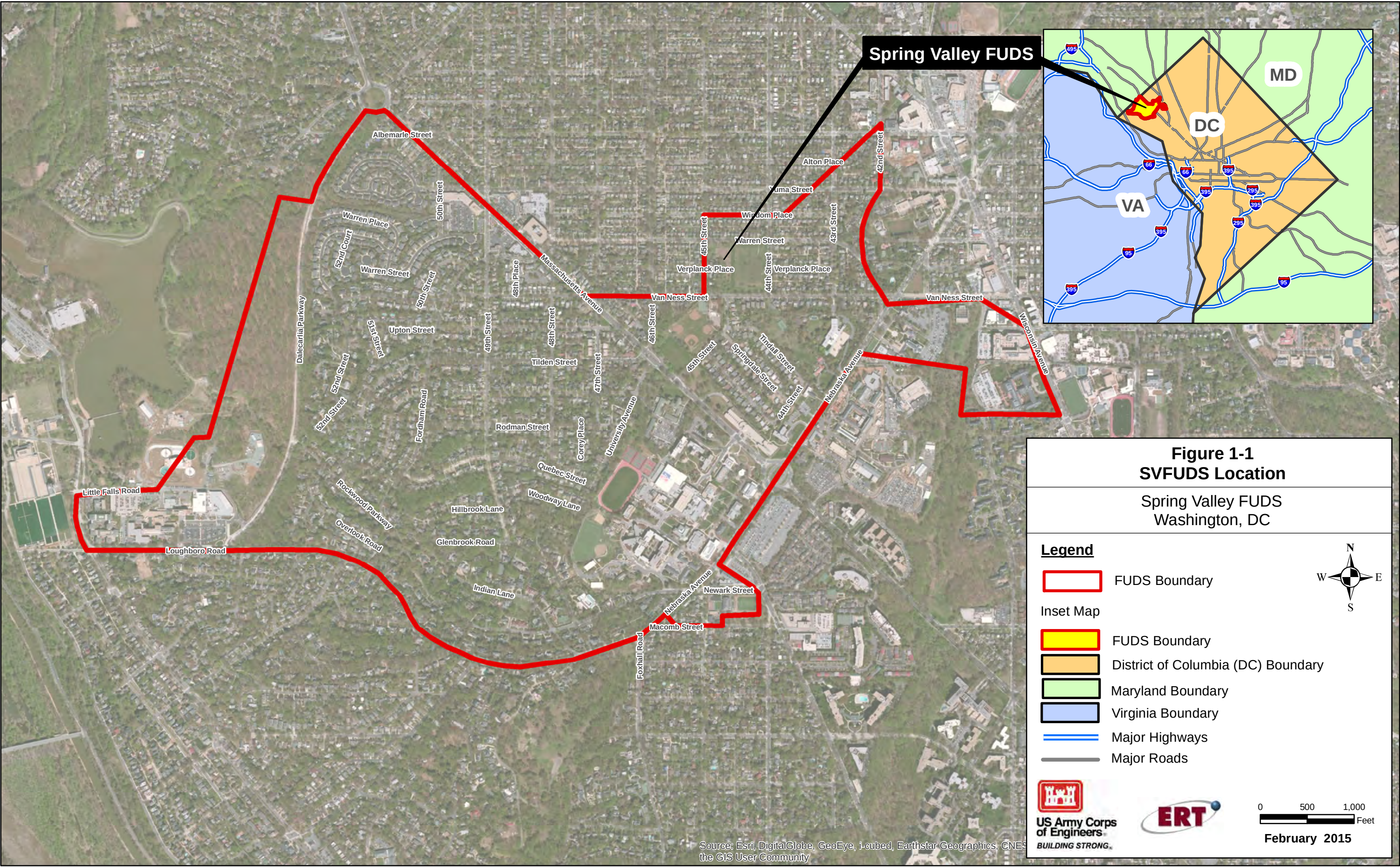




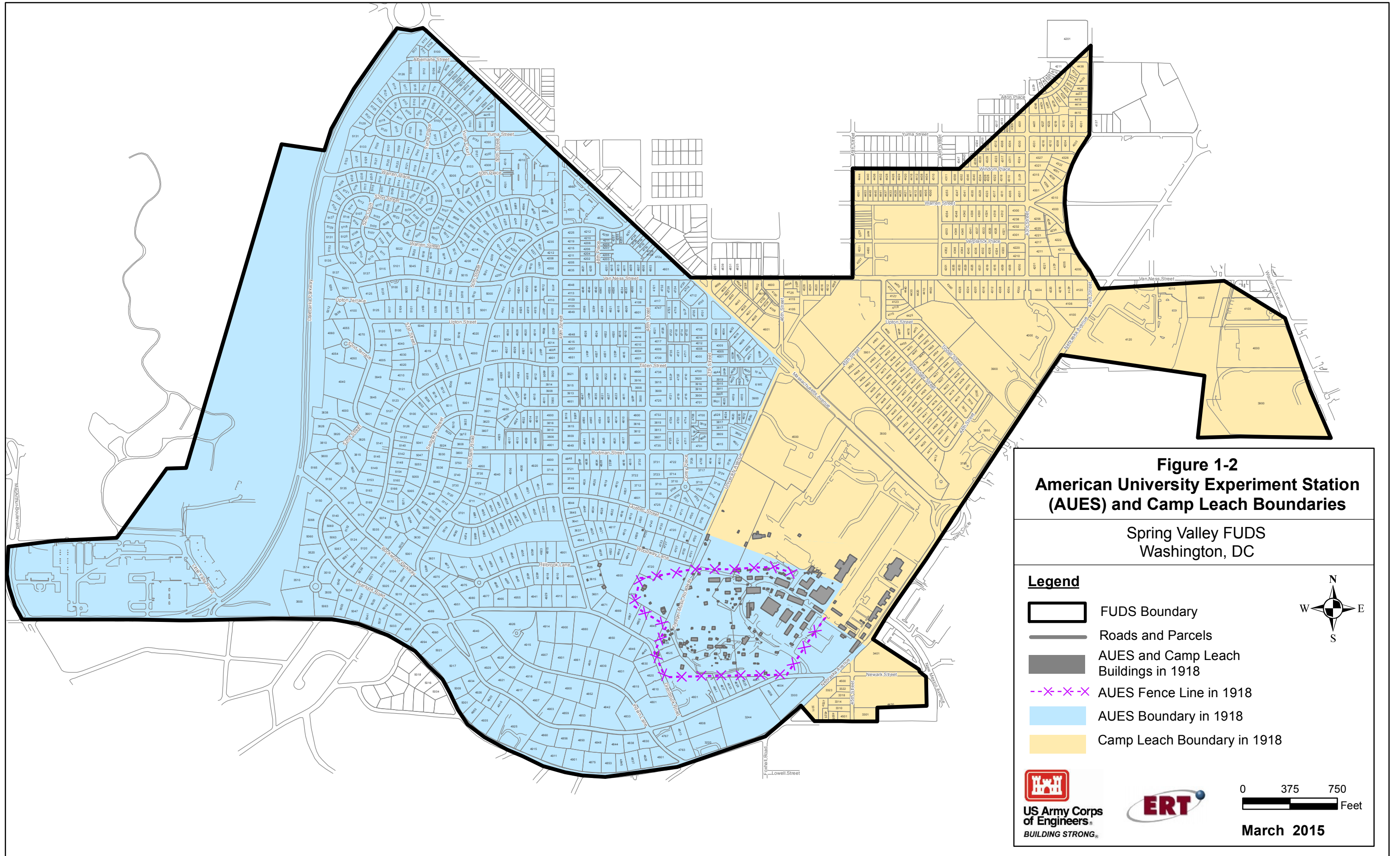




Figure 1-3
1918 Aerial Photomosaic

Spring Valley FUDS
Washington, DC

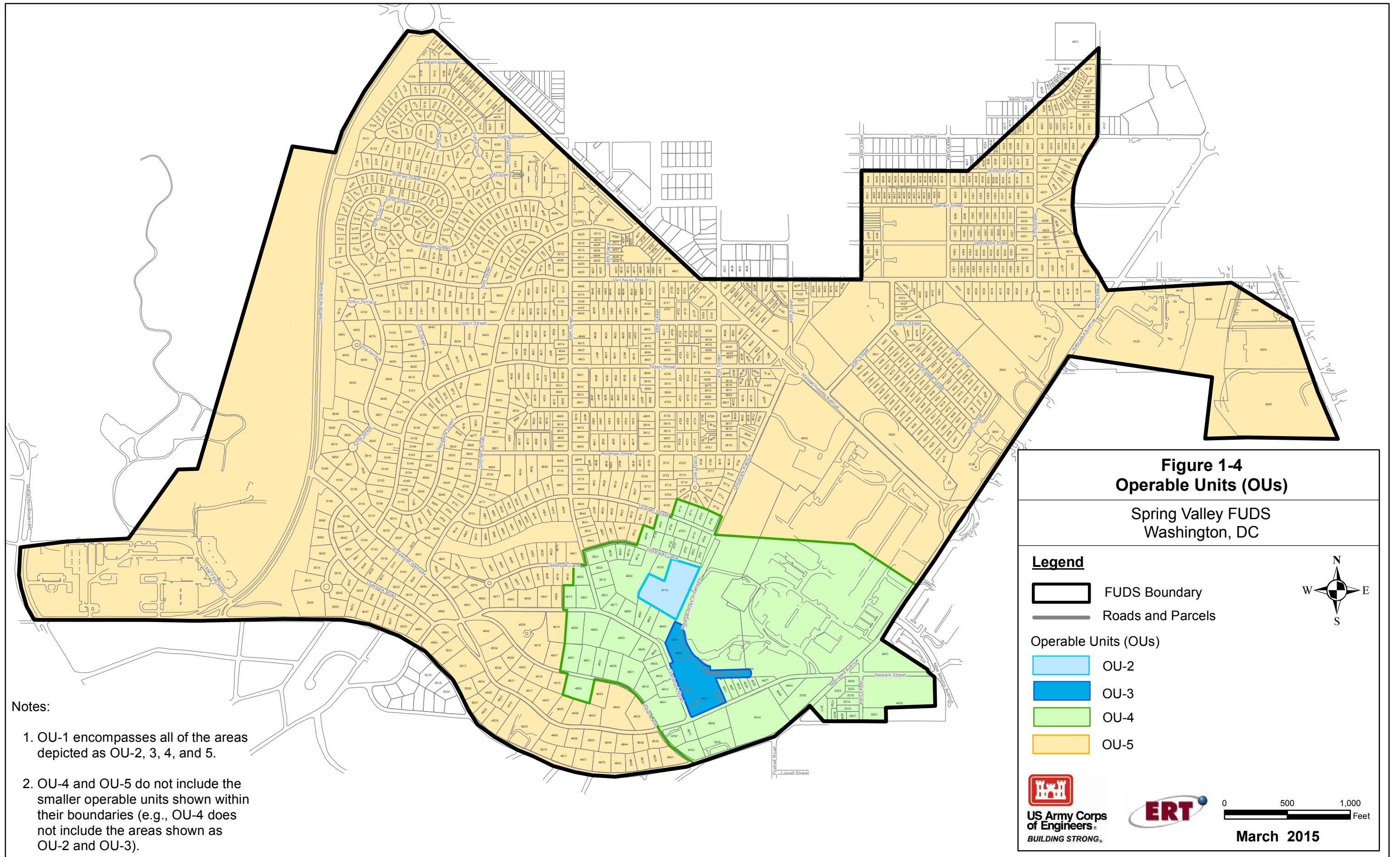
Legend

- | | | |
|------------------------------|----------------------------------|----------------------------------|
| 1. College of History | 5. Nebraska Avenue | 9. Camp Leach |
| 2. McKinley Memorial Hall | 6. Massachusetts Avenue | 10. Mount Vernon Seminary |
| 3. Chemical Warfare Building | 7. Bomb Pits | 11. Trenches and Proving Grounds |
| 4. Grove Ampitheatre | 8. Buildings for Experimentation | 12. American University Park |

0 125 250
Feet



February 2015



- POI 1 - Circular (Sedgwick) Trenches
- POI 2 - Possible Pit
- POI 3 - Small Crater Scars
- POI 4 - Possible Pit
- POI 5 - Possible Pit
- POI 6 - Possible Target or Test Site
- POI 7 - Possible Test Area
- POI 8 - Possible Target or Test Site
- POI 9 - Possible Firing or Observation Stalls
- POI 10 - Possible Target or Test Site
- POI 11 - Scattered Ground Scars
- POI 12 - Possible Graded Area
- POI 13 - Circular Trenches
- POI 14 - Disposal Pit
- POI 15 - Ground Scar
- POI 16 - Chemical Persistency Area
- POI 17 - Possible Pit
- POI 18 - Small Crater Scars
- POI 19 - Old Mustard Field
- POI 20 - Ground Scar
- POI 21 - Capt. Burrell Bomb Pit
- POI 22 - Shell Pit
- POI 23 - Shell Pit
- POI 24 - Probable Pit
- POI 25 - Possible Trenches
- POI 26 - Small Crater Scars
- POI 27 - Probable Trench or Ditch
- POI 28 - Probable Trench or Ditch
- POI 29 - Ground Scar
- POI 30 through 36 - Training Trenches
- POI 37 - Mill Creek
- POI 38 - Bradley Field / Major Tolman's Field
- POI 39 - Static Test Fire Area
- POI 40 - Ohio Hall
- POI 41 - History Building
- POI 42 - Physiological Laboratory
- POI 43 - Gun Pit
- POI 44 - Chemical Research Laboratory
- POI 45 - Explosives Laboratory
- POI 46 - Canister Laboratory
- POI 47 - Research Laboratory
- POI 48 - Dispersoid Laboratory
- POI 49 - Pharmacological Laboratory
- POI 50 - Gun Pit
- POI 51 - Fire and Flame Laboratory
- POI 52 - Electrolytic Laboratory
- POI 53 - Baker Valley
- POI AU - American University

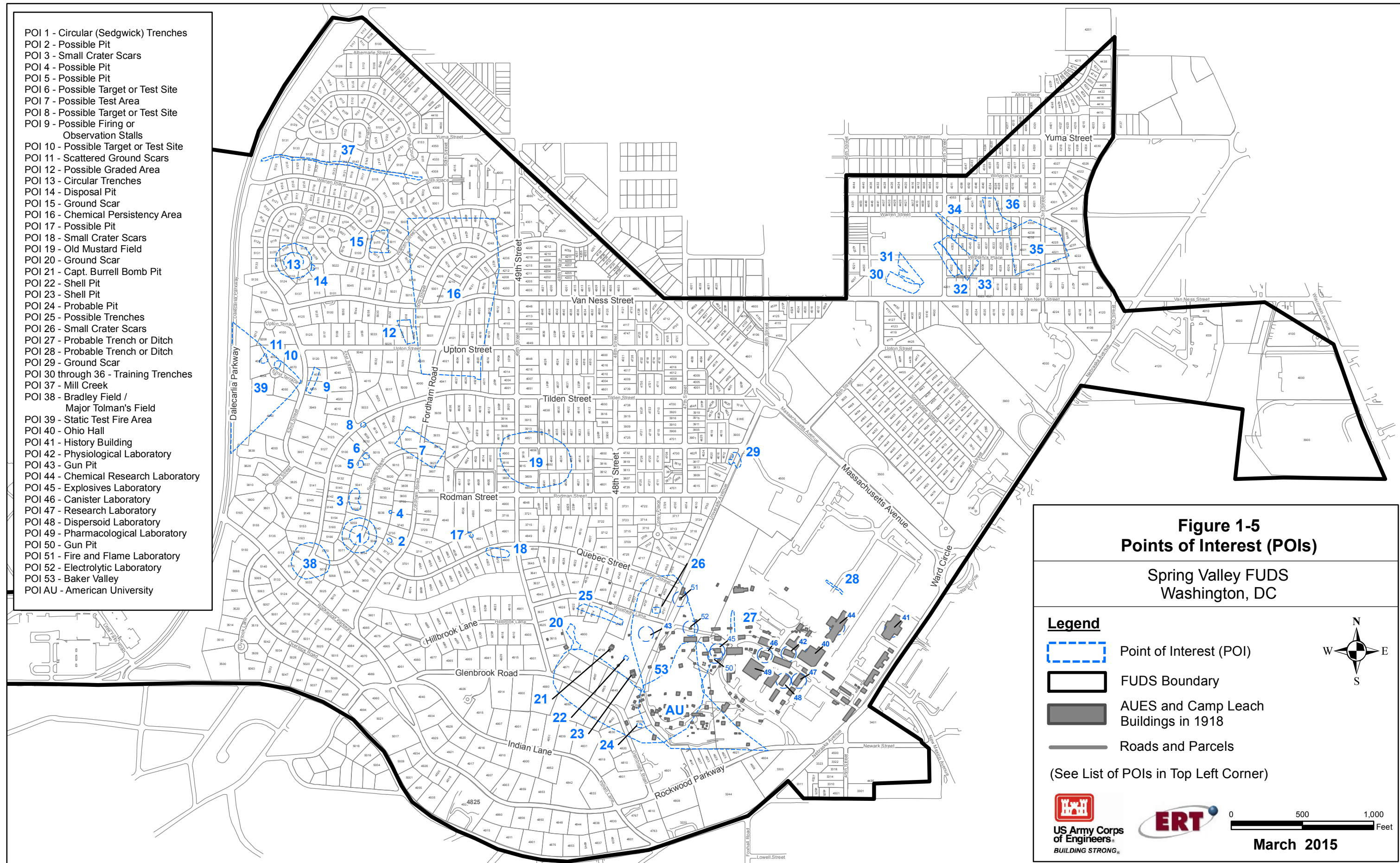


Figure 1-5
Points of Interest (POIs)

Spring Valley FUDS
Washington, DC

Legend

- Point of Interest (POI)
- FUDS Boundary
- AUES and Camp Leach Buildings in 1918
- Roads and Parcels

(See List of POIs in Top Left Corner)

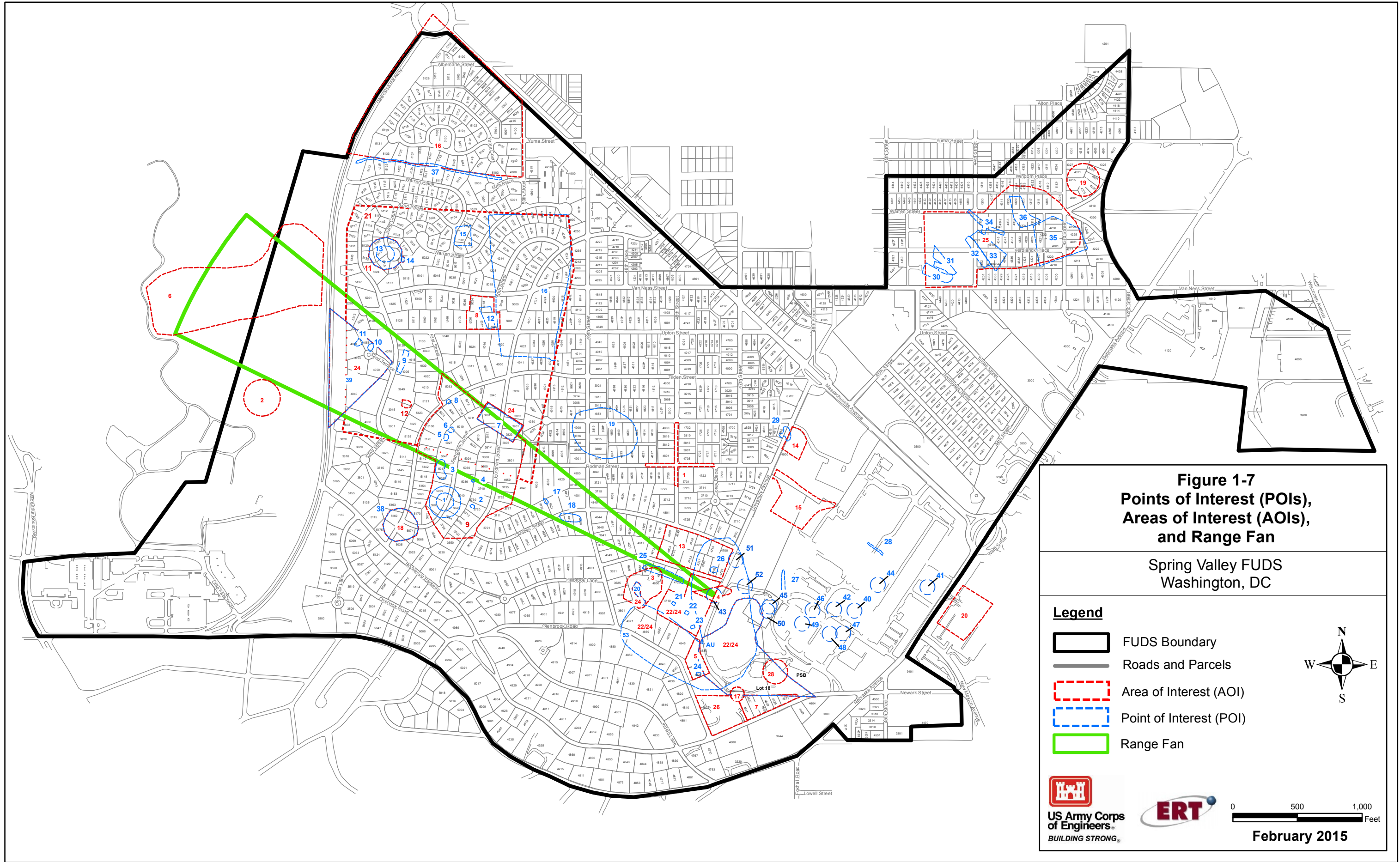


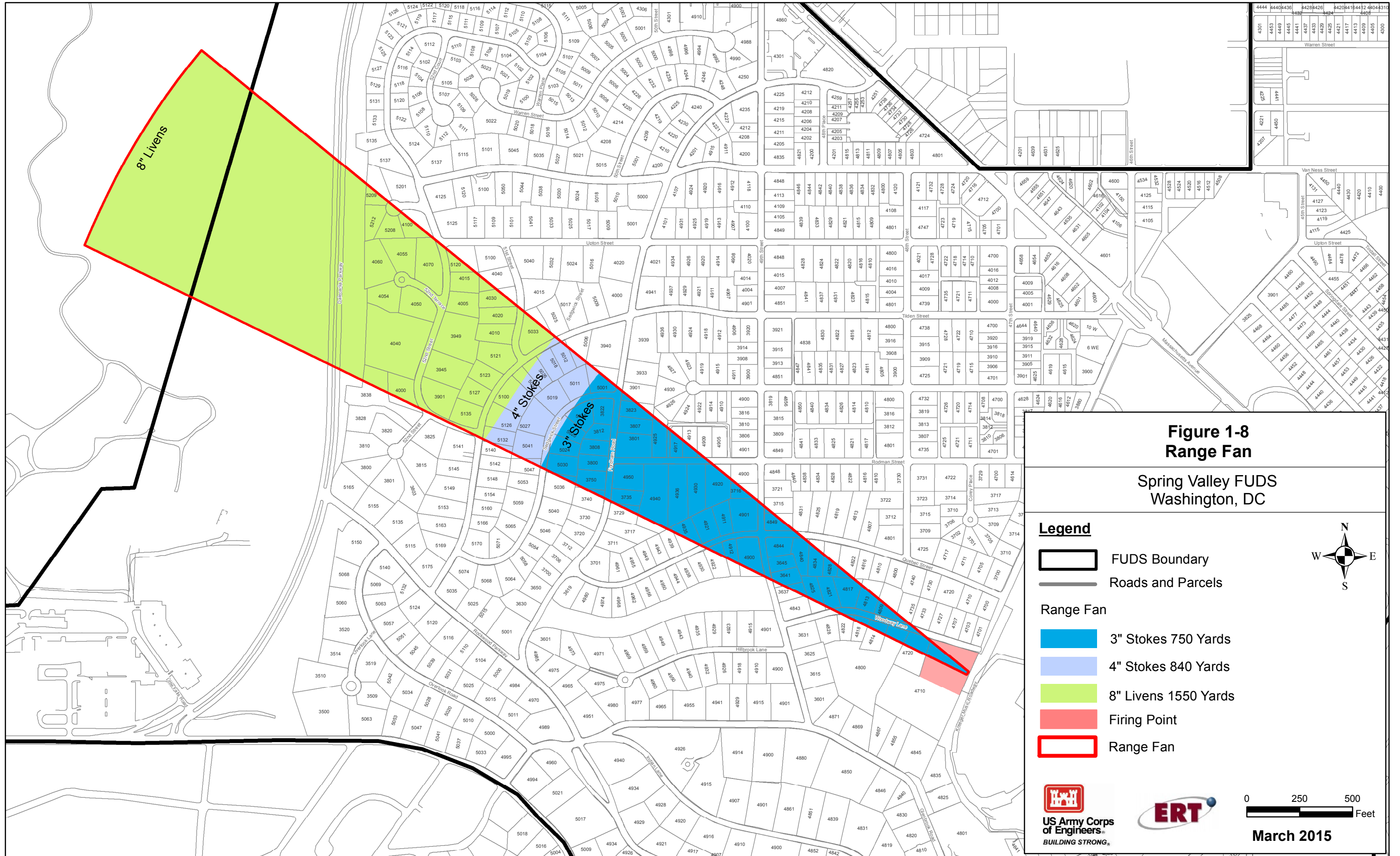
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Feet

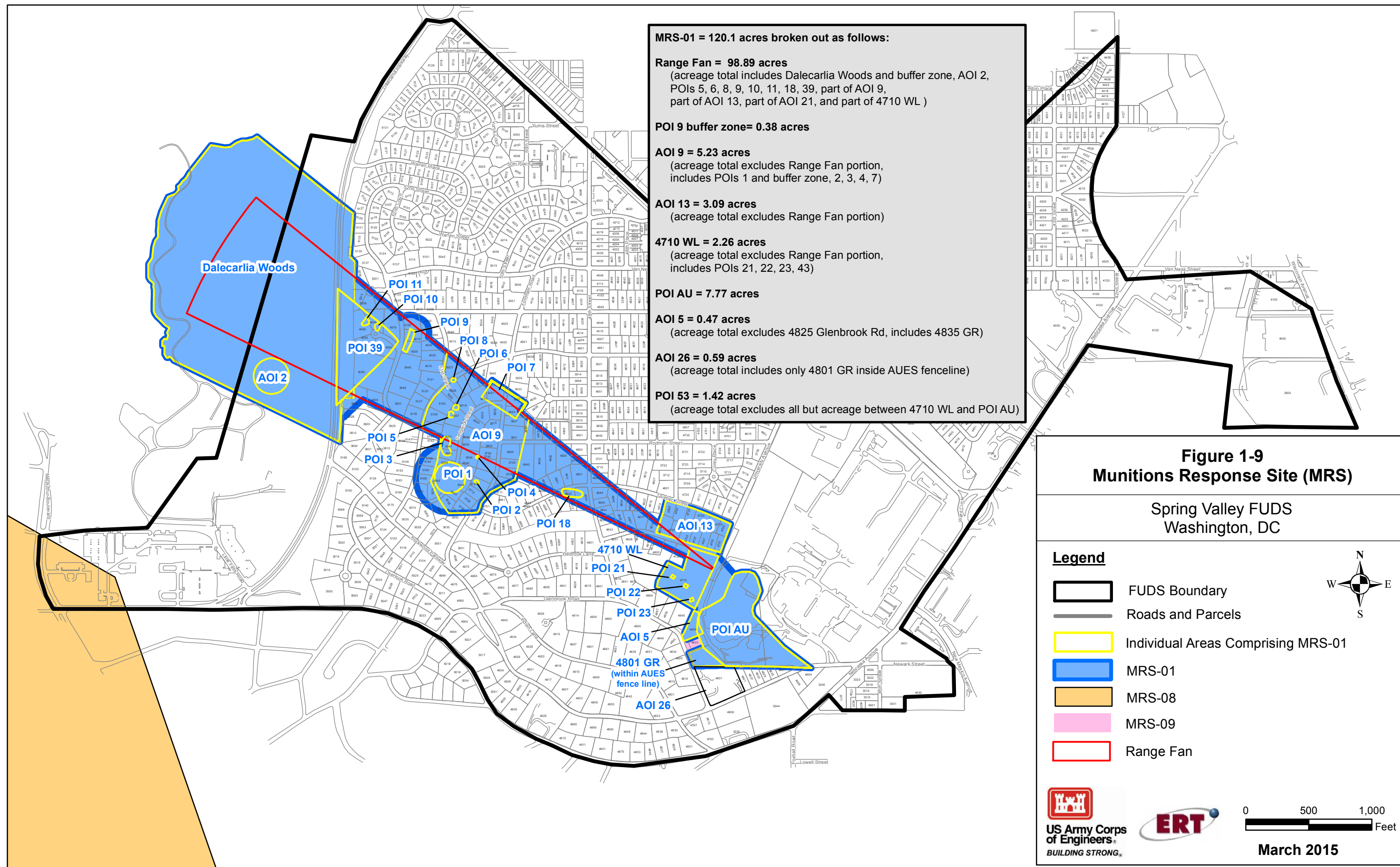
March 2015

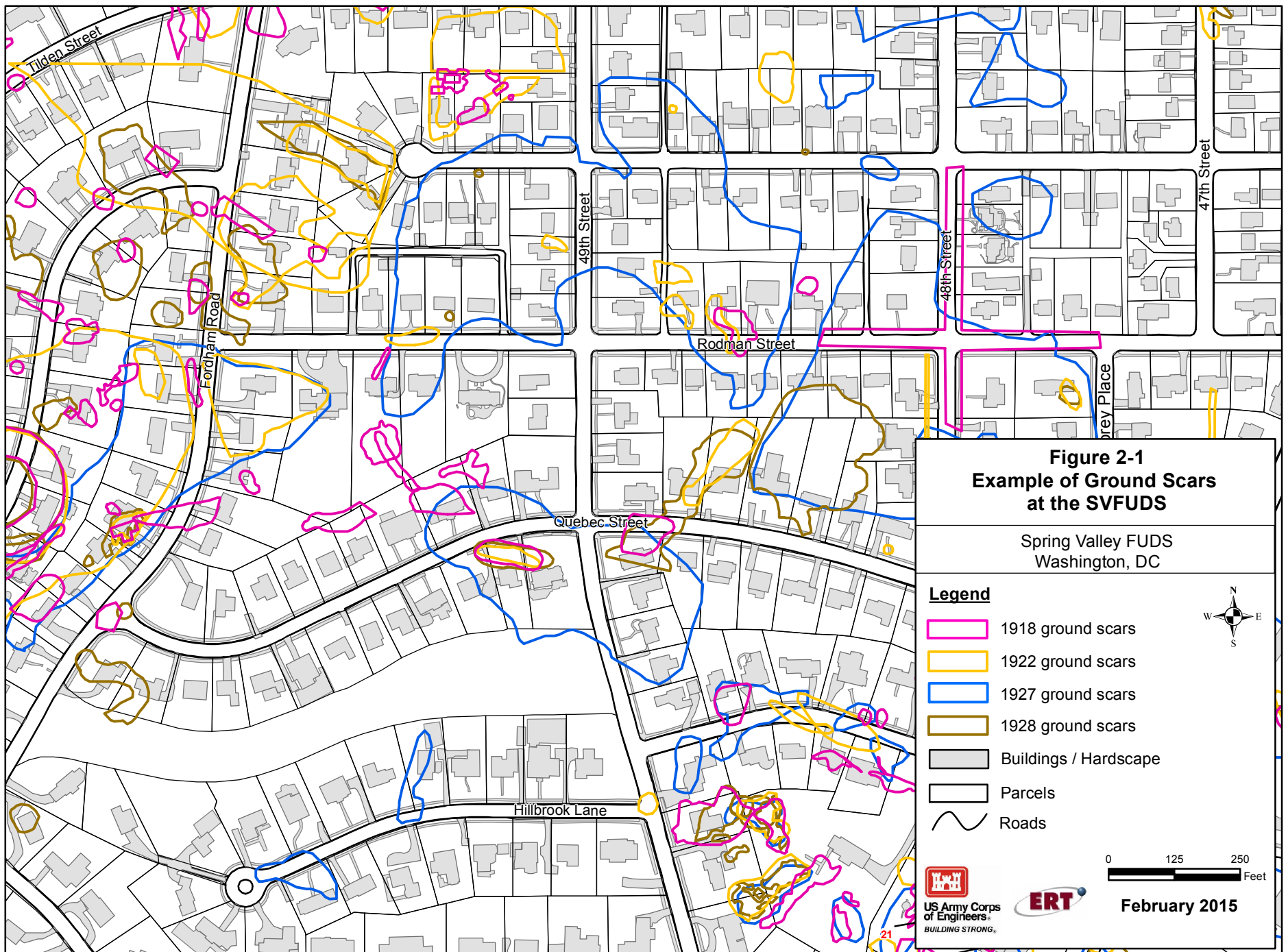












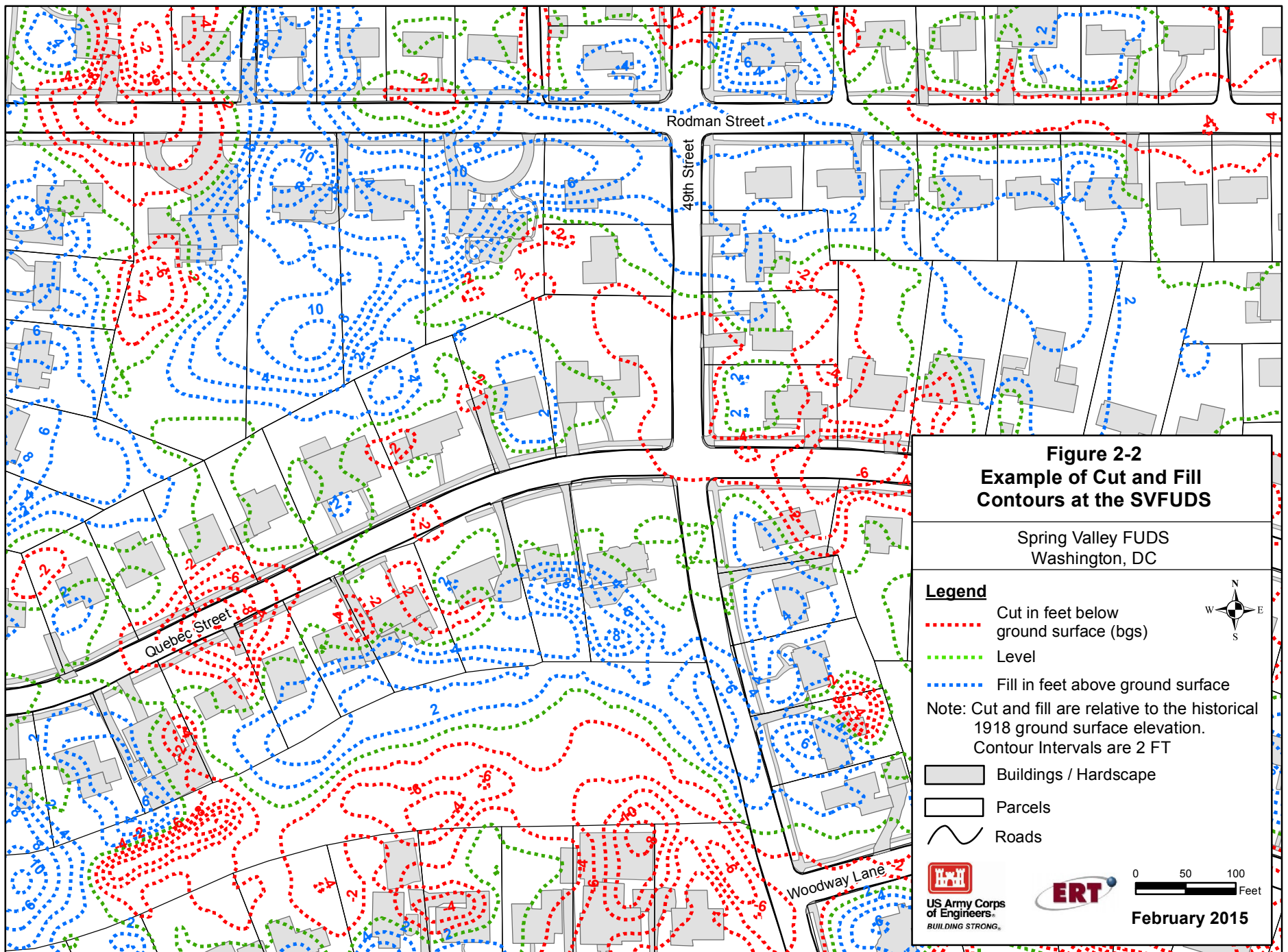


FIGURE 3-1: Conceptual Site Model for HTW/MC/CWM

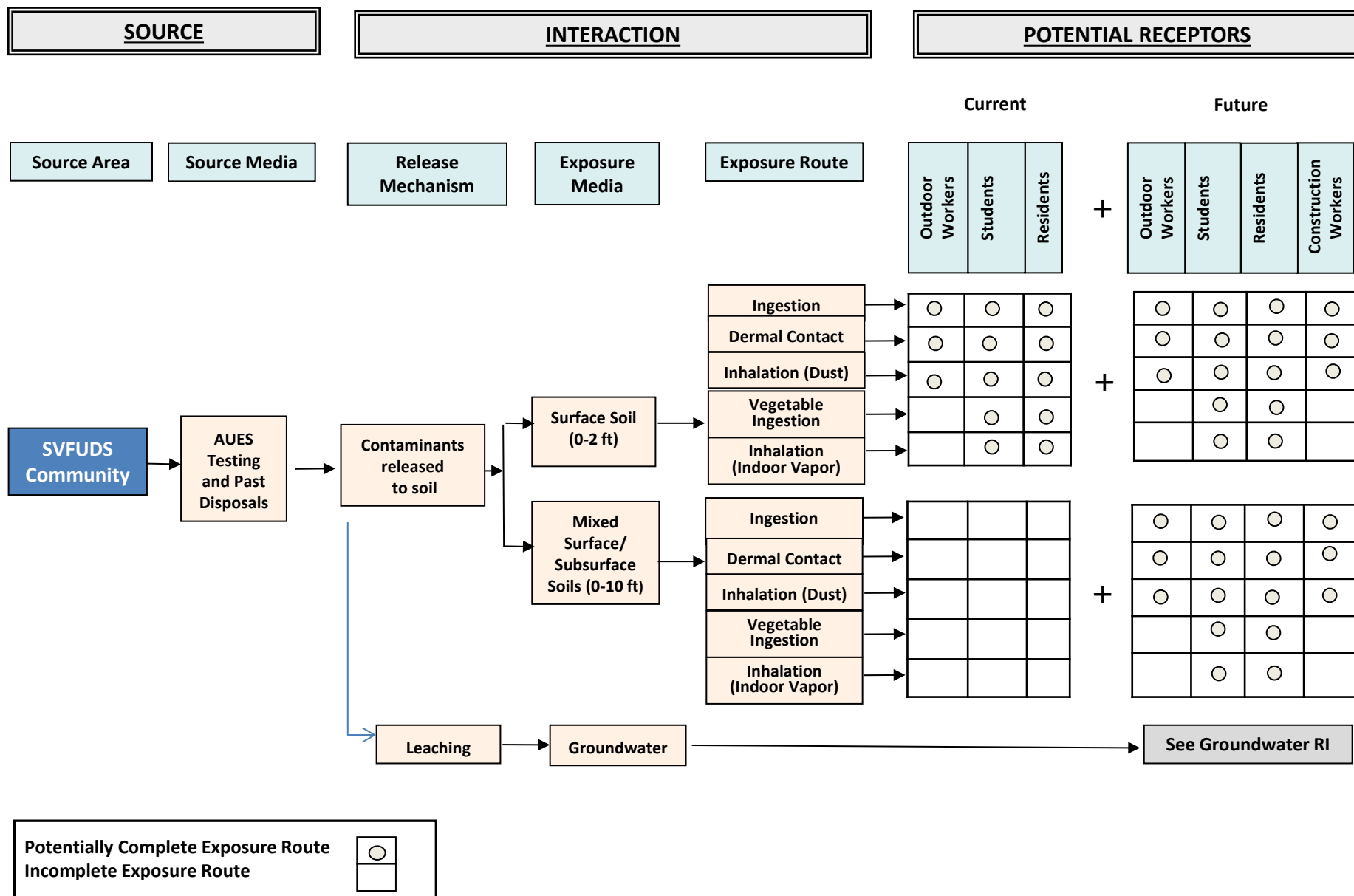
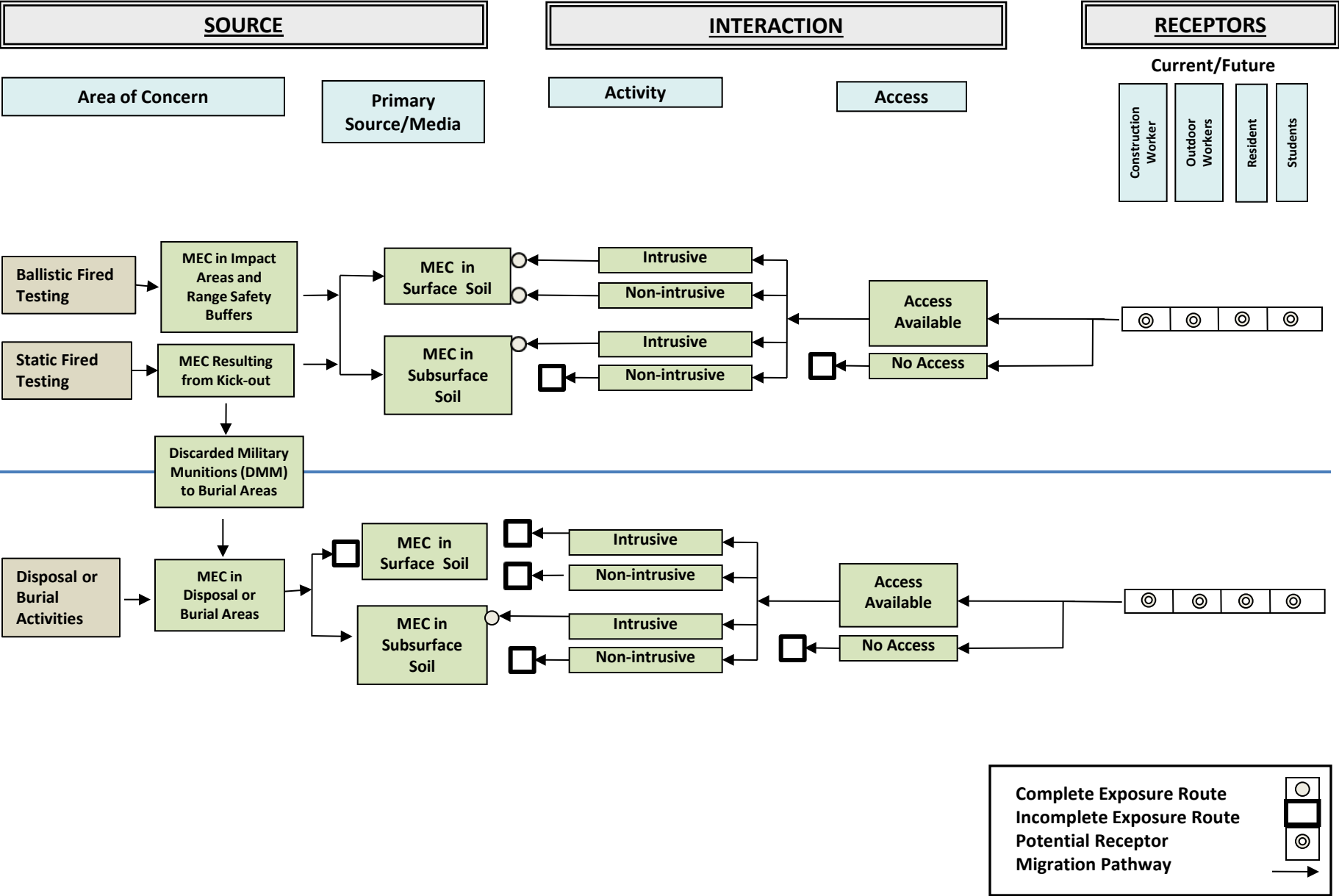


FIGURE 3-2: Conceptual Site Model for MEC



SPRING VALLEY FUDS TIMELINE

1993 – 2015

Spring Valley Military History

CIVIL WAR



Ft. Gaines & other forts located near SV area during Civil War era.

WWI



American University Experiment Station (AUES) 1917-1919, Built for CWM development & testing

WWI



Camp Leach, 1917-1919, Built for troop training

WWII



Navy Bomb Disposal School 1942-1946, on AU campus for research & education

1986 – Army conducts historical study for possible AUES burials

January 5, 1993
Buried WWI munitions found in utility trench on 52nd Ct.

1993
Army leads Operation Safe Removal (OSR) as an Emergency Response Action

Feb. 1993
OSR Phase I completed

1994 – 1996
Spaulding & Capt. Rankin Area Investigation

1993 – 1995
OSR Phase II Remedial Investigation conducted

1998
Search for revised POI 24 location begins



Mar. 1999 – Mar. 2001
Intrusive investigation of Pits 1 & 2

1999
4825 Glenbrook Rd. surveyed adjacent to Pits 1 & 2

2000 – 2011 Munitions investigations conducted on 90 Spring Valley properties

2001 – 2006
AU Small Disposal Area & AU Lot 18 investigated

2003
Containers of CWM, (including Lewisite), found at Lot 18

May 2001 – Mar. 2002
High prob. investigation of Test Pit 23 (aka: Pit 3)

2002
Sedgwick Trench Investigation completed

2003
Recovered chemical & conventional munitions destroyed

Oct. 2007 – Mar. 2009
High prob. investigation of Pit 3 resumes & is completed



2007 – 2008
4835 Glenbrook Test Pits

2008 – 2010
AU Public Safety Bldg. area excavated

2009 – 2011
FUDS western boundary near Dalecarlia Pkwy & Woods investigated

2009 – 2010
4825 High Prob. Test Pits

Sept. 2011
4825 RI & FS Reports released

Aug. 2010
4825 becomes separate CERCLA project site to expedite cleanup

2010
Recovered chemical munitions destroyed

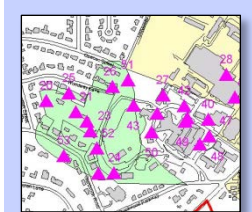
Fall 2012 –
4825 Proposed Plan accepted. Remedial Action: Demolition & cleanup begins

Winter 2012 –
4825 & AU areas PRP Investigation begins

2011 & 2012
Recovered conventional munitions destroyed



1993
AUES Historical Report issued & 54 Points of Interest (POIs) established



July 1996
DC Dept. of Health report critical of USACE investigation released

June 1995
Remedial Investigation Report issued

June 1995
No Further Action Record of Decision released, never finalized

January 2000
Soil investigation of 9 properties & several lots on AU, including the Child Dev. Center - munitions investigations conducted



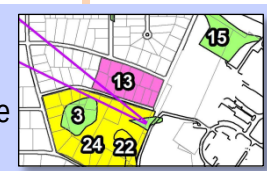
1999 – 2001
Pits 1 & 2 area soil removal

2001
Child Dev. Center soil remediation completed

2000
Extensive soil sampling at 4825

2001 – 2012 Site-wide arsenic sampling & removal at 1,600 Spring Valley properties / lots

2002 – 2007
Areas of Interests Task Force (AOITF) find 28 areas (AOIs) to be addressed in addition to 54 POIs



2004 – Ongoing groundwater study begins, 80+ site-wide & surrounding locations sampled

April 2004
Formation of Spring Valley Partnership

2005
Elevated perchlorate found in groundwater near Sibley Hospital & AU Kreeger Hall

March 2001
RAB established

2002
Two ATSDR studies consider potential health risks from SV arsenic concentrations

2005
ATSDR Study determines munitions pits from former SV military activities are public health hazards

March 2008
AUES Chemical Parameters Report Released

2012
SV perchlorate determined to be from Chilean source

2006
Johns Hopkins Univ. (JHU) study finds SV resident health very good overall

June 2011 –
USACE begins drafting Site Wide Remedial Investigation Report & follow-on CERCLA documents

Fall 2012
AOI Sampling completed

Mar. 2015
Site Wide RI Report Released

2011 – 2013
JHU follow-on health study

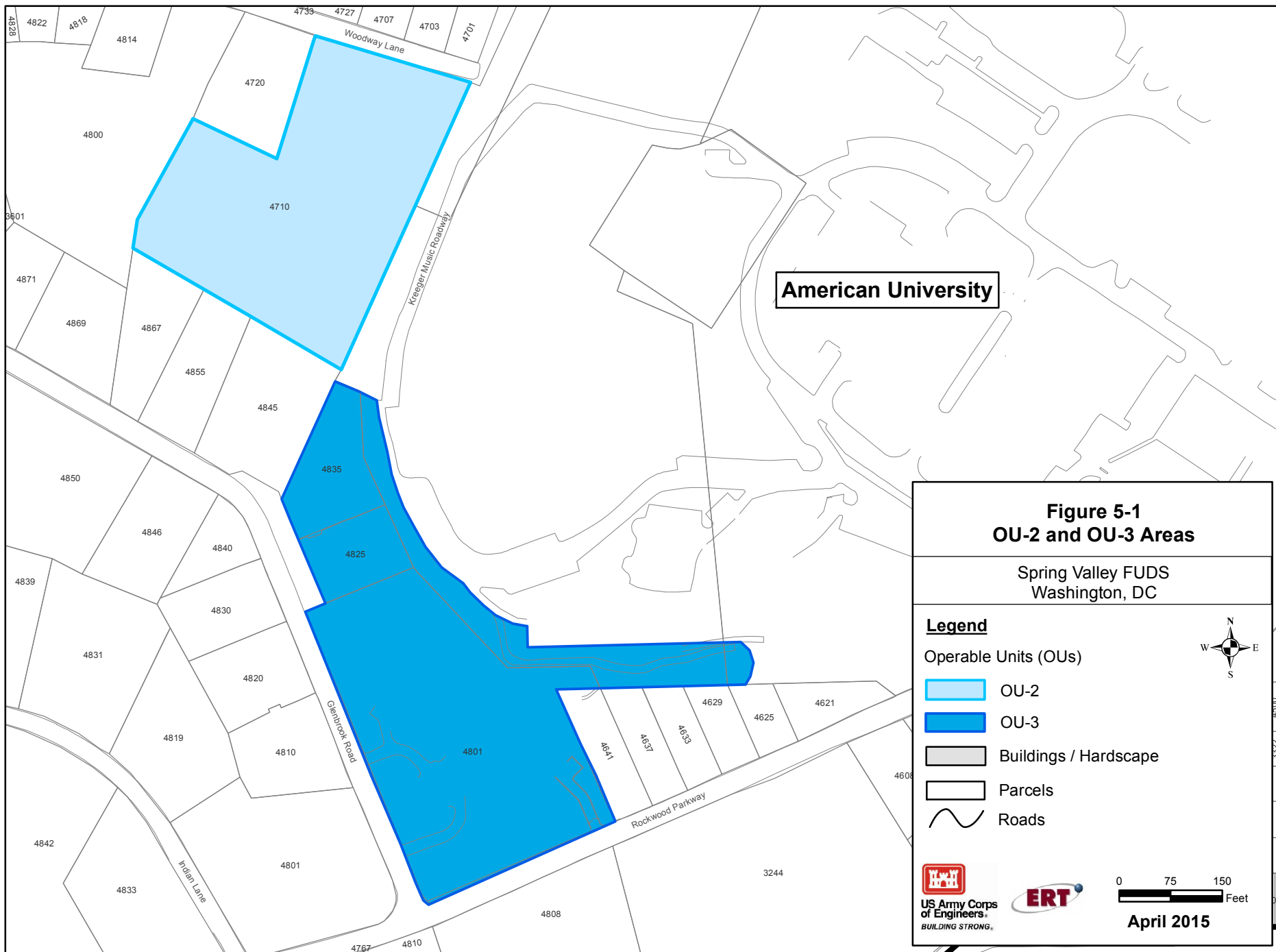
2011 –
ATSDR Study of 4825 initiated

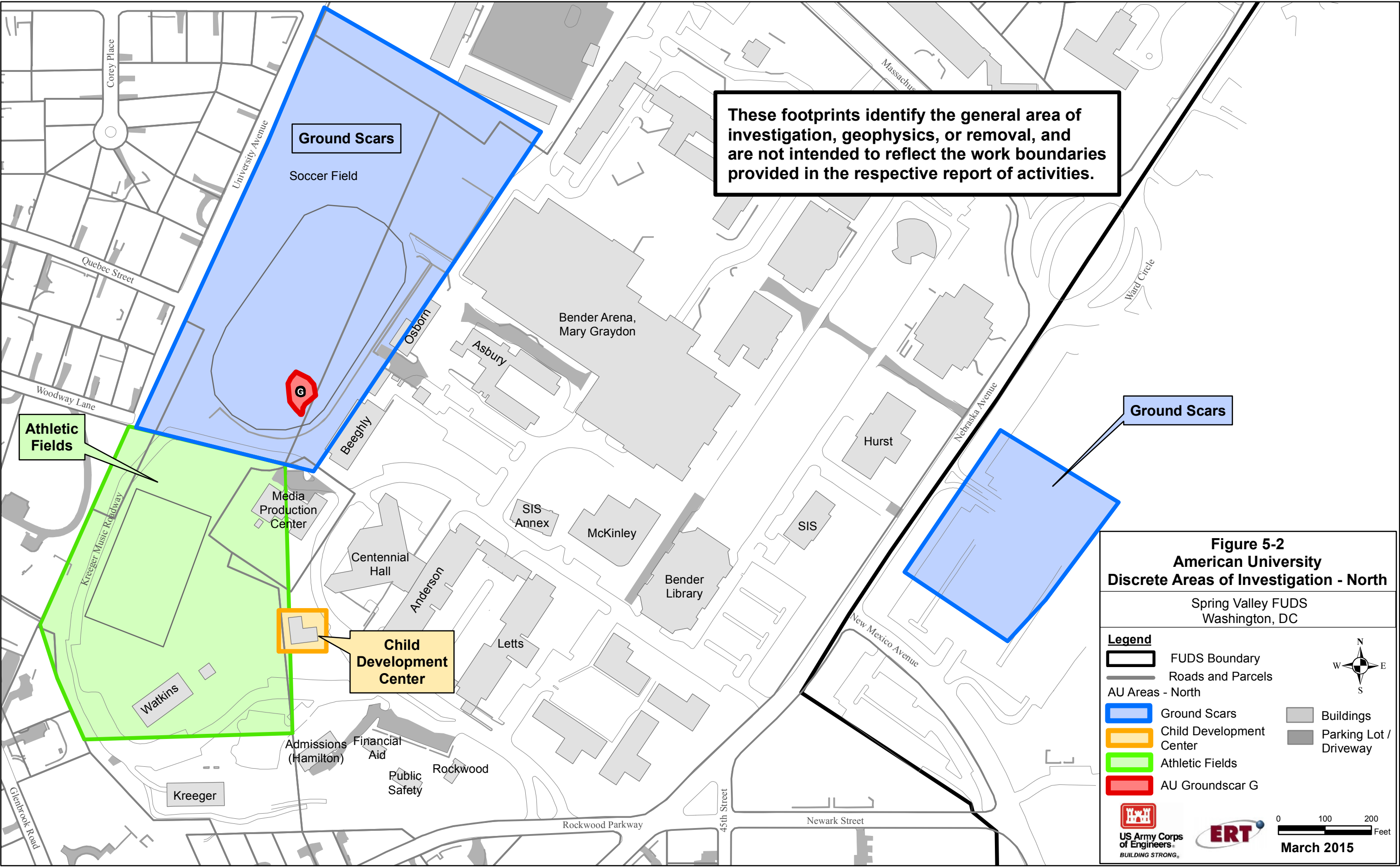
Figure 4-1

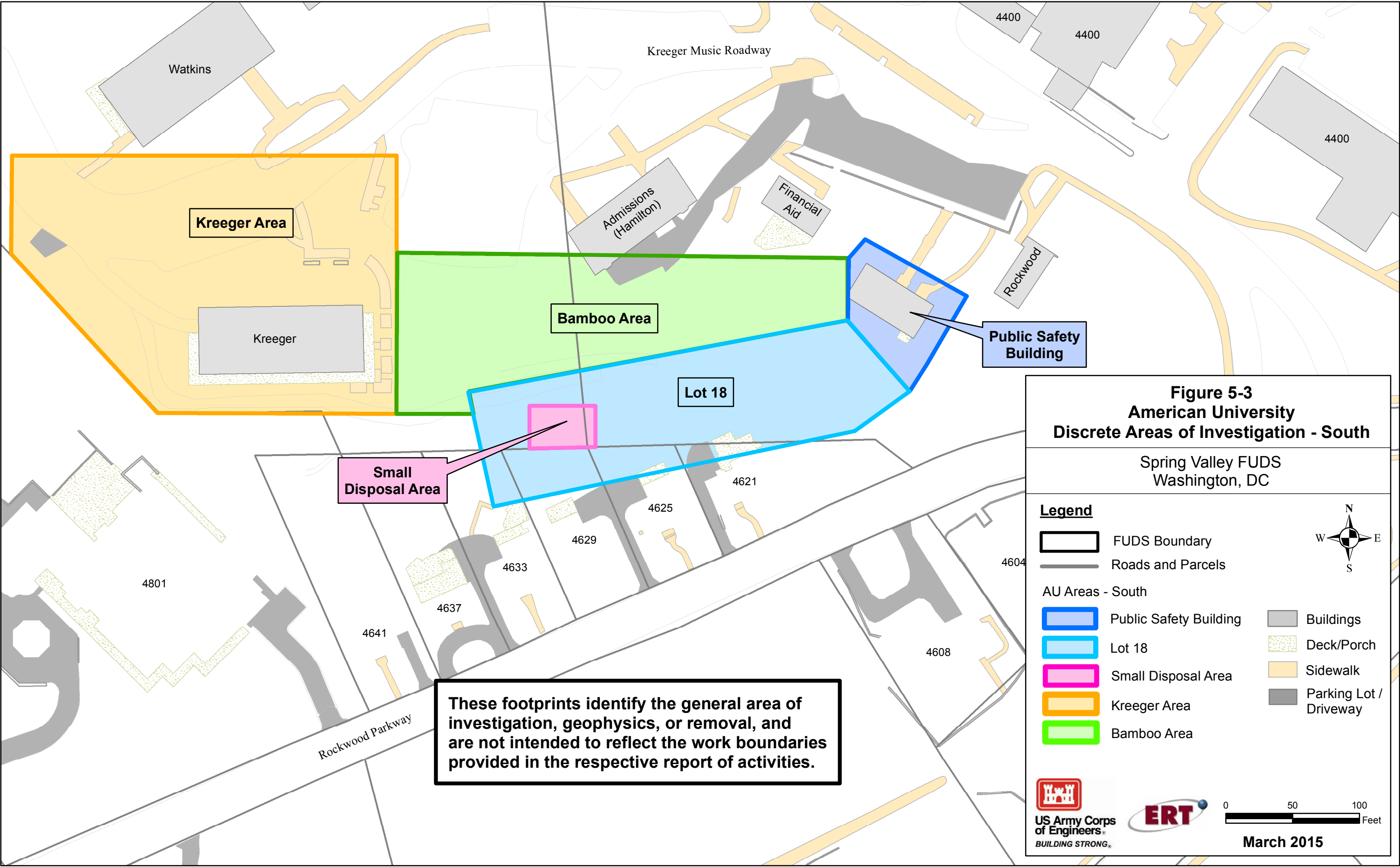
Activities Timeline

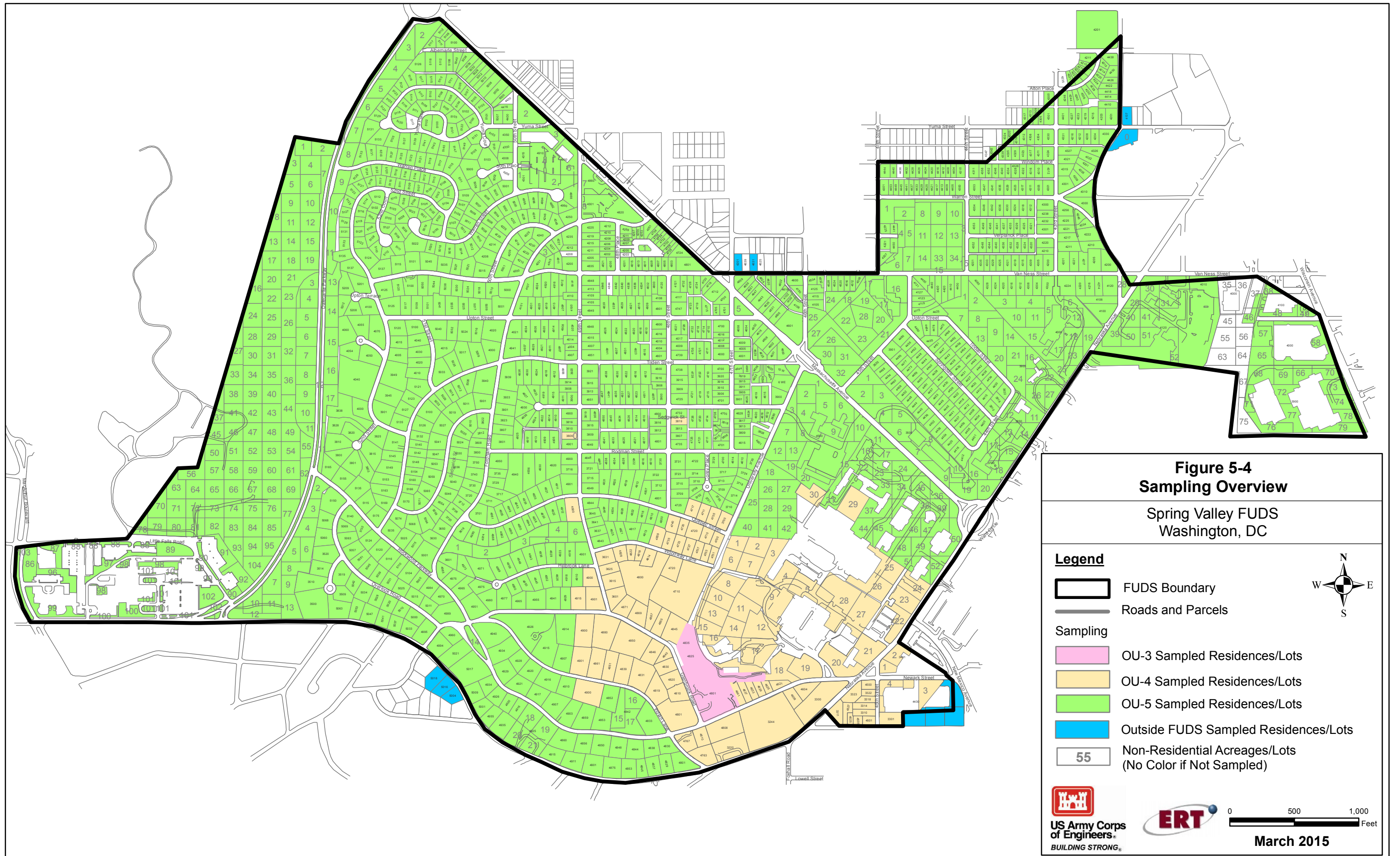
Spring Valley FUDS

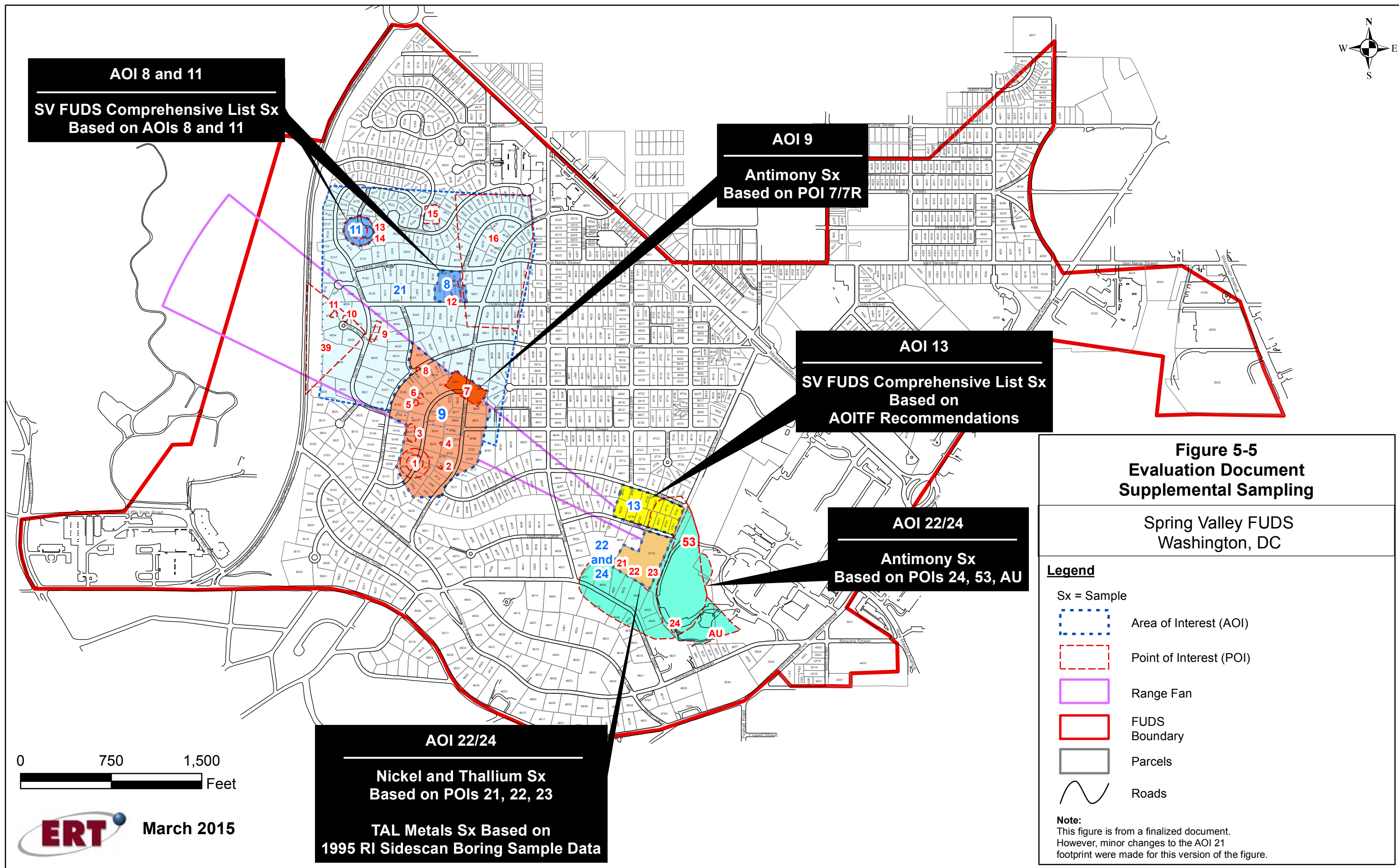
Washington, DC

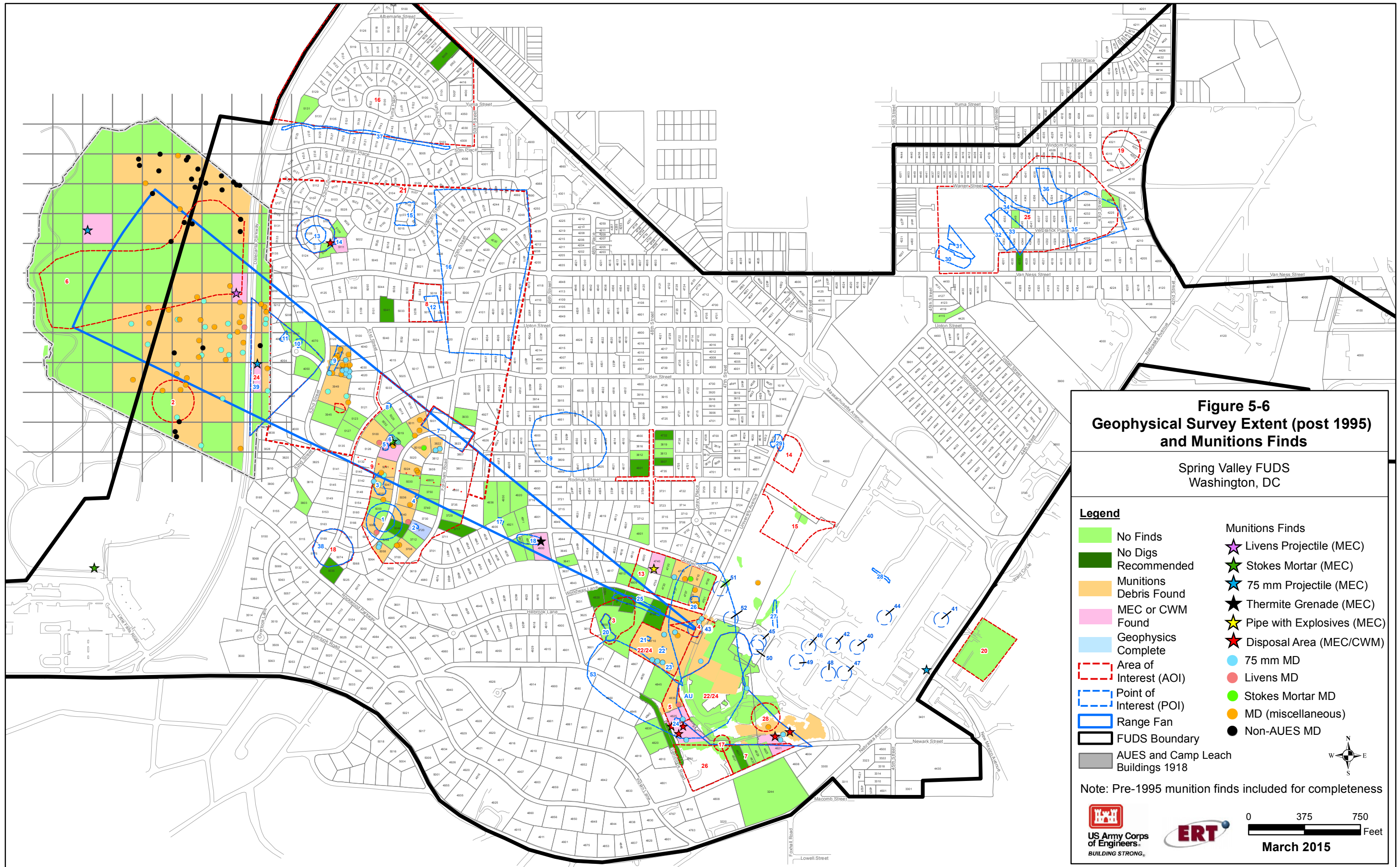


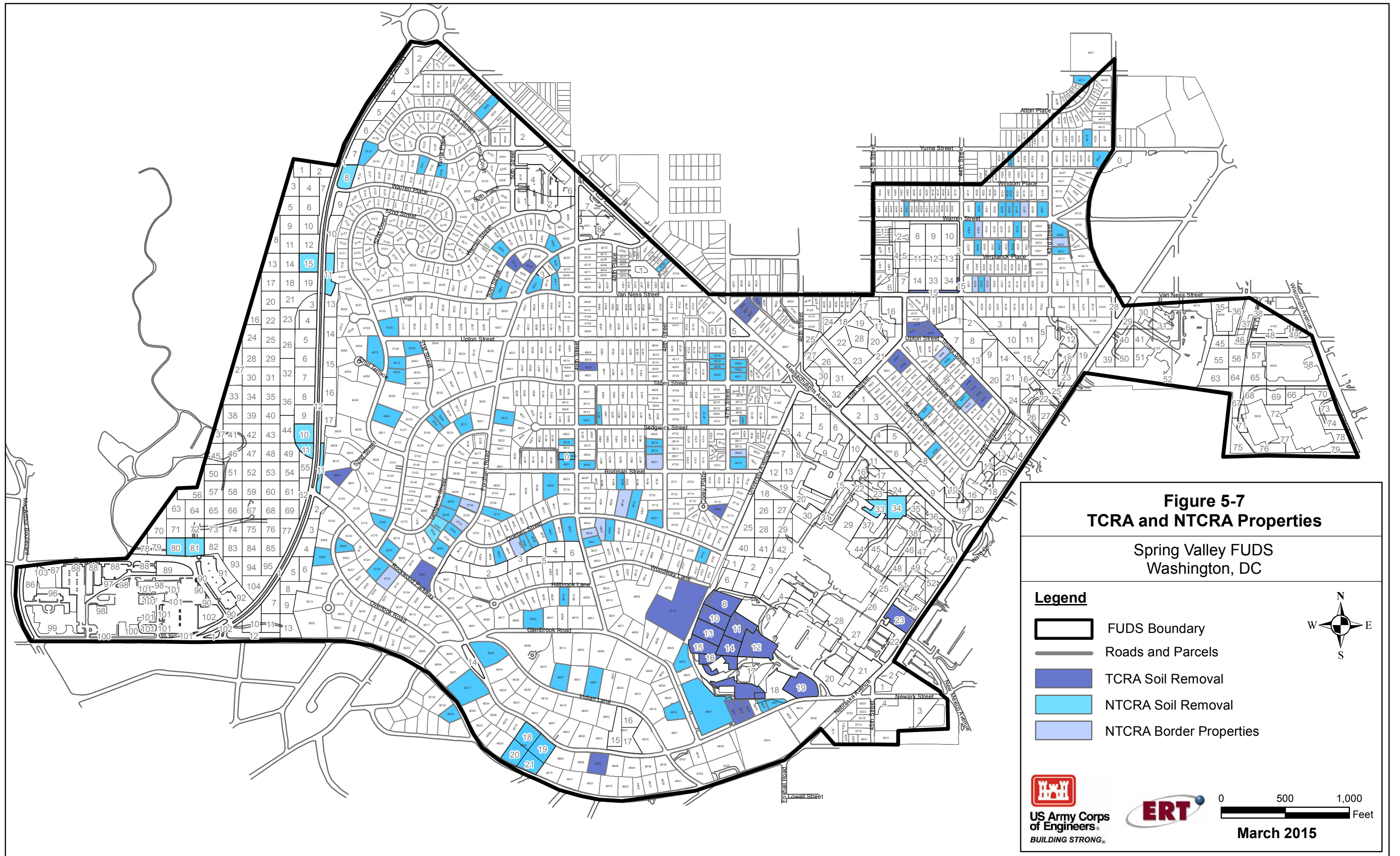


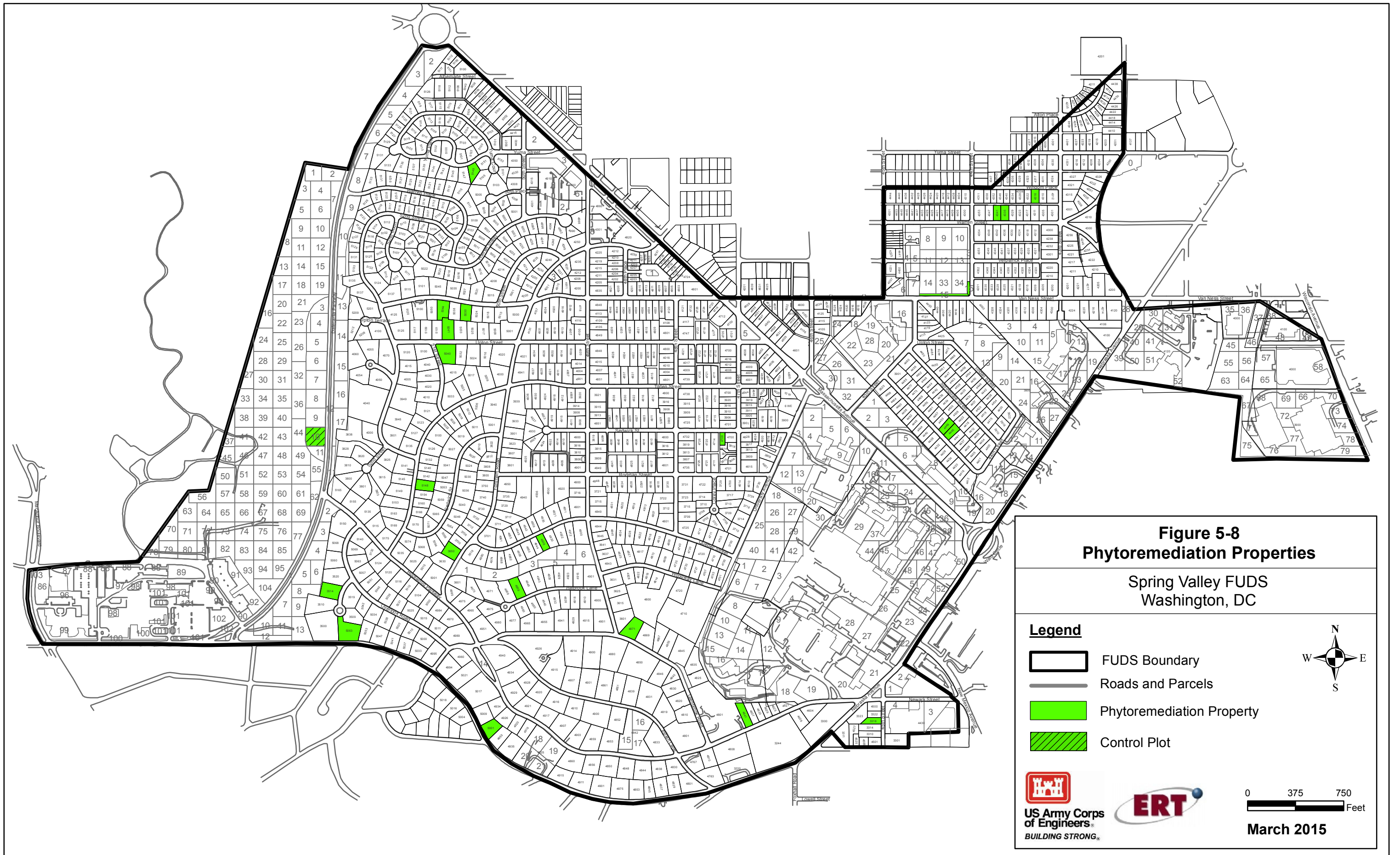


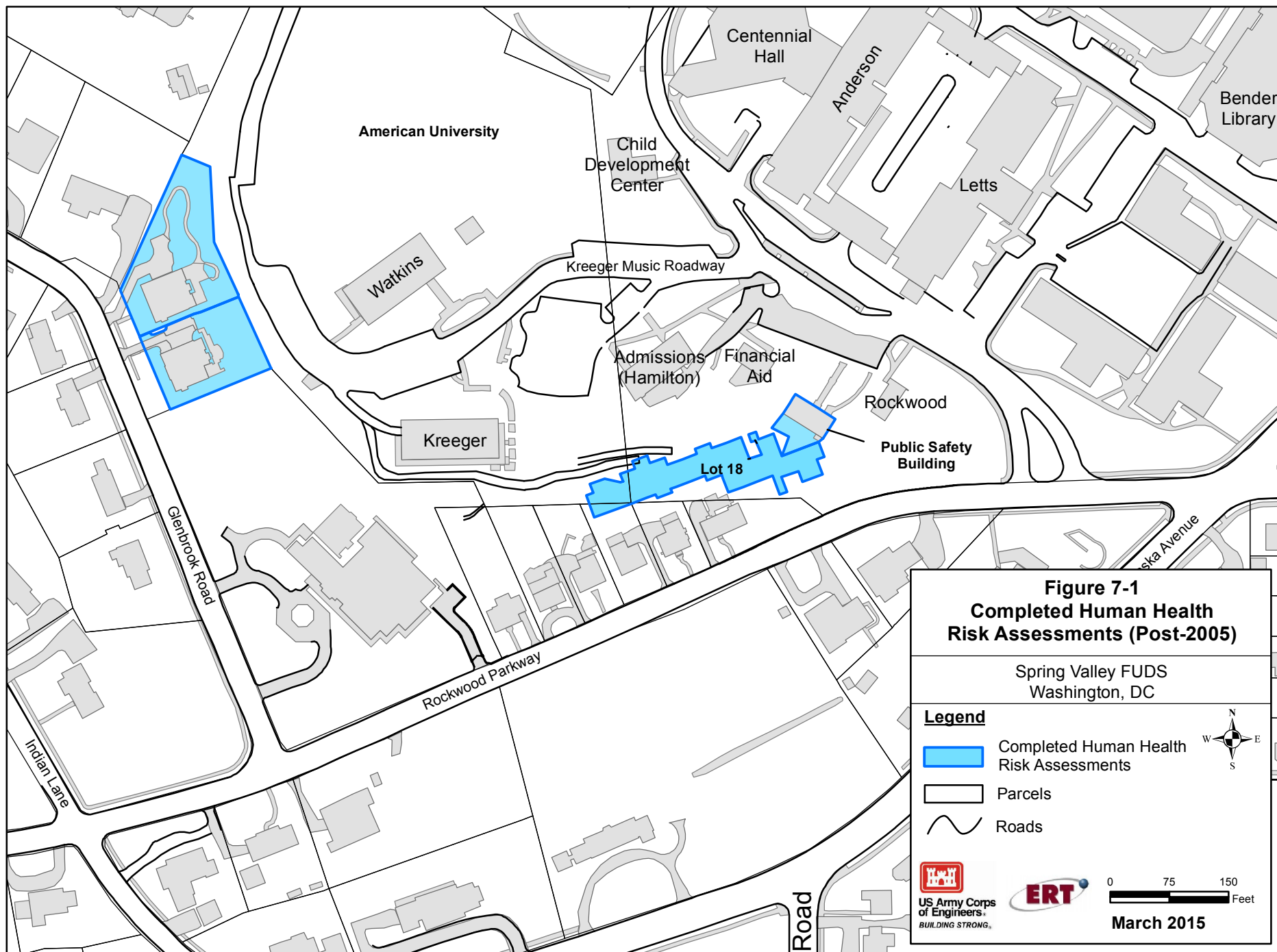


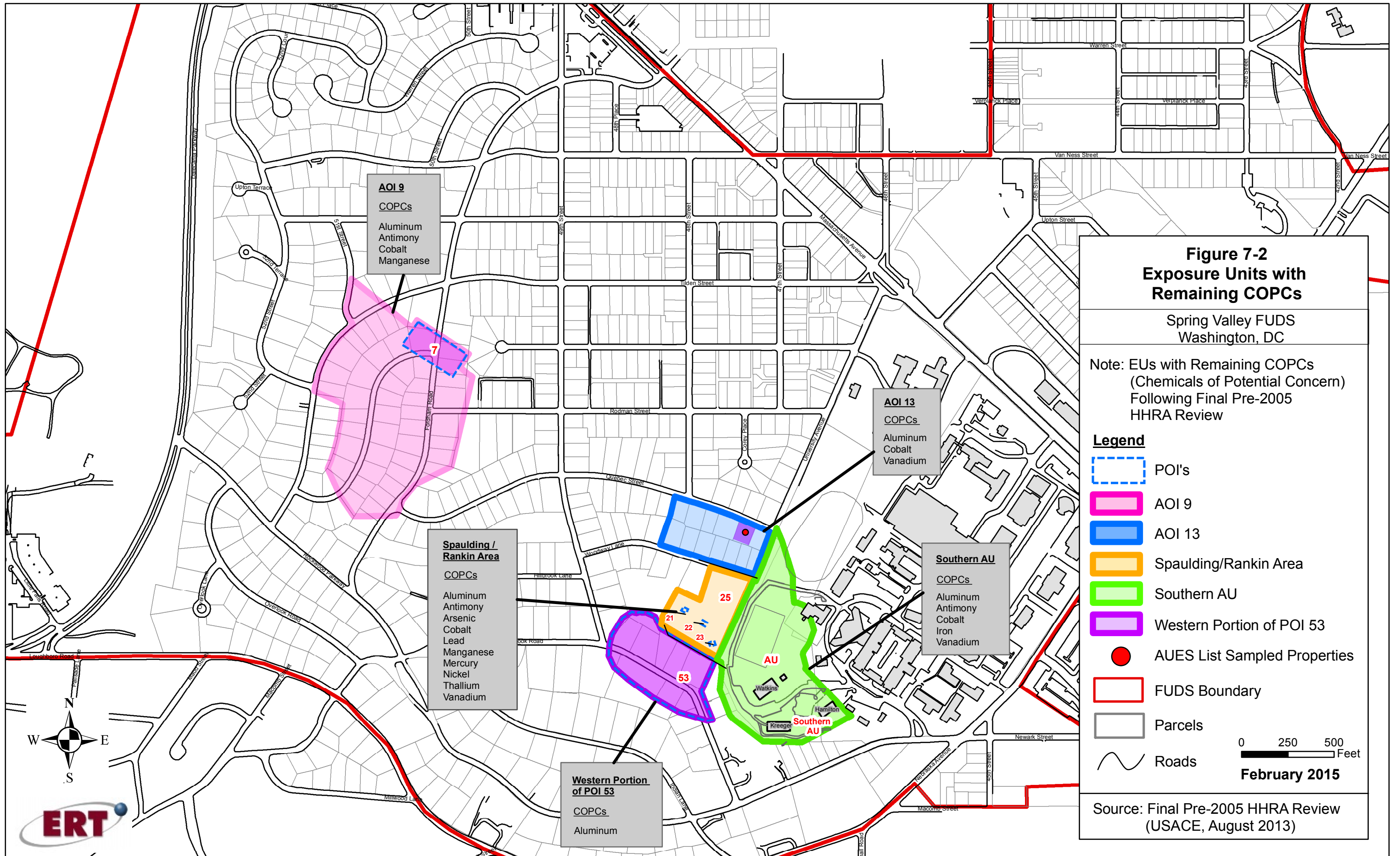












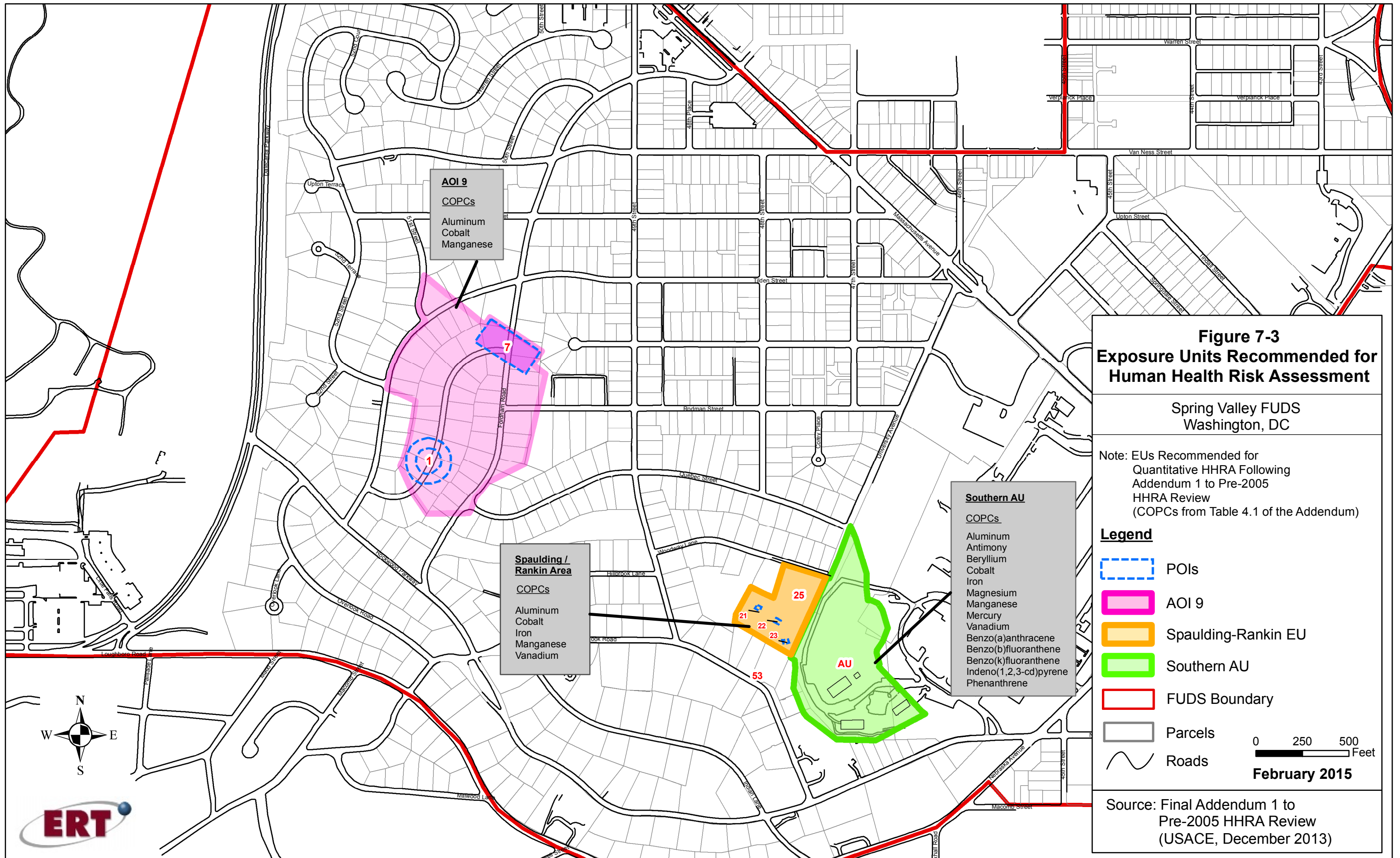
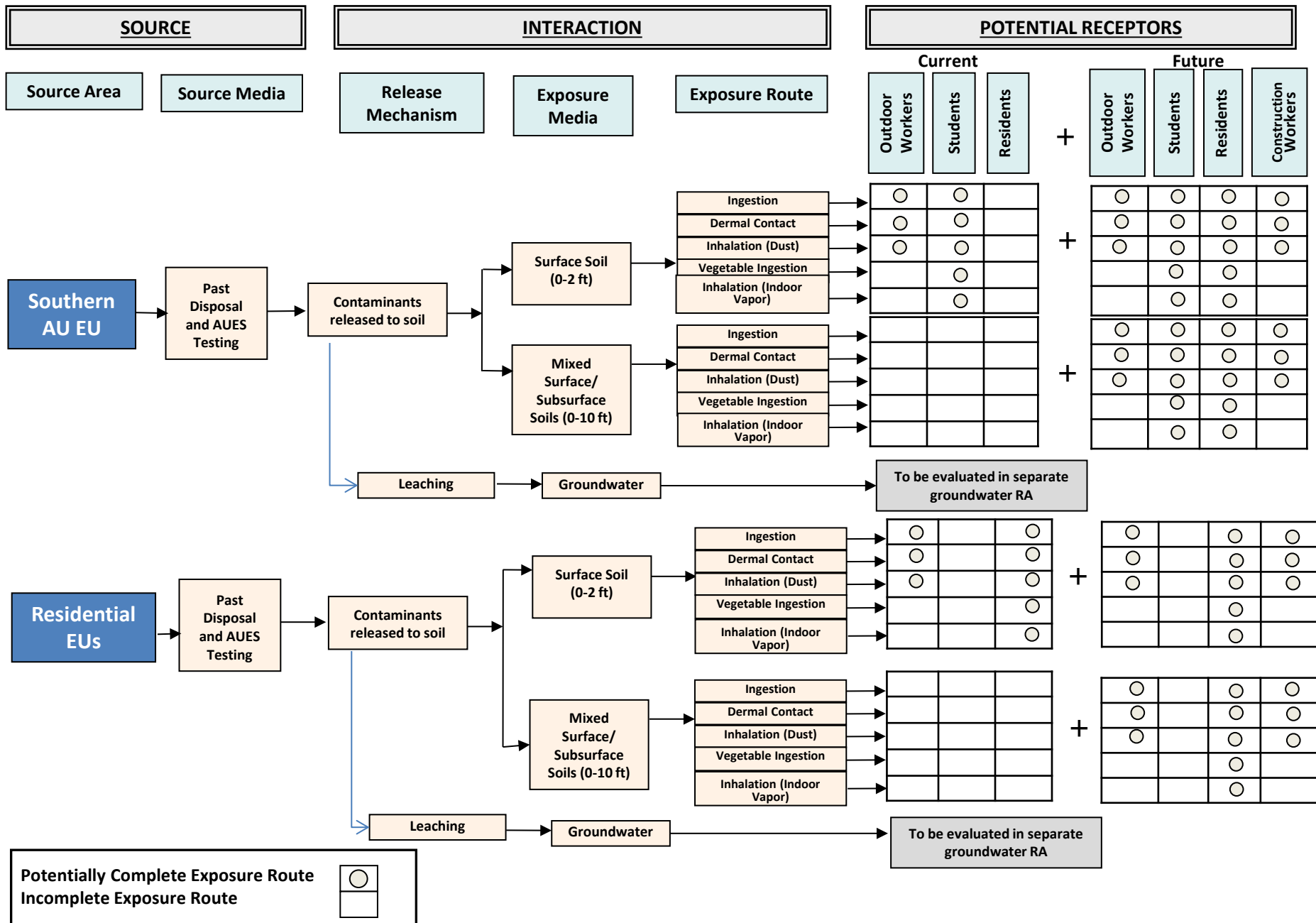


FIGURE 7-4: HHRA Conceptual Site Models



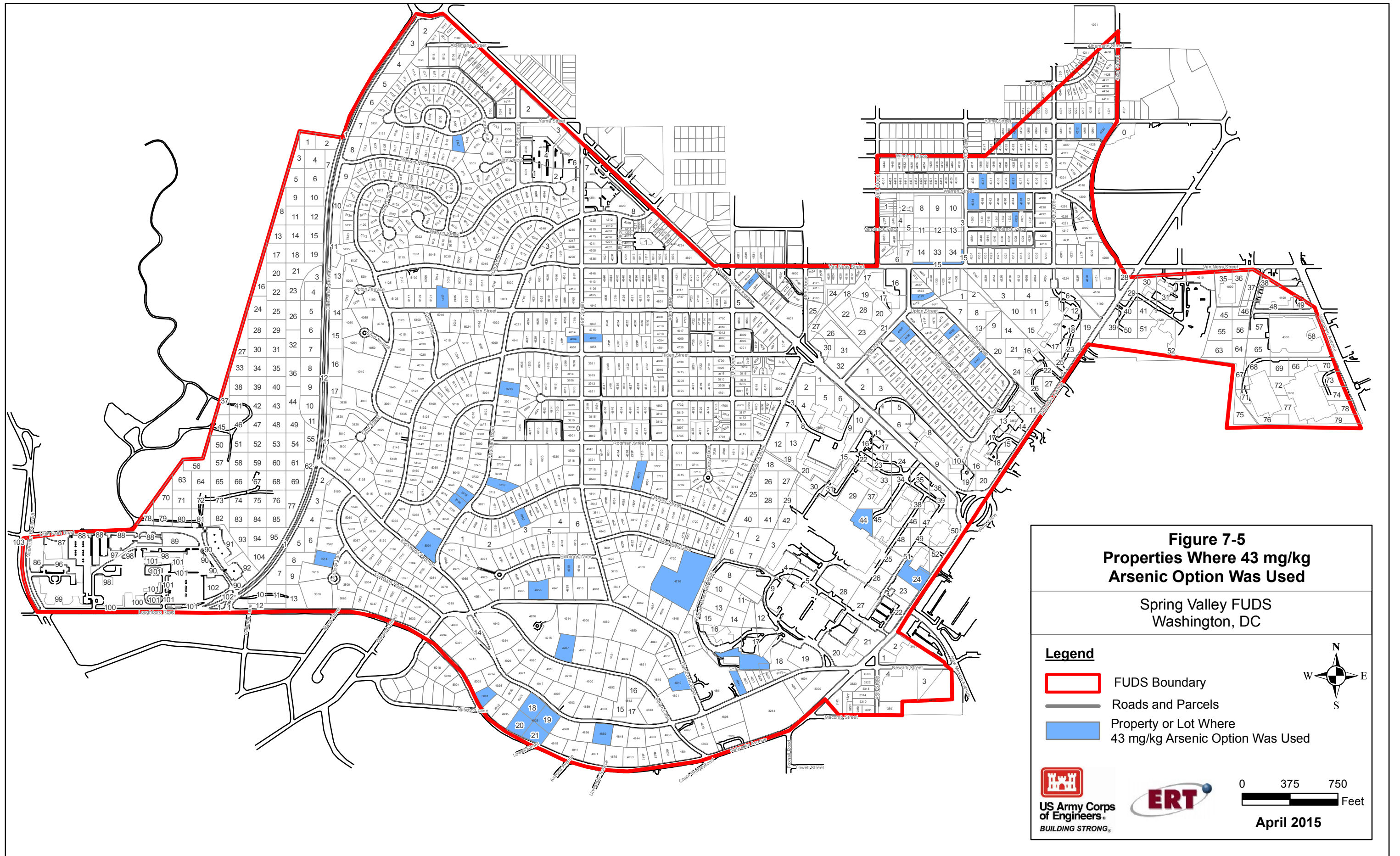


Figure 7-6
Ballistically Fired
Testing Areas
(MEC HA)

Spring Valley FUDS
Washington, DC

Legend

- Range Fan Component Areas
- Function Test Range (3-4")
 - Function Test Range (8")
 - Range Safety Buffer
 - Firing Point

- Items
- Livens Projectile (MEC)
 - Stokes Mortar (MEC)
 - 75 mm Projectile (MEC)
 - Thermite Grenade (MEC)
 - Pipe with Explosives (MEC)
 - Disposal Area (MEC/CWM)
 - 75 mm MD
 - Livens MD
 - Stokes Mortar MD
 - MD (miscellaneous)
 - Non-AUES MD

- Range Fan
- 3" Stokes Yards
 - 4" Stokes Yards
 - 8" Livens Yards
 - Area of Interest (AOI)
 - Point of Interest (POI)
 - Parcels
 - FUDS Boundary

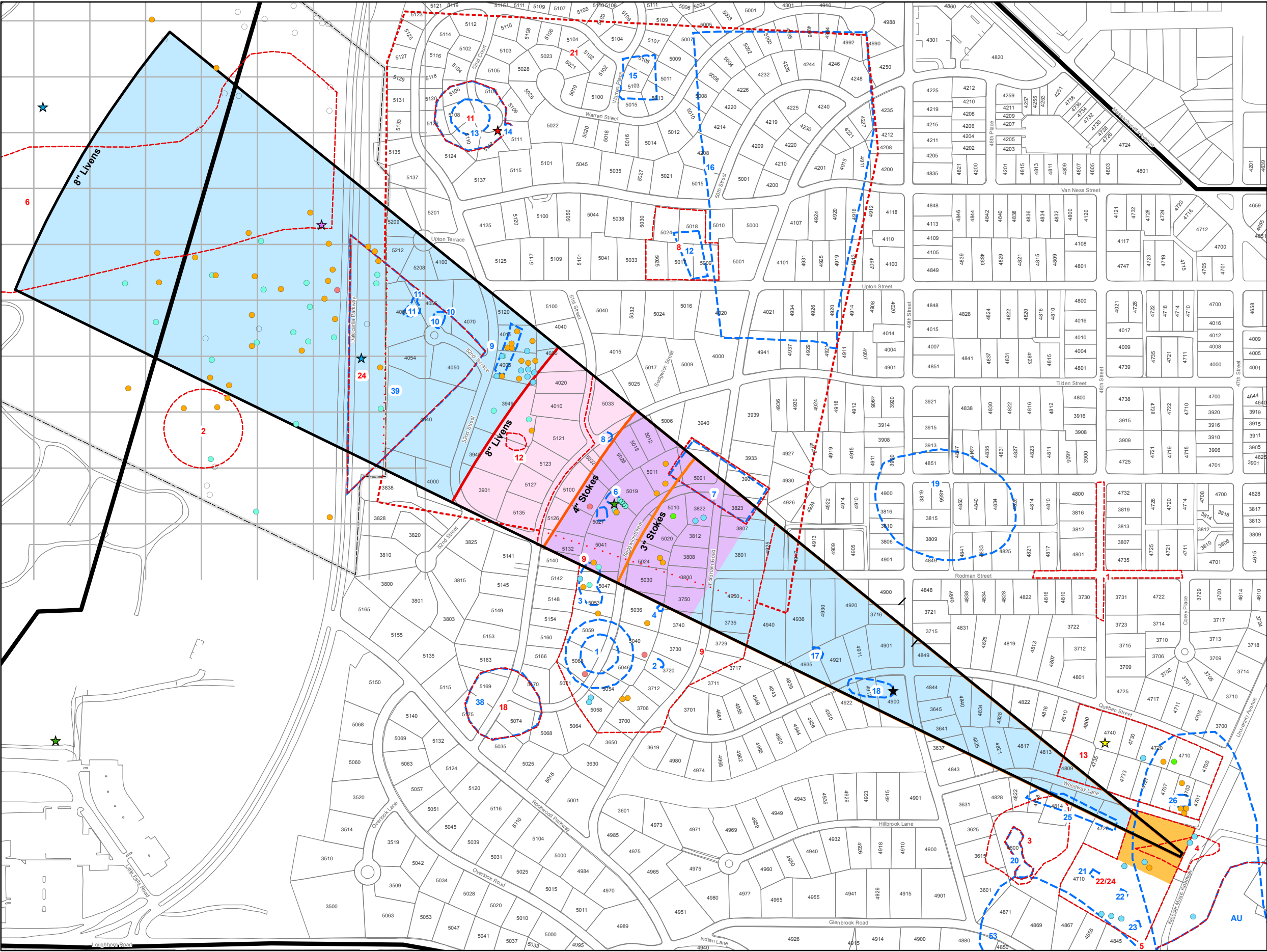


0 250 500
Feet

March 2015



US Army Corps
of Engineers®
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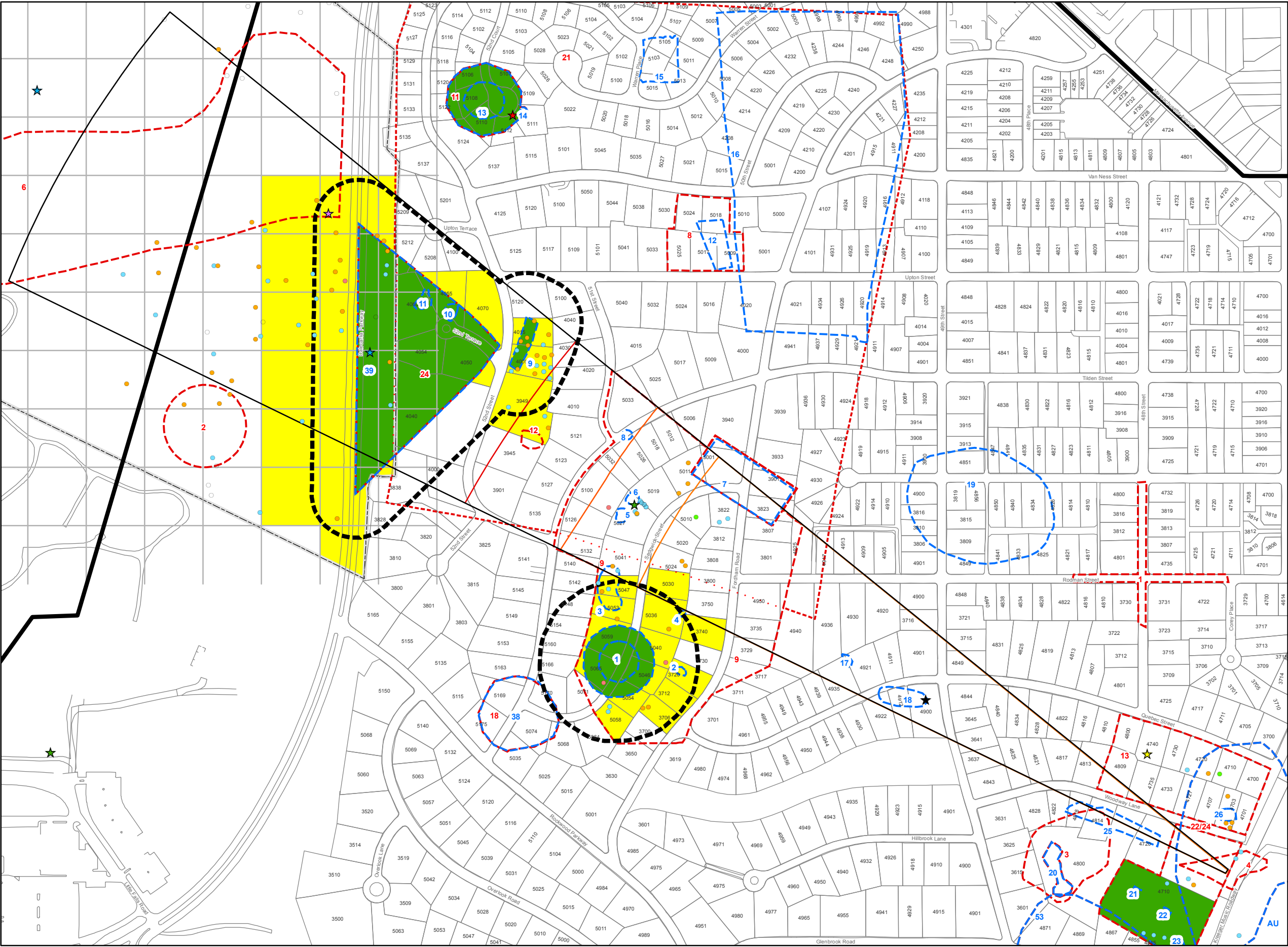


Figure 7-7
Statically Fired
Testing Areas
(MEC HA)

Spring Valley FUDS
Washington, DC

Legend

Statically Fired Testing Areas

- Discrete Static Testing Area
- Potential DMM Disposal Investigation Area (150 foot)
- Geophysical Coverage

Items

- Livens Projectile (MEC)
- Stokes Mortar (MEC)
- 75 mm Projectile (MEC)
- Thermite Grenade (MEC)
- Pipe with Explosives (MEC)
- Disposal Area (MEC/CWM)
- 75 mm MD
- Livens MD
- Stokes Mortar MD
- MD (miscellaneous)
- Non-AUES MD

Range Fan

- 3" Stokes Yards
- 4" Stokes Yards
- 8" Livens Yards

- Area of Interest (AOI)
- Point of Interest (POI)
- Parcels
- FUDS Boundary



0 250 500
Feet

March 2015



US Army Corps
of Engineers®
BUILDING STRONG®



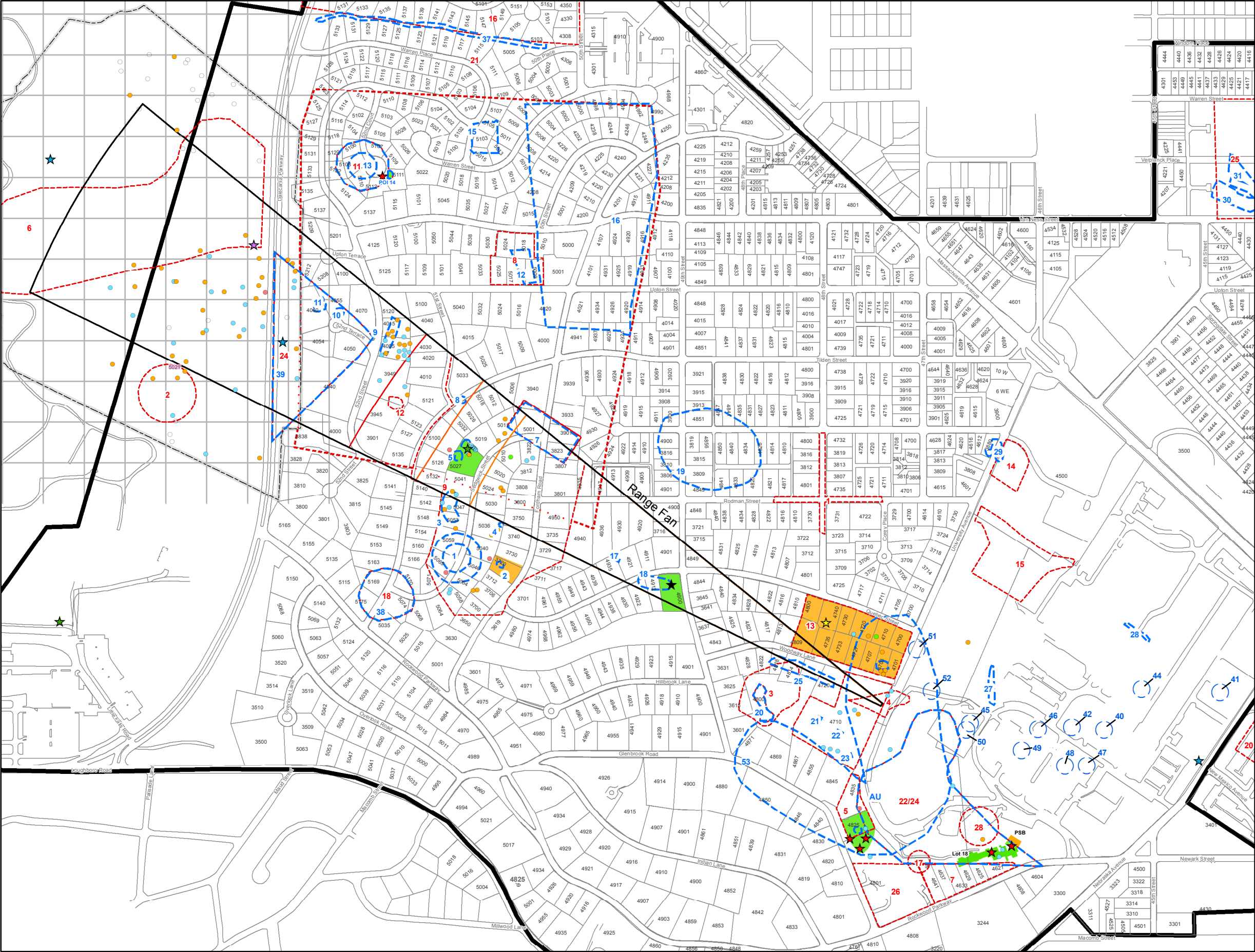


Figure 7-8
Known and Potential
Disposal Areas
(MEC HA)

Spring Valley FUDS
Washington, DC

Legend

- Known Disposal Area
- Possible Disposal Area

Items

- Livens Projectile (MEC)
- Stokes Mortar (MEC)
- 75 mm Projectile (MEC)
- Thermite Grenade (MEC)
- Pipe with Explosives (MEC)
- Disposal Area (MEC/CWM)
- 75 mm MD
- Livens MD
- Stokes Mortar MD
- MD (miscellaneous)
- Non-AUES MD

Range Fan

- 3" Stokes Yards
- 4" Stokes Yards
- 8" Livens Yards
- Area of Interest (AOI)
- Point of Interest (POI)
- Parcels
- FUDS Boundary

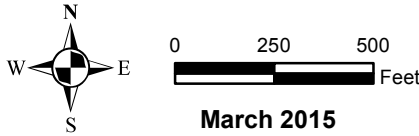
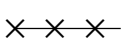




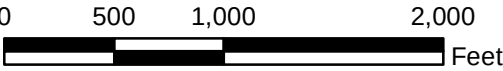
Figure 7-9
Representative
Ecological Habitats
(SLERA)

Spring Valley FUDS
Washington, DC

Legend

-  FUDS Boundary
-  Fence
-  Streams
-  Representative Habitats

- A** - Woodland Streams
- B** - Recreational / Park Lands
- C** - Urban Development
- D** - Woodlands
- E** - Residential



Created By: ERT
Date: July 2014
Figure Number: 2



Source: Final Screening Level
Ecological Risk Assessment
(USACE, 2010b)

Figure 7-10
SLERA Sample Locations

Spring Valley FUDS
Washington, DC

Legend

-  FUDS Boundary
-  Buildings
-  Roads
-  Stream
-  Major Water Bodies

Existing Data Points to be Used:

-  Sediment Sample
-  Surface Water Sample
-  Groundwater Sample
-  Soil Samples

Note:

Existing data point locations are approximate. In some cases, more than one sample is represented by a single dot. The intent is to show spatial coverage of existing data.

SW - Surface Water
MW - Monitoring Well
NA - Nebraska Avenue
MC - Mill Creek
EC - East Creek

 Approximate Locations of Relevant Areas of Concern

0 500 1,000 2,000
Feet

Created By: ERT

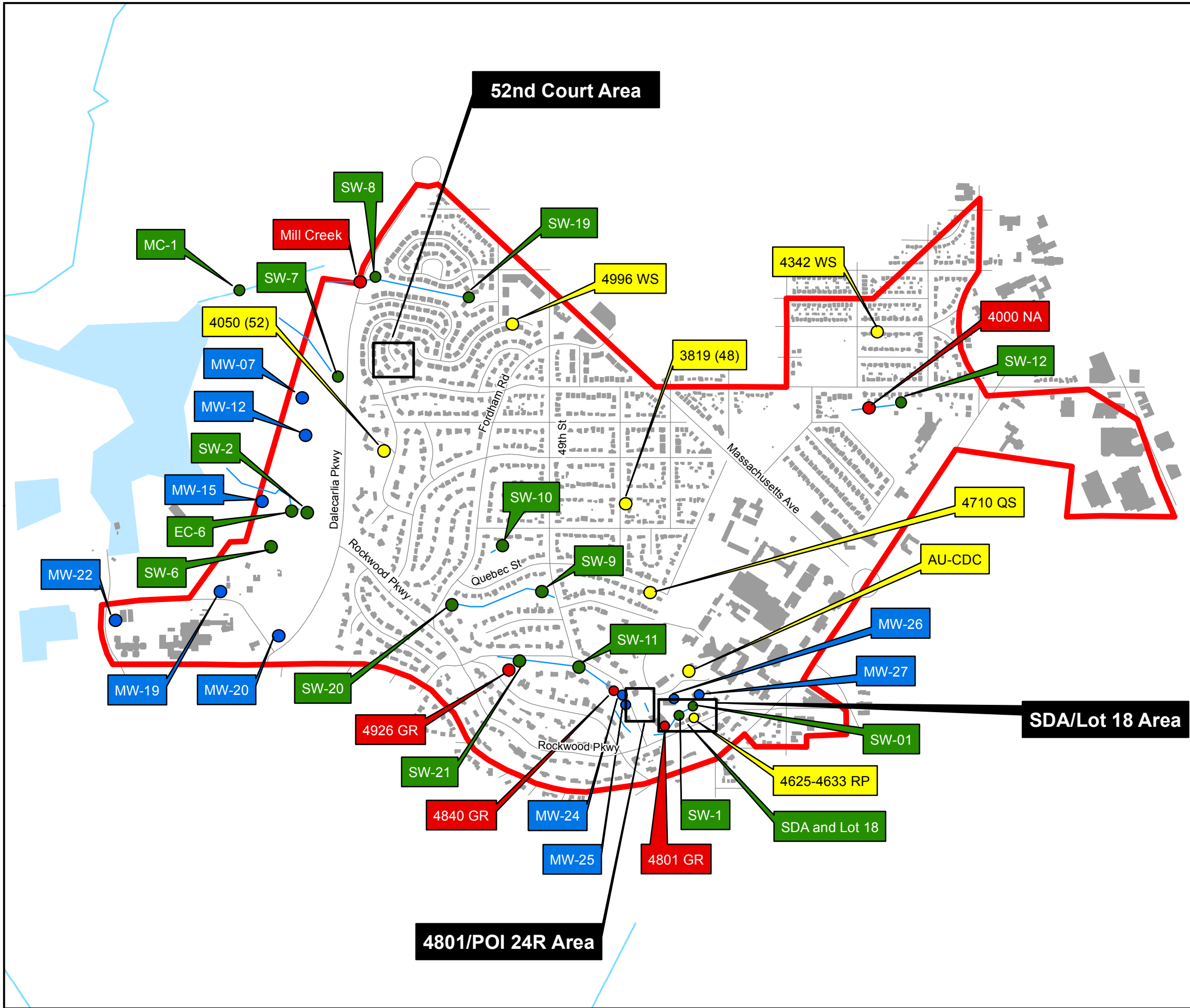
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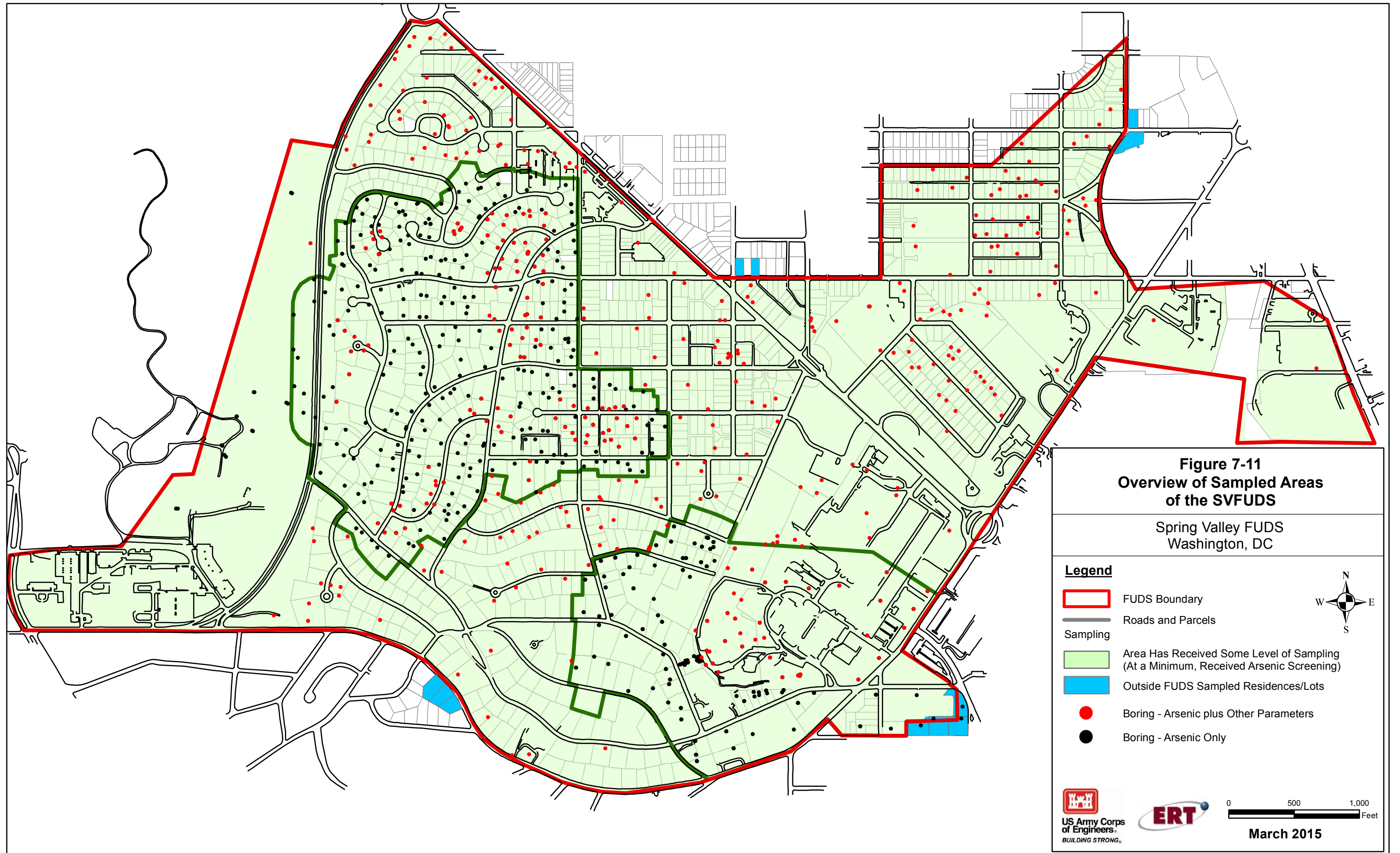
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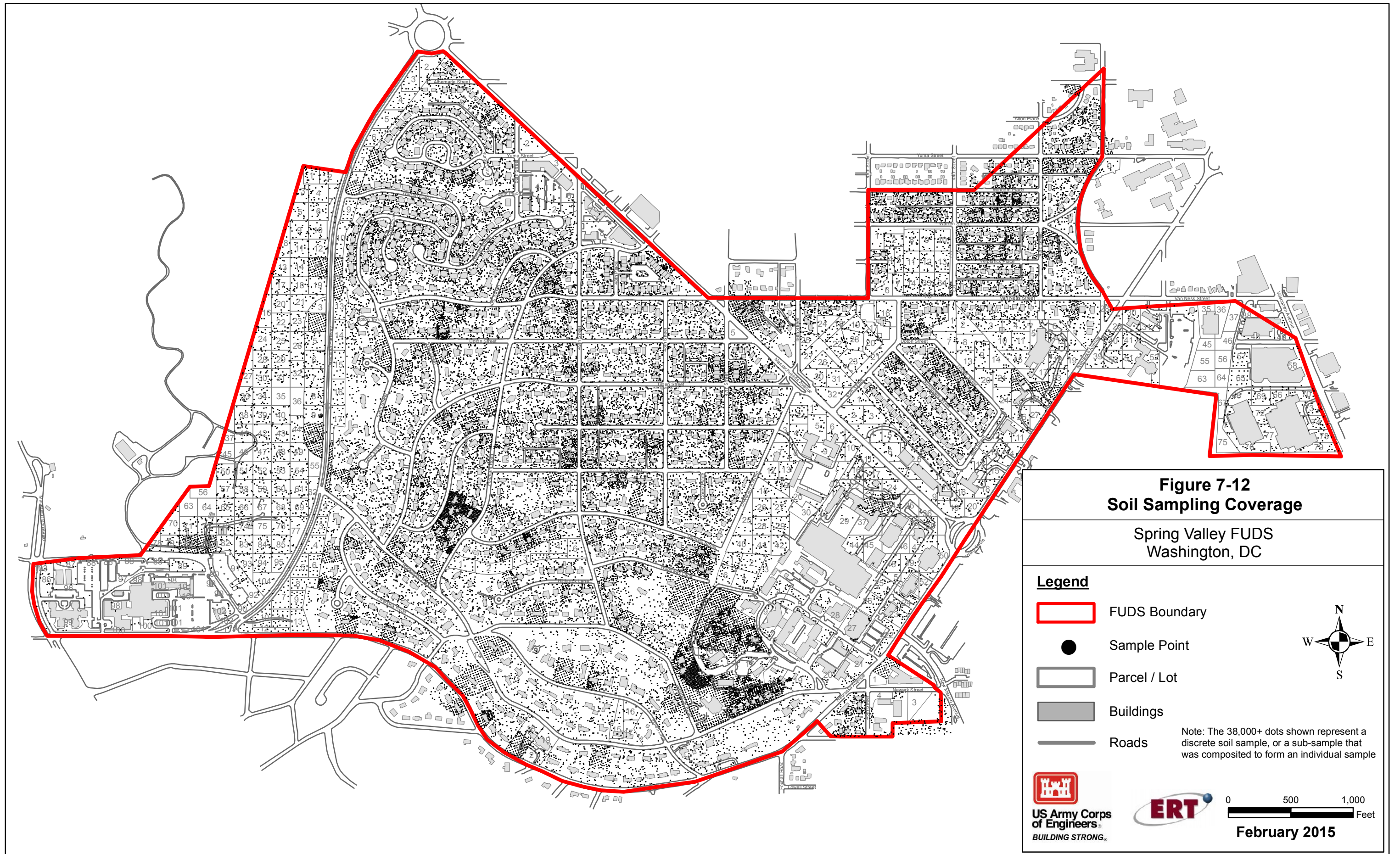


Source: Final Screening Level Ecological
Risk Assessment (USACE, 2010b)

52nd Court Area







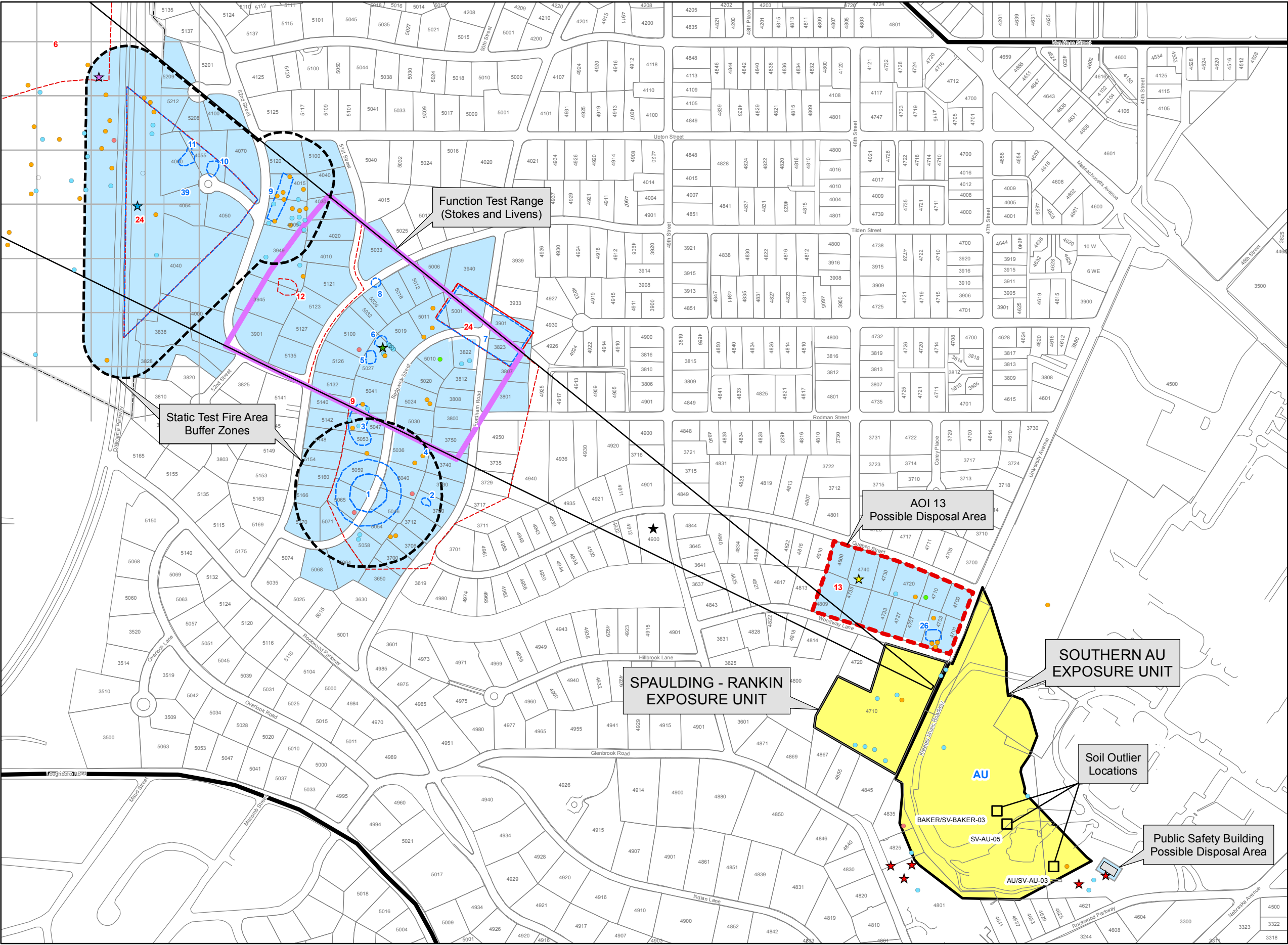


Figure 8-1
Areas for Evaluation
in the FS

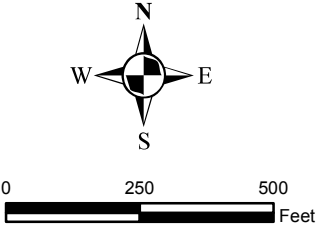
Spring Valley FUDS
Washington, DC

Legend

- Areas of Potential Explosive Hazard for Evaluation in the FS
- Areas of Potential Carcinogenic / Non-Carcinogenic Risk for Evaluation in the FS
- Buffer Zone (150 FT) of Statically Fired Testing Areas
- Function Test Range (Stokes and Livens)
- Area of Interest (AOI)
- Point of Interest (POI)
- Range Fan
- Parcels
- FUDS Boundary

Items

- Livens Projectile (MEC)
- Stokes Mortar (MEC)
- 75 mm Projectile (MEC)
- Thermite Grenade (MEC)
- Pipe with Explosives (MEC)
- Disposal Area (MEC/CWM)
- 75 mm MD
- Livens MD
- Stokes Mortar MD
- MD (miscellaneous)
- Non-AUES MD



February 2015

