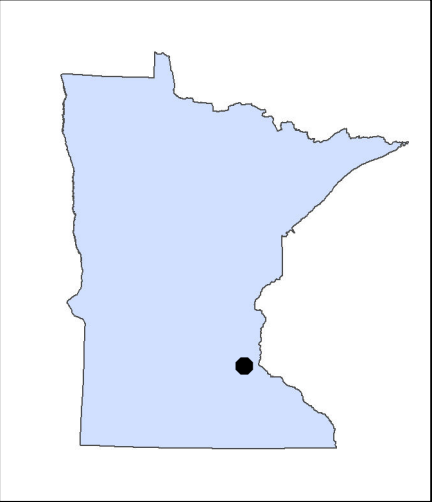
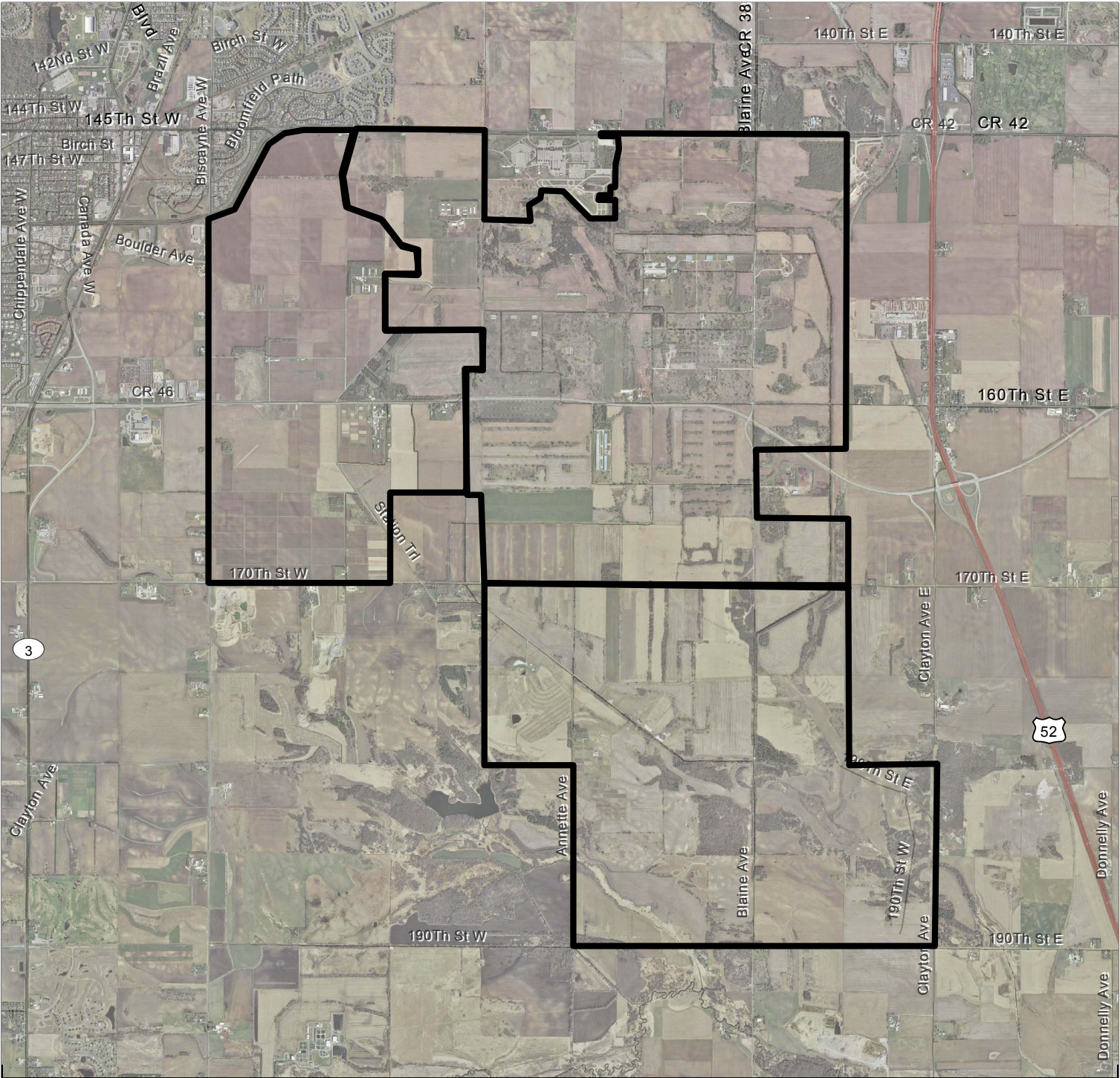
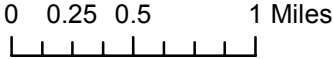


Figures

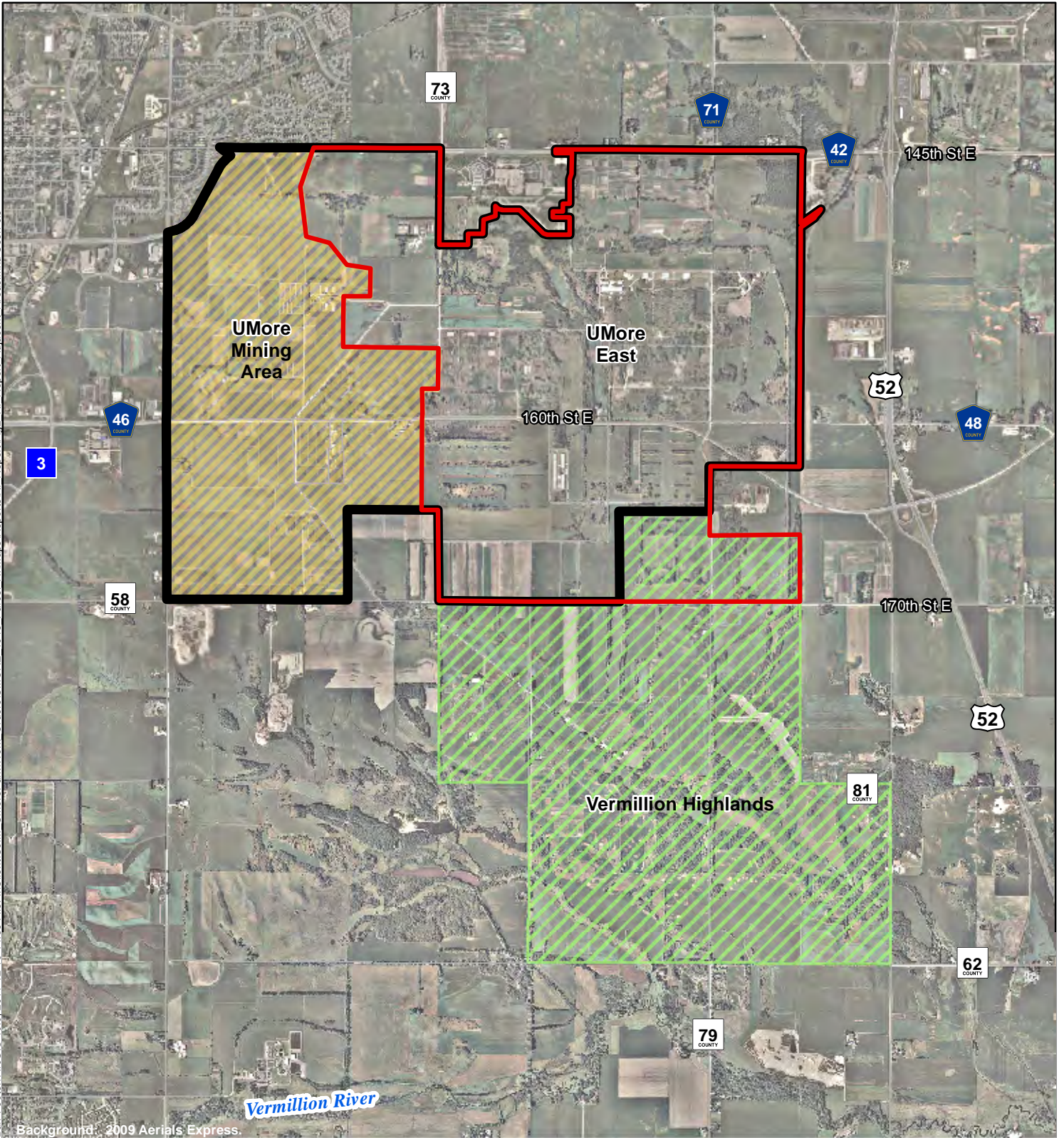
Figure 1: Gopher Ordnance Works location



● Gopher Ordnance Works
■ Minnesota



Barr Footer: ArcGIS 10.0, 2011-12-13 14:35 File: h:\Client\UofM_UmorePark\Work Orders\UMORE - 1948 Parcel_RIMaps\Reports\RI_Report\Fig2 RI_Report_Adjacent_Areas.mxd User: dls



Background: 2009 Aerials Express.





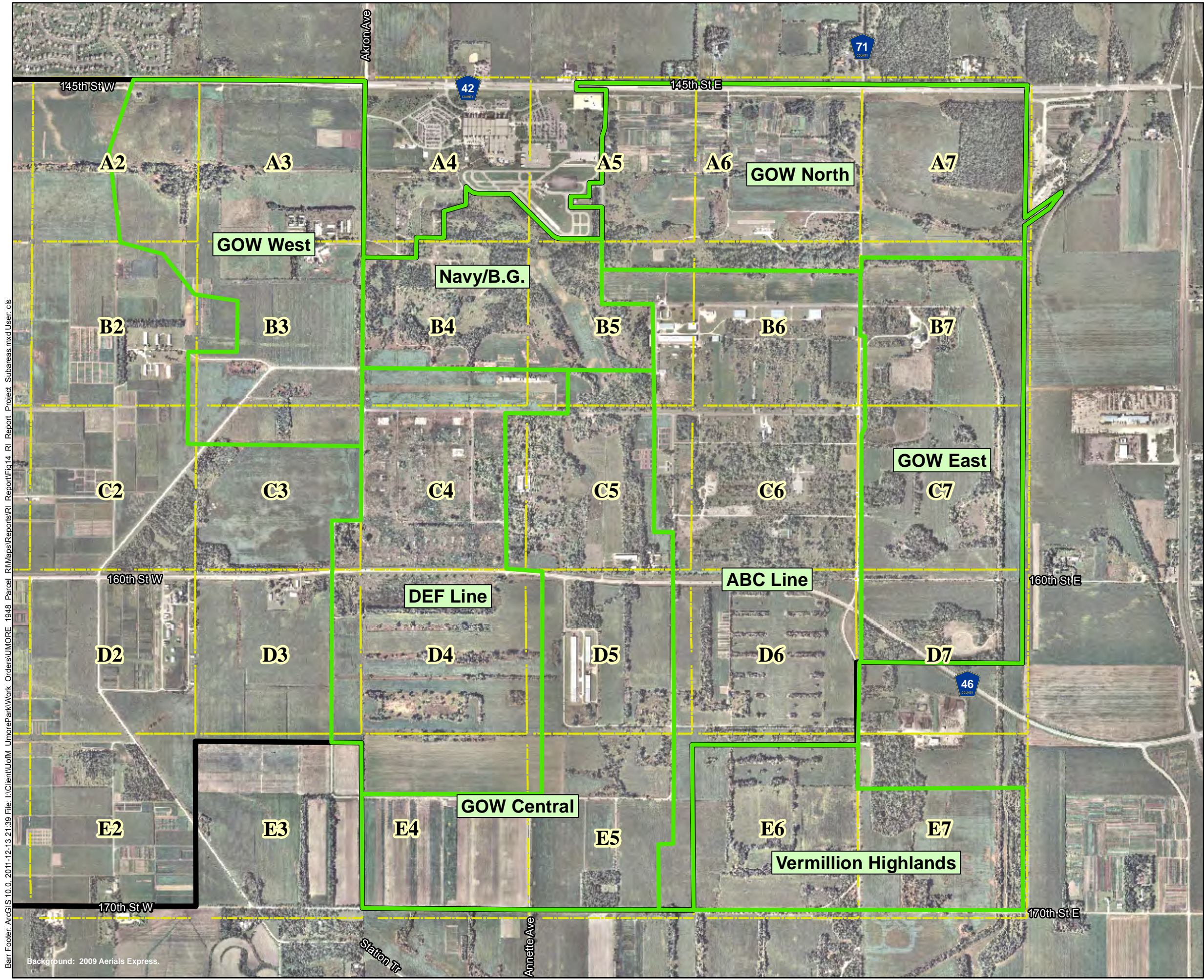
-  UMore Park Boundary
-  UMore East Project Area
-  UMore Mining Area
-  Vermillion Highlands Boundary




Figure 2: Three sub-sections

Figure 2

ADJACENT AREAS
Remedial Investigation
Report
UMore East
Dakota County, MN

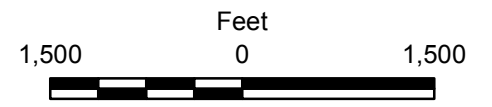




-  UMore Park Boundary
-  UMore East Subarea Boundary
-  Site Location Grid

Source: Metropolitan Council, MnDOT, Dakota County, Barr.

Figure 3: Sub-sites within UMore East



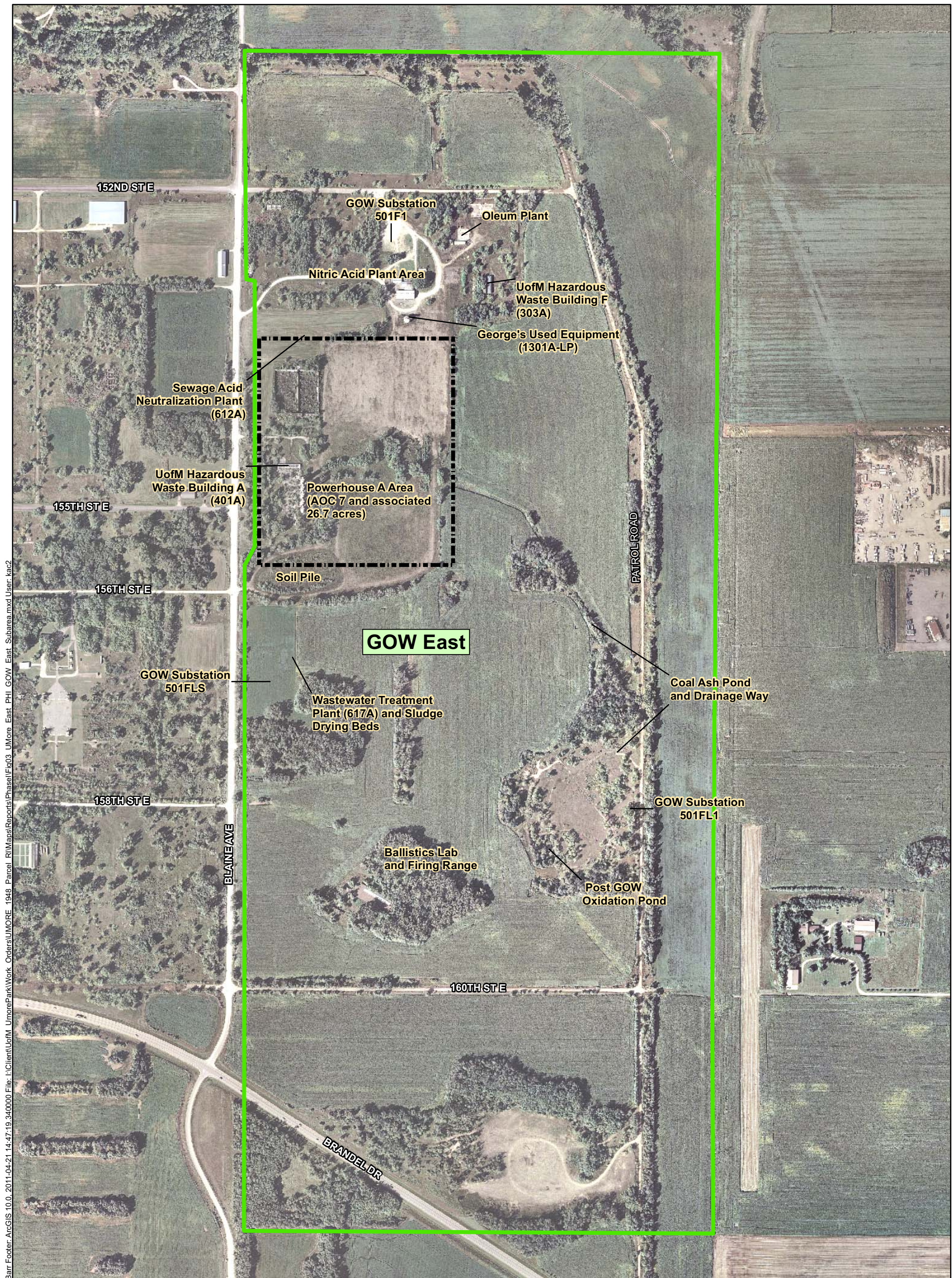
PROJECT SUBAREAS

Remedial Investigation
Work Plan
UMore East
Dakota County, MN



Barr Footer: ArcGIS 10.0, 2011-12-13 21:39 File: I:\Client\UofM_UmorePark\Work_Orders\UMORE_1948_Parcel_RI\Maps\Reports\RI_Report\Fig14_RI_Report_Subareas.mxd User: cbs

Background: 2009 Aerials Express.



Barr Footer: ArcGIS 10.0, 2011-04-21 14:47:19 340000 Files: I:\Client\UofM_UmorePark\Work_Orders\UMORE_1948_Parcel_RI\Maps\Reports\PhaseI\Fig03_UMore_East_PHI_GOW_East_Subarea.mxd User: kaz2



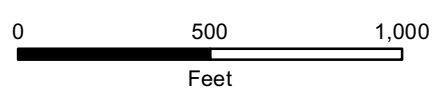
-  UMore East Subarea Boundary
-  USACE AOCs (based on Baywest 2008)

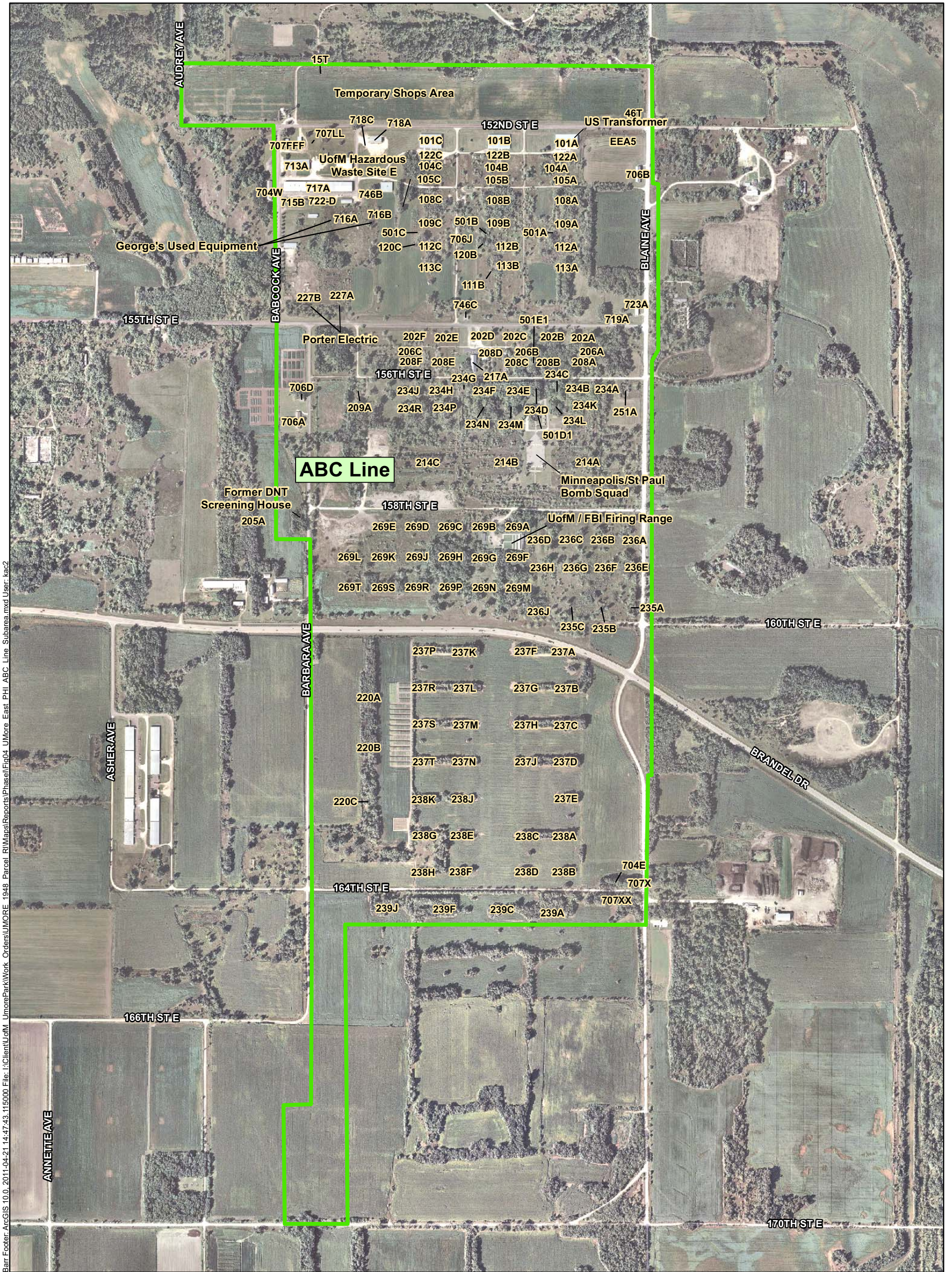
Figure 4: GOW East Subarea

GOW EAST SUBAREA

UMore East
Phase I Environmental
Site Assessment
Dakota County, MN



Data Sources: Barr Engineering Company, University of Minnesota.
Background: 2009 Aerials Express Photography (Twin Cities)



Barr Footer: ArcGIS 10.0, 2011-04-21 14:47:43.115000 File: I:\Client\UofM_UmorePark\Work_Orders\UMORE_1948_Parcel_RI\Mapa\Reports\PhaseI\Fig04_UMore_East_PHI_ABC_Line_Subarea.mxd User: kac2


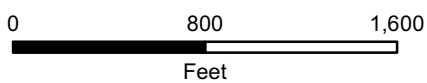
 UMore East Subarea Boundary

Figure 5: ABC Line Subarea

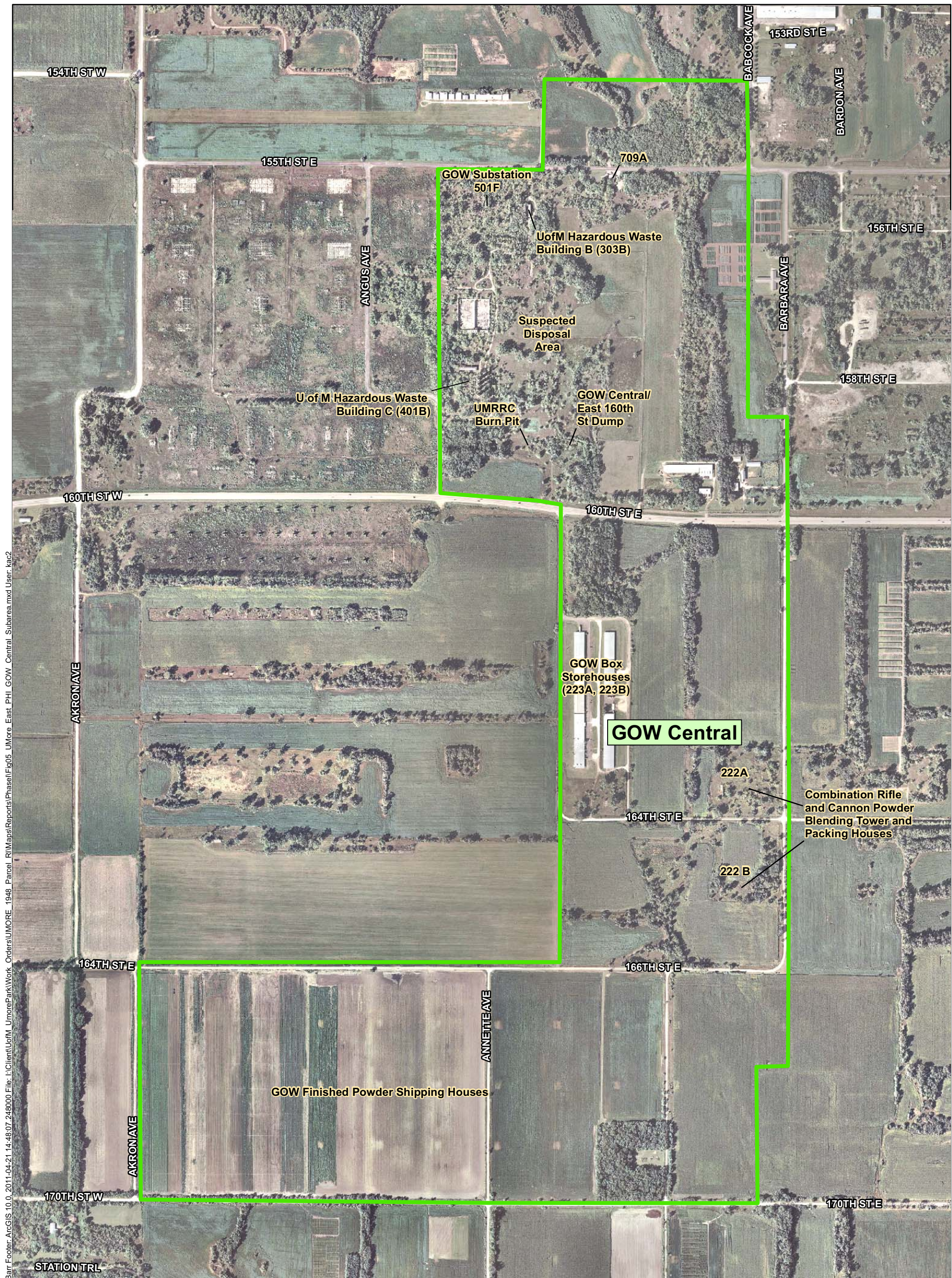
ABC LINE SUBAREA

UMore East
Phase I Environmental
Site Assessment
Dakota County, MN



Data Sources: Barr Engineering Company, University of Minnesota.

Background: 2009 Aerials Express Photography (Twin Cities)



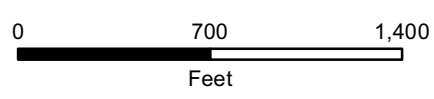
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 UMore East Subarea Boundary

Figure 6: GOW Central Subarea

GOW CENTRAL SUBAREA

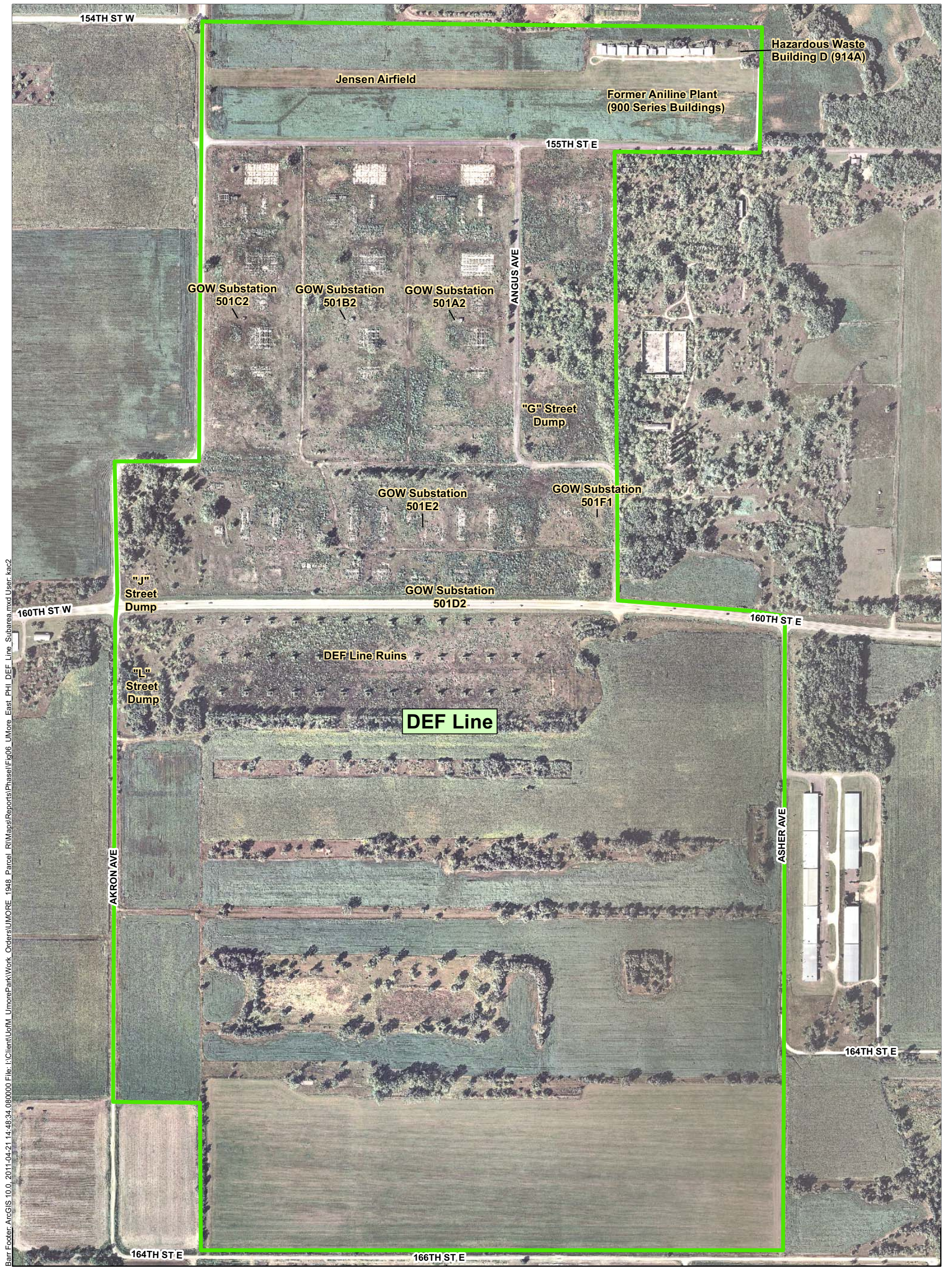
UMore East Phase I Environmental Site Assessment Dakota County, MN



Data Sources: Barr Engineering Company, University of Minnesota.
Background: 2009 Aerials Express Photography (Twin Cities)



UMP011536



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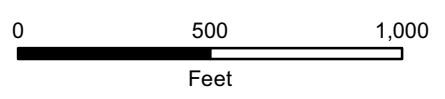
 UMore East Subarea Boundary

Figure 7: DEF Line Subarea


DEF LINE SUBAREA
 UMore East
 Phase I Environmental
 Site Assessment
 Dakota County, MN



Data Sources: Barr Engineering Company, University of Minnesota.
 Background: 2009 Aerials Express Photography (Twin Cities)

Barr Footer: ArcGIS 10.0, 2011-04-21 14:49:00, 335000 File: I:\Client\UofM_UmorePark\Work_Orders\UMORE_1948_Parcel_RI\Map\Reports\PhaseI\Fig07_UMore_East_PhI_NavyBG_Subarea.mxd User: kac2

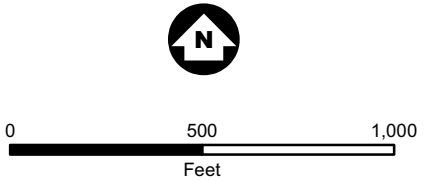


 UMore East Subarea Boundary

Data Sources: Barr Engineering Company, University of Minnesota.

Background: 2009 Aerials Express Photography (Twin Cities)

Figure 8: Navy/Burning Grounds Subarea

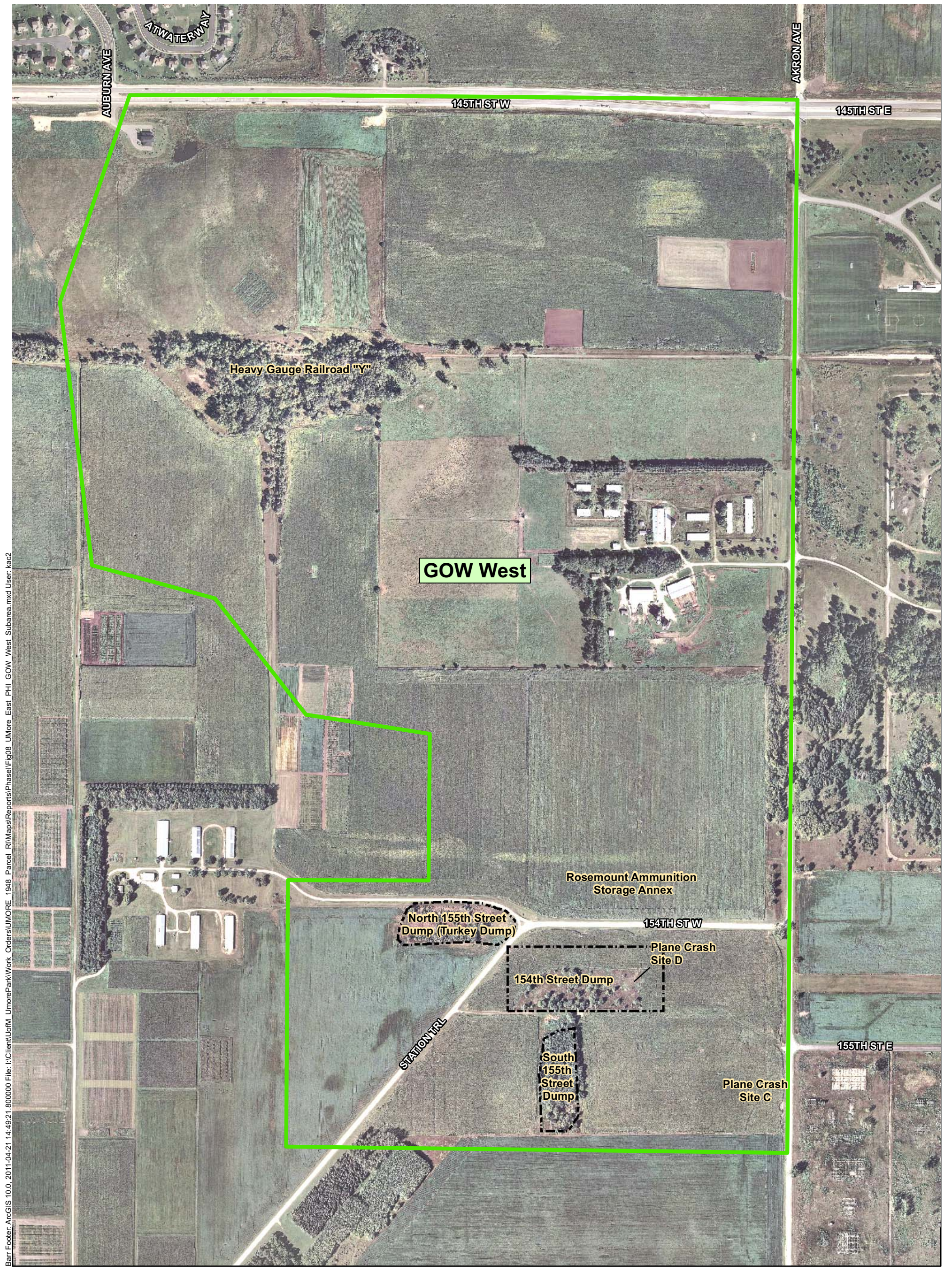


**NAVY / BURNING
GROUNDS SUBAREA**

UMore East
Phase I Environmental
Site Assessment
Dakota County, MN



UMF 07-1003

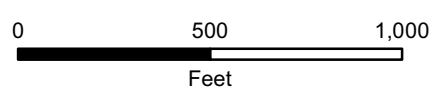


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- UMore East Subarea Boundary
- USACE AOCs (based on Baywest 2008)

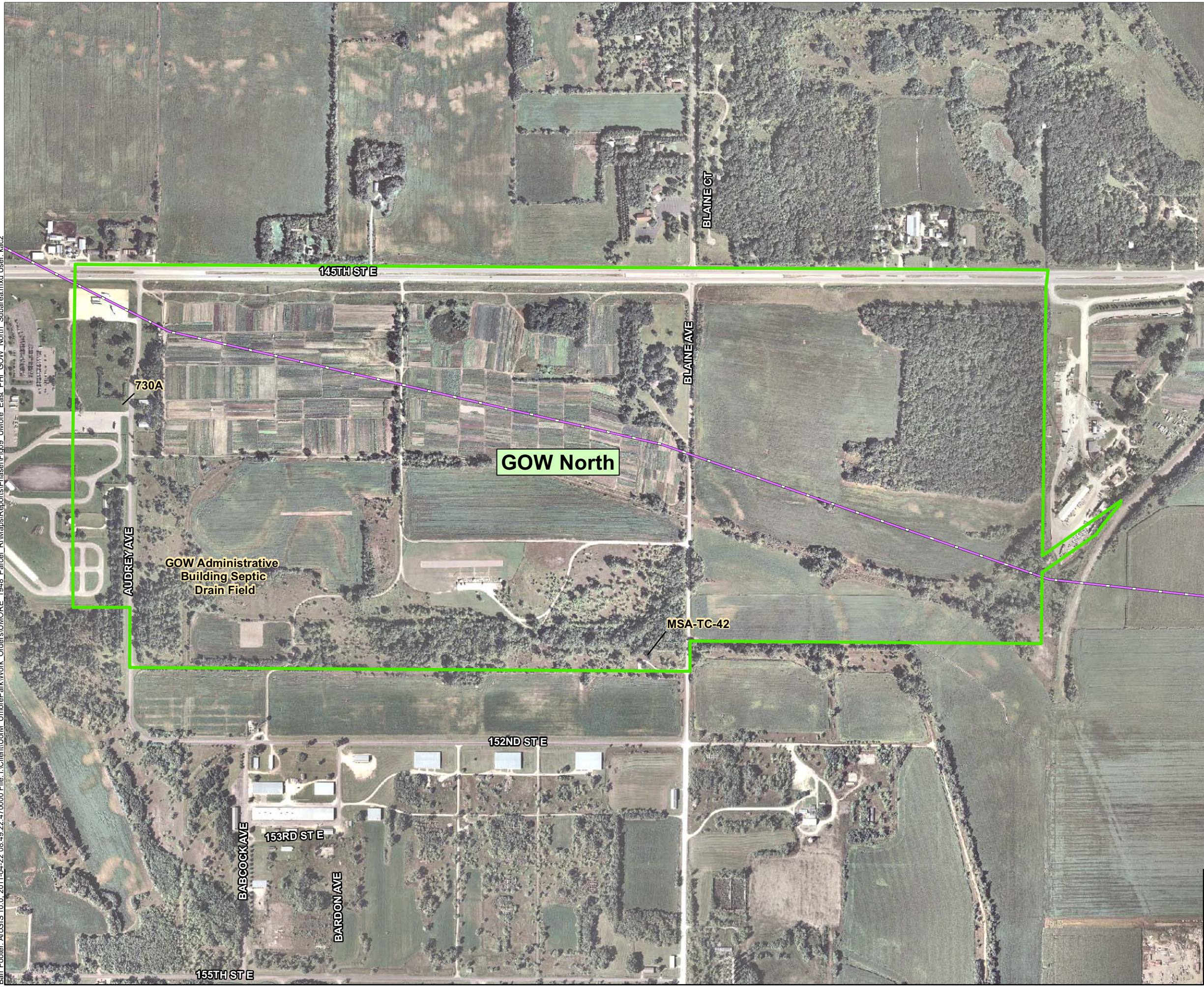
Figure 9: GOW West Subarea



GOW WEST SUBAREA
 UMore East
 Phase I Environmental
 Site Assessment
 Dakota County, MN



Data Sources: Barr Engineering Company, University of Minnesota.
 Background: 2009 Aerials Express Photography (Twin Cities)

Barr Footer: ArcGIS 10.0_2011-04-22 08:49:22 470000 File: I:\Client\UofM_UmorePark\Work_Orders\UMORE_1948_Parcels_RIMaps\Reports\PhaseI\Fig09_UMore_East_PhI_GOW_North_Subarea.mxd User: kac2

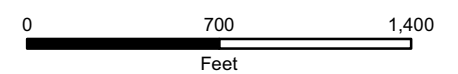


-  UMore East Subarea Boundary
-  Gas Pipelines (approximate)

Data Sources: Barr Engineering Company, University of Minnesota.

Background: 2009 Aerials Express Photography (Twin Cities)

Figure 10: GOW North Subarea

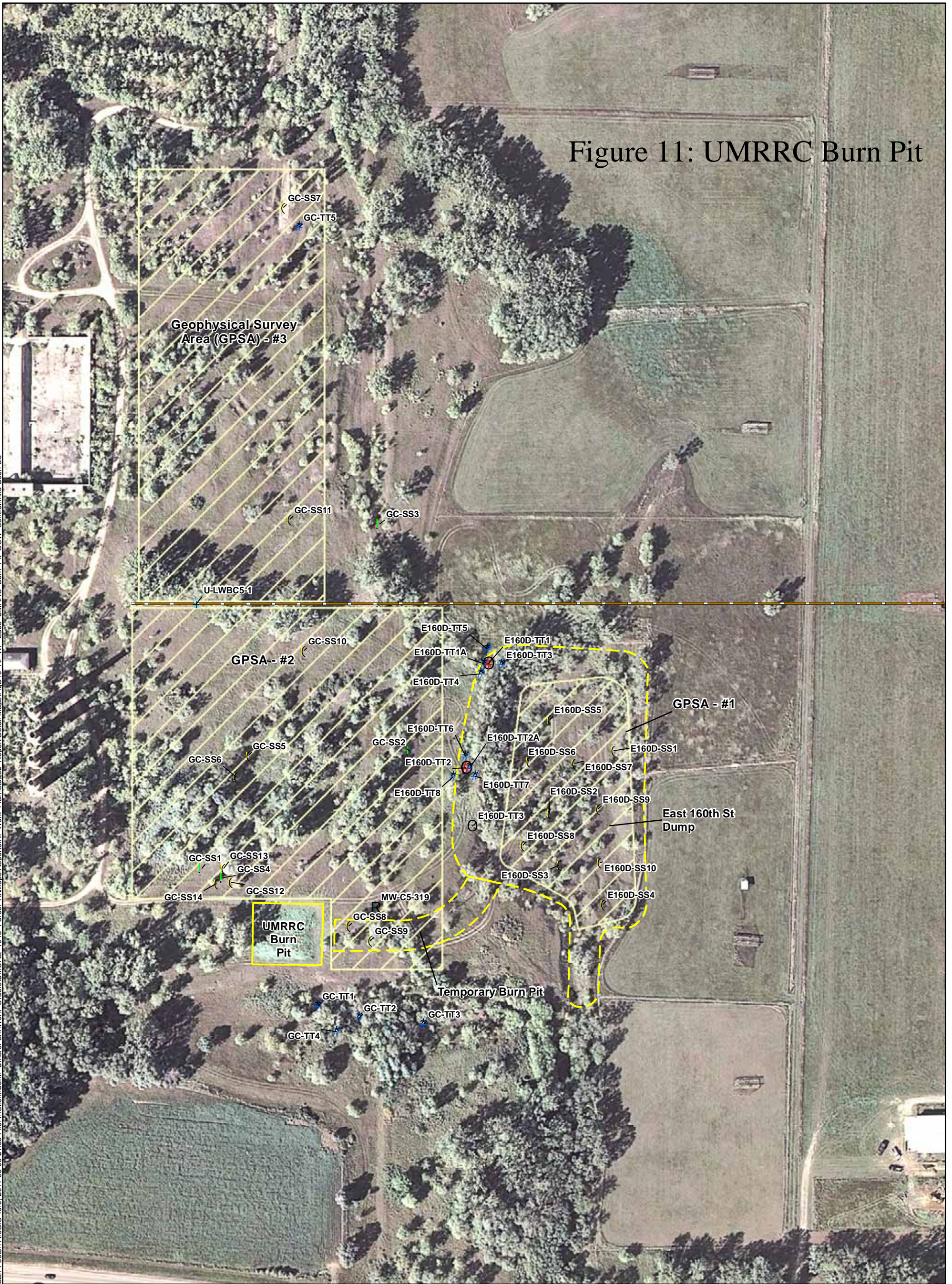


GOW NORTH SUBAREA

UMore East
Phase I Environmental
Site Assessment
Dakota County, MN



Figure 11: UMRRC Burn Pit



Pre-RI Sample Locations

- T Pre-RI Sample Location
- ! Wells and Borings Surveyed by Barr

Stage 1 Investigation Locations

- \$ Sewer Sediment Sample
- ! Soil Boring
- ! Surface Soil Sample
- T Test Trench

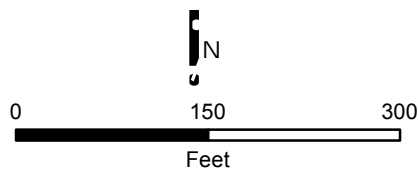
Planned Stage 2 Investigation Locations

- T Soil Boring
- T Test Trench
- ! Surface Sample
- \$ Sewer Sediment Sample

— Laminex Woodbox Sewer

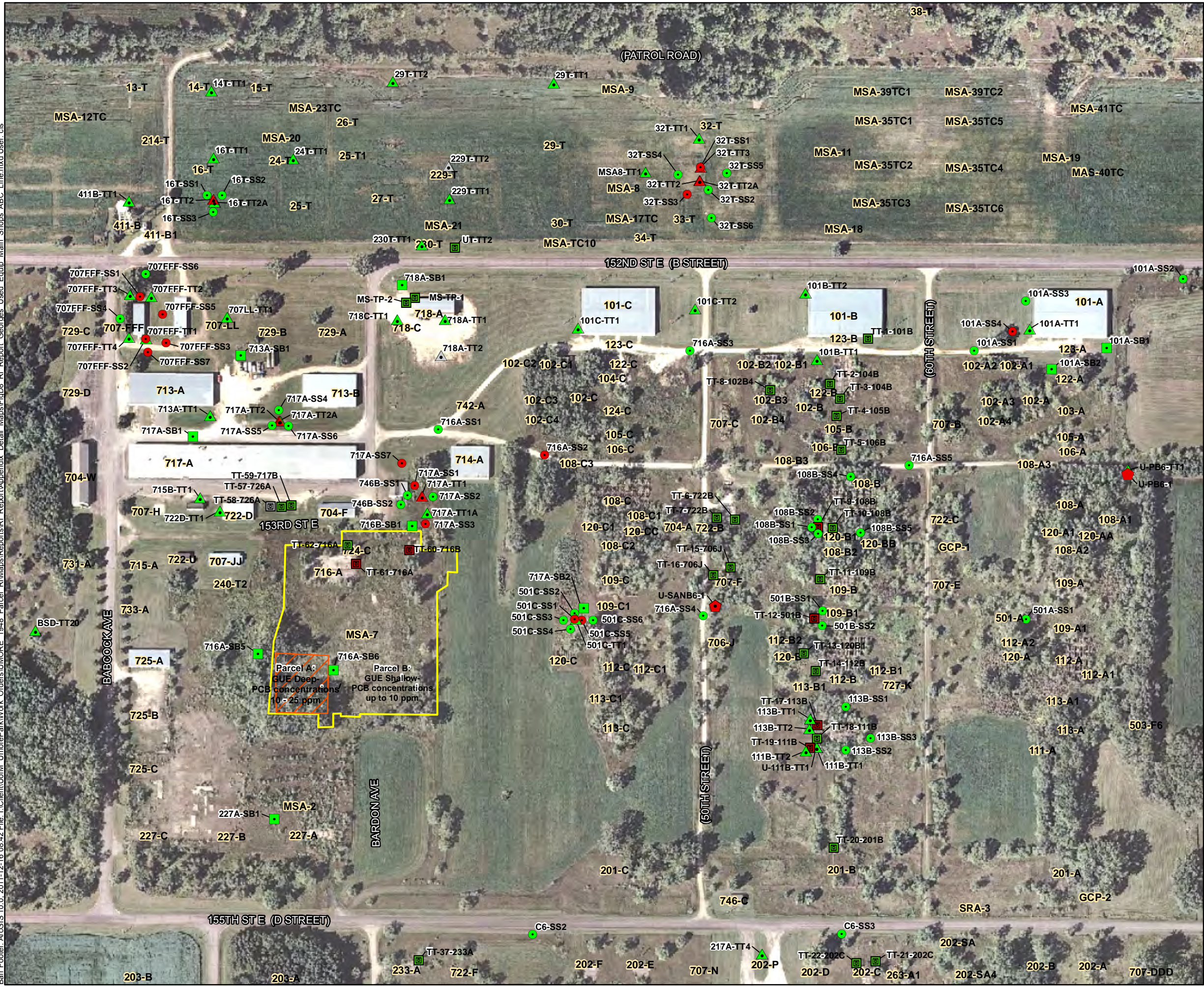
*Red symbols indicate locations of soil samples with Tier I SRV exceedances
 *Pink symbols indicate locations of soil samples with Tier I SLV exceedances for 2,4- or 2,6-Dinitrotoluene
 *Gray symbols indicate investigation locations where no soil data was collected

UMRRC BURN PIT, GOW
 CENTRAL / E. 160TH ST.
 DUMPS SUSPECTED
 DISPOSAL AREA
 GOW Central
 UMore East
 RI Work Plan - Stage 2
 Dakota County, MN



Barr Footer: ArcGIS 10.0, 2011-08-05 21:35 File: I:\Client\UofM_LumorePark\Work_Orders\UMORE_1948_Parcels\RI\Maps\Reports\RI_Work_Plan\Stage2_Report\Detail\Maps\FigD19_RI_WP_Labs_UMRRC_Burn_Pit_GOW_Central.mxd User: csl

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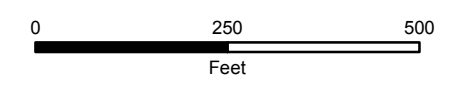
- Pre-RI Sample Locations**
- Pre-RI Sample Location
 - Wells and Borings Surveyed by Barr
- 2011 RI Investigation Locations**
- ◆ Sewer Sediment Sample
 - Soil Boring
 - Surface Soil Sample
 - ▲ Test Trench
- Laminex Woodbox Sewer

*Red symbols indicate locations of soil samples with Tier I SRV exceedances
 *Gray symbols indicate investigation locations where no soil data was collected

Data Sources: Barr Engineering Company, University of Minnesota, Dakota County.

Background: 2009 Aerials Express Photography (Twin Cities)

Figure 12: George's Used Equipment (716A & B), Porter Electric (227A & B), and US Transformer (101A) locations

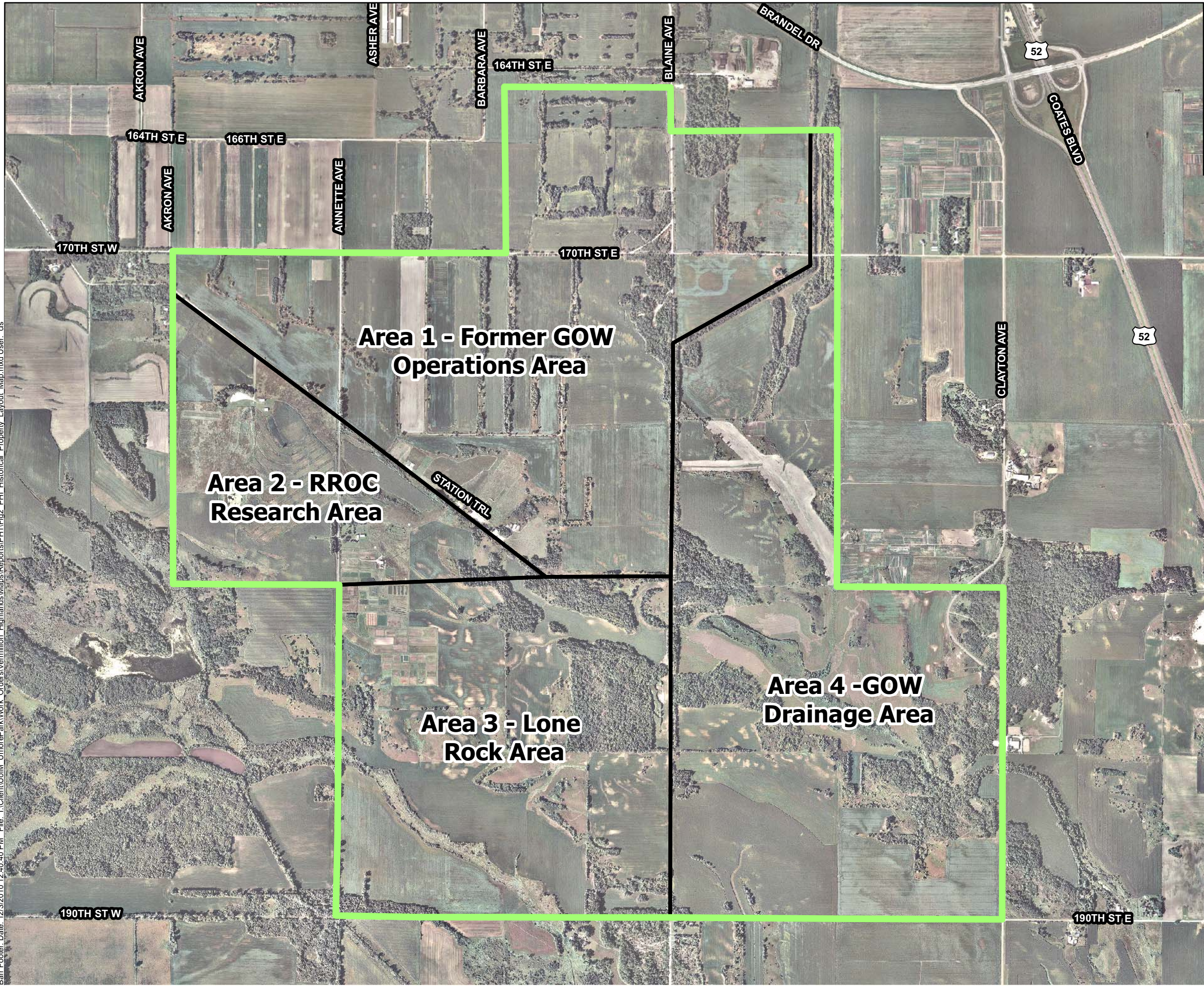




GEORGE'S USED EQUIPMENT (BLD. 716A & B) & MAIN SHOPS AREA ABC Line
 UMore East RI Report
 Dakota County, MN

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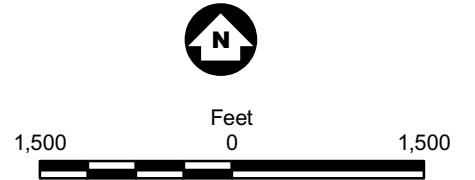


 Vermillion Highlands Boundary
 Area Boundaries

Data Sources: Barr Engineering Company, University of Minnesota.

Background: 2009 Aerials Express Photography.

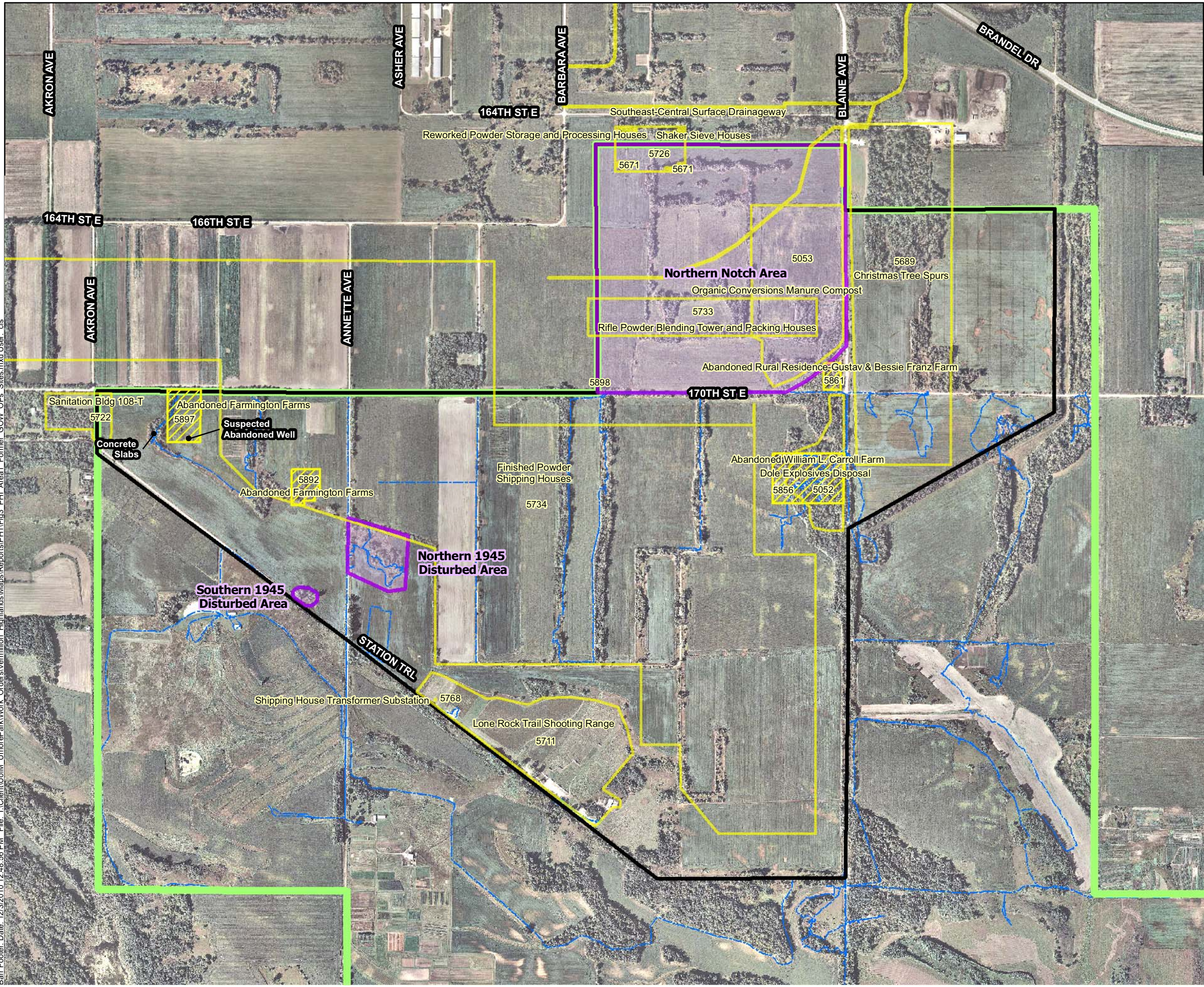
Figure 13: Vermillion Highlands



HISTORICAL PROPERTY LAYOUT MAP

Vermillion Highlands
Phase I Environmental
Site Assessment
Dakota County, MN

Barr Footer Date: 12/3/2010 12:48:56 PM File: I:\Client\UofM_UmorePark\Work_Orders\Vermillion_Highlands\Maps\Reports\PH1\Fig3_PHI_Area1_Former_GOW_OPs_Sites.mxd User: cjs



-  Partial Site Reconnaissance Trail
-  Vermillion Highlands Boundary
-  Area 1 - Former GOW Operations
-  Dakota County Mapped Site
-  Barr Mapped Site
-  Farmstead Visited During Second Site Visit

Data Sources: Barr Engineering Company, University of Minnesota, Dakota County.

Background: 2009 Aerials Express Photography.

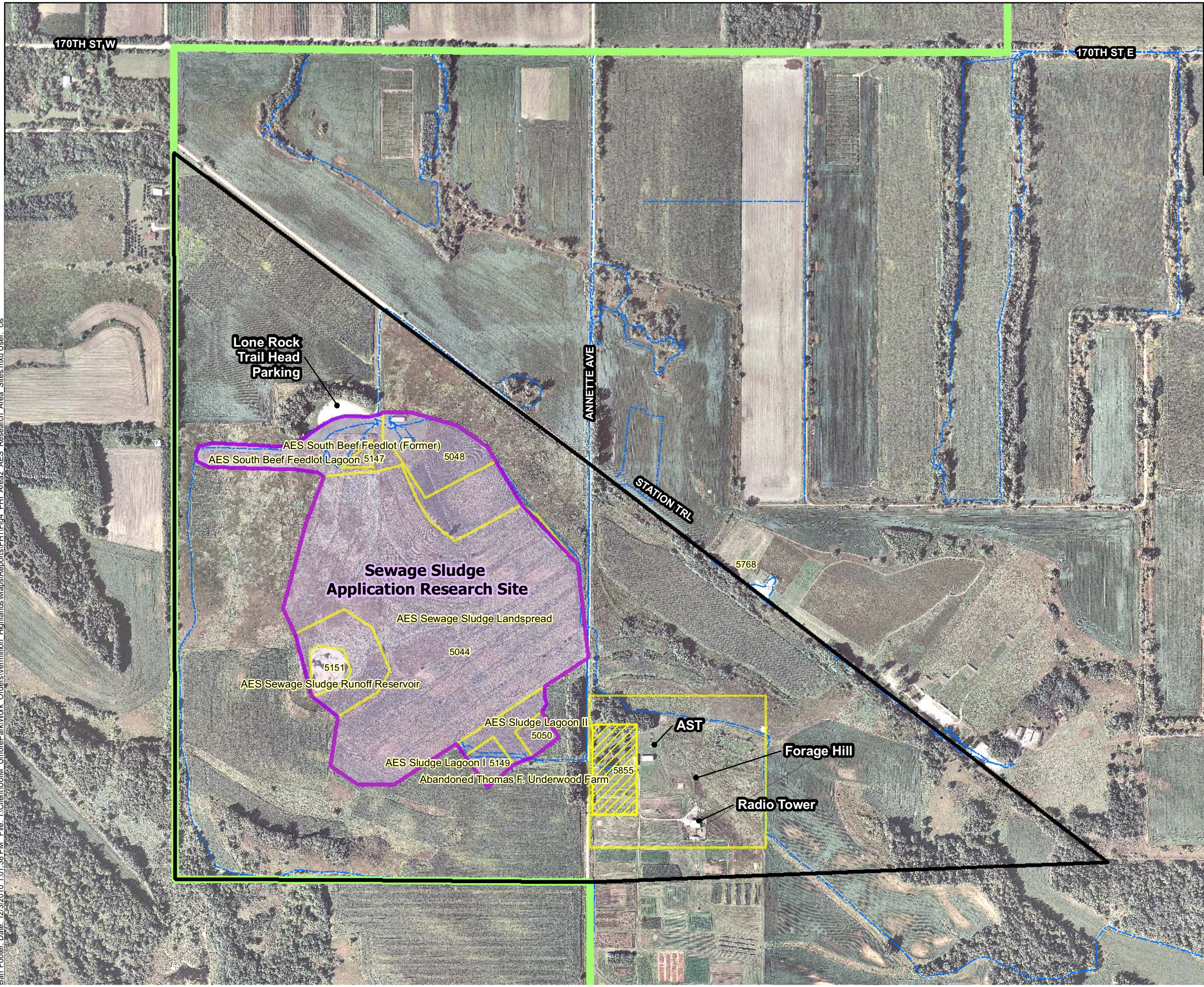
Figure 14: Vermillion Highlands Area 1



AREA 1 - FORMER GOW OPERATIONS IDENTIFIED SITES

Vermillion Highlands
Phase I Environmental
Site Assessment
Dakota County, MN

Barr Footer Date: 12/3/2010 1:01:38 PM File: I:\Client\UofM_UmcorePark\Work_Orders\Vermillion_Highlands\Maps\Reports\PH1\Fig4_PHI_Area2_AES_Research_Area_Sites.mxd User: cls

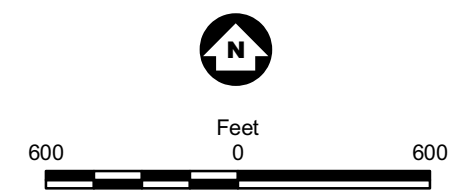


-  Partial Site Reconnaissance Trail
-  Vermillion Highlands Boundary
-  Area 2 - AES Research Area
-  Dakota County Mapped Site
-  Barr Mapped Site
-  Farmstead Visited During Second Site Visit

Data Sources: Barr Engineering Company, University of Minnesota, Dakota County.

Background: 2009 Aerials Express Photography.

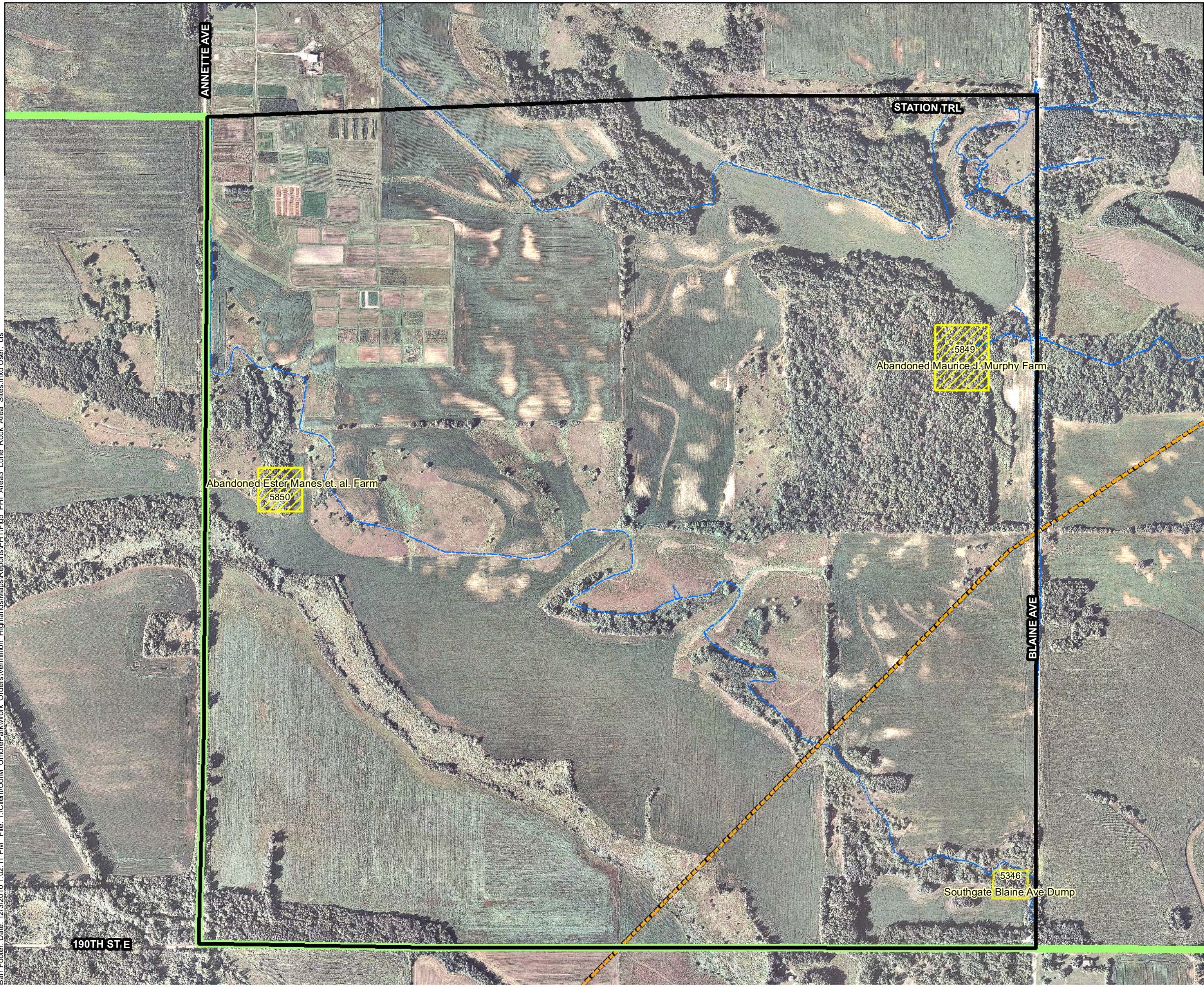
Figure 15: Vermillion Highlands Area 2



AREA 2 - RROC RESEARCH AREA IDENTIFIED SITES

Vermillion Highlands Phase I Environmental Site Assessment Dakota County, MN

Barr Footer Date: 12/3/2010 1:02:11 PM File: I:\Client\UofM_UmoraPark\Work_Orders\Vermillion_Highlands\Maps\Reports\PH1\Fig5_PH1_Area3_Lone_Rock_Area_Sites.mxd User: cls

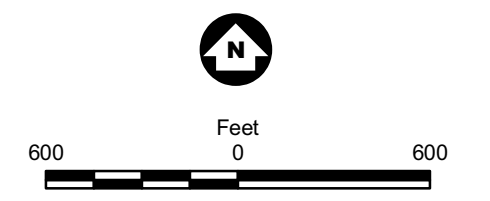


-  Partial Site Reconnaissance Trail
-  Approximate Pipeline Location
-  Vermillion Highlands Boundary
-  Area 3 - Lone Rock Area
-  Dakota County Mapped Site
-  Farmstead Visited During Second Site Visit

Data Sources: Barr Engineering Company, University of Minnesota, Dakota County.

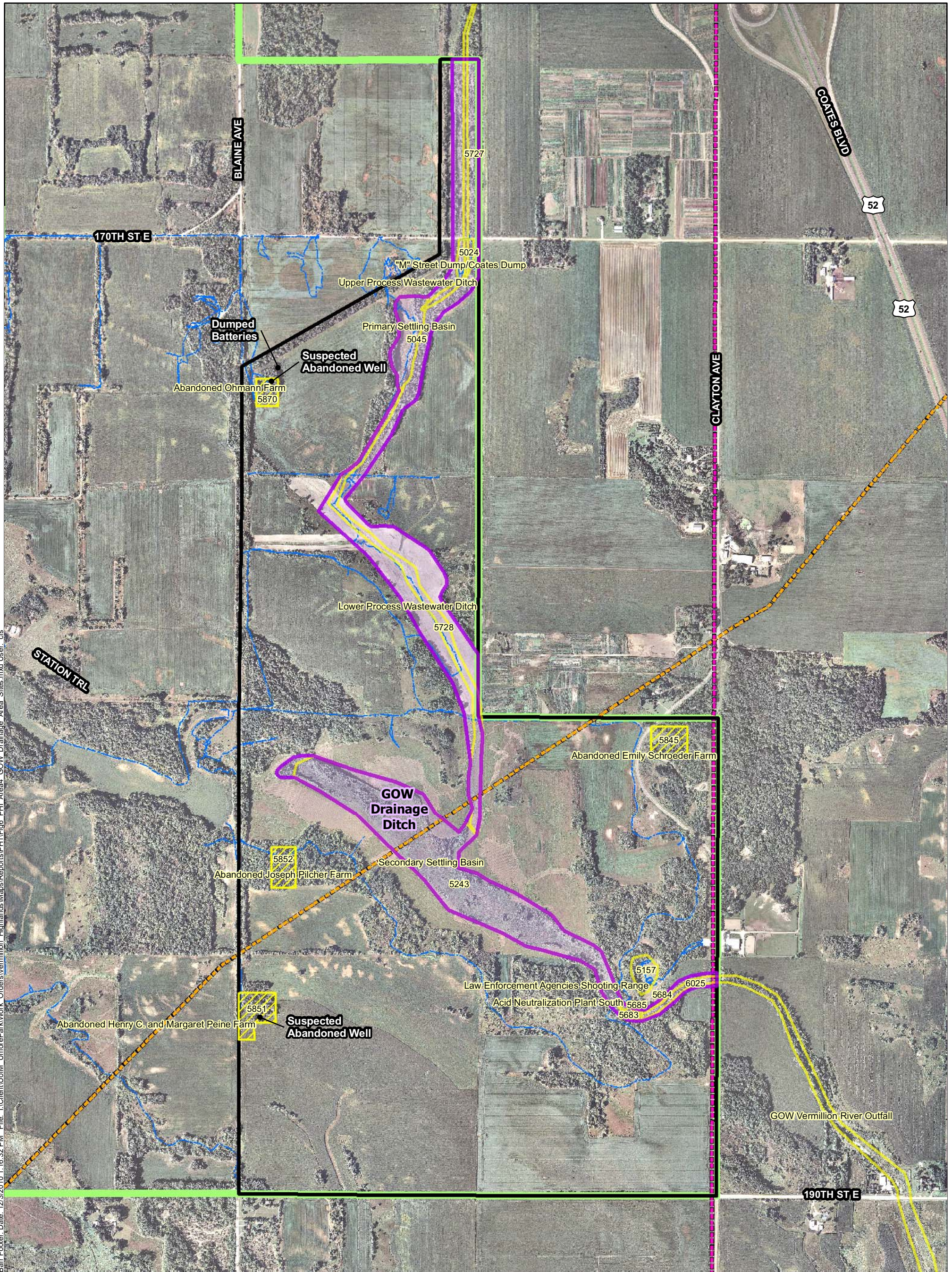
Background: 2009 Aerials Express Photography.

Figure 16: Vermillion Highlands Area 3








AREA 3 - LONE ROCK AREA IDENTIFIED SITES

Vermillion Highlands Phase I Environmental Site Assessment
Dakota County, MN



Barr Footer Date: 12/3/2010 1:16:32 PM File: I:\Client\UoM_UmoresPark\Work_Orders\Vermillion_Highlands\Maps\Reports\PH1\Fig6_PHL_Area4_GOW_Drainage_Area_Sites.mxd User: cjs

-  Partial Site Reconnaissance Trail
-  Suspected Pipeline Location
-  Approximate Pipeline Location
-  Vermillion Highlands Boundary
-  Area 4 -GOW Drainage Area



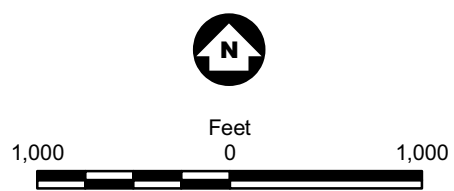
-  Dakota County Mapped Site
-  Barr Mapped Site
-  Farmstead Visited During Second Site Visit

Figure 17: Vermillion Highlands Area 4

AREA 4 - GOW DRAINAGE AREA IDENTIFIED SITES

Vermillion Highlands
Phase I Environmental
Site Assessment
Dakota County, MN



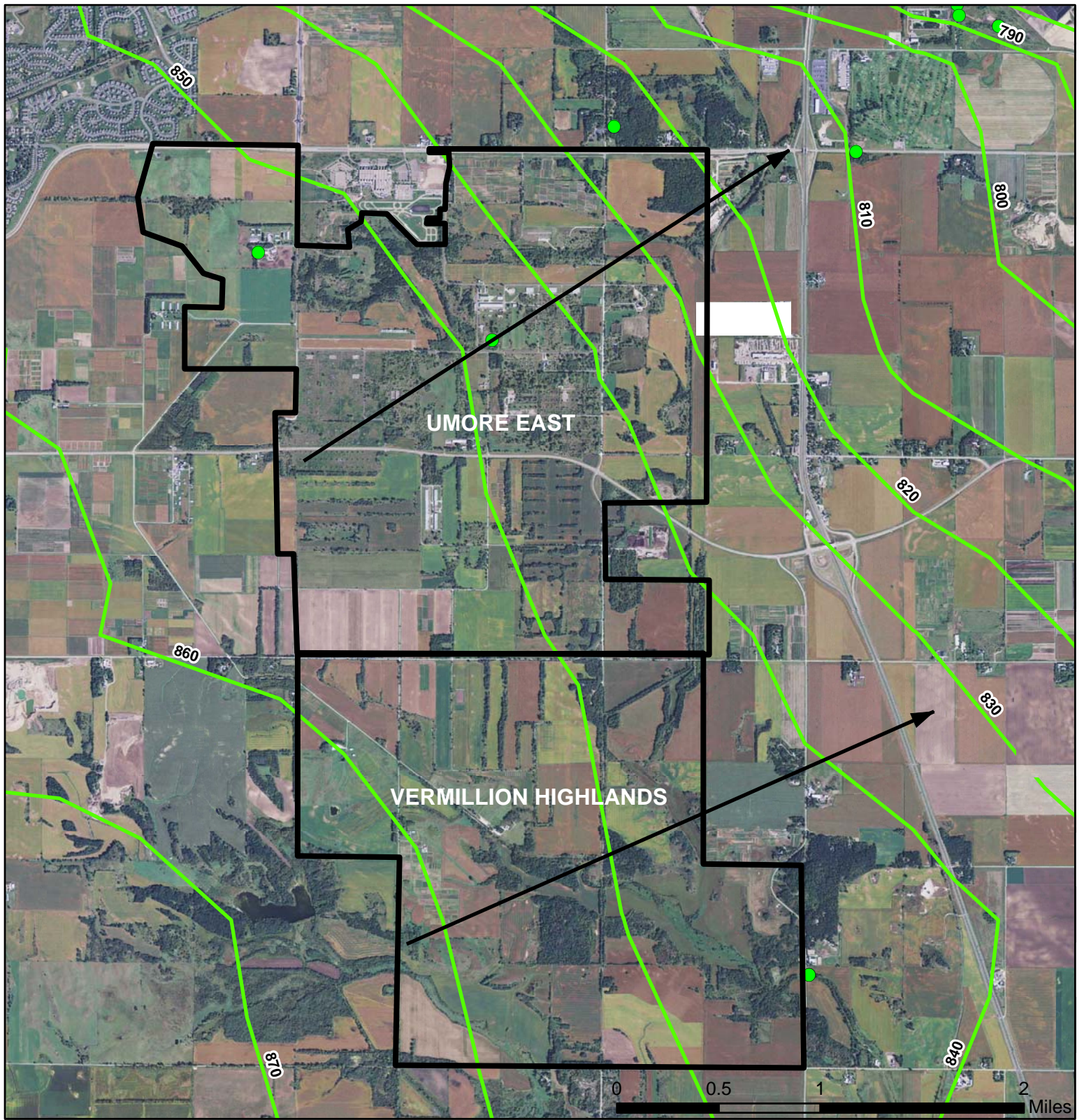
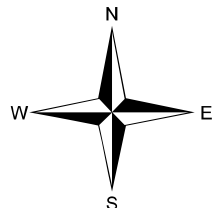


Figure 18: Flow Directions in Quaternary Aquifer

LEGEND

- Quaternary aquifer well
- Water level elevation contour (ft. above mean sea level)
- ➔ Groundwater flow direction



Static water level data obtained from Minnesota County Well Index

MDH, 9/18/2012

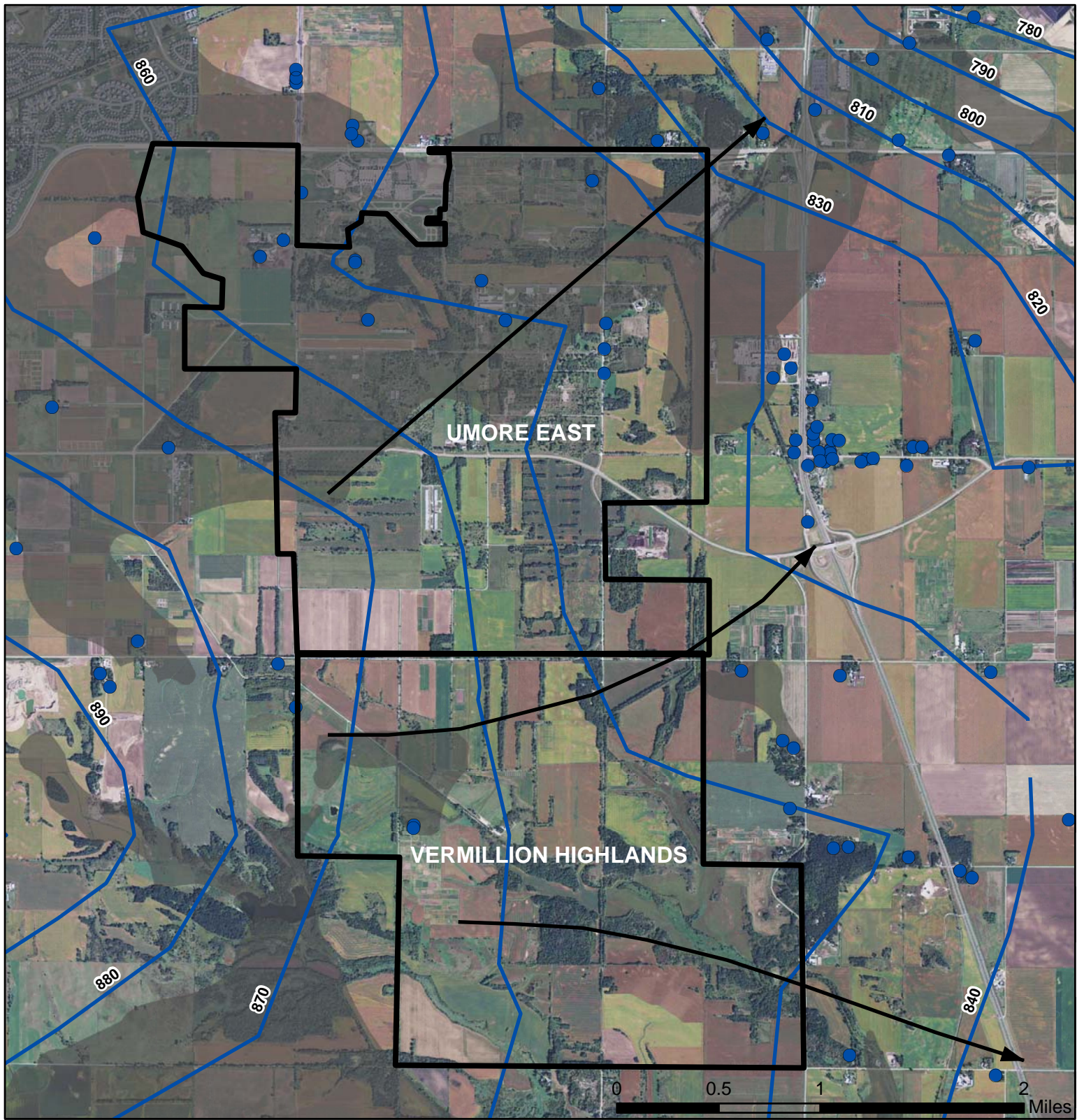
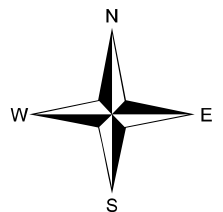


Figure 19: Flow Directions in Bedrock Aquifers

LEGEND

- Bedrock aquifer well (St. Peter, Prairie du Chien, and Jordan)
- Water level elevation contour (ft. above mean sea level)
- ➔ Groundwater flow direction



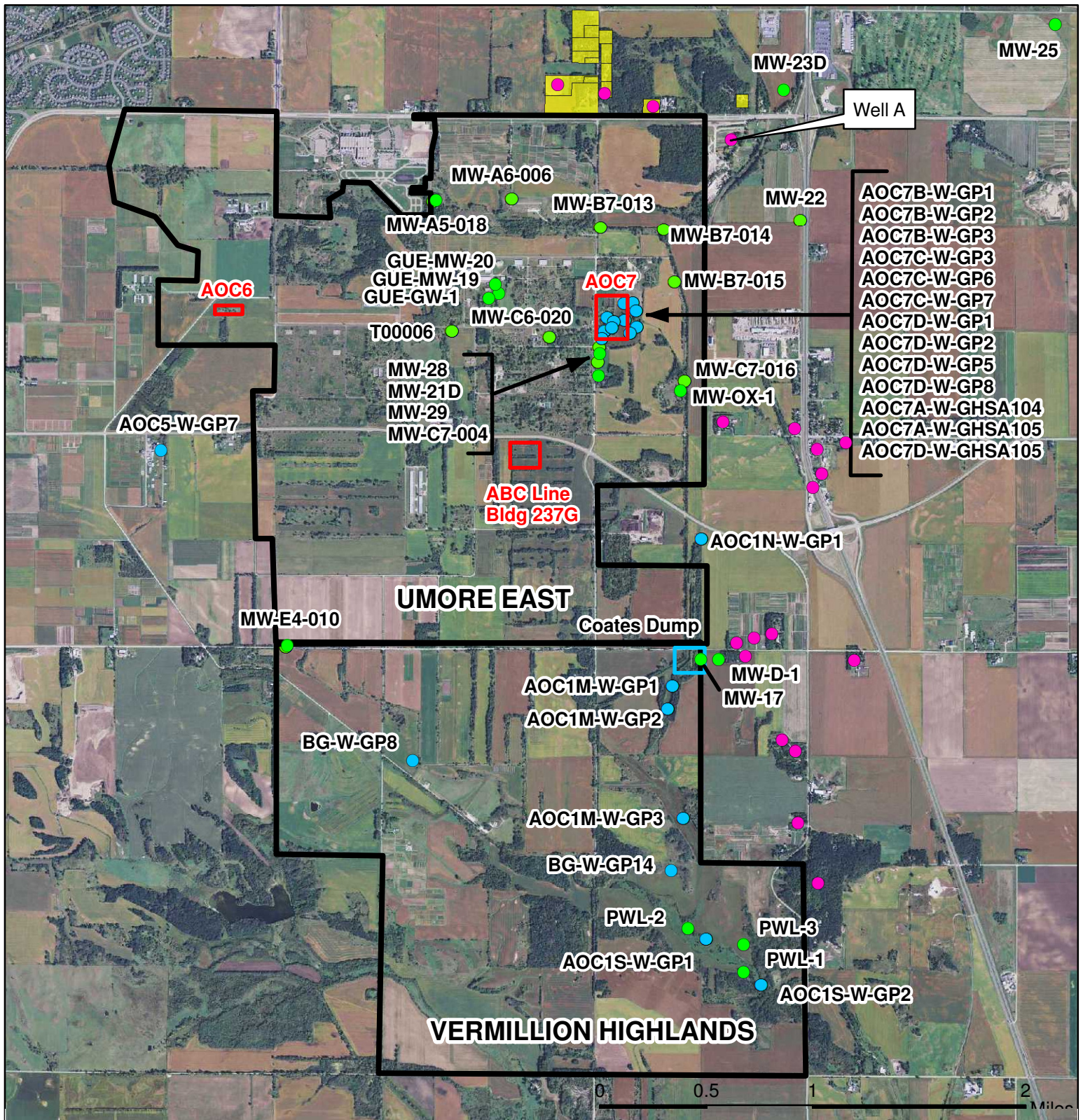
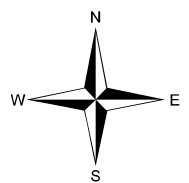


Figure 20: Groundwater Sample Locations

- Monitoring well sample
- Geoprobe or boring sample
- Private well sample
- Area with elevated soil detections warranting further sampling and possible monitoring well installation
- Boundary of former Coates Dump
- Parcel with no reported Rosemount city water connection



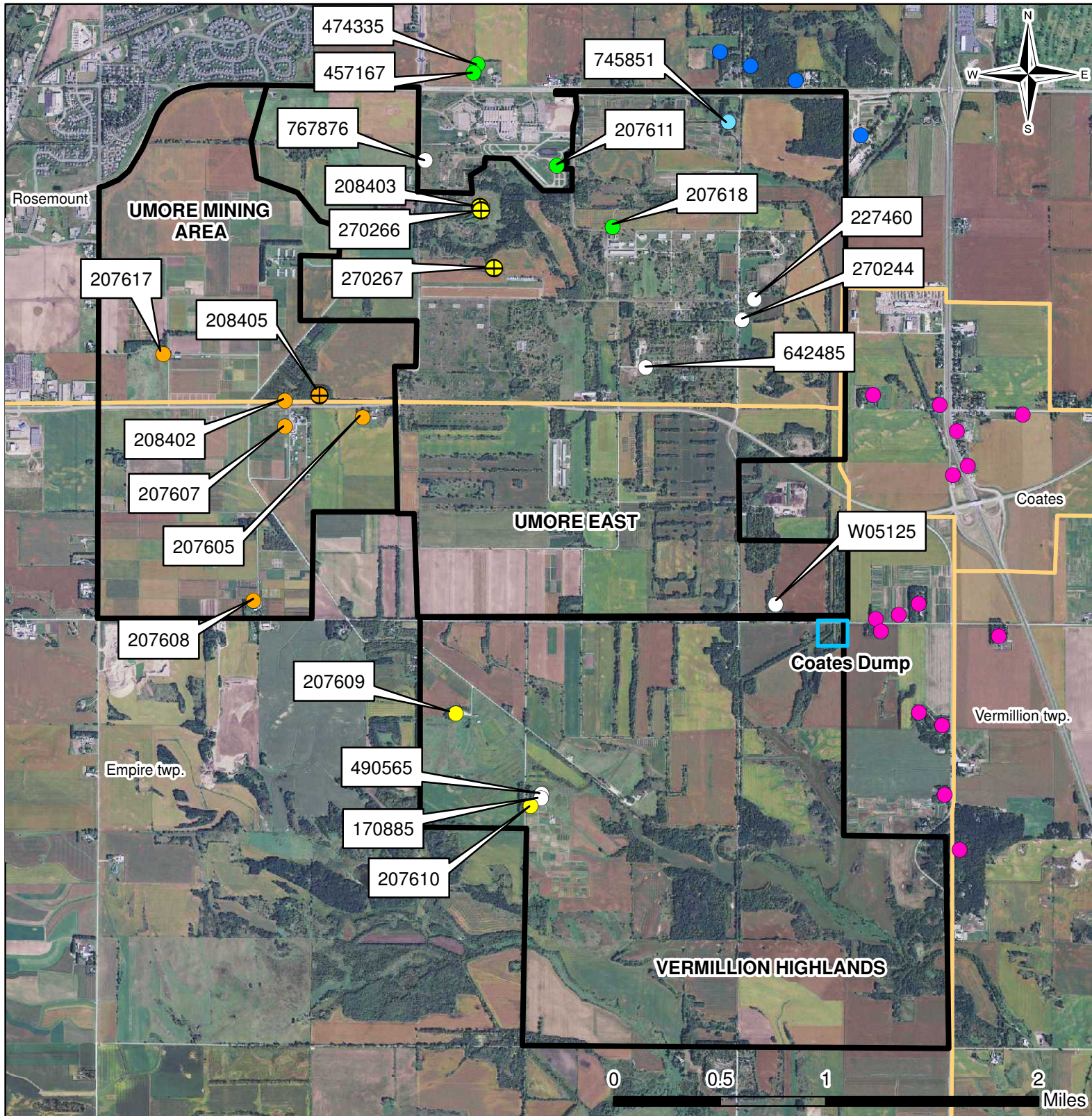


Figure 21: Well Locations

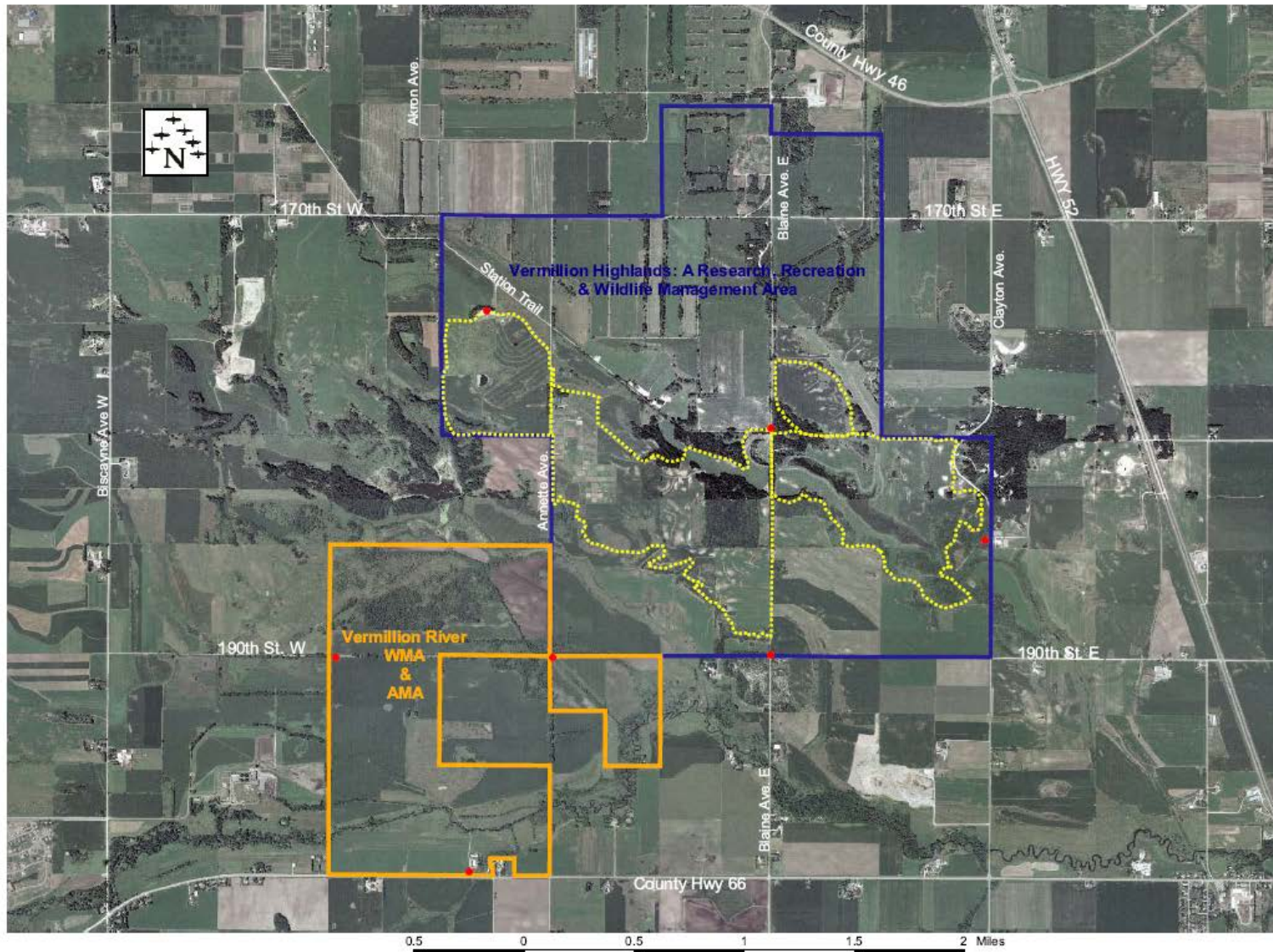
- Community public water supply well
- Non-community public water supply well
- Private wells sampled by MDH in 2013
- Private well near former Coates Dump sampled by MDH
- Former residential well
- Well - current status and/or use unknown
- ⊕ Well has been sealed
- Former Coates Dump
- City or township border
- UM Property

Figure 22: Tenant sites in the ABC Line subarea and contaminants in surface soil above residential SRVs

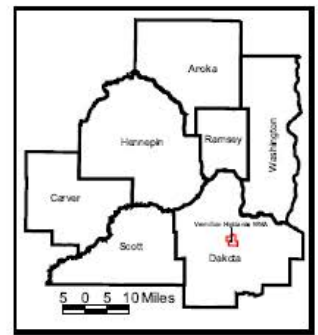


Vermillion River Complex

Figure 23: Recreational use of Vermillion Highlands



- Vermillion Highlands WMA
- Vermillion River WMA & AMA
- Lone Rock Trail
- Parking Areas



**Vermillion Highlands
Research Recreation
and Wildlife
Management Area**

Hunting & Trapping by Special
Permit or Authorization Only

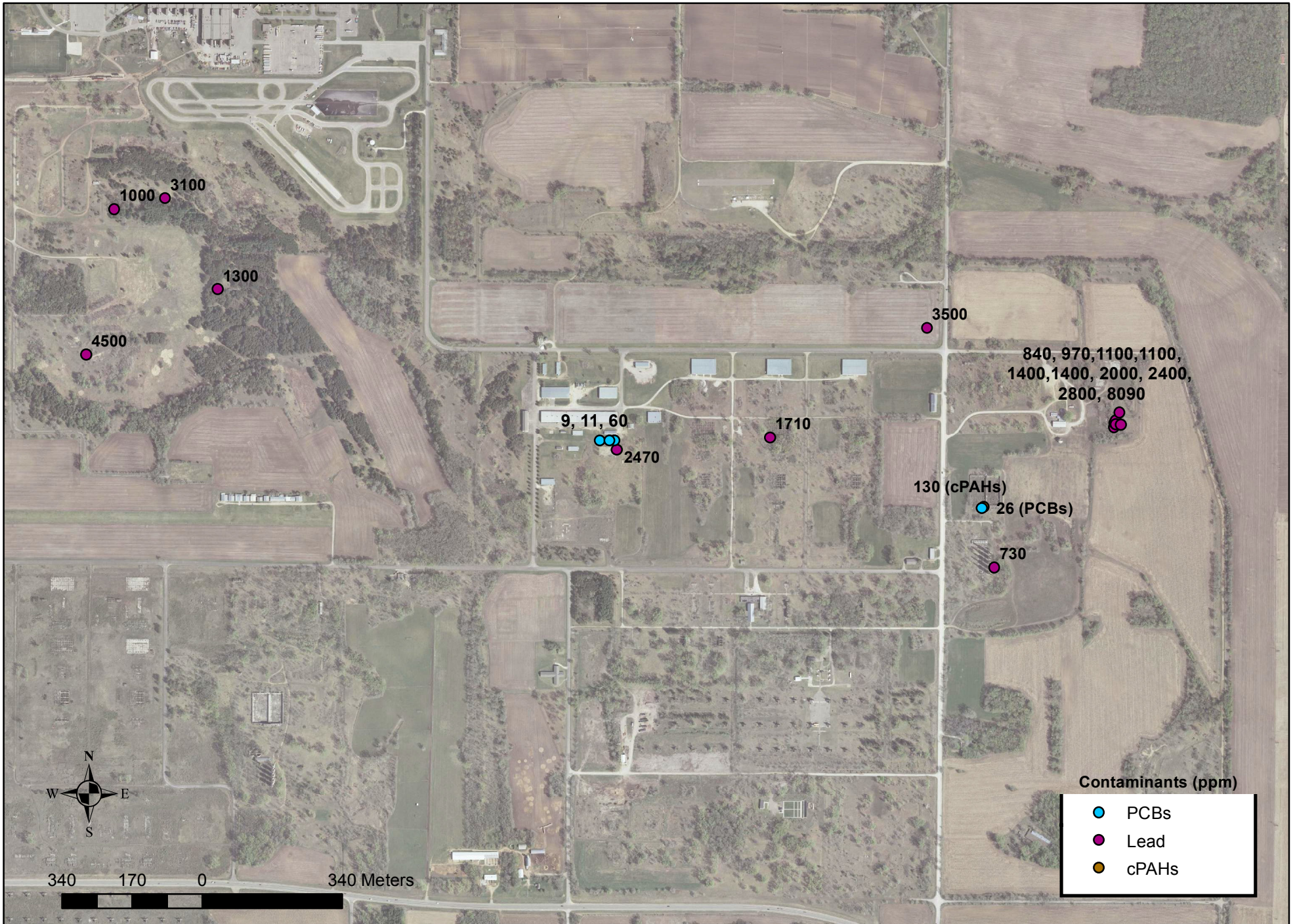
Closed to All Other Uses
Except as Specifically Authorized

For information, contact your local DNR Wildlife Office.
Dakota Location: 605-333-4963

13 September 2011
tm.pharis@state.mn.us



Figure 24: Highest PCB, lead, and cPAH concentrations in surface soil that are recommended for removal



A concentration of cPAHs of 260 ppm is located off of the map in the southern portion of the former GOW drainage basin in the Vermillion Highlands.