

## Executive Summary

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SKA Consulting, L.P. (SKA), on behalf of Texas Bastrop Street, LLC, has prepared this Municipal Setting Designation (MSD) Application for the Stanford Development Tract (designated property) located at 505 Bastrop Street in Houston, Harris County, Texas, which is situated less than a mile east of downtown Houston. The designated property currently includes two adjacent tracts of land totaling  $\pm 0.5983$  acres and a portion of Dowling Street and Prairie Street right-of-ways (ROWs) totaling  $\pm 1.23$  acres. The two tracts of land consist of a  $\pm 0.4823$ -acre privately-owned parcel (Tract 1) and  $\pm 0.1160$ -acre parcel (Tract 2) currently owned by the City of Houston (COH). Tract 1 is currently enrolled in the Texas Commission on Environmental Quality (TCEQ) Voluntary Cleanup Program (VCP) as VCP No. 2439 for soil and/or groundwater impacted with volatile organic compounds (VOCs - chlorinated ethenes) and total petroleum hydrocarbons (TPH) in concentrations which exceed the TCEQ Risk Reduction Program (TRRP) Tier 1 residential groundwater ingestion ( $^{GW}GW_{ing}$ ) Protective Concentration Levels (PCLs).

Texas Bastrop Street, LLC is planning to acquire Tract 2 in the fourth quarter of 2016. After acquisition of Tract 2 by Texas Bastrop LLC, the acreage of Tract 2 will be added to the Tract 1 acreage currently enrolled in the TCEQ VCP as VCP ID No. 2439. As such, in this document, Tract 1 will be referred to as the current VCP property, Tract 2 will be referred to as the proposed addition to the VCP property, and Tracts 1 and 2 will be collectively referred to as the proposed VCP property.

The designated property is currently developed with different land uses:

- Tract 1 (the current VCP property) is presently vacant and used as a parking lot. Tract 1 is mostly covered with 1) the concrete foundation of a former building that was demolished in the early 2000s, and 2) grass along the western property boundary. Other remaining features on Tract 1 include a sanitary sewer manhole, floor drains, and an abandoned underground cistern.
- Tract 2 (the proposed addition to the VCP property) is currently used as an air monitoring station by COH. The tract is improved with a trailer surrounded by a chain-link fence. The ground surface of the tract is mostly covered with asphalt or grass. The COH monitoring station has been active since March 2001.
- Public streets and rights-of-way (Dowling Street and Prairie Street). Dowling and Prairie Street are concrete-paved roadways.

The proposed VCP property is anticipated to be redeveloped for mixed residential and commercial use. The future use of the COH ROWs (Dowling Street and Prairie Street) is not anticipated to change.

The proposed VCP property is located within the eastern half of City Block 217 (**Figure C.4**), which is bounded by Prairie Street, Dowling Street, Texas Avenue, and Bastrop Street. From approximately the 1940s to the 1990s, the Maloney Precision Products (Maloney) facility was present on City Block 217 and on three adjacent city blocks located to the west (City Block 206), to the northwest (City Block 207), and to the northeast (City Block 216) of City Block 217. The Maloney facility was a manufacturer of rubber, plastic, and metal products. During the Maloney

tenure, Tract 1 was developed with a building used for a molded rubber goods factory while Tract 2 was developed with a parking lot. Activities within the on-site building included machining and sand blasting. The Maloney facility was registered as a Resource Conservation and Recovery Act (RCRA) large-quantity generator of hazardous waste and as an Industrial Hazardous Waste (IHW) facility (Solid Waste Registration [SWR] ID No. 30668). The Maloney facility was also registered in the TCEQ Petroleum Storage Tank (PST) database (ID No. 17152) with two underground storage tanks (USTs); one 500-gallon UST (unknown content) was reportedly filled in place in 1987 and one 500-gallon UST that contained methyl ethyl ketone (MEK) was removed from the ground in 1989. The location of these former USTs is unknown; however, SKA conducted a subsurface investigation in 2015 on Tract 1 in an attempt to locate any abandoned UST; no evidence of an UST was detected from the subsurface investigation. The former on-site and off-site activities associated with the historical Maloney facility are believed to be the main contributor of the chlorinated ethenes plume beneath the designated property.

Properties in the vicinity of the designated property are mixed residential and commercial. Residences are located within 500 feet of the designated property. The future land use in the area of the designated property is anticipated to be mixed commercial and residential.

No municipalities, other than the City of Houston, have corporate limits within one-half mile of the boundary of the designated property. In addition, public drinking water is currently available to the designated property and properties located within a one-half mile radius surrounding the designated property by the City of Houston public water supply system.

According to records obtained from GeoSearch Inc., approximately 724 registered/permitted water wells are reportedly located within a 5-mile radius of the designated property. Of these approximately 724 water wells, 9 are reportedly owned or operated by a public retail water utility. Among these 9 water wells, 8 are reportedly owned by the City of Houston and 1 is reportedly owned by the City of West University Place. Based on the contaminants from the designated property not increasing over time and being delineated within the designated property and/or adjacent properties in a downgradient direction, no potable wells are likely to be affected by contaminants from the designated property.

From 2011 to 2016, several subsurface investigations were conducted for the designated property. A total of 25 soil borings (SB-1 through SB-10, UST-1 through UST-13, UST-17, and UST-18), 8 temporary monitoring wells (TMW-1 through TMW-5 and TMW-21 through TMW-23), 14 permanent monitoring wells (MW-5A and MW-6 through MW-18), and 1 investigative trench (within an abandoned underground cistern) were installed. Soil sampling and analysis indicated that regulated substances including 13 VOCs, 8 metals, TPH, and 20 semi-volatile organic compounds (SVOCs) were present in soil samples collected from the designated property. Analytical results did not reveal any chemical of concern (COC) detections exceeding applicable TCEQ TRRP Tier 1, Tier 2, or Tier 3 residential soil-to-groundwater ingestion ( $^{GW}Soil_{Ing}$ ) PCLs, site-specific Tier 1 TPH<sub>mixture</sub> soil PCLs, or TCEQ Texas Background Concentrations in soils, except for one detection of trichloroethene (TCE) from a subsurface soil sample. However, the soil sample was collected from within the soil-water interface and was most likely affected by groundwater impacted with TCE. None of the detected concentrations exceeded the TRRP combined soil ingestion, dermal contact, inhalation of volatiles and particulates, and ingestion of aboveground and below-ground vegetables ( $^{Tot}Soil_{Comb}$ ) residential

PCL for surface soils or the soil-to-air inhalation ( $^{Air}Soil_{Inh-v}$ ) Residential PCL for surface and subsurface soils.

The depth of the upper boundary of the upper groundwater bearing unit (GWBU) ranges from 19 to 26 feet below ground surface (ft-bgs). Groundwater flow direction beneath the designated property is generally toward the southeast with a variable gradient, from approximately 0.002-0.004 ft/ft beneath the western portion of the designated property to approximately 0.02 ft/ft beneath the eastern portion of the designated property. The average groundwater gradient is approximately 0.009 ft/ft southeast across the entire designated property.

COCs reportedly detected in the groundwater of the upper GWBU exceeding their respective TRRP groundwater ingestion PCLs have historically included tetrachloroethene (PCE), TCE, cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride (VC), 1,1,2-trichloroethane (1,1,2-TCA), and TPH in the C6-C12 range. However, the TPH concentrations did not exceed a calculated site-specific Tier 1 groundwater ingestion  $TPH_{mixture}$  PCL. COCs currently exceeding the TRRP groundwater ingestion PCLs include TCE, cis-1,2-DCE, 1,1-DCE, and VC. No COCs have been detected in groundwater in excess of any TRRP groundwater non-ingestion PCLs (the TRRP PCLs applicable for the designated property with an MSD in place).

Although no source areas were identified in the soil of the designated property, former activities on the current VCP property associated with the Maloney tenure have likely partially contributed to the chlorinated ethenes plume in groundwater beneath the designated property. The chlorinated ethenes plume is located beneath the northern portion of the designated property and extends along Prairie Street and several off-site properties adjacent to the roadway. The designated property and several adjacent off-site properties located upgradient and downgradient of the designated property are believed to be among the contributors of the groundwater contaminant plume based on COC concentrations, groundwater flow direction, and historical land use (see **Appendix J** for details).

The groundwater ingestion PCL Exceedance (PCLE) zones are not delineated in an upgradient direction for contamination attributed to upgradient off-site sources; however, the groundwater ingestion PCLE zones are delineated to TRRP groundwater ingestion PCLs in the downgradient direction for groundwater contamination that could partially originate from the designated property (see details concerning delineation in **Appendix G**). The COC concentrations are not increasing over time and no COCs have been detected in groundwater downgradient of the designated property in excess of TRRP groundwater non-ingestion PCLs. In addition, no COCs are expected to migrate off the designated property in the future at concentrations that would exceed any applicable TRRP groundwater non-ingestion PCLs.

**Appendices A through Y** provide the requested documentation corresponding to the Items in the attached City of Houston MSD Application checklist. Supporting documentation for certain Items are attached and included with the item's corresponding Appendix.

## Appendix A – Legal Property Description

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A property deed and survey for Tract 1 (the current Voluntary Cleanup Program [VCP] property) is included in **Appendix A**. Tract 2 is included as part of the designated property with permission from Gabriel Mussio, Division Manager with the City of Houston General Services Department. While a legal description and property deed for Tract 2 is not included in this MSD Application, a survey and metes and bounds description for Tract 2 is included in **Appendix A**. In addition, a survey and metes and bounds description for the entire designated property is included in **Appendix A**.

**LEGAL PROPERTY DESCRIPTION FOR TRACT 1**



This conveyance is made and accepted subject to all matters set out in Exhibit B attached hereto and incorporated herein by reference, but only to the extent such matters are valid and subsisting and affect the Property.

TO HAVE AND TO HOLD the Property, unto Grantee and Grantee's successors, heirs, and assigns forever subject to the matters herein stated without express or implied warranty. All warranties that might arise by common law or by statute are excluded.

This Deed Without Warranty is not intended to be a quitclaim deed and is intended to be a conveyance of the property described herein rather than merely a conveyance of Grantor's rights, titles and interests therein. **HOWEVER, AND NOTWITHSTANDING ANY CONTRARY PROVISION CONTAINED HEREIN, THIS CONVEYANCE IS MADE WITHOUT WARRANTY OF TITLE (WHETHER STATUTORY, EXPRESS OR IMPLIED).**

THE PROPERTY IS BEING SOLD IN AN "AS IS" CONDITION AND "WITH ALL FAULTS" AS OF THE DATE HEREOF. NO REPRESENTATIONS OR WARRANTIES HAVE BEEN MADE OR ARE MADE AND NO RESPONSIBILITY HAS BEEN OR IS ASSUMED BY GRANTOR, OR BY ANY DIRECTOR, OFFICER, PERSON, FIRM, AGENT OR REPRESENTATIVE ACTING OR PURPORTING TO ACT ON BEHALF OF GRANTOR, AS TO THE CONDITION, OWNERSHIP OR REPAIR OF THE PROPERTY OR THE VALUE, EXPENSE OF OPERATION, OR INCOME POTENTIAL THEREOF OR AS TO ANY OTHER FACT OR CONDITION WHICH HAS OR MIGHT AFFECT THE PROPERTY OR THE CONDITION, REPAIR, VALUE, EXPENSE OF OPERATION OR INCOME POTENTIAL OF THE PROPERTY OR ANY PORTION THEREOF, INCLUDING, WITHOUT LIMITATION, (I) MATTERS OF TITLE OR ENCUMBRANCES THERETO, (II) ENVIRONMENTAL MATTERS RELATING TO THE PROPERTY OR ANY PORTION THEREOF, (III) GEOLOGICAL CONDITIONS, INCLUDING, WITHOUT LIMITATION, SUBSURFACE CONDITIONS, (IV) DRAINAGE, (V) SOIL CONDITIONS, INCLUDING THE EXISTENCE OF INSTABILITY, PAST SOIL REPAIRS, SOIL ADDITIONS OR CONDITIONS OF SOIL FILL, OR THE SUFFICIENCY OF ANY UNDERSHORE, (VI) THE AVAILABILITY OF ANY UTILITIES TO THE PROPERTY OR ANY PORTION THEREOF INCLUDING, WITHOUT LIMITATION, WATER, SEWAGE, GAS AND ELECTRICITY, (VII) USAGES OF ADJOINING PROPERTY, (VIII) ACCESS TO THE PROPERTY OR ANY PORTION THEREOF, (IX) THE VALUE, COMPLIANCE WITH THE PLANS AND SPECIFICATIONS, SIZE, LOCATION, AGE, USE, DESIGN, QUALITY, DESCRIPTION, SUITABILITY, STRUCTURAL INTEGRITY, OPERATION, TITLE TO, OR PHYSICAL OR FINANCIAL CONDITION OF THE PROPERTY OR ANY PORTION THEREOF, (X) THE EXISTENCE OR NON-EXISTENCE OF UNDERGROUND STORAGE TANKS, (XI) TAX CONSEQUENCES OR (XII) THE MERCHANTABILITY OF THE PROPERTY OR FITNESS OF THE PROPERTY FOR ANY PARTICULAR PURPOSE. EXCEPT AS EXPRESSLY SET FORTH HEREIN, GRANTEE HEREBY AGREES THAT ALL UNDERSTANDINGS AND AGREEMENTS HERETOFORE MADE BETWEEN GRANTOR AND GRANTEE, OR THEIR RESPECTIVE AGENTS OR REPRESENTATIVES, ARE MERGED IN THIS DEED WITHOUT WARRANTY, AND THE EXHIBITS ATTACHED HERETO, WHICH ALONE FULLY AND COMPLETELY EXPRESS THEIR AGREEMENT. GRANTEE FURTHER AGREES THAT THIS DEED WITHOUT

WARRANTY HAS BEEN ENTERED INTO AFTER FULL INVESTIGATION, OR WITH ITS SATISFACTION WITH THE OPPORTUNITY AFFORDED FOR INVESTIGATION, GRANTEE NOT RELYING UPON ANY STATEMENT BY GRANTOR, UNLESS SUCH STATEMENT IS SPECIFICALLY EMBODIED IN THIS DEED WITHOUT WARRANTY, OR IN ANY OTHER DOCUMENT EXECUTED BY GRANTOR AND DELIVERED TO GRANTEE AT THE CLOSING. GRANTOR DOES NOT MAKE ANY REPRESENTATIONS OR WARRANTIES AS TO WHETHER THE PROPERTY CONTAINS ASBESTOS OR HARMFUL OR TOXIC SUBSTANCES OR PERTAINING TO THE EXTENT, LOCATION OR NATURE OF SAME. FURTHER, TO THE EXTENT THAT GRANTOR HAS PROVIDED OR HEREAFTER MAY PROVIDE TO GRANTEE INFORMATION FROM ANY INSPECTION, ENGINEERING OR ENVIRONMENTAL REPORTS CONCERNING ASBESTOS OR HARMFUL OR TOXIC SUBSTANCES, GRANTOR DOES NOT MAKE ANY REPRESENTATIONS OR WARRANTIES WITH RESPECT TO THE ACCURACY OR COMPLETENESS, METHODOLOGY OF PREPARATION OR OTHERWISE CONCERNING THE CONTENTS OF SUCH REPORTS. GRANTEE ACKNOWLEDGES THAT GRANTOR HAS REQUESTED GRANTEE TO INSPECT FULLY THE PROPERTY AND INVESTIGATE ALL MATTERS RELEVANT THERETO AND, EXCEPT AS EXPRESSLY SET FORTH HEREIN, OR IN ANY OTHER DOCUMENT EXECUTED BY GRANTOR AND DELIVERED TO GRANTEE AT THE CLOSING, TO RELY SOLELY UPON THE RESULTS OF GRANTEE'S OWN INSPECTIONS OR OTHER INFORMATION OBTAINED OR OTHERWISE AVAILABLE TO GRANTEE, RATHER THAN ANY INFORMATION THAT MAY HAVE BEEN PROVIDED BY GRANTOR TO GRANTEE. THE RISK THAT ADVERSE PHYSICAL, TITLE AND ENVIRONMENTAL CONDITIONS MAY NOT HAVE BEEN REVEALED OR DISCOVERED AND MAY NOT BE DISCOVERABLE BY SUCH INVESTIGATIONS SHALL BE UPON AND WITH GRANTEE. GRANTEE HEREBY WAIVES AND RELEASES GRANTOR FROM ANY PRESENT OR FUTURE CLAIMS ARISING FROM OR RELATING TO THE PRESENCE OR ALLEGED PRESENCE OF ASBESTOS OR HARMFUL OR TOXIC SUBSTANCES IN, ON, UNDER OR ABOUT THE PROPERTY INCLUDING, WITHOUT LIMITATION, ANY CLAIMS UNDER OR ON ACCOUNT OF (I) ANY FEDERAL, STATE OR LOCAL STATUTE, LAW, RULE, REGULATION, ORDINANCE, CODE, GUIDE, WRITTEN POLICY, DIRECTIVE AND RULE OF COMMON LAW IN EFFECT APPLICABLE TO THE PROPERTY AND IN EACH CASE AS AMENDED, AND ANY JUDICIAL OR ADMINISTRATIVE ORDER, CONSENT DECREE OR JUDGMENT, RELATING TO (X) THE ENVIRONMENT OR NATURAL RESOURCES, (Y) ANY PETROLEUM OR PETROLEUM PRODUCTS, RADIOACTIVE MATERIALS, ASBESTOS IN ANY FORM, POLYCHLORINATED BIPHENYLS, AND, TO THE EXTENT ONLY IT EXISTS AT LEVELS CONSIDERED HAZARDOUS TO HUMAN HEALTH, RADON GAS OR (Z) ANY CHEMICALS, MATERIALS OR SUBSTANCES DEFINED AS OR INCLUDED IN THE DEFINITION OF "HAZARDOUS SUBSTANCES", "HAZARDOUS WASTE", "HAZARDOUS MATERIALS", "EXTREMELY HAZARDOUS SUBSTANCES", "TOXIC SUBSTANCES", "TOXIC POLLUTANTS", "CONTAMINANTS" OR "POLLUTANTS" UNDER ANY APPLICABLE ENVIRONMENTAL LAWS INCLUDING, WITHOUT LIMITATION, THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT, 42 U.S.C. § 9601 ET SEQ.; SOLID WASTE DISPOSAL ACT, 42 U.S.C. § 6901 ET SEQ.; THE FEDERAL WATER POLLUTION

CONTROL ACT, 33 U.S.C. § 1251 ET SEQ.; THE TOXIC SUBSTANCES CONTROL ACT, 15 U.S.C. § 2601 ET SEQ.; THE CLEAN AIR ACT, 42 U.S.C. § 7401 ET SEQ.; THE SAFE DRINKING WATER ACT, 42 U.S.C. § 300f ET SEQ.; THE OIL POLLUTION ACT OF 1990, 33 U.S.C. § 2701 ET SEQ.; FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT, 7 U.S.C. § 136 ET SEQ., AND THE REGULATIONS PROMULGATED PURSUANT THERETO AND ANY STATE AND LOCAL COUNTERPARTS OR SUBSTANTIAL EQUIVALENTS THEREOF, (II) THIS DEED WITHOUT WARRANTY OR (III) THE COMMON LAW. GRANTEE ACKNOWLEDGES THAT THE FOREGOING WAIVER AND RELEASE SHALL HAVE PRECEDENCE OVER ANY CONFLICTING TERMS OF ANY EXISTING OR AMENDED TEXAS VOLUNTARY CLEANUP PROGRAM APPLICATION AND AGREEMENT. GRANTEE HAS FULLY REVIEWED THE DISCLAIMERS AND WAIVERS SET FORTH IN THIS DEED WITHOUT WARRANTY WITH ITS COUNSEL AND UNDERSTANDS THE SIGNIFICANCE AND EFFECT THEREOF.

All ad valorem taxes and assessments for the Property for the current calendar year have been prorated by the parties hereto as of the effective date of this Deed Without Warranty and by acceptance hereof Grantee hereby expressly assumes liability for the payment thereof and for subsequent years.

EXECUTED as of the 26 day of June, 2014.

GRANTOR:

STANFORD DEVELOPMENT CORPORATION

By: Ralph S. Janvey  
Name: Ralph S. Janvey  
Title: Receiver

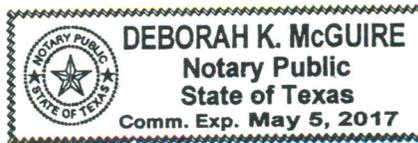
STATE OF TEXAS           §  
  § ss  
COUNTY OF DALLAS     §

This instrument was acknowledged before me on June 26, 2014, by Ralph S. Janvey, Receiver for Stanford Development Corporation, a Texas corporation, on behalf of such corporation.

Deborah K. McGuire  
Notary Public

My Commission Expires: May 5, 2017  
Printed Name of Notary: Deborah K. McGuire

NOTARY SEAL



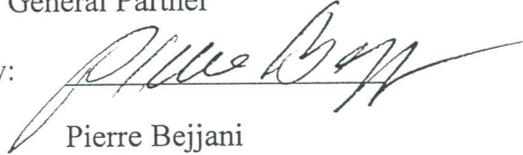
GRANTEE:

TEXAS BASTROP STREET LLC

Hamilton Midtown, Ltd.,  
a Texas limited partnership

By: Midtown Land Co., Inc.,  
a Texas corporation,  
its General Partner

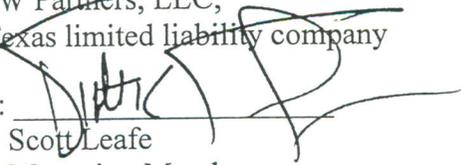
By:



Pierre Bejjani  
President

LSW Partners, LLC,  
a Texas limited liability company

By:



Scott Leafe  
Managing Member

Heights Heritage Homes, Inc., d/b/a HHH Realty,  
a Texas corporation

By:

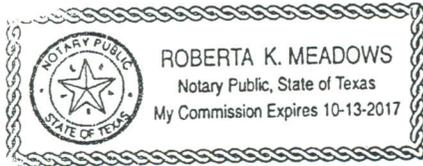


Michael Bell  
President

STATE OF TEXAS §  
§ ss  
COUNTY OF HARRIS §

This instrument was acknowledged before me on June 30, 2014, by Pierre Bejjani, President of Midtown Land Co., Inc., a Texas corporation, which is the general partner of Hamilton Midtown, Ltd., a Texas limited partnership, which is a member of Texas Bastrop Street LLC, a Texas limited liability company, on behalf of such limited liability company.

*Roberta K Meadows*  
\_\_\_\_\_  
Notary Public



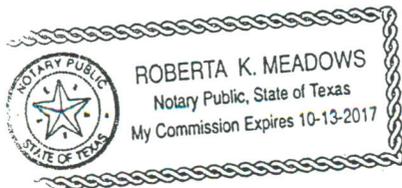
My Commission Expires: \_\_\_\_\_  
Printed Name of Notary: \_\_\_\_\_

NOTARY SEAL

STATE OF TEXAS §  
§ ss  
COUNTY OF HARRIS §

This instrument was acknowledged before me on June 30 2014, by Scott Leafe, Managing Member of LSW Partners, LLC, a Texas limited liability company, which is a member of Texas Bastrop Street LLC, a Texas limited liability company, on behalf of such limited liability company.

*Roberta K Meadows*  
\_\_\_\_\_  
Notary Public



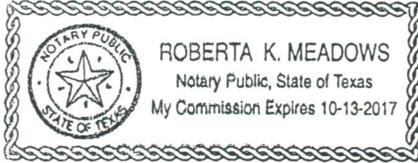
My Commission Expires: \_\_\_\_\_  
Printed Name of Notary: \_\_\_\_\_

NOTARY SEAL

STATE OF TEXAS           §  
  § ss  
COUNTY OF HARRIS       §

This instrument was acknowledged before me on June 30, 2014, by Michael Bell, President of Heights Heritage Homes, Inc., d/b/a HHH Realty, a Texas corporation, which is a member of Texas Bastrop Street LLC, a Texas limited liability company, on behalf of such limited liability company.

*Roberta K Meadows*  
\_\_\_\_\_  
Notary Public



My Commission Expires: \_\_\_\_\_  
Printed Name of Notary: \_\_\_\_\_

NOTARY SEAL

EXHIBIT A

LEGAL DESCRIPTION OF LAND

Land:

All of Unrestricted Reserve "B" of TEXAS DOWLING NORTHWEST, a subdivision in Harris County, Texas, according to the map or plat thereof recorded under Film Code No. 534197 of the Map Records of Harris County, Texas.



**LEGAL PROPERTY DESCRIPTION FOR TRACT 2**

0.1160 Acre Tract (5,051 square foot) City of Houston Property  
METES & BOUNDS DESCRIPTION

A tract of land containing 0.1160 acres (5,051 square feet) being all of a called 6,425 square foot tract described to the City of Houston as Document No. C375649 in the Deed Records of Harris County (H.C.D.R.), excepting that portion taken for road right-of-way purposes, said 0.1160 acre tract being located within Block 217 of the South Side Buffalo Bayou, an unrecorded subdivision, situated in the J. Wells Survey, Abstract 832, City of Houston, Harris County, Texas being more particularly described as follows:

Beginning at a point on the North 100 foot right-of-way of Texas Avenue from witch a found 5/8 inch diameter iron rod with a Cap bears North 23 deg 52min East 0.4 feet, said point also being the Southwest corner of said Unrestricted Reserve "B" (Tract 1), common with the Southeast corner of Unrestricted Reserve "A" of Texas Dowling Northwest Subdivision recorded under F.C.No. 534197 of the Harris County Map Records (HC.M.R.), and the beginning of a curve concave to the Northeast (N=13839413.15, E=3126228.31);

Thence 78.52 feet along said curve concave to the Northeast, common with said North 100 foot right-of-way of Texas Avenue and with the South line of said Unrestricted Reserve "B" (Tract 1), having a radius of 563.57 feet, and a chord bearing and distance of South 74 deg 11 min 36 sec East, 78.46 feet to a point from which a found 5/8 inch diameter iron rod bears North 34 deg 39 min East, 2.1 feet (N=13839391.78, E=3126303.80);

Thence North 32 deg 52 min 20 sec East along the Northwesterly 80 foot right-of-way of Dowling Street, a distance of 54.21 feet to the Northeast corner of said 6,425 square foot tract and herein described tract, from which a found 5/8 inch diameter iron rod (bent) bears North 46 deg 02 sec East, 0.7 feet (N=13839437.31, E=3126333.22):

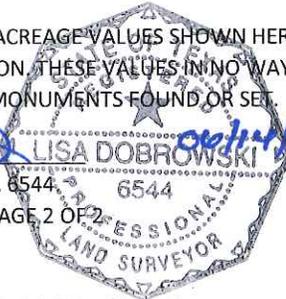
Thence North 57 deg 07 min 40 sec West along the Northeasterly line of said 6,425 square foot tract, common with the Northeasterly line of herein described tract, a distance of 85.00 feet to a found 5/8 inch diameter iron rod with a cap, said point being the Northwest corner of said 6,425 square tract and of herein described tract (N=13839483.45, E=3126261.83);

Thence South 12 deg 07 min 40 sec East, a distance of 14.14 feet to an interior corner of said 6,425 square tract and herein described tract;

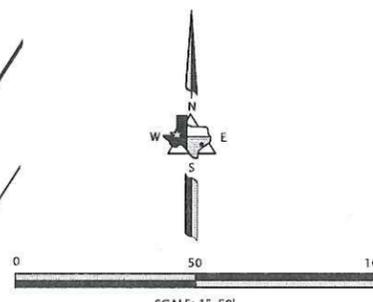
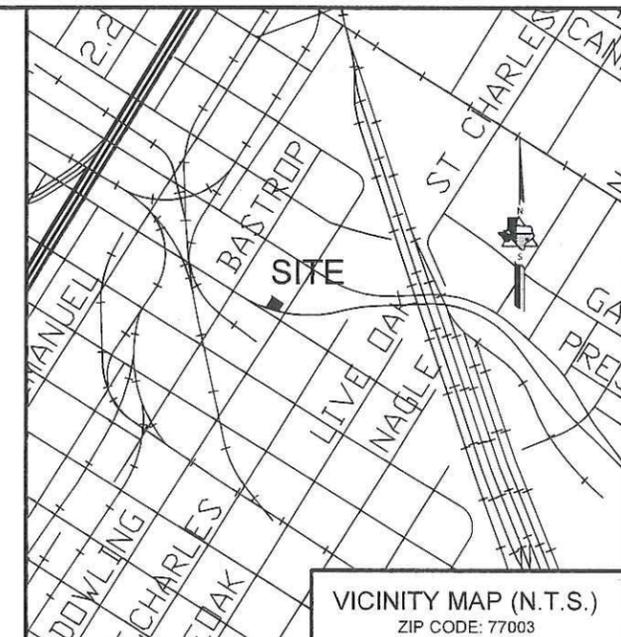
Thence South 32 deg 52 min 20 sec West, along the west line of said 6,425 square foot tract and herein described tract, a distance of 67.24 feet to the Northeasterly right-of-way of Texas Avenue to the Point of Beginning, containing 0.1160 acres (5,051 square feet).

- 1.) THIS FIELD NOTE DESCRIPTION IS PART OF THE PLAT OF SAME DATE. (PLAT BEING PAGE 1 OF 2).
- 2.) ALL BEARINGS AND COORDINATES SHOWN HEREON ARE GRID WITH DISTANCES BEING TRUE BASED UPON TEXAS STATE PLANE COORDINATE SYSTEM SOUTH CENTRAL ZONE (4204). THE COMBINED SCALE FACTOR BETWEEN GRID AND SURFACE IS 0.99988968078.
- 3.) THIS FIELD NOTE DESCRIPTION VALID FOR THIS TRANSACTION ONLY.
- 4.) THE SQUARE FOOTAGE AND ACREAGE VALUES SHOWN HEREON ARE MATHEMATICAL VALUES CALCULATED FROM THE BOUNDARY DATA SHOWN HEREON. THESE VALUES IN NO WAY REPRESENT THE PRECISION OF CLOSURE OF THIS SURVEY OR THE ACCURACY OF BOUNDARY MONUMENTS FOUND OR SET.

  
LISA M. DOBROWSKI, R.P.L.S. NO. 6544  
JOB NO. 8859-16, 06/01/2016, PAGE 2 OF 2



GLOBAL SURVEYORS, INC.  
10401 WESTOFFICE DRIVE, HOUSTON, TEXAS 77042  
(P)713-667-0800  
TBPLS#10115912



- NOTES:**
- ALL BEARINGS AND COORDINATES SHOWN HEREON ARE GRID WITH DISTANCES BEING TRUE BASED UPON TEXAS STATE PLANE COORDINATE SYSTEM SOUTH CENTRAL ZONE 4204. THE COMBINED SCALE FACTOR BETWEEN GRID AND SURFACE IS 0.99988968078.
  - SEE EXHIBIT "A" FOR METES AND BOUNDS DESCRIPTION (PAGE 2 OF 2)
  - THE FOLLOWING CITY OF HOUSTON REFERENCE MONUMENTS WERE USED TO ESTABLISH THIS BOUNDARY; 12 (HUTCHINS @ PRESTON), 13 (DOWLING @ PRESTON), 45 (HUTCHINS @ POLK), 46 (DOWLING @ POLK), 112 (HUTCHINS @ DALLAS), AND 298 HUTCHINS @ MCKINNEY).



I hereby certify that this survey was made on the ground, that this drawing correctly represents the facts found at the time of survey.

Lisa M. Dobrowski  
Registered Professional Land Surveyor  
Registration No. 6544  
State of Texas

**CITY OF HOUSTON  
PUBLIC WORKS AND  
ENGINEERING DEPARTMENT**

**Global Surveyors, Inc.**  
An affiliate of Tri-Tech Surveying Company, L.P.

WWW.SURVEYINGCOMPANY.COM  
10401 Westoffice Drive Phone: (713) 667-0800  
Houston, Texas 77042 Fax: (713) 667-5848  
FIRM Registration No. 10115912

APPROVAL \_\_\_\_\_ DATE \_\_\_\_\_

SURVEY SECTION \_\_\_\_\_ RIGHT OF WAY SECTION \_\_\_\_\_

**BOUNDARY**

OF A 5,051 SQ. FT. (CALLED 6,425 SQ. FT.) TRACT  
TO THE CITY OF HOUSTON BY DEED  
RECORDED UNDER C.F.NO. C375649 H.C.D.R.  
LOCATED IN THE J.WELLS SURVEY A-832  
HOUSTON, HARRIS COUNTY, TEXAS

DATE: 6-1-2016 DRAWN BY: M.COX CHKD. BY: L.DOBROWSKI  
SCALE: 1" = 50' JOB NO. 8859-16 DWG. NAME TRACT 2

KEY MAP No. 493R	GIMS MAP No. 5457C
PARCEL NO. SY16-082	
JOB NO.	
WBS NO.	
C.M. NO.	

**FLOOD INFORMATION**

F.I.R.M. NO. 48201C PANEL: 0690M  
REVISED DATE 6-18-2007 ZONE: "X"

FLOOD INFORMATION PROVIDED HEREON IS BASED ON SCALING THE LOCATION OF THE SUBJECT TRACT ON THE FLOOD INSURANCE RATE MAPS. THE INFORMATION SHOULD BE USED TO DETERMINE FLOOD INSURANCE RATES ONLY AND IS NOT INTENDED TO IDENTIFY SPECIFIC FLOODING CONDITIONS. WE ARE NOT RESPONSIBLE FOR THE F.I.R.M.'S ACCURACY.

**CURVE TABLE**

CURVE	LENGTH	RADIUS	CHORD BEARING	CHORD	DELTA
C1	78.52	563.57	S74°11'36"E	78.46	7°58'58"

**LINE TABLE**

LINE	LENGTH	BEARING
L1	54.21	N32°52'20"E
L2	85.00	N57°07'40"W
L3	14.14	S12°07'40"E
L4	67.24	S32°52'20"W

Jun 13, 2016 - 7:33pm G:\2016\Global\8859-16 SKA CONSULTING.dwg \TRACT 2.dwg

**LEGAL PROPERTY DESCRIPTION FOR THE DESIGNATED  
PROPERTY**

A TRACT OF LAND CONTAINING 1.865 ACRES (81,247 SQUARE FEET) BEING ALL OF A CALLED 6,425 SQUARE FOOT TRACT DESCRIBED TO THE CITY OF HOUSTON AS DOCUMENT NO. C375649 IN THE DEED RECORDS OF HARRIS COUNTY (H.C.D.R.), ALSO BEING ALL OF CALLED UNRESTRICTED RESERVE "B", REFERRED TO AS TRACT 1 OF THE TEXAS DOWLING NORTHWEST SUBDIVISION, RECORDED AS FILM CODE 534197 (H.C.M.R.), AND BEING ALSO OUT OF THE CALLED 80 FOOT RIGHT-OF-WAY OF PRAIRIE STREET AND BEING ALSO OUT OF THE CALLED 80 FOOT RIGHT-OF-WAY OF DOWLING STREET, ALL LOCATED WITHIN THE SOUTH SIDE BUFFALO BAYOU, AN UNRECORDED SUBDIVISION, SITUATED IN THE J. WELLS SURVEY, ABSTRACT 832, CITY OF HOUSTON, HARRIS COUNTY, TEXAS BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A 5/8 INCH DIAMETER IRON ROD WITH A TRI-TECH CAP ON THE NORTH 100 FOOT RIGHT-OF-WAY OF TEXAS AVENUE, SAID POINT ALSO BEING THE SOUTHWEST CORNER OF SAID UNRESTRICTED RESERVE "B" (TRACT 1), COMMON WITH THE SOUTHEAST CORNER OF UNRESTRICTED RESERVE "A" OF SAID TEXAS DOWLING NORTHWEST SUBDIVISION, AND THE BEGINNING OF A CURVE CONCAVE TO THE NORTHEAST;

THENCE 201.89 FEET ALONG SAID CURVE CONCAVE TO THE NORTHEAST, COMMON WITH SAID NORTH 100 FOOT RIGHT-OF-WAY OF TEXAS ACENUE, COMMON WITH THE SOUTH LINE OF SAID UNRESTRICTED RESERVE "B" (TRACT 1), HAVING A RADIUS OF 563.57 FEET, AND A CHORD BEARING AND DISTANCE OF SOUTH 76 DEG 56 MIN 21 SEC EAST, 200.82 FEET TO A POINT ON THE EAST 80 FOOT RIGHT-OF-WAY OF DOWLING STREET, COMMON WITH THE SOUTHEAST CORNER OF A CALLED 0.4860 ACRE TRACT DESCRIBED TO GUS SYMEONDIS IN DOCUMENT NO. K897104 (H.C.D.R.) AND A SOUTH CORNER OF HEREIN DESCRIBED TRACT;

THENCE NORTH 32 DEG 52 MIN 20 SEC EAST ALONG SAID NORTHEASTERLY 80 FOOT RIGHT-OF-WAY OF DOWLING STREET, A DISTANCE OF 185.24 FEET TO A POINT AT THE INTERSECTION OF SAID NORTHEASTERLY 75 FOOT RIGHT-OF-WAY OF DOWLING STREET WITH THE SOUTHWESTERLY 80 FOOT RIGHT-OF-WAY OF PRAIRIE STREET, COMMON WITH THE NORTHWEST CORNER OF SAID 0.4860 ACRE TRACT AND AN INTERIOR CORNER OF HEREIN DESCRIBED TRACT;

THENCE SOUTH 57 DEG 07 MIN 40 SEC EAST CONTINUING ALONG SAID SOUTHWESTERLY 80 FOOT RIGHT-OF-WAY OF PRAIRIE STREET, COMMON WITH THE NORTHEASTERLY LINE OF SAID 0.4860 ACRE TRACT, A DISTANCE OF 212.48 FEET TO THE NORTHEAST CORNER OF SAID 0.4860 ACRE TRACT, SAID POINT BEING ALSO THE BEGINNING OF A CURVE CONCAVE TO THE SOUTHEAST AND A SOUTH CORNER OF HEREIN DESCRIBED TRACT;

THENCE ACROSS THE RIGHT-OF-WAY OF SAID PRAIRIE STREET FOR THE NEXT TWO COURSES:

THENCE 85.68 FEET ALONG SAID CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 139.97 FEET, WITH A CHORD BEARING AND DISTANCE OF NORTH 65 DEG 42 MIN 07 SEC EAST, A DISTANCE OF 84.34 FEET TO A POINT FOR CORNER, BEING A SOUTH CORNER OF HEREIN DESCRIBED TRACT;

THENCE NORTH 12 DEG 50 MIN 32 SEC EAST, A DISTANCE OF 56.75 FEET TO A POINT ON THE NORTHEASTERLY RIGHT-OF-WAY OF PRAIRIE STREET, COMMON WITH THE SOUTH LINE OF CALLED UNRESTRICTED RESERVE "A" OF THE STAR OF HOPE MISSION RESERVE RECORDED IN VOLUME 519, PAGE 86 (H.C.M.R.), SAID POINT BEING ALSO THE BEGINNING OF A CURVE CONCAVE TO THE NORTHEAST AND A NORTH CORNER OF HEREIN DESCRIBED TRACT;

THENCE 216.61 FEET ALONG SAID CURVE CONCAVE TO THE NORTHEAST ALONG SAID NORTHEASTERLY RIGHT-OF-WAY OF PRAIRIE STREET, HAVING A RADIUS OF 619.62 FEET, AND A CHORD BEARING AND DISTANCE OF NORTH 67 DEG 08 MIN 34 SEC WEST, 215.51 FEET TO A POINT FOR CORNER, BEING AN ANGLE POINT OF HEREIN DESCRIBED TRACT

THENCE NORTH 57 DEG 07 MIN 40 SEC WEST A DISTANCE OF 26.54 FEET TO THE INTERSECTION OF SAID NORTHEASTERLY RIGHT-OF-WAY OF PRAIRIE STREET, COMMON WITH THE SOUTH LINE OF CALLED UNRESTRICTED RESERVE "A" OF THE STAR OF HOPE MISSION RESERVE WITH SAID NORTHEASTERLY 80 FOOT RIGHT-OF-WAY OF DOWLING STREET AND AN ANGLE POINT OF HEREIN DESCRIBED TRACT;

THENCE NORTH 61 DEG 55 MIN 20 SEC WEST ACROSS RIGHT-OF-WAY OF DOWLING STREET, A DISTANCE OF 80.28 FEET TO THE INTERSECTION OF THE NORTHWESTERLY RIGHT-OF-WAY OF DOWLING STREET WITH THE NORTHEASTERLY RIGHT-OF-WAY LINE OF PRAIRIE STREET, COMMON WITH THE SOUTH LINE OF BLOCK 218 OF SAID SOUTH SIDE OF BUFFALO BAYOU SUBDIVISION, SAID POINT BEING A NORTH CORNER OF HEREIN DESCRIBED TRACT;

THENCE NORTH 57 DEG 07 MIN 40 SEC WEST ALONG SAID NORTHEASTERLY RIGHT-OF-WAY LINE OF PRAIRIE STREET, COMMON WITH THE SOUTH LINE OF BLOCK 218 OF SAID SOUTH SIDE OF BUFFALO BAYOU SUBDIVISION, A DISTANCE OF 108.92 FEET TO A POINT FOR CORNER AND THE NORTHWEST CORNER OF HEREIN DESCRIBED TRACT;

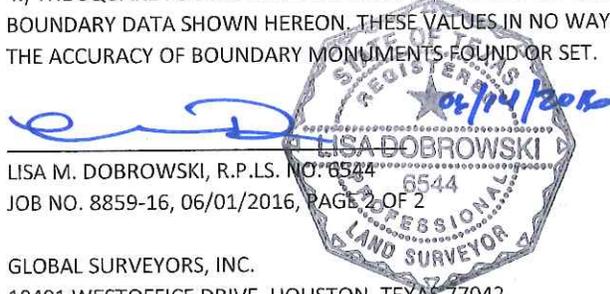
THENCE SOUTH 32 DEG 52 MIN 20 SEC WEST, PASSING AT 80.00 FEET, A FOUND 5/8 INCH DIAMETER IRON ROD WITH A CAP ON THE SOUTHWESTERLY RIGHT-OF-WAY OF PRAIRIE STREET, FOR A TOTAL DISTANCE OF 333.33 FEET TO THE POINT OF BEGINNING, CONTAINING 1.865 ACRES (81,247 SQUARE FEET).

1.) THIS FIELD NOTE DESCRIPTION IS PART OF THE PLAT OF SAME DATE. (PLAT BEING PAGE 1 OF 2).

2.) ALL BEARINGS AND COORDINATES SHOWN HEREON ARE GRID WITH DISTANCES BEING TRUE BASED UPON TEXAS STATE PLANE COORDINATE SYSTEM SOUTH CENTRAL ZONE (4204). THE COMBINED SCALE FACTOR BETWEEN GRID AND SURFACE IS 0.99988968078.

3.) THIS FIELD NOTE DESCRIPTION VALID FOR THIS TRANSACTION ONLY.

4.) THE SQUARE FOOTAGE AND ACREAGE VALUES SHOWN HEREON ARE MATHEMATICAL VALUES CALCULATED FROM THE BOUNDARY DATA SHOWN HEREON. THESE VALUES IN NO WAY REPRESENT THE PRECISION OF CLOSURE OF THIS SURVEY OR THE ACCURACY OF BOUNDARY MONUMENTS FOUND OR SET.



LISA M. DOBROWSKI, R.P.L.S. NO. 6544

JOB NO. 8859-16, 06/01/2016, PAGE 2 OF 2

GLOBAL SURVEYORS, INC.

10401 WESTOFFICE DRIVE, HOUSTON, TEXAS 77042

(P)713-667-0800

TBPLS#10115912

GRATE INLET	LIGHT STANDARD	IRON FENCE	POWER POLE	CONCRETE	CONTROLLING MONUMENT (05-09-16)
SIGN	WATER VALVE	WOOD FENCE	GUY ANCHOR	COVERED	CHAIN LINK FENCE
MANHOLE	CLEAN OUT	POWER LINE	WATER METER	CALL	FIRE HYDRANT
BOLLARD	SANITARY MANHOLE	STORM MANHOLE	ELECTRIC BOX		

AE = AERIAL EASEMENT	MH = MANHOLE	SAN MH = SANITARY SEWER MANHOLE
BL = BUILDING LINE	OHU = OVERHEAD UTILITIES	STM MH = STORM SEWER MANHOLE
FNC = FENCE	P.V.C. = POLYVINYL CHLORIDE PIPE	UE = UTILITY EASEMENT
FND = FOUND	PL = BOUNDARY LINE	WLE = WATERLINE EASEMENT
I.P. = IRON PIPE	PP = POWER POLE	
I.R. = IRON ROD	R.C.P. = REINFORCED CONCRETE PIPE	

NO.	DATE	REASON	BY
1	8-30-16	TRACT LABELS	M. COX

**FLOOD INFORMATION**

F.I.R.M. NO. 48201C PANEL: 0690M  
 REVISED DATE 6-18-2007 ZONE: "X"

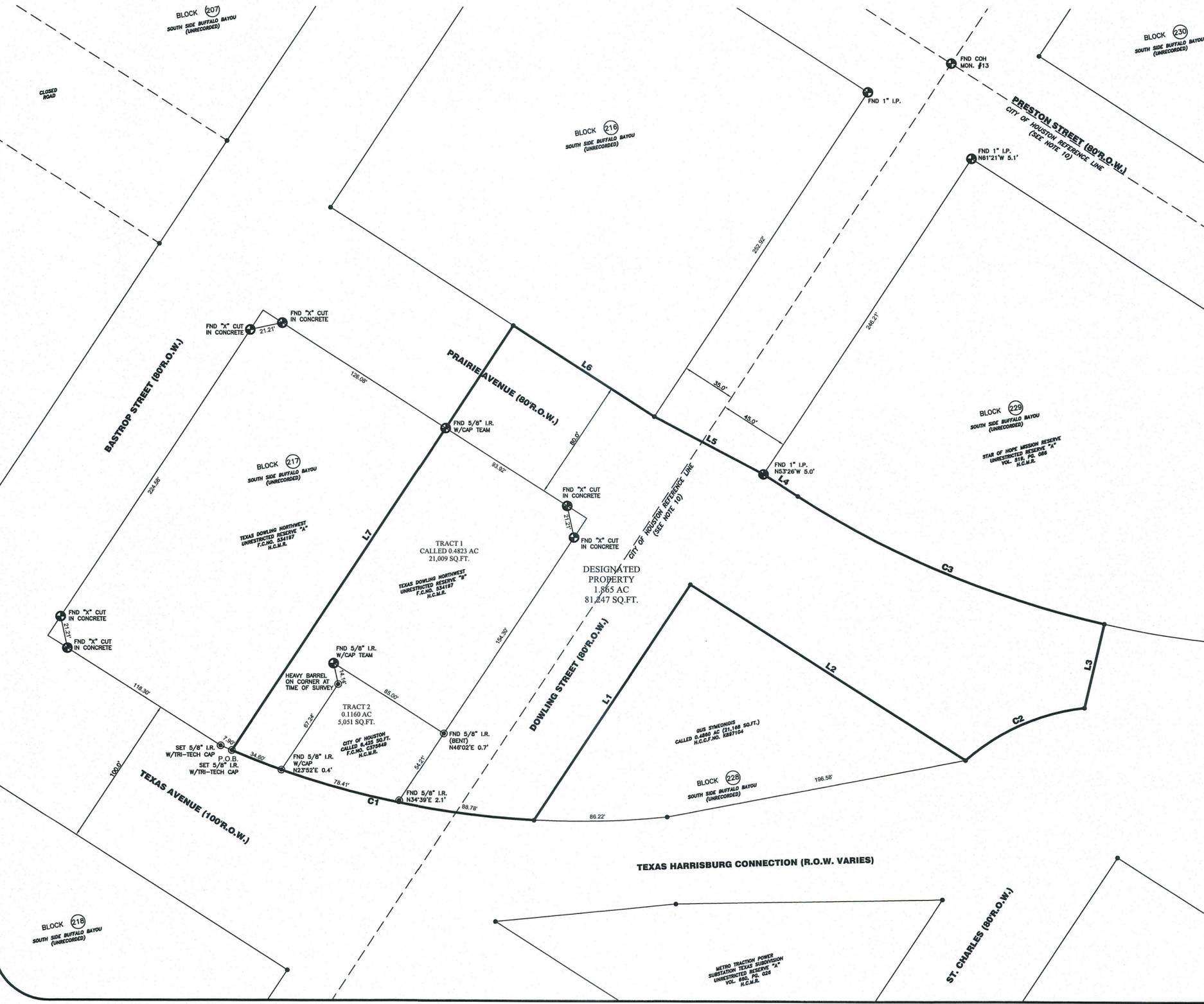
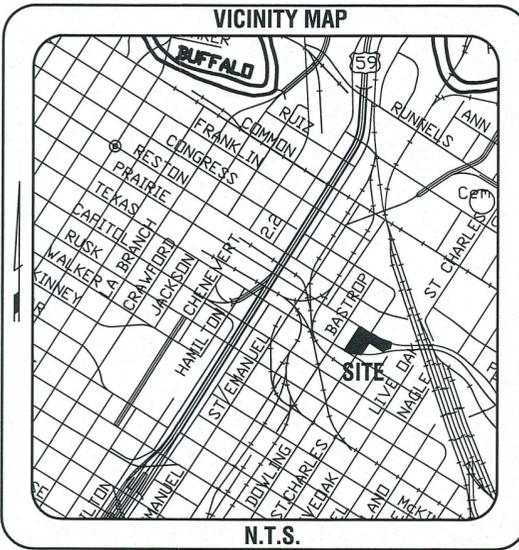
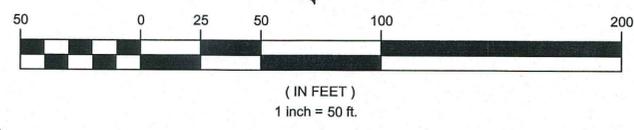
FLOOD INFORMATION PROVIDED HEREON IS BASED ON SCALING THE LOCATION OF THE SUBJECT TRACT ON THE FLOOD INSURANCE RATE MAPS. THE INFORMATION SHOULD BE USED TO DETERMINE FLOOD INSURANCE RATES ONLY AND IS NOT INTENDED TO IDENTIFY SPECIFIC FLOODING CONDITIONS. WE ARE NOT RESPONSIBLE FOR THE F.I.R.M.'S ACCURACY.

**CURVE TABLE**

CURVE	LENGTH	RADIUS	CHORD BEARING	CHORD	DELTA
C1	201.89	563.57	S76°56'51"E	200.82	20°31'32"
C2	85.68	139.97	N65°42'07"E	84.34	35°04'10"
C3	216.61	619.62	N67°08'34"W	215.51	20°01'49"

**LINE TABLE**

LINE	LENGTH	BEARING
L1	185.24	N32°52'20"E
L2	212.48	S57°07'40"E
L3	56.75	N12°50'32"E
L4	26.54	N57°07'40"W
L5	80.28	N61°55'20"W
L6	108.92	N57°07'40"W
L7	333.33	S32°52'20"W



**NOTES**

- ALL EASEMENTS AND BUILDING LINES SHOWN ARE PER THE RECORDED PLAT UNLESS OTHERWISE NOTED.
- SUBJECT TO A DRAINAGE EASEMENT ON EACH SIDE OF THE CENTERLINE OF ALL NATURAL DRAINAGE COURSES.
- ALL BUILDING LINES, EASEMENTS, BUILDING RESTRICTIONS (DEED RESTRICTIONS, ETC.) AND ZONING ORDINANCES, IF ANY, THAT MAY AFFECT SUBJECT PROPERTY SHOULD BE VERIFIED PRIOR TO PLANNING AND/OR CONSTRUCTION.
- MINIMUM FINISH FLOOR REQUIREMENTS, IF SHOWN, ARE PER RECORDED PLAT AND/OR DEED RESTRICTIONS ONLY, AND NOTED AS SUCH. ADDITIONAL FINISHED FLOOR REQUIREMENTS MAY BE REQUIRED BY F.E.M.A. AND/OR LOCAL GOVERNING AUTHORITIES.
- SURFACE OR SUBSURFACE FAULTING, HAZARDOUS WASTE, MINERAL RIGHTS, WETLAND DESIGNATION OR OTHER ENVIRONMENTAL ISSUES AND ARCHEOLOGICAL ISSUES HAVE NOT BEEN ADDRESSED WITHIN THE SCOPE OF THIS SURVEY.
- THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AT THE REQUEST OF SKA CONSULTING L.P. AND MAY NOT SHOW ALL ENCUMBRANCES OF RECORD. THE OWNER/BUILDER MUST VERIFY ALL BUILDING LINES, EASEMENTS, RESTRICTIONS AND ORDINANCES, IF ANY, THAT MAY AFFECT SUBJECT PROPERTY PRIOR TO STARTING CONSTRUCTION. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY THE SURVEYOR. SURVEYOR RECOMMENDED THAT A CURRENT TITLE REPORT SHOULD HAVE BEEN OBTAINED.
- A GROUND AND/OR AERIAL EASEMENT MAY EXIST ADJACENT TO ANY EXISTING UTILITY. OWNER/BUILDER MUST VERIFY CLEARANCE OF UTILITIES AND EASEMENTS WITH APPLICABLE UTILITY COMPANIES PRIOR TO PLANNING AND/OR CONSTRUCTION.
- BURIED UTILITIES HAVE NOT BEEN SHOWN, VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION.
- THIS SURVEY DOES NOT ADDRESS ARCHITECTURAL PROTRUSIONS SUCH AS EAVES, OVERHANGS, WINDOW LEDGES, ETC. IN RELATION TO EASEMENTS AND/OR BUILDING LINES.
- THE FOLLOWING CITY OF HOUSTON REFERENCE MONUMENTS WERE USED TO ESTABLISH THIS BOUNDARY: 12 (HUTCHINS @ PRESTON), 13 (DOWLING @ PRESTON), 45 (HUTCHINS @ POLK), 46 (DOWLING @ POLK), 112 (HUTCHINS @ DALLAS), AND 298 HUTCHINS @ MCKINNEY).
- BEARINGS BASED ON TEXAS STATE PLANE COORDINATE SYSTEM SOUTH CENTRAL ZONE 4204.

**Surveyor's Certification**

The undersigned being a Registered Professional Land Surveyor of the State of Texas does hereby certify to the best of my knowledge, information, and belief that:

This survey substantially complies with the current Texas Society of Professional Surveyors Standards and Specifications for a Category 1A Condition II Survey.

*Lisa M. Dobrowski*  
 LISA M. DOBROWSKI  
 Registered Professional Land Surveyor  
 Texas Registration Number: 6544  
 ldobrowski@tritechx.com



THIS SURVEY IS NULL AND VOID WITHOUT THE ORIGINAL EMBOSSED SEAL AND SIGNATURE OF SURVEYOR. THIS SURVEY IS VALID FOR THIS TRANSACTION ONLY. © 2016, GLOBAL SURVEYORS, INC.

**DRAWING INFORMATION**

JOB NO.: 8895.16  
 CALCULATED BY: M. COX  
 DRAWN BY: M. COX  
 SCALE: 1"=40'  
 BEARING BASE: SEE NOTE 11  
 TITLE: DOWLING STREET @ PRAIRIE STREET  
 FILE NAME: G:\2016\GLOBAL\...  
 PEN TABLE: TRITECH\GTB  
 DATE: 05-05-16  
 COGO VER.: ADESK LDT 2004

**BOUNDARY SURVEY**

PROPERTY INFORMATION  
 LOT: SEE DESCRIPTION PG 2 OF 2  
 BLOCK: SEE DESCRIPTION PG 2 OF 2  
 SUBDIVISION: SEE DESCRIPTION PG 2 OF 2  
 RECORDING: SEE DESCRIPTION PG 2 OF 2  
 BORROWER: N/A  
 TITLE COMPANY: N/A  
 GF. EFFECTIVE DATE: N/A  
 SURVEYED FOR: SKA CONSULTANTS

**DOWLING STREET @ PRAIRIE STREET**

HOUSTON, HARRIS COUNTY, TEXAS 77086

**Global Surveyors, Inc.**  
 An affiliate of Tri-Tech Surveying Company, L.P.

WWW.SURVEYINGCOMPANY.COM  
 10401 Westoffice Drive Phone: (713) 667-0800  
 Houston, Texas 77042 Fax: (713) 667-5848  
 FIRM Registration No. 10115912

SHEET 1 OF 2

## Appendix B – Property Use

---

The following is a description of the current land use, and to the extent known, the anticipated uses of the designated property and surrounding properties located within 500 feet of the designated property boundary.

### **Current and Anticipated Land Use of the Designated Property**

The designated property includes a privately-owned tract of land (Tract 1), City of Houston (COH)-owned land (Tract 2), and two rights-of-way (ROWs) consisting of portions of Dowling and Prairie Streets. Tract 1 is currently enrolled in the Texas Commission on Environmental Quality (TCEQ) VCP as No. 2439 under the Texas Commission on Environmental Quality (TCEQ) Texas Risk Reduction Program (TRRP) for soil and/or groundwater impacted with volatile organic compounds (VOCs - chlorinated ethenes) and total petroleum hydrocarbons (TPH) in concentrations which exceed the TCEQ TRRP Tier 1 residential groundwater ingestion (<sup>GW</sup>GW<sub>ing</sub>) Protective Concentration Levels (PCLs). Tract 2 is anticipated to be acquired by Texas Bastrop, LLC and added to Tract 1 under the same VCP ID number (No. 2439). As such, Tracts 1 and 2 are collectively referred to as the proposed VCP property.

The designated property is currently developed with different land uses:

- Tract 1 is presently vacant and used as a parking lot. Tract 1 is mostly covered with 1) the concrete foundation of a former building that was demolished in the early 2000s, and 2) grass along the western property boundary. Other remaining features on Tract 1 include a sanitary sewer manhole, floor drains, and an abandoned underground cistern.
- Tract 2 is currently used as an air monitoring station by COH. The tract is improved with a trailer surrounded by a chain-link fence. The ground surface of the tract is mostly covered with asphalt or grass. The COH monitoring station has been active since March 2001.
- Public streets and rights-of-way (Dowling Street and Prairie Street). Dowling and Prairie Street are concrete-paved roadways.

The proposed VCP property is anticipated to be redeveloped for mixed residential and commercial use. The future use of the COH ROWs (Dowling Street and Prairie Street) is not anticipated to change.

### **Current and Anticipated Land Use of the Surrounding Properties**

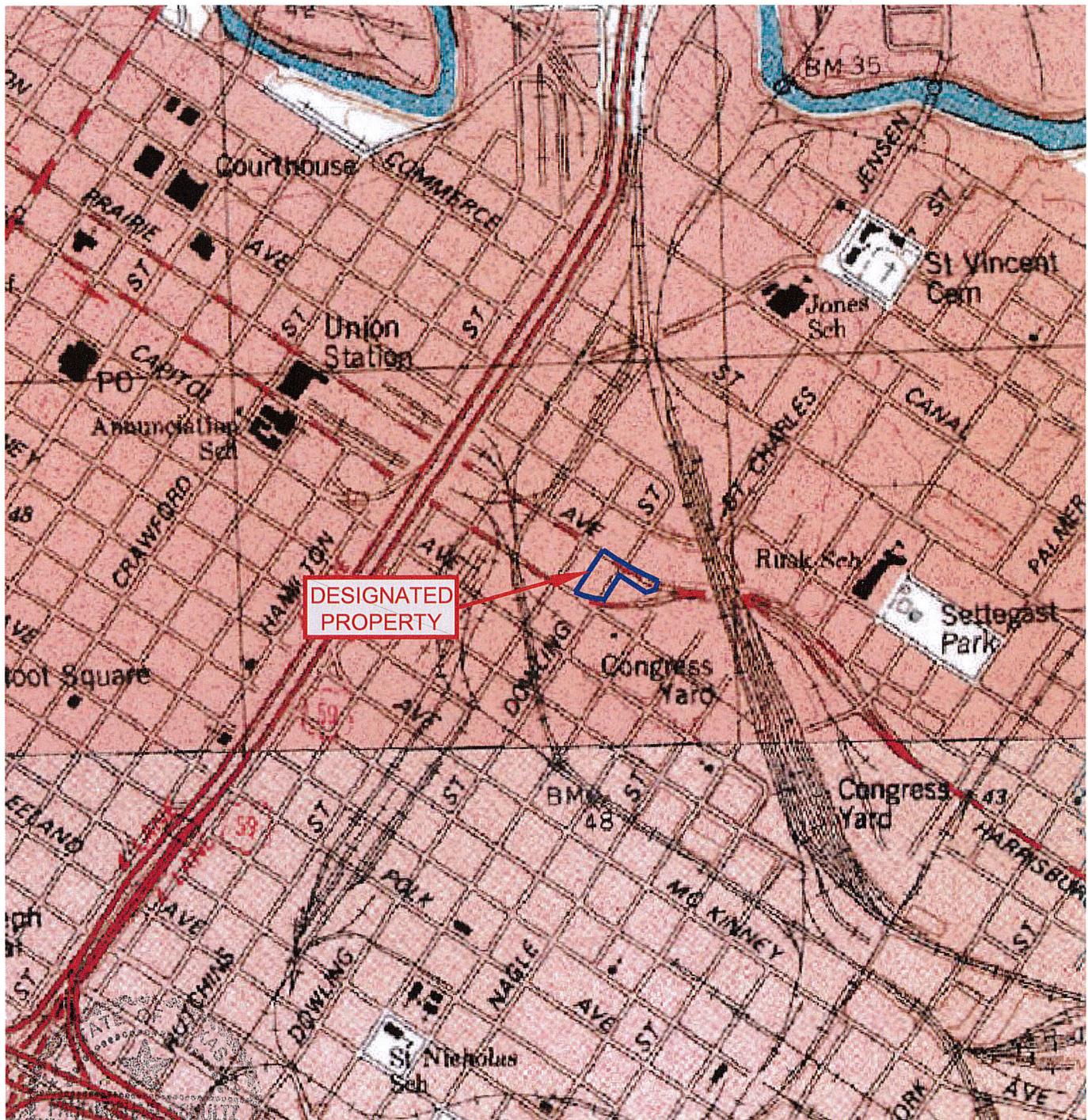
Properties in the vicinity of the designated property are mixed residential and commercial. A map detailing the land use of the surrounding properties within 500 feet of the designated property is presented as **Figure C.4**. The future land use in the area of the designated property is anticipated to remain mixed residential and commercial.

## Appendix C – Site Maps

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The following figures are included in **Appendix C**. The figures are:

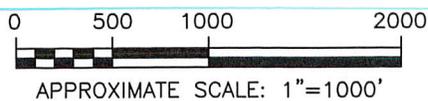
- Figure C.1 Site Location and Topographic Map
- Figure C.2 Watershed Map
- Figure C.3 Floodplain Map
- Figure C.4 Surrounding Land Use Map
- Figure C.5 Soil and Groundwater Sample Location Map
- Figure C.6A Groundwater Gradient Map May 22, 2015
- Figure C.6B Groundwater Gradient Map August 18, 2015
- Figure C.6C Groundwater Gradient Map February 25, 2016
- Figure C.6D Groundwater Gradient Map June 27, 2016
- Figure C.7A Groundwater Concentration Map TCE
- Figure C.7B Groundwater Concentration Map cis-1,2-DCE
- Figure C.7C Groundwater Concentration Map 1,1-DCE
- Figure C.7D Groundwater Concentration Map VC
- Figure C.8 Historical and Current TCE Concentration Map on VCP Property



**DESIGNATED  
PROPERTY**

REGISTERED PROFESSIONAL  
68785  
*M. Cantuja*  
9/27/16

REFERENCE USGS 7.5-MINUTE TOPOGRAPHIC QUADRANGLE  
SETTEGAST AND PARK PLACE, TEXAS  
1995



SKA CONSULTING, L.P.  
1888 STEBBINS DR, SUITE 100  
HOUSTON, TEXAS 77043

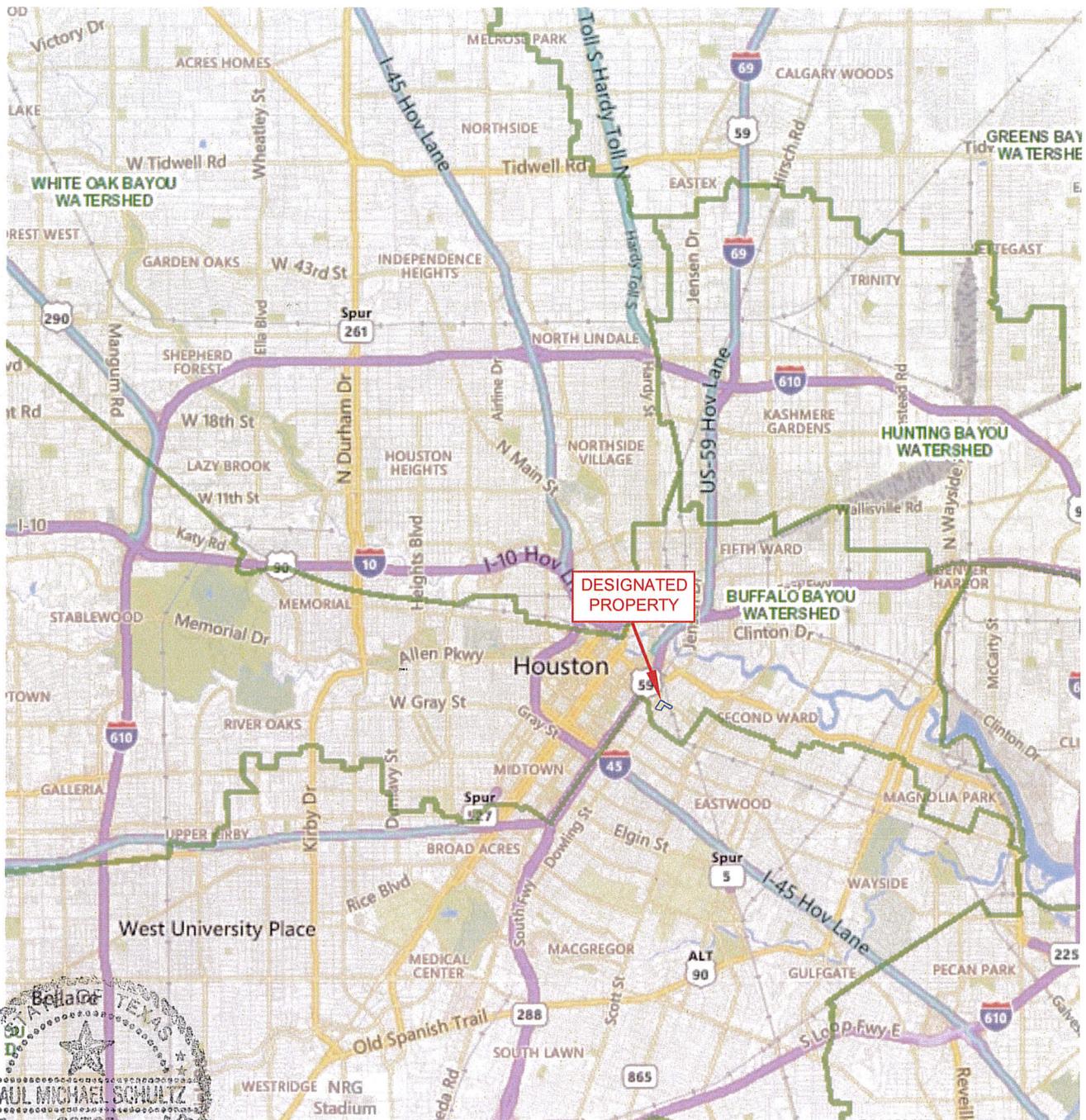
**SITE LOCATION AND TOPOGRAPHIC MAP**

FIGURE  
**C.1**

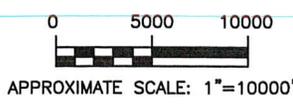
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP ID No. 2439

DATE:	AUGUST 2016	JOB NO.:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-	-	DRAWN BY:	JAC
2	SECOND REVISION	-	-	CHECKED BY:	VBM
3	THIRD REVISION	-	-	APPROVED BY:	JRM





HARRIS COUNTY FLOOD CONTROL DISTRICT  
WATERSHED LIMIT



SKA CONSULTING, L.P.  
1888 STEBBINS DRIVE, SUITE 100  
HOUSTON, TX 77043

Texas Registered Engineering Firm F-005009  
Texas Registered Geoscience Firm 50011

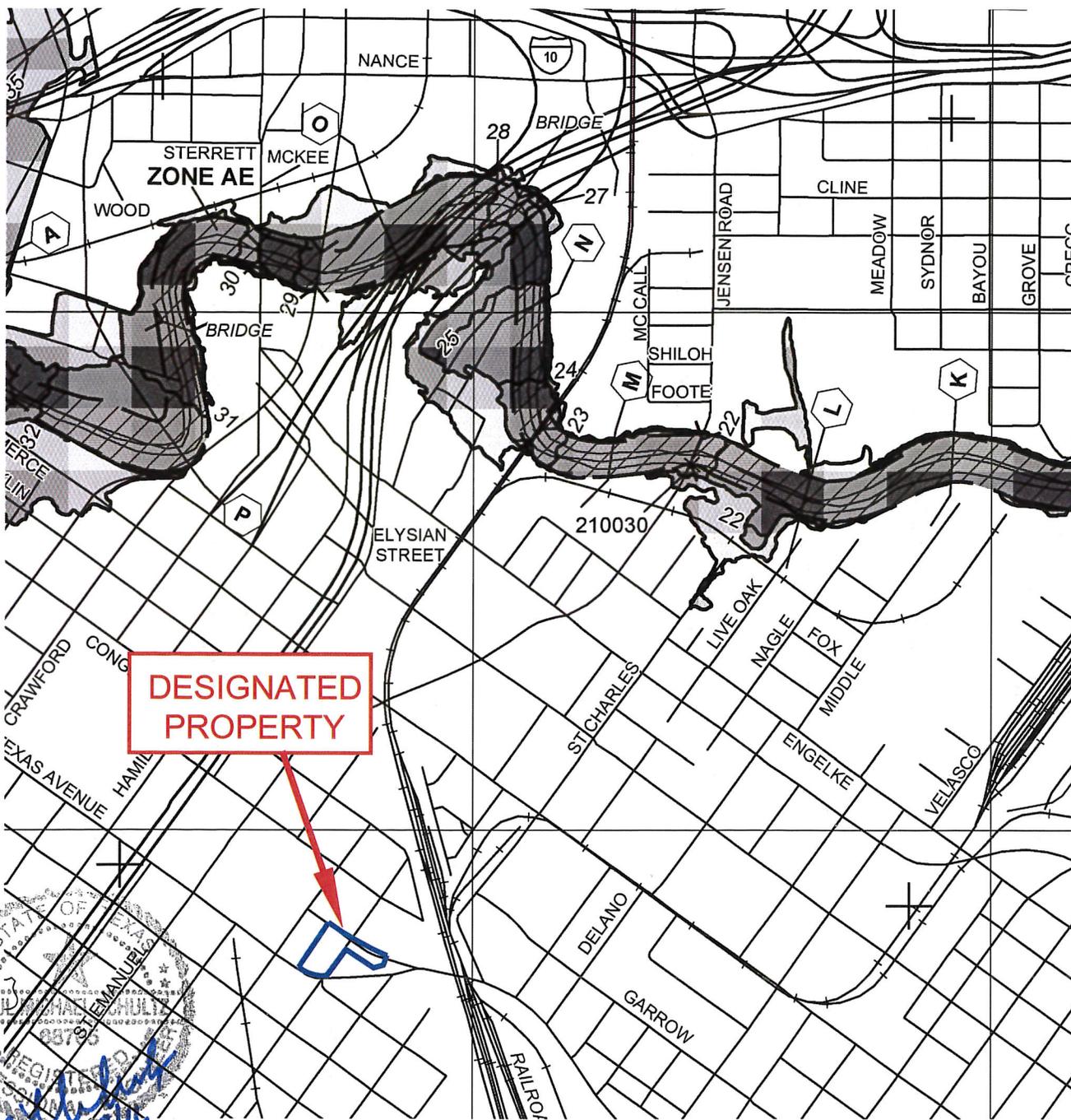
**WATERSHED MAP**

FIGURE  
**C.2**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP ID No. 2439



DATE:	AUGUST 2016	JOB NO:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-	DRAWN BY:	JAC	
2	SECOND REVISION	-	CHECKED BY:	VBM	
3	THIRD REVISION	-	APPROVED BY:	JRM	



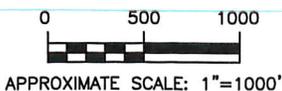
**DESIGNATED  
PROPERTY**

**EXPLANATION:**

Zone X (unshaded) - Areas determined to be outside the 0.2% annual chance floodplains.  
 Zone X (shaded) - Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depth of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.  
 Zone AE - Base Flood Elevations determined.

FEDERAL EMERGENCY MANAGEMENT AGENCY  
 HARRIS COUNTY, TEXAS

MAP No: 48201C0690M (06/09/2014)



SKA CONSULTING, L.P.  
 1888 STEBBINS DRIVE, SUITE 100  
 HOUSTON, TX 77043

Texas Registered Engineering Firm F-005009  
 Texas Registered Geoscience Firm 50011

**FLOODPLAIN MAP**

FIGURE  
**C.3**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
 STANFORD DEVELOPMENT TRACT  
 505 BASTROP STREET  
 HOUSTON, HARRIS COUNTY, TEXAS  
 VCP ID No. 2439

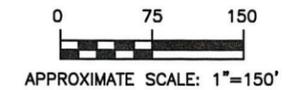
DATE:	AUGUST 2016	JOB NO:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-	DRAWN BY:	JAC	
2	SECOND REVISION	-	CHECKED BY:	VBM	
3	THIRD REVISION	-	APPROVED BY:	JRM	





- LEGEND**
- DESIGNATED PROPERTY BOUNDARY
  - LOT BOUNDARY
  - 500' RADIUS
  - LIGHT RAIL TRACKS

- PARCEL LAND USE**
- COMMERCIAL
  - RESIDENTIAL (MULTI-FAMILY RESIDENCE)
  - RESIDENTIAL (WOMEN AND FAMILY SHELTER)



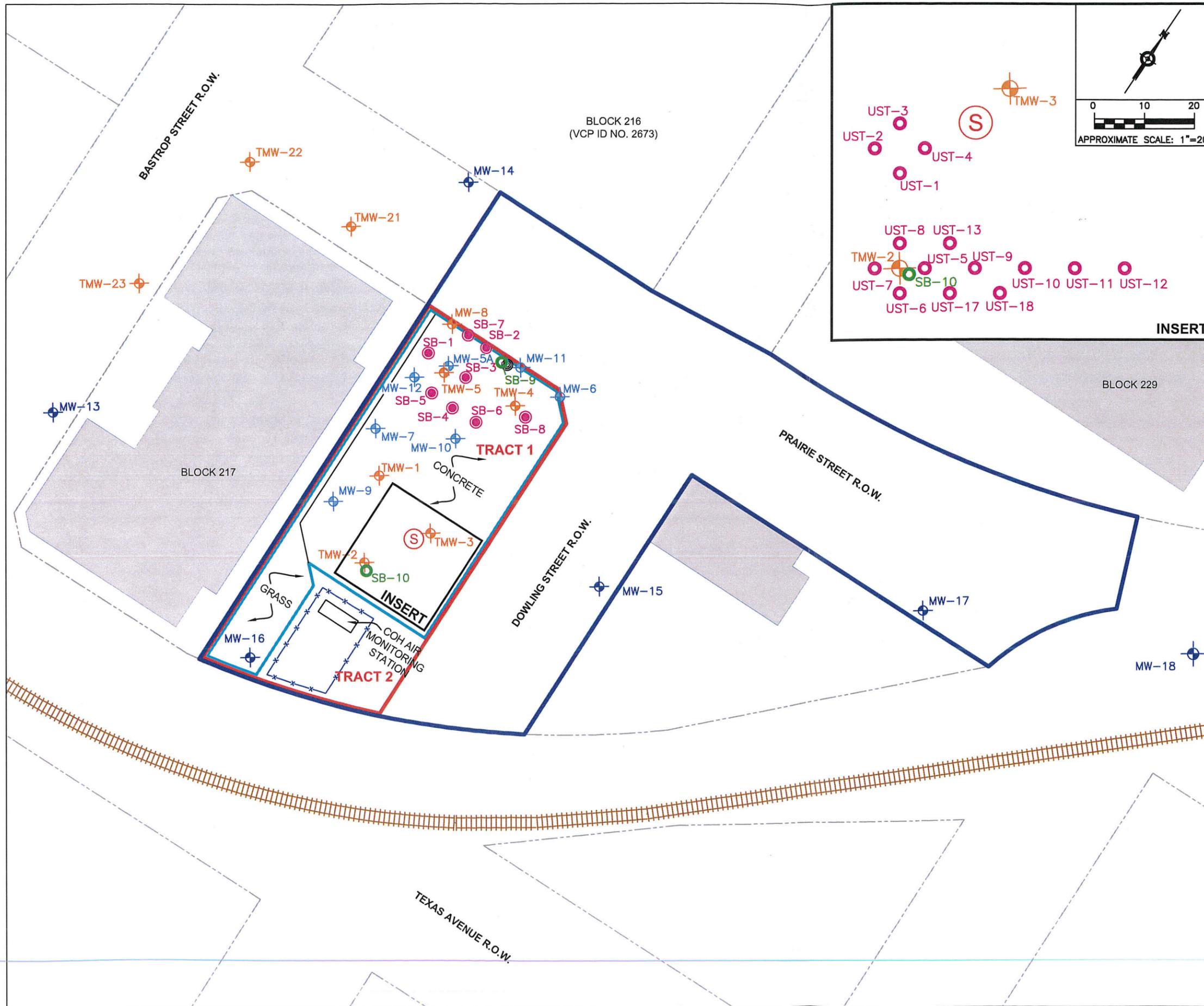
**ska** SKA CONSULTING, L.P.  
 1888 STEBBINS DRIVE, SUITE 100  
 HOUSTON, TX 77043  
 Texas Registered Engineering Firm F-005009  
 Texas Registered Geoscience Firm 50011

**SURROUNDING LAND USE MAP**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
 STANFORD DEVELOPMENT TRACT  
 505 BASTROP STREET  
 HOUSTON, HARRIS COUNTY, TEXAS  
 VCP ID No. 2439

FIGURE  
**C.4**

DATE:	AUGUST 2016	JOB NO:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-	DRAWN BY:	JAC	
2	SECOND REVISION	-	CHECKED BY:	VBM	
3	THIRD REVISION	-	APPROVED BY:	JRM	



**LEGEND**

- PROPOSED VCP PROPERTY BOUNDARY
- CURRENT VCP PROPERTY BOUNDARY
- DESIGNATED PROPERTY BOUNDARY
- - - - - LOT BOUNDARY
- x-x-x- CHAIN LINK FENCE
- LIGHT RAIL
- BUILDING
- TRAILER
- PERMANENT MONITORING WELL LOCATION (MECX, 2011)
- PERMANENT MONITORING WELL LOCATION (SKA, 2015-2016)
- FORMER TEMPORARY MONITORING WELL LOCATION (MECX, 2011 AND 2013)
- SOIL BORING LOCATION (MECX, 2011)
- SOIL BORING LOCATION (SKA, 2015)
- SOIL BORING LOCATION (SKA, 2016)
- ON-SITE SANITARY SEWER MANHOLE
- ABANDONED UNDERGROUND CISTERN

APPROXIMATE SCALE: 1"=60'

**SKA CONSULTING, L.P.**  
 1888 STEBBINS DRIVE, SUITE 100  
 HOUSTON, TEXAS 77043  
 Texas Registered Engineering Firm F-005009  
 Texas Registered Geoscience Firm 50011

**SOIL AND GROUNDWATER  
 SAMPLE LOCATION MAP**

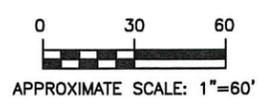
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
 STANFORD DEVELOPMENT TRACT  
 505 BASTROP STREET  
 HOUSTON, HARRIS COUNTY, TEXAS  
 VCP No. 2439

FIGURE  
**C.5**

DATE:	AUGUST 2016	JOB NO:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-	-	DRAWN BY:	JAC
2	SECOND REVISION	-	-	CHECKED BY:	VMM
3	THIRD REVISION	-	-	APPROVED BY:	PMS



- LEGEND**
- PROPOSED VCP PROPERTY BOUNDARY
  - DESIGNATED PROPERTY BOUNDARY
  - LOT BOUNDARY
  - LIGHT RAIL
  - BUILDING
  - PERMANENT MONITORING WELL LOCATION (MECX, 2011)
  - PERMANENT MONITORING WELL LOCATION (SKA, 2015)
  - 91.00** GROUNDWATER ELEVATION (FT., RELATIVE TO SITE BENCHMARK)
  - GROUNDWATER CONTOUR
  - DIRECTION OF GROUNDWATER FLOW

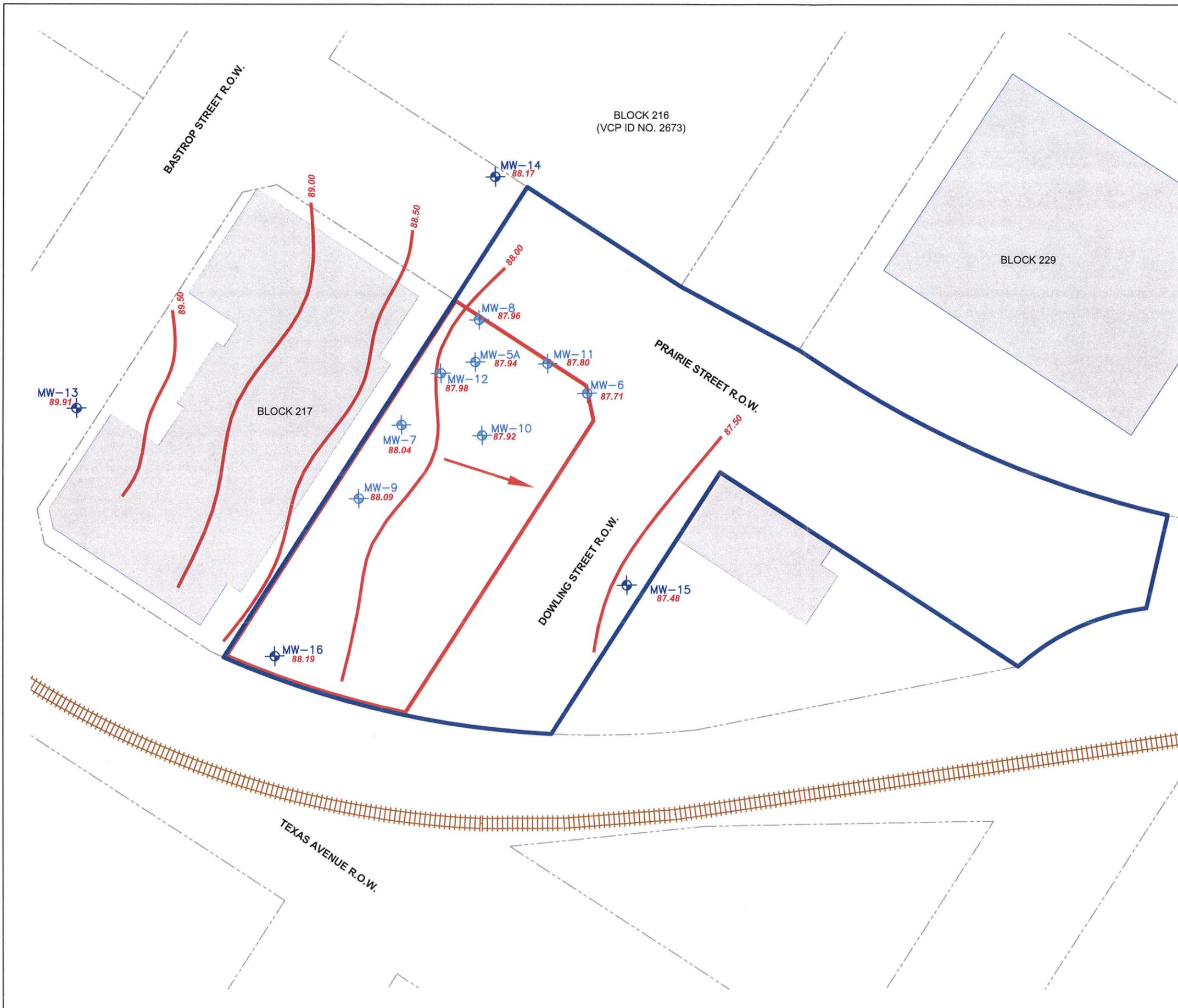


**ska** SKA CONSULTING, L.P.  
 1888 STEBBINS DR, SUITE 100  
 HOUSTON, TEXAS 77043  
 Texas Registered Engineering Firm F-005009  
 Texas Registered Geoscience Firm 50011

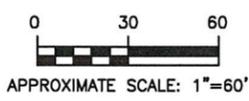
**GROUNDWATER GRADIENT MAP**  
**MAY 22, 2015**  
 CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
 STANFORD DEVELOPMENT TRACT  
 505 BASTROP STREET  
 HOUSTON, HARRIS COUNTY, TEXAS  
 VCP No. 2439

FIGURE  
**C.6A**

DATE:	AUGUST 2016	JOB NO:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-	DRAWN BY:	JAC	
2	SECOND REVISION	-	CHECKED BY:	VBM	
3	THIRD REVISION	-	APPROVED BY:	JRM	



- LEGEND**
- PROPOSED VCP PROPERTY BOUNDARY
  - DESIGNATED PROPERTY BOUNDARY
  - - - - - LOT BOUNDARY
  - LIGHT RAIL
  - BUILDING
  - PERMANENT MONITORING WELL LOCATION (MECX, 2011)
  - PERMANENT MONITORING WELL LOCATION (SKA, 2015)
  - 88.00 GROUNDWATER ELEVATION (FT., RELATIVE TO SITE BENCHMARK)
  - GROUNDWATER CONTOUR
  - DIRECTION OF GROUNDWATER FLOW



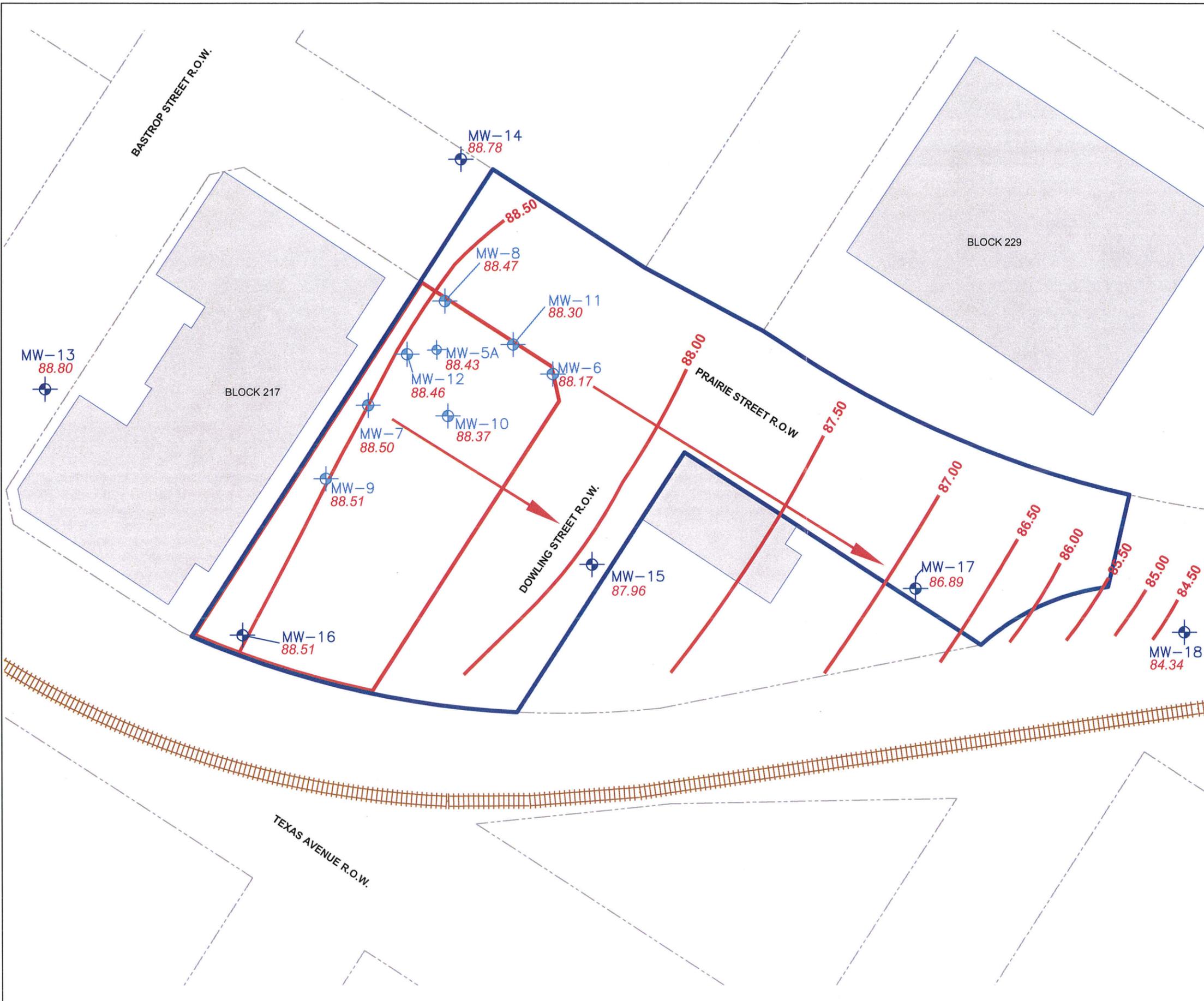
**ska** SKA CONSULTING, L.P.  
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**GROUNDWATER GRADIENT MAP**  
**AUGUST 18, 2015**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
 STANFORD DEVELOPMENT TRACT  
 505 BASTROP STREET  
 HOUSTON, HARRIS COUNTY, TEXAS  
 VCP No. 2439

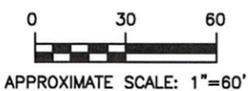
DATE:	AUGUST 2016	JOB NO:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-		DRAWN BY:	JAC
2	SECOND REVISION	-		CHECKED BY:	VBM
3	THIRD REVISION	-		APPROVED BY:	JRM

FIGURE  
**C.6B**



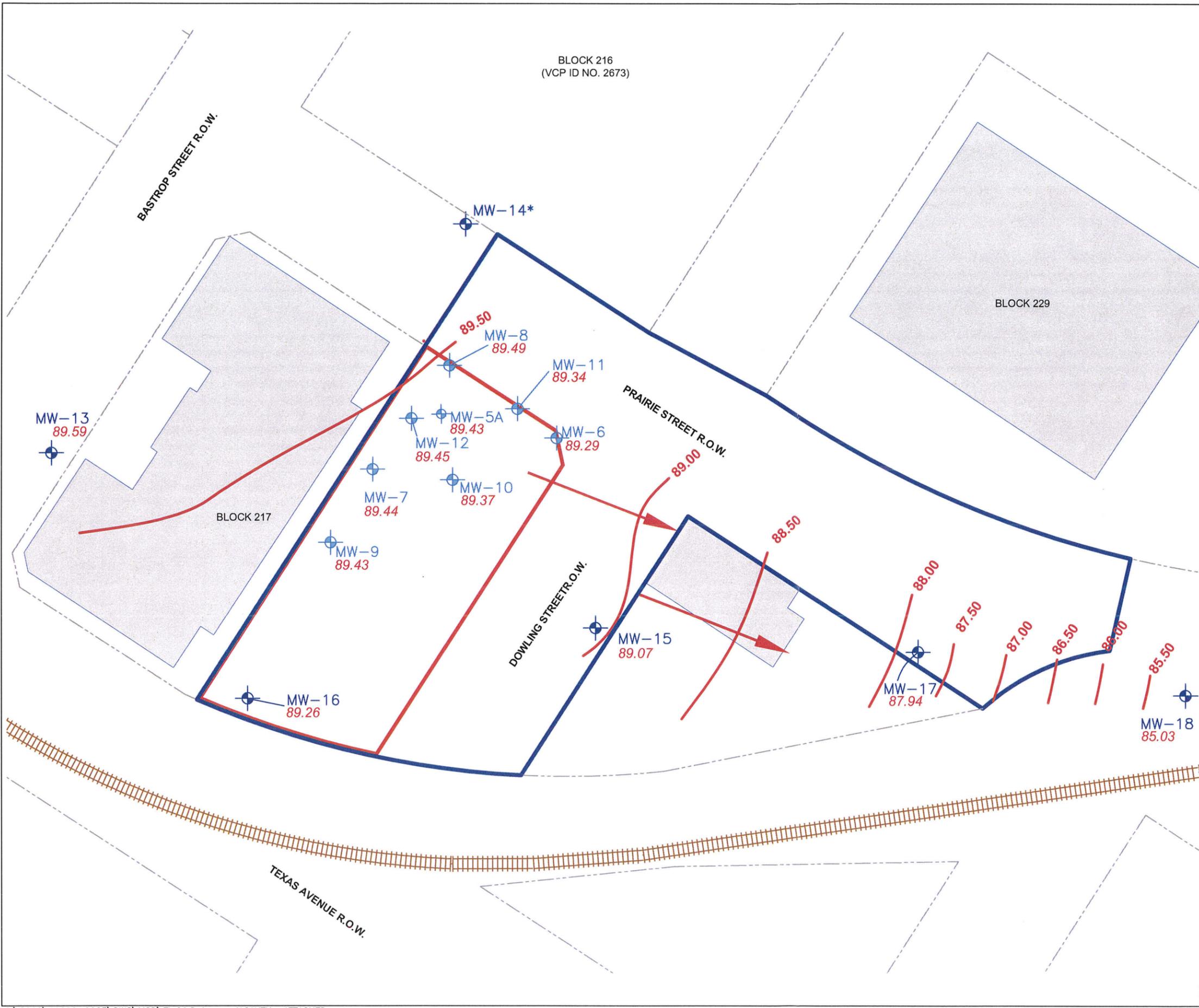
**LEGEND**

- PROPOSED VCP PROPERTY BOUNDARY
- DESIGNATED PROPERTY BOUNDARY
- LOT BOUNDARY
- LIGHT RAIL
- BUILDING
- PERMANENT MONITORING WELL LOCATION (MECX, 2011)
- PERMANENT MONITORING WELL LOCATION (SKA, 2015-2016)
- GROUNDWATER ELEVATION (FT., RELATIVE TO SITE BENCHMARK)
- GROUNDWATER CONTOUR
- DIRECTION OF GROUNDWATER FLOW



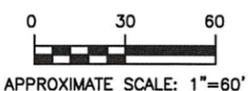
**ska** SKA CONSULTING, L.P.  
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 HOUSTON, TEXAS 77043  
 Texas Registered Engineering Firm F-005009  
 Texas Registered Geoscience Firm 50011

<b>GROUNDWATER GRADIENT MAP</b>		<b>FIGURE C6.C</b>
<b>FEBRUARY 25, 2016</b>		
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION STANFORD DEVELOPMENT TRACT 505 BASTROP STREET HOUSTON, HARRIS COUNTY, TEXAS VCP No. 2439		
DATE: AUGUST 2016	JOB NO: 11010-0003	SCALE: AS SHOWN
1 FIRST REVISION	-	DRAWN BY: JAC
2 SECOND REVISION	-	CHECKED BY: VBM
3 THIRD REVISION	-	APPROVED BY: JRM



**LEGEND**

- PROPOSED VCP PROPERTY BOUNDARY
- DESIGNATED PROPERTY BOUNDARY
- - - - - LOT BOUNDARY
- LIGHT RAIL
- BUILDING
- PERMANENT MONITORING WELL LOCATION (MECX, 2011)
- PERMANENT MONITORING WELL LOCATION (SKA, 2015-2016)
- PERMANENT MONITORING WELL (COVERED WITH CONCRETE)
- 89.34 GROUNDWATER ELEVATION (FT., RELATIVE TO SITE BENCHMARK)
- GROUNDWATER CONTOUR
- DIRECTION OF GROUNDWATER FLOW



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 HOUSTON, TEXAS 77043  
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**GROUNDWATER GRADIENT MAP  
 JUNE 27, 2016**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
 STANFORD DEVELOPMENT TRACT  
 505 BASTROP STREET  
 HOUSTON, HARRIS COUNTY, TEXAS  
 VCP No. 2439

FIGURE  
**C6.D**

DATE:	AUGUST 2016	JOB NO:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-	DRAWN BY:	JAC	
2	SECOND REVISION	-	CHECKED BY:	VBM	
3	THIRD REVISION	-	APPROVED BY:	JRM	





**LEGEND**

- PROPOSED VCP PROPERTY BOUNDARY
- DESIGNATED PROPERTY BOUNDARY
- - - LOT BOUNDARY
- LIGHT RAIL
- BUILDING
- MW-6 PERMANENT MONITORING WELL LOCATION (MECX, 2011)
- MW-13 PERMANENT MONITORING WELL LOCATION (SKA, 2015-2016)
- TMW-21 FORMER TEMPORARY MONITORING WELL LOCATION (MECX, 2013)
- SCS-TW-3 SCS TEMPORARY MONITORING WELL LOCATION (VCP ID No. 2673)
- SCS-PW-3 SCS PERMANENT MONITORING WELL LOCATION (VCP ID No. 2673)
- 0.21**  
**8/15** GROUNDWATER TCE CONCENTRATION (mg/L) AND SAMPLING DATE

TCE CONCENTRATION ABOVE TRRP GROUNDWATER INGESTION PCL:

- > 0.5 mg/L
- 0.05 - 0.5 mg/L
- 0.005 - 0.05 mg/L

APPROXIMATE SCALE: 1"=100'

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HOUSTON, TEXAS 77043

Texas Registered Engineering Firm F-005009  
Texas Registered Geoscience Firm 50011

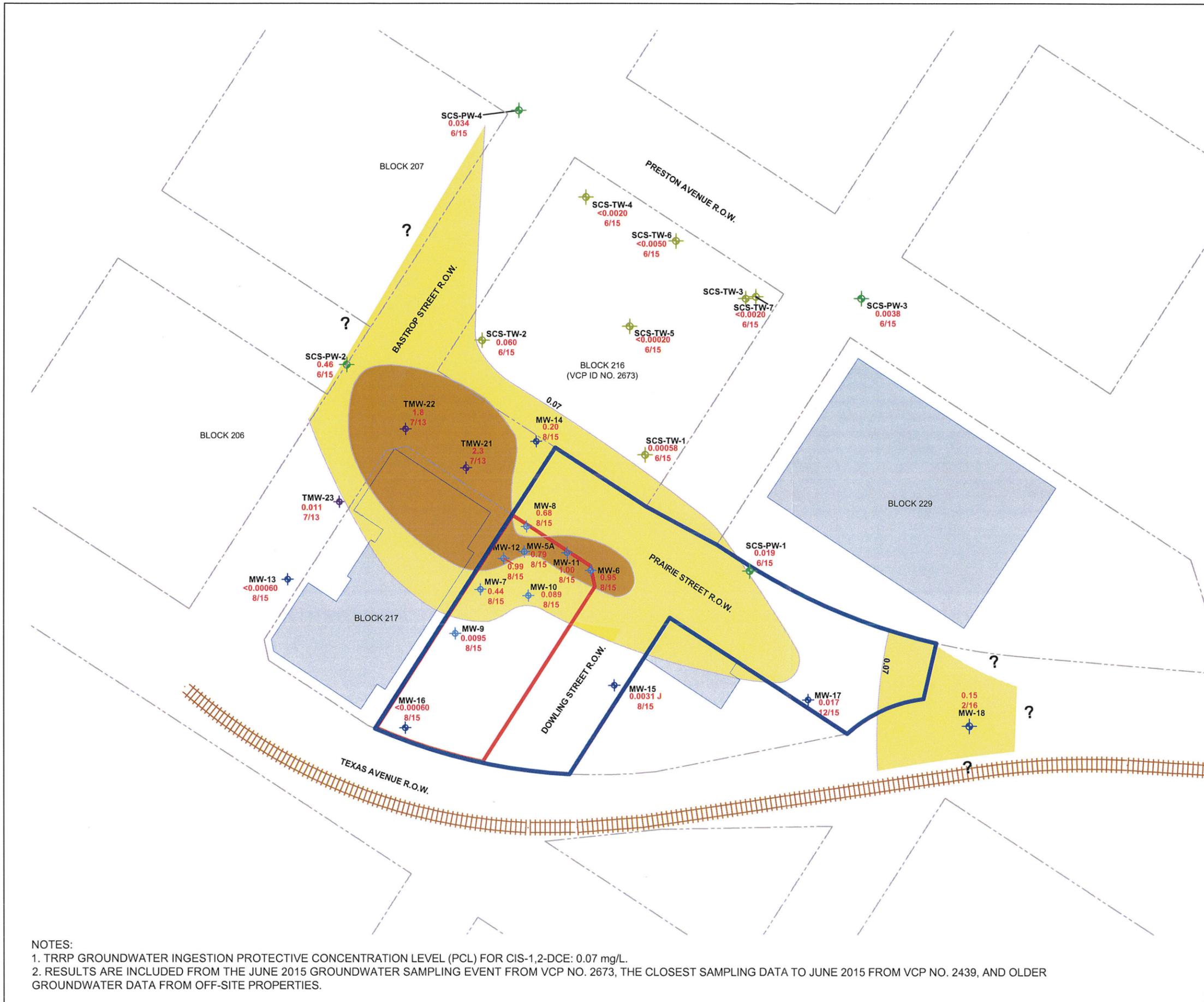
**GROUNDWATER CONCENTRATION MAP**  
**TRICHLOROETHENE (TCE)**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP No. 2439

**FIGURE**  
**C.7A**

DATE: AUGUST 2016	JOB NO: 11010-0003	SCALE: AS SHOWN
1 FIRST REVISION	-	DRAWN BY: JAC
2 SECOND REVISION	-	CHECKED BY: VBM
3 THIRD REVISION	-	APPROVED BY: JRM

NOTES:  
1. TRRP GROUNDWATER INGESTION PROTECTIVE CONCENTRATION LEVEL (PCL) FOR TCE: 0.005 mg/L.  
2. RESULTS ARE INCLUDED FROM THE JUNE 2015 GROUNDWATER SAMPLING EVENT FROM VCP NO. 2673, THE CLOSEST SAMPLING DATA TO JUNE 2015 FROM VCP NO. 2439, AND OLDER GROUNDWATER DATA FROM OFF-SITE PROPERTIES.



**LEGEND**

- PROPOSED VCP PROPERTY BOUNDARY
- DESIGNATED PROPERTY BOUNDARY
- - - - LOT BOUNDARY
- LIGHT RAIL
- BUILDING
- PERMANENT MONITORING WELL LOCATION (MECX, 2011)
- PERMANENT MONITORING WELL LOCATION (SKA, 2015-2016)
- FORMER TEMPORARY MONITORING WELL LOCATION (MECX, 2013)
- SCS TEMPORARY MONITORING WELL LOCATION (VCP ID No. 2673)
- SCS PERMANENT MONITORING WELL LOCATION (VCP ID No. 2673)
- 0.99  
8/15 GROUNDWATER CIS-1,2-DCE CONCENTRATION (mg/L) AND SAMPLING DATE

CIS-1,2-DCE CONCENTRATIONS ABOVE TRRP GROUNDWATER INGESTION PCL:

- > 0.7 mg/L
- 0.07 - 0.7 mg/L

APPROXIMATE SCALE: 1"=100'

9/27/16

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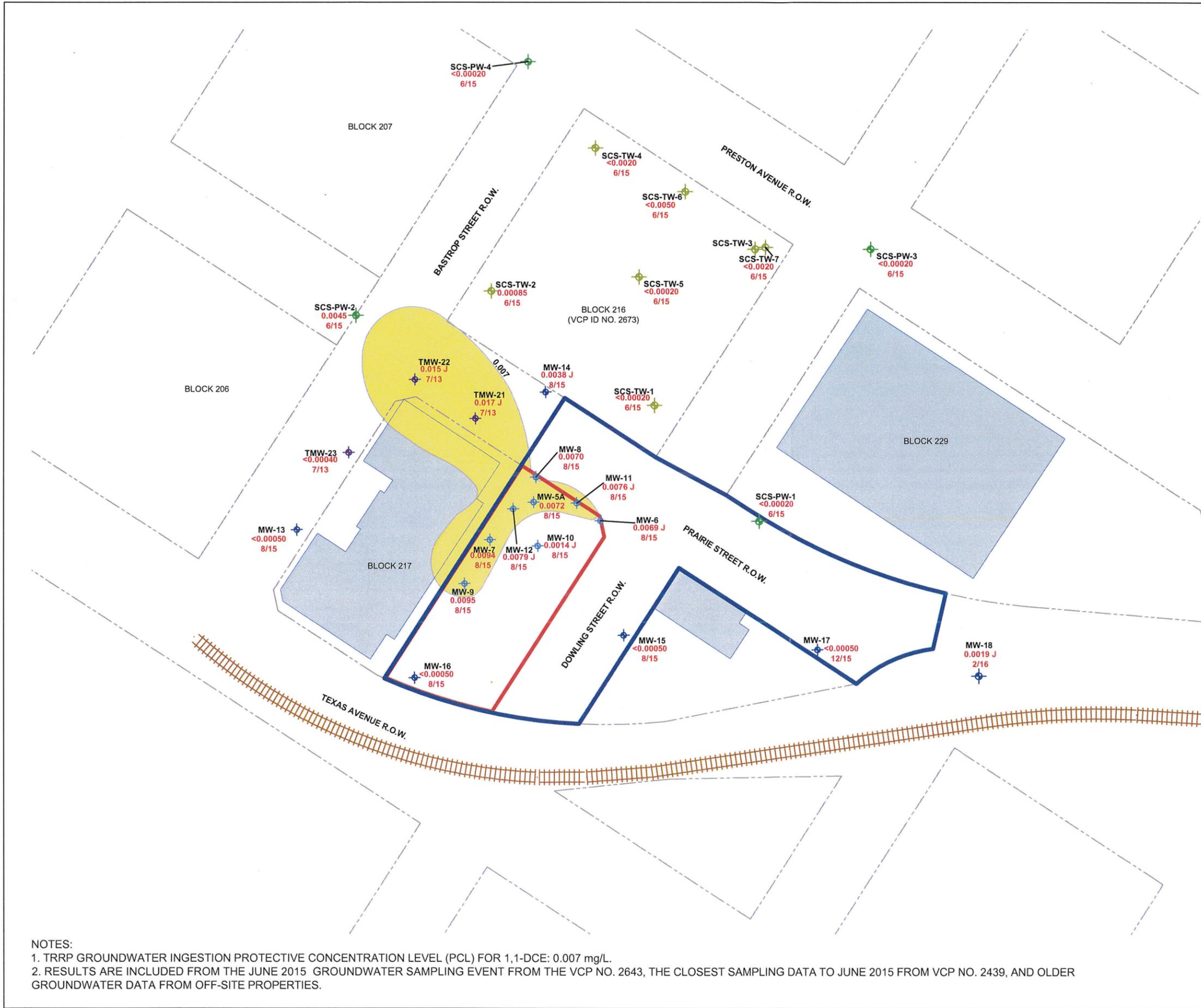
**FIGURE C.7B**

**GROUNDWATER CONCENTRATION MAP**  
**CIS-1,2-DICHLOROETHENE (CIS-1,2-DCE)**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP No. 2439

DATE: AUGUST 2016	JOB NO: 11010-0003	SCALE: AS SHOWN
1 FIRST REVISION	-	DRAWN BY: JAC
2 SECOND REVISION	-	CHECKED BY: VBM
3 THIRD REVISION	-	APPROVED BY: JRM

NOTES:  
 1. TRRP GROUNDWATER INGESTION PROTECTIVE CONCENTRATION LEVEL (PCL) FOR CIS-1,2-DCE: 0.07 mg/L.  
 2. RESULTS ARE INCLUDED FROM THE JUNE 2015 GROUNDWATER SAMPLING EVENT FROM VCP NO. 2673, THE CLOSEST SAMPLING DATA TO JUNE 2015 FROM VCP NO. 2439, AND OLDER GROUNDWATER DATA FROM OFF-SITE PROPERTIES.



**LEGEND**

- PROPOSED VCP PROPERTY BOUNDARY
- DESIGNATED PROPERTY BOUNDARY
- LOT BOUNDARY
- LIGHT RAIL
- BUILDING
- MW-6 PERMANENT MONITORING WELL LOCATION (MECX, 2011)
- MW-13 PERMANENT MONITORING WELL LOCATION (SKA, 2015-2016)
- TMW-21 FORMER TEMPORARY MONITORING WELL LOCATION (MECX, 2013)
- SCS-TW-3 SCS TEMPORARY MONITORING WELL LOCATION (VCP ID No. 2673)
- SCS-PW-3 SCS PERMANENT MONITORING WELL LOCATION (VCP ID No. 2673)

0.0072  
8/15

GROUNDWATER 1,1-DCE CONCENTRATION (mg/L) AND SAMPLING DATE

1,1-DCE CONCENTRATION ABOVE TRRP GROUNDWATER INGESTION PCL:

>0.007 mg/L

0 50 100  
APPROXIMATE SCALE: 1"=100'

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HOUSTON, TEXAS 77043

Texas Registered Engineering Firm F-005009  
Texas Registered Geoscience Firm 50011

**GROUNDWATER CONCENTRATION MAP**  
**1,1-DICHLOROETHENE (1,1-DCE)**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP No. 2439

FIGURE  
**C.7C**

NOTES:  
1. TRRP GROUNDWATER INGESTION PROTECTIVE CONCENTRATION LEVEL (PCL) FOR 1,1-DCE: 0.007 mg/L.  
2. RESULTS ARE INCLUDED FROM THE JUNE 2015 GROUNDWATER SAMPLING EVENT FROM THE VCP NO. 2643, THE CLOSEST SAMPLING DATA TO JUNE 2015 FROM VCP NO. 2439, AND OLDER GROUNDWATER DATA FROM OFF-SITE PROPERTIES.

DATE: AUGUST 2016	JOB NO: 11010-0003	SCALE: AS SHOWN
1 FIRST REVISION	-	DRAWN BY: JAC
2 SECOND REVISION	-	CHECKED BY: VBM
3 THIRD REVISION	-	APPROVED BY: JRM



**LEGEND**

- PROPOSED VCP PROPERTY BOUNDARY
- DESIGNATED PROPERTY BOUNDARY
- - - LOT BOUNDARY
- LIGHT RAIL
- BUILDING
- MW-6 PERMANENT MONITORING WELL LOCATION (MECX, 2011)
- MW-13 PERMANENT MONITORING WELL LOCATION (SKA, 2015-2016)
- TMW-21 FORMER TEMPORARY MONITORING WELL LOCATION (MECX, 2013)
- SCS-TW-3 SCS TEMPORARY MONITORING WELL LOCATION (VCP ID No. 2673)
- SCS-PW-3 SCS PERMANENT MONITORING WELL LOCATION (VCP ID No. 2673)
- 0.026  
8/15 GROUNDWATER VC CONCENTRATION (mg/L) AND SAMPLING DATE

VC CONCENTRATION ABOVE GROUNDWATER INGESTION PCL:

- > 0.02 mg/L
- 0.002 - 0.02 mg/L

APPROXIMATE SCALE: 1"=100'

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1888 STEBBINS DRIVE, SUITE 100  
HOUSTON, TEXAS 77043

Texas Registered Engineering Firm F-005009  
Texas Registered Geoscience Firm 50011

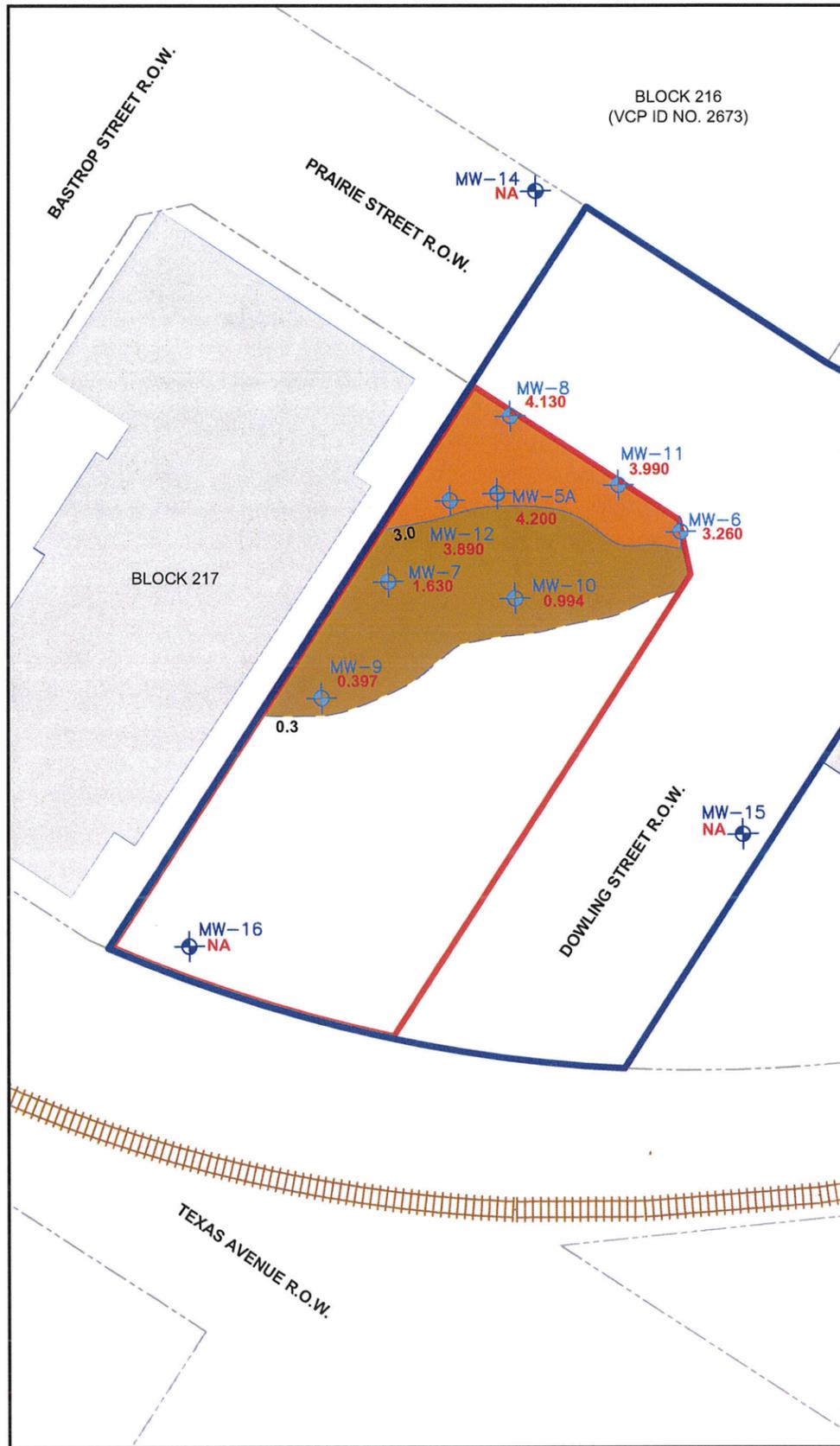
**GROUNDWATER CONCENTRATION MAP**  
**VINYL CHLORIDE (VC)**

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP No. 2439

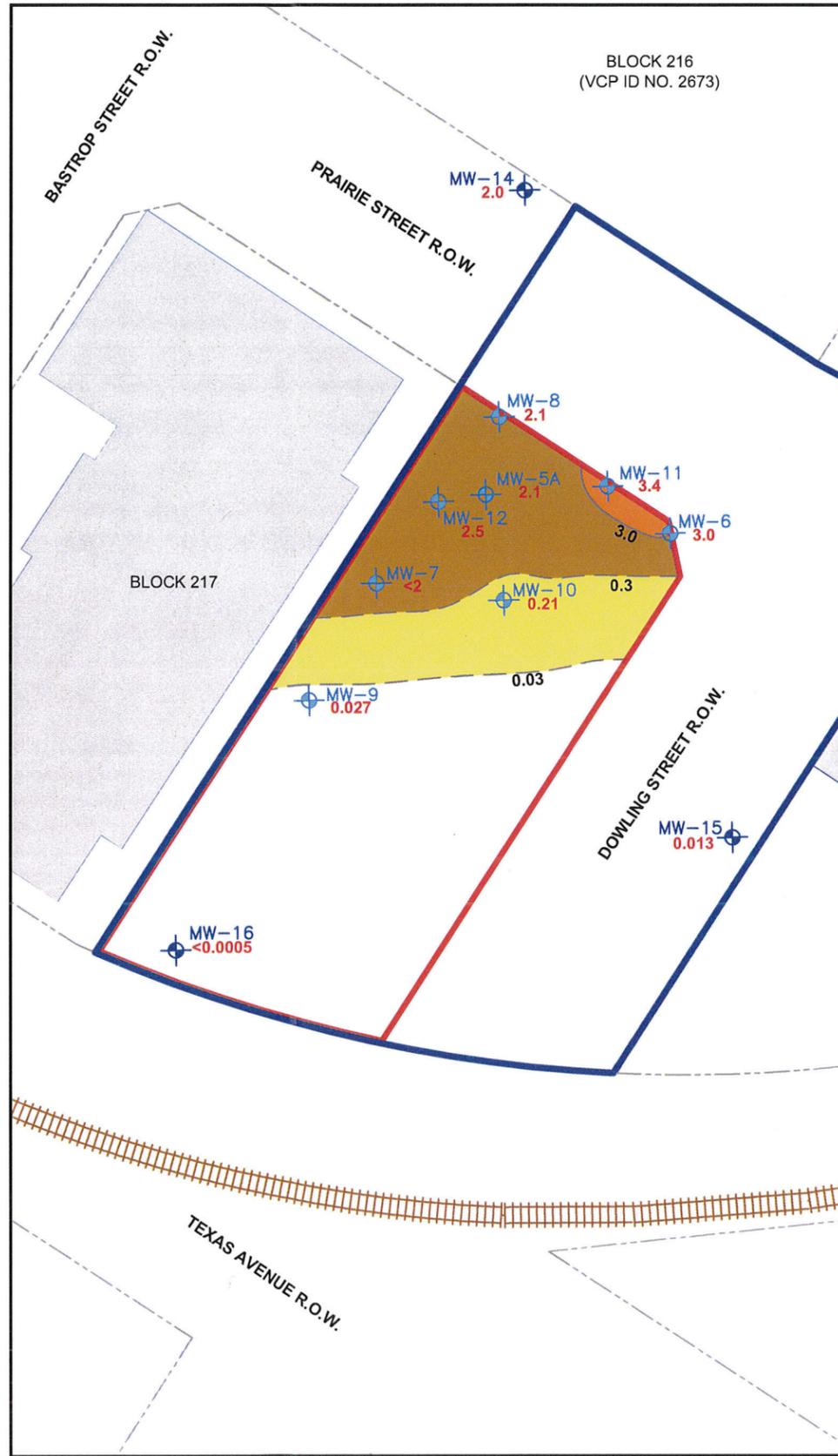
FIGURE  
**C.7D**

DATE: AUGUST 2016	JOB NO: 11010-0003	SCALE: AS SHOWN
1 FIRST REVISION	-	DRAWN BY: JAC
2 SECOND REVISION	-	CHECKED BY: VBM
3 THIRD REVISION	-	APPROVED BY: JRM

NOTES:  
 1. TRRP GROUNDWATER INGESTION PROTECTIVE CONCENTRATION LEVEL (PCL) FOR VC: 0.002 mg/L.  
 2. RESULTS FROM THE JUNE 2015 GROUNDWATER SAMPLING EVENT FROM VCP NO. 2673, THE CLOSEST SAMPLING DATA TO JUNE 2015 FROM VCP NO. 2439, AND OLDER GROUNDWATER DATA FROM OFF-SITE PROPERTIES.



2011



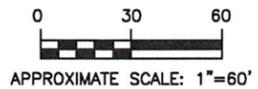
2015/2016

LEGEND

- PROPOSED VCP PROPERTY BOUNDARY
- DESIGNATED PROPERTY BOUNDARY
- LOT BOUNDARY
- LIGHT RAIL
- BUILDING
- PERMANENT MONITORING WELL LOCATION (MECX, 2011)
- PERMANENT MONITORING WELL LOCATION (SKA, 2015)
- GROUNDWATER TCE CONCENTRATION (mg/L)

TCE CONCENTRATION (mg/L):

- >3.0 mg/L
- >0.3 - 3.0 mg/L
- 0.03 - 0.3 mg/L



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HISTORICAL AND CURRENT TRICHLOROETHENE (TCE) CONCENTRATION MAP ON VCP PROPERTY

CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP No. 2439

FIGURE  
C.8

DATE:	AUGUST 2016	JOB NO:	11010-0003	SCALE:	AS SHOWN
1	FIRST REVISION	-	DRAWN BY:	JAC	
2	SECOND REVISION	-	CHECKED BY:	VBM	
3	THIRD REVISION	-	APPROVED BY:	JRM	



## Appendix D – COCs in Designated Groundwater

Chemicals of concern (COCs) reportedly detected in the groundwater of the upper groundwater bearing unit (GWBU) above their respective TRRP Tier 1 residential <sup>GW</sup>GW<sub>ing</sub> PCLs (or TRRP groundwater ingestion PCLs) have historically included tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-dichloroethene (1,1-DCE), vinyl chloride (VC), and 1,1,2-trichloroethane (1,1,2-TCA). Groundwater sampling and analysis activities indicate that four COCs are currently exceeding their respective TRRP groundwater ingestion PCLs at the designated property: TCE, cis-1,2-DCE, 1,1-DCE, and VC.

Due to relatively high concentrations of chlorinated COCs in groundwater, SKA also collected sub-slab and near-source soil vapor samples beneath the current VCP property. Analytical results revealed that chlorinated COCs in groundwater do not pose a significant risk for vapor intrusion at the designated property. The details of the vapor intrusion assessment will be presented in an Affected Property Assessment Report (APAR) that will be submitted to the TCEQ.

A brief summary discussion regarding the four COCs currently present in the groundwater of the designated property follows. Maps showing the groundwater COC plumes and concentrations of COCs in the groundwater are provided in **Appendix C** as **Figures C.7A to C.7D** and summary tables of all groundwater sampling and analysis results obtained for the designated property are provided in **Appendix E** as **Table E.2**. Note that the groundwater COC plumes are likely commingled with similar COC plumes located on adjacent upgradient and crossgradient properties.

<b>Trichloroethene (TCE)</b>		
Current Maximum Concentration		3.4 mg/L (MW-11, 06/2016)
Ingestion-Based PCL (Residential <sup>GW</sup> GW <sub>ing</sub> )		0.005 mg/L
Ingestion-Based PCLE Zone within the designated property based on 2015 groundwater data	Minimum depth	19
	Maximum depth	30
	Total area	±67,500 square-feet (SQ-FT)
Non-Ingestion-Based PCL (Residential <sup>Air</sup> GW <sub>inh-v</sub> )		24 mg/L
Non-Ingestion-Based PCLE Zone		None
Specific Gravity		1.48
Solubility in Water		1,100 mg/L

<b>1,1-Dichloroethene (1,1-DCE)</b>		
Current Maximum Concentration		0.0094 mg/L (MW-7, 08/2015)
Ingestion-Based PCL (Residential <sup>GW</sup> GW <sub>ing</sub> )		0.007 mg/L
Ingestion-Based PCLE Zone within the designated property based on 2015 groundwater data	Minimum depth	19
	Maximum depth	30
	Total area	±4,200 SQ-FT
Non-Ingestion-Based PCL (Residential <sup>Air</sup> GW <sub>inh-v</sub> )		1,700 mg/L
Non-Ingestion-Based PCLE Zone		None
Specific Gravity		1.21
Solubility in Water		2,400 mg/L

<b>cis-1,2-Dichloroethene (cis-1,2-DCE)</b>		
Current Maximum Concentration		0.99 mg/L (MW-12, 08/2015)
Ingestion-Based PCL (Residential <sup>GW</sup> GW <sub>Inq</sub> )		0.07 mg/L
Ingestion-Based PCLE Zone within the designated property based on 2015 groundwater data	Minimum depth	19
	Maximum depth	30
	Total area	±33,500 SQ-FT
Non-Ingestion-Based PCL (Residential <sup>Air</sup> GW <sub>Inh-v</sub> )		1,200 mg/L
Non-Ingestion-Based PCLE Zone		None
Specific Gravity		1.27
Solubility in Water		4,900 mg/L

<b>Vinyl chloride (VC)</b>		
Current Maximum Concentration		0.062 mg/L (MW-12, 08/2015)
Ingestion-Based PCL (Residential <sup>GW</sup> GW <sub>Inq</sub> )		0.002 mg/L
Ingestion-Based PCLE Zone within the designated property based on 2015 groundwater data	Minimum depth	19
	Maximum depth	30
	Total area	±47,500 SQ-FT
Non-Ingestion-Based PCL (Residential <sup>Air</sup> GW <sub>Inh-v</sub> )		3.8 mg/L
Non-Ingestion-Based PCLE Zone		None
Specific Gravity		0.91
Solubility in Water		2,760 mg/L

#### References:

National Institute for Occupational Safety and Health (NIOSH). *Pocket Guide to Chemical Hazards*, Department of Health and Human Services, Centers for Disease Control and Prevention, DHHS (NIOSH) Publication No. 2005-149, 2007.

United States Environmental Protection Agency (EPA). *Toxicological Review of cis-1,2-Dichloroethylene and trans-1,2-Dichloroethylene, in Support of Summary Information on the Integrated Risk Information System (IRIS)*, U.S. EPA Washington DC, EPA/635/R-09/006F, 2010.

Texas Commission on Environmental Quality. Texas Risk Reduction Program Table of Chemical Properties. Austin, Texas, 2016.

CRC Press. Groundwater Chemicals Desk Reference, 3<sup>rd</sup> Edition, Boca Raton, Florida, 2000.

## Appendix E – Summary of Soil and Groundwater Data

---

### Summary of Soil Data

A total of 25 soil borings (SB-1 through SB-10, UST-1 through UST-13, UST-17, and UST-19), 5 temporary monitoring wells (TMW-1 through TMW-5), 9 permanent monitoring wells (MW-5A, MW-6 through MW-12, and MW-16), and 1 investigative trench (within the abandoned underground cistern) were completed on the current VCP property between 2011 and 2016. Three additional temporary wells (TMW-21 to TMW-23) and five permanent monitoring wells (MW-13 to MW-15, MW-17, and MW-18) were also installed in the ROWs (Prairie and Bastrop Streets) adjacent to the designated property. No soil samples were collected from Tract 2; however, according to SKA's historical review, Tract 2 has only been used as a parking lot and an air monitoring station since the 1950s. As such, and based on analytical results from soil and groundwater samples from adjacent boreholes, no particular recognized environmental concerns were identified associated with this tract (see also **Appendix J** for the historical use of Tract 2).

Soil sampling and analysis indicated that regulated substances including 13 VOCs (acetone, n-butylbenzene, sec-butylbenzene, carbon disulfide, cis-1,2-DCE, isopropylbenzene, methyl ethyl ketone [MEK], methyl tert-butyl ether [MTBE], naphthalene, n-propylbenzene, trichloroethene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene), 8 metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), TPH, and 20 semi-volatile organic compounds (SVOCs) were present in soil samples collected from the current VCP property. Low concentrations of TCE were detected within subsurface soil samples, with one concentration slightly exceeding the TRRP soil-to-groundwater ingestion ( $^{GW}Soil_{Ing}$ ) residential PCL (MW-11 at 22.5-25 feet below ground surface [ft-bgs]). However, the soil sample was collected from within the soil-water interface and as such is most likely affected by groundwater impacted with TCE. All other contaminant concentrations did not exceed the applicable TCEQ TRRP Tier 1 residential  $^{GW}Soil_{Ing}$  PCLs, the TCEQ TRRP Tier 2 residential  $^{GW}Soil_{Ing}$  PCLs (developed for lead), the TCEQ TRRP Tier 3 residential  $^{GW}Soil_{Ing}$  PCLs (developed for arsenic and barium), the calculated site-specific Tier 1 TPH<sub>mixture</sub> soil PCLs, or the TCEQ Texas-Specific Background Concentrations. None of the detected concentrations exceeded the TRRP combined soil ingestion, dermal contact, inhalation of volatiles and particulates, and ingestion of aboveground and below-ground vegetables ( $^{Tot}Soil_{Comb}$ ) residential PCL for surface soils or the and soil-to-air inhalation ( $^{Air}Soil_{Inh-v}$ ) residential PCL for surface and subsurface soils.

The TRRP Tier 1 PCLs for soils to determine the designated property's soil-to-groundwater ingestion and non-ingestion PCL Exceedance (PCLE) zones are included in **Table E.1**. A summary of maximum soil concentrations compared to applicable soil-to-groundwater ingestion PCLs ( $^{GW}Soil_{Ing}$ ) and non-ingestion PCLs ( $^{Tot}Soil_{Comb}$  and  $^{Air}Soil_{Inh-v}$ ) are included in **Table E.3**. **Tables E.1** and **E.3** also include soil samples from the three temporary monitoring wells installed in the Prairie Street ROW adjacently west of the designated property.

### Summary of Groundwater Data

Groundwater assessment activities were initiated in 2011 with the installation of 5 temporary monitoring wells (TMW-1 through TMW-5) and 8 permanent monitoring wells (MW-5A and MW-6 through MW-12) on the current VCP property and continued in 2013 with the installation of the 3 off-site temporary monitoring wells in the Prairie Street and Bastrop Street ROWs, adjacently

west of the designated property (TMW-21 to TMW-23). In 2015 and 2016, SKA installed 6 additional permanent monitoring wells (MW-13 through MW-18) and conducted several groundwater monitoring events for the designated property.

The depth of the upper boundary of the upper GWBU ranges from 19 to 26 ft-bgs. Groundwater flow direction beneath the designated property is generally toward the southeast with a variable gradient, from approximately 0.002-0.004 ft/ft beneath the western portion of the designated property to approximately 0.02 ft/ft beneath the eastern portion of the designated property. The average groundwater gradient is approximately 0.009 ft/ft southeast across the entire designated property.

COCs reportedly detected in the groundwater of the upper GWBU exceeding their respective TRRP groundwater ingestion PCLs have historically included PCE, TCE, cis-1,2-DCE, 1,1-DCE, VC, 1,1,2-TCA, and TPH. However, the TPH concentrations did not exceed the calculated site-specific Tier 1 groundwater ingestion  $TPH_{mixture}$  PCL listed on **Table E.2**. COCs currently exceeding the TRRP groundwater ingestion PCLs include TCE, cis-1,2-DCE, 1,1-DCE, and VC. None of the COCs detected in the upper GWBU exceed their applicable TRRP groundwater non-ingestion PCLs (TRRP Tier 1 residential  $^{Air}GW_{Inh-V}$  PCLs). As such, no TRRP groundwater non-ingestion PCLE zones exist at the designated property.

Summary tables showing the maximum concentrations of COCs detected in groundwater at or adjacently west of the designated property are provided in **Table E.4**. Included with the maximum COC concentrations detected in groundwater in **Table E.4** are the COC's applicable TRRP PCLs for both ingestion and non-ingestion exposure pathways.

The four COCs in groundwater on the designated property currently exceeding their respective TRRP groundwater ingestion PCLs (the critical TRRP PCLs without an MSD) are indicated in **Table E.4**. These COCs are highlighted in yellow. However, no COCs currently exceed their respective TRRP groundwater non-ingestion PCLs (critical TRRP PCLs with an MSD).

Complete summaries of all sampling and analysis results for soil and groundwater samples collected for the designated property are provided in **Tables E.1** and **E.2**, respectively. The locations of all soil and groundwater sampling points are presented on **Figure C.5** in **Appendix C**.

TABLE E.1  
SOIL DATA SUMMARY - VOCs  
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP NO. 2439

Sample Name	Sample Depth (ft-bgs)	Sample Date	VOLATILE ORGANIC COMPOUNDS (VOCs)													
			Acetone	n-Butylbenzene	sec-Butylbenzene	Carbon disulfide	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Isopropylbenzene	Methyl ethyl ketone (MEK)	Methyl tert-butyl ether (MTBE)	Naphthalene	n-Propylbenzene	Trichloroethene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
			Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg	Method 8260 mg/kg
<b>SOIL BORINGS (MEC<sup>x</sup>)</b>																
SB-1	10-12	4/7/11	<0.0098	<0.00082	<0.00091	<0.00066	<0.0012	<0.00093	<0.00083	<0.0069	<0.0010	<0.00087	<0.0020	<0.0010	<0.0012	
SB-2	2.5-5.0	4/7/11	<b>0.056</b>	<b>0.0049 J</b>	<b>0.0133</b>	<b>0.0012 J</b>	<0.0013	<0.0010	<0.00093	<b>0.0153 J</b>	<0.0011	<b>0.0013 J</b>	<0.00097	<0.0023	<b>0.0016 J</b>	<0.0013
	5.0-7.5	4/7/11	<0.0098	<0.00082	<0.00091	<0.00066	<0.0012	<0.00093	<0.00083	<0.0068	<0.0010	<0.00087	<0.0020	<0.0010	<0.0012	
SB-3	10-12	4/7/11	<0.0095	<0.00080	<0.00088	<0.00064	<0.0012	<0.00090	<0.00080	<0.0066	<0.00098	<0.0010	<0.00084	<0.0020	<0.00098	<0.0011
SB-4	2.5-5.0	4/7/11	<b>0.0386 J</b>	<0.00081	<0.00091	<b>0.00077 J</b>	<0.0012	<0.00092	<0.00082	<b>0.0109 J</b>	<0.0010	<0.0010 UJ	<0.00086	<0.0020	<0.0010	<0.0012
SB-5	2.5-5.0	4/7/11	<b>0.0373 J</b>	<0.00080	<0.00089	<b>0.00070 J</b>	<0.0012	<0.00091	<0.00081	<b>0.0091 J</b>	<0.00099	<0.0010 UJ	<0.00085	<0.0020	<0.00099	<0.0011
SB-6	7.5-10.0	4/7/11	<0.010	<0.00087	<0.00097	<0.00070	<0.0013	<0.00099	<0.00088	<0.0073	<0.0011	<0.0011	<0.00092	<0.0021	<0.0011	<0.0012
SB-7	1-1.25	4/7/11	<b>0.0315 J</b>	<0.00080	<0.00089	<b>0.00083 J</b>	<0.0012	<0.00090	<0.00080	<b>0.0085 J</b>	<0.00098	<0.0010 UJ	<0.00085	<0.0020	<0.00098	<0.0011
SB-8	7.5-10	4/7/11	<0.010	<0.00087	<0.00097	<0.00071	<0.0013	<0.00099	<0.00088	<0.0073	<b>0.0012 J</b>	<0.0011	<0.00093	<0.0021	<0.0011	<0.0012
<b>TEMPORARY MONITORING WELLS (MEC<sup>x</sup>)</b>																
TMW-1	20-22.5	1/12/11	<0.0095	<0.00080	<0.00089	<0.00064	<0.0012	<0.00090	<0.00080	<0.0066	<0.00098	<0.0010	<0.00085	<0.0020	<0.00098	<0.0011
TMW-2	2.5-5.0	1/12/11	<b>0.100</b>	<b>0.0610</b>	<b>0.0595</b>	<0.00068	<0.0012	<0.00095	<b>0.0137</b>	<0.0070	<0.0010	<0.0011	<b>0.0465</b>	<0.0021	<0.0010	<0.0012
TMW-3	22.5-25	1/12/11	<0.010	<0.00084	<0.00093	<0.00068	<0.0012	<0.00095	<0.00085	<0.0070	<0.0010	<0.0011	<0.00089	<0.0021	<0.0010	<0.0012
TMW-4	1-3	1/13/11	<b>0.0869</b>	<0.00086	<0.00096	<0.00070	<0.0013	<0.00098	<0.00087	<0.0072	<0.0011	<0.0011	<0.00091	<0.0021	<0.0011	<0.0012
TMW-5	22.5-25	1/13/11	<0.0098	<0.00082	<0.00091	<0.00066	<b>0.0022 J</b>	<0.00093	<0.00083	<0.0068	<0.0010	<0.0010	<0.00087	<b>0.0079</b>	<0.0010	<0.0012
<b>OFF-SITE TEMPORARY MONITORING WELLS (MEC<sup>x</sup>)</b>																
SB-21 (TMW-21)	21.5	7/3/13	<0.065	<0.0017	<0.0013	-	<b>0.0018 J</b>	<0.0017	<0.0016	<0.030	<0.0014	<0.0065	<0.0013	<b>0.0025 J</b>	<0.0013	<0.0017
SB-22 (TMW-22)	23.5	7/3/13	<0.064	<0.0017	<0.0013	-	<b>0.013</b>	<0.0017	<0.0015	<0.030	<0.0014	<0.0064	<0.0013	<b>0.032</b>	<0.0013	<0.0017
SB-23 (TMW-23)	18.5	7/3/13	<0.059	<0.0015	<0.0012	-	<b>0.0036 J</b>	<b>0.0026 J</b>	<0.0014	<0.027	<0.0013	<0.0059	<0.0012	<b>0.0096</b>	<0.0012	<0.0015
<b>PERMANENT MONITORING WELLS (MEC<sup>x</sup>)</b>																
MW-5A	5-7.5	4/7/11	<0.0091	<0.00076	<0.00084	<0.00061	<0.0011	<0.00086	<0.00076	<0.0063	<0.00093	<0.00095	<0.00080	<0.0019	<0.00093	<0.0011
	20-22.5	4/7/11	<0.0098	<0.00082	<0.00091	<0.00066	<0.0012	<0.00093	<0.00083	<0.0068	<0.0010	<0.0010	<0.00087	<0.0020	<0.0010	<0.0012
	22.5-25	4/7/11	<0.0091	<0.00076	<0.00085	<0.00062	<b>0.0029 J</b>	<0.00087	<0.00077	<0.0064	<0.00094	<0.00096	<0.00081	<b>0.0067</b>	<0.00094	<0.0011
MW-6	1.5-2.5	4/5/11	<0.011	<0.00088	<0.00098	<0.00072	<0.0013	<0.0010	<0.00089	<0.0074	<0.0011	<0.00094	<0.00089	<0.0022	<0.0011	<0.0013
MW-7	20-22.5	4/5/11	<0.0098	<0.00082	<0.00091	<0.00066	<0.0012	<0.00093	<0.00083	<0.0069	<0.0010	<0.0010	<0.00087	<0.0020	<0.0010	<0.0012
MW-8	1.5-2.5	4/5/11	<b>0.0838</b>	<0.00084	<0.00093	<0.00068	<0.0012	<0.00095	<0.00085	<b>0.0131 J</b>	<0.0010	<0.0010	<0.00089	<0.0021	<0.0010	<0.0012
	22.5-25	4/5/11	<0.011	<0.00089	<0.00099	<0.00072	<b>0.0018 J</b>	<0.0010	<0.00090	<0.0074	<0.0011	<0.0011	<0.00094	<b>0.0036 J</b>	<0.0011	<0.0013
TMW-9 (MW-9)	2.5-5.0	4/6/11	<b>0.0584</b>	<0.00083	<0.00093	<0.00067	<0.0012	<0.00095	<0.00084	<0.0070	<0.0010	<0.0010	<0.00088	<0.0020	<0.0010	<0.0012
TMW-10 (MW-10)	12.5-15	4/6/11	<0.0084	<0.00070	<0.00078	<0.00057	<0.0010	<0.00080	<0.00071	<0.0059	<0.00086	<0.00088	<0.00074	<0.0017	<0.00086	<0.0010
TMW-11 (MW-11)	12.5-15	4/6/11	<b>0.0322 J</b>	<0.00073	<0.00081	<0.00059	<0.0011	<0.00083	<0.00074	<0.0061	<0.00089	<0.00091	<0.00077	<0.0018	<0.00089	<0.0010
	22.5-25	4/6/11	<0.0098	<0.00082	<0.00091	<0.00067	<b>0.0147</b>	<0.00093	<0.00083	<0.0069	<0.0010	<0.0010	<0.00087	<b>0.0426*</b>	<0.0010	<0.0012
TMW-12 (MW-12)	15-17.5	4/6/11	<0.0085	<0.00071	<0.00079	<0.00058	<0.0010	<0.00081	<0.00072	<0.0059	<0.00087	<0.00089	<0.00076	<0.0017	<0.00087	<0.0010
<b>CISTERN SOIL SAMPLES (MEC<sup>x</sup>)</b>																
BOTTOM	--	5/20/11	<0.0089	<0.00075	<0.00083	<b>0.00069 J</b>	<0.0011	<0.00085	<0.00075	<0.0062	<0.00091	<0.00093	<0.00079	<0.0018	<0.00092	<0.0011
FLOOR MATERIAL	--	5/20/11	<b>0.0410 J</b>	<0.00082	<b>0.0038 J</b>	<b>0.0163</b>	<0.0012	<0.00093	<b>0.0013 J</b>	<b>0.0182 J</b>	<0.0010	<0.0010	<b>0.0020 J</b>	<0.0020	<b>0.0025 J</b>	<b>0.0013 J</b>
FILL MATERIAL	--	5/20/11	<b>0.0308 J</b>	<0.00094	<b>0.0022 J</b>	<b>0.0090</b>	<0.0014	<0.0011	<0.00095	<0.0079	<0.0012	<0.0012	<0.0010	<0.0023	<b>0.0017 J</b>	<0.0013
<b>SOIL BORING (SKA)</b>																
SB-9	4-5	5/12/16	<0.0021	<0.00041	<0.00069	-	<0.00055	<0.00034	<0.00062	<0.00089	<0.00034	<0.00055	<0.00062	<0.00041	<0.00076	<0.00055
<b>REGULATORY STANDARDS</b>																
TCEQ TRRP Tier 1 <sup>GW</sup> Soil <sub>ing</sub> Residential Soil PCLs (0.5-Acre Source Area)			43	150	85	14	0.25	0.49	350	29	0.62	31	45	0.034	49	53
TCEQ TRRP Tier 1 <sup>To</sup> Soil <sub>omb</sub> Residential Soil PCLs (0.5-Acre Source Area)			66,000	3,300	3,300	4,600	140	590	4,300	40,000	800	220	2,200	18	150	110
TCEQ TRRP Tier 1 <sup>Air</sup> Soil <sub>nh-v</sub> Residential Soil PCLs (0.5-Acre Source Area)			600,000	--	--	11,000	920	920	9,200	200,000	1,400	270	6,300	31	160	120

**Notes:**

"-" indicates not analyzed.  
 "--" indicates not applicable.  
 "mg/kg" represents milligram per kilogram.  
 "ft-bgs" indicates feet below ground surface.  
 "VCP" represents Voluntary Cleanup Program.  
 "TCEQ" represents Texas Commission on Environmental Quality.  
 "TRRP" represents Texas Risk Reduction Program.  
 Only VOC analytes with at least one sample with a concentration above the laboratory reporting limit shown on this table.

"<" indicates the analyte was not detected at or above the specified laboratory Sample Detection Limit (SDL).  
 Concentrations in bold exhibit a concentration in excess of the laboratory SDL or the laboratory detection limit.  
 "J" indicates that the analyte is an estimated value between the SDL and the Method Quantitation Limit (MQL).  
 "UJ" indicates the SDL is estimated, per the Affected Property Assessment (APAR) Data Usability Summary (DUS).  
 Concentrations highlighted yellow exhibit a concentration in excess of the Residential Assessment Levels without a Municipal Setting Designation (MSD) in place.  
 Concentrations highlighted orange exhibit a concentration in excess of the Residential Assessment Levels with an MSD in place.  
 "0.0426\*" indicates the TCE concentration exceeds the RALs without an MSD but is not representative of vadose zone conditions.  
 TCEQ TRRP Tier 1 Residential Soil PCLs (30 TAC 350) Table 1: Tier 1 Residential Soil PCLs - dated March 4, 2016.

TABLE E.1  
SOIL DATA SUMMARY - RCRA 8 METALS & TPH  
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP NO. 2439

Sample Name	Sample Depth (ft-bgs)	Sample Date	RCRA 8 METALS										TOTAL PETROLEUM HYDROCARBONS (TPH)				pH
			Arsenic	SPLP Arsenic	Barium	SPLP Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	C6-C12	>C12-C28	>C28-C35	Total TPH (C6-C35)	
			Method 6010 mg/kg	Method 6010B mg/L	Method 6010 mg/kg	Method 6010B mg/L	Method 6010 mg/kg	Method 6010 mg/kg	Method 6010 mg/kg	Method 7471 mg/kg	Method 6010 mg/kg	Method 6010 mg/kg	TX1005 mg/kg	TX1005 mg/kg	TX1005 mg/kg	TX1005 mg/kg	
<b>TEMPORARY MONITORING WELLS (MEC<sup>x</sup>)</b>																	
TMW-1	20-22.5	1/12/11	6.0	-	50.1	-	0.61	37.5	14.1	<0.0081	<0.19	0.20 J	<5.1	<5.1	<5.1	<5.1	8.63
TMW-2	2.5-5.0	1/12/11	5.2	-	229	-	0.45	32.1	19.8	0.0084 J	<0.18	<0.059	488	2,930	2,760	6,180	7.44
TMW-3	22.5-25	1/12/11	3.4	-	5,130	0.087	0.64	39.9	47.8	<0.0088	<0.20	<0.065	<5.4	<5.4	<5.4	<5.4	8.70
TMW-4	1-3	1/13/11	3.9	-	172	-	0.50	25.4	22.4	0.035	<0.18	0.081 J	<5.0	<5.1	<5.1	<5.0	7.06
TMW-5	22.5-25	1/13/11	14.2	0.0032	144	-	<0.42 UJ	36.8	6.2	<0.0085	<1.0 UJ	<0.33 UJ	<5.3	<5.3	<5.3	<5.3	8.05
<b>OFF-SITE TEMPORARY MONITORING WELLS (MEC<sup>x</sup>)</b>																	
SB-21 (TMW-21)	21.5	7/3/2013	-	-	-	-	-	-	-	-	-	-	<20	<20	<20	<20	-
SB-22 (TMW-22)	23.5	7/3/2013	-	-	-	-	-	-	-	-	-	-	<19	<19	<19	<19	-
SB-23 (TMW-23)	18.5	7/3/2013	-	-	-	-	-	-	-	-	-	-	<18	210	210	420	-
<b>CISTERN SOIL SAMPLE (MEC<sup>x</sup>)</b>																	
FILL MATERIAL*	--	5/20/11	-	-	-	-	-	-	-	-	-	-	196 J	10,000	4,640	14,800	-
<b>SOIL BORINGS (SKA)</b>																	
SB-9	4-5	5/12/16	1.27	-	94.6	-	<0.0546	5.63	7.06	0.00415 J	0.730	<0.0874	<7.7	<7.7	<7.7	<7.7	-
	9-10	5/12/16	-	-	-	-	-	-	-	-	-	-	20 J	860	440	1,320	-
	12-13	5/12/16	-	-	-	-	-	-	-	-	-	-	<6.6	<6.6	<6.6	<6.6	-
<b>REGULATORY STANDARDS</b>																	
TCEQ TRRP Tier 1 <sup>GW</sup> Soil <sub>ing</sub> Residential Soil PCLs (0.5-Acre Source Area)			5.0	--	440	--	1.5	2,400	3.0	0.0078	2.3	0.48	65	200	200	--	--
TCEQ TRRP Tier 2 <sup>GW</sup> Soil <sub>ing</sub> Residential Soil PCLs (0.5-Acre Source Area)			6.2	--	2,084	--	--	--	549	--	--	--	--	--	--	--	--
TCEQ Texas-Specific Background Concentrations (30 TAC 350.51(m))			5.9	--	300	--	--	30	15	0.04	0.3	--	--	--	--	--	--
TCEQ TRRP Tier 1 <sup>Tot</sup> Soil <sub>comb</sub> Residential Soil PCLs (0.5-Acre Source Area)			24	--	8,100	--	52	33,000	500	3.6	310	97	1,600	2,300	2,300	--	--
TCEQ TRRP Tier 1 <sup>Air</sup> Soil <sub>inh-v</sub> Residential Soil PCLs (0.5-Acre Source Area)			--	--	--	--	--	--	--	4.6	--	--	3,100	15,000	15,000	--	--
TCEQ TRRP Tier 1 TPH <sub>mix</sub> <sup>GW</sup> Soil <sub>ing</sub> Residential Soil PCL (TMW-2 area) (0.5-Acre Source Area)			--	--	--	--	--	--	--	--	--	--	--	--	--	PROTECTIVE*	--
TCEQ TRRP Tier 1 TPH <sub>mix</sub> <sup>Tot</sup> Soil <sub>comb</sub> Residential Soil PCL (TMW-2 area) (0.5-Acre Source Area)			--	--	--	--	--	--	--	--	--	--	--	--	--	17,000	--
TCEQ TRRP Tier 1 TPH <sub>mix</sub> <sup>GW</sup> Soil <sub>ing</sub> Residential Soil PCL (SB-9/cistern area) (0.5-Acre Source Area)			--	--	--	--	--	--	--	--	--	--	--	--	--	PROTECTIVE*	--
TCEQ TRRP Tier 1 TPH <sub>mix</sub> <sup>Tot</sup> Soil <sub>comb</sub> Residential Soil PCL (SB-9/cistern area) (0.5-Acre Source Area)			--	--	--	--	--	--	--	--	--	--	--	--	--	9,700	--
TCEQ TRRP Tier 1 <sup>GW</sup> GW <sub>ing</sub> Residential Soil PCLs			--	0.010	--	2.0	--	--	--	--	--	--	--	--	--	85,000	--

**Notes:**

-- represents not analyzed.  
 "-." represents not applicable.  
 "mg/kg" represents milligrams per kilogram.  
 "mg/L" represents milligrams per liter.  
 "RCRA" represents Resource Conservation and Recovery Act.  
 "SPLP" represents Synthetic Precipitate Leaching Procedure.  
 "TCEQ" represents Texas Commission on Environmental Quality.  
 "TRRP" represents Texas Risk Reduction Program.  
 "PCLs" represents Protective Concentration Levels.

"FILL MATERIAL\*" indicates the fill material was resampled by SKA in 2016 (soil sample SB-9 9-10).  
 "<" indicates the analyte was not detected by the laboratory at or above the Sample Detection Limit (SDL).  
 Bold concentrations represent a detectable concentration above the laboratory SDL.  
 "J" indicates the reported concentration is an estimated value between the SDL and the Method Quantitation Limit (MQL).  
 "UJ" indicates the SDL is estimated, per the Affected Property Assessment (APAR) Data Usability Summary (DUS).  
 "PROTECTIVE\*" indicates per TRRP-27 (Development of Human Health PCLs for Total Hydrocarbon Mixtures) the TPH is protective of the underlying groundwater and a <sup>GW</sup>Soil PCL does not need to be calculated for the TPH mixture.  
 Bold concentrations highlighted yellow indicate a concentration in excess of the laboratory SDL and the Residential Assessment Levels (RALs) without a Municipal Setting Designation (MSD) in place.  
 Bold concentrations highlighted orange indicate a concentration in excess of the laboratory SDL and the RALs with an MSD in place.  
 TCEQ TRRP Tier 1 Residential Soil PCLs (30 TAC 350) Table 1: Tier 1 Residential Soil PCLs - dated March 4, 2016.

TABLE E.1  
SUMMARY OF SOIL ANALYTICAL RESULTS - SVOCs  
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP NO. 2439

Sample Name	Sample Depth (ft-bgs)	Sample Date	SEMI VOLATILE ORGANIC COMPOUNDS (SVOCs)																			
			2,4-Dimethylphenol	2-Methyl naphthalene	2-Methylphenol	3&4-Methylphenol	Acenaphthene	Anthracene	Benz(a)anthracene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzoic acid	Bis(2-ethylhexyl)phthalate	Dibenzofuran	Dimethyl phthalate	Di-n-butyl phthalate	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
			Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg	Method 8270 mg/kg
<b>SOIL BORINGS (SKA)</b>																						
SB-9	9-10	5/12/16	<0.0045	<b>0.0077</b>	<b>0.0042 J</b>	<b>0.0053 J</b>	<0.00068	<0.00068	<0.0022	<0.0016	<0.0012	<b>0.011</b>	<b>0.0028 J</b>	<0.00095	<0.0011	<0.0016	<0.0015	<0.0015	<0.0011	<b>0.0027 J</b>	<0.0020	<b>0.0013 J</b>
	12-13	5/12/16	<b>0.035</b>	<b>0.0054 J</b>	<b>0.0031 J</b>	<b>0.0073 J</b>	<b>0.0049 J</b>	<b>0.0038 J</b>	<b>0.024</b>	<b>0.013</b>	<b>0.0061 J</b>	<0.0029	<0.0036	<b>0.0027 J</b>	<0.0017	<b>0.015</b>	<b>0.024</b>	<b>0.0044 J</b>	<b>0.0090</b>	<b>0.0057 J</b>	<b>0.017</b>	<b>0.019</b>
SB-10	2.5-5	5/12/16	<0.0041	<0.00062	<0.0014	<0.0012	<0.00062	<0.00062	<0.0020	<0.0015	<0.0011	<0.0017	<0.0021	<0.00086	<b>0.0044 J</b>	<b>0.0017 J</b>	<0.0014	<0.0014	<0.00098	<0.00074	<0.0018	<0.00074
<b>REGULATORY STANDARDS</b>																						
TCEQ TRRP Tier 1 <sup>GW</sup> Soil <sub>ing</sub> Residential Soil PCLs (0.5-Acre Source Area)			3.2	17	7.1	1.9	240	6,900	18	60	620	190	160	33	62	3,300	1,900	300	170	31	420	1,100
TCEQ TRRP Tier 1 <sup>Tot</sup> Soil <sub>Comb</sub> Residential Soil PCLs (0.5-Acre Source Area)			1,300	250	3,300	3,400	3,000	18,000	5.7	5.7	57	270,000	43	270	53,000	6,200	2,300	2,300	5.7	220	1,700	1,700
TCEQ TRRP Tier 1 <sup>Air</sup> Soil <sub>Inh-V</sub> Residential Soil PCLs (0.5-Acre Source Area)			--	--	--	--	--	--	3,700	6,100	150,000	--	--	--	--	--	--	--	25,000	270	--	--

**Notes:**  
"--" represents not applicable.  
"mg/kg" represents milligrams per kilogram.  
Only SVOCs with at least one compound above the Sample Detection Limit (SDL) are shown in this table.  
"TCEQ" represents Texas Commission on Environmental Quality.  
"TRRP" represents Texas Risk Reduction Program.  
"PCLs" represents Protective Concentration Levels.  
"<" indicates the analyte was not detected by the laboratory at or above the SDL.  
Bold concentrations represent a detectable concentration above the laboratory SDL.  
"J" indicates the reported concentration is an estimated value between the SDL and the Method Quantitation Limit (MQL).  
Bold concentrations highlighted yellow indicate a concentration in excess of the laboratory SDL and the Residential Assessment Levels (RALs) without a Municipal Setting Designation (MSD) in place.  
Bold concentrations highlighted orange indicate a concentration in excess of the laboratory SDL and the RALs with an MSD in place.  
TCEQ TRRP Tier 1 Residential Soil PCLs (30 TAC 350) Table 1: Tier 1 Residential Soil PCLs - dated March 4, 2016.

**TABLE E.1**  
**SOIL DATA SUMMARY - TPH SPECIATION**  
**CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION**  
**STANFORD DEVELOPMENT TRACT**  
**505 BASTROP STREET**  
**HOUSTON, HARRIS COUNTY, TEXAS**  
**VCP NO. 2439**

Sample Name	Sample Depth (ft-bgs)	Sample Date	TOTAL PETROLEUM HYDROCARBONS (TPH) SPECIATION											
			AROMATICS					ALIPHATICS						
			>C7-C8	>C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35	>C6-C8	>C8-C10	>C10-C12	>C12-C16	>C16-C21	>C21-C35
TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg	TX 1006 mg/kg		
<b>TEMPORARY MONITORING WELL (MEC<sup>X</sup>)</b>														
TMW-2	2.5-5.0	1/12/11	<5.0 UJL	<3.8 UJL	4.54 J JL	13.9 J JL	16.1 JL	806 JL	<6.3 UJL	155 JL	335 JL	9.94 J JL	55.5 JL	5,840 JL
<b>SOIL BORING (SKA)</b>														
SB-9	9-10	5/12/16	<4.4	<4.4	<4.4	<4.4	23	160	<4.4	<4.4	<4.4	<4.4	74	550
<b>REGULATORY STANDARDS</b>														
TCEQ TRRP Tier 1 <sup>GW</sup> Soil <sub>mg</sub> Residential Soil PCLs (0.5-Acre Source Area)			20	65	100	200	470	3,700	420	3,600	25,000	490,000	1,000,000	1,000,000
TCEQ TRRP Tier 1 <sup>Tot</sup> Soil <sub>Comb</sub> Residential Soil PCLs (0.5-Acre Source Area)			6,400	1,600	1,900	2,300	2,000	2,000	4,800	4,000	3,600	4,300	130,000	130,000

**Notes:**

- "ft-bgs" indicates feet below ground surface
- "mg/kg" represents milligrams per kilogram.
- "VCP" represents Voluntary Cleanup Program.
- "TCEQ" represents Texas Commission on Environmental Quality.
- "TRRP" represents Texas Risk Reduction Program.
- "PCLs" represents Protective Concentration Levels.
- "<" Indicates the analyte was not detected at or above the specified laboratory Sample Detection Limit (SDL).
- Bold values exhibit a concentration in excess of the laboratory SDL.
- "J" Indicates that the target analyte was positively identified above the SDL but below the Method Quantitation Limit (MQL).
- "JL" Indicates the analyte result is estimated with a bias likely to be low, per the Affected Property Assessment (APAR) Data Usability Summary (DUS).
- "UJL" indicates the analyte is not detected with a bias in sample result likely to be low, per the DUS from the APAR.
- Bold concentration highlighted yellow indicate a concentration in excess of the laboratory SDL and the Residential Assessment Levels (RALs) without a Municipal Setting Designation (MSD) in place.
- Bold concentration highlighted orange indicate a concentration in excess of the laboratory SDL and the RALs with a MSD in place.
- TCEQ TRRP Tier 1 Residential Soil PCLs (30 TAC 350) Table 1: Tier 1 Residential Soil PCLs - dated March 4, 2016.

TABLE E.2  
GROUNDWATER DATA SUMMARY - VOCs  
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP ID No. 2439

Sample Name	Sample Date	VOLATILE ORGANIC COMPOUNDS (VOCs)														
		Acetone	Benzene	Chlorobenzene	Chloroform	1,2-Dichlorobenzene	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Naphthalene	Tetrachloroethene	1,1,2-Trichloroethane	Trichloroethene	Vinyl Chloride
		Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L
<b>TEMPORARY MONITORING WELLS (MEC<sup>2</sup>)</b>																
TMW-1	1/12/11	<0.0047	<0.00050	<0.00056	<0.00064	<0.00069	<0.00052	<0.00062	<b>0.0013 J</b>	<b>0.119</b>	<b>0.0015 J</b>	<0.00065	<0.00091	<0.00098	<b>0.284</b>	<b>0.0107</b>
TMW-2	1/12/11	<0.0047	<0.00050	<0.00056	<0.00064	<0.00069	<0.00052	<0.00062	<b>0.00061 J</b>	<b>0.0165</b>	<0.00045	<0.00065	<0.00091	<0.00098	<b>0.0593</b>	<b>0.0012 J</b>
TMW-3	1/12/11	<0.0047	<0.00050	<0.00056	<b>0.0015 J</b>	<0.00069	<0.00052	<0.00062	<b>0.00054 J</b>	<b>0.0355</b>	<b>0.00045 J</b>	<0.00065	<b>0.00091 J</b>	<0.00098	<b>0.133</b>	<b>0.0031</b>
TMW-4	1/13/11	<0.0047	<b>0.0014 J</b>	<b>0.0010 J</b>	<b>0.0016 J</b>	<0.00069	<0.00052	<b>0.00099 J</b>	<b>0.0104</b>	<b>1.450</b>	<b>0.0192</b>	<0.00065	<b>0.0042</b>	<b>0.0085</b>	<b>4.260</b>	<b>0.142</b>
TMW-5	1/13/11	<0.0047	<b>0.0016 J</b>	<0.00056	<b>0.0017 J</b>	<b>0.00072 J</b>	<0.00052	<b>0.00092 J</b>	<b>0.0131</b>	<b>1.830</b>	<b>0.0227</b>	<0.00065	<b>0.0061</b>	<b>0.0092</b>	<b>5.210</b>	<b>0.195</b>
TMW-21	7/3/13	<0.25	<0.0083	<0.0087	<0.0081	<0.0087	<0.0065	<0.0090	<b>0.017 J</b>	<b>2.3</b>	<b>0.025 J</b>	<0.025	<0.0093	<b>0.012 J</b>	<b>4.9</b>	<b>0.068</b>
TMW-22	7/3/13	<0.25	<0.0083	<0.0087	<0.0081	<0.0087	<0.0065	<0.0090	<b>0.015 J</b>	<b>1.8</b>	<b>0.011</b>	<0.025	<0.0093	<0.0096	<b>2.3</b>	<b>0.016 J</b>
TMW-23	7/3/13	<0.010	<0.00033	<0.00035	<0.00032	<0.00035	<0.00026	<0.00036	<0.00040	<b>0.011</b>	<b>0.0013</b>	<0.0010	<0.00037	<0.00038	<b>0.020</b>	<b>0.0010</b>
<b>PERMANENT MONITORING WELLS (MEC<sup>2</sup>)</b>																
MW-5A (TMW-5A)	4/7/11	<0.0047	<b>0.0013 J</b>	<0.00056	<b>0.0011 J</b>	<0.00069	<0.00052	<0.00062	<b>0.0098</b>	<b>1.550</b>	<b>0.0171</b>	<0.00065	<b>0.0034</b>	<b>0.0075</b>	<b>4.200</b>	<b>0.102</b>
	5/20/15	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0080 J</b>	<b>0.81</b>	<b>0.0031 J</b>	<0.0035	<0.0030	<b>0.0032 J</b>	<b>2.2</b>	<b>0.037</b>
	8/18/15	<0.0020	<b>0.00068 J</b>	<0.00040	<0.00060	<0.00060	<0.00060	<0.00040	<0.00050	<b>0.0072</b>	<b>0.79</b>	<b>0.014</b>	<0.00070	<b>0.0030 J</b>	<b>0.0037 J</b>	<b>2.1</b>
MW-6	4/7/11	<0.0047	<b>0.00091 J</b>	<b>0.0011 J</b>	<b>0.00083 J</b>	<0.00069	<0.00052	<0.00062	<b>0.0057</b>	<b>0.844</b>	<b>0.0090</b>	<0.00065	<0.00091	<b>0.0047</b>	<b>3.260</b>	<b>0.0607 JH</b>
	5/20/15	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0061 J</b>	<b>0.82</b>	<b>0.0086 J</b>	<0.0035	<0.0030	<b>0.0048 J</b>	<b>2.9</b>	<b>0.034</b>
	8/18/15	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0069 J</b>	<b>0.95</b>	<b>0.016 J</b>	<0.0035	<0.0030	<b>0.0043 J</b>	<b>3.2</b>	<b>0.040</b>
	6/27/16	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0060 J</b>	<b>0.83</b>	<b>0.011 J</b>	<0.0035	<0.0030	<b>0.0038 J</b>	<b>3.0</b>	<b>0.029</b>
MW-7	4/7/11	<0.0047	<0.00050	<0.00056	<0.00064	<0.00069	<0.00052	<0.00062	<b>0.0089</b>	<b>0.554</b>	<b>0.0057</b>	<0.00065	<0.00091	<0.00098	<b>1.630</b>	<b>0.0475</b>
	5/20/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<b>0.0080</b>	<b>0.40</b>	<b>0.0047 J</b>	<0.00070	<0.00060	<0.00050	<b>0.97</b>	<b>0.033</b>
	8/18/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<b>0.00055 J</b>	<0.00050	<b>0.0094</b>	<b>0.44</b>	<b>0.0072</b>	<0.00070	<0.00060	<0.00050	<b>1.2</b>	<b>0.043</b>
MW-8	4/7/11	<0.0047	<b>0.0013 J</b>	<b>0.0025</b>	<b>0.0011 J</b>	<0.00069	<0.00052	<b>0.00066 J</b>	<b>0.0092</b>	<b>1.190</b>	<b>0.0167</b>	<0.00065	<b>0.0023</b>	<b>0.0065</b>	<b>4.130</b>	<b>0.0548</b>
	5/21/15	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0084 J</b>	<b>0.60</b>	<b>0.0033 J</b>	<0.0035	<0.0030	<b>0.0035 J</b>	<b>2.1</b>	<b>0.0099 J</b>
	8/19/15	<0.0020	<b>0.00071 J</b>	<b>0.0022 J</b>	<0.00060	<0.00060	<0.00040	<0.00050	<b>0.0070</b>	<b>0.68</b>	<b>0.016</b>	<0.00070	<b>0.0017 J</b>	<b>0.0036 J</b>	<b>2.2</b>	<b>0.013</b>
	6/27/16	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0053 J</b>	<b>0.62</b>	<b>0.0097 J</b>	<0.0035	<0.0030	<b>0.0030 J</b>	<b>2.1</b>	<b>0.0086 J</b>
MW-9 (TMW-9)	4/6/11	<0.0047	<0.00050	<0.00056	<b>0.0037</b>	<0.00069	<0.00052	<0.00062	<b>0.0013 J</b>	<b>0.150</b>	<b>0.0018 J</b>	<0.00065	<b>0.0018 J</b>	<0.00098	<b>0.397</b>	<b>0.0124</b>
	5/20/15	<0.0020	<0.00060	<0.00040	<b>0.0018 J</b>	<0.00060	<b>0.00091 J</b>	<0.00050	<b>0.00084 J</b>	<b>0.0084</b>	<0.00010	<b>0.00084 J</b>	<0.00060	<0.00050	<b>0.016</b>	<0.00040
	8/18/15	<0.0020	<0.00060	<0.00040	<b>0.0020 J</b>	<0.00060	<b>0.00076 J</b>	<0.00050	<0.00050	<b>0.0095</b>	<0.00040	<0.00070	<b>0.0012 J</b>	<0.00050	<b>0.024</b>	<b>0.00095 J</b>
	2/24/16	<0.0020	<0.00060	<0.00040	<b>0.0011 J</b>	<0.00060	<b>0.00052 J</b>	<0.00050	<0.00050	<b>0.0095</b>	<0.00040	<0.00070	<b>0.00095 J</b>	<0.00050	<b>0.026</b>	<b>0.00069 J</b>
	6/27/16	<b>0.0032 J</b>	<0.00060	<0.00040	<b>0.0011 J</b>	<0.00060	<b>0.0010 J</b>	<0.00050	<0.00050	<b>0.010</b>	<0.00040	<0.00070	<b>0.00084 J</b>	<0.00050	<b>0.027</b>	<b>0.00064 J</b>
<b>REGULATORY STANDARDS</b>																
TCEQ TRRP Tier 1 <sup>GW</sup> Residential Groundwater PCLs		<b>22</b>	<b>0.005</b>	<b>0.10</b>	<b>0.24</b>	<b>0.60</b>	<b>4.9</b>	<b>0.005</b>	<b>0.007</b>	<b>0.070</b>	<b>0.10</b>	<b>0.49</b>	<b>0.005</b>	<b>0.005</b>	<b>0.005</b>	<b>0.002</b>
TCEQ TRRP Tier 1 <sup>Air</sup> Residential Groundwater PCLs (0.5-Acre Source Area)		<b>1,000,000</b>	<b>180</b>	<b>1,200</b>	<b>20</b>	<b>1,200</b>	<b>43,000</b>	<b>33</b>	<b>1,700</b>	<b>1,200</b>	<b>770</b>	<b>320</b>	<b>500</b>	<b>80</b>	<b>24</b>	<b>3.8</b>

**Notes:**  
 \*mg/L\* represents milligrams per liter.  
 2011 and 2013 sampling conducted by MECx, subsequent sampling conducted by SKA.  
 \*TCEQ\* represents Texas Commission on Environmental Quality.  
 \*TRRP\* represents Texas Risk Reduction Program.  
 \*PCLs\* represents Protective Concentration Levels.  
 \*->\* indicates the analyte was not detected by the laboratory at or above the Sample Detection Limit (SDL).

Bold concentrations represent a detectable concentration above the laboratory SDL.  
 \*J\* indicates the reported concentration is an estimated value between the SDL and the Method Quantitation Limit (MQL).  
 \*JH\* indicates the concentration is estimated with a bias in sample result likely to be high, per the Affected Property Assessment (APAR) Data Usability Summary (DUS).  
 Bold concentrations highlighted yellow indicate a concentration in excess of the laboratory SDL and the Residential Assessment Levels (RALs) without a Municipal Setting Designation (MSD) in place.  
 Bold concentrations highlighted orange indicate a concentration in excess of the laboratory SDL and the RALs with an MSD in place.  
 TCEQ TRRP Tier 1 Groundwater PCLs (30 TAC 350) Table 3: Tier 1 Residential PCLs - Updated: March 4, 2016.

TABLE E.2  
GROUNDWATER DATA SUMMARY - VOCs  
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP ID No. 2439

Sample Name	Sample Date	VOLATILE ORGANIC COMPOUNDS (VOCs)														
		Acetone	Benzene	Chlorobenzene	Chloroform	1,2-Dichlorobenzene	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Naphthalene	Tetrachloroethene	1,1,2-Trichloroethane	Trichloroethene	Vinyl Chloride
		Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L	Method 8260 mg/L
MW-10 (TMW-10)	4/6/11	<0.0047	<0.00050	<0.00056	<0.00064	<0.00069	<0.00052	<0.00062	<b>0.0051</b>	<b>0.378</b>	<b>0.0037</b>	<0.00065	<0.00091	<0.00098	<b>0.994</b>	<b>0.0329</b>
	5/20/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<b>0.0019 J</b>	<b>0.077</b>	<b>0.00056 J</b>	<0.00070	<0.00060	<0.00050	<b>0.18</b>	<b>0.0055</b>
	8/18/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<b>0.0014 J</b>	<b>0.089</b>	<b>0.0010 J</b>	<0.00070	<0.00060	<0.00050	<b>0.21</b>	<b>0.0073</b>
MW-11 (TMW-11)	4/6/11	<0.0047	<b>0.0012 J</b>	<b>0.0018 J</b>	<b>0.00095 J</b>	<b>0.00080 J</b>	<0.00052	<0.00062	<b>0.0077</b>	<b>1.090</b>	<b>0.0137</b>	<0.00065	<0.00091	<b>0.0061</b>	<b>3.990</b>	<b>0.0695</b>
	5/20/15	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0100 J</b>	<b>0.99</b>	<b>0.012 J</b>	<0.0035	<0.0030	<b>0.0052 J</b>	<b>3.1</b>	<b>0.031</b>
	8/19/15	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0076 J</b>	<b>1.0</b>	<b>0.019 J</b>	<0.0035	<0.0030	<b>0.0047 J</b>	<b>3.7</b>	<b>0.036</b>
	6/27/16	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0061 J</b>	<b>0.84</b>	<b>0.012 J</b>	<0.0035	<0.0030	<b>0.0036 J</b>	<b>3.4</b>	<b>0.026</b>
MW-12 (TMW-12)	4/6/11	<0.0047	<b>0.00077 J</b>	<0.00056	<b>0.00082 J</b>	<0.00069	<0.00052	<0.00062	<b>0.120</b>	<b>1.670</b>	<b>0.0138</b>	<0.00065	<b>0.0014 J</b>	<b>0.0053</b>	<b>3.890</b>	<b>0.115</b>
	5/20/15	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0073 J</b>	<b>0.85</b>	<b>0.0060 J</b>	<0.0035	<0.0030	<b>0.0026 J</b>	<b>2.2</b>	<b>0.046</b>
	8/18/15	<0.010	<0.0030	<0.0020	<0.0030	<0.0030	<0.0020	<0.0025	<b>0.0079 J</b>	<b>0.99</b>	<b>0.014 J</b>	<0.0035	<0.0030	<b>0.0027 J</b>	<b>2.5</b>	<b>0.062</b>
<b>PERMANENT MONITORING WELLS (SKA)</b>																
MW-13	5/21/15	<b>0.0064 J</b>	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0014 J</b>	<0.00040	<0.00070	<0.00060	<0.00050	<0.00050	<0.00040
	8/19/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<0.00060	<0.00040	<0.00070	<0.00060	<0.00050	<0.00050	<0.00040
MW-14	5/22/15	<0.0020	<0.00060	<0.00040	<b>0.00064 J</b>	<0.00060	<b>0.0010 J</b>	<b>0.00085 J</b>	<b>0.0026 J</b>	<b>0.14</b>	<b>0.0042 J</b>	<0.00070	<0.00060	<b>0.0025 J</b>	<b>1.7</b>	<b>0.0018 J</b>
	8/19/15	<0.0020	<0.00060	<0.00040	<b>0.00080 J</b>	<0.00060	<0.00040	<b>0.0011 J</b>	<b>0.0038 J</b>	<b>0.20</b>	<b>0.0065</b>	<0.00070	<0.00060	<b>0.0032 J</b>	<b>2.0</b>	<b>0.0035</b>
MW-15	5/22/15	<b>0.0061 J</b>	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0016 J</b>	<0.00040	<0.00070	<0.00060	<0.00050	<b>0.0079</b>	<0.00040
	8/19/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0031 J</b>	<0.00040	<0.00070	<0.00060	<0.00050	<b>0.015</b>	<0.00040
	12/22/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0024 J</b>	<0.00040	<0.00070	<0.00060	<0.00050	<b>0.012</b>	<0.00040
	2/24/16	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0024 J</b>	<0.00040	<0.00070	<0.00060	<0.00050	<b>0.013</b>	<0.00040
MW-16	6/27/16	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0023 J</b>	<0.00040	<0.00070	<0.00060	<0.00050	<b>0.013</b>	<0.00040
	5/21/15	<b>0.0022 J</b>	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0012 J</b>	<0.00040	<0.00070	<0.00060	<0.00050	<0.00050	<0.00040
MW-17	8/19/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<0.00060	<0.00040	<0.00070	<0.00060	<0.00050	<0.00050	<0.00040
	12/22/15	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.017</b>	<0.00040	<0.00070	<0.00060	<0.00050	<b>0.063</b>	<b>0.00090 J</b>
MW-18	2/24/16	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0084</b>	<0.00040	<0.00070	<0.00060	<0.00050	<b>0.038</b>	<b>0.00051 J</b>
	6/27/16	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<0.00050	<b>0.0088</b>	<0.00040	<0.00070	<0.00060	<0.00050	<b>0.036</b>	<b>0.00060 J</b>
MW-18	2/24/16	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<b>0.0019 J</b>	<b>0.15</b>	<b>0.0014 J</b>	<0.00070	<0.00060	<0.00050	<b>0.74</b>	<b>0.013</b>
	3/24/16	<0.0020	<0.00060	<0.00040	<0.00060	<0.00060	<0.00040	<0.00050	<b>0.0021 J</b>	<b>0.18</b>	<b>0.0018 J</b>	<0.00070	<0.00060	<0.00050	<b>0.59</b>	<b>0.014</b>
<b>REGULATORY STANDARDS</b>																
TCEQ TRRP Tier 1 <sup>GW</sup> GW <sub>ing</sub> Residential Groundwater PCLs		<b>22</b>	<b>0.005</b>	<b>0.10</b>	<b>0.24</b>	<b>0.60</b>	<b>4.9</b>	<b>0.005</b>	<b>0.007</b>	<b>0.070</b>	<b>0.10</b>	<b>0.49</b>	<b>0.005</b>	<b>0.005</b>	<b>0.005</b>	<b>0.002</b>
TCEQ TRRP Tier 1 <sup>Air</sup> GW <sub>inh-v</sub> Residential Groundwater PCLs (0.5-Acre Source Area)		<b>1,000,000</b>	<b>180</b>	<b>1,200</b>	<b>20</b>	<b>1,200</b>	<b>43,000</b>	<b>33</b>	<b>1,700</b>	<b>1,200</b>	<b>770</b>	<b>320</b>	<b>500</b>	<b>80</b>	<b>24</b>	<b>3.8</b>

Notes:  
 \*mg/L\* represents milligrams per liter.  
 2011 and 2013 sampling conducted by MEC\*, subsequent sampling conducted by SKA.  
 \*TCEQ\* represents Texas Commission on Environmental Quality.  
 \*TRRP\* represents Texas Risk Reduction Program.  
 \*PCLs\* represents Protective Concentration Levels.  
 "<" indicates the analyte was not detected by the laboratory at or above the Sample Detection Limit (SDL).

Bold concentrations represent a detectable concentration above the laboratory SDL.  
 \*J\* indicates the reported concentration is an estimated value between the SDL and the Method Quantitation Limit (MQL).  
 Bold concentrations highlighted yellow indicate a concentration in excess of the laboratory SDL and the Residential Assessment Levels (RALs) without a Municipal Setting Designation (MSD) in place.  
 Bold concentrations highlighted orange indicate a concentration in excess of the laboratory SDL and the RALs with an MSD in place.  
 TCEQ TRRP Tier 1 Groundwater PCLs (30 TAC 350) Table 3: Tier 1 Residential PCLs - Updated: March 4, 2016.

TABLE E.2  
GROUNDWATER DATA SUMMARY - RCRA 8 METALS & TPH  
CITY OF HOUSTON MUNICIPAL SETTING DESIGNATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP ID No. 2439

Sample Name	Sample Date	RCRA 8 METALS								TOTAL PETROLEUM HYDROCARBONS (TPH)			
		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	C6-C12	>C12-C28	>C28-C35	Total TPH (C6-C35)
		Method 6010 mg/L	Method 7470 mg/L	Method 6010 mg/L	Method 6010 mg/L	TX1005 mg/L	TX1005 mg/L	TX1005 mg/L	TX1005 mg/L				
<b>TEMPORARY MONITORING WELLS (MEC<sup>x</sup>)</b>													
TMW-1	1/12/11	<0.0020 UJL	<b>0.160 J JL</b>	<0.00030 UJL	<b>0.0033 J JL</b>	<b>0.0028 J JL</b>	<0.000050 UJL	<0.0032 UJL	<0.00080 UJL	<0.57	<0.88	<0.88	<0.57
TMW-2	1/12/11	<0.0020 UJL	<b>0.109 J JL</b>	<0.00030 UJL	<0.0019 UJL	<b>0.0045 JL</b>	<0.000050 UJL	<0.0032 UJL	<0.00080 UJL	<0.57	<0.89	<0.89	<0.57
TMW-3	1/12/11	<0.0020 UJL	<b>0.127 J JL</b>	<0.00030 UJL	<0.0019 UJL	<b>0.0022 J JL</b>	<0.000050 UJL	<0.0032 UJL	<0.00080 UJL	<0.58	<0.90	<0.90	<0.58
TMW-4	1/13/11	<0.0020 UJL	<b>0.185 J JL</b>	<0.00030 UJL	<0.0019 UJL	<b>0.0031 JL</b>	<0.000050 UJL	<0.0032 UJL	<0.00080 UJL	<b>1.03 J</b>	<0.89	<0.89	<b>1.03 J</b>
TMW-5	1/13/11	<0.0020 UJL	<b>0.139 J JL</b>	<0.00030 UJL	<0.0019 UJL	<b>0.0019 J JL</b>	<0.000050 UJL	<0.0032 UJL	<0.00080 UJL	<0.57	<0.88	<0.88	<0.57
TMW-21	7/3/13	-	-	-	-	-	-	-	-	<b>0.66 J</b>	<0.60	<0.60	<b>0.66 J</b>
TMW-22	7/3/13	-	-	-	-	-	-	-	-	<0.60	<0.60	<0.60	<0.60
TMW-23	7/3/13	-	-	-	-	-	-	-	-	<0.60	<0.60	<0.60	<0.60
<b>REGULATORY STANDARDS</b>													
TCEQ TRRP Tier 1 <sup>GW</sup> GW <sub>ing</sub> Residential Groundwater PCLs		<b>0.010</b>	<b>2.0</b>	<b>0.0050</b>	<b>0.10</b>	<b>0.015</b>	<b>0.0020</b>	<b>0.050</b>	<b>0.12</b>	<b>0.98</b>	<b>0.98</b>	<b>0.98</b>	--
TCEQ TRRP Tier 1 <sup>Air</sup> GW <sub>inh-v</sub> Residential Groundwater PCLs (0.5-Acre Source Area)		--	--	--	--	--	<b>7.3</b>	--	--	<b>1,800</b>	<b>7,500</b>	<b>7,500</b>	--
TCEQ TRRP Tier 1 TPH <sub>mix</sub> <sup>GW</sup> GW <sub>ing</sub> Residential Groundwater PCL		--	--	--	--	--	--	--	--	--	--	--	<b>3.8</b>
TCEQ TRRP Tier 1 TPH <sub>mix</sub> <sup>Air</sup> GW <sub>inh-v</sub> Residential Groundwater PCL		--	--	--	--	--	--	--	--	--	--	--	<b>1,800</b>

**Notes:**

- "-" represents not analyzed.
- "--" represents not applicable.
- "mg/L" represents milligrams per Liter.
- "RCRA" represents Resource Conservation and Recovery Act.
- "TCEQ" represents Texas Commission on Environmental Quality.
- "TRRP" represents Texas Risk Reduction Program.
- "PCLs" represents Protective Concentration Levels.
- "<" indicates the analyte was not detected by the laboratory at or above the Sample Detection Limit (SDL).
- Bold concentrations represent a detectable concentration above the laboratory SDL.
- "J" indicates the reported concentration is an estimated value between the SDL and the Method Quantitation Limit (MQL).
- "JL" indicates the concentration is estimated with a bias in sample result likely to be low, per the Affected Property Assessment Report (APAR) Data Usability Summary (DUS).
- "UJL" indicates the SDL is estimated with a bias in sample result likely to be low, per the DUS from the APAR.
- Bold concentration highlighted orange indicate a concentration in excess of the laboratory SDL and the TRRP Teir 1 Residential Assessment Level (RAL) with a MSD in place.
- Bold concentration highlighted yellow indicate a concentration in excess of the laboratory SDL and the TRRP Teir 1 Residential Assessment Level (RAL) without a MSD in place.

TCEQ TRRP Tier 1 Groundwater PCLs (30 TAC 350) Table 3: Tier 1 Residential PCLs - Updated: March 4, 2016.

**TABLE E.3  
SUMMARY OF MAXIMUM SOIL CONCENTRATIONS  
MUNICIPAL SETTING DESIGNATION APPLICATION  
STANFORD DEVELOPMENT TRACT  
505 BASTROP STREET  
HOUSTON, HARRIS COUNTY, TEXAS  
VCP ID NO. 2439**

CONTAMINANT OF CONCERN	MAXIMUM SOIL CONCENTRATION				CRITICAL TRRP TIER 1 RESIDENTIAL SOIL PROTECTIVE CONCENTRATION LEVEL (PCL)		
	Sample ID	Sample Depth	Sample Date	Detected Concentration (mg/kg)	Ingestion PCL (Without MSD)	Non-Ingestion PCL (With MSD)	
					<sup>GW</sup> Soil <sub>ing</sub> (mg/kg)	<sup>Tot</sup> Soil <sub>Comb</sub> (mg/kg)	<sup>Air</sup> Soil <sub>inh</sub> (mg/kg)
Arsenic	TMW-5	22.5-25	1/13/11	14.2	14.2 <sup>3</sup>	24	--
Barium	TMW-3	22.5-25	1/12/11	5,130	5,130 <sup>3</sup>	8,100	--
Cadmium	TMW-3	22.5-25	1/12/11	0.64	1.5	52	--
Chromium	TMW-3	22.5-25	1/12/11	39.9	2,400	33,000	--
Lead	TMW-3	22.5-25	1/12/11	47.8	549 <sup>2</sup>	500	--
Mercury	TMW-4	1-3	1/13/11	0.035	0.04 <sup>1</sup>	3.6	4.6
Selenium	SB-9	4-5	5/12/16	0.730	2.3	310	--
Silver	TMW-1	20-22.5	1/12/11	0.20	0.48	97	--
Total TPH	TMW-2	2.5-5.0	1/12/11	6,180	Protective <sup>4</sup>	17,000 <sup>4</sup>	170,000 <sup>4</sup>
Acetone	TMW-2	2.5-5.0	1/12/11	0.100	43	66,000	600,000
n-Butylbenzene	TMW-2	2.5-5.0	1/12/11	0.0610	150	3,300	--
sec-Butylbenzene	TMW-2	2.5-5.0	1/12/11	0.0595	85	3,300	--
Carbon disulfide	FLOOR MATERIAL	--	5/20/11	0.0163	14	4,600	11,000
cis-1,2-Dichloroethene	TMW-11 (MW-11)	22.5-25	4/6/11	0.0147	0.25	140	920
trans-1,2-Dichloroethene	SB-23 (TMW-23)	18.5	7/3/13	0.0026	0.49	590	920
Isopropylbenzene	TMW-2	2.5-5.0	1/12/11	0.0137	350	4,300	9,200
Methyl ethyl ketone	FLOOR MATERIAL	--	5/20/11	0.0182	29	40,000	200,000
Methyl tert-butyl ether	SB-8	7.5-10	4/7/11	0.0012	0.62	800	1,400
Naphthalene	SB-2	2.5-5.0	4/7/11	0.0013	31	220	270
n-Propylbenzene	TMW-2	2.5-5.0	1/12/11	0.0465	45	2,200	6,300
Trichloroethene	TMW-11 (MW-11)	22.5-25	4/6/11	0.0426 <sup>5</sup>	0.034	18	31

CONTAMINANT OF CONCERN	MAXIMUM SOIL CONCENTRATION				CRITICAL TRRP TIER 1 RESIDENTIAL SOIL PROTECTIVE CONCENTRATION LEVEL (PCL)		
	Sample ID	Sample Depth	Sample Date	Detected Concentration (mg/kg)	Ingestion PCL (Without MSD)	Non-Ingestion PCL (With MSD)	
					<sup>GW</sup> Soil <sub>ing</sub> (mg/kg)	<sup>Tot</sup> Soil <sub>Comb</sub> (mg/kg)	<sup>Air</sup> Soil <sub>inh</sub> (mg/kg)
1,2,4-Trimethylbenzene	FLOOR MATERIAL	--	5/20/11	0.0025	49	150	160
1,3,5-Trimethylbenzene	FLOOR MATERIAL	--	5/20/11	0.0013	53	110	120
2,4-Dimethylphenol	SB-9	12-13	5/12/16	0.035	3.2	1,300	--
2-Methylnaphthalene	SB-9	9-10	5/12/16	0.0077	17	250	--
2-Methylphenol	SB-9	9-10	5/12/16	0.0042	7.1	3,300	--
3&4-Methylphenol	SB-9	12-13	5/12/16	0.0073	1.9	3,400	--
Acenaphthene	SB-9	12-13	5/12/16	0.0049	240	3,000	--
Anthracene	SB-9	12-13	5/12/16	0.0038	6,900	18,000	--
Benz(a)anthracene	SB-9	12-13	5/12/16	0.024	18	5.7	3,700
Benzo(b)fluoranthene	SB-9	12-13	5/12/16	0.013	60	5.7	6,100
Benzo(k)fluoranthene	SB-9	12-13	5/12/16	0.0061	620	57	150,000
Benzoic acid	SB-9	9-10	5/12/16	0.011	190	270,000	--
Bis(2-ethylhexyl)phthalate	SB-9	9-10	5/12/16	0.0028	160	43	--
Dibenzofuran	SB-9	12-13	5/12/16	0.0027	33	270	--
Dimethyl phthalate	SB-10	2.5-5	5/12/16	0.0044	62	53,000	--
Di-n-butyl phthalate	SB-9	12-13	5/12/16	0.015	3,300	6,200	--
Fluoranthene	SB-9	12-13	5/12/16	0.024	1,900	2,300	--
Fluorene	SB-9	12-13	5/12/16	0.0044	300	2,300	--
Indeno(1,2,3-cd)pyrene	SB-9	12-13	5/12/16	0.0090	170	5.7	25,000
Naphthalene	SB-9	12-13	5/12/16	0.0057	31	220	270
Phenanthrene	SB-9	12-13	5/12/16	0.017	420	1,700	--
Pyrene	SB-9	12-13	5/12/16	0.019	1,100	1,700	--

**NOTES:**

- 1) "--" indicates not applicable.
- 2) "1" indicates the TCEQ Texas-Specific Background Concentration is used as the critical Ingestion PCL.
- 3) "2" indicates that the value corresponds to a calculated TRRP Tier 2 Ingestion PCL.
- 4) "3" indicates that the value corresponds to a calculated TRRP Tier 3 Ingestion PCL.
- 5) "4" indicates a site-specific Tier 1 soil TPH PCL was calculated.
- 6) "5" indicates that the only soil sample exceeding the critical PCL without an MSD was collected from within the soil-water interface and as such is most likely not representative of the vadose zone conditions.
- 7) COCs highlighted in yellow exceed the critical TRRP Tier 1 Residential Soil PCL (applicable TRRP Tier 1 Residential Soil Ingestion PCL) without an MSD; but do not exceed the critical TRRP Tier 1 Residential Soil PCL (applicable TRRP Tier 1 Residential Soil Non-Ingestion PCL) with an MSD.
- 8) COCs highlighted in green exceed the critical TRRP Tier 1 Residential Soil PCL (applicable TRRP Tier 1 Residential Soil Non-Ingestion PCL) with an MSD.
- 9) TCEQ TRRP Tier 1 Residential Soil Protective Concentration Levels (30 TAC Chapter 350; Table 1: Tier 1 Residential Soil PCLs; dated March 4, 2016).

**TABLE E.4**  
**SUMMARY OF MAXIMUM GROUNDWATER CONCENTRATIONS**  
**MUNICIPAL SETTING DESIGNATION APPLICATION**  
**STANFORD DEVELOPMENT TRACT**  
**505 BASTROP STREET**  
**HOUSTON, HARRIS COUNTY, TEXAS**  
**VCP ID NO. 2439**

CONTAMINANT OF CONCERN	GROUNDWATER-BEARING UNIT	MAXIMUM GROUNDWATER CONCENTRATION			CRITICAL TRRP TIER 1 RESIDENTIAL GROUNDWATER PROTECTIVE CONCENTRATION LEVEL (PCL)	
		Sample ID	Sample Date	Detected Concentration (mg/L)	Ingestion PCL (Without MSD)	Non-Ingestion PCL (With MSD)
					<sup>GW</sup> GW <sub>ing</sub> (mg/L)	<sup>Air</sup> GW <sub>Inh-V</sub> (mg/L)
Acetone	Upper	MW-13	5/21/15	0.0064	22	1,000,000
Benzene	Upper	TMW-5	1/13/11	0.0016	0.005	180
Chlorobenzene	Upper	MW-8	4/7/11	0.0025	0.10	1,200
Chloroform	Upper	MW-9	4/6/11	0.0037	0.24	20
1,2-Dichlorobenzene	Upper	MW-11	4/6/11	0.00080	0.60	1,200
1,1-Dichloroethane	Upper	MW-14	5/22/15	0.0010	4.9	43,000
		MW-9	6/27/16			
1,2-Dichloroethane	Upper	MW-14	8/19/15	0.0011	0.005	33
1,1-Dichloroethene	Upper	MW-12	4/6/11	0.120	0.007	1,700
cis-1,2-Dichloroethene	Upper	TMW-21	7/3/13	2.3	0.07	1,200
trans-1,2-Dichloroethene	Upper	TMW-21	7/3/13	0.025	0.10	770
Naphthalene	Upper	MW-9	5/20/15	0.00084	0.49	320
Tetrachloroethene	Upper	TMW-5	1/13/11	0.0061*	0.005	500
1,1,2-Trichloroethane	Upper	TMW-21	7/3/13	0.012*	0.005	80
Trichloroethene	Upper	TMW-5	1/13/11	5.210	0.005	24
Vinyl chloride	Upper	TMW-5	1/13/11	0.195	0.002	3.8
Total Hydrocarbon Petroleum C <sub>6</sub> -C <sub>12</sub>	Upper	TMW-4	1/13/11	1.03	6.6**	1,800**
Barium	Upper	TMW-4	1/13/11	0.185	2.0	-
Lead	Upper	TMW-2	1/12/11	0.0045	0.015	-
Chromium	Upper	TMW-1	1/12/11	0.0033	0.10	-

**NOTES:**

- 1) "-" indicates not applicable.
- 2) "\*" indicates the historical maximum COC concentrations exceeded the critical TRRP Tier 1 Residential Groundwater PCL but current COC concentrations do not exceed the TRRP Tier 1 Residential Groundwater PCL.
- 3) "\*\*" indicates that the value corresponds to a site-specific Tier 1 soil TPH PCL.
- 4) COCs highlighted in yellow currently exceed the TRRP Tier 1 Residential Groundwater PCL (applicable TRRP Tier 1 Residential Groundwater Ingestion PCL) without an MSD; but do not exceed the TRRP Tier 1 Residential Groundwater PCL (applicable TRRP Tier 1 Residential Groundwater Non-Ingestion PCL) with an MSD.
- 5) TCEQ TRRP Tier 1 Residential Groundwater Protective Concentration Levels (30 TAC Chapter 350; Table 3: Tier 1 Residential Groundwater PCLs; dated March 4, 2016).

## Appendix F – Off-Site Impacted Property Owners

The following table lists the off-site properties where affected groundwater has been identified or inferred to be present. Several properties located hydraulically upgradient of the designated property also appear to be contributing to the groundwater chlorinated ethenes plume, based on the COC distributions, groundwater flow direction, and historical land use (see **Figure C.7A to C.7D** for the location of the groundwater contaminant plumes and **Appendix J** for further discussion on the origin of contamination). These upgradient properties are not listed in the following table. No contacts have been made by SKA with the property owners listed below.

Property	Owner	Notification Action
413 Bastrop Street (City Block 216)	People Trust Federal Credit Union PO Box 4511 Houston, TX 77210-4511	This property, one of four City Blocks formerly occupied by Maloney Precision Products (Maloney) and Houston Armature Works, is located adjacently northeast of the designated property in an hydraulically crossgradient location. It was entered into the TCQ VCP Program in 2014 (VCP ID No. 2673). The revised APAR submitted to the TCEQ in 2015 indicated groundwater beneath this adjacent site is impacted by VOCs (1,1-DCE; 1,2-DCA; benzene; cis-1,2-DCE; MTBE; PCE; TCE; and VC), Bis(2-ethylhexyl)phthalate (an SVOC]), arsenic, and TPH. Target COCs include the 4 chlorinated ethenes (TCE, cis-1,2-DCE, 1,1-DCE, and VC) that were identified exceeding TRRP groundwater ingestion PCLs beneath Prairie Street and the designated property. As such and based on the groundwater flow direction, this adjacent property is likely affected and contributes to the groundwater chlorinated ethenes plume partially originating from the designated property and several upgradient sources. The VCP case is currently under investigation by the TCEQ.
419 Dowling Street (City Block 229)	Star of Hope Mission PO Box 4052 Houston, TX 77210-4052	This former commercial/light industrial site is not registered within a TCEQ program, except for an air source permit attributed to C & S Asphalt Sealing Company, Inc. in 1989. The property is currently occupied by a women and family shelter.  Based on groundwater flow direction and the results of SKA's subsurface investigations conducted in 2015 and 2016, as well as results of groundwater sampling conducted for the above mentioned VCP site ID No. 2673, this

		adjacent property is likely affected and contributes to the groundwater chlorinated ethenes plume partially originating from the designated property and several upgradient sources.
2401 Texas Street (City Block 228)	Gus Symeonidis 2401 Texas Street Houston, TX 77003-3137	This property has been occupied by a restaurant since the 1950s.  Based on groundwater flow direction and the results of SKA's subsurface investigations conducted in 2015 and 2016, groundwater beneath this property is likely affected by the groundwater chlorinated ethenes plume partially originating from the designated property and several upgradient sources.

## Appendix G – Plume Stability

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Groundwater assessments and monitoring activities performed to date on the designated property have identified a groundwater chlorinated ethenes plume composed of four individual plumes of the four COCs (TCE, cis-1,2-DCE, 1,1-DCE, and VC) currently exceeding the TRRP groundwater ingestion PCLs (see **Figures C.7A through C.7D**). The following sections provide discussions regarding the groundwater chlorinated ethenes plume delineation and stability.

### GROUNDWATER PLUME DELINEATION

The most recent groundwater results indicate detectable concentrations of chlorinated ethenes (1,1-DCE, cis-1,2-DCE, TCE, and VC) in the upper GWBU exceeding their respective TRRP groundwater ingestion PCLs. The chlorinated ethenes plume extends beneath the designated property, to the west of the designated property, and to the east of the designated property, as shown in **Figures C.7A through C.7D**. The former on-site and off-site activities associated with the Maloney facility (see **Appendix J** for details) are believed to be the main contributors of the chlorinated ethenes affecting the upper GWBU. The designated property only consists of a small portion of the former Maloney facility and the MSD ordinance will only apply to contamination sourced from the designated property. The potential on-site source associated with the former Maloney facility within the designated property was likely located near monitoring well MW-11 based on the highest current concentrations of TCE in groundwater beneath the designated property.

As groundwater in the upper GWBU from the designated property flows towards the southeast, activities associated with the former Maloney facility within the designated property are unlikely to be a contributor to the portion of the groundwater chlorinated ethenes plume to the northwest (upgradient) of the designated property. As such, attempts to delineate the plume to the northwest (with off-site temporary monitoring wells TMW-21 to TMW-23) ceased once it became apparent that on-site activities were not contributing to this portion of the groundwater chlorinated ethenes plume.

SKA also attempted to delineate the groundwater chlorinated ethenes plume to TRRP groundwater ingestion PCLs in the downgradient direction; however, another release of chlorinated ethenes from an unknown source was detected in groundwater samples from monitoring well MW-18, approximately 440 feet from the potential on-site source near monitoring well MW-11. Evidence of the off-site source detected in groundwater samples from monitoring well MW-18 is the decreasing TCE concentrations detected in groundwater from monitoring wells MW-15 and MW-17, which are closer to the designated property than monitoring well MW-18. The current TCE concentration in groundwater from monitoring well MW-18 (440 feet from potential on-site source) is 0.59 mg/L, which is at least an order of magnitude greater than TCE concentrations from monitoring wells MW-15 (140 feet from potential on-site source) and MW-17 (280 feet from potential on-site source), and 0.29 mg/L higher than in monitoring well SCS-PW-1 (installed for VCP ID No. 2673 and located 180 feet from potential on-site source).

Considering the declining trend of the target COC concentrations with increasing distance from the source (assumed to be near monitoring well MW-11 on the designated property), the

contribution of the chlorinated ethenes plume in the upper GWBU from the designated property was evaluated by SKA using a regression method based on first-order attenuation as a function of distance. TCE concentrations from groundwater samples from monitoring wells MW-11 (near the source) and downgradient monitoring wells MW-6, SCS-PW-1 (VCP No. 2673) and MW-17 located along the center line of the plume were plotted in a logarithmic scale against distance in order to estimate the length of the TCE plume originating from the current VCP property (see **Graph G.1**). Analytical results from groundwater samples collected close to June 2015 were used, since most recent available data for SCS-PW-1 (VCP No. 2673) was from June 2015. The concentration from the groundwater sample from monitoring well MW-18 was included in **Graph G.1** for reference, but was not utilized for the calculation, since TCE concentrations in monitoring well MW-18 do not appear to solely originate from the current VCP property. The results presented in **Graph 1** showed that the length of the TCE plume originating from the current VCP property is estimated to be approximately 435 feet from the assumed source (near monitoring well MW-11) and TCE concentrations from the current VCP property are not likely to have contributed to the exceedance of groundwater ingestion PCLs at the monitoring well MW-18 location. As such, the extent of contribution of the chlorinated ethenes plume from the current VCP property has been delineated.

## **GROUNDWATER PLUME STABILITY**

A stable groundwater plume provides evidence that natural conditions are effectively controlling the extent of COCs and that expansion of the groundwater plume over time is unlikely to occur. The natural processes that are primarily responsible for achieving a stable groundwater plume involve biodegradation by native microorganisms, adsorption of COCs to soil particles, and dispersion of the COCs through groundwater flow. Collectively, these processes are referred to as natural attenuation. TCEQ guidance recommends demonstrating a stable groundwater plume using a lines-of-evidence approach (RG-366/TRRP-33, revised September 2010). The lines-of-evidence approach is employed to document that natural attenuation is occurring at a rate which is sufficient to effectively control the migration of COCs in the groundwater, resulting in protective conditions once the institutional controls (MSD) are in place. The lines of evidence which can be used include:

1. Primary line of evidence (PLOE): Relies on historical groundwater data to demonstrate a stable or decreasing trend of COC concentrations over time and with distance away from the source area.
2. Secondary line of evidence (SLOE): Uses hydrogeological or chemical indicators to document signatures or “footprints” of certain natural attenuation processes. Example data include presence of “daughter” products to indicate active degradation processes, ratios of parent compounds to daughter products to evaluate the extent of degradation, geochemistry data to demonstrate that appropriate subsurface conditions exist, and groundwater flow rate calculations to evaluate plume migration potential.
3. Other lines of evidence: Most often consist of predictive modeling studies and laboratory or field studies to further demonstrate an understanding of the natural attenuation processes occurring at the affected property and their effectiveness at controlling PCLE zone migration and decreasing COC concentrations.

The degree to which the various lines of evidence are evaluated at a site, or whether the analysis proceeds beyond the primary line of evidence, depend on the project objectives and the extent of available data. For this project, four lines of evidence (three PLOEs and one SLOE) have been evaluated since data are not available over a relatively long period of time (greater than five years). The following sections provide the technical approach and findings of the groundwater plume stability analysis.

PLOE

The main PLOE for the groundwater chlorinated ethenes plume is based on decreasing and/or stable chlorinated ethenes concentrations over time for groundwater samples from monitoring wells impacted from the source located near monitoring well MW-11. The following table summarizes the trends for wells utilized to assess plume stability (i.e. monitoring well sampled at least 4 times or more) as depicted in **Graphs G.2 through G.5**.

Monitoring Well	TCE Concentration Trend	Cis-1,2-DCE Concentration Trend	1,1-DCE Concentration Trend	VC concentration Trend
MW-6	Stable	Stable	Stable	Decreasing
MW-8	Decreasing	Decreasing	Decreasing	Decreasing
MW-9	Decreasing	Decreasing	Decreasing	Stable
MW-11	Stable	Decreasing	Stable	Decreasing
MW-15	Stable	Stable	Stable	Stable
MW-17*	Decreasing	Decreasing	Stable	Stable

\*Only three monitoring events due to later installation.

The intra-well TCE concentrations over time (**Graph G.2**) indicate that TCE concentrations in groundwater appear to be generally decreasing or stable across the designated property. TCE daughter products cis-1,2-DCE, 1,1-DCE, and VC (**Graphs G.3 through G.5**) are also decreasing or stable across the designated property.

Additional evidence of plume stability is that the lateral extent of the TCE groundwater plume at the current VCP property appears to decrease over time. **Figure C.8** presents the extent of the TCE-affected groundwater at the current VCP property from permanent monitoring wells sampled in 2011 and 2015/2016. As shown in **Figure C.8**, the lateral extent of the TCE-impacted groundwater beneath the current VCP Property has decreased significantly between 2011 and 2015/2016.

A third PLOE for the groundwater chlorinated ethenes plume is based on decreasing TCE concentrations with increasing distance from the source located near monitoring well MW-11. As shown in **Graph G.1**, TCE concentrations decrease with increasing distance from the on-site source located near monitoring well MW-11 until monitoring well MW-18, which appears to be affected by an off-site source.

## SLOE

The degradation pathway for TCE can be described as follows: TCE degrades to cis-1,2-DCE, trans-1,2-DCE, or 1,1-DCE in a one-to-one relationship (i.e., one molecule of TCE degrades to one molecule of cis-1,2 DCE, trans-1,2-DCE, or 1,1-DCE), which in turn degrades to one molecule of VC. The presence of three TCE degradation products (i.e. cis-1,2-DCE, 1,1-DCE, and VC) within the chlorinated ethene plume is a very strong indicator that natural attenuation is occurring.

Based on the primary and secondary lines of evidence provided, biodegradation of chlorinated ethenes is clearly occurring in the groundwater of the upper GWBU, and the chlorinated ethene concentrations in groundwater are generally decreasing and/or stable across the designated property based on the multiple lines of evidence presented above.

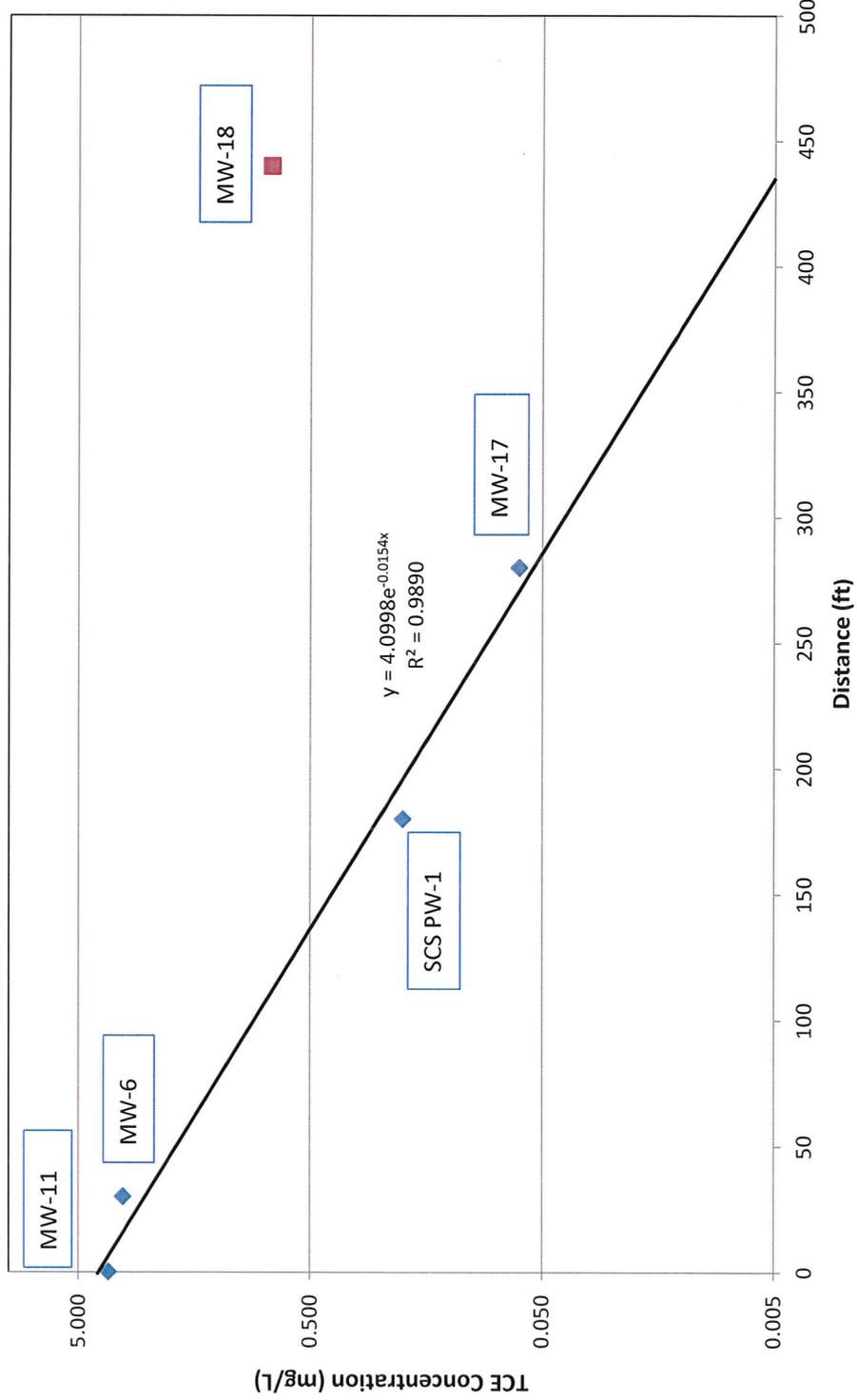
### **References:**

Aziz, C.E., C.J. Newell, J.R. Gonzales, P. Haas, T.P. Clement, and Y. Sun, 2000. *Biochlor Natural Attenuation Decision Support System, User's Manual. Version 1.0*. U.S. EPA Office of Research and Development, Washington, D.C. EPA/600/R-00/008.

Texas Commission on Environmental Quality. Monitored Natural Attenuation Demonstrations under TRRP, RG-366/TRRP-33 (revised September 2010).

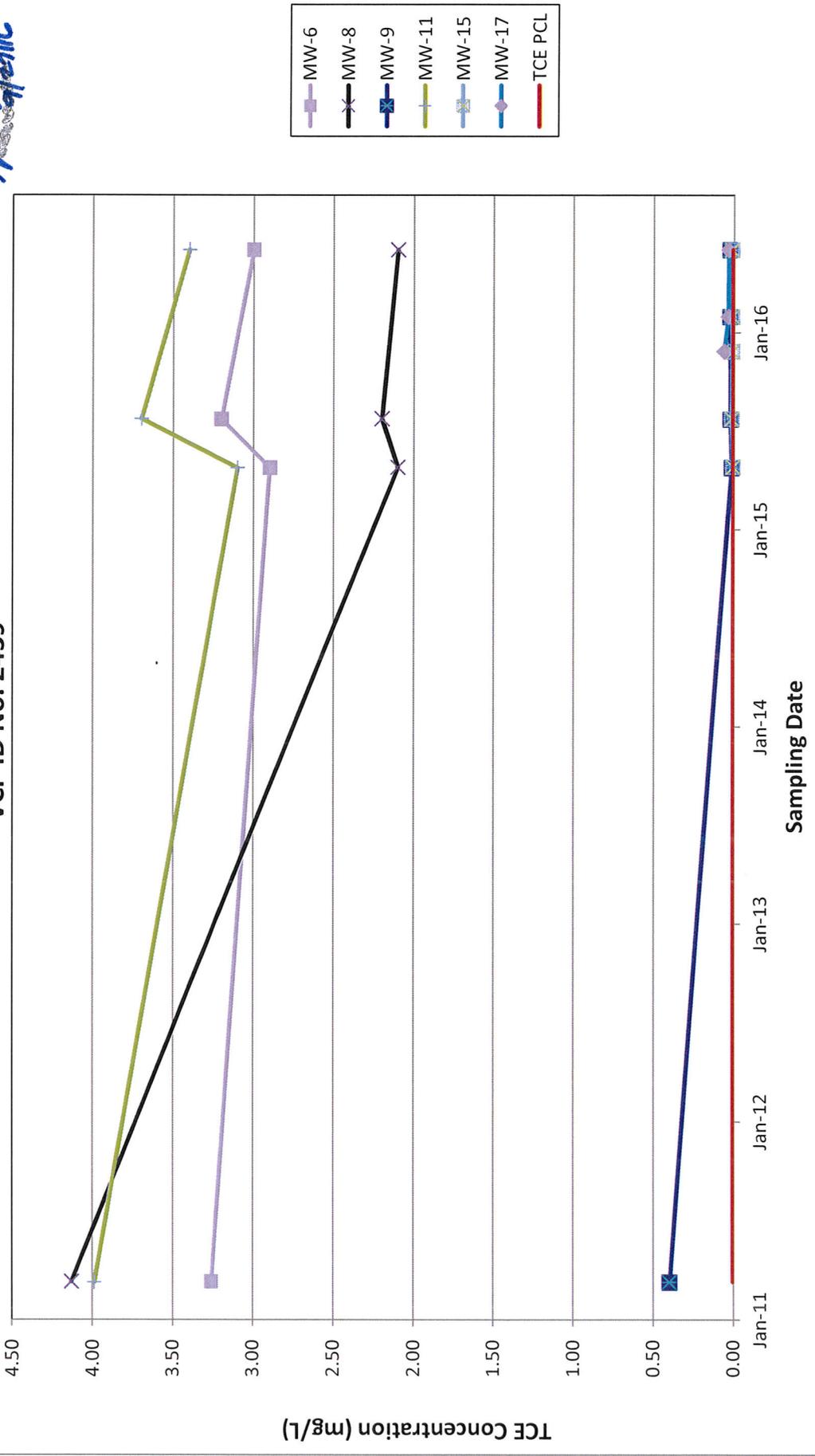


**Graph G.1**  
**TCE Concentrations in Groundwater Vs. Distance (2015/2016)**  
Stanford Development Tract  
505 Bastrop Street, Houston, Texas  
VCP ID No. 2439



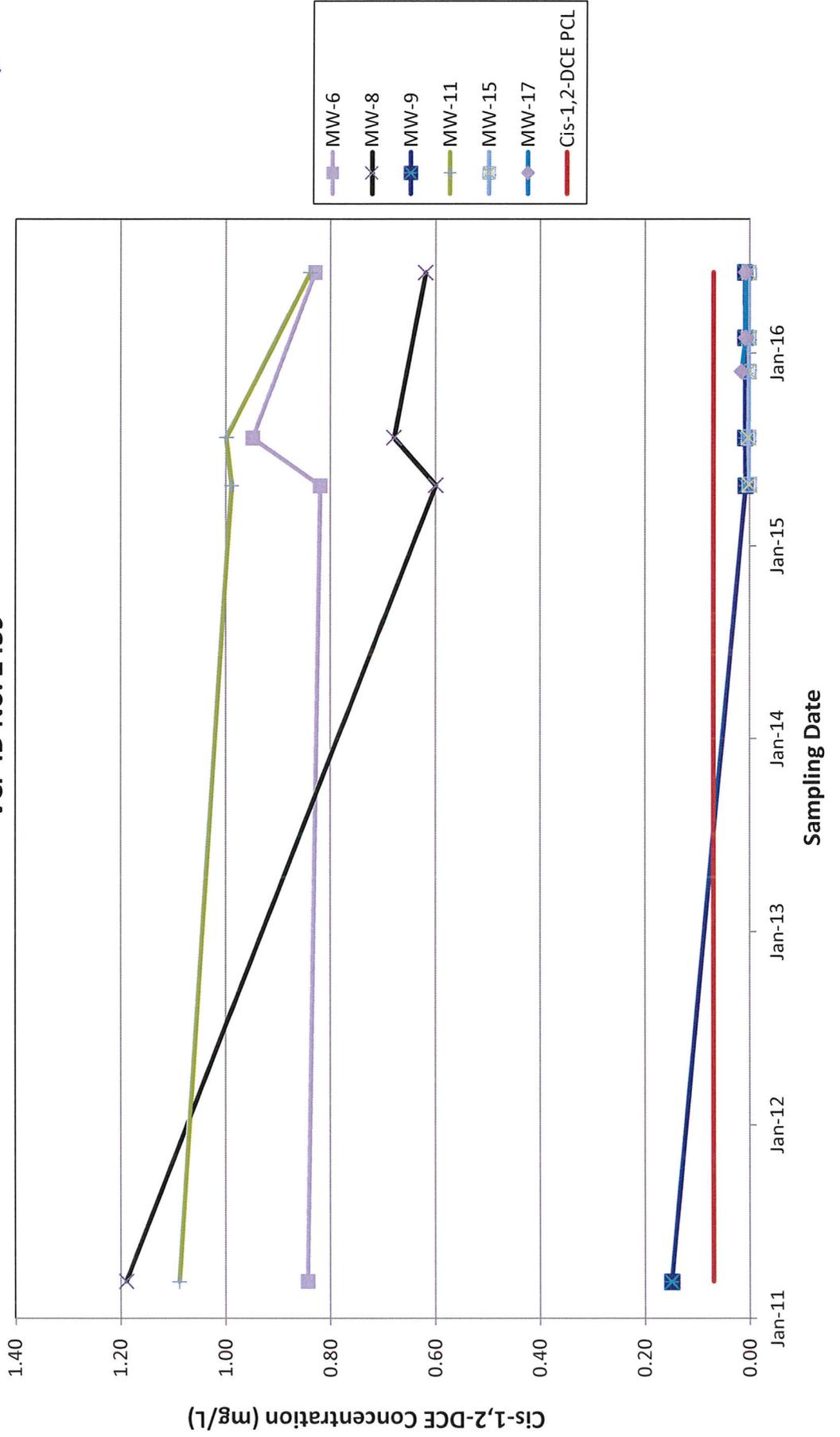


**Graph G.2**  
**Trichloroethene Concentrations in Groundwater Over Time**  
Stanford Development Tract  
505 Bastrop Street, Houston, Texas  
VCP ID No. 2439



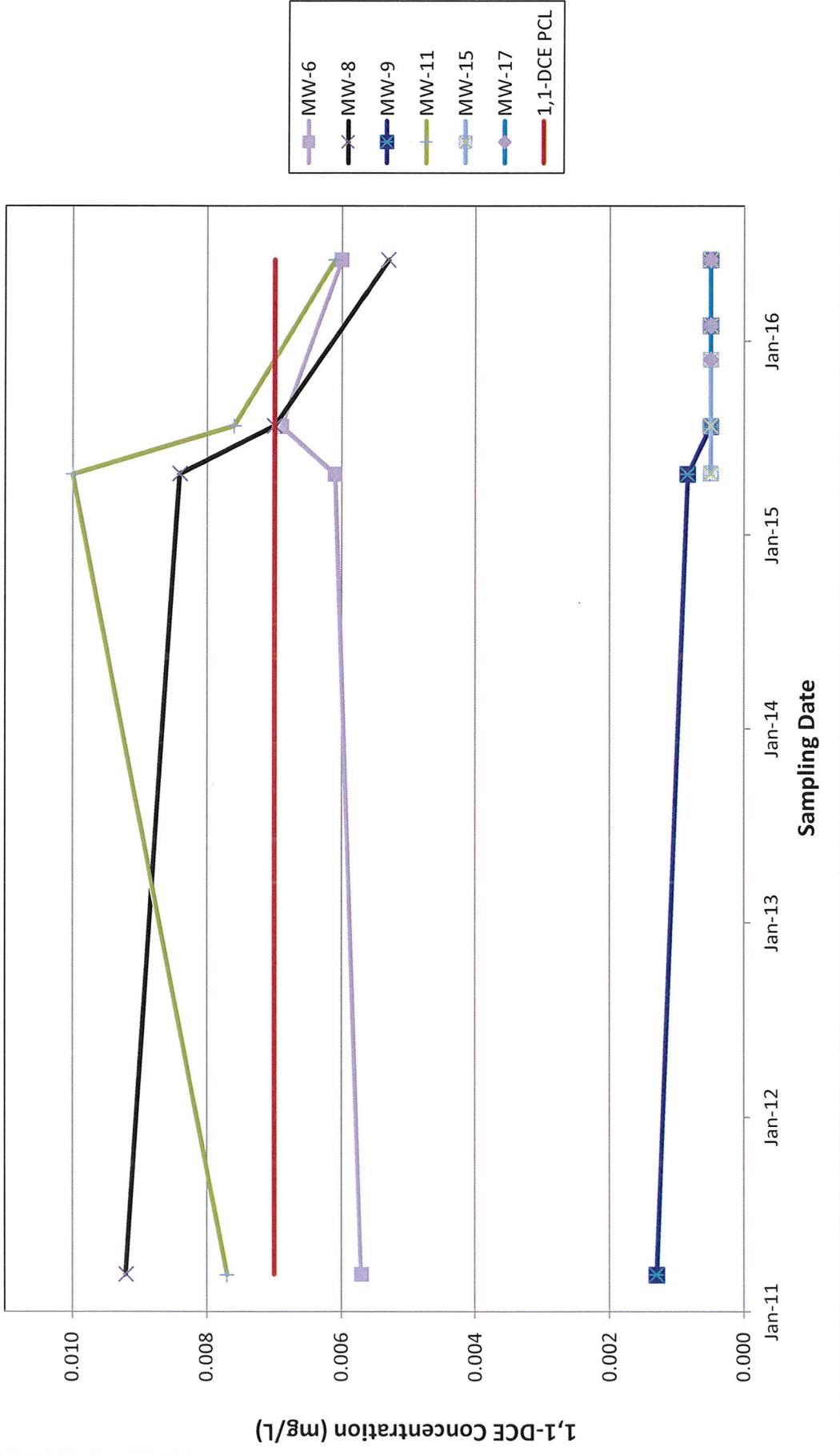


**Graph G.3**  
**Cis-1,2-Dichloroethene Concentrations in Groundwater Over Time**  
**Stanford Development Tract**  
**505 Bastrop Street, Houston, Texas**  
**VCP ID No. 2439**



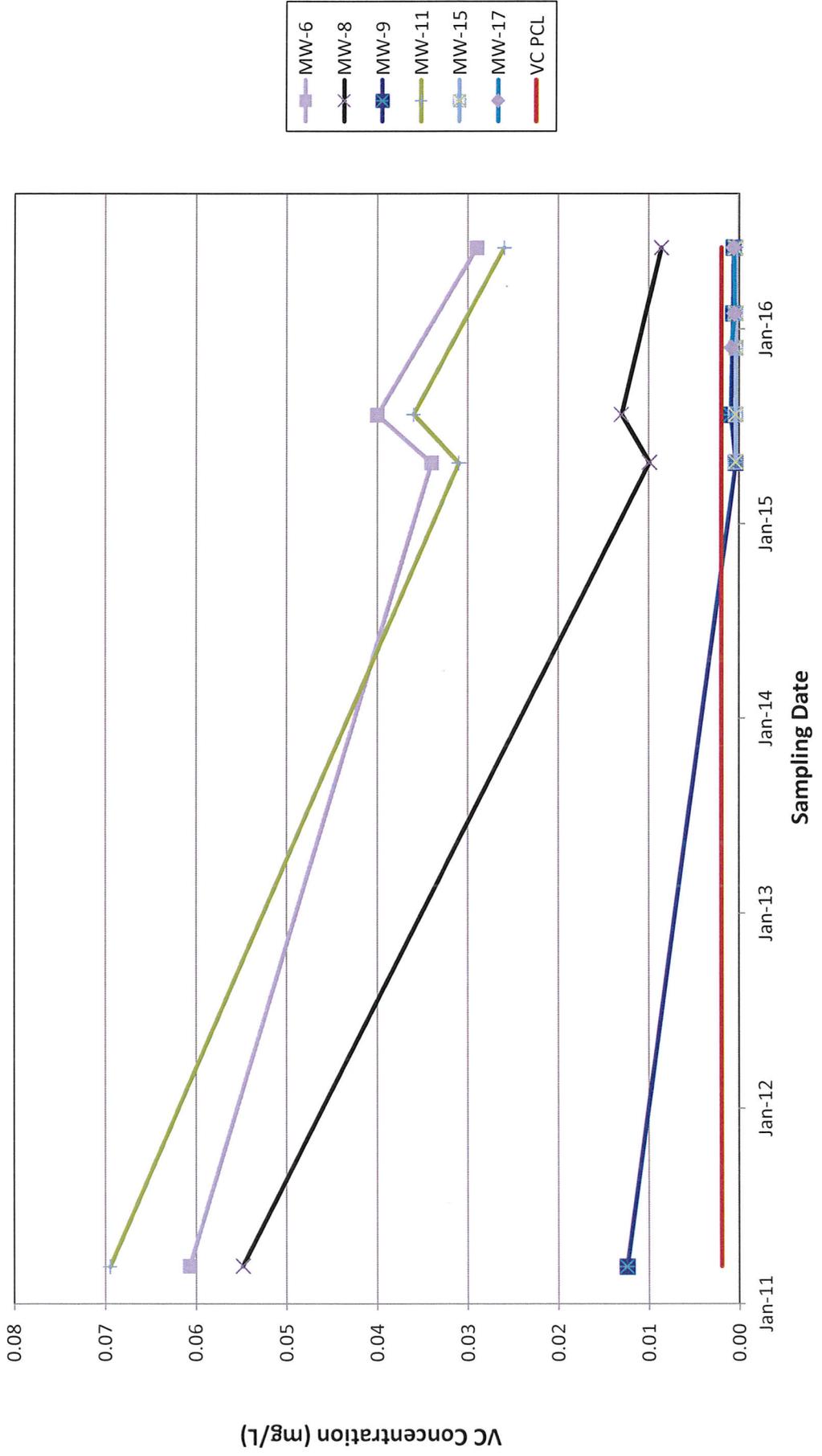


**Graph G.4**  
**1,1-Dichloroethene Concentrations in Groundwater Over Time**  
Stanford Development Tract  
505 Bastrop Street, Houston, Texas  
VCP ID No. 2439





**Graph G.5**  
**Vinyl Chloride Concentrations in Groundwater Over Time**  
Stanford Development Tract  
505 Bastrop Street, Houston, Texas  
VCP ID No. 2439



## Appendix H – Contamination Exceedance Without MSD

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Soil sampling and analysis activities did not reveal any COC detections exceeding applicable TCEQ TRRP Tier 1, Tier 2, or Tier 3<sup>GW</sup> Soil<sub>ing</sub> PCLs, site-specific Tier 1 TPH<sub>mixture</sub> soil PCLs, or TCEQ Texas Background Concentrations in soils, except for one detection of TCE from a subsurface soil sample. However, the soil sample was collected from within the soil-water interface and most likely affected by impacted groundwater than representative of the vadose zone conditions.

The most recent groundwater analytical results have revealed concentrations of chlorinated ethenes (TCE, 1,1-DCE, cis-1,2-DCE, and VC) currently exceeding the TRRP groundwater ingestion PCLs (residential assessment levels [RALs] without an MSD). The groundwater chlorinated ethenes plume is actually composed of four individual commingled plumes of the four COCs (TCE, cis-1,2-DCE, 1,1-DCE, and VC) currently exceeding the TRRP groundwater ingestion PCLs. These plumes, as shown in **Figures C.7A through C.7D**, are located along Prairie Street and on off-site properties adjacent to the roadway upgradient and downgradient of the designated property. Several of these off-site properties are believed to be contributors to the groundwater COC plumes (see **Appendix J** for the origin of contamination).

Based on the groundwater assessment results obtained to date, none of these COCs are known or expected to occur in groundwater downgradient of the designated property in excess of the TRRP residential assessment levels with an MSD.