

Radford Army Ammunition Plant

FACT SHEET SWMU 40

Introduction

This fact sheet describes the selected action for Solid Waste Management Unit (SWMU) 40 – Nitro Landfill at Radford Army Ammunition Plant (RFAAP). This alternative was selected in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA), the Hazardous and Solid Waste Amendments of 1984 (HSWA), the RFAAP RCRA permit requirements (USEPA, 2000) (EPA ID No. VA1210020730).

Background

SWMU 40 is an approximate 2 acre landfill area that was used in the 1970s and early 1980s for the burial of paper, office trash, concrete, and rubber tires. The unit was not permitted as a solid waste landfill by the Commonwealth of Virginia. Operations ceased and the unit was closed with a clay cap and grass cover. The RFAAP RCRA Corrective Action Permit identified SWMU 40 as an area of concern that had the potential to pose a threat or potential threat to human health and the environment.

RCRA Facility Investigation (RFI)/Corrective Measures Study (CMS)

RFI field efforts were conducted at the sites from 2002 through 2007. Based on the results of the RFI investigation and risk assessments, the primary site-related chemical of concern (COC) identified in soil at SWMU 40 was aluminum. Chloroform was identified as a COC in site groundwater at levels above its United States Environmental Protection Agency (USEPA) tap-water risk-based screening level (T-RBC) but below the maximum contaminant level (MCL) for trihalomethanes. However, chloroform was not detected in soil or landfill materials sampled at SWMU 40.

Corrective measures alternatives were evaluated in the CMS. The final selected alternative was Alternative Two: Institutional Controls, Engineering Controls, and Long-Term Monitoring and Maintenance. The Final RFI/CMS (URS, 2009) was approved by USEPA and VDEQ in June 2009.

Implementation of the Corrective Measures

The selected alternative includes repairs to and stabilization of the northern edge of landfill, where limited erosion has occurred. The corrective measures also include installation of an additional groundwater monitoring well, and conduct of Long Term Monitoring (LTM) at SWMU 40. LTM includes inspection and maintenance of the landfill cap, periodic sampling of a network of four groundwater monitoring wells, and preparation of annual LTM reports.

The corrective measures are being implemented as Interim Measures. A work plan was submitted to USEPA and VDEQ for review and approval on December 03, 2010.

Radford Army Ammunition Plant

FACT SHEET SWMU 57

Introduction

This fact sheet describes the selected action for contaminated soil at Solid Waste Management Unit (SWMU) 57 – the Pond by Buildings 4931 and 4928 at Radford Army Ammunition Plant (RFAAP). This alternative was selected in accordance with the Resource Conservation and Recovery Act of 1976 (RCRA), the Hazardous and Solid Waste Amendments of 1984 (HSWA), the RFAAP RCRA permit requirements (USEPA, 2000) (EPA ID No. VA1210020730).

Background

SWMU 57 is a 0.06-acre area (2,600 ft²) consisting of an inactive, fabricated, asphalt-lined pond and associated piping. SWMU 57 is an inactive fabricated unit historically used as an acid-settling pond.

The RFAAP RCRA Corrective Action Permit identified SWMU 57 as an area of concern that had the potential to pose a threat or potential threat to human health and the environment. SWMU 57 was a part of the Site Screening Process (SSP) investigation completed in 2007 which resulted in the recommendation of a focused RFI for the site.

RCRA Facility Investigation (RFI)/Corrective Measures Study (CMS)

The RCRA facility investigation (RFI) field efforts were conducted at the site in 2008. The primary site-related chemicals of concern identified in soil at the site were metals (antimony, aluminum, cadmium, chromium, iron, and manganese). Chloroform was detected in site groundwater at levels above its USEPA tap-water risk-based screening level (T-RBC) but below the maximum contaminant level (MCL) for trihalomethanes; chloroform was not detected in the soils sampled in and below the former acid-settling pond.

The Final RFI/CMS (URS, 2009) established remedial goals for soil, and corrective measures for soil at SWMU 57. Since maximum detected concentrations of contaminants of concern in groundwater were below groundwater remedial goals, groundwater corrective measures were not required. The CMS selected the following for SWMU 57: Alternative Four: Excavation of Soil and Offsite Disposal for Clean Closure and Unrestricted Land Use. USEPA and VDEQ approved the Final RFI/CMS in September 2009.

Implementation of the Selected Corrective Measures

The selected alternative includes removal of water from the pond, and stabilization of residual material in the pond as necessary. Soils contaminated above the soil residential remedial goals will be excavated, with backfilling of the area with clean soil. Wastes from the pond remediation will be disposed at a permitted off-site facility. The site will be restored and vegetated, resulting in unrestricted future use of the area. Before the excavation and clean backfill placement, the groundwater monitoring wells are being sampled once again. A work plan was submitted to USEPA and VDEQ for review and approval on November 17, 2010.



SWMU 57

New River


**RADFORD
ARMY AMMUNITION PLANT**

SWMU 40

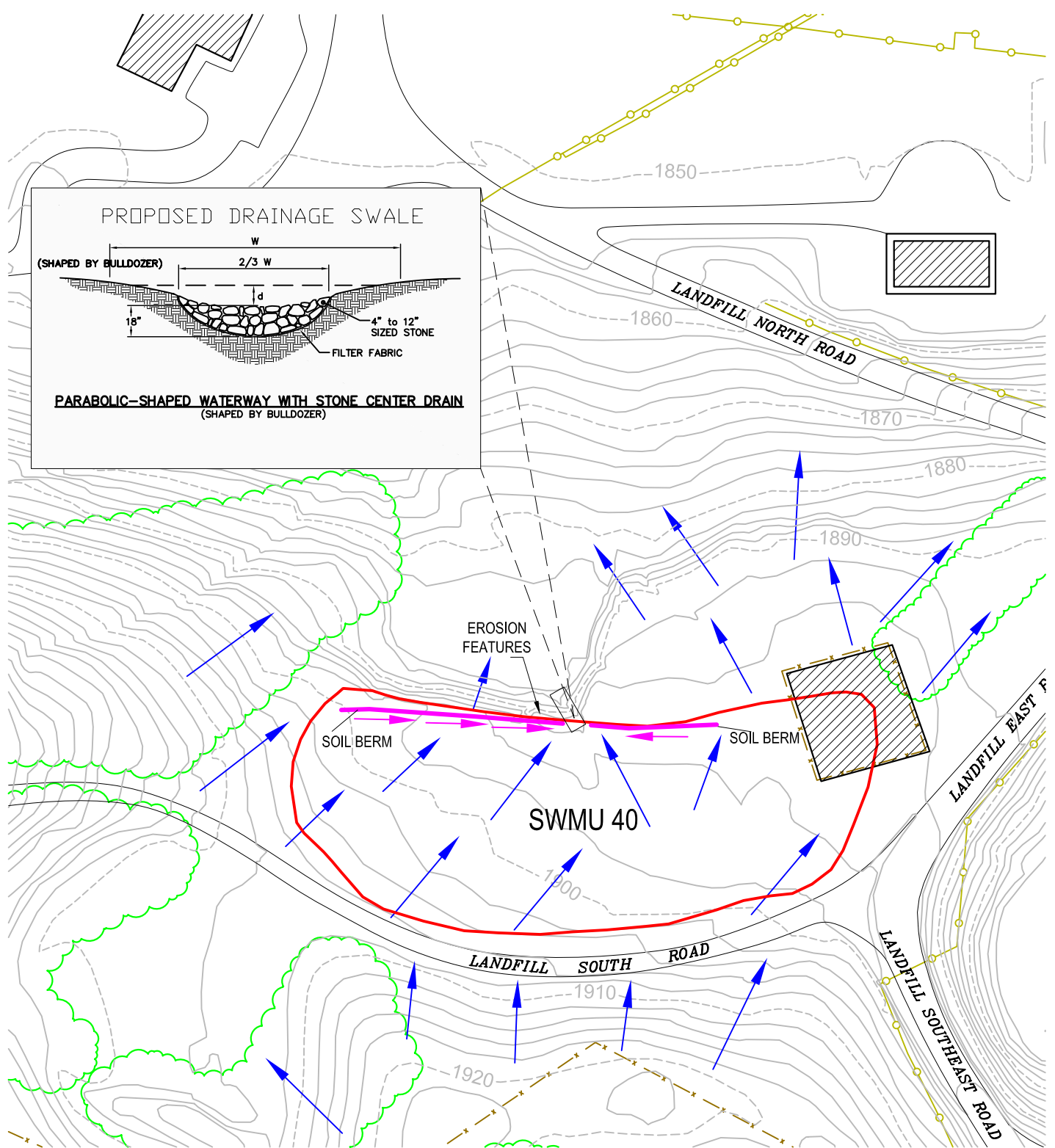
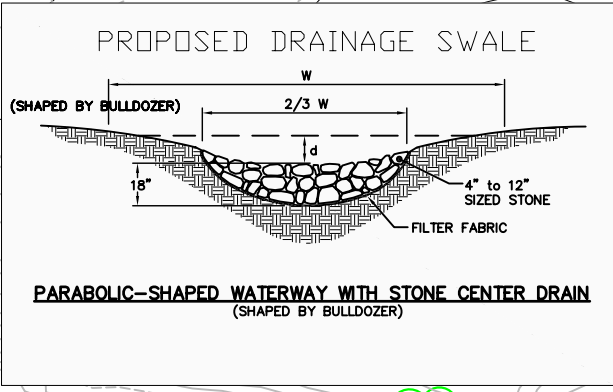
0 245 490 980
 Feet
 1 inch equals 980 feet



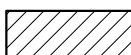







Source: Google Earth; Imagery Date: February 1, 2007

		KEMRON Environmental Services 1359-A Ellsworth Industrial Blvd. Atlanta, GA 30318	
PROJECT NO. RADFORD		DRAWING DATE: 11/22/2010	
DESIGNED DRP	SITE LOCATION MAP SWMU 57 and SWMU 40		
DETAILED DRP			
CHECKED KR	LOCATION: RADFORD ARMY AMMUNITION PLANT, RADFORD, VIRGINIA	FIGURE:	1

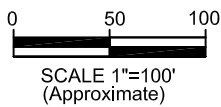
FILE PATH: (LOVETON) M:\MARIETTA\0_MR_0669_003-001\200\MR0669.FIG. 3.JG REVISION 1 SWMU 40 SURFACE WATER DRAINAGE.DWG [FIG. 3 (INLET DETAILS)] 11/3/10 PLOTTED: November 3, 2010 - 11:34 AM, BY: Jeff Goodwin



LEGEND

	BUILDINGS		DIVERTED SURFACE WATER FLOW
	VEGETATION		WATER DRAINAGE FLOW
	APPROXIMATE SWMU BOUNDARY		TOPOGRAPHIC CONTOUR
	ABOVEGROUND PIPING		FENCE LINE

Note: Base map developed from fig. 2-3 Provided by URS Group, Inc., 1-2008

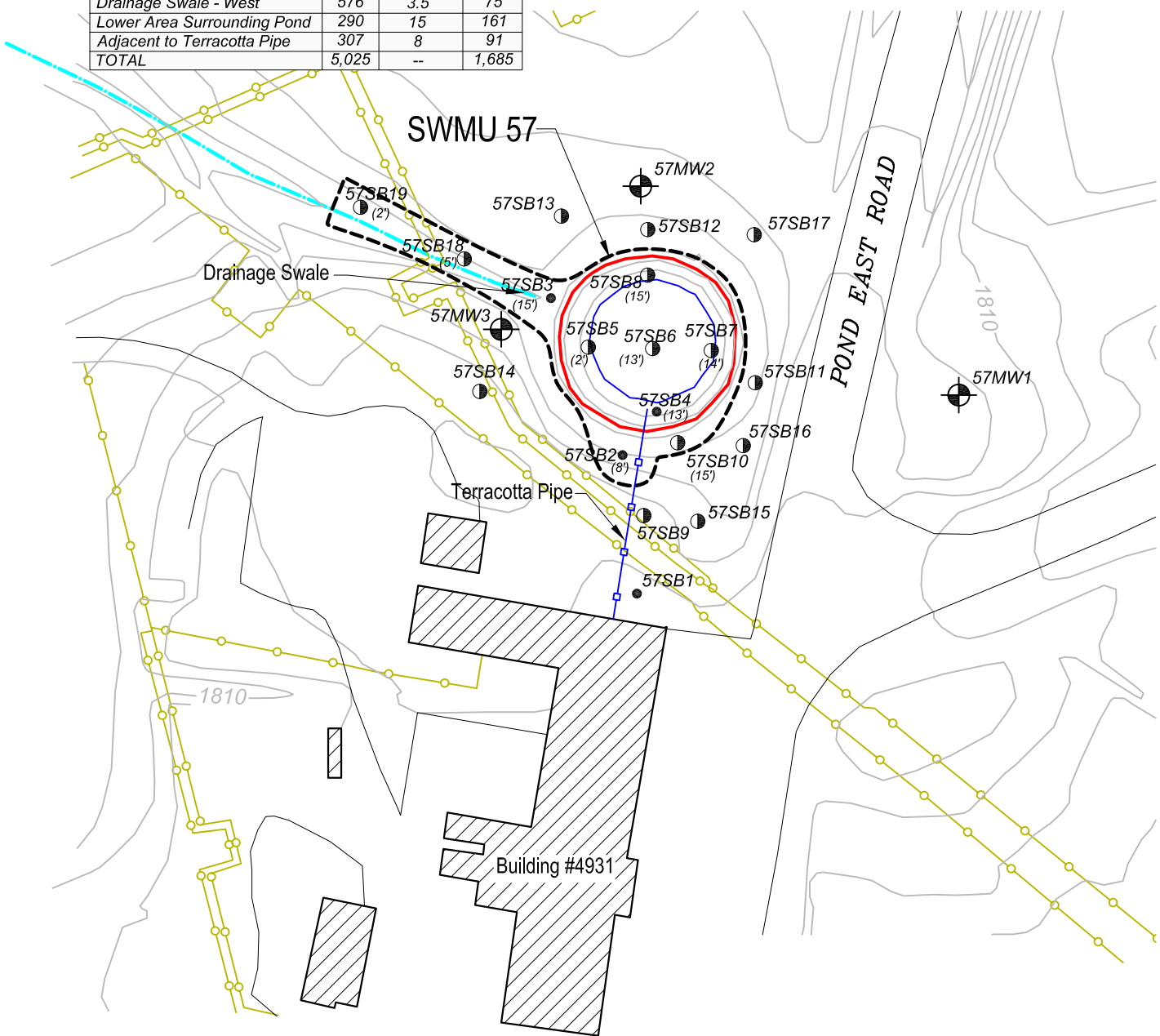


DRAWN BY: KG	DATE 15 SEPTEMBER 2010
REVIEWED: R KR 5	PROJECT NO. MR0669-200-001
APPROVED:	DWG. FILE NO. SURF. WTR.DRANG.

FIGURE 3

IMWP SWMU 40
SURFACE WATER DRAINAGE & SWALE
DETAIL MAP
RADFORD ARMY AMMUNITION
PLANT-009
RADFORD, VIRGINIA

EXCAVATION SOIL VOLUMES			
Location	Area (sq ft)	Average Depth (ft)	Volume (BCY)
Within Pond Area	2,898	11	1,181
Asphalt Berm	378	2*	28
Drainage Swale - East	576	7	149
Drainage Swale - West	576	3.5	75
Lower Area Surrounding Pond	290	15	161
Adjacent to Terracotta Pipe	307	8	91
TOTAL	5,025	--	1,685



LEGEND

	57MW3	MONITORING WELL LOCATION		BUILDINGS
	57SB14	RFI SAMPLE LOCATION		TERRACOTTA PIPE
	57SB1	SSP SOIL SAMPLE LOCATION		ABOVEGROUND PIPING
		APPROXIMATE SWMU BOUNDARY		VEGETATION
		EXCAVATION AREA		TOPOGRAPHIC CONTOUR
	(2)	APPROXIMATE DEPTH OF EXCAVATION		DRAINAGE SWALE

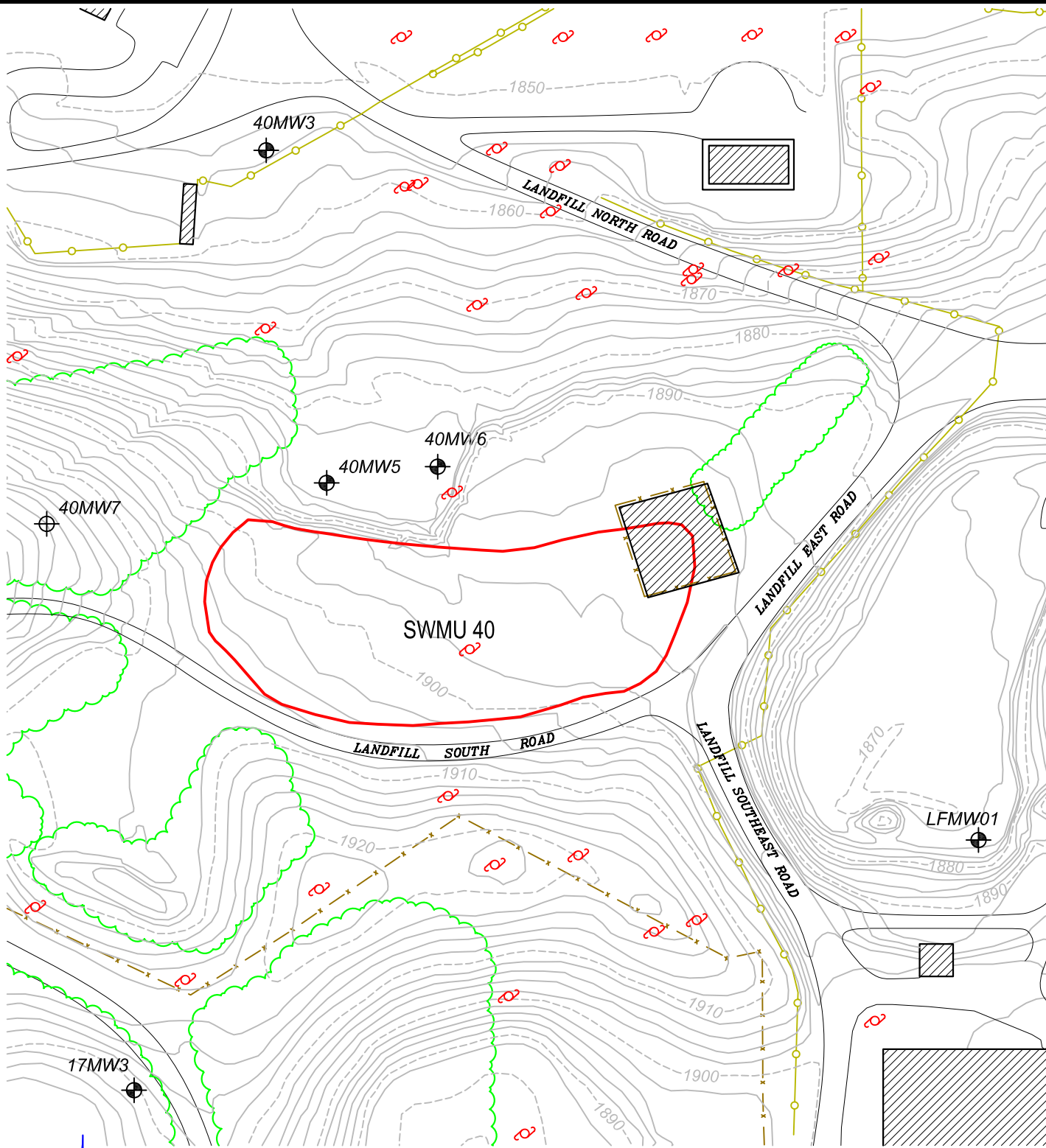
Note: Base map developed from fig. 10-2. Provided by URS Group Inc., 4-2008



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KG	23 AUGUST 2010
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KR	MR0669-400-001
APPROVED:	DWG. FILE NO.
	ESTIMATED EX. AREA

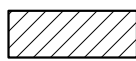
FIGURE 3

SWMU 57 IMWP
 ESTIMATED EXCAVATION AREA MAP
 RADFORD ARMY AMMUNITION
 PLANT-022
 RADFORD, VIRGINIA



Note: Base map developed from fig. 10-2.
 Provided by URS Group Inc., 1-2009

LEGEND



BUILDINGS



MONITORING WELL LOCATION



PLANNED NEW MONITORING WELL LOCATION



OVERHEAD ELECTRIC POLE



VEGETATION



APPROXIMATE SWMU BOUNDARY



ABOVEGROUND PIPING



TOPOGRAPHIC CONTOUR



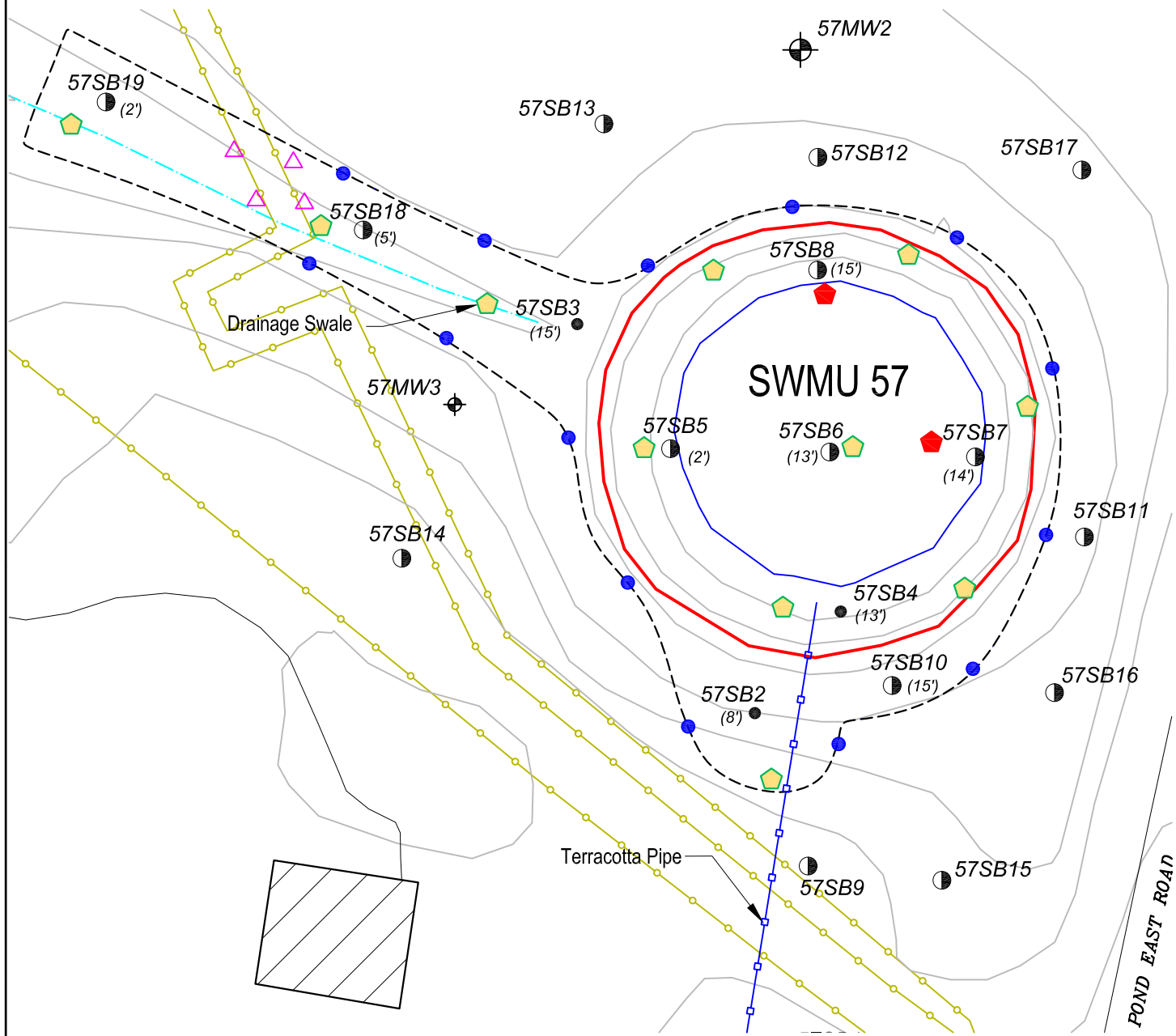
FENCE LINE



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FIGURE 4

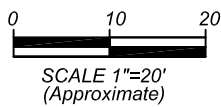
IMWP SWMU 40
 PLANNED WELL LOCATION
 RADFORD ARMY AMMUNITION
 PLANT-009
 RADFORD, VIRGINIA



LEGEND

	SIDEWALL CONFIRMATION SAMPLE(18)		BUILDINGS
	WASTE CHARACTERIZATION SAMPLE (Surface & Subsurface)		TERRACOTTA PIPE
	FLOOR CONFIRMATION SAMPLE(7)		APPROXIMATE SWMU BOUNDARY
	HAND AUGER BORING(9)		EXCAVATION AREA
	57MW3 MONITORING WELL LOCATION		APPROXIMATE DEPTH OF EXCAVATION (2')
	57SB14 RFI SAMPLE LOCATION		ABOVEGROUND PIPING
	57SB1 SSP SOIL SAMPLE LOCATION		TOPOGRAPHIC CONTOUR
			DRAINAGE SWALE

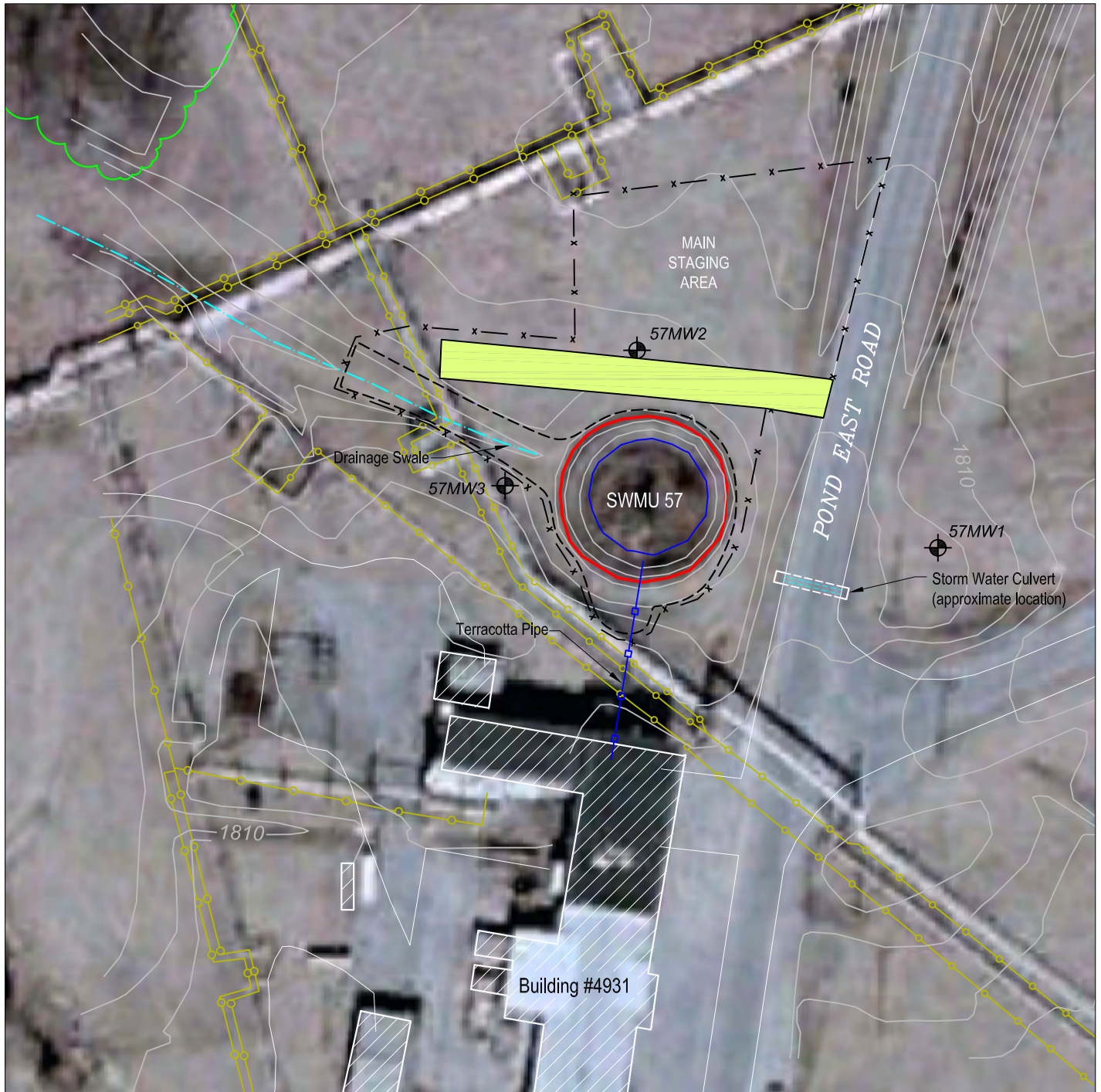
Note: Base map developed from fig. 10-2. Provided by URS Group Inc., 4-2008














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APPROVED:	KR	DWG. FILE NO.	PRP. SAMPLING PLAN

FIGURE 4

IMWP SWMU 57
 PROPOSED SAMPLING PLAN
 RADFORD ARMY AMMUNITION
 PLANT-022
 RADFORD, VIRGINIA

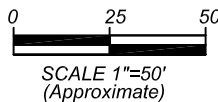


LEGEND

-  BUILDINGS
-  TERRACOTTA PIPE
-  CONSTRUCTION ENTERANCE/EXIT
-  SILT FENCE
-  MONITORING WELL LOCATION
-  VEGETATION
-  APPROXIMATE SWMU BOUNDARY
-  EXCAVATION AREA
-  ABOVEGROUND PIPING
-  TOPOGRAPHIC CONTOUR
-  DRAINAGE SWALE



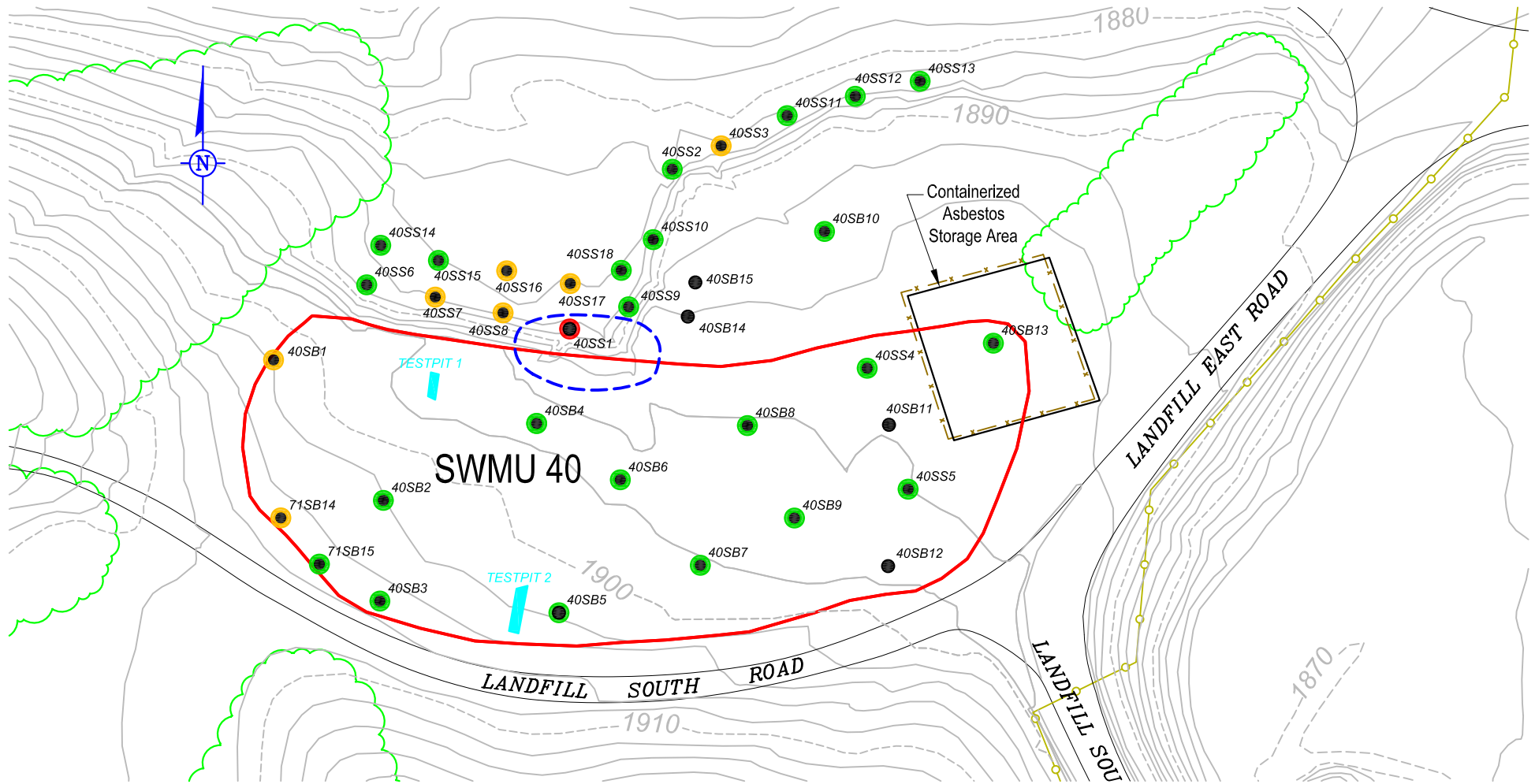
Note: Aerial Photo from Google Earth, 2010



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FIGURE 5

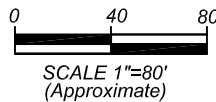
IMWP SWMU 57
 PROPOSED STAGING AREA
 RADFORD ARMY AMMUNITION
 PLANT-022
 RADFORD, VIRGINIA



LEGEND

- EXCEEDS ADJUSTED RESIDENTIAL RISK-BASED CONCENTRATION (R-RBC) OF 156ug/kg FOR AROCLOR 1254 AND 319 ug/kg FOR ARCOLOR 1260
- EXCEEDS ADJUSTED R-RBC AND ADJUSTED INDUSTRIAL RBC (I-RBC) OF 1,431ug/kg FOR BOTH AROCLOR 1254 AND ARCOLOR 1260
- APPROXIMATE SWMU BOUNDARY
- AREA OF CAP REPAIR
- ABOVEGROUND PIPING
- VEGETATION
- TOPOGRAPHIC CONTOUR
- FENCE LINE
- SB/SS SOIL BORING/SURFACE SAMPLE LOCATION
- PARAMETERS DO NOT EXCEED ADJUSTED RBCs
- PARAMETERS EXCEED ADJUSTED RESIDENTIAL RBCs ONLY
- PARAMETERS EXCEED ADJUSTED R-RBC & ADJUSTED I-RBC

Note: Base map developed from fig. 2-2
 Provided by URS Group, Inc., 1-2008



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KR	5	MR0669-200-001
APPROVED:		DWG. FILE NO.
		SWMU 40. SITE MAP

FIGURE 6

IMWP SWMU 40
 LOCATION OF CORRECTIVE MEASURES
 RADFORD ARMY AMMUNITION PLANT-009
 RADFORD, VIRGINIA