HSA ENGINEERS & SCIENTISTS

A member of the CRA family of companies

REMEDIAL ACTION PLAN
Countryside Executive Golf Course
2506 Countryside Blvd.
Clearwater, Florida
HSA Project Number 601-5982
June 2010

REMEDIAL ACTION PLAN
Countryside Executive Golf Course
2506 Countryside Boulevard
Clearwater, Pinellas County, Florida

Prepared for:

Florida Department of Environmental Protection
13051 North Telecom Parkway
Temple Terrace, Florida 33637

Prepared by:

HSA Engineers & Scientists
4019 East Fowler Ave.
Tampa, Florida 33617
HSA Project Manager: Brian Moore, P.E.
HSA Project No. 601-5982

June 2010

PROFESSIONAL ENGINEER CERTIFICATION

Remedial Action Plan:

Countryside Executive Golf Course
2506 Countryside Boulevard
Clearwater, Pinellas County, Florida
HSA Project Number: 601-5982

In accordance with Chapter 471, Florida Statutes, and Chapter 62-780, Florida Administrative Code, I hereby certify that, to the best of my knowledge, all engineering plans, specifications, and calculations included herein are in accordance with standard and appropriate engineering practices.

Brian Moore, P.E.
Environmental Program Manager
Florida Registration #64015

TABLE OF CONTENTS

Page

TABLES

FIGURES

APPENDIX

1.0 INTRODUCTION

HSA Engineers & Scientists (HSA) has prepared this Remedial Action Plan (RAP) for the former Countryside Executive Golf Course (Site) located in Clearwater, Pinellas County, Florida (**Figure 1**). The proposed RAP includes on-site management of arsenic-impacted soils underlying the site, a description of engineering/institutional controls to be implemented, and a Natural Attenuation Monitoring (NAM) plan for monitoring groundwater impacts following remedial action.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site and Vicinity Description

The Site consists of approximately 44 acres that was formerly used as an 18-hole executive golf course. The site is located in Clearwater, Pinellas County, Florida in Section 30 and 31 of Township 28 South, Range 16 East, with a physical address of 2506 Countryside Boulevard, Clearwater, Florida.

Land use surrounding the subject property includes residential development to the west, southwest, south, and southeast. Commercial businesses are located to the north, northwest and east of the subject site. The Countryside Professional Center and Woodgate Park are located southeast of the site. City of Clearwater sewer lift stations are located to the east and south of the subject site. Two ponds are located at the site and the nearest off-site surface water body is a pond in the Village on the Green residential development located approximately 200 feet west of the subject site.

The site has an approximate elevation of 75 ft NGVD. A USGS Topographic Map is included as **Figure 2**. The geology and lithology that underlies the site generally consists of brown to gray-brown fine sand with roots (including top soil) to a maximum depth of approximately 5 feet below land surface (ft bls) underlain by brown to gray-brown variegated fine sand depths ranging from 14 to 23 ft bls. The sand is sporadically interlaminated with organic silty to silty fine sand. Gray-brown limestone underlies most of the sand; however, in the northern and southern parts of the site, the limestone is missing and replaced by green-brown to gray-brown silty fine sand.to a depth of approximately 28 ft bls. The limestone and silty fine sand are underlain by green clayey silt or green brown dolomitic silty sand. Aquifer testing conducted at the site indicates a hydraulic conductivity of 59.7 feet/day and a seepage velocity of 456 feet/year in the upper shallow zone groundwater and a hydraulic conductivity of 0.73 feet/day and seepage velocity of 2.1 feet/year in the lower shallow zone. The general groundwater flow direction is to the northwest.

The site is currently vacant with future use of the site expected to consist of a mixed single/multi-family residential development. A Site Plan is included as **Figure 3**.

2.2 Previous Investigations

Assessment activities consisting of soil and groundwater sampling were conducted at the subject property by Land Assessment Services, Inc. (LAS) between August and November 2004 and HSA from 2004 to the present. During this time period, extensive soil and groundwater testing was conducted to assess the extent of arsenic and chlorinated pesticides. In addition, Interim Source Removal (ISR) activities were conducted in the vicinity of the existing maintenance facility and a former maintenance area. A summary of historical assessment results is included below.

2.2.1 Summary of Soil Assessment

Historical soil assessment activities identified elevated levels of arsenic and pesticides in the vicinity of the maintenance facility located in the west-central portion of the Site (**Figure 3**). The levels of arsenic and pesticides were generally highest in an area located directly east of the maintenance facility. As such, the impacted soils located near the maintenance facility were attributed to the handling and storage of chemicals (herbicides/pesticides) utilized in maintaining the golf course. Additionally, site-wide arsenic impacts were identified in shallow soils at lower concentrations. The site-wide impacts were determined to be a result of the proper and routine application of herbicides/pesticides.

Given the presence of highly impacted soils near the maintenance facility, HSA recommended source removal activities prior to completion of the Site Assessment (SA). A summary of the source removal results is included below (see **Section 2.2.2**).

The results of the site-wide soil assessment activities indicate the presence of arsenic in shallow soils at levels above the default Residential, default Commercial/Industrial, and site-specific Leachability-based Soil Cleanup Target Levels (SCTLs) per Chapter 62-777, Florida Administrative Code (FAC). As discussed above, the highest concentrations of arsenic were reported in the vicinity of the maintenance facility. Concentrations in the shallowest sample interval generally exceeded the default Residential SCTL of 2.1 milligrams per kilogram (mg/kg) throughout the site. Little variation in concentration was observed between fairways, tees, greens, and rough areas. In several areas, arsenic impacts were identified on adjacent properties. A summary of historical soil arsenic data is included as **Tables 1 and 2**. Soil sampling results for the shallow interval [0-6 inches below land surface (bls)] are included as **Figure 4A**. In the deeper sample intervals (6 inches to 2 feet bls) and (2 to 4 feet bls), the arsenic concentrations generally decreased. In the 6 inch to 2 feet bls interval, none of the sample concentrations exceeded the default Commercial/Industrial SCTL, and only six samples exceeded the site-specific Leachability-based SCTL of 5 mg/kg. In the deeper interval (2 to 4 feet bls), only two

samples exhibited concentrations of arsenic above the site-specific Leachability-based SCTL. Soil sampling results for the deeper intervals are included as **Figures 4B** (6 inches to 2 feet bls) and **4C** (2 to 4 feet bls).

2.2.2 Summary of ISR Activities

In order to mitigate the impacts identified in the vicinity of the maintenance facility and area of monitor well MW-2, Interim Source Removal (ISR) activities were conducted on October 6 through 8, 2008, and November 13, 17, and 18, 2008. These ISR activities included excavation and off-site disposal of a total of 1,626.81 tons of contaminated soil. The soil was transported by Soil Tech for disposal at the Waste Management Okeechobee Landfill, located at 10800 NE 128th Avenue in Okeechobee, Florida. In addition, a total of 10,000 gallons of impacted groundwater was removed from the two excavated areas and transported for treatment by Aqua Clean to their facility at 3210 Whitten Road in Lakeland, Florida for treatment and disposal on November 13, 2008. A summary of the ISR activities was included in a SARA/ISR report submitted in December 2008. A summary of confirmation soil sampling results is included in **Table 1**. The approximate excavation limits and soil confirmation results for the maintenance area are depicted in **Figures 5A**, **5B**, and **5C**. Excavation limits and soil confirmation results for the vicinity of monitor well MW-2 are included in **Figure 6**.

2.2.3 Summary of Groundwater Assessment

In conjunction with soil assessment activities, extensive groundwater monitoring has been conducted over the course of the SA that was reported within the December 2005 SAR/RAP and the subsequent SARAs.

The highest concentrations of arsenic were historically located in the vicinity of the Maintenance Facility and an apparent temporary maintenance area near monitor well MW-2. Following completion of ISR activities in October and November 2008, groundwater arsenic concentrations were observed to rapidly decrease in these locations.

Currently, a monitor well network of 26 shallow and 3 deep monitor wells is located throughout the site, with six of these shallow wells located on adjacent right-of-ways. A summary of monitoring well construction details is included as **Table 3**. Locations of monitoring wells are included in **Figure 3**. As part of the SA, monitoring well top-of-casings were surveyed and depth to water measurements were gathered to determine groundwater elevations. Based on recent groundwater elevation data, groundwater flow is generally to the northwest across the site, with some variations due to on-site surface features and/or ponds. A summary of groundwater elevation data is included in **Table 4**. The most recent groundwater elevation contour map is included as **Figure 7**.

The most recent groundwater analytical results indicate that monitor wells with concentrations exceeding the default Groundwater Cleanup Target Level (GCTL) of 10 micrograms per liter (µg/L) per Chapter 62-777, FAC. are limited to three locations (MW-3, MW-13 and MW-14). The maximum concentration was reported from monitor well MW-13 at 73 µg/L. Based on the inferred plume areas and the groundwater concentrations, a mass of 1.15 lbs was estimated in groundwater (**Appendix A**). The groundwater impacts are vertically delineated by nearby deep monitor wells DW-2, DW-3 and DW-4 and concentrations do not exceed the applicable default NADSC of 100 µg/L per Chapter 62-777, FAC.

A surface water sample collected in May 2006 at an on-site pond near the Maintenance Facility exhibited arsenic at a concentration of 152 µg/L, exceeding the default Fresh Surface Water Criteria (FSWC) level of 50 µg/L per Chapter 62-777, FAC; however, subsequent surface water samples collected in June 2006 (49 µg/L) and July 2009 (49 µg/L) did not exceed the FSWC. Groundwater analytical data is summarized in **Table 5** and the most recent arsenic results are depicted in **Figure 8**.

3.0 REMEDIAL APPROACH

As described above, SA activities have been ongoing at this Site since August 2004. The results of the SA have identified arsenic in soil and groundwater at concentrations that exceed the default Residential Direct Exposure SCTL or the site-specific Leachability-based SCTL and default GCTL per Chapter 62-777 Florida Administrative Code (FAC) in areas of the site and in specific off-site locations. HSA's rationale and approach to remediation for both off- and on-site impacts and groundwater impacts is included below. In general, the approach includes soil management and Natural Attenuation Monitoring (NAM). A RAP Summary Form is included as **Appendix B**.

3.1 Off-site soil impacts

As discussed above, off-site soil arsenic impacts exist in shallow soils at several locations surrounding the subject site. HSA reviewed existing on- and off-site analytical data in order to determine the likely source of off-site shallow arsenic impacts. In each instance that off-site soil impacts exist, little evidence exists to support contaminant migration from the Site. In several instances, soil concentration gradients exist away from the Site, rather than toward the Site, which would be expected during contaminant migration. Additionally, in other areas the conceptual model suggests routine and proper application is violated because arsenic impacts are identified in a roadway located beyond a wooded area and drainage ditch. In this instance, no obvious connection exists between the off-site impact and the Site. Given that arsenic is a known component of widely used herbicides/pesticides and is naturally occurring, its presence at off-site locations is not considered a result of migration from the Site. An aerial photograph depicting the location of the shallow arsenic soil impacts is included as **Figure 9**.

Off-site impacts were identified in the west-central portion of the site. In this area, on-site sample PLS-6 exhibited an arsenic concentration of 2.5 mg/kg, while the adjacent off-site samples VOG-5 exhibited an arsenic concentration of 3.04 mg/kg. Similarly, in the northern portion of the subject site, concentrations increase moving further away from the subject site. At on-site location PLS-27, the arsenic concentration was 2.9 mg/kg, with subsequent off-site sample results of 2.33 mg/kg (ROW-19) and 5.84 mg/kg (ROW-33). Sample location ROW-33 is located over 50 feet from the Site. Finally, in the northwestern portion of the Site, several off-site samples exhibited elevated levels of arsenic. In this area concentrations generally increased with increased distance from the Site. At on-site location PLS-2 (4.8 mg/kg), adjacent off-site locations VOG-1, VOG-21, VOG-22, and VOG-38 exhibited concentrations of 2.73, 2.97, 2.65, and 7.57 mg/kg, respectively. In this instance, VOG-38 located over 200 feet from the Site exhibited the highest concentration of 7.57 mg/kg.

Off-site impacts were also identified in the southeast portion of the site near the clubhouse and Countryside Boulevard. At this location, arsenic was detected at a concentration of 8.9 mg/kg at off-site location ROW-31. Sample location ROW-31 is located approximately 60 feet from a tee and across a drainage ditch.

The final area of off-site impacts is located near the maintenance area at sample locations TF-5 and ROW-18. At this location, impacts appear to be associated with a release in the vicinity of the maintenance area. The impacts extend to a depth of approximately 6 inches bls and cover an area approximately 5 feet by 5 feet. In this area, the area of soil impacts will be excavated and placed on the Site. The impacts will be managed with the remaining on-site impacts. Target soil remediation areas are depicted in **Figure 10**.

3.2 On-site soil impacts

Shallow soil arsenic impacts exist throughout the Site that exhibit concentrations above the default Residential, default Commercial/Industrial, and site-specific Leachability-based SCTLs. Given the widespread nature of the impacts, the use of off-site disposal for impacted soil is cost prohibitive. Alternatively, the use of Engineering/Institutional Controls available through Chapter 62-780, FAC are recommended. Specifically, HSA recommends the use of Risk Management Option (RMO) Level II with Option IIB for Direct Exposure and Option IIC for Leachability.

In order to accommodate Site redevelopment in the future, a soil management approach is recommended. The soil management approach requires that all soils exhibiting concentrations of arsenic above the site-specific Leachability-based SCTL of 5 mg/kg be placed below impervious cover or be blended to levels below 5 mg/kg. Given that the majority of the soils impacted with arsenic at levels above 5 mg/kg exist within the top 6 inches, HSA recommends that these soils be scraped from the site and placed below impervious cover. Any remaining soils that exhibit

levels above 5 mg/kg will be included in the covered area. The target remedial areas are included in **Figure 10**.

Once the soils are relocated, any soils that contain levels of arsenic above the Residential SCTL will be managed through soil blending or Institutional Controls/alternative soil management (i.e., 2 feet of cover, impervious cover, etc.) if necessary.

3.3 Groundwater impacts

Following completion of the soil management activities, NAM of groundwater will be implemented. Natural Attenuation Monitoring is the appropriate strategy for groundwater rehabilitation at the subject site as groundwater quality is expected to rapidly improve following the placement of impacted soil under impermeable surfaces, and thereby removing the potential for leaching into groundwater. This is evidenced by groundwater analytical results obtained from locations near the former Maintenance Area and Monitor Well MW-2 area following ISR activities, which have confirmed that removal of the impacted soil will quickly result in decreased groundwater concentrations at the subject site. Therefore, the site is anticipated to achieve applicable No Further Action criteria per Ch. 62-780.680, FAC within five years or less.

Analytical results obtained during assessment indicate that groundwater exceeding the applicable default GCTL for arsenic is limited to approximately three locations (MW-3, MW-13 and MW-14) and concentrations do not exceed the NADSC per Chapter 62-777, FAC. As such, active remediation of groundwater is not recommended. HSA recommends the completion of quarterly groundwater monitoring events for a minimum of one year following the soil remedial activities. The proposed NAM plan is described further in **Section 4.3**.

4.0 REMEDIAL PLAN

4.1 Soil Management

In order to resolve the arsenic impacts underlying the site, HSA has developed a soil management plan for on- and off-site soil impacts. Soil excavation will be conducted using backhoes, front loaders, or other standard earthmoving equipment. Based on a site area of approximately 1,957,845 square feet and a depth of 6 inches, the initial volume of soil to be managed is expected to be approximately 36,256 cubic yards. The additional proposed excavations below 6 inches on-site and at off-site locations are expected to add as much as 2,000 cubic yards to this amount. Based on the large volume of soil, the soil will be staged in several locations on-site before placement within two on-site soil containment areas. The soil will be transported from the soil staging areas to the soil containment areas by dump trucks and/or excavation equipment.

The anticipated locations of the soil staging areas and the soil containment areas are illustrated on **Figure 11**. One soil containment area will be located in the northeast corner of the site, while the other soil containment area will be located immediately southwest of the Clubhouse location. These locations have been selected based on their positions away from nearby residences. The northern soil containment area will have approximate dimensions of 300 ft by 205 ft by 6 ft high. The southern soil containment area will have approximate dimensions of 350 ft by 350 ft by 5.5 ft high. Prior to placement, the underlying soils will be removed to an approximate depth of 4-ft bls. This will result in a soil pile of approximately 2 feet above land surface at each location. Each soil containment area will be capped with an impermeable geomembrane liner or concrete/asphalt cover. A 6-foot high chain link fence with PVC slats and a locking gate will be installed around each containment area following construction. "No Trespassing" signs will be posted on the chain link fences. Details of the soil containment areas are included on **Figure 12**.

Initial excavation will begin near the center of the site, south of the former Maintenance Facility. Excavation will then continue in both north and south directions from this starting point. This will lessen the distance required for transporting soil to the containment areas. The primary ingress/egress point of the site will be at the former Clubhouse Dogwater Café location, at the intersection of Countryside Blvd. and Enterprise Drive, although additional or alternative ingress/egress points may be utilized if warranted by site conditions during implementation of the RAP and/or site redevelopment.

During the course of site remediation through on-site soil management, best management practices (BMPs) will be utilized in order to eliminate the potential for off-site migration of impacts through surface runoff, dust control, etc. Prior to implementation of the RAP, silt fencing will be installed around the perimeter of the site and adjacent to the on-site surface-water bodies. Silt fencing surrounding the on-site water bodies will be backed by hay bales to further reduce migration of impacts into these ponds (**Figure 13**). During the remedial activities, soil staging areas will be covered with visqueen and secured at night or other times while excavation is not occurring in order to prevent migration through dust or leaching of the impacted soil. Dust impacts can be further controlled through the construction of an unpaved or paved access road through the site if necessary. In the event that dust remains an issue, the limited use of a water-truck may be considered. Equipment will be stored near the Clubhouse area when not in use in order to eliminate any spreading of contaminated soil off-site.

4.1.1 On-Site Impacts

As reported above, impacted soils have been identified throughout the subject property in surficial soils and extending offsite in some locations.

HSA proposes to excavate of the top 6-inches of soil throughout the site, with placement of the soil into two on-site soil containment areas. Additional excavation will be conducted at those locations exhibiting arsenic concentrations greater than the Leachability to Groundwater SCTL

at locations greater than 6" bls. These areas include sample locations VOG-52, SOIL-19, PLS-20, SB-10 and SOIL-22. The additional excavation at sample locations SOIL-19, and SOIL-22 will extend to the water table. Excavated soil will be staged on-site prior to placement within the soil containment areas. These additional excavation areas are illustrated on **Figure 10** and the soil staging/soil containment area locations are included as **Figure 11**. Given that all soil exhibiting concentrations above the site-specific Leachability-based SCTL of 5 mg/kg will be excavated, no confirmation soil sampling is recommended.

Following removal and stockpiling of the surficial soils and soil at concentrations exceeding the Leachability-based SCTL, soil blending will be conducted at those locations below 6-inches bls previously determined to contain arsenic at concentrations exceeding the Residential Direct Exposure SCTL. Soil blending will be conducted using mechanical mixing equipment and will result in reduced arsenic concentrations through homogenization of the soil. The soil blending will be conducted to reduce concentrations at those locations impacted at depths up to 2 ft bls and at depths of at least 4 ft bls near samples SOIL-7 and SOIL-20.

Upon completion of soil blending activities, confirmation samples will be collected to confirm that the soil has been adequately mixed and concentrations are below the Residential Direct Exposure SCTL of 2.1 mg/kg. Additional soil blending will be conducted if necessary, until concentrations have decreased to below the applicable SCTL. The confirmation samples will be collected in a grid fashion. Based on the limited area requiring soil blending, confirmation samples will be collected from these locations at a spacing of approximately two samples per quarter acre. Based on this spacing, it is expected that approximately 32 confirmation samples will be required. If initial testing results do not indicate acceptable levels, the soil will be reblended and confirmation sampling will be repeated.

4.1.2 Off-Site Impacts

Excavation of impacted soil located adjacent to the maintenance facility at locations ROW-18 and TF-5 will be conducted to a depth of 6" bls. The location of the proposed excavation area is included in **Figure 10**. Following excavation, the soil will be relocated on the Site and the area will be backfilled with clean fill. The clean fill will be sampled for the presence of arsenic prior to placement.

All soil excavated from the off-site location will be transferred to the on-site soil containment areas. Following excavation in the off-site area, the excavated area will be backfilled with clean fill, graded, and re-vegetated to pre-existing conditions.

4.2 Engineering/Institutional Controls

Engineering and Institutional Controls are to be utilized as part of the remedial plan for this site. The engineering controls to be utilized will include the placement of a permanent impermeable

cover over the soil containment areas. The use of an impermeable barrier will eliminate the direct exposure risk and eliminate the potential of arsenic leaching into groundwater. The impermeable barrier will likely consist of either a plastic liner or asphalt/concrete cover. The locations of the impermeable covers are included in **Figure 11**. Additionally, future site redevelopment will require the placement of 2-feet of clean cover in green space areas that do not contain infrastructure cover.

Institutional Controls will be developed in the form of a Restrictive Covenant that will ensure that the impermeable surface and cover remain, or that soil underlying the impermeable cover is properly managed if removal occurs, through transfer of the material to locations under impermeable surfaces such as building pads, roadways and parking areas during site redevelopment. Following relocation of impacted soil to the soil containment areas, a summary report will be submitted along with appropriate documentation required for the Engineering/Institutional Controls.

4.3 Natural Attenuation Monitoring Plan

Following implementation of the soil management plan described above, Natural Attenuation Monitoring will be implemented. As indicated in **Section 3.0**, NAM is an appropriate strategy for addressing the current groundwater impacts due to the limited extent of the impacts and based on the evidence provided following the ISR activities that removal of soil at concentrations greater than the leachability threshold will quickly result in decreased groundwater concentrations.

Due to the proposed excavation and soil blending activities, it is anticipated that all of the onsite monitor wells will require abandonment. Replacement wells be installed at locations near the currently recognized impacted areas and wells that have historically had reported impacts. It is proposed to install replacement wells at locations corresponding to monitor wells MW-3, MW-10, MW-13, MW-14, MW-20, MW-21, MW-22, MW-23, MW-25, MW-26, DW-2, DW-3 and DW-4. The replacement monitor well MW-21 will be installed adjacent to the on-site pond near the former Maintenance Facility for measuring compliance with the surface water standards in accordance with Chapter 62-780.690(3).

The replacement monitoring wells will be installed with similar construction details as the currently existing monitoring wells. The locations of the existing monitoring wells are included on the Site Plan as **Figure 3**. The most recent groundwater elevation contour map is provided as **Figure 7**, while the most recent analytical results are illustrated on **Figure 8**. The monitor well construction details of the existing monitor wells are provided in **Table 3**. A summary of groundwater elevation data is included as **Table 4**, while the groundwater analytical results are provided on **Table 5**. The proposed monitoring schedule is included as **Table 6**.

Prior to implementation of the NAM plan, an off-site Temporary Point of Compliance (TPOC) will be established at monitor well MW-26 in accordance with Chapter 62-780.690(2)c, following appropriate notification. Existing on-site wells MW-23 and MW-25 will be utilized at points of compliance for the remaining areas of impacts.

As proposed above, groundwater monitoring will be conducted quarterly for a minimum of one year. The monitoring wells will be sampled in accordance with FDEP Standard Operating Procedure (SOP) FS2200 with samples submitted to a certified laboratory for the analysis of the presence of arsenic by EPA Method 6010.

5.0 SCHEDULE

Following Department approval, implementation of the RAP will begin. The soil management portion of the plan will occur following removal of all surface encumbrances, such as the existing buildings and vegetation. The City of Clearwater will be contacted prior to the removal of on-site trees and appropriate permits will be obtained as necessary, although attempts will be made to reduce the amount of trees removed. Due to the large site area and volume of impacted soil, it is expected that excavation, soil blending and construction of the soil containment areas will take place over several months.

Upon completion of the soil relocation activities to the on-site soil containment areas and soil blending activities, a summary report will be submitted detailing the activities conducted and the results of any confirmation samples. The report will include As-Built Drawings of the soil containment areas. Following implementation of the NAM plan, quarterly NAM reports will be submitted summarizing the groundwater monitoring activities.

6.0 CONCLUSIONS

The remedial actions proposed within this RAP, along with the recommended Engineering/Institutional Controls and quarterly groundwater monitoring events have been proposed in order mitigate risks associated with the reported impacts at the subject site in accordance with Risk Management Option Level II of Chapter 62-780, FAC. Following implementation of the remedial actions proposed above, quarterly Natural Attenuation Monitoring groundwater will be initiated with results submitted within quarterly monitoring reports.

In accordance with the criteria set forth in Chapter 62-780, FAC, if groundwater concentrations remain below applicable GCTLs for two consecutive monitoring events with a minimum of one year of sampling, a request for No Further Action with Controls will be submitted.

TABLES

Table 1
Summary of Soil Analytical Data (On-Site Samples)
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Sample ID	Sample Depth	Sample Date	EPA Method 6010	EPA Method 8081							
			Arsenic (mg/kg)	Aldrin (mg/kg)	Beta-BHC (mg/kg)	Chlordane (mg/kg)	Dieldrin (mg/kg)	4,4'-DDT (mg/kg)	Alpha-Chlordane (mg/kg)	4,4'-DDD (mg/kg)	Toxaphene (mg/kg)
Residential Direct Exposure SCTL			2.1	0.06	0.5	2.8	0.06	2.9	2.8	4.2	0.9
C/I Direct Exposure SCTL			12	0.3	2.4	14	0.3	15	14	22	4.5
Leachability			5***	0.2	0.001/0.002*	9.6	0.002/0.003*	11	9.6	5.8	31
Tee and Green Area											
Soil-1	0-6"	10/27/06	**7.4**								
	6"-2'		**4.6**								
	2'-4'		2.0								
	4'-6'		0.7 I								
Soil-2	0-6"	10/27/06	**6.5**								
	6"-2'		1.6								
	2'-4'		0.7 I								
	4'-6'		0.9								
Soil-3	0-6"	10/27/06	**7.0**								
	6"-2'		1.1								
	2'-4'		0.8								
	4'-6'		0.5 I								
Soil-4	0-6"	10/27/06	**2.4**								
	6"-2'		1.5								
	2'-4'		0.8								
	4'-6'		0.8								
Soil-5	0-6"	10/27/06, 9/9/08	**7.9**	<0.00012 J3	0.00028 I	<0.0016	0.00015 I	<0.0003	<0.0023	<0.0041	<0.027
	6"-2'	10/27/06	0.8								
	2'-4'		<0.2								
	4'-6'		0.8								
Soil-6	0-6"	10/27/06	**3.2**								
	6"-2'		<0.2								
	2'-4'		0.6 I								
	4'-6'		0.5 I								
Soil-7	0-6"	10/27/06	**3.3**								
	6"-2'		**3.0**								
	2'-4'		**3.2**								
	4'-6'		0.6 I								
Soil-8	0-6"	10/27/06	**3.1**								
	6"-2'		<0.2								
	2'-4'		0.5 I								
	4'-6'		<0.2								
Soil-9	0-6"	10/27/06	**7.4**								
	6"-2'		**2.7**								
	2'-4'		0.7 I								
	4'-6'		0.3 I								
Soil-10	0-6"	10/27/06	**3.9**								
	6"-2'		1.2								
	2'-4'		<0.2								
	4'-6'		0.5 I								
Soil-11	0-6"	10/27/06	**7.0**								
	6"-2'		1.1								
	2'-4'		0.5 I								
	4'-6'		NM								
Soil-12	0-6"	10/27/06	**7.0**								
	6"-2'		1.0								
	2'-4'		<0.2								
	4'-6'		<0.2								
Soil-13	0-6"	10/27/06, 9/9/08	**9.2**	<0.00013 J3	<0.00013	<0.0017	<0.00014	<0.00033	<0.0023	<0.00044	<0.029
	6"-2'	10/27/06	**2.9**								
	2'-4'		0.5 I								
	4'-6'		<0.2								
Soil-14	0-6"	10/27/06	**3.8**								
	6"-2'		0.4 I								
	2'-4'		<0.2								
	4'-6'		0.4 I								
Soil-15	0-6"	10/27/06	**6.2**								
	6"-2'		1.4								
	2'-4'		0.6 I								
	4'-6'		0.9								
Soil-16	0-6"	10/27/06	**2.4**								
	6"-2'		0.9								
	2'-4'		<0.2								
	4'-6'		<0.2								
Soil-17	0-6"	10/27/06	**6.0**								
	6"-2'		0.7 I								
	2'-4'		<0.2								
	4'-6'		<0.2								
Soil-18	0-6"	10/27/06	**4.0**								
	6"-2'		1.4								
	2'-4'		0.6 I								
	4'-6'		<0.2								

Table 1
Summary of Soil Analytical Data (On-Site Samples)
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Sample ID	Sample Depth	Sample Date	EPA Method 6010	EPA Method 8081							
			Arsenic (mg/kg)	Aldrin (mg/kg)	Beta-BHC (mg/kg)	Chlordane (mg/kg)	Dieldrin (mg/kg)	4,4'-DDT (mg/kg)	Alpha-Chlordane (mg/kg)	4,4'-DDD (mg/kg)	Toxaphene (mg/kg)
Residential Direct Exposure SCTL			2.1	0.06	0.5	2.8	0.06	2.9	2.8	4.2	0.9
C/I Direct Exposure SCTL			12	0.3	2.4	14	0.3	15	14	22	4.5
Leachability			5***	0.2	0.001/0.002*	9.6	0.002/0.003*	11	9.6	5.8	31
Property Boundary											
PLS-1	0-6"	11/8/06	1.1								
	6"-2'		1.3								
PLS-2	0-6"	11/8/06	**4.8**								
	6"-2'		**2.8**								
PLS-3	0-6"	11/8/06	**8.8**								
	6"-2'		1.7								
PLS-4	0-6"	11/8/06	**4.7**								
	6"-2'		**3.9**								
PLS-5	0-6"	11/8/06	**2.4**								
	6"-2'		<0.2								
PLS-6	0-6"	11/8/06	**2.5**								
	6"-2'		1.7								
PLS-7	0-6"	11/8/06, 9/9/08	**9.2**	<0.00012 J3	<0.00012	<0.0016	<0.00013	<0.0003	<0.0023	<0.0004	<0.026
	6"-2'	11/8/06	**1.1**								
PLS-8	0-6"	11/8/06	1.1								
	6"-2'		1.5								
PLS-9	0-6"	11/8/06	**2.6**								
	6"-2'		1.4								
PLS-10	0-6"	11/8/06	0.6 I								
	6"-2'		<0.2								
PLS-11	0-6"	11/8/06	**8.9**								
	6"-2'		0.7 I								
PLS-12	0-6"	11/8/06	**2.9**								
	6"-2'		0.9								
PLS-13	0-6"	11/8/06	**5.8**								
	6"-2'		2.1								
PLS-14	0-6"	11/8/06	0.7 I								
	6"-2'		0.8								
PLS-15	0-6"	11/9/06	**2.6**								
	6"-2'		<0.2								
PLS-16	0-6"	11/9/06	**8.8**								
	6"-2'		0.9								
PLS-17	0-6"	11/9/06	**2.9**								
	6"-2'		1.4								
PLS-18	0-6"	11/9/06	**9.5**								
	6"-2'		2.1								
PLS-19	0-6"	11/9/06	**2.9**								
	6"-2'		0.7 I								
PLS-20	0-6"	11/9/06, 9/9/08	**27.0**	<0.00011 J3	<0.00011	<0.0015	0.00017 I	0.00039 I	<0.0023	<0.00039	<0.025
	6"-2'	11/9/06	**6.5**								
PLS-21	0-6"	11/9/06	<0.2								
	6"-2'		<0.2								
PLS-22	0-6"	11/9/06, 9/9/08	**13.0**	<0.00012 J3	<0.00012	<0.0015	<0.00012	<0.00029	<0.0023	<0.00039	<0.026
	6"-2'	11/9/06	**3.7**								
PLS-23	0-6"	11/9/06	**2.2**								
	6"-2'		<0.2								
PLS-24	0-6"	11/9/06	**3.0**								
	6"-2'		**4.2**								
PLS-25	0-6"	11/9/06	**2.8**								
	6"-2'		1.1								
PLS-26	0-6"	11/9/06	**2.2**								
	6"-2'		1.8								
PLS-27	0-6"	11/9/06	**2.9**								
	6"-2'		1.7								
PLS-28	0-6"	11/9/06	1.6								
	6"-2'		0.6 I								
PLS-29	0-6"	11/9/06	1.3								
	6"-2'		1.4								
PLS-30	0-6"	11/9/06	**2.7**								
	6"-2'		0.7 I								
SB-16	0-6"	3/16/09	**17**								
	6"-2'		1.2								
	2'-4'		1.7								
Soil-19	0-6"	3/19/09	1.2								
	6"-2'		**5.8**								
	2'-4'		**8.8**								
Soil-20	0-6"	3/19/09	**4.1**								
	6"-2'		0.51 I								
	2'-4'		**3.1**								
Soil-21	0-6"	3/19/09	**9.1**								
	6"-2'		**4.5**								
	2'-4'		1.1								
Soil-22	0-6"	3/19/09	**9.9**								
	6"-2'		**7.4**								
	2'-4'		**6.4**								
VOG-52	0-6"	4/8/09	**22.0**								
	6"-2'		**8.4**								
	2'-4'		<0.25								
VOG-54	0-6"	4/20/09	**6.9**								
	6"-2'		0.71 I								

Table 1
Summary of Soil Analytical Data (On-Site Samples)
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Sample ID	Sample Depth	Sample Date	EPA Method 6010	EPA Method 8081							
			Arsenic (mg/kg)	Aldrin (mg/kg)	Beta-BHC (mg/kg)	Chlordane (mg/kg)	Dieldrin (mg/kg)	4,4'-DDT (mg/kg)	Alpha-Chlordane (mg/kg)	4,4'-DDD (mg/kg)	Toxaphene (mg/kg)
Residential Direct Exposure SCTL			2.1	0.06	0.5	2.8	0.06	2.9	2.8	4.2	0.9
C/I Direct Exposure SCTL			12	0.3	2.4	14	0.3	15	14	22	4.5
Leachability			5***	0.2	0.001/0.002*	9.6	0.002/0.003*	11	9.6	5.8	31
Synthetic Precipitate Leaching Procedure Samples (Gathered from Various Locations)											
SB-1	0-6"	12/5/08	2.1								
	6"-2'		0.98								
SB-3	0-6"	12/5/08	**2.2**								
	6"-2'		**2.7**								
SB-4	0-6"	12/5/08	1.3								
	6"-2'		**3**								
SB-5	0-6"	12/5/08	1.1								
	6"-2'		0.63 I								
SB-6	0-6"	12/5/08	**2.6**								
	6"-2'		1.2								
SB-7	0-6"	12/5/08	<0.22								
	6"-2'		<0.21								
SB-8	0-6"	12/5/08	**2.9**								
	6"-2'		0.94								
SB-9	0-6"	12/5/08	**3.3**								
	6"-2'		<0.23								
SB-10	0-6"	12/5/08	0.82								
	6"-2'		**6.8**								
SB-11	0-6"	12/5/08	**21**								
	6"-2'		1.9								
SB-12	0-6"	12/5/08	**7.2**								
	6"-2'		0.78 I								
SB-13	0-6"	12/5/08	**18**								
	6"-2'		2								
SB-14	0-6"	12/5/08	2.1								
	6"-2'		0.66 I								
SB-15	0-6"	12/5/08	**6.8**								
	6"-2'		**2.8**								
Maintenance Facility Area											
Pre-Source Removal											
SB-1	0-6"	5/31/06		<0.0016	<0.0016	<0.016	<0.0016	<0.0016	<0.0023	<0.00016	<0.016
SB-2	0-6"	5/31/06		<0.0016	<0.0016	<0.016	<0.0016	<0.0016	<0.0023	<0.00016	<0.016
SB-3	0-6"	5/31/06		<0.0016	<0.0016	<0.016	<0.0016	<0.0016	<0.0023	<0.00016	<0.016
SB-4	0-6"	5/31/06		<0.0016	<0.0016	<0.016	<0.0016	<0.0016	<0.0023	<0.00016	<0.016
CSS-7	0-6"	11/2/06	**17**	0.022	<0.0018	<0.016	**0.12**	<0.0011	0.018	<0.0018	<0.23
	6"-2'		**5.5**	<0.0022	<0.0018	<0.016	0.0078	<0.0011	<0.0023	<0.0018	<0.23
	2'-4'		0.3 I	<0.0022	<0.0018	<0.016	0.0039 I	<0.0011	0.0076 I	<0.0018	<0.23
	4'-6'		0.4 I								
CSS-33	0-6"	11/2/06		<0.0022	<0.0018	<0.016	<0.0016	<0.0011	<0.0023	<0.0018	<0.23
CSS-40	0-6"	11/2/06		<0.0022	<0.0018	<0.016	0.057	<0.0011	<0.0023	<0.0018	<0.23
	6"-2'			<0.0022	<0.0018	<0.016	0.023	<0.0011	<0.0023	<0.0018	<0.23
	2'-4'			<0.0022	<0.0018	<0.016	<0.0016	<0.0011	<0.0023	<0.0018	<0.23
Sediment Sample											
Composite Sediment	--	5/30/06	**3.1**	0.00077 I	<0.0019	<0.019	<0.0019	<0.0019	<0.0023	<0.0019	<0.019
Post-Source Removal - After Initial Excavation Conducted from October 6 through 8, 2008											
CSS-1	0-6"	10/7/08	**6.58**	0.0064	<0.0012	<0.0016	**0.4**	<0.0003	<0.0023	<0.0004	**0.95**
CS-Pit 1N	0-6"	10/14/08	**13.9**								
CSS-1	6"-2'	10/7/08	**2.92**	<0.00012	<0.0012	<0.0016	0.00058 I	<0.00032	<0.0023	<0.00042	<0.028
CS-Pit 1N	6"-2'	10/14/08	**24**								
CS-Pit 1N	2'-4'	10/14/08	**9.28**								
CSS-3	0-6"	10/7/08	**3.04**	<0.00012	<0.00012	<0.0016	0.021	<0.00031	<0.0023	<0.00042	<0.028
CS-Pit 1S	0-6"	10/14/08	**41.8**								
CSS-3	6"-2'	10/7/08	1.66 I	<0.00013	<0.00013	<0.0017	0.034	<0.00032	<0.0023	<0.00044	<0.028
CS-Pit 1S	6"-2'	10/14/08	0.724 I								
CS-Pit 1S	2'-4'	10/14/08	0.61 I								
CSS-4	0-6"	10/7/08	**6.2**	<0.00011	<0.00011	0.056	<0.00012	0.00067 I	<0.0023	0.0037	<0.025
CSS-Pit 1W	0-6"	10/14/08	**19.6**								
CSS-4	6"-2'	10/7/08	**31.5**	<0.00012	<0.00012	<0.0016	<0.00012	<0.00029	<0.0023	<0.0004	<0.026
CSS-Pit 1W	6"-2'	10/14/08	**5.09**								
CSS-Pit 1W	2'-4'	10/14/08	**2.5**								
Post-Source Removal - After Final Excavation Conducted on November 17 and 18, 2008											
CSS-1 (R)	0-6"	11/17/08	**6.53**	<0.00011	<0.00011	<0.0015	0.00027 I	<0.00029	<0.0023	<0.00038	<0.025
CS-Pit 1E	0-6"	10/14/08	1.53								
CS-Pit 1E	6"-2'	10/14/08	<0.436								
CS-Pit 1E	2'-4'	10/14/08	0.521 I								
CSS-2	0-6"	10/7/08	<0.829	<0.00012	<0.00012	<0.0016	<0.00013	<0.0003	<0.0023	<0.00041	<0.0027
CSS-2	6"-2'	10/7/08	<0.867	<0.00012	<0.0012	<0.0017	<0.00013	0.0026	<0.0023	0.0033	<0.028
CSS-3	0-6"	11/17/08		<0.00012	<0.00012	<0.0016	0.0015	<0.00031	<0.0023	<0.00042	<0.027
	6"-2'			<0.00013	<0.00013	<0.0017	0.00043 I	<0.00033	<0.0023	<0.00044	<0.029
CSS-4	0-6"	11/17/08	0.39 I								
	6"-2'		0.809								
CSS-5	0-6"	10/15/09	**4**	<0.0023		<0.0042	<0.0017	<0.00067		<0.0019	<0.24
	6"-2'		1.1	<0.0024		<0.0043	<0.0017	<0.0007		<0.002	<0.25

Table 1
Summary of Soil Analytical Data (On-Site Samples)
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Sample ID	Sample Depth	Sample Date	EPA Method 6010	EPA Method 8081							
			Arsenic (mg/kg)	Aldrin (mg/kg)	Beta-BHC (mg/kg)	Chlordane (mg/kg)	Dieldrin (mg/kg)	4,4'-DDT (mg/kg)	Alpha-Chlordane (mg/kg)	4,4'-DDD (mg/kg)	Toxaphene (mg/kg)
Residential Direct Exposure SCTL			2.1	0.06	0.5	2.8	0.06	2.9	2.8	4.2	0.9
C/I Direct Exposure SCTL			12	0.3	2.4	14	0.3	15	14	22	4.5
Leachability			5***	0.2	0.001/0.002*	9.6	0.002/0.003*	11	9.6	5.8	31
Monitor Well 2-Area											
Pre-Source Removal											
MW-2 South	0-6"	5/30/06	4.7								
	0-6"	11/2/06	5.8	<0.0022	<0.0018	<0.016	<0.0016	<0.0011	<0.0023	<0.0018	<0.23
	6"-2'		3.4								
	2'-4'		1.0								
	4'-6'		<0.2								
MW-2 North	0-6"	5/30/06	6.63								
	0-6"	11/2/06	36	<0.0022	<0.0018	<0.016	<0.0016	<0.0011	<0.0029	<0.0018	<0.23
	6"-2'		2.2								
	2'-4'		2.3								
	4'-6'		0.5 I								
MW-2 East	0-6"	5/30/06	3.56								
	0-6"	11/2/06	5.7	<0.0022	<0.0018	<0.016	<0.0016	<0.0011	<0.0023	<0.0018	<0.23
	6"-2'		3.0								
	2'-4'		1.8								
	4'-6'		0.5 I								
MW-2 West	0-6"	5/30/06	6.38								
	0-6"	11/2/06	5.8	<0.0022	<0.0018	<0.016	<0.0016	<0.0011	<0.0023	<0.0018	<0.23
	6"-2'		1.7								
	2'-4'		1.1								
	4'-6'		0.9								
Post-Source Removal											
CS-Pit-2 North	0-6"	10/14/08	0.588 I								
	6"-2'		1.29								
	2'-4'		0.892 I								
CS-Pit-2 East	0-6"	10/14/08	1.57								
	6"-2'		<0.402								
	2'-4'		<0.361								
CS-Pit-2 South	0-6"	10/14/08	1.14								
	6"-2'		<0.363								
	2'-4'		<0.445								
CS-Pit-2 West	0-6"	10/14/08	3.56								
	6"-2'		3.57								
	2'-4'		<0.437								

Notes:
All units are in milligrams per kilogram (mg/kg)
Blank cell indicates not analyzed/not sampled
Some analytes were omitted because their value did not exceed the laboratory reporting limit for that particular method.
Endosulfan I was detected at SB-1 at a concentration of 0.017 mg/kg. Endosulfan I doesn't have a SCTL per Ch. 62-777, FAC.
All analytes analyzed by EPA Method 8151 were below the detection limit, with the exception of 2,4'-D detected at SB-4 at a concentration of 0.021 mg/kg, which is well below the Leachability to groundwater of 0.7 mg/kg.
When multiple dates shown, first date refers to arsenic sample date and second date refers to pesticide sample date.
SCTL - Soil Cleanup Target Level as established in Chapter 62-777, Florida Administrative Code
*** - Leachability values may be derived using the SPLP Test to calculate site-specific SCTLs or may be determined using TCLP in the event oily wastes are present.
* - Practical quantitation limit is alternate SCTL approved by FDEP
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J3 - Estimated value; value not accurate. The reported value did not meet the established quality control criteria for either precision or accuracy but falls within the NELAC marginal exceedance range.
Red indicates exceedance of the Residential Direct Exposure SCTL
Blue indicates exceedance of the Commercial/Industrial Direct Exposure SCTL
Shaded indicated exceedance of the Leachability to groundwater Exposure SCTL
Shaded indicates sample location removed during ISR activities

Table 2
Summary of Soil Analytical Data (Offsite Samples)
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Sample Id	Sample Depth	Sample Date	Arsenic
Residential Direct Exposure SCTL			2.1
Commercial/Industrial Direct Exposure SCTL			12
Leachability to Groundwater			5
VOG-1	0"-6"	05/28/08	**2.73**
	6"-2'		0.634 I
VOG-2	0"-6"	05/28/08	**3.56**
	6"-2'		**2.15**
	2'-4'		0.448 I
VOG-3	0"-6"	05/28/08	**5.90**
	6"-2'		**2.75**
	2'-4'		<0.353
VOG-4	0"-6"	05/28/08	0.93
VOG-5	0"-6"	05/28/08	**3.04**
	6"-2'		<0.49
VOG-6	0"-6"	05/28/08	0.95
VOG-7	0"-6"	05/28/08	0.90
VOG-8	0"-6"	05/28/08	0.661 I
VOG-9	0"-6"	05/28/08	1.40
VOG-10	0"-6"	05/28/08	0.472 I
LW-11	0"-6"	05/28/08	0.62 I
LW-12	0"-6"	05/28/08	0.45 I
LW-13	0"-6"	05/28/08	0.82 I
ROW-14	0"-6"	05/28/08	1.08
ROW-15	0"-6"	05/28/08	0.982 I
ROW-16	0"-6"	05/28/08	**4.80**
	6"-2'		1.29
	2'-4'		1.14
ROW-17	0"-6"	05/28/08	0.95
	6"-2'		0.917 I
	2'-4'		1.01
ROW-18	0"-6"	05/28/08	**3.13**
	6"-2'		<0.431
ROW-19	0"-6"	05/28/08	**2.33**
	6"-2'		2.02
ROW-20	0"-6"	05/28/08	1.21

Table 2
Summary of Soil Analytical Data (Offsite Samples)
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Sample Id	Sample Depth	Sample Date	Arsenic
Residential Direct Exposure SCTL			2.1
Commercial/Industrial Direct Exposure SCTL			12
Leachability to Groundwater			5
VOG-21	0"-6"	07/01/08	**2.97**
	6"-2'		1.65
VOG-22	0"-6"	07/01/08	**2.65**
	6"-2'		<0.413
VOG-23	0"-6"	07/01/08	**2.92**
	6"-2'		**3.56**
	2'-4'		<0.444
VOG-24	0"-6"	07/01/08	**2.36**
	6"-2'		1.39
VOG-25	0"-6"	07/01/08	**7.02**
	6"-2'		<0.302
VOG-26	0"-6"	07/01/08	**2.48**
	6"-2'		<0.505
VOG-27	0"-6"	07/01/08	1.69
VOG-28	0"-6"	07/01/08	1.88
VOG-29	0"-6"	07/01/08	0.92
ROW-30	0"-6"	07/01/08	1.30
ROW-31	0"-6"	07/01/08	**8.90**
	6"-2'		**6.33**
	2'-4'		1.52
ROW-32	0"-6"	07/01/08	2.11
ROW-33	0"-6"	07/01/08	0.904 I
ROW-34	0"-6"	07/01/08	0.514 I
ROW-35	0"-6"	07/01/08	1.44
ROW-36	0"-6"	07/01/08	**5.84**
	6"-2'		1.52
ROW-37	0"-6"	07/01/08	2.06
VOG-38	0"-6"	07/01/08	**7.57**
	6"-2'		1.15
VOG-39	0"-6"	07/01/08	**5.50**
	6"-2'		1
VOG-40	0"-6"	07/01/08	1.71

Table 2
Summary of Soil Analytical Data (Offsite Samples)
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Sample Id	Sample Depth	Sample Date	Arsenic
Residential Direct Exposure SCTL			2.1
Commercial/Industrial Direct Exposure SCTL			12
Leachability to Groundwater			5
ROW-41	0"-6"	07/01/08	1.06
	6"-2'		0.809
ROW-42	0"-6"	07/01/08	2.01
ROW-43	0"-6"	07/01/08	<1,030
	6"-2'		<0.461
ROW-44	0"-6"	07/01/08	<0.548
	6"-2'		<0.507
CP-20	0"-6"	07/01/08	1.10
TF-1	0"-6"	10/16/08	0.765 I
	6"-2'		1.012 I
TF-2	0"-6"	10/16/08	2.015 I
	6"-2'		1.078 I
TF-3	0"-6"	10/15/09	<0.23
	6"-2'		<0.24
	2' - 4'		<0.25
TF-5	0"-6"	10/15/09	**5.2**
	6"-2'		0.31 I
TF-6	0"-6"	10/21/09	0.88
	6"-2'		0.71 I
TF-7	0"-6"	10/21/09	2.0
	6"-2'		0.47 I
VOG-45	0"-6"	03/16/09	1.80
	6"-2'		<0.22
	2'-4'		<0.24
VOG-46	0"-6"	03/16/09	1.8
	6"-2'		0.48 I
	2'-4'		<0.25
VOG-47	0"-6"	03/16/09	**2.9**
	6"-2'		0.50 I
	2'-4'		<0.24
VOG-50	0"-6"	03/16/09	**2.3**
	6"-2'		**2.9**
	2'-4'		<0.23
ROW-45	0"-6"	03/19/09	0.32 I
	6"-2'		0.62 I
	2'-4'		<0.22
SB-16A	0"-6"	03/30/09	0.42 I
Soil-19A	0"-6"	03/30/09	<0.24
	6"-2'		0.28 I
	2'-4'		0.55 I
Soil-20A	0"-6"	03/30/09	0.49 I
	6"-2'		0.32 I
	2'-4'		0.69 I

Table 2
Summary of Soil Analytical Data (Offsite Samples)
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Sample Id	Sample Depth	Sample Date	Arsenic
Residential Direct Exposure SCTL			2.1
Commercial/Industrial Direct Exposure SCTL			12
Leachability to Groundwater			5
Soil-21A	0"-6"	03/30/09	0.95
	6"-2'		<0.21
Soil-22A	0"-6"	03/30/09	0.40 I
	6"-2'		0.36 I
	2'-4'		<0.24
VOG-51	0"-6"	04/08/09	<0.27
	6"-2'		<0.25
VOG-53	0"-6"	04/20/09	0.53 I
	6"-2'		<0.24
VOG-55	0"-6"	06/25/09	1.5
	6"-2'		0.78 I
VOG-56	0"-6"	06/25/09	1.0
	6"-2'		0.52 I

Notes:
All units are in milligrams per kilogram (mg/kg)
SCTL - Soil Cleanup Target Level, set forth in Chapter 62-777, FAC
Leachability values derived using the SPLP Test
Red indicates exceedance of the Residential Direct Exposure SCTL
I = Reported value is less than the laboratory practical quantitation limit

Table 3
Summary of Monitoring Well Construction Details
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Well ID	Installation Method	Installed By	Total Depth (ft bls)	Screened Interval (ft bls)	Well Diameter (inches)
TW-1	HSA	LAS	11.83	1.83-11.83	2
TW-2	HSA	LAS	11.84	1.84-11.84	2
TW-3	HSA	LAS	11.04	1.04-11.04	2
TW-4	HSA	LAS	11.97	1.97-11.97	2
TW-4R	Hand Auger	HSA	12.5	2.5-12.5	2
TW-5	HSA	LAS	11.79	1.79-11.79	2
TW-6	HSA	LAS	12	2-12	2
TW-7	HSA	LAS	12.1	2.1-12.1	2
TW-8	HSA	LAS	12.03	2.03-12.03	2
TW-9	HSA	LAS	12.14	2.14-12.14	2
TW-10	HSA	LAS	12.05	2.05-12.05	2
TW-10R	Hand Auger	HSA	12.5	2.5-12.5	2
TW-11	HSA	LAS	12.11	2.11-12.11	2
TW-11R	Hand Auger	HSA	12.5	2.5-12.5	2
TW-12	HSA	LAS	11.93	1.93-11.93	2
TW-12R	Hand Auger	HSA	12.5	2.5-12.5	2
TW-13	HSA	LAS	12.25	2.25-12.25	2
TW-14	Hand Auger	HSA	12.5	2.5-12.5	2
TW-15	Hand Auger	HSA	12.5	2.5-12.5	2
TW-16	Hand Auger	HSA	12.5	2.5-12.5	2
TW-17	Hand Auger	HSA	12	2-12	2
TW-18	Hand Auger	HSA	12	2-12	2
TW-19	Hand Auger	HSA	12	2-12	2
TW-20	Hand Auger	HSA	12	2-12	2
DW-1	DP	HSA	30	25-30	1
MW-1	HSA	HSA	12	2-12	2
MW-1R	Hand Auger	HSA	12.5	2.5-12.5	2
MW-1RR	HSA	HSA	16	6-16	2
MW-2	HSA	HSA	12	2-12	2
MW-3	HSA	HSA	15	5-15	2
MW-4	HSA	HSA	15	5-15	2
MW-5	DP	HSA	13	3-13	1
MW-6	DP	HSA	12	2-12	1
MW-7 (TW-6)	DP	HSA	13	3-13	1
MW-8 (TW-7)	HSA	HSA	13	3-13	2
MW-9	HSA	HSA	13	3-13	2
MW-10 (TW-14)	DP	HSA	12	2-12	1
MW-11	HSA	HSA	13	3-13	2
MW-12	DP	HSA	13	3-13	1
MW-13	HSA	HSA	13	3-13	2
MW-14	HSA	HSA	13	3-13	2
MW-15	HSA	HSA	13	3-13	2
MW-16	HSA	HSA	13	3-13	2
MW-17	HSA	HSA	13	3-13	2
MW-18	HSA	HSA	13	3-13	2

Table 3
Summary of Monitoring Well Construction Details
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Well ID	Installation Method	Installed By	Total Depth (ft bls)	Screened Interval (ft bls)	Well Diameter (inches)
MW-19	HSA	HSA	13	3-13	2
MW-20	HSA	HSA	13	3-13	2
MW-21	HSA	HSA	13	3-13	2
MW-22	HSA	HSA	13	3-13	2
MW-23	HSA	HSA	13	3-13	2
MW-24	HSA	HSA	16	6-16	2
MW-25	HSA	HSA	16	6-16	2
MW-26	HSA	HSA	15	5-15	2
MW-27	HSA	HSA	15	5-15	2
MW-28	HSA	HSA	15	5-15	2
DW-2	HSA	HSA	30.5	25.5-30.5	2
DW-3	HSA	HSA	29.5	24.5-29.5	2
DW-4	HSA	HSA	30	25-30	2

Notes:
HSA: Hollow stem auger.
LAS: Land Assessment Services, Inc.
HSA: HSA Engineers and Scientists
Shading indicates well is damaged or missing
ft bls: feet below land surface.

Table 4
Summary of Groundwater Elevation Data
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Well ID	TOC Elevation	Depth to Water	Water Elevation
6/7/2006			
DW-1	100	6.65	93.35
TW-1	103.52	8.51	95.01
TW-2	104.58	9.18	95.4
TW-3	102.66	6.92	95.74
TW-4	102.77	7.74	95.03
TW-10	100.56	6.81	93.75
TW-11	100.48	7.74	92.74
TW-12	102.92	8.32	94.6
MW-1R	105.78	5.08	100.7
Pond A	-	-	93.62
10/12/2006			
DW-1	100	6.71	93.29
TW-1	103.52	6.56	96.96
TW-2	104.58	7.23	97.35
TW-3	102.66	4.36	98.3
TW-4	102.77	5.81	96.96
TW-6	105.45	7.29	98.16
TW-7	106.05	9.16	96.89
TW-9	NM	8.61	--
TW-10	100.56	4.86	95.7
TW-11	100.48	5.22	95.26
TW-12	102.92	6.37	96.55
TW-14	105.5	8.06	97.44
TW-15	106.21	8.45	97.76
MW-1	105.78	9.01	96.77
MW-2	106.82	9.51	97.31
MW-3	103.44	6.27	97.17
MW-4	102.94	6.41	96.53
Pond A	--	--	96.31
Pond B	--	--	97.25
10/30/2006			
TW-1	103.52	7.04	96.48
TW-2	104.58	4.05	100.53
TW-3	102.66	5.7	96.96
TW-4	102.77	6.75	96.02
TW-5	NM	7.52	--
TW-6	105.45	7.8	97.65
TW-7	106.05	10.27	95.78
TW-8	NM	8.59	--
TW-10	100.56	7.3	93.26
TW-11	100.48	6.74	93.74
TW-12	102.92	6.96	95.96
TW-13	NM	5.42	--
TW-14	105.5	8.8	96.7
TW-15	106.21	9.05	97.16
TW-16	NM	8	--
TW-17	NM	2.32	--
MW-1	105.78	4.58	101.2
MW-2	106.82	10.33	96.49
MW-3	103.44	6.94	96.5
MW-4	102.94	7.04	95.9

Table 4
Summary of Groundwater Elevation Data
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Well ID	TOC Elevation	Depth to Water	Water Elevation
11/29/2006			
DW-1	100	3.18	96.82
TW-1	103.52	7.41	96.11
TW-2	104.58	7.26	97.32
TW-3	102.66	8.45	94.21
TW-4	102.77	6.41	96.36
TW-5	NM	6.86	
TW-6	105.45	7.42	98.03
TW-7	106.05	7.24	98.81
TW-10	100.56	7.3	93.26
TW-11	100.48	3.51	96.97
TW-12	102.92	6.76	96.16
TW-13	NM	6.34	--
TW-14	105.5	7.85	97.65
TW-15	106.21	9.12	97.09
TW-16	NM	7.24	--
TW-17	NM	7.24	--
TW-18	NM	6.31	--
TW-19	NM	6.71	--
MW-1	105.78	9.58	96.2
MW-2	106.82	10.33	96.49
MW-3	103.44	6.94	96.5
MW-4	102.94	7.04	95.9
MW-20	NM	NM	--
Pond A	--	--	95.75
Pond B	--	--	96.3
9/30/2008**			
MW-5	74.34	4.98	69.36
MW-6	75.9	4.73	71.17
MW-7	75.37	DRY	dry
MW-8	76.18	6.45	69.73
MW-9	76.04	5.87	70.17
MW-10	80.85	9.63	71.22
MW-11	76.53	5.56	70.97
MW-12	79.48	7.7	71.78
MW-13	76.29	4.03	72.26
Staff Guage 1 (Pond 2)	69.96	--	NM
Staff Guage 2 (Ditch)	69.87	--	NM
Staff Guage 3 (Pond 1)	71.94	--	NM
11/7/2008			
MW-3	74.34	6.87	67.47
MW-5	74.34	7.97	66.37
MW-6	75.9	7.71	68.19
MW-7	75.37	6.86	68.51
MW-8	76.18	9.41	66.77
MW-9	76.04	8.81	67.23
MW-10	80.85	13.08	67.77
MW-11	76.53	8.47	68.06
MW-12	79.48	10.59	68.89
MW-13	76.29	6.78	69.51
Staff Guage 1 (Pond 2)	69.96	3.65	67.61
Staff Guage 2 (Ditch)	69.87	4.04	67.91
Staff Guage 3 (Pond 1)	71.94	3.58	69.52

Table 4
Summary of Groundwater Elevation Data
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Well ID	TOC Elevation	Depth to Water	Water Elevation
12/12/2008			
MW-3	74.34	7.72	66.62
MW-5	74.34	8.31	66.03
MW-6	75.9	8.47	67.43
MW-7	75.37	7.97	67.4
MW-8	76.18	9.56	66.62
MW-9	76.04	8.93	67.11
MW-10	80.85	13.21	67.64
MW-11	76.53	8.63	67.9
MW-12	79.48	10.69	68.79
MW-13	76.29	7.12	69.17
MW-14	70.65	4.22	66.43
MW-15	73.15	6.07	67.08
MW-16	77.17	6.46	70.71
MW-17	75.34	3.75	71.59
MW-18	75.03	6.98	68.05
MW-19	74.54	8.2	66.34
MW-20	73.52	7.98	65.54
MW-21	73.77	7.41	66.36
MW-22	79.41	11.73	67.68
MW-23	76.31	7.7	68.61
Staff Guage 1 (Pond 2)	69.96	DRY	--
Staff Guage 2 (Ditch)	69.87	3.98	67.85
Staff Guage 3 (Pond 1)	71.94	DRY	--
12/17/2008			
MW-3	74.34	7.86	66.48
MW-5	74.34	8.12	66.22
MW-6	75.9	8.43	67.47
MW-7	75.37	8.16	67.21
MW-8	76.18	9.57	66.61
MW-9	76.04	9.00	67.04
MW-10	80.85	13.31	67.54
MW-11	76.53	8.77	67.76
MW-12	79.48	10.74	68.74
MW-13	76.29	7.14	69.15
MW-14	70.65	4.33	66.32
MW-15	73.15	6.16	66.99
MW-16	77.17	6.52	70.65
MW-17	75.34	3.80	71.54
MW-18	75.03	6.98	68.05
MW-19	74.54	8.25	66.29
MW-20	73.52	6.97	66.55
MW-21	73.77	6.12	67.65
MW-22	79.41	11.83	67.58
MW-23	76.31	7.83	68.48
Staff Guage 1 (Pond 2)	69.96	DRY	--
Staff Guage 2 (Ditch)	69.87	3.89	67.76
Staff Guage 3 (Pond 1)	71.94	DRY	--

Table 4
Summary of Groundwater Elevation Data
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Well ID	TOC Elevation	Depth to Water	Water Elevation
7/6/2009			
MW-1RR	74.42	5.19	
MW-3	74.34	4.1	70.24
MW-5	74.34	5.31	69.03
MW-6	75.9	4.69	71.21
MW-7	75.37	4.09	71.28
MW-8	76.18	9.73	66.45
MW-9	76.04	8.88	67.16
MW-10	80.85	12.69	68.16
MW-11	76.53	8.06	68.47
MW-12	79.48	10.96	68.52
MW-13	76.29	4.93	71.36
MW-14	70.65	2.4	68.25
MW-15	73.15	5.61	67.54
MW-16	77.17	5.34	71.83
MW-17	75.34	2.39	72.95
MW-18	75.03	4.96	70.07
MW-19	74.54	4.45	70.09
MW-20	73.52	5.2	68.32
MW-21	73.77	5.44	68.33
MW-22	79.41	11.76	67.65
MW-23	76.31	4.52	71.79
MW-24	74.73	4.89	69.84
MW-25	73.76	4.2	69.56
Staff Guage 1 (Pond 2)	69.96	4.2	68.16
Staff Guage 2 (Ditch)	69.87	3.66	67.53
Staff Guage 3 (Pond 1)	71.94	bent	--
10/20/2009			
MW-1RR	74.42	7.94	66.48
MW-3	74.34	5.44	68.9
MW-5	74.34	7.25	67.09
MW-6	75.9	7.14	68.76
MW-7	75.37	5.89	69.48
MW-8	76.18	10.09	66.09
MW-9	76.04	9.43	66.61
MW-10	80.85	13.73	67.12
MW-11	76.53	9.29	67.24
MW-12	79.48	11.58	67.9
MW-13	76.29	7.42	68.87
MW-14	70.65	3.54	67.11
MW-15	73.15	6.51	66.64
MW-16	77.17	6.4	70.77
MW-17	75.34	3.74	71.6
MW-18	75.03	7.08	67.95
MW-19	74.54	7.21	67.33
MW-20	73.52	6.33	67.19
MW-21	73.77	6.59	67.18
MW-22	79.41	12.42	66.99
MW-23	76.1	7.55	68.55
MW-24	74.73	7	67.73
MW-25	73.76	6.05	67.71
MW-26	70.51	3.58	66.93
MW-27	71.11	4.25	66.86
MW-28	70.18	3.41	66.77
DW-2	71.06	3.16	67.9
DW-3	72.36	4.01	68.35
DW-4	71.3	6.51	64.79
Staff Guage 1 (Pond 2)	69.96	3.83	67.79
Staff Guage 2 (Ditch)	69.87	3.57	67.44
Staff Guage 3 (Pond 1)	71.94	bent	--

Table 4
Summary of Groundwater Elevation Data
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Well ID	TOC Elevation	Depth to Water	Water Elevation
11/5/2009			
MW-1RR	74.42	8.4	66.02
MW-3	74.34	6.39	67.95
MW-5	74.34	7.91	66.43
MW-6	75.9	7.9	68
MW-7	75.37	7.08	68.29
MW-8	76.18	10.18	66
MW-9	76.04	9.55	66.49
MW-10	80.85	13.84	67.01
MW-11	76.53	9.52	67.01
MW-12	79.48	11.67	67.81
MW-13	76.29	7.81	68.48
MW-14	70.65	3.92	66.73
MW-15	73.15	6.66	66.49
MW-16	77.17	6.53	70.64
MW-17	75.34	4.00	71.34
MW-18	75.03	7.58	67.45
MW-19	74.54	7.89	66.65
MW-20	73.52	6.72	66.8
MW-21	73.77	7.05	66.72
MW-22	79.41	12.53	66.88
MW-23	76.1	8.08	68.02
MW-24	74.73	7.61	67.12
MW-25	73.76	6.62	67.14
MW-26	70.51	3.73	66.78
MW-27	71.11	4.24	66.87
MW-28	70.18	3.49	66.69
DW-2	71.06	3.88	67.18
DW-3	72.36	3.79	68.57
DW-4	71.3	6.65	64.65
Staff Guage 1 (Pond 2)	69.96	3.4	67.36
Staff Guage 2 (Ditch)	69.87	3.59	67.46
Staff Guage 3 (Pond 1)	71.94	dry	--

Notes:
TOC-top of casing NM- Not Measured
NM- Not Measured
** Monitor wells were surveyed to NAVD 88 by Florida Design Consultants, Inc., October 2008

Table 5
Summary of Groundwater and Surface Water Analytical Data
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Point ID	Sample Date	Arsenic (µg/l)
	GCTL	10
	NADSC	100
	FSWC	50
TW-1	08/27/04	**470**
	10/07/04	**620**
	11/16/04	**180**
	10/30/06	**37**
	11/29/06	**34**
	monitor well missing/destroyed	
TW-2	10/06/04	**15**
	11/16/04	8.2 I
	10/30/06	<4.8
	11/30/06	**15.7**
	monitor well missing/destroyed	
TW-3	10/06/04	**100**
	11/15/04	**23**
	10/31/06	**13**
	11/30/06	**12.3**
	monitor well missing/destroyed	
TW-4	10/06/04	**87**
	11/15/04	**75**
	10/30/06	**72**
	11/29/06	**360**
	monitor well missing/destroyed	
TW-5	10/07/04	**330**
	11/16/04	**540**
	10/30/06	**700**
	11/29/06	**661**
	monitor well missing/destroyed	
TW-6	10/07/04	8.4
	10/30/06	**15 I**
	11/29/06	**11.2**
	monitor well missing/destroyed	
TW-7	10/07/04	**14**
	01/13/05	<2.8
	10/30/06	**14 I**
	11/30/06	**12.4**
	monitor well missing/destroyed	
TW-8	11/15/04	3.5 I
	10/31/06	**21**
	monitor well missing/destroyed	
TW-9	11/15/04	4.4 I
	monitor well missing/destroyed	
TW-10	11/15/04	<2.8
	10/30/06	**46**
	monitor well missing/destroyed	
TW-11	11/15/04	**13**
	10/31/06	<4.8
	11/29/06	4.3 I
	monitor well missing/destroyed	
TW-12	11/15/04	**12**
	06/13/06	5.44
	10/31/06	**17 I**
	11/30/06	9.85
	monitor well missing/destroyed	
TW-13	11/16/04	**12**
	10/31/06	**12 I**
	11/30/06	**12.8**
	monitor well missing/destroyed	

Point ID	Sample Date	Arsenic (µg/l)
	GCTL	10
	NADSC	100
	FSWC	50
TW-14	06/13/06	<5
	10/30/06	**58**
	11/30/06	**19**
	monitor well missing/destroyed	
TW-15	06/13/06	<5
	10/30/06	<4.8
	11/30/06	<1.8
	monitor well missing/destroyed	
TW-16	06/13/06	<5
	10/30/06	<4.8
	11/28/06	<1.8
	monitor well missing/destroyed	
TW-17	11/28/06	<1.8
	monitor well missing/destroyed	
TW-18	10/30/06	<4.8
	11/28/06	<1.8
	monitor well missing/destroyed	
TW-19	11/28/06	<1.8
	monitor well missing/destroyed	
TW-20	12/21/06	<1.8
	monitor well missing/destroyed	
DW-1	07/14/05	**17.6**
	08/01/05	**12.4**
	08/26/05	**15.2**
	11/07/05	<2.8
	11/30/06	9.9
	monitor well missing/destroyed	
MW-1	08/26/05	**46.9**
	monitor well missing/destroyed	
MW-1R	06/05/06	<5
	10/30/06	**38**
	11/29/06	<1.8
	monitor well missing/destroyed	
MW-1RR	03/16/09	<4.8
MW-2	08/26/05	**119**
	11/07/05	**130**
	05/30/06	**37.3**
	06/13/06	**79.8**
	10/30/06	**400**
	11/29/06	**14.1**
	monitor well missing/destroyed	
MW-3	08/26/05	**159**
	11/07/05	5.4
	10/30/06	**24**
	11/29/06	<1.8
	11/07/08	**35.6**
	12/08/08	**47**
MW-4	08/26/05	**87**
	11/07/05	<2.8
	10/30/06	**85**
	11/29/06	2.07 I
	monitor well missing/destroyed	
MW-5	09/30/08	**33.8**
	11/07/08	8.67 I
MW-6	09/30/08	<331
	11/07/08	4.23

Table 5
Summary of Groundwater and Surface Water Analytical Data
Countryside Executive Golf Course, Clearwater, Florida
HSA Project Number 601-5982-00

Point ID	Sample Date	Arsenic (µg/l)
	GCTL	10
	NADSC	100
	FSWC	50
MW-7	09/30/08	DRY
	12/08/08	5 I
MW-8	09/29/08	**29.7**
	11/07/08	6.62 I
MW-9	09/29/08	**32.4**
	12/08/08	<4.8
MW-10	09/29/08	**17.7**
	11/07/08	5.28 I
MW-11	09/29/08	**21.7**
	12/08/08	<4.8
MW-12	09/30/08	<3.31
MW-13	09/29/08	**58.6**
	11/07/08	**55.2**
	12/08/08	**73**
MW-14	12/08/08	8.1 I / 10.5
	10/15/09	**17 I**
	10/21/09	**20 / 16 I**
MW-15	12/15/08	<4.8
MW-16	12/10/08	<4.8
MW-17	12/15/08	<4.8
MW-18	12/12/08	<4.8
MW-19	12/12/08	<4.8
MW-20	12/12/08	<4.8
MW-21	12/12/08	<4.8
MW-22	12/12/08	<4.8
MW-23	12/12/08	<4.8
MW-24	03/16/09	<4.8
MW-25	03/16/09	<4.8
MW-26	11/03/09	<4.8
MW-27	11/03/09	<4.8
MW-28	11/03/09	<4.8
DW-2	10/15/09	<4.8
DW-3	10/15/09	5.7 I
DW-4	11/03/09	<4.8
Offsite Irrigation Well (Villiage of the Green)		
Irrigation 3	11/07/08	**14.3**
Surface Water Samples		
Surface Water	5/30/2006	**152**
	06/13/06	49
	07/06/09	49
On-Site Irrigation Wells (Countryside)		
Well 1	05/31/06	<5
Well 2	05/31/06	3.94 I

Notes:
Units given in micrograms per liter (µg/l).
GCTL - Groundwater Cleanup Target Level, set forth in Chapter 62-777, FAC
NADSC - Natural Attenuation Default Source Concentration, set forth in Chapter 62-777, FAC
FSWC - Fresh Surface Water Criteria, set forth in Chapter 62-777, FAC
I - Analyte detected below the quantitation limits.
Red indicates result exceeds GCTL or FSWC
Blue indicates result exceeds NADSC

Table 6
Natural Attenuation Monitoring Schedule
Countryside Executive Golf Course Clearwater, Florida
HSA Project Number: 601-5982-00

Sampling Location	Frequency
MW-3	Quarterly
MW-10	Quarterly
MW-13	Quarterly
MW-14	Quarterly
MW-20	Quarterly
MW-21	Quarterly
MW-22	Quarterly
MW-23	Quarterly
MW-25	Quarterly
MW-26	Quarterly
DW-2	Quarterly
DW-3	Quarterly
DW-4	Quarterly

Analytical Suites	
A	
Analyte	Method
Arsenic	EPA 6010

FIGURES

SUBJECT PROPERTY BOUNDARY

Dunedin

Clearwater

Main St 580 Main St Main St Main St State Road 580 580 State Road 580

Evans Rd

Dinnerbell Ln S

Hitching Post Ln

Brook Dr

King Arthur Ct

Doolittle Ln

Elm St

Betty Dr

Belcher Rd

N Belcher Rd

Park Dr

Belle Haven Dr

Cypress Dr

Mecca

Palm Blvd

Ellis Dr

Maxwell Dr

US-19 N

SR 5

Summerdale Dr

7th St

6th St

1st St

2nd St

3rd St

4th St

5th St

Sabal Springs Circle

Countryside Blvd

Wildwood

Bellhurst Dr

Palmwood Dr

Pinewood Dr

Cedargien Dr

Kenwood Dr

Glenwood Dr

Oakwood Dr

Sequoia Dr

Laurelwood Dr

Bay Berry Dr

Enterprise Rd

Indigo Terrace

Glenbrook Dr

Chadsworth Dr

Colony Dr

Ridgecrest Dr

Southpointe Dr

Bramblewood Dr N

Bramblewood Dr W

Blackwood Circle

Bramblewood Dr E

501

Countryside Blvd

Oakleaf Dr

Laurelwood Dr

19 US-19 N

Winding Wood Dr

Cypress Bend Dr

Village Dr

Scotland Dr

Hillwood Dr

High Ridge Dr

W Ridge Dr

Fair Oak Dr

Forest Dr

Pine Ridge Dr

Greenbriar Blvd

Rutland Ln

N Belcher Rd

Birchbark Trail

Hawthorne Dr

Moore Haven Dr E

Moore Haven Dr W

Covington Dr

Warwick Dr

Ashmore Dr

Sumatran Way

Rhodesian Dr

Persian Dr

Tulip Tree Ln

Banyan Dr

Willow Tree Trail

Timber Ln

Shadow Ln

Black Oak Ln

Tudor Ln

Surrey Ln

425

Indigo Dr

Enterprise Rd E

3rd Ave N

1st Ave N

Lakeshore Dr

Lake Chautauqua

N:\1150-Design\HSA-Drafting\60 Environmental\2010\Countryside Golf Course 601598200\598200-01

N

0 350 700 1050 1400

SCALE: 1" = 700'±

DESIGNED N/A	JOB NO.: 601598200
DRAWN SBW	DATE: 6/8/10
CHECKED NB	CAD NO.: 598200-01

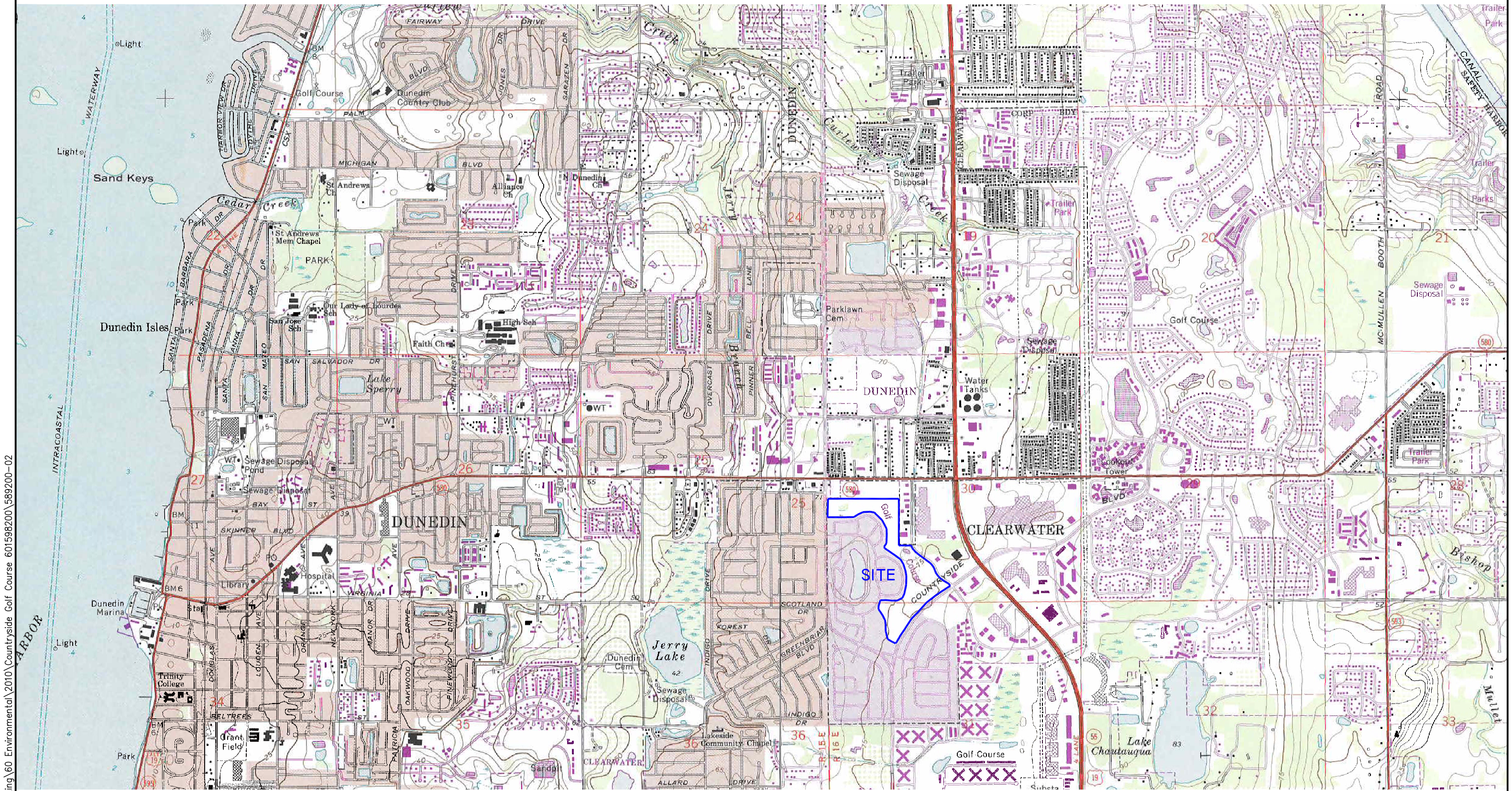
HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617 Tel: (813) 971-3882

COUNTRYSIDE EXECUTIVE GOLF COURSE
2506 COUNTRYSIDE BOULEVARD
CLEARWATER, FLORIDA

SHEET TITLE
SITE LOCATION MAP

FIGURE 1

SECTION 30 & 31, TOWNSHIP 28 SOUTH, RANGE 16 EAST
PINELLAS COUNTY, FLORIDA



SOURCE: OLDSMAR, FLA., U.S.G.S. QUADRANGLE MAP 1974, PHOTOREVISED 1987 & DUNEDIN, FLA., U.S.G.S. QUADRANGLE MAP 1974, PHOTOREVISED 1987

N

0 1000 2000 3000 4000

SCALE: 1" = 2000'±

DESIGNED N/A	JOB NO.: 601598200
DRAWN SBW	DATE: 6/8/10
CHECKED NB	CAD NO.: 598200-02

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617 Tel: (813) 971-3882

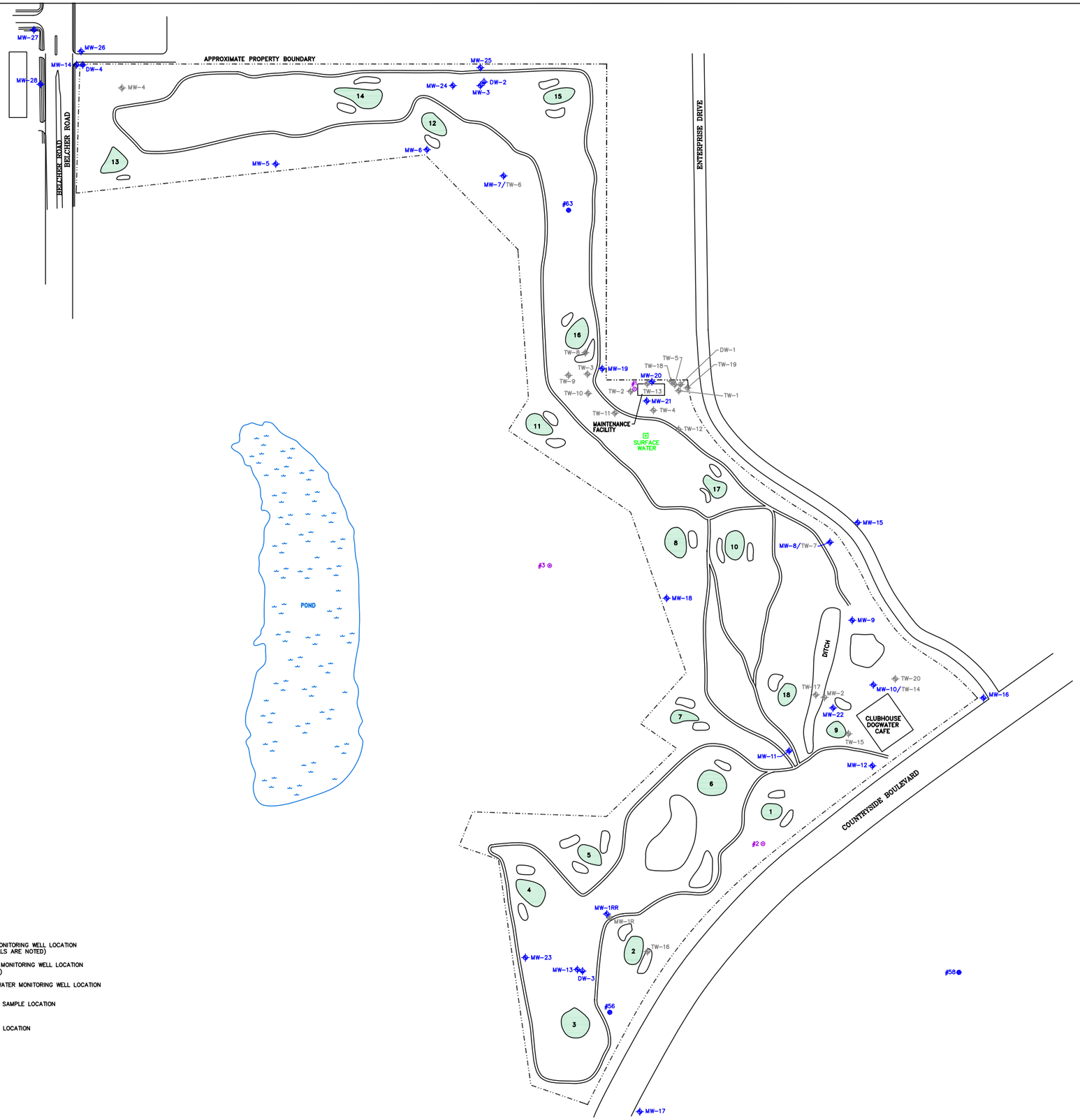
COUNTRYSIDE EXECUTIVE GOLF COURSE
CLEARWATER, FLORIDA

SHEET TITLE
U.S.G.S. TOPOGRAPHIC MAP

FIGURE 2

N:\1150-Design\HSA-Drafting\60 Environmental\2010\Countryside Golf Course 601598200\589200-02

COUNTRYSIDE EXECUTIVE GOLF COURSE
CLEARWATER, FLORIDA



LEGEND

MW-1	CURRENT GROUNDWATER MONITORING WELL LOCATION (DAMAGED OR MISSING WELLS ARE NOTED)
TW-1	HISTORICAL GROUNDWATER MONITORING WELL LOCATION (ALL DAMAGED OR MISSING)
DW-1	HISTORICAL DEEP GROUNDWATER MONITORING WELL LOCATION (DAMAGED OR MISSING)
	SURFACE WATER/SEDIMENT SAMPLE LOCATION
#1	IRRIGATION WELL LOCATION
#58	CITY OF CLEARWATER WELL LOCATION

0 75 150 225 300

SCALE: 1" = 150'±

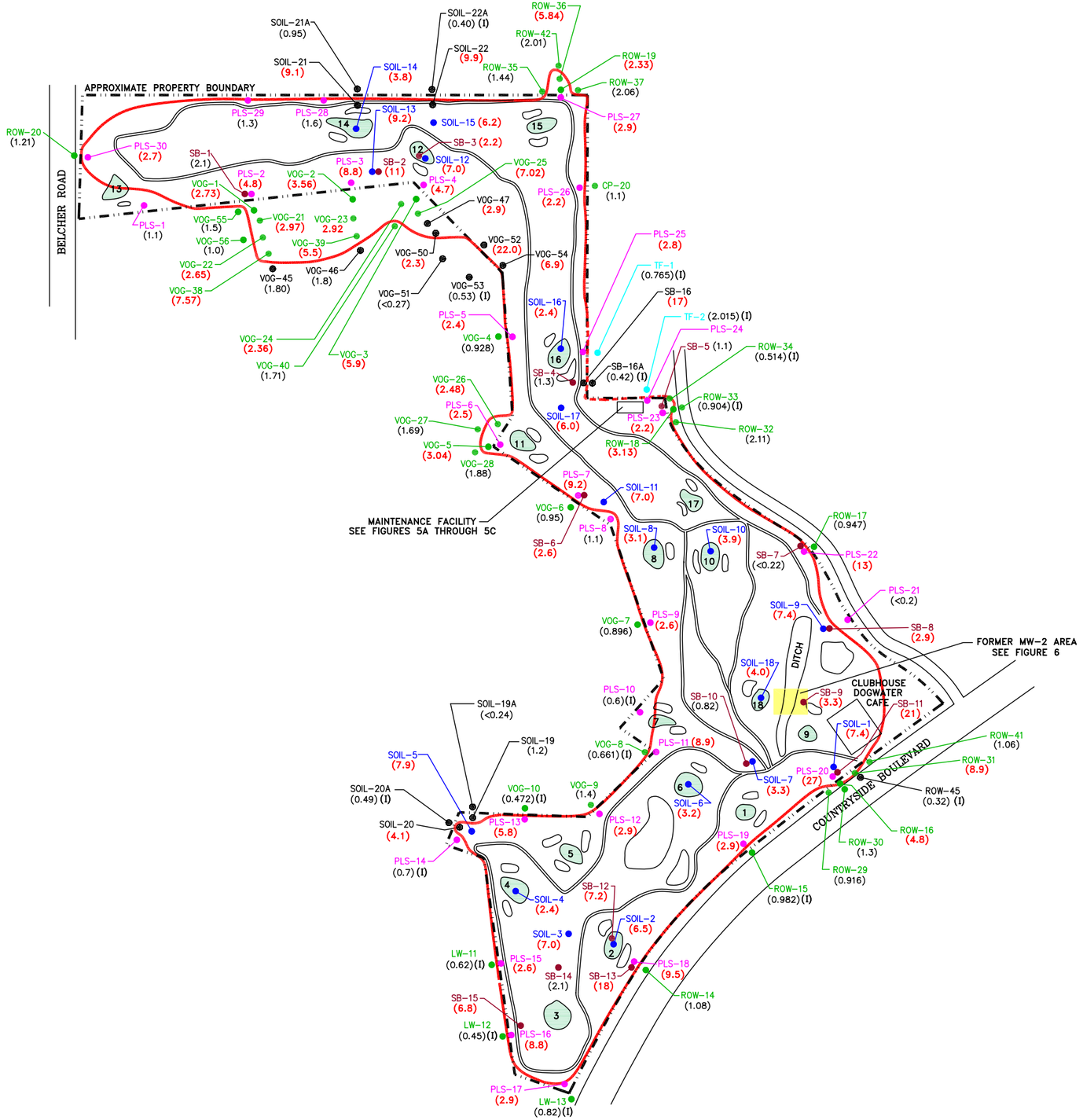
HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971-3852

JOB NO.: 601598200	DATE: 6/8/10	CAD NO.: 598200-03	
DESIGNED N/A	DRAWN SBW	CHECKED NB	

SHEET TITLE

SITE PLAN

FIGURE 3



LEGEND

- SOIL SAMPLE LOCATION (2009)–DESIGNATIONS VARY
- SB-1 ON-SITE SOIL SAMPLE LOCATION (NOV. 2008)
- SOIL-1 TEE AND GREEN SOIL SAMPLING RESULTS (OCT. 2006)
- VOG-1 OFF-SITE SOIL SAMPLE LOCATION (MAY and JULY 2008, JUNE 2009)
- PLS-1 ON-SITE SOIL SAMPLE LOCATION (NOV. 2006)
- TF-1 OFF-SITE SOIL SAMPLE LOCATION (OCT. 2008)
- (0.95) ARSENIC CONCENTRATION IN mg/kg
- mg/kg MILLIGRAMS PER KILOGRAM
- RED DENOTES THE VALUE EXCEEDS THE SCTL PER CHAPTER 62-777, F.A.C.
- SCTL SOIL CLEANUP TARGET LEVEL
- (I) REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT AND THE LABORATORY PRACTICAL QUANTITATION LIMIT

Analyte	Soil Cleanup Target Levels		
	Residential	Industrial	Leachability to Groundwater
Arsenic	2.1	12	***

*** LEACHABILITY VALUES MAY BE DERIVED USING THE SPLP TEST TO CALCULATE SITE SPECIFIC SCTLs OR MAY BE DETERMINED USING TCLP IF OILY WASTES ARE PRESENT

ARSENIC CONTOUR FOR VALUES WHICH EXCEED THE RESIDENTIAL SCTL OF 2.1 mg/kg, DASHED WHERE INFERRED

N

0 120 240 360 480

SCALE: 1" = 240'±

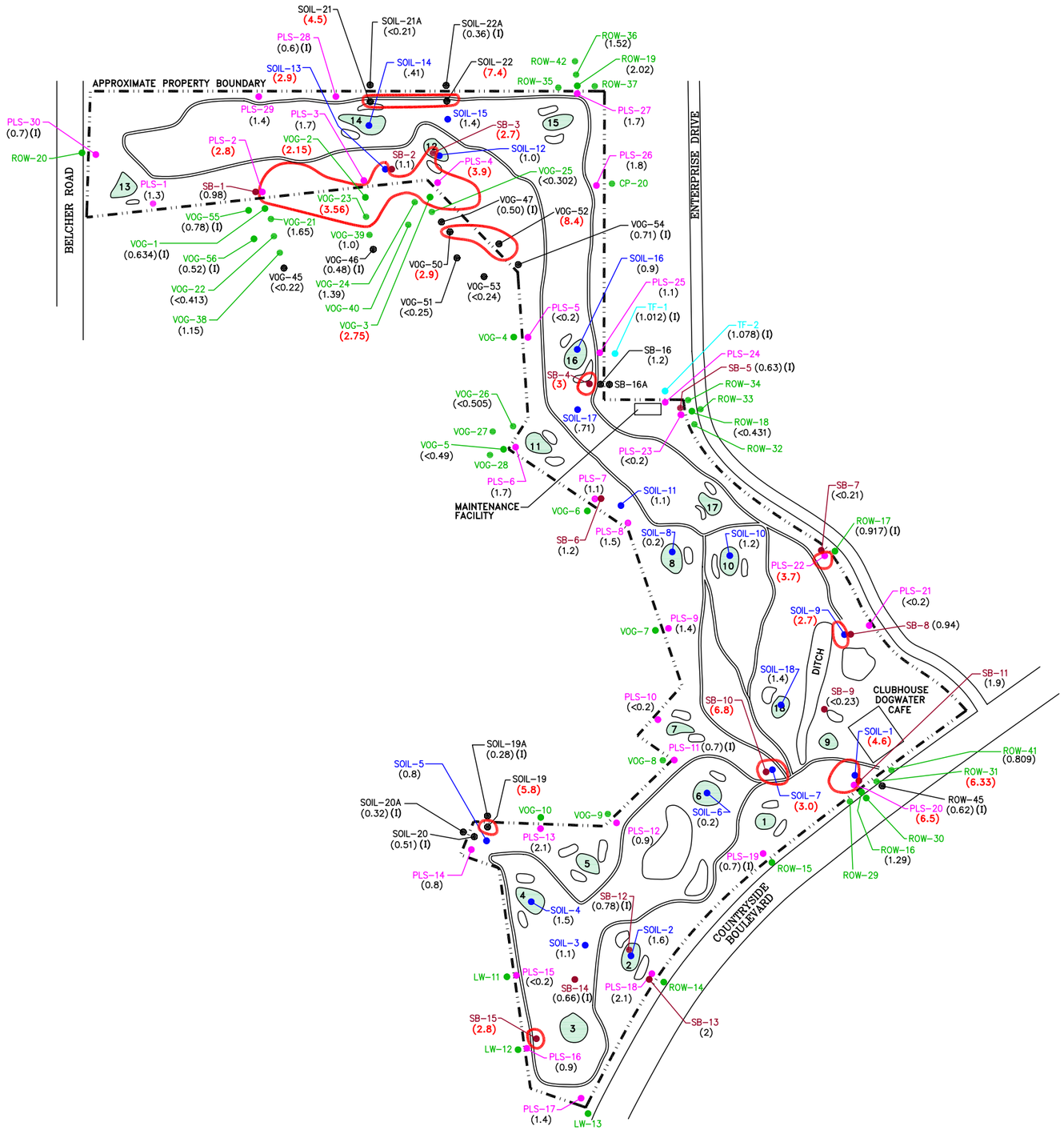
DESIGNED N/A	JOB NO.: 601598200
DRAWN SBW	DATE: 8/15/10
CHECKED BM	CAD NO.: 598200-04A

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617 Tel: (813) 971-3882

COUNTRYSIDE EXECUTIVE GOLF COURSE
CLEARWATER, FLORIDA

SHEET TITLE
SOIL SAMPLING RESULTS (SITE WIDE) 0-6" BELOW LAND SURFACE

FIGURE 4A



LEGEND

- ● SOIL SAMPLE LOCATION (2009)–DESIGNATIONS VARY
- SB–1 ON–SITE SOIL SAMPLE LOCATION (NOV. 2008)
- SOIL–1 TEE AND GREEN SOIL SAMPLING RESULTS (OCT. 2006)
- VOG–1 SOIL SAMPLE LOCATION (MAY and JULY 2008, JUNE 2009)
- PLS–1 ON–SITE SOIL SAMPLE LOCATION (NOV. 2006)
- TF–1 OFF–SITE SOIL SAMPLE LOCATION (OCT. 2008)
- (0.95) ARSENIC CONCENTRATION IN mg/kg
- mg/kg MILLIGRAMS PER KILOGRAM
- RED DENOTES THE VALUE EXCEEDS THE SCTL PER CHAPTER 62–777, F.A.C.
- SCTL SOIL CLEANUP TARGET LEVEL
- (I) REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT AND THE LABORATORY PRACTICAL QUANTITATION LIMIT

Analyte	Soil Cleanup Target Levels		
	Residential	Industrial	Leachability to Groundwater
Arsenic	2.1	12	***

*** LEACHABILITY VALUES MAY BE DERIVED USING THE SPLP TEST TO CALCULATE SITE SPECIFIC SCTLs OR MAY BE DETERMINED USING TCLP IF OILY WASTES ARE PRESENT

ARSENIC CONTOUR FOR VALUES WHICH EXCEED THE RESIDENTIAL SCTL OF 2.1 mg/kg, DASHED WHERE INFERRED

N

0 120 240 360 480

SCALE: 1" = 240'±

DESIGNED N/A	JOB NO.: 601598200
DRAWN SBW	DATE: 6/18/10
CHECKED BM	CAD NO.: 598200–4B

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617 Tel: (813) 971–3882

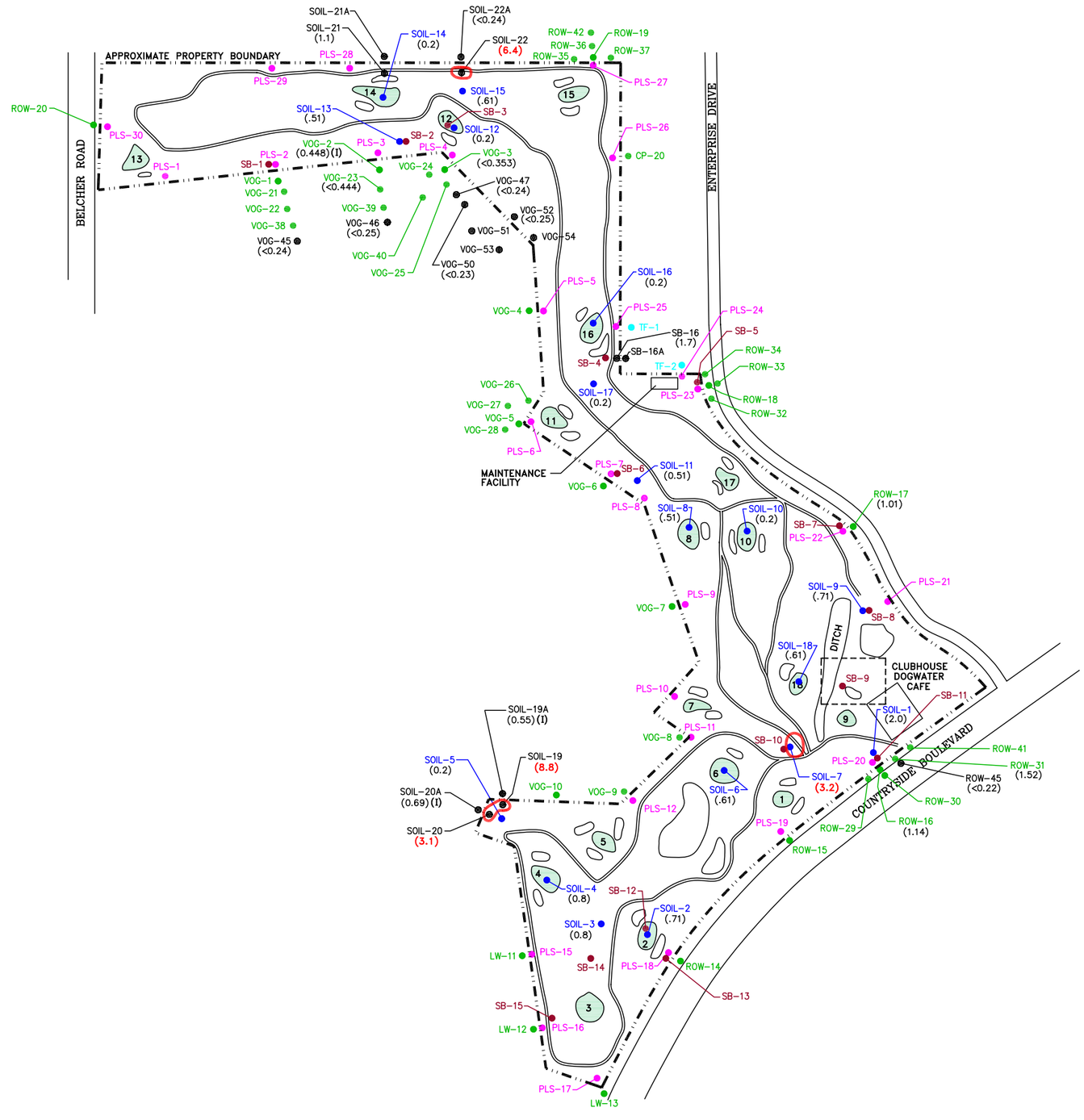
COUNTRYSIDE EXECUTIVE GOLF COURSE

CLEARWATER, FLORIDA

SHEET TITLE

SOIL SAMPLING RESULTS (SITE WIDE) 6"–2' BELOW LAND SURFACE

FIGURE 4B



LEGEND

- ● SOIL SAMPLE LOCATION (2009)–DESIGNATIONS VARY
- SB–1 ON–SITE SOIL SAMPLE LOCATION (NOV. 2008)
- SOIL–1 TEE AND GREEN SOIL SAMPLING RESULTS (OCT. 2006)
- VOG–1 SOIL SAMPLE LOCATION (MAY and JULY 2008)
- PLS–1 ON–SITE SOIL SAMPLE LOCATION (NOV. 2006)
- TF–1 OFF–SITE SOIL SAMPLE LOCATION (OCT. 2006)
- (0.95) ARSENIC CONCENTRATION IN mg/kg
- mg/kg MILLIGRAMS PER KILOGRAM
- RED DENOTES THE VALUE EXCEEDS THE SCTL PER CHAPTER 62–777, F.A.C.
- SCTL SOIL CLEANUP TARGET LEVEL
- (I) REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT AND THE LABORATORY PRACTICAL QUANTITATION LIMIT

Analyte	Soil Cleanup Target Levels		
	Residential	Industrial	Leachability to Groundwater
Arsenic	2.1	12	***

*** LEACHABILITY VALUES MAY BE DERIVED USING THE SPLP TEST TO CALCULATE SITE SPECIFIC SCTLs OR MAY BE DETERMINED USING TCLP IF OILY WASTES ARE PRESENT

ARSENIC CONTOUR FOR VALUES WHICH EXCEED THE RESIDENTIAL SCTL OF 2.1 mg/kg, DASHED WHERE INFERRED

N

0 120 240 360 480

SCALE: 1" = 240'±

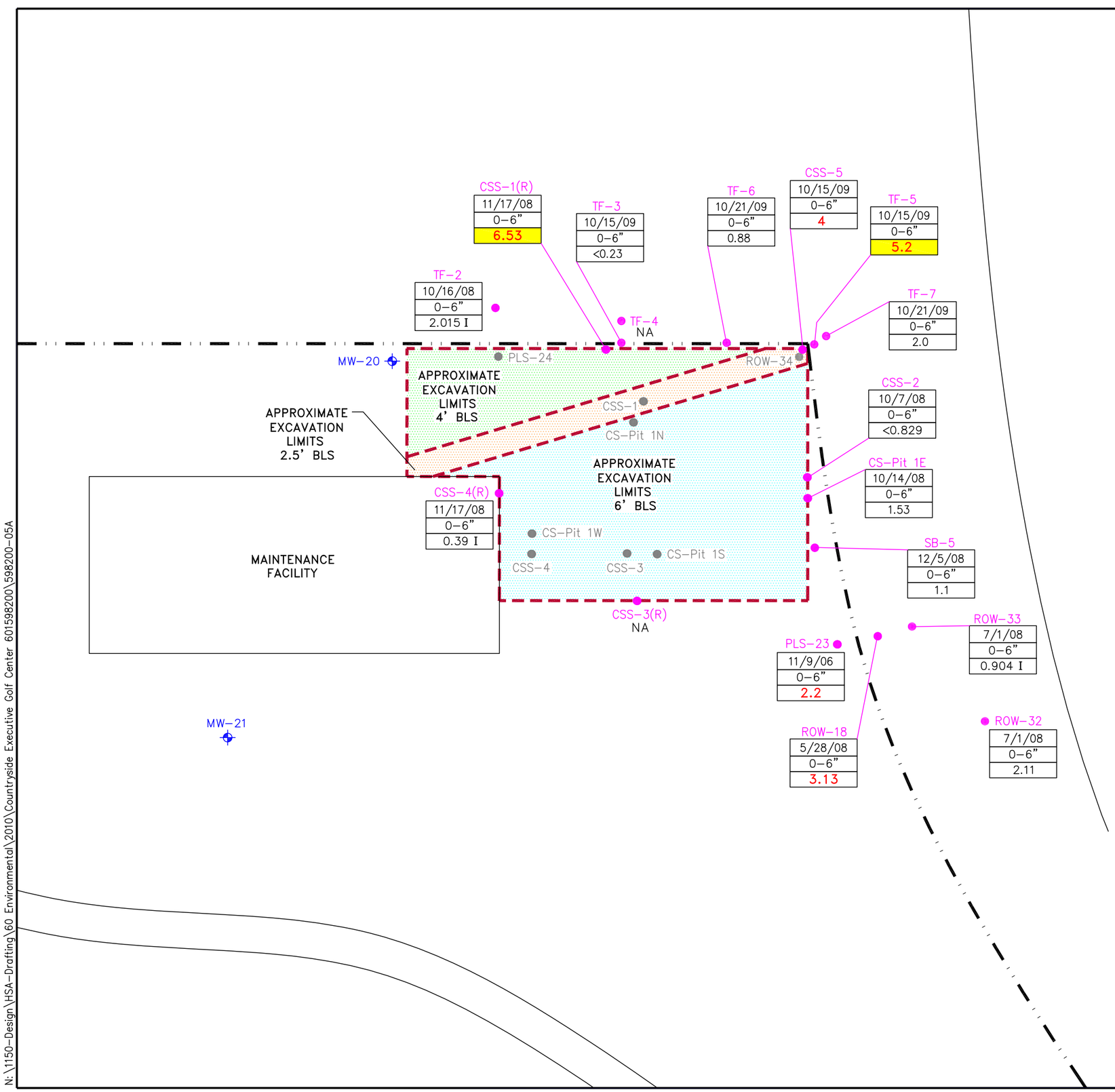
DESIGNED	N/A	JOB NO.:	601598200
DRAWN	SBW	DATE:	6/18/10
CHECKED	BM	CAD NO.:	598200–04C

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617 Tel: (813) 971–3882

COUNTRYSIDE EXECUTIVE GOLF COURSE
CLEARWATER, FLORIDA

SHEET TITLE
SOIL SAMPLING RESULTS (SITE WIDE) 2'–4' BELOW LAND SURFACE

FIGURE 4C



LEGEND

- CONFIRMATION SOIL SAMPLE LOCATION
- SAMPLE LOCATIONS REMOVED AS PART OF THE SOIL EXCAVATION
- MW-19 GROUNDWATER MONITORING WELL LOCATION

Sample Date
Depth in Feet BLS
Arsenic Concentration

Analyte	SCTLs		
	Direct Exposure		Leachability
	Residential	Industrial	to Groundwater
Arsenic	2.1	12	5

ALL VALUES SHOWN IN MILLIGRAMS PER KILOGRAM (mg/kg)

I THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT AND THE LABORATORY PRACTICAL QUANTITATION LIMIT

RED DENOTES VALUES WHICH EXCEED THE RESIDENTIAL DIRECT EXPOSURE SOIL CLEANUP TARGET LEVELS (SCTL) PER CHAPTER 62-777, F.A.C.

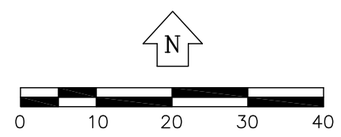
BLUE DENOTES VALUES WHICH EXCEED THE INDUSTRIAL DIRECT EXPOSURE SCTL PER CHAPTER 62-777, F.A.C.

YELLOW HIGHLIGHT DENOTES VALUES WHICH EXCEED THE CALCULATED LEACHABILITY TO GROUNDWATER

BLS BELOW LAND SURFACE

NA NOT ANALYZED

(R) INDICATES A RE-SAMPLE ONCE THE EXCAVATION LIMITS WERE EXTENDED



SCALE: 1" = 20'±

COUNTRYSIDE EXECUTIVE GOLF COURSE
2506 COUNTRYSIDE BOULEVARD
CLEARWATER, FLORIDA

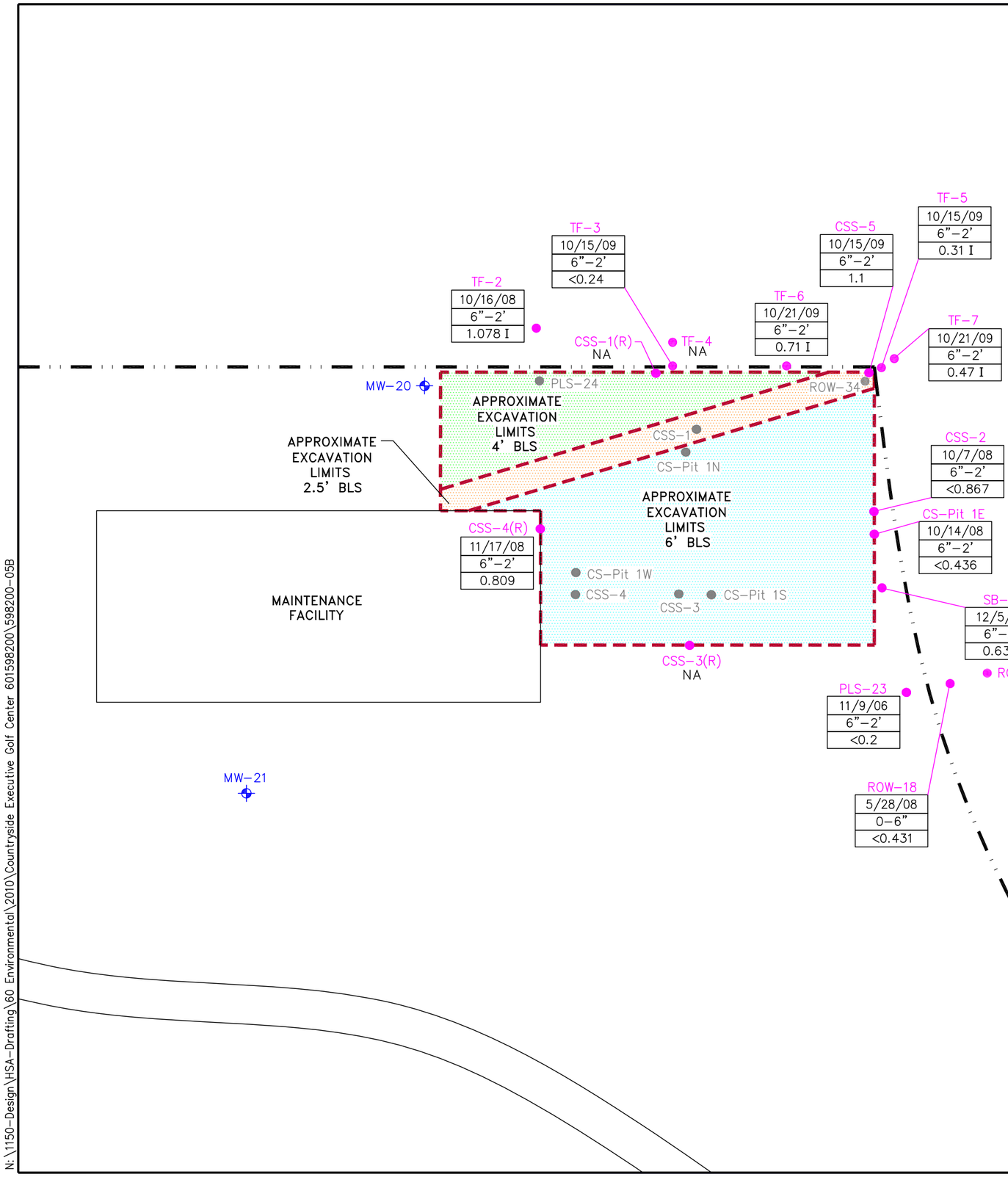
HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971-3882

JOB NO.: 601598200	DATE: 11/13/09	CAD NO.: 598200-05A
DESIGNED N/A	DRAWN SBW	CHECKED NB

SHEET TITLE
SOIL SAMPLING RESULTS (MAINTENANCE AREA) ARSENIC 0-6" BLS

FIGURE 5A

N:\1150-Design\HSA-Drafting\60 Environmental\2010\Countryside Executive Golf Center 601598200\598200-05A



LEGEND

- CONFIRMATION SOIL SAMPLE LOCATION
- SAMPLE LOCATIONS REMOVED AS PART OF THE SOIL EXCAVATION
- MW-19 GROUNDWATER MONITORING WELL LOCATION

Sample Date
Depth in Feet BLS
Arsenic Concentration

Analyte	SCTLs		
	Direct Exposure		Leachability
	Residential	Industrial	to Groundwater
Arsenic	2.1	12	5

ALL VALUES SHOWN IN MILLIGRAMS PER KILOGRAM (mg/kg)

I THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT AND THE LABORATORY PRACTICAL QUANTITATION LIMIT

RED DENOTES VALUES WHICH EXCEED THE RESIDENTIAL DIRECT EXPOSURE SOIL CLEANUP TARGET LEVELS (SCTL) PER CHAPTER 62-777, F.A.C.

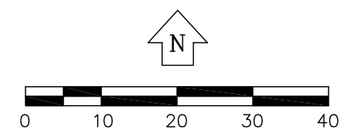
BLUE DENOTES VALUES WHICH EXCEED THE INDUSTRIAL DIRECT EXPOSURE SCTL PER CHAPTER 62-777, F.A.C.

YELLOW HIGHLIGHT DENOTES VALUES WHICH EXCEED THE CALCULATED LEACHABILITY TO GROUNDWATER

BLS BELOW LAND SURFACE

NA NOT ANALYZED

(R) INDICATES A RE-SAMPLE ONCE THE EXCAVATION LIMITS WERE EXTENDED



SCALE: 1" = 20'±

COUNTRYSIDE EXECUTIVE GOLF COURSE
2506 COUNTRYSIDE BOULEVARD
CLEARWATER, FLORIDA

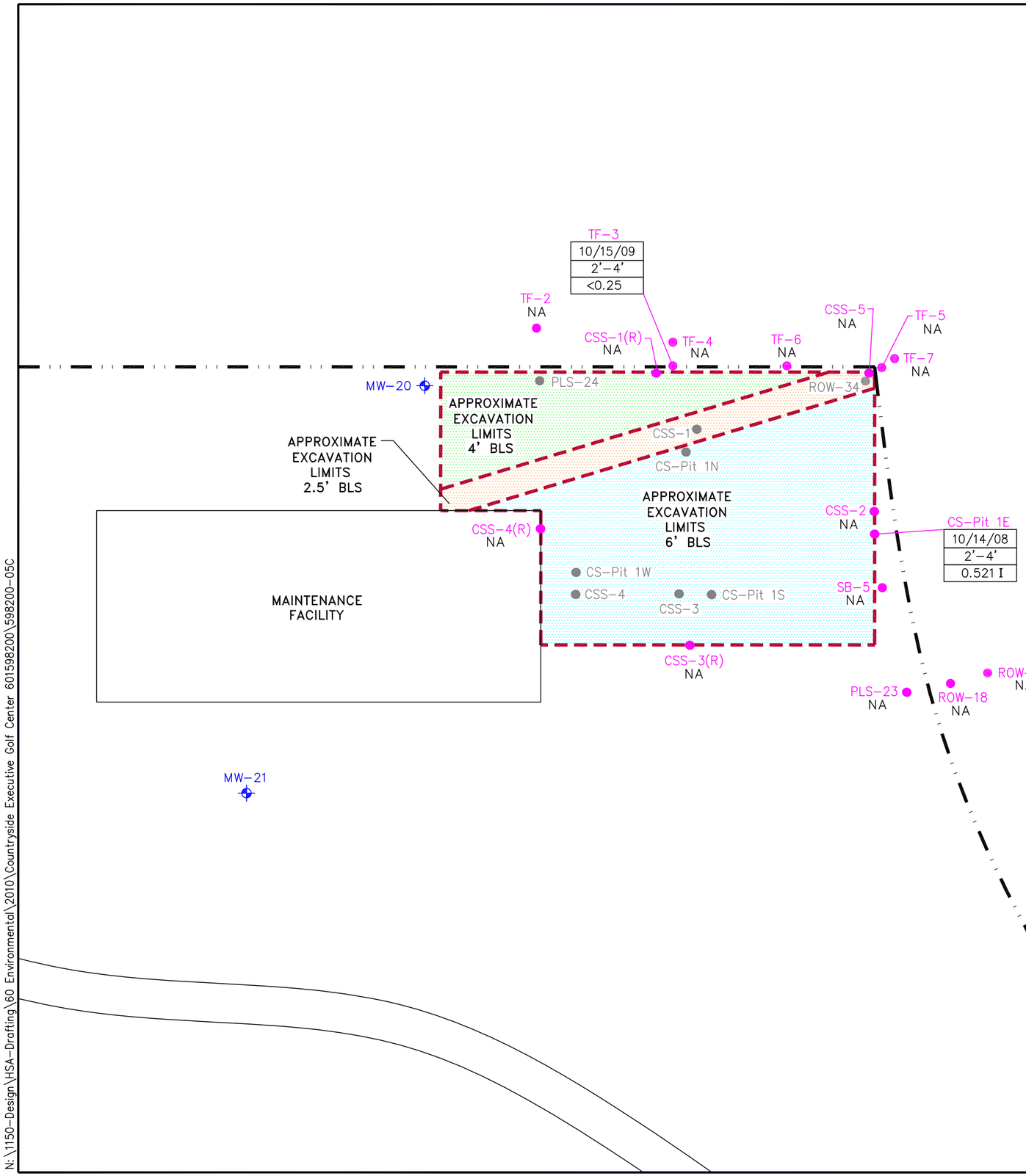
HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971-3882

JOB NO.: 601598200	DATE: 11/13/09	CAD NO.: 598200-05B
DESIGNED N/A	DRAWN SBW	CHECKED DC

SHEET TITLE
SOIL SAMPLING RESULTS (MAINTENANCE AREA) ARSENIC 6"-2'

FIGURE 5B

N:\1150-Design\HSA-Drafting\60 Environmental\2010\Countryside Executive Golf Center 601598200\598200-05B



LEGEND

- CONFIRMATION SOIL SAMPLE LOCATION
- SAMPLE LOCATIONS REMOVED AS PART OF THE SOIL EXCVATION
- MW-19 GROUNDWATER MONITORING WELL LOCATION

Sample Date
Depth in Feet BLS
Arsenic Concentration

Analyte	SCTLs		
	Direct Exposure		Leachability
	Residential	Industrial	to Groundwater
Arsenic	2.1	12	5

ALL VALUES SHOWN IN MILLIGRAMS PER KILOGRAM (mg/kg)

I THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT AND THE LABORATORY PRACTICAL QUANTITATION LIMIT

RED DENOTES VALUES WHICH EXCEED THE RESIDENTIAL DIRECT EXPOSURE SOIL CLEANUP TARGET LEVELS (SCTL) PER CHAPTER 62-777, F.A.C.

BLUE DENOTES VALUES WHICH EXCEED THE INDUSTRIAL DIRECT EXPOSURE SCTL PER CHAPTER 62-777, F.A.C.

YELLOW HIGHLIGHT DENOTES VALUES WHICH EXCEED THE CALCULATED LEACHABILITY TO GROUNDWATER

BLS BELOW LAND SURFACE

NA NOT ANALYZED

(R) INDICATES A RE-SAMPLE ONCE THE EXCAVATION LIMITS WERE EXTENDED

N

0 10 20 30 40

SCALE: 1" = 20'±

COUNTRYSIDE EXECUTIVE GOLF COURSE
2506 COUNTRYSIDE BOULEVARD
CLEARWATER, FLORIDA

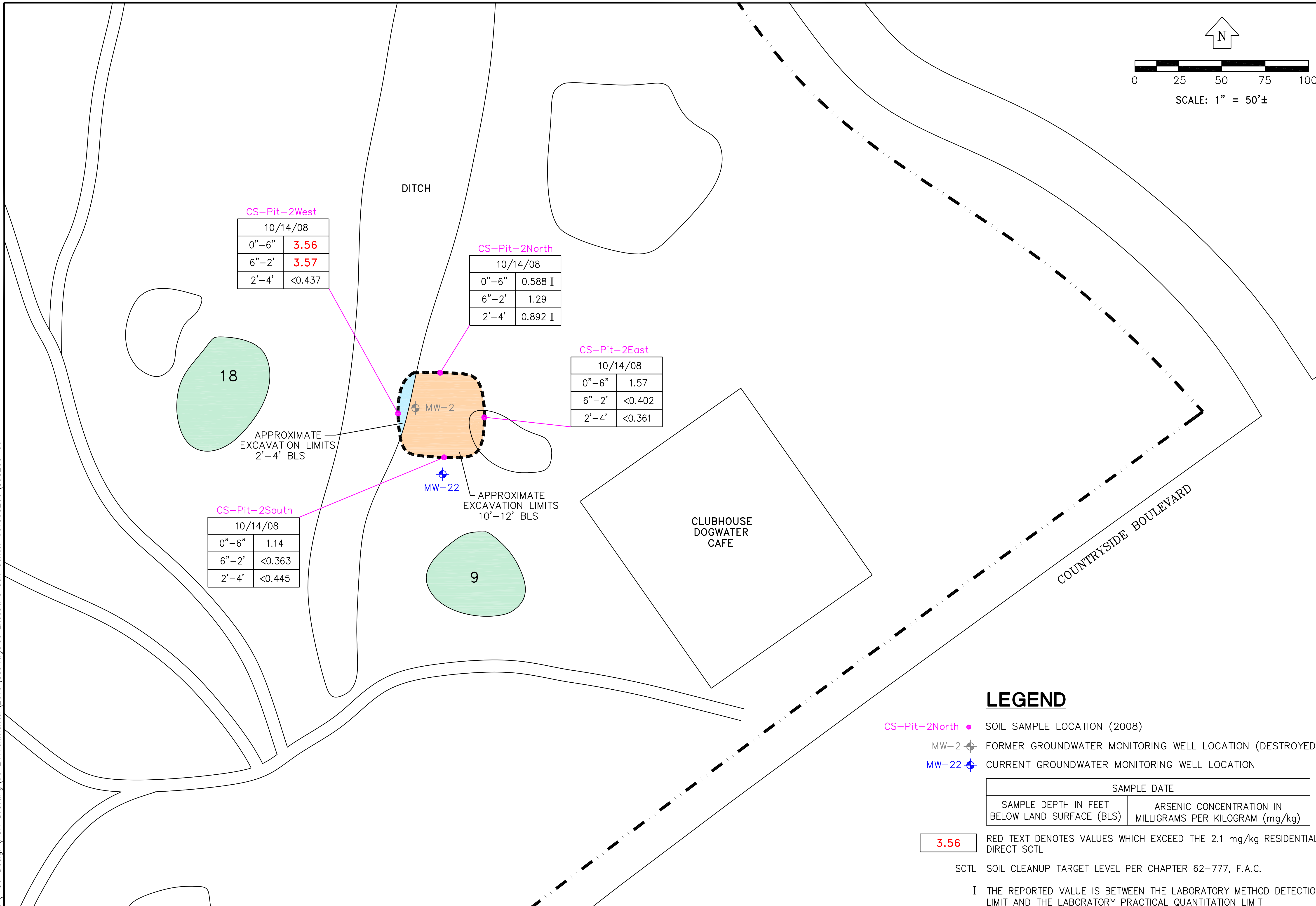
HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971-3882

JOB NO.: 601598200	DATE: 11/13/09	CAD NO.: 598200-05C
DESIGNED N/A	DRAWN SBW	CHECKED NB

SHEET TITLE
SOIL SAMPLING RESULTS (MAINTENANCE AREA) ARSENIC 2'-4'

FIGURE 5C

N:\1150-Design\HSA-Drafting\60 Environmental\2010\Countryside Executive Golf Center 601598200\598200-05C



CS-Pit-2West

10/14/08	
0"-6"	3.56
6"-2'	3.57
2'-4'	<0.437

CS-Pit-2North

10/14/08	
0"-6"	0.588 I
6"-2'	1.29
2'-4'	0.892 I

CS-Pit-2East

10/14/08	
0"-6"	1.57
6"-2'	<0.402
2'-4'	<0.361

CS-Pit-2South

10/14/08	
0"-6"	1.14
6"-2'	<0.363
2'-4'	<0.445

LEGEND

CS-Pit-2North • SOIL SAMPLE LOCATION (2008)

MW-2 FORMER GROUNDWATER MONITORING WELL LOCATION (DESTROYED)

MW-22 CURRENT GROUNDWATER MONITORING WELL LOCATION

SAMPLE DATE	
SAMPLE DEPTH IN FEET BELOW LAND SURFACE (BLS)	ARSENIC CONCENTRATION IN MILLIGRAMS PER KILOGRAM (mg/kg)

3.56 RED TEXT DENOTES VALUES WHICH EXCEED THE 2.1 mg/kg RESIDENTIAL DIRECT SCTL

SCTL SOIL CLEANUP TARGET LEVEL PER CHAPTER 62-777, F.A.C.

I THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT AND THE LABORATORY PRACTICAL QUANTITATION LIMIT

COUNTRYSIDE EXECUTIVE GOLF COURSE
2506 COUNTRYSIDE BOULEVARD
CLEARWATER, FLORIDA

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617 Tel: (813) 971-3882

JOB NO.: 601598200
DATE: 6/8/10
CAD NO.: 598200-06
DESIGNED N/A
DRAWN SBW
CHECKED BM

SHEET TITLE
MONITOR WELL-2 AREA SOIL ANALYTICAL RESULTS POST-SOURCE REMOVAL

FIGURE 6

COUNTRYSIDE EXECUTIVE GOLF COURSE

CLEARWATER, FLORIDA

APPROXIMATE PROPERTY BOUNDARY

BELCHER ROAD

ENTERPRISE DRIVE

TO CURLEW CREEK

COUNTRYSIDE BOULEVARD

MAINTENANCE FACILITY

CLUBHOUSE DOCWATER CAFE

WETLAND

POND

MW-27 (66.87)
MW-26 (66.78)
MW-14 (66.73)
MW-28 (66.69)
DW-4 (64.65)*
MW-4
MW-25 (67.14)
MW-24 (67.12)
DW-2 (67.18)*
MW-3 (67.95)
MW-5 (66.43)
MW-6 (68.00)
MW-7/TW-6 (68.29)
#63
MW-19 (66.65)
MW-20 (66.80)
#1
MW-21 (66.72)
TW-8
TW-9
TW-10
TW-2
TW-11
TW-3
TW-4
TW-5
TW-18
TW-13
TW-12
DW-1
TW-19
TW-1
SURFACE SG-1 WATER (67.36)
#3
MW-18 (67.45)*
MW-15 (66.49)
MW-8/TW-7 (66.00)
MW-9 (66.49)
SG-2 (67.46)
TW-17
MW-2
TW-20
MW-22 (66.88)
MW-16 (70.64)
MW-10/TW-14 (67.01)
MW-11 (67.01)
MW-12 (67.81)
TW-15
SG-3 (DRY)
#2
MW-1RR (66.02)
MW-1R
TW-16
MW-23 (68.02)
DW-3 (68.57)*
MW-13 (68.48)
#56
#58
MW-17 (71.34)

66.0 66.5 67.0 67.5 68.0 68.5 69.0 69.5 70.0 70.5 71.0

LEGEND

- MW-1 — CURRENT GROUNDWATER MONITORING WELL LOCATION (DAMAGED OR MISSING WELLS ARE NOTED)
- DW-2 — CURRENT DEEP GROUNDWATER MONITORING WELL LOCATION
- TW-1 — HISTORICAL GROUNDWATER MONITORING WELL LOCATION (ALL DAMAGED OR MISSING)
- DW-1 — HISTORICAL DEEP GROUNDWATER MONITORING WELL LOCATION (DAMAGED OR MISSING)
- SURFACE WATER/SEDIMENT SAMPLE LOCATION
- #1 — IRRIGATION WELL LOCATION
- #58 — CITY OF CLEARWATER WELL LOCATION
- SG-1 — STAFF GAUGE LOCATION
- (66.02) — GROUNDWATER ELEVATION IN FEET NAVD 88
- 70.0 — GROUNDWATER ELEVATION CONTOUR IN FEET NAVD 88
- INFERRED GROUNDWATER FLOW DIRECTION
- NAVD — NATIONAL AMERICAN VERTICAL DATUM
- (NM) — NOT MEASURED
- * — NOT USED FOR CONTOURING

N

0 75 150 225 300

SCALE: 1" = 150'±

HSA ENGINEERS & SCIENTISTS
4019 E. Foster Avenue Tampa, Florida 33617
Tel: (813) 971-3882

JOB NO.:	601598200		
DATE:	11/13/09		
CAD NO:	598200-07		
DESIGNED	N/A	DRAWN	SBW
CHECKED	BM		

SHEET TITLE

GROUNDWATER ELEVATION CONTOUR MAP UPPER SHALLOW ZONE (11/5/09)

FIGURE 7

COUNTRYSIDE EXECUTIVE GOLF COURSE

CLEARWATER, FLORIDA

APPROXIMATE PROPERTY BOUNDARY

BEACHER ROAD

ENTERPRISE DRIVE

COUNTRYSIDE BOULEVARD

DITCH

MAINTENANCE FACILITY

CLUBHOUSE DOGWATER CAFE

MW-27 | 11/03/09 | <4.8

MW-26 | 11/03/09 | <4.8

DW-4 | 11/03/09 | <4.8

MW-14 | 12/8/08 | 10/15/09 | 10/21/09 | 8.1 I /10.5 | 17 I | 20

MW-28 | 11/03/09 | <4.8

MW-24 | 3/16/09 | <4.8

DW-2 | 10/15/09 | <4.8

MW-25 | 3/16/09 | <4.8

MW-3 | 12/8/08 | 47

MW-4

MW-6 | 11/7/08 | 4.23

11/7/08 | 8.67 I | MW-5

MW-7/TW-6 | 12/8/08 | 5 I

#63

MW-19 | 12/12/08 | <4.8

#1 | 5/31/06 | <5

TW-8

TW-3

TW-9

TW-10

TW-11

TW-5

TW-18

DW-1

TW-19

TW-2

TW-13

TW-1

TW-4

TW-12

MW-20 | 12/12/08 | <4.8

MW-21 | 12/12/08 | <4.8

SURFACE WATER | 6/13/06 | 49

MW-15 | 12/15/08 | <4.8

MW-8/TW-7 | 11/7/08 | 6.62 I

#3 | 11/7/08 | 14.3

MW-18 | 12/12/08 | <4.8

MW-9 | 12/8/08 | <4.8

MW-10/TW-14 | 11/7/08 | 5.28 I

MW-16 | 12/8/08 | <4.8

MW-22 | 12/12/08 | <4.8

TW-17

MW-2

TW-20

TW-15

MW-11 | 12/8/08 | <4.8

MW-12 | 9/30/08 | <3.37

#2 | 5/31/06 | 3.04

MW-1RR | 3/16/09 | <4.8

MW-1R

DW-3 | 10/15/09 | 5.7 I

TW-16

MW-23 | 12/12/08 | <4.8

#58

MW-13 | 12/8/08 | 73

#56

MW-17 | 12/15/08 | <4.7

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

LEGEND

- MW-1 — CURRENT GROUNDWATER MONITORING WELL LOCATION (DAMAGED OR MISSING WELLS ARE NOTED)
- TW-1 — HISTORICAL GROUNDWATER MONITORING WELL LOCATION (ALL DAMAGED OR MISSING)
- DW-1 — HISTORICAL DEEP GROUNDWATER MONITORING WELL LOCATION (DAMAGED OR MISSING)
- SURFACE WATER/SEDIMENT SAMPLE LOCATION
- #1 — IRRIGATION WELL LOCATION
- #58 — CITY OF CLEARWATER WELL LOCATION
- 12/21/06 / <1.8 — SAMPLE DATE / ARSENIC CONCENTRATION IN MICROGRAMS PER LITER (ug/L)
- 14.1 — YELLOW SHADING DENOTES VALUES WHICH EXCEED THE 10 ug/L GCTL
- 661 — BLUE SHADING DENOTES VALUES WHICH EXCEED THE 100 ug/L NADSC
- GCTL — GROUNDWATER CLEANUP TARGET LEVEL PER CHAPTER 62-777, F.A.C.
- NADSC — NATURAL ATTENUATION DEFAULT SOURCE CONCENTRATION PER CHAPTER 62-777, F.A.C.
- I — THE REPORTED VALUE IS BETWEEN THE LABORATORY METHOD DETECTION LIMIT AND THE LABORATORY PRACTICAL QUANTITATION LIMIT
- ARSENIC CONCENTRATION CONTOUR FOR VALUES WHICH EXCEED THE GCTL OF 10 ug/L

N

0 75 150 225 300

SCALE: 1" = 150'±

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971-3852

JOB NO.:	601598200	DATE:	11/13/09
DESIGNED	N/A	CAD NO.:	598200-08
DRAWN	SBW		
CHECKED	NB		

SHEET TITLE

GROUNDWATER ANALYTICAL RESULTS MAP (ARSENIC)

FIGURE 8

LEGEND

- ● SOIL SAMPLE LOCATION (2009)–DESIGNATIONS VARY (SHOWN IN YELLOW)
- SB–1 ● PREVIOUS SOIL SAMPLE LOCATIONS–DESIGANATIONS VARY (SHOWN IN YELLOW)
- ARSENIC CONTOUR FOR VALUES WHICH EXCEED THE RESIDENTIAL SCTL OF 2.1 mg/kg, DASHED WHERE INFERRED

N

0 120 240 360 480

SCALE: 1" = 240'±

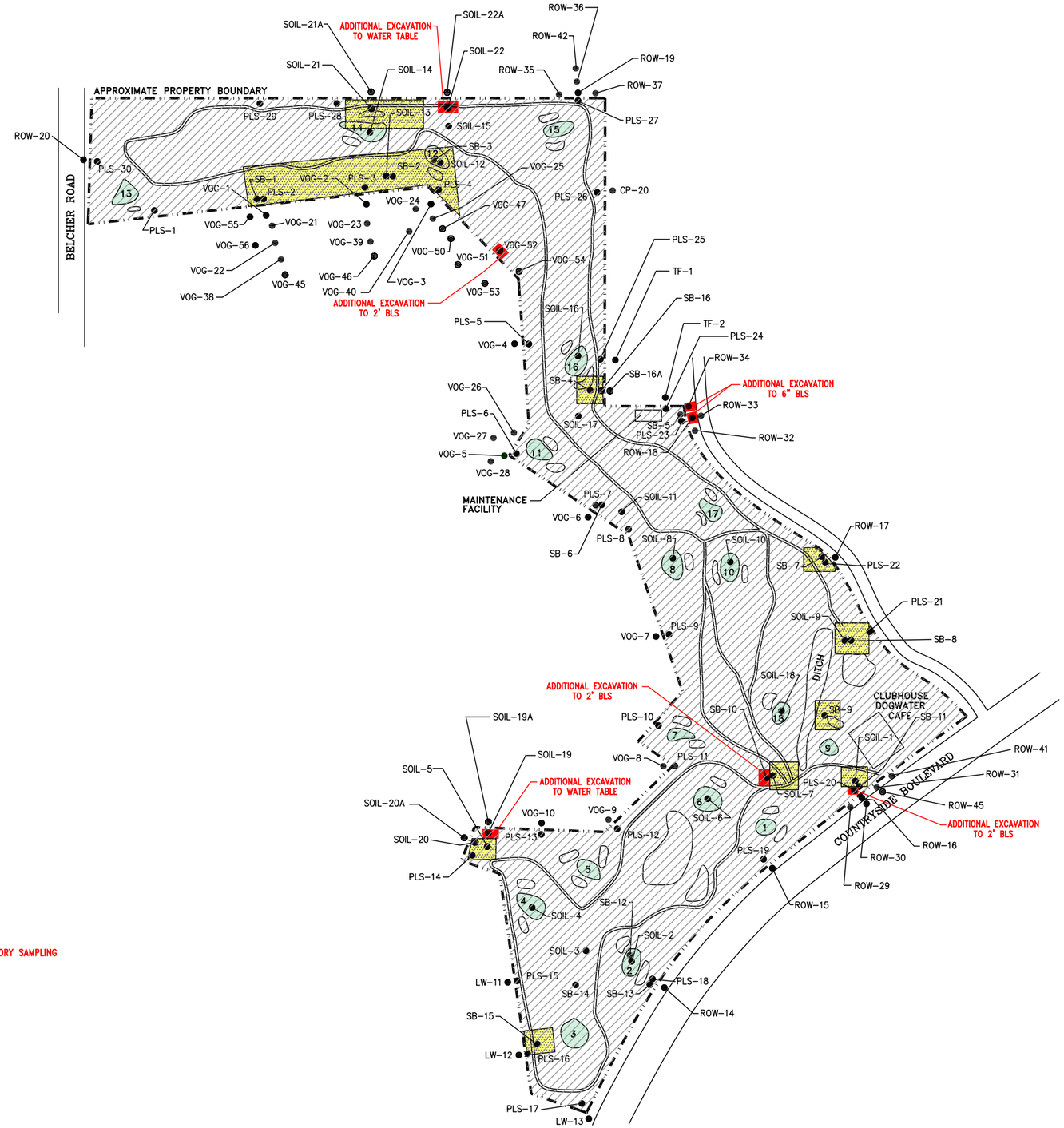
DESIGNED N/A	JOB NO.: 601598200
DRAWN SBW	DATE: 6/18/10
CHECKED BM	CAD NO.: 598200–09

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617 Tel: (813) 971–3882

COUNTRYSIDE EXECUTIVE GOLF COURSE
CLEARWATER, FLORIDA

SHEET TITLE
EXTENT OF ARSENIC IMPACTS

FIGURE 9



LEGEND

- SOIL SAMPLE LOCATION (2009)–DESIGNATIONS VARY
- PREVIOUS ON–SITE SOIL SAMPLE LOCATION–DESIGNATIONS VARY
- REMOVAL OF UPPER 6" OF SOIL
- SOIL BLENDING FOLLOWING REMOVAL OF UPPER 6"
- BLS BELOW LAND SURFACE

NOTE:
LIMITS OF ADDITIONAL ON–SITE EXCAVATIONS TO BE DETERMINED THROUGH CONFIRMATORY SAMPLING

N

0 120 240 360 480

SCALE: 1" = 240'±

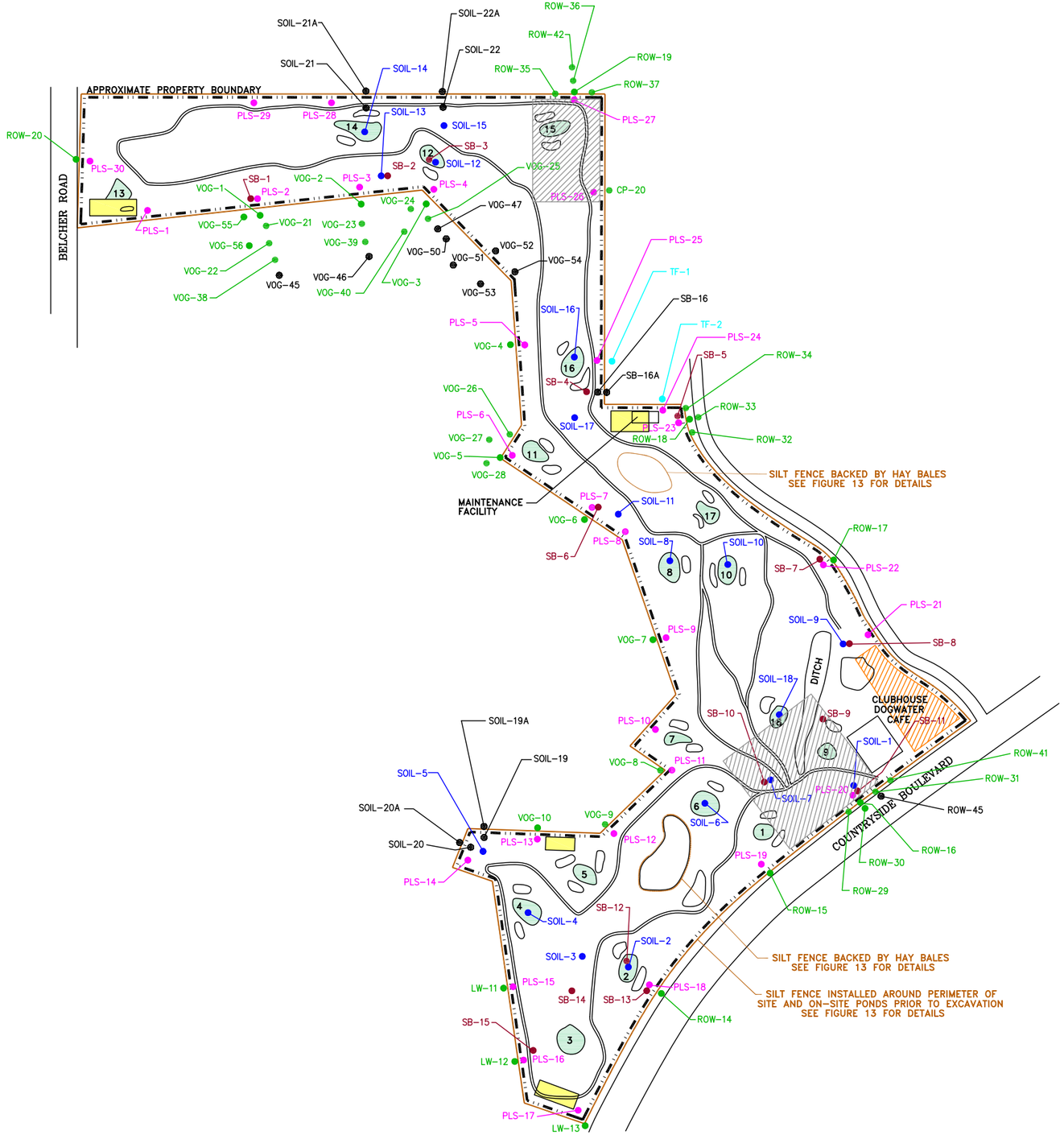
DESIGNED	N/A	JOB NO.:	601598200
DRAWN	SBW	DATE:	6/18/10
CHECKED	NB	CAD NO.:	598200–10

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971–3882

COUNTRYSIDE EXECUTIVE GOLF COURSE
CLEARWATER, FLORIDA

SHEET TITLE
REMEDIAL TARGET AREAS

FIGURE 10



LEGEND

- SOIL SAMPLE LOCATION (2009)–DESIGNATIONS VARY
- SB-1 ON-SITE SOIL SAMPLE LOCATION (NOV. 2008)
- SOIL-1 TEE AND GREEN SOIL SAMPLING RESULTS (OCT. 2006)
- VOG-1 OFF-SITE SOIL SAMPLE LOCATION (MAY and JULY 2008, JUNE 2009)
- PLS-1 ON-SITE SOIL SAMPLE LOCATION (NOV. 2006)
- TF-I OFF-SITE SOIL SAMPLE LOCATION (OCT. 2008)
- SOIL CONTAINMENT AREA
- SOIL STAGING AREA
- EQUIPMENT STAGING AREA

N

0 120 240 360 480

SCALE: 1" = 240'±

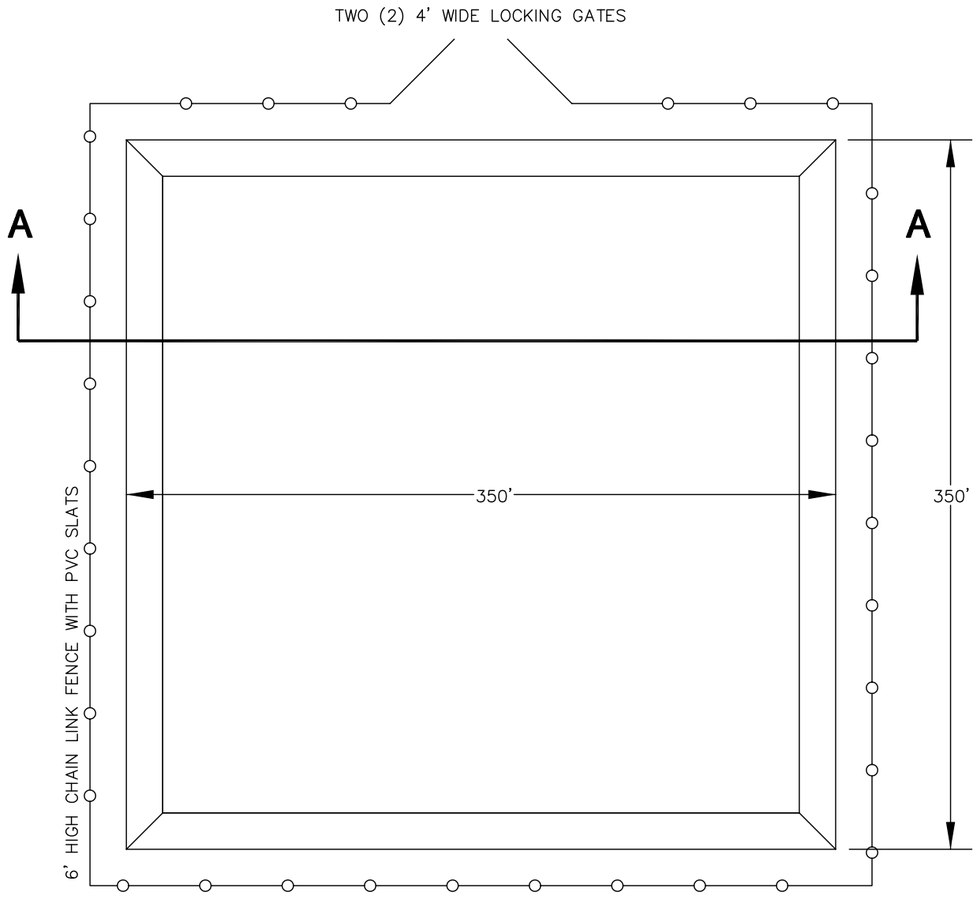
DESIGNED N/A	JOB NO.: 601598200
DRAWN SBW	DATE: 6/8/10
CHECKED NB	CAD NO.: 598200-11

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971-3882

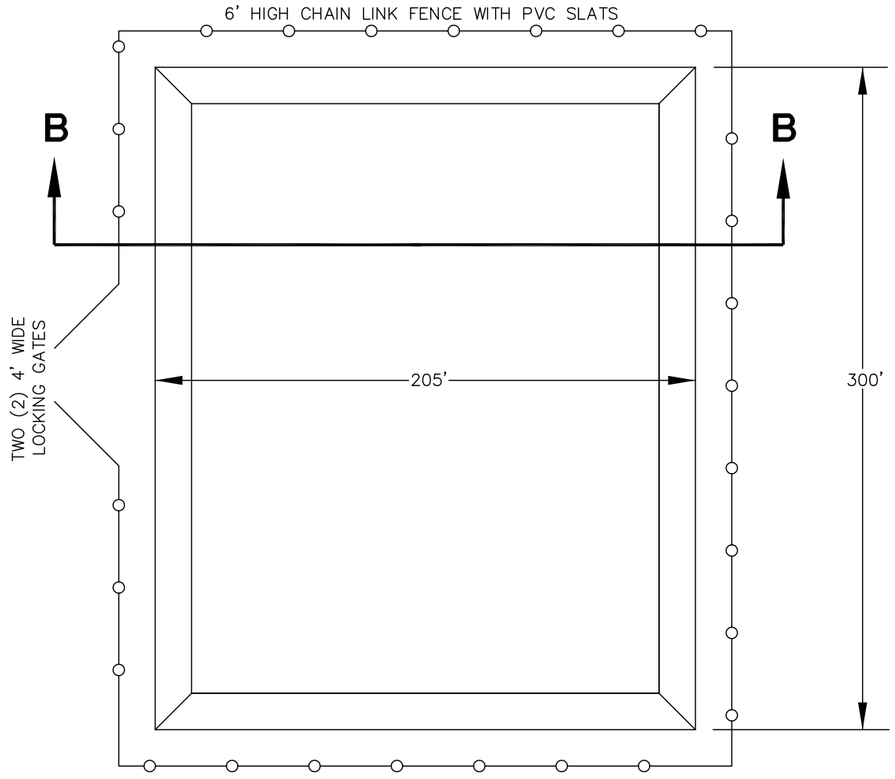
COUNTRYSIDE EXECUTIVE GOLF COURSE
CLEARWATER, FLORIDA

SHEET TITLE
SOIL STAGING/SOIL CONTAINMENT AREA LOCTIONS

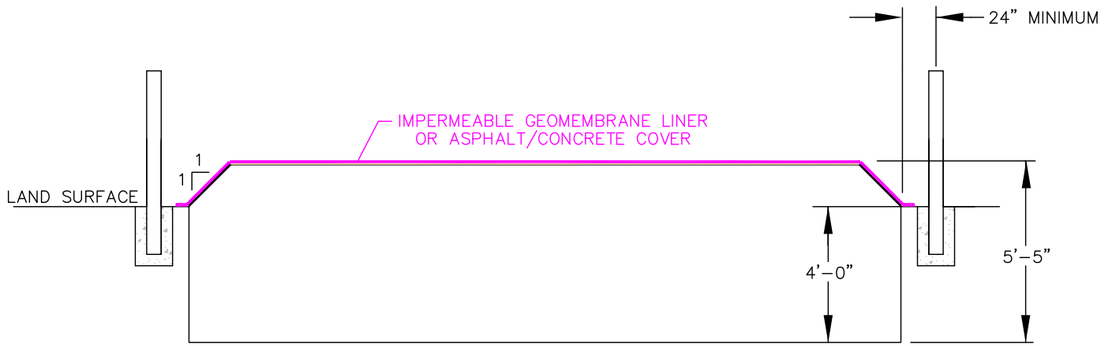
FIGURE 11



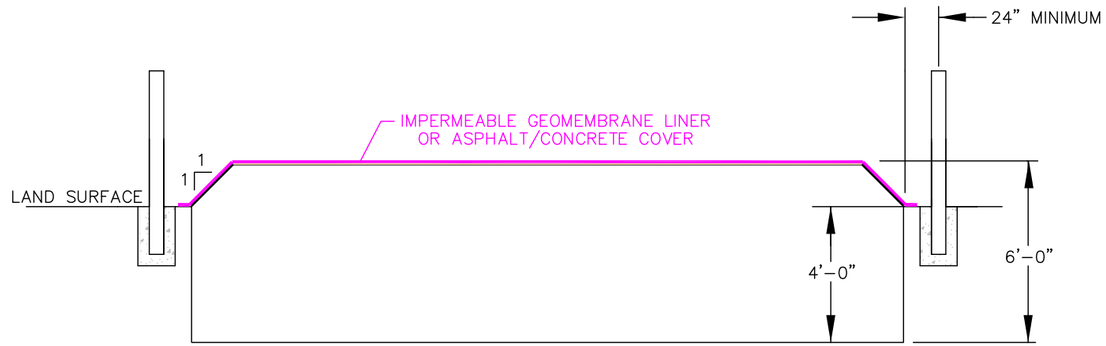
PLAN VIEW
SOUTHERN SOIL CONTAINMENT AREA



PLAN VIEW
NORTHERN SOIL CONTAINMENT AREA



SECTION A-A



SECTION B-B

NOT TO SCALE

COUNTRYSIDE EXECUTIVE GOLF COURSE
2506 COUNTRYSIDE BOULEVARD
CLEARWATER, FLORIDA

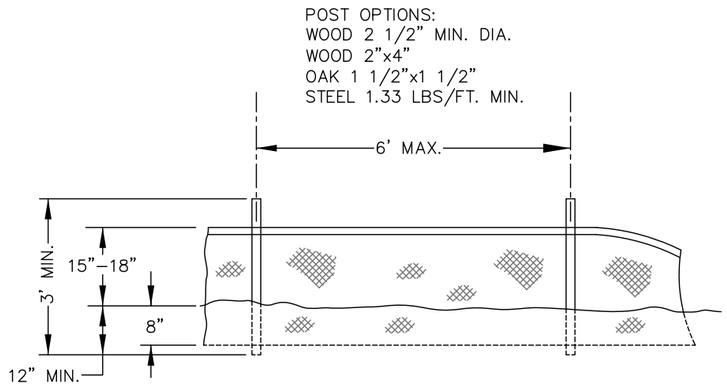
HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971-3882

JOB NO.: 601598200	DATE: 6/18/10	CAD NO.: 598200-12
DESIGNED N/A	DRAWN SBW	CHECKED BM

SHEET TITLE
SOIL CONTAINMENT AREA DETAILS

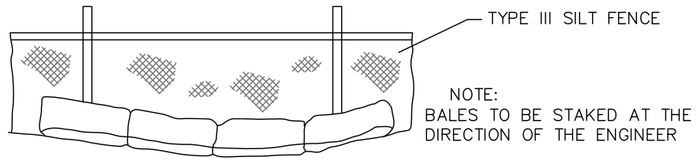
FIGURE 12

N:\1150-Design\HSA-Drafting\60 Environmental\2010\Countryside Executive Golf Center 601598200\598200-12

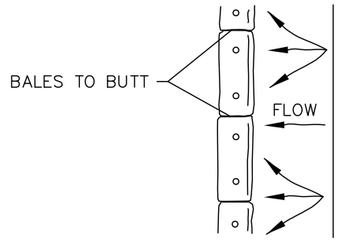


ELEVATION

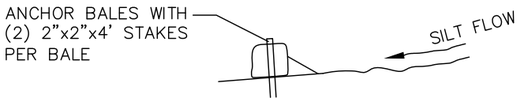
FDOT TYPE III SILT FENCE



BALES BACKED BY SILT FENCE



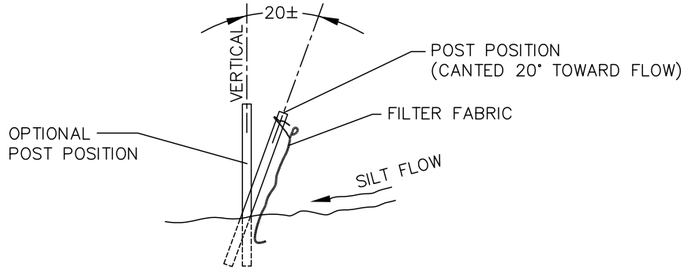
PLAN



ELEVATION

GENERAL NOTES:

1. PROVIDE EROSION CONTROL/SEDIMENTATION BARRIERS (HAY BALES AND/OR SILTATION CURTAINS) TO PREVENT SILTATION OF ADJACENT PROPERTY, ROADS AND WATERWAYS.
2. LIMIT THE DISCHARGE OF TURBID WATERS OFF–SITE, OR INTO ON–SITE/OFF–SITE WETLANDS (IF APPLICABLE)
3. IF WIND EROSION BECOMES SIGNIFICANT, STABILIZE THE AFFECTED AREA USING SPRINKLING, IRRIGATION OR OTHER ACCEPTABLE METHODS.
4. INSPECT AND MAINTAIN ON A DAILY BASIS ALL EROSION/SEDIMENTATION CONTROL FACILITIES.



SECTION

DRAWING NOT TO SCALE

COUNTRYSIDE EXECUTIVE GOLF COURSE
CLEARWATER, FLORIDA

HSA ENGINEERS & SCIENTISTS
4019 E. Fowler Avenue Tampa, Florida 33617
Tel: (813) 971–3882

DESIGNED	N/A	JOB NO.:	601598200
DRAWN	SBW	DATE:	6/18/10
CHECKED	BM	CAD NO.:	598200–13

SHEET TITLE

EROSION CONTROL DETAILS

FIGURE 13

N:\1150–Design\HSA–Drafting\60 Environmental\2010\Countryside Executive Golf Course\598200–13

APPENDIX A

Groundwater Mass Estimates

Contaminant Mass in Groundwater

Countryside Executive Golf Course
Clearwater, FL

Plume Length:	100	ft
Plume Width:	75	ft
Affected Aquifer Area:	5,888	ft^2
Aquifer Thickness:	10	ft
Porosity:	0.43	

Well Location

Constituent	MW-14
Arsenic	20

Total: 20

Average Concentration = 20.0 µg/L

MASS IN GROUNDWATER CALCULATION:

Contaminant Mass $_{GW}$ = (Aquifer Area) x (Aquifer Thickness) x (Geometric Average Concentration) x (Porosity)

Contaminant Mass $_{GW}$ = 0.03 lb

NOTES:
[1] Plume dimensions based on limits illustrated on Figure 8.

Contaminant Mass in Groundwater

Countryside Executive Golf Course
Clearwater, FL

Plume Length:	200	ft
Plume Width:	175	ft
Affected Aquifer Area:	27,475	ft^2
Aquifer Thickness:	10	ft
Porosity:	0.43	

Well Location

Constituent	MW-3
Arsenic	47

Total: 47

Average Concentration = 47.0 µg/L

MASS IN GROUNDWATER CALCULATION:

Contaminant Mass $_{GW}$ = (Aquifer Area) x (Aquifer Thickness) x (Geometric Average Concentration) x (Porosity)

Contaminant Mass $_{GW}$ = 0.35 lb

NOTES:
[1] Plume dimensions based on limits illustrated on Figure 8.

Contaminant Mass in Groundwater

Countryside Executive Golf Course
Clearwater, FL

Plume Length:	250	ft
Plume Width:	200	ft
Affected Aquifer Area:	39,250	ft^2
Aquifer Thickness:	10	ft
Porosity:	0.43	

	Well Location
Constituent	MW-13
Arsenic	73
Total:	73

Average Concentration = 73.0 µg/L

MASS IN GROUNDWATER CALCULATION:

Contaminant Mass $_{GW}$ = (Aquifer Area) x (Aquifer Thickness) x (Geometric Average Concentration) x (Porosity)

Contaminant Mass $_{GW}$ = 0.77 lb

NOTES:
[1] Plume dimensions based on limits illustrated on Figure 8.

APPENDIX B

Remedial Action Plan Summary Form

Remedial Action Plan Summary

DEP Form # 62-780.900(4)
Form Title: Remedial Action Plan Summary
Effective Date: 4-17-05

Site Name: Countryside Executive Golf Course
Location: 2506 Countryside Blvd., Clearwater, FL
DEP Site ID No. _____
Current Date: 6/10/10
Date of Last GW Analysis: 11/3/09

CHECK ALL THAT APPLY:

Media Contaminated: ☑ Groundwater ☐ Sediment ☑ Soil ☐ Air

Type(s) of Product(s) Discharged:

☐ Gasoline / Kerosene Analytical Group
☐ Listed Hazardous Waste
☑ Other types of contaminants (solvents, etc.)
List: Arsenic

Method of Groundwater Disposal: NA

☐ Infiltration Gallery ☐ Sanitary Sewer
☐ Surface Discharge/NPDES ☐ Injection Well
☐ Other _____

Plume Characteristics:

- Estimated Mass (lbs): Groundwater 1.15 Soil _____
- Area of Plume maximum 39,250 (ft^2)
- Depth of Plume 10 (ft)

Groundwater Recovery and Specifications: NA

- No. of Recovery Wells _____
  ☐ Vertical ☐ Horizontal
- Design Flow Rate/Well _____ (gpm)
- Total Flow Rate _____ (gpm)
- Hydraulic Conductivity _____ (ft/day)
- Recovery Well Screen Interval _____ (ft)
- Depth to Water _____ (ft)

Method of Groundwater Remediation: NA

☐ Pump-and-Treat:
  ☐ Air Stripper
    ☐ Low Profile ☐ Packed Tower
  ☐ Diffused Aerator
  ☐ Activated Carbon
    ☐ Primary Treatment ☐ Polishing
☐ In Situ Air Sparging - Pressure: _____ (psi)
- No. of Sparge Points _____
  ☐ Vertical ☐ Horizontal
- Design Air Flow Rate/Well _____ (cfm)
- Total Air Flow Rate _____ (cfm)

☐ Biosparging:
- No. of Sparge Points _____
  ☐ Vertical ☐ Horizontal
- Design Air Flow Rate/Well _____ (cfm)

☐ Bioremediation:
  ☐ In Situ ☐ Ex Situ
☐ Other _____

Free Product Present: ☐ Yes ☑ No

- Estimated Volume _____ (gal)
- Maximum Thickness _____ (in)
- Method of Recovery _____

Method of Soil Remediation:

☑ Excavation:
Volume to be excavated ~40,000 (yds^3)
☐ Thermal Treatment ☐ Land Farming On Site
☐ Landfill ☐ Bioremediation
☑ Other containment on-site

☐ Vapor Extraction System (VES):
- No. of Venting Wells _____
  ☐ Vertical ☐ Horizontal
- VES - Applied Vacuum _____ (wg)
- Design Air Flow Rate _____ (cfm)
- Design Radius of Influence _____ (ft)
- Air Emissions Treatment
  ☐ Thermal Oxidizer ☐ Catalytic Converter
  ☐ Carbon ☐ Other _____

☐ Soil Bioventing:
- No. of Venting Wells _____
  ☐ Vertical ☐ Horizontal
- Design Air Flow Rate _____ (cfm)

☐ In Situ Bioremediation
☐ Other _____

Natural Attenuation:

☑ Groundwater ☐ Soil
- Method of Evaluation:
  ☑ Historical Trends
  ☐ Site-Specific Parameters

Estimated Time of Cleanup: <5 yrs ~~(days)~~
- Method of Estimation:
  ☐ Pore Volumes (no. of pore vols. = _)
  ☐ Exponential Decay (Decay Rate) _____ (day^{-1})
  ☐ Groundwater Transport Model _____
  ☑ Other Experience at similar sites