

## Tables

Table 1  
Estimated Volume of Soil Potentially Impacted by DNAPL

	Former South Lagoon	Former North Lagoon	Former Process Area	Former Drip Track	Total
Area (acres)	1.4	1.4	2.1	0.5	5.4
Thickness of Surficial Aquifer (vadose + saturated)	21	22	23	23	
Total soil volume in Surficial Aquifer (cubic yards)	48,200	49,900	78,900	19,900	196,900
Percentage of soil in Surficial Aquifer that is DNAPL impacted	45%	65%	45%	50%	
DNAPL impacted soil volume in Surficial Aquifer (cubic yards)	21,700	32,500	35,500	10,000	99,700
Thickness of Upper Hawthorn (including upper clay unit) (ft)	43	37	47	35	
Total soil volume in Upper Hawthorn (cubic yards)	98,700	85,500	162,000	30,400	376,600
Thickness of Lower Hawthorn (including middle clay unit) (ft)	53	55	47	57	
Total soil volume in Lower Hawthorn (cubic yards)	121,600	127,100	162,000	49,600	460,300

Source for quantities above Hawthorn Group: GeoTrans, 2004b.

Source for Hawthorn Group thicknesses: Beazer 2006.

Note: Areas and volumes listed above are uncertain estimates.

**Table 2**  
**Occurrence, Distribution, and Selection of**  
**Chemicals of Concern in Surface Soil (0 to 6 inches bls)**  
**(2010 Human Health Risk Assessment)**

Chemical of Concern	Min Conc. (ppm)	Max Conc. (ppm)	Mean Conc. (ppm)	95% UCL (ppm)	Background Conc. (ppm)	Screening Toxicity Value (ppm)
Antimony	0.37	200	NR	7.36E+00	NR	37
Arsenic	0.45	3,600	NR	1.38E+02	NR	0.16
Chromium	1.7	3,700	NR	1.91E+02	NR	47
Lead	1.85	2,200	NR	6.87E+01	NR	80
Mercury	0.016	26.1	NR	1.39E+00	NR	1.7
BaP-TEQ	0.000995	138.1	NR	1.08E+01	NR	0.021
2-Methylnaphthalene	0.0014	650	NR	1.87E+01	NR	210
Naphthalene	0.0027	250	NR	5.55E+00	NR	2
Pentachlorophenol	0.003	630	NR	1.24E+01	NR	0.9
Dioxins (TCDD-TEQ)	0.0000024	0.17	NR	9.20E-03	NR	1.80E-06

Notes:

bls = below land surface

Min = Minimum detected concentration

Max = Maximum detected concentration

Conc. = Concentration

ppm = parts per million

95% UCL = 95% upper confidence limit on the weighted average

NR = Not reported

BaP-TEQ = Benzo(a)pyrene toxic equivalents

TCDD-TEQ = 2,3,7,8-Tetrachlorodibenzo-p-dioxin toxic equivalents

<p align="center"><b>Table 3</b>  <b>Summary of Surface Soil Chemicals of Concern and</b>  <b>Medium-Specific Exposure Point Concentrations</b>  <b>(2010 Human Health Risk Assessment)</b></p>								
<p><b>Scenario Timeframe: Future</b>  <b>Medium: Soil</b>  <b>Exposure Medium: Surface Soil</b></p>								
<b>Exposure Point</b>	<b>Chemical of Concern</b>	<b>Min</b>	<b>Max</b>	<b>Units</b>	<b>Freq of Detect</b>	<b>Exposure Point Conc.</b>	<b>Units</b>	<b>Statistical Measure</b>
On-Site	Antimony	0.37	200	mg/kg	59%	7.36E+00	mg/kg	95% UCL
	Arsenic	0.45	3,600	mg/kg	98%	1.38E+02	mg/kg	95% UCL
	Chromium	1.7	3,700	mg/kg	100%	1.91E+02	mg/kg	95% UCL
	Lead	1.85	2,200	mg/kg	100%	6.87E+01	mg/kg	95% UCL
	Mercury	0.016	26.1	mg/kg	100%	1.39E+00	mg/kg	95% UCL
	BaP-TEQ	0.000995	138.1	mg/kg	100%	1.08E+01	mg/kg	95% UCL
	2-Methylnaphthalene	0.0014	650	mg/kg	76%	1.87E+01	mg/kg	95% UCL
	Naphthalene	0.0027	250	mg/kg	84%	5.55E+00	mg/kg	95% UCL
	Pentachlorophenol	0.003	630	mg/kg	90%	1.24E+01	mg/kg	95% UCL
	Dioxins (TCDD-TEQ)	0.0000024	0.17	mg/kg	100%	9.20E-03	mg/kg	95% UCL
<p>Notes:  Min = Minimum detected concentration  Max = Maximum detected concentration  Freq of Detect = Frequency of detection  Conc. = Concentration  mg/kg = milligrams per kilogram  95% UCL = 95% upper confidence limit on the weighted average  BaP-TEQ = Benzo(a)pyrene toxic equivalents  TCDD-TEQ = 2,3,7,8-Tetrachlorodibenzo-p-dioxin toxic equivalents</p>								



**Table 4**  
**Risk Characterization Summary –Carcinogens**  
**(2010 Human Health Risk Assessment)**

**Scenario Timeframe: Future**

**Receptor Population: On-Site Outdoor Worker**

**Receptor Age: Adult**

Medium	Exposure Medium	Exposure Point	Chemical of Concern	Carcinogenic Risks			
				Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Surface Soil	On-Site	Antimony	NA	NA	NA	NA
			Arsenic	2.00E-05	3.00E-06	5.00E-06	3.00E-05
			Chromium	NA	NA	NA	NA
			Lead	NA	NA	NA	NA
			Mercury	NA	NA	NA	NA
			BaP-TEQ	1.00E-05	4.00E-06	8.00E-08	2.00E-05
			2-Methylnaphthalene	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA
			Pentachlorophenol	5.00E-07	1.00E-07	4.00E-09	6.00E-07
			Dioxins (TCDD-TEQ)	2.00E-04	2.00E-04	2.00E-06	4.00E-04
			Total	3.00E-04	2.00E-04	7.00E-06	5.00E-04

Notes:

BaP-TEQ = Benzo(a)pyrene toxic equivalents

TCDD-TEQ = 2,3,7,8-Tetrachlorodibenzo-p-dioxin toxic equivalents

NA = Not applicable

<b>Table 5</b> <b>Risk Characterization Summary – Non-Carcinogens</b> <b>(2010 Human Health Risk Assessment)</b>							
<b>Scenario Timeframe: Future</b> <b>Receptor Population: On-Site Outdoor Worker</b> <b>Receptor Age: Adult</b>							
Medium	Exposure Medium	Exposure Point	Chemical of Concern	Non-Carcinogenic Hazards			
				Ingestion	Dermal	Inhalation	Exposure Routes Total
Soil	Surface Soil	On-Site	Antimony	2.00E-02	6.00E-04	NA	2.00E-02
			Arsenic	1.00E-01	2.00E-02	NA	1.00E-01
			Chromium	1.00E-04	5.00E-05	NA	2.00E-04
			Lead	NA	NA	NA	NA
			Mercury	NA	NA	1.00E-04	1.00E-04
			BaP-TEQ	3.00E-04	3.00E-04	2.00E-06	6.00E-04
			2-Methylnaphthalene	3.00E-03	4.00E-03	NA	7.00E-03
			Naphthalene	2.00E-04	2.00E-04	4.00E-05	5.00E-04
			Pentachlorophenol	4.00E-04	9.00E-05	NA	4.00E-04
			Dioxins (TCDD-TEQ)	NA	NA	NA	NA
			Total	1.00E-01	3.00E-02	2.00E-04	2.00E-01
Notes: BaP-TEQ = Benzo(a)pyrene toxic equivalents TCDD-TEQ = 2,3,7,8-Tetrachlorodibenzo-p-dioxin toxic equivalents NA = Not applicable							

<b>Table 6</b> <b>Cleanup Goals for</b> <b>Groundwater (µg/L)</b>	
1,1 Biphenyl	0.5
2,4-Dimethylphenol	140
2-Methylnaphthalene	28
2-Methylphenol	35
3-/4-Methylphenol	3.5
Acenaphthalene	210
Acenaphthene	20
Arsenic	10 b
Benzene	1 b
Benzo(a)anthracene	0.05
Benzo(a)pyrene	0.2 b
Benzo(b)fluoranthene	0.05
Benzo(k)fluoranthene	0.5
Bis(2-ethylhexyl) phthalate	6 b
Carbazole	1.8
Chrysene	4.8
Dibenzofuran	28
Fluoranthene	280
Fluorene	280
Naphthalene	14
N-Nitrosodiphenylamine	7.1
Pentachlorophenol	1 b
Phenanthrene	210
Phenol	10
Notes: a. Except as noted, all cleanup goals are groundwater cleanup target levels contained in Chapter 62-777, Florida Administrative Code (F.A.C.). b. Maximum Contaminant Levels (MCLs) for Drinking Water in Florida contained in Chapter 62-550, F.A.C.	

<b>Table 7</b> <b>Cleanup Goals for</b> <b>On-Site Soil/Sediment (mg/kg)</b>	
1,1 Biphenyl	0.2
2,4,5-Trichlorophenol	0.07
2,4-Dimethylphenol	1.7
2-Methylnaphthalene	8.5
3-Methylphenol	0.3
4-Methylphenol	0.03
Acenaphthene	2.1
Antimony	5.4
Arsenic	c
BaP-TEQ d	8
Benzene	0.007
Carbazole	0.2
Chromium (Total)	38
Copper	c
Dibenzofuran	15
Dioxins (TCDD-TEQ) e	0.003
Fluoranthene	1,200
Fluorene	160
Lead	c
Naphthalene	1.2
Pentachlorophenol	0.03
Phenanthrene	250
Notes: a. All cleanup goals are based on Florida default SCTLs for leachability based on groundwater criteria unless Site-specific criteria are developed in the RD b. bls is below land surface c. Leachability may be derived using the SPLP test to calculate Site-specific SCTLs or may be determined using TCLP in the event oily wastes are present d. Concentrations for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) are converted to Benzo(a)pyrene equivalents (BaP-TEQ) before comparison with the corresponding SCTL for Benzo(a)pyrene (see the February 2005 "Final Technical Report Development of Cleanup Target Levels (CTLs) for Chapter 62-777 F.A.C." e. TCDD-TEQ is 2,3,7,8-Tetrachlorodibenzo-p-dioxin toxic equivalent	

**Table 8**  
**Cleanup Goals for**  
**Off-Site Soil/Sediment (mg/kg)**

Cleanup Goals for Residential Areas <sup>a</sup>	
Arsenic	2.1
BaP-TEQ <sup>b</sup>	0.1
Dioxins (TCDD-TEQ) <sup>c</sup>	0.000007
Pentachlorophenol	7.2
Cleanup Goals for Commercial/Industrial Areas <sup>d</sup>	
Arsenic	12
BaP-TEQ <sup>b</sup>	0.7
Dioxins (TCDD-TEQ) <sup>c</sup>	0.00003
Pentachlorophenol	28
Cleanup Goal for Protection of Ecological Organisms <sup>e</sup>	
Pentachlorophenol	0.2
Notes: a. Florida default SCTLs residential land-use b. Concentrations for carcinogenic polycyclic aromatic hydrocarbons (cPAHs) are converted to Benzo(a)pyrene equivalents (BaP-TEQ) before comparison with the corresponding direct exposure Soil Cleanup Target Level (SCTL) for Benzo(a)pyrene (see the February 2005 "Final Technical Report Development of Cleanup Target Levels (CTLs) for Chapter 62-777 F.A.C.") c. TCDD-TEQ is 2,3,7,8-Tetrachlorodibenzo-p-dioxin toxic equivalents d. Florida default SCTLs for commercial/ industrial land use (depends on specific land-use of off-Site location) e. Florida default leachability SCTLs for protection of ecological organisms in surface water	

**Table 9**  
**Cost Comparison of Remedial Alternatives**

<b>Alternative Description</b>	<b>Capital Cost</b>	<b>Short Term Annual Costs</b>	<b>Duration (years)</b>	<b>Long Term Annual Costs</b>	<b>Duration (years)</b>	<b>Total Present Worth Cost</b>
OnR-1: No Action	\$0	NA	NA	\$0	30	\$0
OnR-2: Continue Current Actions, Soil Regrading/Cover	\$6.2 million	\$126,000	10	\$300,000	30	\$11.1 million
OnR-3A: Removal – Surficial Aquifer Excavation	\$64.1million	\$126,000	10	\$165,000	30	\$67.8 million
OnR-3B: Removal – Excavation to Middle Clay	\$190 million	\$126,000	10	\$165,000	30	\$193.7 million
OnR-4A: Treatment – ISS/S to Middle Clay	\$75.2 million	\$126,000	10	\$165,000	30	\$78.9 million
OnR-4B: Treatment – ISS/S in Surficial Aquifer, ISGS in Upper Hawthorn	\$38.1 million	\$126,000	10	\$165,000	30	\$41.8 million
OnR-5A: Containment/ Treatment – Barrier Wall	\$12.8 million	\$77,000	3	\$181,000	30	\$16.0 million
OnR-5B: Containment/ Treatment – Barrier Wall, ISGS in Upper Hawthorn	\$18.0 million	\$77,000	3	\$165,000	30	\$20.9 million
OnR-5C: Containment/ Treatment – Barrier Wall, ISGS in Surficial Aquifer	\$18.1 million	\$77,000	3	\$181,000	30	\$21.3 million
OnR-5D: Containment/ Treatment – Barrier Wall, ISS/S in Surficial Aquifer	\$35.7 million	\$77,000	3	\$165,000	30	\$38.7 million
OnR-5E: Containment/ Treatment – Barrier Wall, ISGS to Middle Clay	\$26.1 million	\$77,000	3	\$165,000	30	\$29.1 million
OnR-5F: Containment/ Treatment – Barrier Wall, ISS/S to Middle Clay	\$71.8 million	\$77,000	3	\$165,000	30	\$74.8 million
OnR-5G: Containment/ Treatment – Barrier Wall, Surficial Aquifer ISS/S.	\$40.6 million	\$77,000	3	\$165,000	30	\$43.6 million

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<b>Alternative Description</b>	<b>Capital Cost</b>	<b>Short Term Annual Costs</b>	<b>Duration (years)</b>	<b>Long Term Annual Costs</b>	<b>Duration (years)</b>	<b>Total Present Worth Cost</b>
Upper Hawthorn ISGS						
OnR-5H: Containment/Treatment – Barrier Wall, ISGS in Surficial Aquifer, ISS/S to Middle Clay	\$54.3 million	\$77,000	3	\$165,000	30	\$57.2 million
UFA-1: No Action	\$0	NA	NA	\$0	30	\$0
UFA-2: Monitored Natural Attenuation with Hydraulic Containment	\$4.12 million	NA	NA	\$479,000	30	\$11.7 million
OIR-1: No Action	\$0	NA	NA	\$0	30	\$0
OIR-2: Remove Impacted Soil	\$5.66 million	\$208,000	3	\$15,000	30	\$6.1 million
OIR-3: Institutional and Engineering Controls	\$9.48 million	\$158,000	3	\$150,000	30	\$11.9 million
OIR-4: Removal, Institutional Controls, and/or Engineering Controls (Hybrid)	\$7.18 million	NA	NA	\$65,000	30	\$8.3 million

**Table 10**  
**Estimated Remedy Construction Costs**

Item	Description	Qty	Units	Unit Rate	Extended Cost	Total
<b>Capital Costs</b>						<b>\$63,164,000</b>
<b>1.0</b>	<b>Indirect capital costs</b>					<b>\$10,527,000</b>
1.1	Engineering design and Permit/Approval	10%	LS	\$52,637,000	\$5,263,700	
1.2	Contingency	10%	LS	\$52,637,000	\$5,263,700	
<b>2.0</b>	<b>Direct capital costs</b>					<b>\$52,637,000</b>
2.1	Mobilization/demobilization	1	LS	\$690,000	\$690,000	\$690,000
	<u>Slurry-Wall (extended to 65' bgs)</u>					<u>\$2,320,000</u>
2.20	Slurry Trench Excavate/Backfill Overburden	325,000	vsf	\$6.00	\$1,950,000	
2.21	Clay Top on slurry Wall	5,000	LF	\$60	\$300,000	
2.22	QC Testing / Slurry Wall Report / Submittals	1	LS	\$70,000	\$70,000	
	<u>Soil Excavation (Onsite)</u>					<u>\$723,000</u>
2.30	Excavate Soil (Assume 24 Acres; 0-2' below ground surface)	77,440	CY	\$4.50	\$348,480	
2.31	Confirmation Sampling	50	EA	\$1,100	\$55,000	
2.32	Transport Soil to the consolidation area & compact	116,160	Ton	\$2.75	\$319,440	
	<u>Soil Excavation (Offsite)</u>					<u>\$2,686,500</u>
2.40	Excavate Soil (Assume 90 parcels @ 0.35 acre/parcel; 0-2' below ground surface)	102,000	CY	\$14.50	\$1,479,000	
2.41	Confirmation Sampling	45	EA	\$1,100	\$49,500	
2.42	Soil handling to the onsite consolidation area & back (2 trips)	102,000	CY	\$11.00	\$1,122,000	
2.43	Install and remove silt fencing	7,200	LF	\$5.00	\$36,000	
	<u>Surface Covers (Onsite)</u>					<u>\$4,996,000</u>
2.50	Within Slurry Wall Area: Site Prep/Install GCL/Soil Cover	32	ACRE	\$125,000	\$4,000,000	
2.51	Import Soil Cover (27-Acre; 2.5' avg thickness)	108,900	CY	\$8.00	\$871,200	



**Table 10**  
**Estimated Remedy Construction Costs**

Item	Description	Qty	Units	Unit Rate	Extended Cost	Total
2.52	Seed grass for excavation areas and cover areas	83	ACRE	\$1,500	\$124,500	
	<u>Surface Covers (Offsite - Engineering Controls)</u>					\$1,064,000
2.53	Import Soil Cover (31.5 acres; 2.5' avg. thickness)	127,050	CY	\$8.00	\$1,016,400	
2.54	Grass seed for excavation & cover areas	31.5	Acre	\$1,500	\$47,250	
	<u>In-Situ Geochemical Stabilization (ISGS) at the Former South Lagoon + Former Process Area (~65 ft, 3.75 acres)</u>					\$6,898,000
2.60	ISBS Materials 3.75 acres, 65 ft (quote: \$27,000 per acre-foot treated volume)	6,581.250	LBS	\$0.80	\$5,265,000	
2.61	Freight Costs	6,581.250	LS	\$0.10	\$658,125	
2.62	Tax	6.25%		\$5,923,125	\$370,195	
2.63	Injection Costs (421 ISGS auger points + Exploratory Borings)	121	Day	\$5,000	\$605,000	
	<u>In-Situ Solidification/Stabilization (ISSS) at the Former North Lagoon + Former Drip Track Area (~65 ft, 2.25 acres)</u>					\$25,889,000
2.64	ISSS Soil Mixing (construction, materials, and labor) with Cement-Reagent	236,000	CY	\$79.08	\$18,662,880	
2.65	Cement (8%) and Freight Charge	28,400	Ton	\$120	\$3,408,000	
2.66	Bentonite (3%)	10,700	Ton	\$228.88	\$2,449,016	
2.67	Tax	1	LS	\$1,166,430	\$1,166,430	
2.68	Excess material from ISSS move to consolidation area	59,000	CY	\$2.75	\$162,250	
2.69	ISSS Bench Scale/Pilot Test	1	LS	\$40,000	\$40,000	
	<u>Extraction Well Installation and Preparation (based on 180 gallons per minute [gpm])</u>					\$113,000
2.70	Drilling and bore-hole preparation	1,250	LF	\$15.00	\$18,750	
2.71	Well casing installation	1,250	LF	\$35	\$43,750	
2.72	Install Pumps (median capacity 40 gpm)	5	EA	\$10,000	\$50,000	
	<u>Extracted Water Treatment and Disposal</u>					\$417,000
2.73	Install temporary water treatment system	1	LS	\$200,000	\$200,000	
2.74	Install pump-to-treatment piping system	8,101	LF	\$26.75	\$216,702	

**Table 10**  
**Estimated Remedy Construction Costs**

Item	Description	Qty	Units	Unit Rate	Extended Cost	Total
<u>Detention Pond</u>						\$850,000
2.80	Pond Excavation & Transport to Consolidation Area	58,080	CY	\$7.50	\$435,600	
2.81	Inlet and Outlet Structures	6	EA	\$3,000	\$18,000	
2.82	Liner for Detention Pond	522,720	SQFT	\$0.50	\$261,360	
2.83	Side Grading	1	LS	\$60,000	\$60,000	
2.84	Landscaping/Bank Vegetation	1	LS	\$75,000	\$75,000	
<u>Storm Water Conveyance (Non-Site Water)</u>						\$750,000
2.85	48" RCP Culvert	4000	LF	\$150	\$600,000	
2.86	Installation	1	LS	\$150,000	\$150,000	
<u>ISCO in Existing LHG Wells</u>						\$30,000
2.87	Injection and all associated costs	3	EA	\$10,000	\$30,000	
<u>Monitor Wells</u>						\$415,000
2.90	Install 10 monitoring wells (2-inch) in Surficial Aquifer (25' deep)	10	EA	\$4,200	\$42,000	
2.91	Install 8 monitoring wells (2-inch) in UHG (65' deep), double casings	8	EA	\$9,500	\$76,000	
2.92	Install 4 monitoring wells (2-inch) in LHG (120' deep), triple casings	4	EA	\$18,000	\$72,000	
2.93	Install 10 monitor wells (2-inch) in Floridan Aquifer (225' deep)	10	EA	\$22,500	\$225,000	
<u>Institutional Controls</u>						\$100,000
2.100	Administrative Orders, Deed Restrictions—Permit Application Process	1	LS	\$100,000	\$100,000	
<u>Engineering Controls</u>						\$1,510,000
2.101	Fencing, Gates and Physical Barriers	10	EA	\$10,000	\$100,000	
2.102	Install Silt Fencing	500	FT	\$5	\$2,500	
2.103	Property Purchase (assume 10 parcels to be purchased)	10	EA	\$140,760	\$1,407,600	
<u>Construction Oversight, Survey, and Reporting (Onsite and Offsite)</u>						\$3,028,000
2.110	Oversight Labor	5.0%	LS	\$54,960,000	\$2,748,000	
2.111	Survey	3	LS	\$40,000	\$120,000	

**Table 10**  
**Estimated Remedy Construction Costs**

Item	Description	Qty	Units	Unit Rate	Extended Cost	Total
2.112	Construction Completion Report	1	LS	\$160,000	\$160,000	
	Construction Oversight, Survey, and Reporting (Upper Floridan)					\$159,000
2.113	Oversight Labor	2.0%	LS	955,000	\$19,100	
2.114	Survey	3	LS	\$20,000	\$60,000	
2.115	Construction Completion Report	1	LS	\$80,000	\$80,000	
LS = lump sum vsf = vertical square feet LF = linear feet CY = cubic yard EA = each lbs = pounds SQFT = square feet						

**Table 11**  
**Estimated Operation, Monitoring and Maintenance (OM&M) Costs**

Item	Description	Qty	Units	Unit Rate	Extended Cost	Total
<b>1.0</b>	<b>Annual OM&amp;M Costs - 30 Yr</b>					<b>\$1,588,000</b>
	<u>Surface Cover (Onsite and Offsite)</u>					
1.1	Soil Cover Maintenance	1	LS	\$300,000	\$300,000	
	<u>Engineering Controls (Offsite)</u>					
1.2	Engineering Controls – Maintenance	1	LS	\$150,000	\$150,000	
	<u>Monitoring</u>					
1.30	Annual Monitoring (Surficial Aquifer)	1	LS	\$150,000	\$150,000	
1.31	Annual Monitoring (Upper Floridan)	1	LS	\$250,000	\$250,000	
1.32	Monitored Natural Attenuation (with reporting; Upper Floridan Aquifer)	1	LS	\$45,000	\$45,000	
	<u>Extraction Pump Operation (Upper Floridan Hydraulic Containment)</u>					
1.40	Operate Pump Extraction System (based on 180 gallons per minute [gpm])	93.312	Kgal	\$1.50	\$139,968	
	<u>Treatment Plant Operation and Treated Water Discharge</u>					
1.50	Labor	200	hr	\$60	\$12,000	
1.51	POTW Discharge Fees	93,312	Kgal	\$5.00	\$466,560	
1.52	Chemicals	1	LS	\$9,000	\$9,000	
1.53	Energy	68,340	Kw-hr	\$0.12	\$8,201	
1.54	Treatment system repairs & maintenance	1	EA	\$17,100	\$17,100	
1.55	Pumping system maintenance	1	LS	\$22,300	\$22,300	
1.56	Effluent monitoring & reporting	1	EA	\$1,700	\$1,700	
1.57	Lab costs	1	EA	\$6,000	\$6,000	
1.58	Carbon replacement	0.5	EA	\$4,700	\$2,350	
1.59	Waste management	20	CY	\$400	\$8,000	
<b>2.0</b>	<b>Temporary Annual OM&amp;M Costs - 3 yr</b>					<b>\$252,000</b>
	<u>Surficial Aquifer Hydraulic Containment</u>					
2.10	Labor	200	hr	\$100	\$20,000	
2.11	POTW Discharge Fees	93,312	Kgal	\$2.00	\$186,624	
2.12	Chemicals	1	LS	\$4,750	\$4,750	
2.13	Energy	31.670	Kw-hr	\$0	\$3,800	

**Table 11**  
**Estimated Operation, Monitoring and Maintenance (OM&M) Costs**

Item	Description	Qty	Units	Unit Rate	Extended	Total
Cost						
2.14	Treatment system repairs & maintenance	1	EA	\$8,000	\$8,000	
2.15	Pumping system maintenance	1	LS	\$10,300	\$10,300	
2.16	Effluent monitoring & reporting	1	EA	\$1,700	\$1,700	
2.17	Lab costs	1	EA	\$6,000	\$6,000	
2.18	Carbon replacement	0.5	EA	\$4,700	\$2,350	
2.19	Waste management	20	CY	\$400	\$8,000	
FUTURE COSTS						
3.0	Full Close Out in 30 yr					\$1,275,000
Confirmation Sampling (Onsite / Offsite / Upper Floridan)						
3.10	Confirmation Sampling (include labor, materials, & lab costs)	1	LS	\$400,000	\$400,000	
Site Closing (Onsite / Offsite / Upper Floridan)						
3.20	Abandon Monitor Wells	16.250	FT	\$26.91	\$437,288	
3.21	Equipment Removal and Site Restoration	1	LS	\$300,000	\$300,000	
3.22	Final Close Out Report	1	LS	\$22,500	\$22,500	
Well Abandonment and Site Restoration						
4.30	Abandon Existing Recovery Wells	1250	FT	\$85.42	\$106,775	
4.31	Equipment Removal and Site Restoration	1	LS	\$5,000	\$5,000	
4.32	Environmental Report	1	LS	\$3,000	\$3,000	
4.0	Close Out of Temporary Facilities - 3 yr					\$262,000
Well Abandonment and Site Restoration						
4.10	Abandon Existing Recovery Wells	2.250	FT	\$85.42	\$192,195	
4.11	Equipment Removal and Site Restoration	1	LS	\$50,000	\$50,000	
4.12	Environmental Report	1	LS	\$20,000	\$20,000	
PRESENT VALUE ANALYSIS						
Item	Rate	Cost	Years	Net Present Value		
Total Annual OM&M Cost (for 30 years)	5%	\$1,588,179	30	\$24,414,000		
Annual OM&M Cost (Surficial Aquifer system; for 3 yrs)	5%	\$251,524	3	\$685,000		
Future Costs (at end of 3 years: Surficial Aquifer system)	5%	\$262,195	3	\$226,000		
Future Costs (at end of 30 years: full close-out)	5%	\$1,274,563	30	\$295,000		

Table 11						
Estimated Operation, Monitoring and Maintenance (OM&M) Costs						
Item	Description	Qty	Units	Unit Rate	Extended Cost	Total
	GRAND TOTAL (OM&M Net Present Value)					\$25,620,000
LS = lump sum hr = hour Kgal = 1000 gallons Kw-hr = kilowatt hour ft = feet CY = cubic yard EA = each						

<b>Table 12</b> <b>Chemical-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
<i>Soil and Groundwater Cleanup Levels/Criteria</i>				
<i>Federal</i>				
Safe Drinking Water Act-National Primary Drinking Water Standards. Maximum Contaminant Level (MCLs)	40 CFR Part 141.61 (organics) and 141.62 (inorganics)	Relevant and Appropriate	Legally enforceable federal drinking water standards that establish maximum contaminant levels (MCLs) for specific contaminants that have been determined to adversely affect human health.	These standards are relevant and appropriate to the restoration of groundwater, a potential drinking water source.
<i>State</i>				
Florida Surface Water Criteria Rule	Chapter 62-302.530 Florida Administrative Code (FAC)	Relevant and Appropriate	Provides surface water classifications and water quality criteria (numeric and narrative) for protection of State surface water bodies. Numeric ambient water quality criteria (AWQC) are relevant during remedial action of the Site soils that are impacting surface water.	Remedial Action Objectives (RAOs) require protection of surface water by monitoring surface water for some contaminants of concern (COCs) against AWQC.
Florida Groundwater Classes, Standards, and	Chapter 62-520.410 and 62-520.420. FAC	Applicable	Designates the groundwater of the State into five classes and establishes minimum criteria. This rule also specifies that Class I and Class II groundwater must meet primary drinking water standards listed in	This rule was used to classify groundwater and establish

<p align="center"><b>Table 12</b> <b>Chemical-Specific ARARs, Criteria, and Guidance</b></p>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
Exemptions			Chapter 62-550.310, FAC.	cleanup goals for groundwater.  Groundwater at this Site is considered a potential source of drinking water (Class G-II).
Florida Drinking Water Standards, Monitoring and Reporting	Chapter 62-550.310, FAC	Relevant and Appropriate	Provides primary drinking water quality standards and maximum contaminant levels (MCLs) for public water supply systems that are applicable at the tap and are relevant and appropriate to the restoration of a Class G-II aquifer. Remedial objectives require restoration of the surficial aquifer to drinking water quality standards.	Cleanup goals for some of the COCs in groundwater are based upon MCLs listed in this rule. RAOs require restoration of surficial aquifer to drinking water quality standards.
Florida Contaminant Cleanup Target Levels Rule	Chapter 62-777.170, FAC Tables I & II	Relevant and Appropriate	This rule provides default cleanup criteria, namely cleanup target levels (CTLs) in Tables I and II and an explanation for deriving CTLs for soil, groundwater and surface water that can be used for site rehabilitation (i.e., cleanup).	CTLs for groundwater in Table I of this rule were used to establish cleanup goals for some of the COCs in



<p><b>Table 12</b> <b>Chemical-Specific ARARs, Criteria, and Guidance</b></p>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
				<p>groundwater at this Site.</p> <p>Soil CTLs in Table II of this rule were used to establish cleanup goals for some of the soil COCs.</p>
Florida Contaminant Site Cleanup Criteria Rule – Risk Assessment	Chapter 62-780.650(1)(d), FAC	Relevant and Appropriate	This section of the rule generally provides elements to be addressed when performing a risk assessment. Requires that a lifetime excess cancer risk level of 1.0E-6 and a hazard index of 1 or less shall be used in establishing alternative CTLs for groundwater or soil.	The 1.0E-6 and a hazard index of 1 or less requirement considered in developing Site-specific or alternative CTLs for certain COCs.

<b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
<b><i>Waste Characterization, Storage, Treatment and Disposal – Primary and Secondary Wastes</i></b>				
<b><i>Federal</i></b>				
Resource Conservation & Recovery Act (RCRA) Regulations – Identification, Characterization and Listing of Solid and Hazardous Wastes	40 Code of Federal Regulations (CFR) Part 262.11(a)-(d) ( <i>Solid waste</i> ) and 264.13(a)(1) ( <i>Hazardous waste</i> )	Applicable	Requires characterization of solid waste and additional characterization of waste determined to be hazardous. Part 261.11(a)-(d) requires determination of whether solid waste is hazardous. Part 263.13(a)(1) requires a detailed chemical and physical analysis of a representative sample of the waste to determine treatment, storage, and disposal requirements.	Response action is expected to generate non-hazardous solid waste (contaminated soil determined not to be hazardous) and RCRA hazardous waste.
RCRA – Land Disposal Restrictions (LDR) Treatment Standards for Contaminated Soil	40 CFR Part 268.7(a)	Applicable	40 CFR Part 268.7 requires determination of whether waste is restricted from land disposal under 40 CFR 268.40, 268.45, or 268.49 by testing in accordance with prescribed methods or by use of generator knowledge of the waste. 40 CFR 268.49 prohibits land disposal of untreated hazardous wastes and provides treatment standards for contaminated soil considered hazardous waste.  <i>Note:</i> This determination can be made concurrently with the hazardous waste determination required by 40 CFR 262.11.	Excavated soil determined to be hazardous waste will be sent off-Site for treatment and disposal at an appropriate facility.

<p align="center"><b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b></p>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
RCRA - Temporary on-Site storage of hazardous waste <i>in containers</i>	40 CFR 262.34(a);  40 CFR 262.34(a)(1)(i);	Applicable	A generator may accumulate hazardous waste at the facility provided that:  waste is placed in containers that comply with 40 CFR 265.171-173; and	Applies to accumulation of RCRA hazardous waste on-Site as defined in 40 CFR 260.10
	40 CFR 262.34(a)(2);		the date upon which accumulation begins is clearly marked and visible for inspection on each container;	
	40 CFR 264.34(a)(3)		container is marked with the words "hazardous waste"; or	
	40 CFR 262.34(c)(1)		container may be marked with other words that identify the contents.	Applies to accumulation of 55 gal. or less of RCRA hazardous waste <u>or</u> one quart of acutely hazardous waste listed in 261.33(e) at or near any point of generation
Use and Management of Hazardous Waste in <i>Containers</i>	40 CFR Part 265.171 to 173	Applicable	Establish requirements for use and management of hazardous waste in containers on-Site.	Containers that may be used for temporary storage of hazardous waste (i.e., precipitate, GAC, contaminated soil) on-Site prior to off-Site treatment and disposal will comply with these requirements.

<p><b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b></p>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
Storage of hazardous waste in container area	40 CFR 264.175(a)	Applicable	Area must have a containment system designed and operated in accordance with 40 CFR 264.175(b)	Applies to storage of RCRA hazardous waste in containers <i>with free liquids</i>
	40 CFR 264.175(c)	Applicable	Area must be sloped or otherwise designed and operated to drain liquid from precipitation, or  Containers must be elevated or otherwise protected from contact with accumulated liquid.	Applies to storage of RCRA-hazardous waste in containers that <i>do not contain free liquids</i> (other than F020, F021, F022, F023, F026 and F027)
Closure performance standard for RCRA container storage unit	40 CFR 264.111	Applicable	Must close the facility (e.g., container storage unit) in a manner that: <ul style="list-style-type: none"> <li>Minimizes the need for further maintenance;</li> <li>Controls minimizes or eliminates to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous contaminants, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or the atmosphere; and</li> </ul> Complies with the closure requirements of subpart, but not limited to, the requirements of 40 CFR 264.178 for containers.	Applies to storage of RCRA hazardous waste in containers
Closure of RCRA container storage unit	40 CFR 264.178	Applicable	At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soils containing or contaminated with hazardous	Applies to storage of RCRA hazardous waste in containers in a unit with a containment

<p align="center"><b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b></p>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
			<p>waste and hazardous waste residues must be decontaminated or removed.</p> <p>[Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with 40 CFR 261.3(d) of this chapter that the solid waste removed from the containment system is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of parts 262 through 266 of this chapter].</p>	system
RCRA Regulations – Temporary Storage and Closure of remediation Hazardous Waste in <i>Staging Piles</i>	40 CFR Part 264.554(a)(1)(i)-(iii), 264.554(d)(1)(i)-(iii), 264.554(d)(2)(i)-(vi), 264.554(e)(1)-(2), 264.554(f)(1)-(3) 264.554(h), 264.554(i)(1)(i)-(ii), 264.554(j)(1)-(2), 264.554(k)	Applicable	Provides requirements for temporary storage and closure of <i>non-flowing hazardous remediation waste</i> in a staging pile to prevent or minimize releases of hazardous substances or contaminants into the environment.	Storage area for contaminated soil/remediation waste temporarily staged on-Site will consider these requirements.
Disposal of RCRA Hazardous waste in a land-based unit	40 CFR 268.40(a)	Applicable	May be land disposed if it meets the requirements in the table “Treatment Standards for Hazardous Waste” at 40 CFR 268.40 before land disposal.	Applies to land disposal (40 CFR 268.2) of restricted RCRA waste
	40 CFR 268.40(a)	Applicable	All underlying hazardous contaminants [as defined in 40 CFR 268.2(i)] must meet the Universal Treatment Standards, found in 40 CFR	Applies to land disposal of restricted RCRA characteristic wastes (D001-

<p><b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b></p>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
			268.48 Table UTS prior to land disposal	D043) that are not managed in a wastewater treatment system that is regulated under the CWA, that is CWA equivalent, or that is injected into a Class I non-hazardous injection well.
Treatment of hazardous waste in Miscellaneous Treatment Unit with air emissions	40 CFR 264.601	Relevant and Appropriate	Unit must be located, designed, constructed, operated, maintained and closed in a manner that will ensure protection of human health and the environment.	Applies to treatment of RCRA hazardous waste in miscellaneous units, except as provided in 40 CFR 264.1.
	40 CFR 264.601(c)	Relevant and Appropriate	Protection of human health and the environment includes, but is not limited to prevention of any release that may have adverse effects on human health or the environment due to migration of waste contaminants in the air, considering the factors listed in 40 CFR 264.601(c)(1) thru (7).	
	40 CFR 264.1080(a)(5)	Relevant and Appropriate	The requirements of RCRA Subpart CC – Air Emission Standards for Tanks, Surface Impoundments, and Containers do not apply to a	Applies to air pollutant emissions with volatile organics from a hazardous

<p><b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b></p>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
			waste management unit that is solely used for on-Site treatment or storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under RCRA 3004(u) and (v), RCRA 3008(h), or CERCLA authorities.	waste tank, surface impoundment or container.
RCRA Regulations – Disposal of RCRA characteristic wastewaters in a POTW	40 CFR 268.1(c)(4)(ii)	Applicable	Permits the disposal of such wastewaters if treated pursuant to the pretreatment requirements of Section 307 of the CWA, unless the wastes are subject to a specified method of treatment other than DEACT in 40 CFR 268.40, or are D003 reactive cyanide.	Applies to the land disposal of RCRA hazardous wastewaters that are hazardous only because they exhibit a characteristic and are not otherwise prohibited under 40 CFR 268
RCRA Regulations – Treatment standards for hazardous debris	40 CFR 268.45(a), (c), (d)(1), and 40 CFR 268.49(c)(1)-(2)	Applicable	Hazardous debris remaining on-Site must comply with 40 CFR 268.45 prior to off-Site disposal as a solid waste. All off-Site disposal must also comply with LDR certification requirements (40 CFR 268.49), which apply to these wastes. If the debris does not fully comply with 40 CFR 268.45, it must be disposed off-Site at a regulated subtitle C facility.	Applies to debris, including treatment residuals, used or generated during remedial activities.

<b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
<b><i>Waste Transportation – Primary and Secondary Wastes</i></b>				
RCRA Regulations – Transportation of Hazardous Waste <i>off-Site</i>	40 CFR Part 262.10(h)	Applicable	An owner or operator who initiates a shipment of hazardous waste from a treatment, storage, or disposal facility must comply with the generator standards established in this part, including the requirements of 40 CFR 262.20-23 for manifesting; Section 262.30 for packaging; Section 262.31 for labeling; Section 262.32 for marking; Section 262.33 for placarding; Section 262.41(a) for record-keeping; and Section 262.12 to obtain EPA ID number.	Hazardous waste requiring off-Site disposal will meet these transportation requirements.
Federal Hazardous Materials Transportation Act (49 U.S.C. §§ 5101 et seq.) Regulations	49 CFR Part 171.1(c)	Applicable	This regulation applies to a person, including a person under contract with a department or agency of the federal government, that transports, or causes to be transported or shipped “in commerce”, a hazardous material.	Hazardous material requiring off-Site disposal will meet this transportation requirement.
RCRA Regulations, Transportation of Hazardous Wastes <i>on-Site</i>	40 CFR 263.10 through 263.31	Applicable	These regulations establish standards which apply to persons transporting hazardous waste within the United States if the transportation requires a manifest under 40 CFR Part 262	Hazardous material requiring on-Site disposal will meet this transportation requirement.
<b><i>Capping Waste in Place – Landfill Closure and Post Closure</i></b>				
<b><i>State</i></b>				



<b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
Florida Solid Waste Management Facilities Regulations	Chapter 62-701.300, Florida Administrative Code (FAC)	Relevant and Appropriate	Prohibits storage, processing, or disposal except at a permitted solid waste management facility.	Waste generated on-Site and deemed nonhazardous solid waste will be stored, transported, or disposed of properly.
Florida Solid Waste Management Facilities – Landfill Final Closure Rule	Chapter 62-701.600(5)(e),(f),(g), and (h), FAC	Relevant and Appropriate	Provides requirements for final cover design and construction for a solid waste landfill, including control of storm water occurring on the landfill property in order to meet the general performance standard in Chapter 62-701.340(1), FAC.	Capping and closure of the on-Site landfill will meet the relevant provisions of this rule.
<b>Federal</b>				
RCRA Subtitle C Landfill Cover Standards	40 C.F.R. § 264.310(a)(1)-(5)	Relevant and Appropriate	<p>Defines the design requirements for a Subtitle C Landfill Cap. Must cover the landfill or cell with a final cover designed and constructed to:</p> <ul style="list-style-type: none"> <li>-provide long-term minimization of migration of liquids through the closed landfill;</li> <li>-function with minimum maintenance;</li> <li>-promote drainage and minimize erosion or abrasion of the cover;</li> </ul>	Construction of a RCRA hazardous waste landfill cover, with the construction of an impermeable cap designed to prevent the migration of hazardous contaminants, using a hydraulic conductivity of no more than $1 \times 10^{-7}$ cm/sec.

<b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
			-accommodate settling and subsidence so that the cover's integrity is maintained; and  -have a permeability less than or equal to the permeability of any bottom liner system or natural subsurface soils present	
RCRA run-on/run-off control systems for landfill cover	40 CFR § 264.301(g)-(h)	Relevant and Appropriate	Run-on control system must be capable of preventing flow onto the active portion of the landfill during peak discharge from a 25-year storm event. Run-off management system must be able to collect and control the water volume from a runoff resulting from a 24-hour, 25 year storm event.	Construction of a RCRA landfill cover
RCRA Closure Performance	40 CFR §§ 264.111, 264.111(a)-(c)	Relevant and Appropriate	Must close the unit in a manner that :  Minimizes the need for further maintenance; controls or eliminates releases of hazardous materials to the environment and protects human health; and complies with the closure requirements of 40 C.F.R. § 264.310.	Closure of a RCRA hazardous waste management facility
RCRA - General Post Closure Care/Notices for Closed Landfills	40 CFR 264.310(b)(1), (5), and (6)  40 CFR 264.117(c)	Relevant and Appropriate	Must maintain the effectiveness and integrity of the final cover, make necessary repairs and prevent erosion. Post	Closure of a RCRA landfill

<b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
	40 CFR 264.119(a)  40 CFR 264.119 (b)(1)(i)-(iii)		closure property uses must not be allowed to impact the integrity of the cover, the liner or the containment/monitoring system. Must provide proper notices to the local zoning authority and record deed notices/ICs regarding the contamination that will run with the land.	
<i>General Construction Standards – Land Disturbance Activities – Water Wells -- Monitoring</i>				
Construction of Groundwater Monitoring Wells	40 CFR 264.97(c)	Relevant and Appropriate	All monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole, this casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples, the annular space above the sampling depth must be sealed to prevent contamination of groundwater and samples.	Construction of a RCRA groundwater monitoring well
Florida General Pollutant Emission Limitation Standards	Chapter 62-296.320(4)(c). FAC	Applicable	Requires reasonable precautions, such as application of water or other dust suppressants, to control emission of particulate matter from any activity including but not limited to, vehicular movement and construction..	Precautions will be undertaken to prevent fugitive dust emissions from any land disturbing activities.
Florida	Chapter 62-	Relevant	Establishes requirements	Erosion and

<b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
Regulation of Storm water Discharge – Facility Performance Standards	25.025(7), FAC	and Appropriate	for discharges of untreated storm water from the facility to ensure protection of the surface waters of the state.	storm water control best management practices will be implemented during construction to retain sediment on Site.
Florida Generic Permit For Storm water Discharge from Construction Activities	Chapter 62-621.300(4)(a), FAC	Applicable	Requires development and implementation of best management practices (BMPs) and erosion and sedimentation controls for storm water discharges to ensure protection of the surface waters of the state.	Erosion and storm water control BMPs will be implemented during construction activity such as well installation and slurry wall construction to retain sediment on Site.
Florida Hazardous Waste Requirements for Remedial Action	Chapter 62-730.225(3) FAC	Applicable	Requires warning signs at sites suspected or confirmed to be contaminated with hazardous wastes.	This requirement will be met.
Florida Water Well Construction Standards Rule	Chapter 62-532.500, FAC	Applicable	Establishes minimum standards for the location, construction, repair and abandonment of water wells.	The requirements for the construction, repair and abandonment of monitoring, extraction and injection wells will be met.
Florida	Chapter 62-528.600	Applicable	Establishes standards and	Requirements

<p><b>Table 13</b> <b>Action-Specific ARARs, Criteria, and Guidance</b></p>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
Underground Injection Control Regulations	through 528.645, FAC		criteria for construction, operation, monitoring, plugging, and abandonment for Class V wells Group 4 injection wells associated with aquifer remediation projects.	pertaining to Class V Group 4 injection wells will be followed.
Florida Groundwater Permitting and Monitoring Requirements	Chapter 62-522.300 and 522.300(2)(e), FAC	Applicable	Establishes permitting and monitoring requirements for installations discharging to groundwater to prevent contaminants from causing a violation of water quality standards and criteria of the receiving groundwater	A zone of discharge is allowed for primary standards for groundwater for closed-loop reinjection systems and for the prime contaminants of the reagents used to remediate the contaminants.
MNA of Inorganic Contaminants in Groundwater (Volumes 1 and 2) issued in October 2007	EPA/600/R-07/139	TBC	Provides a framework for evaluation of monitored natural attenuation as an effective remedy for inorganics in groundwater.	Groundwater performance monitoring criteria will be considered in the development of the MNA Performance Work Plan

<b>Table 14</b> <b>Location-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
<b><u>Federal</u></b>				
Clean Water Act Regulations – Section 404(b) Guidelines	40 Code of Federal Regulations (CFR) Part 230.10(a)	Applicable	No discharge of dredged or fill material into an aquatic ecosystem is permitted if there is a practicable alternative that would have less adverse impact.	Remedial work involves location encompassing aquatic ecosystem as defined in 40 CFR 230.3(c).
Clean Water Act Regulations – Section 404(b) Guidelines	40 CFR Part 230.10(d)	Applicable	No discharge of dredged or fill material shall be permitted unless appropriate and practicable steps in accordance with 40 CFR 230.70 et seq. have been taken that will minimize potential adverse impacts of the discharge on the aquatic ecosystem.	Remedial work involves location encompassing aquatic ecosystem as defined in 40 CFR 230.3(c)
Clean Water Act – Nation Wide Permit (38) <u>Cleanup of Hazardous and Toxic Waste</u>	33 CFR Part 323.3(b)	Applicable	Must comply with the substantive requirements of the NWP 38 General Conditions, as appropriate, and any regional or case-specific conditions recommended by the USACE District Engineer, after consultation.	Remedial work involves location encompassing aquatic ecosystem as defined in 40 CFR 230.3(c)
Fish and Wildlife Coordination Act – Impounding, diverting or controlling of waters	16 United States Code §662(a)	Relevant and Appropriate	Requires that the U.S. Fish and Wildlife Service and the related state agency be consulted prior to structural modification of any body of water, including wetlands with a view to the conservation of wildlife resources by preventing loss of and damage to such resources.	The local agencies would be consulted to determine protective measures to prevent loss of wildlife resources.
Executive Order 11990 – Protection of Wetlands	Exec. Order 11990 Section 1.(a)	TBC	Requires Federal agencies to evaluate action to minimize the destruction, loss or degradation of wetlands and to preserve and	Sediment excavation in the Peace River Floodplain Area and Oak Creek Area

<b>Table 14</b> <b>Location-Specific ARARs, Criteria, and Guidance</b>				
<b>Requirement</b>	<b>Citation</b>	<b>ARAR Type</b>	<b>Description</b>	<b>Comment</b>
			enhance beneficial values of wetlands.	involves probable disturbance of jurisdictional wetlands.
Executive Order 11988 -- Floodplain Management	Exec. Order 11988 Section 2(a)(2)	TBC	Requires Federal agencies to evaluate the potential effects of actions they may take in a floodplain to avoid, to the maximum extent possible, the adverse impacts associated with direct and indirect development of a floodplain.	Oak Creek Area floodplain may need to be restricted from residential development at completion of the excavation and restoration portion of the remedy.

## Figures

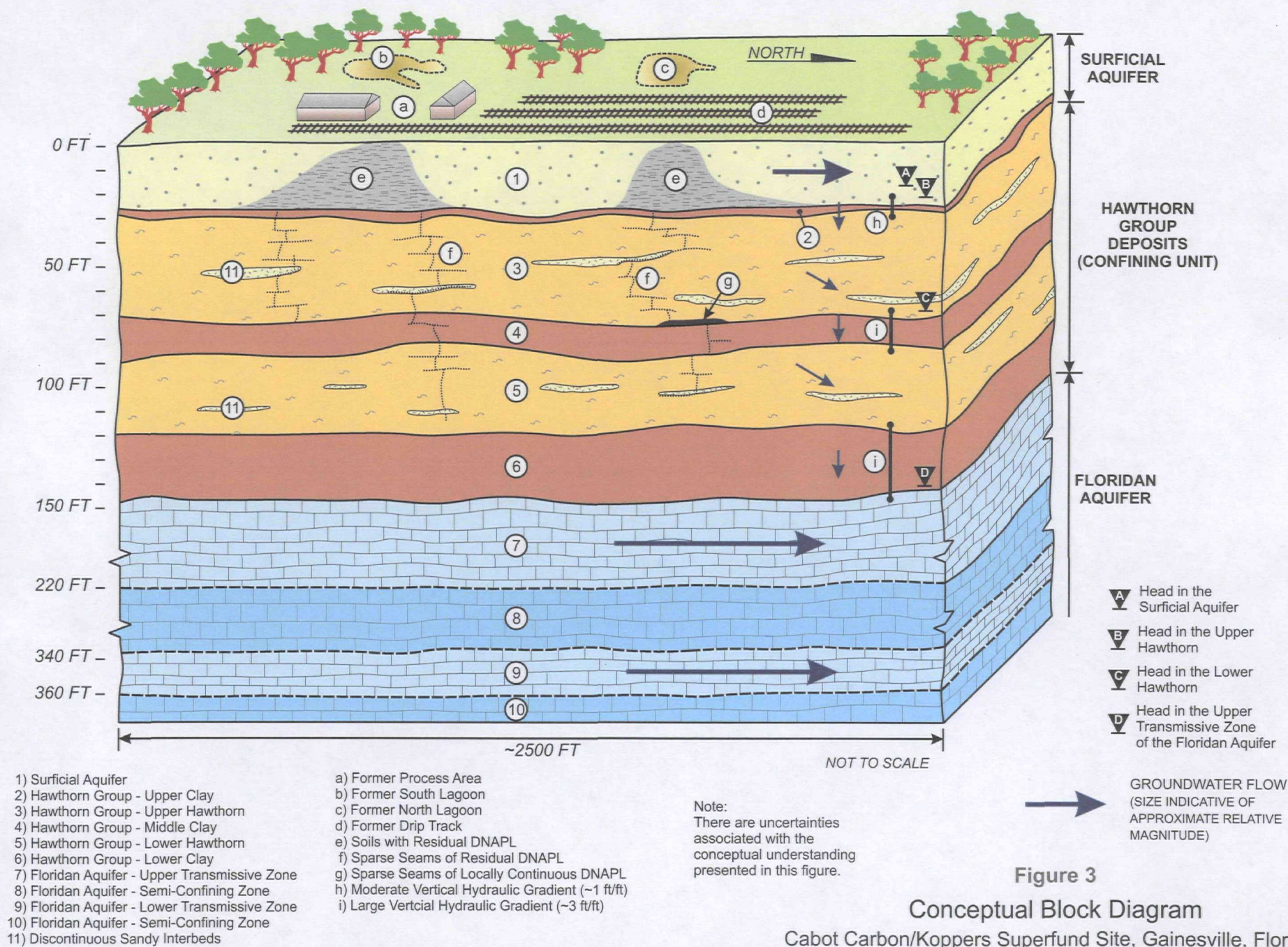






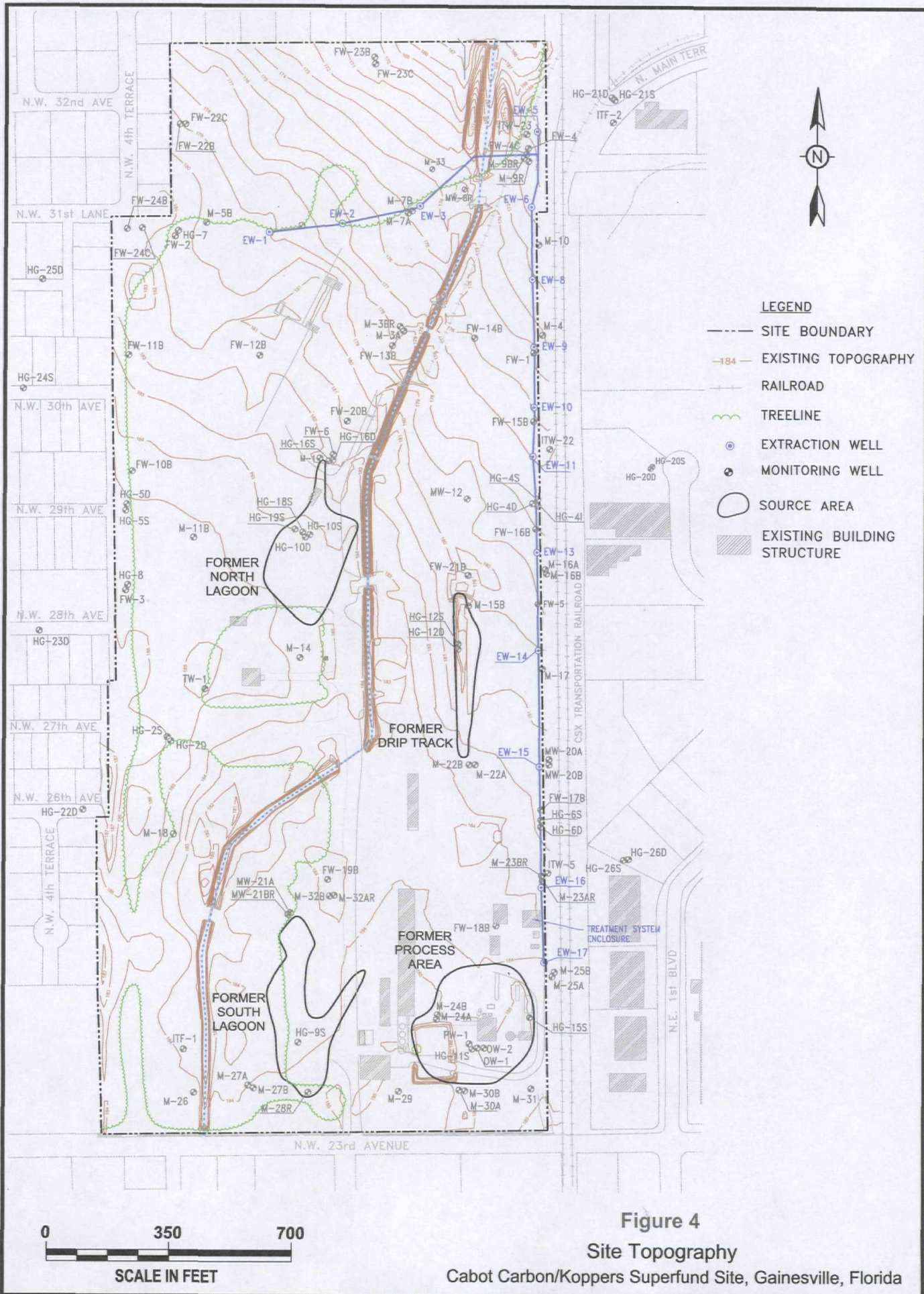




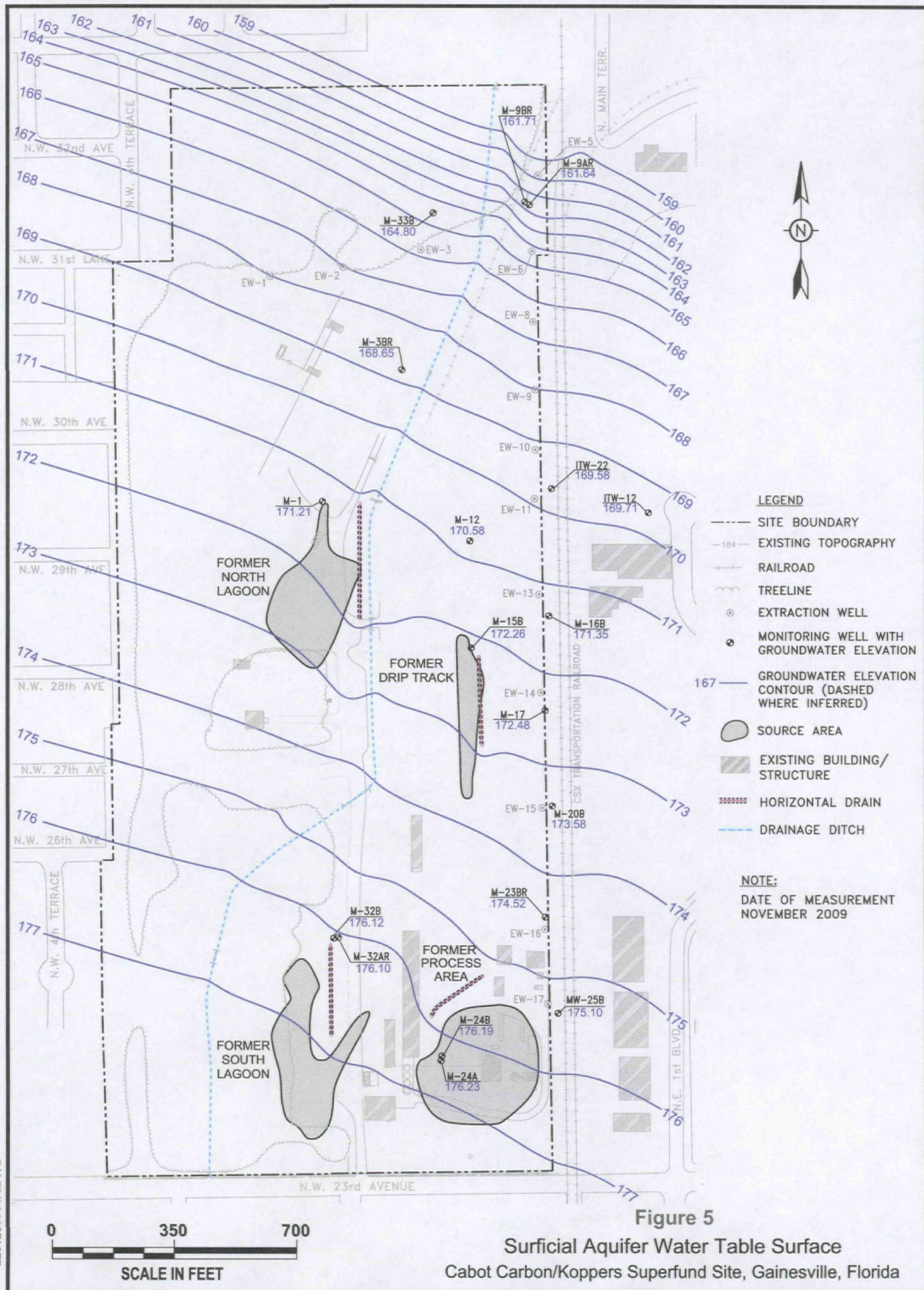




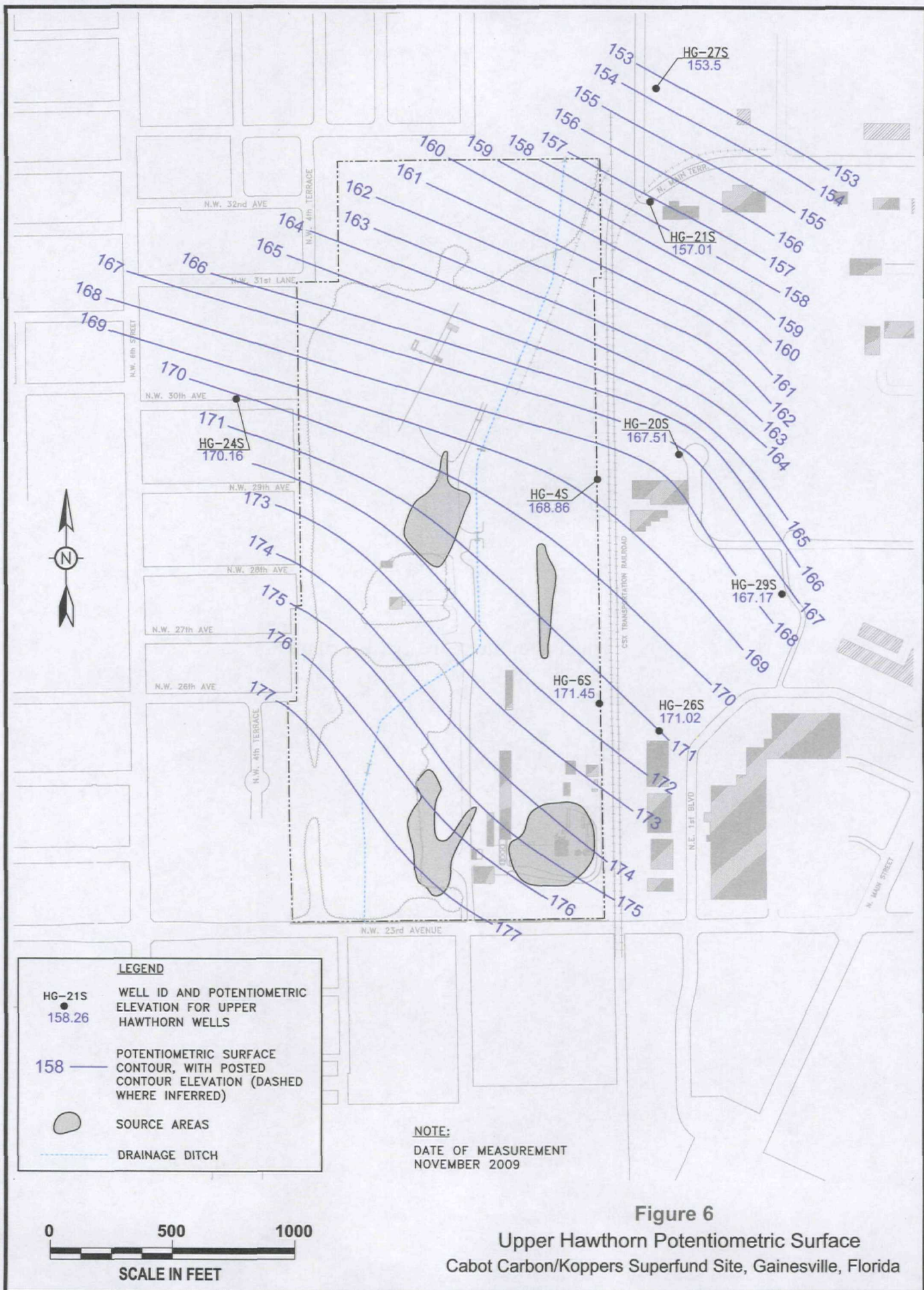
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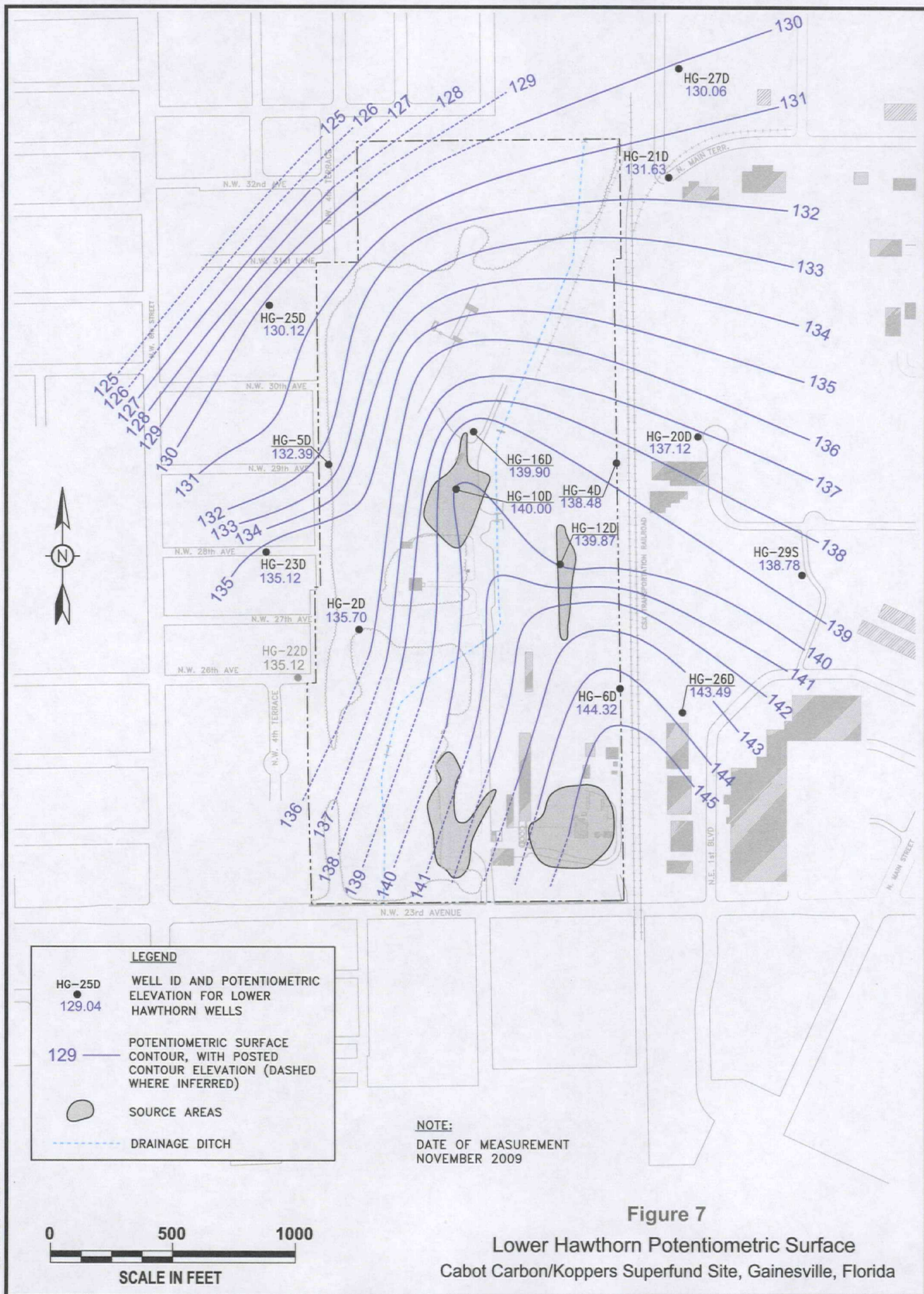




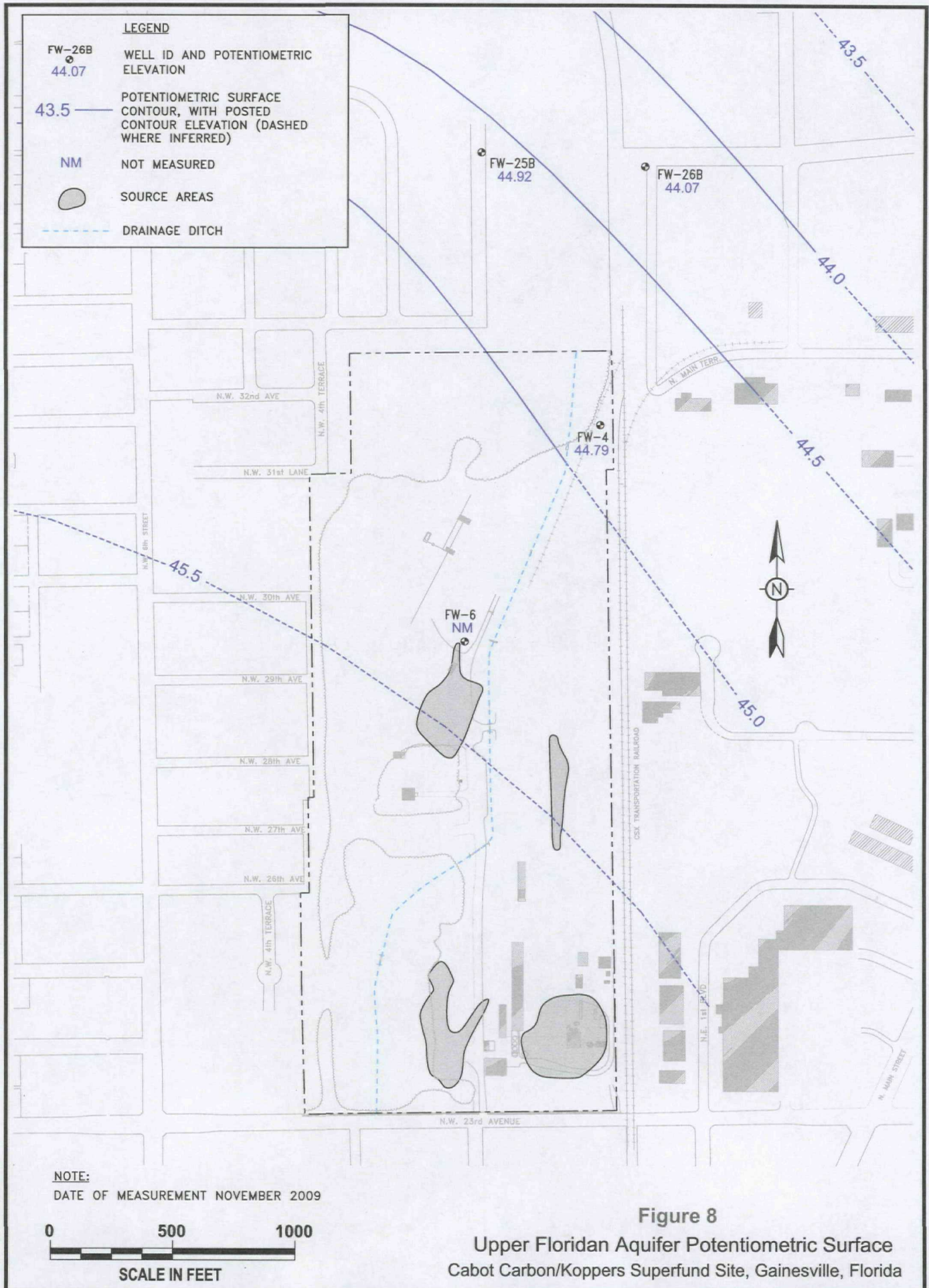




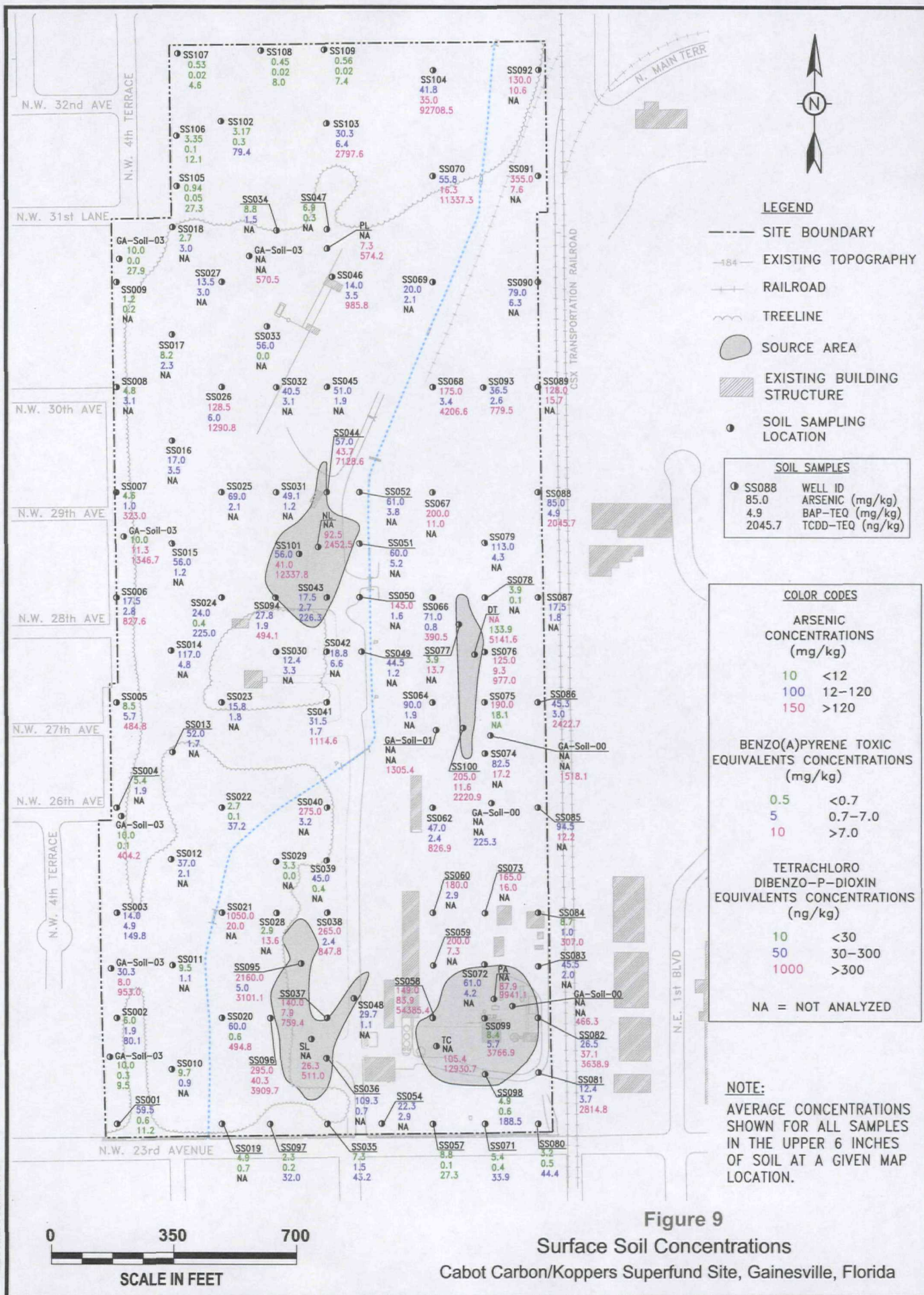
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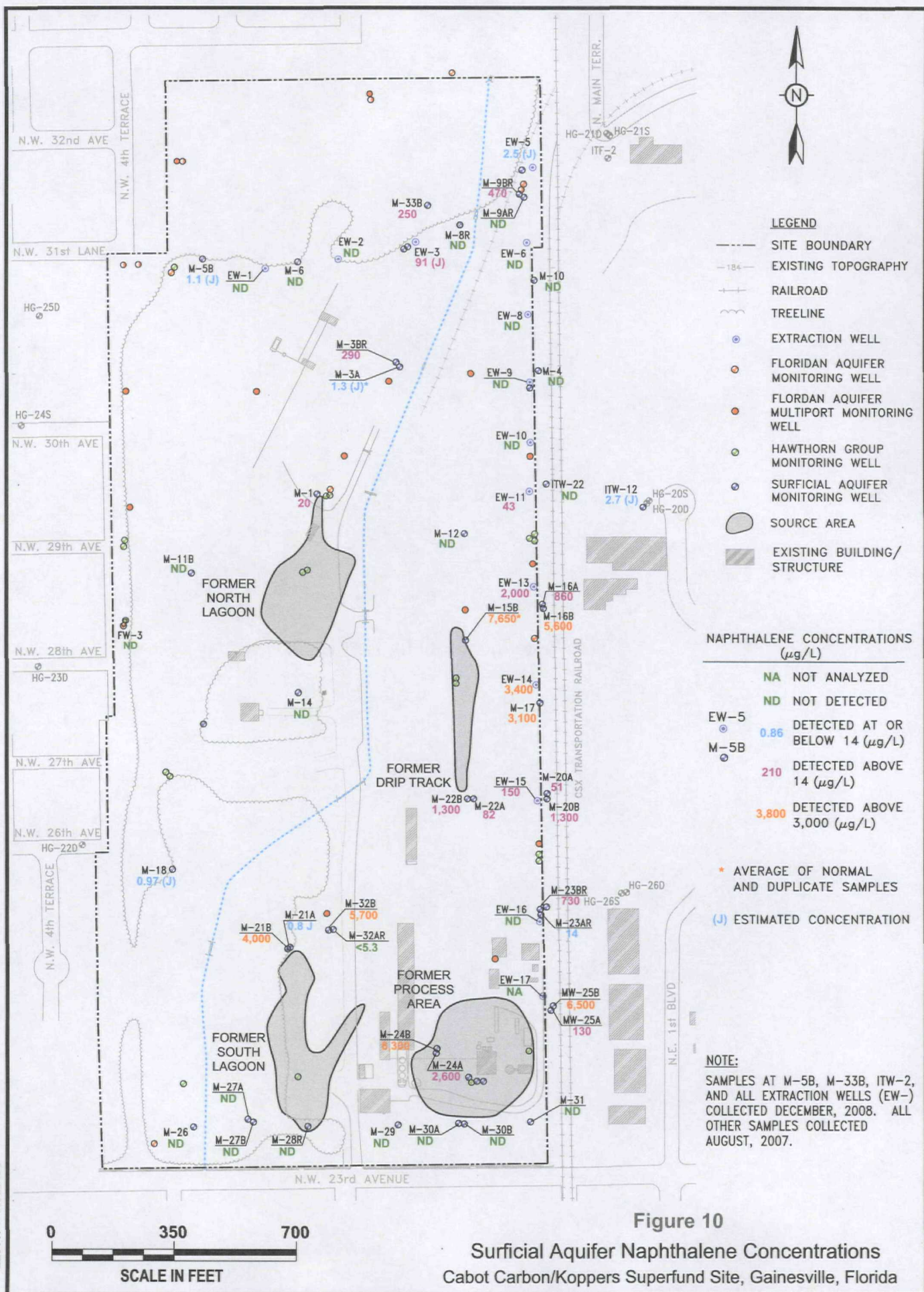




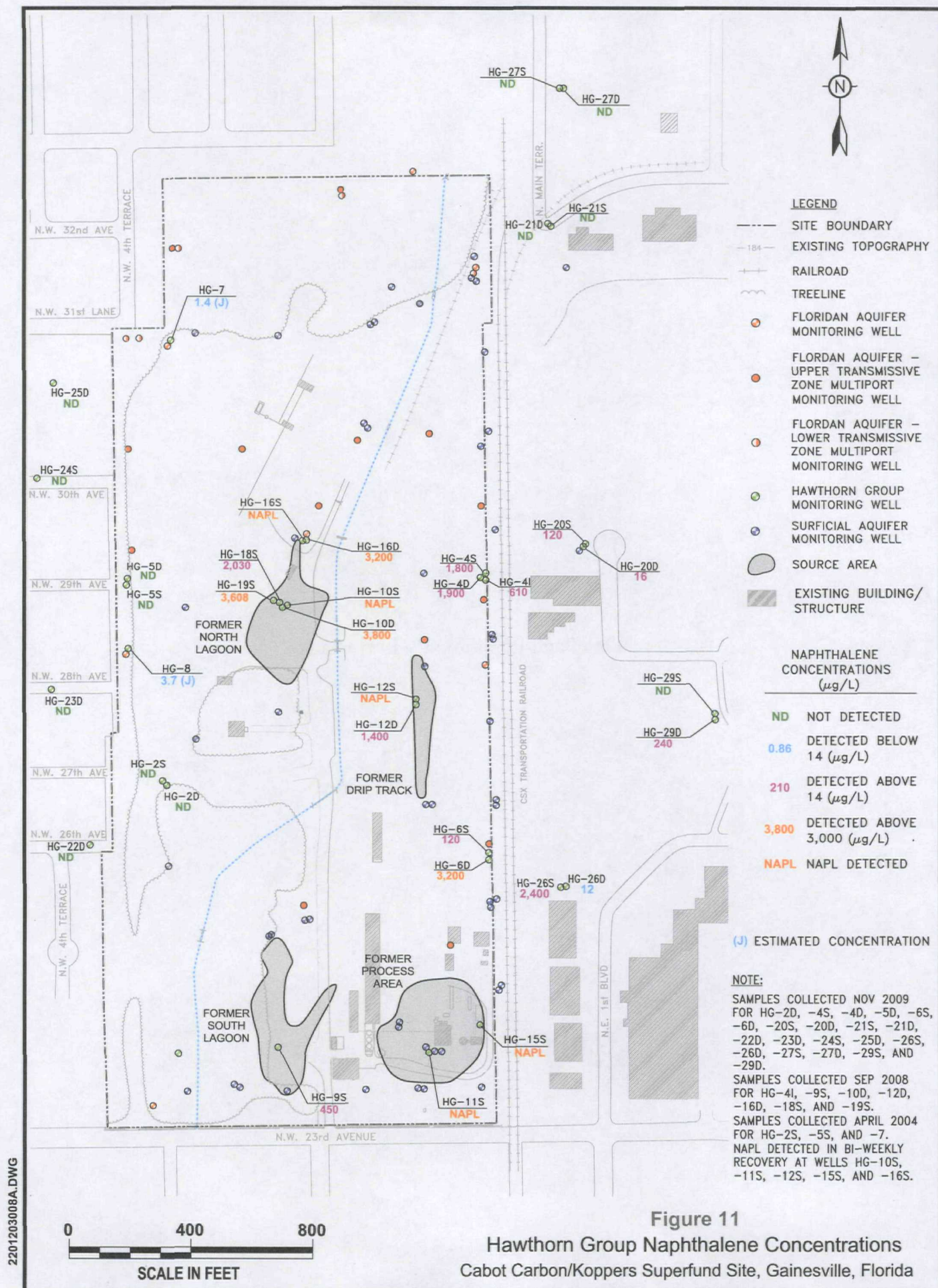




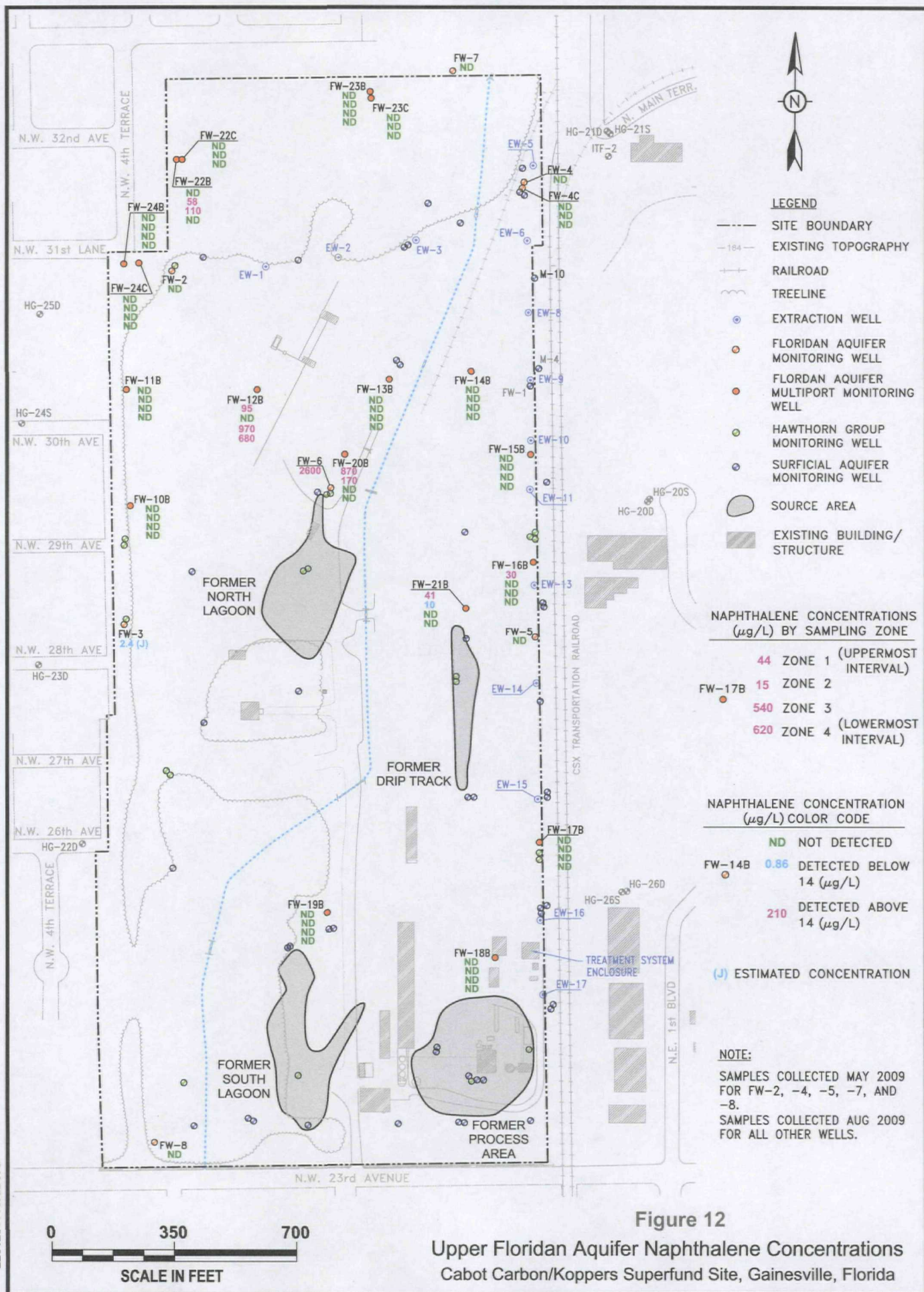






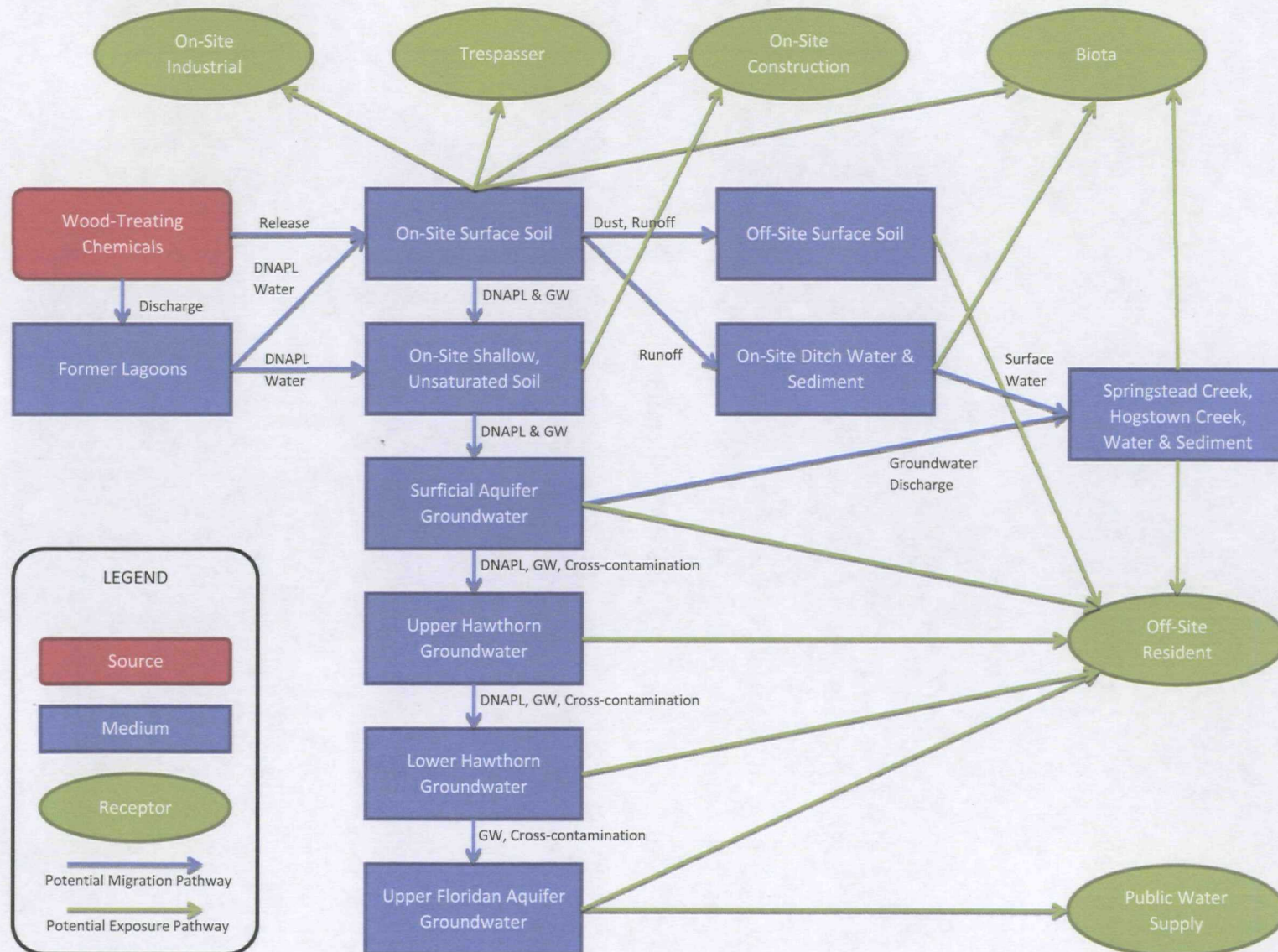




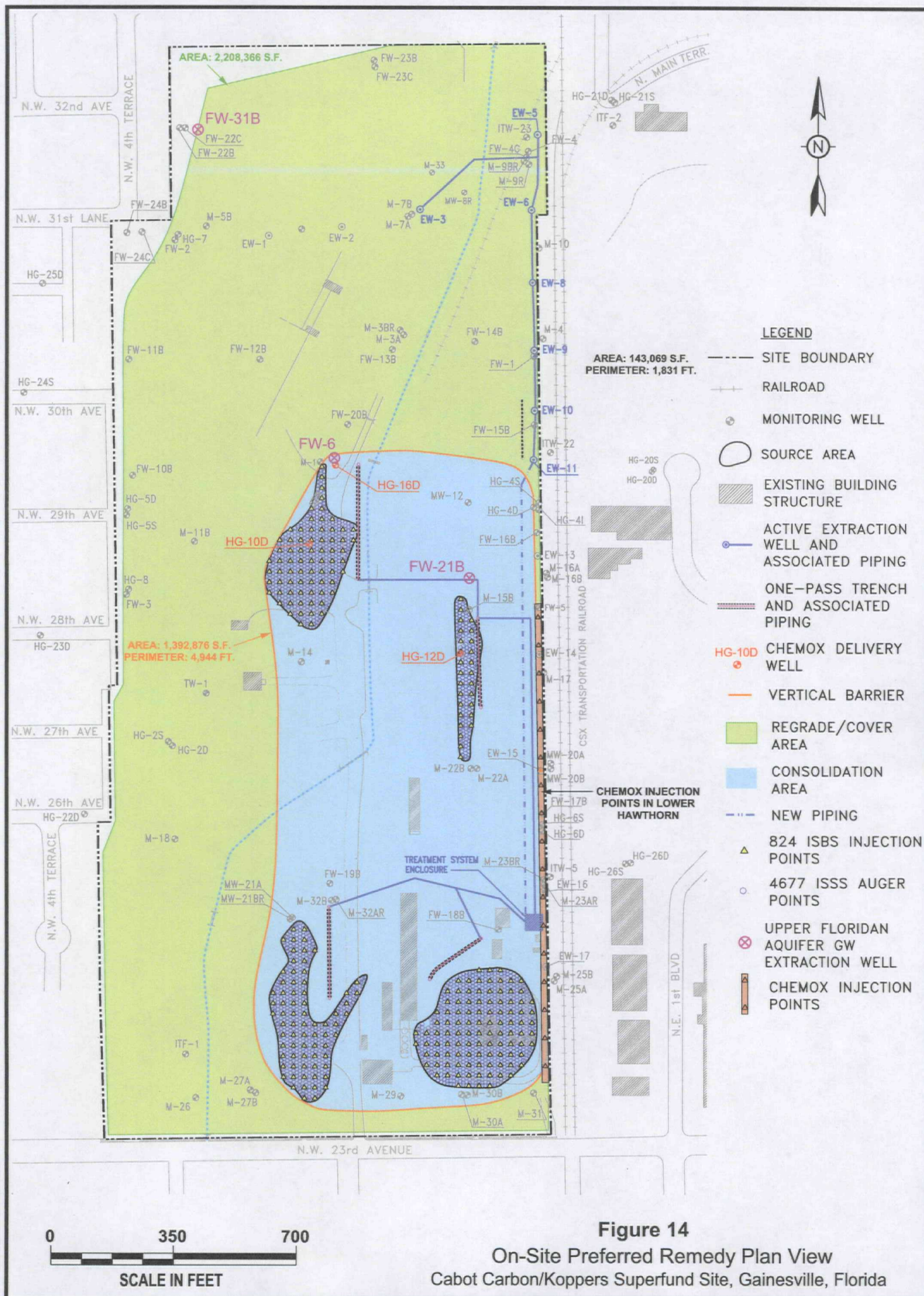




**Figure 13**  
**Conceptual Diagram of Potential Migration and Exposure Pathways**  
**Cabot Carbon/Koppers Superfund Site**  
**Gainesville, Alachua County, Florida**









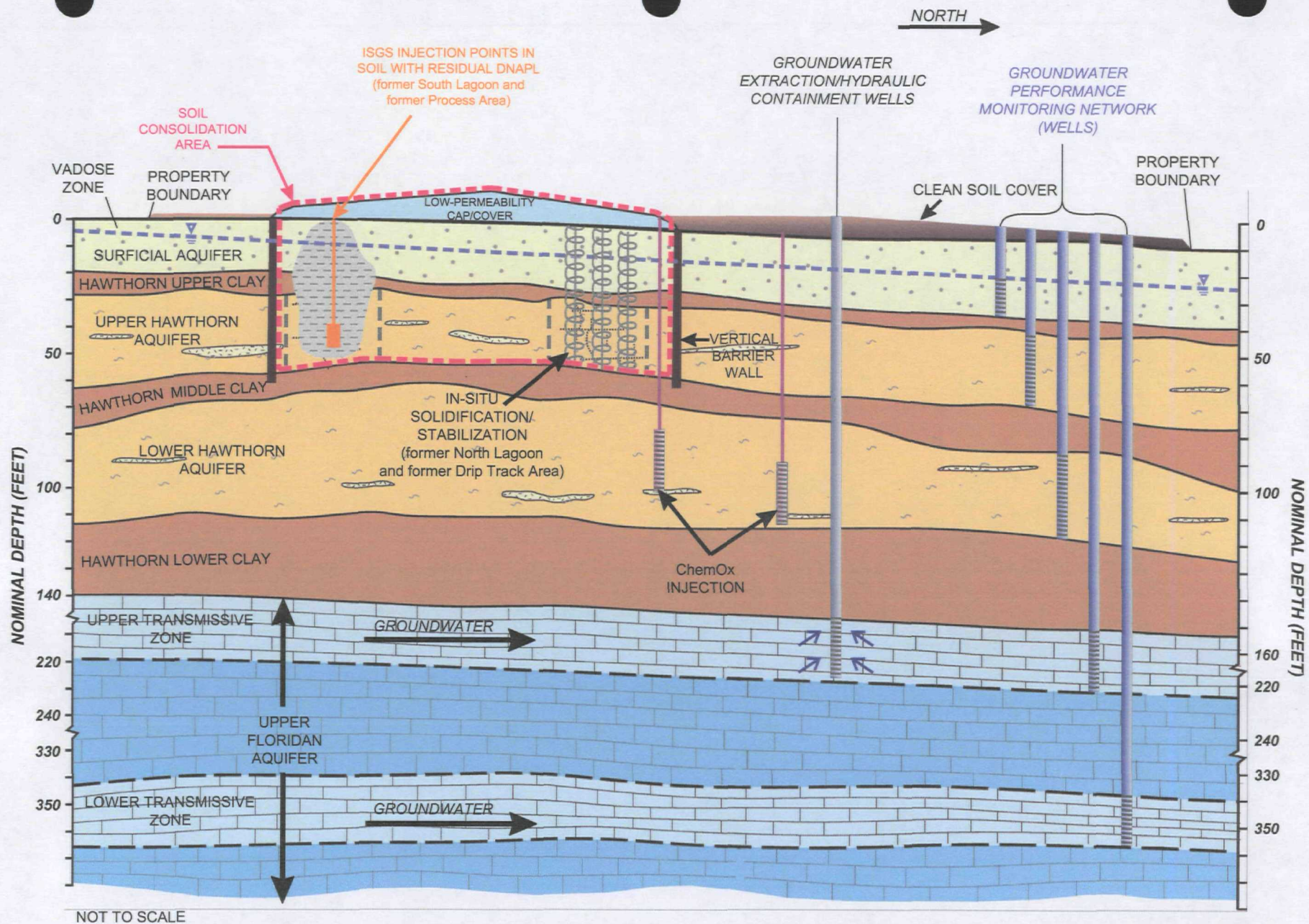


FIGURE 15  
ON-SITE PREFERRED REMEDY  
CABOT CARBON/KOPPERS SUPERFUND SITE  
GAINESVILLE, ALACHUA COUNTY, FLORIDA

**Appendix A**  
**Responsiveness Summary**