CITY OF HOUSTON

PUBLIC WORKS AND ENGINEERING
PLANNING & DEVELOPMENT DIVISION

EXECUTIVE SUMMARY

Project Overview

InControl Technologies, Inc was retained by ARCADIS Malcolm Pirnie through contract with Metro Solutions (the current property owner), to provide environmental consulting services at the East End Corridor property located at 6601 Harrisburg, Houston, Harris County, Texas. The subject property (the Site) consist of approximately 0.4504 acre (19,618 square feet) of land located southeast of downtown Houston, Harris County, Texas (**Figure B1**). The subject property is currently vacant. The surrounding area is developed with a mixture of commercial, light industrial, and residential properties (**Figure C1**).

The Site is located within the Buffalo Bayou Watershed (**Figure B2**). According to the Flood Insurance Rate Map (**Figure B3**) the Site is located outside the 0.2% annual chance (500 year) floodplain.

A VOC PCLE zone was identified on the southwestern portion of the subject property. The PCLE zones are depicted on **Figure B4**.

Historical Environmental Condition

As part of the pre-acquisition due diligence, Metro Solutions conducted extensive site investigation activities designed to define the nature and extent of the environmental impact from historical releases at the Site. The site is currently vacant. Historic property uses include tire and battery service (Parcel EE-256) and Brunswick laundry (Parcel EE_256).

Metro Solutions conducted a Phase I Environmental Site Assessment (ESA) which identified potential recognized environmental conditions (RECs). A limited Phase II ESA was conducted on the subject property, which included the collection of soil and groundwater samples to determine if historic RECs had impacted soil and/ or shallow groundwater. The results were compared to the most conservative Tier 1 Protective Concentration Levels (PCLs) (**Table F1** and **Table F2**). **Figure B5** depicts the locations of the soil sampling points. **Figure B6** depicts the groundwater sampling points.

The lateral extent of groundwater impact has been horizontally delineated in all directions (**Figure B4**). A comparison of the sampling results available for the investigation areas indicates the area of impact has remained stable over time. Compound specific PCLE zones are depicted in **Figure B4**. The direction of groundwater flow is to the southwest (**Figure B7**).

Four (4) water wells were identified within a ½-mile radius of the proposed MSD boundary. One of the identified water wells within a ½-mile radius was listed as a domestic or public supply wells. All other identified wells within the ½-mile radius are listed as industrial or unused. The closest well belongs to Texas Ice and Fuel Compound and is located approximately 250-feet west of the subject property. This well was installed in 1960 to a depth of 425-feet below ground surface (bgs). The well is screened from 255-feet to 425-feet bgs. The well is listed as an industrial supply well. There is a second well listed at the same site drilled to a depth of 870-feet back in 1922. It is listed as unused and was replaced by the previously mentioned well. The next closest well is located approximately 400-feet west-southwest of the subject site. This well belongs to Able Supply Co. and was installed to a depth of 282-feet bgs in 1953. The use is listed as industrial supply. The remaining two wells are located approximately ½-mile southeast of the site. One of the wells is a domestic supply well installed to a depth of 590-feet bgs. The last well belongs to the Houston Golf Club and was installed to a depth of 899-feet bgs. This well is not used. The completion zones of these wells are much deeper than the limit of impacted groundwater associated with the East End Corridor proposed MSD area.

Buffalo Bayou is located approximately 0.75-miles northwest and Brays Bayou is located approximately 0.75-miles southeast of the proposed MSD boundary. Due to the distance of these water bodies from the East End Corridor MSD area, the bayous are not directly threatened by natural movement of the affected groundwater identified on the site (**Figure C1**).

Appendix B – Site Maps

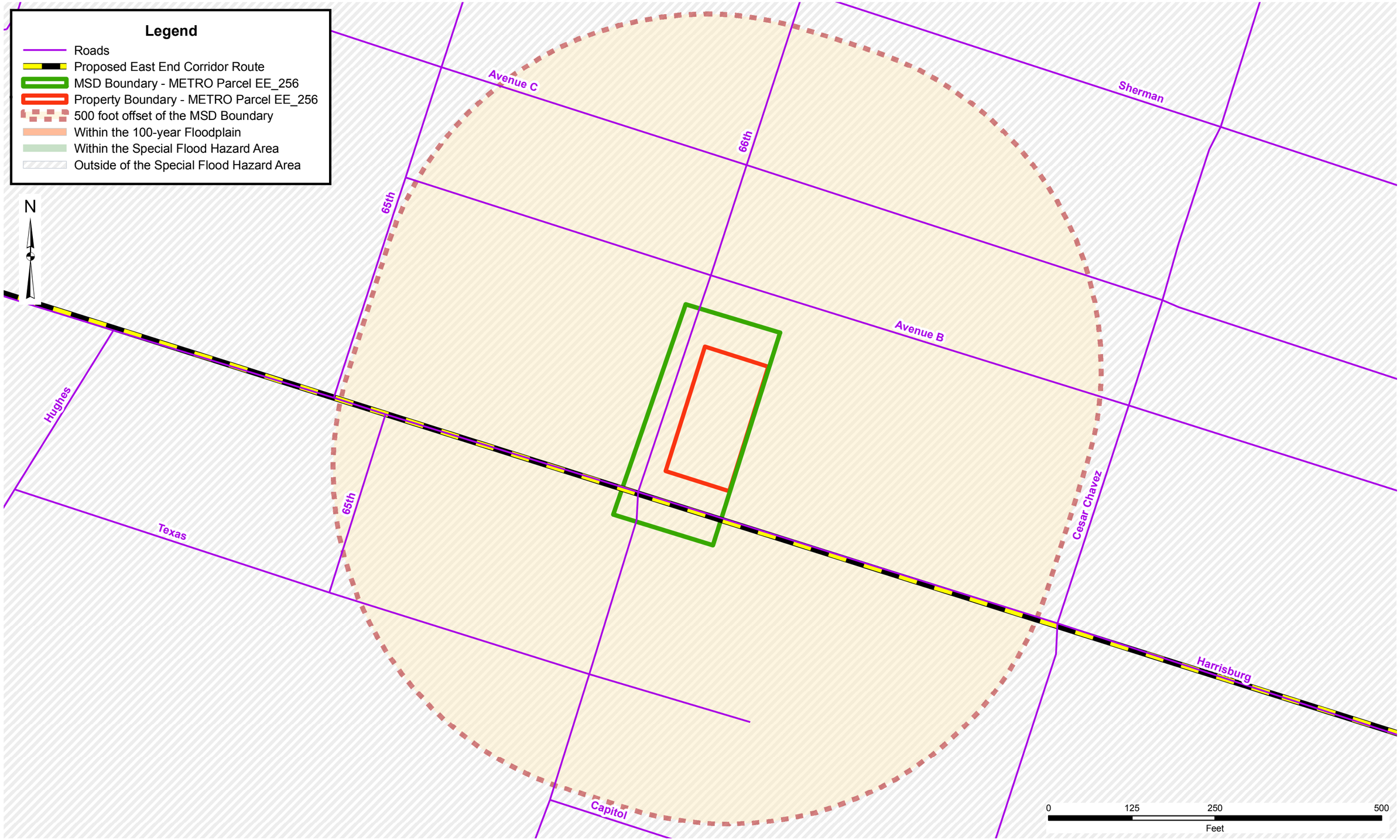
The figures set out in this section provide information required under Item 2. The maps depict the property location and topography, the area of groundwater contamination, the location of all soil sampling points and groundwater monitoring wells, the groundwater gradient, and the soil and groundwater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

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

Figure B1 – Site location and topographic Map
Figure B2 – Watershed Map
Figure B3 – Floodplain Map
Figure B4 – Groundwater PCLE zones
Figure B5 – Soil sampling locations
Figure B6 – Groundwater sampling locations
Figure B7 – Groundwater Gradient Map

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

Figure B4 depicts all of the groundwater PCLE zones within the proposed MSD boundary. These zones were developed based on several environmental samples collected from both soil and groundwater. **Figure B5** shows the locations of the soil samples and **Figure B6** depicts the locations of the groundwater samples. Groundwater in this area tends to flow towards Brays Bayou (**Figure B7**). The primary chemicals of concern (COCs) are PCE, TCE, cis-1,2-DCE, 1,1-DCE, and vinyl chloride (**Figure B4**).



G:\PROJECTS\1100261_Metro\EASTEND\EE_256\MSD\Figure B3 - EE_256 - FEMA Floodplain Loc Map.mxd

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FEMA FLOODPLAIN PARCEL LOCATION MAP

6601 Harrisburg Blvd., Houston, Texas

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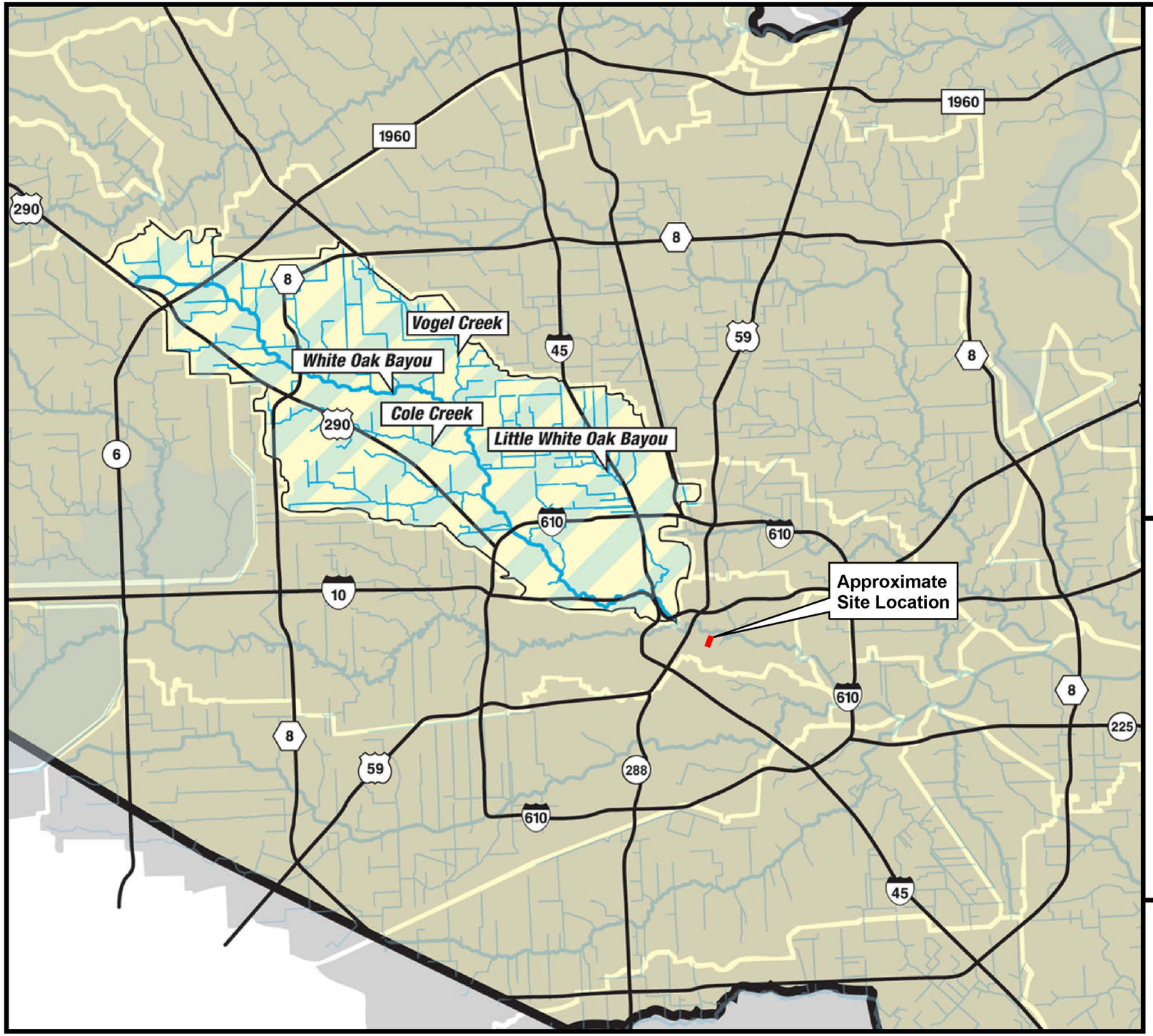
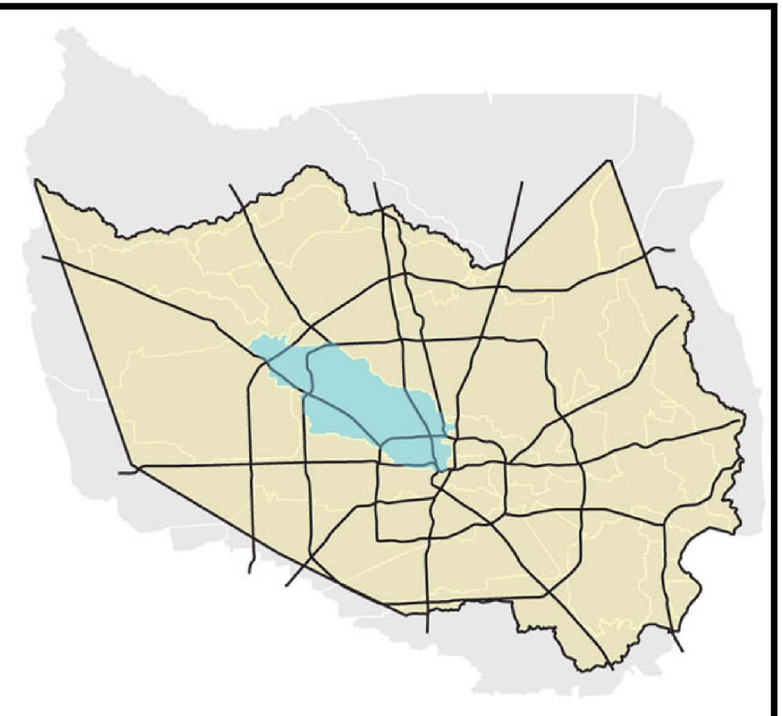
Figure B3





N

Drainage Area:
111 Sq. Miles

Watershed Population:
416,067

Open Stream Miles:
151 Miles

Primary Streams:
White Oak Bayou
Little White Oak Bayou
Cole Creek
Vogel Creek

Legend

Approximate Site Location

G:\PROJECTS\1100261_Metro\EASTEND\EE_256\MSD\Figure B2 - EE_256 - Watershed Map.mxd

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WATERSHED MAP

6601 Harrisburg Blvd., Houston, Texas

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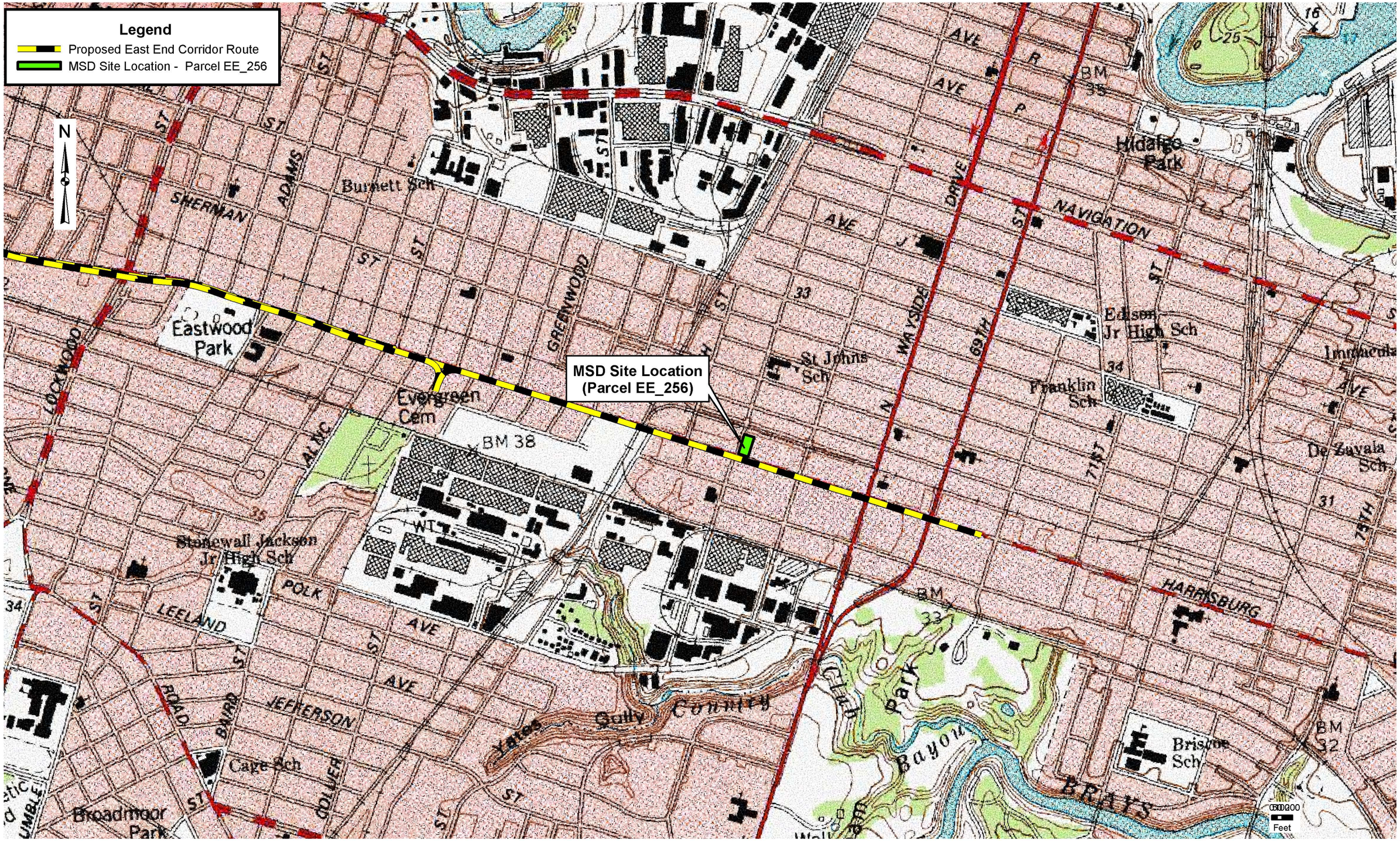
Figure B2



G:\PROJECTS\1100261_Metro\EASTEND\EE_256\MSD\Figure B1 - EE_256 - Site Loc Map.mxd

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SITE LOCATION MAP - TOPOGRAPHIC QUADANGLE

6601 Harrisburg Blvd., Houston, Texas

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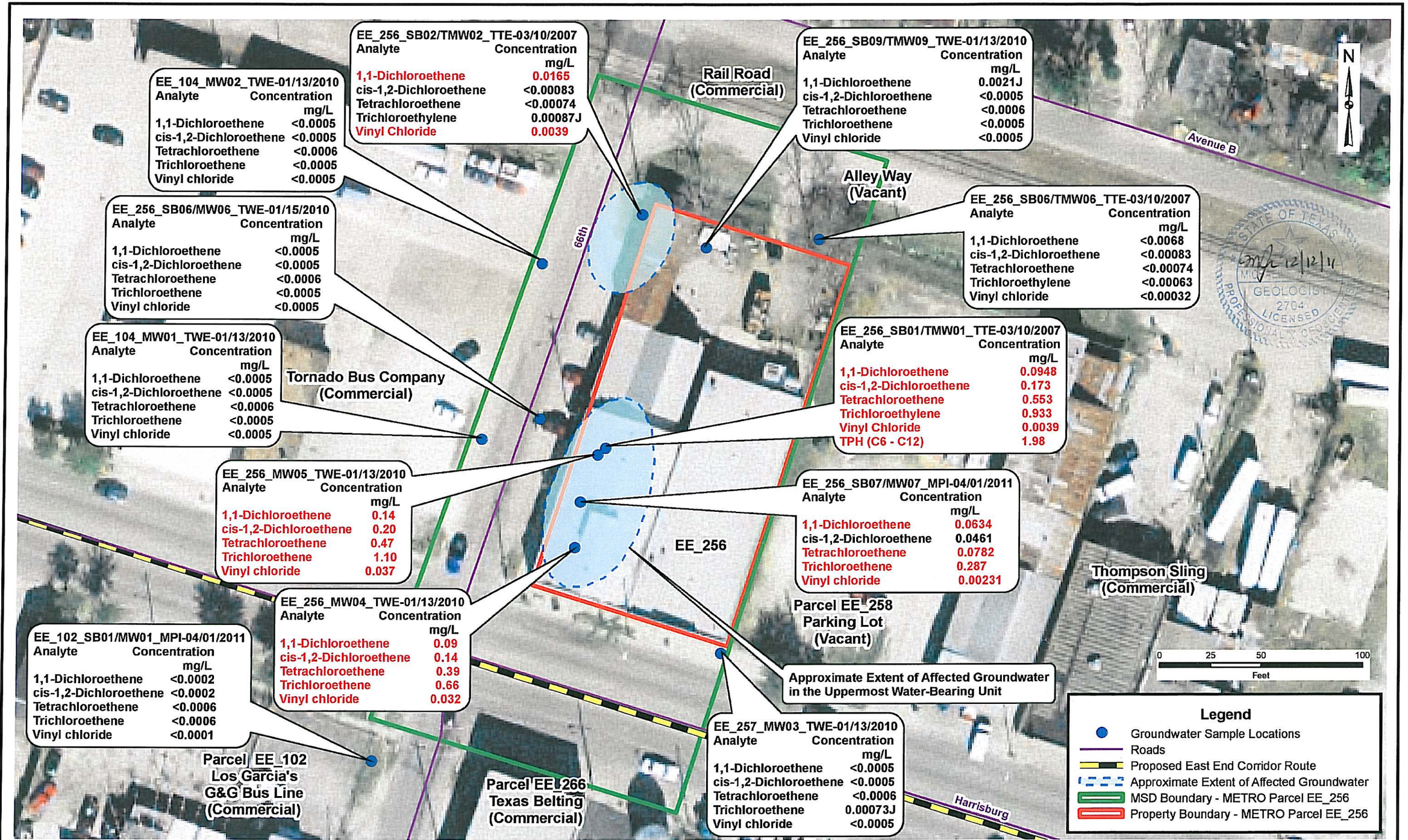
Figure B1



G:\PROJECTS\1100261_Metro\EASTEND\EE_256\MSD\Figure B4 - EE_256 - Detected Area of Affected GW.mxd

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DETECTED AREA OF AFFECTED GROUNDWATER

6601 Harrisburg Blvd., Houston, Texas

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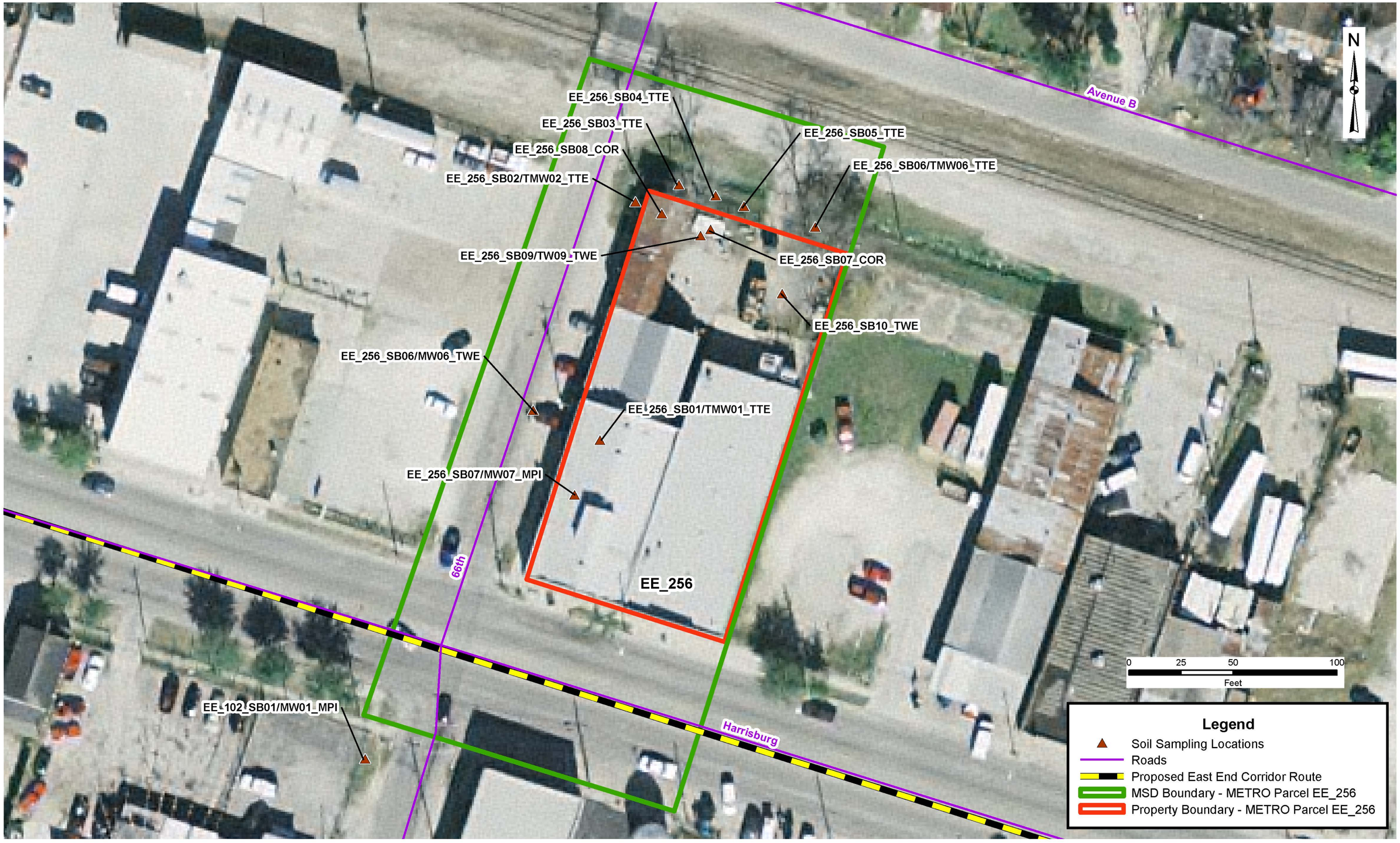
Figure B4



G:\PROJECTS\1100261_Metro\EASTEND\EE_256\MSD\Figure B5 - EE_256 - Soil Sampling Locations.mxd

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SOIL SAMPLING LOCATIONS

6601 Harrisburg Blvd., Houston, Texas

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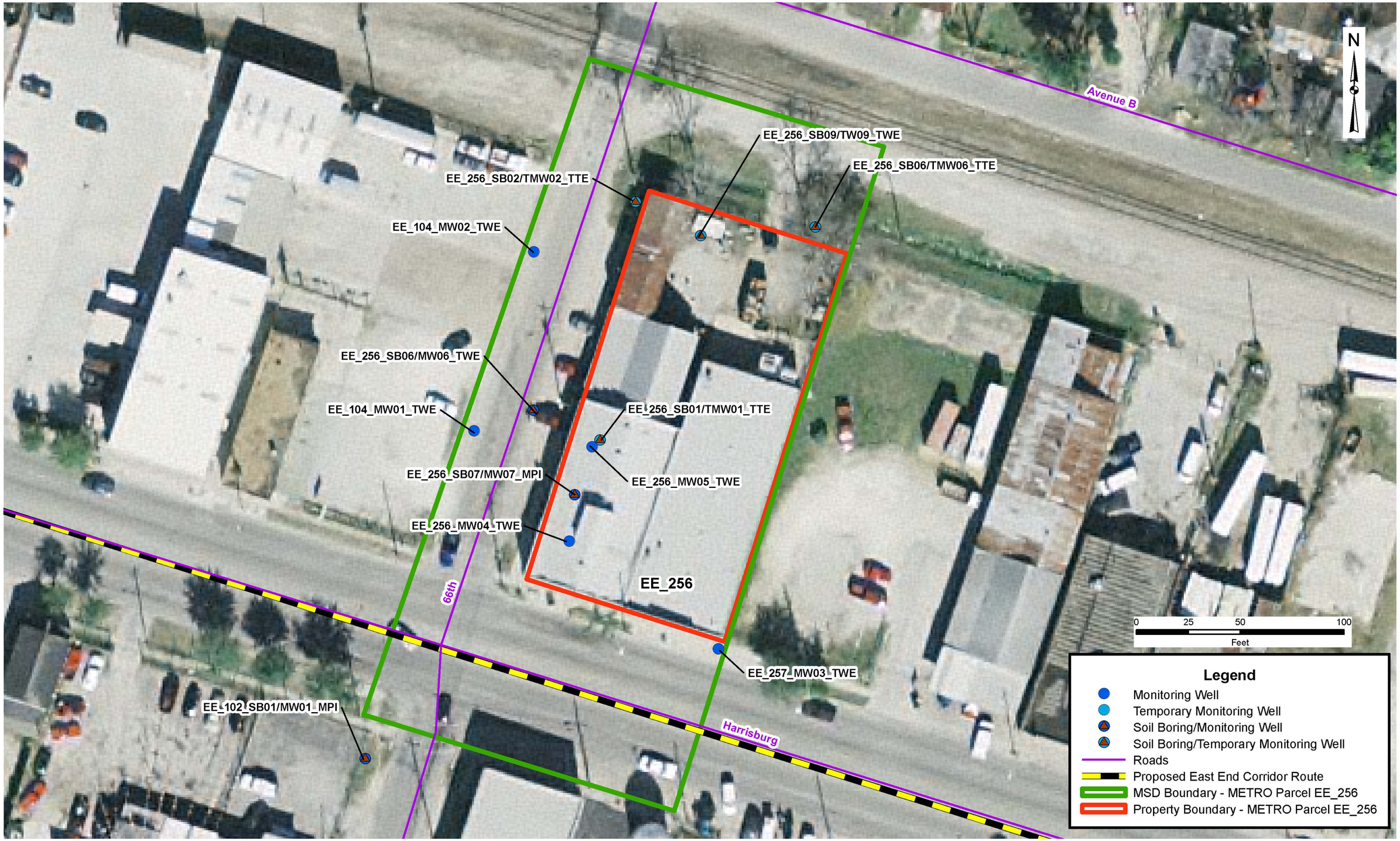
Figure B5



G:\PROJECTS\1100261_Metro\EASTEND\EE_256\MSD\Figure B6 - EE_256 - GW Sampling Locations.mxd

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GROUNDWATER SAMPLING LOCATIONS

6601 Harrisburg Blvd., Houston, Texas

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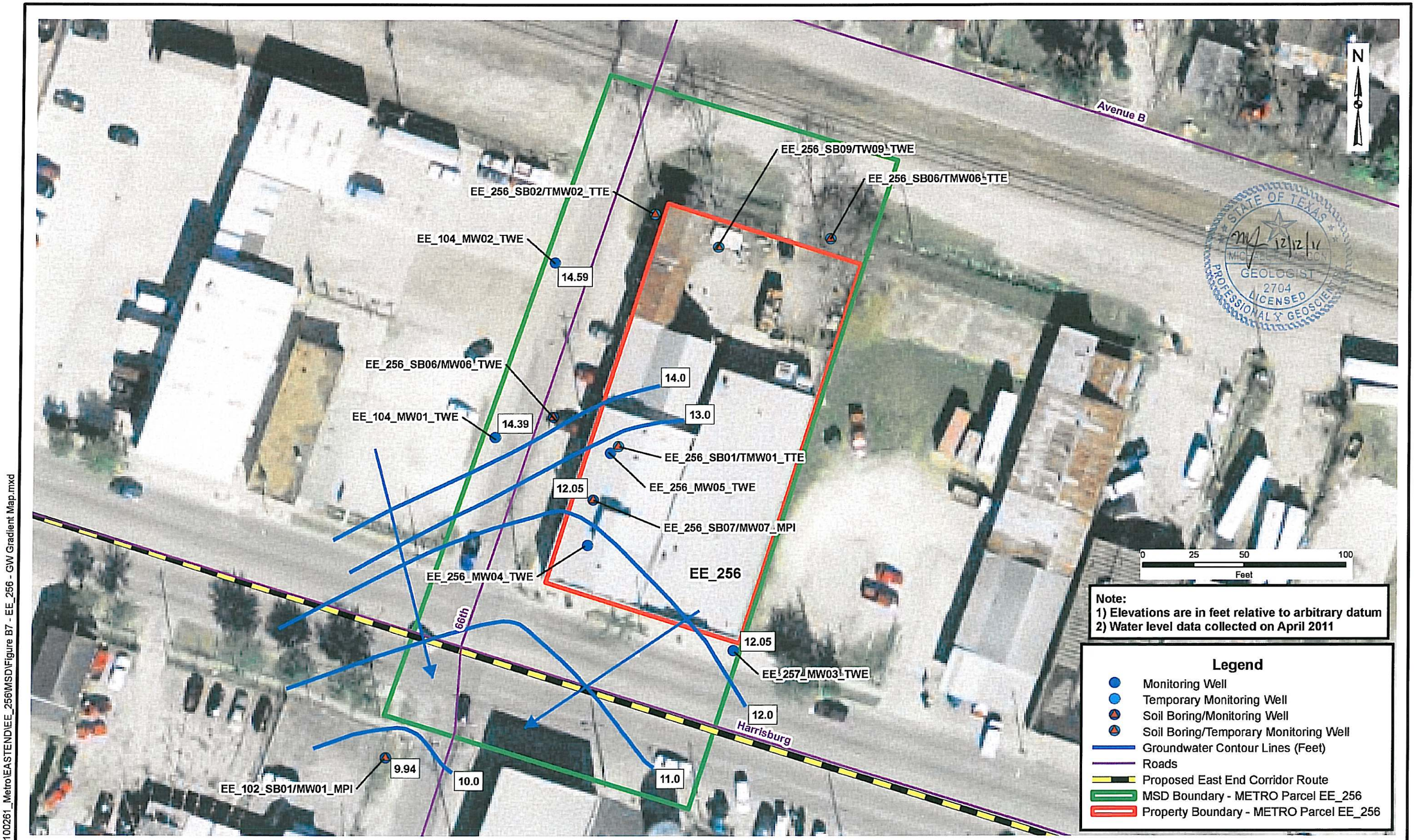
Figure B6



G:\PROJECTS\1100261_Metro\EASTEND\EE_256\MSD\Figure B7 - EE_256 - GW Gradient Map.mxd

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GROUNDWATER GRADIENT MAP (APRIL 2011)

6601 Harrisburg Blvd., Houston, Texas

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Figure B7

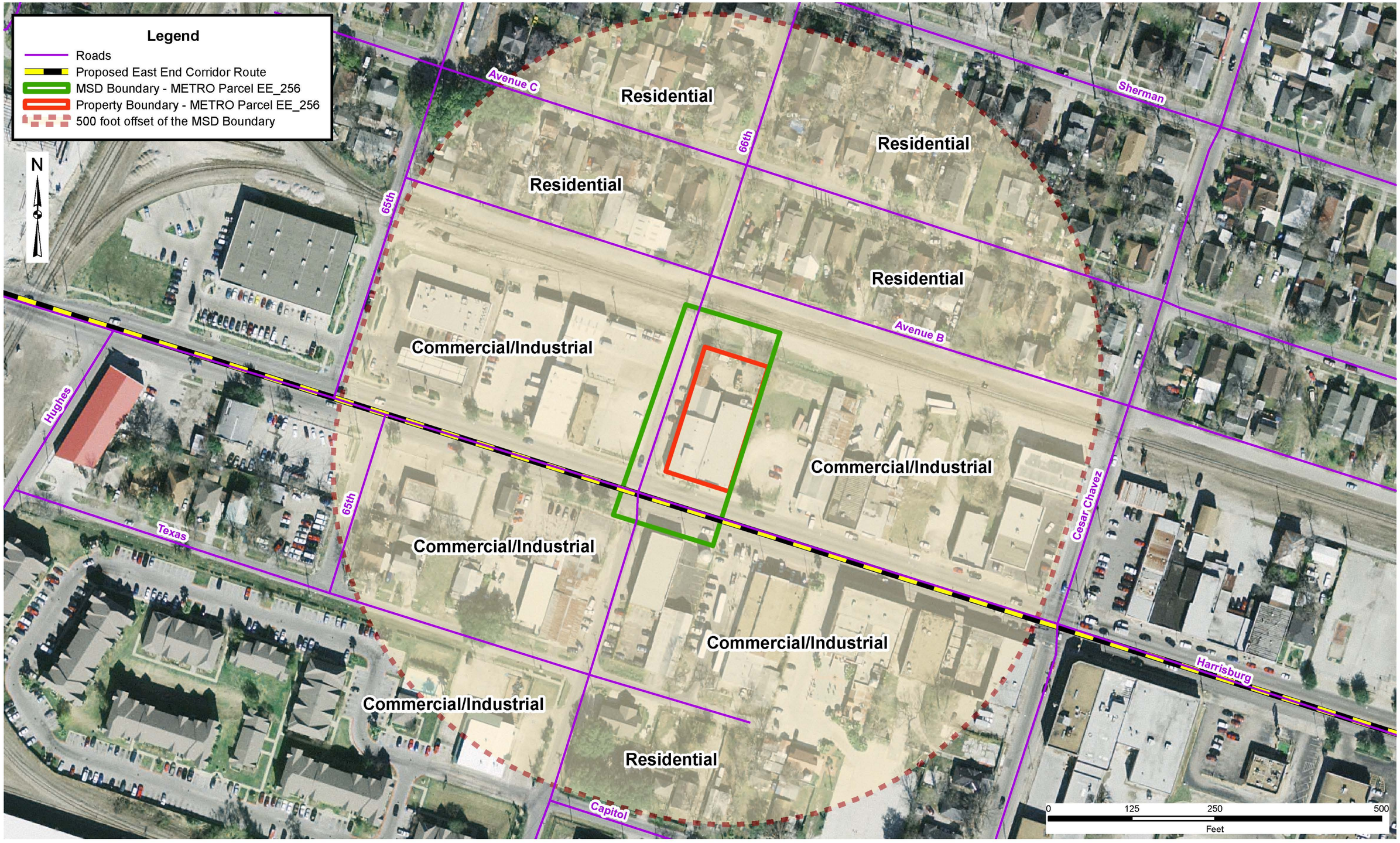
Appendix C – Property Use

The proposed MSD area is approximately 0.4504 acre (19,618 square feet) of land located southeast of downtown Houston, Harris County, Texas. The affected property is located in a mixture of residential, commercial and light industrial development (**Figure C1**). **Figure C1** (included in **Appendix C**) provides a description of the surrounding land use within 500-feet of the site.

Historic property uses include laundry, auto dealership, motor and engine repair facilities, machining and grinding operations, and a tire and battery facility. Most recently the property was occupied by Web Devices which manufactures fall protection, fall arrest systems and fall protection training. Currently the property is vacant. The anticipated use of the property will be the future Metro East End Transit Corridor.

The property is currently vacant (**Figure C1**). Future use of the subject property is to be redeveloped for public transportation and commercial uses.

- North – Avenue A and a rail spur followed by residential with mixed commercial;
- East – Thompson Sling (6603 Harrisburg, Parcel EE_257) followed by more light industrial and commercial development;
- South – Harrisburg Blvd. and Texas Belt Company followed by residential with some mixed commercial;
- West – 66th Street and Tornado Bus Company (6525 Harrisburg) followed by more light industrial and commercial development.



G:\PROJECTS\1100261_Metro\EASTEND\EE_256\MSD\Figure C1 - EE_256 - Surrounding Land Use.mxd

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CURRENT LAND USE MAP - MSD 500-FOOT BOUNDARY

6601 Harrisburg Blvd., Houston, Texas

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Figure C1

Appendix D – PCLE Zone Discussion

A) Groundwater PCLE Zone – A review of recent groundwater sampling data indicates that the COCs that currently exceed the Tier 1 ${}^{GW}GW_{Ing}$ PCLs are tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), 1,1-Dichloroethene (1,1-DCE), and vinyl chloride. PCLE zones are depicted on **Figure B4** and are discussed in more detail below. The areas of affected groundwater are delineated in all directions (**Figure B4**).

According to the most recent groundwater data, the plume is confined within the proposed MSD boundary (**Figure B4**). One groundwater sample collected from a deeper zone (sample location EE_256_MW06) reported all COCs less than the laboratory detection limit indicating the area of affected groundwater is limited to the first (and most shallow) groundwater bearing unit (**Table F2**).

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

Based on a review of boring logs, the shallow groundwater is encountered at a depth of approximately 10 to 14 feet below ground surface (ft bgs). The bottom of the shallow groundwater bearing unit is estimated at approximately 20 to 22 ft bgs. One deep monitoring well was placed on Parcel EE_256 (EE_256_MW06). A review of the boring log for monitoring well MW06, the shallow groundwater bearing unit is underlain by approximately 16 ft of thick clay. A second, deeper groundwater bearing unit is encountered at approximately 38 to 58 ft bgs and is comprised of a silty clay. This second, deeper groundwater bearing unit is underlain by a clay unit.

None of the target COCs were detected in the second groundwater bearing unit at a concentration greater than the most conservative ${}^{GW}GW_{Ing}$ PCL for residential land use. Therefore, the second groundwater bearing unit is not an area of concern.

B) Groundwater Data Ingestion PCL Exceedences – The following table represents the groundwater ingestion PCL exceedances that were reported from the most recent monitoring event for each Parcel:

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

		PCE (mg/L)	TCE (mg/L)	Cis-1,2-DCE (mg/L)	1,1-DCE (mg/L)	VC (mg/L)
Tier 1 $^{GW}GW_{Ing}$ PCLs		0.005	0.005	0.07	0.007	0.002
Tier 1 $^{Air}GW_{Inh-V}$ PCLs		330	160	16,000	1,700	3.6
Monitoring Well ID	Sample Date	Concentration (mg/L)				
EE_256_MW04	1/13/10	**0.39**	**0.6**	**0.14**	**0.09**	**0.032**
EE_256_MW05	1/13/10	**0.47**	**1.1**	**0.2**	**0.14**	**0.037**
EE_256_MW07	4/1/11	**0.0782**	**0.287**	0.0461	**0.0634**	**0.00231**

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

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

C) Groundwater COCs – The chemicals of concern (COCs) detected in groundwater samples (PCE, TCE, cis-1,2-DCE, 1,1-DCE, and vinyl chloride) are associated with the historic operations at the Parcels included in the proposed MSD boundary.

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

Based on the field observations and laboratory results, it appears that the groundwater COCs on the subject property are primarily dissolved in the shallow groundwater. A review of the off-site groundwater sampling results indicates that the dissolved phase COCs do not extend off-site and are limited to the on-site Parcels (**Figure B4**). A groundwater sample collected from the second groundwater bearing unit demonstrates that the COCs have not migrated to a deeper unit. Therefore, the COCs are delineated vertically.

Appendix E – COCs in Designated Groundwater Discussion

A) Refer to **Appendix D** for a discussion of the chemicals of concern (COC) in the ingestion protective concentration level (PCL) exceedance zone. Current groundwater sampling results indicate that there are several identified COCs (PCE, TCE, cis-1,2-DCE, 1,1-DCE, and vinyl chloride) that exceed the ingestion protective concentration levels on the subject property in the shallow groundwater bearing unit. **Figure B4** depicts the PCLE zones.

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

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

Appendix F – Summary of Soil and Groundwater Concentration Data

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

Table F1 – Summary of Soil Concentration Data

Parcel	Sample Location	Sample Depth (ft bgs)	Date	PCE (mg/kg)	TCE (mg/kg)	cis-1,2-DCE (mg/kg)	trans-1,2-DCE (mg/kg)	1,1-DCE (mg/kg)	VC (mg/kg)
Tier 1 Residential $^{GW}Soil_{Ing}$ PCL (Critical PCL without MSD)				**0.05**	**0.034**	**0.25**	**0.49**	**0.05**	**0.02**
Tier 1 Residential $^{Tot}Soil_{Comb}$ PCL (Critical PCL without MSD)				**100**	**120**	**770**	**590**	**2,300**	**4**
Tier 1 Residential $^{Air}Soil_{Inh-V}$ PCL (Critical PCL with MSD)				**940**	**150**	**12,000**	**920**	**5,200**	**43**
Texas Specific Background Levels				--	--	--	--	--	--
EE_256	B-1	8-10	3/10/07	<0.0015	<0.0015	<0.0016	<0.0015	<0.0015	<0.0016
EE_256	B-2	2-5	3/10/07	<0.0016	<0.0016	<0.0017	<0.0016	<0.0015	<0.0017
EE_256	B-3	0-2	3/10/07	NA	NA	NA	NA	NA	NA
EE_256	B-4	0-2	3/10/07	NA	NA	NA	NA	NA	NA
EE_256	B-5	0-2	3/10/07	NA	NA	NA	NA	NA	NA
EE_256	B-6	13-15	3/10/07	<0.0016	<0.0015	<0.0016	<0.0016	<0.0015	<0.0016
EE_256	B-7	0-2	6/16/07	NA	NA	NA	NA	NA	NA
EE_256	B-7	2-4	6/16/07	NA	NA	NA	NA	NA	NA
EE_256	B-7	4-5	6/16/07	NA	NA	NA	NA	NA	NA
EE_256	B-8	0-2	6/16/07	NA	NA	NA	NA	NA	NA
EE_256	B-8	2-4	6/16/07	NA	NA	NA	NA	NA	NA
EE_256	B-8	4-5	6/16/07	NA	NA	NA	NA	NA	NA
EE_256	EE_256_SB-09	0-2	1/13/10	<0.00078	<0.00065	<0.00078	<0.00065	<0.001	<0.0013
EE_256	EE_256_SB-09	6-8	1/13/10	<0.00075	<0.00062	<0.00075	<0.00062	<0.001	<0.0012
EE_256	EE_256_SB-10	0-2	1/13/10	<0.00074	<0.00062	<0.00074	<0.00062	<0.00099	<0.0012
EE_256	EE_256_SB-10	6-8	1/13/10	<0.00077	<0.00064	<0.00077	<0.00064	<0.001	<0.0013
EE_256	EE_256_MW06	0-2	1/12/10	<0.00076	<0.00064	<0.00076	<0.00064	<0.001	<0.0013

Parcel	Sample Location	Sample Depth (ft bgs)	Date	PCE (mg/kg)	TCE (mg/kg)	cis-1,2-DCE (mg/kg)	trans-1,2-DCE (mg/kg)	1,1-DCE (mg/kg)	VC (mg/kg)
Tier 1 Residential $^{GW}Soil_{Ing}$ PCL (Critical PCL without MSD)				**0.05**	**0.034**	**0.25**	**0.49**	**0.05**	**0.02**
Tier 1 Residential $^{Tot}Soil_{Comb}$ PCL (Critical PCL without MSD)				**100**	**120**	**770**	**590**	**2,300**	**4**
Tier 1 Residential $^{Air}Soil_{Inh-V}$ PCL (Critical PCL with MSD)				**940**	**150**	**12,000**	**920**	**5,200**	**43**
Texas Specific Background Levels				--	--	--	--	--	--
EE_256	EE_256_MW06	8-10	1/12/10	<0.00073	<0.00061	**0.0052 J**	<0.00061	<0.00098	<0.0012
EE_256	EE_256_MW06	22-24	1/12/10	<0.00072	<0.0006	<0.00072	<0.0006	<0.00096	<0.0012
EE_256	EE_256_MW06	58-60	1/14/10	<0.00076	<0.00063	<0.00076	<0.00063	<0.001	<0.0013
EE_102/256	EE_102_SB01	8-10	3/31/11	<0.00114	<0.00114	<0.00114	<0.00114	<0.00114	<0.00114
EE_102/256	EE_102_SB01	14-16	3/31/11	<0.00111	<0.00111	<0.00111	<0.00111	<0.00111	<0.00111
EE_102/256	EE_256_SB07	10-12	3/31/11	**0.00507 J**	**0.0127**	**0.00202 J**	<0.00115	**0.00133 J**	<0.00115
EE_102/256	EE_256_SB07	14-16	3/31/11	**0.00319 J**	**0.011**	**0.0028 J**	<0.00122	<0.00122	<0.00122

Notes:
J- Analyte is estimated value between reporting limit and method detection (organics only)
NA-not analyzed

	Value exceeds the $^{GW}Soil_{Ing}$ PCL
	Value exceeds the $^{Tot}Soil_{Comb}$ PCL
	Value exceeds the $^{Air}Soil_{Inh-V}$ PCL

Table F2 – Summary of Groundwater Concentration Data

Parcel	Sample Location	Date	PCE (mg/L)	TCE (mg/L)	cis-1,2-DCE (mg/L)	trans-1,2-DCE (mg/L)	1,1-DCE (mg/L)	VC (mg/L)	TPH (C6-C12) (mg/kg)	TPH (>C12-C28) (mg/kg)	TPH (>C28-C35) (mg/kg)	Total TPH (mg/kg)
Tier 1 Residential $^{GW}GW_{Ing}$ PCL (critical PCL without MSD)			**0.005**	**0.005**	**0.07**	**0.1**	**0.007**	**0.002**	**0.98**	**0.98**	**0.73**	**-**
Tier 1 Residential $^{Air}GW_{Inh-V}$ PCL (critical PCL with MSD)			**500**	**120**	**16,000**	**770**	**1,700**	**3.8**	**1,800**	**7,500**	**7,500**	**--**
EE_256	SB02/TMW02_TTE	3/10/07	< 0.00074	**0.00087 J**	< 0.00083	< 0.00075	**0.0165**	**0.0039**	< 0.67	< 0.31	< 0.31	< 0.31
EE_256	SB06/TMW06_TTE	3/10/07	< 0.00074	< 0.00063	< 0.00083	< 0.00075	< 0.00068	< 0.00032	< 0.66	< 0.30	< 0.30	< 0.30
EE_102	EE_102_MW01	4/1/11	<0.0006	<0.0006	<0.0002	<0.0002	<0.0002	<00001	<0.683	<0.683	<0.683	<0.683
EE_104	EE_104_MW01	4/1/11	<0.0006	<0.0006	<0.0002	<0.0002	<0.0002	<00001	NA	NA	NA	NA
EE_104	EE_104_MW02	4/1/11	<0.0006	<0.0006	<0.0002	<0.0002	<0.0002	<00001	NA	NA	NA	NA
EE_256	MW-1	6/19/07	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	NA	NA	NA	NA
EE_256	EE_256_257_MW 01	12/31/08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	< 5.00	< 5.00	< 5.00	< 5.00
EE_256	EE_256_MW 01	1/13/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	NA	NA
EE_256	MW-2	6/19/07	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	NA	NA	NA	NA
EE_256	EE_256_257_MW 02	12/31/08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	< 5.00	< 5.00	< 5.00	< 5.00
EE_256	EE_256_MW 02	1/13/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	NA	NA

Parcel	Sample Location	Date	PCE (mg/L)	TCE (mg/L)	cis-1,2-DCE (mg/L)	trans-1,2-DCE (mg/L)	1,1-DCE (mg/L)	VC (mg/L)	TPH (C6-C12) (mg/kg)	TPH (>C12-C28) (mg/kg)	TPH (>C28-C35) (mg/kg)	Total TPH (mg/kg)
Tier 1 Residential $^{GW}GW_{Ing}$ PCL (critical PCL without MSD)			**0.005**	**0.005**	**0.07**	**0.1**	**0.007**	**0.002**	**0.98**	**0.98**	**0.73**	**-**
Tier 1 Residential $^{Air}GW_{Inh-V}$ PCL (critical PCL with MSD)			**500**	**120**	**16,000**	**770**	**1,700**	**3.8**	**1,800**	**7,500**	**7,500**	**--**
EE_256	MW-3	6/19/07	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	NA	NA	NA	NA
EE_256	EE_256_257_MW 03	12/31/08	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.002	< 5.00	< 5.00	< 5.00	< 5.00
EE_256	EE_256_MW 03	1/13/10	<0.0005	**0.00073 J**	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	NA	NA
EE_257	EE_257_MW03	4/1/11	<0.0006	<0.0006	<0.0002	<0.0002	<0.0002	<00001	NA	NA	NA	NA
EE_256	MW-4	6/19/07	**0.341**	**0.531**	**0.097**	**0.01**	**0.075**	**0.019**	NA	NA	NA	NA
EE_256	EE_256_MW 04	1/13/10	**0.39**	**0.6**	**0.14**	**0.018**	**0.09**	**0.032**	NA	NA	NA	NA
EE_256	SB01/TMW01_TTE	3/10/07	**0.553**	**0.933**	**0.173**	**0.013**	**0.0948**	**0.0287**	**1.98**	< 0.31	< 0.31	**1.98**
EE_256	MW-5	6/19/07	**0.342**	**0.735**	**0.13**	**0.014**	**0.099**	**0.021**	NA	NA	NA	NA
EE_256	EE_256_MW 05	1/13/10	**0.47**	**1.1**	**0.2**	**0.028**	**0.14**	**0.037**	NA	NA	NA	NA
EE_256	EE_256_MW06	1/15/10	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA	NA	NA
EE_256	EE_256_MW06	4/1/11	<0.0006	<0.0006	<0.0002	<0.0002	<0.0002	<00001	NA	NA	NA	NA
EE_256	EE_256_MW07	4/1/11	**0.0782**	**0.287**	**0.0461**	**0.00581**	**0.0634**	**0.00231**	NA	NA	NA	NA
EE_256	EE_256_TW-09	1/13/10	**0.001 J**	<0.0005	<0.0005	<0.0005	**0.0021 J**	<0.0005	<0.019	<0.019	<0.019	<0.019

Notes:
J - Analyte is an estimated value between reporting limit and method detection limit (organics only)

NA –not analyzed

Value exceeds the $^{GW}GW_{Ing}$ PCL
Value exceeds the $^{Air}GW_{Inh-V}$ PCL

Appendix G – Plume Stability

The East End Corridor MSD No. 1 site groundwater has been affected by dissolved phase chemicals including PCE, TCE, cis-1,2-DCE, 1,1-DCE, and vinyl chloride. These chemicals are believed to be associated with the historic operations conducted within the proposed MSD boundary which ceased over 45 years ago. These chemicals are no longer used at the site and are a result of historical activities. These chemicals tend to move rapidly in the sub-surface environment and quickly reach equilibrium as long as there is no ongoing contributing mass source. The level of these compounds in soil is not believed to be a significant contributing source of mass to groundwater. In addition, the concentration of these chemicals in groundwater has not materially changed between 2007 and 2010. The most recent 2011 sampling event confirms that the extent of the plume is still defined with no indication of an expanding plume.

The lateral extent of groundwater impact in the shallow groundwater bearing unit has been delineated in all directions. VOCs in shallow groundwater on Parcel EE_256 have been delineated in the upgradient direction by sample locations EE_104_MW01 and EE_104_MW02 on the adjacent west parcel, and in the downgradient direction by EE_257_MW03 on the southeast corner of the proposed MSD boundary and by EE_102_SB01/MW01 on the adjacent south parcel. **Figure B4** depicts the delineated COC plumes in shallow groundwater. The plume is vertically delineated by groundwater monitoring well EE_256_MW06.

In summary, the groundwater data collected to date indicates that the area of affected groundwater is not expanding either horizontally or vertically, and was the result of historic releases associated with past operations within the proposed MSD boundary. Given that these chemicals of concern are no longer used, there is no potential for further contribution.