CITY OF HOUSTON

PUBLIC WORKS AND ENGINEERING
PLANNING & DEVELOPMENT DIVISION

EXECUTIVE SUMMARY

Project Overview

InControl Technologies, Inc was retained by Differential Development – 1994, Ltd. (the former property owner), to provide environmental consulting services at the Lantern Lane Shopping Center located at 12534 Memorial Drive in Houston, Harris County, Texas. The property is currently owned by amREIT Lantern Lane, LP, a Texas limited partnership. Prior to the sale of the shopping center, it was discovered that the subject property had been impacted by historical dry cleaning operations. As part of the agreement to purchase the property, Differential Development – 1994, Ltd. had to agree to mitigate environmental conditions present on the subject property. The subject property (Site) consists of approximately 6.75-acres of land located west of downtown Houston, Harris County, Texas (**Figure B1**). The subject property is developed with a retail shopping center. The former Pro Cleaners operated a dry cleaning facility in the western portion of the Lantern Lane Shopping Center. Pro Cleaners ceased dry cleaning operations in June 2007.

The subject property is located within the Buffalo Bayou Watershed (**Figure B2**). According to the Flood Insurance Rate Map (**Figure B3**) the site is located outside the 0.2% annual chance floodplain. Approximately 90% of the subject property is covered with parking spaces, walkways and retail space. The remaining 10% is covered with decorative landscaped areas.

The site currently has two PCLE zones; one in the upper groundwater bearing unit (**Figure B4-1**) and one in the lower (**Figure B4-2**).

Historical Environmental Condition

To date, Differential Development – 1994, Ltd. has undertaken extensive site investigation activities designed to define the nature and extent of the environmental impact from historical releases at the Site. The property was developed in 1962 with a multi-tenant retail shopping center. Pro Cleaners operated a dry cleaning facility from 2000 to June 2007. The Pro Cleaners tenant space was formerly occupied by a hardware store. No other dry cleaning facilities were previously located in the Lantern Lane Shopping Center.

In September 2003, McCalley, Frick & Gillman, Inc. (MFG) collected wastewater samples from the lint trap which were analyzed for volatile organic compounds (VOCs). PCE and TCE were detected in both samples indicating that dry cleaning activities had resulted in a release to the sanitary sewer. Results

from wastewater samples collected in March 2004, May 2004 and August 2004 confirmed these findings. Based on these findings the dry cleaner was required to change the dry cleaning equipment. The two PCE-based dry cleaning machines were replaced with hydrocarbons-based machines in February 2005. The hydrocarbon-based machines were in use until the dry cleaners closed in June 2007. Since that time, the dry cleaning equipment has been removed

MFG conducted a soil investigation in November 2003. Three soil borings (B-1, B-2 and B-3) were advanced outside the lease space and two soil borings (B-4 and B-5) were advanced inside the lease space (**Figure B5**). Soil samples were collected from these borings and analyzed for VOCs. Dry cleaning compounds (PCE and its breakdown products) were detected in the soil samples analyzed. The reported concentrations were less than the Tier 1 residential $^{GW}Soil_{Ing}$ PCLs (**Table F-1**). In December 2003, MFG collected groundwater samples from two temporary wells (TW-1 and TW-2) which were advanced near soil borings B-2 and B-1 respectively. The groundwater samples were analyzed for VOCs. TCE and cis-1,2-DCE were detected in the groundwater sample collected from TW-1. The reported concentration of TCE was greater than the Tier 1 residential $^{GW}GW_{Ing}$ PCL (**Table F-2**).

Environeering, Inc. installed three permanent groundwater monitoring wells (MW-1 through MW-3) (**Figure B6**) in February 2004. All three groundwater wells were sampled and the groundwater samples analyzed for VOCs. PCE and its breakdown products were identified in the groundwater sample collected from MW-3. Only TCE was reported at a concentration above the Tier 1 residential $^{GW}GW_{Ing}$ PCL (**Table F-2**).

In April 2004, five additional groundwater monitoring wells (MW-4 through MW-9) were installed and sampled. PCE, TCE and cis-1,2-DCE were reported at concentrations greater than the Tier 1 PCLs in groundwater samples collected from MW-4 and MW-5. PCE was detected at concentrations greater than the Tier 1 PCL in the groundwater samples collected from MW-6 and MW-8. During the installation of monitoring wells MW-6 through MW-8, soil samples were collected from the base of the borings and analyzed for VOCs. PCE was detected in the soil samples collected from all three wells (MW-6, MW-7 and MW-8). PCE was reported at concentrations greater than the Tier 1 residential $^{GW}Soil_{Ing}$ PCLs in soil samples collected from MW-6 and MW-8 (**Table F-1**).

Envirotest Ltd. (Envirotest) installed three additional groundwater monitoring wells (MW-9, MW-10 and MW-11) in February 2005. Soil and groundwater samples were collected and analyzed for VOCs. Acetone and TCE were reported in soil samples collected from MW-9 and MW-11. PCE and TCE were reported at concentrations greater than their respective Tier 1 $^{GW}GW_{Ing}$ PCLs in monitoring wells MW-9, MW-10 and MW-11 (**Table F-2**). Acetone was believed to be a laboratory contaminant and was disregarded as a contaminant of concern.

Envirotest installed and sampled two off-site monitoring wells (TMW-0H and TMW-B) and three angled soil borings (AB-1, AB-2 and AB-3) in March 2005. Groundwater and soil samples were analyzed for VOCs. The angled soil borings were to sample soil under the sanitary sewer line behind the Lantern Lane Shopping Center. VOCs were reported in the soil samples collected beneath the sanitary sewer line (**Table F-1**) but at concentrations below the Tier 1 $^{GW}Soil_{Ing}$ PCLs. PCE, TCE, cis-1,2-DCE and 1,1-

DCE were reported at concentrations greater than the Tier 1 $^{GW}GW_{Ing}$ PCLs in the groundwater samples collected from the two off-site temporary wells (**Table F-2**).

To further delineate impacted groundwater to the north, one permanent groundwater monitoring well (MW-12) was installed north of the shopping center in June 2005. In July 2006, three additional groundwater monitoring wells (1-MW-13, 1-MW-14 and 1-MW-15) were installed to further delineate impacted groundwater to the north and south. To vertically delineate impacted groundwater, two permanent groundwater monitoring wells (2-MW-1 and 2-MW-2) were installed in the second groundwater bearing unit. PCE was detected in the groundwater sample collected from 2-MW-1 and PCE, TCE and cis-1,2-DCE were detected in the groundwater sample collected from 2-MW-2. PCE was reported at concentrations greater than the Tier 1 residential $^{GW}GW_{Ing}$ PCL of 0.005 mg/L in both wells (**Table F-2**).

In August 2006, eleven soil borings (SB-1 through SB-11) were installed to determine if the source of the plume was the sanitary sewer line running along Tallowood Drive. Soil samples collected from these borings were analyzed for VOCs; no VOCs were detected in the soil samples (**Table F-1**).

To complete vertical delineation, SKA advanced a soil boring to a terminal depth of 78-feet below ground surface (bgs). The boring was completed as a permanent groundwater monitoring well (3-MW-1) but did not produce groundwater. The well was subsequently plugged and abandoned. COCs were not detected in the soil samples collected above (78- to 80-ft bgs) and below (115- to 117.5-ft bgs) the unsaturated sand (**Table F-1**).

To further delineate impacted groundwater in the first groundwater bearing unit, four additional groundwater monitoring wells (1-MW-16, 1-MW-20, 1-MW-21 and 1-MW-22) were installed by SKA between November and December 2006. The groundwater samples collected from these wells were analyzed for VOCs (**Table F-2**). Analytical results indicated horizontal delineation was not complete.

In February and March 2007, SKA installed three additional permanent groundwater monitoring wells (2-MW-3, 2-MW-4 and 2-MW-5) in the second groundwater bearing unit. PCE was reported at concentrations greater than the Tier 1 $^{GW}GW_{Ing}$ PCL in all three wells. To further delineate groundwater in the second GWBU, monitoring well 2-MW-6 was installed. PCE was reported at a concentration greater than the Tier 1 $^{GW}GW_{Ing}$ PCL in this well. In October 2007 monitoring well 2-MW-7 was installed in the second groundwater bearing unit to complete delineation to the south. No COCs were detected in the groundwater sample collected from 2-MW-7. Groundwater monitoring well 2-MW-8 was installed in November 2007 to complete delineation in the second groundwater bearing unit to the east. No COCs were detected in the groundwater sample collected from 2-MW-8. In December 2007, groundwater monitoring well 2-MW-9 was installed to complete delineation to the west in the second GWBU. PCE and TCE were reported at concentrations greater than the Tier 1 $^{GW}GW_{Ing}$ PCL in this well. Three additional groundwater monitoring wells (2-MW-10, 2-MW-11 and 2-MW-12) were installed in February and March 2008 to complete delineation in the second GWBU to the south and west (**Table F-2**).

The lateral extent of groundwater impact has been horizontally delineated in all directions. The first groundwater bearing unit is delineated in the upgradient direction by groundwater monitoring wells 1-MW-

12 and 1-MW-17 and by groundwater monitoring wells 1-MW-18, 1-MW-19, 1-MW-20 and 1-MW-22 in downgradient direction (**Figure B4-1**). Groundwater monitoring wells 1-MW-1, 1-MW-7 and 1-MW-16 are the crossgradient delineation points in the first groundwater bearing unit. The second groundwater bearing unit is delineated by groundwater monitoring wells 2-MW-7 and 2-MW-12 in the downgradient direction (**Figure B4-2**).

A comparison of the sampling results from as early as February 2004 through March 2008 indicates that the area of impact has remained stable over time. Monitoring wells 1-MW-9 and 2-MW-2 have historically reported the highest COC concentrations. COC concentrations in monitoring well 1-MW-9 have decreased over the sampling history of the site and have remained stable in monitoring well 2-MW-2 over the sampling history of the site. Compound specific PCLE zones are depicted in **Figure B8-1** through **Figure B8-4**. The groundwater gradient at the site it to the southwest in both the upper (**Figure B7-1**) and lower (**Figure B7-2**) groundwater bearing units.

Six (6) water wells were identified within a ½-mile radius of the proposed MSD boundary. Three (3) of the six (6) identified water wells are listed as domestic wells and one (1) is listed as a public supply well. It is suspected that two (2) of the three (3) domestic water wells are in fact the same well. One (1) of the six (6) water wells is listed as "plugged". The nearest domestic well is located almost 800-feet northwest (upgradient) from the proposed MSD boundary. This well is completed at a depth of 390-feet bgs and screened from 330- to 370-ft bgs. This well is drawing water from a zone much deeper than the impacted zone at the Lantern Lane Shopping Center. The nearest public water supply well is located greater than 2,000-feet west (cross-gradient) from the proposed MSD boundary. The public water supply well is owned by the Grimes Grass Co. Completion information was not available for this well but it is anticipated that the well is drilled to a depth much deeper than the impacted zones at the Lantern Lane Shopping Center. There are no sensitive receptors within 500-feet of the proposed MSD boundary. The nearest receptor is an unnamed creek located approximately 615-feet west of the proposed MSD boundary followed by Buffalo Bayou located greater than 1-mile 1,700-feet southwest of the proposed MSD boundary.

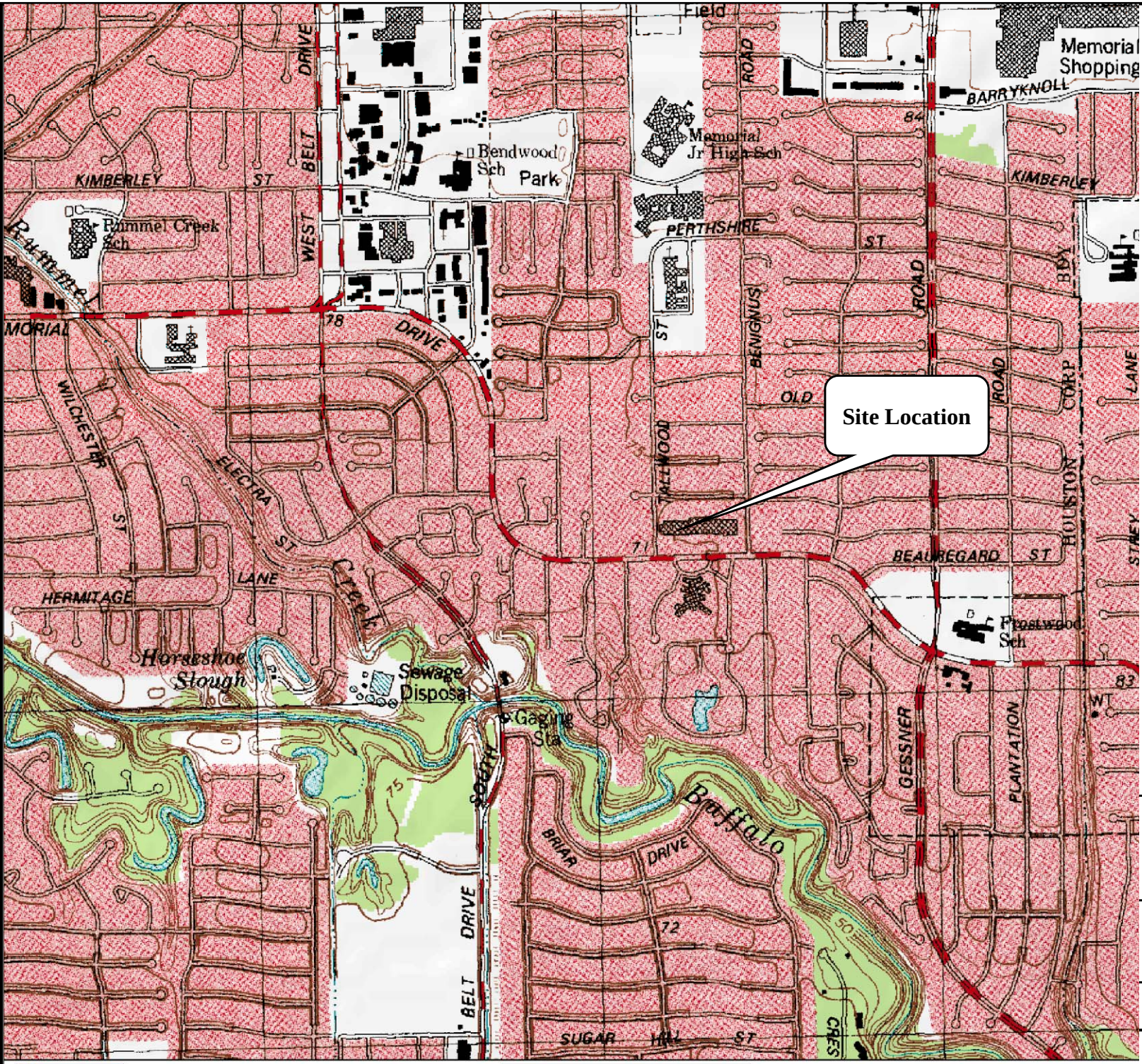
Appendix B – Site Maps

The figures set out in this section provide information required under **Item 2**. The maps depict the property location and topography, the area of groundwater contamination, the location of all soil sampling points and groundwater monitoring wells, the groundwater gradient, and the soil and groundwater PCL exceedence zones.

The following is a listing of figures included in **Appendix B**.

Figure B1 – Site location and topographic Map
Figure B2 – Watershed Map
Figure B3 – Floodplain Map
Figure B4-1 – Groundwater PCLE zone – First Groundwater Bearing Unit
Figure B4-2 – Groundwater PCLE zone – Second Groundwater Bearing Unit
Figure B5 – Soil sampling locations
Figure B6 – Groundwater sampling locations
Figure B7-1 – First Groundwater Bearing Unit Groundwater Gradient Map (March 2008)
Figure B7-2 – Second Groundwater Bearing Unit Groundwater Gradient Map (March 2008)
Figure B8-1 – Groundwater PCL Exceedence zone map (PCE)
Figure B8-2 – Groundwater PCL Exceedence zone map (TCE)
Figure B8-3 – Groundwater PCL Exceedence zone map (cis-1,2-DCE)
Figure B8-4 – Groundwater PCL Exceedence zone map (VC)

The subject property is located within the Buffalo Bayou watershed (**Figure B2**). The site is not located in the 100-year floodplain (**Figure B3**).



Source: Hedwig Village USGS 7.5-Minute Quadrangle Map

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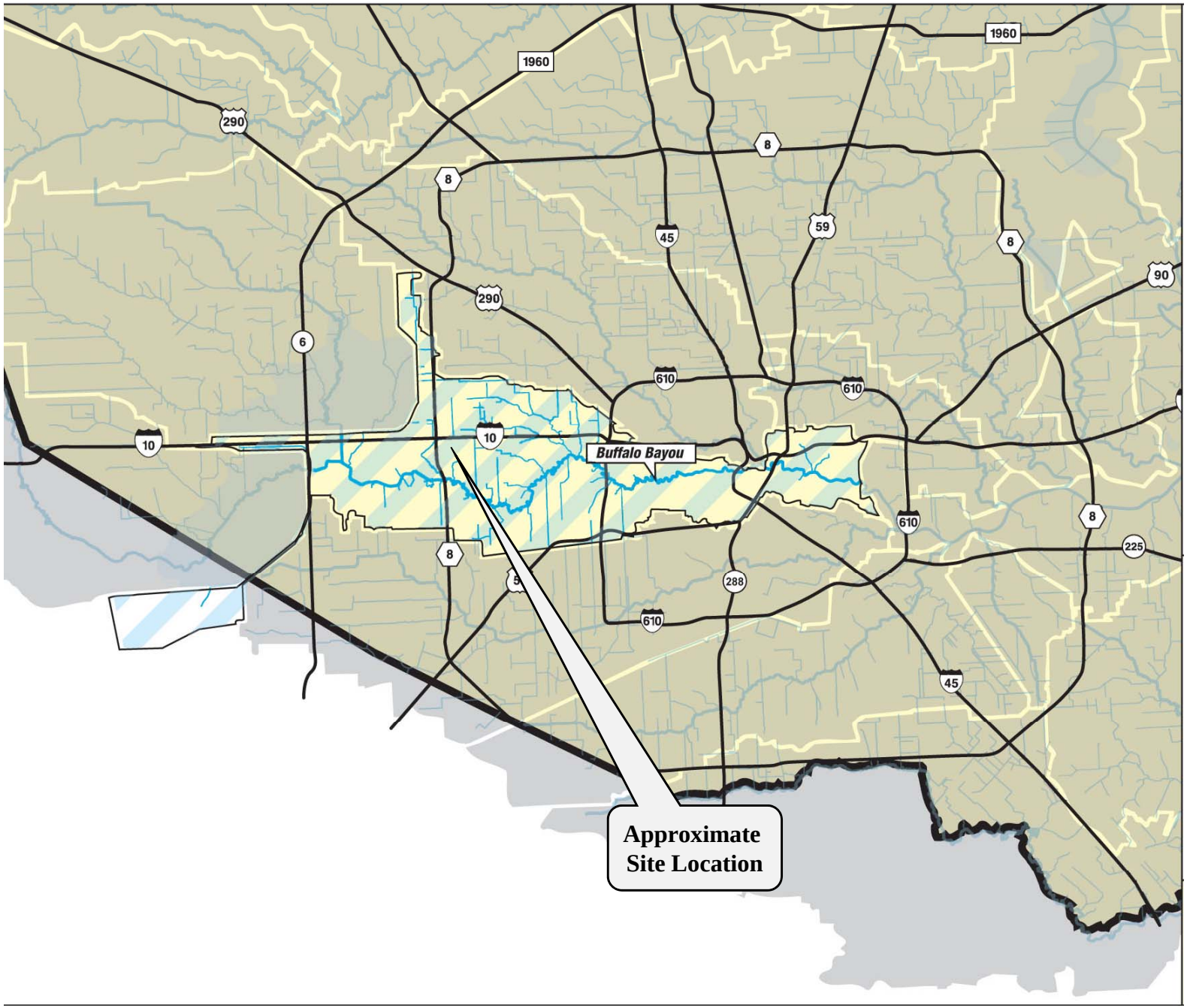
Site Location and Topographic Map

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: 12534 Memorial Drive Houston, Texas			CHECKED:
DETAILED: CP	DESIGNED: 7/21/08	PROJECT NO: 364-117	FIGURE: **B1**



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Watershed Map

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: 12534 Memorial Drive Houston, Texas			CHECKED:
DETAILED: CP	DESIGNED: 7/21/08	PROJECT NO: 364-117	FIGURE: **B2**

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood.

ZONE A	No base flood elevations determined.
ZONE AE	Base flood elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.
ZONE A99	Area to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no base flood elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no base flood elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross Section Line
23 — 23	Transect Line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4276000M	1000-meter Universal Transverse Mercator grid values, zone 15
600000 FT	5000-foot grid ticks
DX5510	Bench mark (see explanation in Notes to Users section of this FIRM panel).
M1.5	River Mile

MAP REPOSITORY
Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
SEPTEMBER 28, 1990

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
SEPTEMBER 30, 1992
APRIL 20, 2000
_____ to change base flood elevations, to add special flood hazard areas, to change special flood hazard areas, to change zone designations, to reflect updated topographic information, and to change floodway.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

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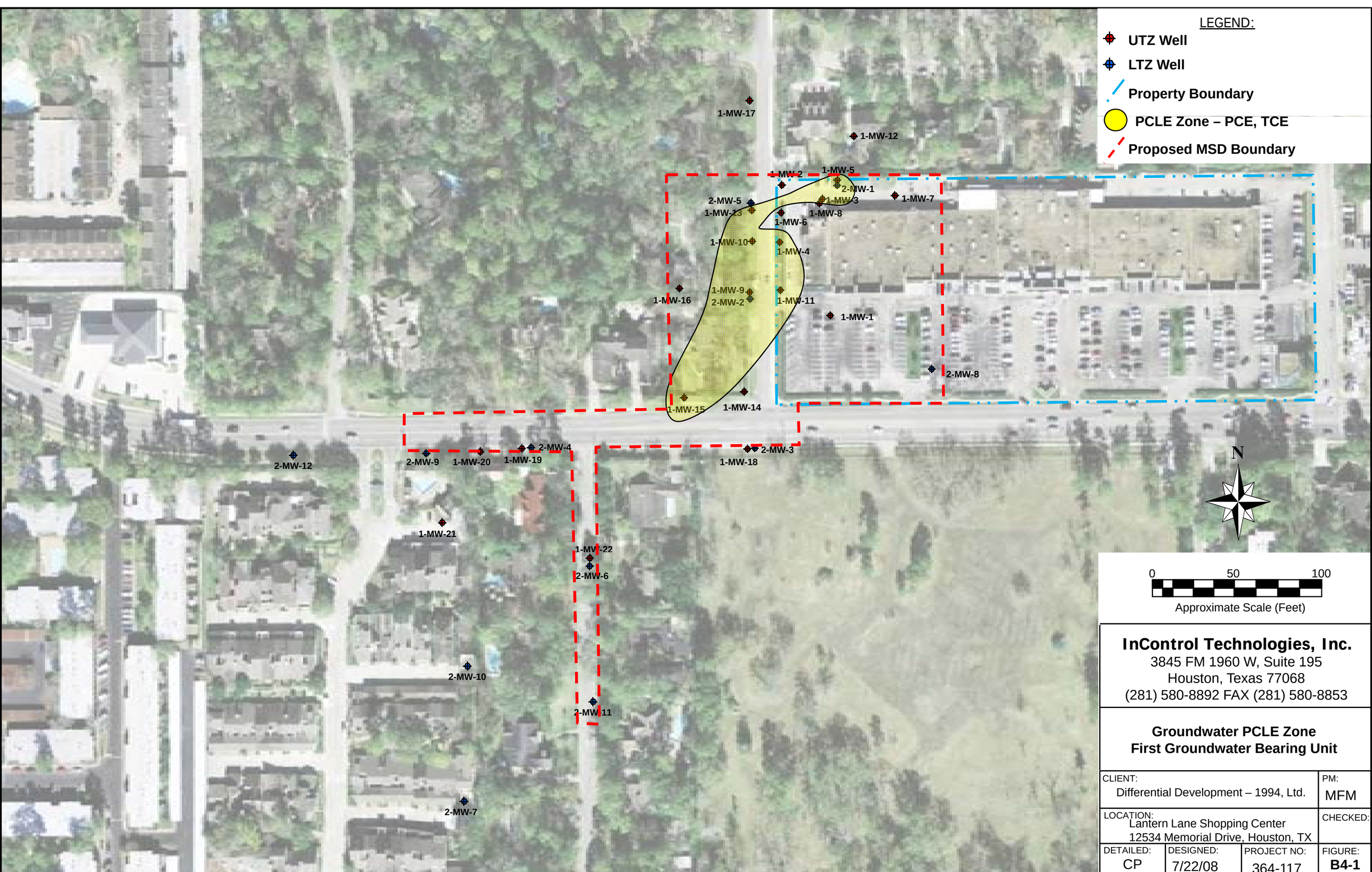
Flood Insurance Rate Map
FIRM Panel 645

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: 12534 Memorial Drive Houston, Texas			CHECKED:
DETAILED: CP	DESIGNED: 7/21/08	PROJECT NO: 364-117	FIGURE: **B3**



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Groundwater PCLE Zone
First Groundwater Bearing Unit

CLIENT:			PM:
Differential Development – 1994, Ltd.			MFM
LOCATION: Lantern Lane Shopping Center 12534 Memorial Drive, Houston, TX			CHECKED:
DETAILED: CP	DESIGNED: 7/22/08	PROJECT NO: 364-117	FIGURE: **B4-1**

LEGEND:

- UTZ Well
- LTZ Well
- Property Boundary
- PCLE Zone – PCE, TCE
- Proposed MSD Boundary

1-MW-17
1-MW-12
1-MW-2
1-MW-5
2-MW-1
2-MW-5
1-MW-13
1-MW-3
1-MW-7
1-MW-8
1-MW-6
1-MW-10
1-MW-4
1-MW-16
1-MW-9
2-MW-2
1-MW-11
1-MW-1
2-MW-8
1-MW-15
1-MW-14
2-MW-12
2-MW-4
2-MW-9
1-MW-20
1-MW-19
2-MW-3
1-MW-18
1-MW-21
1-MW-22
2-MW-6
2-MW-10
2-MW-11
2-MW-7

N

0 50 100

Approximate Scale (Feet)

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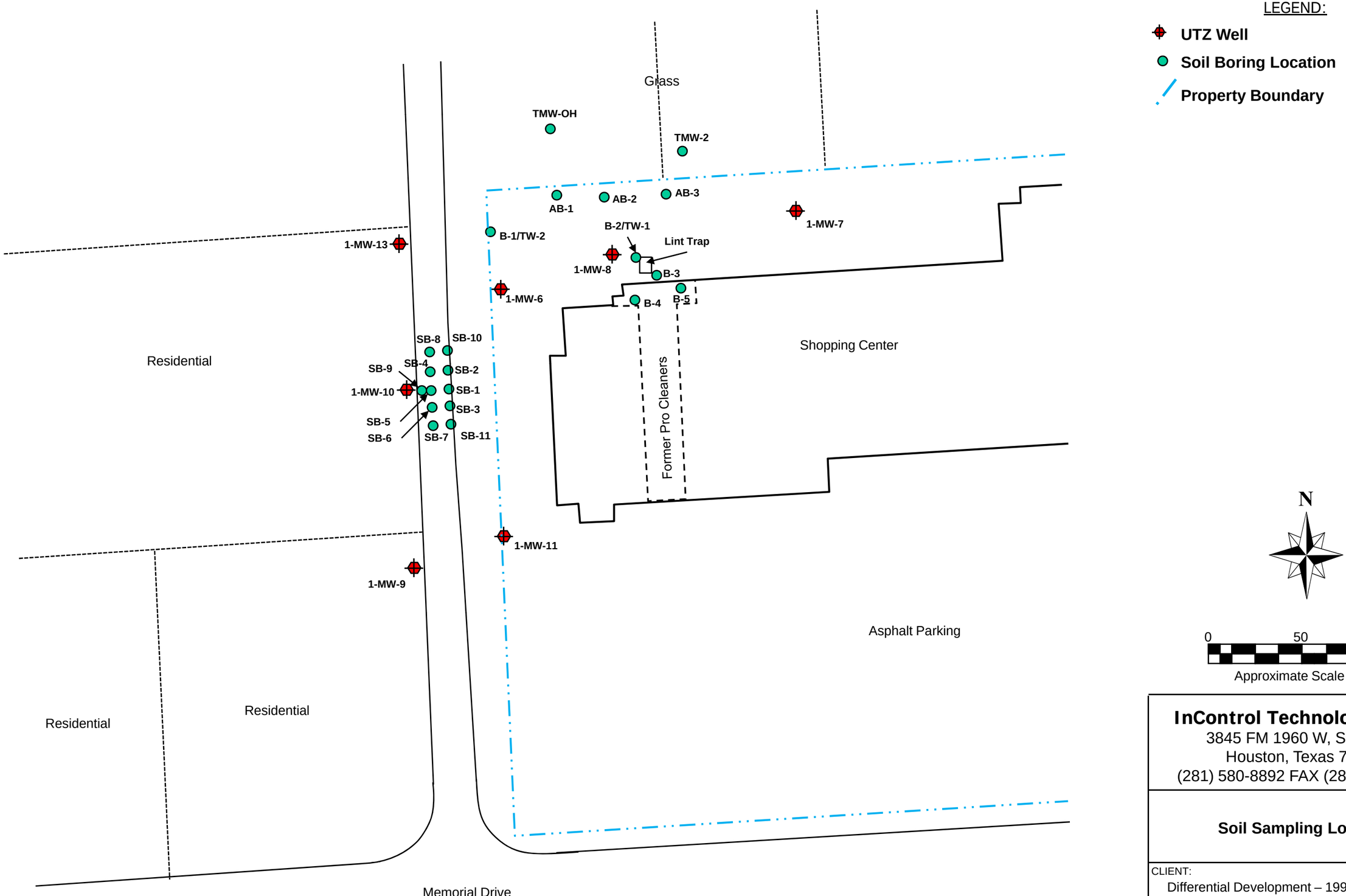
Groundwater PCLE Zone
Second Groundwater Bearing Unit

CLIENT:			PM:
Differential Development – 1994, Ltd.			MFM
LOCATION: Lantern Lane Shopping Center, 12534 Memorial Drive, Houston, TX			CHECKED:
DETAILED: CP	DESIGNED: 7/22/08	PROJECT NO: 364-117	FIGURE: **B4-2**



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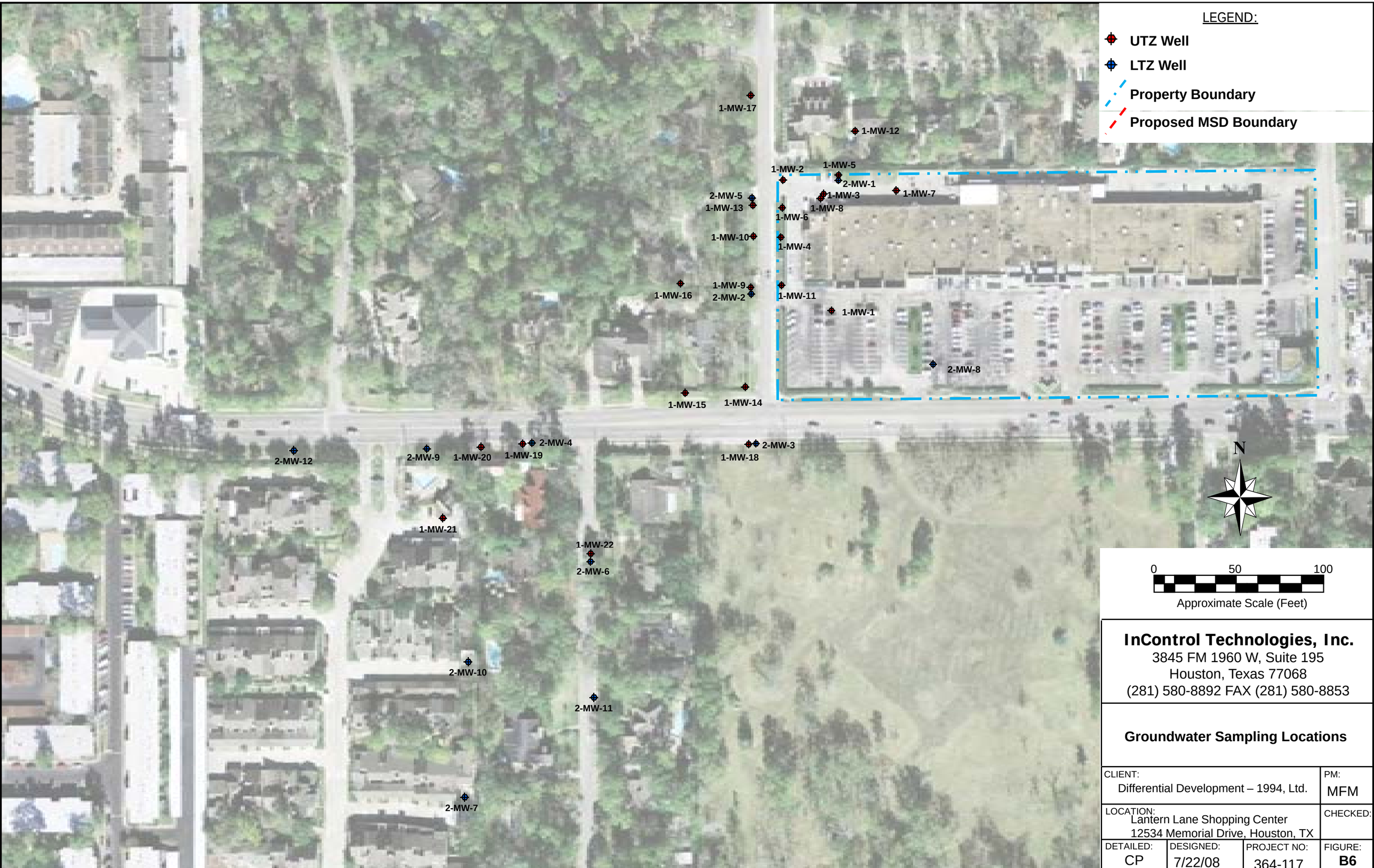
Soil Sampling Locations

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: Lantern Lane Shopping Center 12534 Memorial Drive, Houston, TX			CHECKED:
DETAILED: CP	DESIGNED: 7/22/08	PROJECT NO: 364-117	FIGURE: **B5**



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Groundwater Sampling Locations

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: Lantern Lane Shopping Center 12534 Memorial Drive, Houston, TX			CHECKED:
DETAILED: CP	DESIGNED: 7/22/08	PROJECT NO: 364-117	FIGURE: **B6**

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Groundwater Gradient Map
First Groundwater Bearing Unit
March 2008

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: Lantern Lane Shopping Center 12534 Memorial Drive, Houston, TX			CHECKED:
DETAILED: CP	DESIGNED: 7/22/08	PROJECT NO: 364-117	FIGURE: **B7-1**

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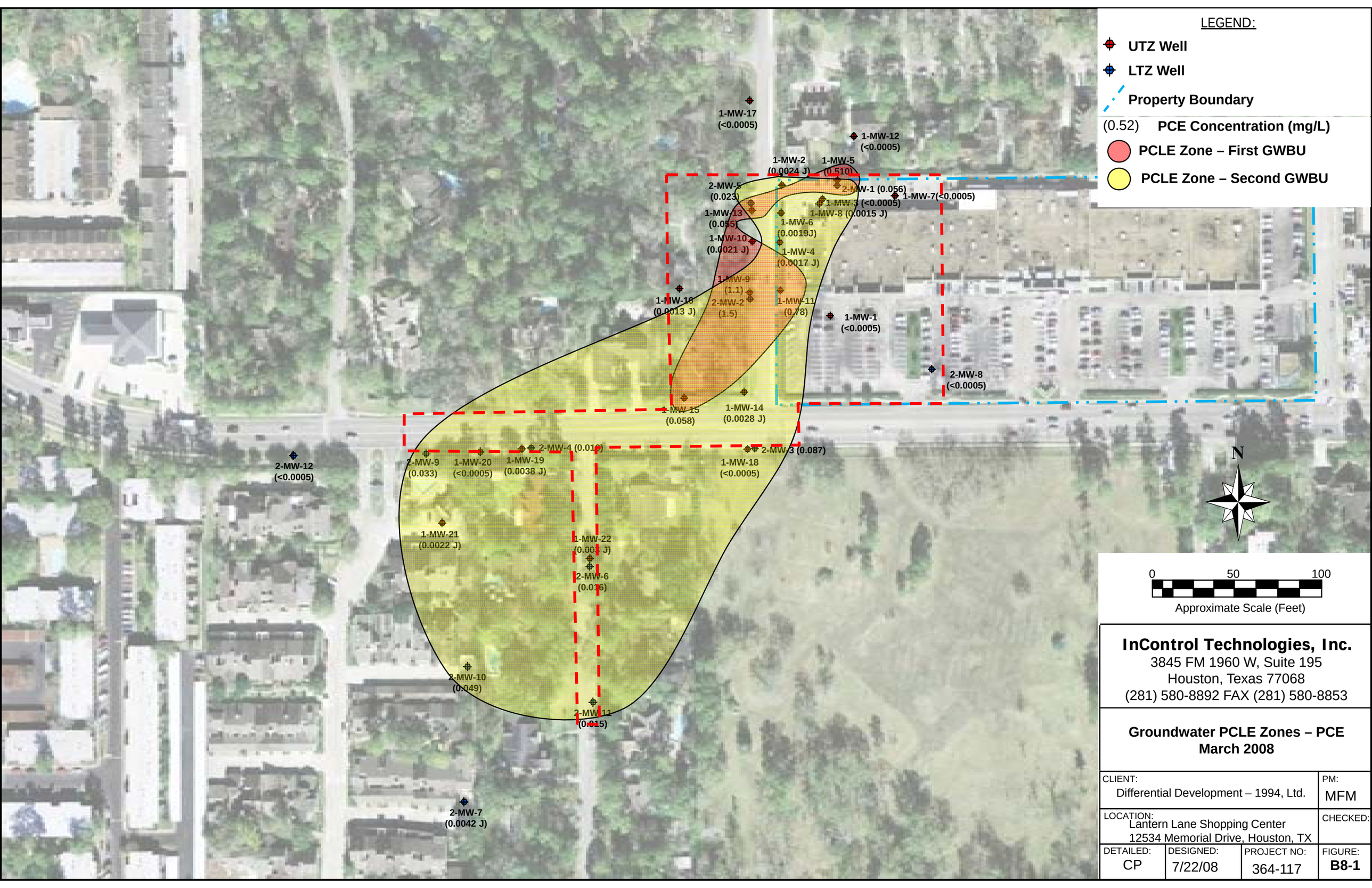
Groundwater Gradient Map
Second Groundwater Bearing Unit
March 2008

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: Lantern Lane Shopping Center, 12534 Memorial Drive, Houston, TX			CHECKED:
DETAILED: CP	DESIGNED: 7/22/08	PROJECT NO: 364-117	FIGURE: **B7-2**



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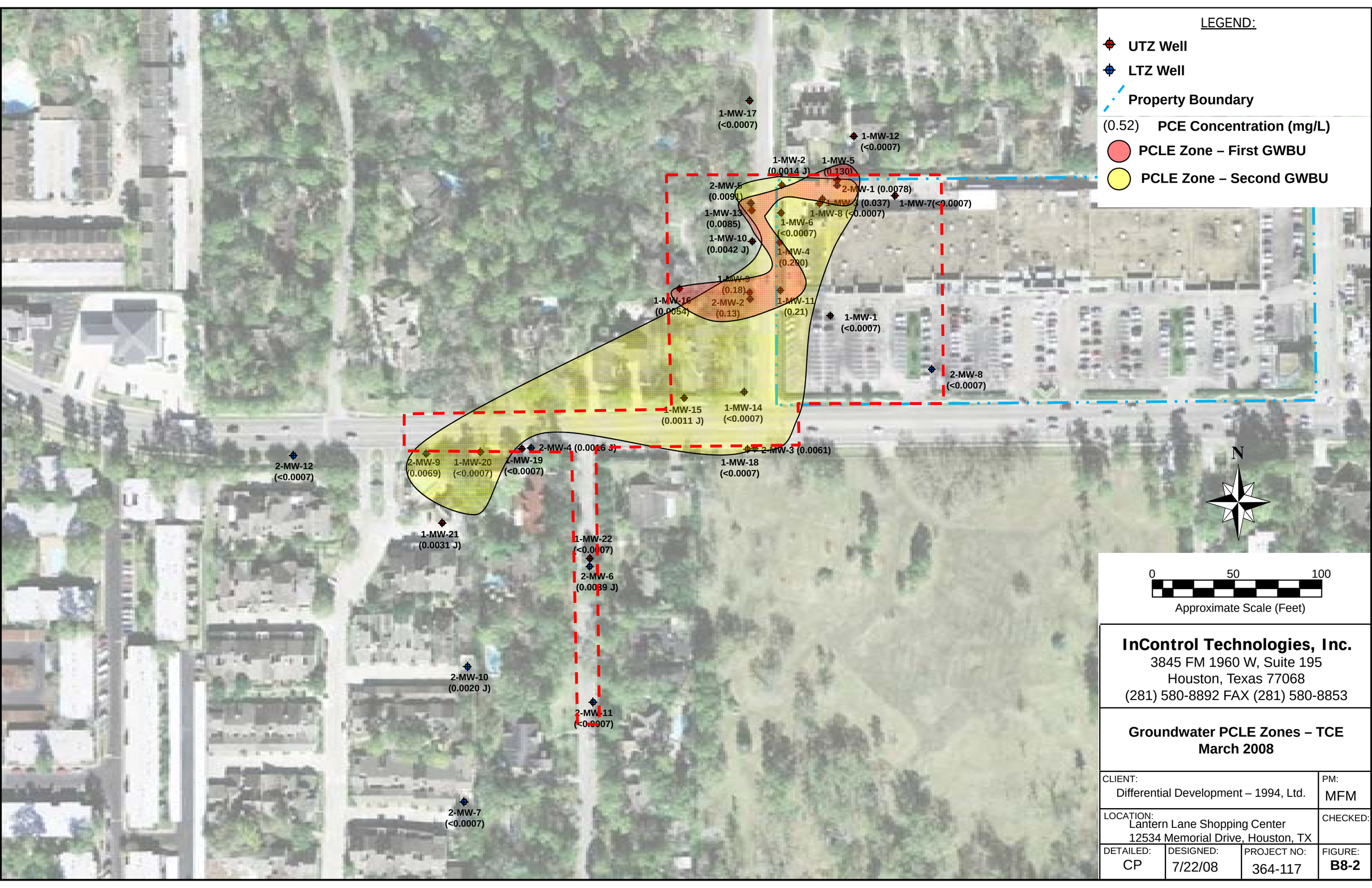
Groundwater PCLE Zones – PCE
March 2008

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: Lantern Lane Shopping Center, 12534 Memorial Drive, Houston, TX			CHECKED:
DETAILED: CP	DESIGNED: 7/22/08	PROJECT NO: 364-117	FIGURE: **B8-1**



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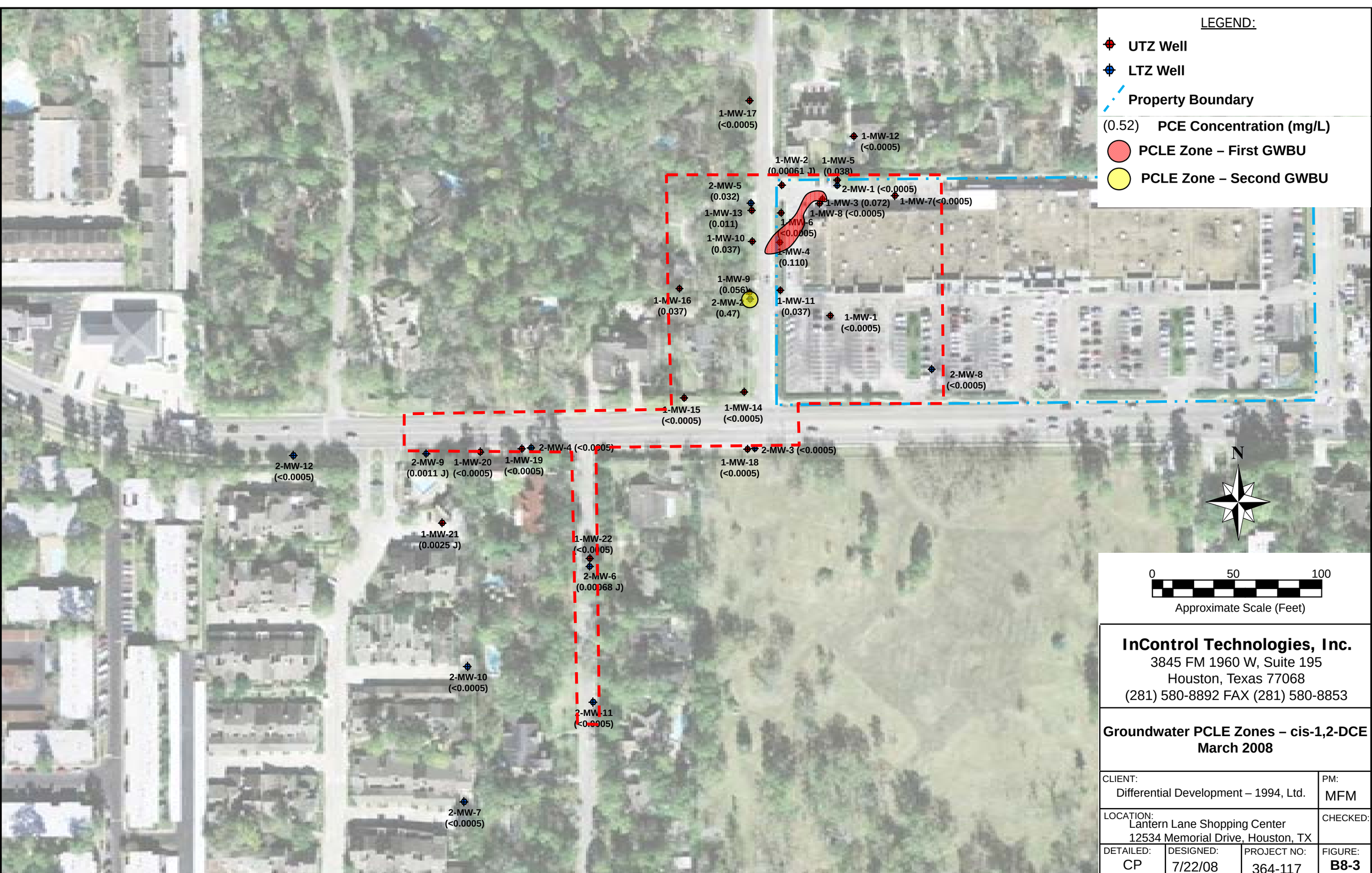
Groundwater PCLE Zones – TCE
March 2008

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: Lantern Lane Shopping Center, 12534 Memorial Drive, Houston, TX			CHECKED:
DETAILED: CP	DESIGNED: 7/22/08	PROJECT NO: 364-117	FIGURE: **B8-2**



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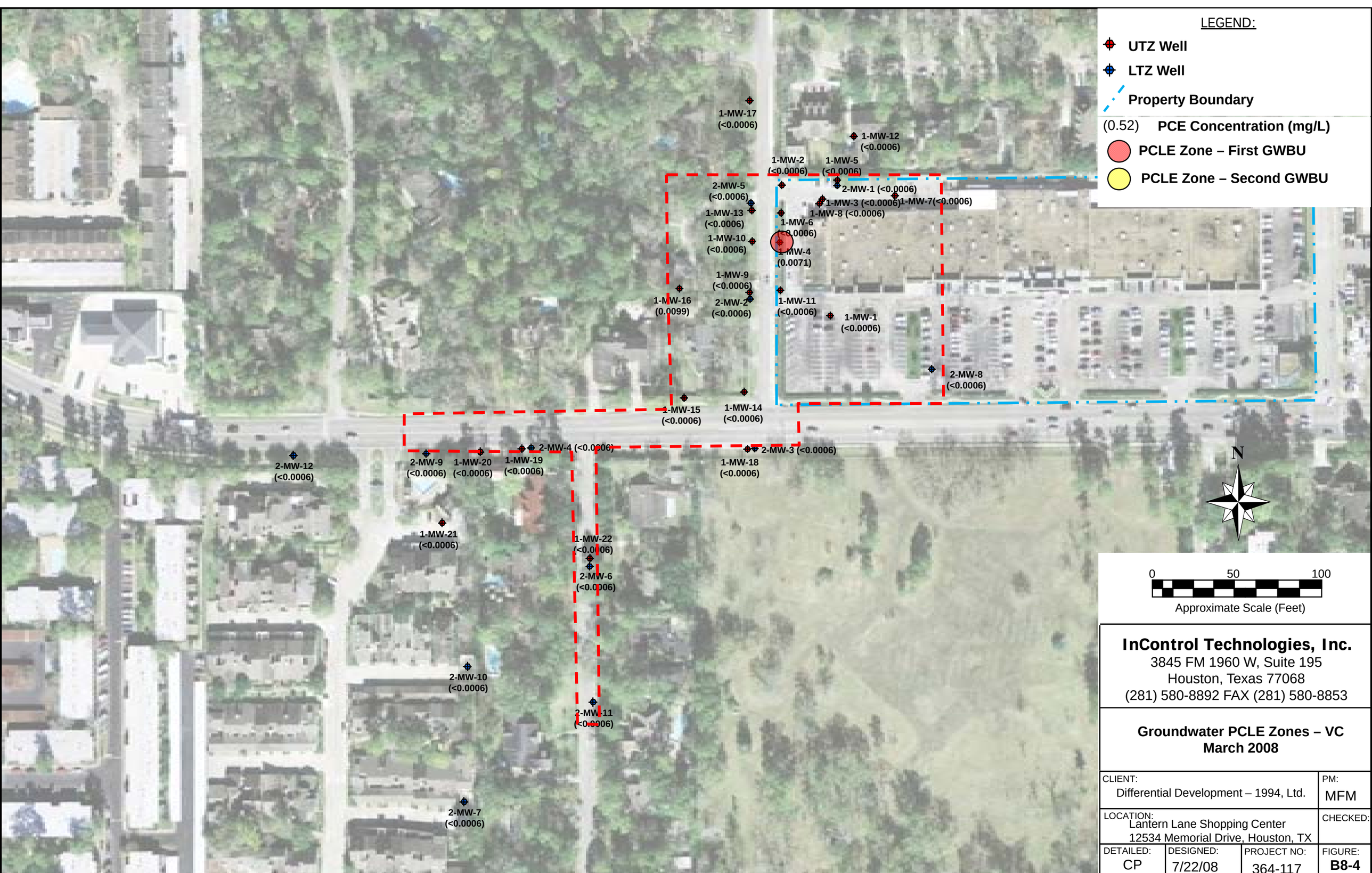
Groundwater PCLE Zones – cis-1,2-DCE
March 2008

CLIENT:	PM:
Differential Development – 1994, Ltd.	MFM
LOCATION: Lantern Lane Shopping Center, 12534 Memorial Drive, Houston, TX	CHECKED:

DETAILED:	DESIGNED:	PROJECT NO:	FIGURE:
CP	7/22/08	364-117	**B8-3**



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Groundwater PCLE Zones – VC
March 2008

CLIENT:	PM:
Differential Development – 1994, Ltd.	MFM
LOCATION: Lantern Lane Shopping Center, 12534 Memorial Drive, Houston, TX	CHECKED:

DETAILED:	DESIGNED:	PROJECT NO:	FIGURE:
CP	7/22/08	364-117	**B8-4**

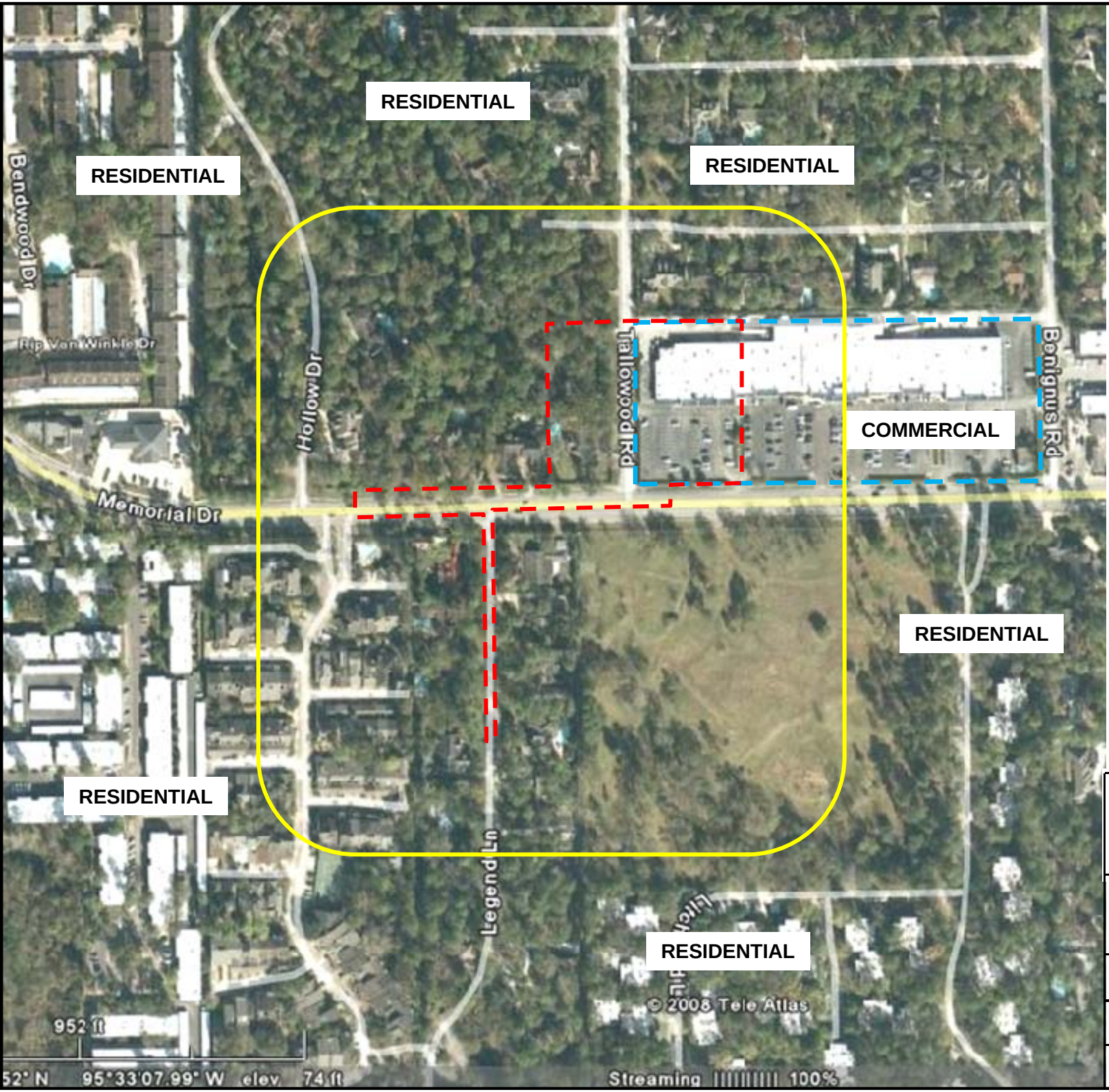
Appendix C – Property Use

The subject property (Site) consists of approximately 6.75-acres of land located west of downtown Houston, Harris County, Texas. The affected property is located in a primarily residential area with some commercial development (**Figure C1**). The property was developed in 1962 with the current retail shopping center. Historically, the former Pro Cleaners occupied a tenant space in the western portion of the retail strip center and operated tetrachloroethene dry cleaning equipment. Dry cleaning operations began in 2000 and ceased in June 2007.

Approximately 90% of the subject property is covered with parking spaces, walkways and retail space (**Figure C1**). The remaining 10% is covered with decorative landscaped areas. Future use of the subject property is anticipated to remain commercial.

Figure C1 (found in **Appendix C**) provides a description of the surrounding land use within 500-feet of the site.

- North – The subject property is bounded to the north by residential development.
- East – The subject property is bounded to the east by the Benignus Road right of way and commercial development followed by residential development.
- South – The subject property is bounded to the south by the Memorial Drive right of way followed by a vacant lot. Further south is a residential development.
- West – The subject property is bounded to the west by the Tallowood Road right-of-way followed by residential development.



LEGEND

- MSD Boundary
- Property Boundary
- 500-ft Radius

N

0 700 1400

Approximate Scale
(Feet)

InControl Technologies, Inc.
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Houston, Texas 77068
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Surrounding Land Use within 500-ft

CLIENT: Differential Development – 1994, Ltd.			PM: MFM
LOCATION: 12534 Memorial Drive Houston, Texas			CHECKED:
DETAILED: CP	DESIGNED: 7/21/08	PROJECT NO: 364-117	FIGURE: **C1**

Appendix D – PCLE Zone Discussion

A) A review of recent groundwater sampling data (March 2008) indicates that the COCs that currently exceed the Tier 1 $^{GW}GW_{Ing}$ PCLs are tetrachloroethene (PCE), trichloroethene (TCE) cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride (VC) in the first groundwater bearing unit. PCE, TCE and cis-1,2-DCE exceed the Tier 1 $^{GW}GW_{Ing}$ PCLs in the second groundwater bearing unit. Compound specific PCLE zones are depicted on **Figure B8-1** through **Figure B8-4**. Monitor wells located on the surrounding properties indicate the groundwater PCLE zone has extended off-site into the surrounding neighborhood. The area of groundwater impact is delineated in all directions (**Figure B4-1** and **Figure B4-2**).

Based on a review of boring logs, the shallow groundwater on the subject property is first encountered at a depth of approximately 16- to 25-feet below ground surface (ft bgs) (UTZ). The bottom of the UTZ is estimated at approximately 34- to 39-ft bgs. A lower groundwater bearing unit (LTZ) is encountered at a depth of approximately 40- to 45-ft bgs. The bottom of the LTZ is approximately 44- to 53-ft bgs and underlain by clay. The UTZ and LTZ are separated by a thick clay unit.

A comparison of the recent groundwater sampling results (March 2008) with applicable non-ingestion protective concentration levels ($^{Air}GW_{Inh-V}$) indicates that none of the groundwater samples reported a COC concentration above the $^{Air}GW_{Inh-V}$ PCL. Therefore, based on the recent groundwater monitoring results, there is no non-ingestion protective concentration level exceedence zone within the proposed MSD boundary.

B) The following table represents the groundwater ingestion PCL exceedences that were reported from the March 2008 monitoring event:

Table D1 – Groundwater ingestion PCL Exceedences in First Groundwater Bearing Unit

		PCE (mg/L)	TCE (mg/L)	Cis-1,2-DCE (mg/L)	VC (mg/L)
Tier 1 $^{GW}GW_{Ing}$ PCLs		0.005	0.005	0.07	0.002
Tier 1 $^{Air}GW_{Inh-V}$ PCLs		330	160	16,000	3.6
Monitoring Well ID	Sample Date	Concentration (mg/L)			
1-MW-3	3/6/2008	<0.0005	**0.037**	**0.072**	<0.0005
1-MW-4	3/6/2008	0.0017 J	**0.200**	**0.110**	**0.0071**
1-MW-5	3/11/2008	**0.510**	**0.130**	0.038	<0.0006
1-MW-9	3/7/2008	**1.1**	**0180**	0.056	<0.0006
1-MW-11	3/5/2008	**0.78**	**0.21**	0.037	<0.0006
1-MW-13	3/5/2008	**0.055**	**0.0085**	0.011	<0.0006
1-MW-15	3/4/2008	**0.058**	0.0011 J	<0.0005	<0.0006
1-MW-16	3/6/2008	0.0013 J	**0.0054**	0.037	<0.0006

Notes – Values in **Bold** exceed the $^{GW}GW_{Ing}$ PCL (ingestion PCLE)
Values in ***Bold Italics*** exceed the $^{Air}GW_{Inh-V}$ PCL (non-ingestion PCLE)

Table D2 – Groundwater ingestion PCL Exceedences in Second Groundwater Bearing Unit

		PCE (mg/L)	TCE (mg/L)	Cis-1,2-DCE (mg/L)	VC (mg/L)
Tier 1 $^{GW}GW_{Ing}$ PCLs		0.005	0.005	0.07	0.002
Tier 1 $^{Air}GW_{Inh-V}$ PCLs		330	160	16,000	3.6
Monitoring Well ID	Sample Date	Concentration (mg/L)			
2-MW-1	3/7/2008	**0.056**	**0.0078**	<0.0005	<0.0006
2-MW-2	3/7/2008	**1.5**	**0.13**	**0.47**	<0.0006
2-MW-3	3/4/2008	**0.087**	**0.0061**	<0.0005	<0.0006
2-MW-4	3/4/2008	**0.016**	0.0016 J	<0.0005	<0.0006
2-MW-5	3/7/2008	**0.023**	**0.0091**	0.032	<0.0006
2-MW-6	3/5/2008	**0.16**	0.0039 J	0.00068 J	<0.0006
2-MW-9	3/12/2008	**0.033**	**0.0069**	0.0011 J	<0.0006
2-MW-10	3/4/2008	**0.049**	0.002 J	<0.0005	<0.0006
2-MW-11	3/12/2008	**0.015**	<0.0007	<0.0005	<0.0006

Notes – Values in **Bold** exceed the $^{GW}GW_{Ing}$ PCL (ingestion PCLE)
Values in ***Bold Italics*** exceed the $^{Air}GW_{Inh-V}$ PCL (non-ingestion PCLE)

Groundwater COC concentrations tabulated above are less than the $^{Air}GW_{Inh\text{-}V}$ non-ingestion PCL. Therefore, based on the March 2008 monitoring data there is no non-ingestion PCLE zone on the subject property.

C) The chlorinated solvents (PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE and VC) detected in groundwater samples are associated with the former dry cleaning operations at the Lantern Lane Shopping Center (former Pro Cleaners).

Chlorinated solvents are characterized by their high volatilities, high densities, low viscosities, low interfacial tension, low absolute solubilities, high relative solubilities, low portioning to soil materials and low degradability. Chlorinated solvents will dissolve in water at low concentrations but once the groundwater has reached the saturation limit for that compound, the chlorinated solvent will form a separate phase in equilibrium with the water. Because chlorinated solvents have higher densities relative to water, the separate phase will "sink". These compounds are referred to as "dense non-aqueous phase liquids" (DNAPLs). In high concentrations DNAPLs will be able to penetrate the water table and form "pools" on the top of less permeable layers. Historically, DNAPL has not been identified in any of the monitor wells within the groundwater monitor well network and is not expected to be present at this site given the relatively low concentration of chlorinated solvents detected in groundwater.

Based on the field observations and laboratory results, it appears that the groundwater contaminants on the subject property are primarily dissolved in the shallow groundwater. A review of the off-site groundwater sampling results indicates that the dissolved phase COCs have migrated off-site in the western and southern directions.

Appendix E – COCs in Designated Groundwater Discussion

A) Refer to **Appendix D** for a discussion of the contaminants of concern (COC) in the ingestion protective concentration level (PCL) exceedence zone. Current groundwater sampling results indicate that there are four identified COCs (PCE, TCE, cis-1,2-DCE and VC) that exceed the ingestion protective concentration levels on the subject property in the first groundwater bearing unit, and three identified COCs (PCE, TCE and cis-1,2-DCE) that exceed the ingestion protective concentration levels on the subject property in the second groundwater bearing unit. **Figure B8-1** through **Figure B8-4** depicts the PCLE zone for each chemical of concern.

B) Refer to **Table D1** for a tabulated comparison of COC concentrations with the respective TRRP Protective Concentration Levels (PCLs)

C) Refer to **Appendix D** for a discussion of the basic geochemical properties of the contaminants of concern (COCs) in the ingestion PCL exceedence zone.

Appendix F – Summary of Soil and Groundwater Concentration Data

Appendix F contains tables summarizing the concentration levels for the primary chemicals of concern in soil and groundwater. The tables include the concentration level, the ingestion protective concentration limits ($^{GW}Soil_{Ing}$ for soil and $^{GW}GW_{Ing}$ for groundwater), the non-ingestion protective concentration limits for soil ($^{Tot}Soil_{Comb}$ and $^{Air}Soil_{Inh\text{-}V}$) and groundwater ($^{Air}GW_{Inh\text{-}V}$), the critical protective concentration limits assuming no MSD is in place ($^{GW}Soil_{Ing}$ for soil and and $^{GW}Soil_{Ing}$ for groundwater), and the critical PCLs assuming that an MSD is in place ($^{Tot}Soil_{Comb\ for}$ soil and $^{Air}GW_{Inh\text{-}V}$ for groundwater).

Table F-1
Summary of Chlorianted Compounds in Soil
Lantern Lane Shopping Center
12534 Memorial Drive
Houston, Texas
VCP No. 1714

Sample ID	Sample Depth (ft-bgs)	Sample Date	PCE (mg/kg)	TCE (mg/kg)	cis-1,2-DCE (mg/kg)	trans-1,2-DCE (mg/kg)	1,1-DCE (mg/kg)	VC (mg/kg)
Tier 1 $^{GW}Soil_{Ing}$ Critical PCL without MSD			**0.05**	**0.03**	**0.25**	**0.49**	**0.05**	**0.02**
Tier 1 $^{Tot}Soil_{Comb}$ Critical PCL with MSD			**98**	**150**	**770**	**1,400**	**1,800**	**3.7**
Tier 1 $^{Air}Soil_{Inh-V}$ Critical PCL with MSD			**620**	**210**	**12,000**	**12,000**	**3,100**	**41**
SB-1	8-10	8/31/2006	<0.00071	<0.00071	<0.00095	<0.0012	<0.0012	<0.00071
	18-20	8/31/2006	<0.0011	<0.00067	<0.0009	<0.0011	<0.00067	<0.00067
SB-2	10-12	8/31/2006	<0.00074	<0.00074	<0.00099	<0.0012	<0.0012	<0.00074
	14-16	8/31/2006	<0.00069	<0.00069	<0.00092	<0.0011	<0.0011	<0.00069
SB-3	6-8	8/31/2006	<0.00074	<0.00074	<0.00099	<0.0012	<0.0012	<0.00074
	14-16	8/31/2006	<0.00069	<0.00069	<0.00091	<0.0011	<0.0011	<0.00069
SB-4	6-8	8/31/2006	<0.00076	<0.00076	<0.0010	<0.0013	<0.0013	<0.00076
SB-5	4-6	8/31/2006	<0.00071	<0.00071	<0.00095	<0.0012	<0.0012	<0.00071
SB-6	4-6	8/31/2006	<0.00067	<0.00067	<0.0009	<0.0011	<0.0011	<0.00067
	14-16	8/31/2006	<0.00068	<0.00068	<0.00091	<0.0011	<0.0011	<0.00068
SB-7	4-6	8/31/2006	<0.00074	<0.00074	<0.00099	<0.0012	<0.0012	<0.00074
SB-8	4-6	8/31/2006	<0.00072	<0.00072	<0.00096	<0.0012	<0.0012	<0.00072
SB-9	2-4	8/31/2006	<0.00072	<0.00072	<0.00096	<0.0012	<0.0012	<0.00072
SB-10	2-4	8/31/2006	<0.00073	<0.00073	<0.0010	<0.0012	<0.0012	<0.00073
SB-11	6-8	8/31/2006	<0.00075	<0.00075	<0.0010	<0.0012	<0.0010	<0.00075
B-1	8-10	11/6/2003	**0.014**	**0.015**	**0.016**	ND	ND	ND
	17-20	11/6/2003	**0.0042 J**	<0.00096	<0.00099	ND	ND	ND
B-2	2-4	11/6/2003	<0.00092	<0.00096	<0.00099	ND	ND	ND
	10-12	11/6/2003	<0.00092	**0.0081**	**0.0076**	ND	ND	ND
B-3	5-6	11/6/2003	<0.00093	<0.00098	<0.001	ND	ND	ND
	10-12	11/6/2003	<0.00092	<0.00096	<0.00099	ND	ND	ND
B-4	0-2	11/6/2003	**0.011**	<0.00098	<0.001	ND	ND	ND
	10-12	11/6/2003	<0.00092	<0.00097	<0.00099	ND	ND	ND
B-5	0-2	11/6/2003	<0.00093	<0.00097	<0.0011	ND	ND	ND
	10-12	11/6/2003	<0.00091	<0.00096	<0.00098	ND	ND	ND
1-MW-6	4-6	4/29/2004	<0.0061	<0.0061	<0.0061	ND	ND	ND
	18-20	4/29/2004	<0.005	<0.005	<0.005	ND	ND	ND
1-MW-7	2-4	4/29/2004	<0.0058	<0.0058	<0.0058	ND	ND	ND
	18-20	4/29/2004	<0.0065	<0.0065	<0.0065	ND	ND	ND
1-MW-8	8-10	4/29/2004	<0.0059	<0.0059	<0.0059	ND	ND	ND
	18-20	4/29/2004	<0.0057	<0.0057	<0.0057	ND	ND	ND
1-MW-9	4-6	2/21/2005	<0.00077	<0.00081	<0.00083	ND	ND	ND
1-MW-10	2-4	2/21/2005	<0.00077	<0.00081	<0.00083	ND	ND	ND
1-MW-11	8-10	2/22/2005	<0.00077	<0.00081	<0.00083	ND	ND	ND
1-MW-13	17.5-20	7/6/2006	**0.0012 J**	<0.00069	<0.00092	<0.012	<0.0012	<0.00069
TMW-OH	2-4	3/23/2005	<0.001	<0.0011	<0.0011	ND	ND	ND
	14-16	3/23/2005	<0.001	<0.0011	<0.0011	ND	ND	ND
TMW-B	10-12	3/23/2005	**0.0034 J**	<0.0011	<0.0011	ND	ND	ND
	14-16	3/23/2005	**0.0023 J**	<0.001	<0.0011	ND	ND	ND
AB-1	6-7.5	3/23/2005	<0.0012	<0.0013	<0.0013	ND	ND	ND
AB-2	6-7.5	3/23/2005	<0.0012	<0.0012	<0.0013	ND	ND	ND
AB-3	6-7.5	3/23/2005	**0.012**	**0.0045 J**	**0.0023 J**	ND	ND	ND

Bold	values exceed the laboratory limit of quantitation.
Bold	exceeds $^{GW}GW_{Ing}$ PCL

Table F-2
Summary of Chlorianted Compounds in Groundwater
Former Golden Fleetwood Dry Cleaners
Houston, Texas
VCP No. 1160

Monitoring Well	Sample Date	PCE (mg/L)	TCE (mg/L)	cis-1,2-DCE (mg/L)	trans-1,2-DCE (mg/L)	VC (mg/L)	1,1,-DCE (mg/L)
Tier 1 $^{GW}GW_{Ing}$ Critical PCL without MSD		**0.005**	**0.005**	**0.07**	**0.1**	**0.002**	**0.007**
Tier 1 $^{Air}GW_{Inh-V}$ Critical PCL with MSD		**330**	**160**	**16,000**	**10,000**	**3.6**	**980**
First Groundwater Bearing Unit							
1-MW-1	2/18/2004	<0.00043	<0.0007	<0.00074	<0.00063	<0.00079	<0.00053
	4/4/2006	<0.0005	**0.00081 J**	<0.0005	<0.0006	<0.006	<0.006
	3/6/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-2	2/18/2004	<0.00043	<0.0007	<0.00074	<0.00063	<0.00079	<0.00053
	4/4/2006	**0.00096 J**	<0.0007	<0.0005	<0.0006	<0.006	<0.006
	4/3/2007	**0.0016 J**	**0.00086 J**	<0.0005	<0.0006	<0.006	**0.00098 J**
	3/6/2008	**0.0024 J**	**0.0014 J**	**0.00061 J**	<0.0006	<0.0006	**0.0025 J**
1-MW-3	2/18/2004	**0.0037**	**0.120**	**0.059**	**0.015**	<0.00079	**0.0008 J**
	3/10/2004	**0.0029 J**	**0.110**	**0.063**	**0.021**	**0.0011 J**	**0.00089 J**
	4/7/2005	<0.00043	**0.063**	**0.044**	**0.019**	<0.00079	<0.00053
	4/4/2006	**0.0084**	**0.180**	**0.066**	**0.019**	<0.0006	<0.0006
	7/7/2006	**0.0130**	**0.150**	**0.070**	**0.020**	<0.0006	<0.0006
	10/4/2006	**0.0040 J**	**0.110**	**0.061**	**0.022**	<0.0006	<0.0006
	12/20/2006	**0.0032 J**	**0.062**	**0.043**	**0.017**	<0.0006	**0.00070 J**
	4/3/2007	**0.0023 J**	**0.060**	**0.082**	**0.036**	<0.0006	**0.00085 J**
	3/6/2008	<0.0005	**0.037**	**0.072**	**0.036**	<0.0006	<0.0006
1-MW-4	4/28/2004	<0.00043	**0.011**	**0.091**	**0.026**	**0.0039**	<0.00053
	4/5/2005	**0.00108**	**0.272**	**0.227**	**0.0381**	**0.0288**	ND
	4/7/2005	**0.0012 J**	**0.220**	**0.190**	**0.037**	**0.0110**	**0.0015 J**
	4/4/2006	<0.0005	<0.0007	**0.045**	**0.013**	<0.0006	<0.0006
	7/7/2006	**0.0025 J**	**0.0014 J**	**0.033**	**0.007**	<0.0006	<0.0006
	10/4/2006	<0.0005	<0.0007	**0.023**	**0.0046 J**	<0.0006	<0.0006
	12/19/2006	<0.0005	<0.0007	**0.020**	**0.0046**	<0.0006	<0.0006
	4/3/2007	<0.0005	<0.0007	**0.059**	**0.016**	<0.0006	<0.0006
	3/11/2008	**0.0017 J**	**0.200**	**0.110**	**0.038**	**0.0071**	**0.0067**
1-MW-5	4/28/2004	**0.520**	**0.160**	**0.046**	**0.0034**	<0.00079	<0.00053
	4/6/2005	**0.610**	**0.180**	**0.050**	**0.0037**	ND	ND
	4/7/2005	**0.470**	**0.130**	**0.029**	**0.0019**	<0.00079	<0.00053
	4/4/2006	**0.230**	**0.110**	**0.021**	**0.0016 J**	<0.0006	<0.0006
	7/6/2006	**0.170**	**0.075**	**0.018**	**0.0013 J**	<0.0006	<0.0006
	10/4/2006	**0.170**	**0.100**	**0.024**	**0.0019 J**	<0.0006	<0.0006
	12/20/2006	**0.088**	**0.050**	**0.013**	**0.0014 J**	<0.0006	<0.0006
	4/4/2007	**0.230**	**0.093**	**0.022**	<0.0006	<0.0006	<0.0006
	9/18/2007	**0.061**	**0.110**	**0.034**	**0.0012 J**	<0.0006	<0.0006
	3/6/2008	**0.510**	**0.130**	**0.038**	**0.0014 J**	<0.0006	<0.0006
1-MW-6	4/30/2004	**0.0083**	**2.10**	ND	ND	ND	ND
	4/30/2004	**0.0076**	<0.0007	<0.00074	<0.00063	<0.00079	<0.00053
	4/5/2006	ND	ND	ND	ND	ND	ND
	4/6/2006	**0.0013 J**	<0.0007	<0.00074	<0.00063	<0.00079	<0.00053
	4/4/2006	**0.00076 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	7/7/2006	**0.0026 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	10/4/2006	**0.0018 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	12/19/2006	**0.00065 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	4/3/2007	**0.0026 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/5/2008	**0.0019 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006

Table F-2
Summary of Chlorianted Compounds in Groundwater
Former Golden Fleetwood Dry Cleaners
Houston, Texas
VCP No. 1160

Monitoring Well	Sample Date	PCE (mg/L)	TCE (mg/L)	cis-1,2-DCE (mg/L)	trans-1,2-DCE (mg/L)	VC (mg/L)	1,1,-DCE (mg/L)
Tier 1 $^{GW}GW_{Ing}$ Critical PCL without MSD		**0.005**	**0.005**	**0.07**	**0.1**	**0.002**	**0.007**
Tier 1 $^{Air}GW_{Inh-V}$ Critical PCL with MSD		**330**	**160**	**16,000**	**10,000**	**3.6**	**980**
1-MW-7	4/30/2004	**0.0010**	ND	ND	ND	ND	ND
	4/30/2004	<0.00043	<0.0007	<0.00074	<0.00063	<0.00079	<0.00053
	4/4/2006	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/11/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-8	4/30/2004	**0.0140**	**0.0011**	ND	ND	ND	ND
	4/30/2004	**0.0130**	<0.0007	<0.00074	<0.00063	<0.00079	<0.00053
	4/7/2005	**0.0012 J**	<0.0007	<0.00074	<0.00063	<0.00079	<0.00053
	4/4/2006	**0.0010**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	4/4/2007	**0.0024 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/5/2008	**0.0015 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-9	2/25/2005	**4.480**	**0.246**	**0.0645**	ND	ND	ND
	2/25/2005	**2.700**	**0.190**	**0.054**	**0.0075**	<0.00079	<0.00053
	4/5/2005	**2.240**	**0.371**	**0.0901**	ND	ND	ND
	4/6/2005	**2.700**	**0.310**	**0.065**	**0.0065**	<0.00079	<0.00053
	4/5/2006	**1.200**	**0.190**	**0.064**	**0.0035**	<0.0006	<0.0006
	7/7/2006	**1.900**	**0.230**	**0.079**	**0.0044 J**	<0.0006	<0.0006
	10/4/2006	**2.100**	**0.220**	**0.079**	**0.0041 J**	<0.0006	<0.0006
	12/20/2006	**1.300**	**0.160**	**0.048**	**0.0034 J**	<0.0006	**0.00093 J**
	4/5/2007	**1.900**	**0.230**	**0.069**	**0.0067**	<0.0006	<0.0006
	9/18/2007	**2.300**	**0.230**	**0.087**	**0.0079**	<0.0006	<0.0006
	3/7/2008	**1.100**	**0.180**	**0.056**	**0.0100**	<0.0006	<0.0006
1-MW-10	2/25/2005	**0.0555**	**0.0182**	**0.0445**	**0.0209**	**0.00103**	ND
	2/25/2005	**0.035**	**0.015**	**0.046**	**0.019**	<0.00079	<0.00053
	4/5/2005	**0.00358**	**0.00329**	**0.00863**	**0.0015**	ND	ND
	4/6/2005	**0.00211 J**	**0.0061**	**0.028**	**0.012**	<0.00079	<0.00053
	4/5/2006	**0.0026 J**	**0.042**	**0.023**	**0.0064**	<0.0006	<0.0006
	7/28/2006	**0.0033 J**	**0.033**	**0.021**	**0.0060**	<0.0006	<0.0006
	4/4/2007	**0.0011 J**	**0.0085**	**0.015**	**0.0047 J**	<0.0006	<0.0006
	9/17/2007	**0.0017 J**	<0.0007	**0.0094**	**0.0024 J**	<0.0006	<0.0006
	3/6/2008	**0.0021 J**	**0.0042 J**	**0.037**	**0.013**	<0.0006	<0.0006
1-MW-11	2/25/2005	**0.528**	**0.060**	**0.0202**	**0.00984**	ND	ND
	2/25/2005	**0.340**	**0.049**	**0.017**	**0.0079**	<0.00079	<0.00053
	4/5/2005	**0.322**	**0.102**	**0.0242**	**0.0071**	ND	ND
	4/6/2005	**0.30**	**0.12**	**0.025**	**0.016**	<0.00079	<0.00053
	4/4/2006	**0.28**	**0.044**	**0.014**	**0.0032 J**	<0.0006	<0.0006
	7/27/2006	**3.50**	**0.24**	**0.11**	**0.006**	<0.0006	<0.0006
	10/4/2006	**2.30**	**0.16**	**0.095**	**0.0044 J**	<0.0006	<0.0006
	4/5/2007	**0.81**	**0.086**	**0.024**	**0.0028 J**	<0.0006	<0.0006
	9/17/2007	**0.90**	**0.078**	**0.018**	**0.0064**	<0.0006	<0.0006
	3/5/2008	**0.78**	**0.21**	**0.037**	**0.015**	<0.0006	<0.0006
1-MW-12	4/4/2006	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	7/6/2006	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	12/18/2006	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/11/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006

Table F-2
Summary of Chlorianted Compounds in Groundwater
Former Golden Fleetwood Dry Cleaners
Houston, Texas
VCP No. 1160

Monitoring Well	Sample Date	PCE (mg/L)	TCE (mg/L)	cis-1,2-DCE (mg/L)	trans-1,2-DCE (mg/L)	VC (mg/L)	1,1,-DCE (mg/L)
Tier 1 $^{GW}GW_{Ing}$ Critical PCL without MSD		**0.005**	**0.005**	**0.07**	**0.1**	**0.002**	**0.007**
Tier 1 $^{Air}GW_{Inh-V}$ Critical PCL with MSD		**330**	**160**	**16,000**	**10,000**	**3.6**	**980**
1-MW-13	7/13/2006	**0.019**	**0.0035 J**	**0.0047**	<0.0006	<0.0006	<0.0006
	7/27/2006	**0.016**	**0.0023 J**	**0.0029 J**	<0.0006	<0.0006	<0.0006
	4/4/2007	**0.044**	**0.0085**	**0.016**	<0.0006	<0.0006	<0.0006
	9/17/2007	**0.098**	**0.016**	**0.031**	<0.0006	<0.0006	**0.0033 J**
	3/5/2008	**0.055**	**0.0085**	**0.011**	<0.0006	<0.0006	**0.0034 J**
1-MW-14	7/13/2006	**0.011**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	7/28/2006	**0.012**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	12/19/2006	**0.0034 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	4/3/2007	**0.0063**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/6/2008	**0.0028 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-15	7/14/2006	**0.082**	**0.0019 J**	<0.0005	<0.0006	<0.0006	<0.0006
	10/5/2006	**0.066**	**0.0013 J**	<0.0005	<0.0006	<0.0006	<0.0006
	12/20/2006	**0.034**	**0.00082 J**	<0.0005	<0.0006	<0.0006	<0.0006
	4/4/2007	**0.039**	**0.00095 J**	<0.0005	<0.0006	<0.0006	<0.0006
	9/18/2007	**0.059**	**0.0012 J**	<0.0005	<0.0006	<0.0006	<0.0006
	3/4/2008	**0.058**	**0.0011 J**	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-16	1/20/2006	**0.0016 J**	<0.0007	**0.00069 J**	<0.0006	<0.0006	<0.0006
	4/3/2007	**0.00098 J**	<0.0007	**0.0024 J**	<0.0006	<0.0006	<0.0006
	9/18/2007	**0.00065 J**	<0.0007	**0.024**	**0.0053**	<0.0006	<0.0006
	3/6/2008	**0.0013 J**	**0.0054**	**0.037**	**0.0099**	<0.0006	<0.0006
1-MW-17	9/13/2006	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/12/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-18	9/13/2006	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	4/2/2007	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/4/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-19	9/13/2006	**0.025**	0.0025 J	<0.0005	<0.0006	<0.0006	<0.0006
	10/5/2006	**0.030**	0.0032 J	<0.0005	<0.0006	<0.0006	<0.0006
	12/19/2006	**0.0088**	0.0017 J	<0.0005	<0.0006	<0.0006	<0.0006
	4/4/2007	**0.018**	0.0033 J	<0.0005	<0.0006	<0.0006	<0.0006
	9/18/2007	**0.0031 J**	0.00084 J	<0.0005	<0.0006	<0.0006	<0.0006
	3/5/2008	**0.0038 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-20	12/19/2006	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	4/2/2007	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	6/21/2007	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	9/17/2007	**0.0007 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	12/12/2007	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/12/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
1-MW-21	12/20/2006	**0.012**	**0.002 J**	**0.0013 J**	<0.0006	<0.0006	<0.0006
	1/9/2007	**0.0028 J**	**0.0022 J**	**0.0019 J**	<0.0006	<0.0006	<0.0006
	4/3/2007	**0.0088**	**0.0023 J**	**0.0019 J**	<0.0006	<0.0006	<0.0006
	6/21/2007	**0.0015 J**	**0.0024 J**	**0.0021 J**	<0.0006	<0.0006	<0.0006
	9/12/2007	**0.0037 J**	**0.003 J**	**0.0028 J**	<0.0006	<0.0006	<0.0006
	12/12/2007	**0.0021 J**	**0.0034 J**	**0.0027 J**	<0.0006	<0.0006	<0.0006
	3/11/2008	**0.0022 J**	**0.0031 J**	**0.0025 J**	<0.0006	<0.0006	<0.0006
1-MW-22	12/18/2006	**0.0026 J**	**0.0014 J**	<0.0005	<0.0006	<0.0006	<0.0006
	4/3/2007	**0.0076**	**0.0011 J**	<0.0005	<0.0006	<0.0006	<0.0006
	6/21/2007	**0.0042 J**	**0.00087 J**	<0.0005	<0.0006	<0.0006	<0.0006
	9/12/2007	**0.0023 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	12/12/2007	**0.0037 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/12/2008	**0.003 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006

Table F-2
Summary of Chlorianted Compounds in Groundwater
Former Golden Fleetwood Dry Cleaners
Houston, Texas
VCP No. 1160

Monitoring Well	Sample Date	PCE (mg/L)	TCE (mg/L)	cis-1,2-DCE (mg/L)	trans-1,2-DCE (mg/L)	VC (mg/L)	1,1,-DCE (mg/L)
Tier 1 $^{GW}GW_{Ing}$ Critical PCL without MSD		**0.005**	**0.005**	**0.07**	**0.1**	**0.002**	**0.007**
Tier 1 $^{Air}GW_{Inh-V}$ Critical PCL with MSD		**330**	**160**	**16,000**	**10,000**	**3.6**	**980**
Second Groundwater Bearing Unit							
2-MW-1	7/12/2006	**0.055**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	4/5/2007	**0.064**	**0.0012 J**	<0.0005	<0.0006	<0.0006	<0.0006
	9/12/2007	**0.056**	**0.0065**	<0.0005	<0.0006	<0.0006	<0.0006
	3/7/2008	**0.056**	**0.0078**	<0.0005	**0.00093 J**	<0.0006	<0.0006
2-MW-2	7/12/2006	**1.6**	**0.009**	**0.002**	<0.0006	<0.0006	<0.0006
	7/27/2006	**1.3**	**0.0085**	**0.0021 J**	<0.0006	<0.0006	<0.0006
	4/5/2007	**1.8**	**0.017**	**0.0021 J**	<0.0006	<0.0006	<0.0006
	9/18/2007	**1.7**	**0.43**	**0.0099**	**0.0035 J**	<0.0006	<0.0006
	3/7/2008	**1.5**	**0.13**	**0.47**	**0.0056**	<0.0006	**0.00077 J**
2-MW-3	3/19/2007	**0.086**	**0.0013 J**	<0.0005	<0.0006	<0.0006	<0.0006
	4/5/2007	**0.083**	**0.0015 J**	<0.0005	<0.0006	<0.0006	<0.0006
	9/18/2007	**0.081**	**0.0039 J**	<0.0005	<0.0006	<0.0006	<0.0006
	3/4/2008	**0.087**	**0.0061**	<0.0005	**0.003 J**	<0.0006	<0.0006
2-MW-4	3/19/2007	**0.024**	**0.003 J**	**0.00066 J**	<0.0006	<0.0006	<0.0006
	4/5/2007	**0.021**	**0.0029 J**	<0.0005	<0.0006	<0.0006	<0.0006
	9/18/2007	**0.014**	**0.0023 J**	<0.0005	<0.0006	<0.0006	<0.0006
	10/26/2007	**0.015**	**0.0025 J**	<0.0005	<0.0006	<0.0006	<0.0006
	3/4/2008	**0.016**	**0.0016 J**	<0.0005	<0.0006	<0.0006	<0.0006
2-MW-5	3/19/2007	**0.038**	**0.0017 J**	<0.0005	<0.0006	<0.0006	<0.0006
	4/5/2007	**0.033**	**0.0013 J**	<0.0005	<0.0006	<0.0006	<0.0006
	9/18/2007	**0.055**	**0.0034 J**	**0.0071**	<0.0006	<0.0006	<0.0006
	3/7/2008	**0.023**	**0.0091**	**0.032**	<0.0006	<0.0006	<0.0006
2-MW-6	8/9/2007	**0.14**	**0.0036 J**	**0.00069 J**	<0.0006	<0.0006	<0.0006
	8/23/2007	**0.15**	**0.0035 J**	**0.00072 J**	<0.0006	<0.0006	<0.0006
	12/13/2007	**0.15**	**0.0036 J**	**0.00072 J**	<0.0006	<0.0006	<0.0006
	3/5/2008	**0.16**	**0.0039 J**	**0.00068 J**	<0.0006	<0.0006	<0.0006
2-MW-7	10/2/2007	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/12/2008	**0.0042 J**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
2-MW-8	11/7/2007	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/11/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
2-MW-9	12/13/2007	**0.021**	**0.0051**	**0.0011 J**	<0.0006	<0.0006	<0.0006
	12/21/2007	**0.026**	**0.0055**	**0.0014 J**	<0.0006	<0.0006	<0.0006
	3/12/2008	**0.033**	**0.0069**	**0.0011 J**	<0.0006	<0.0006	<0.0006
2-MW-10	3/4/2008	**0.0490**	**0.0020 J**	<0.0005	<0.0006	<0.0006	<0.0006
2-MW-11	2/20/2008	**0.012**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/12/2008	**0.015**	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
2-MW-12	2/20/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
	3/12/2008	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006
Wastewater Samples							
Sewer-1	3/16/2004	**0.290**	**0.0130**	<0.00074	<0.00063	<0.00079	<0.00053
Sewer 040606	4/6/2006	<0.0005	**0.020**	<0.0005	<0.0006	<0.0006	<0.0006
Sewer 070706	7/7/2006	<0.025	<0.035	<0.025	<0.03	<0.03	<0.03
Sewer	12/20/2006	<0.0005	**1.1**	<0.0005	<0.0006	<0.0006	<0.0006
	4/3/2007	<0.0005	<0.0007	<0.0005	<0.0006	<0.0006	<0.0006

Bold	values exceed the laboratory limit of quantitation.
Bold	exceeds $^{GW}GW_{Ing}$ PCL

Appendix G – Plume Stability

The Lantern Lane Shopping center at 12534 Memorial Drive (Site) has been affected by dissolved phase contaminants (one or more of PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE and VC) in the soil and groundwater. These contaminants are believed to be associated with the historic operations conducted in the former Pro Cleaners tenant space.

The lateral extent of groundwater impact in the first and second groundwater bearing units has been delineated in all directions. The first groundwater bearing unit is delineated in the upgradient direction by groundwater monitoring wells1-MW-12 and 1-MW-17 and by groundwater monitoring wells 1-MW-18, 1-MW-19, 1-MW-20 and 1-MW-22 in downgradient direction. Groundwater monitoring wells 1-MW-1, 1-MW-7 and 1-MW-16 are the crossgradient delineation points in the first groundwater bearing unit. The second groundwater bearing unit is delineated by groundwater monitoring wells 2-MW-7 and 2-MW-12 in the downgradient direction.

Several monitor wells have been installed to determine the extent impacted groundwater has migrated off-site. The results indicated that the plume has migrated off-site into surrounding residential area west and southwest of the subject property. The plume in the first groundwater bearing unit extends off-site to the west across Tallowood onto the adjacent west residential properties and to the south to the Memorial Drive right-of-way. The plume in the second groundwater bearing unit extends off-site to the west onto the adjacent residential properties and to the south across the Memorial Drive right-of-way onto the adjacent residential properties to the south. The area of impacted groundwater is not expanding and that there is no off-site source contributing to the groundwater impacts.

A comparison of the sampling results from as early as February 2004 through March 2008 indicates that the area of impact has remained stable over time. Monitoring wells 1-MW-9 and 2-MW-2 have historically reported the highest COC concentrations. COC concentrations in monitoring well 1-MW-9 have decreased over the sampling history of the site and have remained stable in monitoring well 2-MW-2 over the sampling history of the site.

Monitoring well 1-MW-9 is identified as a suspected source area well. The highest reported concentration of PCE (4.480 mg/L) in 1-MW-9 occurred in February 2005. Since that time, the concentration of PCE has continually declined due to natural attenuation processes. The current PCE concentration is 1.1 mg/L in monitoring well 1-MW-9. Monitor wells 1-MW-5 and 1-MW-11 are also near source area wells. Monitor well 1-MW-5 reported a maximum concentration of 0.61 mg/L in April 2005 which has since declined. The latest reported PCE concentration in monitor well 1-MW-5 was 0.51 mg/L. Monitor well 1-MW-11 has been a little more erratic. The concentration of PCE reported in monitor well 1-MW-11 peaked at 3.5 mg/L in July 2006 and has since declined to 0.78 mg/L. The perimeter upper groundwater bearing unit monitoring wells have either remained stable or have declined. Several wells (1-MW-3, 1-MW-6, 1-MW-8, 1-MW-10, 1-MW-14, 1-MW-19, 1-MW-21 and 1-MW-22) historically reported concentrations greater than the critical PCL and now report concentrations less than the critical PLCs demonstrating that the plume in the upper groundwater bearing unit is retracting. The lower groundwater bearing unit wells have demonstrated a stable plume.