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**City of Fort Myers**  
2200 Second Street  
Fort Myers, Florida 33901

## Site Assessment Work Plan

**South Street Property**  
FDEP ID: COM\_288039  
City Block Bordered by South Street, Henderson Avenue, Jeffcott Street, and  
Midway Avenue  
Fort Myers, Lee County, Florida 33901

GFA Project No. 17-5281.00  
July 21, 2017



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## SIGNATURE OF ENVIRONMENTAL PROFESSIONAL

**Project Name**  
**FDEP Facility ID: COM\_288039**  
3348 South Street  
Fort Myers, Lee County, Florida 33901

GFA Project No.: 17-5281.00  
July 21, 2017

### SITE ASSESSMENT WORK PLAN PREPARED BY:

I, Scott A. McManus, Professional Geologist #2651, certify that I currently hold an active license in the State of Florida and am competent through education and experience to provide the geologic services contained in this document. I further certify that this document was prepared by me and/or under my responsible charge as a GFA International, Inc. employee, pursuant to Chapter 492, Florida Statutes. Furthermore, I certify that the technical documents complies with standard professional practices and meets the requirements of Chapter 62.780, Florida Administrative Code (FAC) and other applicable laws and rules governing the profession. Additionally, I certify that GFA International, Inc. is licensed by the Department of Professional Regulation, Board of Professional Geologist as a Geology Business, license #GB118.

Scott A. McManus, P.G.  
State of Florida Professional Geologist #2651  
Environmental Department Manager

Signature  
7-21-2017

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## 1.0 INTRODUCTION

GFA International (GFA) has been authorized by the City of Fort Myers (City) to develop a Work Plan detailing site assessment investigations for the South Street Property located at 3348 South Street Site (Site) in Fort Myers, Florida. This Work Plan describes proposed investigations that will be performed to assess the nature and extent of waste and contamination and to evaluate potential risks associated with the disposal of lime softening sludge waste material (LSWM) at the Site. The scope of work described meets or exceeds Florida Department of Environmental Protection (FDEP) requirements for a Site Assessment pursuant to Chapter 62-780, F.A.C. This Work Plan was revised based on comments provided by the FDEP on July 17, and July 21, 2017, following Department reviews of the draft and amended draft Site Assessment Work Plans, prepared by GFA dated July 14, 2017, and July 19, 2017, respectively. This work plan may be further revised based on community comments that will be solicited by the City.

## 2.0 SITE BACKGROUND INFORMATION

### 2.1 Location and Description

The Site is located in the City block bordered to the north by South Street, to the east by Midway Avenue, to the south by Jeffcott Street and to the west by Henderson Avenue. A **Site Location Map** is included as **Figure 1**. According to the Lee County Property Appraisers website, the Site consists of 6 separate vacant parcels as follows:

- Parcel ID 19-44-25-P3-01808.0010, owned by the City, classified as vacant governmental property, City View Park No. 2, Block 8, Plat Book 5 Page 82, Lots 1, 2, 3, 4, 5, 6, 9, 10, 13, 14 and 16 through 24;
- Parcel ID 19-44-25-P3-01808.0110, owned by Derrick and Debra Brady, classified as vacant residential property, City View Park No. 2, Block 8, Plat Book 5 Page 82, Lots 11 and 12;
- Parcel ID 19-44-25-P3-01808.0150, owned by Noemy Rodriguez classified as vacant residential property, City View Park No. 2, Block 8, Plat Book 5 Page 82, Lot 15;
- Parcel ID 19-44-25-P3-01808.0080, owned by Ralph and Kruma N Henry, classified as vacant residential property, City View Park No. 2, Block 8, Plat Book 5 Page 82, Lot 8;
- Parcel ID 19-44-25-P3-01808.0070, owned by Jerry Benien, classified as vacant residential property, City View Park No. 2, Block 8, Plat Book 5 Page 82, Lot 7; and
- Parcel ID 19-44-25-P3-01808.0040, owned by E & V Great Professional, INC, classified as vacant residential property, City View Park No. 2, Block 8, Plat



Book 5 Page 82, Lot 4;

## 2.2 Site History

The history of the Site was evaluated using information provided by the FDEP OCULUS database and by historical aerial photography provided by the City.

Aerial photographs taken in 1944, 1953, 1958, 1968, 1972, 1975, 1979, 1986, 1990, 1996, 2002, 2007, 2012, and 2016 were provided. The following is a brief summary of the Site history:

- The Site and immediate vicinity was used for agricultural land, row crops, circa 1944 to 1953.
- The majority of the Site was excavated circa 1958.
- The City acquired 17 lots on the Site block, which were used to dispose of LSWM from the City water treatment plant in 1962.
- The excavated areas depicted were backfilled with the LSWM circa 1968.
- The Site remained vacant and accumulated vegetative growth from circa 1970 to 2007, when the Site was depicted as cleared of vegetation and as having areas of standing water.
- The Site remained vacant and accumulated vegetative growth from circa 2007 to 2017.

The following is a brief summary of historic investigative information regarding the Site provided the City and the FDEP OCULUS Database:

- The City and Habitat for Humanity cancelled a contract for sale of the City property, circa 1994, for the proposed residential development, due to geotechnical investigations indicating unsuitable soil for the proposed construction project.
- A preliminary environmental assessment was completed by Environmental Risk Management, Inc. (ERMI), October 24, 2002 for the City. The report concluded that no evidence of the disposal of LSWM was observed at the Site and the no recognized environmental conditions were revealed. The report cover letter indicated that ERMI was provided information regarding the presence of the LSWM disposal, which was discussed with the FDEP. ERMI stated in the cover letter that according to the FDEP that LSWM is not considered a hazardous waste and that "The material can be used as fill and, if present, should not be a regulated source of soil or groundwater contamination". The ERMI report was provided to the FDEP on May 6, 2006.





- In February of 2007, ASC Geosciences, INC (ASC) completed 44 test pits at the Site for the City. A LSWM sample was collected from each test pit for laboratory analyses of arsenic and aluminum, as per reported FDEP recommendation. Arsenic was exhibited in the LSWM above the residential direct exposure Soil Cleanup Target Level (SCTL) of 2.1 milligrams per kilogram (mg/Kg) established in Chapter 62-777, Florida Administrative Code (FAC). One sample exceeded the commercial direct exposure SCTL of 12 mg/Kg. ASC identified several options for remediating the contaminated material to mitigate exposure to arsenic in concentrations that exceeded the residential exposure SCTL. The report was provided to FDEP on March 12, 2007.
- On April 19, 2007, FDEP provided comments regarding the ASC report. Although the review memorandum that was attached to the letter agreed with the ASC recommendations for addressing the exposure concerns regarding the LSWM and indicated that groundwater testing was necessary, the letter stated "That the City needs to contact the Department on any future activity towards the cleanup of this Site whether based on the Report's recommendation and/or another direction".
- In early 2008, American Compliance Technologies, Inc. (ACT) performed a groundwater quality investigation at the Site. The investigation included the installation of six shallow monitor wells and collection and analyses of groundwater samples for arsenic and aluminum. Results of the investigation were included in a report dated April 22, 2008. Concentrations of arsenic were below the Primary Drinking Standard Maximum Contaminant Level (MCL) of 0.010 milligrams per liter (mg/L) established in Chapter 62-550, F.A.C (also the Groundwater Cleanup Target Level) in all of the samples except the samples collected from MW-1 (0.012 mg/L) and MW-3 (0.013 mg/L). Results of re-analysis of these samples were higher (0.0177 and 0.018 mg/L, respectively). Concentrations of aluminum were below the Secondary Drinking Water Standard MCL of 0.2 mg/L in all of the samples. ACT concluded that further assessment of arsenic in groundwater was not necessary. The report was submitted to FDEP on April 24, 2008.
- On July 25, 2008, FDEP issued a comment letter regarding the groundwater investigation. In the memorandum attached to the letter, FDEP agreed that additional assessment of groundwater contamination was not necessary. FDEP also indicated that quarterly groundwater monitoring should be performed and a remedial action plan (RAP) should be prepared to address arsenic in the LSWM.



- On May 21, 2010, FDEP issued a letter to the City requesting that a RAP to address arsenic contamination at the Site be submitted..
- After meetings with the FDEP, on July 9, 2010, the City submitted a RAP that included quarterly groundwater quality monitoring. In accordance with agreements with the FDEP the need for remedial action would be reevaluated after 5 years of groundwater quality monitoring.
- In August, 2010, groundwater monitoring was initiated. Groundwater monitoring has continued in accordance with FDEP-approved plans and plan modifications
- On July 31, 2014, the monitoring frequency was reduced to annual monitoring by the FDEP. FDEP also indicated that closure of the Site would require removal of the arsenic-contaminated LSWM because the sludge has the capacity to leach arsenic into the groundwater and potentially migrate off-Site.
- On January 12, 2017, FDEP approved revision of the monitoring frequency to biennial (every other year).
- On July 3, 2017 FDEP issued a letter to the City following a joint meeting regarding the Site. The letter outlines task recommended for the planned Site Assessment scope of work.

Currently, the City is performing biennial monitoring in accordance with FDEP approvals. Concentrations of arsenic have not exceeded the MCL in groundwater samples collected from the Site for the past four years.

### **3.0 OBJECTIVES OF SITE ASSESSMENT**

The objectives of the Site Assessment are to assess the nature and extent of waste and contamination and to evaluate potential risks associated with the disposal of LSWM at the Site. Specifically, results of the Site Assessment will be used to:

- Characterize Waste Material
- Define lateral and vertical extent of waste material
- Define lateral and vertical extent of contaminants of concern (COCs) associated with waste in soil and groundwater
- Estimate aquifer properties, direction and rate of groundwater movement
- Evaluate potential past, present and future risks



Results of the Site Assessment and potential remedial action alternatives will be presented to the community for public comment. A remedial action strategy will be finalized and implemented by the City with concurrence and approvals from the community and FDEP.

The Site Assessment will be performed in 2 phases. The objective of Phase I is to characterize the nature of the LSWM by identifying associated COCs. Phase II will complete the Site Assessment as described in this Work Plan.

## 4.0 SCOPE AND RATIONALE

The Site Assessment includes the following work elements:

- Waste Characterization and Extent;
- Definition of the Extent of Contamination in Soil, Groundwater and Surface Water;
- Hydrogeologic Investigation;
- Risk Evaluation

Proposed Phase I and Phase II work elements to complete these tasks and the rationale for the design of the Site Assessment are described in the following subsections of this Work Plan.

### 4.1 Waste Characterization and Extent

As described in **Section 2.1**, excavated areas of the Site were purchased by the City and used to dispose of LSWM. The nature and extent of the LSWM, and other waste that may have been disposed of in the excavated areas on-site will be evaluated using data from boreholes advanced using Direct Push Technology (DPT) and hand auger borings performed as part of the soil assessment. The lateral extent of waste disposal will be defined using data from hand auger borings and the vertical extent will be defined using data from the DPT borings.

#### 4.1.1 DPT Borings

Phase I of the Site Assessment includes characterization and definition of the vertical extent of the LSWM within the disposal areas. **Figure 2, Proposed Sludge/Waste Characterization Sample Locations** shows the approximate locations of excavated areas on the Site and proposed DPT borings. The proposed 27 DPT boring locations are in or immediately adjacent to excavated areas that were identified based on interpretation of historical aerial photography and the 1958 U.S.G.S. Fort Myers Topographic Quadrangle map. Continuous cores will be





collected at each location and described in the field in general accordance with the Unified Soil Classification System. The boring will be terminated when the LSWM has been fully penetrated and natural material is identified in the bottom of the core or there is DPT refusal. Data from the DPT borings will be used to determine the vertical extent of LSWM disposal. The actual number of borings will be determined based on access to properties not owned by the City and field interpretations of data.

Samples of LSWM will be collected for laboratory analysis to characterize the waste material. At least 1 sample will be collected from each DPT borehole and selected for laboratory analyses. Additional samples may also be selected if multiple types of waste are observed in the DPT cores. Up to 27 samples of LSWM will be selected for laboratory analysis based on field observation, descriptions of cores, and results of field screening using an Organic Vapor Analyzer (OVA) equipped with photoionization detector (PID). If initial field screening indicates the presence of organic vapors, then field headspace analyses may be performed. Samples selected for laboratory analyses will be analyzed for priority pollutant metals. Up to 10 LSWM samples will be analyzed for the full list of priority pollutants as per Appendix A of 40 CFR 423, including Molybdenum, and all federal and state primary and secondary drinking water parameters as contained in Chapter 62-550, F.A.C., as applicable per EPA Solid Waste Methods of analyses. Continued inclusion of these analytes within additional phases of the site assessment will be determined based on the results of the Phase I analyses. Two field/equipment blanks will be prepared and analyzed in accordance with FDEP requirements.

A Geoprobe® 7822DT track-mounted rig will be used to advance DPT borings. Continuous cores will be collected from each borehole. The DPT sampling tool is approximately 4 feet long and the interior will be field cleaned and lined with a new acetate sleeve for each core run. After each core run the acetate sleeve will be removed and the core will be described and screened using an OVA as described above. LSWM/soil samples collected from the core for laboratory analysis will be collected into laboratory provided containers, immediately placed in a cooler with wet ice for transport to a NELAC approved laboratory under standard chain-of-custody protocol. Material withdrawn from DPT boring will be contained and managed as Investigative Derived Waste (IDW). DPT borings will be backfilled using granular bentonite.

#### **4.1.2 Hand Auger Borings**

As part of Phase II, a minimum of one hand auger boring will be completed to a depth of at least 2 feet bls at each of the 160 nodes/areas on-site. Soil samples from hand auger borings will be described in the field in general accordance with the Unified Soil Classification System. These data will be used to define the lateral extent of LSWM disposal. The actual number of borings will be determined based



on access to properties not owned by the City and field interpretations of data. Soil samples from the Phase II hand auger borings will be analyzed for COCs identified within the LSWM as described in **Section 4.2.1** of this Work Plan.

Proposed locations of hand auger borings are shown on **Figure 3, Proposed Soil Sampling Locations**. As shown on Figure 3, a grid system for the Site will be established that includes 10 nodes/areas in each of the ¼-acre area exposure units (EUs) for the entire Site. In accordance with Chapter 62.780.680 FAC, the approximately 3.77-acre Site has been divided into 16 EUs of approximately 0.23-acre in size. Each EU was divided into ten (10) sample location sections as depicted in Figure 3. The rationale for the identification of exposure units is described in **Section 5.1**.

## 4.2 Definition and Extent of Contamination

Samples of soil, groundwater and surface water (if present) will be collected and analyzed to define the extents of contamination in soil, groundwater and surface water. Soil and groundwater samples will be collected from on-site and off-site locations. Surface water samples will be collected from on-site standing water, if present.

### 4.2.1 Soil

The lateral extent of impacts in soil that is associated with the disposal of LSWM on the Site will be defined using analytical data from up to 368 samples collected from 160 on-site hand auger borings and 24 off-site hand auger borings. Data from the on-site borings will also be used to evaluate risks associated with direct exposure to the soil using the 95% Upper Confidence Limit (UCL) method.

As stated above, soil borings will be completed at 160 locations in grid nodes/areas established on the Site. Also, as stated above, the Site has been divided into 16 ¼-acre exposure units. Appendix D of the 2005 document entitled "Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, F.A.C." recommends collection of 10 samples from each ¼-acre exposure unit in order to evaluate risk using the 95% UCL method for comparing analytical results of soil samples to Soil Cleanup Target Levels (SCTLs) established in Chapter 62-777, F.A.C. Ten samples will be collected from each EU.

In addition to the on-site boreholes, hand auger boreholes will be completed at 24 off-site locations on the City right-of-way (ROW) north of South Street (8 locations), east of Midway Avenue (4 locations), south of Jeffcott Street (8 locations), and west of Henderson Avenue (4 locations). Approximate locations are shown on Figure 2. Locations may be revised based on-site conditions and underground utilities.



As stated above, soil samples from the on-site and off-site borings will be described in the field in general accordance with the Unified Soil Classification System. Soil samples will be collected from each on-site and off-site hand auger boring location from 0.5-foot and 2 feet bls in accordance with soil sampling guidance in Chapter 62-780.600(5)(c)(1) and Appendix D of the 2005 document entitled "Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, F.A.C." Available information indicates that the depth to groundwater will be approximately 3 feet bls. Hand auger boring soil samples will be analyzed for the COCs associated with the LSWM, identified in Phase I. Up to 18 field/equipment blanks will be prepared and analyzed for COCs identified in Phase I in accordance with FDEP requirements.

Shallow hand auger borings will be completed utilizing a 3-inch diameter stainless-steel hand auger (HA). As a matter of quality assurance, field sampling equipment will be decontaminated an appropriate distance from proposed sample locations. Soil sampling will be performed in accordance with FDEP SOP-001/01 FS 1000 and FS 3000. Hand auger soil samples will be collected into laboratory provided containers, immediately placed in a cooler with wet ice for transport to a NELAC approved laboratory under standard chain-of-custody protocol. Material drawn from shallow borings not on City property will be contained managed as IDW. These borings will be backfilled with clean sand.

#### **4.2.2 Groundwater**

The nature and extent of groundwater impacts associated with LSWM disposal at the Site will be evaluated in Phase I by collecting and analyzing groundwater samples from 6 on-site monitor wells (MW-1, MW-2, MW-3, MW-4, MW-5 and MW-6). These groundwater samples will be analyzed for the full list of priority pollutants as per Appendix A of 40 CFR 423, including Molybdenum, and all federal and state primary and secondary drinking water parameters as contained in Chapter 62-550, F.A.C .

Existing monitor well MW-1, located at the northwest portion of the Site is reportedly damaged at ground surface. This monitoring well will be properly abandoned and replaced as per original construction specifications. The 6 existing monitor wells will be surveyed by a licensed surveyor. The surveyor will determine monitoring well locations and elevations of top of casings (TOC) and ground surface at each monitoring well, relative to National Atlantic Vertical Datum of 1988 (NAVD88), according to industry accepted methods.

Up to 8 off-site monitor wells will be installed and sampled as part of Phase II. Up to 4 clusters each consisting of 1 shallow and 1 deep monitor wells will be installed off-site on the City ROW. It is anticipated that 3 hydraulically down-gradient clusters and 1 up-gradient cluster will be installed at the approximate locations depicted in



**Figure 4, Proposed Surface and Groundwater Sample Locations.** Available information indicates that the direction of groundwater movement is likely northwest towards the Caloosahatchee River. The proposed locations may be changed based on water level data from the existing wells, locations of underground utilities, and accessibility. Shallow monitor wells will be approximately 12 feet deep with 10 feet of screen. Deep monitor wells will be double-cased to a depth of between 15 and 20 feet, with 5 feet of screened interval from approximately 25 to 30 feet bls. The 8 off-site monitor wells will be surveyed by a licensed surveyor. The surveyor will determine monitoring well locations and elevations of top of casings (TOC) and ground surface at each monitoring well, relative to National Atlantic Vertical Datum of 1988 (NAVD88), according to industry accepted methods. Locations of existing and proposed new monitor wells are shown on Figure 4.

Monitoring wells will be installed in accordance with FDEP-SOP-PCS-006, "Design, Installation and Placement of Monitoring Wells", May 2, 2005. Off-site monitoring wells will be constructed of 2-inch diameter SCH 40 PVC, 0.01-inch slotted screens and be completed with 8-inch diameter flush-mount covered vaults, set in 2-foot square, 6-inch deep concrete pads. Proposed off-site shallow wells will be installed to a depth of approximately 12 feet bls, and have a screened interval from 2 to 12 feet bls. It is anticipated that the proposed off-site deep wells will be installed to a depth of approximately 30 feet, with a screened interval of 25 to 30 feet bls, as determined by the site geologist during well borehole drilling. The deep wells will be double-cased, utilizing a 6-inch diameter SCH 40 PVC outer casing, set to a depth of approximately 20 feet bls. The proposed off-site monitoring wells will be developed via pumping groundwater until clear and free of sand or silt, or for no less than 60-minutes, using a submersible electric pump capable of sustaining a pump rate of approximately 3-gallons per minute (gpm). Soil spoils and development water generated from monitor well installation will be handled as IDW, collected into separate 55-gallon drums or other acceptable waste containers. The analytical results of the soil and groundwater testing will determine the fate of the containerized IDW, which will be stored on the City property. The off-site wells will be professionally surveyed as described above.

The off-site groundwater samples collected will be analyzed for Primary Drinking Water Standards (PDWS) and Secondary Drinking Water Standards (SDWD) analytes listed in Chapter 62-550, F.A.C. Groundwater samples may be analyzed for additional analytes that have Groundwater Cleanup Target Levels (GCTLs) established in Chapter 62-777, F.A.C. if results of LSWM and/or soil sample analyses indicate a potential for exceedances of the GCTLs.

The groundwater sampling will be performed in accordance with FDEP SOP-001/01 FS 1000 and FS 2200. Prior to groundwater sampling, depth to groundwater from TOC will be measured, subsequently; groundwater will be purged from the monitoring well until stabilization parameters are met. Groundwater samples will be



collected from monitor wells into laboratory provided containers, immediately placed in a cooler with wet ice for transport to a NELAC approved laboratory. One field blank will be collected and analyzed for analytes tested in accordance with FDEP requirements.

#### **4.2.3 Surface Water**

It is anticipated that shallow standing water or transient ponding will be present at the Site during the rainy or wet season. Laboratory analyses of Site surface water will be used to further evaluate potential exposure risk. If ponding is present on-site, attempts will be made to collect samples of surface water, which will be analyzed as part of Phase II. The standing water samples collected will be analyzed for COCs associated with the LSWM identified in Phase I of this work plan, and if ponding is determined to be non-transient, then additional analytes and parameters may be added as per Chapter 62-302, F.A.C.

Surface water sampling will be conducted in general accordance with FDEP-SOP-001/01 FS 1000 and FS 2100. Three surface water grab samples will be collected on-site at locations where standing water depths are sufficient. Approximate locations are shown on Figure 4. Standing water is visible at these locations in an aerial photograph taken in 2007. Surface water samples will be collected using laboratory provided containers, immediately placed in a cooler with wet ice for transport to a NELAC approved laboratory. One field blank will be collected and analyzed for PDWS and SDWS analytes in accordance with FDEP requirements.

### **4.3 Hydrogeologic Investigation**

The site-specific hydrogeology will be evaluated as part of Phase II using information available from the public domain and lithologic information collected during completion of boreholes for monitor wells and soil and LSWM borings. The occurrence of groundwater beneath and in the vicinity of the Site will also be assessed using data from in-situ permeability tests.

As discussed in **Section 4.2.2**, monitoring well TOC elevations will be determined and depth to water measurements will be collected. Static water level elevations will be calculated for the shallow and deep zones of the surficial aquifer at the Site, and groundwater contour maps will be prepared. In-situ permeability testing will be conducted on three (3) shallow and three (3) deep monitor wells. These data will be used to estimate the hydraulic conductivities of the shallow and deep zones of the surficial aquifer. Estimated hydraulic conductivities and gradients from the interpretation of the groundwater contour maps will be used to estimate the rate and direction of groundwater movement beneath the Site and immediate vicinity.





In-situ permeability (slug) tests will be performed by inserting a solid decontaminated PVC slug into the well and monitoring the recovery of the water level in the well (Slug-in and Slug-out tests will be performed). Slug test will be considered complete when the water levels stabilize after each slug-in and slug-out test. A decontaminated Level Troll 700 Instrument will be used to record groundwater elevations at 4 per second to within 0.01-foot, during slug-in and slug-out testing. Additionally at least two (2) cross sectional diagrams of the Site subsurface will be constructed using the geologist boring logs.

## 5.0 EVALUATION OF EXPOSURE RISK

Potential risks to human health associated with exposure to soil, groundwater and surface water (including stormwater runoff) associated with LSWM disposal at the Site will be evaluated as part of Phase II. Potential risks to groundwater resources will also be evaluated as part of Phase II.

### 5.1 Soil

Potential risks to human health associated with exposure to soil at the Site will be evaluated using the 95% UCL method described in Appendix D of the 2005 document entitled "Technical Report: Development of Cleanup Target Levels (CTLs) for Chapter 62-777, F.A.C." Using this method, if an analyte is detected in a concentration that exceeds the SCTL in any of the samples collected from a ¼-acre exposure unit, the 95% UCL of the arithmetic mean of the concentration of that analyte will be determined and compared to the direct residential exposure and direct commercial/industrial SCTLs. The 95% UCL will be determined using FLUCL tool or another approved UCL tool such as the U.S. EPA ProUCL 5.1 tool. If necessary, SCTLs based on additivity will be used if multiple analytes are present in concentrations that could pose a threat when combined. Results of these evaluations will be used to evaluate potential risks associated with current Site conditions. These comparisons will be evaluated with respect to the physical properties of the LSWM and contaminants of concern and the Site history to estimate potential historical risks to human health associated with direct exposure to the LSWM at the Site.

Potential risks to groundwater resources will be evaluated by comparing results of COCs identified in the LSWM and soil to default leachability SCTLs established in Chapter 62-777, F.A.C. and/or to site-specific leachability threshold values. For analytes identified that do not have a default leachability SCTL, the synthetic precipitation leachate procedure (SPLP) analysis method will be run by the laboratory. Leachability will be evaluated in accordance with Chapter 62-780.680(1)(b)2, F.A.C. The comparisons to default leachability values and leachability threshold concentrations will be indicative of current risks to groundwater quality. As with the direct exposure risks, these comparisons will be





evaluated with respect to the physical properties of the LSWM and contaminants of concern and the Site history to estimate potential historical risks to groundwater resources.

## **5.2 Groundwater Exposure**

Potential risks to human health will be evaluated by comparing results of groundwater sampling and analysis to MCLs and GCTLs. In addition, a well inventory will be performed using data provided by the City and information from the community regarding existing wells that will be solicited by the City. In accordance with Chapter 62-780.600(3)(h), F.A.C., a survey will be conducted in order to determine if public water system supply wells are within a ½-mile radius of the Site, and private water supply wells within the ¼-mile radius of the Site will be performed, including a physical survey for private wells. Groundwater samples may be collected from existing wells identified in the vicinity of the Site. Wells that may be used for potable purposes will be sampled by the Lee County Health Department. Groundwater samples collected from irrigation wells or wells in the vicinity used for other non-potable purposes will be analyzed for the PWDS and SDWS analytes specified in Chapter 62-550, F.A.C. and other potential COCs identified in Phase I, that do not have MCLs.

## **5.3 Surface Water**

As with groundwater, potential risks to human health will be evaluated by comparing results of surface water sampling and analysis to applicable primary and secondary MCLs and GCTLs. These comparisons will be applicable to on-site exposure. Historical off-site exposure due to storm water runoff including soil transported from the Site via runoff will be evaluated using the above comparisons and data from off-site soil sampling and analyses. Results from off-site sampling and analysis will be compared to direct residential exposure and direct commercial/industrial exposure SCTLs. Historical drainage will also be evaluated to the extent practicable to possibly identify preferred drainage patterns. The history of the Site and surrounding area will also be considered as well as the chemical and physical properties of the COCs in evaluating historical risks associated with storm water runoff from the Site.

## **6.0 REPORTING AND SCHEDULE**

Results of the Site Assessment will be presented in a Site Assessment Report and in presentations to the Community. Interim reports or presentations will be required by the City, FDEP and/or the Community. An interim report or presentation that presents results of Phase I and recommendations for Phase II will be provided within 8 weeks of final approval of this Work Plan. The schedule for the completion of the Site Assessment and



presentations will be determined based on City, community and regulatory requirements and collaboration. The projected schedule of milestone tasks is as follows:

- Begin field work approximately 1 week following the notice to proceed (NTP) with Phase I of this work plan;
- Complete Phase I field work approximately 2 weeks following NTP;
- Receive analytical results within 5 weeks following NTP;
- Deliver results of Phase I with recommendations for adjusted Phase II scope of work, within 6 weeks following NTP, to be approved by the City;
- Begin Phase II of work plan, as per approved adjusted scope, approximately 1 week following the NTP for Phase II of work plan;
- Complete Phase II field work approximately 3 weeks following the Phase II NTP;
- Receive complete analytical results within 6 weeks following the Phase II NTP;
- Deliver Site Assessment Report to the City and FDEP within 8 weeks following the Phase II NTP.



## FIGURES

**Figure 1:** Site Location Map

**Figure 2:** Proposed Sludge/Waste Characterization

**Figure 3:** Proposed Soli Sampling Locations

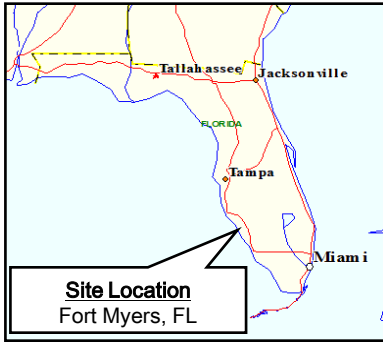
**Figure 4:** Proposed Surface Water and Groundwater Sample Locations

**Figure 5:** Shallow Well Construction Detail

**Figure 6:** Deep Well Construction Detail

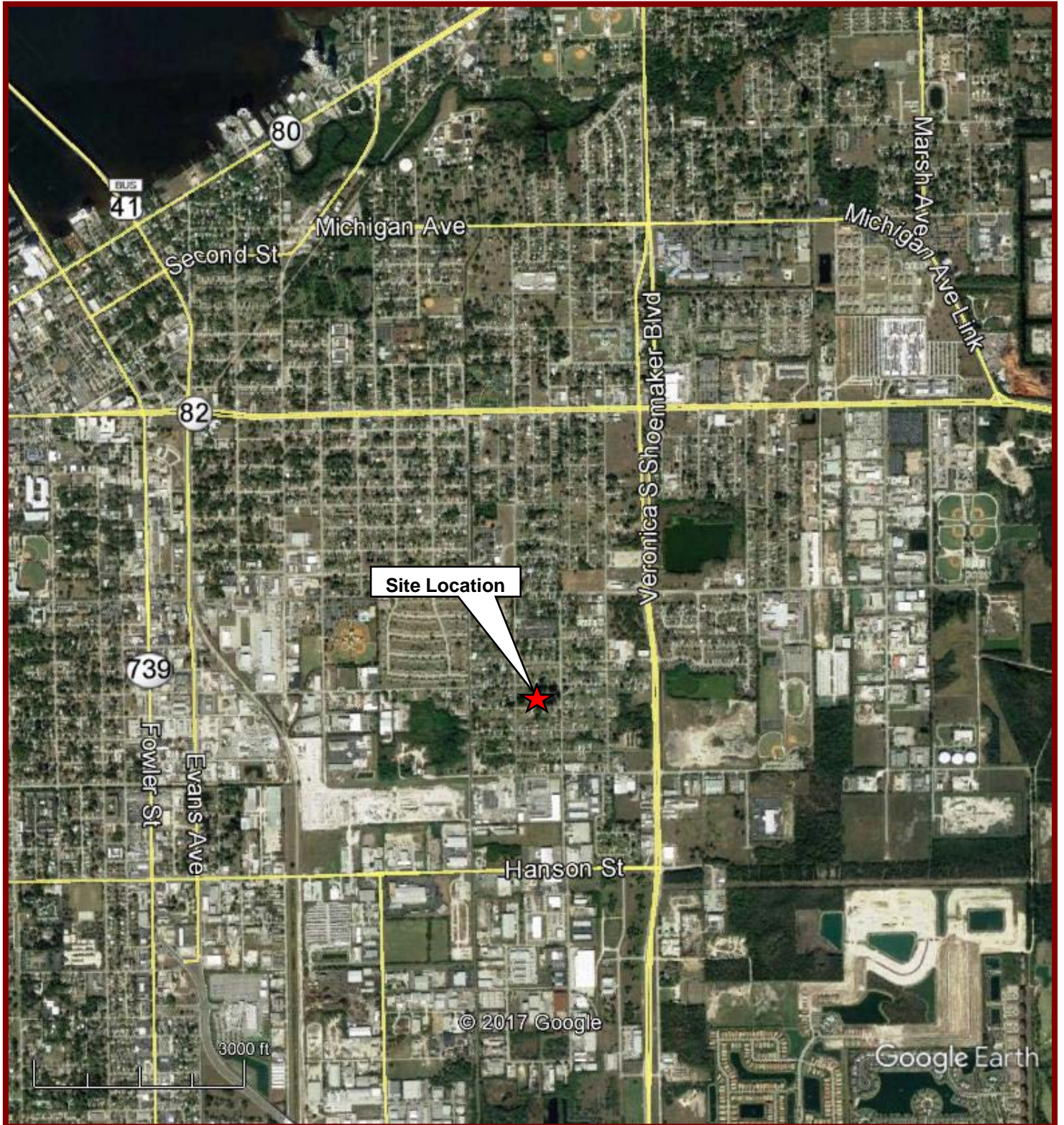




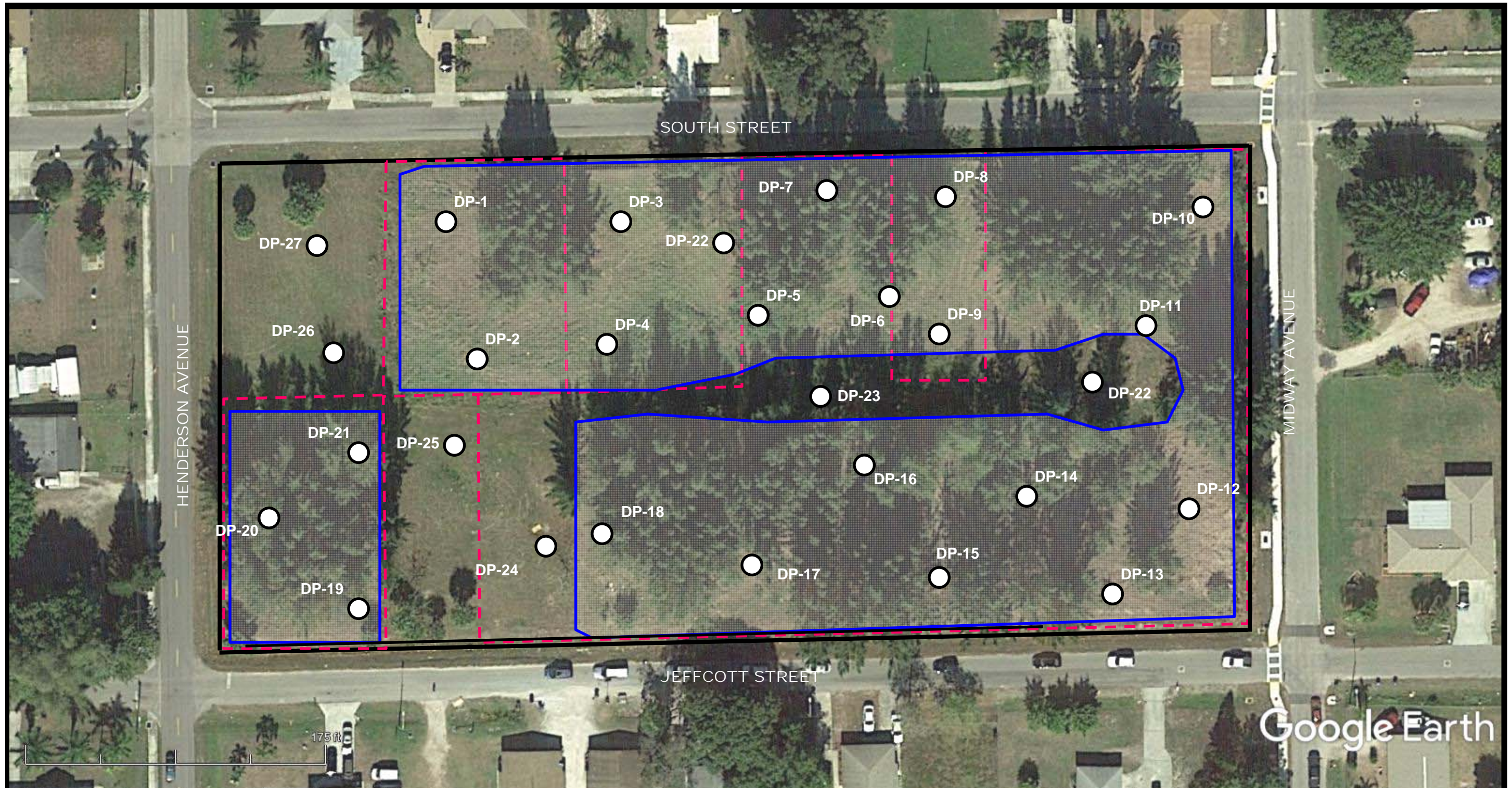


**FIGURE 1: SITE LOCATION MAP**

**South Street Property  
3348 South Street Property  
Fort Myers, Lee County, Florida**







**FIGURE:2 Proposed Sludge/Waste Characterization Sample Locations**  
**South Street Property**  
 3348 South Street  
 Fort Myers, Lee County, Florida



GFA Project No.: 17-5281.00  
 Drawn By: SM; Date: 7/12/17  
 Source: GoogleEarth, 2/3/17  
 Revised: 7/19/17  
 Approximate Scale 1"= 60'

**LEGEND:**

- HA = Proposed Onsite Soil Sample Location
- Approximate Excavated Area (Per 1958 UF Imagery)
- - - Approximate City Property Boundary
- Approximate Site Boundary
- DPT Sample Location





**FIGURE:3 Proposed Soil Sampling Location**

**South Street Property**

3348 South Street  
Fort Myers, Lee County, Florida



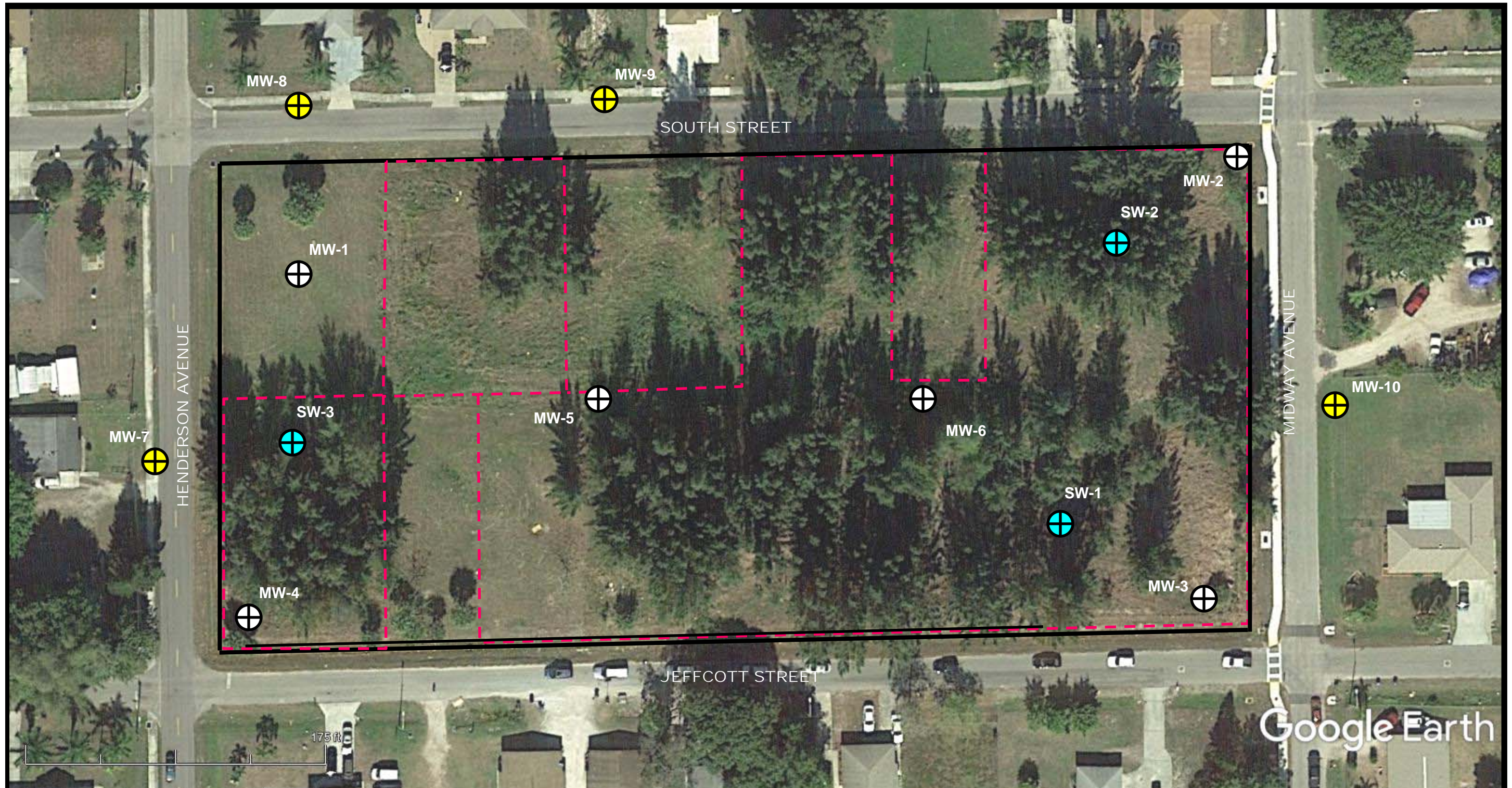
GFA Project No.: 17-5281.00  
Drawn By: SM; Date: 7/12/17  
Revised: 7/19/17  
Source: GoogleEarth, 2/3/17  
Approximate Scale 1" = 60'

**LEGEND:**

HA = Proposed Onsite Soil Sample Location  
FS = Proposed Offsite Soil Sample Location

Approximate City Property Boundary  
1/4 - Acre Exposure Unit  
Approximate Site Boundary










**FIGURE:4 Proposed Surface Water and Groundwater Sample Locations**  
**South Street Property**  
 3348 South Street  
 Fort Myers, Lee County, Florida



GFA Project No.: 17-5281.00  
 Drawn By: SM; Date: 7/12/17  
 Source: GoogleEarth, 2/3/17  
 Approximate Scale 1"= 60'

**LEGEND:**

-  Existing Monitoring Well Location
-  Proposed Monitoring Well Cluster

-  Approximate City Property Boundary
-  Approximate Site Boundary
-  Proposed Surfacewater Sample Location



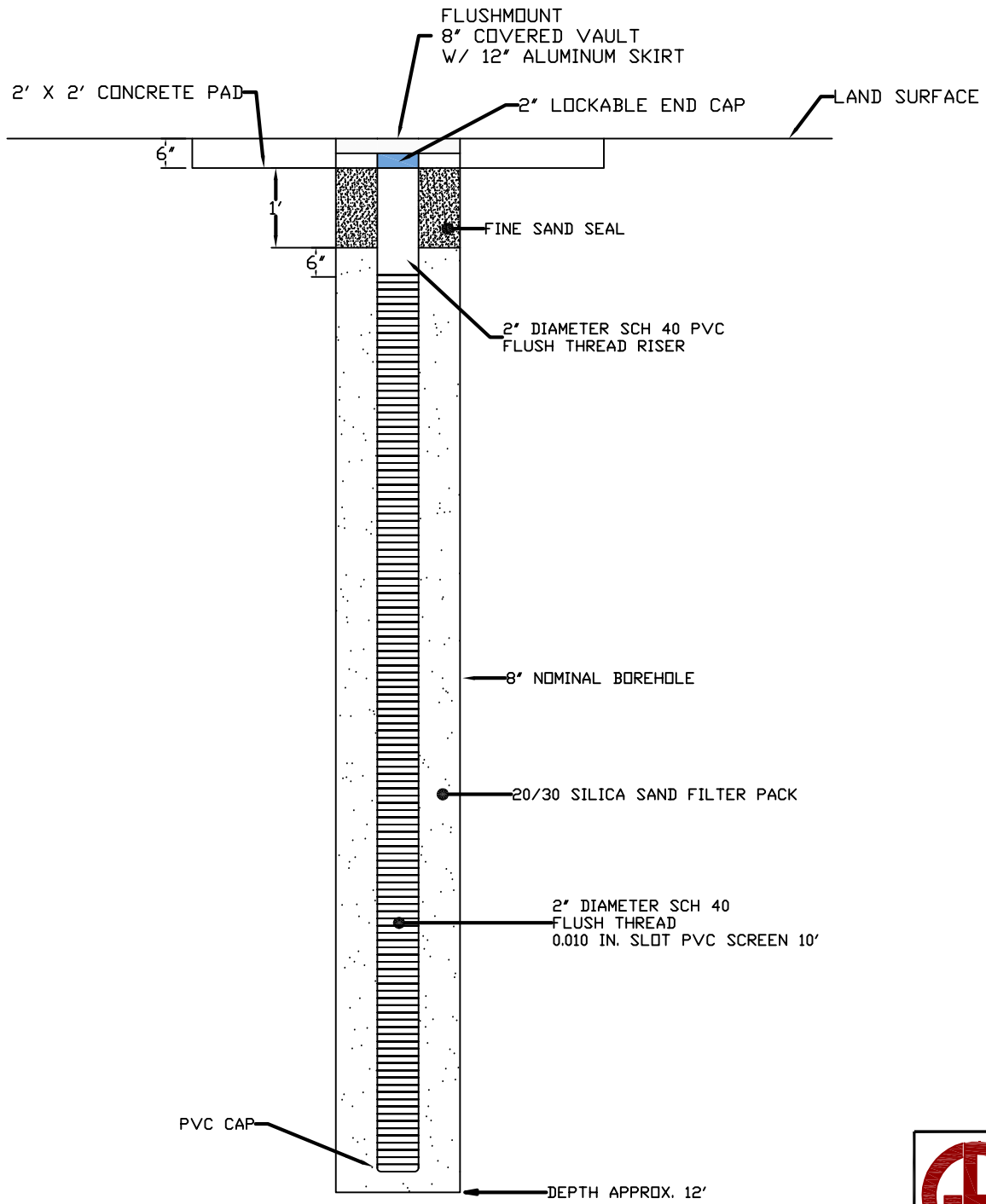


FIGURE 5 - SHALLOW WELL CONSTRUCTION DETAIL



GFA International, Inc.  
5851 Country Lakes Drive  
Fort Myers, Florida 33905  
239-489-2443 \* TeamGFA.com

Client: CITY OF FORT MYERS  
Project: South Street Property  
3348 South Street  
Fort Myers, Lee County, Florida  
Approved by: PJD

Date: 07/14/2017  
Job No: 17-5218  
Drawn By: CAC

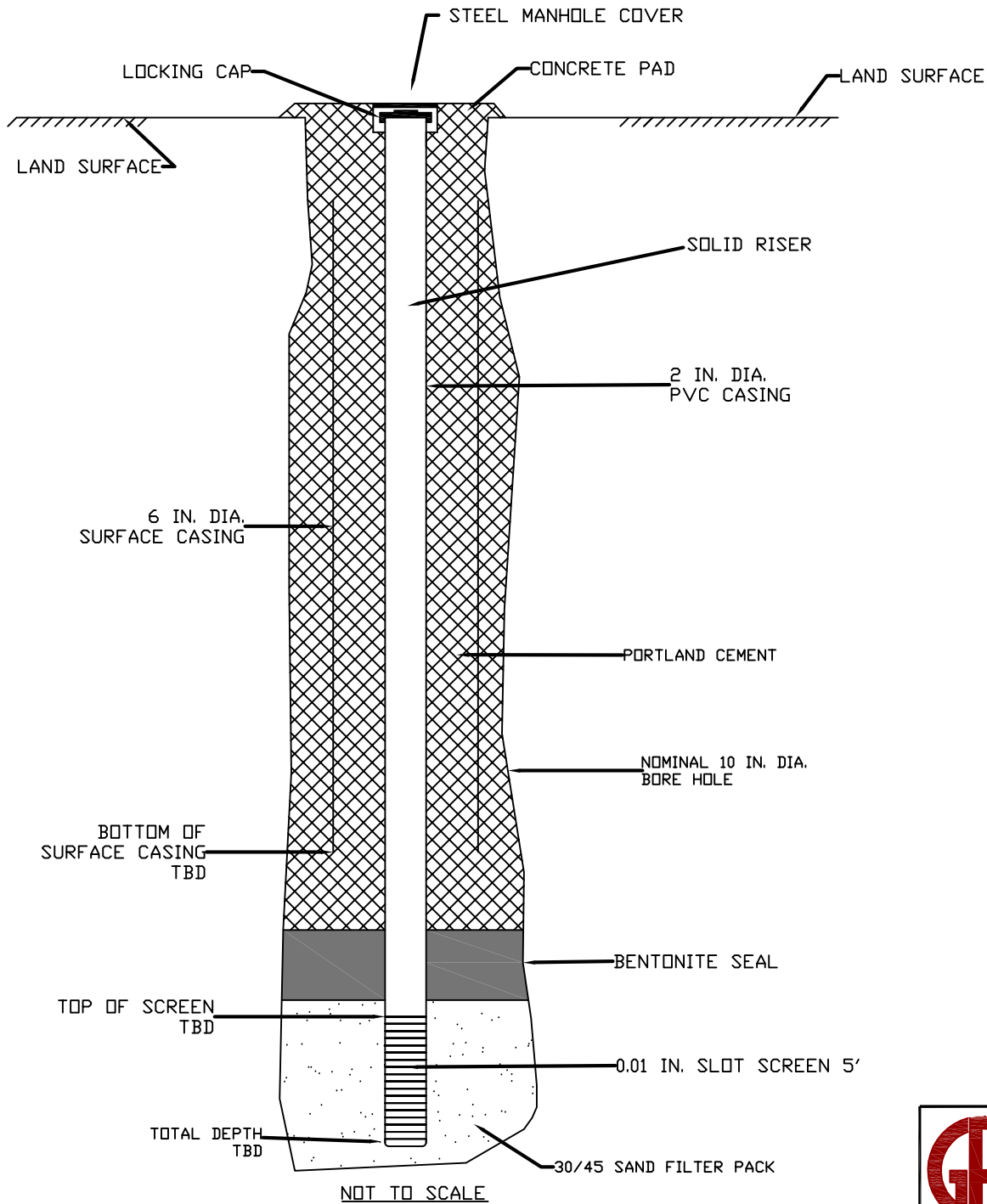


FIGURE 6 -DEEP MONITORING WELL DETAIL



GFA International, Inc.  
 5851 Country Lakes Drive  
 Fort Myers, Florida 33905  
 239-489-2443 \* TeamGFA.com

Client: CITY OF FORT MYERS  
 Project: South Street Property  
 3348 South Street  
 Fort Myers, Lee County, Florida  
 Approved by: PJD

Date:07/14/2017  
 Job No: 17-5281  
 Drawn By: CAC