



TIERRA CONSULTING GROUP, INC.
ENVIRONMENTAL ENGINEERING & CONSULTING
5815 N. ANDREWS WAY, SUITE B, FT. LAUDERDALE, FL 33309
TELEPHONE (954) 202-9226 FAX (954) 202-9227

LICENSED ENGINEERING, ASBESTOS & GEOLOGICAL BUSINESS

Ms. Linda A. Brien, P.G.
Underground Injection Control – Southeast District
Florida Department of Environmental Protection
3301 Gun Club Road
MSC 7210-1
West Palm Beach, FL 33406

September 10, 2015

Subject: Reasonable Assurance Report
Douglas Park, 2795 SW 37th Avenue, Miami, Florida 33133
Class V, Group 6, Stormwater Drainage Wells
FDEP Permit File No. _____
TCG Project No. 16014

Dear Ms. Brien:

At the request of Jaffer Well Drilling, Tierra Consulting Group, Inc. (TCG) is pleased to provide this report of reasonable assurance for the above-referenced property. The project site is addressed as 2795 SW 37th Avenue, Miami, Florida 33133. Two stormwater drainage wells are proposed for installation by Jaffer Well Drilling as specified on SCS Engineers *Paving, Grading and Drainage Plan* sheet C-6.0.

Site Location & Description

The project site is comprised of one parcel bordered to the northeast by several multi-family residential buildings, to the northwest by two commercial retail buildings, to the east by a public school property, to the south by Southwest 28th Street, and to the west by Southwest 37th Avenue. The approximate GPS coordinates of the center of the site are 25°44'23.15" N and 80°15'11.17" W. The nearest surface waters are the shallow marine waters of the Coral Gables Waterway located approximately 4,700 feet southwest of the project site. Ground surface elevation is approximately +11 feet relative to the North American Vertical Datum of 1988 (NAVD).

A site topographic map (**Figure 1**), aerial photograph depicting the site location (**Figure 2**), and a photocopy of the Miami-Dade County Property Appraiser Summary Report are presented in **Appendix I**.

UIC Class V Non-ASR Well Review

Review of the UIC Class V Non-ASR Wells database and related documents indicates no existing wells that meet this classification on the subject property.

Geologic Data

Site-specific geologic data was collected during core drilling activities performed by Geo-X Geotechnical and Environmental Exploration, Inc. on August 27, 2015 (**Appendix II**). A borehole was drilled from the ground surface to a depth of 100 feet below land surface (bls). The subsurface strata were observed to consist of fine sand, limestone, and sandstone consistent with the Pamlico Sand, Miami Limestone, Anastasia, Key Largo Limestone, and Tamiami Formations. Visual examination of subsurface core materials encountered at the following approximate depth intervals bls are detailed below:

0' to 1': Compacted fill. N value = 20

1' to 13.5': Light brown fine sand with small limestone fragments. N-value range = 4 to 8

13.5' to 33.5': Light brown limestone with fine sand. N-value range = 6 to 15

33.5' to 58.5': Light brown fossiliferous limestone and fine sand. N-value = >50

58.5' to 63.5': Light brown sandstone with fine sand and limestone fragments. N-value = 40

63.5' to 78.5': Very hard light brown limestone with fine sand. N-value = >50

78.5' to 100': Light brown limestone with fine sand. N-value range = 16 to 37

Based upon site lithology observed beneath the project site, competent dense layers of limestone strata are present at depths below 33.5 feet bls (equivalent to -22.5 feet NAVD) that exhibit N-values exceeding 50 blows per foot to at least 78.5 feet bls (equivalent to -67.5 feet NAVD). These dense, semi-confining (aquitar) strata are expected to sufficiently abate vertical flow of buoyant stormwater discharged at depth.

Hydrogeologic Data

Site-specific hydrogeologic characterization for the Douglas Park project site was based on depth-specific groundwater samples collected at 40, 50, 60, and 70 feet bls (equivalent to -29, -39, -49 and -59 feet NAVD). Groundwater samples were submitted for laboratory analysis of Total Dissolved Solids (TDS) via EPA Method TDS SM 2540C at Florida Spectrum Environmental Services, Inc. Analytical results for these samples are reported in the following table, and photocopies of the laboratory analytical results and chain of custody documentation are included in **Appendix III**.

Groundwater Sample Depth (feet bls)	Total Dissolved Solids (mg/L)
40	732
50	1070
60	8650
70	15200

Notes

mg/L - milligrams per liter or parts per million (PPM)

Laboratory analytical results indicate that the G-II/G-III aquifer interface occurs at a depth shallower than 70 feet bls (-59 feet NAVD) at the project site.

Conclusions & Recommendation

Geologic and hydrogeologic conditions at the Douglas Park project site demonstrate that the proposed use of Class V, Group 6, Stormwater Drainage Wells to be permitted by FDEP is an appropriate and prudent stormwater management option.

A recommended minimum casing setting depth of 90 feet bls (equivalent to -79 feet NAVD) will provide at least twenty feet of separation among the G-II/G-III aquifer interface and the proposed bottom of steel well casing. This recommended minimum casing setting depth allows for the well casing to penetrate into and beneath dense semi-confining layers of limestone strata that minimize the potential for vertical migration, mounding, or spring effects in conformance with the reasonable assurances necessary for permit approval. The overlying G-II aquifer and surface water bodies of the vicinity are therefore sufficiently buffered from buoyant stormwater discharged at depth.

In an effort to expedite the review and approval of the proposed stormwater drainage well permit, please feel free to contact me directly for any clarifications at (954) 202-9226.

Sincerely:

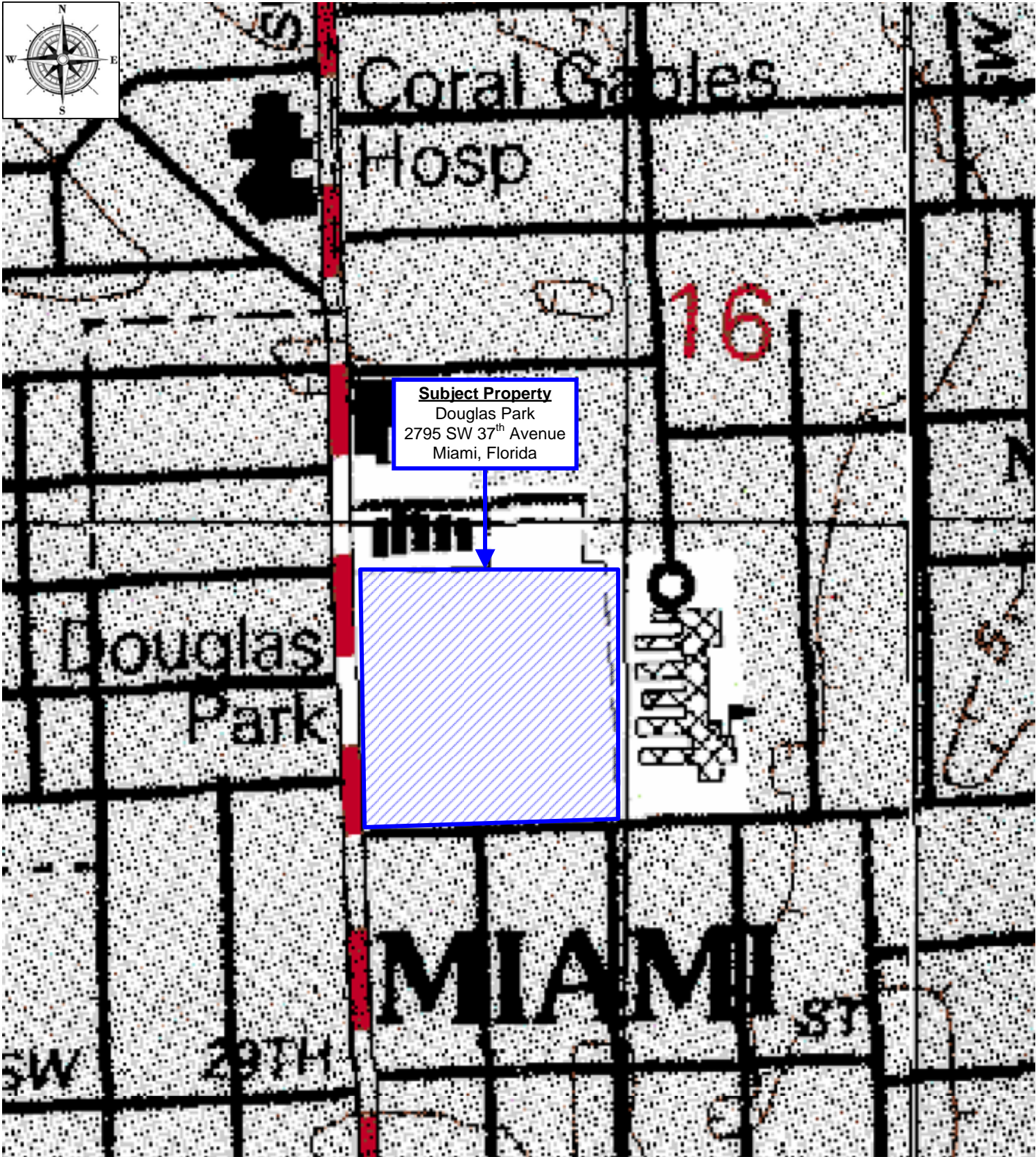
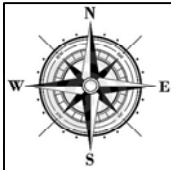


Scott Zednek, P.G.
Florida License No. 0002086



APPENDIX I

SITE FIGURES AND PROPERTY APPRAISER DATA



Project Location: 2795 SW 37th Ave., Miami, Florida 33133

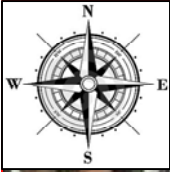
Figure 1: USGS Topographic Map

Approx. Scale: 1" = 350'

Client: Jaffer Well Drilling

Drawn by: JM 08/25/2015





Subject Property
Douglas Park
2795 SW 37th Avenue
Miami, Florida



Project Location: 2795 SW 37 th Avenue, Miami, Florida 33133		Client: Jaffer Well Drilling
Figure 2: Aerial Photograph	Scale: 1" = 200'	Drawn by: JM 08/25/2015





OFFICE OF THE PROPERTY APPRAISER

Summary Report

Generated On : 8/25/2015

Property Information	
Folio:	01-4116-000-0220
Property Address:	2795 SW 37 AVE
Owner	CITY OF MIAMI-DEPT OF P&D ASSET MANAGEMENT DIVISION
Mailing Address	444 SW 2 AVE STE #325 MIAMI , FL 33130-1910
Primary Zone	8002 PARKS & RECREATION
Primary Land Use	8940 MUNICIPAL : MUNICIPAL
Beds / Baths / Half	0 / 0 / 0
Floors	1
Living Units	0
Actual Area	Sq.Ft
Living Area	Sq.Ft
Adjusted Area	2,753 Sq.Ft
Lot Size	435,600 Sq.Ft
Year Built	1953



Assessment Information			
Year	2015	2014	2013
Land Value	\$13,068,000	\$2,975,148	\$2,831,400
Building Value	\$78,494	\$75,586	\$75,586
XF Value	\$125,378	\$127,110	\$128,841
Market Value	\$13,271,872	\$3,177,844	\$3,035,827
Assessed Value	\$3,495,628	\$3,177,844	\$3,035,827

Benefits Information				
Benefit	Type	2015	2014	2013
Non-Homestead Cap	Assessment Reduction	\$9,776,244		
Municipal	Exemption	\$3,495,628	\$3,177,844	\$3,035,827

Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).

Short Legal Description
16 54 41 10 AC
SW1/4 OF NW1/4 OF SW1/4
TRACT 5 EST OF C G TOUSEY LESS
W20FT & POR IN SW COR PER
OR 3847/313

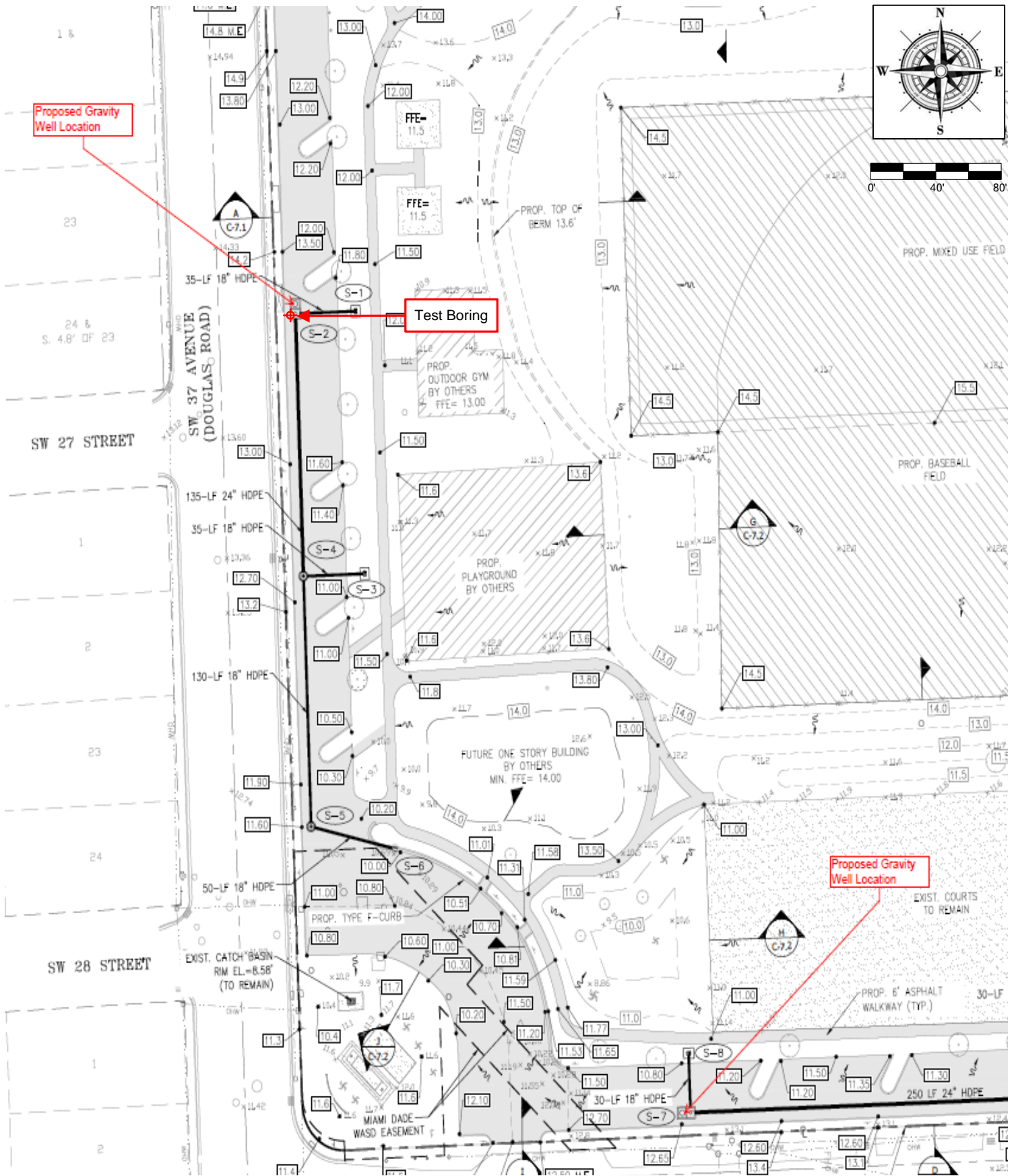
Taxable Value Information			
	2015	2014	2013
County			
Exemption Value	\$3,495,628	\$3,177,844	\$3,035,827
Taxable Value	\$0	\$0	\$0
School Board			
Exemption Value	\$13,271,872	\$3,177,844	\$3,035,827
Taxable Value	\$0	\$0	\$0
City			
Exemption Value	\$3,495,628	\$3,177,844	\$3,035,827
Taxable Value	\$0	\$0	\$0
Regional			
Exemption Value	\$3,495,628	\$3,177,844	\$3,035,827
Taxable Value	\$0	\$0	\$0

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description

The Office of the Property Appraiser is continually editing and updating the tax roll. This website may not reflect the most current information on record. The Property Appraiser and Miami-Dade County assumes no liability, see full disclaimer and User Agreement at <http://www.miamidade.gov/info/disclaimer.asp>

Version:

APPENDIX II
GEOLOGIC DATA



PROJECT: Douglas Park, 2795 SW 37th Avenue Miami, Florida 33127

CLIENT: Jaffer Well Drilling

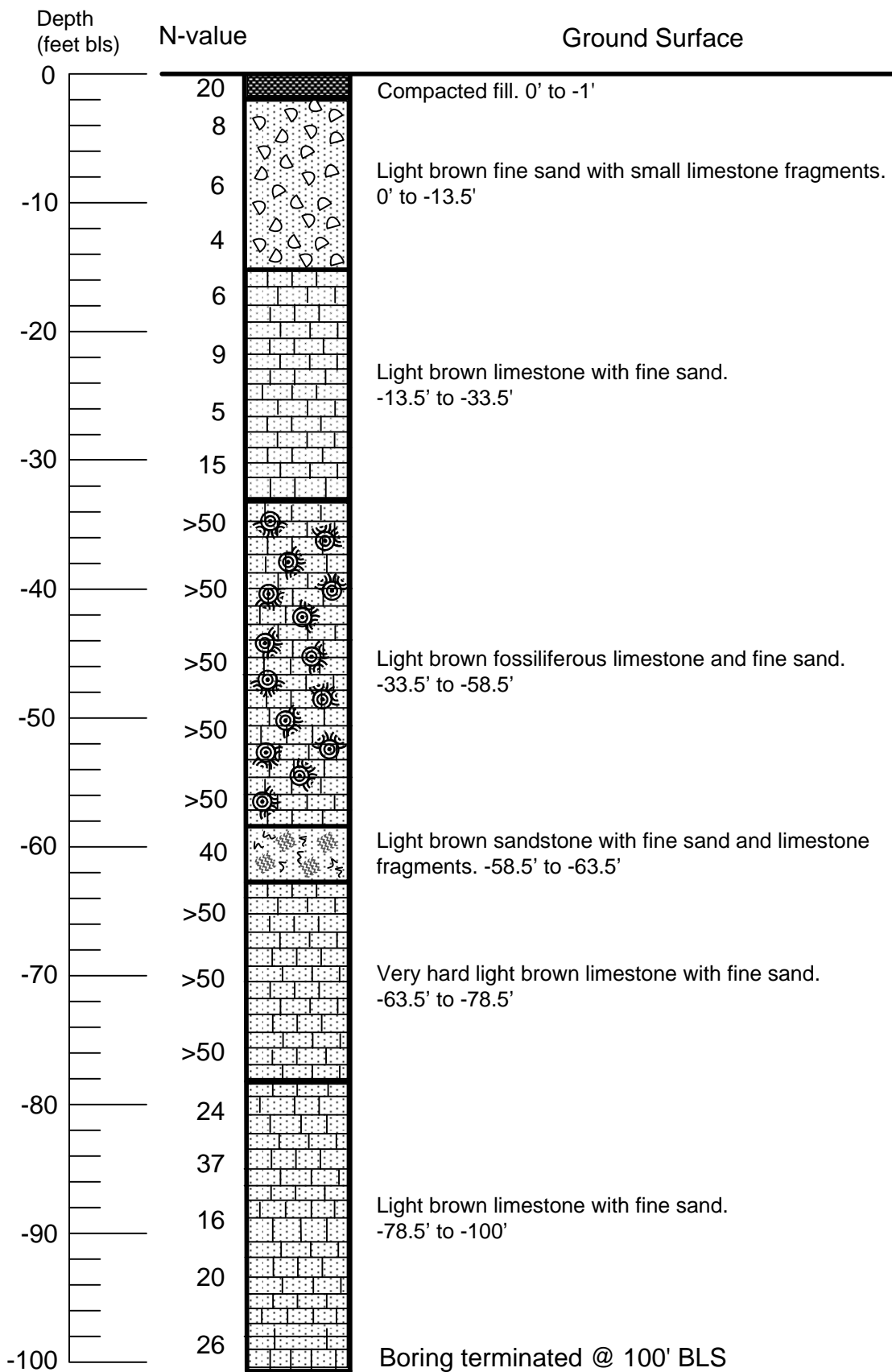
Test Hole Location and Proposed Well Locations

SCALE: 1" = 80'






DATE: 09/29/2015

DRAWN BY: JM





LEGEND

-  Fine sand
-  Limestone
-  Sandstone
-  Fine sand with shell/limestone fragments
-  Fossiliferous limestone

Boring Log Notes


Drilling Co.:
Geo-X Geotechnical & Env. Exploration, Inc.

Driller:
H. Avellaneda

Rig:
BL BK-66, Automatic Hammer

Date:
08/28/15

Geologist:
Scott Zednek

Project Location: 2795 SW 37 th Ave., Miami, Florida 33133		Client: Jaffer Well Drilling	
Test Boring B-2	TCG Project #: 16014	Drawn by: JM 08/27/15	

APPENDIX III
HYDROGEOLOGIC DATA



NELAP Certificate No. E86006



1460 West McNab Road
Fort Lauderdale, FL 33309
1-800-ANALYTE Phone
(954) 978-6400 Phone
(954) 978-2233 Fax

08 September 2015

Lab Work Order (COC): 15H0712

Jean Mazza
Tierra Consulting Group Inc.
5815 North Andrews Way, Suite B
Fort Lauderdale, FL 33309

RE: 16014 Douglas Park

Project Location: 2795 SW 37th Avenue, Miami, FL 33133

Dear Jean Mazza:

This report details the analytical results of samples collected at the above-referenced project location. These samples were received by Florida Spectrum Environmental Services at **08/28/2015 11:20**.

All Analyses were performed according to the TNI/NELAP standard unless indicated by a "~" on the report.

Your samples will be retained by Florida Spectrum Environmental for a period of at least 30 days following sample receipt or until the longest of the preparation and/or analytical hold times expires, whichever is shorter. After that time, they will be properly disposed without further notice, unless there exists an explicit contractual agreement to the contrary. We reserve the right to return any unused samples, extracts, or related materials or solutions to you if we consider it necessary. Examples might include those samples identified as hazardous wastes, submissions where the sample sizes significantly exceed those required for analysis, samples containing controlled substances, etc.

We thank you for selecting Florida Spectrum Environmental to serve your analytical needs. Should you have any questions or require additional information regarding any of the information in this report, please feel free to contact us at any time. We appreciate the opportunity to be of service.

Florida Spectrum Environmental Inc.



Report To:
Jean Mazza
Tierra Consulting Group Inc.
5815 North Andrews Way, Suite B
Fort Lauderdale FL, 33309

Page 2 of 7
Report Printed: 9/8/2015
Work Order # 15H0712
Project: 16014 Douglas Park
2795 SW 37th Avenue, Miami, FL 33133

DETECTED ANALYTE SUMMARY

<u>Client Sample ID</u>	<u>Laboratory ID</u>	<u>Matrix</u>	<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Collection Date</u>	<u>Collection Time</u>
40 Feet	15H0712-01	Water	Total Dissolved Solids	732	mg/L	8/27/2015	9:45
50 Feet	15H0712-02	Water	Total Dissolved Solids	1070	mg/L	8/27/2015	10:00
60 Feet	15H0712-03	Water	Total Dissolved Solids	8650	mg/L	8/27/2015	10:15
70 Feet	15H0712-04	Water	Total Dissolved Solids	15200	mg/L	8/27/2015	10:30

Florida-Spectrum Environmental Services, Inc.
1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
528 Gooch Rd.
Fort Mead, FL 33841

Big Lake Laboratory
610 Parrot Ave. N.
Okeechobee, FL 34972

Spectrum Laboratories
630 Indian St.
Savannah, GA 31401



Report To:
 Jean Mazza
 Tierra Consulting Group Inc.
 5815 North Andrews Way, Suite B
 Fort Lauderdale FL, 33309

Page 3 of 7
Report Printed: 9/8/2015
Work Order # 15H0712
Project: 16014 Douglas Park
 2795 SW 37th Avenue, Miami, FL 33133

Lab ID: 15H0712-01
Client Sample ID: 40 Feet
Matrix: Water

Collection Date: 08/27/15 09:45
Received Date: 08/28/15 11:20
Collected By: Thomas Knox

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
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Wet Chemistry

Total Dissolved Solids	732		mg/L	1	10.0	30.0	TDS SM 2540C	09/01 17:00	09/03 15:05	YBR
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Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

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 528 Gooch Rd.
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 Jean Mazza
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 Fort Lauderdale FL, 33309

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Report Printed: 9/8/2015
Work Order # 15H0712
Project: 16014 Douglas Park
 2795 SW 37th Avenue, Miami, FL 33133

Lab ID: 15H0712-02
Client Sample ID: 50 Feet
Matrix: Water

Collection Date: 08/27/15 10:00
Received Date: 08/28/15 11:20
Collected By: Thomas Knox

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
Wet Chemistry										
Total Dissolved Solids	1070		mg/L	1	10.0	30.0	TDS SM 2540C	09/01 17:00	09/03 16:51	YBR

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

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 Savannah, GA 31401



Report To:
 Jean Mazza
 Tierra Consulting Group Inc.
 5815 North Andrews Way, Suite B
 Fort Lauderdale FL, 33309

Page 5 of 7
Report Printed: 9/8/2015
Work Order # 15H0712
Project: 16014 Douglas Park
 2795 SW 37th Avenue, Miami, FL 33133

Lab ID: 15H0712-03
Client Sample ID: 60 Feet
Matrix: Water

Collection Date: 08/27/15 10:15
Received Date: 08/28/15 11:20
Collected By: Thomas Knox

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
Wet Chemistry										
Total Dissolved Solids	8650		mg/L	1	10.0	30.0	TDS SM 2540C	09/01 17:00	09/04 11:24	YBR

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401



Report To:
 Jean Mazza
 Tierra Consulting Group Inc.
 5815 North Andrews Way, Suite B
 Fort Lauderdale FL, 33309

Page 6 of 7
Report Printed: 9/8/2015
Work Order # 15H0712
Project: 16014 Douglas Park
 2795 SW 37th Avenue, Miami, FL 33133

Lab ID: 15H0712-04
Client Sample ID: 70 Feet
Matrix: Water

Collection Date: 08/27/15 10:30
Received Date: 08/28/15 11:20
Collected By: Thomas Knox

Laboratory Analysis Report

Parameter	Result	QC	Units	Dil	MDL	PQL	Method	Date Ext.	Date Analy.	Analyst
Wet Chemistry										
Total Dissolved Solids	15200		mg/L	1	10.0	30.0	TDS SM 2540C	09/01 17:00	09/04 11:24	YBR

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309

Pembroke Laboratory
 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401



Report To:
 Jean Mazza
 Tierra Consulting Group Inc.
 5815 North Andrews Way, Suite B
 Fort Lauderdale FL, 33309

Page 7 of 7
Report Printed: 9/8/2015
Work Order # 15H0712
Project: 16014 Douglas Park
 2795 SW 37th Avenue, Miami, FL 33133

Notes and Definitions

- U Indicated that the compound was analyzed for but not detected. This shall be used to indicate that the specific component was not detected. The value associated with the qualifier shall be the laboratory method detection limit.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the detection limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- V Indicated that the analyte was detected in both the sample and the associated method blank.
- I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- Z Too many colonies were present for accurate counting.

QC=Qualifier Codes as defined by DEP 62-160
 Unless indicated, soil results are reported on actual (wet) weight basis.
 Work performed by outside (subcontracted) labs denoted by SUB in Analyst Field.

Results relate only to this sample.

Enrique Ochoa - CSM

Authorized CSM Signature (954) 978-6400
 Florida-Spectrum Environmental Services, Inc.
 Certification# E86006

All NELAP certified analysis are performed in accordance with Chapter 64E-1 Florida Administrative code, which has been determined to be equivalent to NELAC standards. Analysis certified by programs other than NELAP are designated with a "~".

Florida-Spectrum Environmental Services, Inc.
 1460 W. McNab Road, Fort Lauderdale, FL 33309


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 528 Gooch Rd.
 Fort Mead, FL 33841

Big Lake Laboratory
 610 Parrot Ave. N.
 Okeechobee, FL 34972

Spectrum Laboratories
 630 Indian St.
 Savannah, GA 31401

SUBMISSION #
15H0712

Logged in LIMS by _____
CSM assigned _____



CHAIN OF CUSTODY RECORD

1460 W. McNab Road Ft Laud. FL 33309 Tel: (954) 978-6400 Fax: (954) 978-2233
 630 Indian Street Savannah, GA 31401 Tel: (912) 238-5050 Fax: (912) 234-4815
 528 Gooch Road Fort Meade, FL 33841 Tel: (863) 285-8145 Fax: (863) 285-7030
 610 Parrot Ave. N, Okeechobee, FL 34972 Tel: (863) 763-3336 Fax: (863) 763-1544

DUE DATE Requested

RUSH RESERVATION #

Rush Surcharges apply

Report to: *Tierra Consulting Group*

Invoice to: *Same*

Project Name and/or Number: *16014 Douglas Park*

Project Contact: *Jean Mazza* **Phone:** *954-202-9226*

Sampler Name (printed): *Thomas Knox*

Report to Address: *5815 N Andrews Way, Ste B, FTL 33309*

Invoice to Address: *Same*

Site Location: *2795 SW 37th Ave, Miami, FL 33133*

Sampler Signature: _____

Email: *admin@tierraconsulting.com*

ORDER # Lab Control Number	Sample ID	Date Sampled	Time Sampled	Matrix	Bottle & Pres.	Number of Containers Received & NELAC Letter Suffixes A-?	Analysis Required							Field Tests								
							DW	SW	S	SED	HW	BIO	SEA	OIL	X	AIR	Combo Codes	TDS	TEMP °C	PH	COND	COLOR
<i>01</i>	<i>40 feet</i>	<i>08/27/15</i>	<i>9:45am</i>	<i>GW</i>			<i>X</i>															
<i>02</i>	<i>50 feet</i>	<i>08/27/15</i>	<i>10:00am</i>	<i>GW</i>			<i>X</i>															
<i>03</i>	<i>60 feet</i>	<i>08/27/15</i>	<i>10:15am</i>	<i>GW</i>			<i>X</i>															
<i>04</i>	<i>70 feet</i>	<i>08/27/15</i>	<i>10:30am</i>	<i>GW</i>			<i>X</i>															

Special Comments: *"I waive TNI protocol" (emergency) (sign here) >*

Deliverables: _____ **QA/QC Report Needed?** Yes No *(additional charge)*

Sample Custody & Field Comments	Bottle Type	Preservatives	Additional Preservatives
Temp as received <i>4</i> C Custody seals? Y <input checked="" type="checkbox"/> N <input type="checkbox"/> FIELD TIME: Sampling _____ hrs Pick-Up _____ hrs Misc. Charges _____	A-liter amber B-Bacteria bag/bottle F-500 ml O-125 ml H-Plastic Amber Liter L-liter bottle S2-2 oz soil jar S4-4 oz soil jar / S8-8 oz soil jar T-250 ml V-40 ml vial W-wide mouth X-other TED-Tedlar Air Bag Additional Bottle Types B-brown liter plastic	A-ascorbic acid P-H3PO4 C-HCL S-H2SO4 Cu-CuSO4 T-Na2S2O3 DI-DI water U-Unpreserved H-HNO3 N-NaOH M-MCAB NH4-NH4CL MeOH-Methanol Z-zinc acetate	Hex-Hex Cr Buffer EDA-Ethylene Diamine

Signature Log:

Signature	Affiliation	Date/Time
<i>Jean Mazza</i>		<i>08/28/15 11:20</i>
<i>Thomas Knox</i>		<i>8/28/15 11:20</i>

www.flenviro.com **COC Page** _____ *of* _____