

**LEGEND:**

SITE BOUNDARY

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
 FORT BRAGG, CALIFORNIA

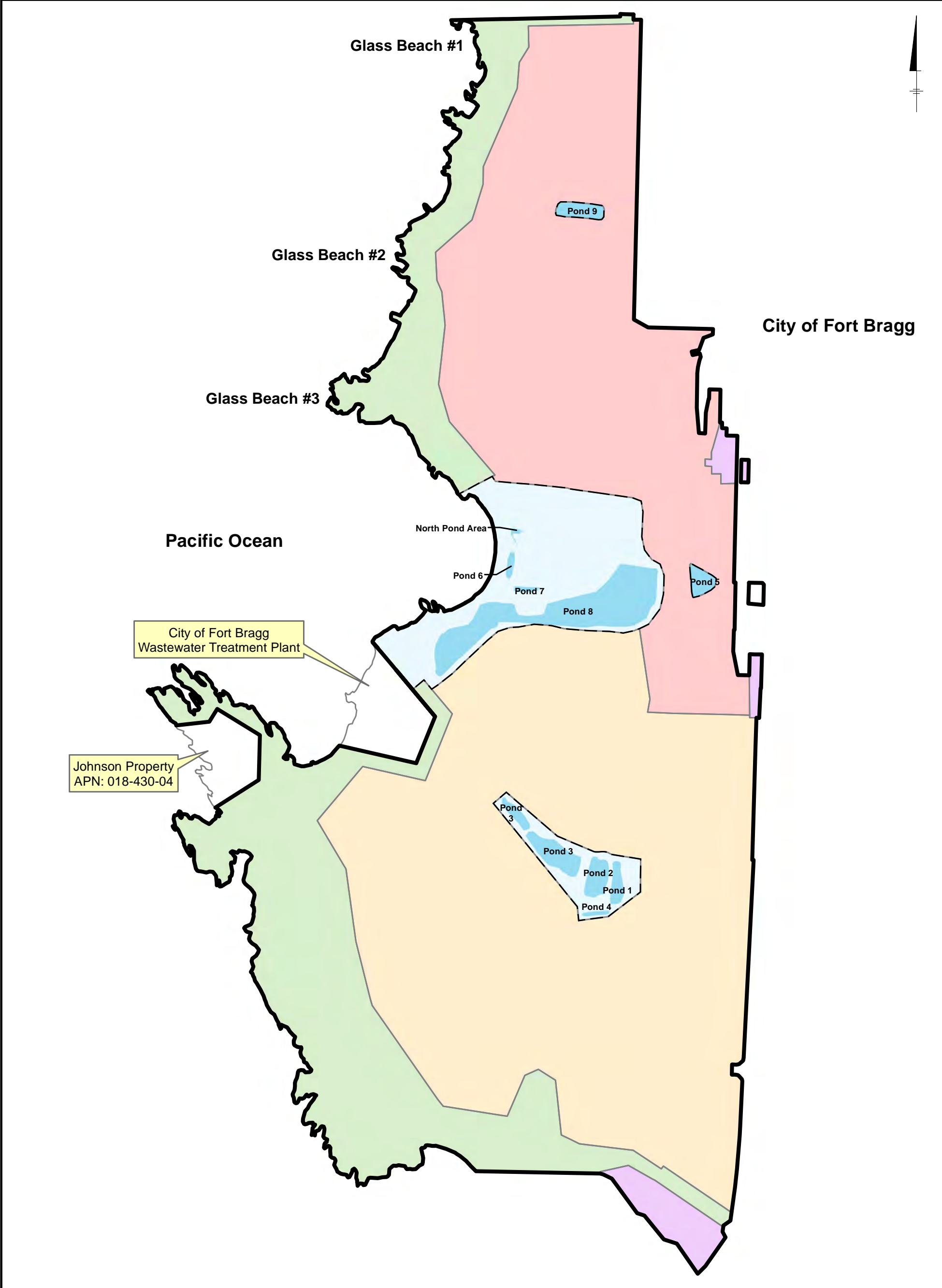
FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

**SITE LOCATION MAP**



FIGURE  
**1-1**





LEGEND:

- POND
- SITE BOUNDARY

OPERABLE UNITS

- OU-A
- "OFFSITE" NON-INDUSTRIAL (OU-B)
- NORTHERN (OU-C)
- SOUTHERN (OU-D)
- PONDS/PARK (OU-E)

ABBREVIATION:

OU = OPERABLE UNIT



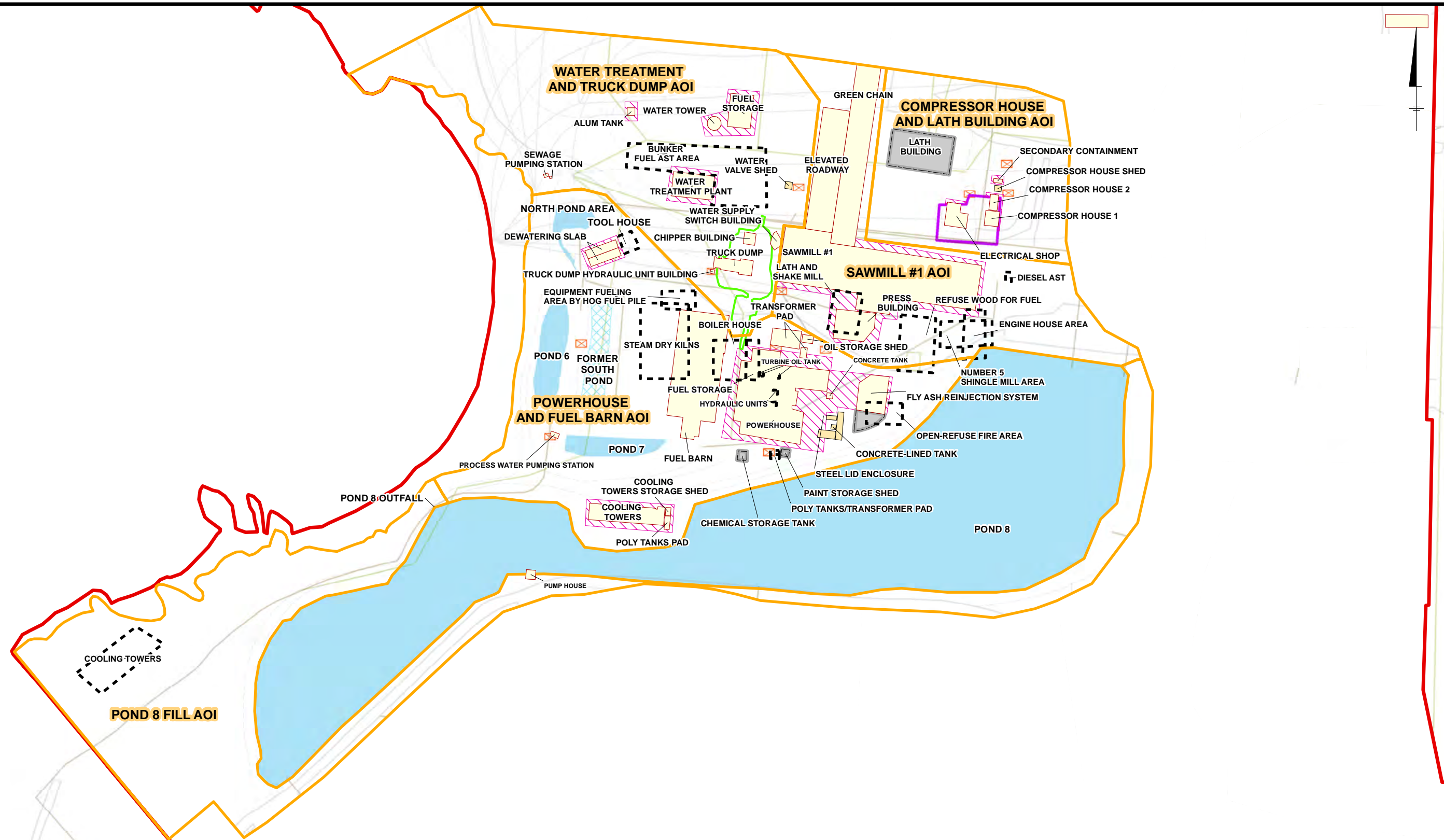
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

OPERABLE UNITS  
LOCATION MAP



FIGURE  
1-2

CITY: Highlands Ranch DIV/GROUP: IM GIS DB: Brianna Griffith  
Project B0066142.2012 Task AS010  
Path: I:\FortBragg\WMD\OU-E\_RI\_FINAL\Fig 2-1 OU-E AOI MAP.mxd Date: 1/22/2013 Time: 8:18:06 AM



**LEGEND:**

AOI BOUNDARY

SITE BOUNDARY

STRUCTURE

FORMER STRUCTURE

FORMER STRUCTURE-  
FOUNDATION INTACT

OTHER OPERABLE UNITS/AOIs

POND

FORMER POND

COMPRESSOR HOUSE  
EXCAVATION BOUNDARY

FUEL LINE EXCAVATION  
BOUNDARY

APPROXIMATE CAP BOUNDARIES

FORMER INDUSTRIAL USE  
(APPROXIMATE LOCATION)

PLANT DRAIN SYSTEM LINE

SANITARY SEWER LINE

UNPAVED ROADWAY

PAVED ROADWAY

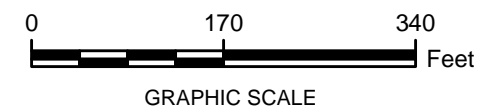
FORMER RAIL LINES

FORMER TRANSFORMER  
LOCATION (APPROXIMATE)

**ABBREVIATIONS:**

AOI = AREA OF INTEREST

AST = ABOVEGROUND STORAGE TANK



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
**FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E**

**OU-E TERRESTRIAL AOIs  
AND ASSOCIATED FEATURES**



**FIGURE  
2-1**



CITY: Highlands Ranch DIV/GROUP: IM GIS DB: Brianna Griffith  
Project B0066142.12 Task AS010  
Path: I:\FortBragg\MXDOUE\_RL\FINAL\Fig 2-2 WetlandDelineationMap\_Central.mxd Date: 1/22/2013 Time: 8:19:55 AM



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

**WETLANDS AND OTHER WET ENVIRONMENTALLY  
SENSITIVE HABITAT AREA - CENTRAL**



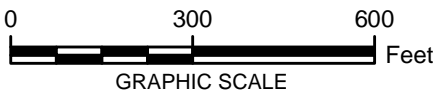
FIGURE  
**2-2**





**LEGEND**

- |   |   |   |
|---|---|---|
| ● SOIL PIT LOCATION   | DELINEATED WET ESHA (ARCADIS 2010; NOT YET APPROVED)                  | □ BEDROCK GROUNDWATER SEEP                                    |
| ■ OPERATIONAL UNIT  | DELINEATED WATERS/ WETLANDS (WRA 2009; APPROVED BY THE USACE 3/15/10) | □ PERENNIAL WATERS  |
| ■ RIPARIAN AREA   | SEASONAL WETLAND  | ▨ THREE-PARAMETER WETLAND                                     |
| POTENTIAL ENVIRONMENTALLY SENSITIVE HABITAT AREAS (ESHA)                                    | WETLAND SEEP  | ▩ AREA NOT EVALUATED BASED ON ONGOING CONSTRUCTION ACTIVITIES |
| — WIDTH OF DELINEATED GROUNDWATER SEEP/WATERS OF THE STATE (ARCADIS 2010; NOT YET APPROVED) | INDUSTRIAL POND   |   |
|   | SEASONAL WETLAND DITCH  |   |
|   | RIPARIAN WETLAND  |   |



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA

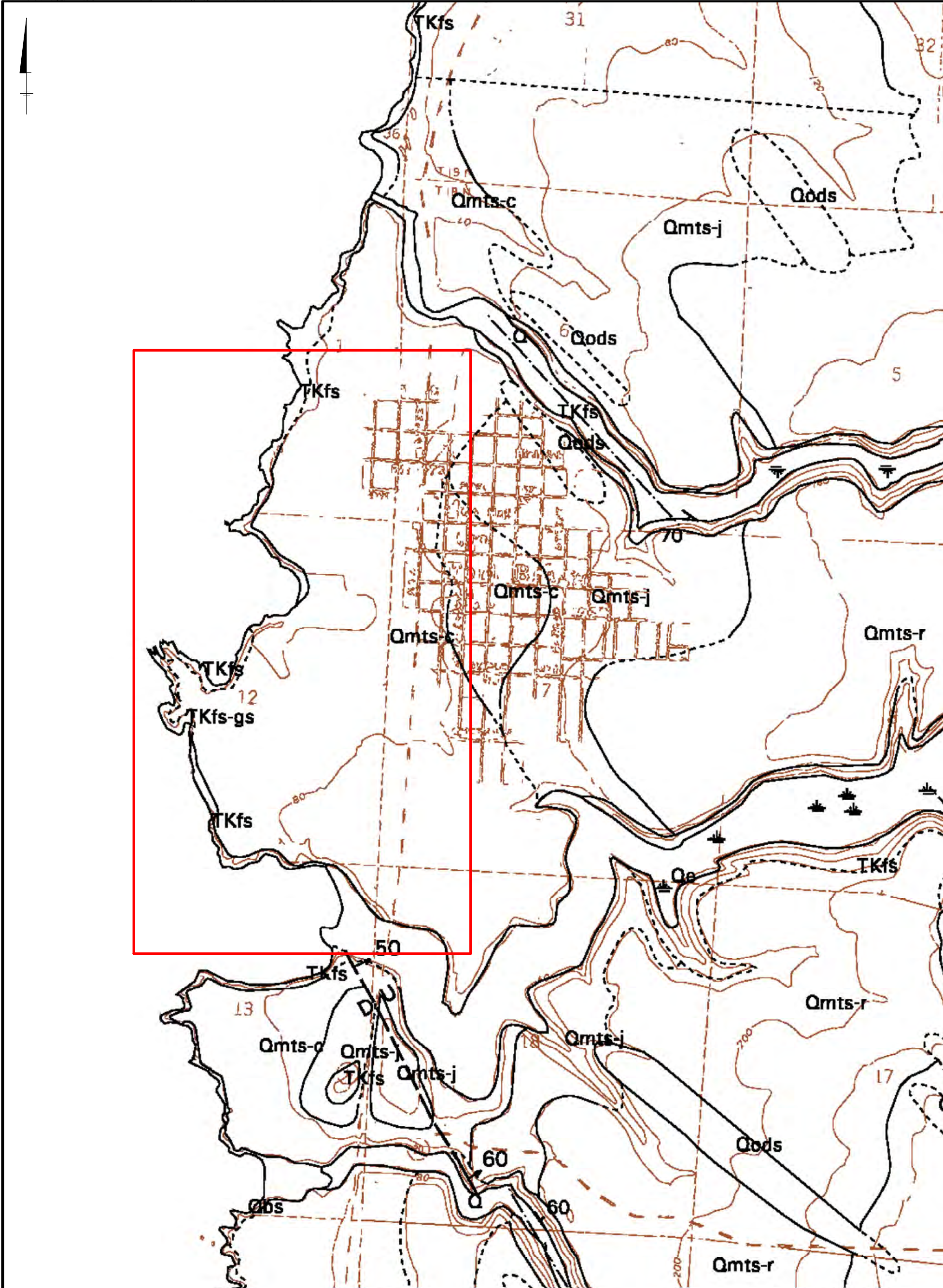
**FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E**

**WETLANDS AND OTHER WET ENVIRONMENTALLY SENSITIVE HABITAT AREA - SOUTHERN**



FIGURE  
**2-3**





LEGEND:

APPROXIMATE SITE AREA

NOTES:

1. SOURCE: 1983, DMG OPEN-FILE REPORT 83-05, GEOLOGY AND GEOMORPHIC FEATURES RELATED TO LANDSLIDING, FORT BRAGG 7.5' QUADRANGLE, MENDOCINO COUNTY, CALIFORNIA

2. TKfs = COASTAL BELT FRANCISCAN COMPLEX  
TKfs-gs = COASTAL BELT FRANCISCAN COMPLEX, GREENSTONE  
Qmts-c = MARINE TERRACE DEPOSITS, CASPAR POINT  
Qmts-r = MARINE TERRACE DEPOSITS, CASPAR RAILROAD  
Qmts-j = MARINE TERRACE DEPOSITS, JUG HANDLE FARM  
Qods = OLDER DUNE SANDS

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA

FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

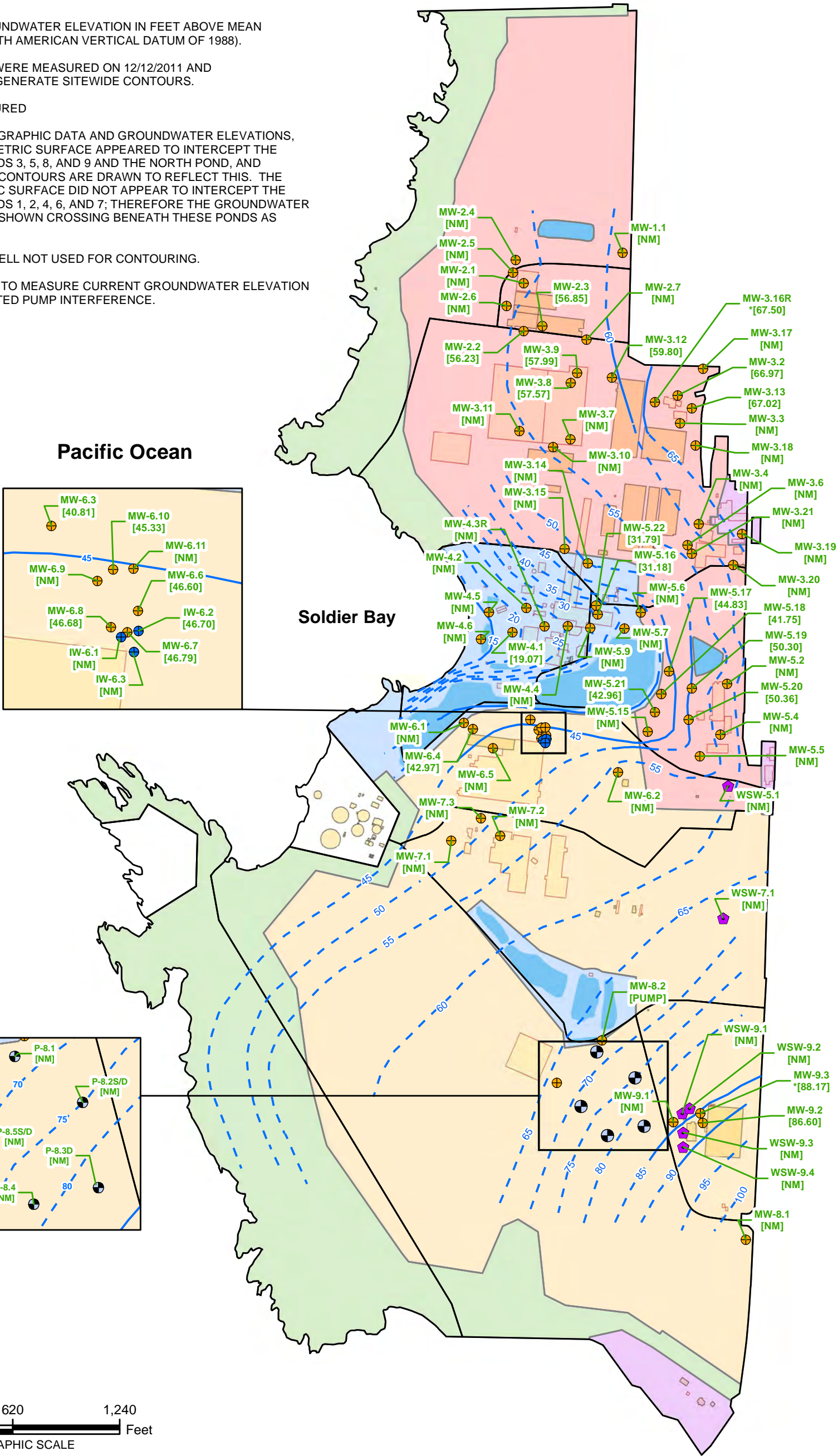
GEOLOGY MAP

ARCADIS

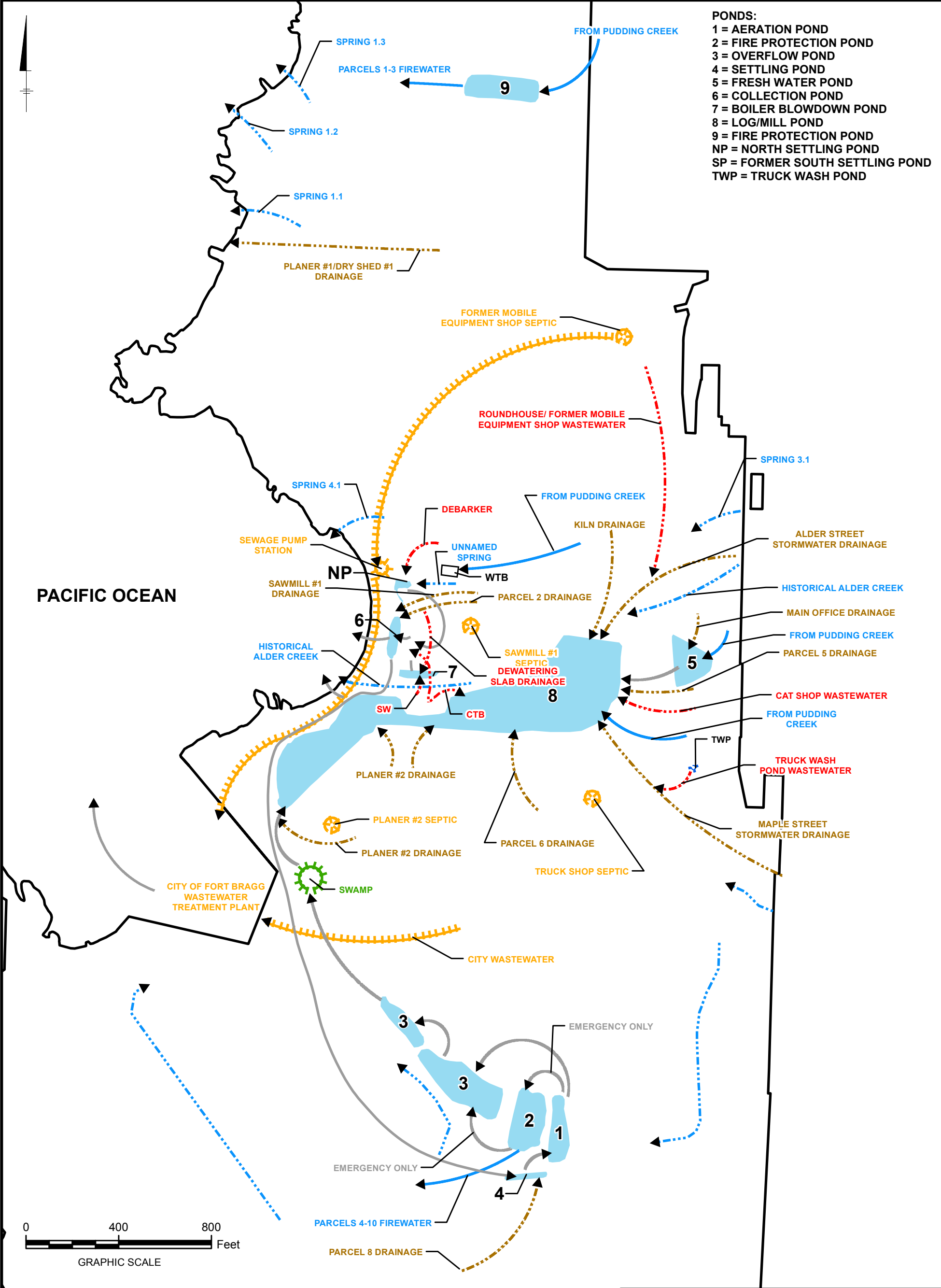
FIGURE  
2-4



- NOTES:
1. "[XX.XX]" = GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (NORTH AMERICAN VERTICAL DATUM OF 1988).
  2. WATER LEVELS WERE MEASURED ON 12/12/2011 AND WERE USED TO GENERATE SITEWIDE CONTOURS.
  3. NM = NOT MEASURED
  4. BASED ON TOPOGRAPHIC DATA AND GROUNDWATER ELEVATIONS, THE POTENTIOMETRIC SURFACE APPEARED TO INTERCEPT THE FLOORS OF PONDS 3, 5, 8, AND 9 AND THE NORTH POND, AND GROUNDWATER CONTOURS ARE DRAWN TO REFLECT THIS. THE POTENTIOMETRIC SURFACE DID NOT APPEAR TO INTERCEPT THE FLOORS OF PONDS 1, 2, 4, 6, AND 7; THEREFORE THE GROUNDWATER CONTOURS ARE SHOWN CROSSING BENEATH THESE PONDS AS APPROPRIATE.
  5. \*MONITORING WELL NOT USED FOR CONTOURING.
  6. PUMP = UNABLE TO MEASURE CURRENT GROUNDWATER ELEVATION DUE TO DEDICATED PUMP INTERFERENCE.











- LEGEND:**
- SITE BOUNDARY
  - AOI BOUNDARY
  - OU-E BOUNDARY
  - PONDS







ACRONYM:  
AOI AREA OF INTEREST  
OUE OPERABLE UNIT E

LEGEND:

- MONITORING WELL
- GRAB GROUNDWATER

- SITE BOUNDARY
- OTHER OPERABLE UNITS/AOIs
- OU-E BOUNDARY
- AOI BOUNDARY
- FORMER STRUCTURE
- FORMER INDUSTRIAL USE (APPROXIMATE LOCATION)

- FORMER STRUCTURE- FOUNDATION INTACT
- POND
- COMPRESSOR HOUSE EXCAVATION BOUNDARY
- FUEL LINE EXCAVATION BOUNDARY
- CAPPED AREAS

- PLANT DRAIN SYSTEM LINE
- FORMER RAIL LINES
- RETAINING WALL



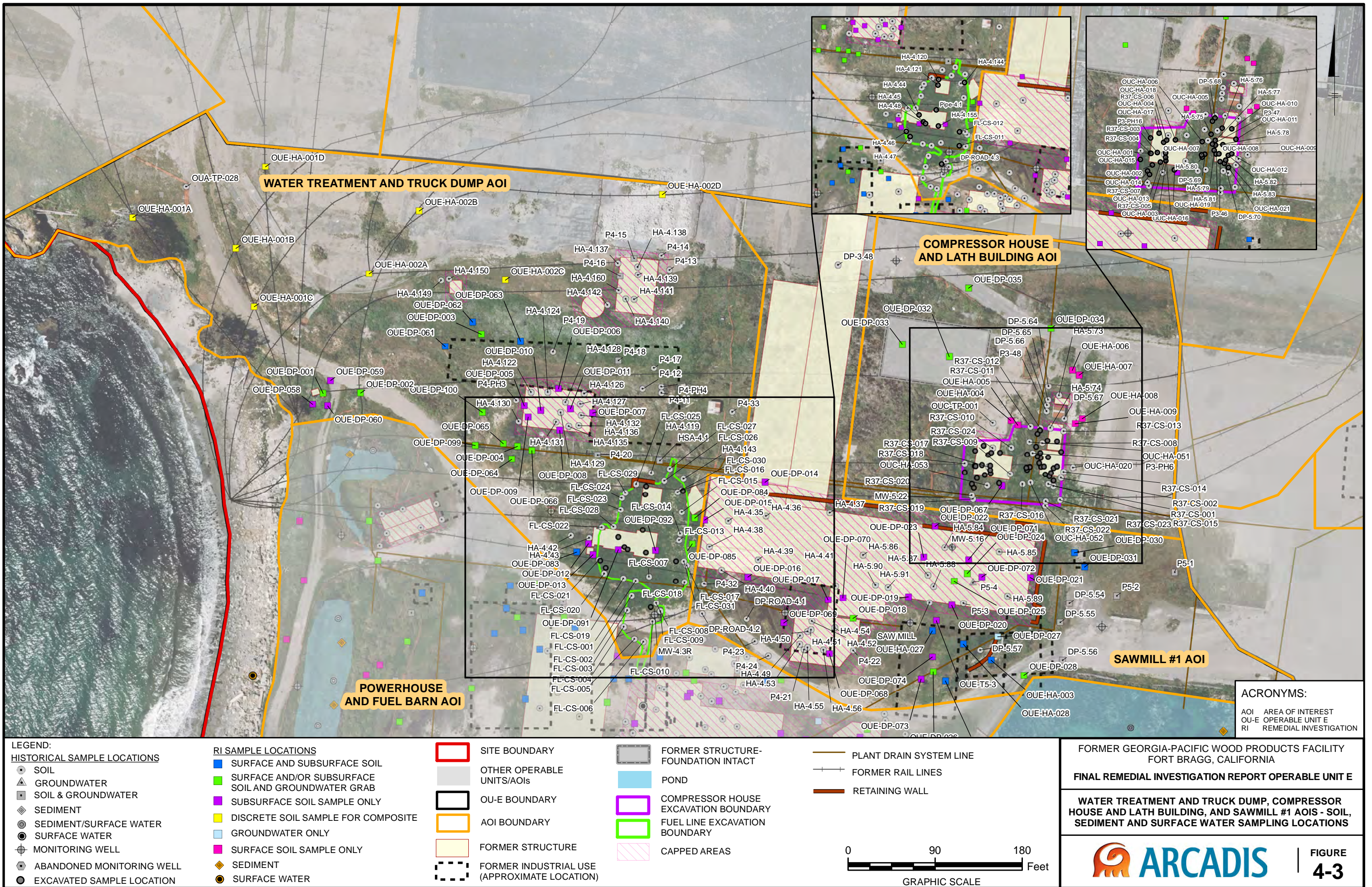
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

GROUNDWATER SAMPLING LOCATIONS



FIGURE  
4-2







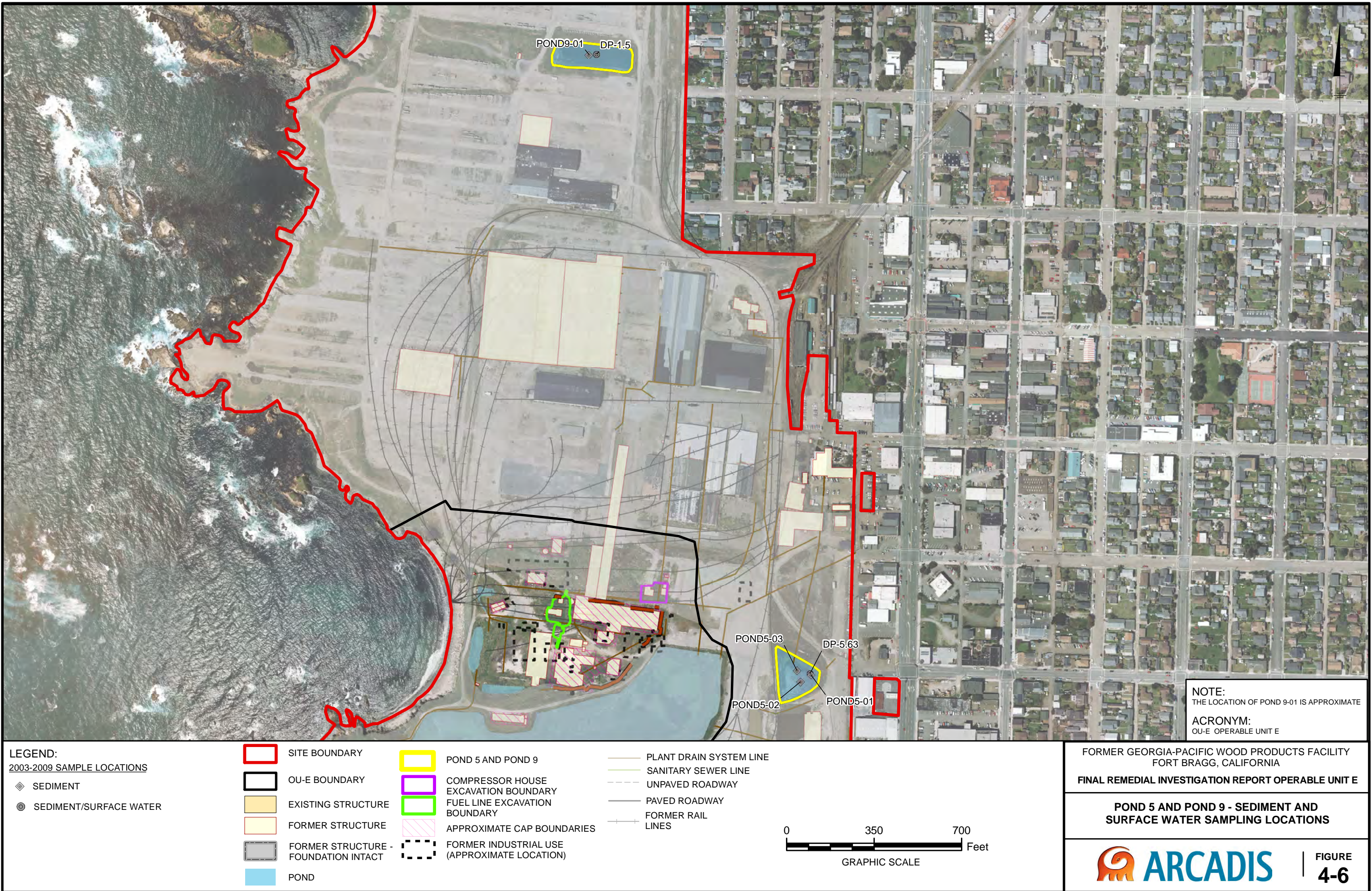




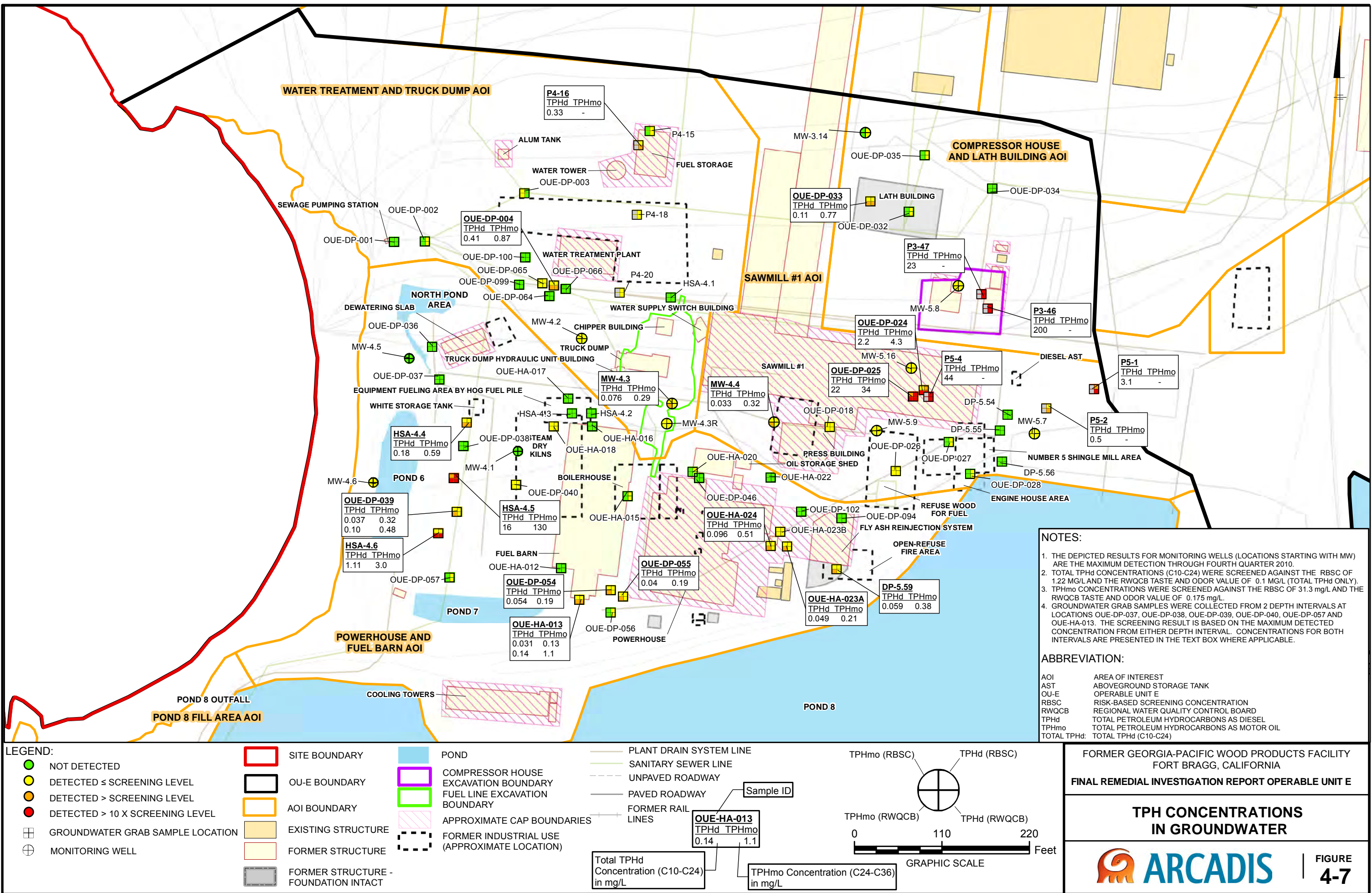




CITY: Highlands Ranch DIV/GROUP: IM GIS DB: Brianna Griffith  
Project B0066142.2012 Task AS010  
Path: I:\FortBragg\MXDOUE\_RL\FINAL\Fig 4-6 Ponds\Pond9\_SamplingLocations.mxd Date: 1/22/2013 Time: 8:34:48 AM

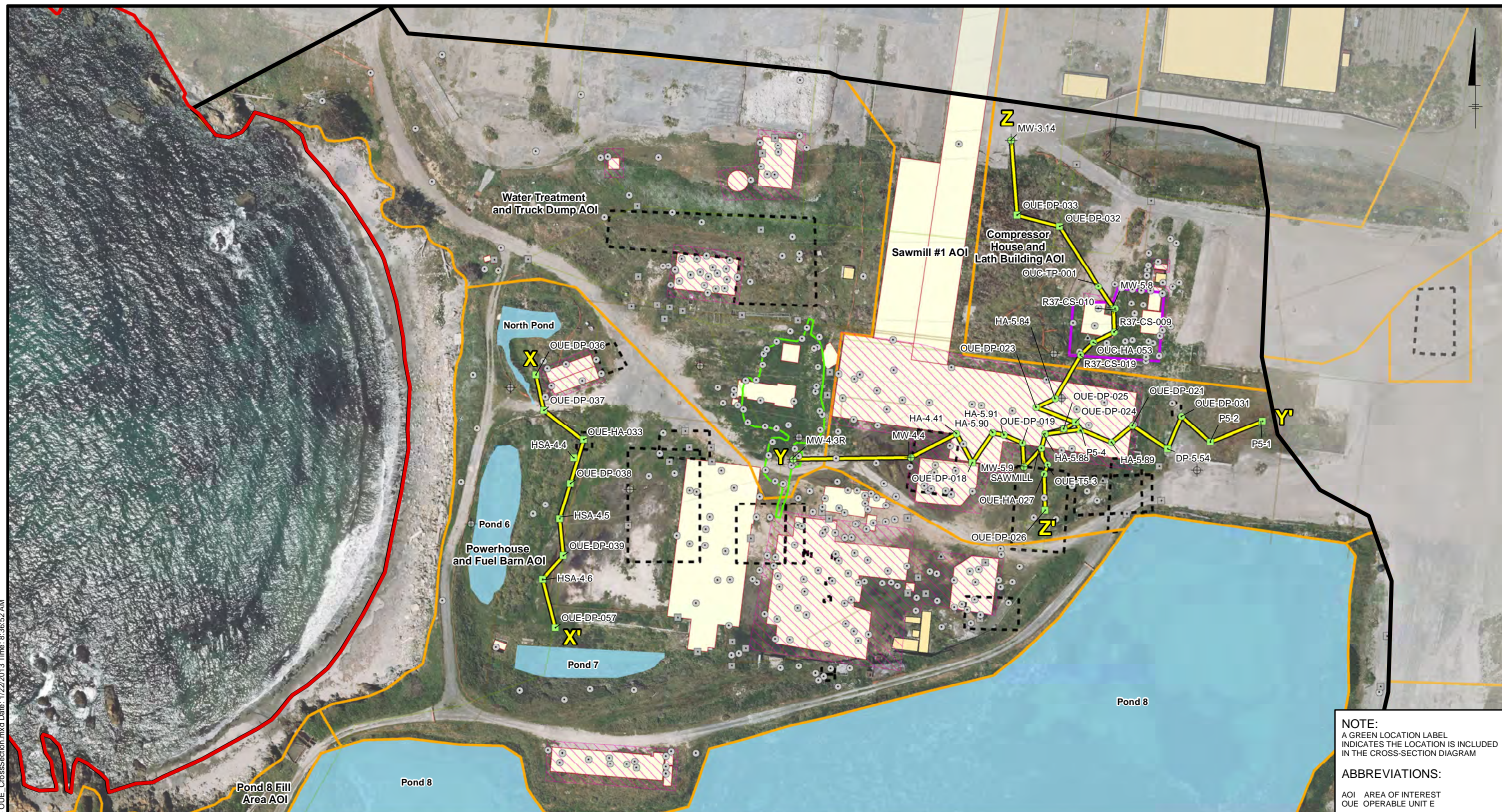








CITY: Highlands Ranch DIV/GROUP: IM GIS DB: Brianna Griffith  
Project B0066142.2012 Task AS010  
Path: I:\FortBragg\MXD\OUE\_RI\_FINAL\Fig 4-8 OUE\_CrossSection.mxd Date: 1/22/2013 Time: 8:36:52 AM



NOTE:  
A GREEN LOCATION LABEL  
INDICATES THE LOCATION IS INCLUDED  
IN THE CROSS-SECTION DIAGRAM

ABBREVIATIONS:  
AOI AREA OF INTEREST  
OUE OPERABLE UNIT E

LEGEND:	
<b>SAMPLE LOCATIONS</b>	
SOIL	SITE BOUNDARY
GROUNDWATER	AOI BOUNDARY
SOIL & GROUNDWATER	OUE BOUNDARY
MONITORING WELL	STRUCTURE
ABANDONED MONITORING WELL	FORMER STRUCTURE
	OTHER OPERABLE UNITS/AOIs
POND	COMPRESSOR HOUSE EXCAVATION BOUNDARY
	FUEL LINE EXCAVATION BOUNDARY
	CAPPED AREAS
	CROSS-SECTIONS
FORMER INDUSTRIAL USE (APPROXIMATE LOCATION)	PLANT DRAIN SYSTEM LINE
	SANITARY SEWER LINE
	UNPAVED ROADWAY
	PAVED ROADWAY
	FORMER RAIL LINES
	FORMER TRANSFORMER LOCATION (APPROXIMATE)



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

**CROSS-SECTION OVERVIEW**

**ARCADIS**

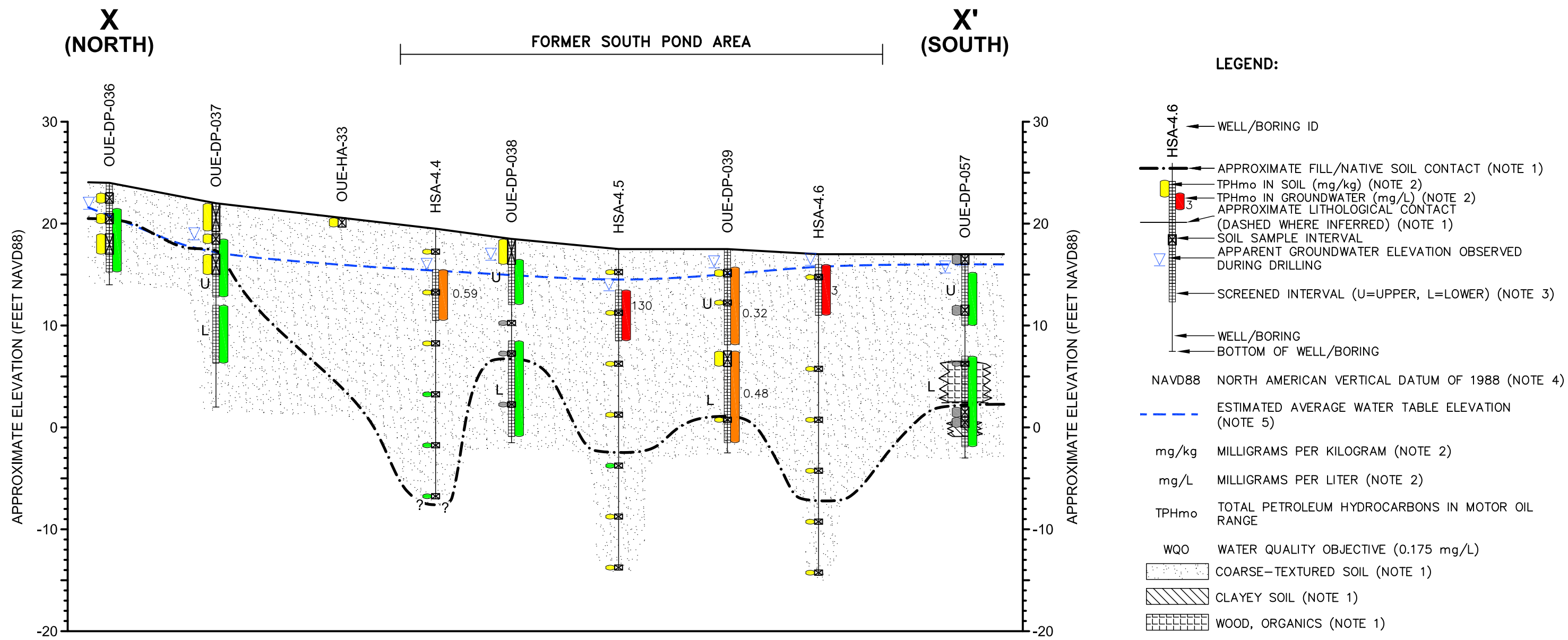
**FIGURE 4-8**





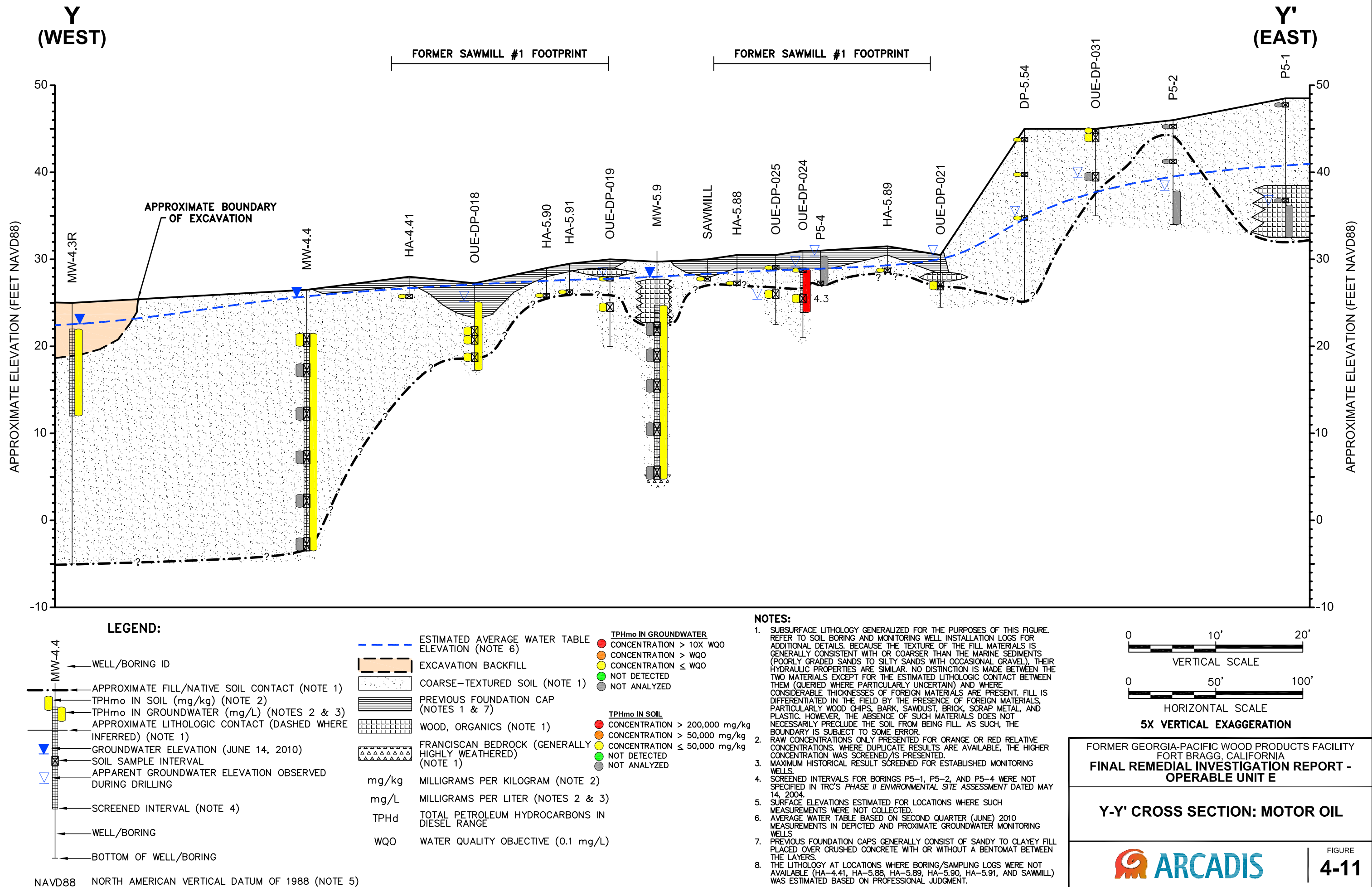


CITY:Syracuse DIV:GROUP:EnvCAD DBW:Jones A.Schilling LD:(Opt) Pk:(Opt) Pk:(Read) Tm:(Opt) Lyr:(Opt)ON="OFF"REF=" G:\ENVCAD\SYRACUSE\ACT1\B006\138\006\0001\DWG\RI-E\66128\16.dwg LAYOUT: 4-10 SAVED: 11/15/2012 12:09 PM ACADVER: 18.1S (LMS TECH) PAGES: 18 OF 18 PLOT: 1/23/2013 2:57 PM BY: SCHILLING, ADAM XREFS: IMAGES: PROJECTNAME: ---

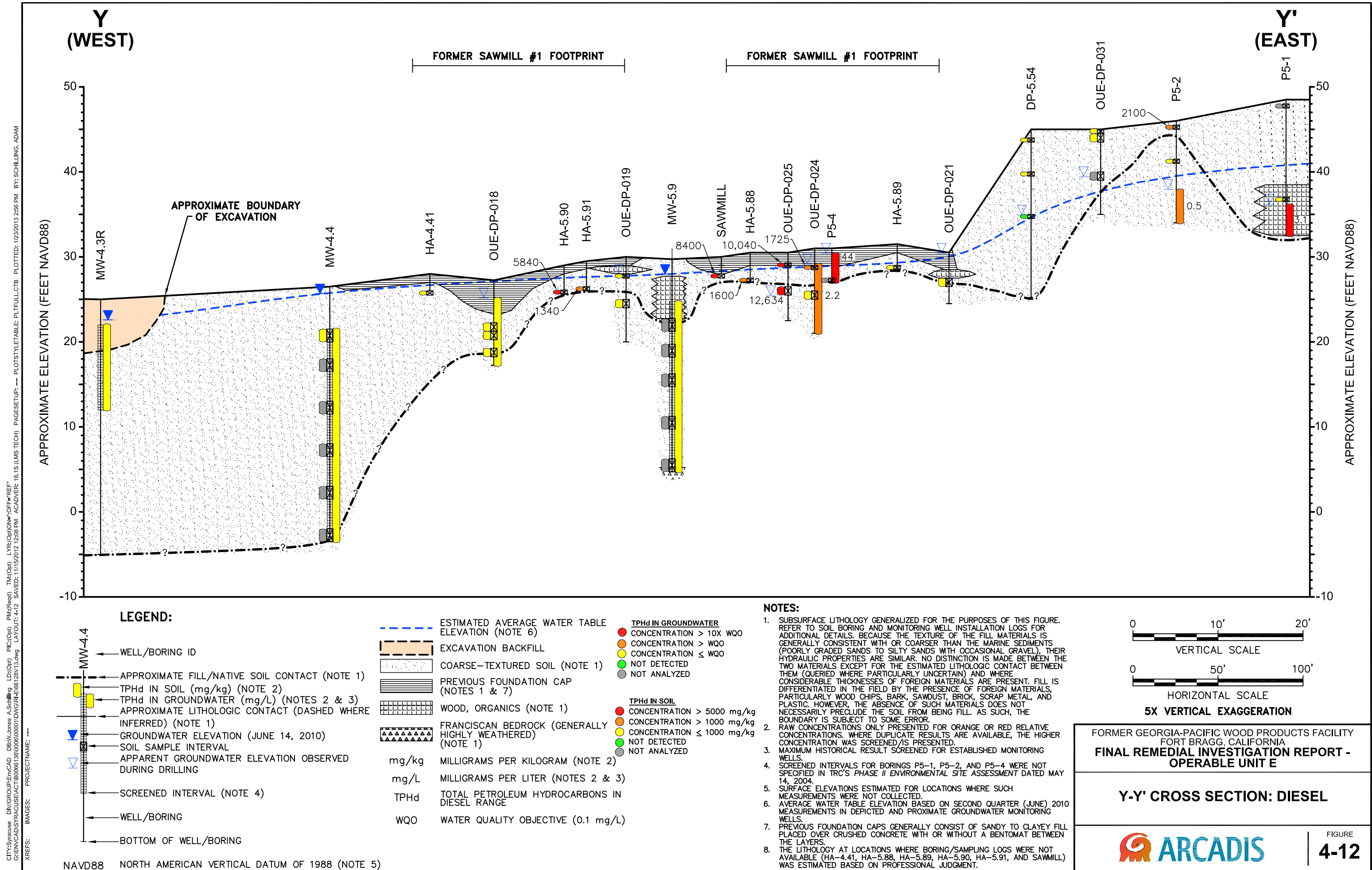




CITY:Syracuse DIV:GROUP:EnvCAD DBW:Jones A:Schilling LD:(Opt) P:(C:Opt) P:(M:Red) T:(K:Opt) LY:(Opt:ON) OFF:REF\*  
G:\ENV\CAD\SYRACUSE\ACT\B0068138\0006\0001\DWG\RI-LE66128\17.dwg LAYOUT: 4-11 SAVED: 11/15/2012 12:09 PM ACADVER: 18.15 (LMS TECH) PAGES: 17 PLOT: 12/3/2013 2:57 PM BY: SCHILLING, ADAM  
XREFS: IMAGES: PROJECTNAME: ---

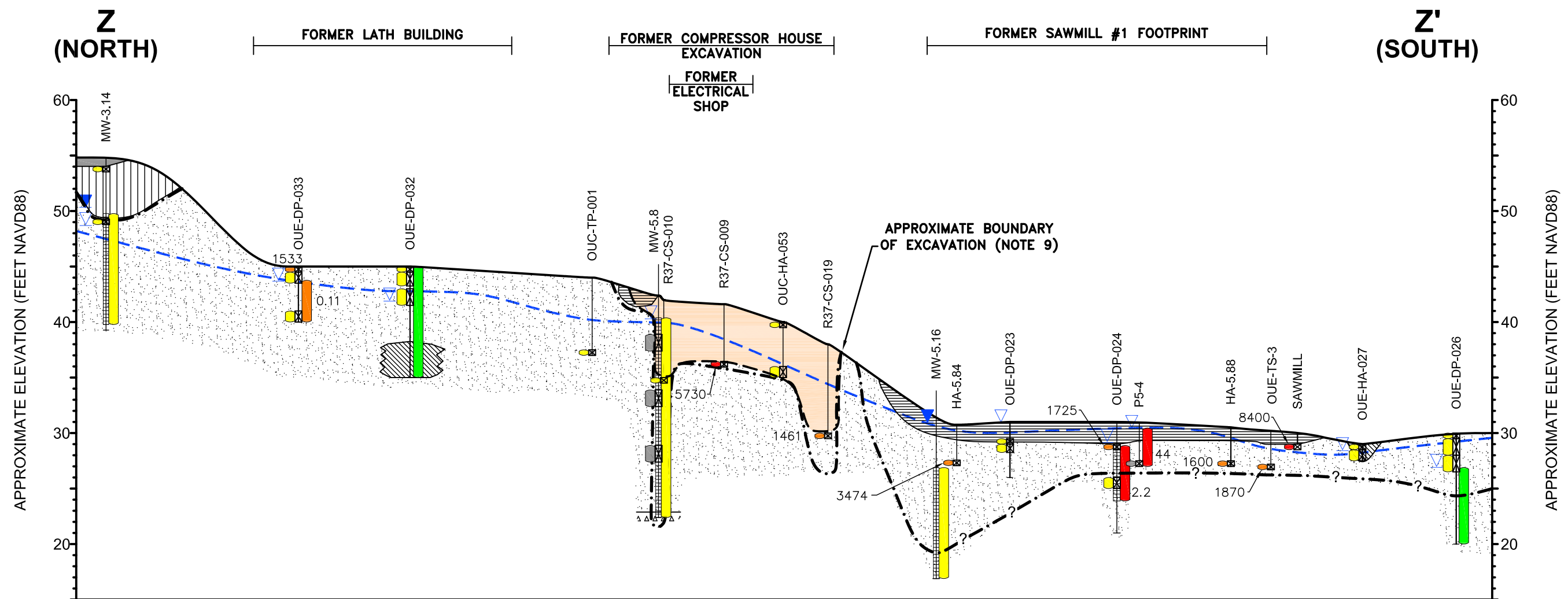








CITY:Syracuse DIV:GROUP:EnvCAD DBW:Jones A:Schilling LD:Opti P:McRedd T:McRedd LYR:OptiON=OFF=REF\* G:ENV:CAD:SYRACUSE:ACT:B00068138:0006:00001:DWG:R14.dwg LAYOUT: 4-13 SAVER: 11/15/2012 12:07 PM ACADVER: 18.15 (LMS TECH) PAGES: 18.15 (LMS TECH) PLOT: FULL CTA PLOTSETUP: -- PLOTSTYLETABLE: PLT:FULL.CTB PLOTTED: 1/23/2013 2:57 PM BY: SCHILLING, ADAM XREFS: IMAGES: PROJECTNAME: --



**LEGEND:**

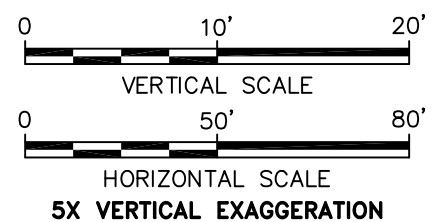
- WELL/BORING ID
- APPROXIMATE FILL/NATIVE SOIL CONTACT (NOTE 1)
- TPHd IN SOIL (mg/kg) (NOTE 2)
- TPHd IN GROUNDWATER (mg/L) (NOTES 2 & 3)
- APPROXIMATE LITHOLOGICAL CONTACT (DASHED WHERE INFERRED) (NOTE 1)
- GROUNDWATER ELEVATION (JUNE 14, 2010)
- SOIL SAMPLE INTERVAL
- APPARENT GROUNDWATER ELEVATION OBSERVED DURING DRILLING
- SCREENED INTERVAL (NOTE 4)
- WELL/BORING
- BOTTOM OF WELL/BORING
- NAVD88 NORTH AMERICAN VERTICAL DATUM OF 1988 (NOTE 5)
- ESTIMATED AVERAGE WATER TABLE ELEVATION (NOTE 6)

- EXCAVATION BACKFILL
- ASPHALT
- COARSE-TEXTURED SOIL (NOTE 1)
- SILTY SOIL (NOTE 1)
- CLAYEY SOIL (NOTE 1)
- PREVIOUS FOUNDATION CAP (NOTES 1 & 7)
- FRANCISCAN BEDROCK (GENERALLY HIGHLY WEATHERED) (NOTE 1)
- mg/kg MILLIGRAMS PER KILOGRAM (NOTE 2)
- mg/L MILLIGRAMS PER LITER (NOTES 2 & 3)
- TPHd TOTAL PETROLEUM HYDROCARBONS IN DIESEL RANGE
- WQO WATER QUALITY OBJECTIVE (0.1 mg/L)

- TPHd IN GROUNDWATER**
  - CONCENTRATION > 10X WQO
  - CONCENTRATION > WQO
  - CONCENTRATION ≤ WQO
  - NOT DETECTED
  - NOT ANALYZED
- TPHd IN SOIL**
  - CONCENTRATION > 5000 mg/kg
  - CONCENTRATION > 1000 mg/kg
  - CONCENTRATION ≤ 1000 mg/kg
  - NOT DETECTED
  - NOT ANALYZED

**NOTES:**

- SUBSURFACE LITHOLOGY GENERALIZED FOR THE PURPOSES OF THIS FIGURE. REFER TO SOIL BORING AND MONITORING WELL INSTALLATION LOGS FOR ADDITIONAL DETAILS. BECAUSE THE TEXTURE OF THE FILL MATERIALS IS GENERALLY CONSISTENT WITH OR COARSER THAN THE MARINE SEDIMENTS (POORLY GRADED SANDS TO SILTY SANDS WITH OCCASIONAL GRAVEL), THEIR HYDRAULIC PROPERTIES ARE SIMILAR. NO DISTINCTION IS MADE BETWEEN THE TWO MATERIALS EXCEPT FOR THE ESTIMATED LITHOLOGIC CONTACT BETWEEN THEM (QUERIED WHERE PARTICULARLY UNCERTAIN) AND WHERE CONSIDERABLE THICKNESSES OF FOREIGN MATERIALS ARE PRESENT. FILL IS DIFFERENTIATED IN THE FIELD BY THE PRESENCE OF FOREIGN MATERIALS, PARTICULARLY WOOD CHIPS, BARK, SAWDUST, BRICK, SCRAP METAL, AND PLASTIC. HOWEVER, THE ABSENCE OF SUCH MATERIALS DOES NOT NECESSARILY PRECLUDE THE SOIL FROM BEING FILL. AS SUCH, THE BOUNDARY IS SUBJECT TO SOME ERROR.
- RAW CONCENTRATIONS ONLY PRESENTED FOR ORANGE OR RED RELATIVE CONCENTRATIONS. WHERE DUPLICATE RESULTS ARE AVAILABLE, THE HIGHER CONCENTRATION WAS SCREENED/IS PRESENTED.
- MAXIMUM HISTORICAL RESULT SCREENED FOR ESTABLISHED MONITORING WELLS.
- THE SCREENED INTERVAL FOR BORING P5-4 WAS NOT SPECIFIED IN TRC'S PHASE II ENVIRONMENTAL SITE ASSESSMENT DATED MAY 14, 2004.
- SURFACE ELEVATIONS ESTIMATED FOR LOCATIONS WHERE SUCH MEASUREMENTS WERE NOT COLLECTED.
- AVERAGE WATER TABLE ELEVATION BASED ON SECOND QUARTER (JUNE) 2010 MEASUREMENTS IN DEPICTED AND PROXIMATE GROUNDWATER MONITORING WELLS.
- PREVIOUS FOUNDATION CAPS GENERALLY CONSIST OF SANDY TO CLAYEY FILL PLACED OVER CRUSHED CONCRETE WITH OR WITHOUT A BENTONITE BETWEEN THE LAYERS.
- THE LITHOLOGY AT LOCATIONS WHERE BORING/SAMPLING LOGS WERE NOT AVAILABLE (OUC-TP-001, R37-CS-009, R37-CS-010, R37-CS-019, OUC-HA-053, HA-5.84, HA-5.88, AND SAWMILL) WAS ESTIMATED BASED ON PROFESSIONAL JUDGMENT.
- THE DEPTHS OF THE EXCAVATION RANGED FROM APPROXIMATELY 7 TO 12.5 FEET BELOW GROUND SURFACE AND THE BOUNDARY SHOWN DOES NOT REPRESENT THE TYPICAL CROSS-SECTION OF THE ENTIRE EXCAVATION.



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
**FINAL REMEDIAL INVESTIGATION REPORT -  
OPERABLE UNIT E**

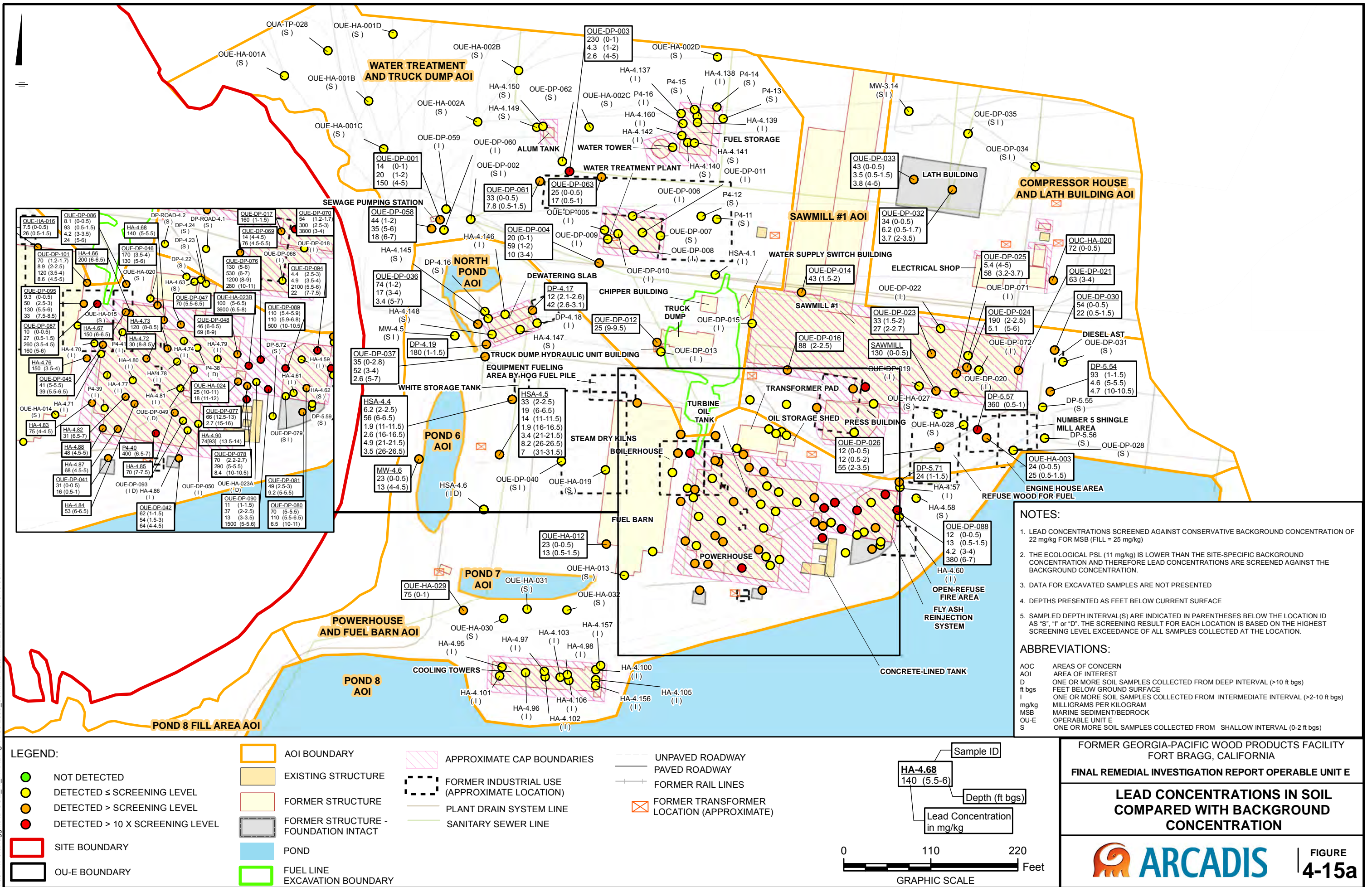
**Z-Z' CROSS SECTION: DIESEL**



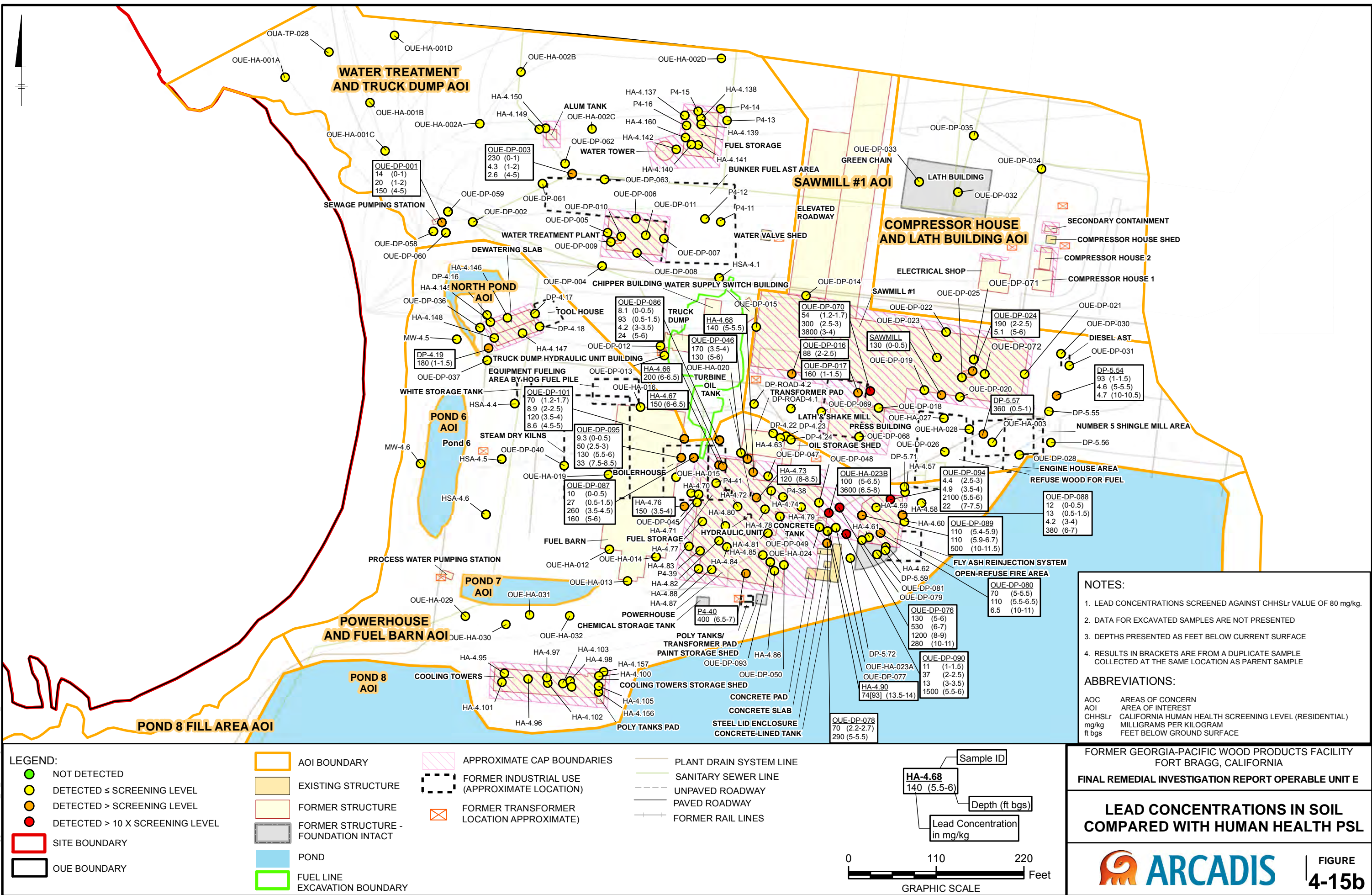




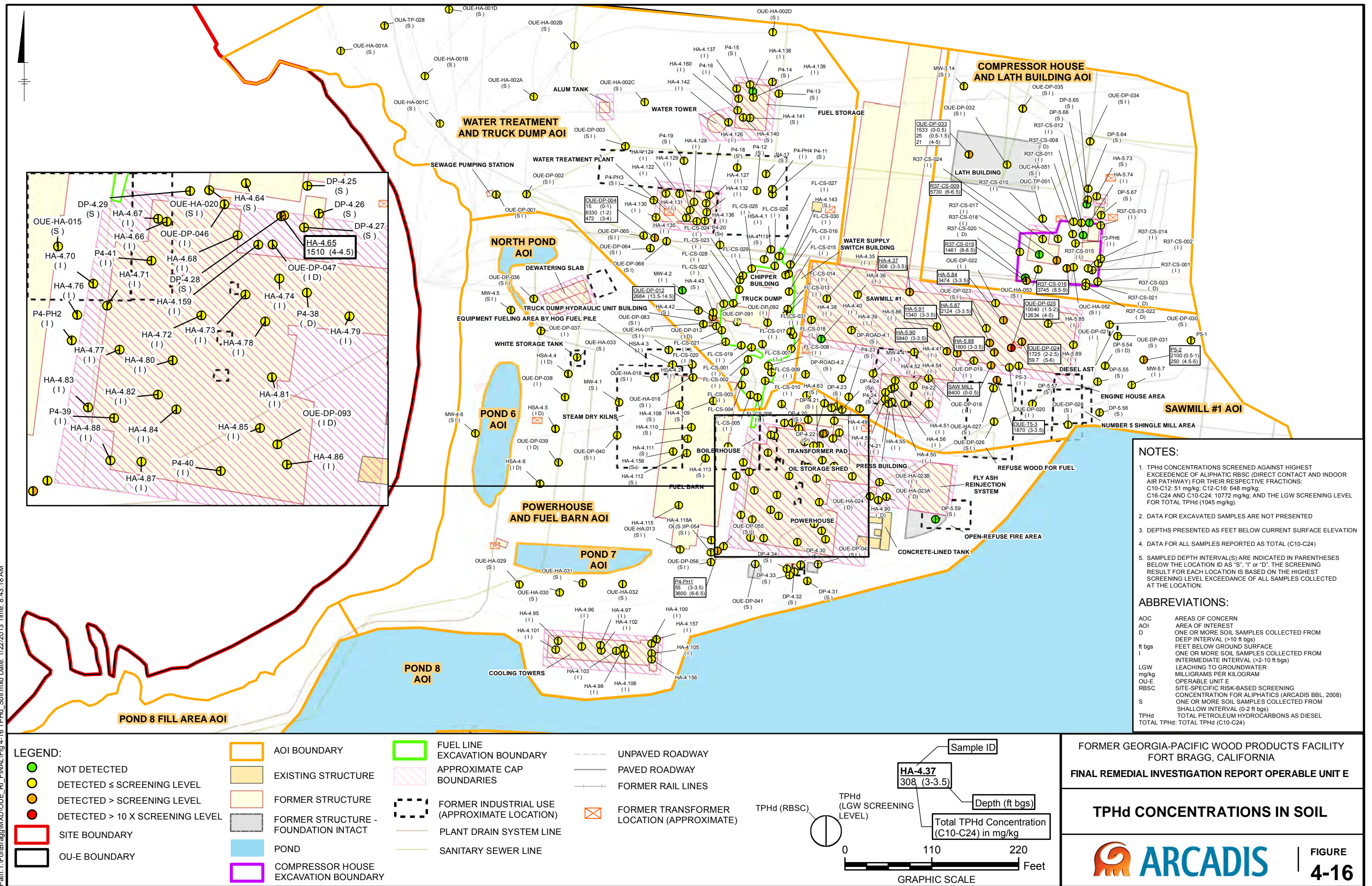














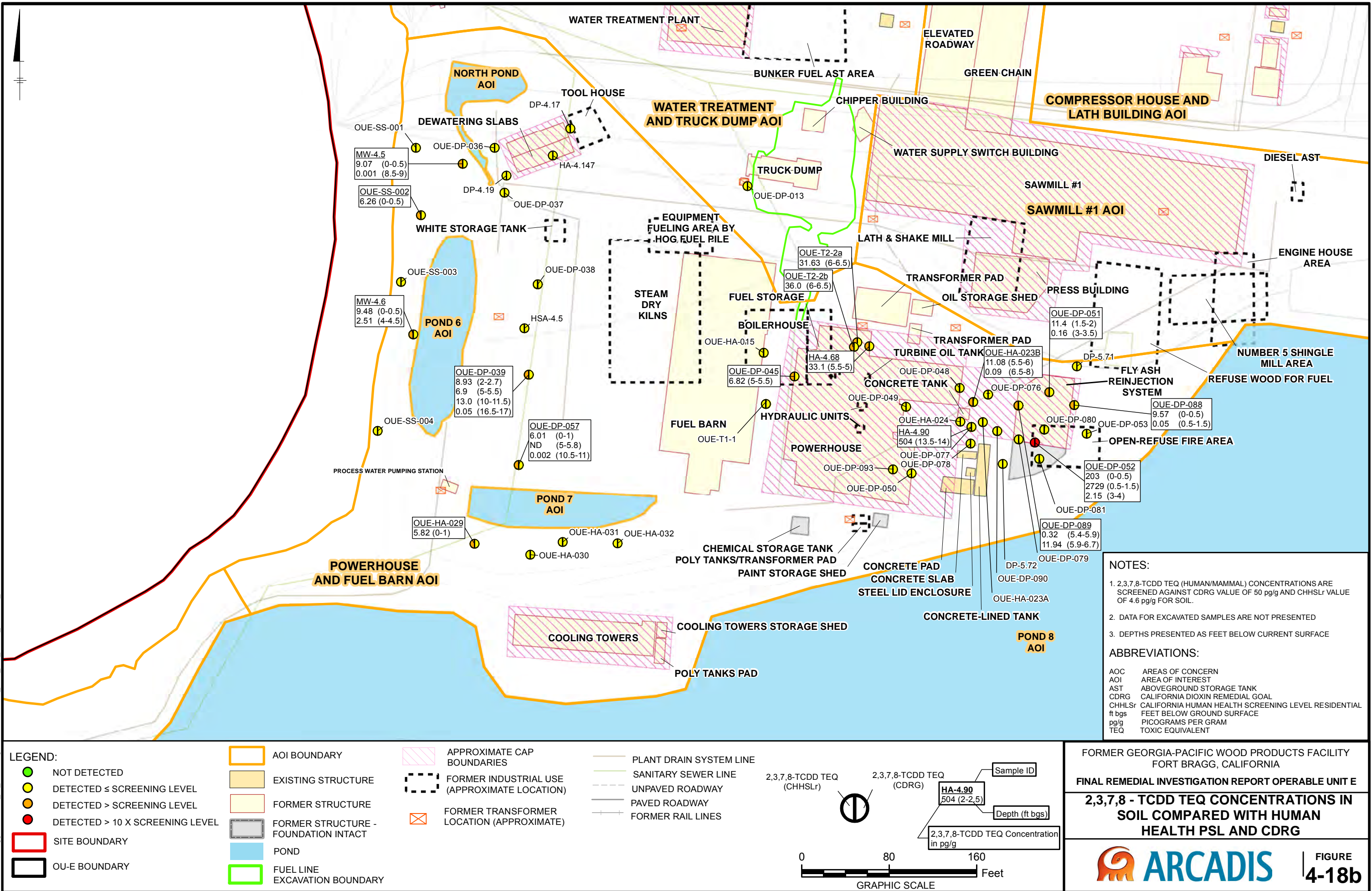




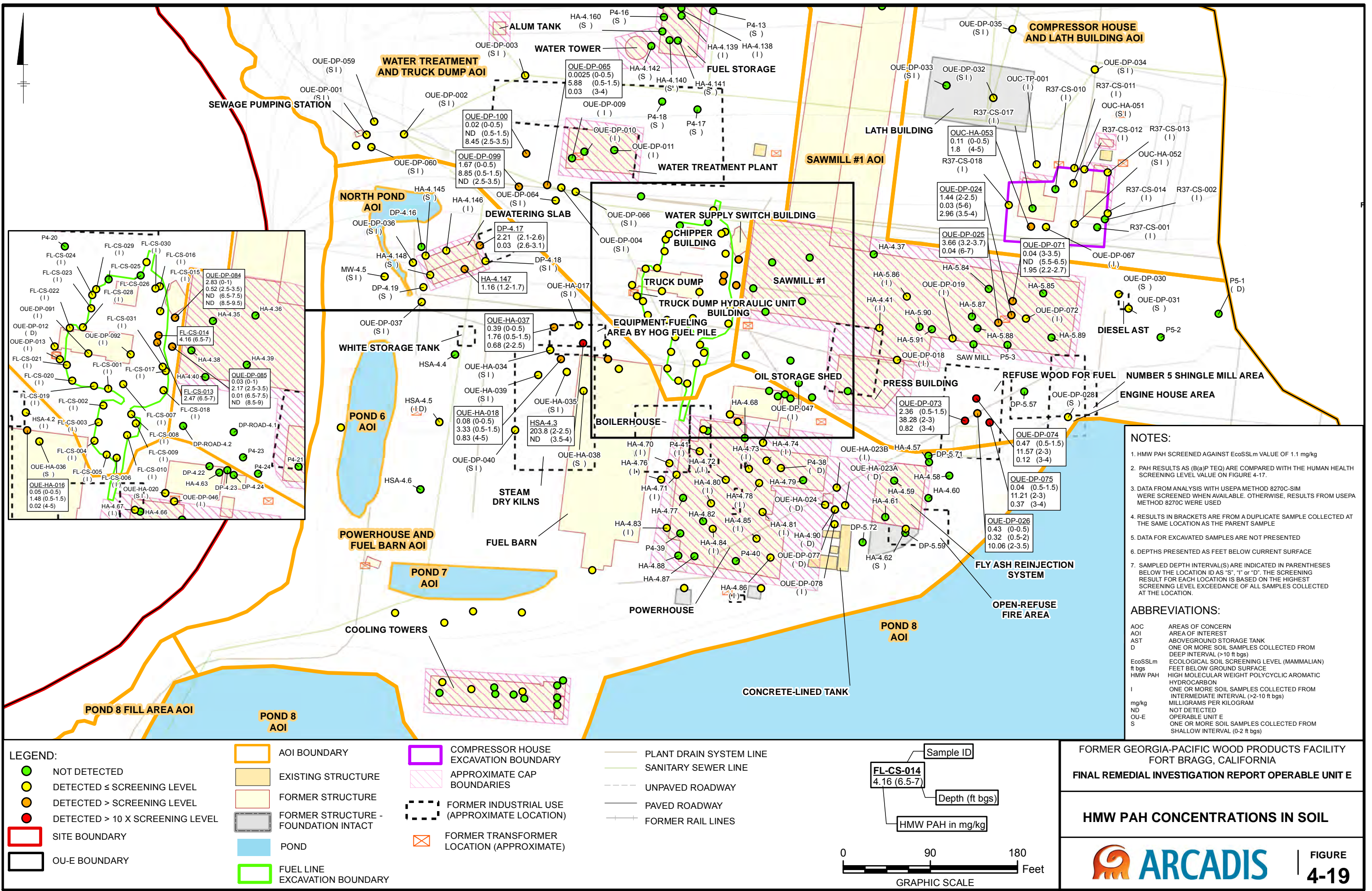




CITY: HR DIV/GROUP: GIS DB: BG  
Project #B0066142.0006.0001  
Path: I:\FortBragg\MXD\OUE\_FINAL\Fig 4-18b 2378TCDD\_TEQ\_Soil\_Power\_FuelBarn\_AOI.mxd Date: 1/22/2013 Time: 8:47:27 AM







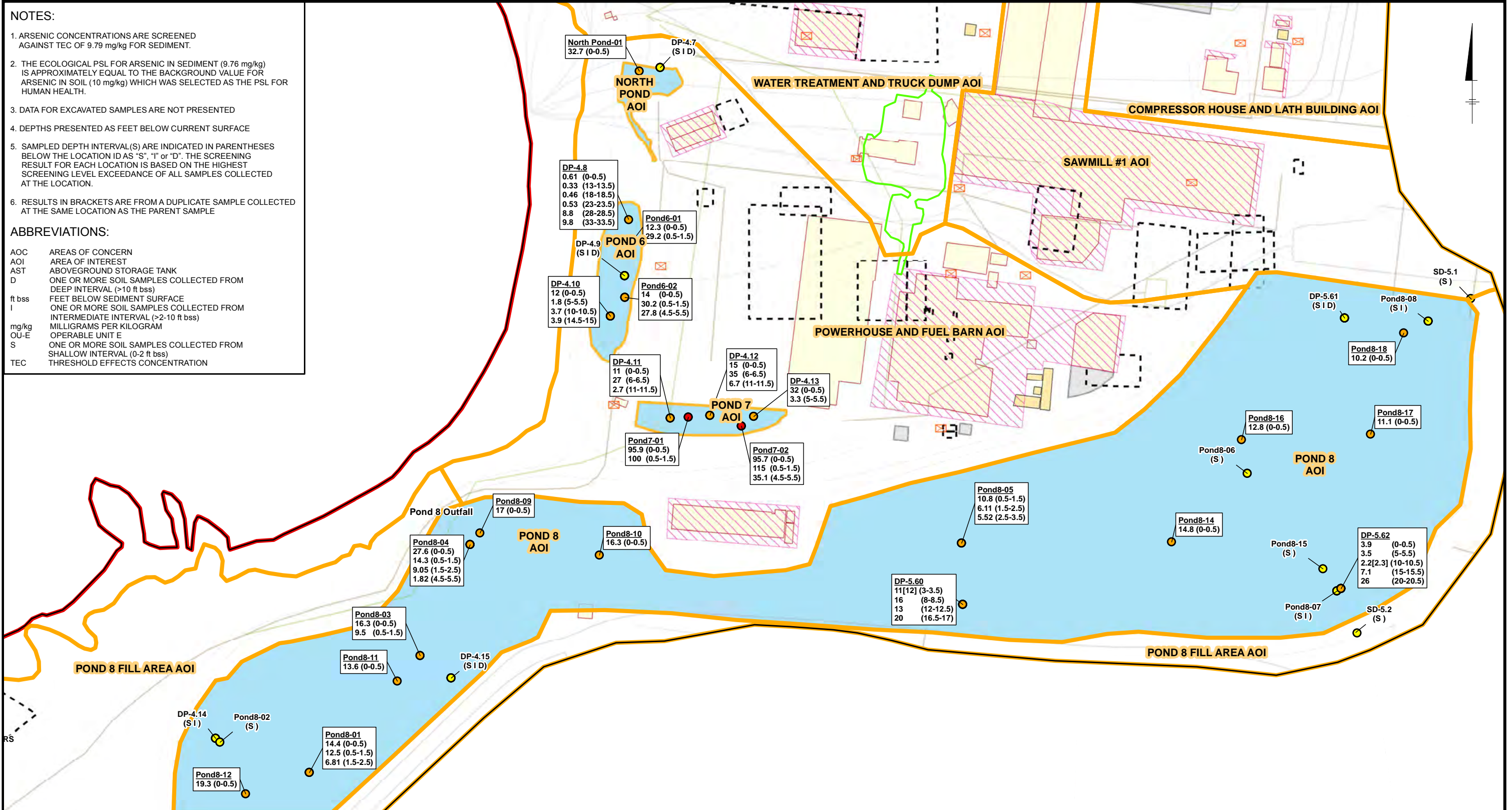


NOTES:

1. ARSENIC CONCENTRATIONS ARE SCREENED AGAINST TEC OF 9.79 mg/kg FOR SEDIMENT.
2. THE ECOLOGICAL PSL FOR ARSENIC IN SEDIMENT (9.76 mg/kg) IS APPROXIMATELY EQUAL TO THE BACKGROUND VALUE FOR ARSENIC IN SOIL (10 mg/kg) WHICH WAS SELECTED AS THE PSL FOR HUMAN HEALTH.
3. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
4. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
5. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.
6. RESULTS IN BRACKETS ARE FROM A DUPLICATE SAMPLE COLLECTED AT THE SAME LOCATION AS THE PARENT SAMPLE

ABBREVIATIONS:

AOC	AREAS OF CONCERN
AOI	AREA OF INTEREST
AST	ABOVEGROUND STORAGE TANK
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
mg/kg	MILLIGRAMS PER KILOGRAM
OU-E	OPERABLE UNIT E
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TEC	THRESHOLD EFFECTS CONCENTRATION



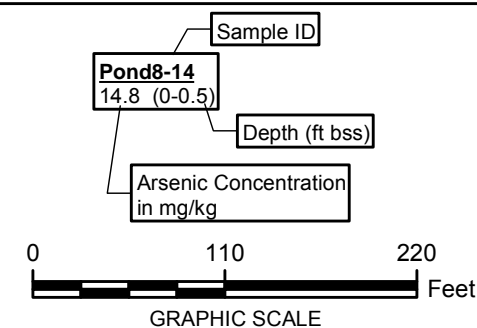
LEGEND:

- NOT DETECTED
- DETECTED ≤ SCREENING LEVEL
- DETECTED > SCREENING LEVEL
- DETECTED > 10 X SCREENING LEVEL

- SITE BOUNDARY
- OU-E BOUNDARY
- AOI BOUNDARY
- EXISTING STRUCTURE
- FORMER STRUCTURE
- FORMER STRUCTURE - FOUNDATION INTACT

- POND
- FUEL LINE
- EXCAVATION BOUNDARY
- APPROXIMATE CAP BOUNDARIES
- FORMER INDUSTRIAL USE (APPROXIMATE LOCATION)

- PLANT DRAIN SYSTEM LINE
- SANITARY SEWER LINE
- UNPAVED ROADWAY
- PAVED ROADWAY
- FORMER RAIL LINES
- FORMER TRANSFORMER LOCATION (APPROXIMATE)



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

ARSENIC CONCENTRATIONS IN SEDIMENT



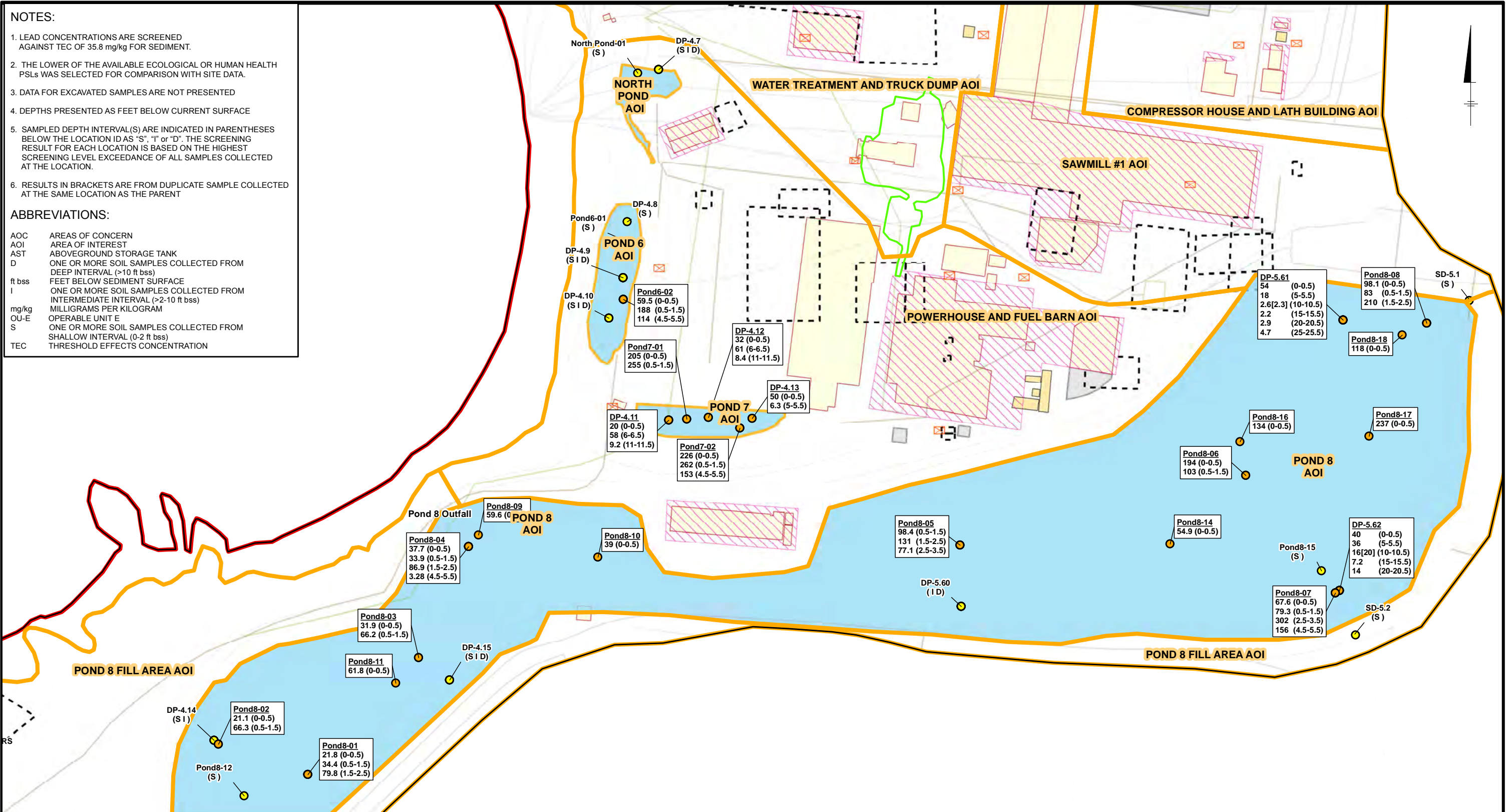
FIGURE  
4-20



- NOTES:
1. LEAD CONCENTRATIONS ARE SCREENED AGAINST TEC OF 35.8 mg/kg FOR SEDIMENT.
  2. THE LOWER OF THE AVAILABLE ECOLOGICAL OR HUMAN HEALTH PSLs WAS SELECTED FOR COMPARISON WITH SITE DATA.
  3. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
  4. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
  5. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.
  6. RESULTS IN BRACKETS ARE FROM DUPLICATE SAMPLE COLLECTED AT THE SAME LOCATION AS THE PARENT

ABBREVIATIONS:

AOC	AREAS OF CONCERN
AOI	AREA OF INTEREST
AST	ABOVEGROUND STORAGE TANK
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
mg/kg	MILLIGRAMS PER KILOGRAM
OU-E	OPERABLE UNIT E
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TEC	THRESHOLD EFFECTS CONCENTRATION



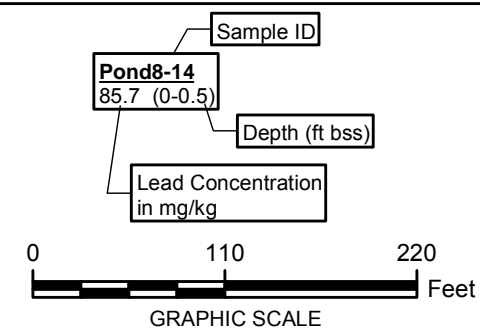
LEGEND:

- NOT DETECTED
- DETECTED ≤ SCREENING LEVEL
- DETECTED > SCREENING LEVEL
- DETECTED > 10 X SCREENING LEVEL

- SITE BOUNDARY
- OU-E BOUNDARY
- AOI BOUNDARY
- EXISTING STRUCTURE
- FORMER STRUCTURE
- FORMER STRUCTURE - FOUNDATION INTACT

- POND
- FUEL LINE
- EXCAVATION BOUNDARY
- APPROXIMATE CAP BOUNDARIES
- FORMER INDUSTRIAL USE (APPROXIMATE LOCATION)

- PLANT DRAIN SYSTEM LINE
- SANITARY SEWER LINE
- UNPAVED ROADWAY
- PAVED ROADWAY
- FORMER RAIL LINES
- FORMER TRANSFORMER LOCATION (APPROXIMATE)



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

LEAD CONCENTRATIONS IN SEDIMENT

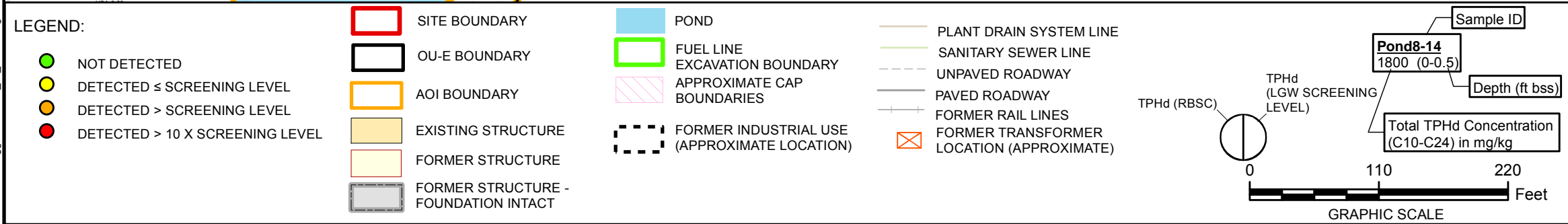
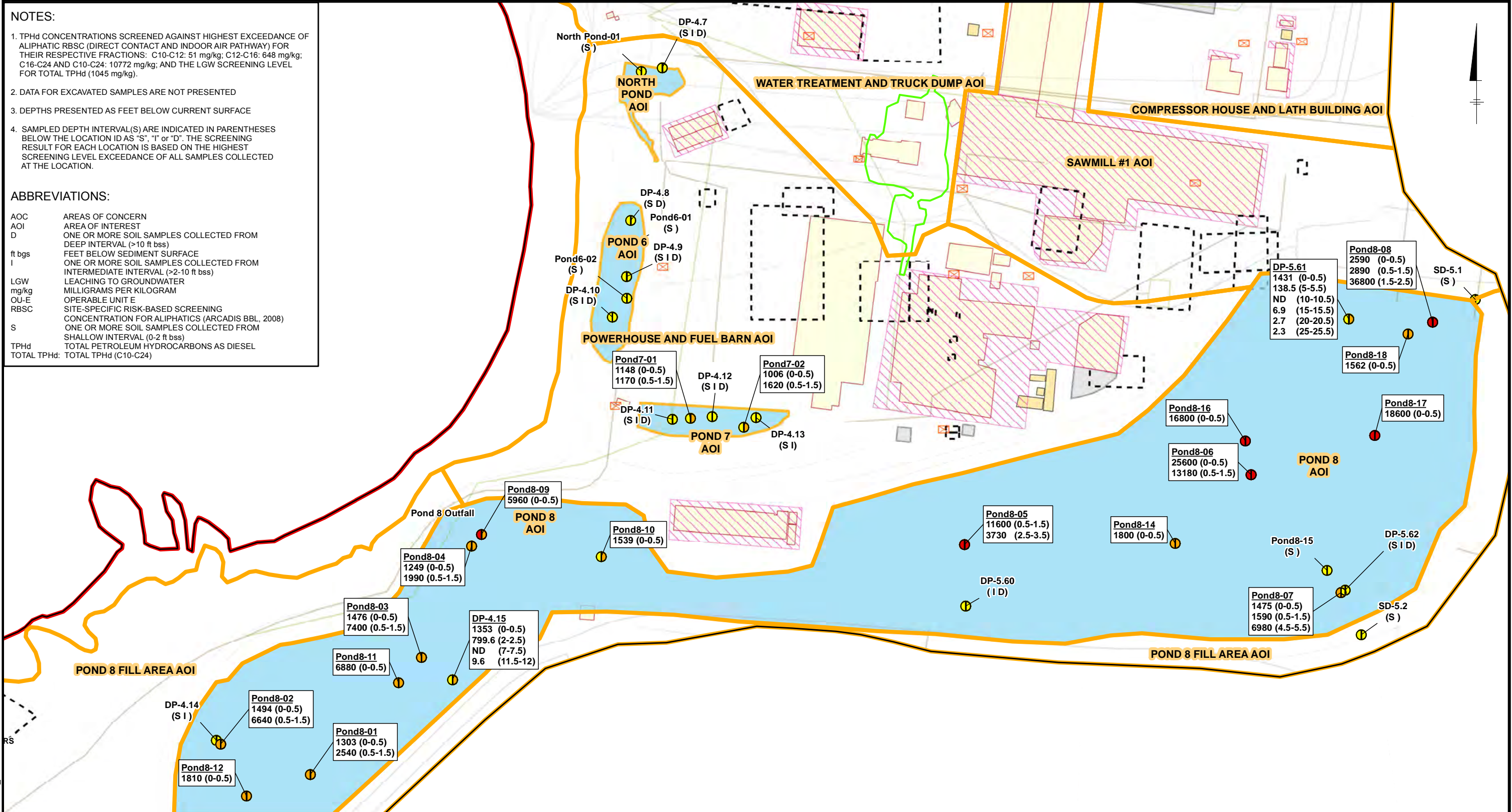


NOTES:

1. TPHd CONCENTRATIONS SCREENED AGAINST HIGHEST EXCEEDANCE OF ALIPHATIC RBSC (DIRECT CONTACT AND INDOOR AIR PATHWAY) FOR THEIR RESPECTIVE FRACTIONS: C10-C12: 51 mg/kg; C12-C16: 648 mg/kg; C16-C24 AND C10-C24: 10772 mg/kg; AND THE LGW SCREENING LEVEL FOR TOTAL TPHd (1045 mg/kg).
2. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
3. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
4. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

ABBREVIATIONS:

AOC AREAS OF CONCERN  
AOI AREA OF INTEREST  
D ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)  
ft bgs FEET BELOW SEDIMENT SURFACE  
I ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)  
LGW LEACHING TO GROUNDWATER  
mg/kg MILLIGRAMS PER KILOGRAM  
OU-E OPERABLE UNIT E  
RBSC SITE-SPECIFIC RISK-BASED SCREENING CONCENTRATION FOR ALIPHATICS (ARCADIS BBL, 2008)  
S ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)  
TPHd TOTAL PETROLEUM HYDROCARBONS AS DIESEL  
TOTAL TPHd: TOTAL TPHd (C10-C24)



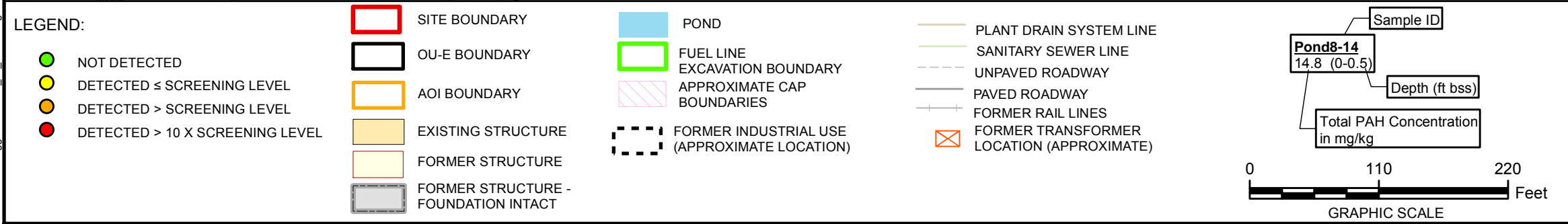
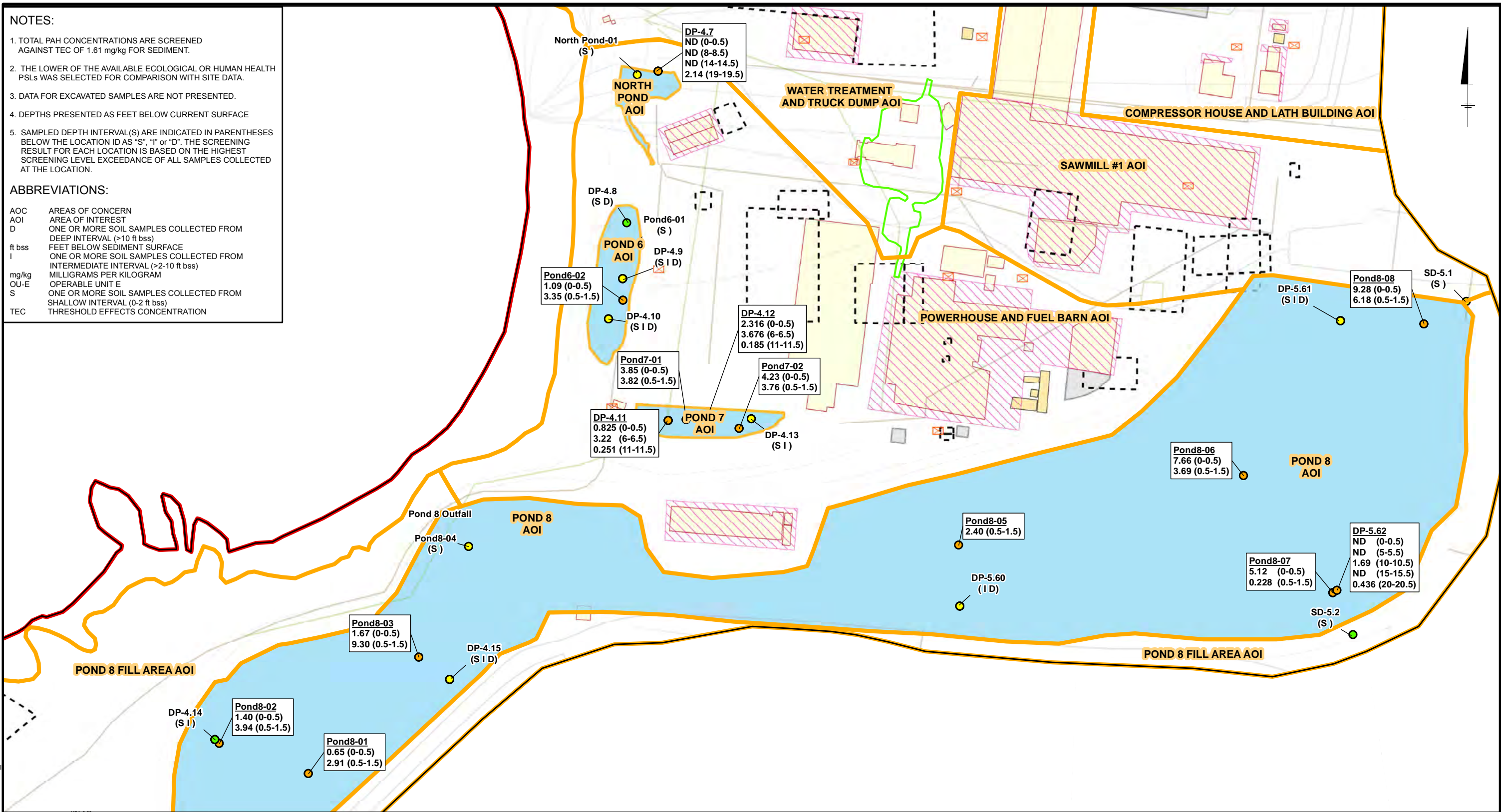


NOTES:

1. TOTAL PAH CONCENTRATIONS ARE SCREENED AGAINST TEC OF 1.61 mg/kg FOR SEDIMENT.
2. THE LOWER OF THE AVAILABLE ECOLOGICAL OR HUMAN HEALTH PSLs WAS SELECTED FOR COMPARISON WITH SITE DATA.
3. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED.
4. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
5. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

ABBREVIATIONS:

AOC	AREAS OF CONCERN
AOI	AREA OF INTEREST
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
mg/kg	MILLIGRAMS PER KILOGRAM
OU-E	OPERABLE UNIT E
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TEC	THRESHOLD EFFECTS CONCENTRATION



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA  
FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

TOTAL PAH CONCENTRATIONS IN SEDIMENT

ARCADIS

FIGURE 4-23



NOTES:

1. 2,3,7,8-TCDD TEQ (HUMAN/MAMMAL) CONCENTRATIONS ARE SCREENED AGAINST CHHSLr OF 4.6 pg/g FOR SEDIMENT.

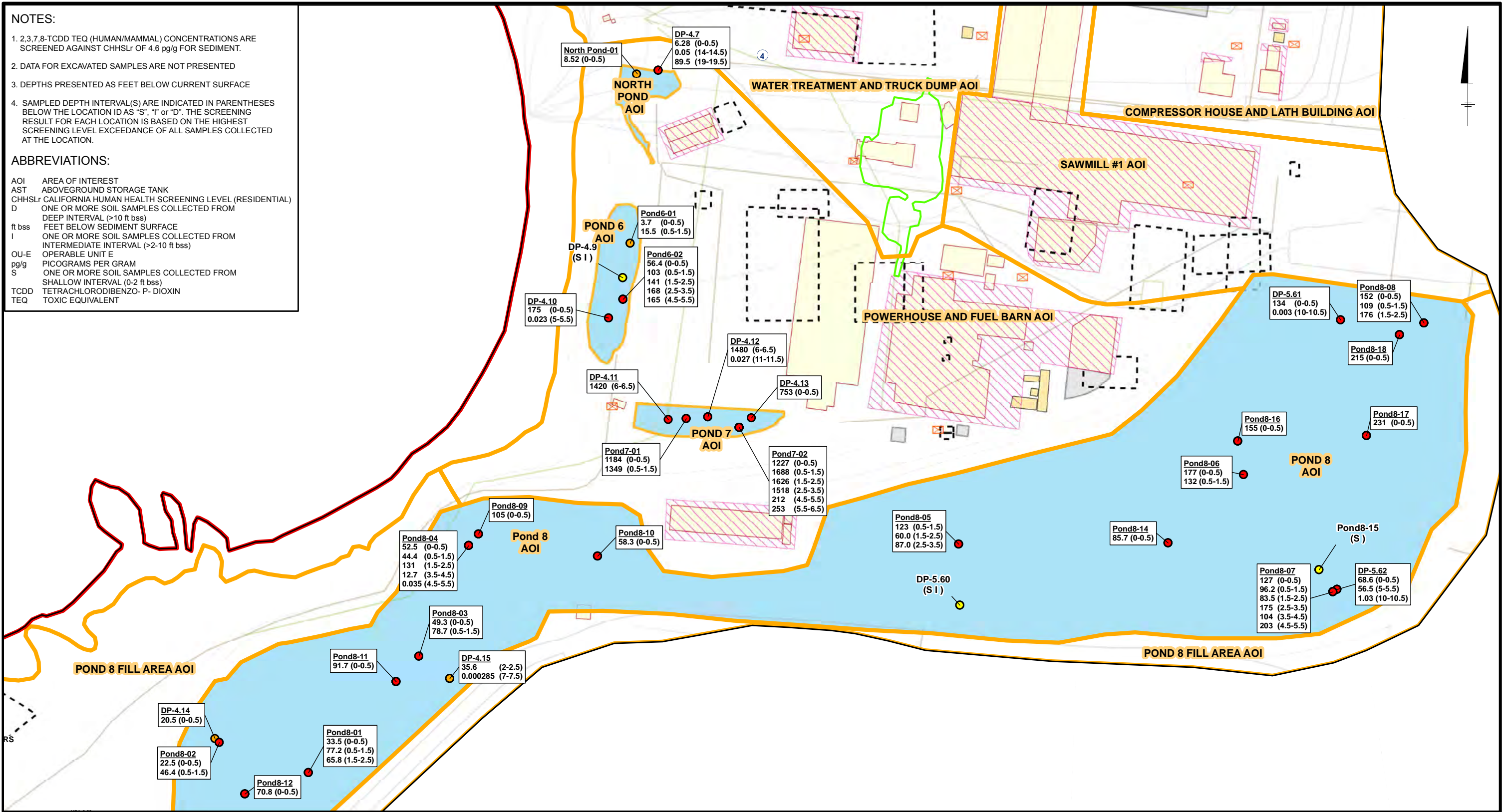
2. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED

3. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE

4. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

ABBREVIATIONS:

AOI AREA OF INTEREST  
AST ABOVEGROUND STORAGE TANK  
CHHSLr CALIFORNIA HUMAN HEALTH SCREENING LEVEL (RESIDENTIAL)  
D ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)  
ft bss FEET BELOW SEDIMENT SURFACE  
I ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)  
OU-E OPERABLE UNIT E  
pg/g PICOGRAMS PER GRAM  
S ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)  
TCDD TETRACHLORODIBENZO- P- DIOXIN  
TEQ TOXIC EQUIVALENT



LEGEND:

●

 NOT DETECTED

●

 DETECTED ≤ SCREENING LEVEL

●

 DETECTED > SCREENING LEVEL

●

 DETECTED > 10 X SCREENING LEVEL

SITE BOUNDARY

OU-E BOUNDARY

AOI BOUNDARY

EXISTING STRUCTURE

FORMER STRUCTURE

FORMER STRUCTURE - FOUNDATION INTACT

POND

FUEL LINE EXCAVATION BOUNDARY

APPROXIMATE CAP BOUNDARIES

FORMER INDUSTRIAL USE (APPROXIMATE LOCATION)

PLANT DRAIN SYSTEM LINE

SANITARY SEWER LINE

UNPAVED ROADWAY

PAVED ROADWAY

FORMER RAIL LINES

FORMER TRANSFORMER LOCATION (APPROXIMATE)

Sample ID

Pond8-14

85.7 (0-0.5)

Depth (ft bss)

2,3,7,8-TCDD TEQ Concentration in pg/g

0

110

220

Feet

GRAPHIC SCALE

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA

FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

2,3,7,8-TCDD TEQ (HUMAN/MAMMAL) CONCENTRATIONS  
IN SEDIMENT COMPARED WITH HUMAN HEALTH PSL

FIGURE  
4-24a



1. 2,3,7,8-TCDD TEQ (FISH) CONCENTRATIONS ARE SCREENED AGAINST CCME OF 21.5 pg/g FOR SEDIMENT.
2. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
3. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
4. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" OR "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

AOC	AREAS OF CONCERN
AOI	AREA OF INTEREST
AST	ABOVEGROUND STORAGE TANK
CCME	CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT INTERIM FRESHWATER SEDIMENT QUALITY GUIDELINES AND PROBABLE EFFECTS LEVELS
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
OU-E	OPERABLE UNIT E
pg/g	PICOGRAMS PER GRAM
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TCDD	TETRACHLORODIBENZO- P- DIOXIN
TEQ	TOXIC EQUIVALENT

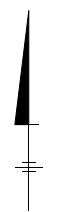


Diagram illustrating the layout of a data label with callouts for specific fields:

- Sample ID**: DP-4.15
- Depth (ft bss)**: 26 (2-2.5) ND (7-7.5)
- 2,3,7,8-TCDD TEQ Concentration in pg/g**: 2,3,7,8-TCDD TEQ Concentration in pg/g

**GRAPHIC SCALE**: 0, 110, 220 Feet

**FIGURE**  
**4-24b**





**NOTES:**

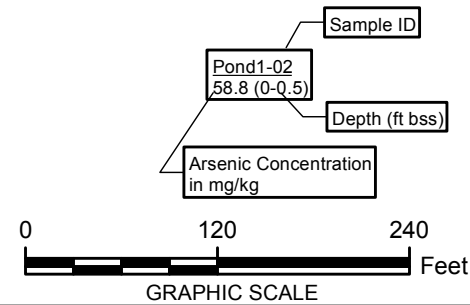
1. ARSENIC CONCENTRATIONS ARE SCREENED AGAINST TEC OF 9.79 mg/kg FOR SEDIMENT.
2. THE ECOLOGICAL PSL FOR ARSENIC IN SEDIMENT (9.76 mg/kg) IS APPROXIMATELY EQUAL TO THE BACKGROUND VALUE FOR ARSENIC IN SOIL (10 mg/kg) WHICH WAS SELECTED AS THE PSL FOR HUMAN HEALTH.
3. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
4. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
5. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

**ABBREVIATIONS:**

AOI	AREA OF INTEREST
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
mg/kg	MILLIGRAM PER KILOGRAM
OU-E	OPERABLE UNIT E
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TEC	THRESHOLD EFFECTS CONCENTRATION

**LEGEND:**

	NOT DETECTED		EXISTING STRUCTURE		PLANT DRAIN SYSTEM LINE
	DETECTED ≤ SCREENING LEVEL		FORMER STRUCTURE		SANITARY SEWER LINE
	DETECTED > SCREENING LEVEL		OU-E BOUNDARY		UNPAVED ROADWAY
	DETECTED > 10 X SCREENING LEVEL		POND		PAVED ROADWAY
			AREA OF INTEREST		FORMER RAIL LINES



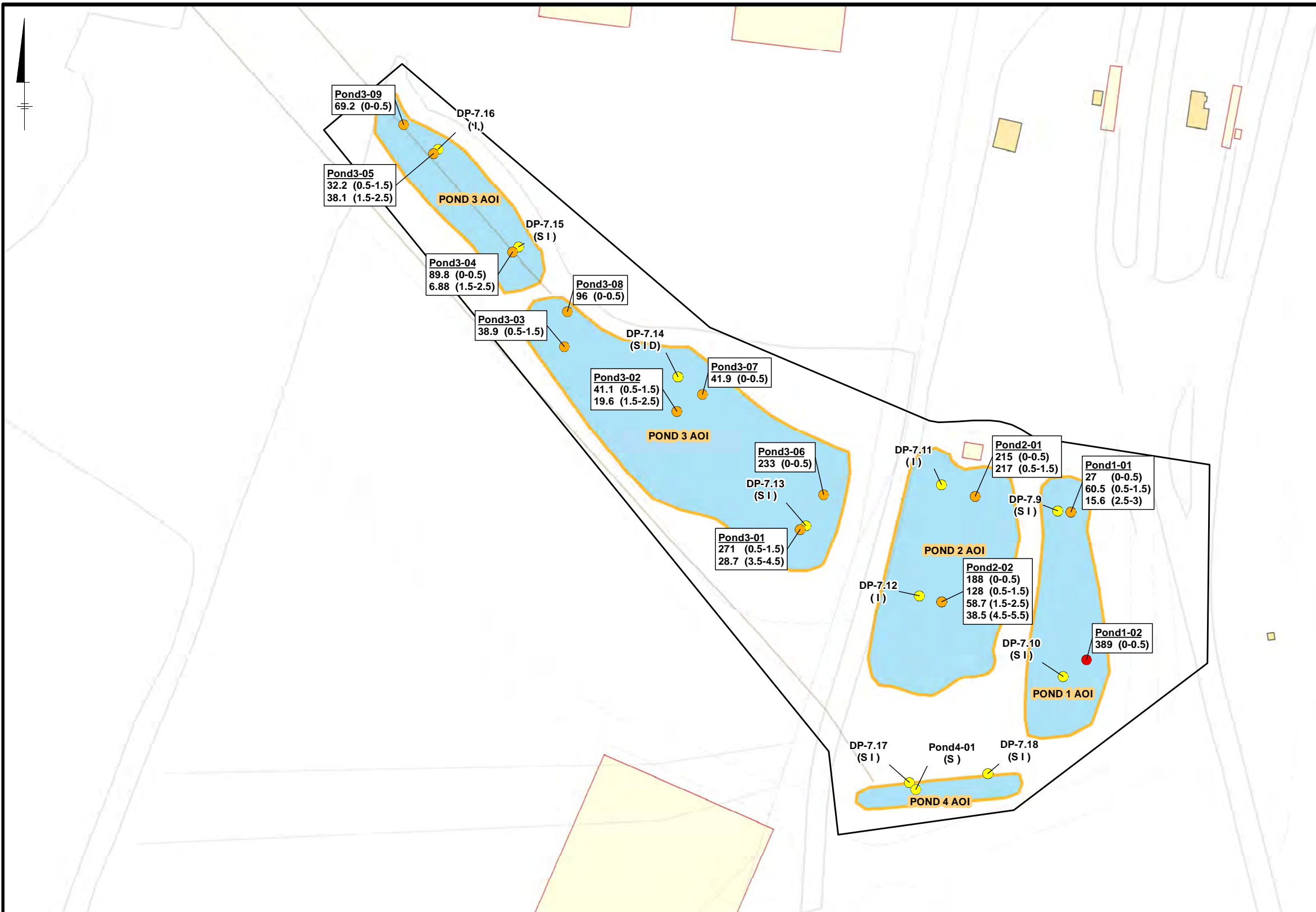
FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA

**FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E**

**SOUTHERN PONDS -  
ARSENIC CONCENTRATIONS IN SEDIMENT**

**FIGURE  
4-25**





**NOTES:**

1. LEAD CONCENTRATIONS ARE SCREENED AGAINST TEC OF 35.8 mg/kg FOR SEDIMENT.
2. THE LOWER OF THE AVAILABLE ECOLOGICAL OR HUMAN HEALTH PSLs WAS SELECTED FOR COMPARISON WITH SITE DATA.
3. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
4. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
5. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

**ABBREVIATIONS:**

AOI	AREA OF INTEREST
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
mg/kg	MILLIGRAM PER KILOGRAM
OU-E	OPERABLE UNIT E
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TEC	THRESHOLD EFFECTS CONCENTRATION

**LEGEND:**

NOT DETECTED

DETECTED ≤ SCREENING LEVEL

DETECTED > SCREENING LEVEL

DETECTED > 10 X SCREENING LEVEL

EXISTING STRUCTURE

FORMER STRUCTURE

OU-E BOUNDARY

POND

AREA OF INTEREST

PLANT DRAIN SYSTEM LINE

SANITARY SEWER LINE

UNPAVED ROADWAY

PAVED ROADWAY

FORMER RAIL LINES

Sample ID

Pond1-02  
389 (0-0.5)

Depth (ft bss)

Lead Concentration  
in mg/kg

0

120

240

Feet

GRAPHIC SCALE

FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA

**FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E**

**SOUTHERN PONDS -  
LEAD CONCENTRATIONS IN SEDIMENT**


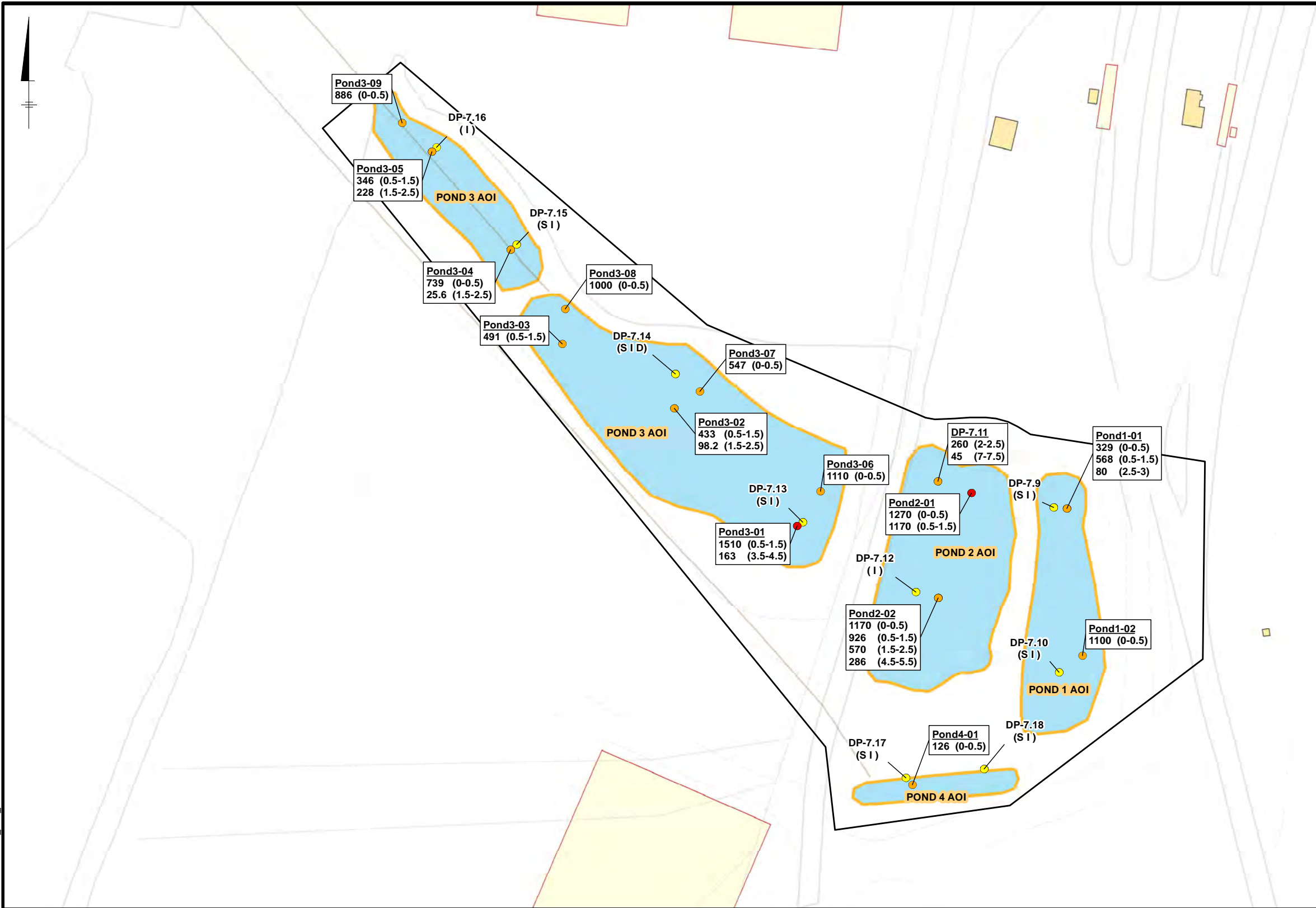


FIGURE  
**4-26**





**NOTES:**

1. ZINC CONCENTRATIONS ARE SCREENED AGAINST TEC OF 121 mg/kg FOR SEDIMENT.
2. THE LOWER OF THE AVAILABLE ECOLOGICAL OR HUMAN HEALTH PSLs WAS SELECTED FOR COMPARISON WITH SITE DATA.
3. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
4. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
5. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

**ABBREVIATIONS:**

AOI	AREA OF INTEREST
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
mg/kg	MILLIGRAM PER KILOGRAM
OU-E	OPERABLE UNIT E
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TEC	THRESHOLD EFFECTS CONCENTRATION

**LEGEND:**

	NOT DETECTED		EXISTING STRUCTURE		PLANT DRAIN SYSTEM LINE
	DETECTED ≤ SCREENING LEVEL		FORMER STRUCTURE		SANITARY SEWER LINE
	DETECTED > SCREENING LEVEL		OU-E BOUNDARY		UNPAVED ROADWAY
	DETECTED > 10 X SCREENING LEVEL		POND		PAVED ROADWAY
			AREA OF INTEREST		FORMER RAIL LINES

Sample ID

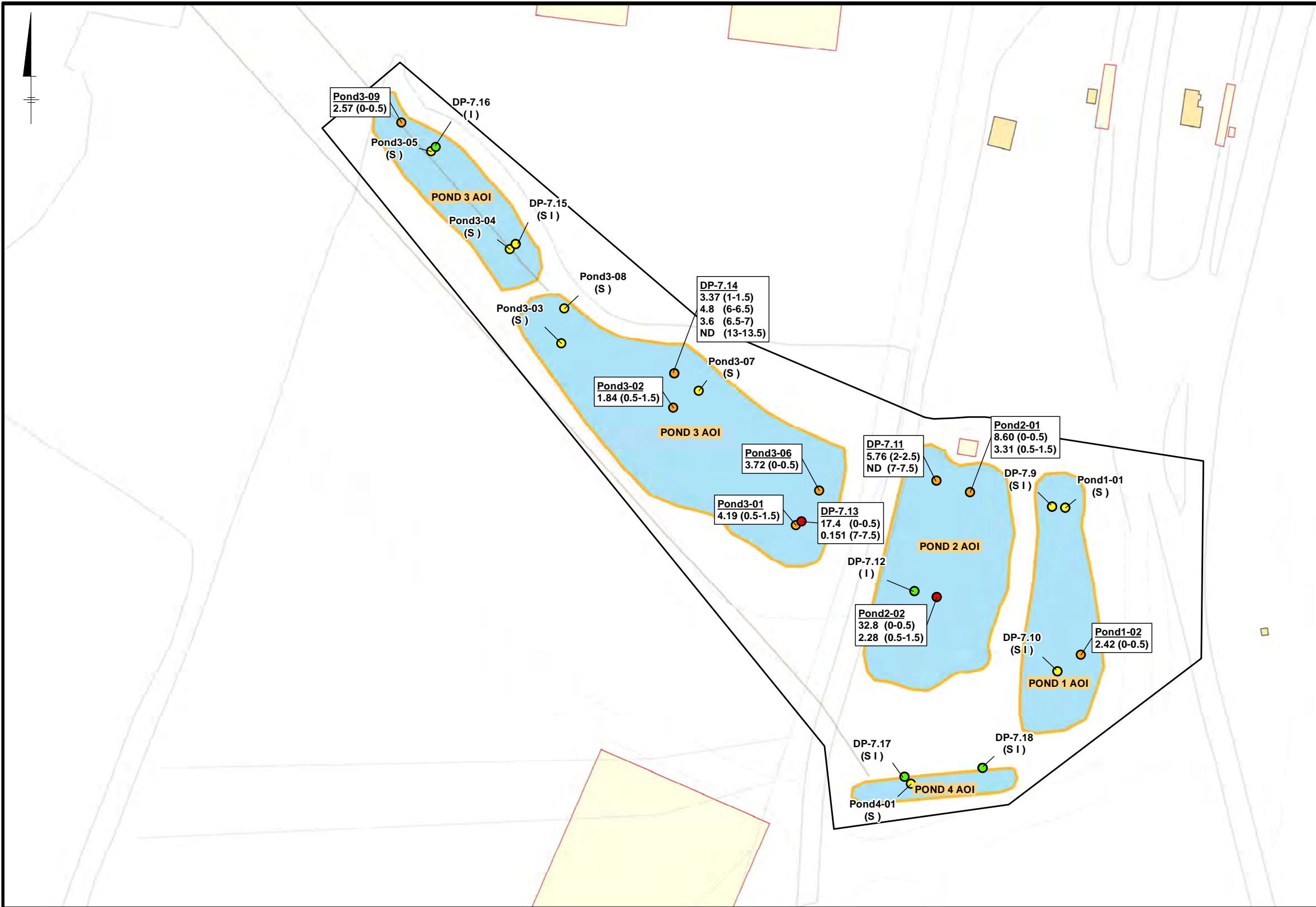
Pond1-02  
1100 (0-0.5)

Depth (ft bss)

Zinc Concentration  
in mg/kg



CITY: Highlands Ranch DIV/GROUP: IM GIS DB: Brianna Griffith  
Project #B0066142.0006.0001  
Path: I:\FortBragg\WX\DOUE\_RI\_FINAL\Fig 4-28 SouthernPonds\_totalPAH\_Sediment.mxd Date: 1/22/2013 Time: 8:55:09 AM



**NOTES:**

1. TOTAL PAH CONCENTRATIONS ARE SCREENED AGAINST TEC OF 1.61 mg/kg FOR SEDIMENT.
2. THE LOWER OF THE AVAILABLE ECOLOGICAL OR HUMAN HEALTH PSLs WAS SELECTED FOR COMPARISON WITH SITE DATA.
3. DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
4. DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
5. SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

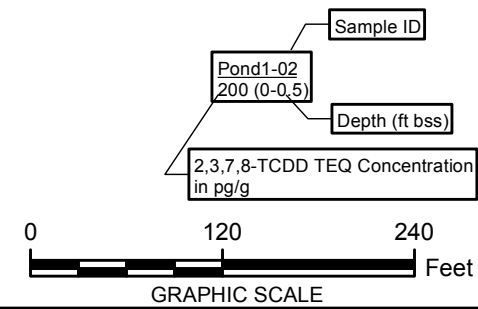
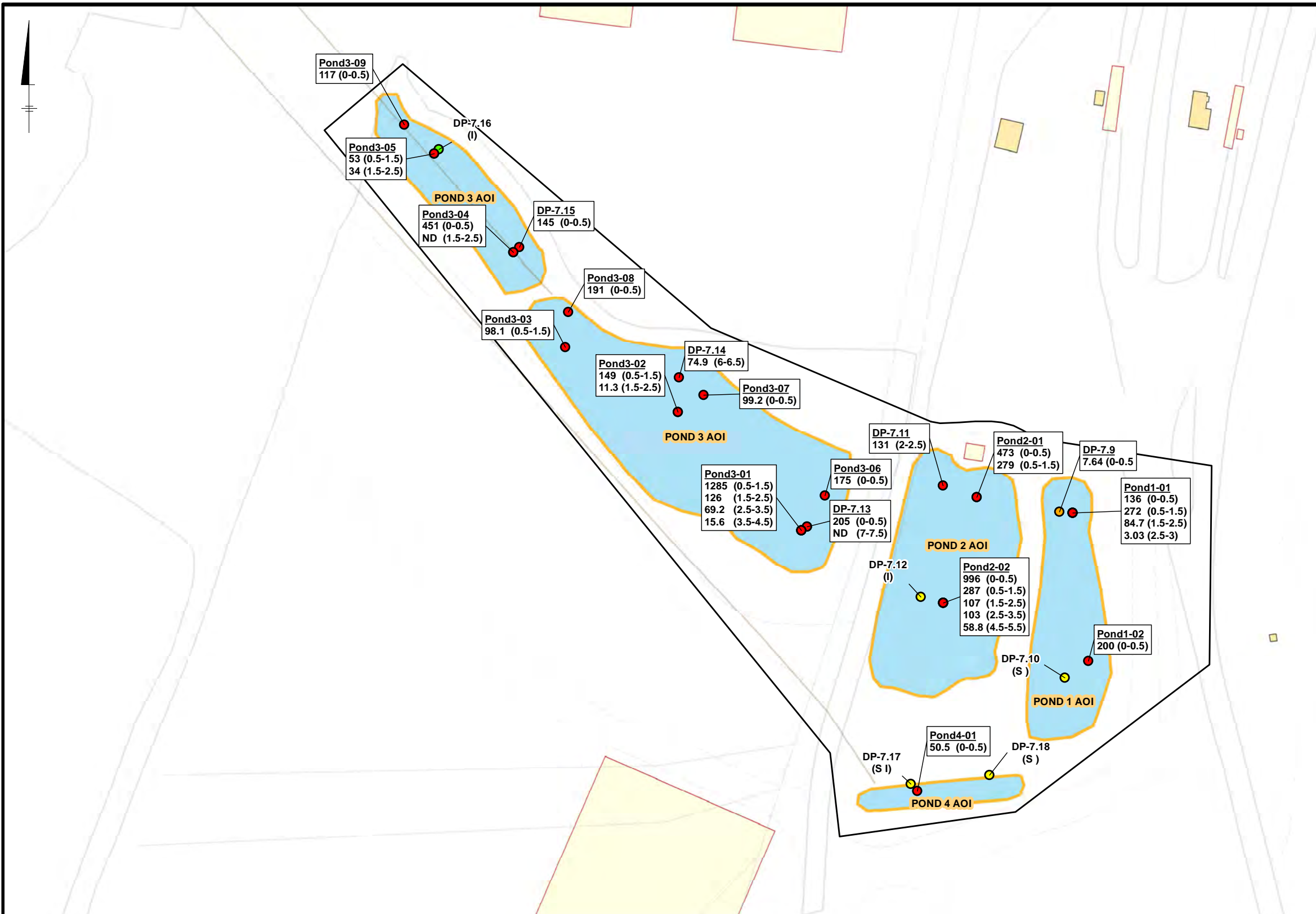
**ABBREVIATIONS:**

AOI	AREA OF INTERST
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
mg/kg	MILLIGRAM PER KILOGRAM
OU-E	OPERABLE UNIT E
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TEC	THRESHOLD EFFECTS CONCENTRATION

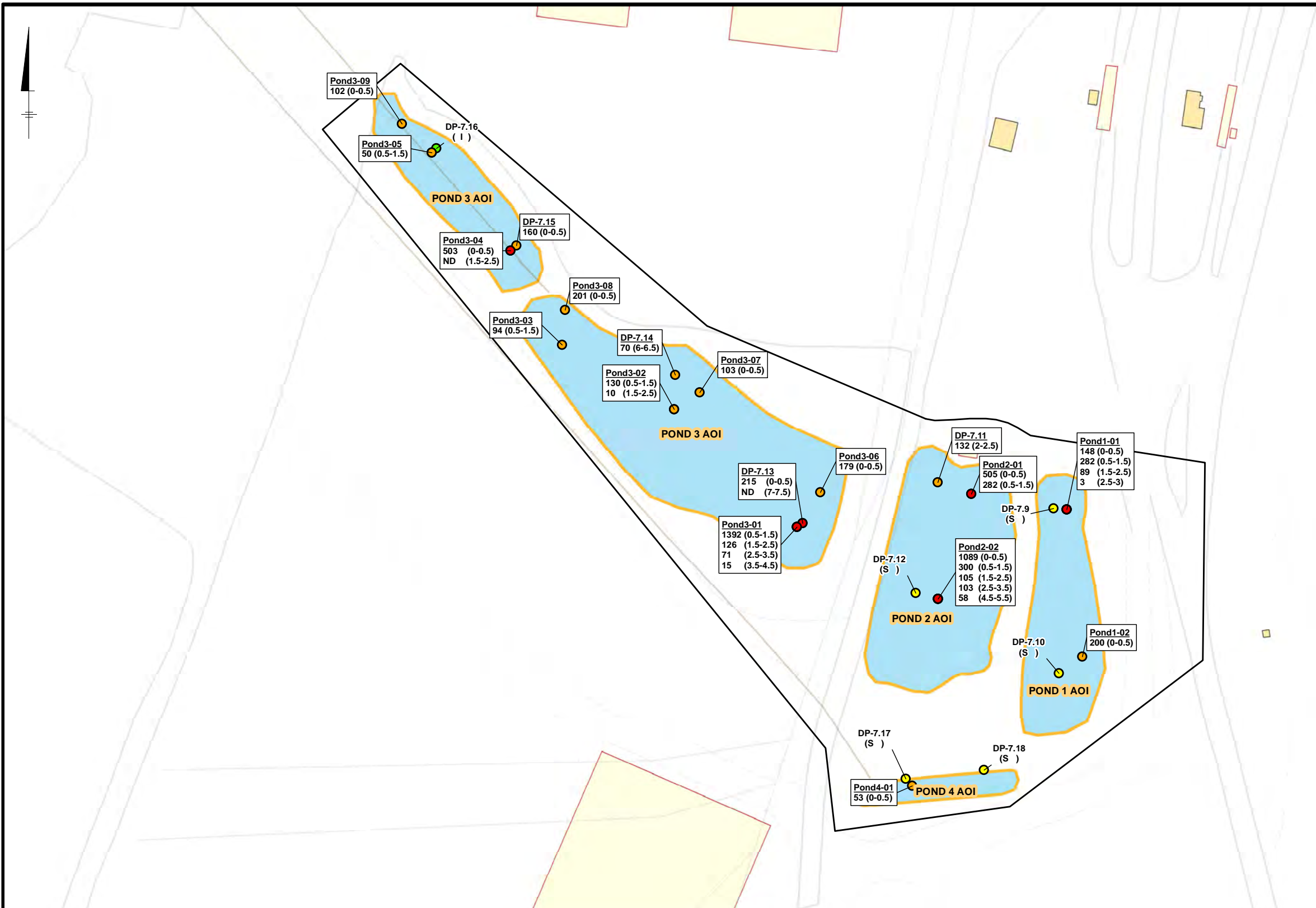
**LEGEND:**

	NOT DETECTED		EXISTING STRUCTURE		PLANT DRAIN SYSTEM LINE
	DETECTED ≤ SCREENING LEVEL		FORMER STRUCTURE		SANITARY SEWER LINE
	DETECTED > SCREENING LEVEL		OU-E BOUNDARY		UNPAVED ROADWAY
	DETECTED > 10 X SCREENING LEVEL		POND		PAVED ROADWAY
			AREA OF INTEREST		FORMER RAIL LINES









**NOTES:**

- 2,3,7,8-TCDD TEQ (FISH) CONCENTRATIONS ARE SCREENED AGAINST CCME of 21.5 pg/g FOR SEDIMENT.
- DATA FOR EXCAVATED SAMPLES ARE NOT PRESENTED
- DEPTHS PRESENTED AS FEET BELOW CURRENT SURFACE
- SAMPLED DEPTH INTERVAL(S) ARE INDICATED IN PARENTHESES BELOW THE LOCATION ID AS "S", "I" or "D". THE SCREENING RESULT FOR EACH LOCATION IS BASED ON THE HIGHEST SCREENING LEVEL EXCEEDANCE OF ALL SAMPLES COLLECTED AT THE LOCATION.

**ABBREVIATIONS:**

AOI	AREA OF INTEREST
D	ONE OR MORE SOIL SAMPLES COLLECTED FROM DEEP INTERVAL (>10 ft bss)
ft bss	FEET BELOW SEDIMENT SURFACE
I	ONE OR MORE SOIL SAMPLES COLLECTED FROM INTERMEDIATE INTERVAL (>2-10 ft bss)
pg/g	PICOGRAMS PER GRAM
OU-E	OPERABLE UNIT E
S	ONE OR MORE SOIL SAMPLES COLLECTED FROM SHALLOW INTERVAL (0-2 ft bss)
TCDD	TETRACHLORODIBENZO- P- DIOXIN
TEQ	TOXIC EQUIVALENT

**LEGEND:**

	NOT DETECTED		EXISTING STRUCTURE		PLANT DRAIN SYSTEM LINE
	DETECTED ≤ SCREENING LEVEL		FORMER STRUCTURE		SANITARY SEWER LINE
	DETECTED > SCREENING LEVEL		OU-E BOUNDARY		UNPAVED ROADWAY
	DETECTED > 10 X SCREENING LEVEL		POND		PAVED ROADWAY
			AREA OF INTEREST		FORMER RAIL LINES

Sample ID

Pond4-01  
53.2 (0-0.5)

Depth (ft bss)

2,3,7,8-TCDD TEQ Concentration  
in pg/g



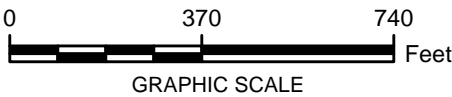


LEGEND:

- SITE BOUNDARY
- AOI BOUNDARY
- OU-E BOUNDARY
- PONDS
- AREA OF CONCERN BOUNDARY

AREAS OF CONCERN:

- OUE LOWLAND
- SOUTHERN PONDS
- POND 5
- PONDS 6 & 7 AND NORTH POND
- POND 8
- POND 9



FORMER GEORGIA-PACIFIC WOOD PRODUCTS FACILITY  
FORT BRAGG, CALIFORNIA

FINAL REMEDIAL INVESTIGATION REPORT OPERABLE UNIT E

AREAS OF CONCERN



FIGURE  
5-1