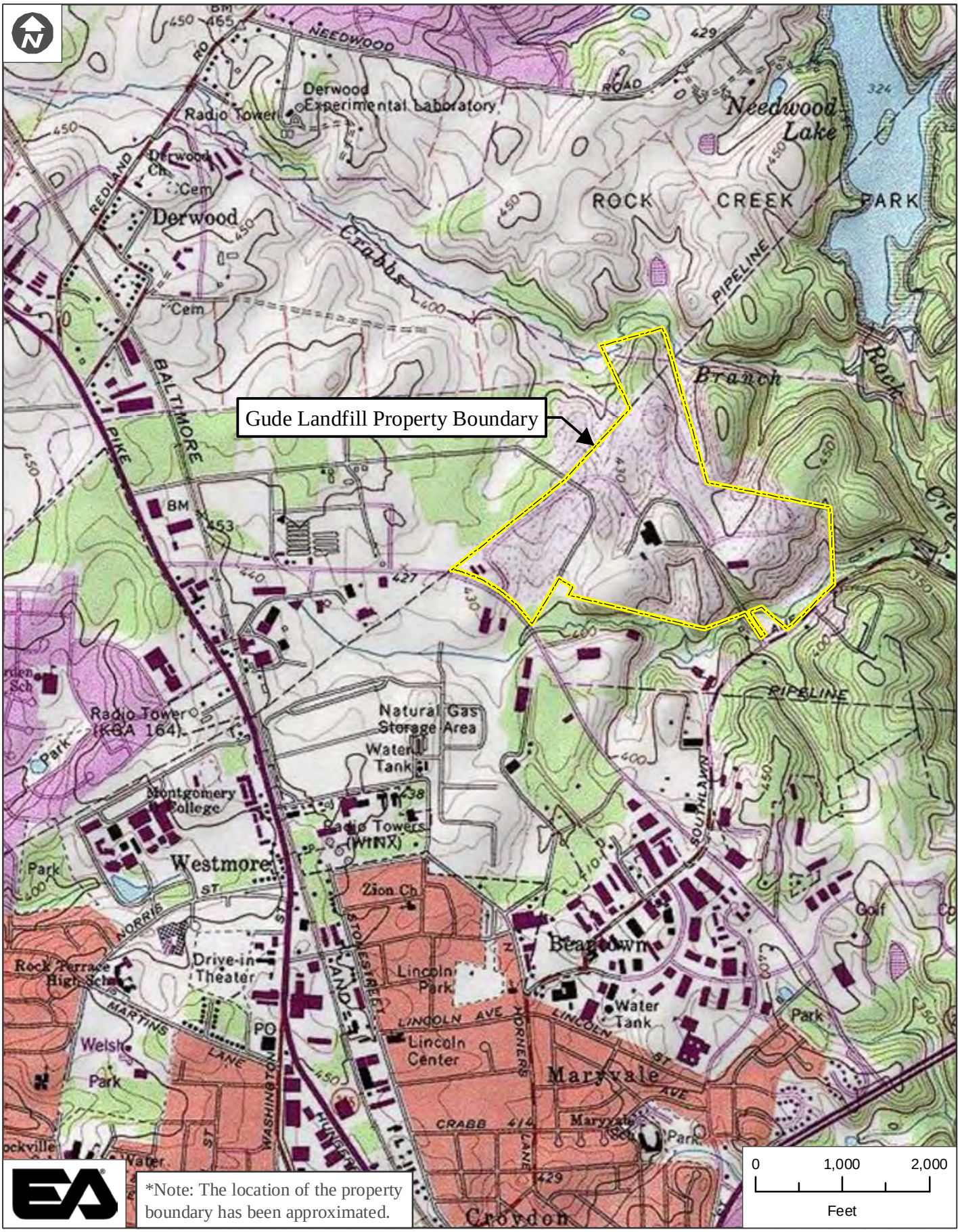
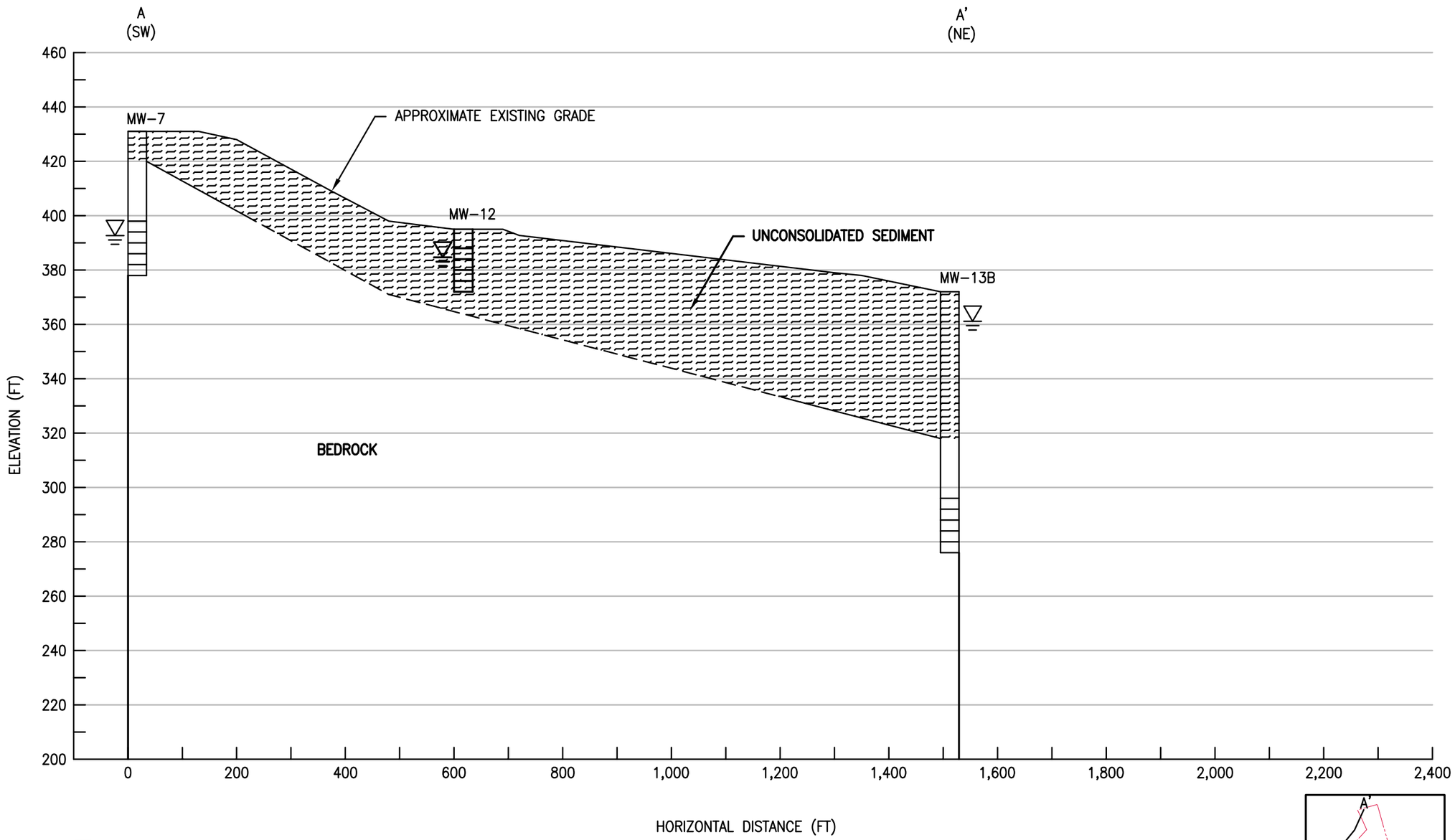


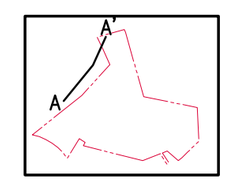
Gude Landfill
Montgomery County, Maryland

Figure 2-1. Site Location Map

Sources:
- EDR, 2009

H:\projects\6219608_out\MXD\Figure1





PLAN VIEW

FILE PATH: Q:\PROJECTS\6219608 GUDE PHASE 1\GROUNDWATER\SECTION A-A'_RMC.DWG [LAYOUT1] 11/18/10

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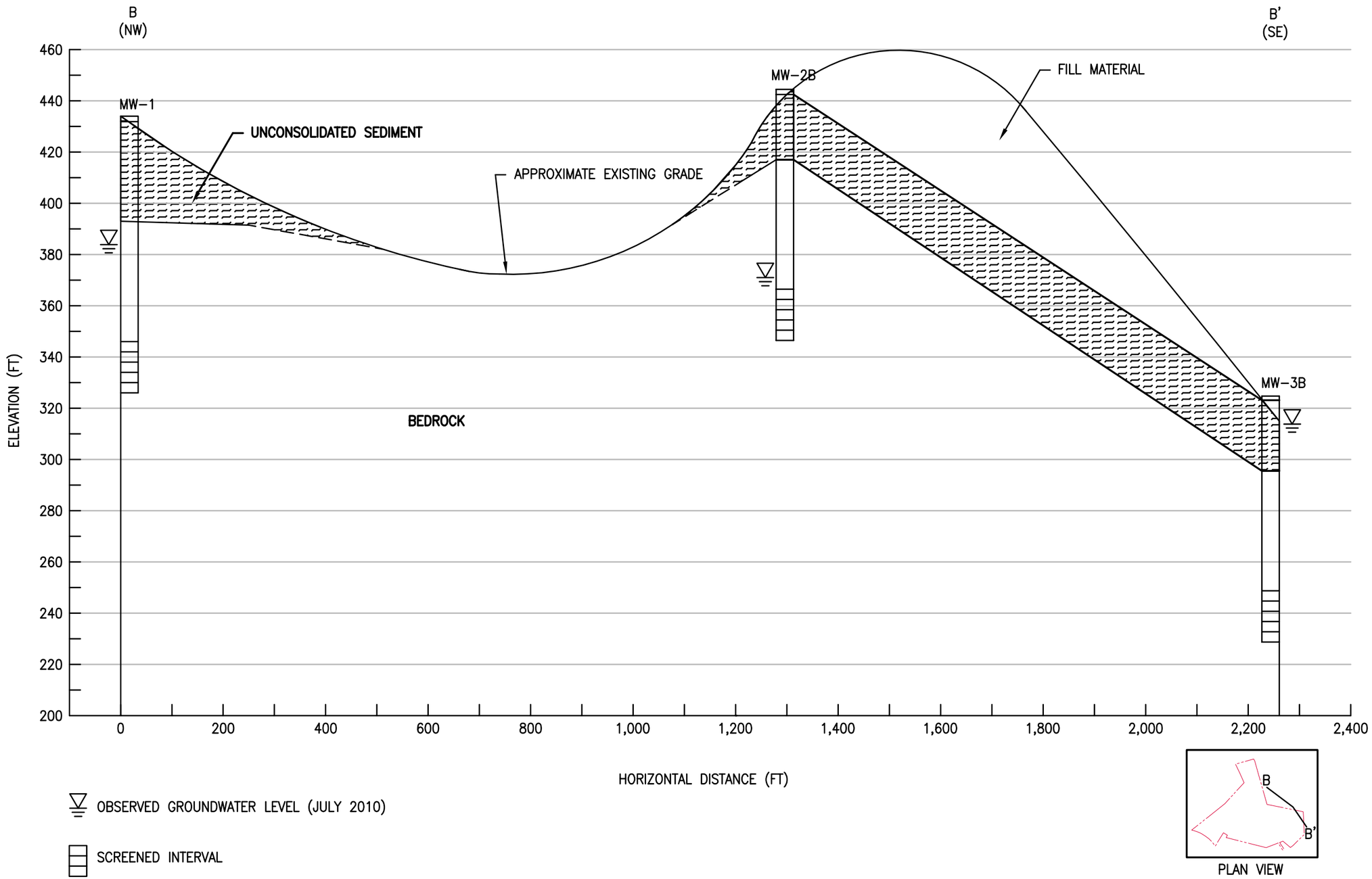
GUDE LANDFILL
MONTGOMERY COUNTY, MARYLAND

FIGURE 2-2
GEOLOGIC CROSS SECTION A-A'

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.
–	RMC	OCT. 2010	6219608
CHECKED BY	PROJECT MGR.	DRAWING NO.	FIGURE
–	JK	–	2-2



FILE PATH: Q:\PROJECTS\6219608 GUDE PHASE 1\GROUNDWATER\SECTION B-B'_RMC.DWG [LAYOUT1] 11/18/10

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FIGURE 2-3
GEOLOGIC CROSS SECTION B-B'

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.
–	RMC	OCT. 2010	62196.08
CHECKED BY	PROJECT MGR.	DRAWING NO.	FIGURE
–	JK	–	2-3

NOTES:
1. AERIAL PHOTOGRAPHY BY APPLIED MAPPING SOLUTIONS, INC. JUNE 2009.
2. BOUNDARY AND FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C. OCTOBER 2009.
3. COORDINATE SYSTEM IS NAD-83/91 MARYLAND STATE PLANE.

LEGEND
EXISTING MONITORING WELL (OBXX)
NEW MONITORING WELL (MW-XX)

FILE PATH: Q:\PROJECTS\6219608 GUDE PHASE 1\GROUNDWATER\GWFIGURE FINAL.DWG [FIG 4-1] 11/4/10

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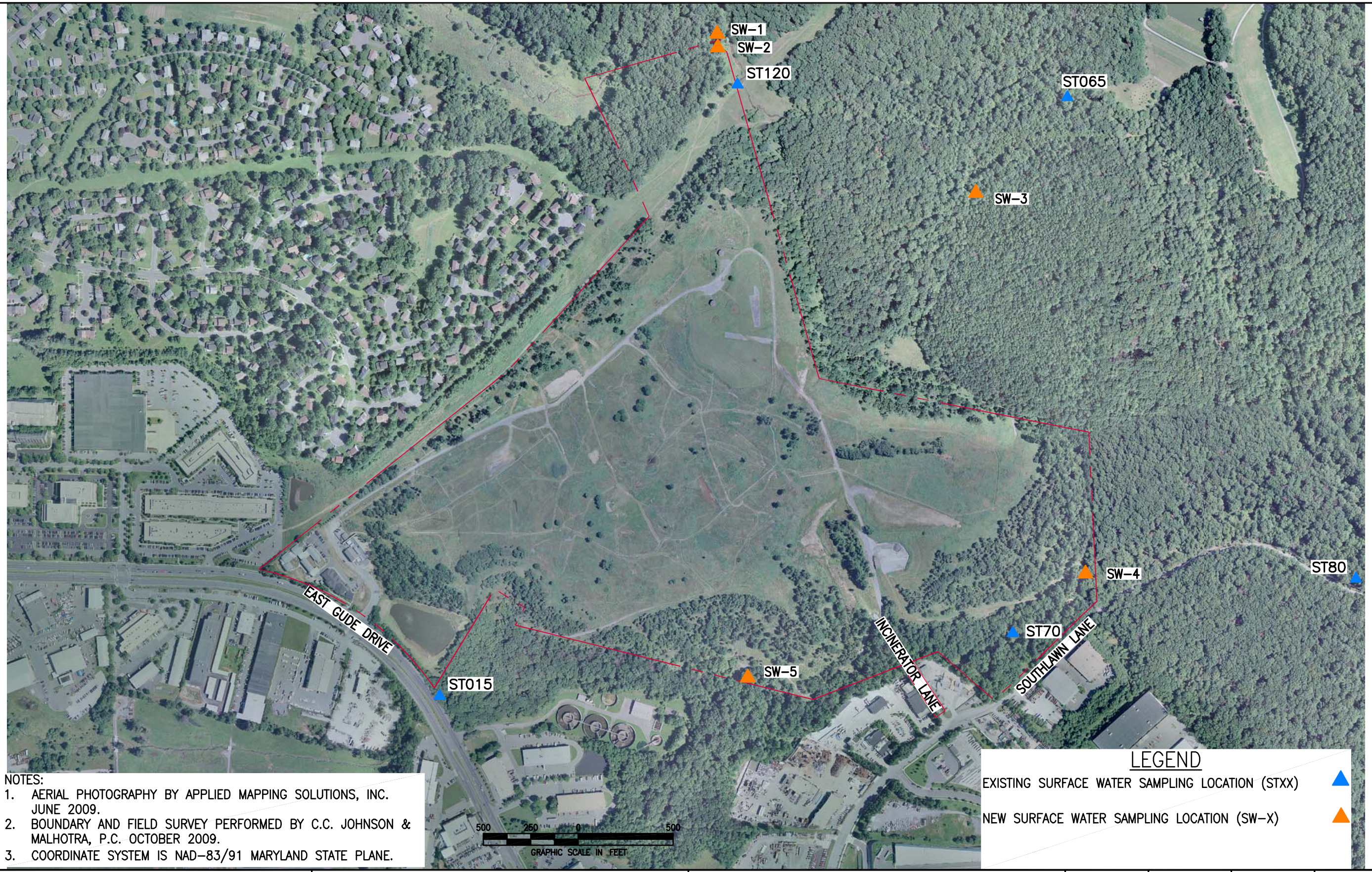
GUDE LANDFILL
MONTGOMERY COUNTY, MARYLAND

FIGURE 3-1
GROUNDWATER MONITORING WELL LOCATION MAP

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.
PL	JP	OCT. 2010	62196.08
CHECKED BY	PROJECT MGR.	DRAWING NO.	FIGURE
BR	JK	–	3-1



NOTES:
1. AERIAL PHOTOGRAPHY BY APPLIED MAPPING SOLUTIONS, INC. JUNE 2009.
2. BOUNDARY AND FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C. OCTOBER 2009.
3. COORDINATE SYSTEM IS NAD-83/91 MARYLAND STATE PLANE.

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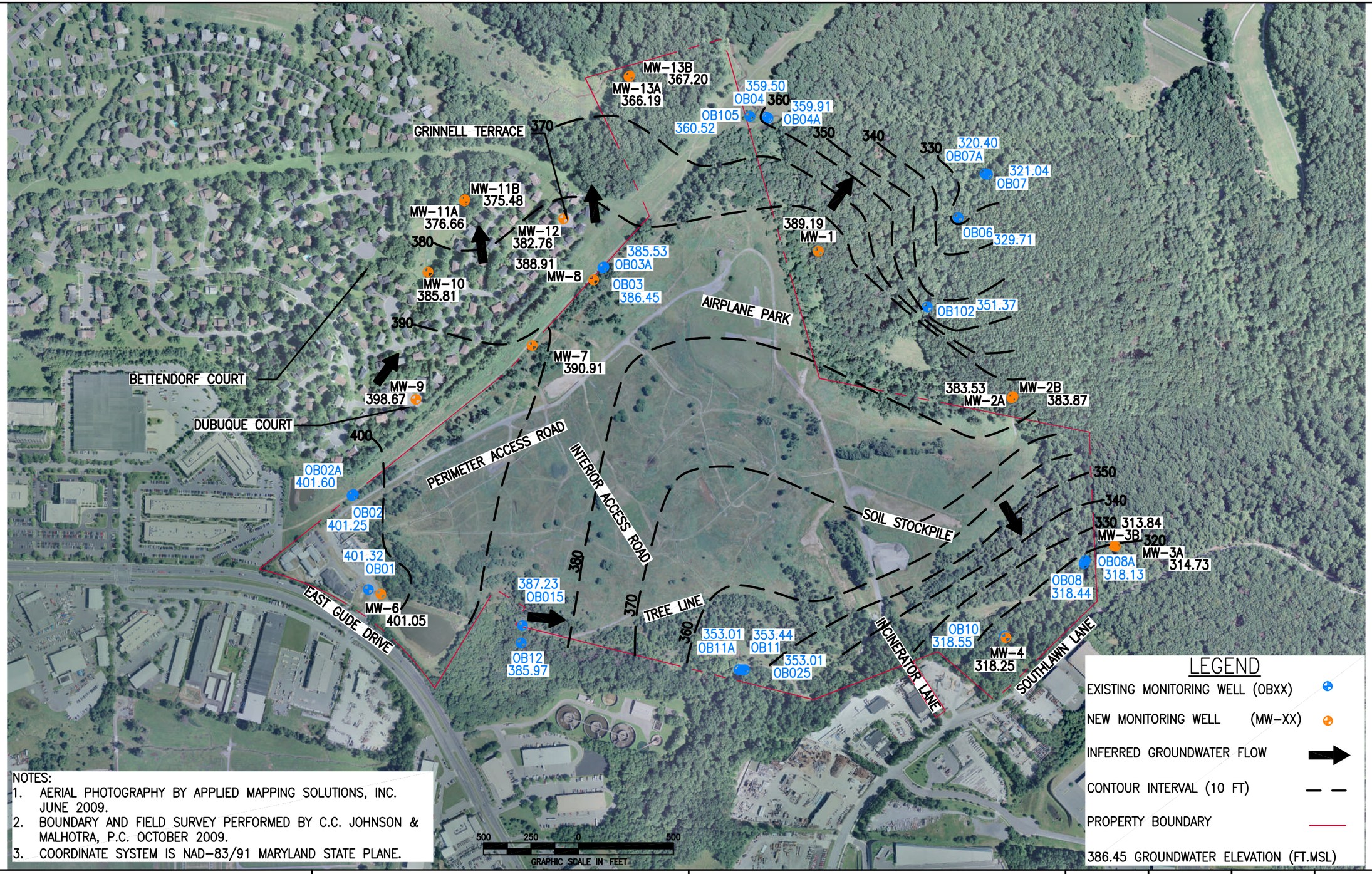
FIGURE 3-2
SURFACE WATER SAMPLING LOCATION MAP

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.
PL	JP	OCT. 2010	62196.08
CHECKED BY	PROJECT MGR.	DRAWING NO.	FIGURE
BR	JK	–	3-2

FILE PATH: Q:\PROJECTS\6219608 GUDE PHASE 1\GROUNDWATER\FIG 4-1_4-2_4-3 GWFIGURE FINAL.DWG [FIG 4-2] 11/18/10



NOTES:
1. AERIAL PHOTOGRAPHY BY APPLIED MAPPING SOLUTIONS, INC. JUNE 2009.
2. BOUNDARY AND FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C. OCTOBER 2009.
3. COORDINATE SYSTEM IS NAD-83/91 MARYLAND STATE PLANE.

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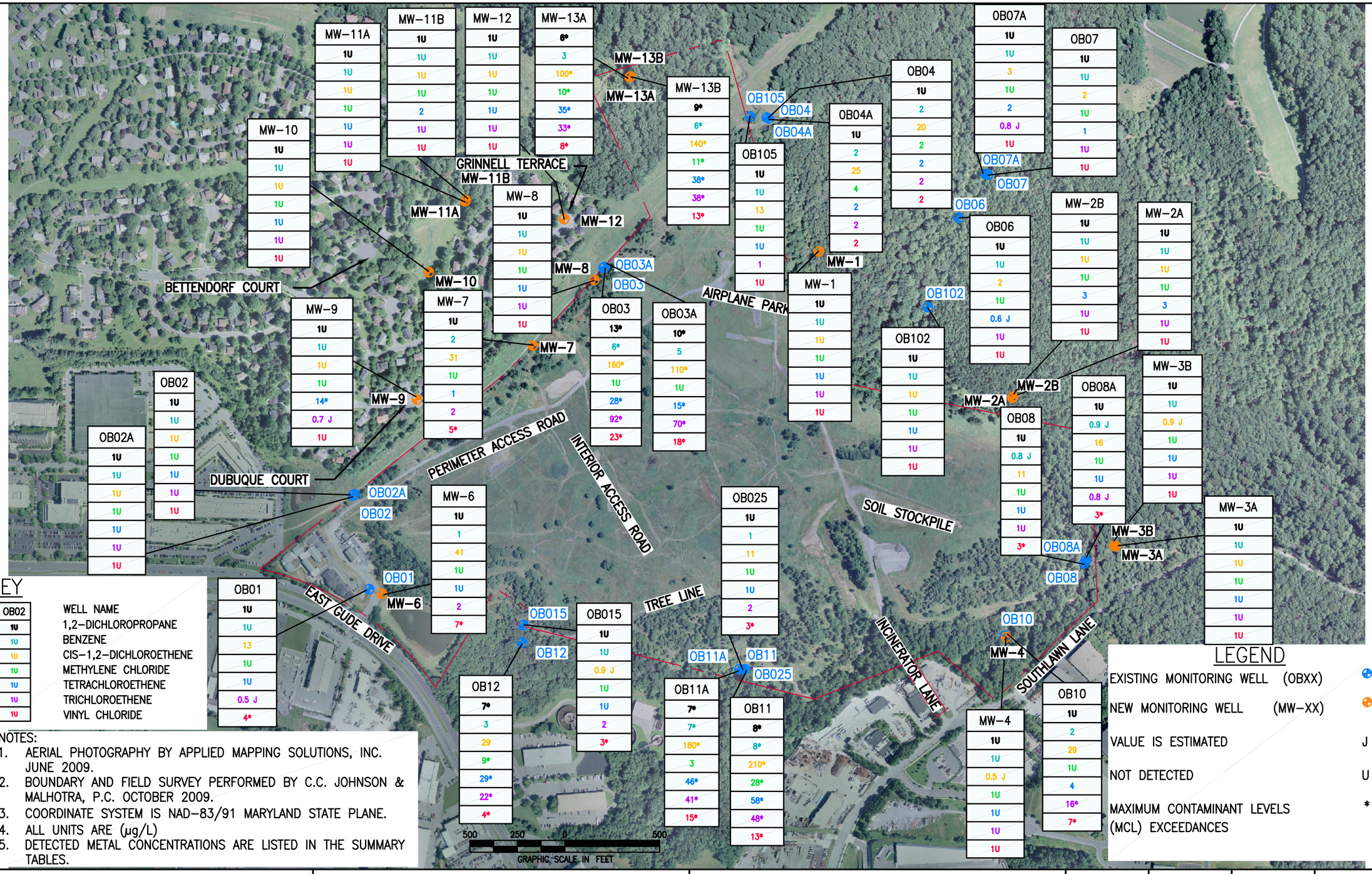
FIGURE 5-1
INFERRED GROUNDWATER FLOW MAP
DATA DATES: JULY 26-AUGUST 2, 2010

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.
PL	JP	OCT. 2010	62196.08
CHECKED BY	PROJECT MGR.	DRAWING NO.	FIGURE
BR	JK		5-1

FILE PATH: Q:\PROJECTS\6219608 GUDE PHASE 1\GROUNDWATER\GWFIGURE CONTOURS_.DWG [FIG 4-1] 11/18/10



KEY

OB02
1U
1U
1U
1U
1U
1U
1U

WELL NAME
1,2-DICHLOROPROPANE
BENZENE
CIS-1,2-DICHLOROETHENE
METHYLENE CHLORIDE
TETRACHLOROETHENE
TRICHLOROETHENE
VINYL CHLORIDE

LEGEND

EXISTING MONITORING WELL (OBXX)
NEW MONITORING WELL (MW-XX)
VALUE IS ESTIMATED J
NOT DETECTED U
MAXIMUM CONTAMINANT LEVELS (MCL) EXCEEDANCES *

NOTES:
1. AERIAL PHOTOGRAPHY BY APPLIED MAPPING SOLUTIONS, INC. JUNE 2009.
2. BOUNDARY AND FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C. OCTOBER 2009.
3. COORDINATE SYSTEM IS NAD-83/91 MARYLAND STATE PLANE.
4. ALL UNITS ARE (µg/L)
5. DETECTED METAL CONCENTRATIONS ARE LISTED IN THE SUMMARY TABLES.

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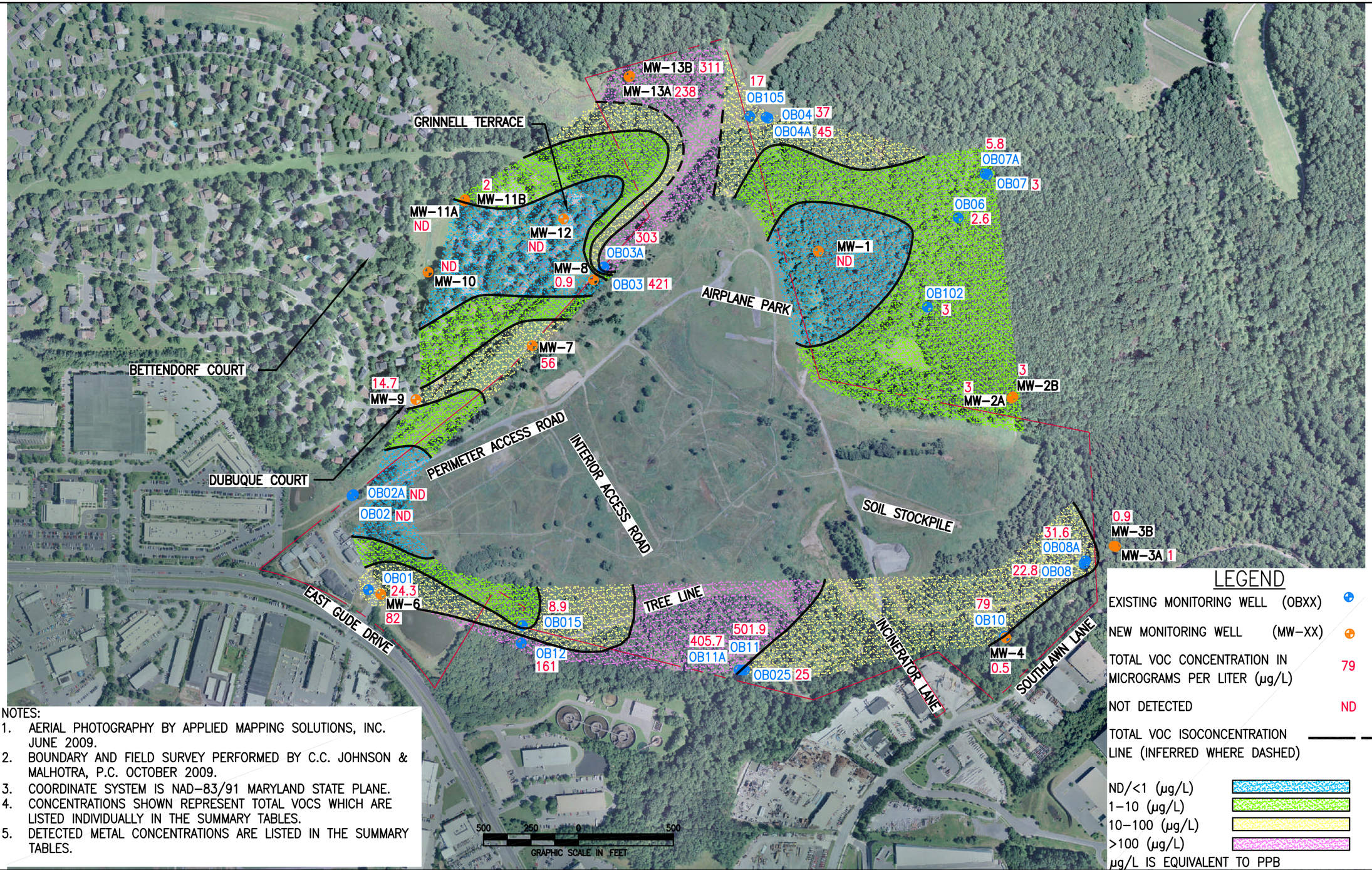
GUDE LANDFILL
MONTGOMERY COUNTY, MARYLAND

FIGURE 5-2
REPORTED CONCENTRATIONS OF CONSTITUENTS OF CONCERN IN MONITORING WELLS, JULY 26 – AUGUST 2, 2010

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.
PL	JP	OCT. 2010	62196.08
CHECKED BY	PROJECT MGR.	DRAWING NO.	FIGURE
BR	JK	–	5-2

FILE PATH: Q:\PROJECTS\6219608 GUDE PHASE 1\GROUNDWATER\TAG MAP.DWG [FIG 4-1] 11/18/10



NOTES:
1. AERIAL PHOTOGRAPHY BY APPLIED MAPPING SOLUTIONS, INC. JUNE 2009.
2. BOUNDARY AND FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C. OCTOBER 2009.
3. COORDINATE SYSTEM IS NAD-83/91 MARYLAND STATE PLANE.
4. CONCENTRATIONS SHOWN REPRESENT TOTAL VOCS WHICH ARE LISTED INDIVIDUALLY IN THE SUMMARY TABLES.
5. DETECTED METAL CONCENTRATIONS ARE LISTED IN THE SUMMARY TABLES.

LEGEND

EXISTING MONITORING WELL (OBXX)	
NEW MONITORING WELL (MW-XX)	
TOTAL VOC CONCENTRATION IN MICROGRAMS PER LITER (µg/L)	79
NOT DETECTED	ND
TOTAL VOC ISOCONCENTRATION LINE (INFERRED WHERE DASHED)	
ND/<1 (µg/L)	
1-10 (µg/L)	
10-100 (µg/L)	
>100 (µg/L)	

µg/L IS EQUIVALENT TO PPB

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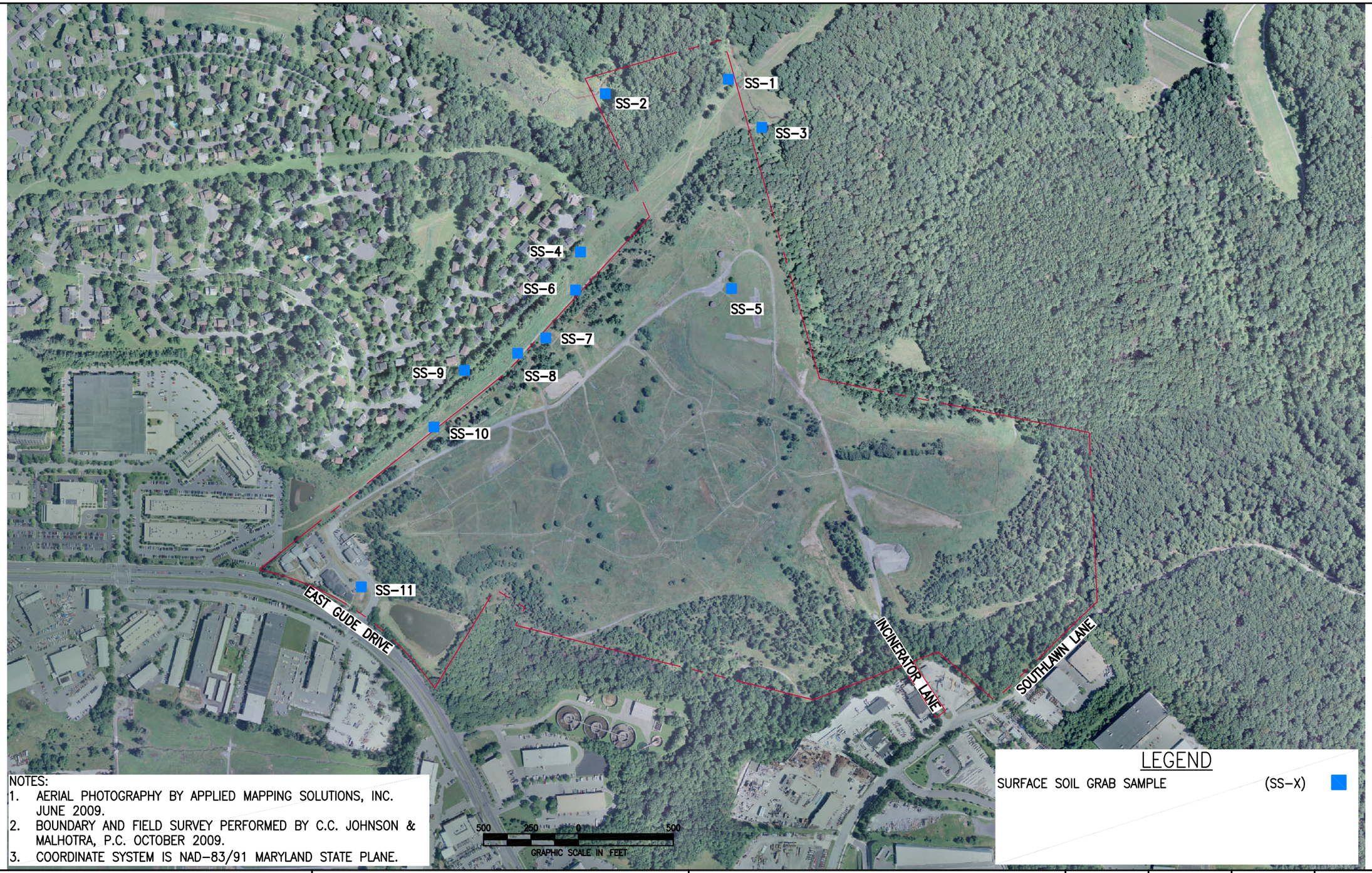
GUDE LANDFILL
MONTGOMERY COUNTY, MARYLAND

FIGURE 5-3
LANDFILL PERIMETER
TOTAL VOLATILE ORGANIC COMPOUND (VOC)
CONCENTRATION MAP, JULY 26-AUGUST 2, 2010

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.
PL	JP	OCT. 2010	62196.08
CHECKED BY	PROJECT MGR.	DRAWING NO.	FIGURE
BR	JK	–	5-3

FILE PATH: Q:\PROJECTS\6219608 GUDE PHASE 1\GROUNDWATER\ISO MAP 2.DWG [FIG 4-1] 11/18/10



NOTES:
1. AERIAL PHOTOGRAPHY BY APPLIED MAPPING SOLUTIONS, INC. JUNE 2009.
2. BOUNDARY AND FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C. OCTOBER 2009.
3. COORDINATE SYSTEM IS NAD-83/91 MARYLAND STATE PLANE.

FILE PATH: Q:\PROJECTS\62196.08 GUDE PHASE 1\GROUNDWATER\FIG 4-1_4-2_4-3 GWFIGURE.DWG [FIG 4-3] 11/2/10

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GUDE LANDFILL
MONTGOMERY COUNTY, MARYLAND

FIGURE 5-4
SURFACE SOIL SAMPLE LOCATION MAP

DESIGNED BY	DRAWN BY	DATE	PROJECT NO.
PL	JP	OCT. 2010	62196.08
CHECKED BY	PROJECT MGR.	DRAWING NO.	FIGURE
BR	JK	–	5-4

FIGURE 6-1
HUMAN HEALTH CONCEPTUAL SITE MODEL
GUDE LANDFILL

Summary: The risk evaluation determined no potential concerns for human contact with complete exposure pathways. Only complete exposure pathways are evaluated in the risk evaluation. A complete exposure pathway requires the following four components: a source of chemicals, a transport/release mechanism for chemicals, a point for potential human contact, and a route of human exposure. Potential risk to humans from chemicals requires a complete exposure pathway. Incomplete exposure pathways do result in a risk to human receptors.

References: EPA. 1989. *Risk Assessment Guidance for Superfund, Volume 1 Human Health Evaluation Manual (Part A)* . EPA/540/1-89/002, December.
EPA. 2010. *Regional Screening Levels, User's Guide* . May. Available at http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm.
MDE. 2008. *Cleanup Standards for Soil and Groundwater* . Interim Final Guidance (Update 2.1). June.

PRIMARY SOURCE	PRIMARY RELEASE MECHANISM	SECONDARY SOURCE	SECONDARY RELEASE MECHANISM	EXPOSURE ROUTE	POTENTIAL RECEPTORS: Residents (Adult and Child)	County Workers	Recreational Users	Residents of Men's Shelter
Gude Landfill	Groundwater Transport/ Leachate Seeps			Ingestion	I	I	I	I
				Dermal Contact	I	I	I	I
				Inhalation VOCs	I	I	I	I
			Vapor Intrusion	Inhalation VOCs Indoor Air	C	I	I	C
		Surface Water		Ingestion	I*	I	C	I
				Dermal Contact	I*	I	C	I
		Subsurface Soil		Ingestion	C*	C	I	I
				Dermal Contact	C*	C	I	I
				Inhalation of Particulate	C*	C	I	I
		Surface Soil		Ingestion	I*	C	C	C
				Dermal Contact	I*	C	C	C
			Particulate Emission/Suspension	Inhalation of Particulate	I*	C	C	C

LEGEND

I	Incomplete or not significant exposure pathway
I*	Incomplete pathway for a residential scenario, evaluated as part of the recreational user scenario
C	Potentially complete exposure pathway
C*	Potentially complete exposure pathway only at subsurface sample locations MW-9, MW-10, MW-11A, MW-11B, and MW-12

FIGURE 6-2
ECOLOGICAL CONCEPTUAL SITE MODEL
GUDE LANDFILL

Summary: The risk evaluation determined no potential concerns for ecological receptors contact with complete exposure pathways. Only complete exposure pathways are evaluated in the risk evaluation. A complete exposure pathway requires the following four components: a source of chemicals, a transport/release mechanism for chemicals, a point for potential ecological contact, and a route of ecological exposure. Potential risk to ecological receptors from chemicals requires a complete exposure pathway. Incomplete exposure pathways do result in a risk to ecological receptors.

References: EPA. 1998. *Guidelines for Ecological Risk Assessment*. EPA/630/R-95/002F. April.
EPA. 2005. Guidance for Developing Ecological Soil Screening Levels. OSWER Directive 9285.7-55. Revised February.

PRIMARY SOURCE	PRIMARY RELEASE MECHANISM	SECONDARY SOURCE	EXPOSURE MEDIA	EXPOSURE PATHWAYS	POTENTIAL RECEPTORS				
					Aquatic Organisms	Terrestrial Plants	Terrestrial Invertebrates	Birds	Mammals
Gude Landfill		Surface Soil	Surface Soil	Ingestion	I	I	C*	C	C
				Direct/Dermal Contact*	I	C	C	C*	C*
	Groundwater Transport/ Leachate Seeps	Surface Water	Surface Water	Biouptake	C	I	I	C	C
				Direct/Dermal Contact*	C	I	I	C*	C*
		Terrestrial food chain	Terrestrial food chain	Ingestion of prey/vegetation	I	I	I	C	C

LEGEND

C	Complete Pathway
C*	Complete Pathway, but not significant
I	Incomplete Pathway

* Direct contact is identified as a complete pathway for higher tropic level wildlife. However, example calculations and information provided in EPA guidance demonstrates that this pathway is insignificant compared to ingestion (EPA 2005).