a defection liner at the proposed landfill. Our understanding of this project, along with our recommendations and liner quality assurance/quality control (QA/QC) plan, are presented in the following paragraphs.

PROJECT DESCRIPTION

The proposed Class III landfill to be constructed and operated by Buttrey Development will be located on Keene Road, just south of the WMI Keene Road Class III waste storage facility. Because of site limitations, Buttrey Development Two, LLC plans on creating a deflection liner on the inside of the waste storage facility so that any liquids that enter the proposed landfill facility will be unable to migrate toward the property boundaries until they are at least 100 feet from the property boundaries, in compliance with the current rules and regulations. The barrier will be constructed of 18 inches of compacted clay, which exhibits a permeability of less than 1E-7 centimeters per second (cm/sec). A drawing depicting the location of the deflection liner is indicated on the attached drawing.

IMPERMEABLE LINER QA/QC PLAN

The clay shall be placed in three (3) 6-inch thick compacted lifts that are compacted to at least 90% of the Modified Proctor maximum dry density (ASTM D 1557). The proposed clay shall be tested in advance, with at least two samples, using the methods prescribed in ASTM D 5084 backpressure saturated, triaxial permeability test methods) to ensure that in will meet the required permeability specification, as well as Atterberg Limit Determinations (ASTM D 4318) in order to correlate the soil's permeability with plasticity. The liner permeability shall be less than 1E-7 with a Liquid Limit of at least 35 and a Plasticity Index of at least 20.

The clay shall be compacted at a moisture content that is at least 2% above (wet) of the soil's optimum water content at the time of compaction. Each lift shall be tested for compaction at a frequency of 1 test per lift per 2,500 square feet of liner area. Each lift shall be tested and approved by a qualified engineering technician experienced in soil testing work prior to placing subsequent lifts. Along with the compaction tests, Atterberg Limit Determinations (ASTM D 4318) shall be performed for every 5,000 square feet of liner area, per lift, and Triaxial permeability tests (ASTM D 5084) shall be performed for every 10,000 square feet of liner area. At the completion of the construction of the deflection liner a verification shall be made by the Geotechnical engineer of record indicating that the liner meets the specifications provided herein.

CONSULTATION

There may be questions that occur after reading this report. Please feel free to contact the writer if you should have any questions. It has been a pleasure assisting you on this project, and we look forward to being of continued service to Buttrey Development Two, LLC.

Sincerely,

Universal Engineering Sciences, I

R. Kenneth Derick, PE
Senior Vice President
Florida PE No. 37711

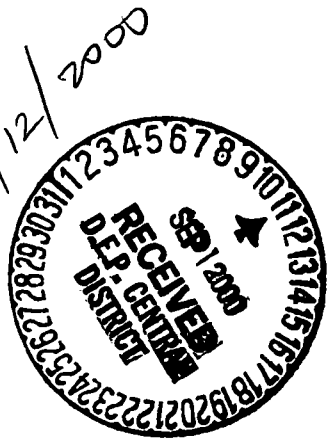
RKD:rw

Attachments: Figure 1

Copies (4)

Buttrey Development Two L.L.C.

9/12/2000



September 11, 2000

Mr. James Bradner, P.E.
FDEP Solid Waste
Central District
3319 Maguire Blvd., Ste. 232
Orlando, Florida 32803-3767

Subject: Request for additional information
Application Nos. SC48-0165969-001 & SO48-0165969-002

Dear Mr. Bradner:

The following discussion is intended to satisfy the request for additional information dated August 21, 2000. All of the comments have been addressed to the best of my understanding and interpretation of intent. Attached along with this response are the requested copies.

If you have any questions concerning these responses or need clarification or additional information please feel free to contact me at 407-296-0016.

Sincerely,

Ed Chesney, P.E.
Project Engineer

Comment 9. Submit proof of financial assurance in accordance with Rule 62-701.630, F.A.C., to the Financial coordinator, Solid Waste Section, Department of Environmental Protection, MS-4565, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, with a copy to the Department of Environmental Protection, Central District, 3319 Maguire Boulevard, Suite 232, Orlando, FL. 32803-3767.

Response 9. The request proof of financial assurance has been prepared. A copy of this financial assurance proof (as submitted to Tallahassee) will be copied to your office under separate cover.

Comment 15. This item on the variance request for the 100 feet setback remains incomplete until it is approved by the Florida Department of Environmental Protection - Solid Waste Section in Tallahassee.

Response 15. Based on the outcome of our meeting with your staff on August 31, 2000, I believe that the setback issue can be satisfied by installing an impermeable barrier which reduces the zone of influence. This barrier will achieve the required 100 foot setback for the zone of influence from adjacent property boundaries and allow for the variance to be approved. The attached Figure identifies the affected properties and the general layout of the barrier.

A report is being finalized by Universal Engineering Sciences, Inc., which describes the specifications, placement and testing for the impermeable barrier described on the Figure noted above. This report will follow in a day or two under separate cover.

Comment 17. Comment 17 is incomplete. Figure 1 depicts the ground water elevation of 52.54' referenced to the National Geodetic Vertical Datum of 1929 (NGVD) at piezometer PZ-18B between the 45 foot and 50 foot contour lines. Additionally, Figure 1 depicts the ground water elevation of 44.70 feet NGVD at piezometer PZ-21B and the ground water elevation of 44.93 at monitoring well MW-3 between the 50 foot contour line in the southwest corner of the site and the 45 foot contour. Further, a 5 foot contour interval is too great. Please use a 2 foot contour interval and revise Figure 1 accordingly.

Also, review of the ground water elevation data from monitoring well MW-1 and piezometer PZ-19, indicates that the perched water table has a north northeast flow direction. However, two points are not sufficient to determine the actual ground water flow direction. Therefore, please install two additional piezometers, one east of piezometer PZ-19 and one east of monitoring well MW-1. These piezometers should be screened in the same flow zone as monitoring well MW-1 and piezometer PZ-19. After the new piezometers are installed, please collect ground water elevation measurements from piezometer PZ-19, monitoring well MW-1 and the new piezometers and construct a ground water flow map of the "perched" aquifer.

Response 17. Attached as Figure 1 is a Base Elevation vs Groundwater Flow Direction Map for the 40-45 foot flow zone at a reduced interval. This figure contains the location of all site soil borings along with all monitor wells and piezometers associated with that flow zone. The flow direction was derived using groundwater data collected in site wells on August 25, 2000.

Figure 2 shows the Base Elevation vs Groundwater Flow Map for the limits of the "perched" water table. Based on the data collected from the recently installed piezometers (PZ-30 & PZ-31) the flow direction of the "perched" aquifer flow is still observed to be to the south west. The limits of the perched area are defined by PZ-18, PZ-20 being dry at their total depths and groundwater elevations recorded in MW-1, PZ-19, PZ-30 & PZ-31. The two new piezometers (PZ-30 & PZ-31) further confirm a sloping gradient of the "perch" groundwater towards the southwest.

Table 1 (revised & attached) contains the ground elevations for all site soil borings and well/piezometers with the addition of the newest data. Table 2 (revised & attached) contains depth to water and well/piezometer details for all site wells. Both the horizontal locations and vertical elevations for all boring and well locations have been survey and referenced to the N.G.V.D. of 1929. The Universal Engineering Sciences Inc. boring logs for PZ-30 & PZ-31 are also attached as Exhibit A.

Comment 20. Comment 20 is incomplete. An evaluation of the proposed monitoring well locations and number of proposed monitoring wells and their construction can not be determined until the information requested in Comment 17 is received and analyzed.

Response 20. The status of Comment 20 is noted. If during this review, I can provide any additional information to help satisfy Comment 20 or expedite the process, please do not hesitate to contact me.

Attachments: as noted

C:\MyFiles\pit91L\FDEP5.WPD

P.O. Box 1029 Clarcona, Florida 32710
Telephone: (407) 296-0016; FAX: (407) 294-8090

TABLE 1
GROUND ELEVATIONS - NGVD

WELL NO.	MW-1	MW-2	MW-3	PZ-1
GROUND ELEV.	106.37'	83.19'	93.28'	76.68'
TOC ELEV.	109.26'	85.67'	95.92'	79.68'

WELL NO.	PZ-8a	PZ-8b	PZ-13a	PZ-13b
GROUND ELEV.	75.10'	75.10'	100.20'	100.10'
TOC ELEV.	78.11'	77.99'	103.08'	103.14'

WELL NO.	PZ-17a	PZ-17b	PZ-18	PZ-18b
GROUND ELEV.	58.80'	58.50'	94.90'	82.66'
TOC ELEV.	61.93'	61.58'	97.96'	85.11'

WELL NO.	PZ-19	PZ-19b	PZ-20	PZ-20b
GROUND ELEV.	106.10'	104.97'	75.50'	75.15'
TOC ELEV.	109.09'	105.07'	78.56	78.25'

WELL NO.	PZ-21	PZ-21b	PZ-22	
GROUND ELEV.	89.10'	89.02'	87.63	
TOC ELEV.	91.46'	91.96'	91.05'	

BORING NO.	B-1	B-2	B-3	B-4
GROUND ELEV.	95.50'	82.74'	88.13'	89.18'

BORING NO.	B-5	B-6	B-7	B-8
GROUND ELEV.	96.00'	85.42'	80.68'	75.10'

BORING NO.	B-9	B-10	B-11	B-12
GROUND ELEV.	88.62'	78.61'	78.40'	78.10'

BORING NO.	B-13	B-14	B-15	B-16
GROUND ELEV.	100.20'	98.10'	87.02'	86.90'

Notes: WELLS WERE SURVEYED BY EITHER ACCURITE SURVEYORS OR BISHOP & BUTTREY, INC.

C:\MyFiles\pit91L\elev_tab.wpd

TABLE 1
GROUND ELEVATIONS - NGVD
CONTINUED

BORING NO.	B-17	B-18	B-19	B-20
GROUND ELEV.	58.80'	94.90'	106.10'	75.50'

BORING NO.	B-21	B-22	B-23	B-24
GROUND ELEV.	89.10'	82.50'	60.00'	81.54'

BORING NO.	B-25	B-26	B-27	B-28
GROUND ELEV.	93.35'	95.38'	87.97'	80.09'

BORING NO.	B-29	B-30	B-31	B-
GROUND ELEV.	82.27'	105.90'	106.40'	

Notes: WELLS WERE SURVEYED BY EITHER ACCURITE SURVEYORS OR BISHOP & BUTTREY, INC.

C:\MyFiles\pit91L\elev_tab.wpd

TABLE 2
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-1	MW-1	MW-2	MW-3
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	~50 - FEET	46 - FEET	42 - FEET	52 - FEET
SCREEN LENGTH	unknown	20- FEET	15 - FEET	15 - FEET
RISER ABOVE GROUND	~ 3 - FEET	2.89 - FEET	2.48 - FEET	2.64 - FEET
TOC - NGVD	79.68'	109.26'	85.67'	95.92'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
05/10/99	31.76/47.92	27.45/81.81	36.91/48.76	48.62/47.30
05/19/99	-	27.36/81.90	37.01/48.66	48.48/47.44
12/14/99	25.55/54.13	23.40/85.86	30.37/55.30	42.32/53.60
03/09/00	28.40/51.28	25.98/83.28	33.44/52.23	46.85/49.07
04/24/00	31.08/48.60	26.90/82.36	35.99/49.68	48.68/47.24
04/28/00	31.20/48.48	26.81/82.45	36.20/49.47	48.88/47.04
05/15/00	32.38/47.30	27.05/82.21	37.29/48.38	50.26/45.66
06/23/00	34.89/44.79	27.42/81.84	39.94/45.73	51.05/44.87
07/17/00	34.28/45.40	27.56/81.70	39.69/45.98	50.99/44.93
08/25/00	33.81/45.87	27.64/81.62	39.46/46.21	50.62/45.03
09/01/00	-	27.66/81.60	-	-

C:\MyFiles\pit91L\DTW.WPD
Notes:

TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-8a	PZ-8b	PZ-13a	PZ-13b
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	75 - FEET	33 - FEET	73 - FEET	55 - FEET
SCREEN LENGTH	5 - FEET	10- FEET	5 - FEET	10 - FEET
RISER ABOVE GROUND	3.01 - FEET	2.98 - FEET	2.88 - FEET	3.04 - FEET
TOC - NGVD	78.11'	77.99'	103.08'	103.14'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	29.47/48.64	29.29/48.70	48.31/54.77	43.15/59.99
04/28/00	29.63/48.48	29.44/48.55	50.10/52.98	43.54/59.60
05/02/00	-	-	50.16/52.92	43.78/59.36
05/15/00	30.85/47.26	30.75/47.24	51.23/51.85	44.39/58.75
06/23/00	33.32/44.79	33.18/44.81	53.23/49.85	46.02/57.12
07/17/00	32.71/45.40	32.57/45.42	52.89/50.19	46.35/56.79
08/25/00	32.23/45.88	32.12/45.87	52.99/50.09	46.50/56.64
09/01/00	-	-	-	-

C:\MyFiles\pit91L\DTW.WPD
Notes:

TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Reading (NGVD)

WELL NO.	PZ-17a	PZ-17b	PZ-18	PZ-18b
DIAMETER	2 - INCH	2 - INCH	2 - INCH	1 - INCH
TOTAL DEPTH	50 - FEET	20 - FEET	30 - FEET	44 - FEET
SCREEN LENGTH	5 - FEET	10- FEET	10 - FEET	10 - FEET
RISER ABOVE GROUND	3.13 - FEET	3.08 - FEET	3.06 - FEET	2.45 - FEET
TOC - NGVD	61.93'	61.58'	97.96'	85.11'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	12.30/49.63	12.01/49.57	Dry/<65	NYI
04/28/00	12.41/49.52	12.11/49.47	Dry/<65	NYI
05/02/00	-	-	-	NYI
05/15/00	13.48/48.45	13.18/48.40	Dry/<65	NYI
06/23/00	15.88/46.05	15.60/45.98	-	NYI
07/17/00	15.90/46.03	15.63/45.95	-	32.57/52.54
08/25/00	15.66/46.27	15.40/46.18	-	32.01/53.10
09/01/00	-	-	Dry	-

C:\MyFiles\pit91L\DTW.WPD
Notes: NYI = Well not yet installed

TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-19	PZ-19b	PZ-20	PZ-20b
DIAMETER	2 - INCH	1 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	40 - FEET	65 - FEET	15 - FEET	35 - FEET
SCREEN LENGTH	10 - FEET	10- FEET	10 - FEET	10 - FEET
RISER ABOVE GROUND	2.99 - FEET	0.1 - FEET	3.06 - FEET	3.10 - FEET
TOC - NGVD	109.09'	105.07'	78.56'	78.25

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	26.23/82.86	NYI	17.77*/<60.79	NYI
04/28/00	26.28/82.81	NYI	17.81*/<60.75	NYI
05/02/00	26.28/82.81	NYI	-	NYI
05/15/00	26.44/82.65	NYI	17.80*/<60.76	NYI
06/23/00	26.73/82.36	NYI	-	NYI
07/17/00	26.70/82.39	49.12/55.95	-	32.79/45.46
08/25/00	26.74/82.35	48.76/56.31	-	32.19/46.06
09/01/00	26.76/82.33	-	Dry	-

C:\MyFiles\pit91L\DTW.WPD
Notes: * reading taken at bottom of well, (dry well). NYI = well not yet installed

TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-21	PZ-21b	PZ-22	PZ-
DIAMETER	2 - INCH	1 - INCH	1 - INCH	
TOTAL DEPTH	43 - FEET	50 - FEET	50 - FEET	
SCREEN LENGTH	10 - FEET	10 - FEET	10 - FEET	
RISER ABOVE GROUND	2.36 - FEET	2.94 - FEET	3.42 - FEET	
TOC - NGVD	91.46'	91.96'	91.05'	

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	44.69*/<46.77	NYI	NYI	
04/28/00	44.67*/<46.79	NYI	NYI	
05/15/00	44.68*/<46.78	NYI	NYI	
06/23/00	44.76*/<46.70	NYI	NYI	
07/17/00	-	47.59/44.70	45.20/45.85	
08/25/00	-	46.96/45.00	45.02/46.03	
09/01/00	-	-	-	

C:\MyFiles\pit91L\DTW.WPD
Notes: * reading taken at bottom of well, (dry well). NYI = well not yet installed.

TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-30	PZ-31	PZ-	PZ-
DIAMETER	1 - INCH	1 - INCH		
TOTAL DEPTH	40 - FEET	40 - FEET		
SCREEN LENGTH	10 - FEET	10 - FEET		
RISER ABOVE GROUND	3.29 - FEET	2.49 - FEET		
TOC - NGVD	109.19'	108.89'		

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
09/01/00	22.99/86.20	24.24/84.65		

C:\MyFiles\pit91L\DTW.WPD

Notes: * reading taken at bottom of well, (dry well). NYI = well not yet installed.

EXHIBIT A

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	
PAGE:	5

PROJECT: GEOTECHNICAL EXPLORATION REPORT
BUTTREY DEVELOPMENT, KEENE ROAD LANDFILL
ORANGE COUNTRY, FLORIDA

BORING DESIGNATION: **B-31** SHEET: **1 of 1**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT L.L.C.
LOCATION: AS SPECIFIED BY CLIENT
REMARKS: PZ-31

G.S. ELEVATION (ft):
WATER TABLE (ft): 777
DATE OF READING: 8/29/00
EST. W.S.W.T. (ft):

DATE STARTED: 8/29/00
DATE FINISHED: 8/29/00
DRILLED BY: U.E.S. - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
	X	2-3-3	6			Loose light brown fine SAND [A-3]						
	X	2-1-1	2			-- very loose						
5	X	1-1-2	3									
	X	2-2-3	5			-- loose						
	X	3-3-3	6									
	X	3-6-7	13			Loose orange fine SAND; with clay [A-2-6] -- medium dense						
10												
	X	8-10-11	21			-- light brown, some orange						
15												
	X	10-13-13	26			Medium dense orange fine SAND [A-3]						
20												
	X	6-6-6	12			-- light brown						
25												
						Very soft light brown with orange sandy CLAY; some limerock fragments [A-7-5]						
	X	0-0-0	WOR									
30												
						Soft light brown with orange sandy SILT; with clay [A-5]						
	X	1-2-1	3									
35												
	X	3-6-12	18			Very stiff light brown sandy SILT; trace of shell fragments [A-5]						
40						BORING TERMINATED AT 40.0 FT.						
45												
50												

02967

Post-it® Fax Note 7671 | Date 8/1/00 | # of pages ▶ 2

To Ed Chesney	From Brendan O'Brien
Co./Dept. B&B	Co. UES
Phone #	Phone # 407-423-3504
Fax #	Fax # 407-423-3106

PROJEC

IENCES

PROJECT NO.:	10942-001-02
REPORT NO.:	
PAGE:	4

IING DESIGNATION: B-30 SHEET: 1 of 1
:TION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT L.L.C.
LOCATION: AS SPECIFIED BY CLIENT
REMARKS: PZ-30

G.S. ELEVATION (ft):
WATER TABLE (ft): 20.0
DATE OF READING: 8/29/00
EST. W.S.W.T. (ft):

DATE STARTED: 8/29/00
DATE FINISHED: 8/29/00
DRILLED BY: U.E.S. - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Loose light brown fine SAND [A-3]						
	X	2-2-3	5									
	X	2-1-2	3			-- very loose						
5	X	2-1-1	2									
	X	2-1-2	3									
	X	2-1-3	4			-- loose						
	X	2-2-3	5			-- with lenses of orange clayey fine sand						
10												
						Medium dense mixed orange-light brown clayey fine SAND; with silt [A-2-6]						
	X	12-14-16	30									
15												
						Loose light brown fine SAND [A-2-4]						
	X	5-4-2	6	▼								
20												
						Soft mixed light brown and orange sandy CLAY [A-7-6]						
	X	2-2-2	4									
25												
						Medium stiff light brown silty CLAY; with sand and some limerock fragments [A-7-5]						
	X	2-3-3	6									
30												
						-- with abundant limerock fragments						
	X	2-3-3	6									
35												
						Stiff green-gray clayey SAND [A-2-6]						
	X	5-6-8	14			BORING TERMINATED AT 40.0 FT.						
40												
45												
50												

02967

Purpose: Keene Rd Buttrey Dev Class II	Date: 8/21/2000
Name (please print)	**Affiliation**
Jim Bradner	FDEP/SW
Bret LeRoux	FDEP – Waste Cleanup
BILL BOSTWICK	DEP.
Chris Kohl	CKTACS/Buttrey Dev. LLC.
ED CHESNEY	BISHOP & BUTTREY
John BUTTREY	Buttrey Dev., LLC.

Continued on reverse side

Department of
Environmental Protection

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Jeb Bush
Governor

David B. Struhs
Secretary

CERTIFIED
7900 3400 0010 5336 3869

Mr. John Buttrey
Buttrey Development, LLC
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32810

OCD-SW-00-0376

Orange County - SW
Keene Road Disposal/Buttrey Development
Class III Landfill - Construct & Operate
Permit Application Nos. SC48-0165969-001 and SO48-0165969-002

Dear Mr. Buttrey:

This is to acknowledge receipt of your application for the subject facility. The status of your application is as follows:

( ) Your application for permit received on is incomplete. Please provide the information listed on the attached sheet promptly. Evaluation of your application will be delayed until all the requested information has been received.

(X) The additional information received on August 4, 2000 was reviewed; however, the items listed on the attached memo remain incomplete. Evaluation of your application will continue to be delayed until we receive all requested information.

Pursuant to Section 120.60(2), Florida Statutes, the Department may deny an application, if the applicant, after receiving timely notice, fails to correct errors, omissions or supply additional information within a reasonable period of time. Please submit three copies of the requested information to the Department and reference the above application permit number in your correspondence.

If you have any questions, please contact me at (407) 893-3328.

Sincerely,

James N. Bradner

James N. Bradner, P.E.
Program Manager
Solid Waste

Date: 8/21/2000

JNB/gc/ew
Enclosure
cc: Ed Chesney, P.E.

9. Submit proof of financial assurance in accordance with Rule 62-701.630, F.A.C., to the Financial Coordinator, Solid Waste Section, Department of Environmental Protection, MS-4565, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, **with a copy to: the** Department of Environmental Protection, Central District, 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803-3767.

15. This item on the variance request for the 100-foot setback remains incomplete until a decision is made by the Florida Department of Environmental Protection - Solid Waste Section, in Tallahassee.

17. Comment 17 is incomplete. Figure 1 depicts the ground water elevation of 52.54 feet referenced to the National Geodetic Vertical Datum of 1929 (NGVD) at piezometer PZ-18B between the 45 foot and 50 foot contour lines. Additionally, Figure 1 depicts the ground water elevation of 44.70 feet NGVD at piezometer PZ-21B and the ground elevation of 44.93 at monitoring well MW-3 between the 50 foot contour line in the southwest corner of the site and the 45 foot contour. Further, a 5 foot contour interval is too great. Please use a 2 foot contour interval and revise Figure 1 accordingly.

Also, review of the ground water elevation data from monitoring well MW-1 and piezometer PZ-19, indicates that the perched water table has a north to northeast flow direction. However, two points are not sufficient to determine the actual ground water flow direction. Therefore, please install two additional piezometers, one east of piezometer PZ-19 and one east of monitoring well MW-1. These piezometers should be screened in the same flow zone as monitoring well MW-1 and piezometer PZ-19. After the new piezometers are installed, please collect ground water elevation measurements from piezometer PZ-19, monitoring well MW-1 and the new piezometers and a construct ground water flow map of the "perched" aquifer.

20. Comment 20 is incomplete. An evaluation of the proposed monitoring well locations and number of proposed monitoring wells and their construction can not be determined until the information requested in Comment 17 is received and analyzed.

State of Florida
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Interoffice Memorandum

CENTRAL DISTRICT

TO: Jim Bradner, P.E. 8/18/2000
Solid Waste Program Manager

OCD-WCU-00-0334

THROUGH: G. Bret LeRoux, P.G. GBL
Waste Cleanup Program Manager

FROM: George Houston II, P.G.
Environmental Specialist III

DATE: August 18, 2000

SUBJECT: Orange County – Waste Cleanup
Keene Road Disposal/ Buttrey Development Class III Landfill
Response to Comments

I have reviewed the Response to Comments, received August 4, 2000, and have the following comments:

Comment 17 is incomplete. Figure 1 depicts the ground water elevation of 52.54 feet referenced to the National Geodetic Vertical Datum of 1929 (NGVD) at piezometer PZ-18B between the 45 foot and 50 foot contour lines. Additionally, Figure 1 depicts the ground water elevation of 44.70 feet NGVD at piezometer PZ-21B and the ground elevation of 44.93 at monitoring well MW-3 between the 50 foot contour line in the southwest corner of the site and the 45 foot contour. Further, a 5 foot contour interval is too great. Please use a 2 foot contour interval and revise Figure 1 accordingly.

Also, review of the ground water elevation data from monitoring well MW-1 and piezometer PZ-19, indicates that the perched water table has a north to northeast flow direction. However, two points are not sufficient to determine the actual ground water flow direction. Therefore, please install two additional piezometers, one east of piezometer PZ-19 and one east of monitoring well MW-1. These piezometers should be screened in the same flow zone as monitoring well MW-1 and piezometer PZ-19. After the new piezometers are installed, please collect ground water elevation measurements from piezometer PZ-19, monitoring well MW-1 and the new piezometers and a construct ground water flow map of the "perched" aquifer.

Comment 20 is incomplete. An evaluation of the proposed monitoring well locations and number of proposed monitoring wells and their construction can not be determined until the information requested in Comment 17 is received and analyzed.

Attachment:

Orange County
Keene Road Buttrey LF

BUTTREY DEVELOPMENT TWO, LLC

COPY

August 4, 2000

8/4/2000

AUG 2000
RECEIVED
D.E.P. CENTRAL
DISTRICT

Mr. Chris McGuire
Senior Assistant General Counsel
Office of General Counsel
Department of Environmental Protection
Douglas Building, MS-35
3900 Commonwealth Blvd.
Tallahassee, FL 32399-3900

Subject: Petition for Variance from Rule 62-701.34 (4) (c), F.A.C.
Buttrey Development Two, LLC, 6239 Edgewater Dr. D-1
Orlando, FL 32810. Phone 407-296-0016, Fax 407-294-8090
Keene Road Disposal, Class III Landfill Permitting, 60 Acres, NE 1/4
and E ½ of the NW 1/4 of the NE 1/4 of Section 28, Township 21,
Range 28, Orange County, Florida
FDEP Application No. SC48-0165969-001 and SO48-0165969-002

Dear Mr. McGuire:

We met with your local staff on Monday, July 31st, to discuss the subject proposal. Their only concern with this request was (1) the precedent being set with this variance and (2) the slightly shorter monitoring time available with the reduced setback and smaller zone of influence to detect and correct ground water contamination, in the unlikely event it ever occurred.

I believe all other areas of concern have been covered in our previous correspondence with you. I have attached copies of that correspondence (without its attachments).

Our situation on this landfill is unique from the standpoint of Orange County's regulations. We permitted the excavation through Orange County and the SJRWMD as a borrow pit, to be ultimately used as a buffer in conjunction with a proposed residential development to the south. It was permitted and excavated with 50 foot setbacks from the adjoining property. Orange County's regulations at that time allowed permitting a borrow pit without showing a need to "utilize" the hole. Consequently, we have a perfectly legal hole in the ground with the excavation starting within 50 feet of the property line. Orange County's regulations have since been changed, requiring larger setbacks on all excavations that have the potential to convert to landfills.

Post Office Box 1029 • Clarcona, Florida 32710-1029
Telephone: (407) 296-0016 • FAX: (407) 294-8090

Orange County subsequently purchased two critical parcels of land south of our site. They did this with no public notices or permitting. This, of course, totally killed the feasibility of developing the property to the south for residential use.

We then started investigating the feasibility of converting this "hole" to a landfill. Upon determining it was an excellent candidate, we proceeded with the necessary permitting. Forcing us to maintain a 100 foot setback will require that we fill in the 50 foot area around the existing excavation. This will likely kill the economics of the project.

Allowing us these reduced setbacks will not set a precedent, as pointed out in (1) above. Our situation with 50 foot setbacks already excavated cannot occur again under Orange County's present regulations. Larger setbacks are now required. We are unique in the sense that this type of request is not allowed any more under the new Orange County ordinance. As a result, we are most likely the last request of this type coming out of Orange County.

Issue (2) above, was discussed at length with your local staff. There are only two areas of this landfill where potential exists for contaminated ground water to leave our site. One of these is in an area where we have 400 foot setbacks. The other is adjacent to property owned by Orange County. As discussed with your staff, we certainly would not object to additional monitoring in these areas as a result of granting this variance. As pointed out, we are buying three adjoining parcels, two of which presently have homes within 250 feet of our property line.

As has been pointed out to you, requiring 100 foot setbacks and filling in 50 feet of excavation, will create a severe financial hardship, possibly even killing this project. In our opinion, granting this variance will not compromise water quality or set a precedent. This landfill is new and will be constructed and operated under present day regulations. Most existing landfills have long, questionable histories of material accepted and placed. Serious ground water contamination is much more likely on the old landfills. Requesting a variance of this type on a new landfill seems to be of little risk, compared to a similar request involving the expansion of an old, existing facility.

Please do not hesitate to contact us if additional information is needed.

Sincerely,

John Buttrey

Att.

cc: James Bradner-FDEP-Central District
Ed Chesney-B&B

Sec\Pit91\FDEP-McGuire

#91

BUTTREY DEVELOPMENT TWO, LLC

June 13, 2000

Mary Jean Yon, Administrator
Solid Waste Section
Dept. of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Petition for Variance from Rule 62-701.34 (4) (c), F.A.C.
Buttrey Development Two, LLC, 6239 Edgewater Dr. D-1
Orlando, FL 32810. Phone 407-296-0016, Fax 407-294-8090
Keene Road Disposal, Class III Landfill Permitting, 60 Acres, NE 1/4
and E ½ of the NW 1/4 of the NE 1/4 of Section 28, Township 21,
Range 28, Orange County, Florida
FDEP Application No. SC48-0165969-001 and SO48-0165969-002

Dear Ms. Yon:

We appreciate your prompt response requesting additional information on the subject petition. Our original letter dated May 22nd, pointed out FDEP application numbers for a Class III landfill. We have paid FDEP $17,500 to date in fees relating to these applications (see attached checks). If additional fees are required, please advise.

Rule 62-701.340 (4) (c) states "The minimum horizontal separation between waste deposits in the landfill and the landfill property boundary needs to be 100', measured from the toe of the proposed final lower slope." We are requesting a reduction in this setback from 100' to 50' on three sides of the proposed landfill. This request will accommodate the existing borrow pit setbacks which are properly permitted and currently being excavated with 50' setbacks.

Not granting this request will create an unnecessary hardship by eliminating 550,000 cubic yards of airspace in this relatively small landfill and having the potential burden to re-fill already excavated areas. As pointed out in my letter of May 22, the surrounding property owners have no objection to this proposal. This is very evident from the results of three public hearings and affidavits of no objection provided. This is a very rural and established industrial area. The one adjoining property owner (Ben Brown 407-880-8650), who will continue to live on his property, is anxious for the landfill to be constructed and completed because it eliminates the possibility of low cost housing and the associated problems. Ben Brown owns a 40 acre citrus grove with his home 750' from our joining property line. We are buying out the other two residents, Brown &

6239 Edgewater Dr., Suite D-1 • Post Office Box 1029 • Clarcona, Florida 32710-1029
Telephone: (407) 296-0016 • FAX: (407) 294-8090

Oliver. (One of these owners, John Brown, is currently under investigation by Orange County for illegal dumping of clearing debris on his property.) This is a problem neighborhood and not conducive to residential development. The waiver being requested is permanent.

The reasons this waiver will serve the purposes of the underlying statute are:

1.) The 50' buffer leaves more than adequate room for the necessary monitoring wells.
2.) The stormwater is proposed to be handled in subsurface pipes, requiring very small areas within the 50' setback.
3.) Litter control is handled with weekly cover and is unrelated to the size of the setback.
4.) Our proposed plan calls for a 30' wide access road around the entire perimeter of the landfill. This provides for complete and total access to the landfill.

At the request of Orange County, we have voluntarily agreed to a heavily timbered 400' setback from Keene Road, the major road serving this area. To further require us to add an unnecessary 50' additional setback on three sides, costing us 550,000 cubic yards of airspace, is patently unfair!! Furthermore, local governments have always been the final authority on zoning issues such as setbacks. The review by FDEP is thoroughly investigating the more serious technical issues, such as groundwater and environmental impact. These issues are not affected by the requested setback variance. There are no wetland issues on this site. There were gopher tortoises which were permitted and relocated prior to the start of excavation.

We request an expeditious approval of this very reasonable, fair and sensible request. If we can provide any further information, please do not hesitate to contact me.

Sincerely,

John Buttrey

JB/du

Att.

BUTTREY DEVELOPMENT TWO, LLC

May 22, 2000

Florida Department of Environmental Protection
Solid Waste Section
2600 Black Stone Road
Tallahassee, FL 32399-2400

Subject: Keene Road Disposal, Class III Landfill Permitting, 60 Acres, NE 1/4 and E 1/2 of the NW 1/4 of the NE 1/4 of Section 28, Township 21, Range 28, Orange County, FL. Request for variance, 100' minimum horizontal separation between Waste deposits in the landfill and the landfill property boundary, FDEP Application No. SC48-0165969-001 and SO48-0165969-002

Gentlemen:

We are in the process of permitting the subject land fill. The current state ordinance requires a 100' setback from the property lines to the toe of slope of the above ground trash.

We request approval of a reduction of the subject setbacks from 100' to 50' on three sides of the landfill. The side fronting Keene Road is designed as a 400' setback.

Attached is a copy of the zoning special exception and the supporting plan that was approved by the Orange County BOCC. This approval was the subject of three public hearings in which all adjoining and area property owners were notified by the County. There was virtually no opposition.

There are seven adjoining property owners, six private and Orange County. (See attached aerial and description of each parcel.) Of the six private owners, we have three under contract to purchase. Copies of these contracts are attached. The other three have signed notarized letters of no objection, attached.

6239 Edgewater Dr., Suite D-1 • Post Office Box 1029 • Clarcona, Florida 32710-1029
Telephone: (407) 296-0016 • FAX: (407) 294-8090

The Orange County BOCC has approved the concept of the 50' setback. However, the final approval of the setbacks regarding the county property will be granted with the approval of the solid waste permit application currently under review by the County.

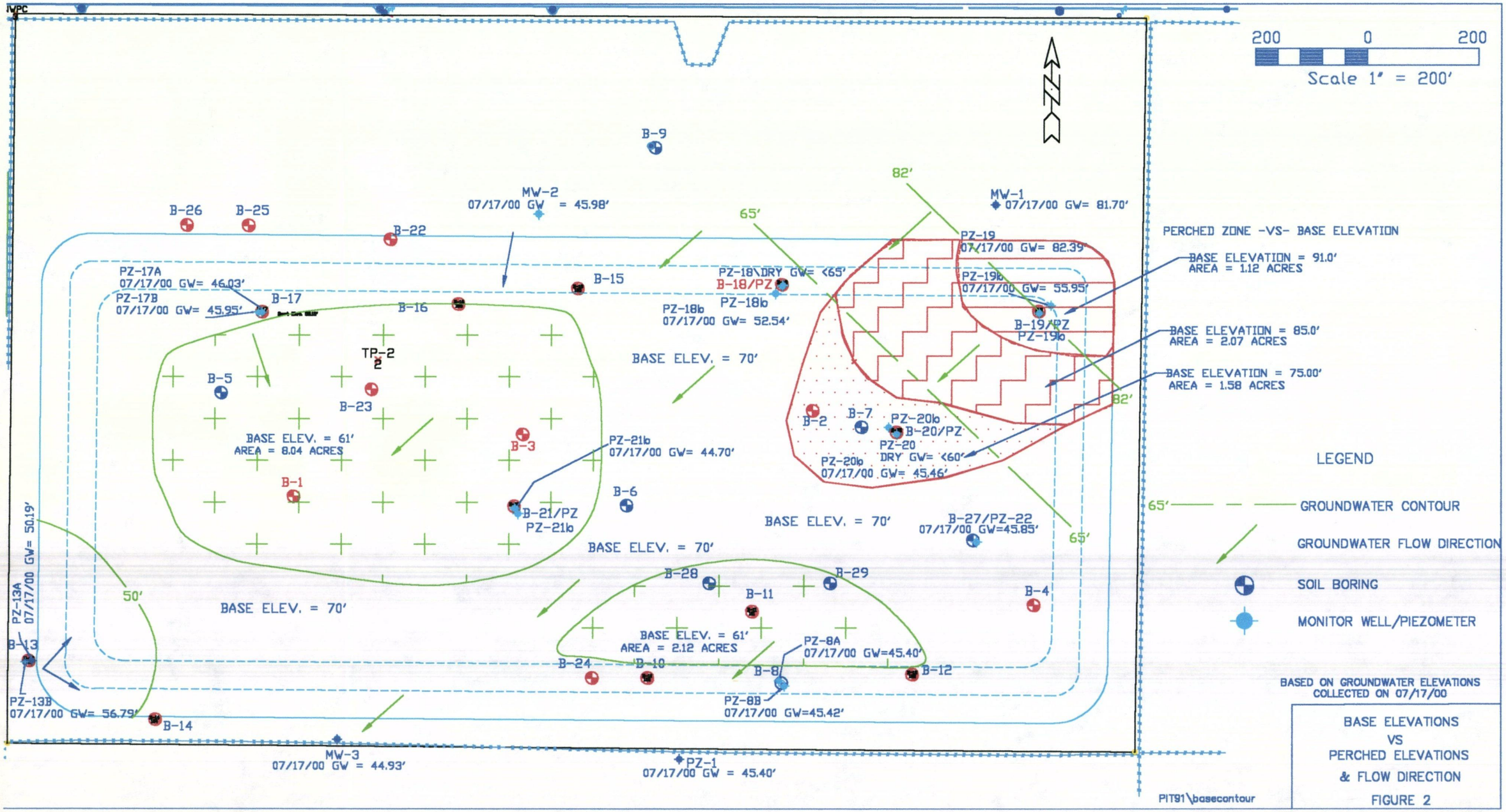
If you have any questions, please do not hesitate to contact either myself or Ed Chesney at 407-296-0016.

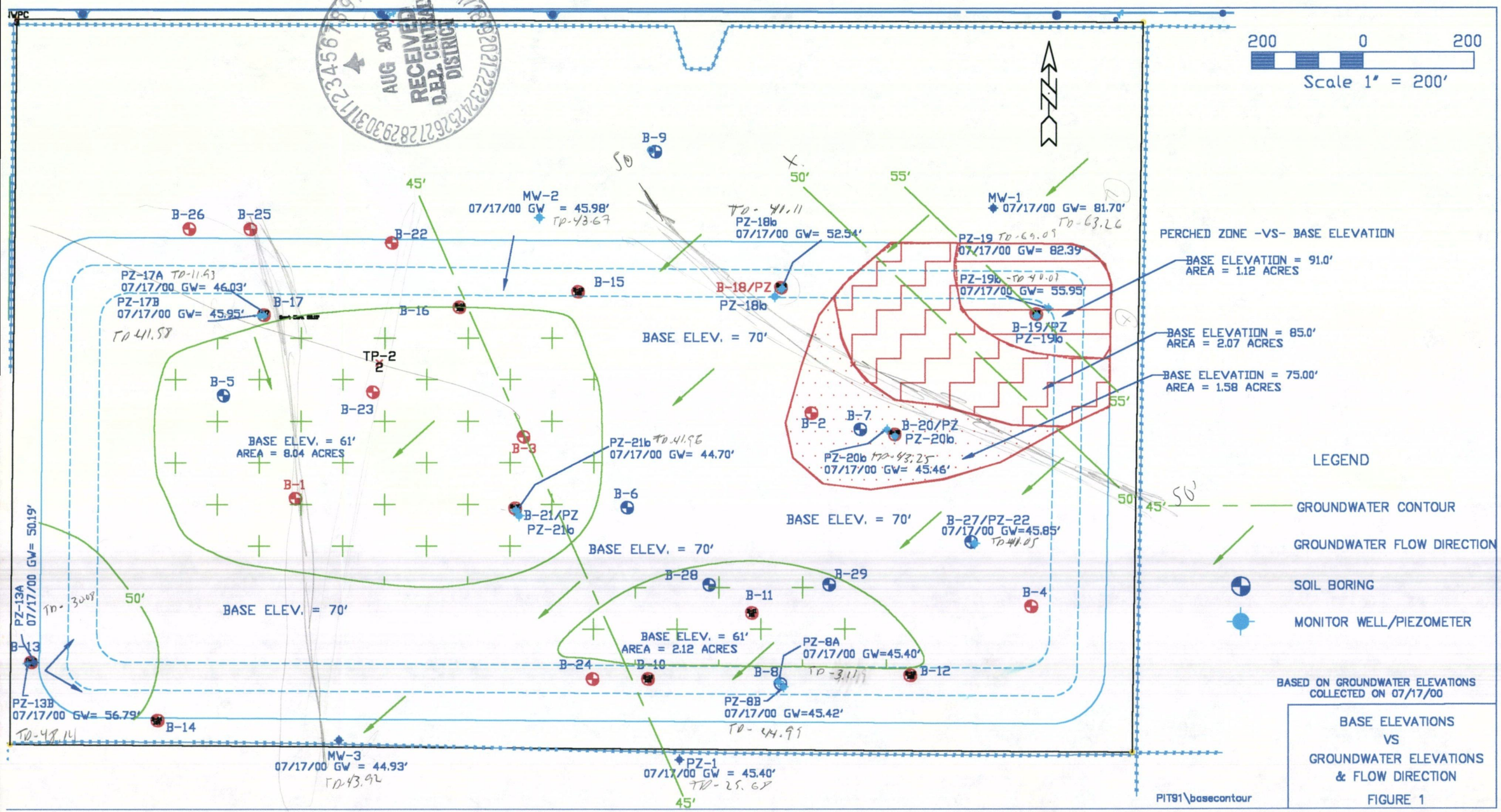
Sincerely,

John Buttrey

cc: Dave Howson - B&B

Orange County SW
Keene Road Buttrey Landfill




RECEIVED
AUG 2000
D.E.P. CENTRAL DISTRICT
200 0 200
Scale 1" = 200'
B-9
MW-2
07/17/00 GW = 45.98'
TD-43.67
MW-1
07/17/00 GW= 81.70'
TD-63.26
PZ-18b
07/17/00 GW= 52.54'
TD- 41.11
PZ-19 TD-64.09
07/17/00 GW= 82.39'
PZ-19b TD-40.01
07/17/00 GW= 55.95'
B-18/PZ
PZ-18b
B-19/PZ
PZ-19b
B-26
B-25
B-22
B-15
B-16
B-17
PZ-17A TD-11.93
07/17/00 GW= 46.03'
PZ-17B
07/17/00 GW= 45.95'
TD 41.58
TP-2
B-5
B-23
B-3
B-1
B-2
B-7
B-20/PZ
PZ-20b
PZ-20b TD-43.25
07/17/00 GW= 45.46'
PZ-21b TD-41.96
07/17/00 GW= 44.70'
B-21/PZ
PZ-21b
B-6
B-27/PZ-22
07/17/00 GW=45.85'
TD-41.05
B-28
B-29
B-11
B-4
B-24
B-10
B-8
B-12
PZ-8A
07/17/00 GW=45.40'
TD-31.17
PZ-8B
07/17/00 GW=45.42'
TD-44.91
PZ-13A
07/17/00 GW= 50.19'
TD-30.08
B-13
PZ-13B
07/17/00 GW= 56.79'
TD-48.14
B-14
MW-3
07/17/00 GW = 44.93'
TD-43.92
PZ-1
07/17/00 GW = 45.40'
TD-25.67
BASE ELEV. = 70'
BASE ELEV. = 61'
AREA = 8.04 ACRES
BASE ELEV. = 61'
AREA = 2.12 ACRES
PERCHED ZONE -VS- BASE ELEVATION
BASE ELEVATION = 91.0'
AREA = 1.12 ACRES
BASE ELEVATION = 85.0'
AREA = 2.07 ACRES
BASE ELEVATION = 75.00'
AREA = 1.58 ACRES
LEGEND
GROUNDWATER CONTOUR
GROUNDWATER FLOW DIRECTION
SOIL BORING
MONITOR WELL/PIEZOMETER
BASED ON GROUNDWATER ELEVATIONS COLLECTED ON 07/17/00
BASE ELEVATIONS VS GROUNDWATER ELEVATIONS & FLOW DIRECTION
FIGURE 1
PIT91\basecontour

Buttrey Development Two L.L.C.

August 4, 2000

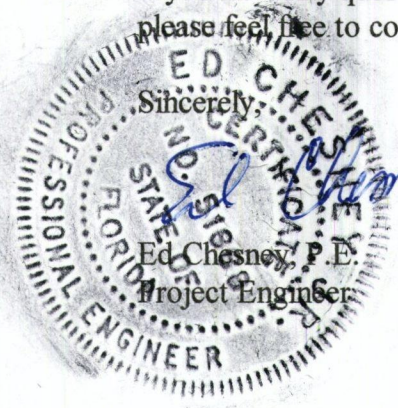
Mr. James Bradner, P.E.
FDEP Solid Waste
Central District
3319 Maguire Blvd., Ste. 232
Orlando, Florida 32803-3767

Subject: Request for additional information
Application Nos. SC48-0165969-001 & SO48-0165969-002

Dear Mr. Bradner:

The following discussion is intended to satisfy the request for additional information dated June 16, 2000. All of the comments have been addressed to the best of my understanding and interpretation of intent. Attached along with this response is three complete copies.

If you have any questions concerning these responses or need clarification or additional information please feel free to contact me at 407-296-0016.



Sincerely,

Ed Chesney, P.E.
Project Engineer

Comment 9. In Exhibit E, Page 3 of 3, the Subtotal for Surface Water Drainage Maintenance is in error and therefore, the Annual Long-Term Care Costs and the Total 30-Year Long-Term Costs are in error. Please submit the revised closure and long-term care costs signed and sealed by a professional engineer registered in the State of Florida. Also, submit proof of financial assurance in accordance with Rule 62-701.630, F.A.C., to the Financial coordinator, Solid Waste Section, Department of Environmental Protection, MS-4565, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, with a copy to the Department of Environmental Protection, Central District, 3319 Maguire Boulevard, Suite 232, Orlando, FL. 32803-3767.

Response 9. Attached as Exhibit A is a revised closure and long-term care costs signed and sealed

as required. A copy of the financial assurance proof (as submitted to Tallahassee) will follow under separate cover.

Comment 11. The text on Page 5, Section 1.2.1 of the Operations Plan does not appear to be in agreement with the location of the facilities shown on Figure 1 on Page 6. The direction of the arrow pointing north on Page 6 needs to be oriented to the west to make the text on Page 5, Section 1.2.1 of the Operations Plan to be in agreement with the location of the facilities shown on Page 6. Please submit the revised Page 6 if you agree.

Response 11. Attached as Exhibit B is a revised Page 6 with the corrected north reference.

Comment 15. This item on the variance request for the 100 feet setback remains incomplete until it is approved by the Florida Department of Environmental Protection - Solid Waste Section in Tallahassee.

Response 15. It is acknowledged noted that the variance request is still incomplete. Based on the outcome of the meeting at your office on July 31, 2000, concerning set backs, additional supporting documentation is being prepared for the Solid Waste Section in Tallahassee.

Comment 17. Comment 17 is incomplete. Response to Comment 17 states " The revised bottom elevation now ranges from 60.0' in the west to elevation 90.5' in the east." Response to Comment 17 also states "One can conclude from MW-1, PZ-19, PZ-20 along with spot elevations taken in localized open excavated areas that ground water in this region exhibits "perched" characteristics as it follows the clayey soil contours of the site." Review of the historical ground water elevations table indicates that piezometers PZ-18, PZ-20, and PZ-21 are essentially "dry" piezometers. Therefore, the ground water elevation and flow conditions at the northeast corner and the center of the site are not completely understood. Our evaluation of the proposed revised base elevations will be postponed until the ground water flow direction in the northeast corner and the center of the landfill is understood. Please install piezometers in the same location as PZ-18, PZ-20, and PZ-21 at sufficient depths to obtain ground water elevation in that area. Additionally please install an piezometer east of piezometer PZ-20 and north of boring location B-4. Further , it is also necessary to install a piezometer into the same flow zone as the southern and western piezometers to a depth of approximately 40-45 feet NGVD to determine the ground water elevation at that level in the northeast of the landfill. We recommend that this piezometer be install in cluster with the replacement for piezometer PZ-19. Also after the new piezometers are installed please collect ground water measurements from all piezometers and monitoring wells and construct ground water flow maps of the "perched" aquifer and 40-45 foot flow zone. Please note, ground water elevation contour maps shall include all monitoring well and piezometer locations, the ground water elevation at each location referenced to the National Geodetic Vertical datum of 1929, **a bar scale**, the ground water contour interval, the date of measurement and the ground water flow direction.

Response 17. Attached as Figure 1 is a Base Elevation vs Groundwater Flow Direction Map for the 40-45 foot flow zone. This figure contains the location of all site soil borings, monitor wells and piezometers as well as the recently installed piezometers and soil borings. Four of the five recently installed piezometers were installed as clusters adjacent to existing site piezometers as follows: PZ-18b installed adjacent to PZ-18 (reference boring B-18). PZ-19b installed adjacent to PZ-19 (reference boring B-19). PZ-20b installed adjacent to PZ-20 (reference boring B-20). PZ-21b installed adjacent to PZ-21 (reference boring B-21). PZ-22 (reference boring B-27).The flow direction was derived using groundwater data collected in all site wells on July 17, 2000.

Table 1 (attached) contains the ground elevations for all site soil borings and well/piezometers. Table 2 (attached) contains depth to water and well/piezometer details for all site. Both the horizontal locations and vertical elevations for all boring and well locations have been survey and referenced to the N.G.V.D. of 1929.

Figure 2 shows the Base Elevation vs Groundwater Flow Map for the limits of the "perched" water table.

Based on the data collected from the recently installed piezometers the flow direction of the surficial aquifer flow is still observed to be to the south west. The limits of the perched area is defined by PZ-18, PZ-20 being dry at their total depths while the perched elevations are defined by MW-1 & MW-19 water levels. Please note that the base elevations has been adjusted slightly since our last correspondence. The revised bottom elevation now ranges from 61.0' in the west and south to elevation 91' in the north east. This is shown for clarity of Figures 1 & 2.

Attached as Exhibit C is a report from Universal Engineering Sciences Inc. which describes the additional field work performed for this response. Attached at the end of this response are two revised set of construction plans which contain all of the necessary corrections or changes.

Comment 20. Comment 20 is incomplete. An evaluation of the proposed monitoring well locations and number of proposed monitoring wells and their construction can not be determined until the information requested in Comment 17 is received and analyzed.

Response 20. The status of Comment 20 is noted. If during this review, I can provide any additional information to help satisfy Comment 20, please do not hesitate to contact me.

Comment 22 is complete. However, the response to comment 22 states "In addition, background samples were collected from MW-2 (chosen upgradient well) for analysis of the primary and secondary drinking water standards." Please note that as stated in your February 14, 2000 permit application and pursuant to Rule 62-701.501(6)(a) all monitoring wells must be sampled for Appendix I and Appendix II parameters prior to placement of fill.

Response 22. Response 22 is acknowledged. Early baseline samples were collected by the property owner, fully realizing that all the wells would be sampled again prior to any placement of fill.

Attachments: as noted

C:\MyFiles\pit91L\FDEP4.WPD

P.O. Box 1029 Clarcona, Florida 32710
Telephone: (407) 296-0016; FAX: (407) 294-8090

TABLE 1
GROUND ELEVATIONS - NGVD

WELL NO.	MW-1	MW-2	MW-3	PZ-1
GROUND ELEV.	106.37'	83.19'	93.28'	76.68'
TOC ELEV.	109.26'	85.67'	95.92'	79.68'

WELL NO.	PZ-8a	PZ-8b	PZ-13a	PZ-13b
GROUND ELEV.	75.10'	75.10'	100.20'	100.10'
TOC ELEV.	78.11'	77.99'	103.08'	103.14'

WELL NO.	PZ-17a	PZ-17b	PZ-18	PZ-18b
GROUND ELEV.	58.80'	58.50'	94.90'	82.66'
TOC ELEV.	61.93'	61.58'	97.96'	85.11'

WELL NO.	PZ-19	PZ-19b	PZ-20	PZ-20b
GROUND ELEV.	106.10'	104.97'	75.50'	75.15'
TOC ELEV.	109.09'	105.07'	78.56	78.25'

WELL NO.	PZ-21	PZ-21b	PZ-22	
GROUND ELEV.	89.10'	89.02'	87.63	
TOC ELEV.	91.46'	91.96'	91.05'	

BORING NO.	B-1	B-2	B-3	B-4
GROUND ELEV.	95.50'	82.74'	88.13'	89.18'

BORING NO.	B-5	B-6	B-7	B-8
GROUND ELEV.	96.00'	85.42'	80.68'	75.10'

BORING NO.	B-9	B-10	B-11	B-12
GROUND ELEV.	88.62'	78.61'	78.40'	78.10'

BORING NO.	B-13	B-14	B-15	B-16
GROUND ELEV.	100.20'	98.10'	87.02'	86.90'

Notes: WELLS WERE SURVEYED BY EITHER ACCURITE SURVEYORS OR BISHOP & BUTTREY, INC.

C:\MyFiles\pit91L\elev_tab.wpd

TABLE 1
GROUND ELEVATIONS - NGVD
CONTINUED

BORING NO.	B-17	B-18	B-19	B-20
GROUND ELEV.	58.80'	94.90'	106.10'	75.50'

BORING NO.	B-21	B-22	B-23	B-24
GROUND ELEV.	89.10'	82.50'	60.00'	81.54'

BORING NO.	B-25	B-26	B-27	B-28
GROUND ELEV.	93.35'	95.38'	87.97'	80.09'

BORING NO.	B-29	B-	B-	B-
GROUND ELEV.	82.27'			

Notes: WELLS WERE SURVEYED BY EITHER ACCURITE SURVEYORS OR BISHOP & BUTTREY, INC.

C:\MyFiles\pit91L\elev_tab.wpd

TABLE 2
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-1	MW-1	MW-2	MW-3
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	~50 - FEET	46 - FEET	42 - FEET	52 - FEET
SCREEN LENGTH	unknown	20- FEET	15 - FEET	15 - FEET
RISER ABOVE GROUND	~ 3 - FEET	2.89 - FEET	2.48 - FEET	2.64 - FEET
TOC - NGVD	79.68'	109.26'	85.67'	95.92'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
05/10/99	31.76/47.92	27.45/81.81	36.91/48.76	48.62/47.30
05/19/99	-	27.36/81.90	37.01/48.66	48.48/47.44
12/14/99	25.55/54.13	23.40/85.86	30.37/55.30	42.32/53.60
03/09/00	28.40/51.28	25.98/83.28	33.44/52.23	46.85/49.07
04/24/00	31.08/48.60	26.90/82.36	35.99/49.68	48.68/47.24
04/28/00	31.20/48.48	26.81/82.45	36.20/49.47	48.88/47.04
05/15/00	32.38/47.30	27.05/82.21	37.29/48.38	50.26/45.66
06/23/00	34.89/44.79	27.42/81.84	39.94/45.73	51.05/44.87
07/17/00	34.28/45.40	27.56/81.70	39.69/45.98	50.99/44.93

C:\MyFiles\pit91L\DTW.WPD

Notes:

TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-8a	PZ-8b	PZ-13a	PZ-13b
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	75 - FEET	33 - FEET	73 - FEET	55 - FEET
SCREEN LENGTH	5 - FEET	10- FEET	5 - FEET	10 - FEET
RISER ABOVE GROUND	3.01 - FEET	2.98 - FEET	2.88 - FEET	3.04 - FEET
TOC - NGVD	78.11'	77.99'	103.08'	103.14'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	29.47/48.64	29.29/48.70	48.31/54.77	43.15/59.99
04/28/00	29.63/48.48	29.44/48.55	50.10/52.98	43.54/59.60
05/02/00	-	-	50.16/52.92	43.78/59.36
05/15/00	30.85/47.26	30.75/47.24	51.23/51.85	44.39/58.75
06/23/00	33.32/44.79	33.18/44.81	53.23/49.85	46.02/57.12
07/17/00	32.71/45.40	32.57/45.42	52.89/50.19	46.35/56.79

C:\MyFiles\pit91L\DTW.WPD
Notes:

TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Reading (NGVD)

WELL NO.	PZ-17a	PZ-17b	PZ-18	PZ-18b
DIAMETER	2 - INCH	2 - INCH	2 - INCH	1 - INCH
TOTAL DEPTH	50 - FEET	20 - FEET	30 - FEET	44 - FEET
SCREEN LENGTH	5 - FEET	10- FEET	10 - FEET	10 - FEET
RISER ABOVE GROUND	3.13 - FEET	3.08 - FEET	3.06 - FEET	2.45 - FEET
TOC - NGVD	61.93'	61.58'	97.96'	85.11'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	12.30/49.63	12.01/49.57	Dry/<65	NYI
04/28/00	12.41/49.52	12.11/49.47	Dry/<65	NYI
05/02/00	-	-	-	NYI
05/15/00	13.48/48.45	13.18/48.40	Dry/<65	NYI
06/23/00	15.88/46.05	15.60/45.98	-	NYI
07/17/00	15.90/46.03	15.63/45.95	-	32.57/52.54

C:\MyFiles\pit91L\DTW.WPD
Notes: NYI = Well not yet installed

TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-19	PZ-19b	PZ-20	PZ-20b
DIAMETER	2 - INCH	1 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	40 - FEET	65 - FEET	15 - FEET	35 - FEET
SCREEN LENGTH	10 - FEET	10- FEET	10 - FEET	10 - FEET
RISER ABOVE GROUND	2.99 - FEET	0.1 - FEET	3.06 - FEET	3.10 - FEET
TOC - NGVD	109.09'	105.07'	78.56'	78.25

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	26.23/82.86	NYI	17.77*/<60.79	NYI
04/28/00	26.28/82.81	NYI	17.81*/<60.75	NYI
05/02/00	26.28/82.81	NYI	-	NYI
05/15/00	26.44/82.65	NYI	17.80*/<60.76	NYI
06/23/00	26.73/82.36	NYI	-	NYI
07/17/00	26.70/82.39	49.12/55.95	-	32.79/45.46

C:\MyFiles\pit91L\DTW.WPD
Notes: * reading taken at bottom of well, (dry well). NYI = well not yet installed

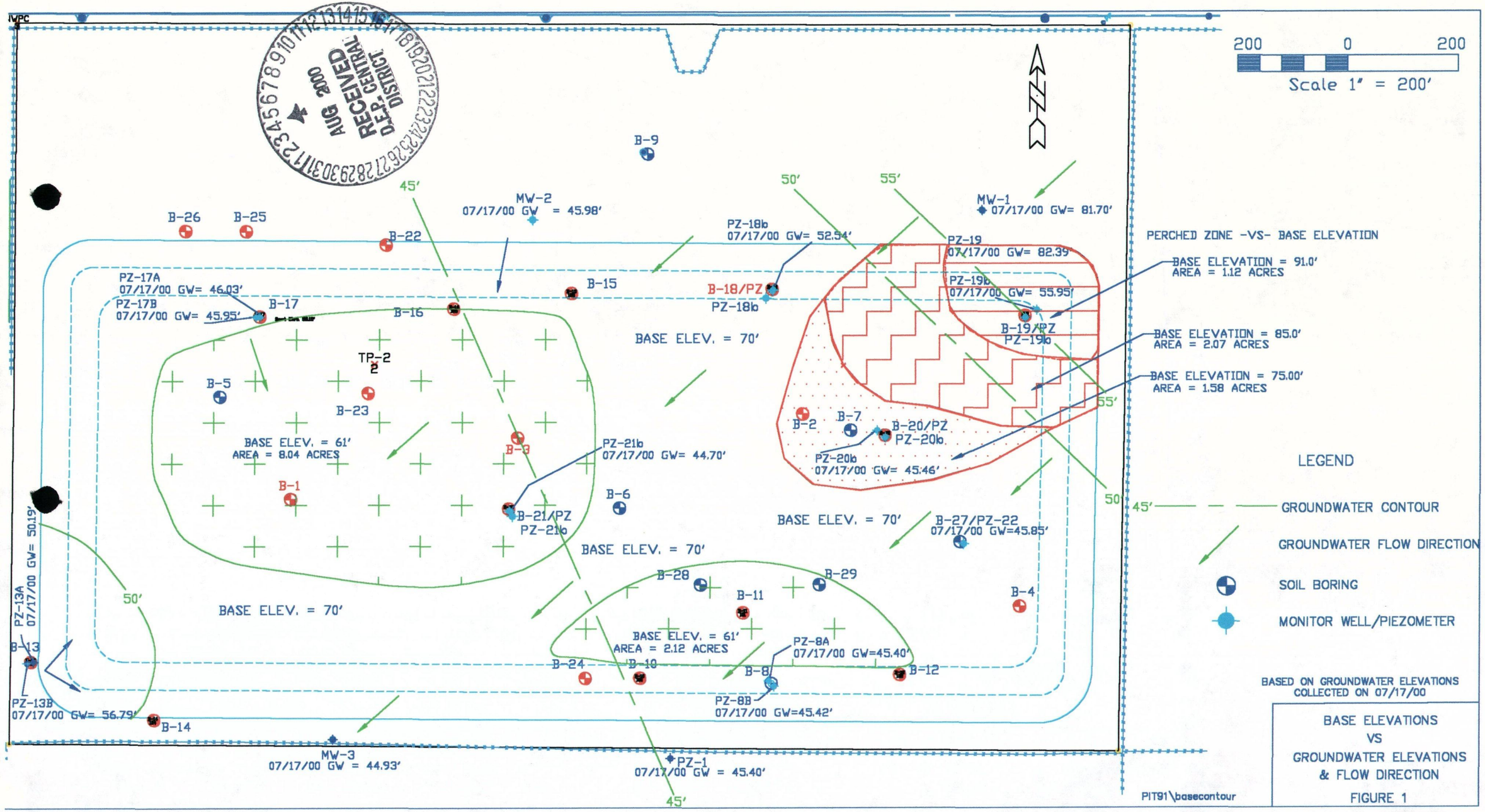
TABLE 2 (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

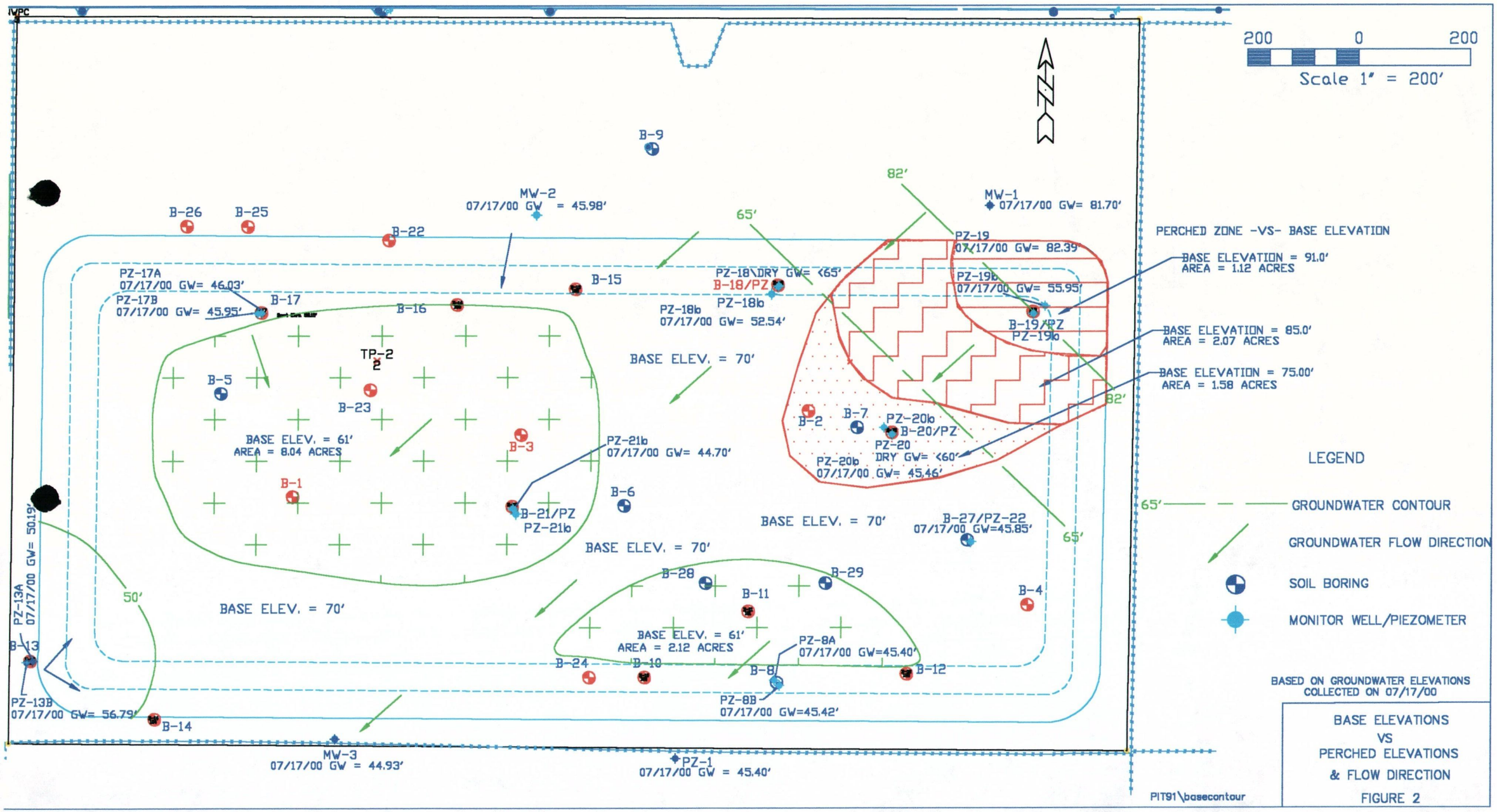
WELL NO.	PZ-21	PZ-21b	PZ-22	PZ-
DIAMETER	2 - INCH	1 - INCH	1 - INCH	
TOTAL DEPTH	43 - FEET	50 - FEET	50 - FEET	
SCREEN LENGTH	10 - FEET	10 - FEET	10 - FEET	
RISER ABOVE GROUND	2.36 - FEET	2.94 - FEET	3.42 - FEET	
TOC - NGVD	91.46'	91.96'	91.05'	

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	44.69*/<46.77	NYI	NYI	
04/28/00	44.67*/<46.79	NYI	NYI	
05/15/00	44.68*/<46.78	NYI	NYI	
06/23/00	44.76*/<46.70	NYI	NYI	
07/17/00	-	47.59/44.70	45.20/45.85	

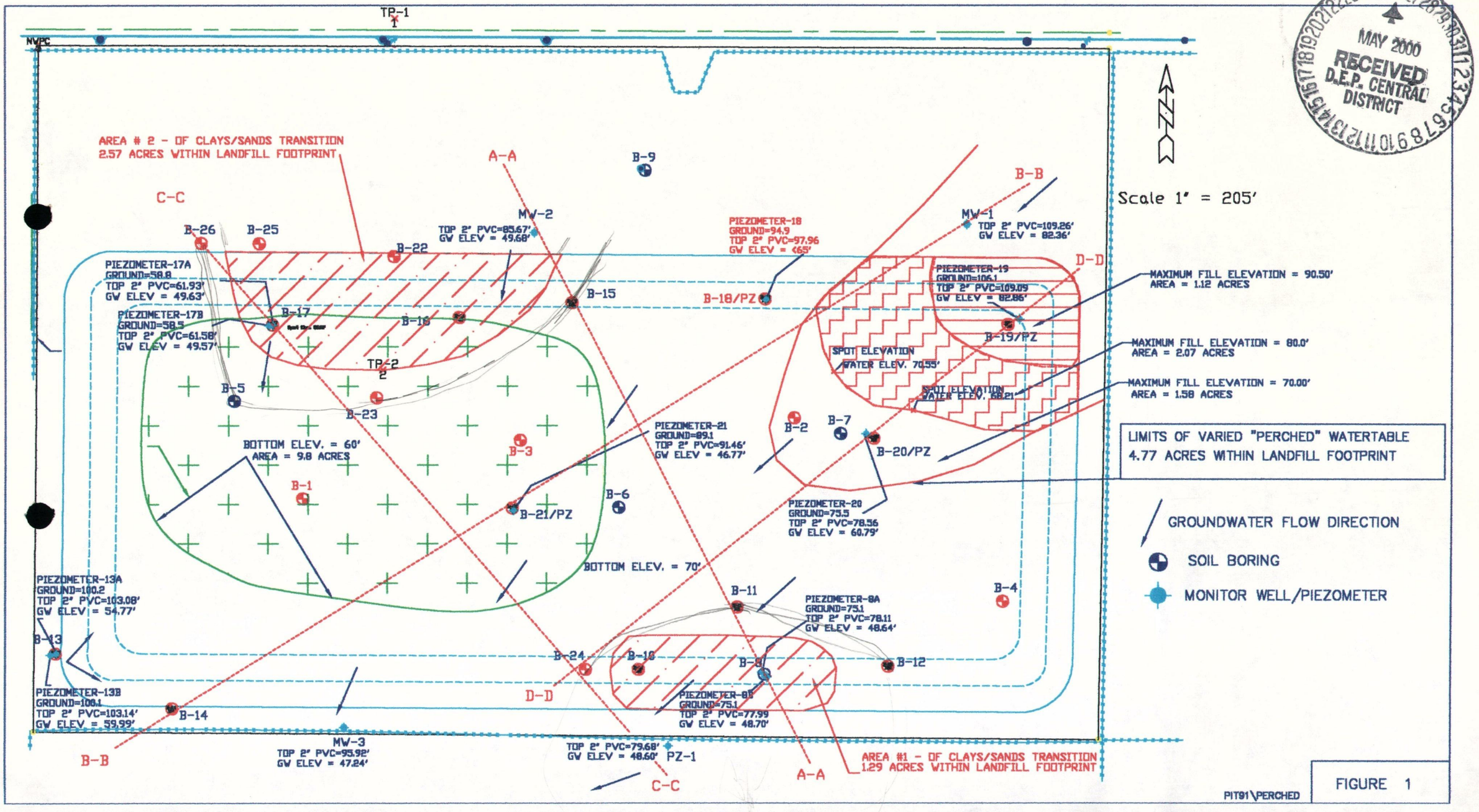
C:\MyFiles\pit91L\DTW.WPD

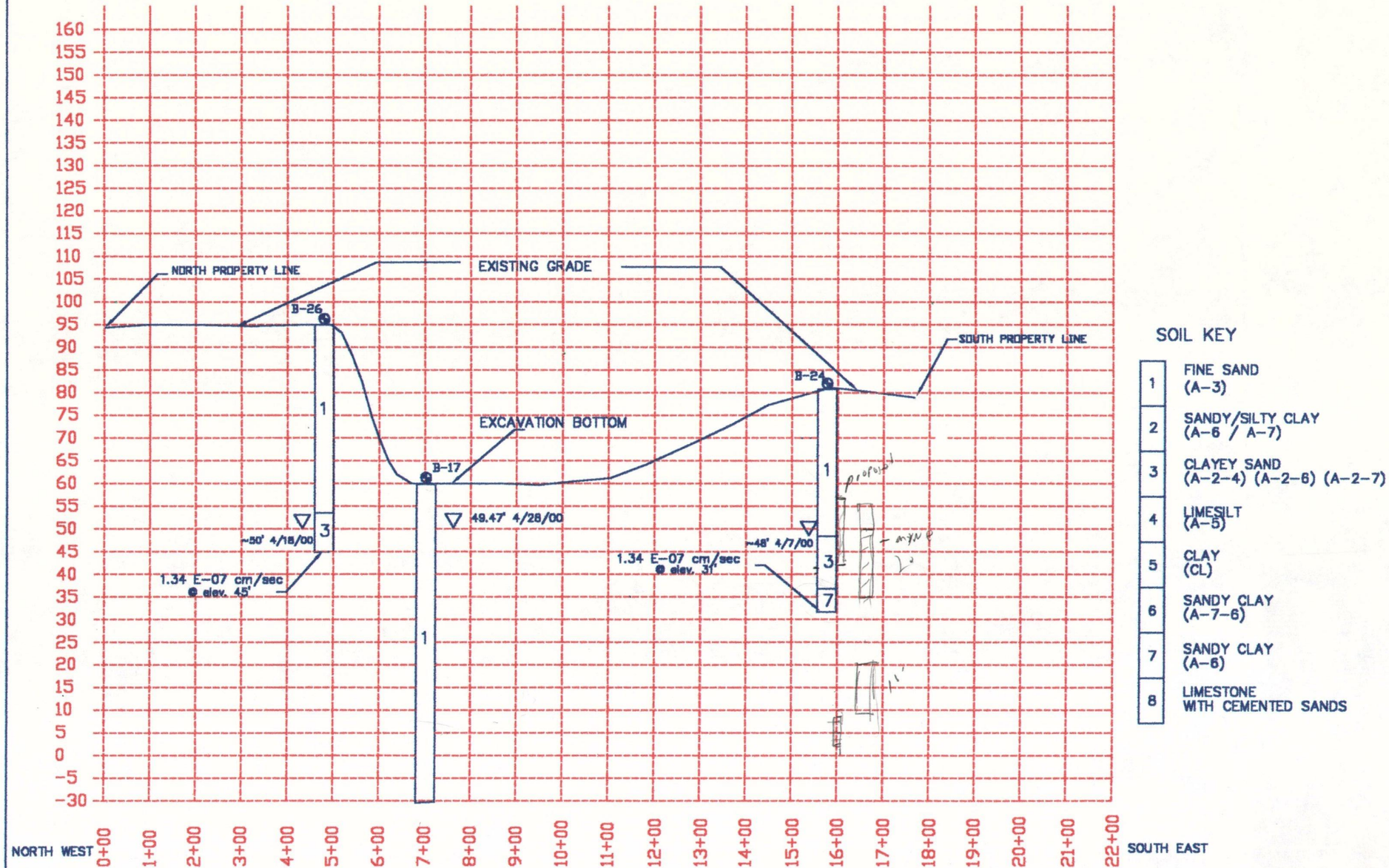
Notes: * reading taken at bottom of well, (dry well). NYI = well not yet installed.


RECEIVED
AUG 2000
D.E.P. CENTRAL DISTRICT
200 0 200
Scale 1" = 200'
B-9
MW-2
07/17/00 GW = 45.98'
MW-1
07/17/00 GW= 81.70'
B-26
B-25
B-22
PZ-18b
07/17/00 GW= 52.54'
PZ-19
07/17/00 GW= 82.39'
PZ-17A
07/17/00 GW= 46.03'
PZ-17B
07/17/00 GW= 45.95'
B-17
B-16
B-15
B-18/PZ
PZ-18b
PZ-19b
07/17/00 GW= 55.95'
B-19/PZ
PZ-19b
BASE ELEV. = 70'
TP-2
B-5
B-23
B-2
B-7
B-20/PZ
PZ-20b
BASE ELEV. = 61'
AREA = 8.04 ACRES
B-3
PZ-21b
07/17/00 GW= 44.70'
PZ-20b
07/17/00 GW= 45.46'
B-1
B-6
B-21/PZ
PZ-21b
BASE ELEV. = 70'
B-27/PZ-22
07/17/00 GW=45.85'
BASE ELEV. = 70'
B-28
B-29
B-4
B-11
PZ-13A
07/17/00 GW= 50.19'
BASE ELEV. = 70'
BASE ELEV. = 61'
AREA = 2.12 ACRES
PZ-8A
07/17/00 GW=45.40'
B-13
B-24
B-10
B-8
B-12
PZ-13B
07/17/00 GW= 56.79'
PZ-8B
07/17/00 GW=45.42'
B-14
MW-3
07/17/00 GW = 44.93'
PZ-1
07/17/00 GW = 45.40'
PERCHED ZONE -VS- BASE ELEVATION
BASE ELEVATION = 91.0'
AREA = 1.12 ACRES
BASE ELEVATION = 85.0'
AREA = 2.07 ACRES
BASE ELEVATION = 75.00'
AREA = 1.58 ACRES
LEGEND
GROUNDWATER CONTOUR
GROUNDWATER FLOW DIRECTION
SOIL BORING
MONITOR WELL/PIEZOMETER
BASED ON GROUNDWATER ELEVATIONS
COLLECTED ON 07/17/00
BASE ELEVATIONS
VS
GROUNDWATER ELEVATIONS
& FLOW DIRECTION
FIGURE 1
PIT91\basecontour



BASE ELEVATIONS
VS
PERCHED ELEVATIONS
& FLOW DIRECTION
FIGURE 2





SOIL KEY

1	FINE SAND (A-3)
2	SANDY/SILTY CLAY (A-6 / A-7)
3	CLAYEY SAND (A-2-4) (A-2-6) (A-2-7)
4	LIMESILT (A-5)
5	CLAY (CL)
6	SANDY CLAY (A-7-6)
7	SANDY CLAY (A-6)
8	LIMESTONE WITH CEMENTED SANDS

NTS

BISHOP & BUTTREY, INC.

SOIL BORING CROSS SECTION C-C

JOB NO.
DATE
SCALE
DRAWN BY EC
CHKD BY EC

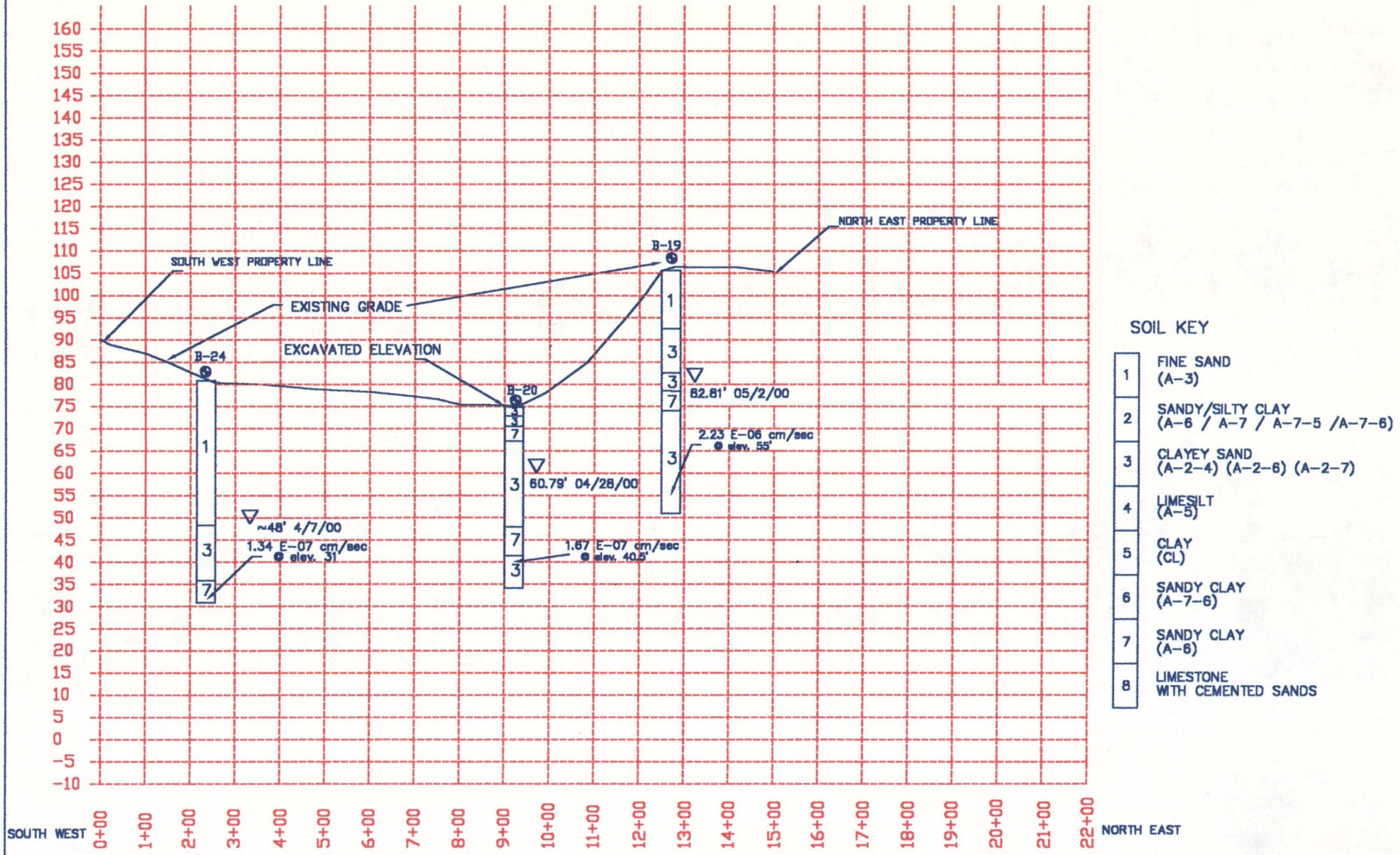
REVISIONS

1	
2	
3	
4	
5	
6	
7	

DESIGN\PITTSG\CROSSCC

DRAWING DESCRIPTION
C-C
CROSS SECTION

FIGURE 3C



SOIL KEY

1	FINE SAND (A-3)
2	SANDY/SILTY CLAY (A-6 / A-7 / A-7-5 /A-7-6)
3	CLAYEY SAND (A-2-4) (A-2-6) (A-2-7)
4	LIMESILT (A-5)
5	CLAY (CL)
6	SANDY CLAY (A-7-6)
7	SANDY CLAY (A-6)
8	LIMESTONE WITH CEMENTED SANDS

NTS

BISHOP & BUTTREY, INC.

SOIL BORING CROSS SECTION D-D

JOB NO.
DATE
SCALE
DRAWN BY EC
CHKD BY EC

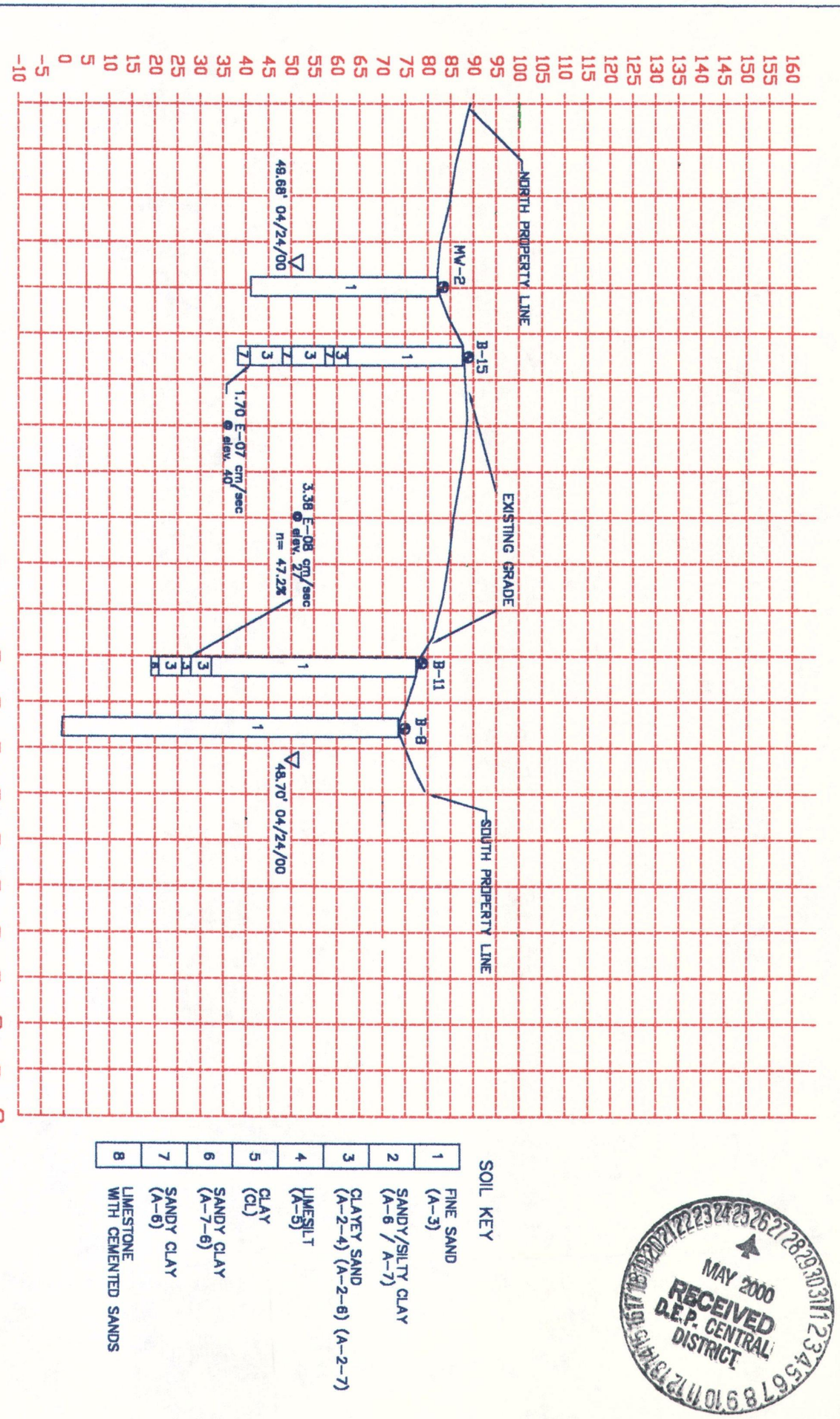
REVISIONS

1	
2	
3	
4	
5	
6	
7	

DESIGN\PITTSIL\CROSSSD

DRAWING DESCRIPTION
D-D
CROSS SECTION

FIGURE 3D



NTS

SOIL BORING CROSS SECTION
A - A

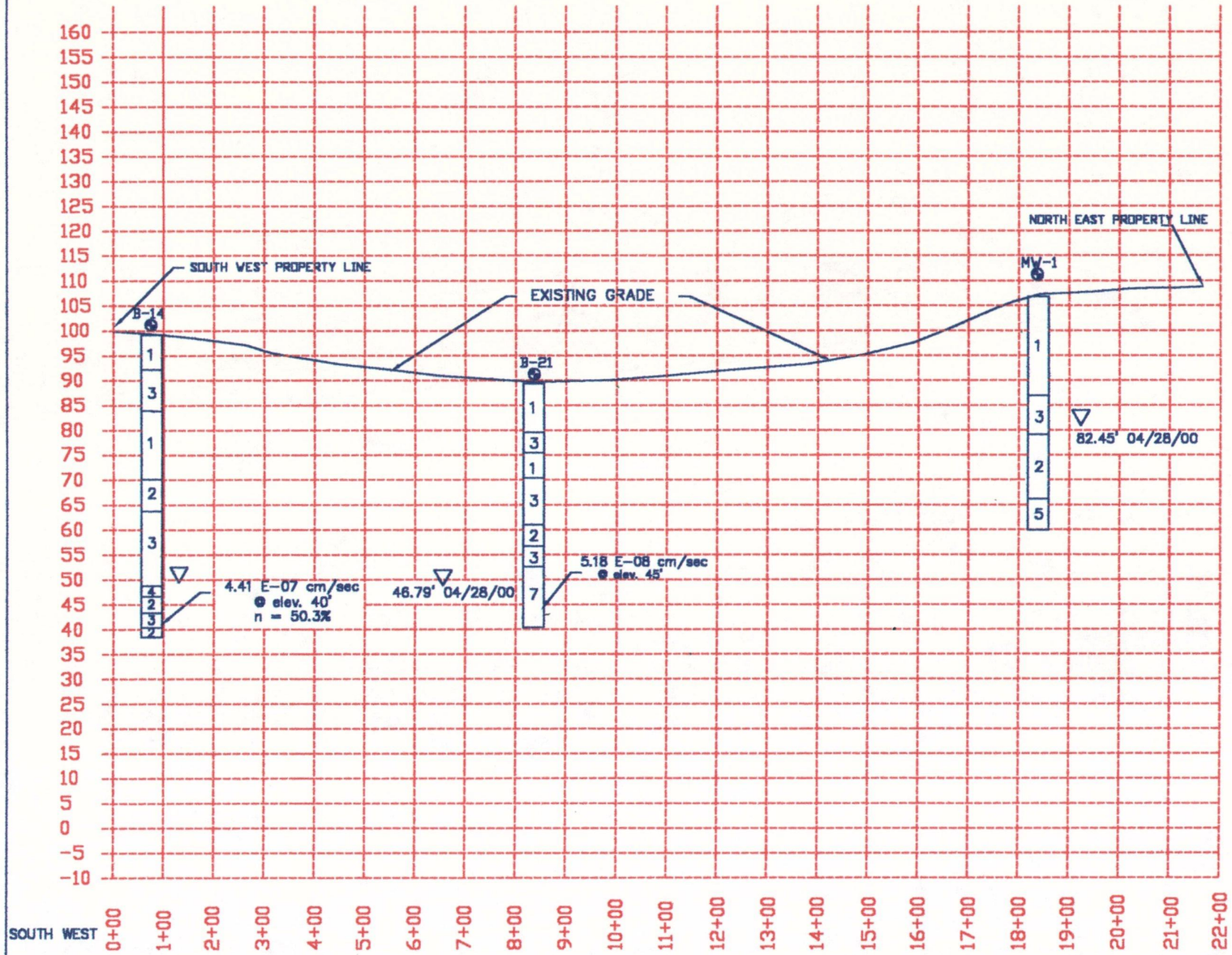
BISHOP & BUTTREY, INC.

NOT VALID WITHOUT RAISED SEAL

REVISIONS	JOB NO.
1	DATE
2	SCALE
3	DRAWN BY EC
4	CHKD BY EC
5	
6	
7	

DRAWING DESCRIPTION
A – A
CROSS SECTION

FIGURE 3A



SOIL KEY

1	FINE SAND (A-3)
2	SANDY/SILTY CLAY (A-6 / A-7 / A-7-5 /A-7-6)
3	CLAYEY SAND (A-2-4) (A-2-6) (A-2-7)
4	LIMESILT (A-5)
5	CLAY (CL)
6	SANDY CLAY (A-7-6)
7	SANDY CLAY (A-6)
8	LIMESTONE WITH CEMENTED SANDS

NTS

BISHOP & BUTTREY, INC.

SOIL BORING CROSS SECTION
B-B

JOB NO.
DATE
SCALE
DRAWN BY EC
CHKD BY EC

REVISIONS

1	
2	
3	
4	
5	
6	
7	

DESIGN\PITSEL\CROSSEC

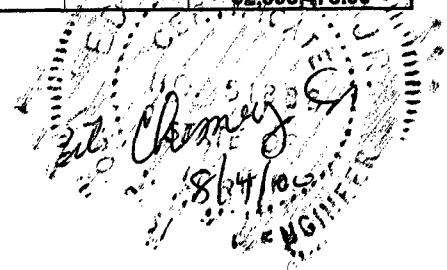
DRAWING DESCRIPTION
B-B
CROSS SECTION

FIGURE 3B

EXHIBIT A

B and B
Keene Rd. Disposal
Closure Cost Estimate

Estimated Closure Cost					
Description	Unit	Quantity	Unit Cost	Total	Category Subtotals
Monitoring Wells (all monitoring wells installed prior to closure)					
Borehole Excavation	cy			$0.00	
Backfill	cy			$0.00	
Gravel Pack	cy			$0.00	
Casing	lf			$0.00	
Screen	ea			$0.00	
Cap	ea			$0.00	
Subtotal Monitoring Well					$0.00
Intermediate Cover (Slope and Fill)					
Delivered Fill Dirt Cover Material	cy	9,680.0	$5.03	$48,690.40	
Placement and Dressing	cy	9,680.0	$0.75	$7,260.00	
Cap System					
Delivered Clay Material (10^{-5} clay, 18" layer)	cy	110,352.0	$8.34	$920,335.68	
Placement, Compaction and Dressing	cy	110,352.0	$3.00	$331,056.00	
Delivered Sand Cover (12" layer)	cy	73,568.0	$5.03	$370,047.04	
Placement and Dressing	cy	73,568.0	$0.75	$55,176.00	
Delivered Top Soil Component	cy	36,784.0	$6.11	$224,750.24	
Placement and Dressing	cy	36,784.0	$0.75	$27,588.00	
Sod (side slopes)	sy	82,280.0	$1.25	$102,850.00	
Seed and Mulch (top slopes)	sy	101,640.0	$0.30	$30,492.00	
Subtotal, Cap System					$2,118,245.36
Storm Water Control (all storm water controls installed prior to closure)					
Excavation, Grading, Recontouring	cy			$0.00	
Storm Water Conveyances (side slope)	ea			$0.00	
Ditch/Swale Construction	cy			$0.00	
Berm Construction	cy			$0.00	
30" CPP	Lf			$0.00	
Infiltration Galleries	ea			$0.00	
Drop BoxesFDOT Index #232 type D	ea			$0.00	
Drop BoxesFDOT Index #232 type E	ea			$0.00	
18" Perforated Drain Pipe	Lf			$0.00	
Rip-Rap	cy			$0.00	
Subtotal, Storm Water Control					$0.00
Revegetation					
Sodding	sy	9,680.0	$1.25	$12,100.00	
Soil Preparation/Grading	sy	9,680.0	$0.50	$4,840.00	
Hydro Seeding	sy			$0.00	
Fertilizer	ac			$0.00	
Mulch	ac			$0.00	
Trees (10')	ea	25.0	$30.00	$750.00	
Subtotal, Revegetation					$17,690.00
Landscape and Irrigation System (no irrigaton system proposed)					
Pipe and Fittings	Lf			$0.00	
Pumps	ea			$0.00	
Irrigation Wells	ea			$0.00	
Subtotal, Landscape and Irrigation Systems					$0.00
Security System (all security systems installed prior to closure)					
Fencing	Lf			$0.00	
Gates	ea			$0.00	
Sign(s)	ea			$0.00	
Subtotal, Security System					$0.00
Engineering					
Closure Plan Report	LS	1.0	$10,000.00	$10,000.00	
Certified Engineering Documents (closure construction	LS	1.0	$4,000.00	$4,000.00	
Closure Permit	LS	1.0	$5,000.00	$5,000.00	
NSPS/Title V Air permit	LS	NA		NA	
QA/QC, on site construction engineering	LS	1.0	$10,000.00	$10,000.00	
Other				$0.00	
Other				$0.00	
Other				$0.00	
Subtotal, Engineering					$29,000.00
Surveying					
Benchmark Installation	ea	1.0	$1,000.00	$1,000.00	
Final Survey	ac	60.0	$200.00	$12,000.00	
Subtotal, Surveying					$13,000.00
Certification of Closure					
Engineer's Certification	LS	1.0	$2,500.00	$2,500.00	
Subtotal, Certification of Closure					$2,500.00
Site Specific Costs (explain)				$0.00	
Mobilization	LS			$0.00	
Removal of Recovered Materials	cy			$0.00	
Other (Details)				$0.00	
Subtotal, Site Specific Costs					$0.00
Subtotal, Closure Costs					**$2,180,435.36**
Subtotal, Closure Costs				$2,180,435.36	
Contingency					
Contingency Estimate (% of total)	%	10		$218,043.54	
Total, Closure Costs					**$2,398,478.90**



B and B
Keene Rd. Disposal
Long Term Care Cost Estimate

Estimated Annual Long Term Care Costs					
Description	Unit	Quantity	Unit Cost	Total	Category Subtotals
Groundwater Monitoring					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea	14	$600.00	$8,400.00	
Annual	ea			$0.00	
Monitoring Well Maintenance	LS	1	$2,500.00	$2,500.00	
Subtotal, Groundwater Monitoring					$10,900.00
Gas Monitoring					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea			$0.00	
Annual (explosivity monitoring)	ea	10	$500.00	$5,000.00	
Subtotal, Gas Monitoring					$5,000.00
Leachate Monitoring	Not applicable				
Surface Water Monitoring (no surface water monitoring required)					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea			$0.00	
Annual	ea			$0.00	
Subtotal, Surface Water Monitoring					$0.00
Landscape Maintenance					
Mowing	LS	2	$2,000.00	$4,000.00	
Fertilizer	LS	1	$2,000.00	$2,000.00	
Irrigation	ac			$0.00	
Subtotal, Landscape Maintenance					$6,000.00
Benchmark Maintenance					
Benchmark Repairs, etc.	ea	1	$500.00	$500.00	
Subtotal, Benchmark Maintenance					$500.00
Administrative					
Site Supervisor	hr	60	$20.00	$1,200.00	
Subtotal, Administrative					$1,200.00
Electricity					
Includes, pumps, lights, etc.	LS			$0.00	
Subtotal, Electricity					$0.00
Maintenance of Cover and Erosion Control					
Sodding	sy	4840	$1.25	$6,050.00	
Regrading	LS	2	$2,000.00	$4,000.00	
Liner Repair	cy	500	$3.00	$1,500.00	
Clay	cy	500	$8.34	$4,170.00	
Subtotal, Maintenance of Cover					$15,720.00
Surface Water Drainage Maintenance					
Ditch Cleaning	LS	1	$2,000.00	$2,000.00	
Storm Water Conveyance Maintenance	LS	1	$1,000.00	$1,000.00	
Subtotal, Surface Water Drainage Maintenance					$3,000.00
Security System Maineneance					
Fencing	LS	1	$1,000.00	$1,000.00	
Gates	LS	1	$500.00	$500.00	
Sign(s)	LS	1	$100.00	$100.00	
Subtotal, Security System					$1,600.00
Site Specific Costs (explain)					
				$0.00	
				$0.00	
				$0.00	
				$0.00	
Subtotal, Site Specific Costs					$0.00
Subtotal, Annual Long Term Care Costs					**$43,920.00**
Subtotal, Annual Long Term Care Costs				$43,920.00	
Contingency					
Contingency Estimate (% of total)	%	10		$4,392.00	
Total, Annual Long Term Care Costs					**$48,312.00**
Total, 30-Year Long Term Care Costs					**$1,449,360.00**

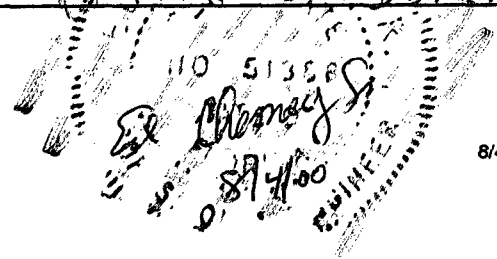


EXHIBIT B

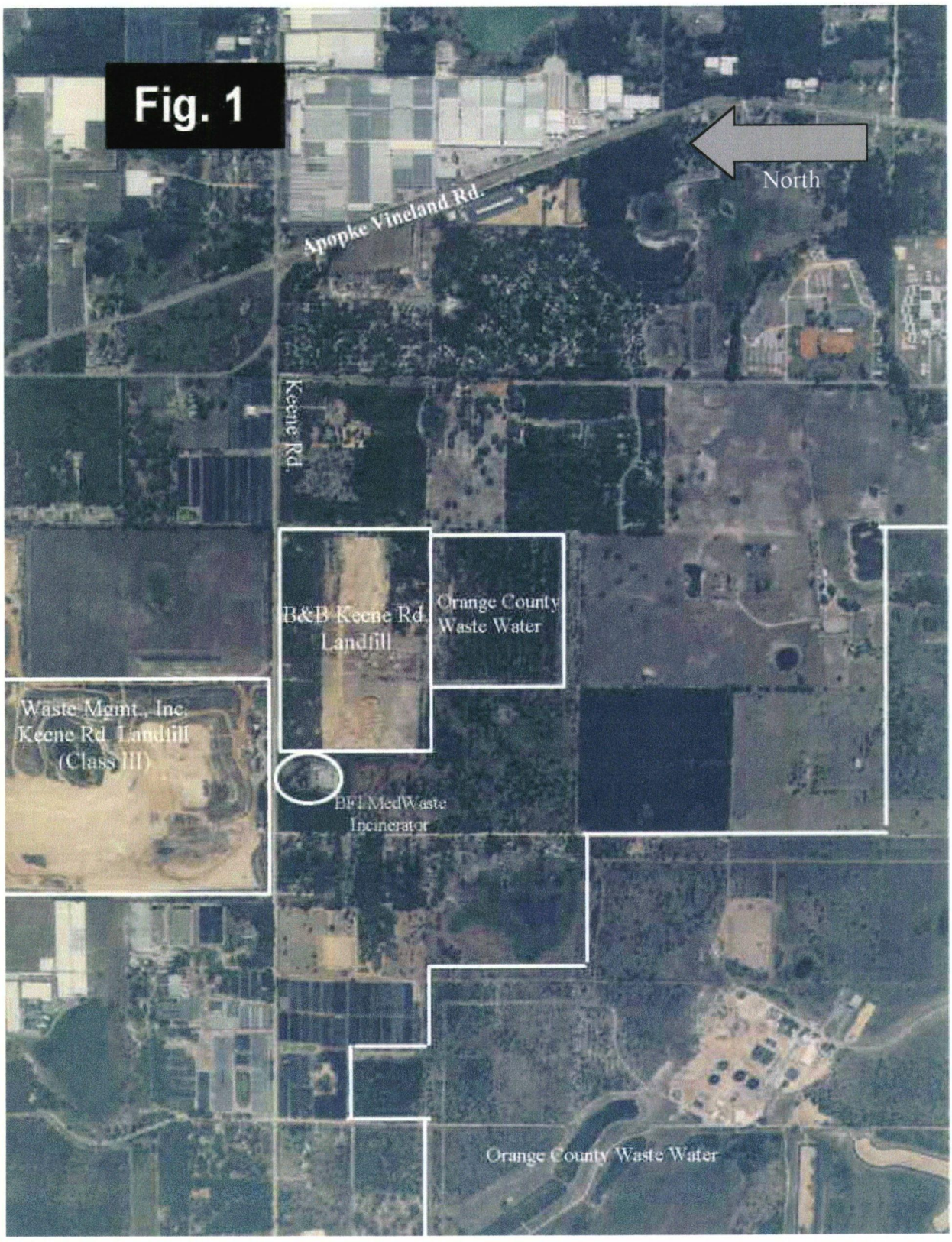


Fig. 1
North
Apopke Vineland Rd.
Keene Rd.
B&B Keene Rd. Landfill
Orange County Waste Water
Waste Mgmt., Inc. Keene Rd. Landfill (Class III)
BFI MedWaste Incinerator
Orange County Waste Water

EXHIBIT C

UNIVERSAL
ENGINEERING SCIENCES
Consultants in: Geotechnical Engineering • Threshold Inspection
Environmental Sciences • Construction Materials Testing

Offices in
• Orlando
• Gainesville
• Fort Myers
• Rockledge
• St. Augustine
• Daytona Beach
• West Palm Beach
• Jacksonville
• Ocala
• Tampa
• Debary

July 28, 2000

Buttrey Development LLC
P.O. Box 1029
Clarcona, Florida 32710

Attention: Mr. John Buttrey, Mr. Ed Chesney

Reference: Geotechnical Exploration Report
Buttrey Development Keene Road Landfill
Orange County, Florida
Project No. 10942-001-02
Report No. 126085.2

Dear Mr. Buttrey and Mr. Chesney:

Universal Engineering Sciences has completed additional borings for the evaluation of Buttrey Development Keene Road Landfill. The scope of this portion of our work was planned with Ed Chesney and we proceeded upon your verbal authorization. Mr. Chesney provided us with a fax copy of the specified (by Buttrey Development LLC) boring locations. This office has previously performed several reports for this project.

1.0 SUBSURFACE EXPLORATION

Our most recent subsurface exploration included two soil borings advanced to depths of 45 feet (PZ-18B) and 50 feet (B-27), while performing the Standard Penetration Test (SPT). The termination depths were specified by you. The upper 15 feet of boring PZ-18B was performed as a blind wash, meaning that our field drilling crew advanced the hole to this depth without performing the Standard Penetration Test. This is because the wash depth corresponds to the depth of the original boring B-18.

We performed the Standard Penetration Test (SPT) in each of these borings in general accordance with the procedures of ASTM D-1586, with continuous sampling performed to the terminal boring depth of 10 feet to detect slight variations in the soil profile at shallow depths. Generally, we sampled every 5 feet thereafter. At some depth ranges, you requested that we perform continuous sampling or take other additional samples. The basic procedure for the Standard Penetration Test is as follows: A standard split-barrel sampler is driven into the soil by a 140-pound hammer falling 30 inches. The number of blows needed to drive the sampler 1 foot, after seating 6 inches, is designated the penetration resistance, or N-value; this value is an index to soil strength and consistency.

3532 Maggie Blvd. • Orlando, Fl 32811 • (407) 423-0504 • Fax (407) 423-3106

In addition to our SPT borings, we explored the subsurface conditions at the site with two truck-mounted auger borings advanced to depths of 30 feet, in general accordance with the procedures of ASTM D-1452.

We performed the auger borings by advancing a slender, solid-stem auger into the soil to the required depth. We evaluated the soil type by visually inspecting the cuttings recovered from the auger flights.

Our boring locations were surveyed and staked prior to our field exploration by Buttrey Development.

Jar samples of the soils encountered will be held in our laboratory for your inspection for 60 days and then discarded, unless we are notified otherwise.

Our field drilling crew installed temporary piezometer wells at our SPT boring locations PZ-18B and B-27 (also named PZ-22), as well as three additional locations (PZ-19B, PZ-20B and PZ-21B). Our field drilling crew did not retrieve soil samples from locations PZ-19B, PZ-20B and PZ-21B, nor were boring logs prepared. We did not install temporary piezometer wells at our auger boring locations B-28 and B-29.

2.0 LABORATORY EXPLORATION

The soil samples recovered from our soil borings were returned to our laboratory and then a geotechnical engineer visually examined and reviewed the field descriptions. We performed a series of laboratory testing consisting of two triaxial permeabilities obtained from borings B-27 and B-28. We performed the testing on the samples you specified. The results of these tests are printed directly on the boring logs. Furthermore, we anticipate that you might choose to order us to perform more laboratory testing upon receiving this report. We will amend our boring logs as necessary based upon any and all additional testing.

We performed these tests to aid in classifying the soils and to help to evaluate the general engineering characteristics of the site soils. See Attachments: Boring Logs and Description of Testing Procedures, for further explanations.

3.0 CLOSURE

We trust the information presented herein is sufficient for your present needs. As you review this information, should you have additional questions or require further assistance, please contact us.

Respectfully submitted,
UNIVERSAL ENGINEERING SCIENCES, INC.

Brendan S. O'Brien, P.E.
Senior Project Engineer

Bruce H. Wolosiin, P.E.
P.E. No. 36734
Manager - Geotechnical Engineering

BSO/BHW:si

Distributions: Client (3)

Attachments

Boring Logs PZ-18B, B-27, B-28 and B-29
Soils Classification Chart
Description of Laboratory Test Procedures
Temporary Well Completion Reports, PZ-18B through PZ-21B, B-27

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	
PAGE:	

PROJECT: BORROW PIT NO. 91
KEENE ROAD BORROW PIT / LANDFILL
ORANGE COUNTY, FLORIDA

BORING DESIGNATION: **B-27** SHEET: **1 of 1**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT L.L.C.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 7/17/00
DATE FINISHED: 7/17/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0												
	X	4-3-2	5			Loose brown fine SAND [A-3]						
	X	2-2-1	3			-- very loose						
5	X	2-2-2	4			-- light brown						
	X	2-3-4	7			-- loose						
	X	5-6-7	13			Medium dense light gray with orange clayey SAND [A-2-6]						
10	X	7-6-7	13									
						Very dense light brown fine SAND [A-3]						
15	X	17-25-40	65									
	X	8-8-9	17			Medium dense light gray clayey fine SAND with silt [A-2-6]						
20						Loose orange silty fine SAND with clay [A-2-4]						
	X	3-4-6	10									
25												
	X	2-3-3	6			Medium stiff orange silty CLAY with sand [A-6]						
30												
	X	2-4-4	8			Loose orange/brown clayey fine SAND with silt [A-2-6]						
35						-- medium dense						
	X	3-6-9	15									
40												
						Very loose orange clayey fine SAND with silt & some cemented sand [A-2-6]						
	X	1-0-1	1									
45						Very dense cemented SAND [A-3, A-2-4] LOSS OF CIRCULATION						
						Medium dense brown clayey SAND with cemented sand [A-2-6]						
	X	9-12-18	30									
50						BORING TERMINATED AT 50.0'						
55												

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	
PAGE:	

PROJECT: BORROW PIT NO. 91
KEENE ROAD BORROW PIT / LANDFILL
ORANGE COUNTY, FLORIDA

BORING DESIGNATION: **B-28** SHEET: **1 of 1**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT L.L.C.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 7/14/00
DATE FINISHED: 7/14/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Gray/brown fine SAND with roots [A-3]						
						-- orange/brown, no roots						
5						-- light brown						
10												
15												
20						-- light gray						
25						Light brown sandy CLAY [A-6]					9.4 E-05	
30						BORING TERMINATED AT 30.0 FEET						
35												
40												
45												
50												
55												

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	
PAGE:	

PROJECT: BORROW PIT NO. 91
KEENE ROAD BORROW PIT / LANDFILL
ORANGE COUNTY, FLORIDA

BORING DESIGNATION: **B-29** SHEET: **1 of 1**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT L.L.C.

LOCATION: SEE BORING LOCATION PLAN

REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): > 30.0
DATE OF READING: 7/14/00
EST. W.S.W.T. (ft):

DATE STARTED: 7/14/00
DATE FINISHED: 7/14/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Brown fine SAND [A-3]						
5						-- with shade of orange						
10												
15						-- light orange/brown						
20												
						Orange/brown clayey SAND [A-2-6]						
						Light gray/orange sandy CLAY [A-7]						
25						Light gray/brown clayey fine SAND [A-2-6]					1.2 E-02	
30						BORING TERMINATED AT 30.0'						
35												
40												
45												
50												
55												

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.: 10942-001-02
REPORT NO.:
PAGE:

PROJECT: BORROW PIT NO. 91
KEENE ROAD BORROW PIT / LANDFILL
ORANGE COUNTY, FLORIDA

BORING DESIGNATION: **PZ-18B** SHEET: **1 of 1**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT L.L.C.
LOCATION: SEE BORING LOCATION PLAN
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 7/13/00
DATE FINISHED: 7/13/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						WASH BORE TO 15 FEET						
15	X	2-2-3	5			Loose light orange/brown silty fine SAND with a trace of clay [A-2-4] -- very loose, orange						
	X	2-2-2	4									
	X	3-2-3	5			-- loose, with seams of gray clay [A-7-6 seams]						
						-- light brown, very silty, no clay seams						
	X	3-3-3	6									
	X	0-0-0	WOR			Very soft light brown SILT & some limestone fragments [A-4]						
	X	25-40-40	80			Very hard light brown sandy SILT with some cementation [A-4]						
						Very dense light brown silty SAND & limestone fragments [A-2-4]						
	X	100	100/4"									
45						BORING TERMINATED AT 45.0'						
50												
55												

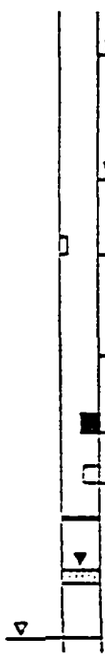
Project No. 10942-001-02
Report No. 126085.2

DESCRIPTION OF LABORATORY TEST PROCEDURES

UNIVERSAL ENGINEERING SCIENCES

KEY TO BORING LOGS

SYMBOLS



22	Number of Blows of a 140-lb Weight Falling 30 in. Required to Drive Standard Spoon One Foot
WOR	Weight of Drill Rods
S	Thin-Wall Shelby Tube Undisturbed Sampler Used
90% Rec.	Percent Core Recovery from Rock Core-Drilling Operations
	Sample Taken at this Level
	Sample Not Taken at this Level
	Change in Soil Strata
	Free Ground Water Level
	Seasonal High Ground Water Level

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75-mm) sieve.

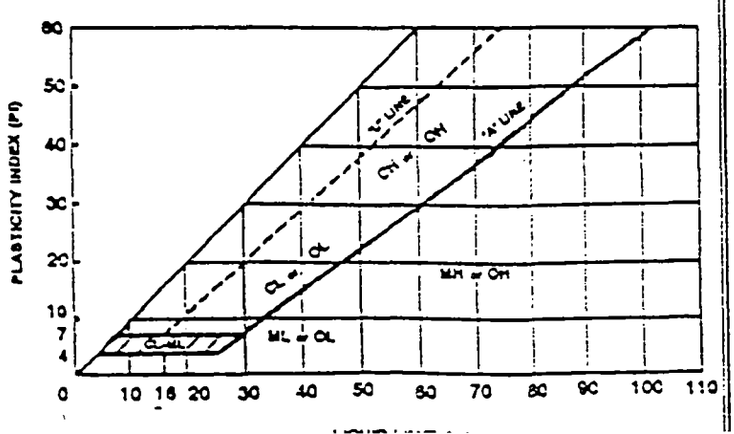
RELATIVE DENSITY (sand-silt)

Very Loose - Less Than 4 Blows/Ft.
Loose - 4 - 10 Blows/Ft.
Medium - 10 to 30 Blows/Ft.
Dense - 30 to 50 Blows/Ft.
Very Dense - More Than 50 Blows/Ft.

CONSISTENCY (clay)

Very Soft - Less Than 2 Blows/Ft.
Soft - 2 to 4 Blows/Ft.
Medium - 4 to 8 Blows/Ft.
Stiff - 8 to 15 Blows/Ft.
Very Stiff - 15 to 30 Blows/Ft.
Hard - More Than 30 Blows/Ft.

PLASTICITY CHART



UNIVERSAL ENGINEERING SCIENCES
TEMPORARY WELL COMPLETION LOG

PROJECT NO.: 10942-001-02
REPORT NO.:
PAGE NO.:

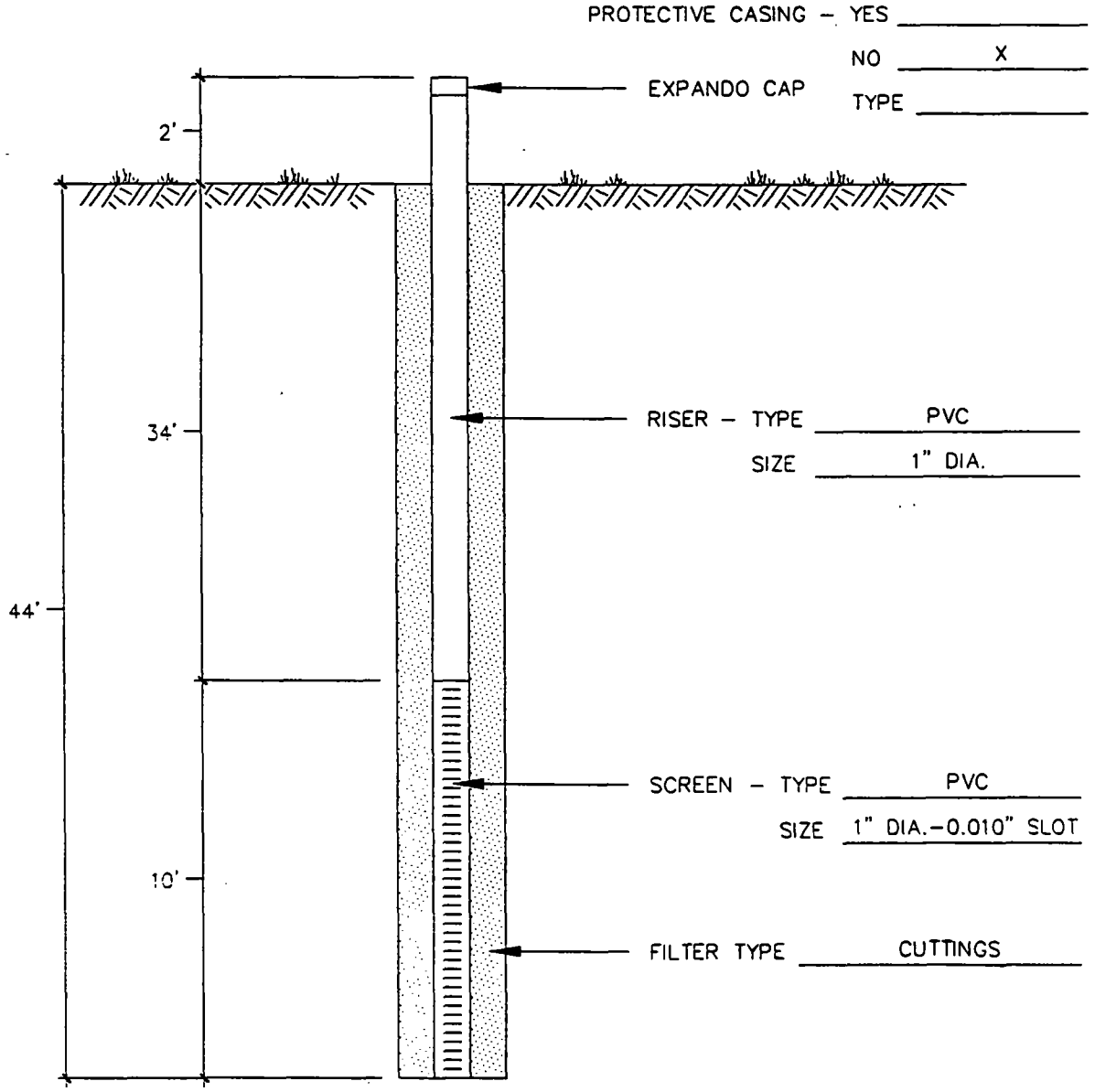
PROJECT: BORROW PIT #91, ORANGE COUNTY, FLORIDA

CLIENT: BUTTREY DEVELOPMENT, L.L.C. DATE: 7/13/00

WELL NUMBER: PZ-18B LOCATION: SEE BORING LOCATION PLAN

INSTALLED BY: U.E.S. DRILLING DEPT. - ORLANDO

WELL DIAGRAM - NOT TO SCALE



UNIVERSAL ENGINEERING SCIENCES
TEMPORARY WELL COMPLETION LOG

PROJECT NO.: 10942-001-02
REPORT NO.:
PAGE NO.:

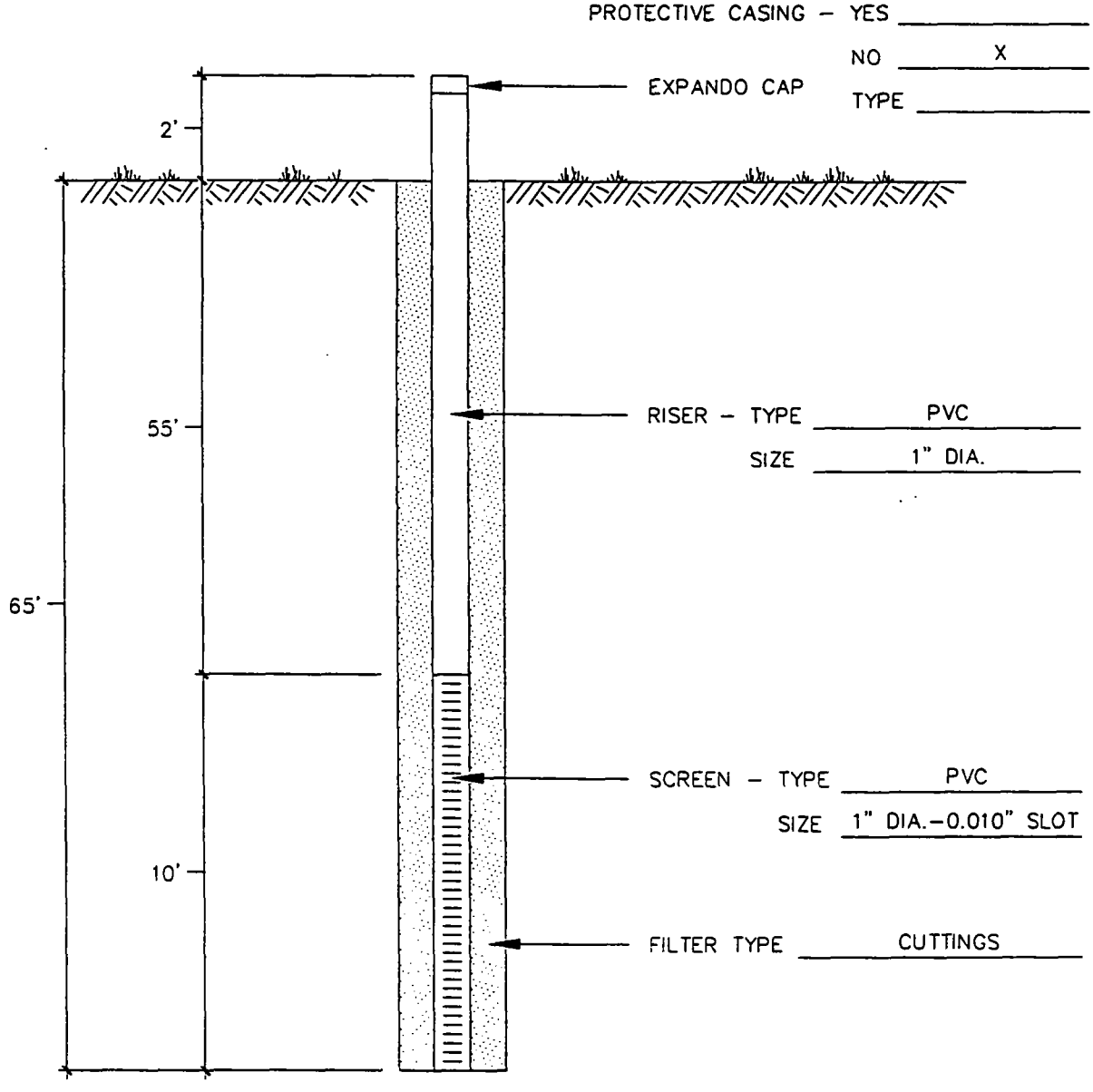
PROJECT: BORROW PIT #91, ORANGE COUNTY, FLORIDA

CLIENT: BUTTREY DEVELOPMENT, L.L.C. DATE: 7/13/00

WELL NUMBER: PZ-19B LOCATION: SEE BORING LOCATION PLAN

INSTALLED BY: U.E.S. DRILLING DEPT. - ORLANDO

WELL DIAGRAM - NOT TO SCALE



UNIVERSAL ENGINEERING SCIENCES
TEMPORARY WELL COMPLETION LOG

PROJECT NO.: 10942-001-02
REPORT NO.:
PAGE NO.:

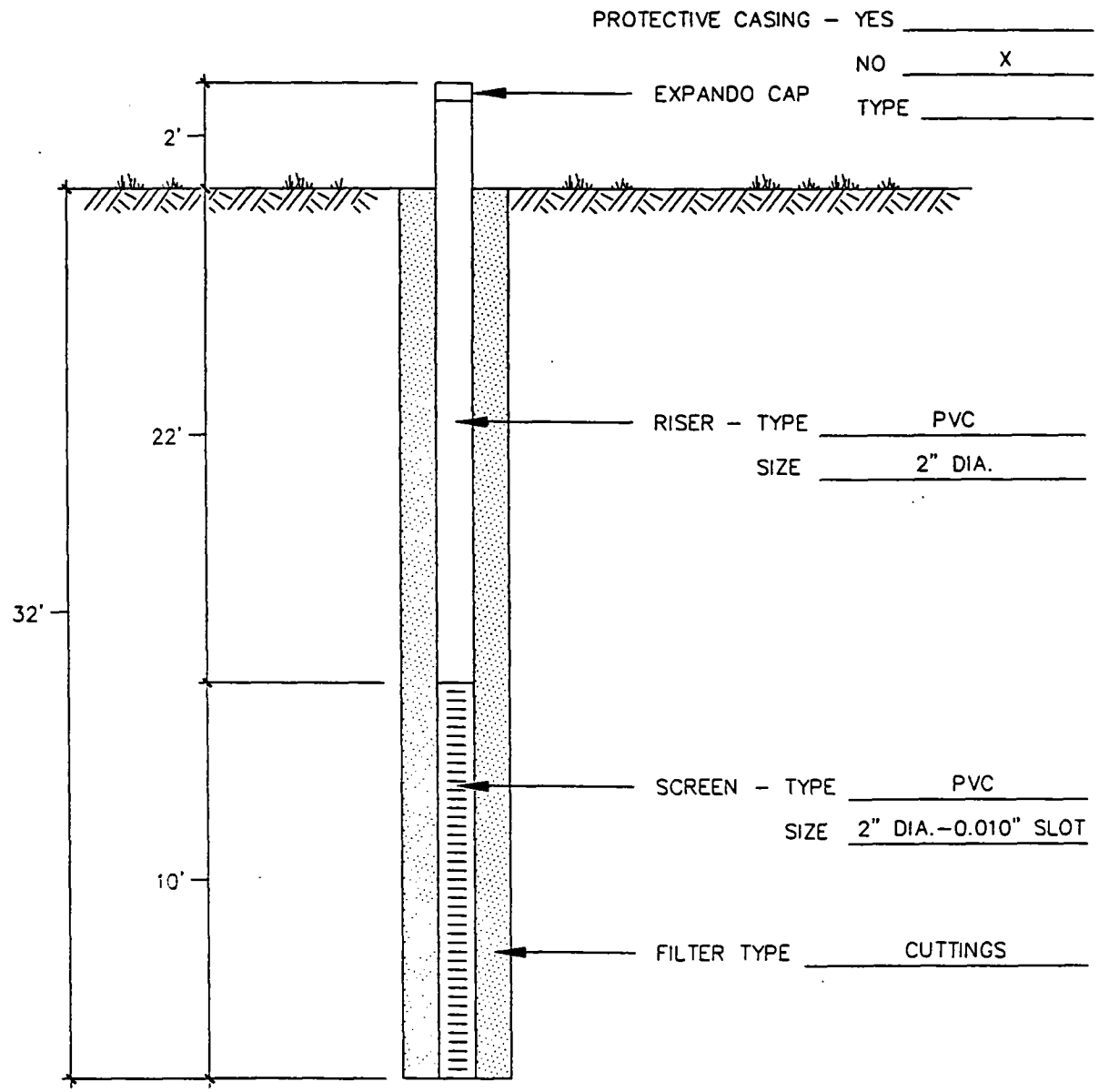
PROJECT: BORROW PIT #91, ORANGE COUNTY, FLORIDA

CLIENT: BUTTREY DEVELOPMENT, L.L.C. DATE: 7/13/00

WELL NUMBER: PZ-20B LOCATION: SEE BORING LOCATION PLAN

INSTALLED BY: U.E.S. DRILLING DEPT. - ORLANDO

WELL DIAGRAM - NOT TO SCALE



UNIVERSAL ENGINEERING SCIENCES
TEMPORARY WELL COMPLETION LOG

PROJECT NO.: 10942-001-02
REPORT NO.:
PAGE NO.:

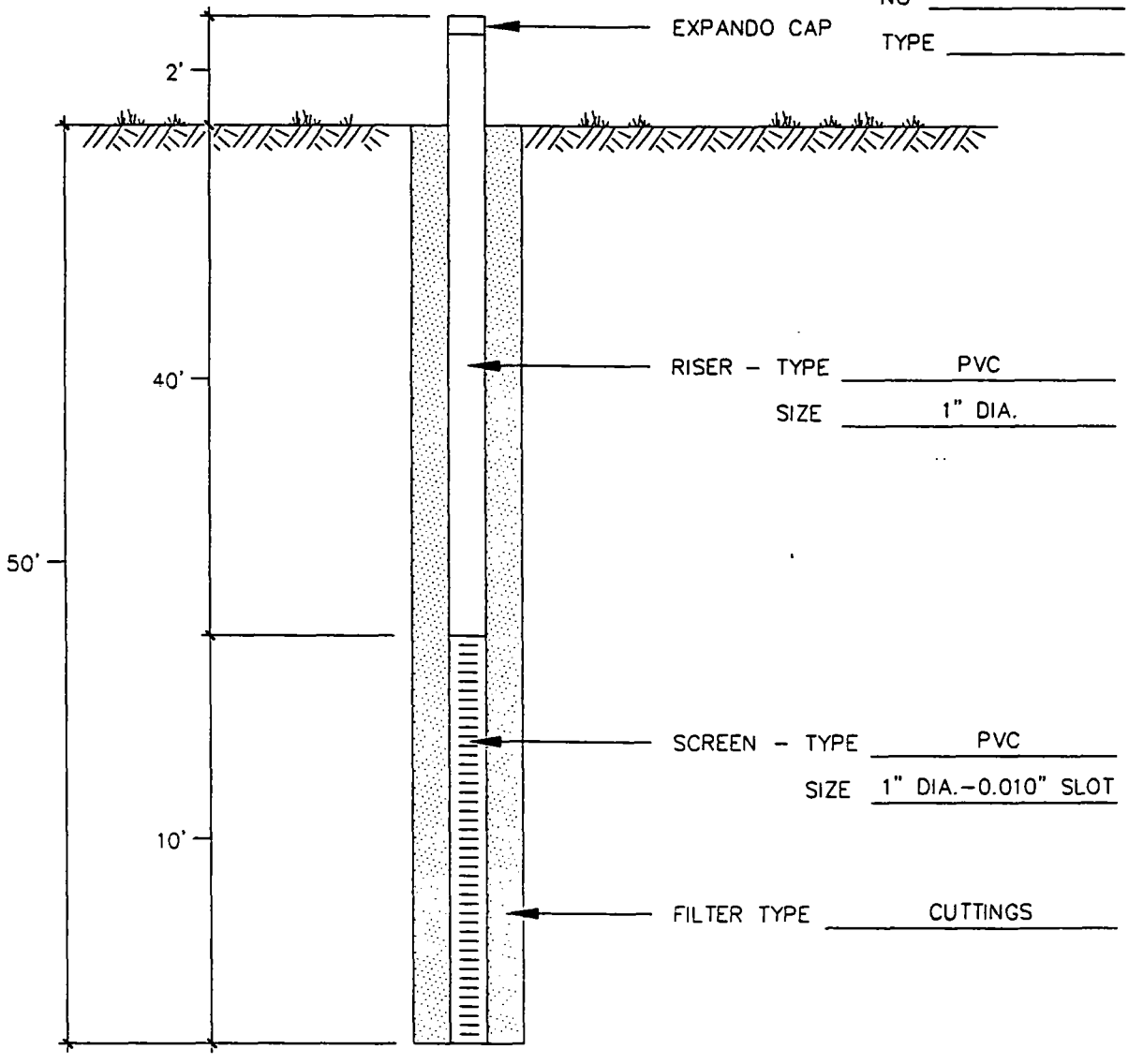
PROJECT: BORROW PIT #91, ORANGE COUNTY, FLORIDA

CLIENT: BUTTREY DEVELOPMENT, L.L.C. DATE: 7/14/00

WELL NUMBER: PZ-21B LOCATION: SEE BORING LOCATION PLAN

INSTALLED BY: U.E.S. DRILLING DEPT. - ORLANDO

WELL DIAGRAM - NOT TO SCALE



UNIVERSAL ENGINEERING SCIENCES
TEMPORARY WELL COMPLETION LOG

PROJECT NO.: 10942-001-02
REPORT NO.:
PAGE NO.:

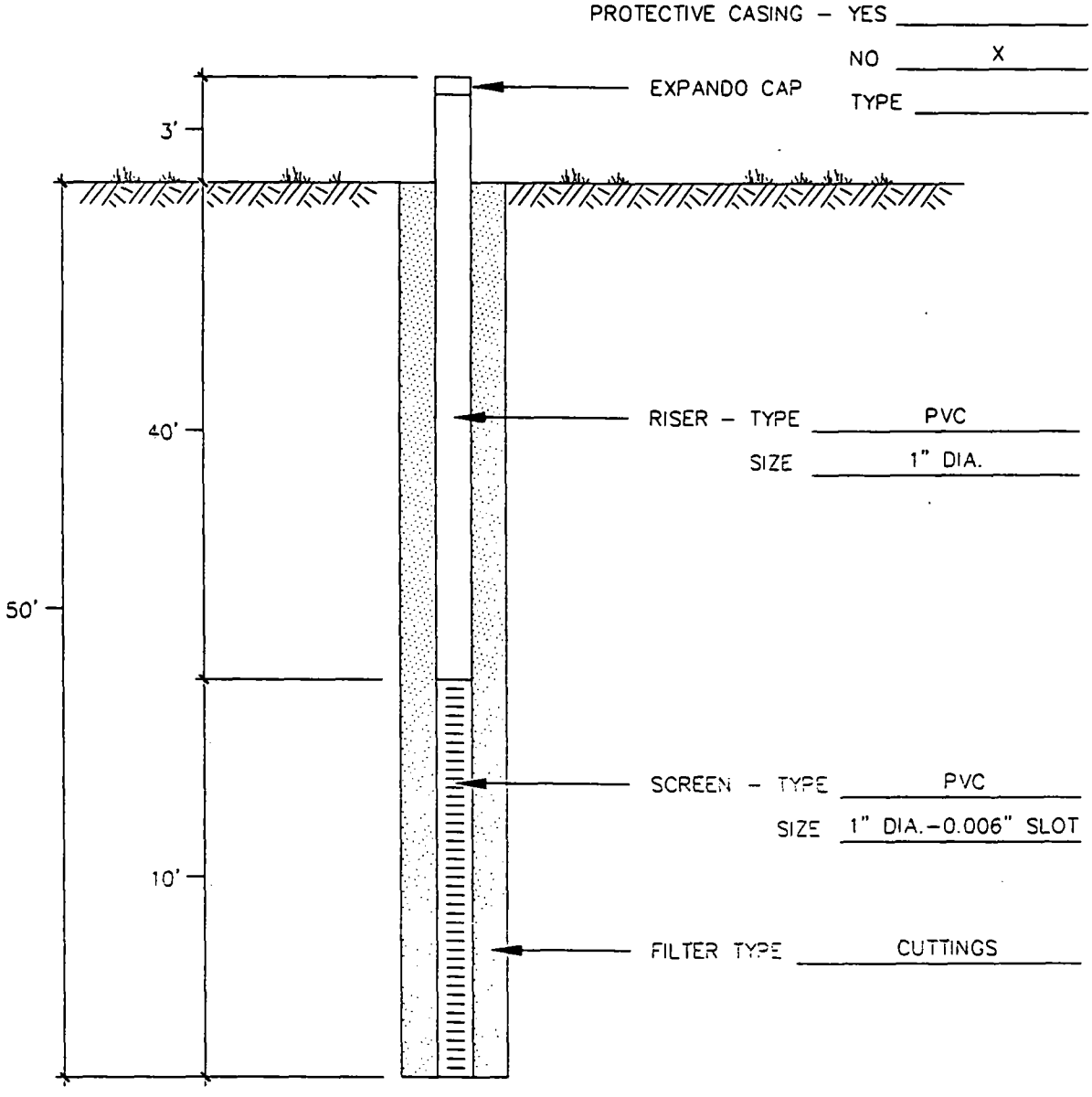
PROJECT: BORROW PIT #91, ORANGE COUNTY, FLORIDA

CLIENT: BUTTREY DEVELOPMENT, L.L.C. DATE: 7/17/00

WELL NUMBER: B-27 LOCATION: SEE BORING LOCATION PLAN

INSTALLED BY: U.E.S. DRILLING DEPT. - ORLANDO

WELL DIAGRAM - NOT TO SCALE



Department of Environmental Protection

Central District
3319 Maguire Boulevard
Suite 232
Orlando, Florida 32803-3767

Jeb Bush
Governor

David B. Struhs
Secretary

MEETING ATTENDANCE RECORD

Purpose: Keene Road/Buttrey Development Date: 7/31/2000

Name (please print)	Affiliation
James Braddock	FDEP-SW 407-893-3329
GEORGE CHERYAN	FDEP
Bret LeRoux	FDEP - Waste Cleanup
George Houston	FDEP - WCU
Jennifer Deal	FDEP - SW
JOHN BUTTREY	BUTTREY DEVELOPMENTS, THE, LLC.
ED CHESNEY	"
William Bostwick	FDEP Waste Management

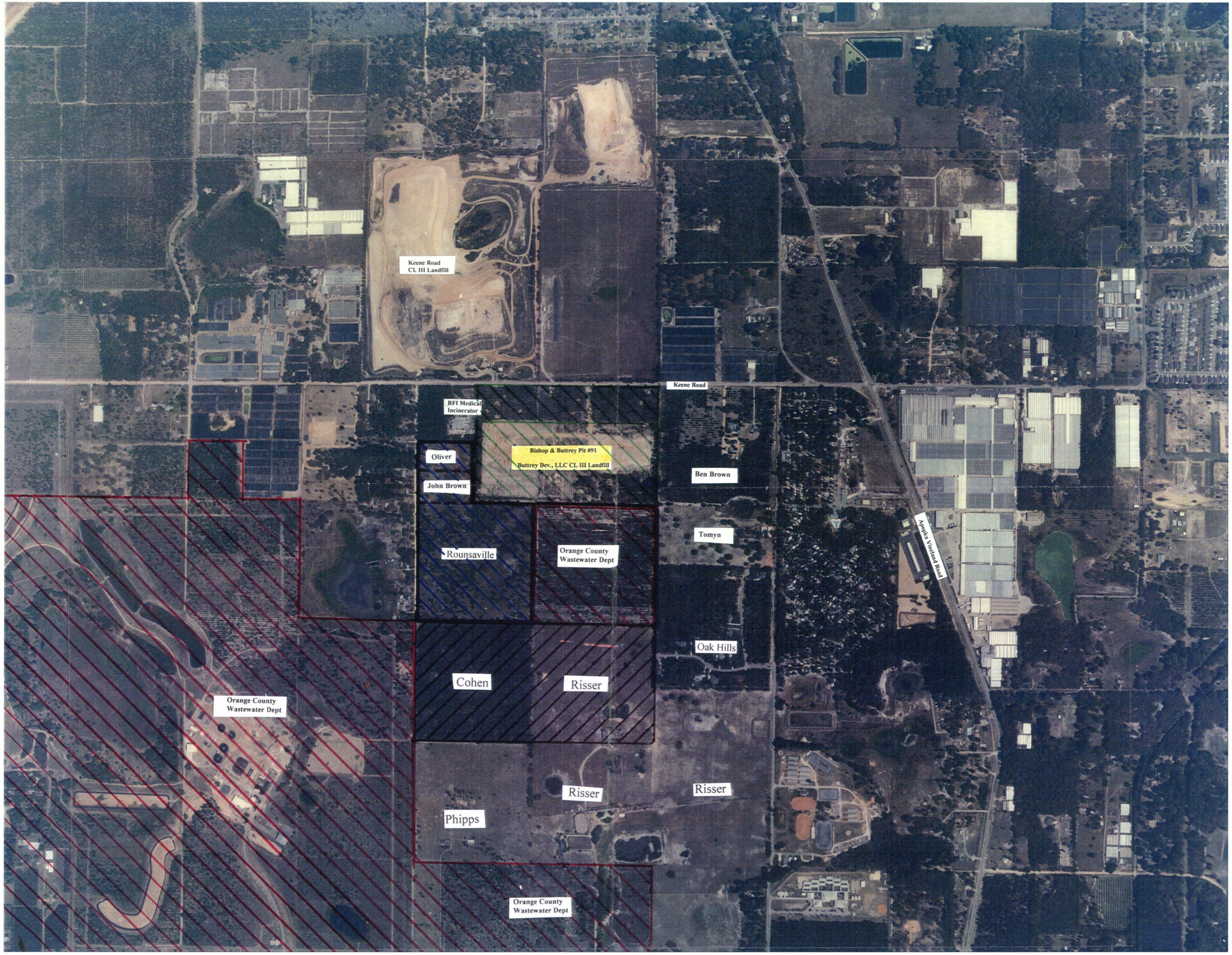
MEETING ATTENDANCE RECORD

Continued on reverse side

MEETING ATTENDANCE RECORD

Purpose: Date:

Name (please print)	Affiliation


Keene Road
CL III Landfill
Keene Road
BFI Medical
Incinerator
Bishop & Buttrey Pit #91
Buttrey Dev., LLC CL III Landfill
Oliver
John Brown
Ben Brown
Tomyn
Rounsaville
Orange County
Wastewater Dept
Apopka Vineland Road
Oak Hills
Cohen
Risser
Orange County
Wastewater Dept
Risser
Risser
Phipps
Orange County
Wastewater Dept

BUTTREY DEVELOPMENT TWO, LLC

June 13, 2000

Mary Jean Yon, Administrator
Solid Waste Section
Dept. of Environmental Protection
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Subject: Petition for Variance from Rule 62-701.34 (4) (c), F.A.C.
Buttrey Development Two, LLC, 6239 Edgewater Dr. D-1
Orlando, FL 32810. Phone 407-296-0016, Fax 407-294-8090
Keene Road Disposal, Class III Landfill Permitting, 60 Acres, NE 1/4
and E ½ of the NW 1/4 of the NE 1/4 of Section 28, Township 21,
Range 28, Orange County, Florida
FDEP Application No. SC48-0165969-001 and SO48-0165969-002

Dear Ms. Yon:

We appreciate your prompt response requesting additional information on the subject petition. Our original letter dated May 22nd, pointed out FDEP application numbers for a Class III landfill. We have paid FDEP $17,500 to date in fees relating to these applications (see attached checks). If additional fees are required, please advise.

Rule 62-701.340 (4) (c) states "The minimum horizontal separation between waste deposits in the landfill and the landfill property boundary needs to be 100', measured from the toe of the proposed final lower slope." We are requesting a reduction in this setback from 100' to 50' on three sides of the proposed landfill. This request will accommodate the existing borrow pit setbacks which are properly permitted and currently being excavated with 50' setbacks.

Not granting this request will create an unnecessary hardship by eliminating 550,000 cubic yards of airspace in this relatively small landfill and having the potential burden to re-fill already excavated areas. As pointed out in my letter of May 22, the surrounding property owners have no objection to this proposal. This is very evident from the results of three public hearings and affidavits of no objection provided. This is a very rural and established industrial area. The one adjoining property owner (Ben Brown 407-880-8650), who will continue to live on his property, is anxious for the landfill to be constructed and completed because it eliminates the possibility of low cost housing and the associated problems. Ben Brown owns a 40 acre citrus grove with his home 750' from our joining property line. We are buying out the other two residents, Brown &

6239 Edgewater Dr., Suite D-1 • Post Office Box 1029 • Clarcona, Florida 32710-1029
Telephone: (407) 296-0016 • FAX: (407) 294-8090

Oliver. (One of these owners, John Brown, is currently under investigation by Orange County for illegal dumping of clearing debris on his property.) This is a problem neighborhood and not conducive to residential development. The waiver being requested is permanent.

The reasons this waiver will serve the purposes of the underlying statute are:

1.) The 50' buffer leaves more than adequate room for the necessary monitoring wells.
2.) The stormwater is proposed to be handled in subsurface pipes, requiring very small areas within the 50' setback.
3.) Litter control is handled with weekly cover and is unrelated to the size of the setback.
4.) Our proposed plan calls for a 30' wide access road around the entire perimeter of the landfill. This provides for complete and total access to the landfill.

At the request of Orange County, we have voluntarily agreed to a heavily timbered 400' setback from Keene Road, the major road serving this area. To further require us to add an unnecessary 50' additional setback on three sides, costing us 550,000 cubic yards of airspace, is patently unfair!! Furthermore, local governments have always been the final authority on zoning issues such as setbacks. The review by FDEP is thoroughly investigating the more serious technical issues, such as groundwater and environmental impact. These issues are not affected by the requested setback variance. There are no wetland issues on this site. There were gopher tortoises which were permitted and relocated prior to the start of excavation.

We request an expeditious approval of this very reasonable, fair and sensible request. If we can provide any further information, please do not hesitate to contact me.

Sincerely,

John Buttrey

JB/du

Att.

Department of Environmental Protection

Jeb Bush
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

David B. Struhs
Secretary

CERTIFIED
Z-203 929 984

Mr. John Buttrey
Buttrey Development, LLC
6239 Edgewater Drive, Suite D-1
Orlando, FL 32810

OCD-SW-00-0273

Orange County - SW
Keene Road Disposal/Buttrey Development
Class III Landfill - Construct & Operate
Permit Application Nos. SC48-0165969-001 and SO48-0165969-002

Dear Mr. Buttrey:

This is to acknowledge receipt of your application for the subject facility. The status of your application is as follows:

( ) Your application for permit received on is incomplete. Please provide the information listed on the attached sheet promptly. Evaluation of your application will be delayed until all the requested information has been received.

(X) The additional information received on May 26, 2000 was reviewed; however, the items listed on the attached memo remain incomplete. Evaluation of your application will continue to be delayed until we receive all requested information.

Pursuant to Section 120.60(2), Florida Statutes, the Department may deny an application, if the applicant, after receiving timely notice, fails to correct errors, omissions or supply additional information within a reasonable period of time. Please submit three copies of the requested information to the Department and reference the above application permit number in your correspondence.

If you have any questions, please contact me at (407) 893-3328.

Sincerely,

James N. Bradner, P.E.
Program Manager
Solid Waste

Date: 6/16/2000

JNB/gc/ew
Enclosure
cc: Ed Chesney, P.E.

9. In Exhibit E, Page 3 of 3, the Subtotal for Surface Water Drainage Maintenance is in error and therefore, the Annual Long-Term Care Costs and the Total 30-Year Long-Term Care Costs are in error. Please submit the revised closure and long-term care costs signed and sealed by a professional engineer registered in the State of Florida. Also, submit proof of financial assurance in accordance with Rule 62-701.630, F.A.C., to the Financial coordinator, Solid Waste Section, Department of Environmental Protection, MS-4565, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, **with a copy to** the Department of Environmental Protection, Central District, 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803-3767.

11. The text on Page 5, Section 1.2.1 of the Operations Plan does not appear to be in agreement with the location of the facilities shown on Figure 1 on Page 6. The direction of the arrow pointing north on Page 6 needs to be oriented to the west to make the text on Page 5, Section 1.2.1 of the Operations Plan to be in agreement with the location of the facilities shown on Page 6. Please submit the revised Page 6 if you agree.

15. This item on the variance request for the 100 feet setback remains incomplete until it is approved by the Florida Department of Environmental Protection - Solid Waste Section in Tallahassee.

17. Comment 17 is incomplete. Response to Comment 17 states "The revised bottom elevation now ranges from 60.0' in the west to elevation 90.5' in the east." Response to Comment 17 also states "One can conclude from MW-1, PZ-18, PZ-19, PZ-20 along with spot elevations taken in localized open excavated areas that ground water in this region exhibits "perched" characteristics as it follows the clayey soil contours of the site." Review of the historical ground water elevations table indicates that piezometers PZ-18, PZ-20, and PZ-21 are essentially "dry" piezometers. Therefore, the ground water elevation and flow conditions at the northeast corner and center of the site are not completely understood.. Our evaluation of the proposed revised base elevations will be postponed until the ground water flow direction in the northeast corner and the center of the landfill is understood. Please install piezometers in the same location as PZ-18, PZ-20, and PZ-21 at sufficient depths to obtain the ground water elevation in that area. Additionally please install an piezometer east of piezometer PZ-20 and north of boring location B-4. Further, it also necessary to install a piezometer into the same flow zone as the southern and western piezometers to a depth of approximately 40-45 feet NGVD to determine the ground water elevation at that level in the northeast of the landfill. We recommend that this piezometer be installed in cluster with the replacement for piezometer PZ-19. Also after the new piezometers are installed, please collect ground water measurements from all piezometers and monitoring wells and construct ground water flow maps of the "perched" aquifer and 40-45 foot flow zone. Please note, ground water elevation contour maps shall include all monitoring well and piezometer locations, the ground water elevation at each monitoring well location referenced to the National Geodetic Vertical Datum of 1929, a **bar scale**, the ground water contour interval, the date of measurement and the ground water flow direction.

20. Comment 20 is incomplete. An evaluation of the proposed monitoring well locations and number of proposed monitoring wells and their construction can not be determined until the information requested in Comment 17 is received and analyzed.

22. Comment 22 is complete. However, the response to comment 22 states "In addition, background samples were collected from MW-2 (chosen upgradient well) for analysis of the primary and secondary drinking water standards." Please note that as stated in your February 14, 2000 permit application and pursuant to Rule 62-701.510(6)(a) all monitoring wells must be sampled for Appendix I and Appendix II parameters prior to placement of fill.

State of Florida
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Interoffice Memorandum

CENTRAL DISTRICT

TO: Jim Bradner, P.E. 6/15/2000 OCD-WCU-00-0241
Solid Waste Program Manager

THROUGH: G. Bret LeRoux, P.G. GBL
Waste Cleanup Program Manager

FROM: George Houston II, P.G. GH
Environmental Specialist III

DATE: June 15, 2000

SUBJECT: Orange County – Waste Cleanup
Keene Road Disposal/ Buttrey Development Class III Landfill
Response to Comments

I have reviewed the Response to Comments, received May 30. 2000, and have the following comments:

The responses to comments 16, 18, 19 and 21 are acceptable.

Comment 17 is incomplete. Response to Comment 17 states "The revised bottom elevation now ranges from 60.0' in the west to elevation 90.5' in the east." Response to Comment 17 also states "One can conclude from MW-1, PZ-18, PZ-19, PZ-20 along with spot elevations taken in localized open excavated areas that ground water in this region exhibits "perched" characteristics as it follows the clayey soil contours of the site." Review of the historical ground water elevations table indicates that piezometers PZ-18, PZ-20, and PZ-21 are essentially "dry" piezometers. Therefore, the ground water elevation and flow conditions at the northeast corner and center of the site are not completely understood.. Our evaluation of the proposed revised base elevations will be postponed until the ground water flow direction in the northeast corner and the center of the landfill is understood. Please install piezometers in the same location as PZ-18, PZ-20, and PZ-21 at sufficient depths to obtain the ground water elevation in that area. Additionally please install an piezometer east of piezometer PZ-20 and north of boring location B-4. Further, it also necessary to install a piezometer into the same flow zone as the southern and western piezometers to a depth of approximately 40-45 feet NGVD to determine the ground water elevation at that level in the northeast of the landfill. We recommend that this piezometer be installed in cluster with the replacement for piezometer PZ-19. Also after the new piezometers are installed, please collect ground water measurements from all piezometers and monitoring wells and construct ground water flow maps of the "perched" aquifer and 40-45 foot flow zone. Please note, ground water elevation contour maps shall include all monitoring well and piezometer locations, the ground water elevation at each monitoring well location referenced to the National Geodetic Vertical Datum of 1929, a **bar scale**, the ground water contour interval, the date of measurement and the ground water flow direction.

Comment 20 is incomplete. An evaluation of the proposed monitoring well locations and number of proposed monitoring wells and their construction can not be determined until the information requested in Comment 17 is received and analyzed.

Comment 22 is complete. However, the response to comment 22 states "In addition, background samples were collected from MW-2 (chosen upgradient well) for analysis of the primary and secondary drinking water standards." Please note that as stated in your February 14, 2000 permit application and pursuant to Rule 62-701.510(6)(a) all monitoring wells must be sampled for Appendix I and Appendix II parameters prior to placement of fill.

Attachment:

Orange County SW
Keene Road/Buttrey Development

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

June 7, 2000

Mr. John Buttrey
Buttrey Development Two, LLC
6239 Edgewater Drive, Suite D-1
Clarcona, Florida 32710-1029

Dear Mr. Buttrey:

This is in response to your letter of May 22, which was received in my office on May 26. In that letter you requested a variance from Department rules regarding setbacks from the property boundary for the Keene Road Class III Landfill. Since this letter was received without a fee or specific reference to statute or rule provisions, I am treating it as a request for variance or waiver under Section 120.542, Florida Statutes (F.S.). A copy of this statute is attached for your convenience. This letter is to notify you that your request is insufficient as received and that additional information is needed before your request can be processed further.

It appears that you are seeking a variance from the provisions of Rule 62-701.340(4)(c), Florida Administrative Code (F.A.C.), which requires a minimum horizontal separation between waste deposits in a landfill and the landfill property boundary of 100 feet. The purpose of this rule is not only to provide an aesthetic buffer between landfills and neighbors, but also to assure that the ground water can be adequately monitored, that stormwater and litter can be controlled on site, and that there is adequate room to conduct landfill operations around the landfill. The law requires a person requesting a variance to demonstrate two things: that the purpose of the underlying statute will be achieved by other means by the person; and that application of a rule would either create a substantial hardship or would violate principles of fairness. In order to do this, a person must file a petition with the Department which complies with Rule 28-104.002, F.A.C., a copy of which is also attached.

If you would like the Department to continue processing your request for a variance, please provide a written response to this request for additional information, which addresses each of the criteria in this rule. You should specifically address how you intend to meet the purposes of the rule even with a 50-foot setback, and what sort of hardship you would face if you had to comply with the 100-foot setback. You may address your response to me at the letterhead address, Mail Station 4565. Once you confirm that you are seeking relief under Section 120.542, F.S., and submit the information requested above, the Department will be able to continue processing your request. If we do not receive a written response from you within 30 days we will take final action on your request as submitted, which will likely result in a denial.

I hope you find this Request for Additional Information helpful and I look forward to your response. In accordance with Section 120.542, F.S., the time within which the Department must act on your petition is tolled while we await this additional information. If I can be of any further assistance, please feel free to call me at (850/921-9976.

Sincerely,

Mary Jean Yon, Administrator
Solid Waste Section

MJY/myl

Enclosures:

cc: Bill Bostwick
✓Jim Bradner
Chris McGuire

120.542 Variances and waivers.--

(1) Strict application of uniformly applicable rule requirements can lead to unreasonable, unfair, and unintended results in particular instances. The Legislature finds that it is appropriate in such cases to adopt a procedure for agencies to provide relief to persons subject to regulation. A public employee is not a person subject to regulation under this section for the purpose of petitioning for a variance or waiver to a rule that affects that public employee in his or her capacity as a public employee. Agencies are authorized to grant variances and waivers to requirements of their rules consistent with this section and with rules adopted under the authority of this section. An agency may limit the duration of any grant of a variance or waiver or otherwise impose conditions on the grant only to the extent necessary for the purpose of the underlying statute to be achieved. This section does not authorize agencies to grant variances or waivers to statutes or to rules required by the Federal Government for the agency's implementation or retention of any federally approved or delegated program, except as allowed by the program or when the variance or waiver is also approved by the appropriate agency of the Federal Government. This section is supplemental to, and does not abrogate, the variance and waiver provisions in any other statute.

(2) Variances and waivers shall be granted when the person subject to the rule demonstrates that the purpose of the underlying statute will be or has been achieved by other means by the person and when application of a rule would create a substantial hardship or would violate principles of fairness. For purposes of this section, "substantial hardship" means a demonstrated economic, technological, legal, or other type of hardship to the person requesting the variance or waiver. For purposes of this section, "principles of fairness" are violated when the literal application of a rule affects a particular person in a manner significantly different from the way it affects other similarly situated persons who are subject to the rule.

(3) The Governor and Cabinet, sitting as the Administration Commission, shall adopt uniform rules of procedure pursuant to the requirements of s. 120.54(5) establishing procedures for granting or denying petitions for variances and waivers. The uniform rules shall include procedures for the granting, denying, or revoking of emergency and temporary variances and waivers. Such provisions may provide for expedited timeframes, waiver of or limited public notice, and limitations on comments on the petition in the case of such temporary or emergency variances and waivers.

(4) Agencies shall advise persons of the remedies available through this section and shall provide copies of this section, the uniform rules on variances and waivers, and, if requested, the underlying statute, to persons who inquire about the possibility of relief from rule requirements.

(5) A person who is subject to regulation by an agency rule may file a petition with that agency, with a copy to the committee, requesting a variance or waiver from the agency's rule. In addition to any requirements mandated by the uniform rules, each petition shall specify:

(a) The rule from which a variance or waiver is requested.

(b) The type of action requested.

(c) The specific facts that would justify a waiver or variance for the petitioner.

(d) The reason why the variance or the waiver requested would serve the purposes of the underlying statute.

(6) Within 15 days after receipt of a petition for variance or waiver, an agency shall provide notice of the petition to the Department of State, which shall publish notice of the petition in the first available issue of the Florida Administrative Weekly. The notice shall contain the name of the petitioner, the date the petition was filed, the rule number and nature of the rule from which variance or waiver is sought, and an explanation of how a copy of the petition can be obtained. The uniform rules shall provide a means for interested persons to provide comments on the petition.

(7) Except for requests for emergency variances or waivers, within 30 days after receipt of a petition for a variance or waiver, an agency shall review the petition and request submittal of all additional information that the agency is permitted by this section to require. Within 30 days after receipt of such additional information, the agency shall review it and may request only that information needed to clarify the additional information or to answer new questions raised by or directly related to the additional information. If the petitioner asserts that any request for additional information is not authorized by law or by rule of the affected agency, the agency shall proceed, at the petitioner's written request, to process the petition.

(8) An agency shall grant or deny a petition for variance or waiver within 90 days after receipt of the original petition, the last item of timely requested additional material, or the petitioner's written request to finish processing the petition. A petition not granted or denied within 90 days after receipt of a completed petition is deemed approved. A copy of the order granting or denying the petition shall be filed with the committee and shall contain a statement of the relevant facts

and reasons supporting the agency's action. The agency shall provide notice of the disposition of the petition to the Department of State, which shall publish the notice in the next available issue of the Florida Administrative Weekly. The notice shall contain the name of the petitioner, the date the petition was filed, the rule number and nature of the rule from which the waiver or variance is sought, a reference to the place and date of publication of the notice of the petition, the date of the order denying or approving the variance or waiver, the general basis for the agency decision, and an explanation of how a copy of the order can be obtained. The agency's decision to grant or deny the petition shall be supported by competent substantial evidence and is subject to ss. 120.569 and 120.57. Any proceeding pursuant to ss. 120.569 and 120.57 in regard to a variance or waiver shall be limited to the agency action on the request for the variance or waiver, except that a proceeding in regard to a variance or waiver may be consolidated with any other proceeding authorized by this chapter.

(9) Each agency shall maintain a record of the type and disposition of each petition, including temporary or emergency variances and waivers, filed pursuant to this section. On October 1 of each year, each agency shall file a report with the Governor, the President of the Senate, and the Speaker of the House of Representatives listing the number of petitions filed requesting variances to each agency rule, the number of petitions filed requesting waivers to each agency rule, and the disposition of all petitions. Temporary or emergency variances and waivers, and the reasons for granting or denying temporary or emergency variances and waivers, shall be identified separately from other waivers and variances.

History.--s. 12, ch. 96-159; s. 5, ch. 97-176.

28-104.002 Petition for Variance or Waiver

(1) A petition for a variance from or waiver of an agency rule shall be filed with the clerk of the agency that adopted the rule.

(2) The petition must include the following information:

(a) The caption shall read:
Petition for (Variance from) or (Waiver of) Rule (Citation)

(b) The name, address, telephone number, and any facsimile number of the petitioner;

(c) The name, address, telephone number, and any facsimile number of the attorney or qualified representative of the petitioner (if any);

(d) The applicable rule or portion of the rule;

(e) The citation to the statute the rule is implementing;

(f) The type of action requested;

(g) The specific facts that demonstrate a substantial hardship or a violation of principles of fairness that would justify a waiver or variance for the petitioner;

(h) The reason why the variance or the waiver requested would serve the purposes of the underlying statute; and

(i) A statement whether the variance or waiver is permanent or temporary. If the variance or waiver is temporary, the petition shall include the dates indicating the duration of the requested variance or waiver.

(3) The petition for a variance or waiver may be withdrawn by the applicant at any time before final agency action.

(4) Upon receipt of a petition for variance or waiver, the agency shall furnish a copy of the petition to any other agency responsible for implementing the rule.

BUTTREY DEVELOPMENT TWO, LLC

May 22, 2000

Florida Department of Environmental Protection
Solid Waste Section
2600 Black Stone Road
Tallahassee, FL 32399-2400

Subject: Keene Road Disposal, Class III Landfill Permitting, 60 Acres, NE 1/4 and E 1/2 of the NW 1/4 of the NE 1/4 of Section 28, Township 21, Range 28, Orange County, FL. Request for variance, 100' minimum horizontal separation between Waste deposits in the landfill and the landfill property boundary, FDEP Application No. SC48-0165969-001 and SO48-0165969-002

Gentlemen:

We are in the process of permitting the subject land fill. The current state ordinance requires a 100' setback from the property lines to the toe of slope of the above ground trash.

We request approval of a reduction of the subject setbacks from 100' to 50' on three sides of the landfill. The side fronting Keene Road is designed as a 400' setback.

Attached is a copy of the zoning special exception and the supporting plan that was approved by the Orange County BOCC. This approval was the subject of three public hearings in which all adjoining and area property owners were notified by the County. There was virtually no opposition.

There are seven adjoining property owners, six private and Orange County. (See attached aerial and description of each parcel.) Of the six private owners, we have three under contract to purchase. Copies of these contracts are attached. The other three have signed notarized letters of no objection, attached.

6239 Edgewater Dr., Suite D-1 • Post Office Box 1029 • Clarcona, Florida 32710-1029
Telephone: (407) 296-0016 • FAX: (407) 294-8090

The Orange County BOCC has approved the concept of the 50' setback. However, the final approval of the setbacks regarding the county property will be granted with the approval of the solid waste permit application currently under review by the County.

If you have any questions, please do not hesitate to contact either myself or Ed Chesney at 407-296-0016.

Sincerely,

John Buttrey

cc: Dave Howson - B&B

May 11, 2000

Mr. John Buttrey
Buttrey Development, LLC
P.O. Box 1029
Clarcona, FL 32710

Subject: Setbacks - Proposed Class III Landfill, 60 Acres, NE 1/4 and the E ½ of the NW 1/4 of the NE 1/4 of Sec. 28, T21, R28, Orange Co., Florida.

Dear John:

We understand that you are permitting a Class III Landfill on the subject property, which adjoins our property at 3150 Damon Rd., Apopka, FL (The legal description of our property is the N ½ of the SW 1/4 of NW 1/4, S27, T21, R28, Orange County). We further understand that the Landfill airspace will encompass the Borrow Pit you are presently excavating as well as rise 50' above the natural ground level. Our property corners with the southeast corner of your property.

This letter is to advise you and any State or County agencies that so long as you comply with all regulations relating to the permitting and operation of your project, we have no objection to a 50' setback from our property line to the edge of your airspace, that is the edge of the actual waste. We understand you will require a variance from the agencies to obtain this. We also do not object to your constructing an access road within the 50' setback.

If anyone needs to confirm or discuss this further, they may contact me at 656-2320.

Sincerely,

Mae Tomyn

Mae Tomyn

State Of Florida
County of Orange

Sworn to and subscribed before me on this 17 day of May 2000. who is personally known/produced identification.

Notary Signature

MICHAEL L DONELSON
MY COMMISSION # CC 901152
EXPIRES: January 10, 2004
Bonded Thru Notary Public Underwriters

Seal

May 11, 2000

Mr. John Buttrey
Buttrey Development, LLC
P.O. Box 1029
Clarcona, FL 32710

Subject: Setbacks - Proposed Class III Landfill, 60 Acres, NE 1/4 and the E ½ of the NW 1/4 of the NE 1/4 of Sec. 28, T21, R28, Orange Co., Florida.

Dear John:

We understand that you are permitting a Class III Landfill on the subject property, which adjoins our property at 150 W. Keene Rd., Apopka, FL. We further understand that the Landfill airspace will encompass the Borrow Pit you are presently excavating as well as rise 50' above the natural ground level. Approximately 900 linear ft. of the actual Landfill footprint adjoins our property on our Southwest corner.

This letter is to advise you and any State or County agencies that so long as you comply with all regulations relating to the permitting and operation of your project, we have no objection to a 50' setback from our property line to the edge of your airspace, that is the edge of the actual waste. We understand you will require a variance from the agencies to obtain this. We also do not object to your constructing an access road within the 50' setback.

If anyone needs to confirm or discuss this further, they may contact us at 407-880-8650.

Sincerely,

Benny L. Brown
Eva Brown

Benny L. and Eva Brown

State Of Florida
County of Orange

Sworn to and subscribed before me on this 15th day of May 2000. Ben + Eva Brown who is personally known/produced identification.

Traci Reagan
Notary Signature

STATE OF FLORIDA NOTARY PUBLIC Seal
TRACI M. REAGAN
My Comm Exp. 6/27/03
No. CC 912380
[/] Personally Known [ ] Other I.D.

Stericycle®

The Specialist in Managing Medical Waste

April 17, 2000

Mr. John Buttrey
Buttrey Development, LLC
P.O. Box 1029
Clarcona, Florida 32710

Subject: Setbacks – Proposed Class III Landfill, 60 Acres, NE ¼ and the E ½ of the NW ¼ of the NE ¼ of Sec. 28, T21, R28, Orange Co., Florida.

Dear John:

We understand that you are permitting a Class III Landfill on the subject property, which adjoins our property at 254 W. Keene Rd., Apopka, FL. We further understand that the Landfill airspace will encompass the Borrow Pit you are presently excavating as well as rise 50' above the natural ground level. Approximately 300 linear ft. of the actual Landfill footprint adjoins our property on our Southeast corner.

This letter is to advise you and any State or County agencies that so long as you comply with all regulations relating to the permitting and operation of your project, we have no objection to a 50' setback from our property line to the edge of your airspace, that is, the edge of the actual waste. We understand you will require a variance from the agencies to obtain this. We also do not object to your constructing an access road within the 50' set back.

If anyone needs to confirm or discuss this further with our company, they may contact me at 407/889-2800.

Sincerely,

Jean C Paradis

Jean C. Paradis
District Manager
BFI Medical Waste/Stericycle, Inc.

State Of Florida
County of Polk

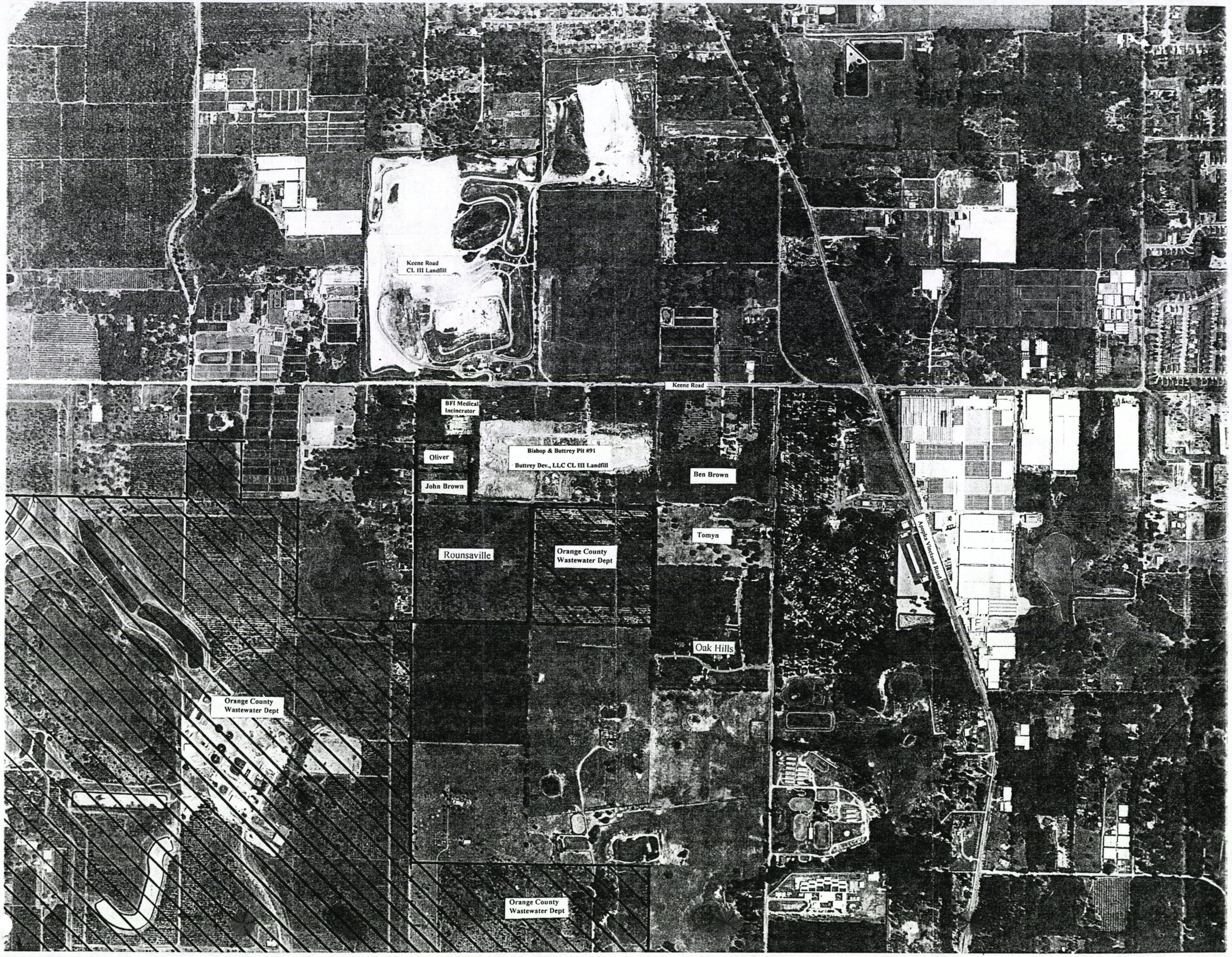
Sworn to and subscribed before me on this 17 day of April 2000,

Jean C. Paradis who is personally known/produced identification.

Holly J. Mathes
Notary Signature

NOTARY PUBLIC STATE OF FLORIDA
OFFICIAL NOTARY SEAL
HOLLY J MATHES
COMMISSION NUMBER
CC897178
MY COMMISSION EXPIRES
JAN. 15,2004

STERICYCLE, INC.
4545 Main Avenue • Eaton Park, Florida 33840 • Phone: (941) 665-3023 • Fax: (941) 666-3193 • www.stericycle.com


Keene Road
Cl. III Landfill
Keene Road
BFI Medical
Incinerator
Oliver
Bishop & Buttrey Pit #91
Buttrey Dev., LLC CL III Landfill
John Brown
Ben Brown
Tomyn
Rounsaville
Orange County
Wastewater Dept
Apopka Vineland Road
Oak Hills
Orange County
Wastewater Dept
Orange County
Wastewater Dept

#91
Permits

DECISION ON PUBLIC HEARING
BEFORE THE BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA
OCTOBER 19, 1999

ON **OCTOBER 19, 1999,** THE BOARD OF COUNTY COMMISSIONERS CONSIDERED A REQUEST BY **BUTTREY DEVELOPMENT, LLC,** FOR **A SPECIAL EXCEPTION IN CITRUS RURAL (A-1) ZONE FOR A CLASS III LANDFILL,** ON PROPERTY LOCATED AT 230 WEST KEENE ROAD WHICH IS GENERALLY LOCATED ON THE SOUTH SIDE OF KEENE ROAD ONE-HALF OF A MILE WEST OF CLARCONA ROAD, **DISTRICT 2,** ORANGE COUNTY, FLORIDA.

UPON A MOTION, THE BOARD OF COUNTY COMMISSIONERS AMENDED THE ABOVE MOTION APPROVED THE REQUEST BY BUTTREY DEVELOPMENT, LLC, FOR A SPECIAL EXCEPTION IN CITRUS RURAL (A-1) ZONE FOR A CLASS III LANDFILL, ON THE ABOVE-DESCRIBED PROPERTY; SUBJECT TO THE FOLLOWING CONDITIONS:

1. **DEVELOPMENT IN ACCORDANCE WITH SITE PLAN, DATED "RECEIVED JULY 16, 1999," CHAPTER 32 (SOLID WASTE MANAGEMENT ORDINANCE) OF THE ORANGE COUNTY CODE, THE DEVELOPMENT REVIEW COMMITTEE CONDITIONS OF AUGUST 12, 1999, AND ALL OTHER APPLICABLE REGULATIONS.**

2. **HOURS OF OPERATION SHALL BE LIMITED TO MONDAY THROUGH FRIDAY FROM 7 A.M. TO 5 P.M. AND SATURDAYS FROM 7 A.M. TO 12 P.M.**

3. **THE TOE OF SLOPE OF ALL LANDFILL AREAS SHALL BE SET BACK A MINIMUM OF 400 FEET FROM THE CENTERLINE OF KEENE ROAD.**

4. **THE EXISTING VEGETATION AND TREES ALONG KEENE ROAD SHALL BE PRESERVED. THE BARE AREAS ALONG KEENE ROAD SHALL BE SUPPLEMENTED WITH ADDITIONAL TREES IN ACCORDANCE WITH CHAPTER 32, ORANGE COUNTY CODE. THE WIDTH OF THIS BUFFER SHALL BE A MINIMUM OF 50 FEET.**

5. **PERMITS SHALL BE OBTAINED WITHIN TWO (2) YEARS OR THIS APPROVAL BECOMES VOID.**

6. **APPLICANT AGREES THAT IT WILL ENTER INTO AN AGREEMENT WITH THE COUNTY TO DEED THE SITE TO ORANGE COUNTY AFTER CLOSURE OF THE SITE IS COMPLETED ACCORDING TO THE CLOSURE PLAN. SUCH AGREEMENT WILL PROVIDE FOR: CONVEYANCE OF THE PROPERTY TO THE COUNTY WITHIN AN AGREED-UPON TIME PERIOD AFTER CLOSURE OF THE LANDFILL SITE, SUBJECT TO ACCEPTANCE BY THE BOARD OF COUNTY COMMISSIONERS AT THAT TIME; A PROVISION TO HOLD THE COUNTY HARMLESS FOR ANY CONDITIONS WHICH OCCUR OR WERE CAUSED PRIOR TO CONVEYANCE TO THE COUNTY. APPLICANT AGREES TO ENTER INTO SUCH AGREEMENT TO CONVEY THE SITE TO THE COUNTY BY MARCH 31, 2000.**

BOARD OF COUNTY COMMISSIONERS · ORANGE COUNTY FLORIDA ·

Mel Martinez
COUNTY CHAIRMAN

THE FOREGOING DECISION HAS BEEN FILED WITH ME THIS **4TH** DAY OF **NOVEMBER 1999.**

Tim Y. Wells
asst. DEPUTY CLERK
BOARD OF COUNTY COMMISSIONERS
ORANGE COUNTY, FLORIDA

VLS/Buttrey Development

ORANGE COUNTY GOVERNMENT FLORIDA

COUNTY ATTORNEY'S OFFICE
THOMAS J. WILKES, *County Attorney*
201 South Rosalind Avenue • 5th Floor
Reply To: Post Office Box 1393
Orlando, Florida 32802-1393
(407) 836-7320 • Fax (407) 836-5888
http://www.citizens-first.co.orange.fl.us

Deputy County Attorneys
Jeffrey J Newton

Senior Assistant County Attorneys
Joseph L. Passiatore
Joel D Prinsell

Assistant County Attorneys
Linda S Askins
A. Bryan Applegate
Linda Brehmer Lanosa
Richard Caseburn, Jr.
Anthony J Cotter
George L. Dorsett
Robert D Guthrie
Alan Lawson
Vivien J. Monaco
James A. Marshland
Lyna P. Porter-Carlton
Diego "Woody" Rodriguez

Legal Administrative Supervisor
James W Ross, Jr

Paralegals
Pat Anderson, CLAS
John P. Dougherty

VIA FACSIMILE (407/841-0168) AND U.S. MAIL

March 13, 2000

G. Thomas Ball, Esquire
Baker & Hostetler, LLP
200 South Orange Ave., Suite 2300
Orlando, FL 32801

RE: Buttrey Development LLC Special Exception in Citrus Rural (A-1) Zone for Class III Landfill (Keene Road)

Dear Tom:

As we discussed earlier today, Orange County (the "County") does not yet have a final version of the proposed agreement to deed the above-referenced landfill site to the County after closure of the landfill (the "Agreement"). As a condition of approval, Buttrey Development LLC ("Buttrey") agreed to enter into the Agreement by March 31, 2000. However, because the County is still working the Agreement, Buttrey will not be required to meet the March 31st deadline.

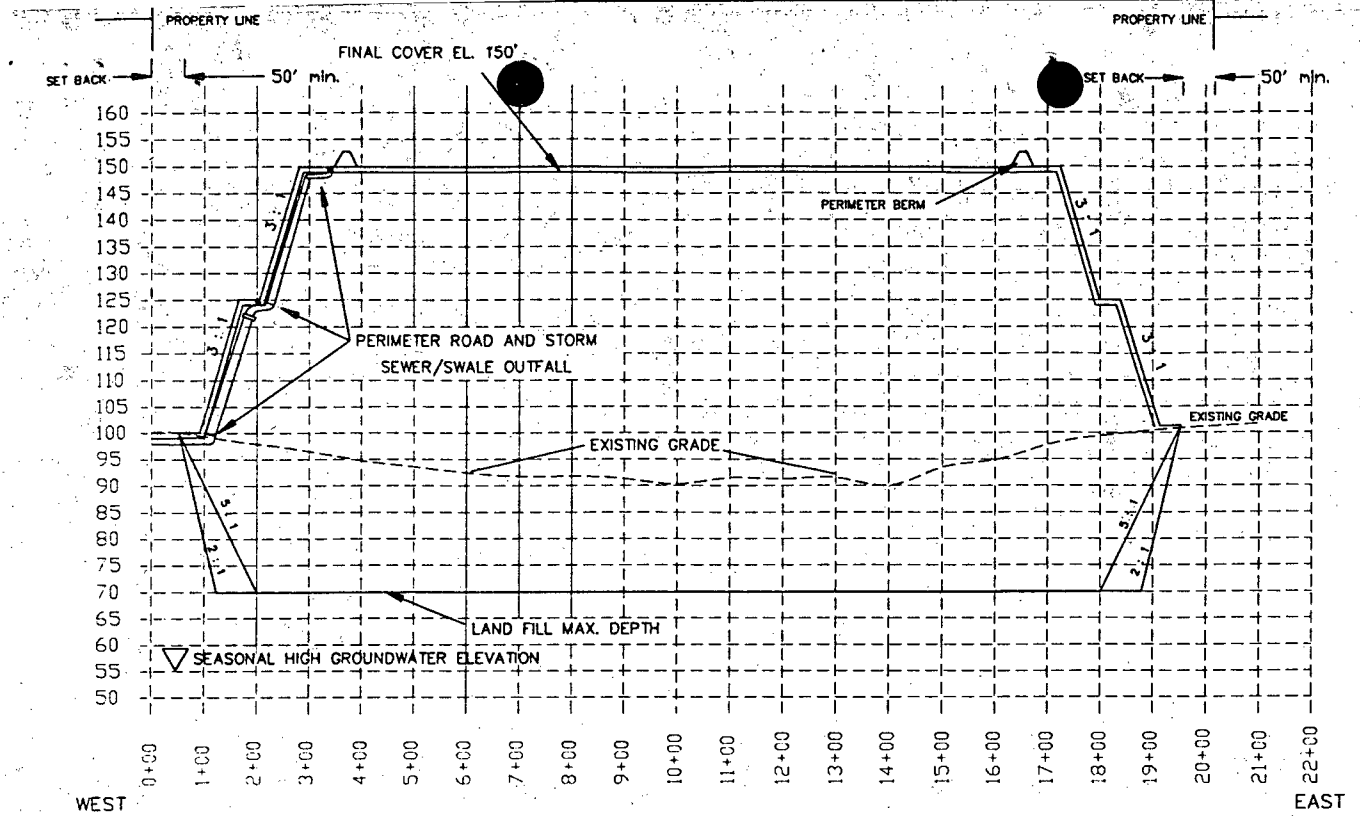
Once the County has provided you with the Agreement, we will ask that Buttrey sign it within thirty days, which should allow enough time for review, comment and revisions.

Please call me if you have any questions.

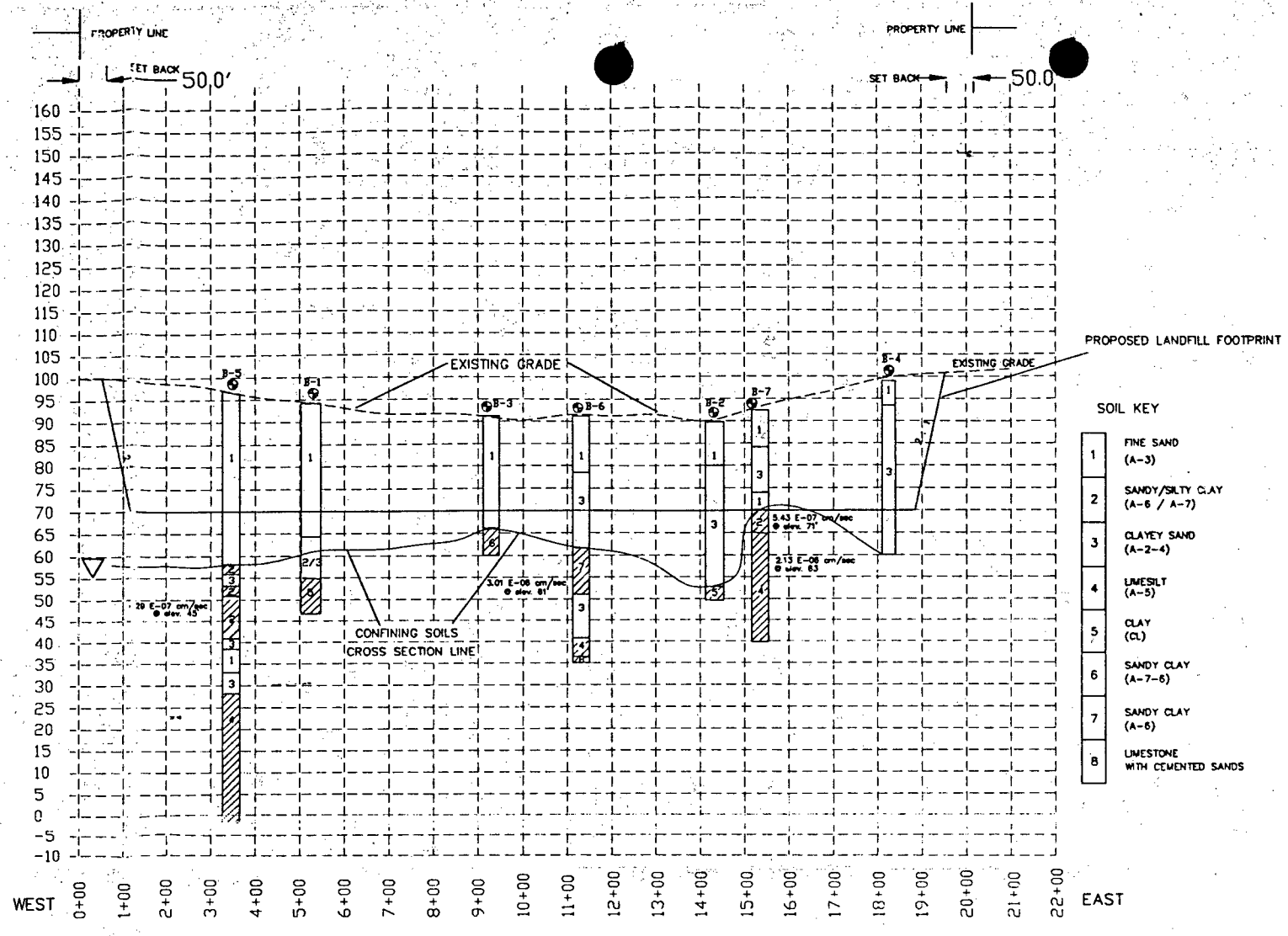
Sincerely,

Vivien J. Monaco
Assistant County Attorney

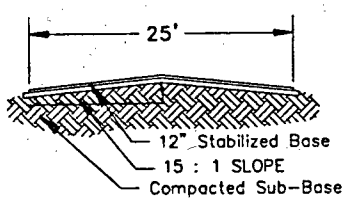
T:\OGL\GVM\VAROC\N\buttrey.wpd



CROSS SECTION EAST TO WEST

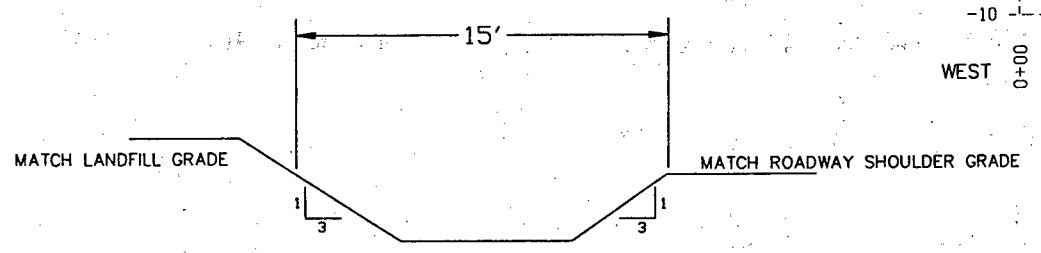


SOILS CROSS SECTION EAST TO WEST



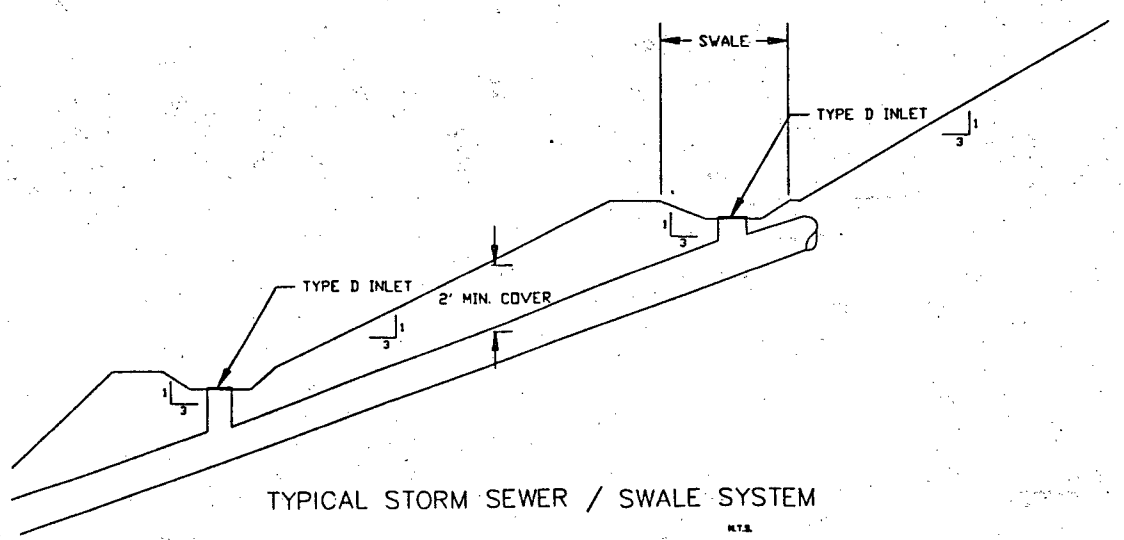
TYPICAL PERIMETER ROAD DETAIL

N.T.S.



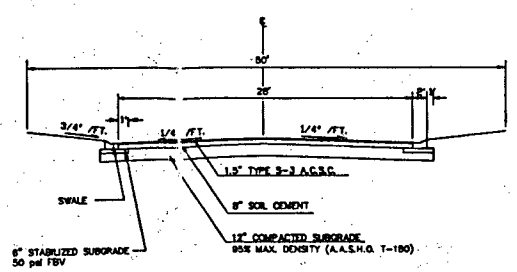
TYPICAL ROADSIDE SWALE SECTION

N.T.S.



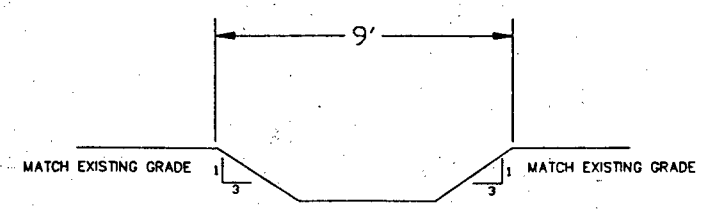
TYPICAL STORM SEWER / SWALE SYSTEM

N.T.S.



TYPICAL PAVED DRIVEWAY SECTION

N.T.S.



TYPICAL WEST BOUNDARY SWALE

1. THE EXISTING BORROW PIT HAS A SURFACE WATER PERMIT WITH THE ST. JOHN'S RIVER WATER MANAGEMENT DISTRICT (PERMIT NO. 4-095-0564-ERP). UPON APPLICATION SUBMITTAL TO THE F.D.E.P., THE EXISTING SJRWMD PERMIT WILL BE TRANSFERRED TO THE F.D.E.P. AND MODIFIED FOR THE LANDFILL. THE STORMWATER MANAGEMENT PLAN CONSISTS OF A SERIES OF SWALES DIVERTING ONSITE SURFACE WATER TO THE DRY RETENTION POND. POND SIZING BASED ON A 100 YEAR STORM EVENT FOR THE COMPLETED SITE.

2. THE PROPOSED SEPTIC/DRAINFIELD WAS SIZED FOR A DOUBLE WIDE OFFICE TRAILER (< 2,000 FT2).

3. FLOOD ZONE C (AREA OF MINIMAL FLOODING) PER FEMA "FIRM" MAP PANEL NO. 120179 0100 B. 12/1/81.

4. NO WATER OR WASTE WATER SERVICES ARE PROVIDED BY ORANGE COUNTY IN THE VICINITY OF THIS SITE.

BISHOP BUTTREY INC.

KEENE ROAD DISPOSAL

PROPOSED CLASS III LANDFILL

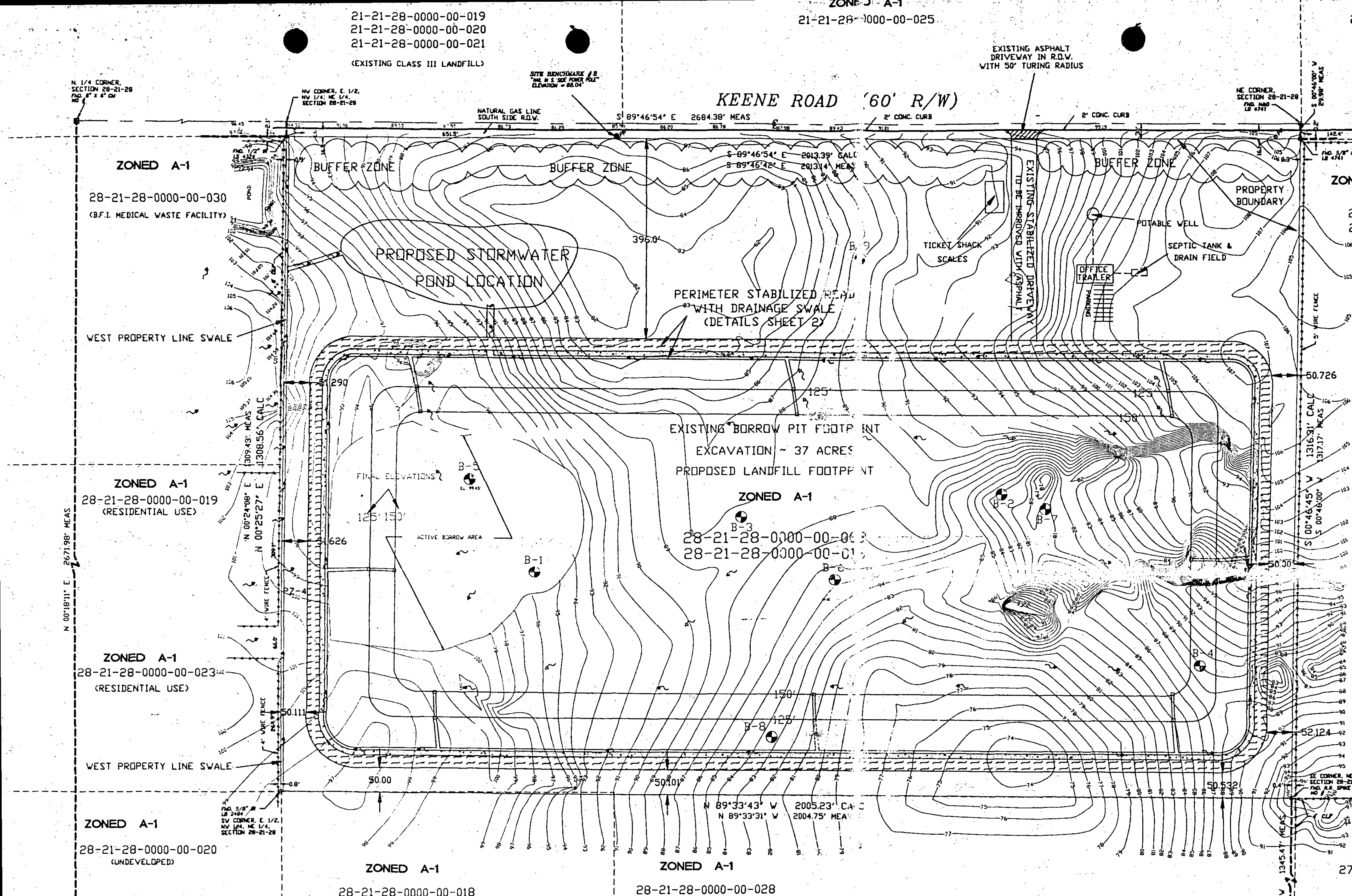
JOB NO.
DATE
SCALE
DRAWN BY EC
CHKD BY EC

REVISIONS
1
2
3
4
5
6
7

C:\R13\DESIGN\PIT91L\S

DRAWING DESCRIPTION
DETAILS/NOT

DRAWING NO.
SHEET 2 OF 2


21-21-28-0000-00-019
21-21-28-0000-00-020
21-21-28-0000-00-021
(EXISTING CLASS III LANDFILL)
21-21-28-0000-00-025
22-21-28-0000-00-137
SCALE 1 INCH = 100 FEET
EXISTING ASPHALT DRIVEWAY IN R.O.W. WITH 50' TURING RADIUS
KEENE ROAD (60' R/W)
S 89°46'54" E 2684.38' MEAS
NATURAL GAS LINE SOUTH SIDE R.O.W.
2' CONC. CURB
BUFFER ZONE
PROPERTY BOUNDARY
POTABLE WELL
SEPTIC TANK & DRAIN FIELD
OFFICE TRAILER
PARKING
TICKET SHACK SCALES
EXISTING STABILIZED DRIVEWAY TO BE IMPROVED WITH ASPHALT
PROPOSED STORMWATER POND LOCATION
PERIMETER STABILIZED ROAD WITH DRAINAGE SWALE (DETAILS SHEET 2)
EXISTING BORROW PIT FOOTPRINT
EXCAVATION ~ 37 ACRES
PROPOSED LANDFILL FOOTPRINT
ZONED A-1
28-21-28-0000-00-030
(B.F.I. MEDICAL WASTE FACILITY)
WEST PROPERTY LINE SWALE
28-21-28-0000-00-019
(RESIDENTIAL USE)
28-21-28-0000-00-023
(RESIDENTIAL USE)
28-21-28-0000-00-020
(UNDEVELOPED)
28-21-28-0000-00-018
(UNDEVELOPED)
28-21-28-0000-00-028
(UNDEVELOPED)
(ORANGE COUNTY WASTEWATER DEPT.)
27-21-28-0000-00-003
27-21-28-0000-00-041
(RESIDENTIAL USE)
27-21-28-0000-00-004
(UNDEVELOPED)
FINAL ELEVATIONS
ACTIVE BORROW AREA
N 89°33'43" W 2005.23' CALC
N 89°33'31" W 2004.75' MEAS
N 89°20'25" W 2662.93' MEAS
N 00°18'11" E 2671.98' MEAS
N 00°18'56" E 2698.47' MEAS
S 00°45'59" W 1345.47' MEAS
S 00°46'45" W 1316.91' CALC
S 00°46'00" W 1317.17' MEAS
N 00°24'08" E 1309.43' MEAS
N 00°25'27" E 1308.56' CALC

NOTES:

1. CURRENTLY PERMITTED WITH ORANGE COUNTY AS A LAND EXCAVATION. PERMIT # 98 E2-21?.
2. PROPOSED USE AS A CLASS III LANDFILL.
3. ALL SETBACKS IN ACCORDANCE WITH ORANGE COUNTY SOLID WASTE ORDINANCE, AND ARE SHOWN ABOVE.
4. ENTIRE SITE IS COMPLETELY FENCED AS A REQUIREMENT OF THE LAND EXCAVATION PERMITTING. LANDFILL PERMITTING WILL INCLUDE FENCING UPGRADES.
5. ALL LANDSCAPING AND BUFFERS WILL BE IN ACCORDANCE WITH THE ORANGE COUNTY SOLID WASTE REGULATIONS.
6. ABOVE GROUND LANDFILL HEIGHT PROPOSED AT ELEVATION 150' NGVD, APPROXIMATELY 50 FEET ABOVE EXISTING GRADES.
7. PROPOSED CLASS III LANDFILL IS EXPECTED TO SERVICE THE NEEDS OF NORTHWEST ORANGE COUNTY FOR 8 TO 10 YEARS.
8. PROPOSED LAND USE CONSISTENT WITH OTHER LOCAL LAND USES.
9. HOURS OF OPERATION: MONDAY - FRIDAY 7:00 AM TO 5:00 PM, SATURDAYS 7:00 AM TO 12 NOON

TOTAL PROPERTY OWNED ~ 60 ACRES.
230 & 242 WEST KEENE ROAD, APOPKA, FLORIDA 32703.

THE NE 1/4 OF NE 1/4 AND E 1/2 OF NW 1/4 OF NE 1/4 OF SECTION 28 TOWNSHIP 21 RANGE 28. ALL LYING IN ORANGE COUNTY FLORIDA.

OWNER: BUTTREY DEVELOPMENT, L.L.C.
6239 EDGEWATER DRIVE SUITE D-1
ORLANDO, FLORIDA 32810
407-296-0016

ENGINEER: ED CHESNEY, P.E.
BISHOP & BUTTREY, INC.
6239 EDGEWATER DR. SUITE D-1
ORLANDO, FLORIDA 32810
407-296-0016

SURVEYOR: ACCURITE SURVEYS
2012 E. ROBINSON ST.
ORLANDO, FLORIDA 32803
407-894-6314

BISHOP BUTTREY INC.

KEENE ROAD DISPOSAL
PROPOSED CLASS III LANDFILL

JOB NO.	
DATE	
SCALE	
DRAWN BY	EC
CHKD BY	EC

REVISIONS
1 09/13/99

DRAWING DESCRIPTION
SITE PLAN

SHEET 1 OF 2

Vacant Land Contract

FLORIDA ASSOCIATION OF REALTORS®

The Greater Orlando Association of REALTORS®

PARTIES AND DESCRIPTION OF PROPERTY

1. SALE AND PURCHASE: Ms. Nancy Rounsaville ("Seller")
and Buttrey Development, LLC ("Buyer")
agree to sell and buy on the terms and conditions specified below the property ("Property") described as:
Address: _____
Legal Description: The SW 1/4 of the NE 1/4 of S28, T21S, R28E, containing 40 acres, more or less, located off Macqueen Rd.,Orange County, FL

including all improvements and the following additional property: _____

PRICE AND FINANCING

2. PURCHASE PRICE: $[redacted] payable by **Buyer** in U.S. funds as follows:

(a) $ 2,000 Deposit received (checks are subject to clearance) _____, 19____ by _____ for _____ ("Escrow Agent")
Signature *Name of Company*

(b) $ 22,000 Additional deposit to be made by monthly payments, payable by the first of each month.

(c) _____ Total Financing (see Paragraph **3** below) (express as a dollar amount or percentage)

(d) $_____ Other: _____

(e) $[redacted] Balance to close (not including **Buyer's** closing costs, prepaid items and prorations). All funds paid at closing must be paid by locally drawn cashier's check or wired funds.

❑ **(f)** (complete only if purchase price will be determined based on a per unit cost instead of a fixed price) The unit used to determine the purchase price is ❑ lot ❑ acre ❑ square foot ❑ other (specify: _____) prorating areas of less than a full unit. The purchase price will be $_____ per unit based on a calculation of total area of the Property as certified to **Buyer** and **Seller** by a Florida-licensed surveyor in accordance with Paragraph 8(c) of this Contract. The following rights of way and other areas will be excluded from the calculation: _____

3. CASH/FINANCING: (Check as applicable) ☒ **(a) Buyer** will pay cash for the Property with no financing contingency.

❑ **(b)** This Contract is contingent on **Buyer** qualifying and obtaining the commitment(s) or approval(s) specified below within _____ days from Effective Date (if left blank then Closing Date or 30 days from Effective Date, whichever occurs first). **Buyer** will apply for financing within _____ days from Effective Date (5 days if left blank) ("Application Period") and will timely provide any and all credit, employment, financial, and other information required by the lender. If **Buyer**, after using diligence and good faith, cannot obtain the financing, either party may cancel this Contract and **Buyer** will return to **Seller** all title evidence and surveys provided by **Seller**, and **Buyer's** deposit(s) will be returned after Escrow Agent receives proper authorization from all interested parties. **Buyer** will pay all loan expenses, including the lender's title insurance policy.

❑ **(1) New Financing: Buyer** will secure a commitment for new third party financing for $_____ or _____% of the purchase price at the prevailing interest rate and loan costs. **Buyer** will keep **Seller** and Broker fully informed of the loan application status and progress and authorizes the lender or mortgage broker to disclose all such information to **Seller** and Broker.

❑ **(2) Seller Financing: Buyer** will execute a ❑ first ❑ second purchase money note and mortgage to **Seller** in the amount of $_____, bearing annual interest at _____% and payable as follows: _____

The mortgage, note, and any security agreement will be in a form acceptable to **Seller** and will follow forms generally accepted in the county where the Property is located; will provide for a late payment fee and acceleration at the mortgagee's option if **Buyer** defaults; will give **Buyer** the right to prepay without penalty all or part of the principal at any time(s) with interest only to date of payment; will be due on conveyance or sale; will provide for release of contiguous parcels, if applicable; and will require **Buyer** to keep liability insurance on the Property, with **Seller** as additional named insured. **Buyer** authorizes **Seller** to obtain credit, employment and other necessary information to determine creditworthiness for the financing. **Seller** will, within 10 days from Effective Date, give **Buyer** written notice of whether or not **Seller** will make the loan.

❑ **(3) Mortgage Assumption: Buyer** will take title subject to and assume and pay existing first mortgage to _____

LN#_____ in the approximate amount of $_____ currently payable at $_____ per month including principal, interest, ❑ taxes and insurance and having a ❑ fixed ❑ other (describe) _____ interest rate of _____% which ❑ will ❑ will not escalate upon assumption. Any variance in the mortgage will be adjusted in the balance due at closing with no adjustment to purchase price. **Buyer** will purchase **Seller's** escrow account dollar for dollar. If the lender disapproves **Buyer**, or the interest rate upon transfer exceeds _____% or the assumption/transfer fee exceeds $_____, either party may elect to pay the excess, failing which this agreement will terminate and **Buyer's** deposit(s) will be returned.

CLOSING

4. CLOSING DATE; OCCUPANCY: This Contract will be closed and the deed and possession delivered on or before February 28 2001, 19____, unless extended by other provisions of this Contract. If on Closing Date insurance underwriting is suspended, **Buyer** may postpone closing up to 5 days.

ESCROW AGENT AND BROKER

15. ESCROW AGENT: **Buyer** and **Seller** authorize Escrow Agent to receive, deposit, and hold funds and other items in escrow and, subject to clearance, disburse them upon proper authorization and in accordance with the terms of this Contract, including disbursing brokerage fees. The parties agree that Escrow Agent will not be liable to any person for misdelivery of escrowed items to **Buyer** or **Seller**, unless the misdelivery is due to Escrow Agent's willful breach of this Contract or gross negligence. If Escrow Agent interpleads the subject matter of the escrow, Escrow Agent will pay the filing fees and costs from the deposit and will recover reasonable attorneys' fees and costs to be paid from the escrowed funds or equivalent and charged and awarded as court costs in favor of the prevailing party. All claims against Escrow Agent will be arbitrated, so long as Escrow Agent consents to arbitrate.

16. PROFESSIONAL ADVICE; BROKER LIABILITY: Broker advises **Buyer** and **Seller** to verify all facts and representations that are important to them and to consult an appropriate professional for legal advice (for example, interpreting contracts, determining the effect of laws on the Property and transaction, status of title, foreign investor reporting requirements, etc.) and for tax, property condition, environmental and other specialized advice. **Buyer** acknowledges that Broker does not reside in the Property and that all representations (oral, written or otherwise) by Broker are based on **Seller** representations or public records unless Broker indicates personal verification of the representation. **Buyer agrees to rely solely on Seller, professional inspectors and governmental agencies for verification of the Property condition and facts that materially affect Property value. Buyer** and **Seller** respectively will pay all costs and expenses, including reasonable attorneys' fees at all levels, incurred by Broker and Broker's officers, directors, agents and employees in connection with or arising from **Buyer's** or **Seller's** misstatement or failure to perform contractual obligations. **Buyer** and **Seller** hold harmless and release Broker and Broker's officers, directors, agents and employees from all liability for loss or damage based on **(1) Buyer's** or **Seller's** misstatement or failure to perform contractual obligations; **(2)** Broker's performance, at **Buyer's** and/or **Seller's** request, of any task beyond the scope of services regulated by Chapter 475, F.S., as amended, including Broker's referral, recommendation or retention of any vendor; **(3)** products or services provided by any vendor; and **(4)** expenses incurred by any vendor. **Buyer** and **Seller** each assume full responsibility for selecting and compensating their respective vendors. This paragraph will not relieve Broker of statutory obligations. For purposes of this paragraph, Broker will be treated as a party to this Contract. This paragraph will survive closing.

17. BROKERS: The licensee(s) and brokerage(s) named below are collectively referred to as "Broker." **Seller** and **Buyer** acknowledge that the brokerage(s) named below are the procuring cause of this transaction. **Instruction to Closing Agent: Seller** and **Buyer** direct closing agent to disburse at closing the full amount of the brokerage fees as specified in separate brokerage agreements with the parties and cooperative agreements between the brokers, unless Broker has retained such fees from the escrowed funds. In the absence of such brokerage agreements, closing agent will disburse brokerage fees as indicated below.

N/A

Real Estate Licensee _____ *Real Estate Licensee* _____

Broker / Brokerage fee: _____ *Broker / Brokerage fee:* _____

ADDITIONAL TERMS

18. ADDITIONAL TERMS: See Addendum

This is intended to be a legally binding contract. If not fully understood, seek the advice of an attorney prior to signing.

OFFER AND ACCEPTANCE

(**Check if applicable:** ❑ **Buyer** received a written real property disclosure statement from **Seller** before making this Offer.)

Buyer offers to purchase the Property on the above terms and conditions. Unless this Contract is signed by **Seller** and a copy delivered to **Buyer** no later than ~~2-23-00~~ 5:00 ❑ a.m. ☒ p.m. on 2-28-00, 19____, this offer will be revoked and **Buyer's** deposit refunded subject to clearance of funds.

Date: 2-23-00 **Buyer:** [signature] - MGR. BUTTRY DEV., LLC Tax ID/SSN: _____
Print name: JOHN BUTTRY

Date: _____ **Buyer:** _____ Tax ID/SSN: _____
Print name: _____
Phone: _____ Address: _____
Fax: _____

Date: 2.24.2000 **Seller:** [signature] Tax ID/SSN: _____
Print name: Nancy Rounsaville

Date: _____ **Seller:** _____ Tax ID/SSN: _____
Print name: _____
Phone: _____ Address: _____
Fax: _____

❑ **Seller** counters **Buyer's** offer (to accept the counter offer, **Buyer** must sign or initial the counter offered terms and deliver a copy of the acceptance to **Seller** by 5:00 p.m. on _____, 19____). ❑ **Seller** rejects **Buyer's** offer.

Effective Date: _____ **(The date on which the last party signed or initialed acceptance of the final offer.)**

Buyer (JB) (____) and **Seller** (NR) (____) acknowledge receipt of a copy of this page, which is Page 4 of 4 Pages.

ADDENDUM

1.) Buyer may cancel this contract at any time by simply not paying the next monthly deposit. The contract is automatically cancelled if payment is not received by the tenth of the month.

2.) Closing may be extended two months if permits appear imminent, but not issued. Monthly option payments will continue during this period, being forfeited if act of sale is not passed.

3.) If Buyer closes on property, all deposits apply to the purchase price. If buyer fails to close, all deposits will be forfeitted and Buyer will provide to Seller, at no cost, all surveys, studies, borings, etc.

4.) Seller will cooperate with Buyer by signing all permit applications required. Buyer will pay all costs associated with permitting process. If Buyer fails to close on the property, zoning on property will remain as it is at present. Re-zoning will only apply to the property if Buyer closes on the property.

Nancy Rounsaville 2.24.2000

Seller: Date
Ms. Nancy Rounsaville

Jr Buy - MSR. 2-23-00

Buyer: Date
Buttrey Development, LLC

19813

DSI Data Supplies, Inc., Orlando, Fla.

THIS FORM HAS BEEN APPROVED BY THE FLORIDA ASSOCIATION OF REALTORS® AND THE FLORIDA BAR.

Contract for Sale and Purchase

FLORIDA ASSOCIATION OF REALTORS® AND THE FLORIDA BAR

The Greater Orlando Association of REALTORS®

PARTIES: Debora Oliver, ALEXANDER 2826 Osprey Creek Lane, Orlando, FL 32825 ("Seller"),
of Buttrey Development, LLC, P.O. Box 1029, Clarcona, FL 32710 (Phone) 407-381-1783
and _____ ("Buyer"),
of _____ (Phone) 407-296-0016
hereby agree that Seller shall sell and Buyer shall buy the following described real property and personal property (collectively "Property") pursuant to the terms and conditions of this Contract for Sale and Purchase and any riders and addenda ("Contract"):

I. **DESCRIPTION:**

(a) Legal description of the Real Property located in Orange County, Florida:
N 1/2 of SW 1/4 of NW 1/4 of NE 1/4 of S28, T21, R28

(b) Street address, city, zip, of the Property is: 2613 McQueen Road

(c) Personal Property: _____

II. **PURCHASE PRICE:** ..... $ [redacted]

PAYMENT:

(a) Deposit ~~held in escrow by~~ non-refundable (Escrow Agent) in the amount of ..... $ 2,000

(b) Additional escrow deposit to be made to Escrow Agent within _____ days after Effective Date (see Paragraph III) in the amount of ..... $ -

(c) Subject to AND assumption of existing mortgage in good standing in favor of _____
_____ having an approximate present principal balance of ..... $ -

(d) New mortgage financing with a Lender (see Paragraph IV) in the amount of ..... $ -

(e) Purchase money mortgage and note to Seller (see rider for terms) in the amount of ..... $ -

(f) Other: ..... $ -

(g) Balance to close by U.S. cash or LOCALLY DRAWN cashier's or official bank check(s), subject to adjustments or prorations ..... $ [redacted]

III. **TIME FOR ACCEPTANCE OF OFFER; EFFECTIVE DATE; FACSIMILE:** If this offer is not executed by and delivered to all parties OR FACT OF EXECUTION communicated in writing between the parties on or before 4-18-00, the deposit(s) will, at Buyer's option, be returned and this offer withdrawn. For purposes of delivery or notice of execution, parties include Buyer and Seller or each of the respective brokers or attorneys. The date of Contract ("Effective Date") will be the date when the last one of the Buyer and Seller has signed this offer. A facsimile copy of this Contract and any signatures hereon shall be considered for all purposes as an original.

IV. **FINANCING:**

☒ (a) This is a cash transaction with no contingencies for financing;

☐ (b) This Contract is conditioned on Buyer obtaining a written loan commitment within _____ days after Effective Date for (CHECK ONLY ONE): ☐ a fixed; ☐ an adjustable; or ☐ a fixed or adjustable rate loan in the principal amount of $ _____ at an initial interest rate not to exceed _____%, discount and origination fees not to exceed _____% of principal amount, and for a term of _____ years. Buyer will make application within _____ days (5 days if left blank) after Effective Date and use reasonable diligence to obtain a loan commitment and, thereafter, to satisfy terms and conditions of the commitment and close the loan. Buyer shall pay all loan expenses. If Buyer fails to obtain a commitment or fails to waive Buyer's rights under this subparagraph within the time for obtaining a commitment or, after diligent effort, fails to meet the terms and conditions of the commitment by the closing date, then either party thereafter, by written notice to the other, may cancel this Contract and Buyer shall be refunded the deposit(s); or

☐ (c) The existing mortgage, described in Paragraph II(c) above, has: ☐ a variable interest rate; or ☒ a fixed interest rate of _____% per annum. At time of title transfer, some fixed interest rates are subject to increase; if increased, the rate shall not exceed _____% per annum. Seller shall furnish a statement from each mortgagee stating the principal balance, method of payment, interest rate and status of mortgage or authorize Buyer or Closing Agent to obtain the same. If Buyer has agreed to assume a mortgage which requires approval of Buyer by the mortgagee for assumption, then Buyer shall promptly obtain the necessary application and diligently complete and return it to the mortgagee. Any mortgagee charge(s), not to exceed $ _____ (1% of amount assumed if left blank), shall be paid by Buyer. If Buyer is not accepted by mortgagee or the requirements for assumption are not in accordance with the terms of this Contract or mortgagee makes a charge in excess of the stated amount, Seller or Buyer may rescind this Contract by written notice to the other party unless either elects to pay the increase in interest rate or excess mortgage charges.

V. **TITLE EVIDENCE:** At least _____ days before closing date, (CHECK ONLY ONE): ☐ Seller shall, at Seller's expense, deliver to Buyer or Buyer's attorney; or ☒ Buyer shall at ~~Buyer's~~ seller's expense obtain (CHECK ONLY ONE): ☐ abstract of title; or ☒ title insurance commitment (with legible copies of instruments listed as exceptions attached thereto) and, after closing, an owner's policy of title insurance.

VI. **CLOSING DATE:** This transaction shall be closed and the closing documents delivered on June 1, 2000 unless modified by other provisions of this Contract.

VII. **RESTRICTIONS; EASEMENTS; LIMITATIONS:** Buyer shall take title subject to: comprehensive land use plans, zoning, restrictions, prohibitions and other requirements imposed by governmental authority; restrictions and matters appearing on the plat or otherwise common to the subdivision; outstanding oil, gas and mineral rights of record without right of entry; public utility easements of record (easements are to be located contiguous to real property lines and not more than 10 feet in width as to the rear or front lines and 7 1/2 feet in width as to the side lines, **unless otherwise stated herein**); taxes for year of closing and subsequent years; assumed mortgages and purchase money mortgages, if any (if additional items, see addendum); provided, that there exists at closing no violation of the foregoing and none prevent use of the Property for N/A purpose(s).

VIII. **OCCUPANCY:** Seller warrants that there are no parties in occupancy other than Seller; but if Property is intended to be rented or occupied beyond closing, the fact and terms thereof and the tenant(s) or occupants shall be disclosed pursuant to Standard F. Seller shall deliver occupancy of Property to Buyer at time of closing unless otherwise stated herein. If occupancy is to be delivered before closing, Buyer assumes all risks of loss to Property from date of occupancy, shall be responsible and liable for maintenance from that date, and shall be deemed to have accepted Property in its existing condition as of time of taking occupancy unless otherwise stated herein.

IX. **TYPEWRITTEN OR HANDWRITTEN PROVISIONS:** Typewritten or handwritten provisions, riders and addenda shall control all printed provisions of this Contract in conflict with them.

X. **RIDERS:** (CHECK those riders which are applicable AND are attached to this Contract):

☐ **COMPREHENSIVE RIDER**	☐ HOMEOWNERS' ASSN.	☐ COASTAL CONSTRUCTION CONTROL LINE
☐ CONDOMINIUM	☐ "AS IS"	☐ INSULATION
☐ VA/FHA	☐ LEAD-BASED PAINT	☐ _____

XI. **ASSIGNABILITY:** (CHECK ONLY ONE): Buyer ☒ may assign and thereby be released from any further liability under this Contract; ☐ may assign but not be released from liability under this Contract; or ☐ may not assign this Contract.

XII. **DISCLOSURES:**

(a) Radon is a naturally occurring radioactive gas that when accumulated in a building in sufficient quantities may present health risks to persons who are exposed to it over time. Levels of radon that exceed federal and state guidelines have been found in buildings in Florida. Additional information regarding Radon or Radon testing may be obtained from your County Public Health unit.

(b) Buyer acknowledges receipt of the Florida Building Energy-Efficiency Rating System Brochure.

(c) If the real property includes pre-1978 residential housing then a lead-based paint rider is mandatory.

(d) If Seller is a "foreign person" as defined by the Foreign Investment in Real Property Tax Act, the parties shall comply with that Act.

(e) If Buyer will be obligated to be a member of a homeowners' association, **BUYER SHOULD NOT EXECUTE THIS CONTRACT UNTIL BUYER HAS RECEIVED AND READ THE HOMEOWNERS' ASSOCIATION DISCLOSURE.**

XIII. **MAXIMUM REPAIR COSTS:** Seller shall not be responsible for payments in excess of:

(a) $ N/A for treatment and repair under Standard D (if blank, then 2% of the Purchase Price).

(b) $ N/A for repair and replacement under Standard N (if blank, then 3% of the Purchase Price).

XIV. **SPECIAL CLAUSES; ADDENDA:** If additional terms are to be provided, attach addendum and CHECK HERE ☐.

XV. **STANDARDS FOR REAL ESTATE TRANSACTIONS:** Standards A through W on the reverse side or attached are incorporated as a part of this Contract.

THIS IS INTENDED TO BE A LEGALLY BINDING CONTRACT. IF NOT FULLY UNDERSTOOD, SEEK THE ADVICE OF AN ATTORNEY PRIOR TO SIGNING.

THIS FORM HAS BEEN APPROVED BY THE FLORIDA ASSOCIATION OF REALTORS AND THE FLORIDA BAR.

Approval does not constitute an opinion that any of the terms and conditions in this Contract should be accepted by the parties in a particular transaction. Terms and conditions should be negotiated based upon the respective interests, objectives and bargaining positions of all interested persons.

(Buyer)	(Date)	(Seller)	(Date)
[signature]	4-18-00	Debora Alexander	4/18/00
Social Security or Tax I.D. # _____		Social Security or Tax I.D. # _____	
_____	_____	_____	_____
(Buyer)	(Date)	(Seller)	(Date)
Social Security or Tax I.D. # _____		Social Security or Tax I.D. # _____	

Deposit under Paragraph II (a) received; IF OTHER THAN CASH, THEN SUBJECT TO CLEARANCE. _____ (Escrow Agent)

BROKER'S FEE: The brokers named below, including listing and cooperating brokers, are the only brokers entitled to compensation in connection with this Contract:

John Brown

This instrument was prepared by
and should be returned to:
J. Lindsay Builder, Jr., Esq.
Graham, Clark, Jones, Builder, Pratt & Marks
369 N. New York Avenue, Winter Park, FL 32789
P.O. Drawer 1690, Winter Park, FL 32790-1690

AFFIDAVIT AS TO RIGHT OF PURCHASE

Notice is hereby given that the undersigned, John Buttrey, has acquired, pursuant to the terms of the letter agreement dated April 6, 2000, attached hereto as **Exhibit "A"**, the right to purchase from John A. Brown, as owner, the following described real property:

The South 1/2 of the Southwest 1/4 of the Northwest 1/4 of the Northeast 1/4 of Section 28, Township 21 South, Range 28 East, lying and being in Orange County, Florida, LESS the West 30 feet for road.

John Buttrey

STATE OF FLORIDA
COUNTY OF ORANGE

Sworn to and subscribed before me this 6th day of May, 2000, by John Buttrey, who is personally known to me ~~or has produced~~ _____ _____ ~~as identification~~.

Notary Public
Print name: Vanda D. Mitchell
My Commission Expires:

Vanda D. Mitchell
MY COMMISSION # CC912143 EXPIRES
March 10, 2004
BONDED THRU TROY FAIN INSURANCE, INC.

F:\USER\VANDA\AFF\0079.wpd

BUTTREY
DEVELOPMENT, LLC

April 6, 2000

Mr. John A. Brown
2703 McQueen Rd.
Apopka, FL 32703

Subject: Offer To Purchase Parcel I.D. # 282128000000023,
5 Acres @ 2703 McQueen Rd.

Dear John:

I offer to purchase the property above, for [redacted] cash. We will pay all closing costs associated with this sale except for the mortgage release. You will have to work that out with your mortgage co., and it will have to be paid off at closing. We will require merchantible title at closing.

This will be handled through our Attorney's escrow account (Tom Ball, Baker & Hostetler, 407-649-4004).

Please don't hesitate to contact me if you have any questions.

Sincerely,

John Buttrey
JB/tmr

cc: Tom Ball - Baker & Hostetler
Dave Howson - CJ Langenfelder & Sons, Inc

C:\Secretary\Letters\JohnBrown040600.wpd

AGREE:
JOHN A. BROWN
$300 Deposit paid this date.
Deposit is non-refundable to Buyer (Buttrey)

P.O. Box 1029 • Clarcona, Florida 32710
Telephone: (407) 296-0016 • FAX: (407) 294-8090

Buttrey Development Two L.L.C.

May 25, 2000

Mr. James Bradner, P.E.
FDEP Solid Waste
Central District
3319 Magurie Blvd., Ste. 232
Orlando, Florida 32803-3767

Subject: Request for additional information
Application Nos. SC48-0165969-001 & SO48-0165969-002

Dear Mr. Bradner:

The following discussion is intended to satisfy the request for additional information dated March 14, 2000. If I can be of any assistance please do not hesitate to contact me.

Sincerely,

Ed Chesney

Ed Chesney, P.E.

1 & 2. A revised Page 4 of 41 is attached as Exhibit A with the requested information.

3 & 4. A revised Page 5 of 41 is attached as Exhibit B with the requested information.

5. Exhibit C contains the revised Page 12 of 41 & 13 of 41. Also found in Exhibit C is a National Oceanic and Atmospheric Administration (NOAA) VFR terminal chart, which shows the location of the proposed landfill and the location of the nearest airport runway. As seen on the map, this airport facility is greater than 6 miles from the proposed site. In addition, landfill activities will be kept to the working face and covered as required thus minimizing any potential bird attraction.

6. Refer to Exhibit C for the requested map and revised page 13 of 41.

7. Exhibit D contains the corrected pages 30 of 41 & 37 of 41. Page 16, section 1.6 of the Operations Plan prepared for this facility discusses the routine gas monitoring for this facility. In addition, Page 30 of the Operations Plan, section 1.16 notes that the proposed monitoring does not include the installation of a gas collection system.

8. As discussed in section 1.b of the Operations Plan, the types of material accepted at Class III facilities are not typically known to generated significant amounts of gases. As a result, the proposed gas monitoring of this facility will be performed visually by spotters prior to placement and explosiveness monitoring at property boundaries or within site structures.

9. Attached as Exhibit E are the requested Financial Responsibility Requirements.

10. Attached as Exhibit F is the Fire Plan signed by the Orange County Fire Chief.

11. The text in Sec. 1.2.1, Page 5 accurately describes the areas highlighted in Figure 1. The block located due east of our project identified as Orange County Waste Water is not directly mentioned in text, but is vacant property owned by Orange County as a buffer to the Waster Water Department.

12. Refer back to Exhibit F (Fire Prepardness and Emergency Response Guideline - of the Operations Plan) section 1.3 for such a list.

13. A corrected Page 7 which now agrees with Page 22 of the Operations Plan is attached as Exhibit G.

14. The survey found in Exhibit I of the application submittal is a copy of the requested signed and sealed survey. As a result of the copying, the embossed impression from the seal did not show up. Attached as Exhibit H is one original of this survey for your files.

15. A copy of the request letter to The Florida Department of Environmental Protection - Solid Waste Section in Tallahassee is attached as Exhibit I.

16. A revised aerial photograph and Table 1 are attached as Exhibit J which should clarify the items of interest.

17. Attached as Exhibit K is a revised site map (Figure 1) which shows all the existing and recently installed monitor well/piezometers, along with all the new and existing soil borings. Based on the recent field exploration, and a better understanding of site conditions, the proposed landfill bottom elevation has been re-evaluated. Originally, the landfill proposed a flat bottom (base) at elevation 70.0'. The revised bottom elevation now ranges from elevation 60.0' in the west to elevation 90.5' in the east. The base elevation in the northeastern portion has been raised to comply with Rule 62-701.300(2)(f). In addition, the base elevation in the east has been re-evaluated and has been lowered as a result. As earlier reported, groundwater flow across this site is to the south, south west.

Also found in Exhibit K is a table which reports all historical depths to groundwater, and groundwater elevations in each of the site wells. The earliest data goes back about one year to the beginning of our field explorations. Water levels seen now in May 2000 are at levels lower then levels seen in May 1999. Water elevations recorded in December 1999 are the highest over the one year period and best represent average seasonal highs for this site.

One can conclude from MW-1, PZ-18, PZ-19, PZ-20 along with spot elevations taken in localized open excavated areas, that groundwater in this region exhibits "perched" characteristics as it follows the clayey soil contours of the site. The Universal Engineering soil boring logs provide detailed information on the depth and extent of the clayey soils in this area as well as across the entire landfill footprint. Based on current site conditions and those conditions observed previously,

the base elevations proposed for this landfill considers the varying groundwater elevations. Realizing this, proposed base elevations are such that no fill will be placed closer than at least 5 feet above the maximum seasonal high water table.

18. As required, additional soil borings were performed to determine the presence or absence of confining or semi-confining layers beneath the landfill footprint. The attached Universal Engineering Soils Report (Exhibit L) contains the soil boring logs and all the recent laboratory testing results. Refer back to Figure 1 of Exhibit K for each boring location. Two areas (see Figure 1) in which confining units were not identified were selected for additional physical testing. The horizontal limits of these areas within the landfill footprint have been calculated and are shown on figure 1. These two locations were fitted with clustered piezometers, and used to evaluate the presence of hydraulic connectivity between the shallow and deeper zones of the aquifer. This was accomplished through pump and slug testing of these zones. A second Universal Report (also in Exhibit L) details the results of these tests.

Laboratory testing in addition to the field tests included site specific porosity, grain size sieve analysis, along with horizontal & vertical permeabilities. The vertical permeabilities were performed on soil samples collected within confining layers identified beneath the aquifer. These samples were collected from either the standard penetration testing (SPT) split spoon samplers or shelby tubes. As reported in the laboratory tests, all samples tested for vertical permeability within the aquifer exceeded regulated in place requirements. Four cross sections incorporating the additional borings are provided and found in Exhibit M. These cross sections illustrate the presence of the confining semi-confining soils which exist naturally beneath this site.

19. The requested information on diskette can be found at the end of the Universal Engineering Sciences Report back in Exhibit L.

20. A revised Figure 4 is attached as Exhibit N. Based on the recent field work and a better understanding of actual site conditions, the installation of Floridan wells at this site has been re-evaluated. This site exhibits continuous confining type soils beneath the proposed landfill footprint except for the two locations identified above. Considering the well documented and accepted regional flow data in this area (confirmed by adjacent Keene Road Landfill & the Orange County RIBS facility (our site is located between the two)) it is not desirable for us to penetrate our Floridan confining/semi-confining units, unless it is absolutely imperative. While you agree with and acknowledge the regional flow direction as being correct, your request for further confirmation is not referenced by any Rule of the F.A.C. or specific concerns.

It is my opinion that with the confining soils identified beneath this site, deep monitoring of the Floridan would not be beneficial. Considering the two areas identified on Figure 1 (Exhibit K), deeper surficial monitor wells (one installed downgradient and one upgradient of the landfill footprint) would provide the desired monitoring data, while satisfying the intent of the F.A.C. This approach is far more realistic then the deep Floridan wells proposed earlier. As a result, the original Floridan wells have been deleted from the monitoring plan and replaced by shallow & deep zone monitor wells in the surficial aquifer. The revised Figure 4 & Table 2 reflects these changes.

21. Prior to well installation, SPT borings will be advanced to the proposed monitor well depths, with samples collected at each well location. Samples collected within the proposed screen intervals will be laboratory tested for grain size distribution (sieve analysis). Based on the results of the testing proper well screen sizes and filter pack selections will be determined. Table 2 (Exhibit N)

has been revised and includes notes which reflect the pending laboratory testing.

22. The applicant agrees that it is premature to propose altering sampling frequencies at this time. The schedule proposed was assuming best case scenarios of what I was thinking or predicting as a good balanced monitoring plan. As required sampling will occur semi-annually until otherwise directed by the FDEP. As noted it is at agency discretion to alter the sampling frequency based on sampling history. In addition, background samples were collected from MW-2 (chosen upgradient well) for analysis of the primary and secondary drinking water standards. To date not all of the test results are complete. Once these results are all complete, they will be provided to you and follow under separate cover.

Attachments: As noted

C:\OFFICE\WPWIN\WPDOCS\PIT91L\FDEP3.WPD

P.O. Box 1029 Clarcona, Florida 32710
Telephone: (407) 296-0016; FAX: (407) 294-8090

EXHIBIT A

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
APPLICATION FOR PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE
A SOLID WASTE MANAGEMENT FACILITY

Please Type or Print

A. GENERAL INFORMATION

1. Type of facility:

Disposal [X]

Class I Landfill	[ ]	Ash Monofill	[ ]
Class II Landfill	[ ]	Asbestos Monofill	[ ]
Class III Landfill	[X]	Industrial Solid Waste	[ ]
Other	[ ]	_____	

Volume Reduction [ ]

Incinerator	[ ]	Pulverizer / Shredder	[ ]
Composting	[ ]	Compactor / Baling Plant	[ ]
Materials Recovery	[ ]	Energy Recovery	[ ]
Other	[ ]	_____	

2. Type of application:

Construction	[ ]	Construction/Operation	[X]
Operation	[ ]	Closure	[ ]

3. Classification of application:

New	[X]	Substantial Modification	[ ]
Renewal	[ ]	Minor Modification	[ ]

4. Facility name: Keene Road Disposal

5. DEP ID number: N/A County: ORANGE

6. Facility location (main entrance): 230 WEST KEENE ROAD
APOPKA, FLORIDA 32703

7. Location coordinates:

Section: 28 Township: 21 Range: 28

UTMs: Zone _____ _____ km E _____ km N

Latitude: N28 ° 38 ' 25 " Longitude: W81 ° 30 ' 42 "

entrance to the facility.

EXHIBIT B

8. Applicant name (operating authority): BUTTREY DEVELOPMENT, LLC

Mailing address: 6239 EDGEWATER DRIVE STE. D-1 ORLANDO, FL 32810
Street or P.O. Box City State Zip

Contact person: JOHN BUTTREY Telephone: (407) 296-0016

Title: PRESIDENT

9. Authorized agent/Consultant: ED CHESNEY, P.E.

Mailing address: 6239 EDGEWATER DR. STE. D-1 ORLANDO, FL 32810
Street or P.O. Box City State Zip

Contact person: ED CHESNEY Telephone: (407) 296-0016

Title: PROJECT ENGINEER

10. Landowner(if different than applicant): N/A

Mailing address: N/A
Street or P.O. Box City State Zip

Contact person: N/A Telephone: (___)

11. Cities, towns and areas to be served: NORTH WEST ORANGE COUNTY, METROPOLITAN ORLANDO

12. Population to be served:

Current: + 100,000 Five-Year Projection: + 100,000

13. Volume of solid waste to be received: 2,500 (yds³/day) tons/day gallons/day

14. Date site will be ready to be inspected for completion: 2011

15. Estimated life of facility: 11 years

16. Estimated costs:

Total Construction: $ Proprietary Closing Costs: ($ 1,407,360.00)

17. Anticipated construction starting and completion dates:

From: 2000 To: 2011

EXHIBIT C

S	LOCATION	N/A	N/C		
X	SECTION II				d. Other necessary details to support the engineering report.
X	HEREIN			10.	Proof of property ownership or a copy of appropriate agreements between the facility operator and property owner authorizing use of property; (62-701.320(7)(g),FAC)
		X		11.	For facilities owned or operated by a county, provide a description of how, if any, the facilities covered in this application will contribute to the county's achievement of recycling goals contained in Section 403.706,FS; (62-701.320(7)(h),FAC)
		X		12.	Provide a history and description of any enforcement actions taken by the Department against the applicant for violations of applicable statutes, rules, orders or permit conditions relating to the operation of any solid waste management facility in this state; (62-701.320(7)(i),FAC)
TO FOLLOW UNDER SEPERATE COVER				13.	Proof of publication in a newspaper of general circulation of notice of application for a permit to construct or substantially modify a solid waste management facility; (62-702.320(8),FAC)
X	Exhibit C of R.A.I.			14.	Provide a description of how the requirements for airport safety will be achieved including proof of required notices if applicable; (62-701.320(12),FAC)

E. LANDFILL PERMIT GENERAL REQUIREMENTS (62-701.330, FAC)

S	LOCATION	N/A	N/C		
X	SECTION II EXHIBIT B			1.	Vicinity map or aerial photograph no more than 1 year old and of appropriate scale showing land use and local zoning within one mile of the landfill and of sufficient scale to show all homes or other structures, water bodies, and roads other significant features of the vicinity. All significant features shall be labeled; (62-701.330(4)(a),FAC)
X	Exhibit C of R.A.I.			2.	Vicinity map or aerial photograph no more than 1 year old showing all airports that are located within five miles of the proposed landfill; (62-701.330(4)(b),FAC)
X	SECTION III SHEET 3			3.	Plot plan with a scale not greater than 200 feet to the inch showing; (62-701.330(4)(c),FAC)
X	SECTION III SHEET 3				a. Dimensions;
X	SECTION II FIG. 4				b. Locations of proposed and existing water quality monitoring wells;
X	SECTION II FIG. 2				c. Locations of soil borings;
X	SECTION III SHEET 5				d. Proposed plan of trenching or disposal areas;
X	SECTION III SHEET 6				e. Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
		X			f. Any previously filled waste disposal areas;
X	SECTION III SHEET 3				g. Fencing or other measures to restrict access.
				4.	Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (62-701.330(4)(d),FAC):
X	SECTION III ALL SHEETS				a. Proposed fill areas;
X	SECTION II EXHIBIT I				b. Borrow areas;
X	SECTION III SHEET 3				c. Access roads;
X	SECTION III SHEET 7				d. Grades required for proper drainage;
X	SECTION III SHEET 8				e. Cross sections of lifts;

VFR TERMINAL AREA CHART

TAMPA/ORLANDO

SCALE 1:250,000

Lambert Conformal Conic Projection Standard Parallels 33° and 45°
Horizontal Datum: North American Datum of 1983 (World Geodetic System 1984)

17 TH EDITION September 10, 1998
Includes airspace amendments effective *August 13, 1998*
and all other aeronautical data received by July 16, 1998

Information on this chart will change; consolidated updates of chart changes are available every 56 days in the AIRPORT / FACILITY DIRECTORY (A/FD). Also consult appropriate NOTICES TO AIRMEN (NOTAMs) and other FLIGHT INFORMATION PUBLICATIONS (FLIPs) for the latest changes.

This chart will become *OBSOLETE FOR USE IN NAVIGATION* upon publication of the next edition scheduled for *FEBRUARY 25, 1999*

PUBLISHED IN ACCORDANCE WITH INTERAGENCY AIR CARTOGRAPHIC COMMITTEE SPECIFICATIONS AND AGREEMENTS, APPROVED BY:
DEPARTMENT OF DEFENSE • FEDERAL AVIATION ADMINISTRATION • DEPARTMENT OF COMMERCE

Topographic data corrected to May 1998

CONTROL TOWER FREQUENCIES ON TAMPA TERMINAL AREA CHART

Airports which have control towers are indicated on this chart by the letters CT followed by the primary VHF local control frequency. Selected transmitting frequencies for each control tower are tabulated in the adjoining spaces, the low or medium transmitting frequency is listed first followed by a VHF local control frequency, and the primary VHF and UHF military frequencies, when these frequencies are available. An asterisk (*) follows the part-time tower frequency remoted to the collocated full-time FSS for use as Local Airport Advisory (LAA) during hours tower is closed. Hours shown are local time. Ground control frequencies listed are the primary ground control frequencies.

Automatic Terminal Information Service (ATIS) frequencies, shown on the face of the chart are primary arrival VHF/UHF frequencies. All ATIS frequencies are listed below. ATIS operational hours may differ from control tower operational hours.

ASR and/or PAR indicates Radar Instrument Approach available.

"MON-FRI" indicates Monday thru Friday.

CONTROL TOWER	OPERATES	TWR FREQ	GND CON	ATIS	ASR/PAR
LAKELAND LINDER REGIONAL	0600-2200	124.5	121.4	118.025	
MACDILL AFB	CONTINUOUS	123.7 294.7	121.65 275.8	133.825 270.1	
ST PETERSBURG/ CLEARWATER INTL	0630-2200	118.3*257.8	121.9 348.6	134.5	
SARASOTA-BRADENTON INTL	0600-2400	120.1 269.7	121.9 269.7	134.15	ASR
TAMPA INTL	CONTINUOUS	119.5 269.4	121.7 269.4	126.45 (ARR) 128.475 (DEP)	ASR
WHITTED	0700-2100	127.4 257.6	121.8		ASR

CLASS B, CLASS C, AND SELECTED RADAR APPROACH CONTROL FREQUENCIES

FACILITY	FREQUENCIES	SERVICE AVAILABILITY
TAMPA CLASS B	119.9 290.3 (001°-150°) 119.65 362.3 (151°-219°) 125.3 363.8 (220°-360°)	CONTINUOUS
SARASOTA-BRADENTON CLASS C	119.65 362.3	0600-2400; O/T CLASS G, E 700 AGL & ABOVE

O/T indicates Other times

SPECIAL USE AIRSPACE ON TAMPA TERMINAL AREA CHART

Unless otherwise noted altitudes are MSL and in feet; time is local.
Contact nearest FSS for information.
†Other time by NOTAM contact FSS

The word "TO" an altitude means "To and including."
"MON-FRI" indicates "Monday thru Friday"
FL – Flight Level
NO A/G – No air to ground communications

U.S. P–PROHIBITED, R–RESTRICTED, A–ALERT, W–WARNING, MOA–MILITARY OPERATIONS AREA

NUMBER	LOCATION	ALTITUDE	TIME OF USE	CONTROLLING AGENCY**
W-168 B	TAMPA, FL	TO FL 290	INTERMITTENT	ZMA CNTR

**ZMA–Miami

MOA NAME	ALTITUDE OF USE*	TIME OF USE†	CONTROLLING AGENCY**
LAKE PLACID	7000	INTERMITTENT, NORMALLY DAYLIGHT HOURS MON-FRI OCCASIONALLY ON SAT & SUN	ZMA CNTR

*Altitudes indicate floor of MOA. All MOAs extend to but do not include FL 180 unless otherwise indicated in tabulation or on chart.
†Other times by NOTAM contact FSS.
**ZMA–Miami

To purchase charts:
Contact any authorized NOAA Chart Agent, or
NOAA/NOS, Distribution Division, N/ACC3
Riverdale, MD 20737
Telephone (800) 638-8972, FAX (301) 436-6829

Published at Washington, D.C.
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service

GROUND ELEVATIONS IN FEET
305

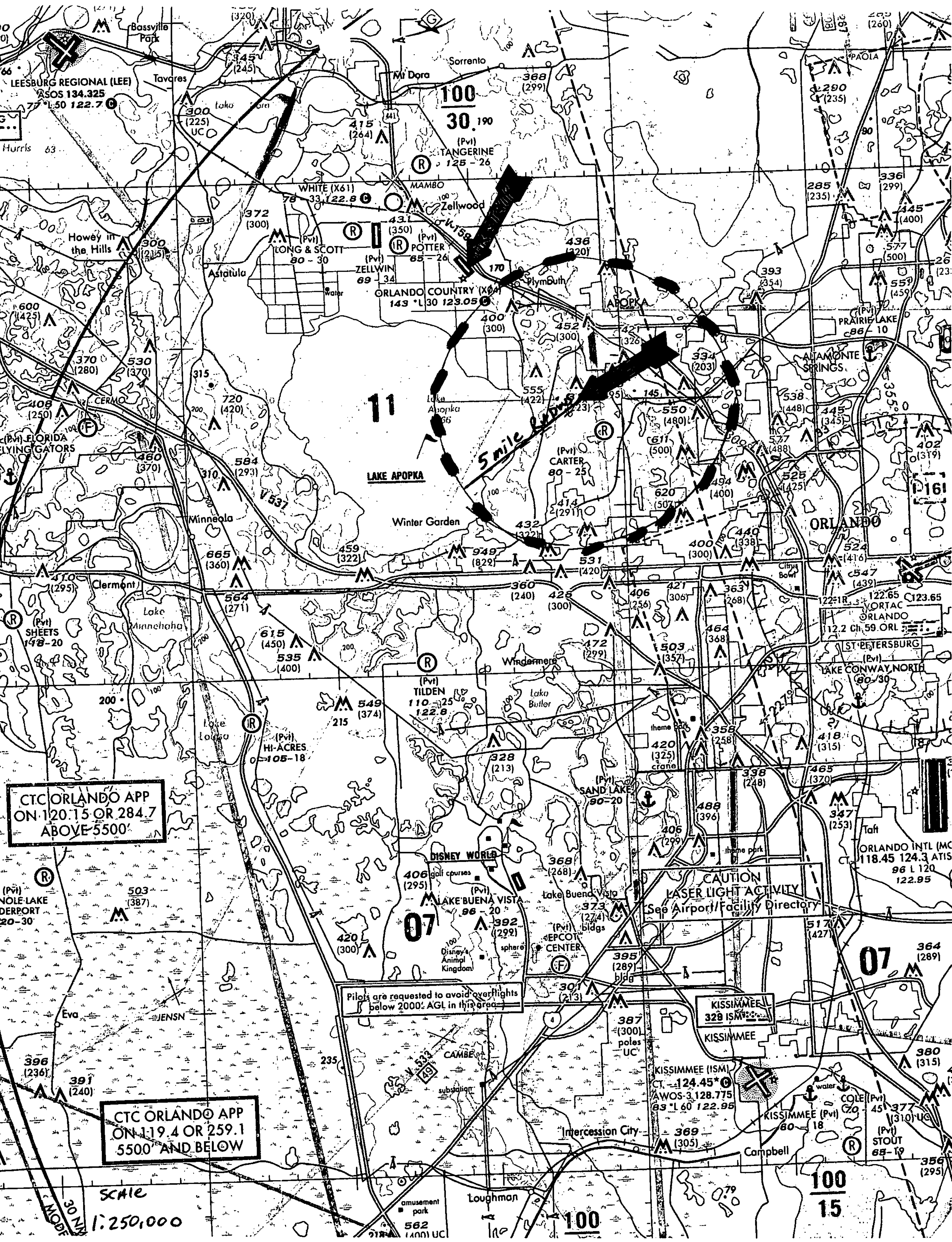

Bassville Park
Tavares
Sorrento
Mt Dora
LEESBURG REGIONAL (LEE)
ASOS 134.325
77 *L 50 122.7
100
30.190
(Pvt) TANGERINE
125 - 26
WHITE (X61)
33 122.8
MAMBO
Zellwood
V 158
Howey in the Hills
(Pvt) LONG & SCOTT
80 - 30
(Pvt) POTTER
65 - 26
(Pvt) ZELLWIN
69 - 34
Astatula
ORLANDO COUNTRY (X04)
143 *L 30 123.05
Plymouth
APOPKA
PAOLA
(Pvt) PRAIRIE LAKE
86 - 10
ALTAMONTE SPRINGS
11
Lake Apopka
LAKE APOPKA
5 mile radius
CERMO
(Pvt) FLORIDA FLYING GATORS
(Pvt) CARTER
80 - 25
V 537
Minneola
Winter Garden
ORLANDO
Clermont
Lake Minnehaha
(Pvt) SHEETS
148 - 20
122.65
123.65
VORTAC
ORLANDO
112.2 Ch 59 ORL
ST PETERSBURG
(Pvt) LAKE CONWAY NORTH
80 - 30
Windermere
(Pvt) TILDEN
110 - 25
122.8
Lake Butler
theme park
crane
Lake Louisa
(Pvt) HI-ACRES
105 - 18
(Pvt) SAND LAKE
80 - 20
CTC ORLANDO APP
ON 120.15 OR 284.7
ABOVE 5500'
Taft
ORLANDO INTL (MCO)
CT - 118.45 124.3 ATIS
96 L 120
122.95
DISNEY WORLD
golf courses
(Pvt) LAKE BUENA VISTA
96 - 20
Lake Buena Vista
CAUTION
LASER LIGHT ACTIVITY
See Airport/Facility Directory
07
sphere
(Pvt) EPCOT CENTER
Disney's Animal Kingdom
bldgs
bldg
Pilots are requested to avoid overflights
below 2000' AGL in this area
KISSIMMEE
329 ISM
Eva
JENSN
CAMBE
V 533
substation
KISSIMMEE (ISM)
CT - 124.45
AWOS-3 128.775
83 *L 60 122.95
KISSIMMEE (Pvt)
60 - 18
COLE (Pvt)
(Pvt) STOUT
65 - 19
CTC ORLANDO APP
ON 119.4 OR 259.1
5500' AND BELOW
Intercession City
Campbell
Loughman
amusement park
100
15
scale
1:250,000

EXHIBIT D

S	LOCATION	N/A	N/C		
X	RAI			9.	Describe routine gas monitoring program for the landfill as required by Rule 62-701.400(10),FAC; (62-701.500(9),FAC)
		X		10.	Describe procedures for operating and maintaining the landfill stormwater management system to comply with the standards of Chapters 62-3, 62-302 and 62-25, FAC; (62-701.500(10),FAC)
				11.	Equipment and operation feature requirements; (62-701.500(11),FAC)
X	SECTION I				a. Sufficient equipment for excavating, spreading, compacting and covering waste;
X	SECTION I				b. Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
X	SECTION I				c. Communications equipment;
X	SECTION I				d. Personnel shelter and sanitary facilities, first aid equipment;
X	SECTION I				e. Dust control methods;
X	SECTION I				f. Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
X	SECTION I				g. Litter control devices;
X	SECTION I				h. Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.
X	SECTION I			12.	Provide a description of all-weather access road, inside perimeter road and other roads necessary for access which shall be provided at the landfill; (62-701.500(12),FAC)

S	LOCATION	N/A	N/C		
				5.	Closure operation plan shall include: (62-701.600(6),FAC)
X	SECTION II			a.	Detailed description of actions which will be taken to close the landfill;
X	SECTION II			b.	Time schedule for completion of closing and long term care;
X	SECTION II			c.	Describe proposed method for demonstrating financial responsibility;
X	SECTION II			d.	Indicate any additional equipment and personnel needed to complete closure.
X	SECTION II			e.	Development and implementation of the water quality monitoring plan required in Rule 62-701.510, FAC.
X	RAI			f.	Development and implementation of routine gas monitoring program required in Rule 62-701.400(10)(c), FAC.
		X		6.	Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (62-701.600(7),FAC)

EXHIBIT E

Explanatory Notes for Closure and Long Term Care Cost Estimates for Keene Road Disposal Class III Landfill, Buttrey Development, LLC

Closure Calculation:

1. **Disposal foot print of 37 acres with 50 foot height**
2. **Surface area for closure of approximately 38 acres, including side slopes**
3. **7 monitoring wells installed prior to closure**
4. **All roadways, storm water ponds and site security features installed prior to closure**
5. **Top area approximately 21 acres, side slope area approximately 17 acres**
6. **Top slopes seeded and mulched, side slopes sodded**
7. **Assumed requirement for 12 inches of intermediate cover over 5 acres of site at time of closure for sloping and filling**
8. **20% swell factor assumed for all soil components**
9. **Site topographic mapping priced at $200 per acre for the entire 60 acre site**
10. **Unit prices for soil components, based on average of vendor quotes for delivered materials:**

Topsoil	Clay Barrier Soil	Sand/fill
$6.00	$8.34	$5.03

Long Term Care Calculation:

1. **7 groundwater monitoring wells sampled twice annually**
2. **One well repair per year**
3. **Gas monitoring limited to explosivity monitoring at property boundary and within on site structures**
4. **Grass mowed twice per year**
5. **No electricity on site after closure**
6. **One acre of sod repair per year**
7. **500 cy of clay for cap repairs per year**
8. **30 year long term care period**

B and B
Keene Road Disposal
Closure Cost Estimate

Estimated Closure Cost					
Description	Unit	Quantity	Unit Cost	Total	Category Subtotals
Monitoring Wells (all monitoring wells installed prior to closure)					
Borehole Excavation	cy			$0.00	
Backfill	cy			$0.00	
Gravel Pack	cy			$0.00	
Casing	lf			$0.00	
Screen	ea			$0.00	
Cap	ea			$0.00	
Subtotal Monitoring Well					$0.00
Intermediate Cover (Slope and Fill)					
Delivered Fill Dirt Cover Material	cy	9,680.0	$5.03	$48,690.40	
Placement and Dressing	cy	9,680.0	$0.75	$7,260.00	
Cap System					
Delivered Clay Material (10^{-5} clay, 18" layer)	cy	110,352.0	$8.34	$920,335.68	
Placement, Compaction and Dressing	cy	110,352.0	$3.00	$331,056.00	
Delivered Sand Cover (12" layer)	cy	73,568.0	$5.03	$370,047.04	
Placement and Dressing	cy	73,568.0	$0.75	$55,176.00	
Delivered Top Soil Component	cy	36,784.0	$6.11	$224,750.24	
Placement and Dressing	cy	36,784.0	$0.75	$27,588.00	
Sod (side slopes)	sy	82,280.0	$1.25	$102,850.00	
Seed and Mulch (top slopes)	sy	101,640.0	$0.30	$30,492.00	
Subtotal, Cap System					$2,118,245.36
Storm Water Control (all storm water controls installed prior to closure)					
Excavation, Grading, Recontouring	cy			$0.00	
Storm Water Conveyances (side slope)	ea			$0.00	
Ditch/Swale Construction	cy			$0.00	
Berm Construction	cy			$0.00	
30" CPP	Lf			$0.00	
Infiltration Galleries	ea			$0.00	
Drop BoxesFDOT Index #232 type D	ea			$0.00	
Drop BoxesFDOT Index #232 type E	ea			$0.00	
18" Perforated Drain Pipe	Lf			$0.00	
Rip-Rap	cy			$0.00	
Subtotal, Storm Water Control					$0.00
Revegetation					
Sodding	sy	9,680.0	$1.25	$12,100.00	
Soil Preparation/Grading	sy	9,680.0	$0.50	$4,840.00	
Hydro Seeding	sy			$0.00	
Fertilizer	ac			$0.00	
Mulch	ac			$0.00	
Trees (10')	ea	25.0	$30.00	$750.00	
Subtotal, Revegetation					$17,690.00
Landscape and Irrigation System (no irrigaton system proposed)					
Pipe and Fittings	Lf			$0.00	
Pumps	ea			$0.00	
Irrigation Wells	ea			$0.00	
Subtotal, Landscape and Irrigation Systems					$0.00
Security System (all security systems installed prior to closure)					
Fencing	Lf			$0.00	
Gates	ea			$0.00	
Sign(s)	ea			$0.00	
Subtotal, Security System					$0.00
Engineering					
Closure Plan Report	LS	1.0	$10,000.00	$10,000.00	
Certified Engineering Documents (closure construction)	LS	1.0	$4,000.00	$4,000.00	
Closure Permit	LS	1.0	$5,000.00	$5,000.00	
NSPS/Title V Air permit	LS	NA		NA	
QA/QC, on site construction engineering	LS	1.0	$10,000.00	$10,000.00	
Other				$0.00	
Other				$0.00	
Other				$0.00	
Subtotal, Engineering					$29,000.00
Surveying					
Benchmark Installation	ea	1.0	$1,000.00	$1,000.00	
Final Survey	ac	60.0	$200.00	$12,000.00	

B and B
Keene Road Disposal
Closure Cost Estimate

Description	Unit	Quantity	Unit Cost	Total	Category Subtotals
Subtotal, Surveying					$13,000.00
Certification of Closure					
Engineer's Certification	LS	1.0	$2,500.00	$2,500.00	
Subtotal, Certification of Closure					$2,500.00
Site Specific Costs (explain)				$0.00	
Mobilization	LS			$0.00	
Removal of Recovered Materials	cy			$0.00	
Other (Details)				$0.00	
Subtotal, Site Specific Costs					$0.00
Subtotal, Closure Costs					**$2,180,435.36**
Subtotal, Closure Costs				$2,180,435.36	
Contingency					
Contingency Estimate (% of total)	%	10		$218,043.54	
Total, Closure Costs					**$2,398,478.90**

Band B
Keene Rd. Disposal
Long Term Care Cost Estimate

Estimated Annual Long Term Care Costs					
Description	Unit	Quantity	Unit Cost	Total	Category Subtotals
Groundwater Monitoring					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea	14	$600.00	$8,400.00	
Annual	ea			$0.00	
Monitoring Well Maintenance	LS	1	$2,500.00	$2,500.00	
Subtotal, Groundwater Monitoring					$10,900.00
Gas Monitoring					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea			$0.00	
Annual (explosivity monitoring)	ea	10	$500.00	$5,000.00	
Subtotal, Gas Monitoring					$5,000.00
Leachate Monitoring	Not	applicable			
Surface Water Monitoring (no surface water monitoring required)					
Monthly	ea			$0.00	
Quarterly	ea			$0.00	
Semi-Annual	ea			$0.00	
Annual	ea			$0.00	
Subtotal, Surface Water Monitoring					$0.00
Landscape Maintenance					
Mowing	LS	2	$2,000.00	$4,000.00	
Fertilizer	LS	1	$2,000.00	$2,000.00	
Irrigation	ac			$0.00	
Subtotal, Landscape Maintenance					$6,000.00
Benchmark Maintenance					
Benchmark Repairs, etc.	ea	1	$500.00	$500.00	
Subtotal, Benchmark Maintenance					$500.00
Administrative					
Site Supervisor	hr	60	$20.00	$1,200.00	
Subtotal, Administrative					$1,200.00
Electricity					
Includes, pumps, lights, etc.	LS			$0.00	
Subtotal, Electricity					$0.00
Maintenance of Cover and Erosion Control					
Sodding	sy	4840	$1.25	$6,050.00	
Regrading	LS	2	$2,000.00	$4,000.00	
Liner Repair	cy	500	$3.00	$1,500.00	
Clay	cy	500	$8.34	$4,170.00	
Subtotal, Maintenance of Cover					$15,720.00
Surface Water Drainage Maintenance					
Ditch Cleaning	LS	1	$2,000.00	$2,000.00	
Storm Water Conveyance Maintenance	LS	1	$1,000.00	$1,000.00	
Subtotal, Surface Water Drainage Maintenance					$1,600.00
Security System Maineneance					
Fencing	LS	1	$1,000.00	$1,000.00	
Gates	LS	1	$500.00	$500.00	
Sign(s)	LS	1	$100.00	$100.00	
Subtotal, Security System					$1,600.00
Site Specific Costs (explain)					
				$0.00	
				$0.00	
				$0.00	
				$0.00	
Subtotal, Site Specific Costs					$0.00
Subtotal, Annual Long Term Care Costs					**$42,520.00**
Subtotal, Annual Long Term Care Costs				$43,920.00	
Contingency					
Contingency Estimate (% of total)	%	10		$4,392.00	
Total, Annual Long Term Care Costs					**$46,912.00**
Total, 30-Year Long Term Care Costs					**$1,407,360.00**

EXHIBIT F

COPY

Fire Preparedness and Emergency Response Guidelines

For Use By:

Keene Road Disposal Class III Landfill,
Buttrey Development, LLC

Prepared By: Chris Kohl Training and Consulting Services

April, 2000

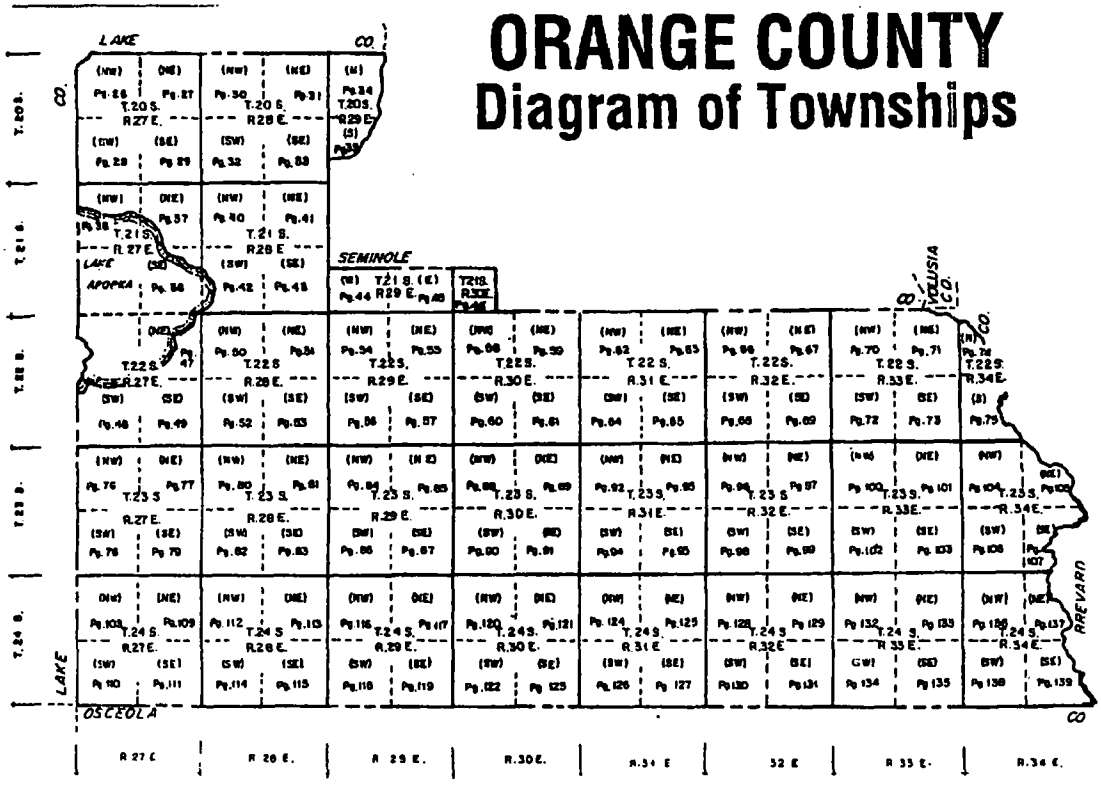
General

1.1 Purpose

This document is intended to be used to provide guidelines and procedures for use in prevention, suppression and mitigation of fires, should they occur at Keene Road Disposal Class III Landfill.

1.2 Site Location and Access

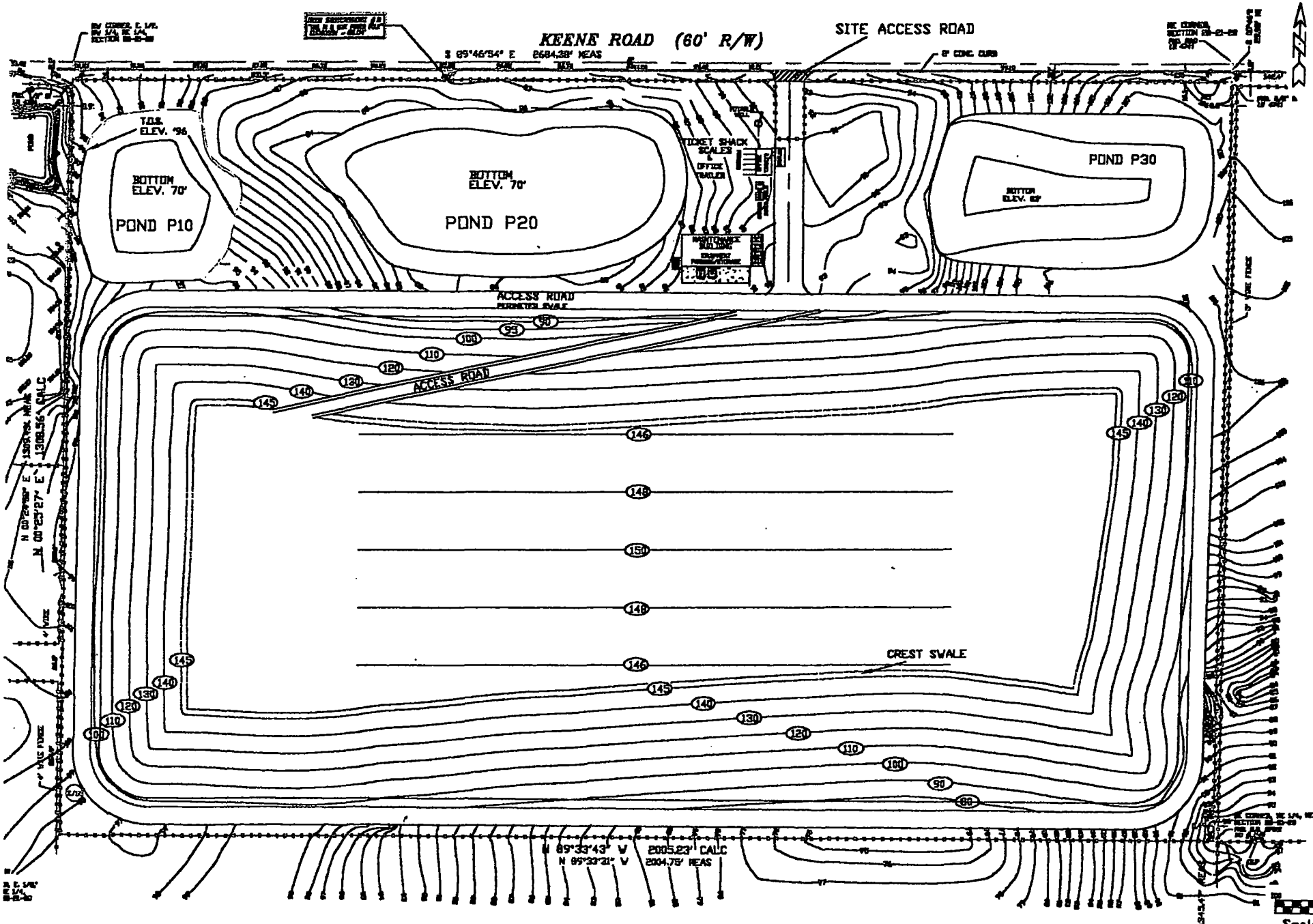
Keene Road Disposal Class III Landfill is located in Orange County, Florida, west of Apopka Vineland Road on the south side of Keene Road, at 230 & 242 west Keene Road, Apopka Florida 32703.



The access route is identified as westbound on Keene Road for all traffic entering the site, and east bound on Keene Road for all traffic leaving the site. Major arterial roads, including Clarcona-Ocoee Road, S. Clarcona Road and W. Orange Blossom Trail provide access into Keene Road. Refer to the attached scaled map which identifies pertinent information such as roadways and site features.

Operating hours the site are 6 AM to 6 PM, Monday through Friday, and 6 AM to 12 PM on Saturday. A locked gate at the site entrance along with 6-foot chain link perimeter fence will control access to the site when it is not opened.

Names and telephone numbers for three emergency responders will be posted at the gate to provide 24 hour contact capability in case of emergency when the site is closed. These contacts must be able to respond to the site within 30 minutes and be able to operate heavy equipment in the fire fighting process.



BISHOPS BUTTREY INC.

KEENE ROAD DISPOSAL - CLASS III LANDFILL
BUTTREY DEVELOPMENT, L.L.C.

JOB NO.
DATE
SCALE
DRAWN BY EC
CHKD BY EC

REVISIONS

SITE LAYOUT

Scale 1" = 230'

1.3 Notification in Event of Emergency

Orange County Fire and Rescue Division (OCFRD) Communications Center must be notified immediately upon detection of all fires at the landfill. The Standard Fire Prevention Code requires that in the event a fire occurs on any property the owner or occupant shall immediately report such fires to the Fire Department (911).

Responder	Telephone
Orange County Fire/Rescue	**911**
Buttrey Development LLC Office	**(407)-296-0016**
Landfill Supervisor - Vic McCall	**(407)-492-2404**
Landfill Foreman - Don Everett	**(407)-509-0995**
Equipment Operator- Mark Pearman	**(407)-973-5921**

The Operator of the site will first notify Orange County Fire Department (911), followed by the Orange County Environmental Protection Department (OCEPD, (407) 836-1400) and the Florida Department of Environmental Protection (FDEP, (407) 894-7555). Notifications are to be made immediately upon detection on site of a fire or other condition that might result in an unanticipated threat to human health or the environment.

Within 14 days of any reported emergency, the site Operator will submit a written report to FDEP and OCEPD. Contents of the report will include:

- Origins of the emergency
- Actions taken to control and mitigate the emergency
- Outcome of actions taken
- An evaluation of response efficacy and effectiveness
- Recommended procedural changes to prevent recurrence

1.4 Fire Fighting and Facilities

Methods of fire suppression will ultimately be determined by the OCFRD command for the different types of fires that may be encountered (vehicle, load, structure, landfill, brush). Methods of suppression are as follows:

- Separation of burning materials from additional available fuel
- Suppression by smothering with soil
- Excavation and sub-surface application of foam
- Application of large quantities of water

If necessary, specialized fire-fighting equipment and materials required by OCFRD command staff will be provided strictly at the site owner's expense to protect public health and the environment.

Fires that originate in landfills are primarily extinguished by soil application. In addition, all equipment and site vehicles are equipped with fire extinguishers and radio/cell phone communication to notify personnel in the event of a fire. Cover dirt is always available on site and can be quickly accessed to extinguish as necessary.

Orange County Fire and Rescue Division (OCFRD) command officers will be in charge of the emergency scene upon arrival, and will work closely with landfill personnel to address emergency conditions.

1.5 Heavy Equipment on Hand

One front end loader
One track type tractor (dozer)
One Landfill Compactor
One water truck
Pick up trucks
Multiple lease or rental dump trucks available within 1 hour for emergency response

1.6 Safety Equipment

All equipment and site vehicles are equipped with fire A,B,C extinguishers and radio/cell phone communication to notify personnel in the event of a fire. All heavy equipment is equipped with protective structures and Roll Over Protection System (ROPS) cabs. Personnel on site are equipped with hard hats, safety glasses, and steel toed work shoes. The facility owner shall have available on site brush fire fighting gear for the facilities' staff at all times.

All safety equipment and devices will be provided solely at the landfill Owner's expense.

1.7 Emergency Access

Incoming roads on the proposed haul route are paved and allow all weather access. On site roads will be unpaved, but improved with a topping of limerock or other similar material to allow vehicular traffic under all weather conditions. The onsite access roads will provide a minimum of 13'6" vertical clearance and will be at least 20' wide. Proposed roadways will provide good access for all emergency vehicles.

In the event a fire disrupts the ability to continue to receive materials at the site for disposal, all arriving loads will be directed to the Waste Management, Inc. Landfill directly north across Keene Road.

1.8 Communications

All equipment on site will be equipped with radio/cell phone communication to notify personnel in the event of a fire. A telephone will be installed in the gate house trailer. Emergency telephone numbers and radio call signs will be posted in the gate house trailer and in all pieces of equipment on site. One extra radio/cell phone will be made available for use by OCFRD command personnel in the event of an emergency.

2 Fire Control

Fires present an extremely dangerous situation, particularly if they burn out of control. Catching the fire early is the key to successfully controlling it.

Fire prevention provisions provided at the site include: 1) No Smoking rule, 2) Daily site inspections, 3) Use of a landfill compactor to reduce void space, and 4) The express right to refuse any suspect loads, 6) Hot Load Contingency procedures.

Most fires start from spontaneous combustion or something burning or smoldering in a load of refuse delivered to the site. Lightning strikes, lit cigarette butts, and spontaneous combustion can also cause fires at Solid Waste facilities.

Daily site inspections will detect obvious fires on site, and load screening will detect "hot loads". If a "hot load" is detected, the following procedures will be ***followed:***

Direct load to a soil covered area removed from the active tipping and staging areas

If the vehicle is involved in the fire, call the fire department, remove the vehicle from the active are to an area more accessible to fire trucks (if possible)

and evacuate the area immediately around the vehicle. Let the fire department extinguish the fire.

Have the Driver drop the load away from active tipping and staging areas on an open area safely removed from the buildings and storage areas and remove his vehicle to a safe location

For smaller fires, use water, if available, or fire extinguishers to extinguish the fire

Use the water truck, if necessary, to provide additional water volume

Make sure the fire is completely out

Pick up burned material and return it to the disposal location

Record the incident and outcome in the daily logbook.

On-site fire fighting capabilities will be provided by fire extinguishers located on all pieces of equipment, the water truck with proper fire department drafting connections, used on site for dust and the ability to haul large quantities of dirt to fight a major landfill fire In most cases, it is the ability to obtain and haul large quantities of dirt that makes the difference in a landfill fire.

OCFRD command officers will be in charge of the scene upon arrival, and will work closely with the landfill personnel to mitigate any emergency situation. Emergency operations will adhere to OCFRD Standard Operating Procedures. Structural and vehicle fires will be suppressed in accordance with Emergency Operation Guidelines.

Fire extinguishers will be inspected monthly to ensure their usability in the event of a fire, and out of date, empty or defective extinguishers will be replaced as necessary to maintain adequate fire fighting capabilities. Records of inspections will be retained on site. All extinguishers will be removed from service for container integrity evaluations and hydrostatic testing as required OSHA, usually every five years, or when recharged.

2.1 Fire Suppression Procedures

Fires which spread to deposited waste materials present the greatest problem for landfill operators. Such fires, if left undetected, can create severe conditions of smoke that can have significant impacts both on the site and off the site. Surface fires can burn down into the compacted waste, undercutting the visible burn areas and making access for fire fighting extremely hazardous.

Such fires are not readily extinguished with water or foam or other typical fire fighting techniques. Ordinarily, the best method for fighting fires involving significant amounts of in place refuse involves hauling and placing large quantities of dirt on and around the burning area to cut off the oxygen supply required to support burning. It is important to quickly marshal the equipment necessary to haul, spread, and compact large quantities of dirt, if the fire is to be contained and fought effectively.

If caught quickly, it is sometimes possible to push smaller quantities of burning material away from the exposed refuse and onto well covered areas of the landfill where the burning material can be extinguished without catching the whole landfill on fire.

If a large surface or subsurface fire is involved care must be taken to place large quantities of dirt around the burning area, starting well away from the visible burning. Heavy equipment should then build a thick floor of dirt which is steadily advanced inward from all access points, taking care to place sufficient dirt in front of and under machinery to prevent undercut burning areas from forming voids under the working area which can give way, stranding or even engulfing the equipment. It may be necessary to place several feet of dirt on the fire to finally

extinguish it, and even then, there is no guarantee that the fire will be completely extinguished.

Smoldering sub-surface fires can burn underground for long periods of time, with only the occasional smoke plume to indicate the presence of "hot spots". It is important to distinguish between normal water vapor emissions and smoke emissions. Typically, water vapor or steam emissions will not exhibit opacity or "smoke" plumes that extend more than a few feet from the surface, while combustion smoke will usually exhibit a visible plume extending well above the surface and will usually be accompanied by a distinctive "smoky" odor.

Once the dirt layer is in place, the covered area should be left undisturbed for as long as it takes to insure that the fire is totally out. Typically, this involves leaving the area involved in the fire undisturbed for a minimum of 48 hours, but longer periods may be necessary to insure the fire is completely extinguished, particularly for subsurface fires. Visual inspection for smoke plumes and/or inserting temperature probes into the landfill can help determine the extent of underground fires and the effectiveness of the fire fighting activities. Final fire fighting procedures will be determined by OCFRD Command.

2.2 Emergency Response

Keene Road Disposal Class III Landfill personnel will respond immediately to any fire or emergency in an effort to minimize response times and limit the area involved in the fire. OCFRD will be immediately notified of any fire at the property so they may respond to insure adequate fire control.

2.3 Construction of Firebreaks

Firebreaks will be constructed as necessary or required by OCFRD command personnel to provide a barrier to contain the spread of a fire.

The following procedures should be followed during firebreak construction to help contain a landfill fire:

Remove all ground cover and debris along the fire break;
Use natural barriers such as ditches, berms, working faces, etc.;
Segregate burned materials from unburned materials to deprive the fire of fuel;
Construct fire breaks to expose bare soil, free of combustible materials such as disposed debris, leaves, twigs, roots, etc.

When heavy equipment is used to cut fire breaks or suppress landfill fires, care must be exercised, particularly when working alone in front of an advancing fire. Without alternate extinguishing capability other than the ability to remove fuel, equipment can be quickly overtaken by a fast moving fire.

OCFRD will support and protect heavy equipment by way of exposure lines and oversight, and will maintain incident control over all emergency operations.

2.4 Water Supply and Availability

A well capable of delivering 50 gallons per minute will be available on site. In addition, a water truck will be on site, with fire department drafting connections, to deliver water to the fire site. Water tankers may also be used to deliver water to the fire site.

2.5 Fire Fighting and Personnel Safety

The safety of personnel and equipment always comes first in fire fighting activities. Fire fighting is intrinsically dangerous, and hurried or incorrect decisions can result in serious injury or death. The following standards adopted by the U.S. Forest Service provide good rules to follow when a

fire is encountered:

Keep informed of weather conditions and forecasts. Be aware of the weather conditions, particularly wind velocity and direction.

Know what your fire is doing at all times. Many small fires become large fires if not kept under constant observation.

Base all actions on the current and expected behavior of the fire. The action taken should be determined by everything that is happening and everything that might happen. Every fire has to be approached differently due to changing conditions encountered.

Have escape routes for everyone and make them known. Identify escape routes and notify personnel where they are and what to do when they get to the safety zone. Use natural barriers as much as possible.

Post a lookout when there is possible danger. A look out observer, with communications capability can view the "big picture" of the fire containment process and can see if any potential danger may exist for those directly involved in fire fighting activities.

Be alert, keep calm, think clearly, and act decisively. When faced with an emergency situation think, know and understand what is happening. Keep calm. Panic can injure personnel.

Maintain prompt communication with personnel, supervisors, and adjoining forces. Adequate communication is essential to good fire control safety.

Give clear instructions and be sure they are understood. Issue concise instructions and make sure personnel understand the directions precisely.

Maintain control of personnel at all times. When issuing assignments, one consideration should be the reliability of the personnel. Other considerations include inspection of tools and coordination of available equipment.

Fight fire aggressively, but provide safety first. Aggressive action is the key to fire suppression, but it must neither short cut nor violates any Safety rule covering a particular situation.

2.6 Protective Clothing and Equipment

Goggles, gloves, proper foot ware, and proper clothing will be provided to on site staff. Gloves should be comfortable and the right size to prevent abrasions and blisters. Goggles should have vents in the side and should be designed for the greatest possible field of vision. Lace up boots are recommended, especially for uneven terrain. Heavy socks should be worn with boots.

3 Fire Investigation and Follow-up

When determined by OCFRD, fire investigations will be referred to the State Fire Marshall's office for further investigation. Safety of the fire department and landfill personnel will be the primary concern.

4 Disposal of Burned Materials

Burned materials will be segregated from the rest of the landfill insofar as is possible. Once all hot spots have cooled and the fire is fully suppressed, the remains of the burned debris will be disposed of within the Class III landfill. Oily waste from burned tires will be stored in roll-off containers to be transported to lined Class III facility for disposal.

The undersigned, as of this date, approve this agreement.

Mr. John Buttrey, Buttrey Development, LLC

Mr. Mike Iacona, Fire Chief
Orange County Fire and Rescue Department

Date: 4/20/00

Date: 4/18/00

EXHIBIT G

For the purposes of Landfill operations, the most likely source of hazardous wastes will be paints, solvents, pool chemicals, cleaning chemicals, petroleum products and similar materials improperly deposited in roll off-boxes and dumpsters. Any containers suspected of containing these wastes are prohibited from disposal.

If site personnel detect containers suspected of containing hazardous wastes, the site Operator should be notified immediately, and the truck driver detained, if possible. The site Operator will assess the situation and determine the appropriate response. In most cases, where the containers are sealed and not leaking, the driver can remove the material for alternate disposal. In cases where the driver could not be detained, or the containers are leaking, the site Operator can arrange to have the material removed by a licensed hazardous waste remediation contractor.

Any leaking container should be treated as a hazardous waste until proven otherwise. Do not approach any leaking containers with unknown contents. Block off the area around the leaking container from traffic access, notify the site Operator, and avoid breathing any vapors or fumes.

The site Operator has the option of taking actions ranging from notifying the hauler to remove and clean up the waste, to notifying a licensed hazardous waste remediation contractor to perform the clean up, to calling in the Hazardous Materials Response Team from the fire department.

In the event hazardous wastes are detected, FDEP will be promptly notified of the occurrence and the disposition of the waste.

White Goods:
The disposal of white goods in incoming loads at B&B Keene Road Disposal Class III Landfill is prohibited. The term "white goods" applies to household appliances such as stoves, refrigerators, freezers, hot water heaters, etc. Haulers are required to remove white goods, when possible. White goods removed from the disposal area are placed in a roll off container for recycling. Care should be taken when handling appliances that contain Freon, including refrigerators, freezers, air conditioners and some dehumidifiers. Freon containing devices should be stored upright to avoid contaminating the Freon with compressor oil.

Household Garbage:
No household garbage is allowed for disposal in incoming loads, except de minimis amounts contained in normal Class III wastes. Household or putrescible wastes detected will be removed and placed in roll off boxes for alternate disposal at a Class I landfill. All putrescible wastes placed into storage must be removed from the site within 48 hours to prevent odors and animal attractants.

Tires:
No whole tires of any kind are allowed for disposal in incoming loads. Tires detected will be removed and placed in roll off boxes for alternate disposal at a waste tire processing facility, or returned to the hauler before leaving the site. Tires will be managed in accordance with Chapter 62-711 F.A.C. No more than 999 tires will be stored at the site at any given time.

Tires must be cut in at least eight substantially equal pieces to be acceptable for disposal.

Waste Oils:
No waste oil or oil filters will be knowingly accepted for disposal in incoming loads. No vehicles will be allowed to discharge oil or fluids during maintenance activities conducted on site. Vehicles discharging oil or fluids due to accident or mechanical failure will be required to clean

EXHIBIT H

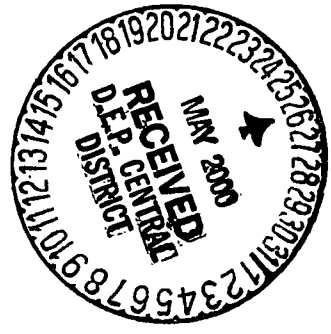


EXHIBIT I

BUTTREY DEVELOPMENT TWO, LLC

COPY
w/o attachments

May 22, 2000

Florida Department of Environmental Protection
Solid Waste Section
2600 Black Stone Road
Tallahassee, FL 32399-2400

Subject: Keene Road Disposal, Class III Landfill Permitting, 60 Acres, NE 1/4 and E 1/2 of the NW 1/4 of the NE 1/4 of Section 28, Township 21, Range 28, Orange County, FL. Request for variance, 100' minimum horizontal separation between Waste deposits in the landfill and the landfill property boundary, FDEP Application No. SC48-0165969-001 and SO48-0165969-002

Gentlemen:

We are in the process of permitting the subject land fill. The current state ordinance requires a 100' setback from the property lines to the toe of slope of the above ground trash.

We request approval of a reduction of the subject setbacks from 100' to 50' on three sides of the landfill. The side fronting Keene Road is designed as a 400' setback.

Attached is a copy of the zoning special exception and the supporting plan that was approved by the Orange County BOCC. This approval was the subject of three public hearings in which all adjoining and area property owners were notified by the County. There was virtually no opposition.

There are seven adjoining property owners, six private and Orange County. (See attached aerial and description of each parcel.) Of the six private owners, we have three under contract to purchase. Copies of these contracts are attached. The other three have signed notarized letters of no objection, attached.

6239 Edgewater Dr., Suite D-1 • Post Office Box 1029 • Clarcona, Florida 32710-1029
Telephone: (407) 296-0016 • FAX: (407) 294-8090

The Orange County BOCC has approved the concept of the 50' setback. However, the final approval of the setbacks regarding the county property will be granted with the approval of the solid waste permit application currently under review by the County.

If you have any questions, please do not hesitate to contact either myself or Ed Chesney at 407-296-0016.

Sincerely,

John Buttrey

cc: Dave Howson - B&B

EXHIBIT J

TABLE 1

WELL INVENTORY DATA**

Location No.	Owner	Dia. (in.)	Total Depth (ft.)	Use
2	Stanley Jacobson	4	NR	Irrigation
2	Stanley Jacobson	6	NR	Irrigation
3	Natural Beauty of Florida	8	100+	Irrigation
5	Yogi Bear Campground - Sun Resorts, Inc.	10	NR	Public
6	Yogi Bear Campground - Sun Resorts, Inc.	8	NR	Public
8	Nelson and Sons Nursery	8	NR	Irrigation
14	Dewar Nurseries	6	140	Irrigation
14	Dewar Nurseries	6	140	Irrigation
20	Hilltop Floral, Inc.	10	500	Irrigation
21	Hilltop Floral, Inc.	10	500	Irrigation
21	Hilltop Floral, Inc.	12	550	Irrigation
22	Orange Co. Public Utilities - Orange Village Water Treatment Plant	10	NR	Public
26	O.F. Nelson and Sons, Inc.	6	NR	Irrigation
26	O.F. Nelson and Sons, Inc.	12	420	Irrigation
26	O.F. Nelson and Sons, Inc.	12	420	Irrigation
27	O.F. Nelson and Sons, Inc.	4	150+	Potable
27	O.F. Nelson and Sons, Inc.	4	NR	Potable
30 ***	A. Duda and Sons	6	NR	Irrigation
30 ***	A. Duda and Sons	6	NR	Irrigation
42 ***	Herman Engelman Greenhouses	6	NR	Irrigation
42 ***	Herman Engelman Greenhouses	6	NR	Irrigation
42 ***	Herman Engelman Greenhouses	8	NR	Irrigation
80	Coca Cola	10	480	Irrigation
80	Coca Cola	8	512	Irrigation
80	Coca Cola	8	668	Irrigation
80	Coca Cola	8	664	Irrigation
17 21S 28E*	Emma Kazaros	4	406	Private
21 21S 28E*	Mamie Rencher Renner	8	430	Irrigation
21 21S 28E*	Alfred Barlow	NR	117	Private
22 21S 28E*	Baptist Churchsonship	4	175	Industrial
27 21S 28E*	Edgar Reffitt	4	120	Private
27 21S 28E*	Orange Primative Baptist Church	4	150	Public
27 21S 28E*	Apopka Infant/Toddler Center	4	175	Industrial
28 21S 28E*	Daisey Senior	4	130	Private
29 21S 28E*	Joe L. McNatt	4	105	Private

* Exact location unknown; section, township, range provided.

** Source: Data on file with St. Johns River Water Management District.

NR Not recorded by SJRWMD

\+ Cased depth, total depth unknown.

*** Beyond Radius

(+4) (+2) APPROXIMATE NUMBER OF WATER WELLS IDENTIFIED IN AREA

(+150) APPROXIMATE NUMBER OF RESIDENTIAL HOMES

EXHIBIT K

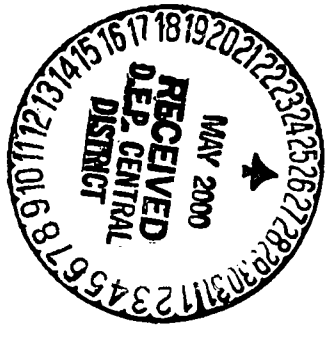


TABLE
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-1	MW-1	MW-2	MW-3
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	~50 - FEET	46 - FEET	42 - FEET	52 - FEET
SCREEN LENGTH	unknown	20- FEET	15 - FEET	15 - FEET
RISER ABOVE GROUND	~ 3 - FEET	~ 3 - FEET	~ 3 - FEET	~ 3 - FEET
TOC - NGVD	79.68'	109.26'	85.67'	95.92'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
05/10/99	31.76/47.92	27.45/81.81	36.91/48.76	48.62/47.30
05/19/99	-	27.36/81.90	37.01/48.66	48.48/47.44
12/14/99	25.55/54.13	23.40/85.86	30.37/55.30	42.32/53.60
03/09/00	28.40/51.28	25.98/83.28	33.44/52.23	46.85/49.07
04/24/00	31.08/48.60	26.90/82.36	35.99/49.68	48.68/47.24
04/28/00	31.20/48.48	26.81/82.45	36.20/49.47	48.88/47.04
05/15/00	32.38/47.30	27.05/82.21	37.29/48.38	50.26/45.66

C:\OFFICE\WPWIN\WPDOCS\PIT91L\DTW.WPD
Notes:

TABLE (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	**PZ-8a**	**PZ-8b**	**PZ-13a**	**PZ-13b**
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	75 - FEET	33 - FEET	73 - FEET	55 - FEET
SCREEN LENGTH	5 - FEET	10- FEET	5 - FEET	10 - FEET
RISER ABOVE GROUND	~ 2.8 - FEET	~ 2.83 - FEET	~ 2.83 - FEET	~ 2.95 - FEET
TOC - NGVD	78.11'	77.99'	103.08'	103.14'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	29.47/48.64	29.29/48.70	48.31/54.77	43.15/59.99
04/28/00	29.63/48.48	29.44/48.55	50.10/52.98	43.54/59.60
05/02/00	-	-	50.16/52.92	43.78/59.36
05/15/00	30.85/47.26	30.75/47.24	51.23/51.85	44.39/58.75

C:\OFFICE\WPWIN\WPDOCS\PIT91L\DTW.WPD
Notes:

TABLE (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Reading (NGVD)

WELL NO.	PZ-17a	PZ-17b	PZ-18	PZ-19
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
TOTAL DEPTH	50 - FEET	20 - FEET	30 - FEET	40 - FEET
SCREEN LENGTH	5 - FEET	10- FEET	10 - FEET	10 - FEET
RISER ABOVE GROUND	~ 2.89 - FEET	~ 2.93 - FEET	~ 3 - FEET	~ 4.24 - FEET
TOC - NGVD	61.93'	61.58'	97.96'	109.09'

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	12.30/49.63	12.01/49.57	Dry/<65	26.23/82.86
04/28/00	12.41/49.52	12.11/49.47	Dry/<65	26.28/82.81
05/02/00	-	-	-	26.28/82.81
05/15/00	13.48/48.45	13.18/48.40	Dry/<65	26.44/82.65

C:\OFFICE\WPWIN\WPDOCS\PIT91L\DTW.WPD
Notes:

TABLE (continued)
BUTTREY DEVELOPMENT TWO L.L.C.
Monitor Well/Piezometer Readings (NGVD)

WELL NO.	PZ-20	PZ-21	PZ-	PZ-
DIAMETER	2 - INCH	2 - INCH		
TOTAL DEPTH	15 - FEET	43 - FEET		
SCREEN LENGTH	10 - FEET	10- FEET		
RISER ABOVE GROUND	~ 2.90 - FEET	~ 2.08 - FEET		
TOC - NGVD	78.56'	91.46'		

DATE	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)	DTW/ELEVATION (Feet/NGVD)
04/24/00	17.77*/<60.79	44.69/46.77		
04/28/00	17.81*/<60.75	44.67/46.79		
05/15/00	17.80*/<60.76	44.68/46.78		

C:\OFFICE\WPWIN\WPDOCS\PIT91L\DTW.WPD
Notes: * reading taken at bottom of well

UNIVERSAL
ENGINEERING SCIENCES
Consultants in: Geotechnical Engineering • Threshold Inspection
Environmental Sciences • Construction Materials Testing

Offices in
• Orlando
• Gainesville
• Fort Myers
• Rockledge
• St. Augustine
• Daytona Beach
• West Palm Beach
• Jacksonville
• Ocala
• Tampa
• Debary

May 19, 2000

Buttrey Development LLC
P.O. Box 1029
Clarcona, Florida 32710

Attention: Mr. John Buttrey, Mr. Ed Chesney

Reference: Geotechnical Exploration Report
Borrow Pit 91/Keene Road Landfill
Orange County, Florida
Project No. 10942-001-02
Report No. 115929

Dear Mr. Buttrey and Mr. Chesney:

Universal Engineering Sciences has completed the borings for the evaluation of Borrow Pit 91/Keene Road Landfill. We understand that you propose to determine the suitability of the existing site soils for re-use as fill and also to determine where a confining layer(s) may be at this site, as well as permeability rates of selected soil samples. The scope of this portion of our work was planned with Ed Chesney and we proceeded upon your verbal authorization. Mr. Chesney provided us with a fax copy of the specified (by Buttrey Development LLC) boring locations. This office has previously performed services at this site and is also currently preparing a report on temporary monitoring wells/piezometers and slug testing to determine long-term seepage rates through the confining layer(s).

1.0 SUBSURFACE EXPLORATION

Our most recent subsurface exploration included twelve soil borings advanced to depths of between 40 feet and 90 feet, while performing the Standard Penetration Test (SPT). The termination depths were specified by you.

We performed the Standard Penetration Test (SPT) in each of these borings in general accordance with the procedures of ASTM D-1586, with continuous sampling performed to the terminal boring depth of 10 feet to detect slight variations in the soil profile at shallow depths. Generally, we sampled every 5 feet thereafter. At some depth ranges, you requested that we perform continuous sampling or take other additional samples. The basic procedure for the Standard Penetration Test is as follows: A standard split-barrel sampler is driven into the soil by a 140-pound hammer falling 30 inches. The number of blows needed to drive the sampler 1 foot, after seating 6 inches, is designated the penetration resistance, or N-value; this value is an index to soil strength and consistency.

3532 Maggie Blvd. • Orlando, Fl 32811 • (407) 423-0504 • Fax (407) 423-3106

In addition to our SPT borings, we explored the subsurface conditions at the site with five truck-mounted auger borings advanced to depths of between 40 feet and 65 feet, in general accordance with the procedures of ASTM D-1452.

We performed the auger borings by advancing a slender, solid-stem auger into the soil to the required depth. We evaluated the soil type by visually inspecting the cuttings recovered from the auger flights.

No boring location survey was available prior to our field exploration. Our drilling crew performed the noted soil borings at your specified locations. We anticipate that your surveying firm may recover our boring locations, including elevations (or that this has been completed already).

Jar samples of the soils encountered will be held in our laboratory for your inspection for 60 days and then discarded, unless we are notified otherwise.

2.0 LABORATORY EXPLORATION

The soil samples recovered from our soil borings were returned to our laboratory and then a geotechnical engineer visually examined and reviewed the field descriptions. We performed a series of laboratory testing consisting of ten soil fines content determinations (No. 200 sieve washes), twelve moisture content determinations, two gradation determinations, ten triaxial permeabilities and two porosity determinations. Tested input parameters for porosity are actually a calculation and not a directly measurable quantity. Inputs to that calculation include the soil unit weight, moisture content and specific gravity.

We performed these tests to aid in classifying the soils and to help to evaluate the general engineering characteristics of the site soils. See Appendix B: Boring Logs and Description of Testing Procedures, for further data and explanations.

Porosity was calculated on two samples from boring B-11, at 52 feet, and from boring B-14, at 57 feet. These samples had porosities of 0.472 and 0.503 (47.2 percent and 50.3 percent), respectively.

3.0 SUBSURFACE CONDITIONS

The boring locations and detailed subsurface conditions are illustrated in Appendix B: Boring Location Plan and Boring Logs. The classifications and descriptions shown on the logs are based upon visual and manual characterizations of the recovered soil samples as well as the previously noted laboratory tests. Also, see Appendix B: Soils Classification Chart, for further explanation of the symbols and placement of data on the Boring Logs.

The soil composition encountered by our most recent soil borings varied from "clean" (less than 5 percent soil fines - silt and/or clay) fine sand to silty sand/clayey sand to silt/clay, although the higher fines content soils were generally encountered at a greater depth. Relative densities typically ranged from very loose to medium dense in the upper soils and ranged to dense to very dense in some of the deeper sampling intervals.

We did not encounter groundwater in each of our soil borings for this project. Where encountered, the water table between depths of 7 and 45 feet below the existing grade (as of the time each boring was performed).

4.0 CLOSURE

We trust the information presented herein is sufficient for your present needs. As you review this information, should you have additional questions or require further assistance, please contact us.

Respectfully submitted,
UNIVERSAL ENGINEERING SCIENCES, INC.

Brendan S. O'Brien, P.E.
Senior Project Engineer

5/19/00

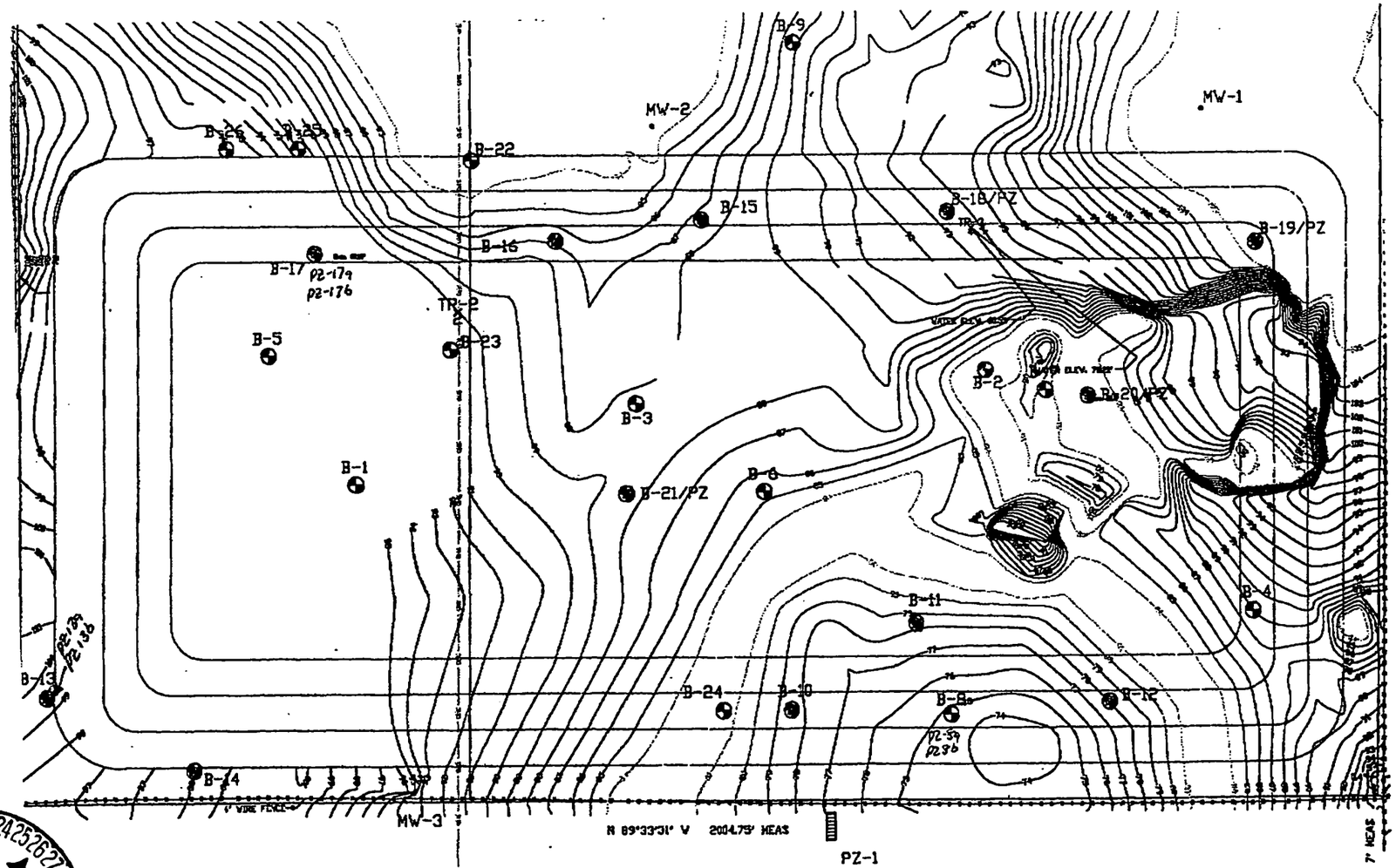
Bruce H. Woloshin, P.E.
P.E. No. 36734
Manager - Geotechnical Engineering

BSO/BHW:cc

Distributions: Client (3)

Attachments

Boring Location Plan
Boring Logs B-10 through B-26
Soils Classification Chart
Description of Laboratory Test Procedures
Soil Gradation Curves



LEGEND

STANDARD PENETRATION TEST BORING LOCATION

THIS DRAWING REPRODUCED FROM PLAN PROVIDED BY CLIENT.

0 200
APPROX. SCALE (FT.)

FOR: BISHOP & BUTTREY

DRAWN BY:	G.B.	DATE:	5/19/00
CHECKED BY:	BJO	DATE:	5/19/00
REPORT NO:	115929	SCALE:	AS SHOWN

10942-001-02

BISHOP & BUTTREY NO. 91
KEENE ROAD BORROW PIT/LANDFILL
ORANGE COUNTY, FLORIDA

BORING LOCATION PLAN

UNIVERSAL
ENGINEERING SCIENCES

FIGURE: A-1

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.2

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-10** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
45												
	X	4-7-8	15			– brown						
50						BORING TERMINATED AT 50.0'						
55												
60												
65												
70												
75												
80												
85												
90												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.1

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-10** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 4/4/00
DATE FINISHED: 4/4/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose orange/brown fine SAND [A-3]						
	X	2-2-3	5									
	X	3-2-3	5									
	X	2-2-2	4			-- very loose						
5	X	2-2-2	4									
	X	2-2-2	4			-- light brown						
	X	3-3-3	6			-- loose						
10												
	X	5-8-9	17			-- medium dense; light orange						
15												
	X	4-6-9	15									
20												
	X	4-6-7	13			-- brown						
25												
	X	6-7-12	19			-- gray/brown						
30												
	X	7-10-14	24			-- light gray						
35												
	X	6-8-14	22									
40												
	X	4-8-9	17			-- gray						
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.3

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-11** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 4/5/00
DATE FINISHED: 4/5/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Very loose brown fine SAND [A-3]						
	X	1-2-1	3									
	X	2-1-1	2			– orange						
5	X	1-0-0	WOR									
	X	1-1-1	2			– light gray						
	X	2-2-2	4									
	X	2-1-2	3									
10												
						– loose; gray, with some orange/brown mottling						
	X	2-3-5	8									
15												
						– light orange/brown						
	X	2-3-7	10									
20												
						– brown						
	X	3-3-5	8									
25												
						– medium dense; gray/brown						
	X	7-12-15	27									
30												
	X	5-7-10	17									
35												
	X	8-8-11	19									
40												
	X	7-11-15	26									
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.4

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: B-11
SECTION: TOWNSHIP: RANGE:

SHEET: 2 of 2

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
45												
						Loose light gray clayey fine SAND, mottled with red [A-2-6]						
50	X	5-4-5	9									
	■						61	28			9.59E-05	
	X	3-5-7	12			Medium dense light gray to white silty fine SAND with clay [A-2-4]						
55	X	2-3-2	5			Loose light gray clayey fine SAND with silt [A-2-6]						
						Very soft light gray to white CLAY with fine sand [A-7-6]						
60	X	1-1-2	3			BORING TERMINATED AT 60.0'						
65												
70												
75												
80												
85												
90												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.5

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: B-12 SHEET: 1 of 1
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC

LOCATION: BORING LOCATIONS SELECTED BY CLIENT

REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 4/5/00
DATE FINISHED: 4/5/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose light brown fine SAND [A-3]						
		2-2-3	5									
		3-2-3	5			-- light orange brown						
5		3-3-3	6			-- very loose						
		3-2-2	4									
		2-2-3	5			-- loose; very light brown						
		3-2-3	5									
10												
		3-5-8	13			-- medium dense; very light brown to white						
15												
		4-5-7	12									
20												
		8-8-15	23			Medium dense light brown fine SAND with silt [A-2-4]						
25												
		2-3-4	7			Medium stiff very light gray CLAY with lenses of fine sand [A-7-6]						
30												
		1-1-2	3			Very loose light gray to white clayey fine SAND [A-2-6]						
35												
		0-0-1	1			-- light orange/brown						
40						BORING TERMINATED AT 40.0'						
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.6

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-13** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED:
DATE FINISHED:
DRILLED BY: UES- ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
	X	2-1-2	3			Very loose light brown fine SAND [A-3]						
	X	2-2-1	3									
5	X	1-1-2	3									
	X	2-2-3	5			Loose orange clayey fine SAND [A-2-6]						
	X	4-6-12	18			-- medium dense						
	X	14-16-19	35			-- dense						
10												
	X	5-7-12	19			Medium dense light orange/brown mottled fine SAND [A-3]						
15												
	X	5-11-14	25			-- very light gray to white						
20												
	X	6-10-15	25									
25												
	X	6-7-11	18									
30												
						Soft light orange/brown silty CLAY with sand [A-7-5]						
	X	1-2-1	3									
35												
	X	3-2-3	5			-- medium stiff; light gray						
40												
	X	1-1-2	3			Very loose gray clayey fine SAND with light brown mottling [A-2-6]						
	X	1-2-4	6			-- loose						
	X	1-4-4	8			-- more orange						
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.7

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: B-13
SECTION: TOWNSHIP: RANGE:

SHEET: 2 of 2

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
45												
		0-3-5	8									
		3-4-5	9			Loose light brown silty fine SAND with seams of orange [A-4]						
		3-5-6	11			-- medium dense						
50		1-2-2	4			-- very loose						
		3-5-7	12			-- medium dense						
		6-8-12	20			Medium dense light brown silty fine SAND with some cemented silty sand [A-2-4]						
		4-7-20	27									
55		5-6-20	26			-- gray/green, with clay	44	42			1.25E-03	
		5-9-16	25									
60		6-9-18	27									
		6-10-11	21			-- dense						
		6-16-20	36			-- with a trace of shell fragments						
65		2-13-20	33			-- few shell fragments, trace of phosphate nodules						
		8-13-31	44			Very dense gray clayey SAND, well-cemented, with phosphate nodules [A-6]						
		16-27-100	127									
		100	100/3"									
70												
		55-80	80+									
75						-- few phosphate nodules						
		18-21-80	101									
80						BORING TERMINATED AT 80.0'						
85												
90												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.8

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: B-14 SHEET: 1 of 2
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC

LOCATION: BORING LOCATIONS SELECTED BY CLIENT

REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 22.5
DATE OF READING: 4/4/00
EST. W.S.W.T. (ft):

DATE STARTED: 4/4/00
DATE FINISHED: 4/4/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
	X	2-2-2	4			Very loose light brown fine SAND with large root pieces [A-3]						
	X	3-2-3	5									
5	X	4-6-10	16			Medium dense orange/brown mottled clayey fine SAND [A-2-6]						
	X	11-18-18	36			– dense						
	X	17-21-18	39									
	X	20-16-18	34									
10												
						Medium dense light gray to white fine SAND [A-3]						
15	X	6-10-12	22									
						– dense; mottled with orange						
20	X	8-16-21	37									
				▼		– medium dense; no mottling						
25	X	6-10-11	21									
						Soft light brown silty CLAY with sand lenses [A-7-5]						
30	X	2-1-2	3									
						Loose light brown clayey fine SAND with silt [A-2-6]						
35	X	0-4-5	9									
40	X	2-2-3	5									
45	X	2-3-5	8									

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.9

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-14** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
45												
		2-3-4	7			Medium stiff light gray sandy SILT [A-5]						
50		2-4-6	10			Stiff tan CLAY with fine sand [A-7-6]						
		4-5-9	14			Medium dense gray clayey fine SAND with a trace of phosphate nodules [A-2-6]						
55							28	31			3.48E-03	
		8-22-10	32			Hard tan sandy CLAY, well-cemented [A-7-5]						
60						BORING TERMINATED AT 58.5'						
65												
70												
75												
80												
85												
90												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.10

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-15** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 4/3/00
DATE FINISHED: 4/3/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Medium dense orange/brown fine SAND [A-3]						
		4-5-6	11			-- loose; orange						
		5-4-4	8									
5		2-3-3	6			-- light brown						
		2-3-2	5			-- very loose						
		2-2-2	4									
		3-3-3	6									
10												
		2-3-4	7			-- loose; light gray/brown						
15												
		4-4-8	12			-- medium dense; light gray						
20												
		6-8-12	20									
25		13-9-7	16			Medium dense light gray to off-white clayey fine SAND [A-2-4]						
		5-4-3	7			Medium stiff light gray sandy CLAY [A-6]						
		4-6-4	10			Loose light gray to white clayey fine SAND [A-2-4]						
30		5-5-9	14			-- medium dense; with orange mottling						
		3-5-4	9			-- loose						
		3-2-3	5			-- orange						
35		3-2-3	5									
		0-1-3	4			Soft dark orange sandy CLAY [A-6]						
		2-2-3	5			-- medium stiff						
		1-1-2	3			Very loose orange clayey fine SAND [A-2-6]						
40		3-3-3	6			-- loose						
		2-3-4	7			-- brown/orange						
		2-3-2	5			-- with fragmented limestone & phosphate nodules						
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.11

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-15** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
45	X	4-4-5	9									
	X	6-8-20	28			Very stiff tan sandy CLAY, with some cementation [A-6] – very hard	44	44			4.84E-04	
	X	7-20-40	60									
50						BORING TERMINATED AT 49.0'						
55												
60												
65												
70												
75												
80												
85												
90												

02887

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.12

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-16** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 4/3/00
DATE FINISHED: 4/3/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Loose orange/brown fine SAND [A-3]						
	X	3-4-5	9									
	X	3-3-3	6									
5	X	2-2-1	3			-- very loose; orange						
	X	3-2-3	5			-- loose						
	X	2-2-2	4			-- very loose						
	X	3-3-3	6			-- loose						
10												
15	X	2-4-4	8			-- gray/brown						
20	X	3-4-4	8			-- brown						
25	X	4-5-7	12			-- medium dense						
30	X	5-7-10	17									
35	X	7-10-10	20			-- gray/brown						
40	X	3-5-6	11									
45	X	4-6-7	13									

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115979
PAGE:	A-2.13

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-16** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
45												
50	X	6-10-12	22									
	X	5-7-9	16			-- light gray						
55												
60	X	6-12-12	24									
	X	7-9-13	22			-- light gray/brown						
65												
70	X	8-11-14	25			BORING TERMINATED AT 70.0'						
75												
80												
85												
90												

02867

UNIVERS. . ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.14

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-17** SHEET: **1 of 3**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 7.0
DATE OF READING: 3/31/00
EST. W.S.W.T. (ft):

DATE STARTED: 3/31/00
DATE FINISHED: 3/31/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Medium dense light brown fine SAND [A-3]						
		5-6-8	14									
		8-9-10	19									
5		10-7-7	14									
		4-4-4	8	▼		– loose						
		2-3-3	6									
		2-3-4	7									
10		3-2-3	5									
		4-8-8	16			– medium dense						
		10-11-11	22			– light gray to white						
15		2-4-6	10			– loose						
		8-9-11	20			– medium dense						
		5-7-9	16									
20		4-8-9	17				2	23				
		2-3-4	7			– loose; light brown, with a trace of silt						
		2-4-7	11			– medium dense						
		3-5-6	11									
25		4-8-9	17									
		4-7-11	18									
		5-6-10	16									
30		4-5-4	9			Loose light brown fine SAND with silt [A-3, A-2-4]						
		4-5-7	12			Medium dense brown fine SAND [A-3]						
		5-8-9	17									
35		5-7-7	14									
		5-7-9	16			– light brown						
		4-7-8	15			– light gray/brown						
		4-6-9	15									
40		4-7-8	15									
		3-8-9	17									
		8-9-9	18									
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.15

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-17** SHEET: **2 of 3**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
45	X	8-14-16	30									
	X	6-9-12	21									
	X	5-9-9	18									
50	X	6-8-8	16			– light gray, fine to medium-grained	5	20				
	X	8-12-12	24									
	X	5-7-11	18									
	X	5-5-10	15									
55	X	6-10-11	21									
	X	6-7-8	15									
	X	6-8-10	18									
60	X	4-6-6	12									
	X	4-6-8	14									
65												
	X	6-8-9	17									
70												
	X	6-8-9	17			– with blue-gray streaks						
75												
	X	6-10-10	20									
80												
	X	8-11-12	23									
85												
	X	7-9-12	21									
90												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.16

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-17** SHEET: **3 of 3**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
90						BORING TERMINATED AT 90.0'						
95												
100												
105												
110												
115												
120												
125												
130												
135												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.17

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-18** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 4/5/00
DATE FINISHED: 4/5/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Loose light brown fine SAND with a trace of small roots [A-3]						
		4-4-5	9									
		3-3-4	7									
						-- light brown						
5		2-3-3	6									
						-- very loose						
		2-1-2	3									
						-- loose; light orange/brown						
		2-2-3	5									
		2-3-3	6									
10												
						Medium dense light gray/orange clayey fine SAND [A-2-6]						
		6-8-20	28									
15												
						-- dense; fine to medium-grained						
		7-14-21	35									
20												
						-- medium dense; orange, fine-grained						
		2-5-6	11									
25												
						-- loose						
		2-3-5	8									
30												
						Medium stiff orange/brown mottled sandy CLAY [A-6]						
		1-2-3	5									
35												
						Loose orange clayey fine SAND [A-2-6]						
		0-2-3	5									
40												
						Soft brown sandy CLAY with some limestone fragments [A-6]						
		0-0-4	4									
45												

867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.18

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-18** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
45												
	☒	40-100	100/6"			– very hard, well-cemented						
50						BORING TERMINATED AT 50.0'						
55												
60												
65												
70												
75												
80												
85												
90												

02867

UNIVERS. _ ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.19

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-19** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 4/6/00
DATE FINISHED: 4/6/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Very loose light brown fine SAND [A-3]						
		3-2-2	4									
		3-2-2	4			– with small root piece						
5		2-1-2	3			– loose						
		2-2-3	5									
		3-3-4	7									
		5-5-4	9									
10												
						Medium dense light brown clayey fine SAND [A-2-6]						
15		5-6-8	14									
						– light orange/brown, mottled						
20		7-8-4	12									
						Medium dense light brown fine SAND with clay [A-2-4]						
25		5-7-8	15									
						Soft light orange/brown sandy CLAY [A-6]						
30		0-0-3	3									
						Very loose light orange/brown clayey fine SAND [A-2-6]						
35		2-2-2	4									
						– medium dense; gray/brown						
40		5-7-11	18									
		5-7-9	16									
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.20

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-19** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
45												
50	X	7-14-20	34			– dense; with abundant shell fragments	14	29			6.32E-03	
	⊠	100	100/3.5"			– very dense, few shell fragments, well-cemented						
55						BORING TERMINATED AT 54'						
60												
65												
70												
75												
80												
85												
90												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.21

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-20** SHEET: **1 of 1**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 8.7
DATE OF READING: 4/6/00
EST. W.S.W.T. (ft):

DATE STARTED: 4/6/00
DATE FINISHED: 4/6/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0												
	X	6-9-11	20			Medium dense orange fine SAND with clay [A-2-4]						
	X	7-6-8	14			Medium dense orange clayey fine SAND, mottled with light gray [A-2-6]						
5	X	8-7-8	15			Stiff orange sandy CLAY [A-6]						
	X	7-7-10	17			Medium dense orange clayey SAND [A-2-6]						
	X	7-7-7	14	▼								
	X	6-5-6	11									
10						– loose; light brown						
	X	2-3-4	7									
15												
	X	2-3-2	5									
20												
	X	3-3-4	7									
25												
	X	1-0-0	WOR			Very soft light brown sandy CLAY, partially cemented [A-6]						
30												
	X	8-8-4	12			Medium densse brown clayey SAND with some cemented sand & limestone fragments [A-2-6]	54	41			4.74E-04	
35												
	X	1-0-1	1			– very loose						
40						BORING TERMINATED AT 40.0'						
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.22

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-21** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft):
DATE OF READING:
EST. W.S.W.T. (ft):

DATE STARTED: 4/3/00
DATE FINISHED: 4/3/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Loose light gray/brown fine SAND [A-3]						
		2-2-3	5			-- very loose						
		3-2-2	4			-- with a small root piece						
5		2-2-2	4			-- no roots						
		2-2-2	4			-- loose; very light gray to white						
		3-4-4	8									
		4-4-4	8			Loose light orange/brown clayey fine SAND [A-2-6]						
10						Dense light gray fine SAND [A-3]						
		6-16-20	36									
15						Medium dense very light gray to white clayey fine SAND [A-2-6]						
20		4-5-9	14									
		5-7-8	15			-- loose						
		4-4-5	9									
		3-4-5	9			-- medium dense						
25		4-5-6	11			-- loose; mottled with orange						
		2-2-4	6									
		1-2-3	5			Medium stiff light gray mottled with orange sandy CLAY [A-7-6]						
30		3-3-3	6									
		0-2-4	6									
		1-2-4	6			Loose light gray clayey fine SAND mottled with orange [A-2-6]						
35		0-1-2	3			-- loose						
		2-3-4	7									
		0-1-1	2			Very soft orange/brown sandy CLAY with cemented fine SAND [A-6]						
		0-0-3	3			-- soft; with some phosphate nodules						
40		7-8-16	24			-- very stiff						
		8-10-24	34			-- hard	48	42			1.47E-04	
		8-20-22	42			-- light gray, with some weathered limestone fragments						
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.23

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-21** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
45	X	9-18-30	48			-- very hard						
	X	8-100	100/5"									
		100	100/.25"			BORING TERMINATED AT 47.5'						
50												
55												
60												
65												
70												
75												
80												
85												
90												

02867

EXHIBIT M

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.26

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-23** SHEET: **1 of 1**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 7.0
DATE OF READING: 4/6/00
EST. W.S.W.T. (ft):

DATE STARTED: 4/6/00
DATE FINISHED: 4/6/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Very light gray fine SAND with light brown mottling [A-3]						
5				▼		Very light brown fine SAND with silt [A-2-4]						
10						Gray/light brown fine SAND [A-3]						
15						– light gray						
20												
25						Gray clayey SAND [A-2-6]						
30												
35						– orange/brown	25	29			1.23E-04	
40						BORING TERMINATED AT 40.0'						
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.27

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-24** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC

LOCATION: BORING LOCATIONS SELECTED BY CLIENT

REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 31.5
DATE OF READING: 4/7/00
EST. W.S.W.T. (ft):

DATE STARTED: 4/7/00
DATE FINISHED: 4/7/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Orange/brown fine SAND [A-3]						
5						– light orange/brown						
10												
15						– light brown						
20												
25												
30				▼		– light gray to white						
35						Very light gray to white clayey fine SAND [A-2-6] – with orange – no orange						
40												
45												

02887

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.28

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: B-24
SECTION: TOWNSHIP: RANGE:

SHEET: 2 of 2

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
45						Light gray sandy CLAY (A-6]						
							29	27			1.42E-04	
50						BORING TERMINATED AT 50.0'						
55												
60												
65												
70												
75												
80												
85												
90												

02887

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.29

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-25** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 40.0
DATE OF READING: 4/17/00
EST. W.S.W.T. (ft):

DATE STARTED: 4/17/00
DATE FINISHED: 4/17/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Light brown fine SAND [A-3]						
						-- light orange/brown						
5												
						-- brown						
10												
						-- light brown						
15												
20												
25												
30												
35												
40				▼								
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.30

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: B-25
SECTION: TOWNSHIP: RANGE:

SHEET: 2 of 2

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
45						-- light gray						
50												
55												
60												
65						BORING TERMINATED AT 65.0'						
70												
75												
80												
85												
90												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.31

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-26** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC

LOCATION: BORING LOCATIONS SELECTED BY CLIENT

REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 45.0
DATE OF READING: 4/18/00
EST. W.S.W.T. (ft):

DATE STARTED: 4/18/00
DATE FINISHED: 4/18/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
0						Light orange/brown fine SAND [A-3]						
5												
10												
15												
20												
25						– very light brown						
30						– very light gray to white – very light brown						
35						– very light gray to white, with some coarse sand						
40						Very light gray mottled with orange clayey SAND [A-2-6]						
45				▼		– orange, with some coarse sand						

02887

UNIVER. .L ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.32

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-26** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

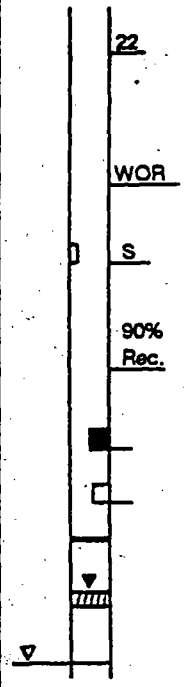
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./DAY)	ORG. CONT. (%)
45				▼								
						– with lenses of clay						
						– less lenses of clay						
50							24	23			3.80E-04	
						BORING TERMINATED AT 50.0'						
55												
60												
65												
70												
75												
80												
85												
90												

02867

UNIVERSAL
ENGINEERING SCIENCES

KEY TO BORING LOGS

SYMBOLS



22	Number of Blows of a 140-lb Weight Falling 30 In. Required to Drive Standard Spoon One Foot
WOR	Weight of Drill Rods
S	Thin-Wall Shelby Tube Undisturbed Sampler Used
90% Rec.	Percent Core Recovery from Rock Core-Drilling Operations
	Sample Taken at this Level
	Sample Not Taken at this Level
	Change in Soil Strata
	Free Ground Water Level
	Seasonal High Ground Water Level

RELATIVE DENSITY (sand-silt)

Very Loose - Less Than 4 Blows/Ft.
Loose - 4 - 10 Blows/Ft.
Medium - 10 to 30 Blows/Ft.
Dense - 30 to 50 Blows/Ft.
Very Dense - More Than 50 Blows/Ft.

CONSISTENCY (clay)

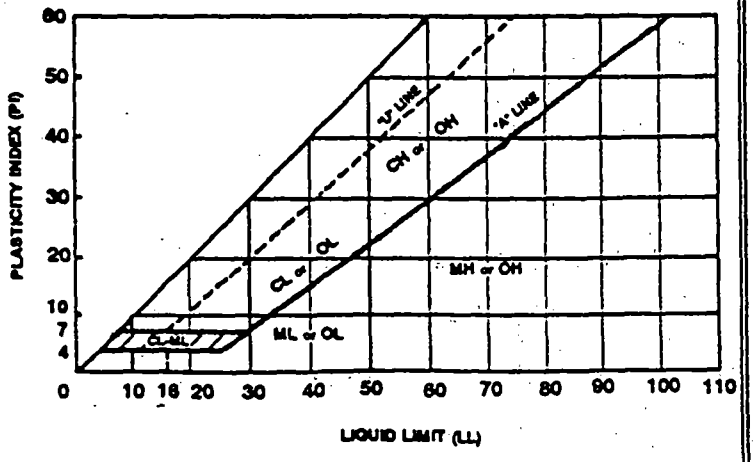
Very Soft - Less Than 2 Blows/Ft.
Soft - 2 to 4 Blows/Ft.
Medium - 4 to 8 Blows/Ft.
Stiff - 8 to 15 Blows/Ft.
Very Stiff - 15 to 30 Blows/Ft.
Hard - More Than 30 Blows/Ft.

UNIFIED CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS More than 50% retained on No. 200 sieve*	GRAVELS 50% or more of coarse fraction retained on No. 4 sieve	CLEAN GRAVELS	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS More than 50% of coarse fraction passes No. 4 sieve	CLEAN SANDS	SW	Well-graded sands and gravelly sands, little or no fines
			SP	Poorly graded sands and gravelly sands, little or no fines
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS 50% or more passes No. 200 sieve*	SILTS AND CLAYS Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silty clays of low plasticity
	SILTS AND CLAYS Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts
			CH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat, muck and other highly organic soils

* Based on the material passing the 3-in. (75-mm) sieve.

PLASTICITY CHART



DESCRIPTION OF LABORATORY TEST PROCEDURES

WASH 200 TEST - ASTM D-1140

The Wash 200 test is performed by passing a representative soil sample over a No. 200 sieve and rinsing with water. The percentage of the soil grains passing this sieve is then calculated.

MOISTURE CONTENT DETERMINATION - ASTM D-2216

Moisture content is the ratio of the weight of water to the dry weight of soil. Moisture content is measured by drying a sample at 105 degrees Celsius. The moisture content is expressed as a percent of the oven dried soil mass.

BACK-PRESSURE SATURATED, TRIAXIAL PERMEABILITY TEST - ASTM D-5084

This test was performed in general accordance with ASTM D-5084, "Hydraulic Conductivity of Saturated Porous Materials using a Flexible Wall Permeameter." In this test an undisturbed soil sample is placed in a flexible wall permeameter and back pressure saturated using pressurized water until the sample achieves at least 95 percent saturation. Once the sample is saturated, a hydraulic gradient is induced across the sample and the time rate of fluid movement through the sample is recorded. The permeability of the soil sample is defined as the amount of fluid flow per unit area as a function of time.

SOIL GRADATION TEST - ASTM D-422

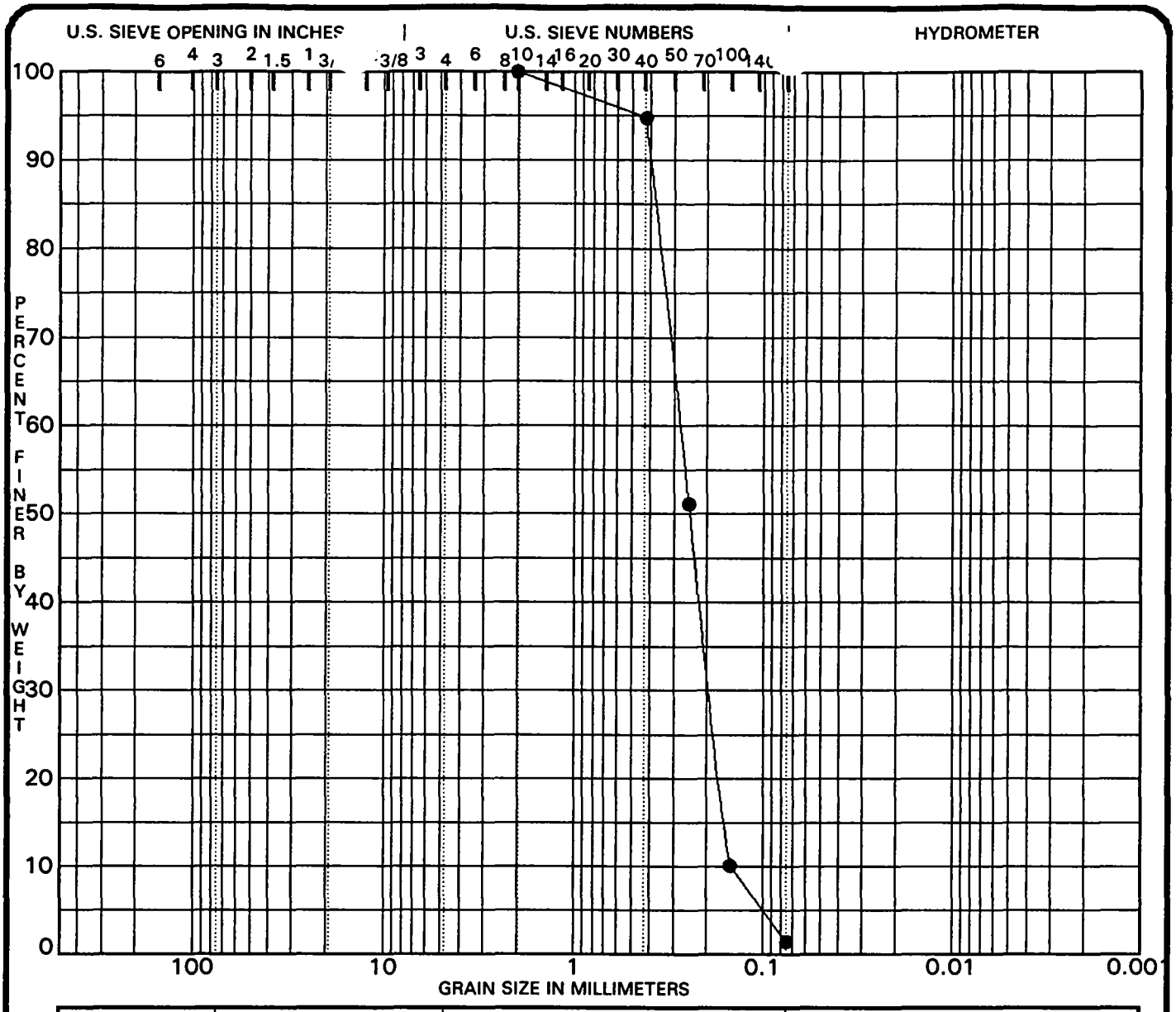
The soil gradation test is performed by passing a representative soil sample over a standard set of nested sieves. The percentage of the soil grains retained on each sieve are measured and a grain size distribution curve is determined.

SPECIFIC GRAVITY - ASTM D-854

A pycnometer (a flask or bottle) is filled with the soil sample and water. The pycnometer is then allowed to sit for at least 12 hours. Next the dissolved air is evacuated from the water and the flask is refilled. The specific gravity is then calculated from the measured quantities, corrected for temperature.

UNIT WEIGHT - ASTM D-2937

The unit weight of the soil is determined by measuring the mass of soil in a drive cylinder and dividing this value by the volume of the cylinder.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
●	B-17	20.0	POORLY GRADED SAND SP	23				0.89	1.9

	Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-17	20.0	2.00	0.28	0.192	0.1488	0.0	98.5	1.5	

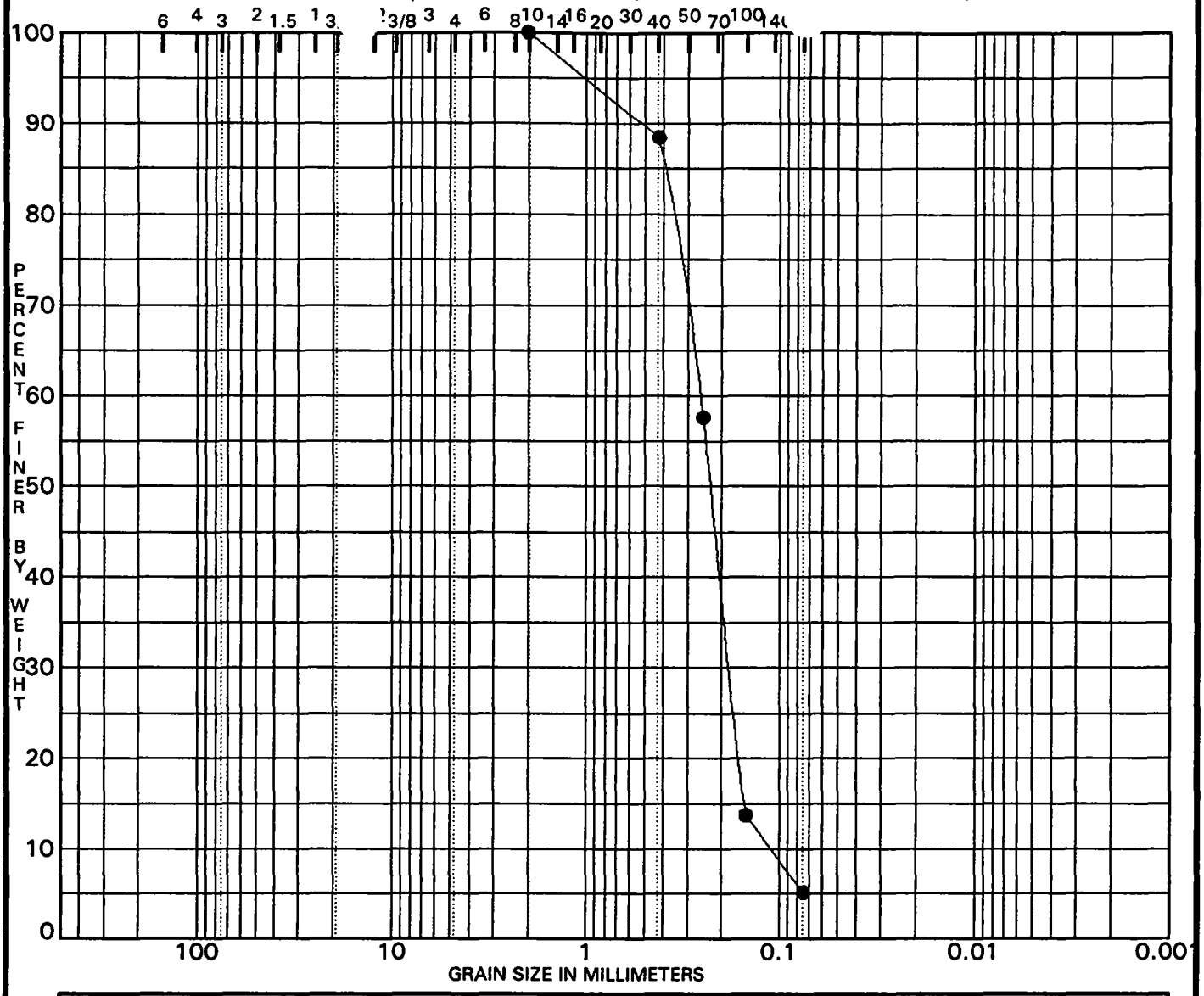
PROJECT PIT #91--LANDFILL - FL

JOB NO. 10942-001-02/2867
DATE 5/11/00

GRADATION CURVES

UNIVERSAL ENGINEERING SCIENCES

ORLANDO, FLORIDA



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● B-17	50.0		20				1.14	2.3

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-17	50.0	2.00	0.26	0.181	0.1109	0.0	94.8	5.2	

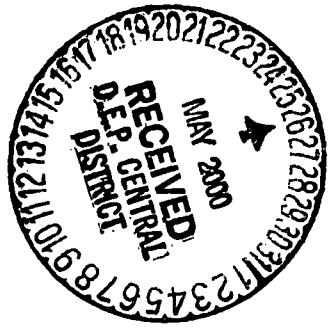
PROJECT PIT #91--LANDFILL - FL

JOB NO. 10942-001-02/2867
DATE 5/11/00

GRADATION CURVES

UNIVERSAL ENGINEERING SCIENCES
ORLANDO, FLORIDA

EXHIBIT L



FILE COPY

UNIVERSAL
ENGINEERING SCIENCES

SLUG TEST AND PUMPING TEST RESULTS
B & B #91 - KEENE ROAD BORROW PIT / LANDFILL

UES Project No. 17862-085-07
Report No. 114026
Date: MAY 2000

Prepared For:

Buttrey Development, LLC
6239 Edgewater Drive, Suite D - 1
Orlando, Florida 32810

Prepared By:

Universal Engineering Sciences, Inc.
3532 Maggie Boulevard
Orlando, Florida 32811
(407)423-0504

5/23/00

Eric Krebill, P.G.
Senior Geologist
Florida License No. 0001162

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.24

PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-22** SHEET: **1 of 2**
SECTION: TOWNSHIP: RANGE:

CLIENT: BUTTREY DEVELOPMENT LLC
LOCATION: BORING LOCATIONS SELECTED BY CLIENT
REMARKS:

G.S. ELEVATION (ft):
WATER TABLE (ft): 34.0
DATE OF READING: 4/7/00
EST. W.S.W.T. (ft):

DATE STARTED: 4/7/00
DATE FINISHED: 4/7/00
DRILLED BY: UES - ORLANDO
TYPE OF SAMPLING: ASTM D-1452

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
0						Orange brown fine SAND [A-3]						
5						Gray silty fine SAND with pieces of orange clayey fine sand [A-2-4]						
10						Light brown fine SAND [A-3]						
15												
20												
25												
30												
35				▼		– light gray Light gray fine SAND [A-3] (cont.)						
40												
45												

02867

UNIVERSAL ENGINEERING SCIENCES
BORING LOG

PROJECT NO.:	10942-001-02
REPORT NO.:	115929
PAGE:	A-2.25

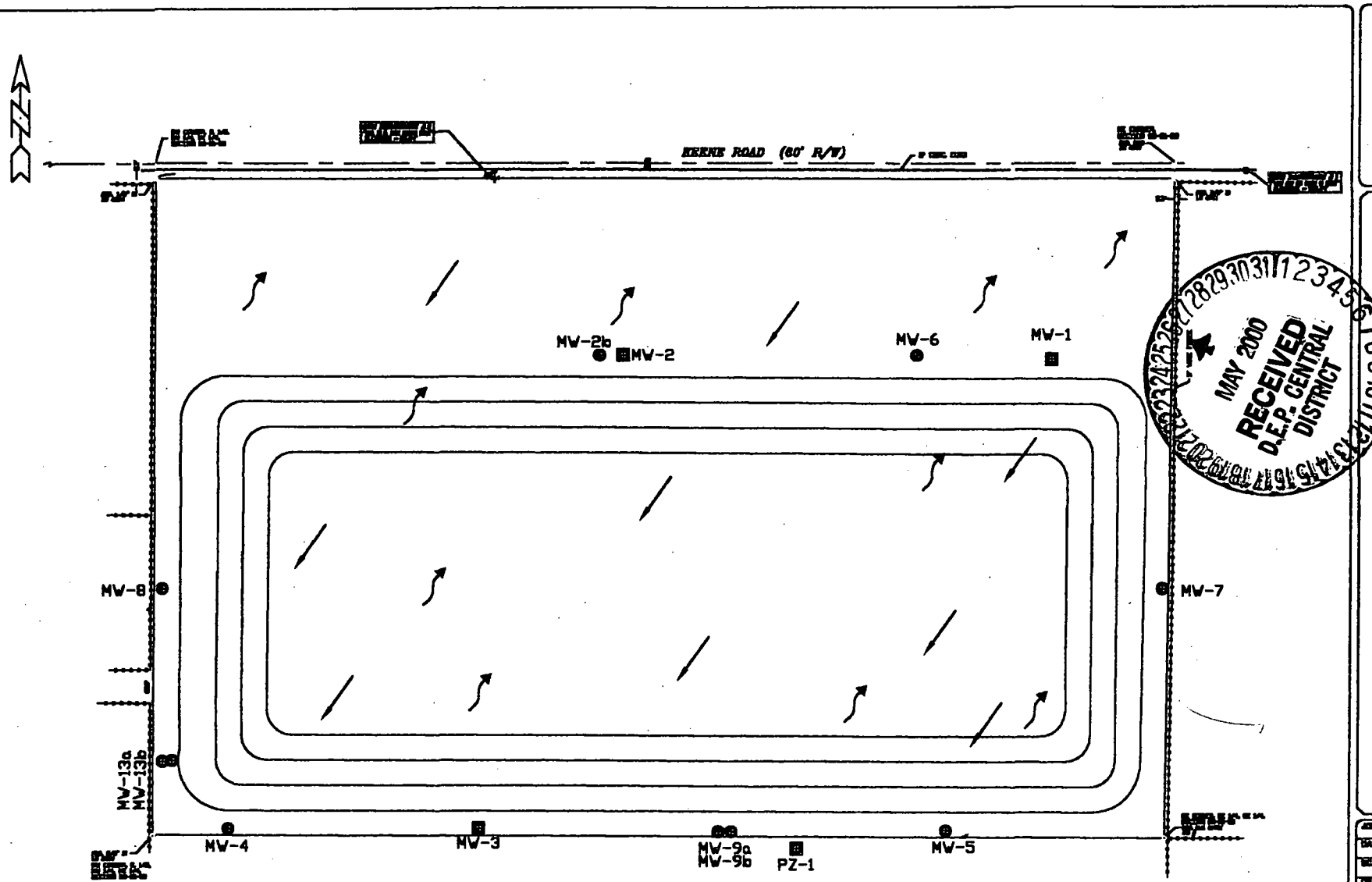
PROJECT: BORROW PIT 91
KEENE ROAD LANDFILL
APOPKA, FLORIDA

BORING DESIGNATION: **B-22** SHEET: **2 of 2**
SECTION: TOWNSHIP: RANGE:

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS LL	ATTERBERG LIMITS PI	K (FT./ DAY)	ORG. CONT. (%)
45												
50												
55						BORING TERMINATED AT 55.0'						
60												
65												
70												
75												
80												
85												
90												

02867

EXHIBIT N



2610

LEGEND

- MONITOR WELLS – EXISTING
- MONITOR WELLS – PROPOSED
- FLORIDAN AQUIFER FLOW DIRECTION
- SURFICIAL AQUIFER FLOW DIRECTION

300 0 300

Scale 1" = 300'

REFER TO GROUNDWATER MONITORING PLAN FOR SPECIFIC DETAILS

BISHOP & BUTTREY, INC.

KEENE ROAD DISPOSAL CLASS I LANDFILL

BUTTREY DEVELOPMENT, L.L.C.

DRAWN BY	EC
CHKD BY	EC

REVISIONS
1 MAY 2000 FDEP

MONITOR WELL LOCATIONS

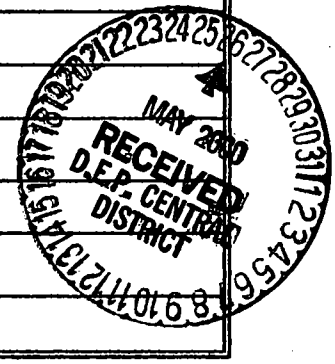
FIGURE 4

TABLE 2
MONITOR WELL DESIGN

WELL NO.	MW-1*	MW-2*	MW-3*	MW-4
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
GROUND ELEV.	105' NGVD	82' NGVD	92' NGVD	97' NGVD
TOTAL DEPTH bls	45 - FEET	40 - FEET	50 - FEET	55 - FEET
CASING LENGTH	25 - FEET	25 - FEET	35 - FEET	40 - FEET
SCREEN LENGTH	20 - FEET	15 - FEET	15- FEET	15 - FEET
SLOT SIZE	.01 INCH	.01 INCH	.01 INCH	**
SCREEN INTERVAL	60'-80' bls	42' to 57' bls	42' to - 57' bls	42' to 57' bls
FILTER SAND	30/45 SILICA	30/45 SILICA	30/45 SILICA	***
FILTER SEAL	Bentonite	Bentonite	Bentonite	3' fine sand seal

WELL NO.	MW-5	MW-6	MW-7	MW-8
DIAMETER	2 - INCH	2 - INCH	2 - INCH	2 - INCH
GROUND ELEV..	80' NGVD	98' NGVD	102' NGVD	98' NGVD
TOTAL DEPTH bls	42 - FEET	45 - FEET	55 - FEET	55 - FEET
CASING LENGTH	27 - FEET	25 - FEET	35 - FEET	35- FEET
SCREEN LENGTH	15 - FEET	20 - FEET	20- FEET	20- FEET
SLOT SIZE	**	**	**	**
SCREEN INTERVAL	40'-55' bls	53' to 73' bls	42' to 62' bls	43' to 63' bls
FILTER SAND	***	***	***	***
FILTER SEAL	3' fine sand seal	3' fine sand seal	3' fine sand seal	3' fine sand seal

WELL NO.	MW-9a	MW-9b	MW-2b	
DIAMETER	2 - INCH	2 - INCH	2 - INCH	
GROUND ELEV.	78.5' NGVD	78.5' NGVD	82' NGVD	
TOTAL DEPTH bls	37 - FEET	75 - FEET	75 - FEET	
CASING LENGTH	22 - FEET	70 - FEET	70 - FEET	
SCREEN LENGTH	15 - FEET	5 - FEET	5 - FEET	
SLOT SIZE	**	**	**	
SCREEN INTERVAL	41.5'-56.5' bls	3.5' to 8.5' bls	7' to 12' bls	
FILTER SAND	***	***	***	
FILTER SEAL	3' fine sand seal	3' fine sand seal	3' fine sand seal	



Notes: All wells constructed of schedule 40 PVC. All wells protected above the surface with locking 4 x 4 protective metal well casings. * indicates a previously installed well. ** slot size pending laboratory testing. *** filter sand pending laboratory testing. C:\OFFICE\WPWIN\WPDOCS\PIT91L\MW_TAB.WPD

Florida Department of
Environmental Protection

Keene Rd - Buttrey

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

MEETING ATTENDANCE RECORD

Purpose: New Keene Road Landfill

Date: APRIL 15, 1999

Name (please print)	Affiliation
GEORGE CHERYAN	DEP
ED CHESNEY	BISHOP & BUTTREY, INC.
Chris Kohl	Chris Kohl Training + Consulting Svcs.
Jim Bradner	FDEP
Bret LeRoux	FDEP
Jennifer Deal	FDEP

Continued on reverse side

Orange County SV

Florida Department of Environmental Protection

Lawton Chiles
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Virginia B. Wetherell
Secretary

MEETING ATTENDANCE RECORD

Purpose: Keene Road CLASS III L.F. Date: 3/7/00

Name (please print)	Affiliation
George Houston	FDEP.
Chris Herin	WMI / GeoSyntec
BILL BOSTWICK	DEP.
Carolyn McCreedy	WMI
Brenda Clark	GeoSyntec
Bret LeRoux	FDET

Continued on reverse side

MEETING ATTENDANCE RECORD	
Purpose:	Date:
Name (please print)	Affiliation

Department of Environmental Protection

Jeb Bush
Governor

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

David B. Struhs
Secretary

CERTIFIED
Z-203 929 923

Mr. John Buttrey
Buttrey Development, LLC
6239 Edgewater Drive, Suite D-1
Orlando, Florida 32810

OCD-SW-00-0101

Orange County - SW
Keene Road Disposal/Buttrey Development,
Class III Landfill - Construct and Operate
Permit Application No. SC48-0165969-001 and SO48-0165969-002

Dear Mr. Buttrey:

This is to acknowledge receipt of your application for the subject facility. The status of your application is as follows:

(X) Your application for permit received on February 14, 2000 is incomplete. Please provide the information listed on the attached sheet promptly. Evaluation of your application will be delayed until all the requested information has been received.

( ) The additional information received on was reviewed, however, the items listed on the attached memo remain incomplete. Evaluation of your application will continue to be delayed until we receive all requested information.

Pursuant to Section 120.60(2), Florida Statutes, the Department may deny an application, if the applicant, after receiving timely notice, fails to correct errors, omissions or supply additional information within a reasonable period of time. Please submit three copies of the requested information to the Department and reference the above application permit number in your correspondence.

If you have any questions, please contact me at (407) 893-3328.

Sincerely,

James N. Bradner

James N. Bradner, P.E.
Program Manager
Solid Waste

Date: 3/14/2000

JNB/gc/ew
Enclosure
cc: Ed Chesney, P.E.

1. On Page 4 of 41, DEP Form 62-701.900(1), for Item A-2, insert check marks against construction and operation since the permit application is for the construction and operation of a Class III landfill. Submit the revised page.

2. On Page 4 of 41, DEP Form 62-701.900(1), for Item A-7, please provide the latitude and longitude at the entrance gate to the facility and submit the revised page.

3. On Page 5 of 41, DEP Form 62-701.900(1), for Item A-13, please provide the units for the volume of solid waste to be received and submit the revised page.

4. On Page 5 of 41, DEP Form 62-701.900(1), for Item A-16, provide the estimated construction and closing costs and submit the revised page.

5. On Page 12 of 41, DEP Form 62-701.900(1), Item D-14 is applicable for Class III landfills constructed after January 6, 1993. Submit information to indicate that the rule 62-701.320(12), F.A.C. on airport safety, is not applicable.

6. On Page 13 of 41, DEP Form 62-701.900(1), Item E-2 is applicable. Delete the check mark against "not applicable" and submit the revised page and information as requested in Item E-2 showing all airports that are located within 5 miles of the proposed landfill.

7. On Page 30 of 41, DEP Form 62-701.900(1), Item K-9 is applicable. Delete the check mark against "not applicable" and submit the revised page and information as requested in Item K-9 on routine gas monitoring program.

8. On Page 37 of 41, DEP Form 62-701.900(1), Item N-5-f is applicable. Delete the check mark against "not applicable" and submit the revised page and information as requested in Item N-5-f on development and implementation of a routine gas monitoring program.

9. On Page 38 of 41, DEP Form 62-701.900(1), Item Q on Financial Responsibility Requirements was not submitted and this item remains incomplete.

10. On Page 37 Operations Plan, Sec. 1.23 shows Exhibit B "Emergency and Fire Preparedness Guidelines" as pending. Please explain and submit the same if pending.

11. On Page 5, Sec. 1.2.1, the surrounding land uses do not appear to be in agreement with Figure 1 in the report. Please explain. If correction is required, then please submit the revised page.

12. In Section I - Operations Plan, submit a list of contact people in case of an emergency such as a fire or natural disaster.

13. Page 7 of Chris Kohl Training and Consulting Services, 2000 states that all putrescible wastes will be removed from the site within 24 hours. Page 22 of the Operations Plan states that putrescible wastes will be stored temporarily and removed for disposal within 48 hours of receipt. Please explain and submit the revised page for disposal of putrescible wastes.

14. The boundary and location survey shown in Exhibit I of the report was not signed and sealed by a registered land surveyor registered in Florida. Please submit the same signed and sealed by a registered land surveyor registered in Florida.

15. For Item F-2, DEP Form 62-701.900(1), Page 14 of 41, the minimum horizontal separation between waste deposits in the landfill and the landfill property boundary needs to be 100 feet, measured from the toe of the proposed final cover slope, Rule 62-701.340(4)(c), F.A.C. Request for variance to this

rule needs to be addressed to: Florida Department of Environmental Protection - Solid Waste Section, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400, and a copy of the approval letter submitted to: Florida Department of Environmental Protection, Central District - Solid Waste Section, 3319 Maguire Boulevard, Suite 232, Orlando, Florida 32803.

16. Exhibit B, an aerial photograph depicting the inventory of water wells within one mile radius of the site, depicts points labeled as "+4", "21" and "50". However, there are no references to these points in Table 1 nor is there an explanation of the meaning of these points on the aerial photograph. Additionally, the site and the one-mile radius line are not clearly marked on the well inventory aerial photograph. Please clarify points "+4", "21" and "50" and revise Exhibit B and Table 1 accordingly.

17. The permit application proposes the base of the landfill to be at 70 feet referenced to the National Geodetic Vertical Datum of 1929 (NGVD). While ground water elevations in the monitoring wells located in the northwest and southern portions of the landfill were approximately 48 feet NGVD in May 1999 and approximately 54 feet NGVD in December 1999, monitoring well MW-1, located in the northeastern portion of the landfill, had ground water elevations of 81.81 feet NGVD in May 1999 and 85.86 feet NGVD in December 1999. It would appear from the monitoring well MW-1 data that these ground water elevations would violate the prohibition in Rule 62-701.300(2)(f) Florida Administrative Code (F.A.C.) which states that solid waste may not be disposed in any natural or artificial body of water including ground water. Please either install additional piezometers in the northeastern portion of the landfill to gain a better understanding of the ground water elevation and flow direction in this area or revise the base of the excavation so that fill will be placed no closer than and will remain at least 5 feet above the maximum seasonal high water table.

18. Rule 62-701.410(1)(a)3 F.A.C. states that the Hydrological Investigation Report shall investigate any onsite hydraulic connections between aquifers. Additionally, Rule 62-701.410(1)(a)4 F.A.C. requires that the porosity or effective porosity and the horizontal permeability be determined for all aquifers that may be affected by the landfill and that the vertical permeability will be determined for all confining layer or semi-confining layers beneath the landfill. Review of the lithologic logs indicates that there are not a sufficient number of borings that penetrate to a sufficient depth in the aquifer to determine the presence or absence of confining layers or semi-confining layers beneath the site nor to determine if there are hydraulic connections between aquifers at the site. Therefore, additional soil borings are necessary.

    The hydrological investigation report did not include a discussion on the site specific porosity or effective porosity as required by Rule 62-701.410(1)(a) F.A.C. Therefore, please collect a sufficient number of undisturbed or only minimally disturbed samples in order to define the site specific porosity or effective porosity of all aquifers below the landfill that may be affected by the landfill. Please note that estimating porosity is not acceptable for the purpose of a permit application.

    Additionally, three of the soil samples collected with a Shelby tube sampler for vertical permeability analysis were collected in the vadose zone above the surficial aquifer. Collecting soil samples in the vadose zone is an unacceptable method of determining the vertical permeability of a confining unit beneath an *aquifer*. Therefore, please perform appropriate tests to determine if a confining layer exists beneath the site and the vertical permeability of that confining layer. It should be noted that clustered monitoring wells may be required based upon the vertical location of the first confining unit. Furthermore, after the additional lithological information is obtained, please revise the submitted cross section and construct at least two (2) additional cross sections. One cross section should traverse from MW-2 to B-8 and the other cross section should traverse from MW-1 to MW-3.

19. Please submit on an IBM formatted diskette or CD-ROM the raw data logger data that was generated during the slug tests.

20. Figure 4 depicts the Floridan and surficial aquifer flow direction and the proposed monitoring well locations. Rule 62-701.510(3)(d)3 F.A.C. states "Well spacing shall be no greater than 500 feet apart across the downgradient direction of ground water flow." Therefore, an additional monitoring well location 500 feet east from monitoring well location MW-3 and 500 feet west from monitoring well location MW-5 is necessary. Additionally, the figure did not include a bar scale. Please revise Figure 4 accordingly.

    Furthermore, the application states that ground water flow direction in the Floridan aquifer is to the northeast based on regional information and the Floridan monitoring wells across the street at the Waste Management's Class III Keene Road facility. While the regional direction is correct, Floridan ground water flow direction can vary across a site. Therefore, please install piezometers to confirm that Floridan flow is towards the northeast at this site. After the Floridan flow direction at the site has been determined, please reevaluate the proposed number and locations of Floridan wells, and revise Figure 4 and the permit application accordingly.

21. The permit application states "Design details of all existing monitoring wells as well as those proposed are shown are Table 2. Well screen and filter pack selections was [*sic*] based on lithologic samples and grain size analysis conducted at the various soil boring and monitoring well locations. Using this data and recommendations from EPA, ASTM, and Driscoll's 'Groundwater and Wells', standard commercial slot sizes and filter packs were selected." Review of the grain size distribution data indicates that the samples analyzed were collected from above the water table. Collecting soil samples for grain size distribution analysis from other than the zone to be monitored is inappropriate. In order to properly design ground water monitoring wells, continuous exploratory borings using split spoon samplers should be performed at all of the proposed well locations. Soil samples should be collected in each boring, using split spoon samplers, for grain size distribution analysis, from the depth interval in which the well screen will be set.

    Additionally, Table 2 proposes to use an 0.010 inch slot size well screen and 30/45 silica sand filter pack for all of the ground water monitoring wells. While sample B-6-35 was collected from above the water table, review of the grain size distribution analysis for this sample indicates that the proposed well screen and filter pack is too coarse. If this sample had been collected from within the aquifer, a more appropriate design would be 0.006 inch slot size and 30/65 silica sand filter pack because of the large amount of material that passed through the 200 mesh sieve.

    Furthermore, it is proposed to use bentonite as a seal for the shallow monitoring wells. Due to the possibility of desiccation of bentonite in the vadose zone, bentonite is not an appropriate secondary seal above the filter pack for monitoring wells with sealant extending above the water table. Three (3) feet of fine grain sand should be placed above the filter pack prior to grout emplacement in these wells, if there is sufficient depth to the water table. Either three (3) feet of fine grain sand or two (2) feet of bentonite pellets may be used as the secondary seal above the filter pack in wells with the sealant below the water table. If bentonite pellets are used as the secondary seal above the filter pack in wells with the sealant below the water table, the bentonite must be given sufficient time to fully hydrate prior to grout emplacement.

    Please collect soil samples from the proposed locations for grain size distribution analysis, from the depth interval in which the well screen will be set and revise the proposed well designs. If Bishop & Buttrey chooses not to design and construct the ground water monitoring wells based upon site specific conditions, the Department recommends that the filter pack grain size and well screen slot size be as conservative as possible. If turbidity values during purging and sampling are high and the monitoring wells were not designed for site specific conditions, the Department may require the well(s) to be abandoned and replacement wells, designed for site specific conditions, installed.

22. The permit application states "Following the results of the first semi-annual sampling event, (assuming favorable results) MW-6, MW-7, MW-8 and MW-F3 are proposed to go to annual sampling only. MW-1 will completely drop out of the sampling lineup. In addition, at the agencies discretion, sampling parameters will also be re-evaluated following the first semi-annual event." It is premature to consider altering the frequency of sampling ground water from MW-7, MW-8 and MW-F3. Any decision to alter the frequency of collecting ground water samples from MW-7 or MW-8 will depend on review of the data required by Comment 2 and at least two (2) years of ground water flow information. Any decision to alter the frequency of collecting ground water samples from MW-F3 will depend the data required by Comments 3 and 5. Ground water must be collected from monitoring well MW-6 semi-annually.

State of Florida
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Interoffice Memorandum

CENTRAL DISTRICT

TO: Jim Bradner, P.E.
Solid Waste Program Manager

OCD-WCU-00-0088

THROUGH: G. Bret LeRoux, P.G. GBL
Waste Cleanup Program Manager

FROM: George Houston II, P.G.
Environmental Specialist III

DATE: March 13, 2000

SUBJECT: Orange County – Waste Cleanup
Keene Road Disposal Landfill
Permit Application

I have reviewed the permit application, received February 15, 2000, and have the following comments:

1. Exhibit B, an aerial photograph depicting the inventory of water wells within one mile radius of the site, depicts points labeled as "+4", "21" and "50". However, there are no references to these points in Table 1 nor is there an explanation of the meaning of these points on the aerial photograph. Additionally, the site and the one-mile radius line are not clearly marked on the well inventory aerial photograph. Please clarify points "+4", "21" and "50" and revise Exhibit B and Table 1 accordingly.

2. The permit application proposes that the base of the landfill to be at 70 feet referenced to the National Geodetic Vertical Datum of 1929 (NGVD). While ground water elevations in the monitoring wells located in the northwest and southern portions of the landfill were approximately 48 feet NGVD in May 1999 and approximately 54 feet NGVD in December 1999, monitoring well MW-1, located in the northeastern portion of the landfill, had ground water elevations of 81.81 feet NGVD in May 1999 and 85.86 feet NGVD in December 1999. It would appear from the monitoring well MW-1 data that these ground water elevations would violate the prohibition in Rule 62-701.300(2)(f) Florida Administrative Code (F.A.C.) which states that solid waste may not be disposed in any natural or artificial body of water including ground water. Please either install additional piezometers in the northeastern portion of the landfill to gain a better understanding of the ground water elevation and flow direction in this area or revise the base of the excavation so that fill will be placed no closer than and will remain at least 5 feet above the maximum seasonal high water table.

3. Rule 62-701.410(1)(a)3 F.A.C. states that the Hydrological Investigation Report shall investigate any onsite hydraulic connections between aquifers. Additionally, Rule 62-701.410(1)(a)4 F.A.C. requires that the porosity or effective porosity and the horizontal permeability be determined for all aquifers that may be affected by the landfill and that the vertical permeability will be determined for all confining layer or semi-confining layers beneath the landfill. Review of the lithologic logs indicates that there are not a sufficient number of borings that penetrate to a sufficient depth in the aquifer to

determine the presence or absence of confining layers or semi-confining layers beneath the site nor to determine if there are hydraulic connections between aquifers at the site. Therefore, additional soil borings are necessary.

The hydrological investigation report did not include a discussion on the site specific porosity or effective porosity as required by Rule 62-701.410(1)(a) F.A.C. Therefore, please collect a sufficient number of undisturbed or only minimally disturbed samples in order to define the site specific porosity or effective porosity of all aquifers below the landfill that may be affected by the landfill. Please note that estimating porosity is not acceptable for the purpose of a permit application.

Additionally, three of the soil samples collected with a Shelby tube sampler for vertical permeability analysis were collected in the vadose zone above the surficial aquifer. Collecting soil samples in the vadose zone is an unacceptable method of determining the vertical permeability of a confining unit beneath an *aquifer*. Therefore, please perform appropriate tests to determine if a confining layer exists beneath the site and the vertical permeability of that confining layer. It should be noted that clustered monitoring wells may be required based the vertical location of the first confining unit. Furthermore, after the additional lithological information is obtained, please revise the submitted cross section and construct at least two (2) additional cross sections. One cross section should traverse from MW-2 to B-8 and the other cross section should traverse from MW-1 to MW-3.

4. Please submit on an IBM formatted diskette or CD-ROM the raw data logger data that was generated during the slug tests.

5. Figure 4 depicts the Floridan and surficial aquifer flow direction and the proposed monitoring well locations. Rule 62-701.510(3)(d)3 F.A.C. states "Well spacing shall be no greater than 500 feet apart across the downgradient direction of ground water flow." Therefore, an additional monitoring well location 500 feet east from monitoring well location MW-3 and 500 feet west from monitoring well location MW-5 is necessary. Additionally, the figure did not include a bar scale. Please revise Figure 4 accordingly.

   Furthermore, the application states that ground water flow direction in the Floridan aquifer is to the northeast based on regional information and the Floridan monitoring wells across the street at the Waste Management's Class III Keene Road facility. While the regional direction is correct, Floridan ground water flow direction can vary across a site. Therefore, please install piezometers to confirm that Floridan flow is towards the northeast at this site. After the Floridan flow direction at the site has been determined, please reevaluate the proposed number and locations of Floridan wells, and revise Figure 4 and the permit application accordingly.

6. The permit application states "Design details of all existing monitoring wells as well as those proposed are shown are Table 2. Well screen and filter pack selections was based on lithologic samples and grain size analysis conducted at the various soil boring and monitoring well locations. Using this data and recommendations from EPA, ASTM, and Driscoll's "Groundwater and Wells", standard commercial slot sizes and filter packs were selected." Review of the grain size distribution data indicates that the samples analyzed were collected from above the water table. Collecting soil samples for grain size distribution analysis from other than the zone to be monitored is inappropriate. In order to properly design ground water monitoring wells, continuous exploratory borings using split spoon samplers should be performed at all of the proposed well locations. Soil samples should be collected in each boring, using split spoon samplers, for grain size distribution analysis, from the depth interval in which the well screen will be set.

Additionally, Table 2 proposes to use an 0.010 inch slot size well screen and 30/45 silica sand filter pack for all of the ground water monitoring wells. While sample B-6-35 was collected from above the water table, review of the grain size distribution analysis for this sample indicates that the proposed well screen and filter pack is too coarse. If this sample had been collected from within the aquifer, a more appropriate design would be 0.006 inch slot size and 30/65 silica sand filter pack because of the large amount of material that passed through the 200 mesh sieve.

Furthermore, it is proposed to use bentonite as a seal for the shallow monitoring wells. Due to the possibility of desiccation of bentonite in the vadose zone, bentonite is not an appropriate secondary seal above the filter pack for monitoring wells with sealant extending above the water table. Three (3) feet of fine grain sand should be placed above the filter pack prior to grout emplacement in these wells, if there is sufficient depth to the water table. Either three (3) feet of fine grain sand or two (2) feet of bentonite pellets may be used as the secondary seal above the filter pack in wells with the sealant below the water table. If bentonite pellets are used as the secondary seal above the filter pack in wells with the sealant below the water table, the bentonite must be given sufficient time to fully hydrate prior to grout emplacement.

Please collect soil samples from the proposed locations for grain size distribution analysis, from the depth interval in which the well screen will be set and revise the proposed well designs. If Bishop & Buttrey chooses not to design and construct the ground water monitoring wells based upon site specific conditions, the Department recommends that the filter pack grain size and well screen slot size be as conservative as possible. If turbidity values during purging and sampling are high and the monitoring wells were not designed for site specific conditions, the Department may require the well(s) to be abandoned and replacement wells, designed for site specific conditions, installed.

7. The permit application states "Following the results of the first semi-annual sampling event, (assuming favorable results) MW-6, MW-7, MW-8 and MW-F3 are proposed to go to annual sampling only. MW-1 will completely drop out of the sampling lineup. In addition, at the agencies discretion, sampling parameters will also be re-evaluated following the first semi-annual event." It is premature to consider altering the frequency of sampling ground water from MW-7, MW-8 and MW-F3. Any decision to alter the frequency of collecting ground water samples from MW-7 or MW-8 will depend on review of the data required by Comment 2 and at least two (2) years of ground water flow information. Any decision to alter the frequency of collecting ground water samples from MW-F3 will depend the data required by Comments 3 and 5. Ground water must be collected from monitoring well MW-6 semi-annually.

Attachment: