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NS MAYPORT
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REMEDIAL ACTION ALTERNATIVES WAIVER REQUEST FOR SITE 425 NS MAYPORT FL

2/27/2013

NAVFAC SOUTHERN

Remedial Alternatives Analysis Waiver Request
Site 425
Naval Station Mayport
Jacksonville, Florida

This Remedial Alternative Analysis (RAA) waiver request was prepared for the United States Navy, Naval Facilities Engineering Command Southeast (NAVFAC SE) under Contract Task Order JM33 for the Comprehensive Long-term Environmental Action Navy Contract Number N62470-08-D-1001. The RAA waiver is being requested so Remedial Action Plan Approval (RAPA)/Land Use Control Implementation Plan (LUCIP) may be submitted to the Florida Department of Environmental Protection (FDEP).

SITE LOCATION

Naval Station (NAVSTA) Mayport is located within the corporate limits of the city of Jacksonville, Duval County, Florida, approximately 12 miles to the northeast of downtown Jacksonville and adjacent to the town of Mayport. A Regional Area Map is provided as Figure 1. NAVSTA Mayport is located on the northern end of a peninsula bound by the Atlantic Ocean to the east and the St. Johns River to the north. NAVSTA Mayport occupies the entire northern part of the peninsula except for the town of Mayport, which is located to the west between the Station and the St. Johns River.

SITE DESCRIPTION

Site 425 includes Building 425, an operational hotel located in the northeastern section of NAVSTA Mayport as shown on Figure 2. The source area for Site 425 is a flat, grass-covered area located in the northwestern corner of the southern building. A Site Plan is provided as Figure 3.

SITE HISTORY AND INVESTIGATIVE SUMMARY

A release occurred when a faulty valve in a day tank malfunctioned resulting in a 700 gallon fuel oil that sheet flowed along the wall of Building 425. An initial soil excavation (emergency response) removed the majority of the impacted soil. Petroleum impacted soil that remained after the excavation was left because of the proximity to the footers of the Building 425. Figure 3a shows the limits of excavation and the soil left in place.

The Site Assessment Report (SAR) in December 2000 identified the investigation of soil and groundwater at Site 425. Soil vapor samples were screened using an OVA, and soil and groundwater samples were analyzed by both a mobile laboratory and a fixed-base laboratory. The three soil sample results did not exceed the FDEP Soil Cleanup Target Levels (SCTLs). Shallow monitoring wells MPT-425-MW01S through MPT-425-MW04S and deep monitoring well MPT-425-MW05D were installed during the site assessment. Monitoring well MPT-425-MW04S was not sampled due to the presence of 2 inches of free product at the source area, but surrounding groundwater analytical results were less than FDEP Groundwater Cleanup Target Levels (GCTLs) (see Table 1).

A RAP was submitted to FDEP in July 2001 for removal of free product only, not the impacted soils and groundwater. Aggressive fluid vapor recovery of free-phase petroleum upon the surficial aquifer was conducted in area of the release on July 17, 2002, and two subsequent recovery actions were completed on August 19, 2002, and September 23, 2002.

The NAVSTA Mayport Environmental Tier I Partnering Team (Partnering Team) decided that additional investigation of the source area was warranted due to continued presence of free product in monitoring well MPT-425-MW04S. Ten piezometers were installed in October 2002 to evaluate free product. The piezometers and monitoring well MPT-425-MW04S were gauged between October and November 2002 and February and March 2003. During each event, free product was recorded in monitoring well

MPT-425-MW04S. Free product was present in piezometer PZ-10 during the February and March 2003 measurements. Figure 3b shows the piezometer locations, and Table 2 (Table 3-1 from the Remedial Action Report) shows the free product thicknesses recorded from July 2002 through March 2003.

A free product recovery system was installed in August 2005. The 2-inch diameter recovery well, MPT-425-MW06S, was installed on January 12, 2006, to replace PZ-10. The recovery system was not successful in removing the intermittently-appearing free product and was subsequently removed. Petroleum sorbent booms (or socks) were placed in monitoring wells MPT-425-MW04S and MPT-425-MW06S in April 2007, to be changed monthly. Free product thicknesses and frequencies of occurrence have decreased significantly since 2007. Free product was last observed on February 17, 2011, and approximately 500 milliliters (mL) of free product was removed from monitoring well MPT-425-MW06S via a petroleum sorbent sock. Free product has only been observed in monitoring wells MPT-425-MW04S and MPT-425-MW06S and, subsequently, these are the only wells used to document the presence or absence of free product. The most recent measurement for free product was conducted in June 2013. Dates, thicknesses, and volumes of free product removed from monitoring wells MPT-425-MW04S and MPT-425-MW06S are provided in Table 3 (Annual Groundwater Monitoring Report Table 4).

Groundwater sampling has been conducted at Site 425 from March 2006 through 2013. Groundwater was monitored semiannually from March 2006 to December 2010 for volatile organic compounds, polynuclear aromatic hydrocarbons, and total recoverable petroleum hydrocarbons (TRPH). The site was monitored on an annual basis beginning in 2011. BIOX® was injected on March 15, 2012, and sampling frequency increased to monitor the efficacy. Groundwater was sampled quarterly for permit-required parameters and petroleum constituents from March 2012 to January 2013. Only the sample result from monitoring well MPT-425-MW04S exceeded the FDEP GCTLs for TRPH at 12 milligrams per liter (mg/L) in January 2013 (GCTL is 5 mg/L). Iron exceeded the Natural Attenuation Default Source Concentration (NADSC) levels in 2012, but did not exceed in January 2013. Table 4 (Table 2 of the 4th BIOX® Report) shows the analytical results.

Historical groundwater flow is generally east toward the Atlantic Ocean with flow components to the southeast. Groundwater contour maps from 2012 to 2013 are shown in Figure 4 (Four figures of groundwater contour readings).

SUMMARY

Petroleum impacted soils were mostly removed during the emergency response soil excavation effort but impacted soils that support the footers of Building 425 were left at approximately 3-4 feet below land surface (bls). Clean backfill used to replace excavated soil was then impacted at the smear zone level approximately 8 feet bls due to the presence of free product. Although the free product has not been present for two years it is safe to assume the free product created a smear zone around monitoring wells MW-04S and MW-06S.

The Partnering Team decision was made to discontinue groundwater monitoring, leave the soil in place, and administratively apply Chapter 62-770 of the Florida Administrative Code (FAC), Risk Management Option (RMO) IIA as the path forward. RMO II requires Land Use Controls (LUCs), which restricts use both soil and groundwater below 3 ft bls. Impacted soils do not appear to be affecting groundwater and any soil removal effort would be more cost effective if and when the Navy intends to do large scale work such as removing or renovating Building 425.

Site LUCs restrict the site to nonresidential use only. Nonresidential land use restrictions prohibit residential or residential-like uses including, but not limited to, any form of housing; childcare facilities; any kind of school including preschools, elementary schools, and secondary schools; playgrounds; and adult convalescent and nursing care facilities. Soil LUCs prohibit the excavation and uncontrolled removal of soil/sediment unless prior written approval is obtained from the FDEP.

Groundwater LUCs prevent exposure to contaminated groundwater including, but not limited to dewatering, irrigation, heating/cooling purposes, and industrial processes, unless prior written approval is obtained from the FDEP.

CONCLUSIONS

Multiple remedial actions, groundwater sample events, and free product removal efforts have been conducted at Site 425. The following remedial action is recommended:

- The soils at Site 425 be granted No Further Action (NFA) status with conditions. This request is made for soils only according to Risk Based Corrective Action (RBCA) Risk Management Option (RMO) Level II per Chapter 62-780.680(2)(b)1.b., Florida Administrative Code (F.A.C.), which is for LUCs. Currently, more than 3 feet of clean backfill has been installed at the site, preventing site user exposure to contaminated soils.

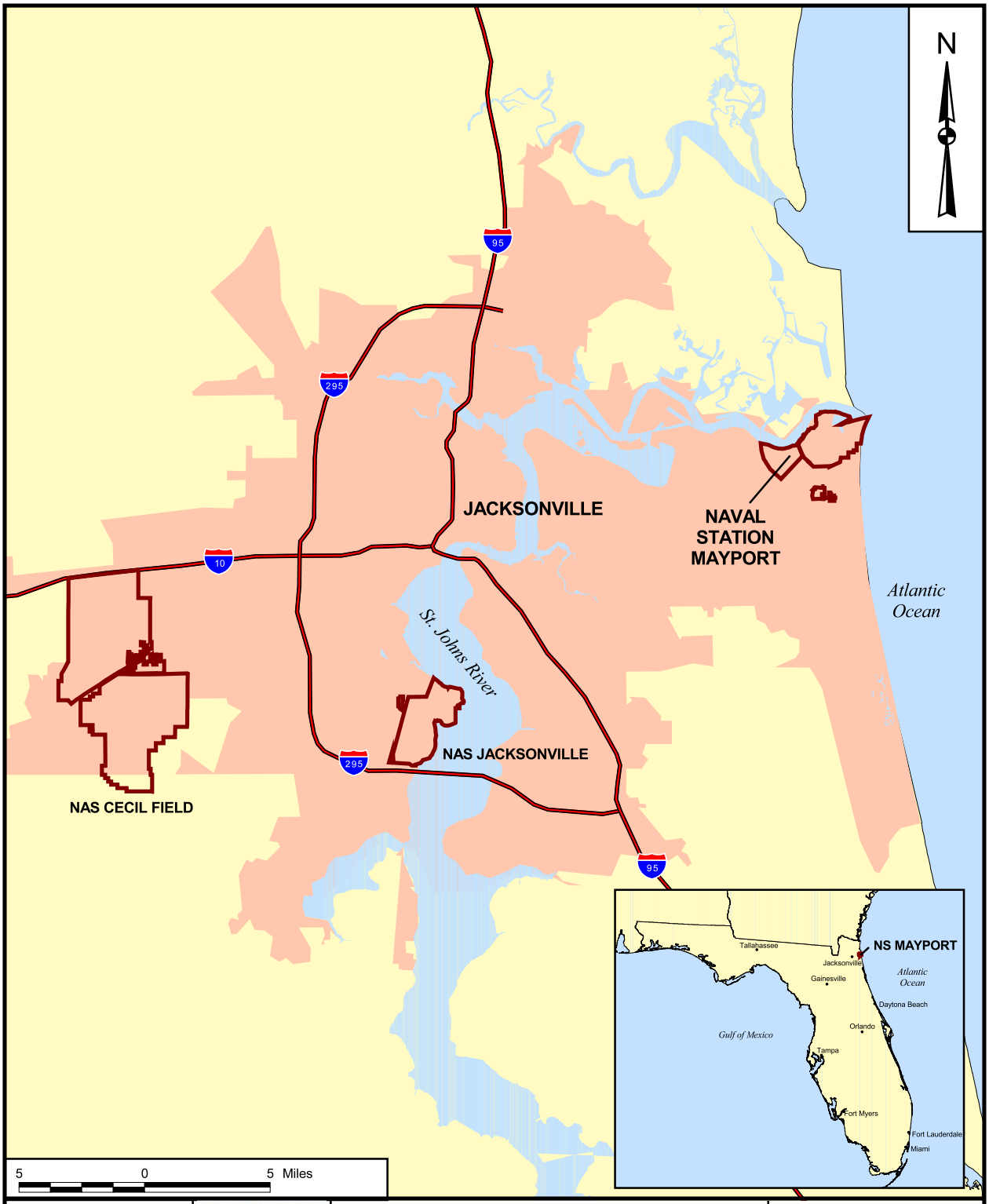
- The groundwater at Site 425 be granted NFA status with conditions. This request is made for groundwater only according to RBCA RMO Level II per Chapter 62-780.680(2)(c)4., F.A.C, which is for LUCs. The groundwater impacts are limited to the vicinity, mobility is static, and are reducing in concentrations.

The free product at Site 425 be granted NFA status with conditions. This request is made for free product only according to RBCA RMO Level II per Chapter 62-780.680(2)(a), F.A.C. Free product has not been present since February 2011.

The LUC boundary is shown in Figure 5, and was derived by identifying the monitoring wells that have consistently had sample results less than GCTLs. The subsurface soil remaining in place adjacent to and beneath the building foundation from the previous excavation is included in the boundary.

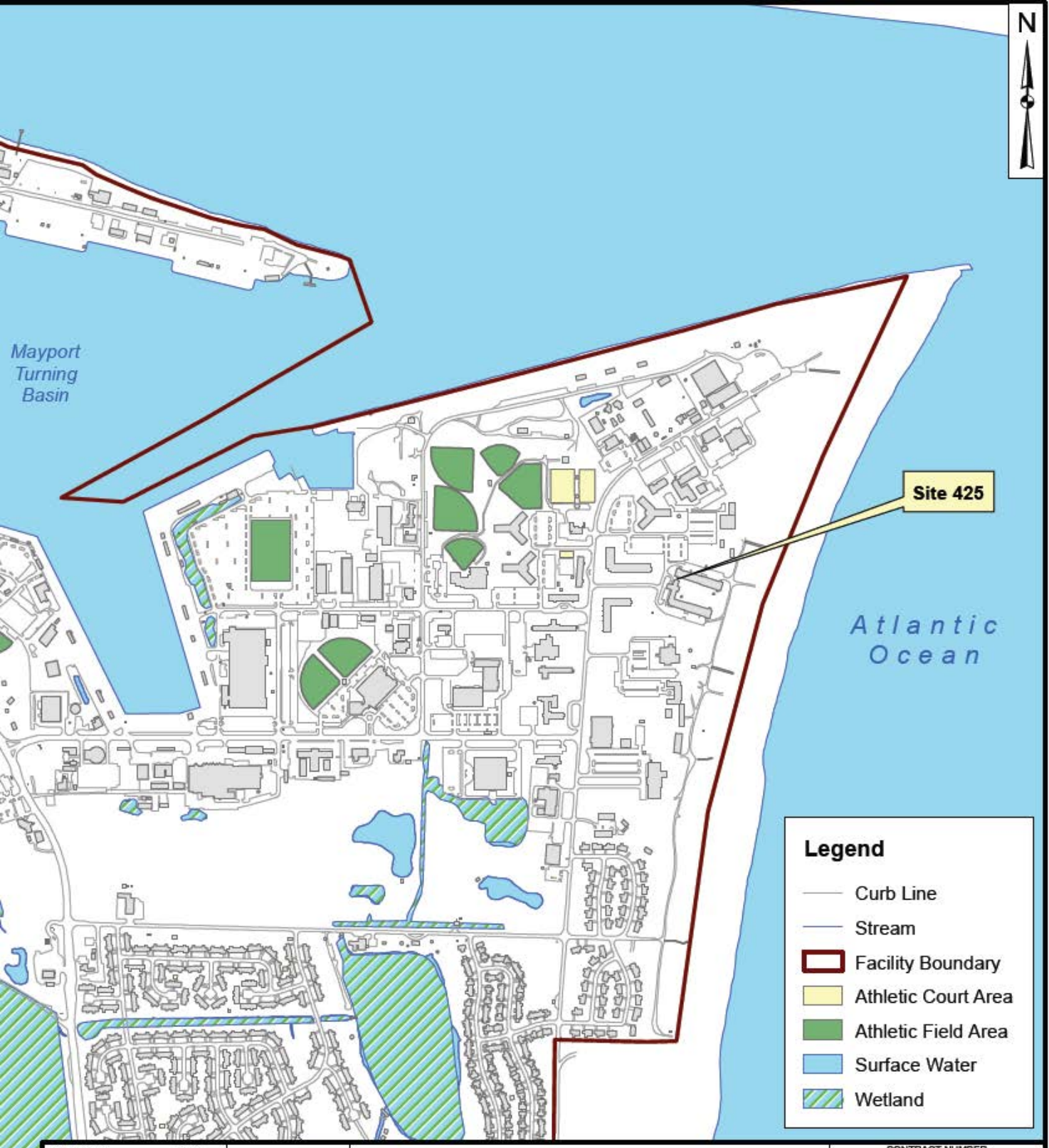
It is recommended that a RAA waiver be submitted for approval and the site be entered into the NAVSTA Mayport base wide LUC program.

FIGURES



DRAWN BY C. FOSTER	DATE 02/09/05	REGIONAL AREA MAP NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA	CONTRACT NUMBER CTO JM33
CHECKED BY D. GIDDENS	DATE 08/12/10		APPROVED BY — DATE —
COST/SCHEDULE-AREA			APPROVED BY — DATE —
SCALE AS NOTED	NAVFAC		DRAWING NO. FIGURE 1 REV 0

P:\GIS\MAYPORT_NS\MAPDOCS\APR\SWMU47_53_55.APR SITE LOCATION LAYOUT 08/12/10 JEE



DRAWN BY: J. ENGLISH	DATE: 05/19/10
CHECKED BY: D. SIEFKEN	DATE: 02/16/12
REVISED BY: C. TULLEY	DATE: 02/16/12
SCALE: AS NOTED	

NAVFAC

SITE LOCATION MAP
SITE 425
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

CONTRACT NUMBER: 2766	
APPROVED BY: ___	DATE: ___
APPROVED BY: ___	DATE: ___
FIGURE NO.: FIGURE 2	REV: 0

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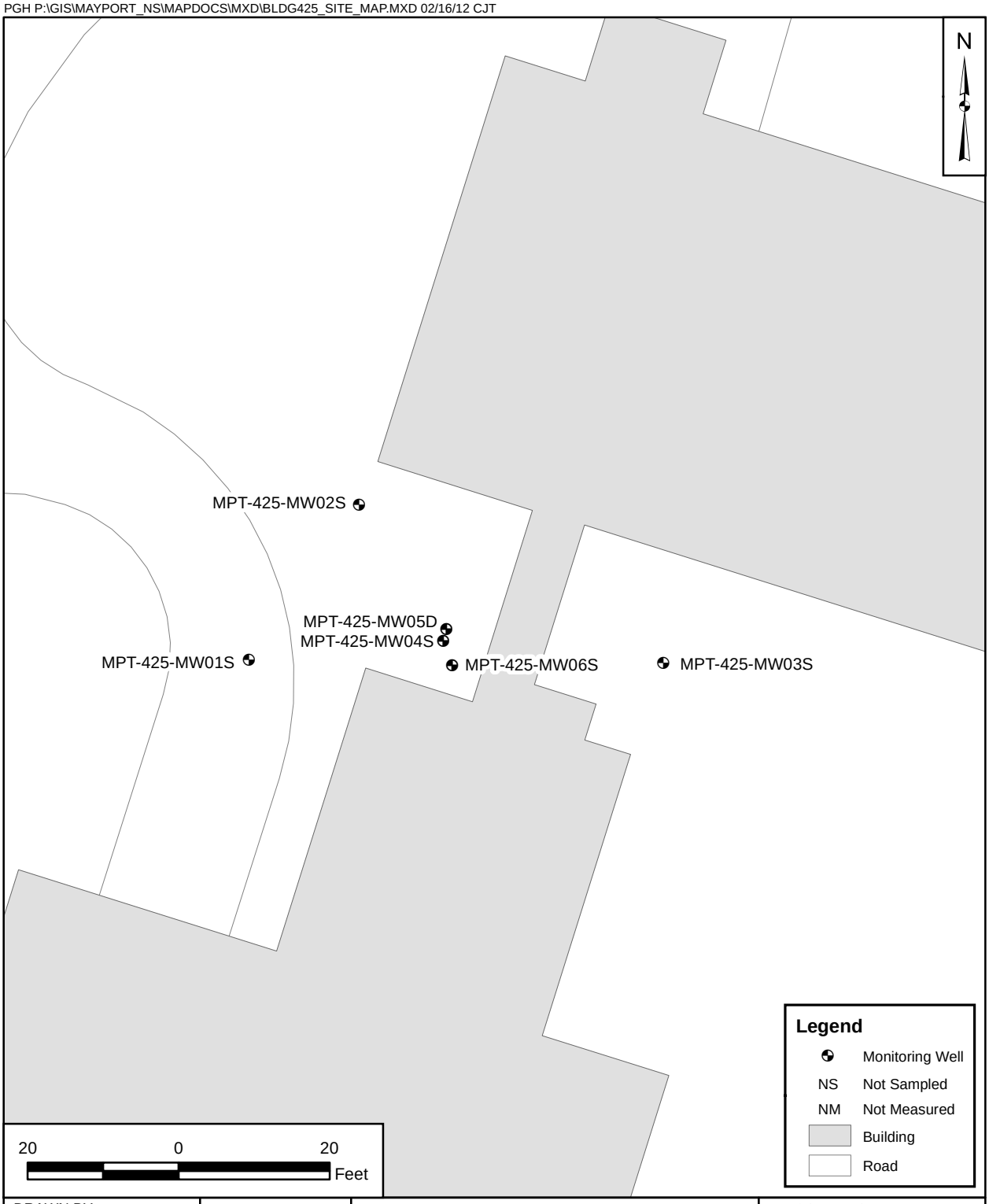
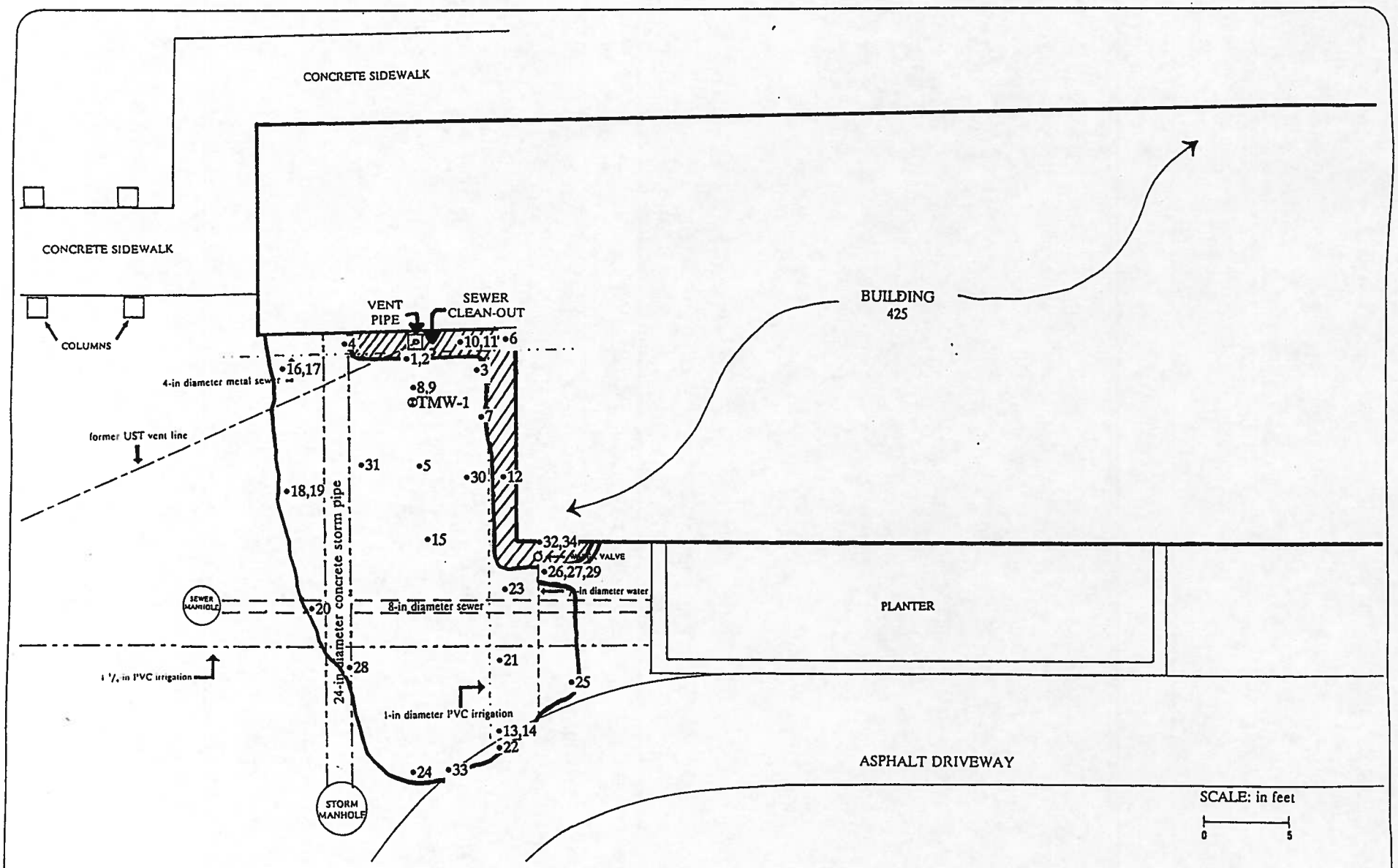


DRAWN BY C. TULLEY	DATE 02/16/12	SITE 425 SITE MAP REMEDIAL ACTION PLAN ADDENDUM SITE 425 NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA	CONTRACT NUMBER CTO JM33
CHECKED BY D. SIEFKEN	DATE 02/16/12		APPROVED BY ___ DATE ___
COST SCHEDULE AREA			APPROVED BY ___ DATE ___
SCALE AS NOTED			FIGURE NO. FIGURE 3 / REV 0



LEGEND:

•OVA Soil Sampling Locations

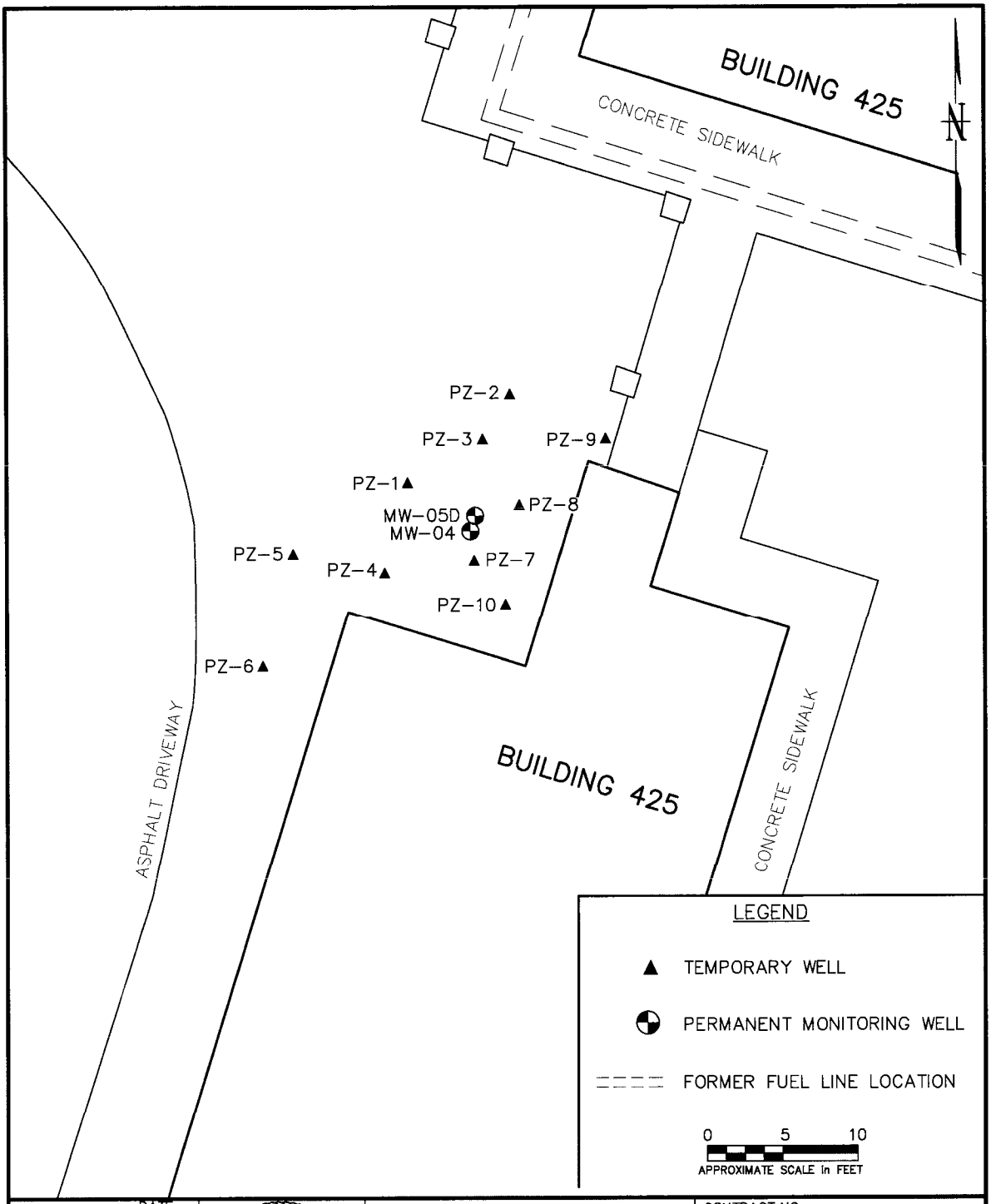
▨ Area of excessively contaminated soils left in place due to threat of undermining to building and/or utilities.

Figure 4. Site Sketch Indicating OVA Soil Sampling Locations and Limits of Excavation
Diesel Fuel Spill Clean-Up
Building 425
Mayport Naval Station, Florida

CSAi

FIGURE 3a

MayportNS\CTO123\RA\CADFigures\0506PZ01



DRAWN BY LLK DATE 1/06/03		PIEZOMETER LOCATIONS BUILDING 425 REMEDIAL ACTION REPORT NAVAL STATION MAYPORT MAYPORT, FLORIDA	CONTRACT NO. 0506
CHECKED BY DATE			APPROVED BY DATE
COST/SCHED-AREA			APPROVED BY DATE
SCALE AS NOTED			DRAWING NO. FIGURE 3b REV. 0

FORM CADD NO. SDIV_AV.DWG – REV 0 – 1/20/98

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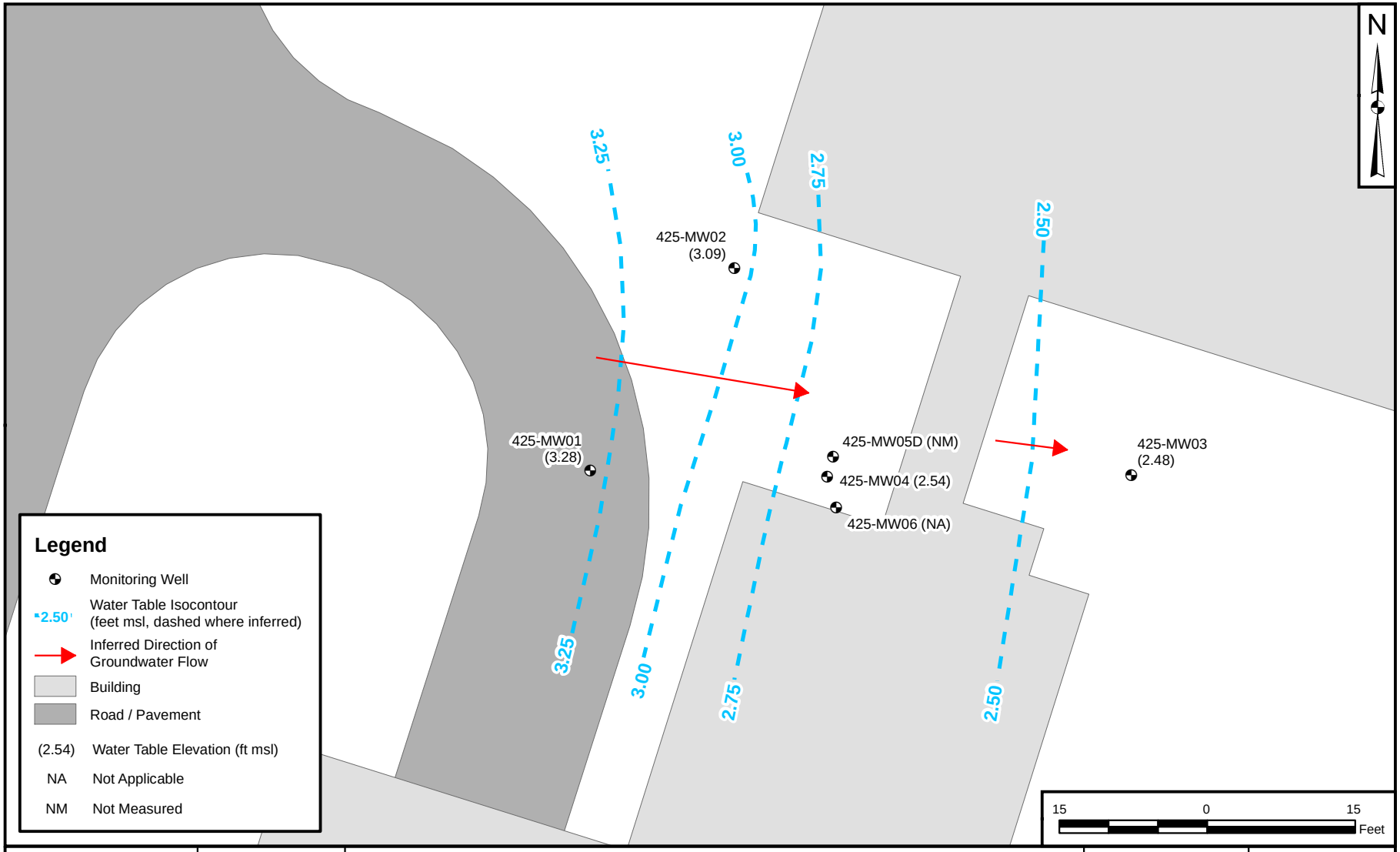

DRAWN BY: J. ENGLISH	DATE: 07/25/12	GROUNDWATER ELEVATION CONTOUR ANNUAL FREE PRODUCT GROUNDWATER MONITORING REPORT CALENDAR YEAR 2012 - JUNE 5, 2012 SITE 425 NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 0758
CHECKED BY: D. SIEFKEN	DATE: 08/09/12		CTO NUMBER: JM60
REVISED BY: ___	DATE: ___		APPROVED BY: ___ DATE: ___
SCALE: AS NOTED			APPROVED BY: ___ DATE: ___
			FIGURE NO.: FIGURE 4 REV: 0

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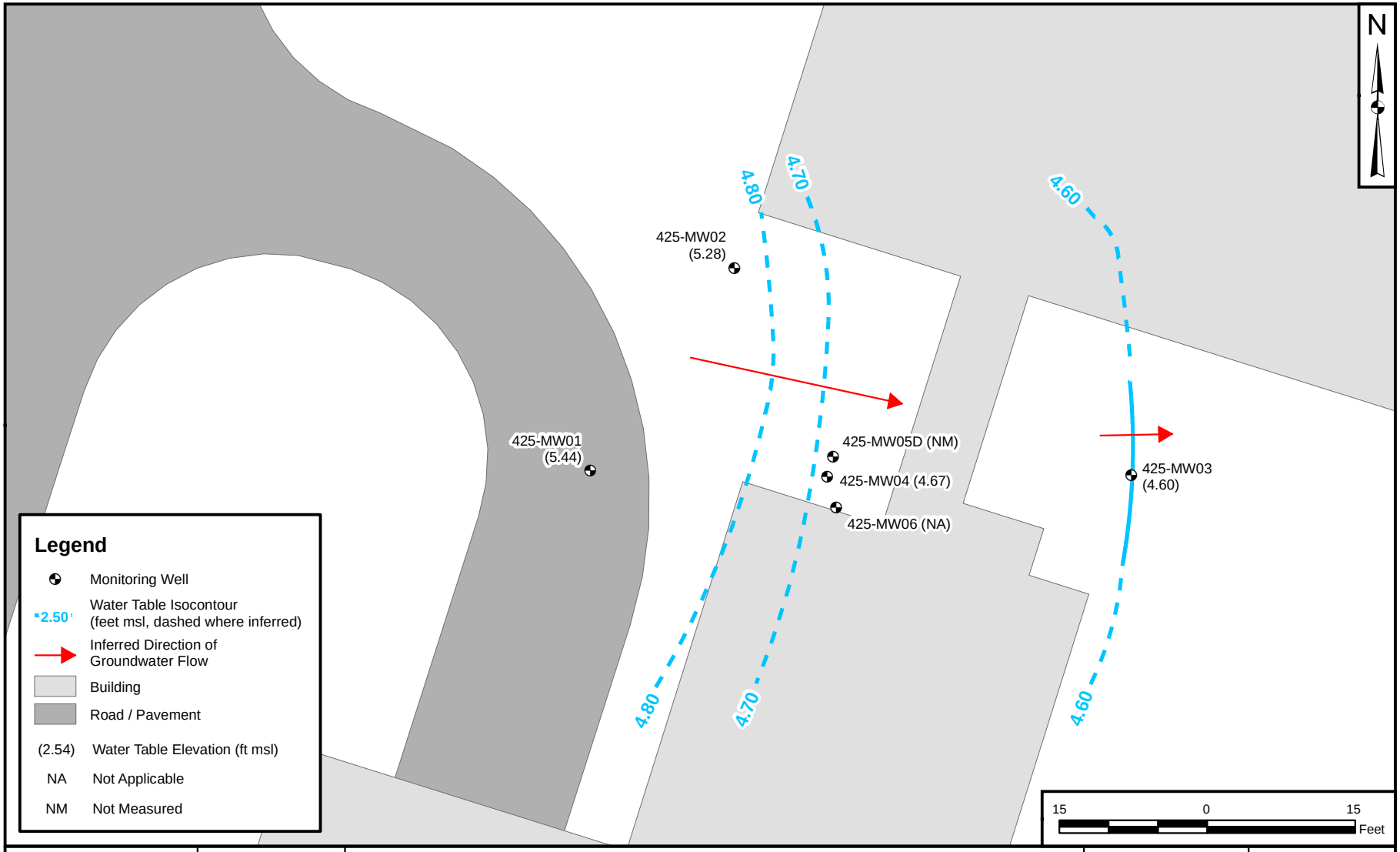

DRAWN BY: J. ENGLISH	DATE: 09/20/12	GROUNDWATER ELEVATION CONTOURS SPECIAL PERMIT REQUIRED PARAMETERS GROUNDWATER MONITORING REPORT CALENDAR YEAR 2012 - AUGUST 28, 2012 SITE 425 NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 112G03576
CHECKED BY: D. SIEFKEN	DATE: 09/20/12		CTO NUMBER: JM60
REVISED BY: ___	DATE: ___		APPROVED BY: ___ DATE: ___
SCALE: AS NOTED			APPROVED BY: ___ DATE: ___
			FIGURE NO.: FIGURE 4 REV: 0

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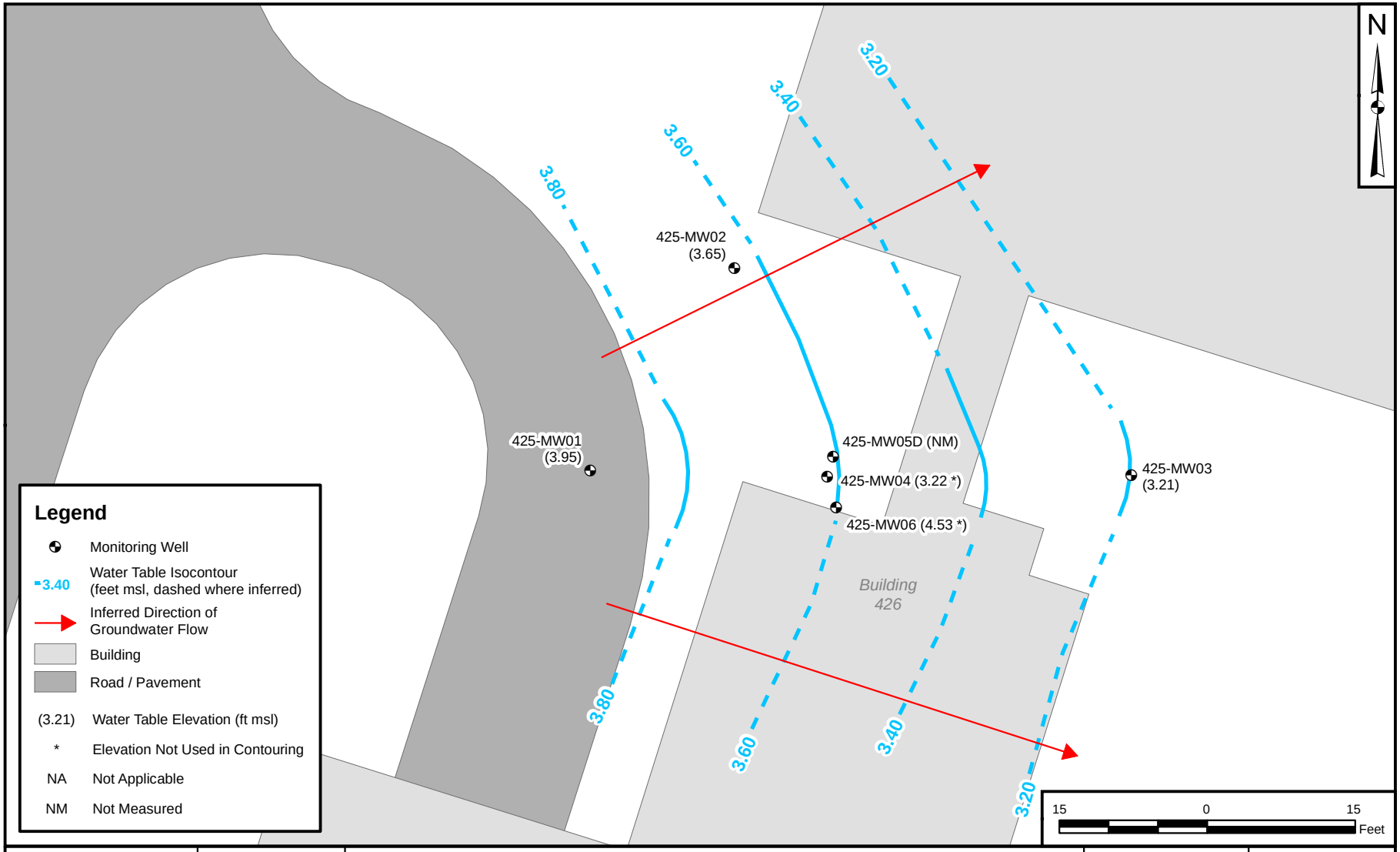

DRAWN BY	DATE
J. ENGLISH	11/29/12
CHECKED BY	DATE
D. SIEFKEN	11/30/12
REVISED BY	DATE
___	___
SCALE	
AS NOTED	

NAVFAC

GROUNDWATER ELEVATION CONTOURS
3RD BIOX PERMIT-REQUIRED PARAMETERS GROUNDWATER MONITORING REPORT, BUILDING 425
NAVAL STATION MAYPORT
JACKSONVILLE, FLORIDA

CONTRACT NUMBER	CTO NUMBER
3576	JM60
APPROVED BY	DATE
—	—
APPROVED BY	DATE
—	—
FIGURE NO.	REV
FIGURE 4	0

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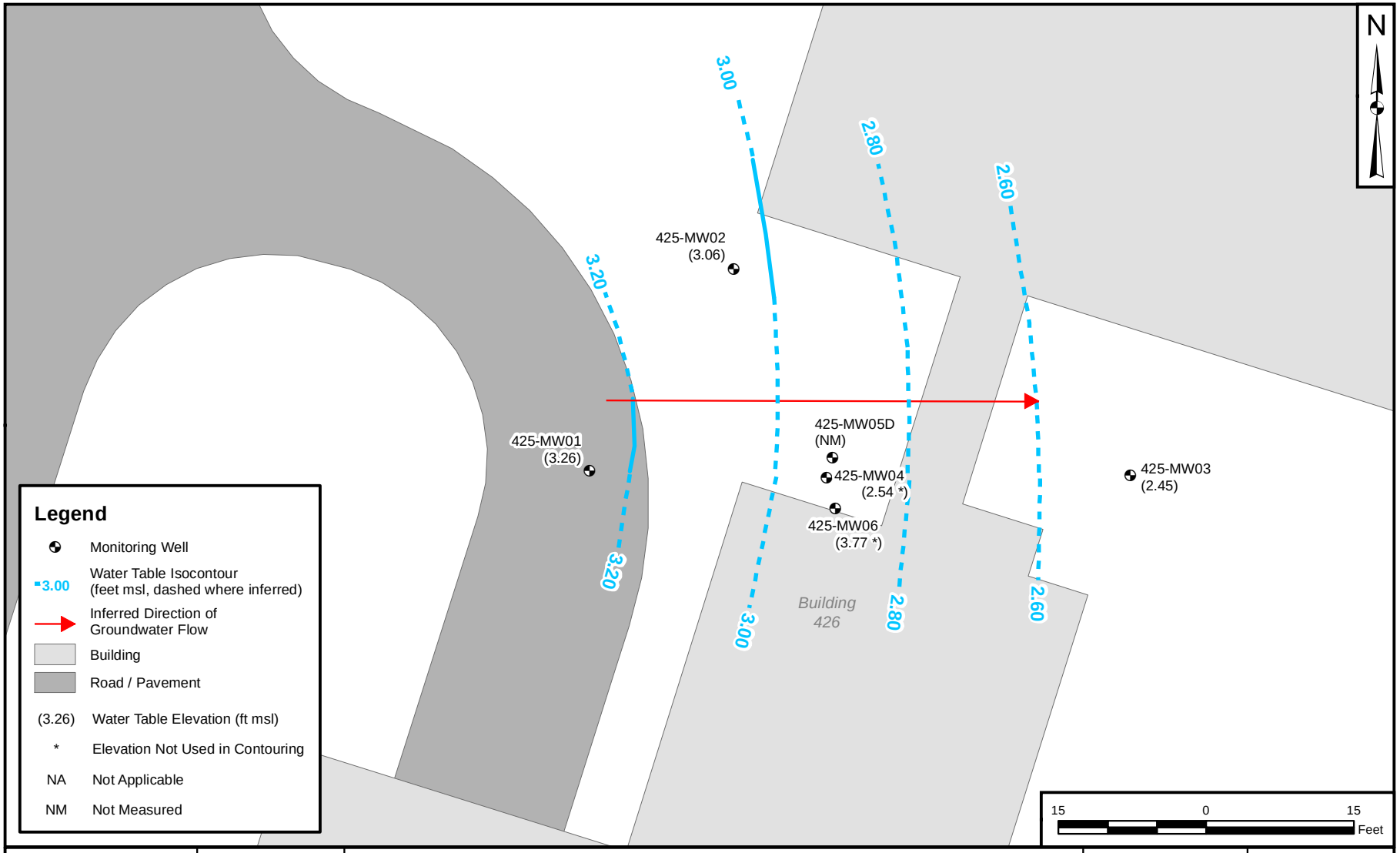

DRAWN BY J.MADDEN	DATE 02/27/13	GROUNDWATER ELEVATION CONTOURS BUILDING 425 4TH BIOX PERMIT-REQUIRED PARAMETERS GROUNDWATER MONITORING REPORT NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA	CONTRACT NUMBER 2316 / CTO NUMBER 160
CHECKED BY K.WEICHERT	DATE 02/27/13		APPROVED BY — / DATE —
REVISED BY —	DATE —		APPROVED BY — / DATE —
SCALE AS NOTED			FIGURE NO. FIGURE 4 / REV 0

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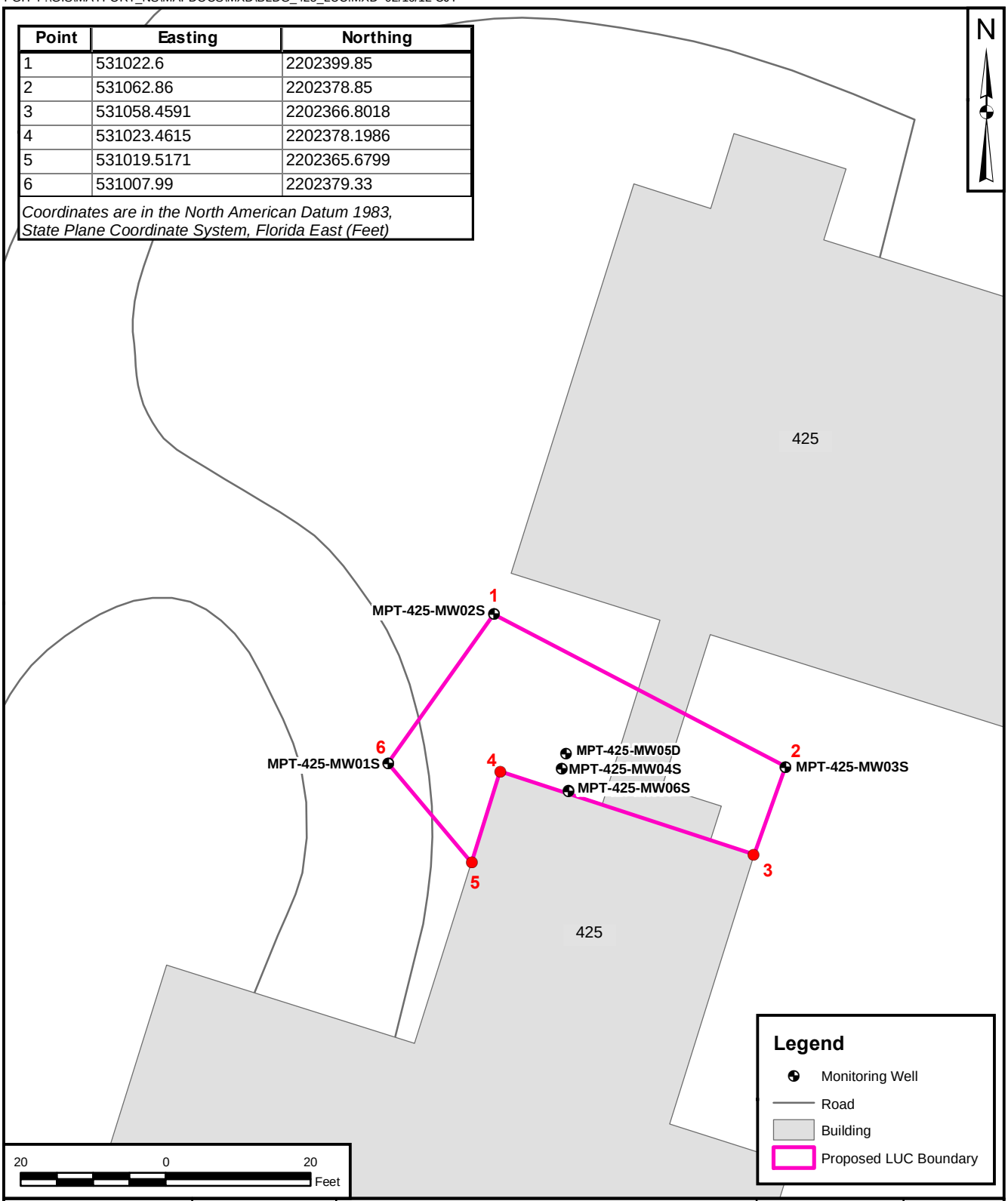
Point	Easting	Northing
1	531022.6	2202399.85
2	531062.86	2202378.85
3	531058.4591	2202366.8018
4	531023.4615	2202378.1986
5	531019.5171	2202365.6799
6	531007.99	2202379.33

Coordinates are in the North American Datum 1983, State Plane Coordinate System, Florida East (Feet)



DRAWN BY: J. ENGLISH	DATE: 12/23/11	PROPOSED LUC BOUNDARIES BUILDING 425 NAVAL STATION MAYPORT JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 2801 / CTO NUMBER: JM33
CHECKED BY: D. SIEFKEN	DATE: 12/23/11		APPROVED BY: ___ / DATE: ___
REVISED BY: C. TULLEY	DATE: 02/16/12		APPROVED BY: ___ / DATE: ___
SCALE: AS NOTED	NAVFAC		FIGURE NO.: FIGURE 5 / REV: 0

TABLES

Table 3-5
Groundwater Analytical Results - Fixed Based Laboratory

Site Assessment Report for Building 425 Area I
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs1	425(1)-MW-01	425(1)-MW-02	425(1)-MW-03	425(1)-MW-04
		6/13/00	6/13/00	6/13/00	6/13/00
Detected Volatile Organic Aromatics (USEPA Method 8260B)(µg/L)					
Acetone	**700**	1.7	1.2J	1.4J	1.9J
1,2 Dichloroethene (total)	**63**	0.14J	<1	<1	ND
Ethylbenzene	**30**	<1	<1	<1	0.13J
Chloroform	**3**	<1	<1	0.33J	1.3J
Methylene Chloride	**3**	<1	<1	<1	0.16J
Trichlorofluoromethane	**3**	<1	<1	0.35J	ND
Detected Semivolatile Organic Compounds(µg/L)					
Bis(2-ethylhexyl)phthalate	**210**	4.9J	3.5J	<10	2.2J
Phenol	**280**	1.8J	2.3J	2.1J	1.3J
Polynuclear Aromatic Hydrocarbons(µg/L)					
Phenanthrene	**210**	0.12J	<1	<1	<1
Naphthalene	**20**	<1	<1	<1	<1
1- Methylnaphthalene	**20**	<1	<1	<1	<1
2- Methylnaphthalene	**20**	<1	<1	<1	<1
Inorganics (µg/L)					
Lead	**15**	<1.7	<1.7	<1.7	<1.7
Total Recoverable Petroleum Hydrocarbons(µg/L)					
TRPH - FL Pro	**5000**	<100	<100	<100	<100

See notes at end of table.

Table 3-5 (Continued)
Groundwater Results - Fixed Based Laboratory

Site Assessment Report for Building 425 Area 2
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	425(2)-MW-01	425(2)-MW-02	425(2)-MW-03	425(2)-MW-04	425(2)-MW-05D
		6/13/00	6/13/00	6/13/00	6/13/00	6/13/00
Detected Volatile Organic Aromatics (USEPA Method 8260B)(µg/L)						
Acetone	**700**	1.3J	1.6J	1.2J	NS	1.3J
Carbon Disulfide	**63**	<1	<1	<1	NS	0.37J
Semivolatile Organic Compounds (µg/L)						
Bis(2-Ethylhexyl)phthalate	**210**	<10	3.1J	<10	NS	2.9J
Polynuclear Aromatic Hydrocarbons(µg/L)						
Fluorene	**280**	0.666J	<1	<1	NS	<1
Phenanthrene	**20**	0.13J	<1	0.11J	NS	<1
1- Methylnaphthalene	**20**	<1	<1	<1	NS	<1
2- Methylnaphthalene	**20**	<1	<1	<1	NS	<1
Inorganics (µg/L)						
Lead	**15**	<1.7	<1.7	<1.7	<1.7	<1.7
Total Recoverable Petroleum Hydrocarbons(µg/L)						
TRPH - FL Pro	**5000**	<100	<100	<100	NS	<100
Natural Attenuation Parameters (mg/kg)						
Nitrate/Nitrite		NS	NS	1.9	NS	NS
Sulfate		NS	NS	87	NS	NS
Sulfide		NS	NS	<1	NS	NS
Methane		NS	NS	<1	NS	NS

Notes:
J = Estimated
ND= Non Detect
NS= Not Sampled
µg/L= micrograms per kilogram
mg/kg= milligrams per kilogram
GCTLs = Groundwater Clean-up Target Levels [FAC 62-777]

the 1996, Coastal Science Associates, Inc. Fuel Spill Clean-Up report (Coastal, 1996) that product impacted soil was left in the area of the building foundation. Free product was not observed in any of the other piezometers, including PZ-7, which is located between MW-04 and PZ-10.

Table 3-1
Free Product Thickness Measurements

Remedial Action Report for Building 425
Naval Station Mayport
Mayport, Florida

ID/Date	07/17/02 (ft)	08/19/02 (ft)	09/23/02 (ft)	10/31/02 (ft)	11/04/02 (ft)	02/14/03 (ft)	03/19/03 (ft)
PZ-1	NP	NP	NP	0	0	0	0
PZ-2	NP	NP	NP	0	0	0	0
PZ-3	NP	NP	NP	0	0	0	0
PZ-4	NP	NP	NP	0	0	0	0
PZ-5	NP	NP	NP	0	0	0	0
PZ-6	NP	NP	NP	0	0	0	0
PZ-7	NP	NP	NP	0	0	0	0
PZ-8	NP	NP	NP	0	0	0	0
PZ-9	NP	NP	NP	0	0	0	0
PZ-10	NP	NP	NP	0	0	0.1	0.2
MW-04	0.25	0.01	0.17	0.2	0.15	NM	0.1

Notes:
0 = no measurable free product
NP = Piezometers were not installed until after September 23, 2002.
NM = no measurements taken at this location.

The cause of the variability in free product measurements is not known. It is possible that soils in the capillary fringe in the vicinity of MW-04 and PZ-10 may be impacted and may release free product over time. It is suspected that groundwater fluctuations, possibly caused by tidal effects, are "flushing" impacted soils in the capillary zone releasing free product.

RAA Waiver Request
Table 3

Table 4
Free Product Measurements and Recovery

4th BIOX® Permit-Required Parameters Groundwater Monitoriong Report, January 2013, Building 425
Naval Station Mayport
Jacksonville, Florida

DATE	MW-04		MW-06 (PZ-10)	
	THICKNESS (feet)	VOLUME RECOVERED (mL)	THICKNESS (feet)	VOLUME RECOVERED (mL)
08/28/05	0	0	0	0
10/01/05	0	0	0.25	100
10/29/05	0	0	0	0
11/24/05	0	0	0	0
12/27/05	0	0	0.25	50
01/21/06	0	0	0	0
02/27/06	0	0	0	0
03/30/06	0	0	0	0
04/30/06	0	0	0	0
05/30/06	0.22	0	0	0
06/22/06	0.25	500	0.8	500
07/21/06	0	0	0	0
07/27/06	0	0	0	0
07/30/06	0	0	0	0
08/02/06	0	0	0	0
09/01/06	NM	NM	NM	NM
10/01/06	NM	NM	NM	NM
11/27/06	0	0	0	0
12/22/06	0	0	0	0
01/01/07	NM	NM	NM	NM
02/16/07	0	0	0	0
03/19/07	0	0	0	0
04/04/07	0.4	1892	0	0
05/03/07	0.3	1893	0	0
05/04/07	0.2	946	0	0
05/05/07	0.98	946	0.91	946
06/30/07	0.75	945	0.85	945

DATE	MW-04		MW-06 (PZ-10)	
	THICKNESS (feet)	VOLUME RECOVERED (mL)	THICKNESS (feet)	VOLUME RECOVERED (mL)
07/30/07	0	0	0	0
08/16/07	0	0	0	0
09/25/07	0.14	250	0	0
10/12/07	0	0	0	0
11/09/07	0	0	0	0
12/20/07	0	0	0	0
01/07/08	0	0	0	0
02/06/08	0	0	0	0
03/05/08	0	0	0	0
04/07/08	0	0	0	0
05/29/08	0	0	0.09	100
06/20/08	0	0	0	0
07/15/08	0	0	0	0
08/15/08	0	0	0	0
09/18/08	0	0	0	0
10/27/08	0	0	0	0
12/11/08	0	0	0	0
01/09/09	0	0	0	0
02/09/09	0	0	0	0
03/19/09	0.12	700	0.1	800
04/16/09	0	0	0	0
06/08/09	0	0	0	0
07/07/09	0	0	0	0
08/05/09	0	0	0	0
09/03/09	0	0	0	0
10/13/09	0	0	0	0
11/25/09	0	0	0	0

Table 4
Free Product Measurements and Recovery

4th BIOX® Permit-Required Parameters Groundwater Monitoriong Report, January 2013, Building 425
Naval Station Mayport
Jacksonville, Florida

DATE	MW-04		MW-06 (PZ-10)	
	THICKNESS (feet)	VOLUME RECOVERED (mL)	THICKNESS (feet)	VOLUME RECOVERED (mL)
12/08/09	0	0	0	0
01/06/10	0	0	0	0
02/04/10	0	0	0	0
03/25/10	0	0	0	0
04/28/10	0	0	0	0
07/30/10	0	0	0	0
08/18/10	0	0	0	0
09/23/10	0	0	0	0
10/21/10	0	0	0	0
12/08/10	0	0	0	0
01/06/11	0	0	0	0
02/17/11	0	0	0.04	500
03/10/11	0	0	0	0
04/11/11	0	0	0	0
05/12/11	0	0	0	0
04/11/11	0	0	0	0
05/12/11	0	0	0	0
06/09/11	0	0	0	0
07/20/11	0	0	0	0
08/31/11	0	0	0	0
09/06/11	0	0	0	0
10/27/11	0	0	0	0
11/09/11	0	0	0	0
12/09/11	0	0	0	0
01/12/12	0	0	0	0
02/17/12	0	0	0	0
03/09/12	0	0	0	0
04/19/12	0	0	0	0
05/23/12	0	0	0	0
05/31/12	0	0	0	0
06/22/12	0	0	0	0
07/27/12	0	0	0	0
08/03/12	0	0	0	0
09/12/12	0	0	0	0
10/12/12	0	0	0	0
10/19/12	0	0	0	0
10/26/12	0	0	0	0
11/16/12	0	0	0	0
12/13/12	0	0	0	0
01/11/13	0	0	0	0
01/11/13	0	0	0	0
03/01/13	0	0	0	0
04/02/13	0	0	0	0
05/17/13	0	0	0	0
06/24/13	0	0	0	0

Notes:
mL = milliliter
NM = not measured

RAA Waiver Request
Table 4

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-01							
Sample Date		3/29/2006	11/30/2006	5/17/2007	11/14/2007	5/19/2008	12/5/2008	5/28/2009	11/4/2009
VOCs (USEPA Method 8260) (µg/L)									
Benzene	1	0.2 U	0.2 U	0.2 U	0.23 U	0.34 U	0.29 U	1.0 U	0.50 U
Ethylbenzene	30	0.3 U	0.3 U	0.3 U	0.34 U	0.34 U	0.29 U	1.0 U	0.50 U
Toluene	40	0.2 U	0.2 U	0.6 I	0.28 U	0.28 U	0.35 U	1.0 U	0.50 U
Xylenes (Total)	20	0.5 U	0.5 U	0.5 U	0.60 U	0.38 U	0.29 U	1.0 U	1.0 U
PAHs (USEPA Method 8270) (µg/L)									
1-Methylnaphthalene	28	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.02 U	0.025 U
2-Methylnaphthalene	28	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.019 U	0.031 U	0.031 U
Acenaphthene	20	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.016 U	0.011 U	0.011 U
Anthracene	2012	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.016 U	0.014 U	0.014 U
Fluorene	280	0.02 U	0.02 U	0.02 U	0.05 U	0.01 U	0.011 U	0.014 U	0.014 U
Naphthalene	14	0.02 U	0.02 U	0.02 U	0.05 U	0.02 U	0.022 U	0.023 U	0.023 U
Phenanthrene	210	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U	0.016 U	0.011 U	0.011 U
Pyrene	210	0.02 U	0.02 U	0.02 U	0.03 U	0.009 U	0.009 U	0.016 U	0.016 U
TRPH (FL-PRO) (mg/L)									
TRPH	5	0.094 U	0.094 U	0.094 U	0.094U	0.049 I	0.035 U	0.035 U	0.027 U

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-01						
Sample Date		7/15/2010	12/1/2010	4/11/2011	6/7/2012	9/5/2012	10/29/2012	1/31/2013
VOCs (USEPA Method 8260) (µg/L)								
Benzene	1	0.21 U	0.20 U	0.250 U	0.25 U	0.250 U	0.250 U	0.250 U
Ethylbenzene	30	0.20 U	0.20 U	0.250 U	0.25 U	0.250 U	0.250 U	0.250 U
Toluene	40	0.20 U	0.20 U	0.250 U	0.25 U	0.250 U	0.250 U	0.250 U
Xylenes (Total)	20	0.54 U	0.52 U	0.750 U	0.75 U	0.750 U	0.750 U	0.750 U
PAHs (USEPA Method 8270) (µg/L)								
1-Methylnaphthalene	28	0.24 U	0.38 U	0.0467 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
2-Methylnaphthalene	28	0.24 U	0.38 U	0.0467 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Acenaphthene	20	0.48 U	0.38 U	0.0467 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Anthracene	2012	0.48 U	0.24 U	0.0467 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Fluorene	280	0.48 U	0.38 U	0.0467 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Naphthalene	14	0.24 U	0.38 U	0.0467 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Phenanthrene	210	0.24 U	0.24 U	0.0467 U	0.0926 U	0.177 I	0.0926 U	0.0926 U
Pyrene	210	0.24 U	0.24 U	0.0467 U	0.0463 U	0.0563 I	0.0463 U	0.0463 U
TRPH (FL-PRO) (mg/L)								
TRPH	5	0.16 U	0.14 U	0.157 U	0.157 U	0.157 U	NM	0.157 U

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-02							
Sample Date		3/29/2006	11/30/2006	5/17/2007	11/14/2007	5/19/2008	12/5/2008	5/28/2009	11/4/2009
VOCs (USEPA Method 8260) (µg/L)									
Benzene	**1**	0.2 U	0.2 U	0.2 U	0.23 U	0.23 U	0.29 U	1.0 U	0.50 U
Ethylbenzene	**30**	0.3 U	0.3 U	0.3 U	0.34 U	0.34 U	0.29 U	1.0 U	0.50 U
Toluene	**40**	0.2 U	0.3 I	0.5 I	0.28 U	0.28 U	0.35 U	1.0 U	0.50 U
Xylenes (Total)	**20**	0.5 U	0.5 U	0.5 U	0.6 U	0.38 U	0.29 U	1.0 U	1.0 U
PAHs (USEPA Method 8270) (µg/L)									
1-Methylnaphthalene	**28**	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.01 U	0.02 U	0.025 U
2-Methylnaphthalene	**28**	0.02 U	0.05 I	0.02 U	0.02 U	0.02 U	0.019 U	0.031 U	0.031 U
Acenaphthene	**20**	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.016 U	0.011 U	0.011 U
Anthracene	**2012**	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.016 U	0.014 U	0.014 U
Fluorene	**280**	0.02 U	0.02 U	0.02 U	0.05 U	0.01 U	0.011 U	0.011 U	0.014 U
Naphthalene	**14**	0.02 U	0.02 U	0.02 U	0.05 U	0.02 U	0.022 U	0.023 U	0.023 U
Phenanthrene	**210**	0.02 U	0.02 U	0.02 U	0.04 U	0.02 U	0.016 U	0.011 U	0.011 U
Pyrene	**210**	0.02 U	0.02 U	0.02 U	0.03 U	0.009 U	0.009 U	0.016 U	0.016 U
TRPH (FL-PRO) (mg/L)									
TRPH	**5**	0.094 U	0.094 U	0.094 U	0.094 U	0.081 I	0.035 U	0.035 U	0.027 U

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-02						
Sample Date		7/15/2010	12/1/2010	4/11/2011	6/7/2012	9/5/2012	10/29/2012	1/31/2013
VOCs (USEPA Method 8260) (µg/L)								
Benzene	**1**	0.21 U	0.20 U	0.250 U	1.25 U	0.250 U	0.250 U	0.250 U
Ethylbenzene	**30**	0.20 U	0.20 U	0.250 U	1.25 U	0.250 U	0.250 U	0.250 U
Toluene	**40**	0.20 U	0.20 U	0.250 U	1.25 U	0.250 U	0.250 U	0.250 U
Xylenes (Total)	**20**	0.54 U	0.52 U	0.750 U	3.75 U	0.750 U	0.750 U	0.750 U
PAHs (USEPA Method 8270) (µg/L)								
1-Methylnaphthalene	**28**	0.24 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
2-Methylnaphthalene	**28**	0.24 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Acenaphthene	**20**	0.48 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Anthracene	**2012**	0.48 U	0.24 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Fluorene	**280**	0.48 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Naphthalene	**14**	0.24 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Phenanthrene	**210**	0.24 U	0.24 U	0.0463 U	0.0926 U	0.0926 U	0.0926 U	0.0926 U
Pyrene	**210**	0.24 U	0.24 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
TRPH (FL-PRO) (mg/L)								
TRPH	**5**	0.16 U	0.14 U	0.157 U	0.52 J	0.157 U	0.157 U	0.157 U

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-03							
Sample Date		3/29/2006	11/30/2006	5/17/2007	11/14/2007	5/19/2008	12/5/2008	5/28/2009	11/4/2009
VOCs (USEPA Method 8260) (µg/L)									
Benzene	1	0.2 U	0.3 I	0.2 U	0.23 U	0.23 U	0.58 U	1.0 U	0.50 U
Ethylbenzene	30	1.2	1.5	1.8	0.73 I	0.34 U	0.58 U	1.0 U	3.2
Toluene	40	0.2 U	0.4 I	0.4 I	0.28 U	0.28 U	0.70 U	1.0 U	0.50 U
Xylenes (Total)	20	2.2	3.9	4.5	2	0.38 U	0.58 U	1.0 U	1.2
PAHs (USEPA Method 8270) (µg/L)									
1-Methylnaphthalene	28	0.79	2.57	2.14	0.05 I	0.09 I	0.07 I	0.03 I	6.8
2-Methylnaphthalene	28	0.02 U	0.80	1.40	0.02 U	0.02 U	0.019 U	0.031 U	1.2
Acenaphthene	20	0.34	0.14	0.46	0.02 U	0.02 U	0.016 U	0.011 U	0.24
Anthracene	2012	0.34	0.14	0.46	0.02 U	0.02 U	0.050 I	0.014 U	0.059 I
Fluorene	280	0.34	0.17	0.74	0.05 U	0.01 U	0.036 I	0.014 U	0.084 I
Naphthalene	14	0.64	0.77	0.95	0.06 I	0.11 I	0.11	0.023 U	2.5
Phenanthrene	210	0.15	0.11	0.34	0.04 U	0.02 U	0.11	0.011 U	0.55
Pyrene	210	0.11	0.08 I	0.15	0.03 U	0.05 I	0.035 I	0.016 U	0.064 I
TRPH (FL-PRO) (mg/L)									
TRPH	5	**6.21**	1.33	**7.15**	1.44	2.03	2.49	0.44	3

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-03						
Sample Date		7/15/2010	12/1/2010	4/11/2011	6/7/2012	9/5/2012	10/29/2012	1/31/2013
VOCs (USEPA Method 8260) (µg/L)								
Benzene	1	0.21 U	0.20 U	0.250 U	0.25 U	1.25 U	0.250 U	1.25 U
Ethylbenzene	30	0.20 U	0.20 U	0.250 U	0.25 U	1.25 U	0.250 U	1.25 U
Toluene	40	0.20 U	0.20 U	0.250 U	0.25 U	1.25 U	0.250 U	1.25 U
Xylenes (Total)	20	0.54 U	0.52 U	0.750 U	0.75 U	3.75 U	0.750 U	3.75 U
PAHs (USEPA Method 8270) (µg/L)								
1-Methylnaphthalene	28	0.24 U	0.38 U	0.0463 U	0.0463 U	0.0730 I	0.586 Q	0.0463 U
2-Methylnaphthalene	28	0.24 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.0463 Q,U	0.0463 U
Acenaphthene	20	0.48 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.123 Q,I	0.0463 U
Anthracene	2012	0.48 U	0.24 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.130 I
Fluorene	280	0.48 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Naphthalene	14	0.24 U	0.38 U	0.0463 U	0.0463 U	0.0463 U	0.163 Q,I	0.0463 U
Phenanthrene	210	0.44 I	0.24 U	0.0463 U	0.0926 U	0.0926 U	0.0926 U	0.0926 U
Pyrene	210	0.24 U	0.24 U	0.0503 I	0.0463 U	0.0463 U	0.126 Q,I	0.227
TRPH (FL-PRO) (mg/L)								
TRPH	5	1.24	0.63	0.290 I	0.157 U	0.157 U	NM	2.52

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-04							
Sample Date		3/29/2006	11/30/2006	5/17/2007	11/14/2007	5/19/2008	12/5/2008	5/28/2009	11/4/2009
VOCs (USEPA Method 8260) (µg/L)									
Benzene	1	NM-FPP	NM-FPP	NM-FPP	0.23 U	0.23 U	0.29 U	2.0 U	0.50 U
Ethylbenzene	30	NM-FPP	NM-FPP	NM-FPP	4.3	4.4	1.8	2.0 U	1.4
Toluene	40	NM-FPP	NM-FPP	NM-FPP	0.28 U	0.28 U	0.35 U	2.0 U	0.50 U
Xylenes (Total)	20	NM-FPP	NM-FPP	NM-FPP	4.6	0.60 I	0.81	2.2 I	1.3
PAHs (USEPA Method 8270) (µg/L)									
1-Methylnaphthalene	28	NM-FPP	NM-FPP	NM-FPP	**53**	**60**	**47**	**31**	**44**
2-Methylnaphthalene	28	NM-FPP	NM-FPP	NM-FPP	3.7	0.26	7	7.1	8
Acenaphthene	20	NM-FPP	NM-FPP	NM-FPP	2.5	2.5	1.8	1.5	1.9
Anthracene	2012	NM-FPP	NM-FPP	NM-FPP	0.2	0.29	0.18	0.22	0.12
Fluorene	280	NM-FPP	NM-FPP	NM-FPP	3.6	3.7	3	2.6	2.8
Naphthalene	14	NM-FPP	NM-FPP	NM-FPP	3.9	2.8	2.3	5.5	8.8
Phenanthrene	210	NM-FPP	NM-FPP	NM-FPP	3.1	2.3	1.4	1.3	0.66
Pyrene	210	NM-FPP	NM-FPP	NM-FPP	0.44	0.52	0.23	0.46	0.22
TRPH (FL-PRO) (mg/L)									
TRPH	5	NM-FPP	NM-FPP	NM-FPP	4	**6.19**	3.4	3.2	2.8

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-04						
Sample Date		7/15/2010	12/1/2010	4/11/2011	6/7/2012	9/5/2012	10/29/2012	1/31/2013
VOCs (USEPA Method 8260) (µg/L)								
Benzene	1	0.21 U	0.20 U	0.270 I	1.25 U	2.50 U	0.25 U	1.25 U
Ethylbenzene	30	0.74 I	0.74	0.482 I	1.25 U	2.50 U	0.25 U	1.25 U
Toluene	40	0.20 U	0.20 U	0.250 U	1.25 U	2.50 U	0.25 U	1.25 U
Xylenes (Total)	20	0.54 U	0.52 U	0.750 U	3.75 U	7.50 U	0.75 U	3.75 U
PAHs (USEPA Method 8270) (µg/L)								
1-Methylnaphthalene	28	19	**32**	2.67	0.0463 U	1.68	0.0463 U	0.0463 U
2-Methylnaphthalene	28	3.5	1.5 U	0.0463 U	0.0463 U	0.440	0.0463 U	0.0463 U
Acenaphthene	20	1.6	2.4	1.14	0.0463 U	0.152 I	0.0463 U	0.140 I
Anthracene	2012	0.48 U	0.95 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Fluorene	280	2.9	4	0.0463 U	0.0463 U	0.0463 U	0.0463 U	0.0463 U
Naphthalene	14	1.3	1.5 U	0.0463 U	0.0463 U	0.151 I	0.0463 U	0.0463 U
Phenanthrene	210	0.53 I	0.95 U	0.0463 U	0.0926 U	0.0926 U	0.0926 U	0.0926 U
Pyrene	210	0.24 U	0.95 U	0.0463 U	1.34	0.0463 U	0.0463 U	0.0463 U
TRPH (FL-PRO) (mg/L)								
TRPH	5	1.74	**20.7**	**12**	**20.6**	3.93 D	NM	3.95

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-06							
Sample Date		3/29/2006	11/30/2006	5/17/2007	11/14/2007	5/19/2008	12/5/2008	5/28/2009	11/4/2009
VOCs (USEPA Method 8260) (µg/L)									
Benzene	1	NM-FPP	NM-FPP	NM-FPP	0.23 U	NM-FPP	0.29 U	2.0 U	0.50 U
Ethylbenzene	30	NM-FPP	NM-FPP	NM-FPP	4.6	NM-FPP	3.4	5.7	3.6
Toluene	40	NM-FPP	NM-FPP	NM-FPP	0.28 U	NM-FPP	0.35 U	2.0 U	0.50 U
Xylenes (Total)	20	NM-FPP	NM-FPP	NM-FPP	18.9	NM-FPP	6.6	7.5	4.9
PAHs (USEPA Method 8270) (µg/L)									
1-Methylnaphthalene	28	NM-FPP	NM-FPP	NM-FPP	**44**	NM-FPP	**32**	7.7	24
2-Methylnaphthalene	28	NM-FPP	NM-FPP	NM-FPP	12	NM-FPP	11	4.5	4
Acenaphthene	20	NM-FPP	NM-FPP	NM-FPP	2.3	NM-FPP	1.9	0.55	1.8
Anthracene	2012	NM-FPP	NM-FPP	NM-FPP	0.17	NM-FPP	0.19	0.014 U	0.06 I
Fluorene	280	NM-FPP	NM-FPP	NM-FPP	3.1	NM-FPP	3.4	0.48	2
Naphthalene	14	NM-FPP	NM-FPP	NM-FPP	8.1	NM-FPP	5.4	13	9.8
Phenanthrene	210	NM-FPP	NM-FPP	NM-FPP	2.7	NM-FPP	2.7	0.27	0.17
Pyrene	210	NM-FPP	NM-FPP	NM-FPP	0.37	NM-FPP	0.26	0.49	0.18
TRPH (FL-PRO) (mg/L)									
TRPH	5	NM-FPP	NM-FPP	NM-FPP	1.91	NM-FPP	4.4	4.2	3.4

TABLE 2
FIXED-BASE LABORATORY GROUNDWATER ANALYTICAL RESULTS

Building 425
Naval Station Mayport
Jacksonville, Florida

Compound	GCTLs	MW-06						
Sample Date		7/15/2010	12/1/2010	4/11/2011	6/7/2012	9/5/2012	10/29/2012	1/31/2013
VOCs (USEPA Method 8260) (µg/L)								
Benzene	1	0.21 U	0.20 U	0.250 U	1.25 U	2.50 U	1.25 U	1.25 U
Ethylbenzene	30	1	0.97	0.386 I	1.25 U	2.50 U	1.25 U	1.25 U
Toluene	40	0.20 U	0.20 U	0.250 U	1.25 U	2.50 U	1.25 U	1.25 U
Xylenes (Total)	20	0.66 I	0.72	0.750 U	3.75 U	7.50 U	3.75 U	3.75 U
PAHs (USEPA Method 8270) (µg/L)								
1-Methylnaphthalene	28	9.1	6.5	3.44	0.0463 U	7.10	3.80 Q	0.0463 U
2-Methylnaphthalene	28	4.2	0.97	0.963	0.0463 U	4.59	1.49 Q	0.0463 U
Acenaphthene	20	0.80 I	0.46	0.0463 U	0.0463 U	0.48	0.45 Q	0.0463 U
Anthracene	2012	0.48 U	0.24 U	0.0463 U	0.0463 U	0.0463 U	0.0472 U	0.0463 U
Fluorene	280	2.1	1.2	0.0463 U	0.0463 U	0.0463 U	0.0472 U	0.0463 U
Naphthalene	14	4.1	3.4	1.44	0.0463 U	2.95	1.47 Q	0.0463 U
Phenanthrene	210	4	1.1	0.0463 U	0.0926 U	0.0926 U	0.0943 U	0.0926 U
Pyrene	210	0.24 U	0.24 U	0.0463 U	0.298	0.516	0.283 Q	0.162 I
TRPH (FL-PRO) (mg/L)								
TRPH	5	2.68	**6.62**	3.41	**9.15**	**9.19 D**	NM	3.35

Notes:

Bold denotes exceedence in FDEP GCTLs.

NM-FPP = Not Measured - Free Product Present.

NM = not measured

U = Analyte include in analysis, but not detected.

I = Detected but below the Reporting Limit; therefore, the result is an estimated concentration.

J = Reported result is estimated; can also be reproted as "I".

Q = The percent recovery exceeded limits in the associated Blank Spike or Blank Spike Duplicate.

D = Denotes sample was rerun diluted because one of the compound concentrations exceeded the highest concentration range for the standard curve.