



ENVIRONMENTAL SERVICES, LLC

ANALYSIS OF BROWNFIELDS CLEANUP ALTERNATIVES

OF

**PROPOSED JESSIE TRICE COMMUNITY HEALTH CENTER
2-Acre Vacant Parcel (Rear Portion of Folio #34-2108-007-0011)
Miami-Dade County DERM HWR-109/File-14765
Southwest Corner of NW 183rd Street & NW 37th Avenue
Miami Gardens, Miami-Dade County, Florida**

Prepared For:

**Miami-Dade County Department of Regulation & Economic Resources
Division of Environmental Resources Management
701 Northwest 1st Court, Suite 400
Miami, FL 33136-3912**

And:

United States Environmental Protection Agency

Prepared On Behalf Of:

**Jessie Trice Community Health Centers, Inc.
5607 NW 27th Ave
Miami, FL 33142**

Prepared By:

**EE&G Environmental Services, LLC
5751 Miami Lakes Drive
Miami Lakes, Florida 33014
(305) 374-8300**

November 11, 2014

EE&G Project No. 2013-3105

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SECTION 1.0 INTRODUCTION

EE&G Environmental Services, LLC (EE&G) was retained by the Jessie Trice Community Health Centers, Inc. (JTCHC) to prepare this Analysis of Brownfields Cleanup Alternatives (ABCA) in support of the application for a United States Environmental Protection Agency (USEPA) Brownfields Cleanup Grant.

1.1 SITE LOCATION

The subject property is a 2-acre parcel, which is part of a larger 5-acre parcel located at the southwestern corner of NW 183rd and NW 37th Avenue, in Miami Gardens, Miami-Dade County, Florida. The Miami-Dade County Property Appraiser folio number for the larger 5-acre parcel is 34-2108-007-0011. The Miami-Dade County Division of Environmental Resources Management (DERM) tracking number for the larger 5-acre parcel is HWR-109/File-14765. A USGS topographic map illustrating the location of the *Property* is provided as **Figure 1**. A Wellfield Protection Area map is provided at **Figure 2**. A current aerial site layout map showing the proposed development is provided as **Figures 3** and **4**.

1.2 SITE RE-USE PLAN

JTCHC intends to lease the subject 2-acre property from Miami-Dade County, and develop a 9,500 square foot community health center, with surrounding surface parking lot. Renderings of the proposed community health center are provided as **Figures 5** and **6**.

The vision for this project is to increase access to comprehensive services for families and seniors in the Miami-Gardens community. This new facility (Jessie Trice Community Health and Wellness Center at Miami Gardens) will meet the needs of the target population. Miami-Gardens is designated as both a Health Provider Shortage Area and Medically Under-served Area (HPSA/MUA). The new facility will be located inside the heart of Miami Gardens. This will be a unique facility to provide general medicine, dentistry, pediatrics, obstetrics & gynecology, behavioral health, substance abuse, HIV services and other social services for the community.

SECTION 2.0 SITE HISTORY & ASSESSMENT FINDINGS

2.1 HISTORIC RESEARCH

The history of the subject property was determined based on a review of aerial photographs (see **Appendix A**). The larger 5-acre parcel was undeveloped land from as early as 1952. The next available aerial photograph in 1963 depicted the parcel to be utilized for possible dumping in the central and northern portions, with what appeared to be an excavation pit in the northwestern corner. By the late-1960s/early-1970s the dumping activities appeared to have ceased and the parcel was overgrown. By the late-1970s, additional disturbance indicative of possible additional dumping was visible in the central and southwestern portions of the parcel. By the mid-1980s, the parcel was again overgrown. An apartment complex was developed on the western-adjointing property in the early-2000s. The sewage treatment plant has been developed on the southern and southwestern adjoining properties since the early-1960s.

Based on subsequent assessment findings (see below), construction debris was identified on the 5-acre parcel, which corresponds to the indications of disturbances in the aerial photographs. The source of dumped construction debris is unknown. Additionally, there was a report that black organic soils were observed, which exhibited a sewage odor. The southern-adjointing sewage treatment plant may have contributed to the discharge of sewage sludge.

2.2 REGULATORY RESEARCH

The DERM regulatory file included numerous previous reports, including a 1993 Phase I Environmental Site Assessment (ESA) by LAW, which indicated possible historic dumping on the larger 5-acre parcel. A series of 1994 assessment reports by LAW documented the presence of buried construction debris and black organic material with a sewage odor, and elevated ammonia and coliform bacteria concentrations in groundwater samples. A May 2001 Phase I ESA cited a Recognized Environmental Condition (REC) due to possible historic dumping.

The most comprehensive assessment document was the recent September 2013 Site Assessment Report Addendum (SARA) prepared by AMEC Environmental and Infrastructure, Inc. (AMEC), which documented the following (see **Appendix B** for key exhibits):

- The depth to groundwater varied from approximately 2 to 5 feet below land surface (BLS).
- Buried construction debris was observed across the central and northern portions of the larger 5-acre parcel, with thickness ranging from 1 to 6-feet. The debris was observed as deep as 7-feet below land surface (BLS).
 - Only a small portion (0.75-acres) of the buried debris extended southward onto the subject 2-acre property. The average thickness of debris on the subject property was approximately 4 to 5 feet.

- Soils contained benzo(a)pyrene (BaP) and BaP-equivalents above the Florida Department of Environmental Protection (FDEP) Soil Cleanup Target Level (SCTL) for *commercial-use direct exposure* across the central and northern portions of the larger 5-acre parcel.
 - Only a small portion (0.30-acres) of the BaP-affected soils extended southward onto the subject 2-acre property.
- Soils contained total arsenic above the FDEP SCTL for *residential-use direct exposure* across the central and northwestern portions of the larger 5-acre parcel.
 - Only a small portion (0.10-acres) of the arsenic-affected soils extended southward onto the subject 2-acre property.
- Groundwater contained elevated concentrations of total iron, total manganese, ammonia, and fecal coliform above the FDEP Groundwater Cleanup Target Levels (GCTLs) across the central and northern portions of the larger 5-acre parcel.
 - Only a small portion (0.30-acres or less) of the affected groundwater extended southward onto the subject 2-acre property.
- Soil vapor samples contained elevated concentrations of methane above the lower explosive limit (LEL) in two isolated areas of the larger 5-acre parcel.
 - One isolated area (0.15-acres) of elevated methane gas was identified on the subject 2-acre property.

SECTION 3.0 APPLICABLE REGULATIONS & CLEANUP STANDARDS

JTCHC intends to designate the subject 2-acre property as a Brownfields Site, and enter into a Brownfields Site Rehabilitation Agreement (BSRA) with the Florida Department of Environmental Protection (FDEP). Under this scenario, the applicable regulations guiding the site rehabilitation will be Chapter 62-780, Florida Administrative Code (FAC). Additional governing laws/regulations may include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, and the Federal Occupation Safety & Health Act (OSHA), along with Chapter 24 of the Miami-Dade County Code.

All work will be completed in adherence with the Underground Facility Damage Prevention and Safety Act, Chapter 556 of the Florida Statutes, which requires anyone digging to call 811 first so underground utility lines can be located and marked.

FDEP will be the lead oversight regulator enforcing the site rehabilitation activities, as the property is owned by Miami-Dade County. The BSRA will establish the required site rehabilitation documents and timeframe for compliance. Documents will be submitted to FDEP for review and approval. A new Brownfields Site tracking number also will be assigned following execution of the BSRA.

The cleanup objectives will utilize Risk Based Corrective Action (RBCA) principles under Chapter 62-80, FAC, in order to achieve a No Further Action with Conditions (NFAC) closure for the subject 2-acre property. This closure strategy will utilize Engineering and Institutional Controls to manage potential exposure pathways, while leaving contamination in-place.

SECTION 4.0 BROWNFIELDS CLEANUP ALTERNATIVES

4.1 EVALUATION OF CLEANUP ALTERNATIVES

EE&G evaluated the following three primary cleanup alternatives to address the impacts identified during the September 2013 SARA report:

1. No Action
2. Capping, Venting & Monitoring
3. Excavation & Offsite Disposal

Alternative No. 1 – No Action

This alternative would be easy to implement and no costs would be incurred. However, this alternative was not considered to be an effective strategy for addressing the contamination and controlling/preventing exposure.

Alternative No. 2 – Capping, Venting & Monitoring

Capping would be relatively easy to implement. The proposed redevelopment plan (building and parking lot) would be utilized to provide a surface cap across a majority of the property. Those costs would already be included in the development costs. The remaining landscaped areas (estimated to be approximately 4,500 square feet) would require a minimum 2-foot cap using imported clean fill. The costs for excavation/relocation onsite of top 2-feet, and importing approximately 500 tons of clean fill for cover, including dust control and monitoring, would be approximately \$20,000.00.

The impermeable cap may result in the accumulation of methane gas beneath the building and parking lot. Therefore, this strategy would require implementation of a vapor barrier within the building, and a passive venting system for the building and parking lot. The cost for installation of a vapor barrier beneath the 9,500 square foot building was estimated to be approximately \$60,000.00. The cost for the installation of the passive ventilation system for the building and parking lot was estimated to be approximately \$50,000.00. Vapor monitoring for a minimum period of 2 years was estimated to be approximately \$20,000.00. Remedial design and reporting was estimated to be an additional \$40,000.00.

Storm water drainage would need to be designed to drain along the southern, eastern and western boundaries of the property, in order to avoid exacerbation of affected groundwater in the northwestern-central portions of the subject 2-acre property. Monitoring wells would need to be installed at the boundary of the property and a 1-year groundwater Monitoring Only Plan (MOP) in support of NFAC. The cost for installation of eight monitoring wells and conducting four quarterly groundwater sampling events for select heavy metals, ammonia and fecal coliform would be approximately \$30,000.00.

Therefore, the total cost for this alternative was estimated to be approximately \$220,000.00

This alternative was considered to be an effective strategy for controlling/preventing exposure to the affected soils, debris and methane gas after development. However, capping alone may not sufficiently address the impact of buried solid waste beneath or near the proposed building.

Alternative No. 3 – Excavation & Offsite Disposal

Excavation and offsite disposal would be the most effective strategy to address the contamination by removing the source. This alternative is moderately difficult to implement, and would require dust suppression and monitoring during excavation and export, and a short-term disturbance to the community (approximately 300 transport trucks driving in/out of the site). Furthermore, this alternative is cost prohibitive. It is estimated that approximately 6,000 cubic yards of affected soils mixed with debris may persist on the subject 2-acre property. Assuming a weight conversion of 1.4, this volume equated to an estimated 8,400 tons. The estimate costs to implement this alternative would be approximately \$828,000.00, including \$500,000.00 for transportation and disposal to a Class 1 lined landfill, \$168,000.00 for backfilling with imported clean fill, and approximately \$160,000.00 for equipment, labor, consulting, dust control and monitoring, and design/reporting.

This alternative would require an additional approximately \$30,000.00 to perform a post-removal groundwater and methane gas assessment, which would be needed to determine if additional mitigation is necessary for storm water drainage and venting. Furthermore, it is possible that the 1-year groundwater Monitoring Only Plan (MOP) in support of NFAC may still be necessary at a cost of approximately \$17,000.00.

Therefore, the total cost for this alternative (not including a vapor barrier or venting system – if warranted) was estimated to be approximately \$875,000.00.

4.2 RECOMMENDED CLEANUP ALTERNATIVE

EE&G recommends a combination of Cleanup Alternatives 2 and 3 be considered to address this impact. This includes a full implementation of Alternative #2 – Capping, Venting and Monitoring. Additionally, a limited implementation of Alternative #3 – Excavation and Offsite Disposal to address only the potential solid waste beneath or near the proposed building. EE&G envisions the following implementation strategy:

- Preparation of Remedial Action Plan (RAP). Cost – Approximately \$25,000.00
- Excavation and offsite disposal of approximately 2,000 tons of solid waste mixed with affected soils beneath or near the proposed building, including equipment, labor and consulting, along with dust suppression and monitoring. Cost – Approximately \$150,000.00
- Utilization of approximately 500 tons of material excavated from landscape areas to backfill excavation. Cost - \$5,000.00 for excavation/relocation.
- Import of approximately 1,500 tons of clean fill for backfilling remaining excavation area(s), including dust control and monitoring. Cost – Approximately \$35,000.00
- Import of approximately 500 tons of clean fill to provide 2-foot cap across approximately 4,500 square feet of landscape areas. Cost - Approximately \$10,000.00.
- The proposed redevelopment plan (building and parking lot) would be utilized to provide a surface cap across a majority of the property. Those costs would already be included in the development costs.

- Installation of a vapor barrier beneath the 9,500 square foot building. Cost – Approximately \$60,000.00.
- Installation of the passive ventilation system for the building and parking lot. Cost – Approximately \$50,000.00.
- Preparation of Remedial Action Implementation Report (RAIR). Cost – Approximately \$15,000.00.
- Vapor monitoring for a period of 2 years. Cost - Approximately \$20,000.00.
- Installation of eight monitoring wells and conducting 1-year MOP. Cost – Approximately \$30,000.00.

Therefore, the total cost for this alternative was estimated to be approximately \$400,000.00, of which the \$200,000.00 USEPA Brownfields Grant is instrumental, and which will be supplemented by funding coming from JTCHC and possibly a Brownfields Revolving Fund Agreement with the South Florida Regional Planning Council.

4.3 TIME FRAME FOR RECOMMENDED CLEANUP ALTERNATIVE

The recommended Brownfields Cleanup Alternative can be implemented immediately and completed within 36 months of award of the Brownfields Cleanup Grant, divided into four main phases.

Phase I: 0 to 6 Months: Awardee will utilize the initial 6 months to select a contractor, execute the BSRA, and complete permitting for the proposed redevelopment plan. Contractor will provide the Remedial Action Plan (RAP) to FDEP for review and approval. Upon approval by FDEP, the contractor will complete the limited soil excavation within 3 months.

Phase II: 6 to 20 Months: The proposed redevelopment plan (building and parking lot) will be constructed, which will be utilized to provide a surface cap across a majority of the property. The vapor barrier will be installed beneath the building, along with the passive venting system beneath the building and in the parking lot (to cut off migration of methane from the northern debris areas), concurrently with the actual development.

Phase III: 20 to 32 Months: The post-development groundwater and vapor monitoring will be implemented over a course of 1 year. Methane gas monitoring will continue for additional years as deemed necessary for evaluation of health and safety, and as required by the FDEP.

Phase IV: 32 to 36 Months: Recording of Restrictive Covenant and Receiving NFAC closure from FDEP.

4.4 EVALUATION OF CLIMATE CHANGE ON CLEANUP ALTERNATIVE

In evaluating the cleanup alternatives, EE&G considered the resilience of the strategies in light of reasonably foreseeable changing climate conditions. As part of this evaluation, EE&G consulted the EPA-recommended United States Global Change Research Program website, which provided a brief overview of the observed changes in the climate of the Southeast United States as well as possible future climate conditions as simulated by climate models, based on

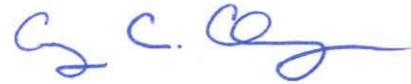
two scenarios of future greenhouse gas emissions. The document summarized the observed climate trends of the Southeast United States, focusing mainly on temperature and precipitation, as well as other climate features, including heat waves, extreme precipitation, and tropical cyclones. The following trends were identified:

- **Temperature:** The Southeast United States is one of the few regions globally not to exhibit an overall warming trend in surface temperature over the 20th century. In recent years (since the 1970s), however, temperatures have steadily increased across the region, with the most recent decade (2001-2010) being the warmest on record. The number of extreme hot days in the Southeast has tended to decrease or remain the same, while the number of warm summer nights has increased. The number of extreme cold days has decreased across the region.
 - Models predict statistically significant annual mean temperature increases across the Southeast, with the greatest warming simulated to occur in the northwest part of the region. The lack of mid-20th century warming in the Southeast is not simulated by the models. However, 21st century simulations of temperature indicate that future warming will be much larger than the observed values for the 20th century.
- **Precipitation:** For the Southeast region as a whole, long-term trends in precipitation are statistically significant for fall, which shows an upward trend, and summer, which shows a slight downward trend. Year-to-year variability in precipitation has increased over the last several decades across much of the region, with more exceptionally wet and dry summers. The frequency of extreme precipitation events has been increasing across the Southeast region, particularly over the past two decades.
 - Models predict that the annual mean precipitation in the Southeast will generally increase, with the greatest increases indicated for winter. Decreases are also simulated for some areas and seasons, and are greatest in summer. For the most part, any simulated changes in precipitation are either not statistically significant or the models are not in agreement on the sign of the changes. There is significant uncertainty in the prediction of precipitation change scenarios in the models.
- **Additional Climate Features:** The decadal frequencies of both hurricane and major hurricane (category 3 and greater) landfalls have declined slightly over the last 100 years; however, there is large decade-to-decade variability. Sea levels across the extensive coastline of the Southeast have slowly risen over the 20th century.

Considering that this project will be completed within 36 months of receipt of the grant award, no significant variation in approach is anticipated based on predicted trends for the Southeastern Florida area. The recommend cleanup alternative is considered to be resilient to potential climate changes, including increasing temperatures and rainfall. In the event that a major hurricane impacted the property, the integrity of the cap and ventilation system would need to be evaluated and repaired if necessary.

**SECTION 5.0
PROFESSIONAL CERTIFICATION**

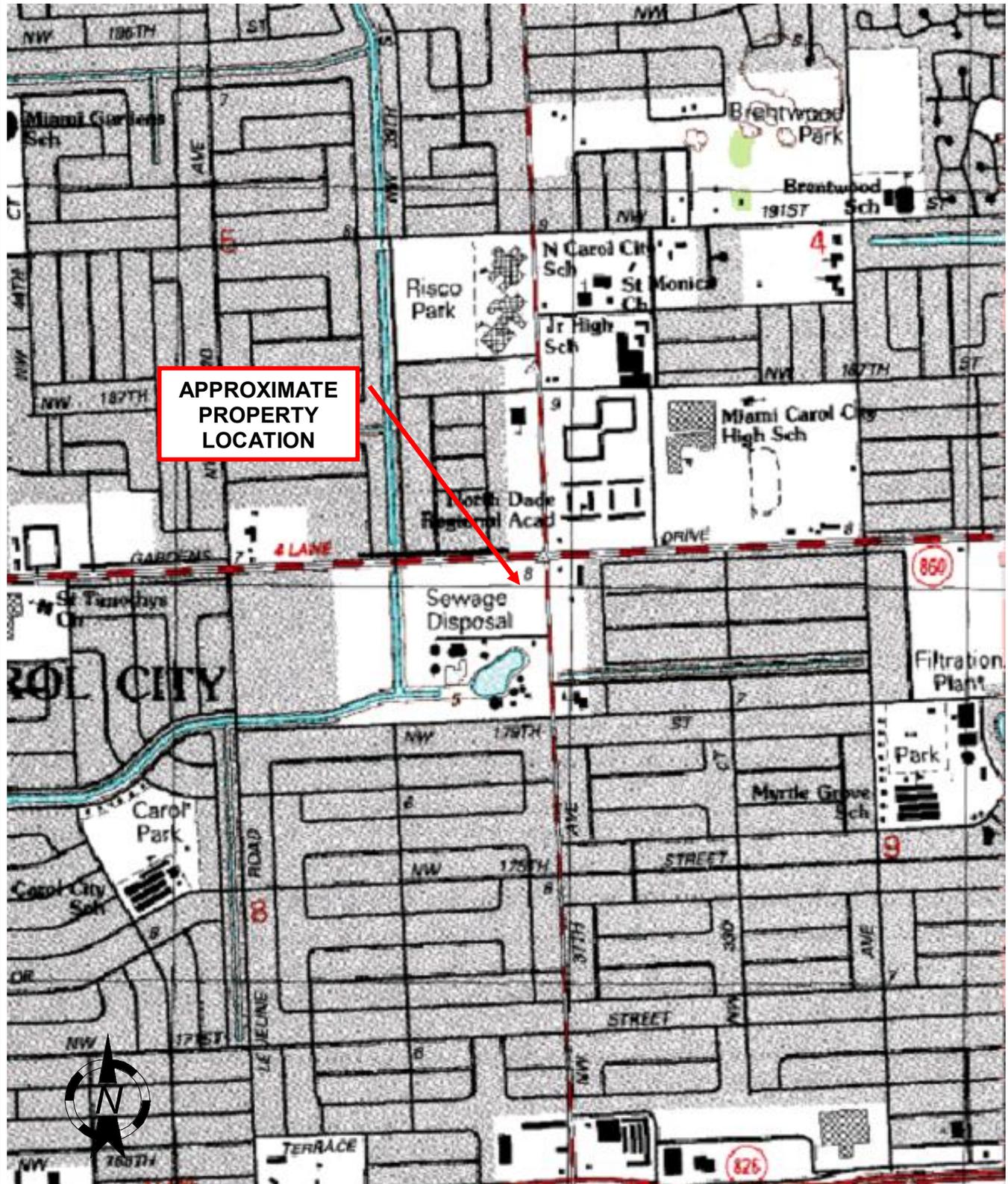
I, Craig C. Clevenger, P.G. #1666, certify that I currently hold an active license in the state of Florida and am competent through education and experience to provide the geological consulting services documented in the aforementioned ABCA. Moreover, I certify that EE&G holds an active certificate of authorization #GB483 to provide geological services in the state of Florida.



Craig C. Clevenger, P.G. #1666

November 11, 2014
Date

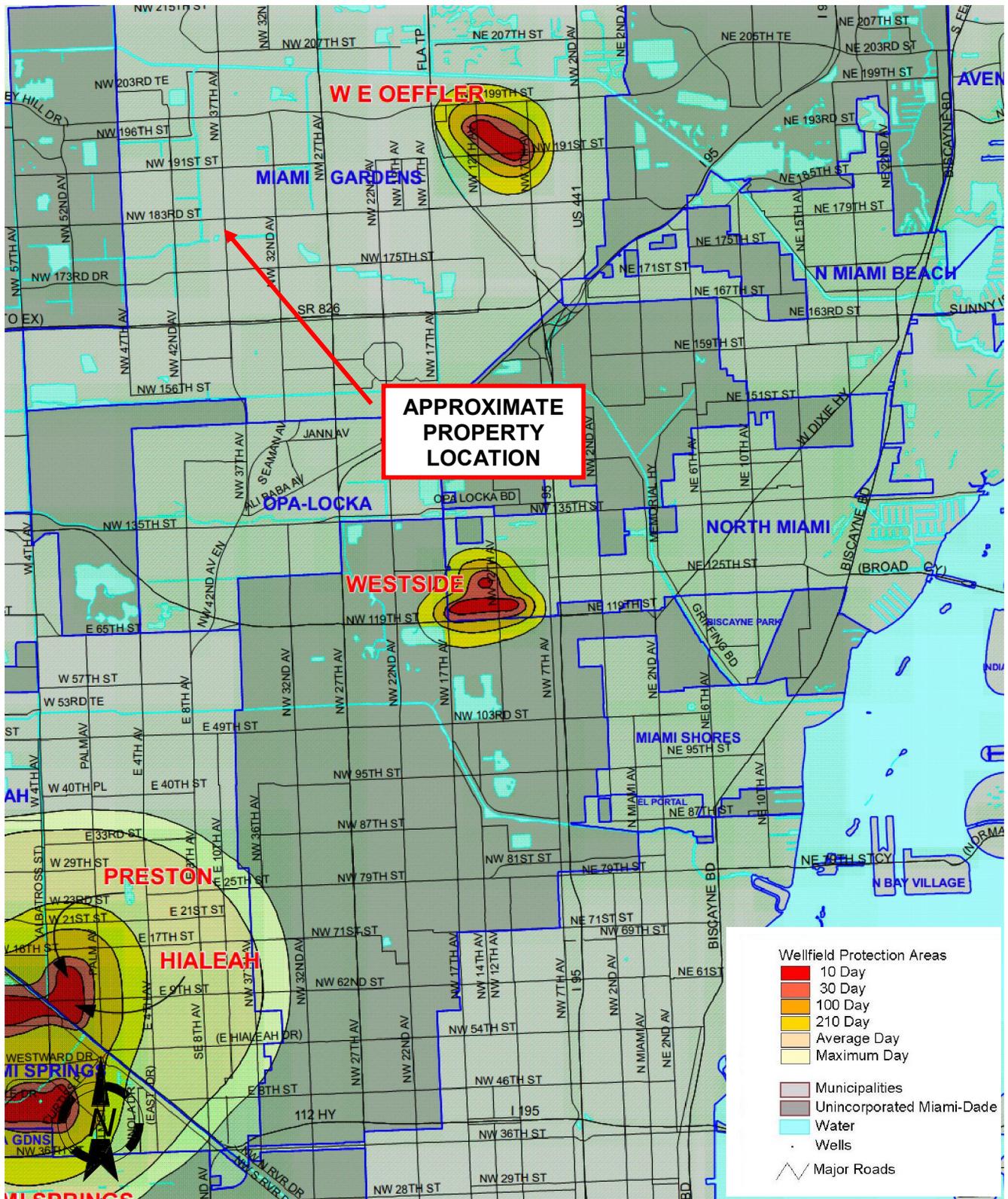
FIGURES



Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

TOPOGRAPHIC MAP
Source: USGS

FIGURE
1



Proposed Jessie Trice
 Community Health Center
 NW 183rd St. & NW 37th Ave
 Miami Gardens, FL 33055
 Project #: 2013-3105.JPH1

WELLFIELD MAP
 SOURCE: DERM

FIGURE
 2



AERIAL VIEW



PROPOSED DEVELOPMENT
Jessie Trice Community Health
Center at Miami Gardens (JTCHC)
183rd Street & NW 37th Ave

MIAMI GARDENS Dr. (NW 183rd STREET)

LOT: 520'x418

418'

208'

DOUGLAS ROAD (NW 37th AVENUE)

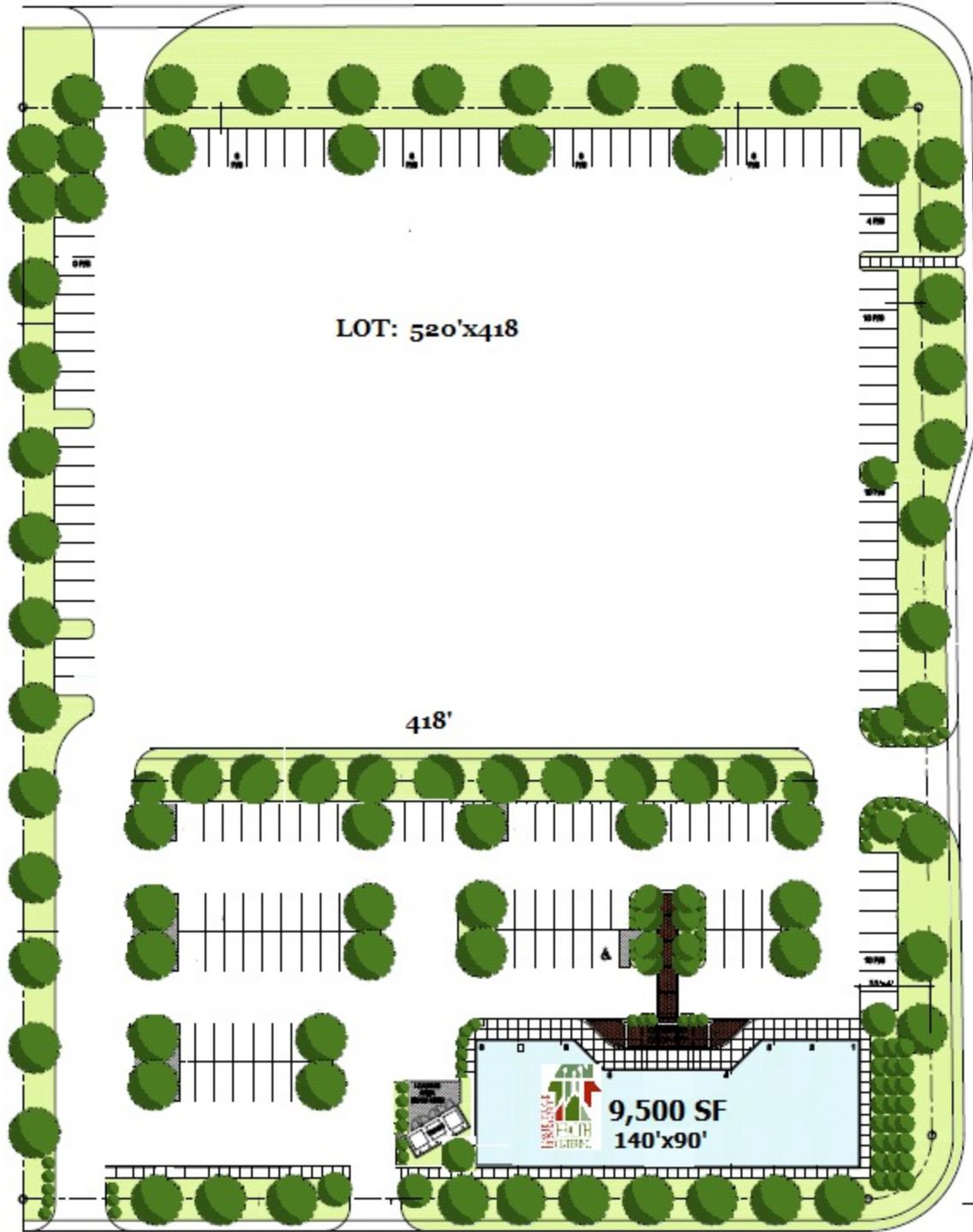
NW 181st STREET

Conceptual Site Plan Scale: 1"=20'-0"



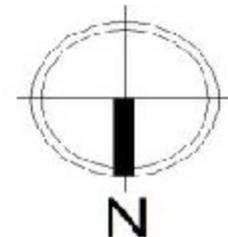
JTCHC

2 Acres 208'x418'
Building Footprint 140'x90'
Parking 4:1
FAR 5%





**Jessie Trice Community Health Center
at Miami Gardens - FLOOR PLAN**





**Jessie Trice Community Health Center
at Miami Gardens**

APPENDIX A
HISTORICAL AERIALS PHOTOGRAPHS



Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

2012 AERIAL PHOTOGRAPH

**FIGURE
D11**



Environmental Services, LLC

5751 Miami Lakes Drive
Miami Lakes, Florida 33014
Phone (305)374-8300 Fax (305)374-9004



**APPROXIMATE
PROPERTY
LOCATION**

Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

2003 AERIAL PHOTOGRAPH

**FIGURE
D11**



**APPROXIMATE
PROPERTY
LOCATION**



**Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1**

1998 AERIAL PHOTOGRAPH

**FIGURE
D11**



Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

1991 AERIAL PHOTOGRAPH

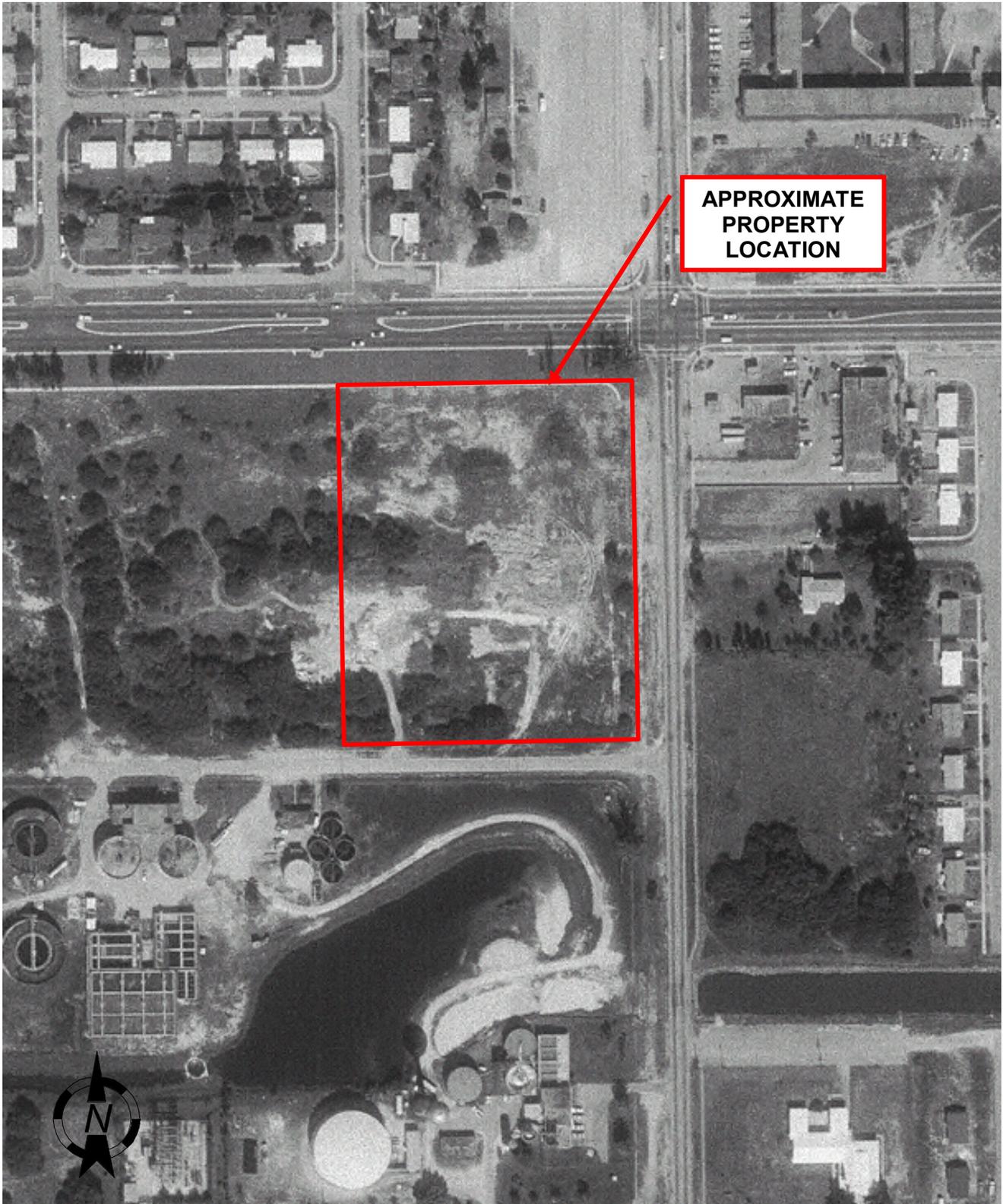
**FIGURE
D11**



Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

1985 AERIAL PHOTOGRAPH

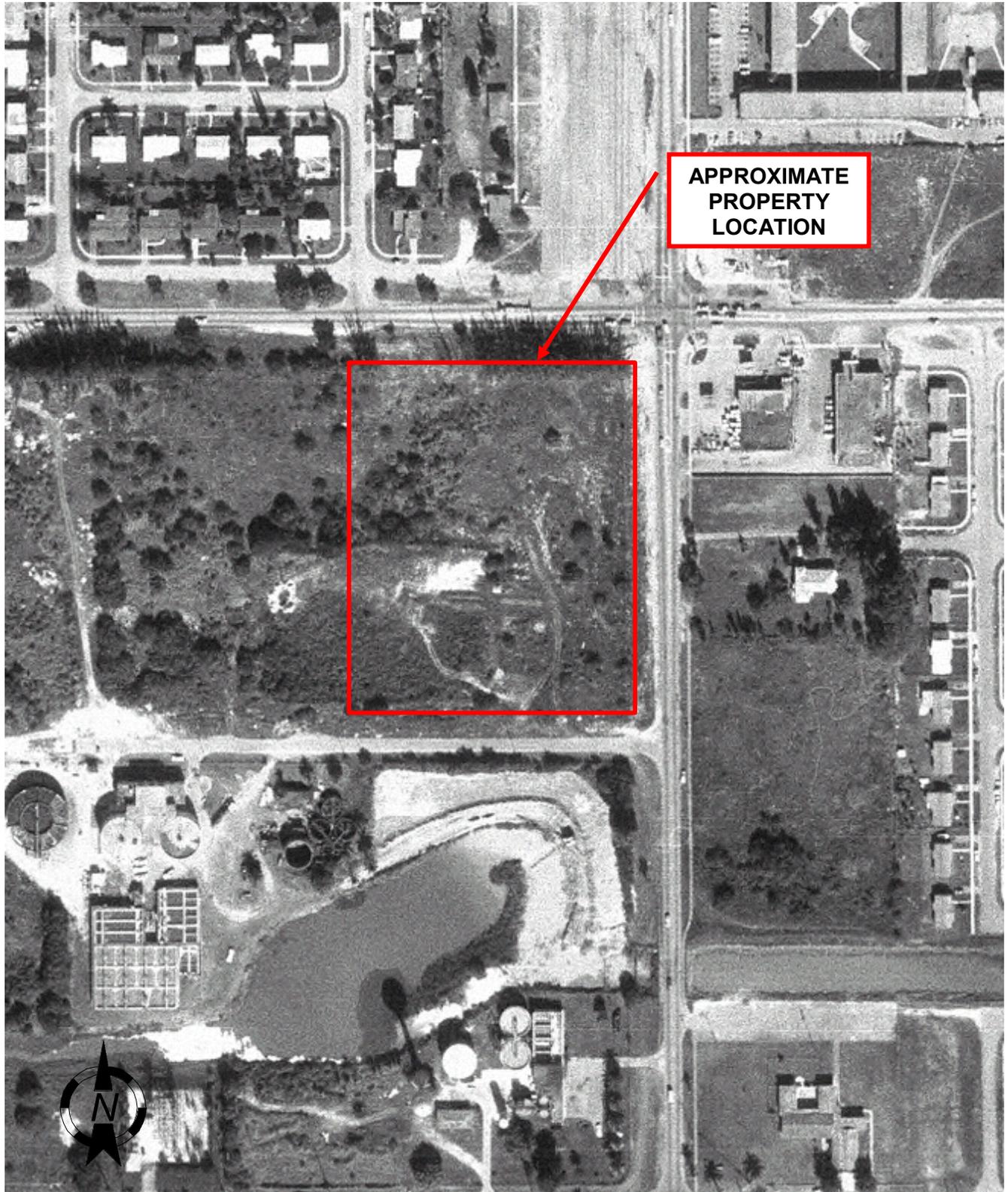
**FIGURE
D11**



Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

1978 AERIAL PHOTOGRAPH

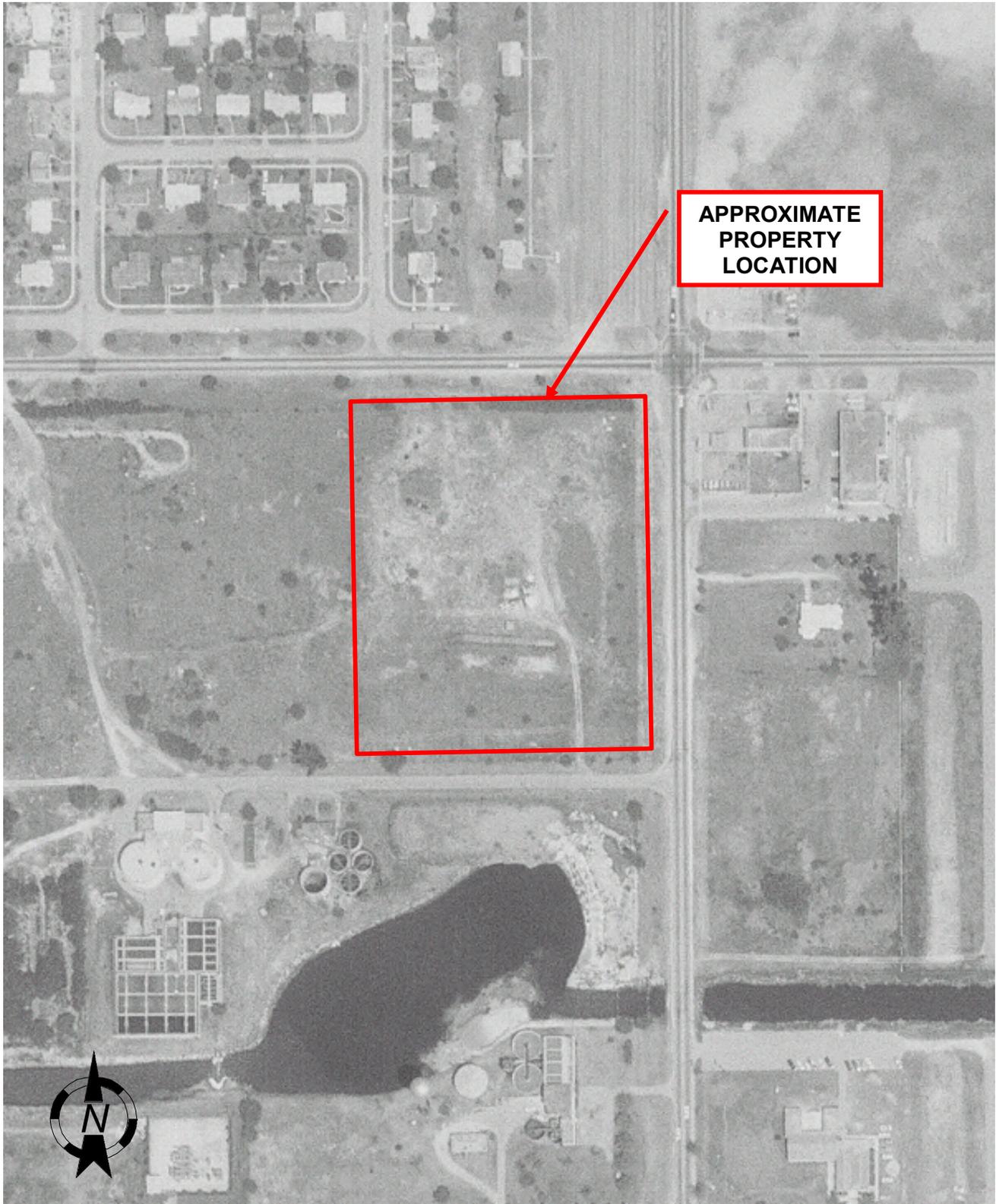
**FIGURE
D11**



Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

1973 AERIAL PHOTOGRAPH

**FIGURE
D11**



Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

1968 AERIAL PHOTOGRAPH

**FIGURE
D3**



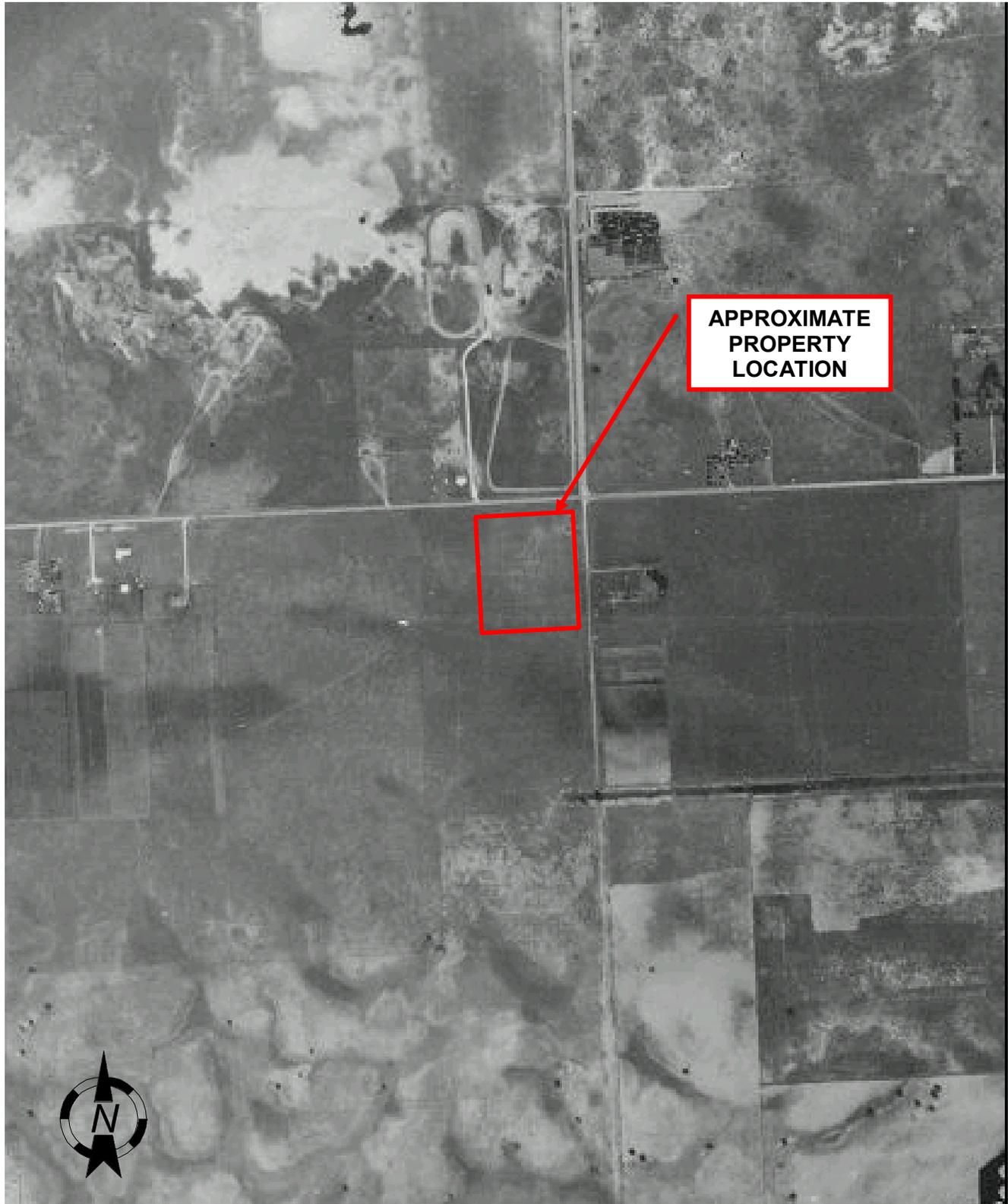
**APPROXIMATE
PROPERTY
LOCATION**



**Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1**

1963 AERIAL PHOTOGRAPH

**FIGURE
D2**



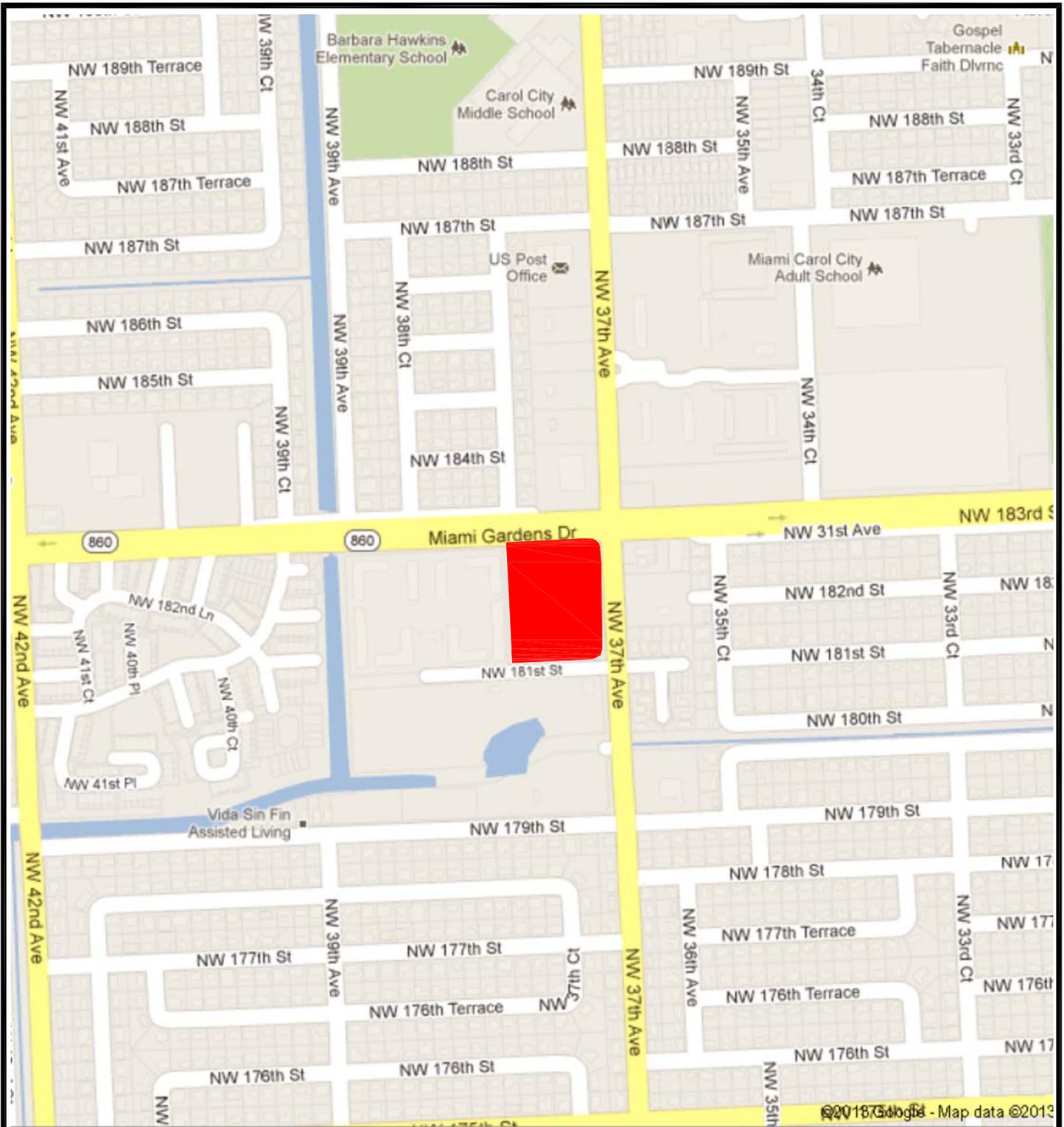
Proposed Jessie Trice
Community Health Center
NW 183rd St. & NW 37th Ave
Miami Gardens, FL 33055
Project #: 2013-3105.JPH1

1952 AERIAL PHOTOGRAPH

**FIGURE
D1**

APPENDIX B

EXHIBITS FROM SEPTEMBER 2013 SITE ASSESSMENT REPORT ADDENDUM



REFERENCE:

MIAMI GARDENS AREA MAP OBTAINED FROM [HTTPS://MAPS.GOOGLE.COM/](https://maps.google.com/)



SUBJECT PROPERTY

ISD VACANT LOT

SW corner and Intersection of NW 37th Ave & 183rd St.
Miami Gardens, Florida 33056

AMEC PROJECT No.: 6783-13-2473



5845 N.W. 158th STREET
MIAMI LAKES, FL 33014
TEL: (305) 826-5588 / FAX: (305) 826-1799

FIG. 1

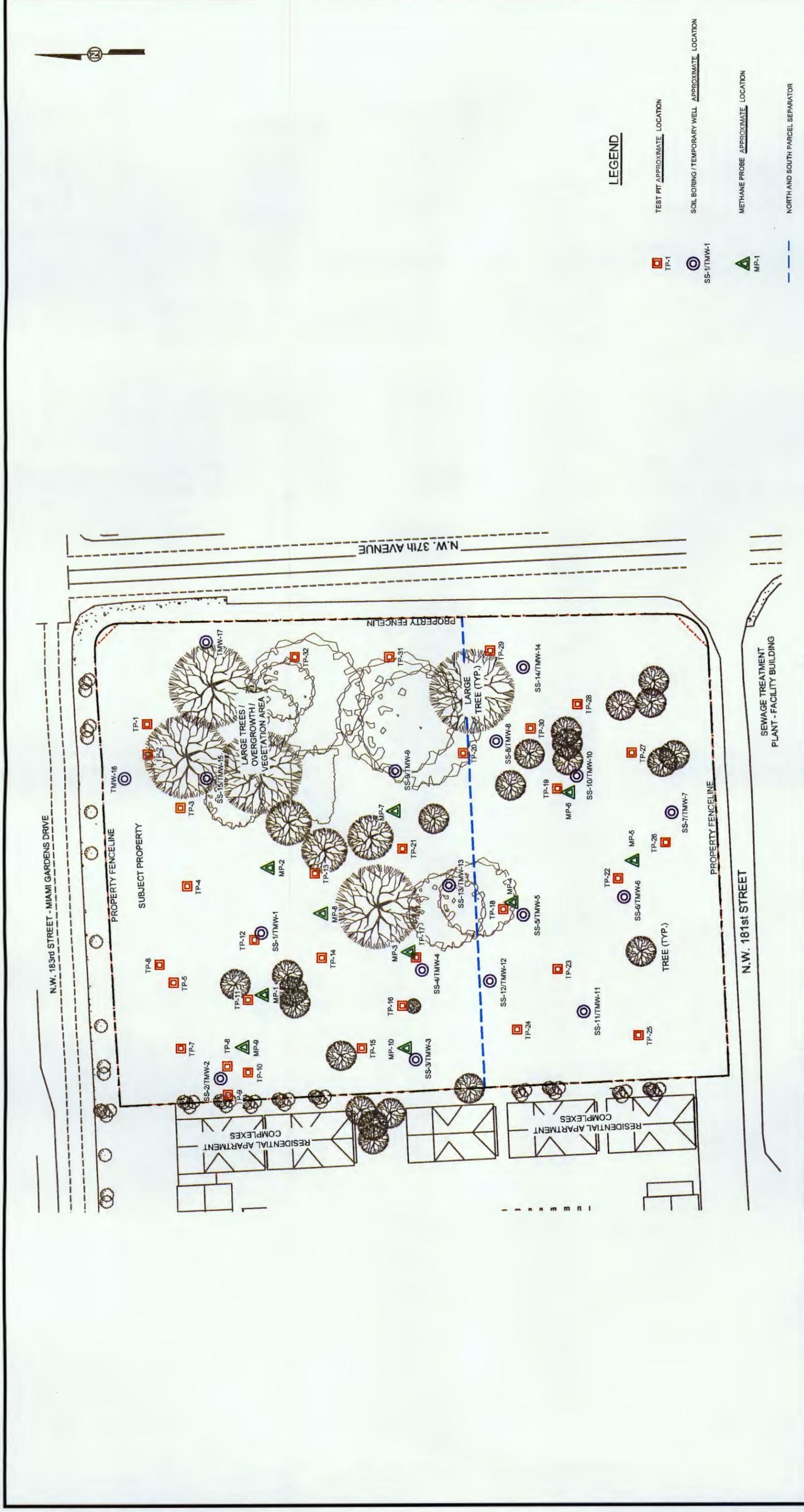
SITE LOCATION MAP

DRAWN BY: NAB

DATE: 05/7/13

CHECKED BY:

SCALE: N.T.S.



ameco
 5845 N.W. 158th STREET
 MIAMI LAKES, FL 33014
 TEL: (305) 826-5588 / FAX: (305) 826-1799
 AMEC PROJECT #: 6783-13-2486.01

FIGURE 2

SAMPLE LOCATION MAP

ISD VACANT LOT

SW Corner of Intersection of NW 37th Ave & 183rd St
 Miami Gardens, FL 33056

DRAWN BY: JAM	DATE: 08/15/13
CHECKED BY: AA	SCALE: AS SHOWN



LEGEND



- W WOOD DEBRIS
- T TILE
- M METAL DEBRIS (PPPS)
- R IRON ROD
- P PVC
- B BRICK TILES
- R METAL REBAR
- C CONCRETE DEBRIS



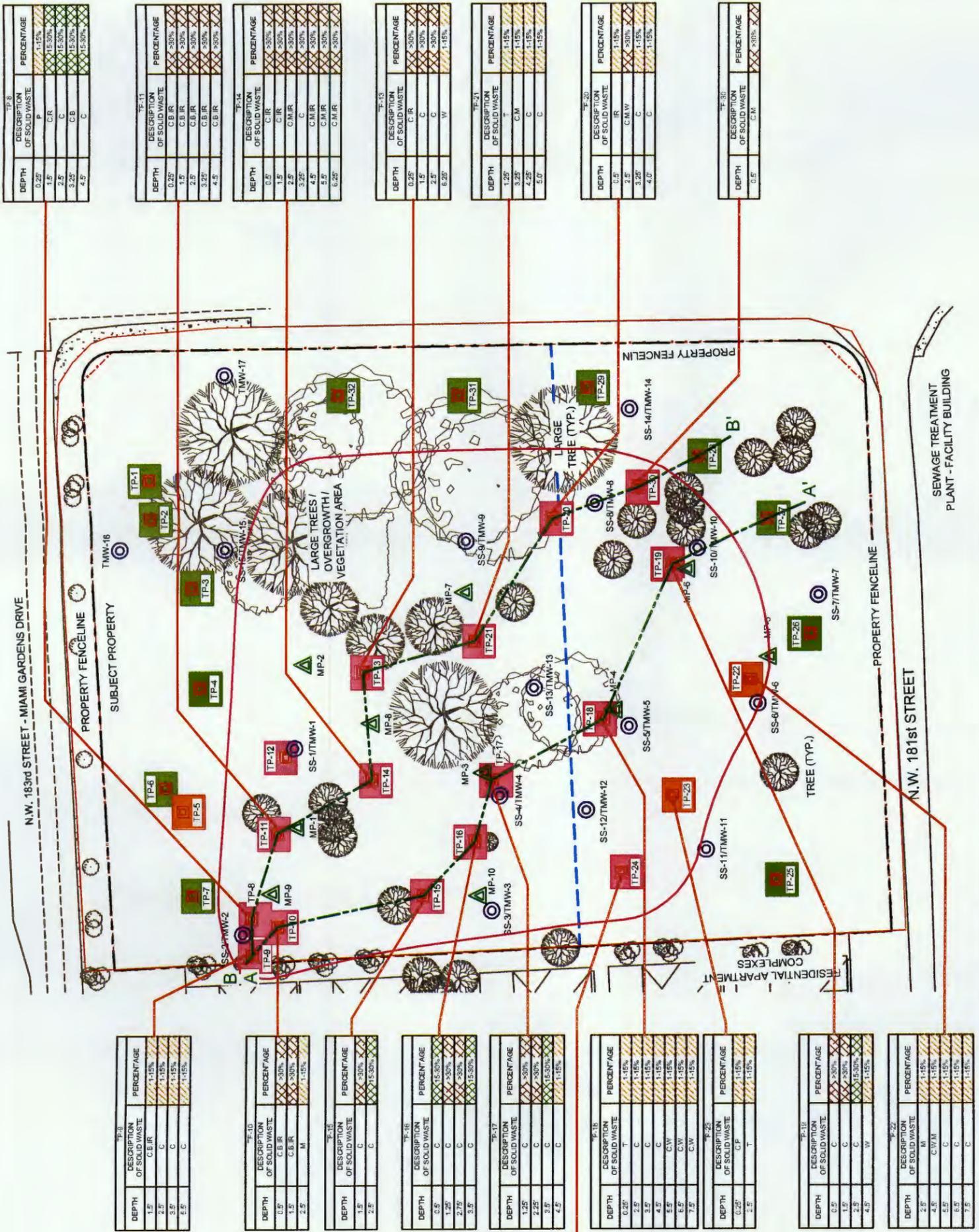
- TP-1 TEST PIT APPROXIMATE LOCATION
- SS-1/TMMW-1 SOIL BORING / TEMPORARY WELL APPROXIMATE LOCATION
- MP-1 METHANE PROBE APPROXIMATE LOCATION
- LEL LOWER EXPLOSIVE LIMIT
- A-----A' CROSS-SECTION CUTTING PLANE
- -- NORTH AND SOUTH PARCEL SEPARATOR

REFERENCE:

BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.

NOTE:

MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.



DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	P	1-15%
1.5'	CR	15-30%
2.5'	C	15-30%
3.25'	CB	15-30%
4.5'	C	15-30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	C.B.R.	>30%
1.5'	C.B.R.	>30%
2.5'	C.B.R.	>30%
3.25'	C.B.R.	>30%
4.5'	C.B.R.	>30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C.R.	>30%
1.5'	C.R.	>30%
2.5'	C.M.R.	>30%
3.25'	C	>30%
4.5'	C.M.R.	>30%
5.25'	C.M.R.	>30%
6.25'	C.M.R.	>30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	C.R.	>30%
1.5'	C	>30%
2.5'	C	>30%
6.25'	W	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.25'	T	1-15%
3.25'	C.M	1-15%
4.25'	C	1-15%
5.0'	C	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	IR	1-15%
2.5'	C.M.W	>30%
3.25'	C	1-15%
4.0'	C	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C.M	>30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.5'	C.B.R.	1-15%
2.5'	C	1-15%
3.5'	C	1-15%
4.5'	C	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C.B.R.	>30%
1.5'	C.B.R.	>30%
2.5'	M	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.5'	C	>30%
2.5'	C	15-30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C	15-30%
1.25'	C	>30%
2.75'	C	>30%
3.5'	C	15-30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.25'	C	>30%
2.25'	C	>30%
2.5'	C	>30%
4.5'	C	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	T	1-15%
2.5'	C	1-15%
3.5'	C	1-15%
4.5'	C	1-15%
5.5'	C.W	1-15%
6.5'	C.W	1-15%
7.5'	C.W	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	C.P	1-15%
2.5'	T	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C	>30%
1.5'	C	>30%
2.5'	C	15-30%
4.5'	W	1-15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
2.5'	M	1-15%
4.5'	C.W.M	1-15%
5.5'	C	1-15%
6.5'	C	1-15%
7.5'	C	1-15%

FIGURE 3A

EXTENT OF SOLID WASTE MAP

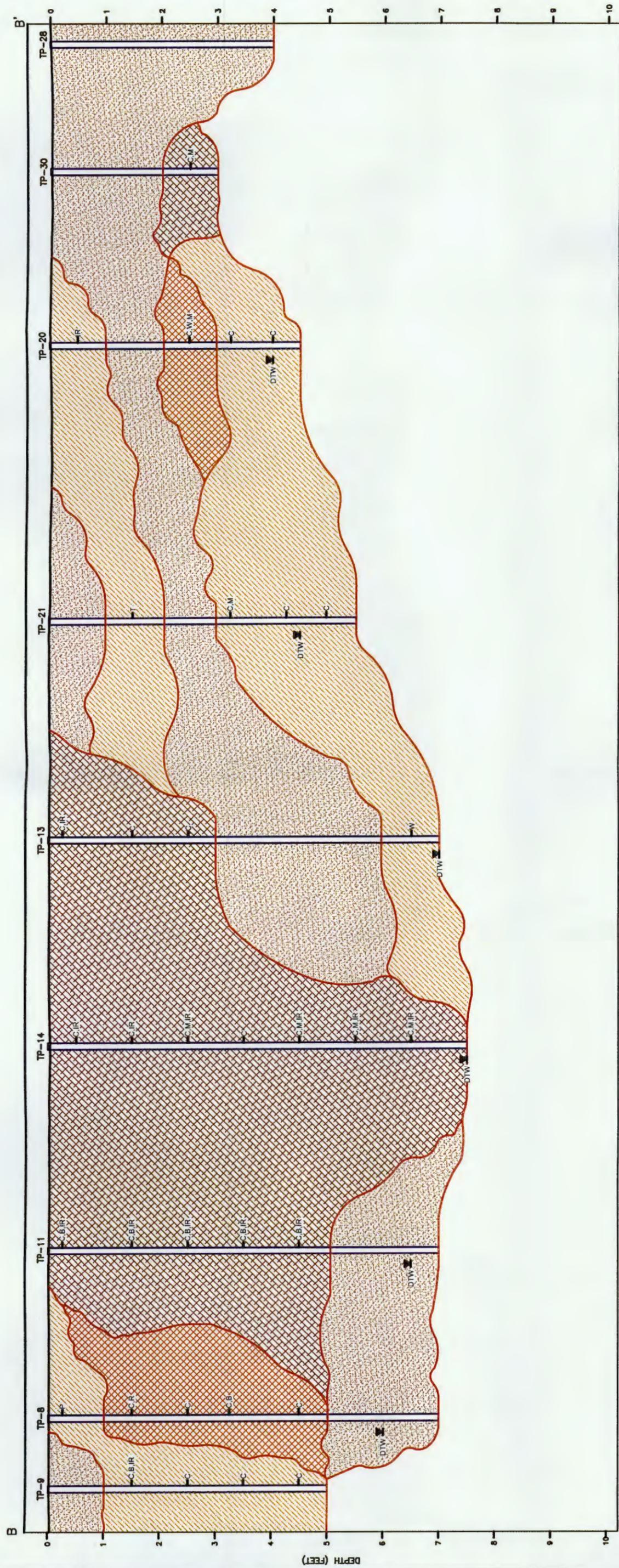
ISD VACANT LOT

SW Corner of Intersection of NW 37th Ave & 183rd St
Miami Gardens, FL 33056

DRAWN BY: JAM	DATE: 08/15/13
CHECKED BY: AA	SCALE: AS SHOWN



5845 N.W. 158th STREET
MIAMI LAKES, FL 33014
TEL: (305) 826-5588 / FAX: (305) 826-1799
AMEC PROJECT #: 6783-13-2486.01



LEGEND

DTW	GROUND WATER ELEVATION	SOIL
V	WOOD DEBRIS	1 - 15K
T	TILE	15 - 30K
M	METAL DEBRIS (PPCS)	>30K
IR	IRON ROD	
P	PVC	
B	BRICK TILES	
R	METAL REBAR	
C	CONCRETE DEBRIS	

BOXING (A), TEST PIT (TP), OR MONITORING WELL (M/W)



ISD VACANT LOT

FIGURE 3C
 CROSS SECTION B - B'
 SHOWING DEPTH OF
 SOLID WASTE

SW Corner of Intersection of NW 37th Ave & 183rd St
 Miami Gardens, FL 33056

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 CHECKED BY: AA SCALE: AS SHOWN



LEGEND

- APPROXIMATE SOLID WASTE AREA
NORTHERN PROPERTY
AREA = 76,156 SQ. FT.
- APPROXIMATE SOLID WASTE AREA
SOUTHERN PROPERTY
AREA = 30,004 SQ. FT.
- HEAVY SOLID WASTE
- MINIMAL SOLID WASTE
- NO SOLID WASTE

- W** WOOD DEBRIS
- T** TREE
- M** METAL DEBRIS (PPPPS)
- R** ROCK ROAD
- P** PVC
- D** BRICK TILES
- R** METAL REBAR
- C** CONCRETE DEBRIS

- 1 - 15%
- 15 - 30%
- >30%

- TP-1 TEST PIT APPROXIMATE LOCATION
- SS-1/TMW-1 SOIL BORING / TEMPORARY WELL APPROXIMATE LOCATION
- MP-1 METHANE PROBE APPROXIMATE LOCATION
- LEL LOWER EXPLOSIVE LIMIT
- A-----A' CROSS-SECTION CUTTING PLANE
- NORTH AND SOUTH PARCEL SEPARATOR

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	P	1.15%
1.5'	CR	15.30%
2.5'	C	15.30%
3.25'	CB	15.30%
4.5'	C	15.30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	C.B.I.R.	>30%
1.5'	C.B.I.R.	>30%
2.5'	C.B.I.R.	>30%
3.25'	C.B.I.R.	>30%
4.5'	C.B.I.R.	>30%

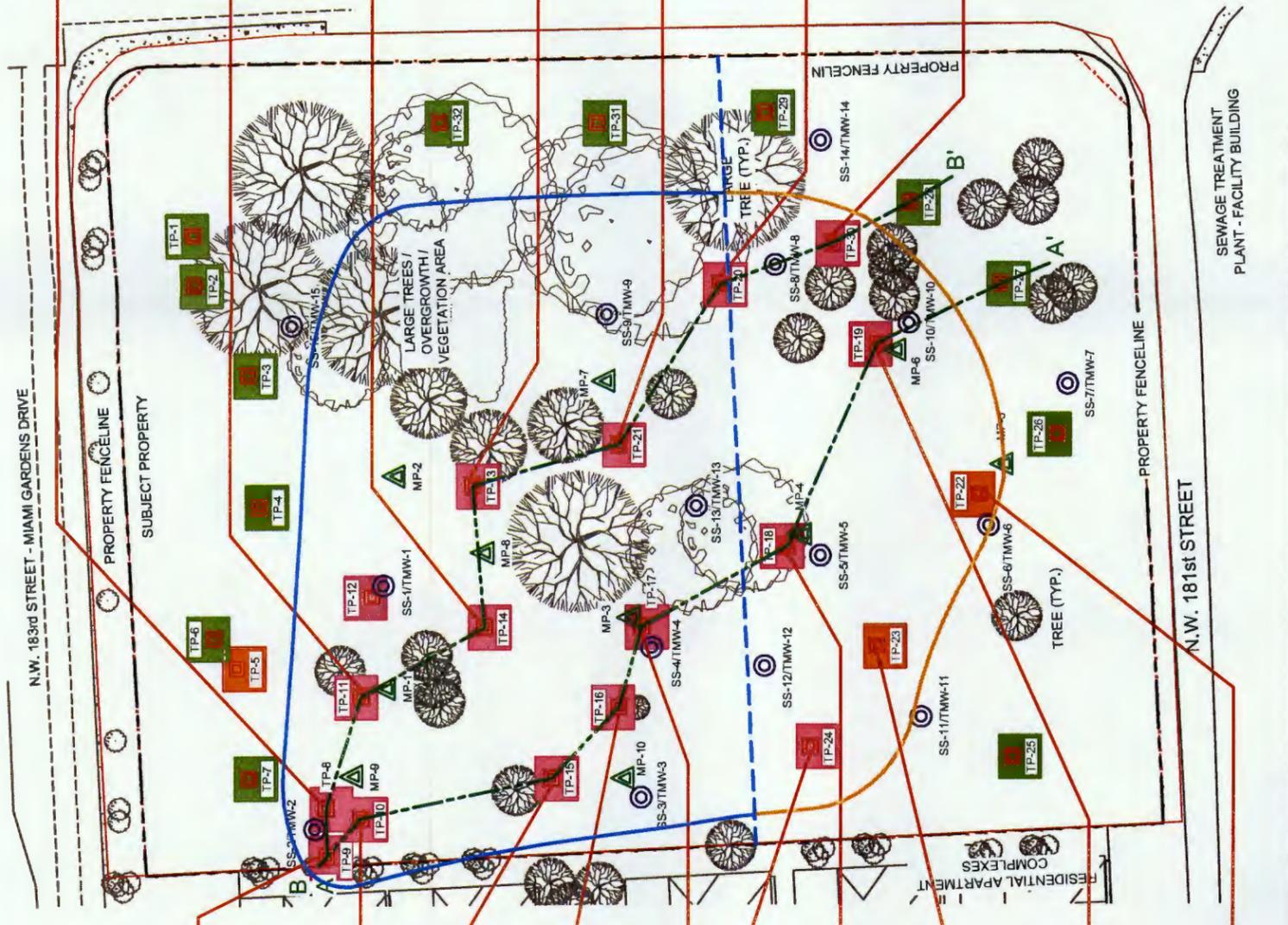
DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C.R.	>30%
1.5'	C.R.	>30%
2.5'	C.M.I.R.	>30%
3.25'	C	>30%
4.5'	C.M.I.R.	>30%
5.5'	C.M.I.R.	>30%
6.25'	C.M.I.R.	>30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	C.R.	>30%
1.5'	C	>30%
2.5'	C	>30%
3.25'	C	>30%
4.5'	W	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.25'	T	1.15%
3.25'	C.M.	1.15%
4.25'	C	1.15%
5.0'	C	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	IR	1.15%
2.5'	C.M.W	>30%
3.25'	C	1.15%
4.0'	C	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C.M.	>30%



DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.5'	C.B.I.R.	1.15%
2.5'	C	1.15%
3.5'	C	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C.B.I.R.	>30%
1.5'	C.B.I.R.	>30%
2.5'	M	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.5'	C	>30%
2.5'	C	12.30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.25'	C	13.30%
1.25'	C	>30%
2.75'	C	>30%
3.5'	C	12.30%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
1.25'	C	>30%
2.25'	C	>30%
3.5'	C	12.30%
4.5'	C	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	T	1.15%
2.5'	C	1.15%
3.5'	C	1.15%
4.5'	C	1.15%
5.5'	C.W	1.15%
6.5'	C.W	1.15%
7.5'	C.W	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.25'	C.P	1.15%
2.5'	T	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
0.5'	C	>30%
1.5'	C	>30%
2.5'	C	15.30%
4.5'	W	1.15%

DEPTH	DESCRIPTION OF SOLID WASTE	PERCENTAGE
2.5'	M	1.15%
4.5'	C.W.M	1.15%
5.5'	C	1.15%
6.5'	C	1.15%
7.5'	C	1.15%

FIGURE 3D

EXTENT OF SOLID WASTE IN NORTHERN AND SOUTHERN PORTIONS

ISD VACANT LOT

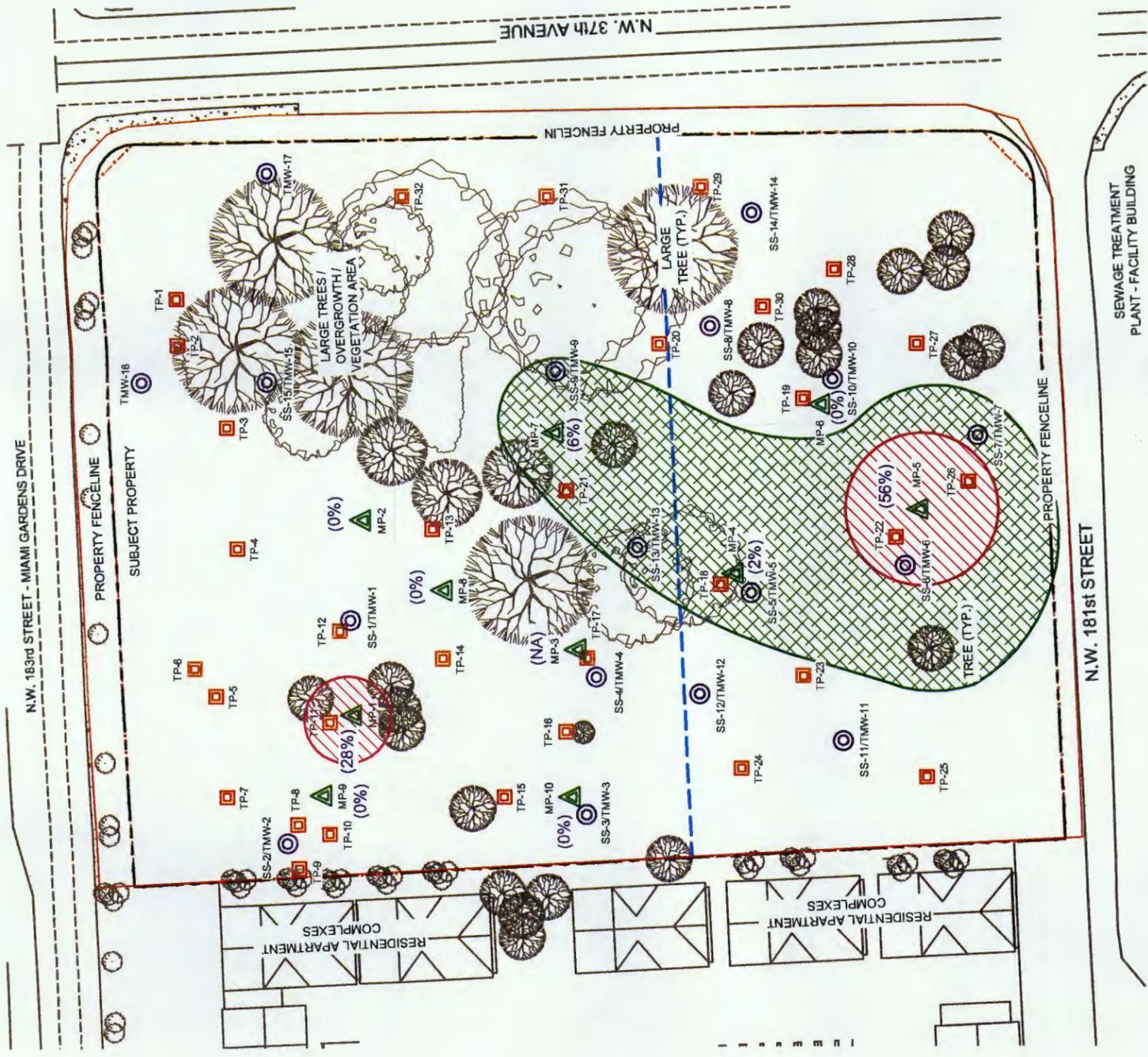
SW Corner of Intersection of NW 37th Ave & 183rd St
Miami Gardens, FL 33056

DRAWN BY: JAM
CHECKED BY: AA
DATE: 08/15/13
SCALE: AS SHOWN

5845 N.W. 158th STREET
MIAMI LAKES, FL 33014
TEL: (305) 826-5588 / FAX: (305) 826-1799
AMEC PROJECT #: 6783-13-2486.01

REFERENCE:
BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.
NOTE:
MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.



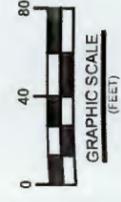


LEGEND

- 1-25% LEL
 - >25% LEL
 - NORTH AND SOUTH PARCEL SEPARATOR
 - TEST PIT APPROXIMATE LOCATION
 - SOIL BORING / TEMPORARY WELL APPROXIMATE LOCATION
 - METHANE PROBE APPROXIMATE LOCATION
 - LEL
 - NA
- NOTE: 56% METHANE AS % LEL.

REFERENCE:

BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.
 MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.



DRAWN BY: JAM	DATE: 08/15/13
CHECKED BY: AA	SCALE: AS SHOWN

ISD VACANT LOT

SW Corner of Intersection of NW 37th Ave & 183rd St
 Miami Gardens, FL 33056

FIGURE 4

METHANE CONCENTRATIONS MAP

5845 N.W. 158th STREET
 MIAMI LAKES, FL 33014
 TEL: (305) 826-5588 / FAX: (305) 826-1799
 AMEC PROJECT #: 6783-13-2486.01



LEGEND

- TEST PIT APPROXIMATE LOCATION
- SOIL BORING APPROXIMATE LOCATION
- METHANE PROBE APPROXIMATE LOCATION
- INDICATES EXCEEDING RESIDENTIAL SCTL
- SOIL CLEANUP TARGET LEVEL
- >0.1 mg/Kg (MIAMI DADE COUNTY RESIDENTIAL SCTL APPROXIMATE AREA OF IMPACT = 81,199 SQ. FT.)
- NORTH AND SOUTH PARCEL SEPARATOR

SOIL CONCENTRATIONS LEGEND

BORING I.D.	DEPTH (FEET)	DATE SAMPLED	1 B(a)P EQUIVALENT (mg/Kg)	2 ARSENIC (mg/Kg)
SS-2	2-4'	04/10/13	1 0.1	2 3
SS-3	2-4'	04/10/13	1 0.9	2 NA
SS-4	2-4'	04/10/13	1 0.9	2 NA
SS-11	2-4'	04/11/13	1 0	2 NA
SS-6	2-4'	04/10/13	1 0.97	2 DI(2)DRIN (0.0027)
SS-7	0-2'	04/10/13	1 0	2 NA
SS-1	2-4'	04/10/13	1 1.4	2 2.9
SS-9	2-4'	04/11/13	1 0.2	2 0.43
SS-8	0-2'	04/11/13	1 0	2 NA
SS-13	2-4'	04/12/13	1 0.5	2 NA
SS-12	2-4'	04/11/13	1 0	2 NA
SS-5	2-4'	04/10/13	1 10.4	2 6.4
SS-14	0-2'	04/12/13	1 0	2 NA
SS-10	2-4'	04/11/13	1 0	2 NA
SS-15	0-2'	04/12/13	1 0	2 NA

mg/Kg MILLIGRAMS PER KILOGRAM

NOTES THE REPORTED VALUE IS BETWEEN THE METHOD DETECTION LIMIT (MDL) & THE PRACTICAL QUANTIFICATION LIMIT (PQL).

NA NOT ANALYZED

REFERENCE:

BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.

NOTE:

MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.

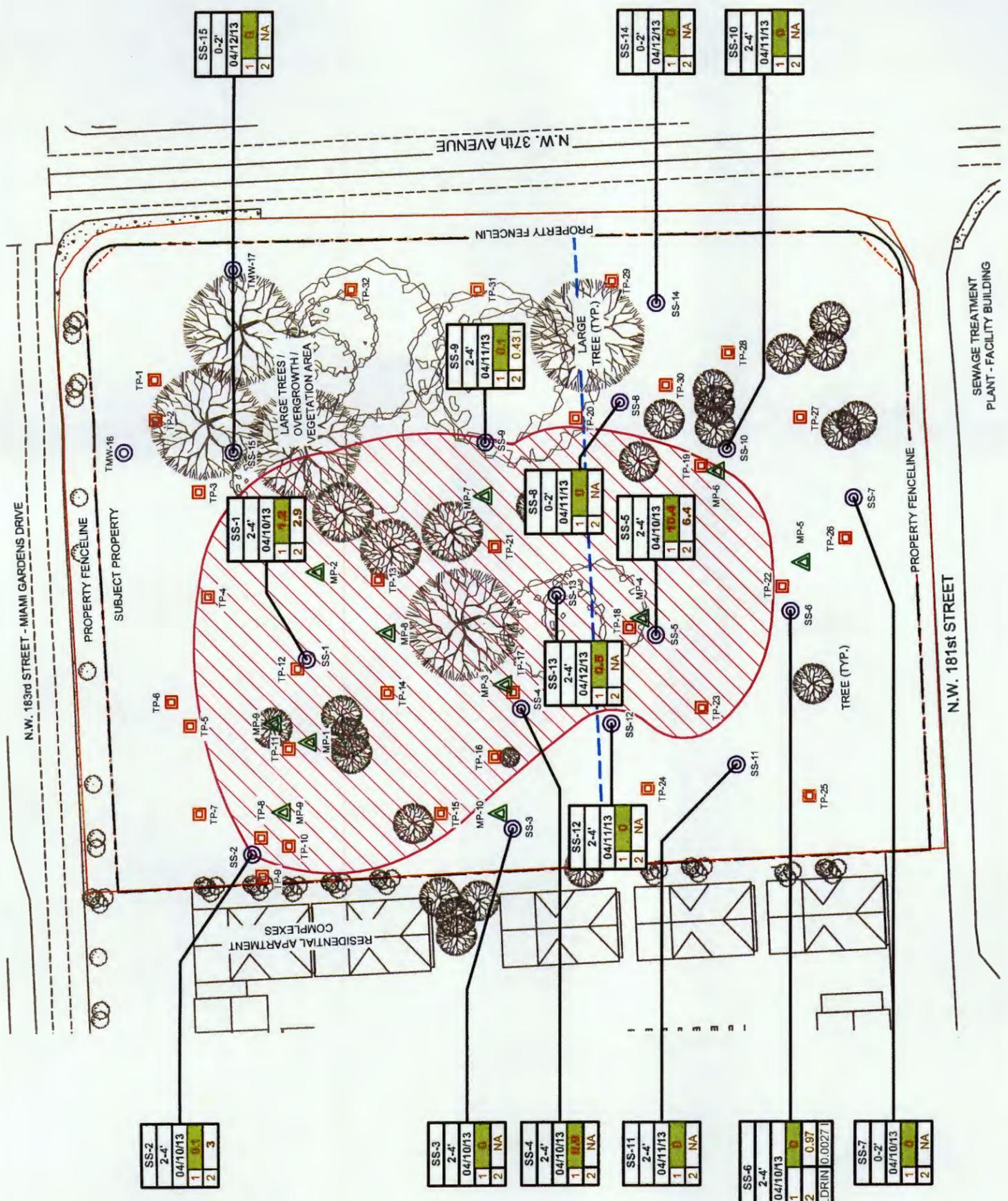


FIGURE 5A

BENZO(A)PYRENE EQUIVALENT SOIL CONCENTRATION MAP

ISD VACANT LOT

SW Corner of Intersection of NW 37th Ave & 183rd St
Miami Gardens, FL 33056

DRAWN BY: JAM
CHECKED BY: AA
DATE: 08/15/13
SCALE: AS SHOWN



5845 N.W. 158th STREET
MIAMI LAKES, FL 33014
TEL: (305) 826-5588 / FAX: (305) 826-1799
AMEC PROJECT #: 6783-13-2486.01



LEGEND

- TP-1 TEST PIT APPROXIMATE LOCATION
- SS-1/TMW-1 SOIL BORING APPROXIMATE LOCATION
- MP-1 METHANE PROBE APPROXIMATE LOCATION
- BOLD** INDICATES EXCEEDING RESIDENTIAL SCTL
- SCTL SOIL CLEANUP TARGET LEVEL
- >2.1 mg/kg (MIAMI DADE COUNTY RESIDENTIAL SCTL) APPROXIMATE AREA ± 30,750 SQ. FT.
- NORTH AND SOUTH PARCEL SEPARATOR

SOIL CONCENTRATIONS LEGEND

BORING ID.
DEPTH (FEET)
DATE SAMPLED
1 B(a)P EQUIVALENT (mg/kg)
2 ARSENIC (mg/kg)

mg/kg MILLIGRAMS PER KILOGRAM

1 DENOTES THE REPORTED VALUE IS BETWEEN THE METHOD DETECTION LIMIT (MDL) & THE PRACTICAL QUANTIFICATION LIMIT (PQL).

NA NOT ANALYZED

REFERENCE:

BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.

NOTE:

MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.

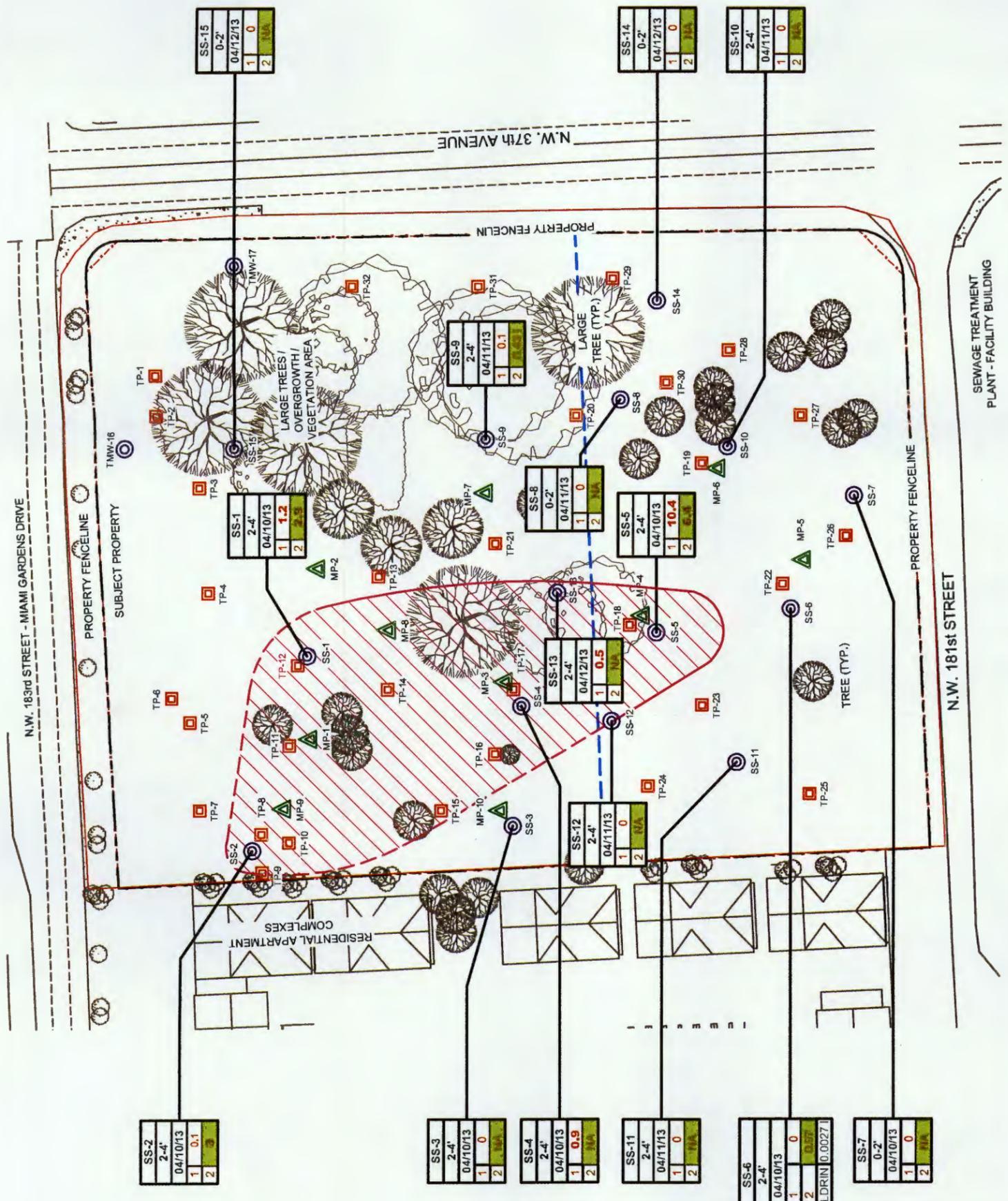


FIGURE 5B

ARSENIC SOIL CONCENTRATION MAP

ISD VACANT LOT

SW Corner of Intersection of NW 37th Ave & 183rd St
Miami Gardens, FL 33056

DRAWN BY: JAM

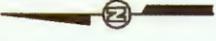
DATE: 08/15/13

CHECKED BY: AA

SCALE: AS SHOWN



5945 N.W. 158th STREET
MIAMI LAKES, FL 33014
TEL: (305) 826-5588 / FAX: (305) 826-1799
AMEC PROJECT #: 6783-13-2486.01



LEGEND

- TEST PIT APPROXIMATE LOCATION
- TEMPORARY WELL APPROXIMATE LOCATION
- METHANE PROBE APPROXIMATE LOCATION
- BOLD** INDICATES EXCEEDING GCTL
- GCTL
- GROUNDWATER CLEANUP TARGET LEVEL
- 200 ug/L - 1000 ug/L APPROXIMATE AREA = 82,840 SQ. FT.
- >1000 ug/L APPROXIMATE AREA = 28,838 SQ. FT.
- NORTH AND SOUTH PARCEL SEPARATOR

NOTES:
 SAMPLES WERE ANALYZED FOR EPA-8260 PAHS BY 8270, PESTICIDES, HERBICIDES, FL-PRO, AMMONIA, 23 TAL METALS, COLIFORM.

GROUNDWATER CONCENTRATIONS LEGEND

WELL ID.	DATE SAMPLED
1	ALUMINUM (ug/L)
2	IRON (ug/L)
3	AMMONIA (ug/L)
4	TOTAL COLIFORM MF (CFU/100 ML)
5	FECAL COLIFORM MF (CFU/100 ML)
6	MANGANESE (ug/L)

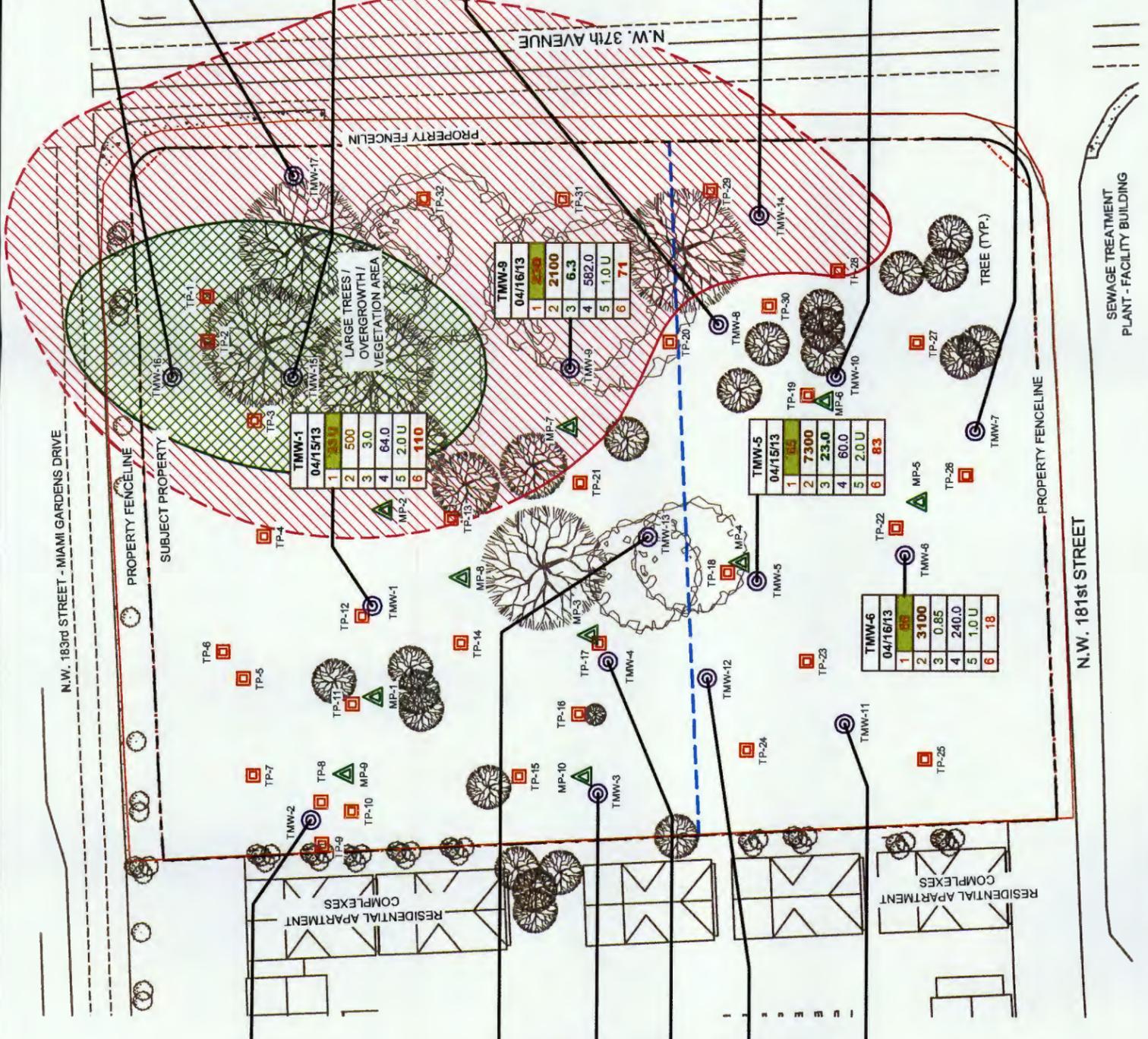
- NOTE: ALUMINUM BACKGROUND LEVEL IN MIAMI DADE COUNTY = 200 ug/L
- ug/L MICROGRAMS PER LITER
- U DENOTES ANALYTE WAS NOT PRESENT AT THE LIMIT OF DETECTION SHOWN.
- I DENOTES THE REPORTED VALUE IS BETWEEN THE METHOD DETECTION LIMIT (MDL) & THE PRACTICAL QUANTIFICATION LIMIT (PQL).
- D DATA REPORTED FROM A DILUTION AND / OR MULTIPLE DILUTIONS
- NS NOT SAMPLED

REFERENCE:

- BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.
- NOTE: MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.



TMW-16	08/08/13	1	43.000	2	NA	3	NA	4	NA	5	NA	6	NA
TMW-17	08/08/13	1	4.49	2	NA	3	NA	4	NA	5	NA	6	NA



TMW-15	04/16/13	06/17/13	1	NA	2	510	3	0.13	4	610.0	5	42.0	6	NA	2.81	
TMW-8	04/16/13	06/17/13	1	NA	2	NA	3	5.4	4	30.0	5	1.0 U	6	NA	NA	
TMW-14	04/16/13	06/17/13	1	NA	2	NA	3	0.25	4	300	5	1.0 U	6	NA	14	
TMW-10	04/16/13	06/17/13	1	NA	2	NA	3	13.0	4	746.0	5	1.0 U	6	NA	220	
TMW-7	04/16/13	06/17/13	08/08/13	1	NA	2	NA	3	0.14	4	900.0	5	1.0 U	6	NA	4.5

DRAWN BY: JAM	DATE: 08/15/13
CHECKED BY: AA	SCALE: AS SHOWN

ISD VACANT LOT

SW Corner of Intersection of NW 37th Ave & 183rd St
 Miami Gardens, FL 33056

ALUMINUM GROUNDWATER CONCENTRATION MAP

FIGURE 6A

5845 N.W. 158th STREET
 MIAMI LAKES, FL 33014
 TEL: (305) 826-5588 / FAX: (305) 826-1799
 AMEC PROJECT #: 6783-13-2486.01



LEGEND

- TP-1 TEST PIT APPROXIMATE LOCATION
- TMW-1 TEMPORARY WELL APPROXIMATE LOCATION
- MP-1 METHANE PROBE APPROXIMATE LOCATION
- GCTL INDICATES EXCEEDING GCTL
- GCTL GROUNDWATER CLEANUP TARGET LEVEL
- 1,000 ug/L - 10,000 ug/L APPROXIMATE AREA #78,624 SQ. FT.
- NORTH AND SOUTH PARCEL SEPARATOR

NOTES:
 SAMPLES WERE ANALYZED FOR EPA-8260, PAHs BY 8270, PESTICIDES, HERBICIDES, FL-PRO, AMMONIA, 23 TAL, METALS, COLIFORM.

GROUNDWATER CONCENTRATIONS LEGEND

WELL ID.	DATE SAMPLED	ALUMINUM (ug/L)	AMMONIA (ug/L)	TOTAL COLIFORM MF (CFU/100 ML)	FECAL COLIFORM MF (CFU/100 ML)	MANGANESE (ug/L)
1	04/16/13	NA	NA	NA	NA	NA
2	06/17/13	530	NA	NA	NA	NA
3	04/15/13	NA	NA	NA	NA	NA
4	04/16/13	NA	NA	NA	NA	NA
5	04/16/13	NA	NA	NA	NA	NA
6	06/17/13	NA	NA	NA	NA	NA

NOTE:
 IRON BACKGROUND LEVEL IN MIAMI DADE COUNTY = 706 ug/L

ug/L MICROGRAMS PER LITER

U DENOTES ANALYTE WAS NOT PRESENT AT THE LIMIT OF DETECTION SHOWN.

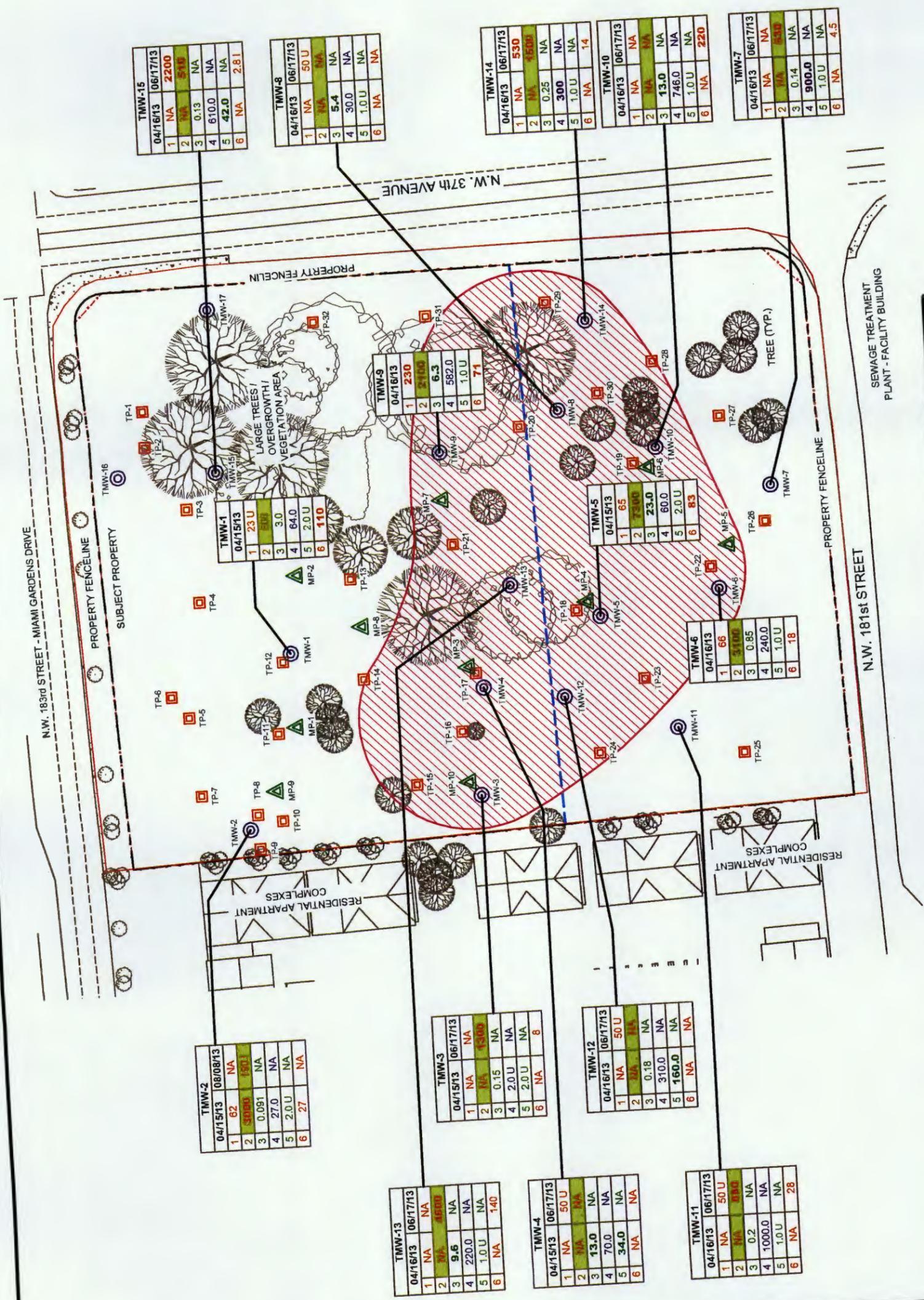
I DENOTES THE REPORTED VALUE IS BETWEEN THE METHOD DETECTION LIMIT (MDL) & THE PRACTICAL QUANTIFICATION LIMIT (POL).

D DATA REPORTED FROM A DILUTION AND / OR MULTIPLE DILUTIONS

NS NOT SAMPLED

REFERENCE:
 BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.

NOTE:
 MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.



TMW-15 04/16/13 06/17/13

1	NA	2200
2	NA	518
3	0.13	NA
4	610.0	NA
5	42.0	NA
6	NA	2.81

TMW-8 04/16/13 06/17/13

1	NA	50 U
2	NA	96
3	5.4	NA
4	30.0	NA
5	1.0 U	NA
6	NA	NA

TMW-14 04/16/13 06/17/13

1	NA	530
2	NA	1509
3	0.25	NA
4	300	NA
5	1.0 U	NA
6	NA	14

TMW-10 04/16/13 06/17/13

1	NA	NA
2	NA	NA
3	13.0	NA
4	746.0	NA
5	1.0 U	NA
6	NA	220

TMW-7 04/16/13 06/17/13

1	NA	NA
2	NA	519
3	0.14	NA
4	900.0	NA
5	1.0 U	NA
6	NA	4.5

TMW-2 04/15/13 08/08/13

1	62	NA
2	5090	591
3	0.091	NA
4	27.0	NA
5	2.0 U	NA
6	27	NA

TMW-3 04/15/13 06/17/13

1	NA	NA
2	NA	1300
3	0.15	NA
4	2.0 U	NA
5	2.0 U	NA
6	NA	8

TMW-12 04/16/13 06/17/13

1	NA	50 U
2	NA	NA
3	0.18	NA
4	310.0	NA
5	160.0	NA
6	NA	NA

TMW-13 04/16/13 06/17/13

1	NA	NA
2	NA	4500
3	9.6	NA
4	220.0	NA
5	1.0 U	NA
6	NA	140

TMW-4 04/15/13 06/17/13

1	NA	50 U
2	NA	NA
3	13.0	NA
4	70.0	NA
5	34.0	NA
6	NA	NA

TMW-11 04/16/13 06/17/13

1	NA	50 U
2	NA	NA
3	0.2	NA
4	1000.0	NA
5	1.0 U	NA
6	NA	28

ISD VACANT LOT

IRON GROUNDWATER CONCENTRATION MAP

FIGURE 6B

DRAWN BY: JAM
 CHECKED BY: AA
 DATE: 08/15/13
 SCALE: AS SHOWN

SW Corner of Intersection of NW 37th Ave & 183rd St
 Miami Gardens, FL 33056



5845 N.W. 158th STREET
 MIAMI LAKES, FL 33014
 TEL: (305) 826-5588 / FAX: (305) 826-1799
 AMEC PROJECT #: 6783-13-2486.01



LEGEND

- TP-1 TEST PT APPROXIMATE LOCATION
- TMW-1 TEMPORARY WELL APPROXIMATE LOCATION
- MP-1 METHANE PROBE APPROXIMATE LOCATION
- SOLD** INDICATES EXCEEDING GCTL
- GCTL GROUNDWATER CLEANUP TARGET LEVEL
- 2.8 mg/L - 10 mg/L APPROXIMATE AREA = 46,909 SQ. FT.
- 10 mg/L - 100 mg/L APPROXIMATE AREA = 16,437 SQ. FT.
- NORTH AND SOUTH PARCEL SEPARATOR

NOTES:
 SAMPLES WERE ANALYZED FOR EPA-8080, PAHs BY 8270, PESTICIDES, HERBICIDES, FL-PRO, AMMONIA, ZN TAL METALS, COLIFORM.

GROUNDWATER CONCENTRATIONS LEGEND

WELL I.D.	DATE SAMPLED	ALUMINUM (mg/L)	IRON (mg/L)	AMMONIA (mg/L)	TOTAL COLIFORM MF (CFU/100 ML)	FECAL COLIFORM MF (CFU/100 ML)	MANGANESE (mg/L)
1							
2							
3							
4							
5							
6							

NOTE:
 AMMONIA BACKGROUND LEVEL IN MIAMI DADE COUNTY = 2.8 mg/L

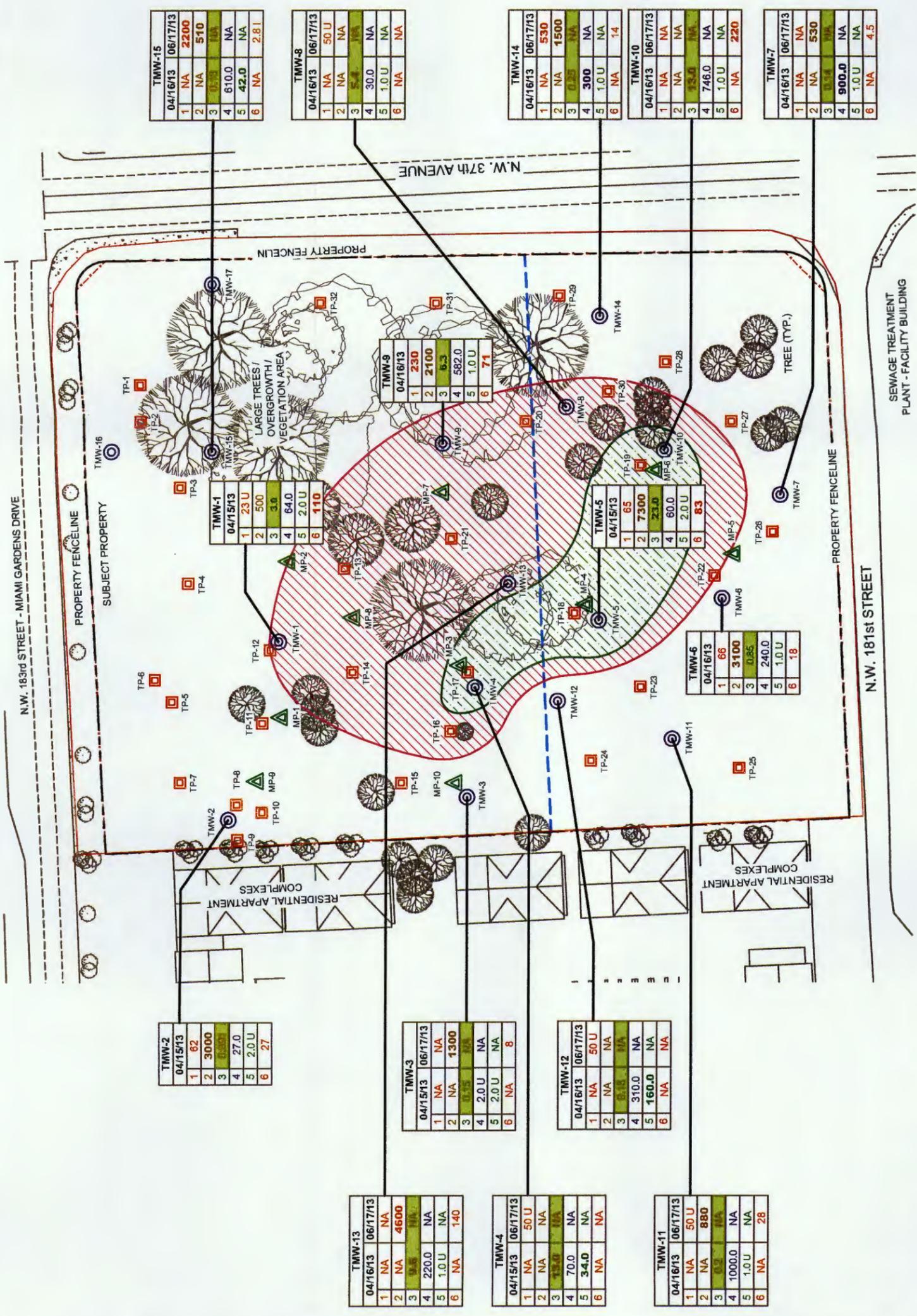
- mg/L MICROGRAMS PER LITER
- U DENOTES ANALYTE WAS NOT PRESENT AT THE LIMIT OF DETECTION SHOWN.
- I DENOTES THE REPORTED VALUE IS BETWEEN THE METHOD DETECTION LIMIT (MDL) & THE PRACTICAL QUANTIFICATION LIMIT (PQL).
- D DATA REPORTED FROM A DILUTION AND / OR MULTIPLE DILUTIONS
- NS NOT SAMPLED

REFERENCE:

BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.

NOTE:

MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.



TMW-15	
04/16/13	06/17/13
1	NA
2	2200
3	510
4	610.0
5	42.0
6	NA
7	2.81

TMW-8	
04/16/13	06/17/13
1	NA
2	50 U
3	NA
4	30.0
5	1.0 U
6	NA
7	NA

TMW-14	
04/16/13	06/17/13
1	NA
2	530
3	1500
4	300
5	1.0 U
6	NA
7	14

TMW-10	
04/16/13	06/17/13
1	NA
2	NA
3	NA
4	746.0
5	1.0 U
6	NA
7	220

TMW-7	
04/16/13	06/17/13
1	NA
2	NA
3	NA
4	530
5	900.0
6	1.0 U
7	NA
8	4.5

TMW-1	
04/15/13	06/17/13
1	23 U
2	500
3	30
4	64.0
5	2.0 U
6	110

TMW-9	
04/16/13	06/17/13
1	230
2	2100
3	6.3
4	582.0
5	1.0 U
6	71

TMW-5	
04/15/13	06/17/13
1	65
2	7300
3	23.0
4	60.0
5	2.0 U
6	83

TMW-6	
04/16/13	06/17/13
1	66
2	3100
3	0.85
4	240.0
5	1.0 U
6	18

TMW-2	
04/15/13	06/17/13
1	82
2	3000
3	0.55
4	27.0
5	2.0 U
6	27

TMW-3	
04/15/13	06/17/13
1	NA
2	NA
3	1300
4	2.0 U
5	2.0 U
6	8

TMW-12	
04/16/13	06/17/13
1	NA
2	50 U
3	NA
4	310.0
5	160.0
6	NA

TMW-13	
04/16/13	06/17/13
1	NA
2	NA
3	4600
4	220.0
5	1.0 U
6	140

TMW-4	
04/15/13	06/17/13
1	NA
2	50 U
3	NA
4	70.0
5	34.0
6	NA

TMW-11	
04/16/13	06/17/13
1	NA
2	50 U
3	880
4	1000.0
5	1.0 U
6	28

FIGURE 6C

AMMONIA
 GROUNDWATER
 CONCENTRATION
 MAP

ISD VACANT LOT

SW Corner of Intersection of NW 37th Ave & 183rd St
 Miami Gardens, FL 33056

DRAWN BY: JAM

DATE: 08/15/13

CHECKED BY: AA

SCALE: AS SHOWN

5845 N.W. 158th STREET
 MIAMI LAKES, FL 33014
 TEL: (305) 826-5588 / FAX: (305) 826-1799
 AMEC PROJECT #: 6783-13-2486.01



LEGEND

- TP-1 TEST PIT APPROXIMATE LOCATION
- TMW-1 TEMPORARY WELL APPROXIMATE LOCATION
- MP-1 METHANE PROBE APPROXIMATE LOCATION
- BOLD** INDICATES EXCEEDING GCTL
- GCTL GROUNDWATER CLEANUP TARGET LEVEL
- 10 CFU / 100ML - 100 CFU / 100 mL APPROXIMATE AREA = 30,936 SQ. FT.
- 100 CFU/100ML - 1,000 CFU/100ML APPROXIMATE AREA = 4,684 SQ. FT.
- NORTH AND SOUTH PARCEL SEPARATOR

NOTES:
 SAMPLES WERE ANALYZED FOR EPA 8260 PAHs BY 8270 PESTICIDES, HERBICIDES, FL-PRO, AMMONIA, 23 TAL METALS, COLIFORM.

GROUNDWATER CONCENTRATIONS LEGEND

WELL ID.	DATE SAMPLED	ALUMINUM (ug/L)	IRON (ug/L)	AMMONIA (ug/L)	TOTAL COLIFORM MF (CFU/100 ML)	FECAL COLIFORM MF (CFU/100 ML)	MANGANESE (ug/L)
1							
2							
3							
4							
5							
6							

NOTE:
 MIAMI DADE COUNTY GCTL IS ANY CONCENTRATION ABOVE LABORATORY METHOD DETECTION LIMIT

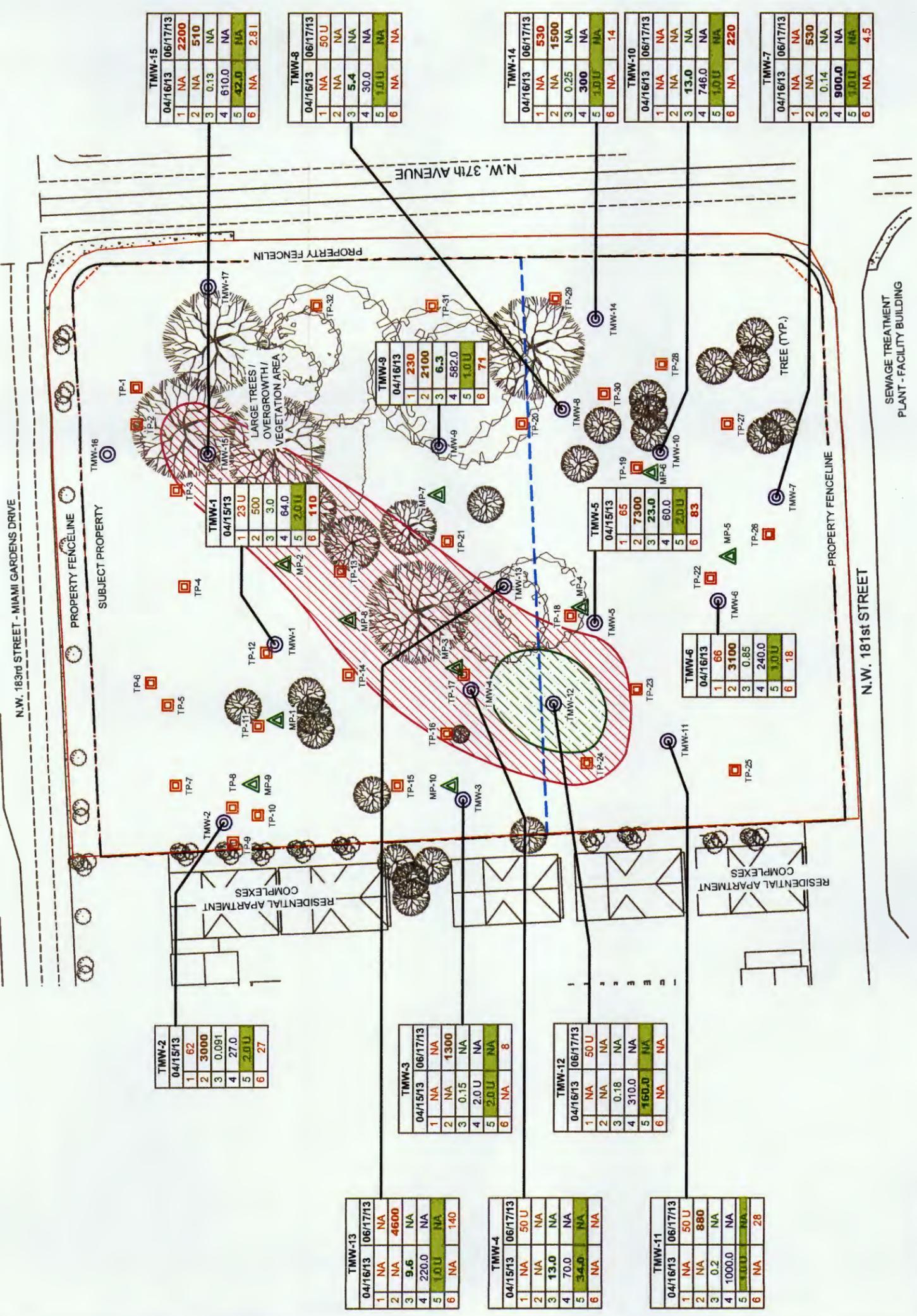
- CFU COLIFORM FORMING UNIT
- mL MILLILITER
- ug/L MICROGRAMS PER LITER
- U DENOTES ANALYTE WAS NOT PRESENT AT THE LIMIT OF DETECTION SHOWN.
- I DENOTES THE REPORTED VALUE IS BETWEEN THE METHOD DETECTION LIMIT (MDL) & THE PRACTICAL QUANTIFICATION LIMIT (POL).
- D DATA REPORTED FROM A DILUTION AND / OR MULTIPLE DILUTIONS
- NS NOT SAMPLED

REFERENCE:

BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.

NOTE:

MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.



TMW-15	04/16/13	06/17/13
1	NA	2200
2	NA	510
3	0.13	NA
4	610.0	NA
5	42.0	NA
6	NA	2.8 I

TMW-8	04/16/13	06/17/13
1	NA	50 U
2	NA	NA
3	5.4	NA
4	30.0	NA
5	1.0 U	NA
6	NA	NA

TMW-14	04/16/13	06/17/13
1	NA	530
2	NA	1500
3	0.25	NA
4	300	NA
5	3.0 U	NA
6	NA	14

TMW-10	04/16/13	06/17/13
1	NA	NA
2	NA	NA
3	13.0	NA
4	746.0	NA
5	1.0 U	NA
6	NA	220

TMW-7	04/16/13	06/17/13
1	NA	NA
2	NA	530
3	0.14	NA
4	900.0	NA
5	1.0 U	NA
6	NA	4.5

TMW-1	04/15/13
1	23 U
2	500
3	3.0
4	64.0
5	2.0 U
6	110

TMW-9	04/16/13
1	230
2	2100
3	6.3
4	582.0
5	1.0 U
6	71

TMW-5	04/15/13
1	65
2	7300
3	23.0
4	60.0
5	2.0 U
6	83

TMW-6	04/16/13
1	66
2	3100
3	0.85
4	240.0
5	1.0 U
6	18

TMW-2	04/15/13
1	62
2	3000
3	0.091
4	27.0
5	2.0 U
6	27

TMW-3	04/15/13	06/17/13
1	NA	NA
2	NA	1300
3	0.15	NA
4	2.0 U	NA
5	2.0 U	NA
6	NA	8

TMW-12	04/16/13	06/17/13
1	NA	50 U
2	NA	NA
3	0.18	NA
4	310.0	NA
5	160.0	NA
6	NA	NA

TMW-13	04/16/13	06/17/13
1	NA	NA
2	NA	4600
3	9.6	NA
4	220.0	NA
5	1.0 U	NA
6	NA	140

TMW-4	04/16/13	06/17/13
1	NA	50 U
2	NA	NA
3	13.0	NA
4	70.0	NA
5	34.0	NA
6	NA	NA

TMW-11	04/16/13	06/17/13
1	NA	50 U
2	NA	880
3	0.2	NA
4	1000.0	NA
5	1.0 U	NA
6	NA	28

FIGURE 6D

FECAL COLIFORM GROUNDWATER CONCENTRATION MAP

ISD VACANT LOT

SW Corner of Intersection of NW 37th Ave & 183rd St
 Miami Gardens, FL 33056

DRAWN BY: JAM

DATE: 08/15/13

CHECKED BY: AA

SCALE: AS SHOWN



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 AMEC PROJECT #: 6783-13-2486.01



LEGEND

- TP-1 TEST PIT APPROXIMATE LOCATION
- TMW-1 TEMPORARY WELL APPROXIMATE LOCATION
- MP-1 METHANE PROBE APPROXIMATE LOCATION
- BOLD** INDICATES EXCEEDING GCTL
- GCTL GROUNDWATER CLEANUP TARGET LEVEL
- 50 ug/L - 100 ug/L APPROXIMATE AREA = 54,617 SQ. FT.
- 100 ug/L - 1,000 ug/L APPROXIMATE AREA = 37,951 SQ. FT.
- NORTH AND SOUTH PARCEL SEPARATOR

NOTES:
 SAMPLES WERE ANALYZED FOR EPA-8260, PAHs BY 8270, PESTICIDES, HERBICIDES, PL-PRO, AMMONIA, ZN, TAL METALS, COLIFORM.

GROUNDWATER CONCENTRATIONS LEGEND

WELL I.D.	DATE SAMPLED
1	ALUMINUM (ug/L)
2	IRON (ug/L)
3	AMMONIA (ug/L)
4	TOTAL COLIFORM MF (CFU/100 ML)
5	FECAL COLIFORM MF (CFU/100 ML)
6	MANGANESE (ug/L)

NOTE:
 MANGANESE BACKGROUND LEVEL IN MIAMI DADE COUNTY = 50 ug/L
 ug/L MICROGRAMS PER LITER

U DENOTES ANALYTE WAS NOT PRESENT AT THE LIMIT OF DETECTION SHOWN.

I DENOTES THE REPORTED VALUE IS BETWEEN THE METHOD DETECTION LIMIT (MDL) & THE PRACTICAL QUANTIFICATION LIMIT (PQL).

D DATA REPORTED FROM A DILUTION AND / OR MULTIPLE DILUTIONS

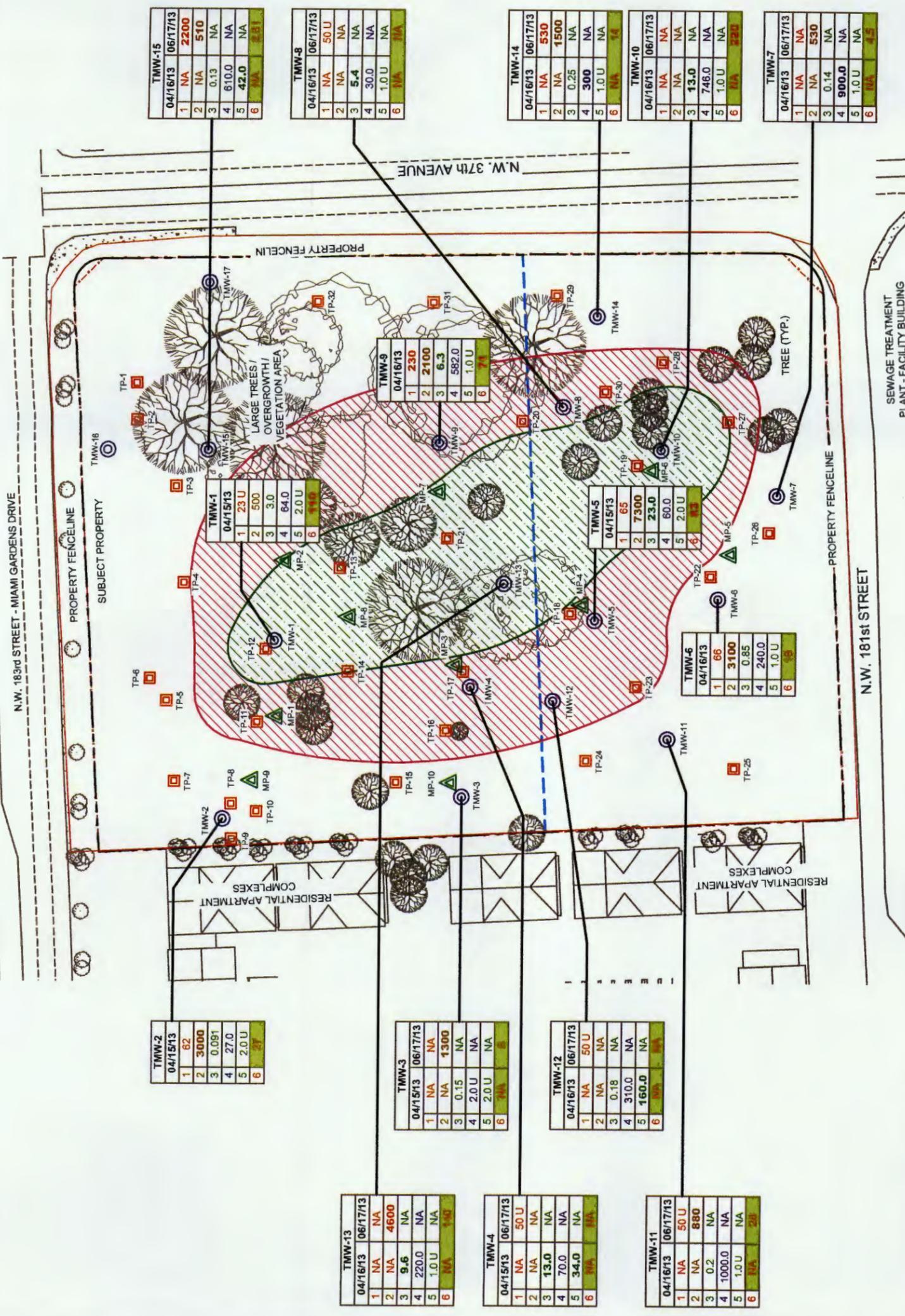
NS NOT SAMPLED

REFERENCE:

BASED ON SKETCH CREATED BY TECHNICIAN DURING SITE VISIT.

NOTE:

MAP IS COLOR CODED. DO NOT PLOT BLACK & WHITE.



TMW-15	
04/16/13	06/17/13
1	NA
2	2200
3	0.13
4	610.0
5	42.0
6	NA

TMW-8	
04/16/13	06/17/13
1	NA
2	NA
3	5.4
4	30.0
5	1.0 U
6	NA

TMW-14	
04/16/13	06/17/13
1	NA
2	NA
3	0.25
4	300
5	1.0 U
6	NA

TMW-10	
04/16/13	06/17/13
1	NA
2	NA
3	13.0
4	746.0
5	1.0 U
6	NA

TMW-7	
04/16/13	06/17/13
1	NA
2	NA
3	0.14
4	900.0
5	1.0 U
6	NA

TMW-1	
04/15/13	06/17/13
1	23 U
2	500
3	3.0
4	64.0
5	2.0 U
6	14.6

TMW-9	
04/16/13	06/17/13
1	230
2	2100
3	6.3
4	582.0
5	1.0 U
6	7.1

TMW-5	
04/15/13	06/17/13
1	65
2	7300
3	23.0
4	60.0
5	2.0 U
6	43

TMW-6	
04/16/13	06/17/13
1	66
2	3100
3	0.85
4	240.0
5	1.0 U
6	43

TMW-2	
04/15/13	06/17/13
1	82
2	3000
3	0.091
4	27.0
5	2.0 U
6	37

TMW-3	
04/15/13	06/17/13
1	NA
2	NA
3	0.15
4	2.0 U
5	2.0 U
6	NA

TMW-12	
04/16/13	06/17/13
1	NA
2	NA
3	0.18
4	310.0
5	160.0
6	NA

TMW-13	
04/16/13	06/17/13
1	NA
2	NA
3	9.6
4	220.0
5	1.0 U
6	NA

TMW-4	
04/16/13	06/17/13
1	NA
2	NA
3	13.0
4	70.0
5	34.0
6	NA

TMW-11	
04/16/13	06/17/13
1	NA
2	NA
3	0.2
4	1000.0
5	1.0 U
6	NA

FIGURE 6E

ISD VACANT LOT

MANGANESE GROUNDWATER CONCENTRATION MAP

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