

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

**For Sites in
Illinois, Indiana, Iowa, Michigan,
Minnesota, Missouri, Ohio, and
Wisconsin
USFWS Region 3**



2024-2028

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1 **INTEGRATED NATURAL RESOURCES**
2 **MANAGEMENT PLAN**
3

4 **88th Readiness Division**
5 **Installation Management Command - Army Reserve**
6

7
8 **ENDORSEMENT**

9 This Integrated Natural Resources Management Plan (INRMP) has been prepared in accordance with
10 regulations, standards, and procedures of the Department of Defense (DoD) and the U.S. Army Reserve
11 (USAR) in cooperation with the U.S. Fish and Wildlife Service (USFWS) and the Illinois, Indiana, Iowa,
12 Michigan, Minnesota, Missouri, Ohio, and Wisconsin Departments of Natural Resources. The signatures
13 below indicate the mutual agreement of the parties concerning the conservation, protection, and
14 management of the fish and wildlife resources presented in the Plan.

15 This INRMP meets the requirements of the Sikes Act (16 USC 670a *et seq.*) as amended.

16 **Approving Officials:**

17 Matthew V. Baker
18 Major General, USA
19 Commanding
20

Date

21 Jared T. Corsi
22 COL, EN
23 Director of Public Works
24

Date

25 Director Natalie Finnie
26 Illinois Department of Natural Resources
27 Springfield, Illinois
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Date

29 Director Dan Bortner
30 Indiana Department of Natural Resources
31 Indianapolis, Indiana
32

Date

33 Director Kayle Lyon
34 Iowa Department of Natural Resources
35 Des Moines, Iowa
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Date

37 Director Daniel Eichinger
38 Michigan Department of Natural Resources
39 Lansing, Michigan
40

Date

1 Commissioner Sarah Strommen
2 Minnesota Department of Natural Resources
3 St. Paul, Minnesota

Date

5 Director Sara Parker Pauley
6 Missouri Department of Conservation
7 Jefferson City, Missouri

Date

9 Director Mary Mertz
10 Ohio Department of Natural Resources
11 Columbus, Ohio

12 _____
Date

13 Secretary Preston Cole
14 Wisconsin Department of Natural Resources
15 Madison, Wisconsin

16 _____
Date

17 Director Will Meeks
18 Region 3
19 U.S. Fish and Wildlife Service
20 Bloomington, Minnesota

21 _____
Date

22
23 **Recommended By:**

24
25 Edward Tebo
26 Chief, Public Works Environmental Division
27 88th Readiness Division

28 _____
Date

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AT A GLANCE

USFWS Region 3

- Illinois (IL)
- Indiana (IN)
- Iowa (IA)
- Michigan (MI)
- Minnesota (MN)
- Missouri (MO)
- Ohio (OH)
- Wisconsin (WI)

Total USAR Sites - 125

High/Medium Resource Sites – 28

Low resource facilities - 97

Local Training Areas - 6

Joliet LTA (IL079/17896) Elwood IL

Laporte County Veterans Army Reserve Center (ARC) LTA (IN023/18740) Kingsbury IN

Belton ARC/LTA (MO003/29880) Belton MO

St Charles ARC (MO041/29985) Weldon Spring MO

Toledo Area ARC/LTA (OH094/39760) Monclova OH

West Silver Spring Complex/LTA (WI064/55999) Milwaukee WI

Regional INRMP Updated in 2024

Executive Summary NATURAL RESOURCE MANAGER'S SUMMARY

This Integrated Natural Resources Management Plan (INRMP) serves as an update to the 2015 – 2020 U.S. Fish and Wildlife Service (USFWS) Region 3 INRMP signed in 2017. This INRMP is aligned with USFWS Region 3 and accounts for changes in the real property inventory for the USAR 88th Readiness Division (RD).

Many of the 88th RD owned and leased properties in USFWS Region 3 are small, and management of the natural resources management occurs through application of Army approved best management practices (BMPs) identified by the Army that are relevant to wetlands, surface waters, and floodplains; threatened, endangered, and at-risk species; and invasive species.

Of special note for management in this region: there are six local training areas (LTAs). Joliet LTA is the largest with 3,573 acres.

Threatened and Endangered (T&E) species management at 88th RD sites is achieved through applying best management practices (BMPs). In sites where the Natural Resource Survey (NRSRVY) program inculcates the potential for federally listed T&E species to occur, review of the NRSRVYs and the USFWS Information for Planning and Consulting (IPaC) online tool is used to identify potential habitat/critical habitat and listed species on the site. If habitat occurs, then species specific presence/absence surveys are planned and conducted based on priority and when funding allows. Sites with recent T&E surveys in Region 3 are covered in the site profiles.

Local Training Areas

- Joliet LTA (IL079/17896) Elwood IL, training sites include ranges, classrooms, a drop zone, a 50-foot rappel tower, the chemical, biological, radiological and nuclear (CBRN) chamber, a driver's course, a river crossing, boat launch sites, floating bridge operations, and a demolition pit.
- Laporte County Veterans Army Reserve Center (ARC) LTA (IN023/18740) Kingsbury IN is used for maintenance of military equipment, as well as field vehicle training, classroom training, and vehicle maintenance training.

1 **Local Training Areas (CONTINUED)**

- 2 • Belton ARC/LTA (MO003/29880) Belton MO is used for outdoor training.
- 3 • St Charles ARC (MO041/29985) Weldon Spring MO is used for administrative services, classroom
- 4 training, outdoor training, light vehicle maintenance, and storage.
- 5 • Toledo Area ARC/LTA (OH094/39760) Monclova OH, is used for engineering equipment training,
- 6 classroom training, and light tactical training.
- 7 • West Silver Spring Complex/LTA (WI064/55999) Milwaukee WI is used for unit-level outdoor training.

8 **USFWS Region 3 LTA activities table.**

LOCATION	Base Camp Operations	Basic Soldier Skills	Land Navigation / Dismounted Infantry Training Area	Engineer Equipment Operation	Vehicle Operators Drivers Training & Convoy Operations	Field Training Exercises	Small Unit Tactical Maneuvers	Storage Buildings	Military Operations in Urban Terrain (MOUT) Training Site	Tactical Concealment Areas (TCAs)
Joliet (JTA) IL079/17896	X	X	X	X	X	X	X	X	X	X
Kingsbury IN023/1874	X	X	X	X	X	X	X		X	X
Belton MO003/29246	X	X	X	X	X	X	X			
Weldon Spring MO041/29985	X	X	X	X	X	X	X			X
Monclova OH094/39760	X	X	X	X	X	X	X			X
West Silver Spring WI064/55999	X	X	X	X		X	X			

9
10 **Water Resources**

- 11 • Joliet LTA (IL079/17896) Elwood IL, Jackson Creek and its tributaries occur along the eastern
- 12 boundary, and the site is part of the 100-year flood hazard area. It also contains a man-made water
- 13 supply lagoon and 356 acres of wetlands.
- 14 • Belton ARC/LTA (MO003/29880) Belton MO contains a small, slow-flowing, unnamed tributary of
- 15 West Fork East Creek, a drainage ditch, and small pond, along with 0.22 acres of wetlands.
- 16 • Weldon Spring ARC (MO041/29985) St Charles MO contains 14 wetlands and numerous drainage
- 17 ditches. A small, slow-flowing unnamed tributary of Schote Creek flows SE to NW through the site.
- 18 • COL Dudley M. Outcalt ARC (OH058/39846) Sharonville OH, contains a 0.09-acre perennial stream.
- 19 • Toledo ARC/AMSA/LTA (OH094/39760) Monclova OH, contains 1.92 acres of perennial stream, 1.5
- 20 acres of wetlands, and a 1-acre pond.
- 21 • West Silver Spring Complex/LTA (WI064/55999) Milwaukee WI, Lincoln Creek crosses the site that
- 22 has a small tributary that meanders on and off the site. It contains 0.97 acres of open water (including
- 23 five retention ponds with hydrophytic vegetation).

- The following high/medium resource sites contain wetlands that have not been USACE designated as federally jurisdictional:

3	IL001/17812	Parkhurst ARC/OMS/DS	Darien, IL
4	IL131/17887	Phillip H. Sheridan ARC	Ft. Sheridan, IL
5	IN008/18778	Fort Benjamin Harrison	Indianapolis IN
6	IN023/18740	Laporte Co. Veterans ARC	Kingsbury IN
7	IN085/18301	Michigan City ARC	Michigan City IN
8	MI009/26798	BG William H. Birbari ARC	Fraser, MI
9	MI021/2653A	Christensen/Hattamer ARC	Marquette, MI
10	MI024/26900	Donald R. Moyer	Waterford, MI
11	MI029/26685	1LT Robert L. Poxon ARC	Southfield MI
12	MN001/27899	Arden Hills ARC	Arden Hills, MN
13	MN002/27700	Terrance A Peterson ARC	Brainerd, MN
14	MN005/27726	MSG Armin C. Lieder ARC	Buffalo, MN
15	MO031/29975	Washington ARC	Washington MO
16	OH028/39880	Taylor Station Road ARC	Blacklick, OH
17	OH032/39195	Kings Mills Memorial ARC	Maineville, OH
18	OH033/39893	1LT G.N. Faze ARC	Lima, OH
19	OH044/39954	Cooney ARC/AMSA #165S-S	Milan, OH
20	OH051/39995	Twinsburg ARC/AMSA #123	Twinsburg, OH

Listed Species and Potentially Suitable Habitat

- St Charles ARC (MO041/29985) Weldon Spring MO, the federally listed Indiana bat (*Myotis sodalis*) and Gray bat (*Myotis grisescens*) were documented as part of an Army study in 2019.
- MO041/29985 have documented Indiana and Long-eared bat foraging habitat. An Endangered Species Management Component Plan (ESMCP) was initiated in FY23 and completed in early FY24.
- Joliet LTA has suitable habitat for rusty patch bumble bee (*Bombas affinis*), Hine's emerald dragonfly (*Somatochlora hineana*), and leafy prairie clover (*Dalea foliosa*). FY23 survey will determine absence or presence.
- Ongoing Migratory bird surveys (MBTASRVY) will take place at Joliet LTA (IL079/17897), Kingsbury (IN023/18740), Sunflower LTA (KS031/20790), Belton LTA (MO003/29880), St. Charles LTA (MO041/29985), Frank Browning LTA (Ogden) (UT007/49676) and West Silver Spring (WI064/55999) in FY23.

Projects to survey for these species and manage habitat are included in Appendix C.

In addition to identifying natural resources at all 88th RD owned and leased sites in USFWS Region 3, this INRMP identifies specific projects and best management practices to manage the resources and conserve biological diversity in a way that supports the military mission and broader regional conservation initiatives. Planned projects are detailed in Appendix C.

The INRMP was developed in cooperation with the U.S. Fish and Wildlife Service (USFWS), Illinois Department of Natural Resources, Indiana Department of Natural Resources, Iowa Department of Natural Resources, Michigan Department of Natural Resources, Minnesota Department of Natural Resources, Missouri Department of Conservation, Ohio Department of Natural Resources, and Wisconsin Department of Natural Resources.

1 Background

2 The Department of Defense (DoD) is required to develop and implement INRMPs for military
3 installations across the United States in accordance with the Sikes Act (16 U.S. Code [USC] 670a-
4 670f, as amended). INRMPs are planning documents that allow DoD installations to implement
5 landscape-level management of their natural resources, to determine and ameliorate, where possible,
6 the potential effects of climate change adaptation and resiliency where impacts may negatively affect
7 military sites/readiness, while coordinating with various stakeholders. INRMPs help ensure military
8 operations and natural resources conservation are integrated and are consistent with stewardship
9 and legal requirements. INRMPs are prepared in cooperation with the USFWS and State fish and
10 wildlife agencies to ensure proper consideration of fish, wildlife, and habitat needs. A Programmatic
11 Environmental Assessment will be completed on this 2024-2028 Interior Region 3 INRMP in
12 accordance with the National Environmental Policy Act (NEPA). The process will include public
13 involvement.

14 Purpose

15 This INRMP is the 88th RD plan of action for the conservation of natural resources entrusted to the
16 U.S. Army Reserve (USAR) at sites in Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio,
17 and Wisconsin in accordance with the Sikes Act.

18 It has been prepared in accordance with regulations, standards, and procedures of the DoD and the
19 U.S. Army in cooperation with:

20 Region 3 U.S. Fish and Wildlife Service (USFWS)

21 Illinois Department of Natural Resources (ILDNR)

22 Indiana Department of Natural Resources (INDNR)

23 Iowa Department of Natural Resources (IADNR)

24 Michigan Department of Natural Resources (MIDNR)

25 Minnesota Department of Natural Resources (MNDNR)

26 Missouri Department of Conservation (MODC)

27 Ohio Department of Natural Resources (ODNR)

28 Wisconsin Department of Natural Resources (WDNR).

29 This plan has a five-year time frame (2023-2028). The 88th RD will conserve its biological diversity
30 and make sound decisions regarding the use of natural resources, incorporating climate change
31 adaptation and resiliency to support both the military mission and broader regional conservation
32 initiatives.

33 Ecosystem Management

34 INRMPs are based on the principles of ecosystem management to support present and future training
35 and testing requirements while preserving, improving, and enhancing ecosystem integrity. Over the
36 long term, this approach maintains and improves the sustainability and biological diversity of
37 terrestrial and aquatic, including marine, ecosystems while supporting sustainable economies, human
38 use, and the environments required for realistic military training operation (Department of Defense
39 Manual [DoDM] 4715.03, 25 NOV 2013).

40 The ecosystem management approach emphasizes management of functional habitat and
41 conservation of intact ecological systems rather than management for individual wildlife or plant
42 species. Adaptive management is an important component of ecosystem management.

1 The scope of this INRMP is 88th RD owned and leased properties accountable in Headquarters
2 Installation Information System (HQIIS) across USFWS Region 3 (Iowa, Illinois, Indiana, Michigan,
3 Minnesota, Missouri, Ohio, and Wisconsin). Many of these sites are small in size.

4 **Climate Change Adaption and Resiliency**

5 With the issuance of the DoDD 4715.21, *Climate Adaptation and Resilience* (August 31, 2018)
6 coupled with the 2020 issuance of *Climate Adaption For Natural Resource Managers*, the Army is
7 required to assess and manage risks from climate change. The directive provided a high-level formal
8 commitment to integrating consideration of climate change into all aspects of Army activities, including
9 natural resources management and the ability to carry out training in the field environment.

10 **Ecoregions**

11 Ecoregions are ecosystems of regional extent. They distinguish areas that share common climatic
12 and vegetation characteristics. For the purposes of this INRMP, the *USEPA Level III Ecoregions in*
13 *the United States* provides continuity with respect to land classification which can help inform natural
14 resource management planning as it provides a broader regional context for a site's natural
15 resources. Twenty EPA Level III Ecoregions are relevant to 88th RD sites in USFWS Region 3. The
16 EPA Ecoregions identified in the following list include the region number found on the map and the
17 affected states.

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|----|--|----|---|
| 19 | • Ozark Highlands (39) (IA, MO) | 32 | Central Corn Belt Plains (54) (IL, IN) |
| 20 | • Central Irregular Plains (40) (MO, IA) | 33 | Eastern Corn Belt Plains (55) (IN, MI, OH) |
| 21 | • Northern Glaciated Plains (46) (MN) | 34 | Southern Michigan/Northern Indiana Drift Plains |
| 22 | • Western Corn Belt Plain (47) (IA) | 35 | (56) (IN, MI) |
| 23 | • Lake Agassiz Plain (48) (MN) | 36 | Huron/Erie Lake Plains (57) (MI, OH) |
| 24 | • Northern Minnesota Wetlands (49) | 37 | Erie Drift Plain (61) (OH) |
| 25 | (MN) | 38 | Western Allegheny Plateau (70) (OH) |
| 26 | • Northern Lakes & Forests (50) (MN, WI) | 39 | Interior Low Plateau (71) (IL, IN) |
| 27 | • North Central Hardwood Forest (51) | 40 | Interior River Valleys and Hills (72) (IA, IN) |
| 28 | (MN, WI) | 41 | Mississippi Alluvial Plain (73) (MO) |
| 29 | • Driftless Area (52) (IA, IL, WI, MN) | 42 | Mississippi Valley Loess Plains (74) (MO) |
| 30 | • Southeastern Wisconsin Till Plains | 43 | |
| 31 | (53) (IL, WI) | | |

44 **State Wildlife Action Plans**

45 At the state level, wildlife action plans (SWAP/WAP) describe the distribution and abundance
46 of wildlife, including species with low and declining population numbers, as well as the
47 location and condition of key habitats required to support those species. The plans also
48 include procedures for routine monitoring, assessment of plan effectiveness, and public
49 participation.

50 Iowa, Illinois, Indiana, Michigan, Minnesota, Missouri, Ohio, and Wisconsin each have
51 existing plans. Most 88th RD sites are not large enough to contain native habitat for wildlife
52 populations that warrant implementation of specific WAP actions.

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1 **88th Readiness Division Mission**

2 *The Readiness Division integrates capabilities with Reserve Commands to provide geographic programs*
3 *and services that enhance individual and unit readiness, mobilization and deployment of Army Reserve*
4 *forces. (United States Army Reserve (USAR) Commanding General 88th Readiness Division, 2023)*

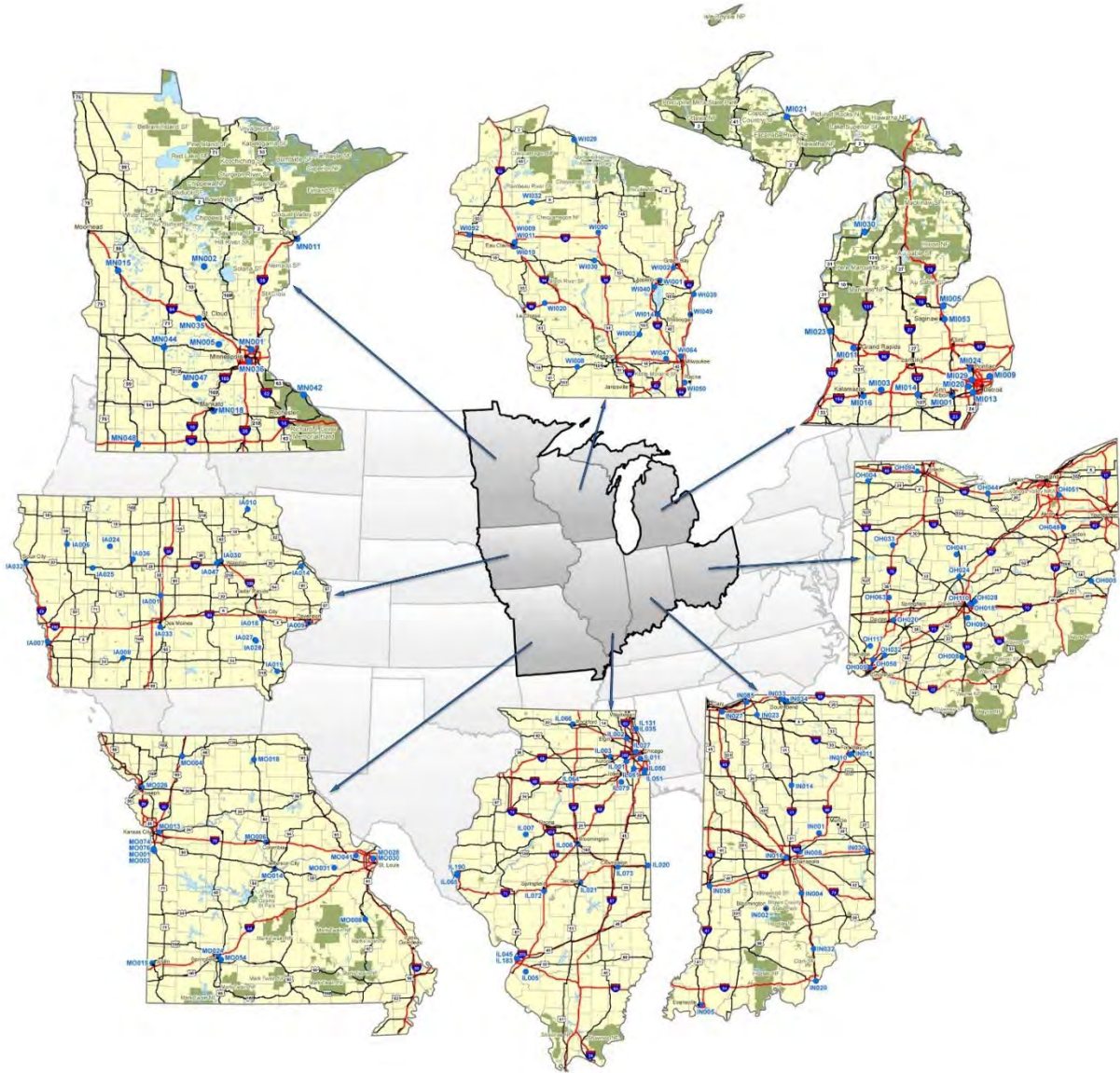
5 **The 88th RD Motto:** *Enabling Readiness Today and Always!*

6 **The 88th RD End State:** *The 88th RD - aims to provide quality facilities and deliver best-in-class programs*
7 *and services, resulting in quantifiable personnel, equipment, maintenance, and training readiness gains. In*
8 *doing so, units stationed in the 19-state region will be multi-domain operations capable by 2028.*

9 This INRMP directly supports the mission by protecting and enhancing Army lands upon which the mission
10 is dependent. The focus of all-natural resource management is mission readiness and sustainability.

11 **88th Readiness Division Sites**

12 Across Iowa, Illinois, Indiana, Michigan, Minnesota, Missouri, Ohio, and Wisconsin (USFWS Region 3), 129
13 sites support the 88th RD mission by providing administrative services, classroom training, light vehicle
14 maintenance, and storage. The six LTAs - IL079/17896, IN023/18740, MO003/29880, MO041/29985,
15 OH094/39760, and WI064/55999 - provide additional opportunities for outdoor training and field vehicle
16 training. The Joliet Training Area (JTA) (IL079/17896) contains several unique training sites that includes
17 ranges, a drop zone, a 50-foot rappel tower, the Chemical, Biological, Radiological, and Nuclear (CBRN)
18 chamber, a driver's course, a river crossing, boat launch sites, floating bridge operations, and a demolition
19 pit.



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1 This INRMP covers both 88th RD owned and leased properties that are reported in the General Funds
 2 Enterprise Business System (GFEBS) sites. Future references to GFEBS sites will be referred to as leased
 3 sites.

4 **Natural Resources**

5 Natural resources at 88th RD sites in USFWS Region 3 are summarized below. Sites are categorized as
 6 having high, medium, or low significance in terms of natural resources present.

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
IA001/19490	ARC Center, Ames IA	5.16	Low							✓
		The 2009 field survey noted the Canada thistle (<i>Cirsium arvense</i>), is present in low densities. The Iowa Department of Agriculture and Land Stewardship classify this species as a primary noxious weed.								
IA006/19504	SP4 Ronald L. Meanes ARC, Cherokee IA	5.21	Low							✓
		The 2010 field survey, the Canada thistle (<i>Cirsium arvense</i>), field bindweed (<i>Convolvulus pluricaulis</i>), Queen Anne's lace (<i>Daucus carota</i>), leafy spurge (<i>Euphorbia esula</i>) all classified as a primary noxious weed by the Iowa Department of Agriculture and Land Stewardship were present in low densities.								
IA007/19505	Lyle Deffenbaugh ARC, Council Bluffs IA	9.00	Low			✓				
		Portions of IA007/19505 are within 500-year floodplain. (NRSRVY 2015)								
IA009/19545	Davenport ARC, Davenport IA	5.95	Low			✓				
		Portions of IA009/19545 are in 100-year and 500-year floodplains. (NRSRVY 2015)								
IA010/19547	PFC Lloyd C. Wohlford JR ARC, Decorah IA	5.00	Low							
IA014/19903	Dubuque ARC, Dubuque IA	15.00	Low		✓			✓		✓
		Onsite surface waters include two intermittent drainage ways. Queen Anne's lace (<i>Daucus carota</i>) and Multiflora rose (<i>Rosa multiflora</i>) are classified as a primary noxious weed by the Iowa Department of Agriculture and Land Stewardship. During the 2015 field survey, these species are present in low densities.								
IA025/19640	Freeman-Davis USARC, Sac City IA	4.76	Low							✓
		Noxious weed species such as velvetleaf, Canada thistle, and Japanese meadowsweet are present in low densities. (NRSRVY 2015)								
IA027/19675	Washington ARC, Washington IA	4.17	Low							
		This facility is vacant* identified for potential disposal by 2025.								
IA030/19685	Hulquist-Fry AFRC, Waterloo IA	4.82	Low							
IA032/19645	Joe L. Mackey ARC/AMSA #115, Sioux City IA	5.70	Med				✓	✓		

¹ Invasive species, while documented at many of these facilities, are low in density and levels of concern are low.

² Includes Threatened and Endangered species, State-listed, Army Species at Risk and when applicable, associated suitable habitat.

* - As reported in the 22 January 2021 MCAR, UMMCAR and FFR Planning List for FY21-F28 Project Planning PM Memo

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
IA033/19057	Fort Des Moines Reserve Complex, Des Moines IA	39.86	Low							✓
		Buildings T-106, 117, 149, and 152 are part of Ft. Des Moines III NHL. The Iowa Department of Agriculture and Land Stewardship classify Queen Anne's lace (<i>Daucus carota</i>) as a primary noxious weed. At the time of the 2009 field survey, this species was present in low densities. (NRSRVY 2009)								
IA036/19560	PFC Edwin J. Lemke ARC, Fort Dodge IA	4.48	Low							
IA047/1990D	Cedar Falls AMSA #28, Cedar Falls IA	1.52	Low							✓
		The Iowa Department of Agriculture and Land Stewardship classify Canada thistle (<i>Cirsium arvense</i>), Queen Anne's lace (<i>Daucus carota</i>), and common sunflower (<i>Helianthus annuus</i>) as noxious weeds. At the time of the 2010 field survey these species were present in low densities.								
IL001/17812	Parkhurst ARC/OMS/DS, Darien IL	12.64	Med	✓			✓			
IL002/17580	COL P. Schulstad ARC, Arlington Heights IL	47.99	Low							
IL003/17815	Fox Valley Memorial ARC, Aurora IL	3.62	Low							
		This facility is vacant* and EXCESSED identified for potential disposal by 2025.								
IL005/17825	PFC R. Gantner ARC, Belleville IL	6.70	Low					✓		✓
		This facility is vacant* and disposal anticipated by 2025. EXCESSED								
IL006/17830	SGT Krause/PFC Goodrich ARC Bloomington IL	5.00	Low							
IL007/17827	SGT Bruce G. Howerter ARC, Canton OH	6.01	Low							
IL011/17849	SGT James W. Robinson Jr. ARC, Chicago IL	6.74	Low							
IL021/17683	MAJ Herbert J. Dexter ARC, Decatur IL	6.09	Low		✓					
		IL021/17683 has an unnamed ditch containing ~3 inches of water along the northern property boundary, and a drainage ditch (~5 feet wide) adjacent to the western boundary.								
IL027/17666	Forest Park AFRC, Forest Park IL	3.63	Low							
		This site is vacant* identified for potential disposal by 2025.								
IL035/17898	North Shore Memorial ARC, Ft. Sheridan IL	13.45	Low					✓		✓
		IL035/17898 contains 0.91 acres of mixed deciduous forest. At the time of the 2013 field survey Canada thistle (<i>Cirsium arvense</i>) an Illinois state-listed noxious weed was present in low densities.								
IL045/17884		30.00	Low							✓

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
	Granite City ARC, Granite City IL	One Illinois Exotic Weed (Amur honeysuckle (<i>Lonicera maackii</i>)) was observed, along with multiple non-native plants. Consequently, landscaping or maintenance personnel should be aware of the plant species present to ensure that noxious weeds and other non-native species do not spread to an extent that they become difficult to control or eradicate.								
IL051/17549	Vietnam Vet Memorial ARC, Homewood IL	13.24	Low							
IL064/17928	Veterans Memorial ARC, Peru IL	5.00	Low							
IL068/17308	Machesney Park ARC, Machesney, IL	15.25	Low	FY21 initial NRSRVY.						
IL072/17965	MAJ M.D. O'Donnell ARC, Springfield IL	7.00	Low							
IL073/17840	2LT R.H. Stephens ARC, Urbana IL	5.94	Low							
IL079/17896	Joliet ARC/JTA Elwood IL	3,580.00	High	✓	✓	✓	✓	✓	✓	✓
		Jackson Creek and its tributaries flows through the training area. Site is part of the 100-year flood hazard area for Jackson Creek. Site contains a man-made water supply lagoon. Land cover includes grassland field, shrub/scrub, deciduous forest, and wetlands (356 acres) across six training areas. The site has a site-specific plan to manage invasive species. JTA has an active hunting program.								
IL131/17887	Phillip H. Sheridan AFRC, Ft. Sheridan IL	90.4	High	✓						✓
		A 0.20 acre of a 1 acre constructed storm water detention basin with wetland attributes occurs at IL131/17887. Invasive species are associated with the basin.								
IL190/17108	Quincy GTA ARC, Quincy IL	15.08	Low							
		Constructed storm water basins w/ total acreage of 1.15 acres. If base ops. maintains appropriately will not qualify as a wetland, monitor under NRSRVYUP.								
IN002/18625	COL Kenneth P. Williams ARC, Bloomington IN	3.50	Low							
IN004/18607	SGT Charles H. Seston ARC, Edinburgh IL	10.24	Low							
IN005/18655	SGT James W. Harlan ARC/AMSA, Evansville IN	10.16	Low			✓				
		Portions of IN005/18655 are within a 500-year floodplain.								
IN008/18778	Fort Ben Harrison ARC, Indianapolis IN	138.39	Med	✓			✓	✓		✓
		IN008/18778 contains ~15.3 acres of deciduous forest, 1.1 acres of emergent wetland, 0.7 acres of forested wetland, and 1.5 acres of scrub/shrub. Federally listed Gray bat (<i>Myotis grisescens</i>) present in 2020 acoustic survey. Invasive species are mostly associated with the forests.								

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
IN010/18675	PFC Wm L. Gillespie BMA 133 Ft. Wayne IN	1.21	Low							
IN011/18675	PFC Wm L. Gillespie ARC, Ft. Wayne IN	7.01	Low							
IN014/18699	CPL Robert Shaffer ARC, Peru IN	5.95	Low							
IN020/18725	James T. St Clair ARC, Jeffersonville IN	5.28	Low							
IN023/18740	LaPorte Co Veterans ARC, Kingsbury IN	930.00	High	✓			✓	✓		✓
		IN023/18740 contains ~ 219 acres of grassland/field, 230 acres of scrub/shrub, 210 acres of deciduous hardwood forest, 49 acres of mixed forest, 43 acres of coniferous forest, 25 acres of forested wetlands, and 152 acres of emergent wetlands. USFWS Field Office agrees no Indiana bat or Northern Long-eared bat present, 2020 acoustic survey. Determination valid through 2025. The site has a site-specific ISMP to manage invasive species.								
IN027/18735	Roper R. Peddicord ARC, Hobart, IN	6.00	Med							
		Small drainage area met wetland criteria. Not hydrologically connected. Monitor via NRSRVYUP.								
IN030/18790	Richmond ARC, Richmond IN	5.47	Low					✓		
IN032/18825	Everitt B. Hunley ARC, Scottsburg IN	3.87	Low							
IN033/18856	Lyle J. Thompson ARC #133, South Bend IN	11.60	Low		✓					
		A 0.43-acre stone-lined drainage ditch surrounds a building.								
IN034/18857	Maple Lane ARC, South Bend IN	8.43	Low							
		This site is vacant*. Disposal site.								
IN036/18875	Robert R. Mosele ARC, Terre Haute IN	5.74	Low							
IN085/18301	Michigan City ARC, Michigan City IN	16.45	Low							
		2016 NRSRVY indicates 3 NWI wetlands. One wetland is potentially jurisdictional.								

MI001/26755	Donald C. Schorling ARC, Ann Arbor MI	3.50	Low					✓		
		MI001/26755 contains ~0.6 acres of deciduous forest.								
MI005/26775		7.67	Low		✓			✓		

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
	James J. O'Rourke ARC, Bay City MI	MI005/26775 contains a small retention basin and two drainage ditches. 0.39 acres of grassland/field surrounds the basin.								
MI009/26798	BG William H. Birbari ARC, Fraser MI	5.13	Med	✓						
		A 0.03-acre emergent wetland occurs at MI009/26798.								
MI011/26958	Dr. Mary E. Walker Memorial ARC, Grand Rapids MI	13.80	Low		✓					
		The wetland area is a constructed detention basin.								
MI013/26840	Raymond Zussman ARC, Inkster MI	4.38	Low							
MI014/26855	CPT David D. Phillips ARC, Jackson, MI	5.89	Low					✓		✓
		MI014/26855 contains 1.75 acres of deciduous forest. Invasive species are associated with the forest.								
MI016/26865	Kalamazoo Memorial ARC, Kalamazoo MI	4.62	Low							
MI020/26797	MG George A. Custer ARC / AMSA, Livonia MI	8.63	Low							
MI023/26895	2LT Walter Haupt ARC, Muskegon MI	4.87	Low							
MI024/26900	Donald R. Moyer ARC, Waterford MI	3.80	Med	✓				✓		
		MI024/26900 contains 0.73 acres of emergent wetland and 0.32 acres of shrub/scrub. (2010) This site is will likely be disposed and excessed by 2025.								
MI029/26685	1LT Robert L. Poxon ARC, Southfield MI	26.00	Med	✓				✓		✓
		MI029/26685 contains 0.99 acres of emergent wetland, 0.97 acres of grassland/field, and 3.89 acres of shrub/scrub. Invasive species are associated with the grassland and shrub/scrub.								
MI030/26955	Demus T. Crow ARC/BMA136 Traverse City MI,	4.85	Low							
MI053/26534	Saginaw ARC Saginaw MI	12.92	Med	✓	✓		✓			
MN001/27899	Arden Hills ARC Arden Hills MN	29.04	Med	✓	✓		✓	✓		
		MN001 contains one open water area (within wetland), grassland/field/prairie, deciduous/ hardwood forest, emergent wetland, and shrub/scrub.								
MN002/27700		5.00	Low	✓				✓		

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
	Terrance A. Peterson ARC, Brainerd MN	MN002 contains 0.43 acres of deciduous hardwood forest and 0.81 acres of forested wetlands.								
MN005/27726	MSG Armin C. Lieder ARC, Buffalo MN	6.05	Med	✓	✓					
		MN005/27726 contains a 0.30-acre detention pond and 0.06-acre emergent wetland.								
MN011/27845	Duluth ARC/AMSA, Duluth, MN	4.00	Low			✓			✓	
		MN011/27845 lies within a 100-year floodplain associated with Duluth Harbor Basin and Lake Superior. Severe erosion issues associated with proximity to Duluth Harbor Basin/Lake Superior. Project to reinforce / repair erosion controls is underway, design completed 2022, Nationwide permit for construction 2022, construction proposed for late 2023.								
MN018/27895	Mankato Memorial ARC, Mankato MN	9.07	Low							
MN035/27927	St. Joseph USAR Vehicle Maintenance AMSA #101, St. Joseph MN	8.03	Low							
MN036/27865	Fort Snelling ARC, Fort Snelling MN	47.46	Low		✓			✓		
		MN036 contains a 0.12-acre detention pond, 1.31 acres of deciduous hardwood forest, and 4.95 acres of grassland/field.								
MN042/27940	Wabasha Memorial ARC, Wabasha MN	6.98	Low		✓			✓		
		MN042/27940 contains a <0.01-acre intermittent stream channel (dry except when snow melts) and 1.57 acres of deciduous hardwood forest.								
MN044/27950	Willmar Memorial AFRC, Willmar MN	5.20	Low							
MN048/27975	Worthington Memorial ARC, Worthington MN	3.00	Low							
MO001/29880	SPF Clifford M. Davis Jr. ARC / AMSA #57, Belton MO	11.40	Low		✓					
		MO001/29880 contains a <0.01-acre drainage ditch.								
MO003/29880	Belton LTA, Belton MO	184.00	High	✓	✓		✓	✓	✓	✓
		MO003/29880 contains a small, slow-flowing, unnamed tributary of West Fork East Creek, a drainage ditch, and small pond, along emergent wetland, forested wetland, prairie, shrub/scrub, and deciduous forest. The state-listed northern harrier (<i>Circus cyaneus</i>) has been observed at the site, and suitable habitat exists for the federally threatened Mead's milkweed (<i>Asclepias meadii</i>). Erosion is associated with the drainage ditch and throughout the site. Invasive species are associated with the prairie.								
MO004/29825	Bethany ARC, Bethany MO	3.42	Low							
		Multiflora rose (<i>Rosa spp.</i>), and field bindweed (<i>Convolvulus pluricaulis</i>) are listed noxious weeds in Missouri. At the time of the 2009 field survey, both were in low densities								
MO006/29830	Columbia ARC, Columbia, MO	5.42	Low				✓	✓		
		MO006 contains ~1 acre of grassland/field.								

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
MO008/29832	Farmington ARC, Farmington MO	4.60	Low			✓				
		Portions of MO008/29832 lie within a 100-year floodplain.								
MO013/29898	SGT Charles R. Long ARC, Independence MO	4.00	Low							
MO014/29855	1LT W. Heisinger ARC, Jefferson City MO	6.00	Low					✓		
		MO014/29855 contains ~0.5 acres of deciduous forest and 0.4 acres of grassland/field.								
MO015/29865	Joplin ARC, Joplin MO	6.00	Low							
MO018/29879	Kirkville ARC, Kirkville MO	10.94	Low	✓			✓	✓		
		MO018/29879 contains a 0.08-acre non-jurisdictional emergent wetland and ~3 acres of grassland/field.								
MO024/29925	Springfield AFRC / AMSA #54, Springfield MO	18.34	Low		✓					
		MO024/29925 contains a small drainage ditch.								
MO026/29935	CPL Forrest E. Peden ARC, St. Joseph MO	4.00	Low							
MO028/29967	MG Lief J. Sverdrup, St. Louis MO	20.88	Low		✓					
		MO028/29967 contains Multiflora rose (<i>Rosa spp.</i>) and Johnsongrass (<i>Sorghum halepense</i>) are present in low densities. The state of Missouri classifies Multiflora rose and Johnsongrass as noxious weeds.								
MO030/29955	St Louis ORD PLT #4, St. Louis MO	17.39	Low					✓		
		Field bindweed (<i>Convolvulus pluricaulis</i>) is present in low densities. The state of Missouri recognizes field bindweed as a noxious weed. Property is vacant and proposed for future disposal* identified for potential disposal by 2025.								
MO031/29975	Washington ARC, Washington MO	4.52	Low		✓		✓	✓		
		MO031/29975 contains a drainage ditch and ~0.5 acres of deciduous forest.								
MO041/29985	Weldon Spring ARC/LTA, St. Charles MO	1,655.00	High	✓	✓	✓	✓	✓	✓	✓
		MO041/29985 contains 14 wetlands and numerous dry creeks. A small, slow-flowing unnamed tributary of Schote Creek flows SE to NW through the site. Portions of MO041 are located within a 500-year floodplain. MO041 contains forested land and old field/introduced prairie. Habitat exists for the federally listed Indiana bat (<i>Myotis sodalis</i>) (presence detected 2020 acoustic survey), northern long-eared bat (<i>Myotis septentrionalis</i>) (Negative presence during 2020 acoustic survey), Negative presence on the running buffalo clover (<i>Trifolium stolonifereum</i>) 2020. Invasive species are associated with all land cover types. Several areas on the site have erosion issues.								
MO054/2900A	Springfield ARC AMSA #54, Springfield MO	5.00	Low							
MO074/29504	Kansas City ARC #2, Kansas City MO	18.35	Low					✓		
MO076/29342		34.17	Low		✓			✓	✓	✓

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
	Kansas City ARC #1, Kansas City, MO	The 2016 field survey identified Multiflora rose (<i>Rosa multiflora</i>) on the site which is a Missouri listed noxious weed. There is considerable erosion associated with the onsite storm drain outfall into Scopes Creek.								
OH004/39825	PVT William Knight ARC, Bryan OH	3.00	Low							
OH008/39840	SGT Lawrence W. Skaggs ARC, Cincinnati OH	4.00	Low							
OH009/39845	T.H. Morrow ARC/AMSA #59, Cincinnati OH	7.00	Med				✓	✓		
		OH009/39845 contains ~5 acres of shrub/scrub and 2 acres of deciduous forest.								
OH018/39887	83rd Division Memorial ARC/AMSA, Whitehall, OH	19.94	Low							
OH020/39868	SP4 Joseph Lapointe ARC, Dayton OH	10.00	Low							
OH024/39870	Delaware Memorial ARC, Delaware OH	4.00	Low							
OH028/39880	Taylor Station Road ARC, Blacklick OH	10.00	Med	✓				✓		
		OH028 contains ~0.3 acres of deciduous hardwood forest and 0.75 acres of forested wetland.								
OH032/39195	Kings Mills Memorial ARC. Mainville OH	19.00	Med	✓	✓		✓	✓		
		OH032 contains a drainage ditch, perimeter stormwater drainage, ~0.5 acres of emergent wetland, and 0.10 acres of scrub/shrub.								
OH033/39893	1LT G.N. Faze ARC, Lima OH	6.00	Med	✓				✓		
		OH033 contains 0.18 acres of emergent wetland, and 0.06 acres of deciduous forest.								
OH044/39954	SGT J.H. Cooney ARC/BMA, Milan OH	10.30	Med	✓				✓		
		OH044 contains a drainage ditch, 1.6 acres of grassland/field, and 0.41 acres of emergent wetland.								
OH048/3913E	PFC Devin J. Grella ARC/AMSA #3, North Canton OH	10.02	Low							✓
		During the 2008 field survey, Canada thistle (<i>Cirsium arvense</i>) a noxious weed in Ohio, had a noted presence.								

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
OH051/39995	Twinsburg ARC/AMSA #123, Twinsburg, OH	24.09	High	✓			✓	✓		
		OH051 contains a detention basin, ~4.91 acres of deciduous hardwood forest, and 2.48 acres of wetland (2020 NRSRVYUP). Suitable roosting and foraging habitat are present for the federally listed Indiana bat (<i>Myotis sodalis</i>). A 2020 acoustic survey did identify bats foraging on the property but was negative for all identified endangered bats.								
OH058/39846	COL Dudley M. Outcalt ARC, Sharonville OH	5.23	Med		✓	✓	✓	✓		✓
		OH058 contains a 0.09-acre perennial stream, 0.03 acres of scrub/shrub, and 0.38 acres of urban forest. A small portion of the 100-year floodplain is located along the eastern boundary of the site.								
OH063/39975	Troy Memorial ARC, Troy, OH	4.00	Low							
OH094/39760	Toledo Area LTA / ARC, Monclova OH	52.04	High	✓	✓	✓	✓	✓		
		OH094 contains 1.92 acres of perennial stream, 0.85 acres of wetlands, an ~2-acre pond, 10.35 acres of deciduous forest, 15.17 acres of grassland/field, and 1.36 acres of scrub/shrub. Approximately half of the site lies in a 100-year flood zone.								
OH095/39865	Rickenbacker ARC, Columbus OH	27.88	Low							
		A drainage ditch for stormwater runoff occurs along the entrance road.								
OH117/39080	Trenton USAR Center, Trenton OH	19.96	Low							
		The 2016 field survey found Amur honeysuckle (<i>Lonicera maackii</i>) a state of Ohio restricted noxious weed.								
WI001/55750	Appleton ARC/OMS, Appleton WI	4.00	Low							
		This site is vacant* identified for potential disposal by 2025.								
WI002/55836	Denis J. Murphy ARC/AMSA/OMS, Green Bay WI	14.51	Med				✓	✓		
		WI002/55836 contains 1.19 acres of grassland/field, 0.35 acres of shrub/scrub, and 1.5 acres of deciduous forest.								
WI003/55760	Beaver Dam Memorial ARC/OMS, Beaver Dam WI	3.00	Low							
WI009/5524A	Eau Claire AMSA #155, Eau Claire WI	1.83	Low							
WI010/55785	Eau Claire ARC, Eau Claire WI	4.00	Low							
WI011/55786	Land for Future ARC, Eau Claire WI	15.00	High				✓	✓		✓
		WI011/55786 is undeveloped and contains 8.3 acres of coniferous forest, 6.37 acres of grassland/old field, and 0.33 acres of mixed deciduous forest. The invasive species common buckthorn and spotted knapweed are widespread. Future construction will require tree clearing.								
WI014/55805	Fond Du Lac ARC, Fon Du Lac WI	2.93	Low							
WI030/55840	Junction City ARC,	6.00	Low							

FACID / Site Code	Site	Acres	High Med. Low	Wetlands	Surface Waters	Floodplains	Listed Species ²	Flora	Erosion	Invasive Species ¹
	Junction City WI									
WI039/55886	Andrew Miller ARC/OMS, Manitowoc WI	8.00	Low					✓		
		WI039/55886 contains 2.93 acres of grassland/field and 0.27 acres of scrub/shrub.								
WI040/55897	Neenah USAR Center, Neenah WI	7.00	Low					✓		
		No field survey has taken place since the completion of the facility in 2010.								
WI047/55955	Pewaukee Memorial ARC/OMS, Pewaukee WI	6.00	Low		✓			✓		
		WI047/55955 contains 0.30 acres of deciduous forest, 1.51 acres of grassland/field, and a drainage ditch along the western boundary.								
WI049/55985	William F. Fale ARC/OMS, Sheboygan WI	4.00	Low							
WI050/55976	Sturtevant ARC, Sturtevant WI	10.85	Low					✓		✓
		WI050/55976 contains 1.37 acres of grassland/field and 0.42 acres of scrub/shrub. Noxious weeds (common buckthorn (<i>Rhamnus spp.</i>) autumn olive (<i>Elaeagnus umbellata</i>) is associated with the scrub/shrub layer.								
WI064/55999	W. Silver Spring (LTA) Complex, Milwaukee WI	112.56	High	✓	✓	✓	✓	✓		✓
		Lincoln Creek, the largest perennial tributary to the Lower Milwaukee River, crosses the site. There is also a small tributary to Lincoln Creek that meanders on and off of the site. Portions of the site are in a 100-year floodplain. WI064/55999 contains 10.64 acres of deciduous forest (including 4 acres of northern hardwood forest along with old growth beech), 63.73 acres of grassland/field, 0.61 acres of urban forest, and 0.97 acres of open water (including five retention ponds with hydrophytic vegetation). Suitable habitat is present and confirmed presence for the state-listed Butler's garter snake (<i>Thamnophis butleri</i>) (2018). Invasive species are associated with the forests and grasslands.								
WI090/55456	Wausau ARC, Wausau WI	19.96	Low		✓					
		WI090/55456 contains two stormwater basins.								
WI092/55864	SFC Gabrielson/SPC Hoyer ARC, Hammond WI	8.71	Low							

¹ Invasive species, while documented at many of these facilities, are low in density and levels of concern are low.

² Includes Threatened and Endangered species, State-listed, Army Species at Risk and when applicable, associated suitable habitat.

* - As reported in the 22 January 2021 MCAR, UMMCAR and FFR Planning List for FY21-F28 Project Planning PM Memo

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1 **Priorities for Natural Resource Management**

2 • **Wetlands, Surface Waters, Floodplains (WTLNDSRVY)**

3 Water resources management, in particular of wetlands, surface waters, and floodplains, is important
4 for maintaining training lands as well as providing ecological services including groundwater recharge
5 and discharge, flood flow alteration, sediment stabilization, sediment or toxicant retention, nutrient
6 removal or transformation, wildlife diversity/abundance, aquatic diversity/abundance,
7 uniqueness/heritage, and recreation. Managing runoff and soil erosion are critical to managing these
8 water resources.

9 • **Listed Species (ESSRVY)**

10 The Endangered Species Act (ESA) requires lands under the jurisdiction of the Department of the
11 Army to conserve listed species. Conservation is the use of all methods and procedures necessary
12 to bring any listed species to the point where protections provided by the Act are no longer necessary.
13 Section 7 of the Act requires the Army to formally consult and confer with the USFWS if any action
14 by the Army may affect a listed species or critical habitat.

15 Two federally listed species and 2 state listed species have been documented on 88th RD sites in
16 USFWS Region 3.

17 **IN008/18778** – Ft. Ben Harrison ARC – acoustic bat survey detected in 2020.

18 **MO041/29985** – Weldon Spring - the Indiana bat (*Myotis sodalis*) and grey bat (*Myotis grisescens*)
19 were detected on the site as part of Army contracted acoustic bat survey in 2020.

20 **OH051/39995** – Twinsburg ARC - Acoustic bat survey 2020 detected Indiana bat (*Myotis sodalis*).

21 **WI064/55999** – West Silver Spring Complex – 2019 survey 2 state species of special concern Butler
22 Garter snake (*Thamnophis Butleri*) and Plains Garter Snake (*Thamnophis radix*).

23 This INRMP includes endangered species surveys projects and development of Endangered Species
24 Management Component Plans when deemed necessary, to specifically address documented
25 species.

26 • **Army Species At-Risk**

27 Army species at-risk (SAR) are plant or animal species that would have a significant impact
28 on military missions if federally listed as threatened or endangered. These species may be
29 official candidates for Endangered Species Act (ESA) listing, classified by NatureServe as
30 critically imperiled or imperiled on a global scale, and/or a concern for ESA listing in the
31 foreseeable future. These species may not yet listed as threatened or endangered under the
32 ESA but are of concern to the Army. Without a change in their management, their populations
33 may continue experiencing significant declines leading to the listing on the endangered
34 species list which in turn will lead to restrictions on the training mission.

35 No SARs have been documented on 88th RD sites in USFWS Region 3.

36 **Wildland Fire Management (WLDFIREPLN)**

37 Wildland fire management encompasses having plans in place for preventing/suppressing
38 wildland fires, as well as applying prescribed burns for broader ecosystem management
39 goals.

1 The following sites have WLDFIREPLNs and have periodic controlled burns: JTA
2 (IL079/17896), Belton (MO003/29246), Weldon Spring (MO041/29985), and Kingsbury
3 (IN023/18740

4 • **Invasive Species (INV SPLN)**

5 Invasive Species Management Plans identify specific actions to monitor and control NIS. Non-
6 native invasive (NIS) species and state identified noxious/toxic species pose threats to training
7 land sustainability, soldiers, plant community composition/diversity, native habitats, and
8 endangered species.

9 The following locations have Invasive Species Management Plans: Joliet Training Area,
10 Kingsbury, Mead. Weldon Spring, Belton, Sunflower, and Silver Spring.

11 • **Pest Management Plan**

- 12 ○ Pest Management plan is reviewed by Natural Resource personnel during updates.

13

1 **Management Goals and Identified Projects**

2 The natural resource management goal summaries are presented here by program element. Detailed
3 descriptions of each element areas are provided in Section 5.2 - Common Management Actions.
4 Associated projects including relevant sites and time frames are listed in Appendix C. This input is used
5 for 88th RD project planning (budgeting), execution, and tracking via Natural Resource Metrics.

6 **Agricultural Leasing (AGLEASIMPL)**

- 7 • Currently there are no Agricultural out-leasing programs within USFWS Region 3, however; the
8 Joliet LTA (IL079/17896) is undergoing evaluation potential for future Ag Lease opportunities.

9 **Conservation Awareness (EARTHDAY) (TRNGCNS)**

- 10 • Provide an understanding of 88th RD natural resources programs.
- 11 • Review, update, and distribute natural resource resources information for LTA users which may
12 take the form of pamphlets, maps, and other printed and/or digital material.

13 **Conservation Program Management**

- 14 • Provide staffing of qualified natural resource management professionals required to effectively
15 manage natural resources on 88th RD lands.
- 16 • Provide for the training of natural resources personnel.
- 17 • Collect, store, analyze, and use data in an efficient, cost-effective manner.
- 18 • Provide external specialized skills and resources to support 88th RD natural resources programs.

19 **Cultural Resources Protection**

- 20 • The following project numbers associated with Cultural Resources Protection (CRCONSUL/
21 CRSRVY /CRSRVYUP/ARCHSRVY/HISMGTPLN) are not represented in the INRMP, Appendix
22 C, Project Matrix of this document, but can be found in Table 4-5 of the state appropriate
23 ICRMP.
- 24 • Implement this INRMP in a manner consistent with the Integrated Cultural Resources
25 Management Plans (ICRMP) and protection of cultural resources at 88th RD sites.
- 26 • Fully support compliance with federal cultural resources laws, specifically the National Historic
27 Preservation Act.

28 **Federally - Listed Species Management (ESSRVY/ESSRVYUP)**

- 29 • Comply with the ESA regarding federal-listed endangered, and threatened species. Comply with
30 candidate species concerns as legally required and contingent upon availability of funding.
- 31 • Monitor and manage special status, and Army SAR species to the degree possible with available
32 funding.

33 **Forestry Management (FORESTPLN, FORESTPLNIMPL, FORESTPLNIMPL CRP/FRA)**

- 34 • Manage the forest ecosystem to support the military mission, maintain ecosystem integrity, and
35 support economically sustainable tree harvests.

36 **General Plant and Wildlife Management (ECOSYSMGT)**

- 37 • Manage aquatic and terrestrial habitat to support the military mission, maintain, and enhance
38 ecosystem integrity.
- 39 • Partner with USFWS, state wildlife agencies, and neighboring landowners to maintain plant and
40 wildlife populations in accordance with endangered species recovery plans, species priorities,
41 population ecology, population health considerations, and habitat capacities.

- Use native, non-invasive species to restore soil and vegetative integrity following soil-disturbing projects.

Grounds Management Support

- Provide support to maintain aesthetically pleasing urban and natural landscapes at 88th RD sites that maintain natural ecosystem functions. Encourage the use of native plant species whenever practical.

Hunting Program Implementation (HUNTINGIMPL)

- The 88th RD has approximately 10,834 acres of property and 14 Local Training Areas (LTAs) that host a wide variety of training and maintenance activities. Hunting takes place on only two of the LTAs: Joliet Training Area (JTA) (IL079/17896), and Weldon Spring LTA (MO041/29985).

Integrated Natural Resources Management Planning (INRMP/INRMPUP)

- Used to fully integrate the natural resources program coordinated planning at 88th RD sites.

Integrated Training Area Management (ITAM)

- Provide the physical quality LTA training environments to support the Army's military mission and help ensure no net loss of training capability.

Invasive Species Management Plan (INV SPLN)

- The Invasive Species Management Plans compile data re: species extent, composition, and treatment options / priorities. Species addressed may include those that pose a health and safety risk (i.e. poison ivy, honey locust, etc.) and those regulated by the USDA due to potential to impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources. Both state and federal lists are reviewed to identify noxious invasive species.

Migratory Bird Management (MBTASRVY)

- Protect and monitor populations of migratory birds on 88th RD lands in accordance with the Migratory Bird Treaty Act and DoD policy.

National Environmental Protection Act (NEPA) Implementation

- Project numbers associated with National Environmental Protection Act (NEPA) Implementation (ENVASSESSMENT / NEPANONENV) are not represented in the INRMP project matrix in Appendix C of this document as these projects are done on an as needed basis and typically are not scheduled in advance.
- Use NEPA to identify projects and activities on 88th RD lands that might impact natural resources and work with project planners to resolve issues early in the planning process.
- Use NEPA procedures to ensure this INRMP is documented in accordance with the NEPA regulations.
- Support the organization with complying with NEPA.

Natural Resources Enforcement

- Assure legal compliance of military and civilian activities with regard to natural and cultural resources on 88th RD lands.

1 **Natural Resource Survey (NRSRVY/NRSRVYUP)**

- 2 • Assesses the natural resources on each site. After the initial field survey, the data collected is
3 evaluated and the site is determined to be either a high, medium, or low resource site. High and
4 medium resource sites may have scheduled follow-up field surveys every five years.

5 **Outdoor Recreation**

- 6 • Outdoor recreation may encompass fishing, hunting, trapping, wildlife viewing, boating,
7 and camping. Hunting programs take place at 88th RD sites in USFWS Region 3
8 (IL079/17896, and MO041/29985), providing outdoor recreation opportunities for
9 uniformed personnel, family members, and the public.

10 **Pest Management**

- 11 • Project numbers associated with Pest Management (IPMP/IPMPUP) are not represented in the
12 INRMP project matrix in Appendix C of this document but can be found in the Integrated Pest
13 Management Plan (IPMP).
- 14 • Noxious and invasive exotic plant species survey (**INV SPLN, INV SPLNIMPL, INV SPLNUP**) for
15 and control species to support the military mission, promote sustained ecosystem functionality,
16 favor native species biodiversity, and add to the quality of life in the immediate areas surrounding
17 88th RD lands.

18 **Soil and Water Management (SLSH20MGT)**

- 19 • Ensure protection of all soils on 88th RD lands.

20 **Water Management**

- 21 • Protect surface water quality on 88th RD lands.

22 **State-Listed Species Management (STATEESSRVY)**

- 23 • Comply with the state-listed endangered, threatened, or candidate species.
24 • Monitor and manage state-listed, special status, candidate species and Army SAR species to the
25 degree possible with available funding.
26 • This category is included in the ESSRVY/ESSRVYUP section

27 **Wetlands Management (WTLNDPERMIT, WTLNDRESTR, WTLNDSRVY, WTLNDSRVYUP)**

- 28 • Avoid and minimize impacts to wetlands.
29 • Continue to maintain a database of wetland resources on 88th RD lands.
30 • Manage wetlands to ensure no net loss, per Executive Order 11990.
31 • Restore wetland functions that may have been impaired by excessive invasive species or that
32 have been compromised by unauthorized disturbance to comply with the regulatory requirements.
33 • Wetlands may be subject to 5-year field survey updates.
34 • Permitting the construction/filling of wetlands construction process where/when necessary.

35 **Wildland Fire Management (WILDFIREMGMT)**

- 36 • Maintain the established prescribed burning programs to sustain military mission capabilities,
37 enhance ecosystem biodiversity and training functionality on 88th RD local training area (LTA)
38 sites.

Timeline

Regional INRMP
Update Completed in
2023

- FY24 Annual Review
- FY25 Annual Review
- FY26 Annual Review
- FY27 Annual Review
- FY28 Five-year Review

3 Annual and 5-Year Reviews

INRMPs are reviewed by the 88th RD's Natural Resources Manager (NRM) and the Conservation Branch Manager DAC (Department of the Army Civilian) annually to assess progress made toward achieving goals and objectives and identify possible new projects. Additionally, every five years the NRM and DAC review the INRMP to determine if the existing INRMP is still a viable document and its implementation meets the Sikes Act requirements.

The Conservation Branch Chief and Environmental Division Chief DAC, coordinates Annual INRMP reviews conducted by the NRM. The Annual review is approved by the Director of Public Works and sent to the 88th RD Commanding General for informational purposes. Annual reviews should be completed between 30 September and 31 December each year in which a 5-year review is not completed.

Annual Review Summaries are to be completed at the end of the Fiscal Year (September). The report includes the following minimum information: Work Completed, Date Completed, and New Findings/Projects. Only in the event of significant changes will an agency review take place for annual reviews.

Five-year INRMP reviews conducted by the NRM, are coordinated by the Conservation DAC and include coordination with the USFWS and State fish and wildlife agencies to reflect significant changes that have taken place at sites within the Region.

Step-by-step guidelines for the annual and five-year reviews are provided in Section 5.4.

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1 Resources

2 • State Wildlife Action Plans

- 4 ○ **Iowa Wildlife Action Plan**
5 (Iowa Department of Natural Resources,
6 2005)
7 www.iowadnr.gov/Environment/WildlifeStewardship/IowaWildlifeActionPlan.aspx
8
- 9 ○ **Illinois Comprehensive Wildlife Conservation Plan & Strategy**
10 (Illinois Department of Natural
11 Resources, 2005)
12 www.dnr.illinois.gov/conservation/IWAP/Pages/default.aspx
13
- 14 ○ **Indiana Comprehensive Wildlife Strategy**
15 (Indiana Department of Natural
16 Resources, 2005)
17 www.in.gov/dnr/fishwild/7580.htm
18
- 19 ○ **Michigan Wildlife Action Plan**
20 (Michigan Department of Natural
21 Resources, 2005)
22 http://www.michigan.gov/dnr/0,4570,7-153-10370_30909---,00.html
23
- 24 ○ **Minnesota Comprehensive Wildlife Conservation Strategy**
25 (Minnesota Department of Natural
26 Resources, 2005)
27 www.dnr.state.mn.us/cwcs/index.html
28
- 29 ○ **Missouri State Wildlife Action Plan**
30 (Missouri Department of Conservation,
31 2015)
32 <http://mdc.mo.gov/sites/default/files/downloads/SWAPopt.pdf>
33
- 34 ○ **Ohio Comprehensive Wildlife Conservation Strategy**
35 (Ohio Department of Natural Resources,
36 2005)
37 [www.fws.gov/midwest/federalaid/docume
38 nts/01OHWAP06Dmjs.pdf](http://www.fws.gov/midwest/federalaid/documents/01OHWAP06Dmjs.pdf)
39
- 40 ○ **Wisconsin Strategy for Wildlife Species of Greatest Conservation Need**
41 (Wisconsin Department of Natural
42 Resources, 2005)
43 [http://dnr.wi.gov/topic/wildlifehabitat/actio
44 nplan.html](http://dnr.wi.gov/topic/wildlifehabitat/actionplan.html)
45
- 46
- 47

- 48 • **USFWS ECOS Database -**
49 http://ecos.fws.gov/conserv_plans/public.jsp
- 50 • **USFWS Information for Planning and Consultation (IPaC) -** [IPaC: Home \(fws.gov\)](http://IPaC: Home (fws.gov))
51
- 52 • **NatureServe Database -**
53 www.natureserve.org/
- 54 • **Landscape Conservation Cooperatives**
55
 - 56 ○ Upper Midwest and Great Lakes -
57 <http://greatlakeslcc.org/>
 - 58 ○ Appalachian - <http://applcc.org/>
 - 59 ○ Eastern Tallgrass Prairie and Big Rivers -
60 www.tallgrassprairieplcc.org/
 - 61 ○ Gulf Coastal Plains and Ozarks -
62 <http://gcpolcc.org/>
 - 63 ○ Plains and Prairie Potholes -
64 www.plainsandprairiepotholeslcc.org/
65
- 66 • **Cooperative Ecosystem Studies Units**
 - 67 ○ Great Lakes – Northern Forests -
68 [www.cesu.psu.edu/unit_portals/GLNF_po
69 rtal.htm](http://www.cesu.psu.edu/unit_portals/GLNF_portal.htm)
 - 70 ○ Great Rivers -
71 [www.cesu.psu.edu/unit_portals/GRRR_po
72 rtal.htm](http://www.cesu.psu.edu/unit_portals/GRRR_portal.htm)
- 73 **USGS NCCWSC -** <https://nccwsc.usgs.gov/>
- 74 ○ Northwest Climate Science Center -
75 www.doi.gov/csc/northwest/index.cfm
- 76 **DENIX Natural Resources -**
77 www.denix.osd.mil/nr/
- 78

Potential Partners

- **USFWS Region 3-** publications, conservation information, ESA information, regulations, etc. – www.fws.gov/midwest/
- **USFWS Field Offices –**
 - www.fws.gov/midwest/es/fld_off.html
 - U.S. Fish and Wildlife Service **Chicago Illinois Field Office**
230 South Dearborn St., Suite 2938
Chicago, Illinois 60604
 - U.S. Fish and Wildlife Service Southern Illinois Sub-Office
8588 Route 148
Marion, IL 62959
 - U.S. Fish and Wildlife Service **Indiana Field Office (INFO)**
1511 47th Avenue
Moline, IL 61265
 - U.S. Fish and Wildlife Service **Indiana Field Office (INFO)**
620 South Walker Street
Bloomington, IN 47403
 - U.S. Fish and Wildlife Service **Northern Indiana Suboffice (NISO)**
P.O. Box 2016
Chesterton, Indiana 46304-2616
 - U.S. Fish and Wildlife Service **Michigan Field Office (MIFO)**
2651 Coolidge Road, Suite 101
East Lansing, MI 48823
 - U.S. Fish and Wildlife Service **Minnesota-Wisconsin Field Office (MN-WIFO)**
4101 American Boulevard E
Bloomington, MN 55425
 - U.S. Fish and Wildlife Service **Missouri Field Office (MOFO)**
101 Park Deville Drive, Suite A
Columbia, MO 65203
 - U.S. Fish and Wildlife Service **Ohio Field Office (OHFO)**
4625 Morse Road, Suite 104
Columbus, OH 43230
 - U.S. Fish and Wildlife Service **Green Bay Sub-Office (GBSO)**
2661 Scott Tower Drive
New Franken, WI 54229

51

- **State DNRs – publications, conservation information, regulations, etc.**
 - www.iowadnr.gov/
 - www.dnr.illinois.gov/Pages/default.aspx
 - www.in.gov/dnr/
 - www.michigan.gov/dnr
 - www.dnr.state.mn.us/index.html
 - <http://dnr.mo.gov/>
 - <http://mdc.mo.gov/>
 - <http://ohiodnr.gov/>
 - <http://dnr.wi.gov/>
- **USFS**
 - Region 9 – Eastern Region - www.fs.usda.gov/r9
- **US AEC –** <http://aec.army.mil/>
- **USACE – Northwest Division –** www.nwd.usace.army.mil/
- **State Historic Preservation Offices – Programs, cultural resource contacts**
 - Iowa - <https://iowaculture.gov/history/preservation>
 - Illinois - www.illinois.gov/ihipa/Pages/default.aspx
 - Indiana - www.in.gov/dnr/historic/
 - Michigan - www.michigan.gov/mshda/0,1607,7-141-54317---,00.html
 - Minnesota - www.mnhs.org/shpo/
 - Missouri - <http://dnr.mo.gov/shpo/>
 - Ohio - www.ohiohistory.org/preserve/state-historic-preservation-office
 - Wisconsin - www.wisconsinhistory.org/Content.aspx?dsNav=N:1200

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ACRONYMS

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88th RD	USAR 88th Readiness Division
ACS-IP	Army Climate Strategy Implementation Plan
AFB	Air Force Base
AFRC	Armed Forces Reserve Center
AGL	above ground level
AKN	Avian Knowledge Network
AMSA	Area Maintenance Support Activity
amsl	above mean sea level
AR	Army Regulation
ARC	Army Reserve Center
ASF	Aviation Support Site
BASOPS	base operations
BCC	Birds of Conservation Concern
BCR	bird conservation region
BGEPA	Bald and Golden Eagle Protection Act
BHE	BHE Environmental, Inc.
BMA	Branch Maintenance Activity
BMP	best management practice
BRAC	Base Realignment and Closure
C	Celsius
CBRN	chemical, biological, radiological and nuclear chamber
CFR	Code of Federal Regulations
CG	Commanding General
COL	Colonel
CRM	Cultural Resources Manager
CWA	Clean Water Act
DAC	Department of the Army Civilian
DEET	N, Ndiethyl-3-methylbenzamide
DENIX	Defense Environmental Network and Information Exchange
DNR	Department of Natural Resources
DoD	Department of Defense
DoDI	Department of Defense Instruction
DoDM	Department of Defense Manual
DPW	Directorate of Public Works
E	endangered
EA	Environmental Assessment
ECOS	Environmental, Construction, Operations, and Services
ECS	Equipment Concentration Site
ED	Environmental Division
EIS	Environmental Impact Statement
EO	Executive Order
EPR	Environmental Program Requirements

ACRONYMS (continued)

1	ESA	Endangered Species Act
2	ESMCP	Endangered Species Management Component Plan
3	ESMP	Endangered Species Management Plan
4		
5	F	Fahrenheit
6	FACID	Facility ID
7	FEMA	Federal Emergency Management Agency
8	FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
9	FONSI	Finding of No Significant Impact
10	Ft.	Fort
11	ft	feet
12	FY	Fiscal Year
13		
14	GFEBs	General Funds Enterprise Business System
15	GHG	Greenhouse gasses
16	GIS	Geographic Information System
17	GPS	Global Positioning System
18		
19	HWMP	Hazardous Waste Management Plan
20		
21	IA	Iowa
22	IADNR	Iowa Department of Natural Resources
23	ICRMP	Integrated Cultural Resources Management Plan
24	IL	Illinois
25	ILDNR	Illinois Department of Natural Resources
26	IN	Indiana
27	INDNR	Indiana Department of Natural Resources
28	INRMP	Integrated Natural Resources Management Plan
29	IPaC	Information Planning and Consultation (USFWS)
30	IPM	integrated pest management
31	IPMP	Integrated Pest Management Plan
32	ISMP	Invasive Species Management Plan
33	ITAM	Integrated Training Area Management
34	IWFMP	Integrated Wildland Fire Management Plan
35		
36	1LT	First Lieutenant
37	LT	Lieutenant
38	LTA	local training area
39		
40	MAJ	Major
41	MAPS	Monitoring Avian Productivity and Survivorship
42	MBTA	Migratory Bird Treaty Act
43	MG	Major General
44	MI	Michigan
45	MIDNR	Michigan Department of Natural Resources
46	MLRA	Major Land Resource Area
47	MN	Minnesota
48	MNDNR	Minnesota Department of Natural Resources

ACRONYMS (continued)

1	MO	Missouri
2	MODC	Missouri Department of Conservation
3	MOU	memorandum of understanding
4	MSG	Master Sergeant
5		
6	NCCWSC	National Climate Change and Wildlife Science Center
7	NEPA	National Environmental Protection Act
8	NGO	nongovernmental organization
9	NHD	National Hydrography Dataset
10	NHL	National Historic Landmark
11	NPL	National Priorities List
12	NR	Natural Resources
13	NRCS	Natural Resources Conservation Service
14	NRHP	National Register of Historic Places
15	NRM	Natural Resources Manager
16	NWI	National Wetlands Inventory
17		
18	OCAR	Office of the Chief of the Army Reserves
19	ODNR	Ohio Department of Natural Resources
20	OEPA	Ohio Environmental Protection Agency
21	OH	Ohio
22	OMS	Organizational Maintenance Shop
23	ORAM	Ohio Rapid Assessment Method
24		
25	PEMF	flooded palustrine emergent wetland
26	PFC	Private first class
27	PIF	Partners in Flight
28	PLS	Planning Level Survey
29	PMC	pest management coordinator
30	POC	point of contact
31		
32	REC	Record of Environmental Consideration
33	RPAC	Reserve Personnel Action Center
34	RTS-MED	Regional Training Site – Medical
35		
36	SAR	Army Species at Risk
37	SC	special concern
38	SE	state endangered
39	SHPO	State Historic Preservation Office
40	SPCCP	Spill Prevention Control and Countermeasures Plan
41	SSGT	Staff Sergeant
42	ST/E	state threatened/endangered
43	STRG	storage
44	SWG	State Wildlife Grant
45		
46	T	threatened
47	T&E	threatened and endangered
48	TMDL	Total Maximum Daily Load

ACRONYMS (continued)

1		
2	USACE	U.S. Army Corps of Engineers
3	USAEC	U.S. Army Environmental Command
4	USAR	U.S. Army Reserve
5	ARC	U.S. Army Reserve Command
6	USC	U.S. Code
7	USDA	U.S. Department of Agriculture
8	USEPA	U.S. Environmental Protection Agency
9	USFS	U.S. Forest Service
10	USFWS	U.S. Fish and Wildlife Service
11	USGS	U.S. Geological Survey
12		
13	WAP	Wildlife Action Plan
14	WDNR	Wisconsin Department of Natural Resources
15	WI	Wisconsin
16	WQC	Water Quality Certification
17	WQLW	water quality limited waterbody

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN 88th Readiness Division Sites in USFWS Region 3

1.0 Introduction

This Integrated Natural Resources Management Plan (INRMP) is the 88th Readiness Division’s (RD) plan of action for the conservation of natural resources entrusted to the U.S. Army Reserve (USAR) at sites in Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. This INRMP is dedicated to the next generation of soldiers and other Americans who will use these lands and the natural resources.

This plan has a five-year time frame (2024-2028), but the philosophy behind it extends further. The 88th RD will conserve its biological diversity and make sound decisions regarding the use of natural resources to support both the military mission and broader regional conservation.

The 88th RD of the U.S. Army Reserve is a 19-state virtual installation in the northwestern United States, providing services and base operations support for Soldiers, families, civilians, and units (Figure 1.1). In USFWS Region 3, the Command is responsible for approximately 129 sites.

1.1 Purpose

The Army commitment to natural resources management is reflected in the U.S. Army Environmental Strategy into the 21st Century, which focuses on responsibly managing Army lands to ensure long-term natural resource productivity so the Army can achieve its mission. This Army commitment to natural resources management is further emphasized in AR 200-1 (*Environmental Protection and Enhancement*) (Department of the Army, 2007), and Headquarters, Department of Army INRMP Policy Memorandum, 21 March 1997 (*Army Goals and Implementing Guidance for Natural Resources Planning Level Surveys (PLS) and Integrated Natural Resources Management Plans (INRMP)*) (Department of the Army, 2020-2025), which require that INRMPs be developed and maintained for all Army installations with significant natural resources, as well as establish policy, procedures, and responsibilities for Army lands and their natural resources.

The U.S. Army needs land to train troops and to build, test, and store materials. With land comes the responsibility of stewardship. The Army’s conservation objectives are to:

- Ensure land remains available for missions,
- Maintain land in the best natural condition for realistic training and to preserve ecosystems, and
- Minimize land-related restrictions on training through good stewardship.

The 88th RD of the USAR is a 19-state virtual installation in the northwestern United States, providing services and base operations support for soldiers, families, civilians, and units (Figure 1.1). The Command is responsible for more than 200 sites.

This INRMP guides implementation of the natural resources program at 88th RD properties and lands within U.S. Fish and Wildlife Service (USFWS) Region 3 (Indiana, Illinois, Iowa, Michigan, Minnesota,

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Missouri, Ohio, and Wisconsin), whether owned or leased, that have natural resources. The program manages these natural resources and helps ensure compliance with environmental laws and regulations. The INRMP is the guidance document that helps ensure the maintenance of quality training lands to accomplish the 88th RD's military mission on a sustained basis and to ensure that natural resources conservation measures and USAR military activities are integrated and consistent with federal stewardship requirements.

Figure 1.1 Map of 88th Readiness Division

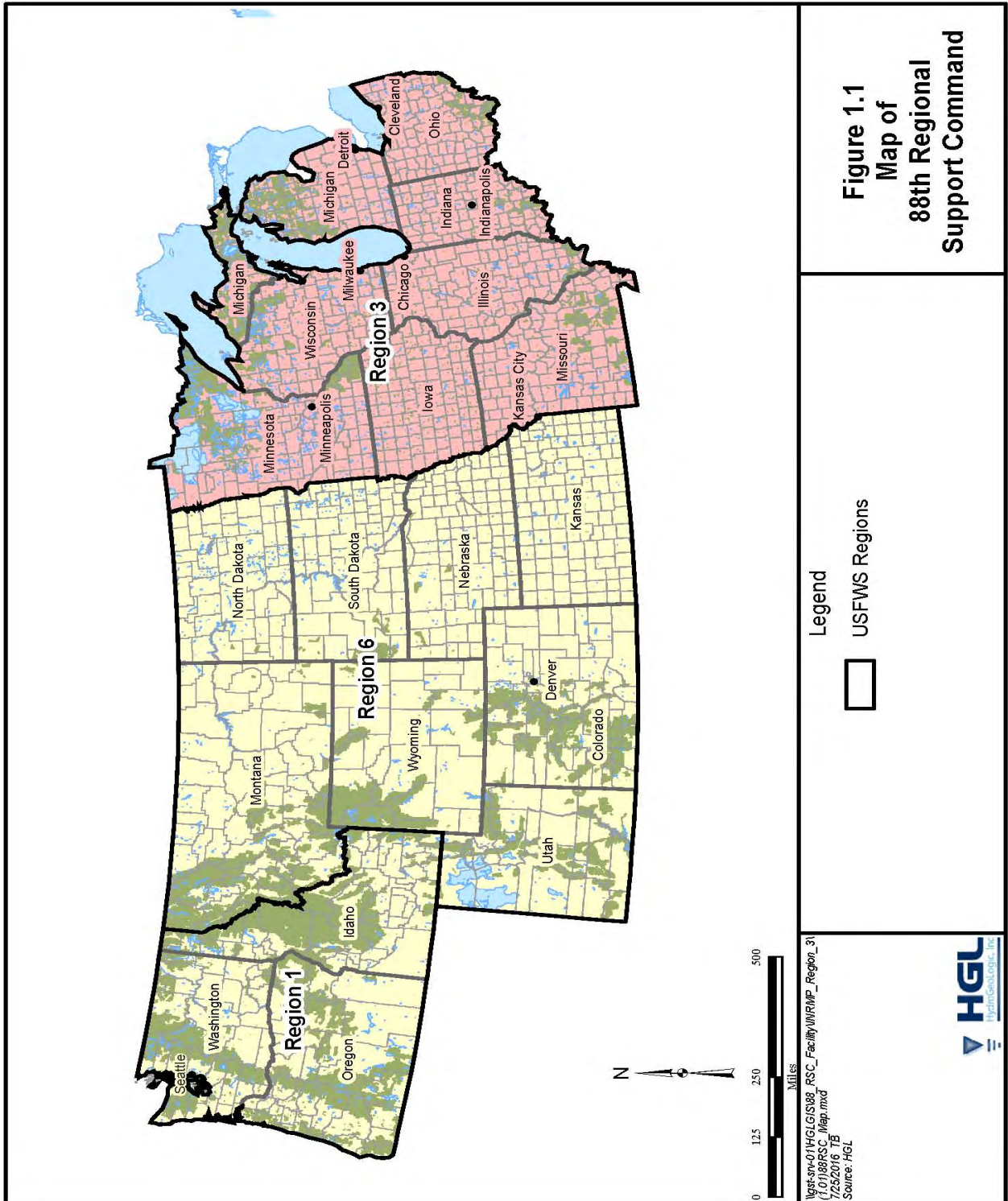


Figure 1.1
Map of
88th Regional
Support Command

Legend
□ USFWS Regions

1.2 Scope

This INRMP provides guidance for protecting and enhancing natural resources using soil conservation, and watershed, landscape, and ecosystem perspectives, that are consistent with the military mission on all 88th RD owned and leased properties as reported in the General Funds Enterprise Business System (GFEBs). Throughout this INRMP, both 88th RD owned and leased properties are referred to as 88th RD properties or lands and are all treated the same for implementation of this plan. Provisions of the INRMP apply to each directorate, command, and tenant unit of the 88th RD, contractors, and individuals who either directly or indirectly uses 88th RD's natural resources, as well as units and outlying detachments of personnel assigned or attached to the 88th RD. This INRMP is an integral part of the 88th RD Real Property Master Planning activities.

1.3 Mission Goals and Objectives

The natural resources program mission, goals, and objectives are critical to help identify appropriate management strategies and provide direction for planning best management practices (BMPs) and projects that will lead to realization of these goals and objectives. In the following paragraphs are the overarching objectives used to attain 88th RD natural resources goals and support the military mission. These objectives serve as a checklist to monitor the success of the plan but are contingent upon the availability of funding. Additional detail, including individual project goals and objectives, are provided in Section 4.0 Management Actions.

Natural Resources Mission in Support of the Army Reserves – Provides professional management and stewardship of natural resources on 88th RD lands while supporting the military mission, complying with environmental laws, along with providing opportunities for multiple compatible uses of natural resources.

Goal 1. Maintain quality natural resources on local training areas (LTA) as a critical training asset in support of the 88thRD military mission.

Objective. Ensure no net loss in the capability of 88th RD property and land, whether owned or leased, to support existing and projected military training and operations.

Goal 2. Manage natural resources on all 88th RD property and land, owned or leased, to assure good stewardship of public lands entrusted to the Army's care.

Objective 1. Use adaptive ecosystem management strategies to protect, conserve, and enhance native fauna and flora with an emphasis on priority species and native biodiversity.

Objective 2. Monitor and manage soils, water, vegetation, and wildlife on 88th RD property with consideration for all biological communities and human values associated with these resources.

Objective 3. Coordinate, where appropriate, 88th RD natural resource programs with organizations both internal and external of the 88th RD, other agencies, and conservation organizations with similar interests.

Goal 3. Comply with laws and regulations that pertain to the management of 88th RD land and its natural resources.

1 **Objective 1.** Manage natural resources within the spirit and letter of environmental
2 laws, and particularly the Sikes Act upon which this INRMP is predicated.

3 **Objective 2.** Protect, manage, and when necessary, restore sensitive species,
4 habitats, and wetlands.

5 **Objective 3.** Use procedures within NEPA to make informed decisions that
6 include natural resources considerations and mitigation.

7 **Objective 4.** Ensure 88th RD natural resources programs are consistent with the
8 protection of cultural and historic resources.

9 **Objective 5.** Implement this INRMP within the framework of Department of
10 Defense (DoD) and Army policies and regulations.

11 **1.4 88th RD Responsibilities**

12 The 88th RD provides best in class services and base operations support for USAR soldiers,
13 families, civilians, and units in the Northwest region of the United States. Highlighted within
14 Section 1.4 are the parties responsible for oversight and implementation of the 88th RD natural
15 resources program.

16 **1.4.1 Commanding General**

17 The Commanding General of the 88th RD implements policies and directives of the
18 Department of the Army and the Installation Management Command - Army Reserve. The
19 Commanding General bears ultimate responsibility for management of natural resources
20 on all 88th RD lands. The Commanding General's support infers support by all other
21 commands within the 88th RD. Acting through the Command Group, personal and special
22 staff, directors, and separate commanders, the Commanding General is responsible for
23 (Department of the Army, 1995a):
24

- 25 • providing for funding and staffing of natural resources management professionals
26 and other resources required to effectively manage natural resources on the
27 installation;
- 28 • planning land utilization to avoid or minimize adverse effects on environmental
29 quality and provide for sustained accomplishment of the mission;
- 30 • entering into appropriate cooperative plans (16 U.S. Code [USC] 670a) with state
31 and federal conservation agencies for the conservation and development of fish
32 and wildlife, soil, outdoor recreation, and other resources;
- 33 • ensuring the functioning of an Environmental Quality Control Committee;
- 34 • ensuring ongoing and timely coordination of current and planned land uses
35 between mission, natural resources, environmental, legal, and master planning;
- 36 • inspecting and reviewing mitigation measures that have been implemented or
37 recommended for the protection of natural resources as prescribed in
38 environmental documentation in accordance with AR 200-1;
- 39 • ensuring all installation land users are aware of and comply with procedures and
40 requirements necessary to accomplish objectives of this INRMP together with

1 laws, regulations, and other measures designed to comply with environmental
2 quality objectives; and

- 3 • appointing a natural resources management professional as the 88th RD Natural
4 Resources Manager (NRM).

5 **1.4.2 Directorate of Public Works (DPW), Environmental Division**

6 The 88th RD DPW, Environmental Division will maintain an organization with the
7 resources available to accomplish the INRMP and is responsible for (Department of the
8 Army, 1995a)

- 9 • developing and implementing programs to ensure the inventory, delineation,
10 classification, and management of all applicable natural resources to include
11 wetlands, scenic areas, endangered and threatened species, sensitive and critical
12 habitats, and other natural resource areas of special interest;
- 13 • providing for the training of natural resources personnel;
- 14 • implementing this INRMP;
- 15 • reviewing all environmental documents (e.g., remedial action plans, environmental
16 assessments (EA) and environmental impact statements (EIS)) construction
17 designs and proposals to ensure adequate protection of natural resources,
18 ensuring that technical guidance as presented in this INRMP is adequately
19 considered;
- 20 • coordinating with local, state, and federal governmental and civilian conservation
21 organizations relative to natural resources management for 88th RD lands;
- 22 • managing all phases of the natural resources program for 88th RD property with
23 appropriate natural resources management personnel; and
- 24 • administering all aspects of 88th RD pest control programs.

25 The 88th RD DPW Environmental Division is responsible for preparation and
26 implementation of this INRMP.

27 **1.4.3 Public Affairs Office**

28 The Public Affairs Office promotes an understanding of 88th RD environmental operations
29 to the public and provides professional public affairs advice and support to 88th RD
30 leaders and activities.

31 **1.4.4 Staff Judge Advocate**

32 The Staff Judge Advocate provides legal advice and counsel and services to Command,
33 staff, and subordinate elements of the 88th RD. Specific Staff Judge Advocate
34 responsibilities with regard to integrated natural resources management include:
35

- 36 • conducting legal research and preparing legal opinions pertaining to interpretation
37 and application of laws, regulations, statutes, and other directives;

- 1 • coordinating with the Department of Justice, Litigation Division of the Office of the
2 Judge Advocate General, and other governmental agencies on matters pertaining
3 to litigation for the federal government;
- 4 • advising the Army Reserve Installation Management on compliance with the
5 National Environmental Policy Act (NEPA), especially with regard to management
6 of endangered species on 88th RD lands; and
- 7 • advising the 88th RD on laws and regulations that affect training land use,
8 management, and compliance.

9 **1.4.5 Inspector General**

10 The Inspector General will determine whether the provisions of AR 200-1 are being
11 adequately accomplished on 88th RD property in accordance with this INRMP and
12 appropriate Army regulations.

13 **1.5 USFWS and State Commitment**

14 The Sikes Act, Department of Defense Instruction 4715.03, and AR 200-1 indicate that INRMPs
15 must reflect mutual agreement of the USFWS and the appropriate state fish and wildlife agencies
16 concerning conservation, protection, and management of fish and wildlife resources.

17 The USFWS and Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin state
18 fish and wildlife agencies are committed to providing technical advice for management of natural
19 resources at 88th RD properties. This includes recommendations to avoid, minimize, rectify,
20 reduce, or compensate for damaging impacts to important fish and wildlife resources and their
21 habitats.

22 The 88th RD coordinated with the USFWS as appropriate to develop plans for management of
23 fish and wildlife resources on sites in USFWS Region 3. The USFWS Region 3 Field Office
24 reviewed draft documents. The Region 3 Director has signed this INRMP, signifying agreement
25 with the INRMP as it pertains to conservation and management of fish and wildlife resources on
26 88th RD sites within USFWS Region 3.

27 The 88th RD also coordinated with the Directors of the Iowa, Illinois, Indiana, Michigan,
28 Minnesota, Missouri, Ohio, and Wisconsin state fish and wildlife agencies regarding the
29 conservation, protection, and management of fish and wildlife resources on sites in USFWS
30 Region 3. They reviewed draft documents applicable to their state, and the Directors have signed
31 the plan, signifying agreement with the INRMP as it pertains to conservation and management of
32 fish and wildlife resources on 88th RD sites.

33 The 88th RD will continue to coordinate with the USFWS and state fish and wildlife agencies
34 during implementation of the INRMP to share information about the presence and management
35 of threatened and endangered species, migratory birds, and other fish and wildlife. The 88th RD
36 will solicit input from the USFWS and State Departments of Natural Resources (DNRs) during
37 INRMP reviews and updates as described in the sections that follow.

38 **1.6 Role of Annual and Five-Year Reviews**

39 INRMPs are reviewed annually by fiscal year to assess progress made toward achieving the 88th
40 RD's goals and objectives and to identify new requirements. Five-year reviews will be conducted
41 to determine whether the existing INRMP is being effectively implemented to meet the

1 requirements of the Sikes Act. The DoD's INRMP Implementation Manual covers INRMP
2 reviews, updates, and revisions (DoD Manual [DoDM] 4715.03, 2013).

3 **1.6.1 Annual INRMP Review**

4 The annual INRMP review provides the 88th RD NRM along with the Conservation Branch
5 Manager DAC (Department of the Army Civilian) the opportunity to assess whether
6 changes have occurred in the military mission, condition of natural resources,
7 environmental regulations, or other factors that significantly affect implementation of the
8 INRMP. The NRM reviews the INRMP goals and objectives, provides a Project Manager
9 (PM) initiated schedule for undertaking proposed actions, and determines adjustments
10 needed to keep INRMPs current. Progress is contingent upon the availability of funding.
11 If significant changes occur, the annual INRMP update will be coordinated with the
12 USFWS and state fish and wildlife agencies. More details on the annual review process
13 are provided in Section 6.4.

14 **1.6.2 Five-Year INRMP Review**

15 If the Environmental Division Chief determines there are no substantive changes to the
16 INRMP then a memorandum will be sent to the state and federal agencies, and OCAR
17 notifying them that there are no substantive changes with a request for their concurrence.

18 If at the five-year review it is determined that there have been substantive changes the
19 document will be updated by the 88th RD Environmental Division and validated by the
20 Commanding General, the Regional Director of USFWS Region 3, and the Directors of
21 the state fish and wildlife agencies.

22 The five-year review process is discussed further in Section 6.4.

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2.0 Mission and Land Use

This section describes the 88th RD mission, sites, and land use and how the INRMP contributes to mission sustainability. The goal of DoD environmental programs and policies is conserving the environment for mission sustainability. Environmental stewardship is an integral part of the mission at all 88th RD sites. Responsibly managing Army lands helps ensure long-term natural resource productivity so the Army can achieve its mission.

2.1 Mission Sustainability

Army training requires the placement of personnel and equipment in similar to real combat situations. Natural conditions must be maintained on training lands.

- Wooded areas provide some of the best concealment and bivouac protection on training areas. Forests provide the military natural services such as noise reduction, visual barriers, dust control and maneuver obstacles.
- Grasslands/prairie lands also provide suitable habitats for individual concealment, air-drop operations, and certain small unit operations.
- Wetlands, although a critical part of ecosystems, are fragile and should be avoided during military operations.

Heavy or concentrated traffic and repeated bivouacking on any one portion of land should be managed to prevent soil compaction, erosion, and permanent vegetative disturbances. However, in some cases, periodic military disturbances have been shown to improve biodiversity for disturbance dependent species.

2.2 88th Readiness Division Mission

The 88th Readiness Division partners with commands in our region to enhance Soldier, Family, equipment, and site readiness in support of our Nation's requirements.

The 88th RD vision statement: *The 88th Readiness Division synergistically enables our partner commands to attain the highest level of readiness and deplorability.*

This INRMP supports the mission by protecting and enhancing Army lands upon which the mission is dependent. The INRMP describes impacts of the mission upon natural resources and means to mitigate these impacts. However, this INRMP does not evaluate the 88th RD's mission, nor does it replace any requirement for environmental documentation of the mission on any 88th RD owned or leased properties.

2.3 Site Locations and Land Use

Sites owned or leased by the 88th RD in USFWS Region 3 are presented in Table 2.1. Site locations are shown on Figure 2.1 (Illinois), Figure 2.2 (Indiana), Figure 2.3 (Iowa), Figure 2.4 (Michigan), Figure 2.5 (Minnesota), Figure 2.6 (Missouri), Figure 2.7 (Ohio), and Figure 2.8 (Wisconsin). Profiles for high and medium resource sites are located in Section 3, low resource sites are presented in Appendix B.

Site land use includes administrative services, classroom training, light vehicle maintenance, and storage. Additional land uses, specific to select sites, includes six local training areas (LTA) with training facilities for activities such as include outdoor training, field vehicle training, and unique training sites including ranges, classrooms, a drop zone, a 50-foot rappel tower, the chemical, biological, radiological and nuclear (CBRN) chamber,

a driver's course, a river crossing, boat launch sites, floating bridge operations, and a demolition pit at IL079/17896. Site land use is discussed further in Section 3 for the high and medium resource sites and in Appendix B for low resource sites.

Table 2.1 Sites in the 88th RD—USFWS Region 3

FACID	Name	County	Description	Acreage
IOWA				
IA001/19490	Ames USAR Center, Ames IA	Story	ARC, OMS, Land, STRG	5.16
IA006/19504	SP4 Ronald Means USAR, Cherokee IA	Cherokee	ARC, OMS, Land, STRG	5.21
IA007/19505	Lyle Deffenbaugh ARC, Council Bluffs IA	Pottawattamie	ARC, OMS, STRG, Land	9.00
IA009/19545	Davenport ARC, Davenport IA	Scott	Land, ARC, OMS, STRG	5.95
IA010/19547	PFC Lloyd C. Wohlford Jr. USARC, Decorah IA	Winnesnick	ARC, OMS, Land	5.00
IA014/19903	Dubuque ARC, Dubuque IA	Dubuque	Land, ARC, OMS	15.00
IA025/19640	Freeman-Davis ARC, Sac City IA	Sac	ARC, OMS, Land	4.76
IA027/19675	Washington Memorial ARC Washington IA	Washington	ARC, OMS, Land	4.17
IA030/19685	Hulquist-Fry AFRC Waterloo IA	Black Hawk	ARC, OMS, Land	4.82
IA032/19645	Joe L. Mackey #115 ARC, Sioux City IA	Woodbury	AFRC, AMSA, Land	5.70
IA033/19057	Ft. Des Moines ARC Des Moines IA	Polk	ARC, OMS/AMSA, Other, Land, STRG	39.86
IA036/19560	PFC Edwin J Lemke ARC, Fort Dodge, IA	Webster	ARC, Land	4.48
IA047/1990D	Cedar Falls AMSA #28, Cedar Falls IA	Black Hawk	AMSA, Land	1.52
ILLINOIS				
IL001/17812	Parkhurst ARC/OMS/DS, Darien IL	Du Page	ARC, OMS, Land	12.65
IL002/17580	Col P. Schulstad ARC Arlington Heights IL	Cook	Land, Other, STRG, OMS, BPC	47.99
IL003/17815	Fox Valley Memorial ARC Aurora IL	Kane	ARC, OMS, Land	3.62
IL005/17825	PFC R. Gantner ARC, Belleville IL	St. Clair	ARC, OMS, MEP, POV	6.70
IL006/17830	SGT Krause/PFC Goodrich ARC, Bloomington IL	McLean	ARC, OMS, Land	5.00
IL007/17827	SGT Bruce G. Howerter ARC Canton IL	Fulton	ARC, OMS, Land	6.01
IL011/17849	SGT James W. Robinson Jr. ARC Chicago IL	Cook	ARC, OMS, STRG, Land	6.74
IL021/17683	MAJ Herbert J. Dexter ARC, Decatur IL	Macon	ARC, OMS, Land	6.09

Table 2.1 Sites in the 88th RD—USFWS Region 3(continued)

FACID	Name	County	Description	Acreage
IL027/17666	Forest Park AFRC, Forest Park IL	Cook	Land, AFRC, OMS	3.63
IL035/17898	North Shore Memorial ARC, Ft. Sheridan IL	Lake	ARC, OMS, Other, Land	13.45
IL045/17884	Granite City ARC, Granite City IL	Madison	ARC, OMS/AMSA, STRG, Other, Land	30.00
IL051/17549	Vietnam Vet Memorial ARC, Homewood IL	Cook	ARC, OMS, Land	15.70
IL064/17928	Veterans Memorial ARC, Peru IL	LaSalle	ARC, OMS, Land	5.00
IL068/17308	Machesney Park ARC, Machesney Park IL	Winnebago	ARC, OMS, Storage Building, MEP, POV, Land	15.25
IL072/17965	MAJ M.D. O'Donnell ARC Springfield IL	Sangamon	ARC, OMS, Land	7.00
IL073/17840	2LT R.H. Stephens ARC, Urbana IL	Champaign	ARC, OMS, Land	5.94
IL079/17896	Joliet ARC/LTA, Elwood IL	Will	ARC, NCOA, OMS, STRG, Land, LTA	3,580.00
IL131/17887	Phillip H. Sheridan AFRC, Ft. Sheridan IL	Lake	STRG, OMS, AMSA, ARC, ARISC, Other, NCOA, AFRC, Land	90.4
IL190/17108	Quincy GTA ARC, Quincy IL	Adams	ARC, OMS, MEP. POV	15.08
INDIANA				
IN002/18625	COL Kenneth P. Williams ARC Bloomington IN	Monroe	Land, ARC, OMS	3.50
IN004/18607	SGT Charles H. Seston ARC, Edinburgh IN	Johnson	ARC, OMS, Land	10.24
IN005/18655	SGT James W. Harlan ARC/AMSA #132, Evansville IN	Vanderburg	Land, ARC, OMS/AMSA	10.16
IN008/18778	Fort Ben Harrison ARC, Indianapolis IN	Marion	ARC, Other, OMS, STRG, AMSA, Land	138.39
IN010/18675	PFC Wm L. Gillespie ARC/BMA 133, Fort Wayne IN	Allen	Land, AMSA	1.21
IN011/18675	PFC Wm L. Gillespie ARC, Fort Wayne IN	Allen	Land, ARC, OMS	7.01
IN014/18699	CPL Robert Shaffer ARC, Peru IN	Miami	ARC, OMS, Land	5.95
IN020/18725	James T. St. Clair ARC, Jeffersonville IN	Clark	AMSA, ARC, Land	5.28
IN023/18740	Laporte Co Veterans ARC, Kingsbury IN	Laporte	ARC, OMS, Land, LTA	943.00
IN027/18735	Roper R. Peddicord ARC, Hobart IN	Lake	Land, ARC, OMS	6.00
IN030/18790	Richmond ARC, Richmond IN	Wayne	ARC, Land	5.47
IN032/18825	Everitt B. Hunley ARC, Scottsburg IN	Scott	Land, ARC, OMS	3.87
IN033/18856	Lyle J. Thompson ARC, South Bend IN	St. Joseph	ARC, OMS, AMSA, Land	11.60
IN034/18857	Maple Lane ARC South Bend IN	St. Joseph	ARC, OMS, Land	8.43
IN036/18875	Robert R. Mosele ARC Terra Haute IN	Vigo	Land, ARC, OMS	5.74

1
2

Table 2.1 Sites in the 88th RD—USFWS Region 3(continued)

FACID	Name	County	Description	Acreage
IN085/18301	Michigan City ARC, Michigan City IN	LaPorte	Land	16.45
MICHIGAN				
MI001/26755	Donald C. Schorling ARC Ann Arbor MI	Washtenaw	ARC, OMS, Land	3.50
MI005/26775	James J. O'Rourke ARC, Bay City MI	Bay	ARC, OMS/AMSA, Other, Land	7.67
MI009/26798	BG William H. Birbari ARC, Fraser, MI	Macomb	ARC, OMS, Land	5.13
MI011/26958	Dr. Mary E. Walker Memorial ARC Grand Rapids MI	Kent	Land, ARC, OMS	13.80
MI013/26840	Raymond Zussman ARC, Inkster MI	Wayne	ARC, OMS, Land	4.38
MI014/26855	CPT David D. Phillips ARC, Jackson MI	Jackson	ARC, OMS, Land	5.89
MI016/26865	Kalamazoo Memorial ARC, Kalamazoo MI	Kalamazoo	ARC, OMS, Land	4.62
MI020/26797	MG George A. Custer ARC/AMSA, Livonia MI	Wayne	ARC, AMSA, Other, Land	8.63
MI023/26895	2LT Walter Haupt ARC, Muskegon MI	Muskegon	ARC, OMS, Land	4.87
MI024/26900	Donald R. Moyer ARC, Waterford MI	Oakland	ARC, OMS, Land	3.80
MI029/26685	1LT Robert L. Poxon ARC, Southfield MI	Oakland	Land, Other, ARC, OMS, STRG	26.00
MI030/26955	Demus T. Crow ARC, Traverse City MI	Grand Traverse	OMS, ARC, Land	4.85
MI053/26534	Saginaw ARC, Saginaw MI	Saginaw	ARC, OMS, Land	12.92
MINNESOTA				
MN001/27899	Arden Hills ARC/ AMSA #22, Arden Hills MN	Ramsey	Land, ARC, OMS/AMSA, STRG	29.04
MN002/27700	Terrance A. Peterson ARC, Brainerd MN	Crow Wing	OMS, ARC, Land	5.00
MN005/27726	MSG Armin C. Lieder ARC, Buffalo MN	Wright	ARC, OMS, Land	6.05
MN011/27845	Duluth ARC/AMSA #25 Duluth MN	St. Louis	ARC, AMSA, Land	4.00
MN018/27895	Mankato Memorial ARC Mankato MN	Blue Earth	ARC, OMS, Land, STRG	9.07
MN035/27927	St. Joseph ARC/AMSA #101, St. Joseph MN	Stearns	Land, OMS/AMSA	8.03
MN036/27865	Fort Snelling ARC Fort Snelling MN	Hennepin	Other, ARC, OMS, AMSA, Land	47.46
MN042/27940	Wabasha Memorial ARC, Wabasha MN	Wabasha	ARC, OMS, Land	6.98

3

Table 2.1 Sites in the 88th RD—USFWS Region 3(continued)

FACID	Name	County	Description	Acreage
MN044/27950	Willmar Memorial AFRC, Willmar MN	Kandiyohi	ARC, OMS, Land	5.20
MN048/27975	Worthington Memorial ARC, Worthington MN	Nobles	ARC, OMS, Land	3.00
MISSOURI				
MO001/29880	SPC Clifford M. Davis ARC/AMSA #57, Belton MO	Cass	ARC, OMS, STRG, Land	11.40
MO003/29880	Belton LTA, Belton MO	Cass	LTA, Land	184.00
MO004/29825	CPL Jesse N. Funk ARC, Bethany MO	Harrison	ARC, OMS, Land	3.42
MO006/29830	MG L. E. Jones ARC Columbia, Columbia MO	Boone	ARC, Land, STRG	5.42
MO008/29832	Farmington ARC, Farmington MO	St. Francois	ARC, Land, Other	4.60
MO013/29898	SGT C. R. Long, Independence MO	Jackson	ARC, OMS, Land	4.00
MO014/29855	1LT R.W. Heisinger ARC, Jefferson City MO	Cole	ARC, OMS, Land	6.00
MO015/29865	Joplin ARC, Joplin MO	Jasper	STRG, ARC, OMS, Land	6.00
MO018/29879	Kirkville AFRC Kirkville MO	Adair	USRC, Land	10.94
MO024/29925	Springfield AFRC/AMSA #54, Springfield MO	Greene	AFRC, STRG, AMSA, Other, Land	18.34
MO026/29935	CPL Forrest E. Peden ARC, St. Joseph MO	Buchanan	ARC, OMS, Land	5.00
MO028/29967	Sverdrup ARC/AMSA #55(G), St. Louis MO	St. Louis	ARC, OMS/AMSA, Other, STRG, Land	20.88
MO030/29955	St Louis ORD PLT #4, St. Louis MO	St. Louis	STRG facility	17.39
MO031/29975	Washington ARC, Washington MO	Franklin	ARC, OMS, Land	4.52
MO041/29985	Weldon Spring ARC/LTA St. Charles, MO	St. Charles	LTA, Other, STRG, Land, ARC, OMS	1741.00
MO054/2900A	Springfield ARC AMSA #54, Springfield MO	Greene	ARC, Land	5.00
MO074/29504	Belton LTA, Kansas City MO	Cass	Land	18.35
MO076/29342	Kansas City ARC #1, Kansas City MO	Cass	ARC, STRG, Land	34.17
OHIO				
OH004/39825	PVT William Knight ARC, Bryan MO	Williams	ARC, Land, OMS	3.00
OH008/39840	SGT Lawrence W. Skaggs ARC Chillicothe OH	Ross	Land, ARC, OMS	4.00
OH009/39845	T.H. Morrow ARC/AMSA #59, Cincinnati OH	Hamilton	Land, ARC, OMS/AMSA, STRG	7.00
OH018/39887	83rd Division Memorial ARC/AMSA, Whitehall, OH	Franklin	ARC, AMSA, STRG, Land	19.94

Table 2.1 Sites in the 88th RD—USFWS Region 3(continued)

FACID	Name	County	Description	Acreage
OH020/39868	SP4 Joseph Lapointe ARC, Dayton OH	Montgomery	ARC, OMS, Other, Land	10.00
OH024/39870	Delaware Memorial ARC, Delaware OH	Delaware	Land, ARC, OMS, Other	4.00
OH028/39880	Taylor Station Road ARC, Blacklick OH	Franklin	OMS, STRG, Land, ARC	10.00
OH032/39195	Kings Mills Memorial ARC Mainville, OH	Warren	ARC, STRG, OMS/AMSA, Land	19.00
OH033/39893	1LT G.N. Faze ARC, Lima OH	Allen	Land, ARC, OMS/AMSA	6.00
OH044/39954	SGT J.H. Cooney ARC/BMA Milan OH	Erie	Land, ARC, OMS/AMSA, Other	10.30
OH048/3913E	PFC Devin J. Grella ARC / AMSA #3, North Canton OH	Stark	Land, ARC, OMS/AMSA, STRG	10.02
OH051/39995	Twinsburg ARC/AMSA #123 Twinsburg OH	Summit	ARC, OMS/AMSA, Land	24.09
OH058/39846	COL Dudley M Outcalt ARC, Sharonville OH	Hamilton	ARC, OMS, Land	5.23
OH063/39975	Troy Memorial ARC, Troy OH	Miami	Land, ARC, OMS	4.00
OH094/39760	Toledo Area ARC, Monclova OH	Lucas	LTA, ARC, OMS/AMSA, Land	52.04
OH095/39865	Rickenbacker ARC, Columbus OH	Franklin	Land, ARC	27.88
OH117/39080	Trenton USAR Center, Trenton OH	Butler	ARC, OMS, STRG, Land	19.96
WISCONSIN				
WI001/55750	Appleton ARC/OMS, Appleton WI	Outagamie	ARC, OMS, Land, STRG	4.00
WI002/55836	Denis J. Murphy ARC/AMSA/ OMS, Green Bay WI	Brown	ARC, OMS/AMSA, Land	14.51
WI003/55760	Beaver Dam Memorial ARC / OMS, Beaver Dam WI	Dodge	ARC, OMS, Land	3.00
WI009/5524A	Eau Claire AMSA #155, Eau Claire WI	Chippewa	AMSA, Land	1.83
WI010/55785	Eau Claire ARC, Eau Claire WI	Eau Claire	ARC, OMS, Land, STRG	4.00
WI011/55786	Land for Future ARC, Eau Claire WI	Chippewa	Land	15.00
WI014/55805	Fond Du Lac ARC, Fond Du Lac WI	Fond Du Lac	ARC, OMS, Land, STRG	2.93
WI030/55840	Junction City ARC, Junction City WI	Portage	ARC, OMS, Land	6.00
WI039/55886	Andrew Miller ARC/OMS, Manitowoc WI	Manitowoc	ARC, OMS, Land	8.00
WI040/55897	Neenah ARC, Neenah WI	Winnebago	Land, ARC, OMS, STRG	7.00
WI047/55955	Pewaukee Memorial ARC/OMS, Pewaukee WI	Waukesha	ARC, OMS, Land	6.00
WI049/55985	William F. Fale ARC/OMS, Sheboygan WI	Sheboygan	ARC, OMS, Land	4.00
WI050/55976	Sturtevant ARC, Sturtevant WI	Racine	ARC, OMS, Land	10.85
WI064/55999	W. Silver Spring Complex, Milwaukee WI	Milwaukee	LTA, Land, ARC, OMS, STRG, AMSA	126.56
WI090/55456	Wausau ARC, Wausau WI	Marathon	OMS, ARC, STRG, Land	19.96
WI092/55864	SFC Gabrielson/SPC Hoyer ARC, Hammond WI	St Croix	OMS, ARC, STRG, Land	8.71

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Bold indicates Medium/High Resource site
 AFB – Air Force Base
 AMSA - Area Maintenance Support Activity
 ARC – Army Recruiting Center
 COL – Colonel
 ECS – Equipment Concentration Site
 Ft. – Fort
 MSG – Master Sergeant

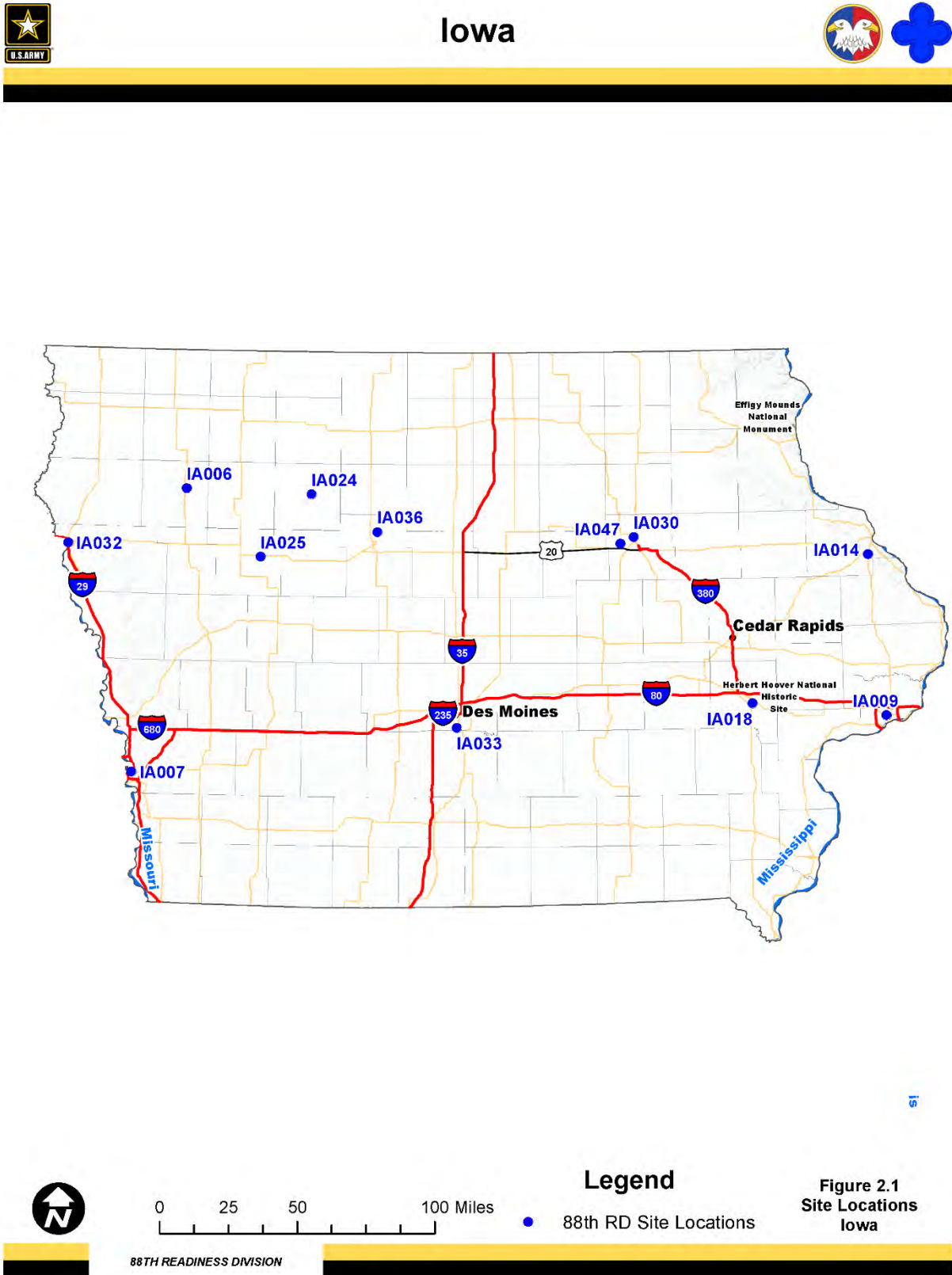
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NG/RC – National Guard and Reserve Component
 NR – Natural Resources
 OMS – Organizational Maintenance Shop
 RTS-MED – Regional Training Site – Medical
 STRG – Storage
 TNG – Training

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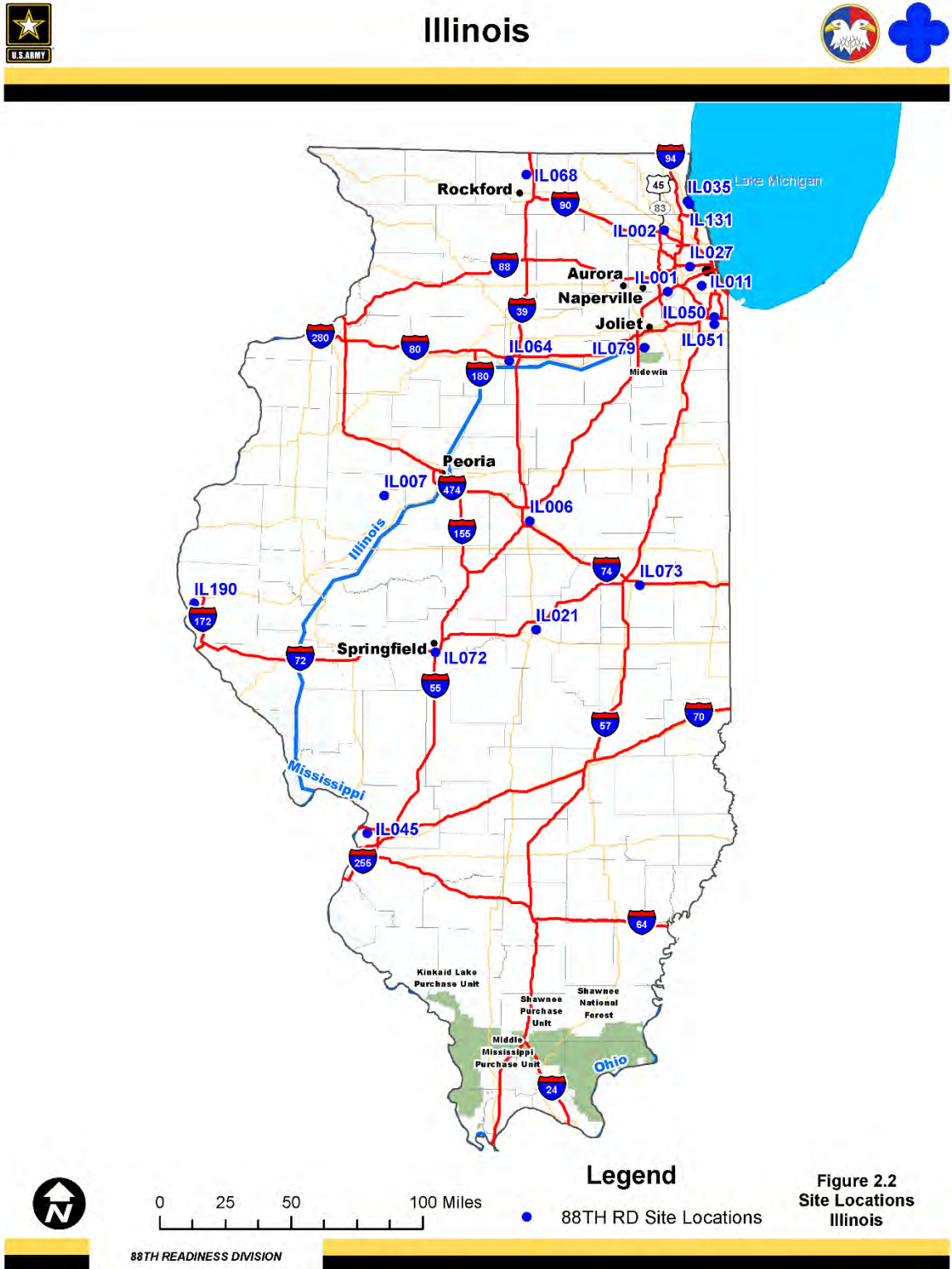
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Figure 2.1 Site Locations – Iowa



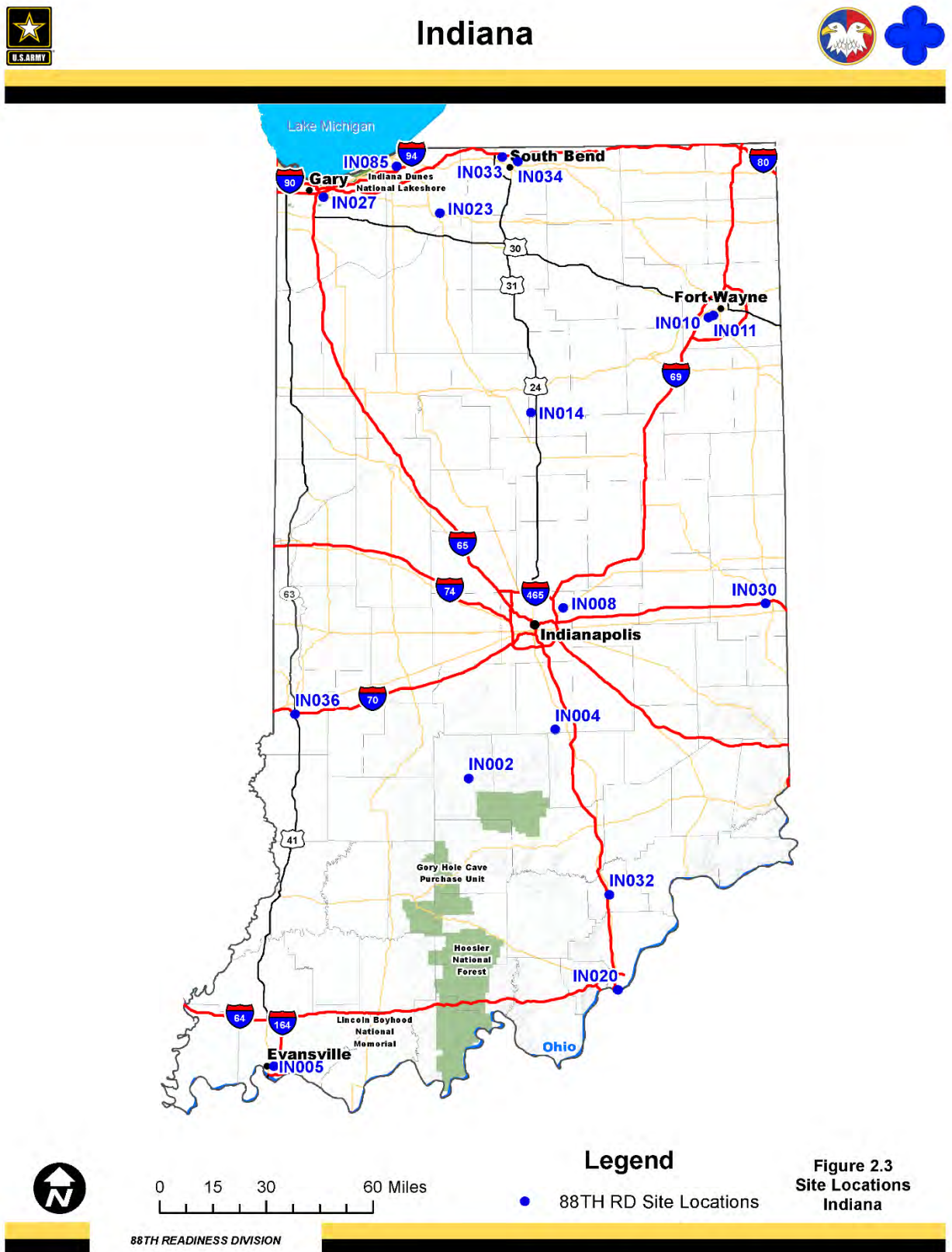
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Figure 2.2 Site Locations – Illinois



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Figure 2.3 Site Locations – Indiana



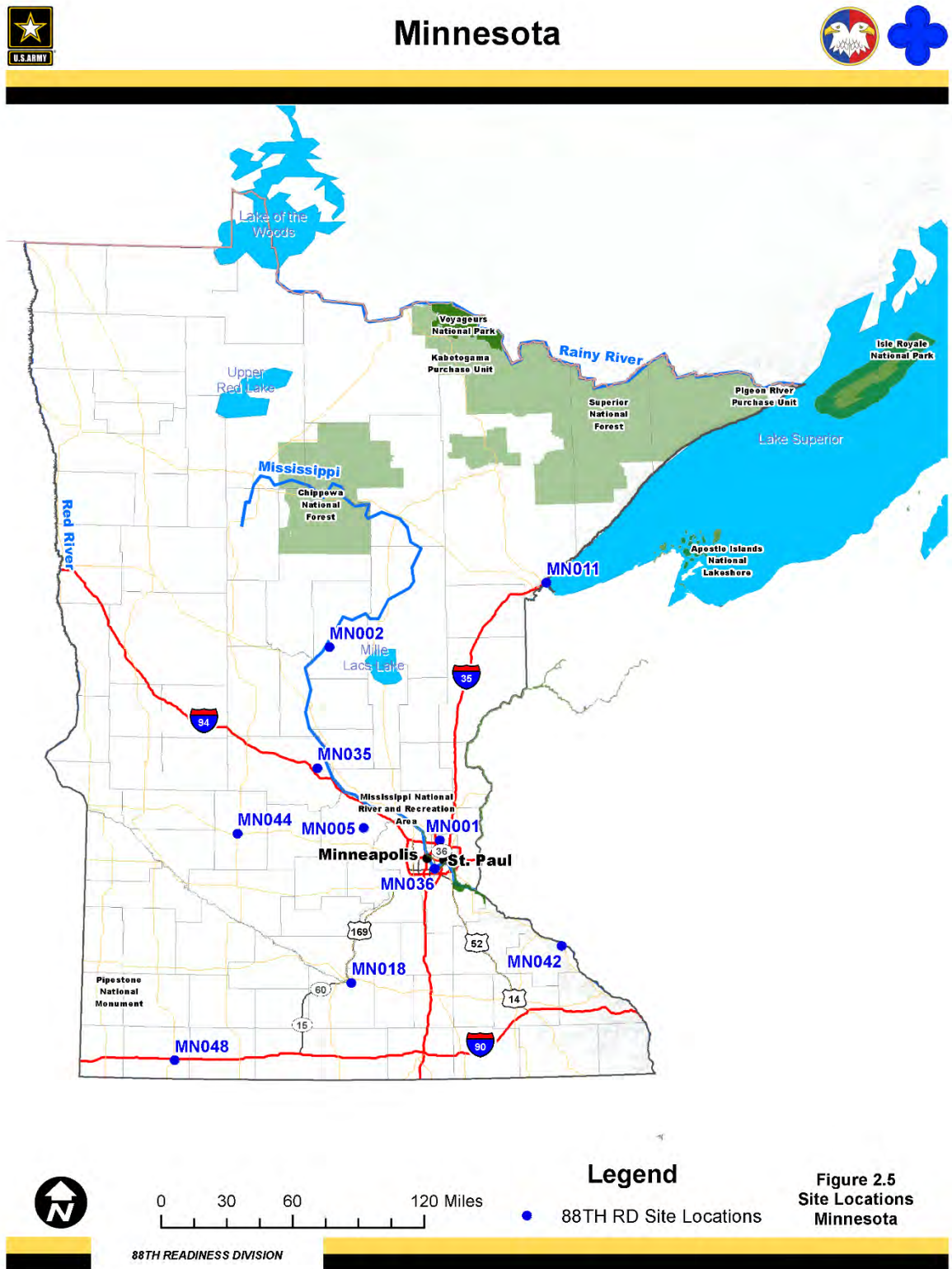
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Figure 2.4 Site Locations – Michigan



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Figure 2.5 Site Locations – Minnesota



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Figure 2.6 Site Locations – Missouri

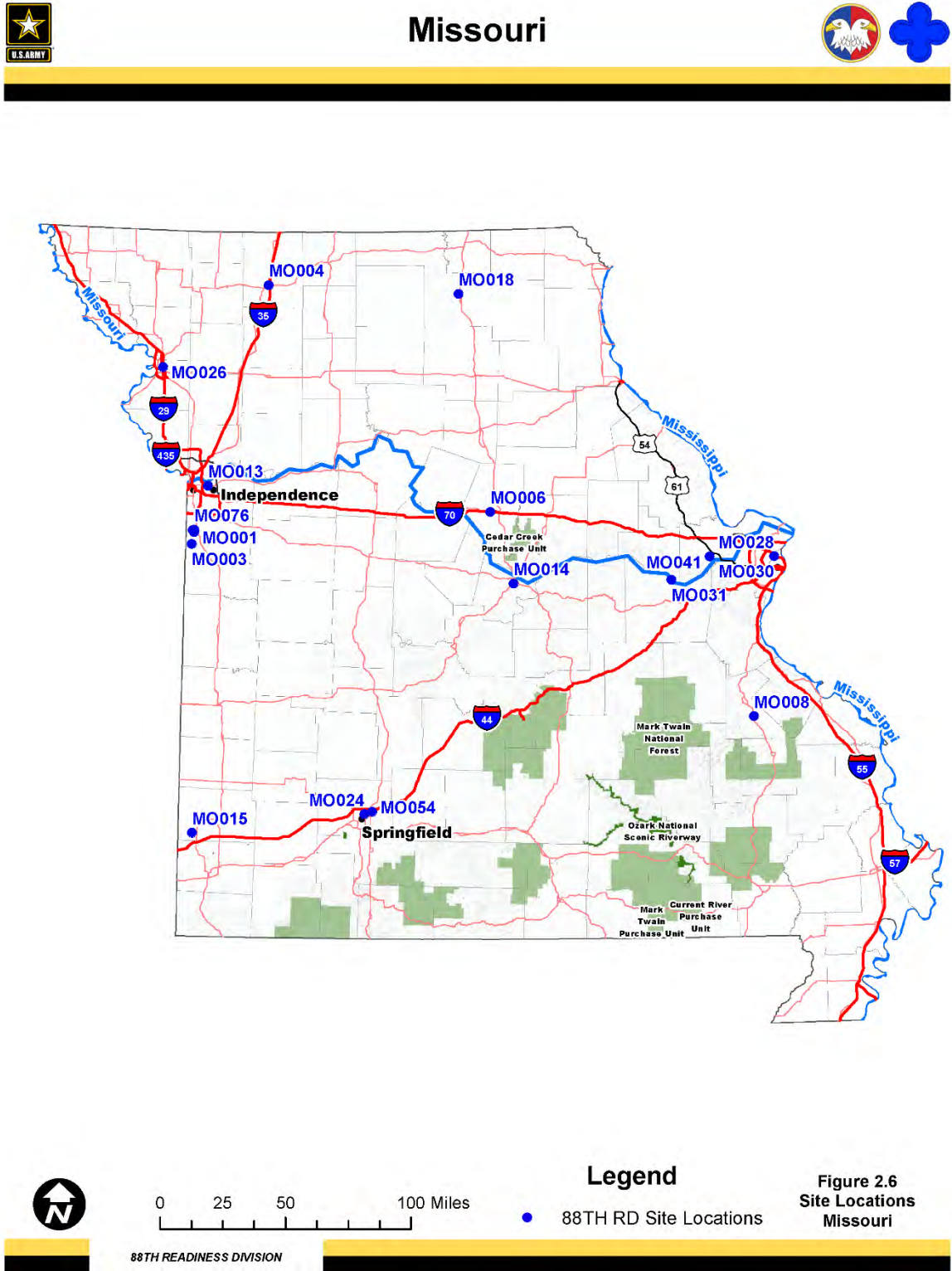


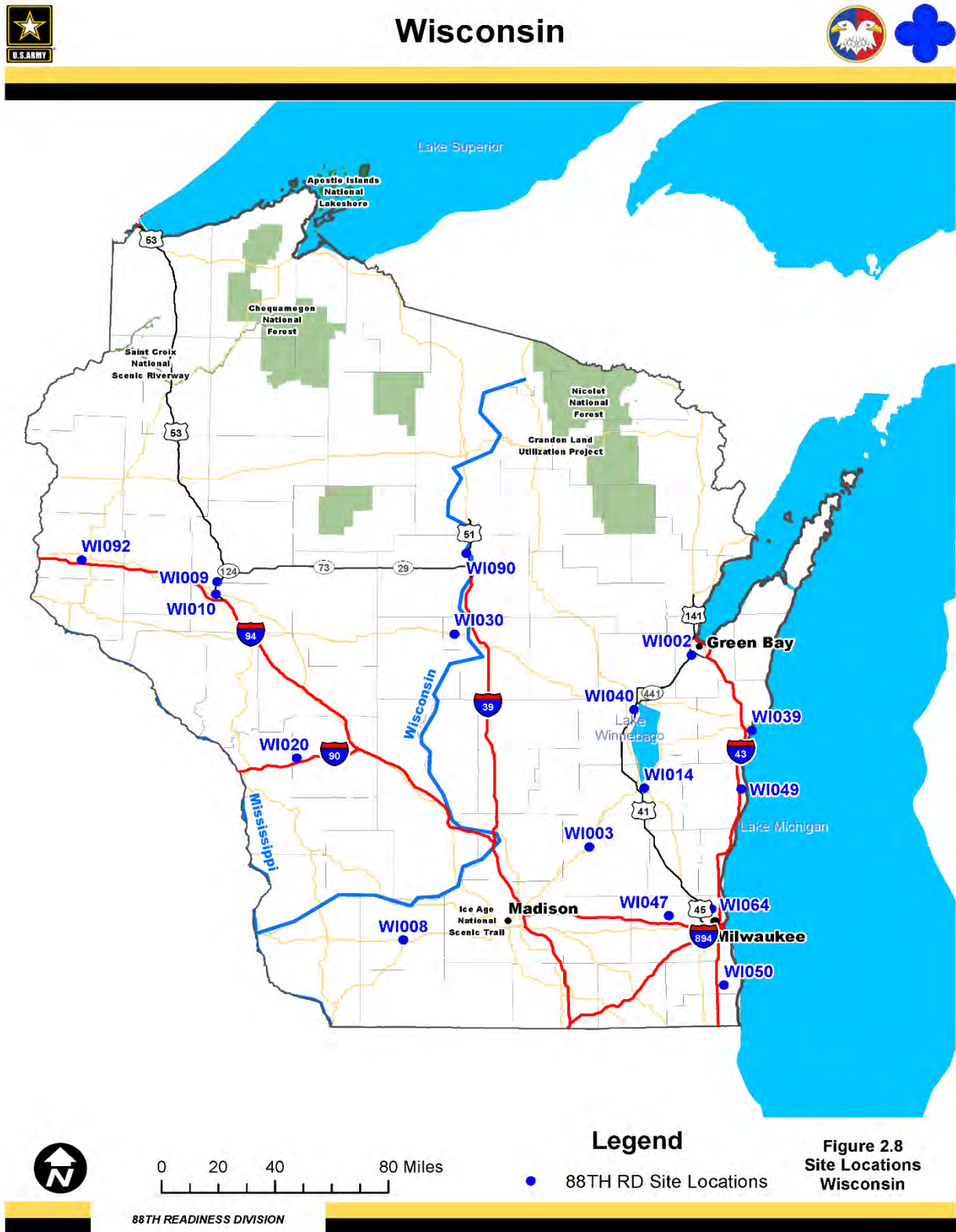
Figure 2.7 Site Locations – Ohio

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Figure 2.8 Site Locations – Wisconsin



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3.0 Natural Resources

“We do not own this land; we are caretakers of the land and the plant and animal species that inhabit it. The American people entrust the land to our care, and we shall fulfill their trust. We shall conserve and protect these resources for the future.”

Robert M. Walker, former Assistant Secretary of the Army,
Testimony before Congress, July 11, 1995.

This section describes biodiversity conservation, ecosystem management, and Army Species at Risk (SAR) management as guiding principles for natural resources management. Additionally, provides a regional perspective for the 88th RD properties and lands covered in this INRMP, and identifies the natural resources that are managed on these properties and lands in support of the mission.

3.1 Biodiversity Conservation, Ecosystem Management, and Army SAR Management

3.1.1 Biodiversity Conservation

Biological diversity (biodiversity) refers to the variety and variability among living organisms and the environment in which they occur. Biodiversity has meaning at various levels including ecosystem diversity, species diversity, and genetic diversity.

As per the Department of Defense Instruction (DoDI) number 4715.03 (Incorporating change 2 dated August 31, 2018) regarding the Natural Resources Conservation Program:

(1) Foster long-term sustainability of ecosystem services.

a. Biodiversity conservation on DoD lands and waters should be followed whenever practicable to:

(1) Maintain or restore remaining native ecosystem types across their natural range of variation.

(2) Maintain or reestablish viable populations of native species on an installation, when practical.

(3) Maintain ecological processes, such as disturbance regimes, hydrological processes, and nutrient cycles, to the extent practicable.

(4) Manage and monitor resources over sufficiently long periods to allow for adaptive management and assessment of changing ecosystem dynamics (i.e., incorporate a monitoring component to management plans).

b. Each DoD Component should use heritage and other natural resources database networks whenever appropriate.

c. DoD shall, to the best of its ability, implement conservation and management efforts to further the conservation of State-listed species when such action is practicable and does not conflict with legal authority, military mission, or operational capabilities.

d. DoD shall identify, prioritize, monitor, and control invasive and noxious species and feral animals on its installations whenever feasible. Accordingly, native species should be used, where feasible, to restore any habitats from which native species are removed or controlled.

e. DoD shall restore or rehabilitate altered or degraded landscapes and associated habitats to promote native ecosystems and land sustainability when such action is

1 practicable and does not conflict with military mission or capabilities consistent with E.O.
2 13514 (Reference (ad)).

3 **3.1.2 Ecosystem Management**

4 The ecosystem management approach emphasizes management of functional habitat and
5 conservation of intact ecological systems rather than management for individual wildlife or plant
6 species. The 88th RD will continue to use ecosystem management to guide its program for the
7 environmental conservation program.

8 As per the Department of Defense Instruction (DoDI) number 4715.03 (Incorporating change 2
9 dated August 31, 2018):

10 Ecosystem-based management will:

11 (1) Avoid single-species management and implement an ecosystem-based multiple species
12 management approach, insofar as that is consistent with the requirements of the ESA.

13 (2) Use an adaptive management approach to manage natural resources due to climate change.

14 (3) Evaluate and engage in the formation of local or regional partnerships that benefit the goals
15 and objectives of the INRMP.

16 (a) Due to policy and fiscal implications, partnerships involving external stakeholders or
17 multiple Military Services require proper advanced coordination through DoD Component
18 chains of command.

19 (b) Natural resources personnel must be included in the planning and implementation
20 phases of all resulting agreements.

21 (4) Use the best available scientific information in decision-making and adaptive management
22 techniques in natural resource management.

23 **3.1.3 Army Species at Risk**

24 Army SAR (also known as the DOD Species at risk on DoD Environment, Safety and Occupational
25 Health Network and Information Exchange (DENIX)) are plant or animal species that would have
26 a significant impact on military missions if federally listed as threatened or endangered. These
27 species may be official candidates for Endangered Species Act (ESA) listing, classified by
28 NatureServe as critically imperiled or imperiled on a global scale, and/or a concern for ESA listing
29 in the foreseeable future. These species are not yet listed as threatened or endangered under
30 the ESA but are of concern to the Army. Without a change in their management, their populations
31 may continue experiencing significant declines leading to the listing on the endangered species
32 list which in turn will lead to restrictions on the training mission. Protecting these species is critical;
33 therefore, the installation INRMP should consider funding for SAR protection a high priority. The
34 Army's policy is to manage SAR proactively in order to prevent ESA listings that could severely
35 degrade military readiness.

36 No SARs have been documented on 88th RD sites in USFWS Region 3. The only Army SAR for
37 which potentially suitable habitat exists at IA032/19645 is the dusted skipper butterfly
38 (*Atrytonopsis hianna*), a state species of concern and Army SAR.

39 **3.2 Regional Perspective**

40 This INRMP covers 88th RD owned and reportable leased properties in USFWS Region 3. Many of
41 these sites are small in size, and it is important to consider their natural resources in the broader regional
42 context. These sites span sixteen ecoregions and seven states. (Level III Ecoregions of the Continental
43 United States, USEPA May 2003)

3.2.1 USEPA Level III Ecoregions

USEPA Level III Ecoregions are ecosystems of regional extent. They distinguish areas that share common climatic and vegetation characteristics. The USEPA uses a four-level hierarchy to differentiate them:

- *Domains* are groups of related climates and are differentiated based on precipitation and temperature. There are four domains used for worldwide ecoregion classification and all four appear in the United States: the polar domain, the humid temperate domain, the dry domain, and the humid tropical domain.
- *Divisions* represent the climates within domains and are differentiated based on precipitation levels and patterns as well as temperature.
- *Provinces* are differentiated based on vegetation or other natural land covers. Mountainous areas that exhibit different ecological zones based on elevation are identified at the province level.
- *Sub regions*, called sections, are subdivisions of provinces based on terrain features.

The number after each ecoregion in section 3.2.1 is the number assigned to the ecoregion on the USEPA Level III Ecosystem map. The USEPA Level III Ecosystem, map shown in Figure 3.0 may be found at:

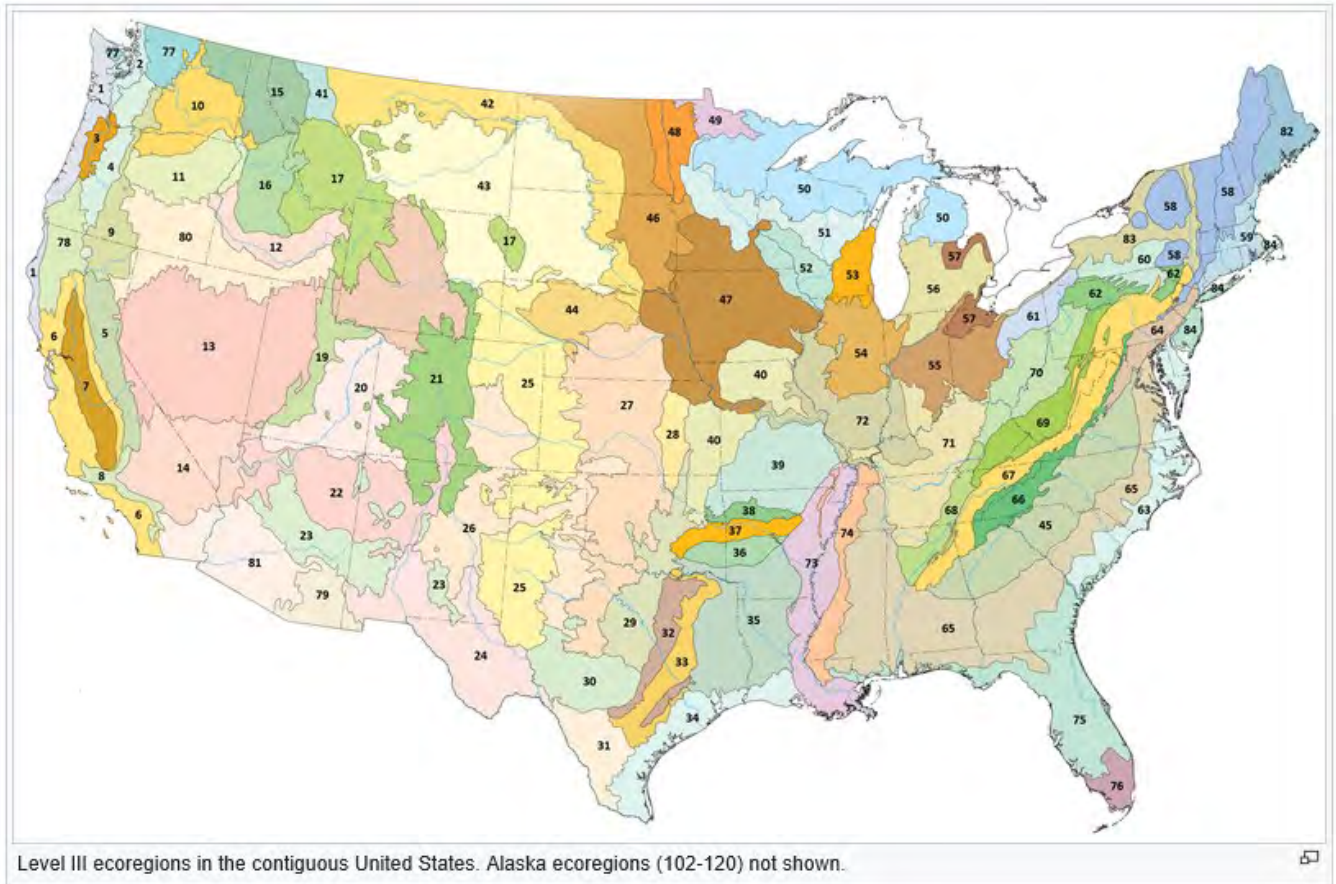
[https://en.wikipedia.org/wiki/List_of_ecoregions_in_the_United_States_\(EPA\)](https://en.wikipedia.org/wiki/List_of_ecoregions_in_the_United_States_(EPA)).

Ecological land classification can help inform natural resource management planning. Identified below are the ecoregions relevant to 88th RD properties and lands in USFWS Region 6 as defined in the U.S. Environmental Protection Agency's (EPA) ecosystem Levels I and III ecoregions of the contiguous United States. Level I divide North America into 15 broad ecoregions; of these, the 12 listed below lie partly or wholly within the contiguous United States.

Marine West Coast Forest	Western Forested Mountains
Mediterranean California	North American Deserts
Temperate Sierras	Great Plains
Eastern Temperate Forests	Northern Forests
Tropical Wet Forests	Southern Semi-Arid Highlands
Taiga	Tropical and Subtropical Coniferous Forests

Level III subdivides the continent into 182 smaller ecoregions; of these, 104 lie partly or wholly with the United States. Section 3.2.1 contains the Level III subdivided ecosystems applicable to the USFWS Region 3 sites.

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Figure 3.0 – U.S. EPA ECOREGIONS in the contiguous United States (USEPA, 1997)



4
5
3.2.1.1 Ozark Highlands (39)

6 MO015/29865 (Joplin, MO), MO024/29925 (Springfield, MO), and MO054/2900A (Springfield, MO)

7
8 The Ozark Highlands ecoregion has a more irregular physiography and is generally more
9 forested than adjacent regions, with the exception of the Boston Mountains (38) to the south.
10 Soils are mostly derived from cherty carbonate rocks. Cambrian and Ordovician dolomite and
11 sandstone comprise the dominant bedrock in the interior of the region with Mississippian
12 limestone underlying the western outer regions. Karst features, including caves, springs, and
13 spring-fed streams are found throughout most of the Ozark Highlands. The majority of the region
14 is forested; oak is the predominant forest type, but mixed stands of oak and pine are also
15 common, with pine concentrations greatest to the southeast. Less than one fourth of the core of
16 this region has been cleared for pasture and cropland, but half or more of the periphery, while
17 not as agricultural as bordering ecological regions, is in cropland and pasture.

18
3.2.1.2 Central Irregular Plains (40)

19 MO001/29880 (Belton, MO), MO003/29880 (Belton, MO), MO004/29825 (Bethany, MO),
20 MO008/29832 Farmington, MO), MO018/29879 (Kirksville, MO), MO074/29504 (Belton LTA,
21 MO), and MO076/29342 (Kansas City, MO)

22 The Central Irregular Plains have a mix of land use and are topographically more irregular than
23 the Western Corn Belt Plains (47) to the north, where most of the land is in crops. The region,

1 however, is less irregular and less forest covered than the ecoregions to the south and east. The
2 potential natural vegetation of this ecological region is a grassland/forest mosaic with wider
3 forested strips along the streams compared to Ecoregion 47 to the north. The mix of land use
4 activities in the Central Irregular Plains includes mining operations of high-sulfur bituminous coal.
5 The disturbance of these coal strata in southern Iowa and northern Missouri has degraded water
6 quality and affected aquatic biota.

7 **3.2.1.3 Western Corn Belt Plains (47)**

8 IA001/19490 (Ames, IA), IA006/19504 (Cherokee, IA), IA007/19505 (Council Bluffs, IA),
9 IA009/19545 (Davenport, IA), IA025/19640 (Sac City, IA), IA027/19675 (Washington IA),
10 IA030/19685 (Waterloo, IA), IA032/19645 (Sioux City, IA), IA033/19057 (Des Moines, IA),
11 IA036/19560 (Fort Dodge, IA), IA047/1990D Cedar Falls , IA), MN018/27895 (Mankato, MN),
12 MN044/27950 (Willmar, MN), MN048/27975 (Worthington, MN), MO013/29898 (Independence,
13 MO), and MO026/29935 (St. Joseph, MO)

14 Once covered with tallgrass prairie, over 75 percent of the ecoregion is now used for cropland
15 agriculture and much of the remainder is in forage for livestock. A combination of nearly level to
16 gently rolling glaciated till plains and hilly loess plains; an average annual precipitation of 25-35
17 inches, which occurs mainly in the growing season; and fertile, warm, moist soils make this one
18 of the most productive areas of corn and soybeans in the world. Major environmental concerns
19 in the region include surface and groundwater contamination from fertilizer and pesticide
20 applications, as well as impacts from concentrated livestock production.

21 **3.2.1.4 Northern Lakes and Forests (50)**

22 MI021/2653A (Marquette, MI), MN002/27700 (Brainerd, MN), and MN011/27845 (Duluth, MN)

23 The Northern Lakes and Forests is a region of nutrient-poor glacial soils, coniferous and northern
24 hardwood forests, undulating till plains, morainal hills, broad lacustrine basins, and extensive
25 sandy outwash plains. Soils in this ecoregion are thicker than in those to the north and generally
26 lack the arability of soils in adjacent ecoregions to the south. The numerous lakes that dot the
27 landscape are clearer and less productive than those in ecoregions to the south.

28 **3.2.1.5 North Central Hardwoods (51)**

29 MI030/26955(Traverse City, MI), MN001/27899 (Arden Hills MN), MN005/27726 (Buffalo, MN),
30 MN035/27927 (St. Joseph MN), MN036/27865 (Ft. Snelling, MN), WI009/5524A (Eau Claire,
31 WI), WI010/55785 (Eau Claire, WI), WI011/55786 (Eau Claire, WI), WI030/55840 (Junction City,
32 WI), WI090/55456 (Wausau, WI), and WI092/55864 (Hammond, WI)

33 The North Central Hardwood Forests is transitional between the predominantly forested Northern
34 Lakes and Forests to the north and the agricultural ecoregions to the south. Land use/land cover
35 in this ecoregion consists of a mosaic forests, wetlands and lakes, cropland agriculture, pasture,
36 and dairy operations.

37 **3.2.1.6 Driftless Area (52)**

38 IA010/19547 (Decorah, IA), IA014/19903 (Dubuque, IA), and MN042/27940 (Wabasha, MN)

39 The hilly uplands of this ecoregion easily distinguish it from surrounding ecoregions. Much of the
40 area consists of a deeply dissected, loess-capped, bedrock dominated plateau. The region is
41 also called the Paleozoic Plateau because the landscape's appearance is a result of erosion
42 through rock strata of Paleozoic age. Livestock and dairy farming are major land uses and have
43 had a major impact on stream quality.

1 **3.2.1.7 Southeastern Wisconsin Till Plains (53)**

2 WI001/55750 (Appleton, WI), WI002/55836 (Green Bay, WI), WI003/55760 (Beaver Dam, WI),
3 WI014/55805 (Fond Du Lac, WI), WI039/55886 (Manitowoc, WI), WI040/55897 (Neenah, WI),
4 WI047/55955 (Pewaukee, WI), WI049/55985 (Sheboygan WI), and WI064/55999 (Milwaukee,
5 WI)

6 The Southeastern Wisconsin Till Plains support a mosaic of vegetation types, representing a
7 transition between the hardwood forests and oak savannas of the ecoregions to the west and the
8 tallgrass prairies of the Central Corn Belt Plains (54) to the south. Like Ecoregion 54, land use in
9 the Southeastern Wisconsin Till Plains is mostly cropland, but the crops are largely forage and
10 feed grains to support dairy operations, rather than corn and soybeans for cash crops. The
11 ecoregion has a higher plant hardiness value and a different mosaic of soils than ecoregions to
12 the north and west.

13 **3.2.1.8 Central Corn Belt Plains (54)**

14 IL001/17812 (Darien, IL), IL002/17580 (Arlington Heights, IL), IL003/17815 (Aurora, IL),
15 IL006/17830 (Bloomington, IL), IL007/17827 (Canton, IL), IL011/17849 (Chicago, IL),
16 IL021/17683 (Decatur, IL), IL027/17666 (Forest Park, IL), IL035/17898 (Ft. Sheridan, IL),
17 IL051/17549 (Homewood, IL), IL072/17965 (Springfield, IL), IL073/17840 (Urbana, IL),
18 IL079/17896 (Joliet, IL), IL131/17887 (Ft. Sheridan, IL), IN023/18740 (Kingsbury, IN),
19 IN027/18735 (Hobart, IN), and WI050/55976 (Sturtevant, WI)

20 Extensive prairie communities intermixed with oak-hickory forests were native to the glaciated
21 plains of the Central Corn Belt Plains; they were a stark contrast to the hardwood forests that
22 grew on the drift plains of Ecoregions 55 and 56 to the east. Ecoregions 40 and 47 to the west
23 were mostly treeless except along larger streams. Beginning in the nineteenth century, the
24 natural vegetation was gradually replaced by agriculture. Farms are now extensive on the dark,
25 fertile soils of the Central Corn Belt Plains and mainly produce corn and soybeans; cattle, sheep,
26 poultry, and, especially hogs, are also raised, but they are not as dominant as in the drier Western
27 Corn Belt Plains (47) to the west. Agriculture has affected stream chemistry, turbidity, and habitat.

28 **3.2.1.9 Eastern Corn Belt Plains (55)**

29 IN004/18607 (Edinburgh, IN), IN008/18778 (Indianapolis, IN), IN010/18675 (Fort Wayne, IN),
30 IN011/18675 (Fort Wayne, IN), IN014/18699 (Peru, IN), IN020/18725 (Jeffersonville, IN),
31 IN030/18790 (Richmond, IN), IN032/18825 (Scottsburg, IN), OH004/39825 (Bryan, OH),
32 OH009/39845 (Cincinnati, OH), OH018/39887 (Whitehall, OH), OH020/39868 (Dayton, OH),
33 OH024/39870 (Delaware, OH), OH028/39880 (Blacklick, OH), OH032/39195 (Mainville, OH),
34 OH033/39893 Lima, OH), OH058/39846 (Sharonville, OH), OH063/39975 (Troy, OH),
35 OH095/39865 (Columbus, OH), and OH117/39080 (Trenton, OH)

36 The Eastern Corn Belt Plains is primarily a rolling plain with local end moraines; it has more natural
37 tree cover and has lighter colored soils than the Central Corn Belt Plains. The region has loamier
38 and better drained soils than the Huron/Erie Lake Plain, and richer soils than the Erie/Ontario Hills
39 and Lake Plain. Glacial deposits of Wisconsin age are extensive while pre-Wisconsin deposits
40 are restricted to the southern part of the region. Originally, beech forests were common on
41 Wisconsin soils while beech forests and elm-ash swamp forests dominated the wetter pre-
42 Wisconsin soils. Today, extensive corn, soybean, and livestock production occurs and has
43 affected stream chemistry and turbidity.

1 **3.2.1.10 Southern Michigan/Northern Indiana Drift Plains**
2 **(56)**

3 IN033/18856 (South Bend, IN), IN034/18857 (South Bend, IN), IN085/18301 (Michigan City, IN),
4 MI001/26755 (Ann Arbor, MI), MI009/26798 (Fraser, MI), MI011/26958 (Grand Rapids, MI),
5 MI013/26840 (Inkster, MI), MI014/26855 (Jackson, MI), MI016/26865 (Kalamazoo, MI),
6 MI020/26797 (Livonia, MI), MI023/26895 (Muskegon, MI), MI024/26900 (Waterford, MI), and
7 MI029/2668(Southfield, MI)

8 Bordered by Lake Michigan on the west, this ecoregion is less agricultural than those to the south;
9 it is more well-drained and contains more lakes than the flat agricultural lake plain to the east; and
10 its soils are not as nutrient poor as the region to the north. The region is characterized by many
11 lakes and marshes as well as an assortment of landforms, soil types, soil textures, and land uses.
12 Feed grain, soybean, and livestock farming as well as woodlots, quarries, recreational
13 development, and urban-industrial areas are common.

14 **3.2.1.11 Huron/Erie Lake Plains (57)**

15 MI005/26775 (Bay City, MI), MI053/26534 (Saginaw, MI), and OH094/39760 (Monclova, OH)

16 The Huron/Erie Lake Plain ecoregion is a broad, fertile, nearly flat plain punctuated by relic sand
17 dunes, beach ridges, and end moraines. Originally, soil drainage was typically poorer than in the
18 adjacent Eastern Corn Belt Plains, and elm-ash swamp and beech forests were dominant. Oak
19 savanna was typically restricted to sandy, well-drained dunes and beach ridges. Today, most of
20 the area has been cleared and artificially drained and contains highly productive farms producing
21 corn, soybeans, livestock, and vegetables. Urban and industrial areas are also extensive. Stream
22 habitat and quality have been degraded by channelization, ditching, and agricultural activities.

23 **3.2.1.12 Erie Drift Plain (61)**

24 OH048/3913E (North Canton, OH) and OH051/39995 (Twinsburg, OH)

25 Once largely covered by a maple-beech-birch forest, much of the Erie Drift Plain is now in farms,
26 many associated with dairy operations. The Eastern Corn Belt Plains, which border the region
27 on the west, are flatter, more fertile, and therefore more agricultural. The glaciated Erie Drift Plain
28 is characterized by low rounded hills, scattered remnants of glacial activity in the area (e.g.,
29 moraines and depressional areas commonly called “kettles”), and areas of wetlands, in contrast
30 to the adjacent unglaciated ecoregions to the south and east that are hilly and less agricultural.
31 Areas of urban development and industrial activity occur locally.

32 **3.2.1.13 Western Allegheny Plateau (70)**

33 OH008/39840 (Chillicothe, OH)

34 The hilly and wooded terrain of the Western Allegheny Plateau was not muted by glaciation and
35 is more rugged than the agricultural till plains of ecoregions to the north and west but is less
36 rugged and not as forested as ecoregions to the east and south. Extensive mixed mesophytic
37 forests (i.e., forests that develop in moister settings/conditions such as ravines and coves) and
38 mixed oak forests originally grew in the Western Allegheny Plateau and, today, most of its rounded
39 hills remain in forest. Dairy, livestock, and general farms as well as residential developments are
40 concentrated in the valleys. Sedimentary rock underlying the region has been mined for
41 bituminous coal.

42 **3.2.1.14 Interior Low Plateau (71)**

43 IL045/17884 (Granite City, IL), and IN002/18625 (Bloomington, IN)

1 The Interior Plateau is a diverse ecoregion extending from southern Indiana and Ohio to northern
2 Alabama. Rock types are distinctly different from the coastal plain sediments and alluvial deposits
3 of ecoregions to the west, and elevations are lower than the Appalachian ecoregions (66, 67, 68)
4 to the east. Mississippian to Ordovician-age limestone, chert, sandstone, siltstone and shale
5 compose the landforms of open hills, irregular plains, and tablelands. The natural vegetation is
6 primarily oak-hickory forest, with some areas of bluestem prairie and cedar glades. The region
7 has a diverse fish fauna.

8 **3.2.1.15 Interior River Valleys and Hills (72)**

9 IN005/18655 (Evansville, IN), IN036/18875 (Terre Haute, IN), MO006/29830 (Columbia, MO),
10 MO014/29855 (Jefferson City, MO), MO028/29967 (St. Louis, MO), MO030/29955 (St. Louis,
11 MO), MO031/29975 (Washington, MO), and MO041/29985 (St. Charles, MO)

12 This ecoregion is made up of many wide, flat-bottomed terraced valleys, forested valley slopes,
13 and dissected glacial till plains. A little less than half of this area is in cropland, about 30 percent
14 is in pasture, and the remainder is in forest. Paleozoic sedimentary rock is typical and coal mining
15 occurs in several areas.

16 **3.2.1.16 Eastern Great Lakes and Hudson Lowlands (83)**

17 OH044/39954 (Cooney, Milan OH)

18 This glaciated region of irregular plains bordered by hills generally contains less surface
19 irregularity and more agricultural activity and population density than the adjacent Northeastern
20 Highlands and Northern Appalachian Plateau and Uplands ecoregions. Although orchards,
21 vineyards, and vegetable farming are important locally, a large percentage of the agriculture is
22 associated with dairy operations. The portion of this ecoregion that is in close proximity to the
23 Great Lakes experiences an increased growing season, more winter cloudiness, and greater
24 snowfall.

25 **3.2.2 State Wildlife Action Plans**

26 In 2001, Congress established the State Wildlife Grant (SWG) Program to support state fish and wildlife
27 agencies in the identification and conservation of species of greatest conservation need. In addition to
28 supporting traditional management of game species, the SWG Program supports conservation of non-game
29 wildlife. The SWG Program supports proactive management designed to prevent species from needing
30 protection under the Endangered Species Act (ESA).

31 Iowa, Illinois, Indiana, Michigan, Minnesota, Missouri, Ohio, and Wisconsin have prepared a ten-year
32 (FY2006-2015) comprehensive wildlife conservation strategy, commonly known as a Wildlife Action Plan
33 (WAP). State fish and wildlife agencies have developed these strategic plans by working with a broad
34 spectrum of partners to identify actions needed to conserve wildlife in each state. The state WAPs collectively
35 represent a proactive, nationwide effort to prevent wildlife from becoming endangered.

36 A state WAP describes the distribution and abundance of wildlife, including species with low and declining
37 population numbers, as well as the location and condition of key habitats required to support those species.
38 The WAPs include procedures for routine monitoring, assessment of plan effectiveness, and public
39 participation.

- 40 • **Iowa Wildlife Action Plan 2015 - 2025**
41 (Iowa Department of Natural Resources,) www.iowadnr.gov/Environment/WildlifeStewardship/IowaWildlifeActionPlan.aspx
42

- 1 • **Illinois Wildlife Implementation Action Plan 2015 (Minor Revision October 2022) – Supplement to**
2 **the 2005 Comprehensive Wildlife Conservation Plan & Strategy**
3 (Illinois Department of Natural Resources)
4 [Implementation Guide 2022revised.pdf \(illinois.gov\)](https://www.idnr.gov/implementation-guide-2022-revised)
- 5 • **Indiana State Wildlife Implementation Guide 2015 – Supplement to the 2005 Indiana**
6 **Comprehensive Wildlife Strategy**
7 (Indiana Department of Natural Resources)
8 https://www.in.gov/dnr/fishwild/files/fw-SWAP_2015.pdf
- 9 • **Michigan Wildlife Action Plan 2015-2025**
10 (Michigan Department of Natural Resources,)
11 <https://www.adaptationclearinghouse.org/resources/michigan-state-wildlife-action-plan-2015-2025.html>
- 12 • **Minnesota's Wildlife Action Plan 2015-2025**
13 (Minnesota Department of Natural Resources)
14 <https://www.dnr.state.mn.us/mnwap/index.html>
- 15 • **Missouri State Wildlife Action Plan**
16 (Missouri Department of Conservation, 2015)
17 <https://missouriconservation.org/sites/default/files/downloads/SWAP.pdf>
- 18 • **Ohio's State Wildlife Action Plan (SWAP) 2015-2025**
19 (Ohio Department of Natural Resources)
20 [https://ohiodnr.gov/discover-and-learn/safety-conservation/wildlife-management/state-wildlife-action-](https://ohiodnr.gov/discover-and-learn/safety-conservation/wildlife-management/state-wildlife-action-plan)
21 [plan](https://ohiodnr.gov/discover-and-learn/safety-conservation/wildlife-management/state-wildlife-action-plan)
- 22 • **Wisconsin Wildlife Action Plan 2015 - 2025**
23 (Wisconsin Department of Natural Resources)
24 <http://dnr.wi.gov/topic/wildlifehabitat/actionplan.html>

25 This INRMP identifies the habitat types in which each 88th RD site lies, and the species of conservation concern
26 associated with those habitats. Most 88th RD sites are not large enough to contain native habitat for wildlife
27 populations that warrant implementation of specific WAP actions.

3.3 Climate Change Adaptation and Resilience

With the issuance of the DoD 4715.21, *Climate Change Adaptation and Resilience* Change 1 (August 31, 2018), the Army is required to assess and manage risks from climate change. The directive provided a high-level formal commitment to integrating consideration of climate change into all aspects of Army activities, including natural resources management and the ability to carry out training in the field environment. With the directive, chain-of-command instruction can be justified and carried through down to the installation level for implementation.

The DoD must be able to adapt current and future operations to address the impacts of climate change in order to maintain an effective and efficient U.S. military. Mission planning and execution must include identification and assessment of the effects of climate change on the DoD mission; consideration of those effects when developing plans and implementing procedures; and anticipation, prioritization, and management of any risks that develop as a result of climate impacts, in order to build resilience.

The document established Headquarters, Department of Army (HQDA) guidance that implements Department of Defense and Army secretariat policy relating to Integrated Natural Resources Management Plans (INRMPs) that includes managing natural resources with best available science while addressing vulnerabilities, extreme weather events, climate change, and adaptation planning. Natural resources' planning is integrated with other installation planning processes, including but not limited to the built environment, infrastructure, training area and range management, wildland fire, emergency services, pest management, and cultural resources. (*Guidance for Addressing Climate Resiliency in Integrated Natural Resource Management Plans*, U.S. Army Publication, Headquarters, Department of the Army OACSIM, Installation Services Directorate Environmental Division, 05 March 2018).

The Climate Change Risk table (Table 3.1) is the result of research into each of the 88th RD's Region 3 sites potential to be affected by climate change. Each of the sites were subjected to a series of questions provided by the *Guidance for Addressing Climate Resiliency in Integrated Natural Resource Management Plans* to determine if the site would be susceptible to the six criteria put forth in the above referenced documentation. The six criteria are:

- **Coastal Flooding:** Is the site at sea level and therefore at high risk through proximity to the coast?
 - Region 3 sites are not exposed to coastal conditions, with the exception of MN011. This site is the Duluth USARC, located on the shore of Lake Superior. The 88th RD is aware of this threat and is currently working to construct an engineered solution. Construction was completed in August 2023.
- **Riverine Flooding:** Is there a threat to sites located close, directly adjacent, or within ≤500-year floodplain to rivers?
 - This threat is a concern when sites are close, or adjacent to rivers and at the same elevation. The majority of the 88th RD sites do not meet these criteria due to site selection, and sites were constructed with stormwater management systems in place. The only facilities where riverine flooding is a concern are IL079 Joliet LTA, OH094 Monclova LTA, and WI064 Silver Spring LTA. Data from FEMA Flood Map Service Center (2023).
- **Drought:** Is there a threat to sites through drought or the expectation of limited/diminished water supply to the area?
 - According to the 2018 National Climate Assessment, there is no specific threat of drought in the states in this region. Rainfall is expected to potentially increase across this region, though concentrated in fewer, more extreme rain events. (USGCRP, 2018)
- **Desertification:** Is there a threat to the Region 3 sites, including the area surrounding the sites, through dramatic temporal weather pattern changes that could lead to desertification?
 - Not a concern in this region.

- 1 • **Wildfires:** Is the site located in an area that may be subject to wildfire?
 - 2 ○ Sites in this region are not in wildfire prone regions. Additionally, these sites are in or near
 - 3 developed areas that would fall within municipal fire department support. The main impact from
 - 4 wildfires would be negative smoke related health effects.
- 5 • **Thawing Permafrost:** Is the site constructed upon perma-frost that could be subject to degrading to
- 6 such an extent as to cause structural/site subsidence or failure?
 - 7 ○ There is no permafrost located within any of the Region 3 sites.

8 In 2022, the Army issued the Army Climate Strategy Implementation Plan (ACS-IP) which is the blueprint
9 for the Army's enterprise-wide climate change adaptation and mitigation measures through FY27. This
10 plan directly supports the Army Climate Strategy, which was approved by the SecArmy and published on
11 08 February 2022. Completing the ACS-IP tasks will result in a Total Army that is better able to train,
12 deploy, fight, and win the nation's wars while reducing the force's overall greenhouse gas (GHG)
13 emissions. Ultimately, the ACS-IP does not change the Army's core purpose. (DoA, 2023)

14 The ACS-IP focuses on implementing specific actions over the next five fiscal years in the areas of
15 installations, acquisitions and logistics, and training. While the Army is continually improving use of
16 advanced technologies to enable future carbon-free power generation, failure to take advantage of key
17 carbon sequestration opportunities through improved Army land management practices and partnerships
18 on and adjacent to Army lands will slow the pace of Army GHG emissions reduction overall. The specific
19 objective of the ACS-IP as pertains to this INRMP is creating sustainable land management adapted to
20 climate change risks. (DoA, 2023)

21 For at least the past 30 years, adaptation to climate change has been part of the Army's strategic thinking.
22 Environmental projections have informed Army training, technology, doctrine, and policies since the early
23 1990s. Similarly, climate change mitigation is not new to the Army. For decades, the Army has been
24 promoting energy efficiency and sound environmental stewardship. For example, the Army has
25 continuously sought to improve fuel efficiency of its vehicles. Army land management including LTAs,
26 long a means of preserving tracts of land essential for Army training and other activities and creating
27 buffers to protect against encroachment, has created space for natural carbon sequestration to take
28 place. These pre-existing stewardship practices, which have the additional benefit of mitigating some
29 effects of climate change, continue today and will continue into the future, not only because they are good
30 for the environment, but also because they enhance Army readiness and modernization. (DoA, 2023)
31 The 88th RD strives to enhance carbon sequestration through sustainable forestry and native prairie
32 projects.

USFWS Interior REGION 3/4		Coastal Flooding		Riverine Flooding		Drought		Desertification		Wildfires		Thawing Permafrost		Comments
Facility	Site Code	Current	Potential	Current	Potential	Current	Potential	Current	Potential	Current	Potential	Current	Potential	
IA001	19490	N	N	N	N	N	N	N	N	N	N	N	N	
IA002	17580	N	N	N	N	N	N	N	N	N	N	N	N	
IA006	19504	N	N	N	N	N	N	N	N	N	N	N	N	
IA007	19505	N	N	N	N	N	N	N	N	N	N	N	N	
IA009	19545	N	N	N	N	N	N	N	N	N	N	N	N	
IA010	19547	N	N	N	N	N	N	N	N	N	N	N	N	
IA014	19903	N	N	N	N	N	N	N	N	N	N	N	N	
IA024	19635	N	N	N	N	N	N	N	N	N	N	N	N	
IA025	19640	N	N	N	N	N	N	N	N	N	N	N	N	
IA030	19685	N	N	N	N	N	N	N	N	N	N	N	N	
IA032	19645	N	N	N	N	N	N	N	N	N	N	N	N	
IA033	19057	N	N	N	N	N	N	N	N	N	N	N	N	
IA047	19900	N	N	N	N	N	N	N	N	N	N	N	N	
IL001	17812	N	N	N	N	N	N	N	N	N	N	N	N	
IL002	17580	N	N	N	N	N	N	N	N	N	N	N	N	
IL006	17830	N	N	N	N	N	N	N	N	N	N	N	N	
IL007	17827	N	N	N	N	N	N	N	N	N	N	N	N	
IL011	17849	N	N	N	N	N	N	N	N	N	N	N	N	
IL021	17863	N	N	N	N	N	N	N	N	N	N	N	N	
IL027	17666	N	N	N	N	N	N	N	N	N	N	N	N	
IL035	17898	N	N	N	N	N	N	N	N	N	N	N	N	
IL045	17884	N	N	N	N	N	N	N	N	N	N	N	N	
IL051	17549	N	N	N	N	N	N	N	N	N	N	N	N	
IL064	17928	N	N	N	N	N	N	N	N	N	N	N	N	
IL068	17308	N	N	N	N	N	N	N	N	N	N	N	N	
IL072	17965	N	N	N	N	N	N	N	N	N	N	N	N	
IL079	17896	N	N	Y	Y	N	N	N	N	N	N	N	N	Facility infrestrue risk mitigated with stormwater management, parts of LTA at risk from flooding of Jackson Creek.
IL131	17887	N	N	N	N	N	N	N	N	N	N	N	N	
IL190	17108	N	N	N	N	N	N	N	N	N	N	N	N	
IN002	18625	N	N	N	N	N	N	N	N	N	N	N	N	
IN004	18607	N	N	N	N	N	N	N	N	N	N	N	N	
IN005	18655	N	N	N	N	N	N	N	N	N	N	N	N	
IN008	18778	N	N	N	N	N	N	N	N	N	N	N	N	
IN010	18675	N	N	N	N	N	N	N	N	N	N	N	N	
IN011	18675	N	N	N	N	N	N	N	N	N	N	N	N	
IN014	18699	N	N	N	N	N	N	N	N	N	N	N	N	
IN020	18725	N	N	N	N	N	N	N	N	N	N	N	N	
IN023	18740	N	N	N	N	N	N	N	N	N	N	N	N	
IN027	18735	N	N	N	N	N	N	N	N	N	N	N	N	
IN030	18790	N	N	N	N	N	N	N	N	N	N	N	N	
IN032	18825	N	N	N	N	N	N	N	N	N	N	N	N	
IN033	18856	N	N	N	N	N	N	N	N	N	N	N	N	
IN034	18857	N	N	N	N	N	N	N	N	N	N	N	N	
IN036	18875	N	N	N	N	N	N	N	N	N	N	N	N	
IN085	18301	N	N	N	N	N	N	N	N	N	N	N	N	
MI001	26755	N	N	N	N	N	N	N	N	N	N	N	N	
MI005	26775	N	N	N	N	N	N	N	N	N	N	N	N	
MI009	26798	N	N	N	N	N	N	N	N	N	N	N	N	
MI011	26958	N	N	N	N	N	N	N	N	N	N	N	N	
MI013	26840	N	N	N	N	N	N	N	N	N	N	N	N	
MI014	26855	N	N	N	N	N	N	N	N	N	N	N	N	
MI016	26865	N	N	N	N	N	N	N	N	N	N	N	N	
MI020	26797	N	N	N	N	N	N	N	N	N	N	N	N	
MI021	2653A	N	N	N	N	N	N	N	N	N	N	N	N	
MI023	26895	N	N	N	N	N	N	N	N	N	N	N	N	
MI024	26900	N	N	N	N	N	N	N	N	N	N	N	N	
MI029	26685	N	N	N	N	N	N	N	N	N	N	N	N	
MI030	26955	N	N	N	N	N	N	N	N	N	N	N	N	
MI053	26534	N	N	N	N	N	N	N	N	N	N	N	N	
MN001	27899	N	N	N	N	N	N	N	N	N	N	N	N	
MN002	27700	N	N	N	N	N	N	N	N	N	N	N	N	
MN005	27726	N	N	N	N	N	N	N	N	N	N	N	N	
MN011	27845	Y	Y	N	N	N	N	N	N	N	N	N	N	Located on shore of Lake Superior
MN018	27895	N	N	N	N	N	N	N	N	N	N	N	N	
MN035	27927	N	N	N	N	N	N	N	N	N	N	N	N	
MN036	27865	N	N	N	N	N	N	N	N	N	N	N	N	
MN042	27940	N	N	N	N	N	N	N	N	N	N	N	N	
MN044	27950	N	N	N	N	N	N	N	N	N	N	N	N	
MN048	27975	N	N	N	N	N	N	N	N	N	N	N	N	
MO001	29880	N	N	N	N	N	N	N	N	N	N	N	N	
MO003	29880	N	N	N	N	N	N	N	N	N	N	N	N	
MO004	29825	N	N	N	N	N	N	N	N	N	N	N	N	
MO006	29830	N	N	N	N	N	N	N	N	N	N	N	N	
MO008	29832	N	N	N	N	N	N	N	N	N	N	N	N	
MO009	29995	N	N	N	N	N	N	N	N	N	N	N	N	
MO013	29898	N	N	N	N	N	N	N	N	N	N	N	N	
MO014	29855	N	N	N	N	N	N	N	N	N	N	N	N	
MO015	29865	N	N	N	N	N	N	N	N	N	N	N	N	
MO018	29879	N	N	N	N	N	N	N	N	N	N	N	N	
MO024	29925	N	N	N	N	N	N	N	N	N	N	N	N	
MO026	29935	N	N	N	N	N	N	N	N	N	N	N	N	
MO028	29967	N	N	N	N	N	N	N	N	N	N	N	N	
MO030	29955	N	N	N	N	N	N	N	N	N	N	N	N	
MO031	29975	N	N	N	N	N	N	N	N	N	N	N	N	
MO041	29985	N	N	N	N	N	N	N	N	N	N	N	N	
MO042	29405	N	N	N	N	N	N	N	N	N	N	N	N	

USFWS Interior REGION 3/4		Coastal Flooding		Riverine Flooding		Drought		Desertification		Wildfires		Thawing Permafrost		Comments
MO054	2900A	N	N	N	N	N	N	N	N	N	N	N	N	
MO074	29504	N	N	N	N	N	N	N	N	N	N	N	N	
MO076	29342	N	N	N	N	N	N	N	N	N	N	N	N	
OH004	39825	N	N	N	N	N	N	N	N	N	N	N	N	
OH008	39840	N	N	N	N	N	N	N	N	N	N	N	N	
OH009	39845	N	N	N	N	N	N	N	N	N	N	N	N	
OH018	39887	N	N	N	N	N	N	N	N	N	N	N	N	
OH020	39868	N	N	N	N	N	N	N	N	N	N	N	N	
OH024	39024	N	N	N	N	N	N	N	N	N	N	N	N	
OH028	39880	N	N	N	N	N	N	N	N	N	N	N	N	
OH032	39195	N	N	N	N	N	N	N	N	N	N	N	N	
OH033	39893	N	N	N	N	N	N	N	N	N	N	N	N	
OH044	39954	N	N	N	N	N	N	N	N	N	N	N	N	
OH048	3913E	N	N	N	N	N	N	N	N	N	N	N	N	
OH051	39995	N	N	N	N	N	N	N	N	N	N	N	N	
OH058	39846	N	N	N	N	N	N	N	N	N	N	N	N	
OH063	39975	N	N	N	N	N	N	N	N	N	N	N	N	
OH094	39760	N	N	Y	Y	N	N	N	N	N	N	N	N	Adjacent to Regulatory Floodway
OH095	39865	N	N	N	N	N	N	N	N	N	N	N	N	
OH117	39080	N	N	N	N	N	N	N	N	N	N	N	N	
WI001	55750	N	N	N	N	N	N	N	N	N	N	N	N	
WI002	55836	N	N	N	N	N	N	N	N	N	N	N	N	
WI003	55760	N	N	N	N	N	N	N	N	N	N	N	N	
WI008	55775	N	N	N	N	N	N	N	N	N	N	N	N	
WI009	5524A	N	N	N	N	N	N	N	N	N	N	N	N	
WI010	55785	N	N	N	N	N	N	N	N	N	N	N	N	
WI011	55786	N	N	N	N	N	N	N	N	N	N	N	N	
WI014	55085	N	N	N	N	N	N	N	N	N	N	N	N	
WI030	55840	N	N	N	N	N	N	N	N	N	N	N	N	
WI039	55886	N	N	N	N	N	N	N	N	N	N	N	N	
WI040	55897	N	N	N	N	N	N	N	N	N	N	N	N	
WI047	55955	N	N	N	N	N	N	N	N	N	N	N	N	
WI049	55985	N	N	N	N	N	N	N	N	N	N	N	N	
WI050	55976	N	N	N	N	N	N	N	N	N	N	N	N	
WI064	55999	N	N	Y	Y	N	N	N	N	N	N	N	N	Regulatory Floodway passes through the LTA
WI090	55456	N	N	N	N	N	N	N	N	N	N	N	N	
WI092	55864	N	N	N	N	N	N	N	N	N	N	N	N	

1
2
3

Table 3.1 – Climate Change Risk Table

3.4 Planning Level Surveys

Planning level surveys (a/k/a NRSRVY/NRSRVYUP) are either field and/or desktop surveys. Field surveys include surveys for: water resources, wetlands, woodlands, wildlife, and plants. Planning level survey (NRSRVY/NRSRVYUP) information (e.g., survey date, type of survey, etc.) is presented in Table 3.1. These surveys provide a foundation for effective planning and decision-making.

An overview of natural resources found on 88th RD properties and lands as identified in these planning level surveys is presented in Table 3.2. Natural resource information in Sections 3.5 – 3.16 is derived content from the planning level surveys.

Table 3.2 Planning Level Survey (NRSRVYUP) Summary

FACID	Site Name	Most Recent Survey (Year)	Desktop Survey	Water Resources Survey	Wetland Survey	Woodland Survey	Wildlife Survey	Plant Survey	Next Planned Update (Year)
Iowa									
IA001/19490	Ames ARC, Ames IA	2020	X						2025
IA006/19504	SP4 Ronald L. Meanes ARC, Cherokee IA	2020	X						2025
IA007/19505	Lyle Deffenbaugh ARC, Council Bluffs IA	2020	X						2025
IA009/19545	Davenport ARC, Davenport IA,	2020	X						2025
IA010/19547	PFC Lloyd C. Wohlford JR ARC, Decora IA	2021	X						2026
IA014/19903	Dubuque ARC, Dubuque IA	2020	X						2025
IA025/19640	Freeman-Davis ARC, Sac City IA	2020	X						2025
IA027/19675	Washington Memorial ARC, Washington IA	2021	X						2026
			This site is vacant* and has been excessed.						
IA030/19685	Hulquist-Fry AFRC, Waterloo IA	2020	X						2025
IA032/19645	Joe L. Mackey ARC/AMSA #115, Sioux City IA	2018		X	X	X	X	X	2023
IA033/19057	Fort Des Moines Reserve Complex, Des Moines IA	2020	X						2025
IA036/19560	PFC Edwin J. Lemke ARC, Fort Dodge IA	2021	X						2026
			This site has been excessed.						
IA047/1990D	Cedar Falls AMSA #28, Cedar Falls IA	2020	X						2025
Illinois									
IL001/17812	Parkhurst ARC/OMS/DS, Darien IL	2020	X	X	X		X	X	2025
IL002/17580	COL P. Schulstad ARC, Arlington Heights IL	2020	X	X	X		X	X	2025
IL003/17815	Fox Valley Memorial ARC, Aurora IL	2021	X						2026
			This site is vacant* and has been "excessed".						
IL005/17825	PFC R. Gantner ARC, Belleville IL	2021							2026
			This site is vacant* and has been "excessed".						
IL006/17830	SGT Krause/PFC Goodrich ARC, Bloomington IL	2020	X						2025
IL007/17827	SGT Bruce G. Howerter ARC, Canton IL	2020	X						2025
IL011/17849	SGT James W. Robinson Jr. ARC, Chicago IL	2020	X						2025
IL021/17683	MAJ Herbert J. Dexter ARC, Decatur IL	2020	X						2025
IL027/17666	Forest Park AFRC, Forest Park IL	2020	X						2025
			This site is vacant*.						
IL035/17898	North Shore Memorial ARC,	2020	X						2025

FACID	Site Name	Most Recent Survey (Year)	Desktop Survey	Water Resources Survey	Wetland Survey	Woodland Survey	Wildlife Survey	Plant Survey	Next Planned Update (Year)	
	Ft. Sheridan IL									
IL045/17884	Granite City ARC, Granite City IL	2020		X	X		X	X	2025	
IL051/17549	Vietnam Vet Memorial ARC, Homewood IL	2020	X						2025	
IL064/17928	Veterans Memorial ARC, Peru IL	2020	X						2025	
IL068/17308	Machesney Park ARC, Machesney IL	2021		X	X	X	X	X	2026	
IL072/17965	MAJ M.D. O'Donnell ARC, Springfield IL	2020	X						2025	
IL073/17840	2LT R.H. Stephens ARC, Urbana IL	2020	X						2025	
IL079/17896	Joliet ARC/JTA, Elwood IL	2020		X	X	X	X	X	2025	
IL131/17887	Phillip H. Sheridan AFRC, Ft. Sheridan IL	2020		X	X		X	X	2025	
IL190/17108	Quincy ARC, Quincy IL	2020		X	X	X	X	X	2025	
Indiana										
IN002/18625	COL Kenneth P. Williams ARC, Bloomington IN	2020	X						2025	
IN004/18607	SGT Charles H. Seston ARC, Edinburgh IN	2020	X						2025	
IN005/18655	SGT James W. Harlan ARC/AMSA, Evansville IN	2020	X						2025	
IN008/18778	Fort Ben Harrison ARC, Indianapolis IN	2020		X	X	X	X	X	2025	
IN010/18675	PFC Wm L. Gillespie BMA 133 Ft. Wayne IN	2020	X						2025	
IN011/18675	PFC Wm L. Gillespie ARC, Ft. Wayne IN	2020	X						2025	
IN014/18699	CPL Robert Shaffer ARC, Peru IN	2020	X						2025	
IN020/18725	James T. St Clair ARC, Jeffersonville IN	2020	X						2025	
IN023/18740	Laporte Co Veterans ARC/LTA, Kingsbury IN	2020		X	X	X	X	X	2025	
IN027/18735	Roper R. Peddicord ARC, Hobart, IN	2021		X	X		X	X	2026	
IN030/18790	Richmond ARC, Richmond IN	2020	X						2025	
IN032/18825	Everitt B. Hunley ARC, Scottsburg IN	2020	X						2025	
IN033/18856	Lyle J. Thompson ARC, South Bend IN	2020	X						2025	
IN034/18857	Maple Lane ARC, South Bend IN	2020	X	This site is vacant*.						2025
IN036/18875	Robert R. Mosele ARC, Terre Haute IN	2020	X						2025	
IN085/18301	Michigan City ARC, Michigan City IN	2020	X						2025	
Michigan										
MI001/26755	Donald C. Schorling ARC, Ann Arbor MI	2021		X	X		X	X	2026	
MI005/26775	James J. O'Rourke ARC, Bay City MI	2021		X	X		X	X	2026	
MI009/26798	BG William H. Birbari ARC, Fraser MI	2021		X	X		X	X	2026	
MI011/26958	Dr. Mary E. Walker Memorial ARC, Grand Rapids MI	2020	X						2025	
MI013/26840	Raymond Zussman ARC, Inkster MI	2020	X						2025	
MI014/26855	CPT David D. Phillips ARC, Jackson, MI	2020	X						2025	
MI016/26865	Kalamazoo Memorial ARC, Kalamazoo MI	2020	X						2025	
MI020/26797	MG George A. Custer ARC/AMSA, Livonia MI	2020	X						2025	
MI023/26895	2LT Walter Haupt ARC, Muskegon MI	2020	X						2025	
MI024/26900	Donald R. Moyer ARC, Waterford MI	2021		X	X		X	X	2026	
MI029/26685	1LT Robert L. Poxon ARC, Southfield MI	2021		X	X		X	X	2026	

FACID	Site Name	Most Recent Survey (Year)	Desktop Survey	Water Resources Survey	Wetland Survey	Woodland Survey	Wildlife Survey	Plant Survey	Next Planned Update (Year)
MI030/26955	Demus T. Crow ARC, Traverse City MI	2020	X						2025
MI053/26534	Saginaw ARC, Saginaw MI	2021		X	X		X	X	2026
Minnesota									
MN001/27899	Arden Hills ARC, Arden Hills MN	2021		X	X	X	X	X	2026
MN002/27700	Terrance A. Peterson ARC, Brainerd MN	2021		X	X	X	X	X	2026
MN005/27726	MSG Armin C. Lieder ARC, Buffalo MN	2021		X	X		X	X	2026
MN011/27845	Duluth ARC/AMSA, Duluth MN	2020	X						2025
MN018/27895	Mankato Memorial ARC, Mankato MN	2020	X				X	X	2025
MN035/27927	St. Joseph USAR Vehicle Maint. AMSA #101, St. Joseph MN	2021		X	X		X	X	2026
MN036/27865	Fort Snelling ARC, Fort Snelling MN	2020	X						2025
MN042/27940	Wabasha Memorial ARC, Wabasha MN	2020	X						2025
MN044/27950	Willmar Memorial AFRC, Willmar MN	2020	X						2025
MN048/27975	Worthington Memorial ARC, Worthington MN	2020	X						2025
Missouri									
MO001/29880	SPF Clifford M. Davis Jr. ARC/AMSA #57, Belton MO	2020	X						2025
MO003/29880	Belton ARC LTA, Belton MO	2021		X	X	X	X	X	2025
MO004/29825	CPL Jesse N. Funk ARC, Bethany MO	2020	X						2025
MO006/29830	Columbia ARC, Columbia MO	2020	X						2025
MO008/29832	Farmington ARC, Farmington MO	2020	X						2025
MO013/29898	SGT Charles R. Long ARC, Independence MO	2020	X						2025
MO014/29855	1LT W. Heisinger ARC, Jefferson City MO	2020	X						2025
MO015/29865	Joplin ARC, Joplin MO	2020	X						2025
MO018/29879	Kirksville AFRC, Kirksville MO	2020	X						2025
MO024/29925	Springfield AFRC/AMSA #54, Springfield MO	2020	X						2025
MO026/29935	CPL Forrest E. Peden ARC, St Joseph MO	2020	X						2025
MO028/29967	MG Lief J. Sverdrup St Louis ARC #3	2020	X						2025
MO030/29955	St. Louis #4/Ord (Storage) Plant, St. Louis MO	2020	X	Poised for future disposal*.					2025
MO031/29975	Washington ARC, Washington MO	2020	X						2025
MO041/29985	Weldon Spring ARC/LTA, St. Charles MO	2020		X	X	X	X	X	2027
MO054/2900A	Springfield ARC/AMSA #54, Springfield MO	2020	X						2025
MO074/29504	Kansas City ARC #2, Kansas City MO	2020	X						2025
MO076/29342	Kansas City ARC #1, Kansas City MO	2020	X						2025
Ohio									
OH004/39825	PVT William Knight ARC, Bryan OH	2020	X						2025
OH008/39840	SGT Lawrence W. Skaggs ARC, Chillicothe OH	2020	X						2025
OH009/39845	T.H. Morrow ARC/AMSA #59, Cincinnati OH	2021		X	X	X	X	X	2026

FACID	Site Name	Most Recent Survey (Year)	Desktop Survey	Water Resources Survey	Wetland Survey	Woodland Survey	Wildlife Survey	Plant Survey	Next Planned Update (Year)
OH018/39887	83rd Division Memorial ARC/AMSA, Whitehall, OH	2020	X						2025
OH020/39868	SP4 Joseph Lapointe ARC, Dayton OH	2020							2025
OH024/39870	Delaware Memorial ARC, Delaware OH	2008	X						2016
OH028/39880	Taylor Station Road ARC, Blacklick OH	2019		X	X	X	X	X	2024
OH032/39195	Kings Mills Memorial ARC, Mainville OH	2019		X	X		X	X	2024
OH033/39893	1LT G.N. Faze ARC, Lima OH	2019		X	X	X	X	X	2024
OH044/39954	SGT J.H. Cooney ARC/BMA, Milan OH	2019		X	X		X	X	2024
OH048/3913E	PFC Devin J. Grella ARC/AMSA #3, North Canton OH	2020	X	X	X		X	X	2025
OH051/39995	Twinsburg ARC/AMSA #123, North Canton OH	2019		X	X	X	X	X	2024
OH058/39846	COL Dudley M Outcalt ARC, Sharonville OH	2019		X	X		X	X	2024
OH063/39975	Troy Memorial ARC, Troy, OH	2020	X						2025
OH094/39760	Toledo Area ARC, Monclova OH	2019		X	X	X	X	X	2024
OH095/39865	Rickenbacker ARC, Columbus OH	2020		X	X		X	X	2025
OH117/39080	Trenton USAR Center, Trenton OH	2020	X						2025
Wisconsin									
WI001/55750	Appleton ARC/OMS, Appleton WI	2020	X						2025
			This site is vacant*.						
WI002/55836	Denis J. Murphy ARC/AMSA/OMS, Green Bay WI	2017		X	X	X	X	X	2027
WI003/55760	Beaver Dam Memorial ARC/OMS, Beaver Dam WI	2020	X						2025
WI009/5524A	Eau Claire AMSA #155, Eau Claire WI	2020	X						2025
WI010/55785	Eau Claire ARC, Eau Claire WI	2020	X						2025
WI011/55786	Land for Future ARC, Eau Claire WI	2020		X	X	X	X	X	2025
WI014/55805	Fond Du Lac ARC/OMS, Fond Du Lac WI	2020	X						2025
WI030/55840	Junction City ARC, Junction City WI	2020	X						2025
WI039/55886	Andrew Miller ARC/OMS, Manitowoc WI	2020		X	X		X	X	2025
WI040/55897	Neenah USAR Center, Neenah WI	2020	X						2025
WI047/55955	Pewaukee Memorial ARC/OMS, Pewaukee WI	2020	X						2025
WI049/55985	William F. Fale ARC/OMS, Sheboygan WI	2020	X						2025
WI050/55976	Sturtevant ARC, Sturtevant WI	2020	X						2025
WI064/55999	W. Silver Spring Complex (LTA), Milwaukee WI	2019		X	X	X	X	X	2024
WI090/55456	Wausau ARC, Wausau WI	2019	X						2024
WI092/55864	SFC Gabrielson/SPC Hoyer ARC, Hammond WI	2019		X	X		X	X	2024

* - As reported in the 22 January 2021 MCAR, UMMCAR and FFR Planning List for FY21-F28 Project Planning PM Memo

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Table 3.3 Natural Resources Overview

X = Natural resource is present or has potential to exist within site boundary
O= Natural resource is present or has the potential to exist within 1,000 feet of the site

FACID	Site Name	Ecoregion	Wetlands	Surface Waters	Floodplains	Listed Species	Species at Risk	Suitable Habitat	Forests	Invasive Species
IA001 / 19490	ARC Center, Ames IA	Western Corn Belt Plains	O							
IA006 / 19504	SP4 Ronald L. Meanes ARC, Cherokee IA	Western Corn Belt Plains	O							
IA007 / 19505	Lyle Deffenbaugh ARC, Council Bluffs IA	Western Corn Belt Plains			X O					
IA009 / 19545	Davenport ARC, Davenport IA	Western Corn Belt Plains		O	X O					
IA010 / 19547	PFC Lloyd C. Wohlford JR ARC, Decorah IA	Driftless Area	O	O	O					
IA014 / 19903	Dubuque ARC, Dubuque IA	Driftless Area		X					X	X
IA025 / 19640	Freeman-Davis USARC, Sac City IA	Western Corn Belt Plains	O							X
IA027 / 19675	Washington ARC, Washington IA	Western Corn Belt Plains		O						
IA030 / 19685	Hulquist-Fry AFRC, Waterloo IA	Western Corn Belt Plains	O			O				
IA032 / 19645	Joe L. Mackey ARC/AMSA #115, Sioux City IA	Western Corn Belt Plains		O	O	O		X		
IA033/ 19057	Fort Des Moines Reserve Complex, Des Moines IA	Western Corn Belt Plains	O							
IA036/ 19560	PFC Edwin J. Lemke ARC, Fort Dodge IA	Western Corn Belt Plains								
IA047/ 1990D	Cedar Falls AMSA #28, Cedar Falls IA	Western Corn Belt Plains	O	O	O					
IL001/ 17812	Parkhurst ARC/OMS/DS, Darien IL	Central Corn Belt Plains	X O	O	O	O		X		
IL002/ 17580	COL P. Schulstad ARC, Arlington Heights IL	Central Corn Belt Plains	O	O						
IL003/ 17815	Fox Valley Memorial ARC, Aurora IL	Central Corn Belt Plains								
IL006/ 17830	SGT Krause/PFC Goodrich ARC, Bloomington IL	Central Corn Belt Plains		O						
IL007/ 17827	SGT Bruce G. Howerter ARC, Canton IL	Central Corn Belt Plains								

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Table 3.3 Natural Resources Overview (continued)

FACID	Site Name	Ecoregion	Wetlands	Surface Waters	Floodplains	Listed Species	Species at Risk	Suitable Habitat	Forests	Invasive Species
IL011/17849	SGT James W. Robinson Jr. ARC, Chicago IL	Central Corn Belt Plains								
IL021/17683	MAJ Herbert J. Dexter ARC, Decatur IL	Central Corn Belt Plains	○	X ○						
IL027/17666	Forest Park AFRC, Forest Park IL	Central Corn Belt Plains								
IL035/17898	North Shore Memorial ARC, Ft. Sheridan IL	Central Corn Belt Plains		○		○			X	
IL045/17884	Granite City ARC, Granite City IL	Interior Plateau	○	○	○	○				
IL051/17549	Vietnam Vet Memorial ARC, Homewood IL	Central Corn Belt Plains	○	○	○					
IL064/17928	Veterans Memorial ARC, Peru IL	Central Corn Belt Plains								
IL068/17308	Machesney Parc ARC, Machesney IL	Central Corn Belt Plains								
IL072/17965	MAJ M.D. O'Donnell ARC, Springfield IL	Central Corn Belt Plains	○	○						
IL073/17840	2LT R.H. Stephens ARC, Urbana IL	Central Corn Belt Plains								
IL079/17896	Joliet ARC/JTA, Elwood IL	Central Corn Belt Plains	X ○	X ○	X ○	X ○		X	X	X
IL131/17887	Phillip H. Sheridan AFRC, Ft. Sheridan IL	Central Corn Belt Plains	X			○				X
IL190/17108	Quincy GTA ARC, Quincy IL	Interior River Valleys and Hills	○	○						
IN002/18625	COL Kenneth P. Williams ARC, Bloomington IN	Interior Plateau								
IN004/18607	SGT Charles H. Seston ARC, Edinburgh IN	Eastern Corn Belt Plains		○						
IN005/18655	SGT James W. Harlan ARC/AMSA, Evansville IN	Interior River Valleys and Hills	○	○	X ○					
IN008/18778	Fort Ben Harrison ARC, Indianapolis IN	Eastern Corn Belt Plains	X ○	○	○			X	X	X
IN010/18675	PFC Wm L. Gillespie BMA 133, Ft. Wayne IN	Eastern Corn Belt Plains			○					

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Table 3.3 Natural Resources Overview (continued)

FACID	Site Name	Ecoregion	Wetlands	Surface Waters	Floodplains	Listed Species	Species at Risk	Suitable Habitat	Forests	Invasive Species
IN011 / 18675	PFC Wm L. Gillespie BMA 133 Ft. Wayne IN	Eastern Corn Belt Plains								
IN014 / 18699	CPL Robert Shaffer ARC, Peru IN	Eastern Corn Belt Plains		O						
IN020 / 18725	James T. St Clair ARC, Jeffersonville IN	Eastern Corn Belt Plains								
IN023 / 18740	LaPorte Co Veterans ARC, Kingsbury IN	Central Corn Belt Plains	X O	O				X	X	X
IN027 / 18735	Roper R. Peddicord ARC, Hobart IN	Central Corn Belt Plains	O	O						
IN030 / 18790	Richmond ARC, Richmond IN	Eastern Corn Belt Plains	O	O	O					
IN032 / 18825	Everitt B. Hunley ARC, Scottsburg IN	Eastern Corn Belt Plains		O	O					
IN033 / 18856	Lyle J. Thompson ARC #133, South Bend IN	Southern Michigan/ Northern Indiana Drift Plains		X						
IN034 / 18857	Maple Lane ARC, South Bend IN	Southern Michigan/ Northern Indiana Drift Plains								
IN036 / 18875	Robert R. Mosele ARC, Terre Haute IN	Interior River Valleys and Hills			O					
IN085 / 18301	Michigan City ARC Michigan City IN	Southern Michigan / Northern Indiana Drift Plains								
MI001 / 26755	Donald C. Schorling ARC, Ann Arbor MI	Southern Michigan/ Northern Indiana Drift Plains				O			X	
MI005 / 26775	James J. O'Rourke ARC, Bay City MI	Huron/Erie Lake Plains	O	X		O				
MI009 / 26798	BG William H. Birbari ARC, Fraser MI	Southern Michigan/ Northern Indiana Drift Plains	X O	O	O					
MI011 / 26958	Dr. Mary E. Walker Memorial ARC, Grand Rapids MI	Southern Michigan/ Northern Indiana Drift Plains	O	X O						
MI013 / 26840	Raymond Zussman ARC, Inkster MI	Southern Michigan/ Northern Indiana Drift Plains				O				
MI014 / 26855	CPT David D. Phillips ARC, Jackson MI	Southern Michigan/ Northern Indiana Drift Plains				O			X	X
MI016 / 26865	Kalamazoo Memorial ARC, Kalamazoo M	Southern Michigan/ Northern Indiana Drift Plains								

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Table 3.3 Natural Resources Overview (continued)

FACID	Site Name	Ecoregion	Wetlands	Surface Waters	Floodplains	Listed Species	Species at Risk	Suitable Habitat	Forests	Invasive Species
MI020 / 26797	MG George A. Custer ARC/AMSA, Livonia MI	Southern Michigan/ Northern Indiana Drift Plains				O				
MI023 / 26895	2LT Walter Haupt ARC, Muskegon MI	Southern Michigan/ Northern Indiana Drift Plains	O	O	O	O				
MI024 / 26900	Donald R. Moyer ARC, Waterford MI	Southern Michigan/ Northern Indiana Drift Plains	X							
MI029 / 26685	1LT Robert L. Poxon ARC, Southfield MI	Southern Michigan/ Northern Indiana Drift Plains	X							X
MI030 / 26955	Demus T. Crow ARC/BMA136 Traverse City MI	North Central Hardwoods	O	O	O	O				
MI053 / 26534	Saginaw ARC Saginaw MI	Huron/Erie Lake Plains								
MN001 / 27899	Arden Hills ARC Arden Hills MN	North Central Hardwoods	X	X				X	X	
MN002 / 27700	Terrance A. Peterson ARC, Brainerd MN	Northern Lakes and Forests	O			O			X	
MN005 / 27726	MSG Armin C. Lieder ARC, Buffalo MN	North Central Hardwoods	X	X						
MN011 / 27845	Duluth ARC/AMSA, Duluth, MN	Northern Lakes and Forests	O	O	X	O				
MN018 / 27895	Mankato Memorial ARC, Mankato MN	Western Corn Belt Plains	O	O						
MN035 / 27927	St. Joseph USAR Vehicle Maintenance AMSA #101, St. Joseph MN	North Central Hardwoods	O							
MN036 / 27865	Fort Snelling ARC, Fort Snelling MN	North Central Hardwoods		X					X	
MN042 / 27940	Wabasha Memorial ARC, Wabasha MN	Driftless Area	O	X		O			X	
MN044 / 27950	Willmar Memorial AFRC, Willmar MN	Western Corn Belt Plains	O	O	O	O				
MN048 / 27975	Worthington Memorial ARC, Worthington MN	Western Corn Belt Plains	O							
MO001 / 29880	SPF Clifford M. Davis Jr. ARC / AMSA #57, Belton MO	Central Irregular Plains	O	X						

Table 3.3 Natural Resources Overview (continued)

FACID	Site Name	Ecoregion	Wetlands	Surface Waters	Floodplains	Listed Species	Species at Risk	Suitable Habitat	Forests	Invasive Species
MO003 / 29880	Belton ARC, Belton MO	Central Irregular Plains	X	X		X		X	X	X
			O	O				O		
MO004 / 29825	Bethany ARC, Bethany MO	Central Irregular Plains	O	O						
MO006 / 29830	Columbia ARC, Columbia, MO	Interior River Valleys and Hills		O						
MO008 / 29832	Farmington ARC, Farmington MO	Central Irregular Plains		O	X					
				O	O					
MO013 / 29898	SGT Charles R. Long ARC, Independence MO	Western Corn Belt Plains		O	O					
MO014 / 29855	1LT W. Heisinger ARC, Jefferson City MO	Interior River Valleys and Hills		O					X	
MO015 / 29865	Joplin ARC, Joplin MO	Ozark Highlands		O	O					
MO018 / 29879	Kirksville ARC, Kirksville MO	Central Irregular Plains	X							
				O						
MO024 / 29925	Springfield AFRC / AMSA #54, Springfield MO	Ozark Highlands		X						
				O	O					
MO026 / 29935	CPL Forrest E. Peden ARC, St. Joseph MO	Western Corn Belt Plains								

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Table 3.3 Natural Resources Overview (continued)

FACID	Site Name	Ecoregion	Wetlands	Surface Waters	Floodplains	Listed Species	Species at Risk	Suitable Habitat	Forests	Invasive Species
MO028 / 29967	MG Leif J. Sverdrup, St. Louis MO	Interior River Valleys and Hills		X						
MO030 / 29955	St Louis ORD PLT #4, St. Louis MO	Interior River Valleys and Hills								
MO031 / 29975	Washington ARC, Washington MO	Interior River Valleys and Hills		X				X	X	
			O	O	O					
MO041 / 29985	Weldon Spring ARC/LTA, St. Charles MO	Interior River Valleys and Hills	X	X	X	X		X	X	X
			O	O	O	O				
MO054 / 2900A	Springfield ARC AMSA #54, Springfield MO	Ozark Highlands								
			O	O						
MO074 / 29504	Kansas City ARC #2, Kansas City MO	Central Irregular Plains								
MO076 / 29342	Kansas City ARC #1, Kansas City MO	Central Irregular Plains		X						
OH004 / 39825	PVT William Knight ARC, Bryan OH	Eastern Corn Belt Plains								
OH008 / 39840	SSG George J. Conaway USARC, Chillicothe OH	Western Allegheny Plateau								
				O	O					
OH009 / 39845	T.H. Morrow ARC/AMSA #59, Cincinnati OH	Eastern Corn Belt Plains						X	X	
				O						
OH018 / 39887	83rd Division Memorial ARC/AMSA, Whitehall OH	Eastern Corn Belt Plains								
OH020 / 39868	SP4 Joseph Lapointe ARC, Dayton OH	Eastern Corn Belt Plains								
				O	O					
OH024 / 39870	Delaware Memorial ARC, Delaware OH	Eastern Corn Belt Plains								
OH028 / 39880	Taylor Station Road ARC, Blacklick OH	Eastern Corn Belt Plains	X						X	
			O							

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Table 3.3 Natural Resources Overview (continued)

FACID	Site Name	Ecoregion	Wetlands	Surface Waters	Floodplains	Listed Species	Species at Risk	Suitable Habitat	Forests	Invasive Species
OH032 / 39195	Kings Mills Memorial ARC, Mainville OH	Eastern Corn Belt Plains	X	X				X		
			O	O	O					
OH033 / 39893	1LT G.N. Faze ARC, Lima OH	Eastern Corn Belt Plains	X						X	
OH044 / 39954	SGT J.H. Cooney ARC/BMA, Milan OH	Eastern Great Lakes and Hudson Lowlands	X							
				O		O				
OH048 / 3913E	PFC Devin J. Grella ARC/AMSA #3, N. Canton OH	Erie Drift Plain								
				O	O					
OH051 / 39995	Twinsburg ARC/AMSA #123, Twinsburg OH	Erie Drift Plain	X					X	X	
OH058 / 39846	COL Dudley M. Outcalt ARC, Sharonville OH	Eastern Corn Belt Plains		X	X			X	X	X
			O	O	O					
OH063 / 39975	Troy Memorial ARC, Troy OH	Eastern Corn Belt Plains								
OH094 / 39760	Toledo Area LTA / ARC, Monclova OH	Huron/Erie Lake Plains	X	X	X			X	X	
			O	O	O	O				
OH095 / 39865	Rickenbacker ARC, Columbus OH	Eastern Corn Belt Plains								
			O							
OH117 / 39080	Trenton USAR Center, Trenton OH	Eastern Corn Belt Plains								
WI001 / 55750	Appleton ARC/OMS, Appleton WI	Southeastern Wisconsin Till Plains								
						O				
WI002 / 55836	Denis J. Murphy ARC/AMSA/OMS, Green Bay WI	Southeastern Wisconsin Till Plains						X	X	
			O	O	O	O				
WI003 / 55760	Beaver Dam Memorial ARC/OMS, Beaver Dam WI	Southeastern Wisconsin Till Plains								
						O				
WI009 / 5524A	Eau Claire AMSA #155, Eau Claire WI	North Central Hardwood Forests								
						O				
WI010 / 55785	Eau Claire ARC, Eau Claire WI	North Central Hardwood Forests								
						O				

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Table 3.3 Natural Resources Overview (continued)

FACID	Site Name	Ecoregion	Wetlands	Surface Waters	Floodplains	Listed Species	Species at Risk	Suitable Habitat	Forests	Invasive Species
WI011 / 55786	Land for Future ARC, Eau Claire WI	North Central Hardwood Forests				O		X	X	X
WI014 / 55805	Fond Du Lac ARC, Fond Du Lac WI	Southeastern Wisconsin Till Plains				O				
WI030 / 55840	Junction City ARC, Junction City WI	North Central Hardwood Forests	O	O						
WI039 / 55886	Andrew Miller ARC/OMS, Manitowoc WI	Southeastern Wisconsin Till Plains	O	O	O	O				
WI040 / 55897	Neenah USAR Center, Neenah WI	Southeastern Wisconsin Till Plains							X	
WI047 / 55955	Pewaukee Memorial ARC/OMS, Pewaukee WI	Southeastern Wisconsin Till Plains	O	X	O	O			X	
WI049 / 55985	William F. Fale ARC/OMS, Sheboygan WI	Southeastern Wisconsin Till Plains	O			O				
WI050 / 55976	Sturtevant ARC, Sturtevant WI	Central Corn Belt Plains		O	O	O				X
WI064 / 55999	W. Silver Spring (LTA) Complex, Milwaukee WI	Southeastern Wisconsin Till Plains	X	X	X	O		X	X	X
WI090 / 55456	Wausau ARC, Wausau WI	Northern Central Hardwood Forests		X						
WI092 / 55864	SFC Gabrielson/SPC Hoyer ARC, Hammond WI	Northern Central Hardwood Forests								

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X = Natural resource is present or has potential to exist within site boundary
 O = Natural resource is present or has the potential to exist within 1,000 feet of the site

3.5 High, Medium and Low Resource Sites

Using planning level survey data and management planning for resources, the 88th RD has established criteria for categorizing its sites as having high, medium, or low significance in terms of natural resources. Categorizing the sites in this way enables managers to identify actions that are common to all sites and actions that are specific to sites with particular natural resource considerations.

High resource sites (11) are periodically evaluated through general and specialized field surveys and are those that contain substantial undeveloped habitat and/or generally have greater opportunities for natural resources management, requiring substantive allocation of resources (manpower and funding). Additional criteria which indicate a high resource site include the presence of a jurisdictional wetland, forests, threatened and endangered species, Army SAR, significant surface waters, or cultural resources with natural resource considerations (e.g., trees that are contributing elements to an eligible historic site or district).

Medium resource sites (17) are periodically evaluated through generalized field surveys only and are those identified as having limited natural resources (more diverse than those identified in the low resource sites) or may have previously been identified as high resource sites but upon closer evaluation the locations lack species diversity; and or may have a small (< 1 acre) wetland/water feature that may be within the USACE's jurisdiction; or may have high species diversity and no wetlands. Instead of expending resources on sending a scientific crew for both the Natural Resource Survey Updates (NRS) update and a wetland delineation update, at this level the wetland delineation update will be incorporated into the periodic NRS Updates.

Low resource sites (101) are periodically evaluated through desk top surveys and are identified as those lacking substantive natural resources and consist primarily of improved grounds (e.g., buildings, paved parking areas, and landscaping) or semi-improved grounds (e.g., mowed grass). Although natural habitat and wildlife typically are lacking, certain management activities are still needed at low resource sites.

3.5.1 High Resource Sites

Sites identified as high resource sites are listed below, most of these sites are local training areas (LTAs) that tend to be larger (acreage) sites. In the sections that follow, geographic location and size, geological resources (physiography and geology, soils, topography), water resources (watershed and surface waters, floodplains), biological resources (land cover and ecological communities, vegetation communities, wetlands, wildlife, listed species, and special interest areas) are provided for each high resource site. High resource site profiles begin in Section 3.6.

▪ Parkhurst ARC/OMS/DS	IL001/17812
▪ Joliet ARC/JTA	IL079/17896
▪ Phillip H. Sheridan AFRC	IL131/17887
▪ LaPorte Co Veterans ARC	IN023/18740
▪ Terrance A. Peterson ARC	MN002/27700
▪ Belton LTA	MO003/29880
▪ Weldon Spring ARC/LTA	MO041/29985
▪ Twinsburg ARC/AMSA #123	OH051/39995
▪ Monclova ARC / LTA	OH094/39760
▪ Land for Future ARC (Eau Claire)	WI011/55786
▪ W. Silver Spring Complex	WI064/55999

3.5.2 Medium Resource Sites

Sites identified as medium resource sites are listed as follows, these locations may have high species diversity or other feature that would benefit from a site visit, and/or may have low functioning jurisdictional wetlands. In the sections that follow, geographic location and size, geological resources (physiography and geology, soils, topography), water resources (watershed and surface waters, floodplains), biological resources (land cover and ecological communities, vegetation communities, wetlands, wildlife, listed

species, and special interest areas) are provided for each medium resource site. Medium resource site profiles begin in Section 3.6.

- Joe L. Mackey AFRC/AMSA #115 IA032/19645
- Parkhurst ARC/OMS/DS IL001/17812
- Fort Ben Harrison ARC IN008/18778
- Christensen/Hattamer ARC MI021/2653A
- BG William H. Birbari ARC MI009/26798
- Donald R. Moyer ARC MI024/26900
- 1LT Robert L. Poxon ARC MI029/26685
- Saginaw ARC MI053/26534
- Arden Hills ARC MN001/27899
- MSG Armin C. Lieder ARC MN005/27726
- T.H. Morrow ARC/AMSA #59 OH009/39845
- Taylor Station Road ARC OH028/39880
- Kings Mills Memorial ARC OH032/39195
- 1LT G.N. Faze ARC OH033/39893
- SGT J.H. Cooney ARC/BMA OH044/39954
- COL Dudley M Outcalt ARC OH058/39846
- Denis J. Murphy ARC/AMSA/OMS WI002/55836

3.5.3 Low Resource Sites

Sites identified as low resource sites are listed below. Profiles for each low resource site are provided in Appendix B.

- Ames ARC IA001/19490
- SP4 Ronald L. Means ARC IA006/19504
- Lyle Defenbaugh ARC IA007/19505
- Davenport ARC IA009/19545
- PFC Lloyd C Wohlford Jr. ARC IA010/19547
- Dubuque ARC IA014/19903
- Freeman-Davis ARC IA025/19640
- Washington ARC IA027/19675
- Hulquist-Fry AFRC IA030/19685
- Des Moines Reserve Complex IA033/19057
- PFC Edwin J. Lemke ARC IA036/19560
- Cedar Falls AMSA IA047/1990D
- COL P. Schulstad ARC IL002/17580
- Fox Valley Memorial ARC IL003/17815
- SGT Krause/PFC Goodrich ARC IL006/17830
- SGT Bruce G. Howerter ARC IL007/17827
- SGT J. W. Robinson Jr. ARC IL011/17849
- MAJ Herbert J. Dexter ARC IL021/17683
- Forest Park AFRC IL027/17666
- North Shore Memorial ARC IL035/17898
- Granite City ARC IL045/17884
- Vietnam Vet Memorial ARC IL051/17549
- Veterans Memorial ARC IL064/17928
- Machesney Park ARC IL068/17308
- MAJ M.D. O'Donnell ARC IL072/17965
- 2LT R.H. Stephens ARC IL073/17840
- COL Kenneth P. Williams ARC IN002/18625

- 1 • SGT Charles H. Seston ARC IN004/18607
- 2 • SGT James W. Harlan ARC/AMSA IN005/18655
- 3 • PFC Wm L. Gillespie BMA 133 IN010/18675
- 4 • PFC Wm L. Gillespie ARC IN011/18675
- 5 • CPL Robert Shaffer ARC IN014/18699
- 6 • James T. St Clair ARC IN020/18725
- 7 • Laporte Co Veterans ARC IN023/18740
- 8 • Roper R. Peddicord ARC IN027/18735
- 9 • Richmond ARC IN030/18790
- 10 • Everitt B. Hunley ARC IN032/18825
- 11 • Lyle J. Thompson ARC IN033/18856
- 12 • Maple Lane ARC IN034/18857
- 13 • Robert R. Mosele ARC IN036/18875
- 14 • Michigan City ARC IN085/18301
- 15 • Donald C. Schorling ARC MI001/26755
- 16 • James J. O'Rourke ARC MI005/26775
- 17 • Dr. Mary E. Walker Mem. ARC MI011/26958
- 18 • Raymond Zussman ARC MI013/26840
- 19 • CPT David D. Phillips ARC MI014/26855
- 20 • Kalamazoo Memorial ARC MI016/26865
- 21 • MG Geo. A. Custer ARC/AMSA MI020/26797
- 22 • 2LT Walter Haupt ARC MI023/26895
- 23 • Demus T. Craw ARC MI030/26955
- 24 • Saginaw ARC MI053/26534
- 25 • Duluth ARC MN011/27845
- 26 • Mankato Memorial ARC MN018/27895
- 27 • AR Vehicle Maint. AMSA #101 MN035/27927
- 28 • Fort Snelling ARC MN036/27865
- 29 • Wabasha Memorial ARC MN042/27940
- 30 • Willmar Memorial AFRC MN044/27950
- 31 • Worthington Memorial ARC MN048/27975
- 32 • SPC Clifford M. Davis Jr. ARC MO001/29880
- 33 • CPL Jesse N. Funk ARC MO004/29825
- 34 • MG L.E. Jones ARC MO006/29830
- 35 • Farmington ARC MO008/29832
- 36 • SGT Charles R. Long ARC MO013/29898
- 37 • 1LT R. W. Heisinger ARC MO014/29855
- 38 • Joplin ARC MO015/29865
- 39 • Kirksville AFRC MO018/29879
- 40 • Springfield AFRC/AMSA #54 MO024/29925
- 41 • CPL Forrest E Peden ARC MO026/29935
- 42 • MG Lief J. Sverdrup USAR MO028/29967
- 43 • St Louis ORD PLT #4 MO030/29955
- 44 • Washington ARC MO031/29975
- 45 • Springfield ARC AMSA #54 MO054/2900A
- 46 • Kansas City ARC #2 MO074/29504
- 47 • Kansas City ARC #1 MO076/29342
- 48 • PVT William Knight ARC OH004/39825
- 49 • SGT Lawrence W. Skaggs ARC OH008/39840
- 50 • 83rd Division Mem. ARC/AMSA OH018/39887
- 51 • SP4 Joseph Lapointe ARC OH020/39868

- 1 • Delaware Memorial ARC OH024/39870
- 2 • PFC Devin J. Grella ARC/AMSA #3 OH048/3913E
- 3 • Troy Memorial ARC OH063/39975
- 4 • Rickenbacker ARC OH095/39865
- 5 • DSCC AFRC OH110/39296
- 6 • Trenton USAR Center OH117/39080
- 7 • Appleton ARC/OMS WI001/55750
- 8 • Beaver Dam Mem. ARC/OMS WI003/55760
- 9 • Eau Claire AMSA #155 WI009/5524A
- 10 • Eau Claire ARC WI010/55785
- 11 • Fond Du Lac ARC WI014/55805
- 12 • Fort McCoy WI020/55425
- 13 • Junction City ARC WI030/55840
- 14 • Andrew Miller ARC/OMS WI039/55886
- 15 • Neenah USAR Center WI040/55897
- 16 • Pewaukee Mem. ARC/OMS WI047/55955
- 17 • William F. Fale ARC/OMS WI049/55985
- 18 • Sturtevant ARC WI050/55976
- 19 • Wausau ARC WI090/55456
- 20 • SFC Gabrielson/SPC Hoyer ARC WI092/55864
- 21
- 22

4.0 High and Medium Site Profiles

4.1 Joe L. Mackey AFRC/AMSA #115 (IA032/19645)

Medium Resource

2501 South Lewis Blvd
Sioux City IA 51106-5103

County: Woodbury

Acres: 12.04

Building Count: 2

Last Field Survey: 2020



The Sioux City ARC (IA032/19645) consists of an AMSA and AFRC, and associated parking areas. The site is used for administrative services, classroom training, and vehicle maintenance. The 88th RD owns the two buildings and land that comprise IA032/19645.

4.1.1 Geographic Location and Size

This site IA032/19645 is in the Northwest region of the state. The acreage of the site was reported as 12.04 acres in the U.S. Army Reserve, 88th RD master geodatabase. The surrounding properties are undeveloped land to the north, recreational land to the south, commercial and recreational land to the east, and undeveloped and commercial land to the west. The site boundaries are shown on Figure 3.1.

4.1.2 Geological Resources

Physiography and Geology

This site is located within the Dissected Till Plains physiographic section of the Central Lowland physiographic province. In this section, rivers and streams dissect a terrain created by glacial deposits (till) forming low, rolling hills; ridges; and some bluffs. Geological formations at IA032/19645 are Late Cretaceous to Early Cretaceous (sandstone and shale) formations.

Soils

The United States Department of Agriculture Natural Resources Conservation Services (USDA-NRCS) online web soil survey reports that the site is composed of Ida silt loam, 14 to 20 percent slopes, severely eroded; Ida silt loam, 20 to 30 percent slopes, severely eroded; Ida silt loam, 9 to 14 percent slopes, severely eroded; and Monona-Urban land complex, 5 to 9 percent slopes.

None of these soil map units are considered hydric by the NRCS.

Topography

The site has a gently sloping topography, ranging from 1,201 – 1,226 ft Above mean sea level (amsl).

4.1.3 Water Resources

Watershed and Surface Waters

The facility lies within the Blackbird-Soldier watershed. No on-site surface waters were observed during the site visit. The Missouri River is located approximately 750 feet west of the facility.

Floodplains

Floodplain mapping for this site is based on digital Q3 Flood data produced by FEMA. According to the FEMA map that covers this area (19193C0184D), there are no floodplains on-site. There

1 is a 100-year and 500-yr floodplain along the Missouri River approximately 550 feet west of the
2 facility

3 **Wetlands**

4 No wetlands were observed on-site during the 2018 site survey. The U.S. Fish and Wildlife
5 Service National Wetland Inventory reports a riverine lower perennial unconsolidated bottom
6 (R2UBH) wetland located along the Missouri River approximately 650 feet west of the facility.

7 **4.1.4 Cultural Resources**

8 An inventory of the built environment was conducted for this facility and buildings were determined to be
9 not eligible for the NRHP. No additional architectural evaluation is required. (ICRMP IA, 2020)

10 Brockington and Associates, Inc., conducted a cultural resources survey for a specific 6.32-acre area in
11 advance of proposed modifications to the USARC in 2009. No archaeological sites were found, and the
12 Iowa SHPO agreed that no further archaeological investigations are required within this area. However,
13 the 88th RD recently surveyed its legal property boundary, which extends beyond the previously surveyed
14 area. In 2021, consultation and Phase 1 archaeological survey was conducted for the remaining property
15 boundary (5.72 acres) by the St. Louis District USACE. No existing or newly identified NRHP-eligible
16 sites were identified on the property. In January 2022, the Iowa SHPO concurred with findings that there
17 are no significant archaeological properties within the surveyed areas. There were no responses received
18 from federally recognized Indian Tribes.

19 Following DoDI 4715.16, consultation with federally recognized Indian Tribes was conducted for the
20 review of this 2019-2024 ICRMP Update. (ICRMP IA, 2020)

21 The ICRMP for sites located in Iowa will be furnished upon request.

22 **4.1.5 Biological Resources**

23 **Land Cover and Ecological Communities**

24 Land Cover and Ecological Communities	Acres	Percent of Site
Buildings	0.61	5.07
Paved Road/Parking	5.14	42.69
Tree Cover	0.30	2.49
Maintained Grass	2.46	20.43
Unmaintained area	3.53	29.32
Totals	12.04	100

25 **Vegetation Communities**

26 The ***maintained lawn*** is dominated by:

27 Kentucky bluegrass *poa pratensis*
28 tall fescue *Festuca arundinacea*
29 smooth brome *Bromus inermis*

30 ***Herbaceous layer:*** green ash *Fraxinus pennsylvanica*

31 ***Canopy layer:*** honey locust *Gleditsia triacanthos*

32 No shrub layer exists for this vegetation community.

33 The following non-dominant invasive-exotic species were documented in this community:

34 field bindweed *Convolvulus arvensis* (IDALS 2002)
35 crownvetch *Securigera varia* (IDNR 2010)
36 curly dock *Rumex crispus* (IDALS 2002)
37 Japanese meadowsweet *Spirea japonica* (USDA 2009)

1 These invasive-exotic species are present in low densities and the current level of concern for
2 these species at this facility is low.

3 The old field is dominated by smooth brome (*Bromus inermis*), an invasive species, in the
4 herbaceous layer, and green ash (*Fraxinus pennsylvanica*) in the shrub layer. Big bluestem
5 (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*) were observed in the old
6 field, but they were not dominant. No canopy layer is present.

7 The following non-dominant invasive exotic species were documented in this community:

8 field bindweed	<i>Convolvulus arvensis</i>
9 crownvetch	<i>Securigera varia</i>
10 nodding plumeless thistle	<i>Carduus nutans</i>
11 Canada thistle	<i>Cirsium arvense</i>

12 The tree cover area in the southwestern side of the property was composed of mostly Tree-of-
13 Heaven (*Alanathis altissima*), which is an invasive species. Hemp was observed at the edge of
14 this area, appearing to have sprouted by windblown seed.

15 **Wildlife**

16 Bird Surveys were conducted on the site using a five-minute interval point bird count in the
17 morning of October 9, 2018. Count stations were positioned on the site where food, water, and
18 habitat sources were present. These areas included the northern edge where trees were
19 present and along the edges of the unmaintained area. Observed birds included: goldfinches
20 (*Spinus tristis*) and cardinals (*Cardinalis cardinalis*). Goose and a whitetail deer feces were
21 observed onsite as well.

22 **Listed Species**

23 The USFWS (USFWS Midwest Region Sites. 2014) Iowa County Distribution of Federally
24 Threatened, Endangered, Proposed and Candidate Species. Available online at
25 http://www.fws.gov/midwest/endangered/lists/iowa_cty.html (Accessed Sep 18, 2018) lists the
26 following six species in Woodbury County:

27 Western prairie fringed orchid	<i>Platanthera praeclara</i> (T)
28 Prairie bush clover	<i>Lespedeza leptostachya</i> (T)
29 Least tern	<i>Sterna antillarum</i> (E)
30 Piping plover	<i>Charadrius melodus</i> (E)
31 Pallid sturgeon	<i>Scaphirhynchus albus</i> (E)
32 Northern long-eared bat	<i>Myotis septentrionalis</i> (E)
33	E= endangered, T=Threatened

34 There is no habitat on the facility that supports any of the above listed species.

35 Migratory birds, such as the Bald and Golden eagle have the potential to pass through or stop
36 off at the site. There is no acceptable breeding habitat for this species at the site.

37 **4.1.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

38 There does not appear to be any opportunities for outdoor recreation, public access, hunting, or
39 agricultural out-leasing areas on this site. This site area lacks aesthetic natural communities.

40 There is desire from the reserve center to construct a dirt track in the unmaintained grassland to allow
41 for vehicle training that would fulfill army reserve requirements.

42 **4.1.7 Management Issues and Concerns**

43 No significant natural resource management issues were observed at the site.

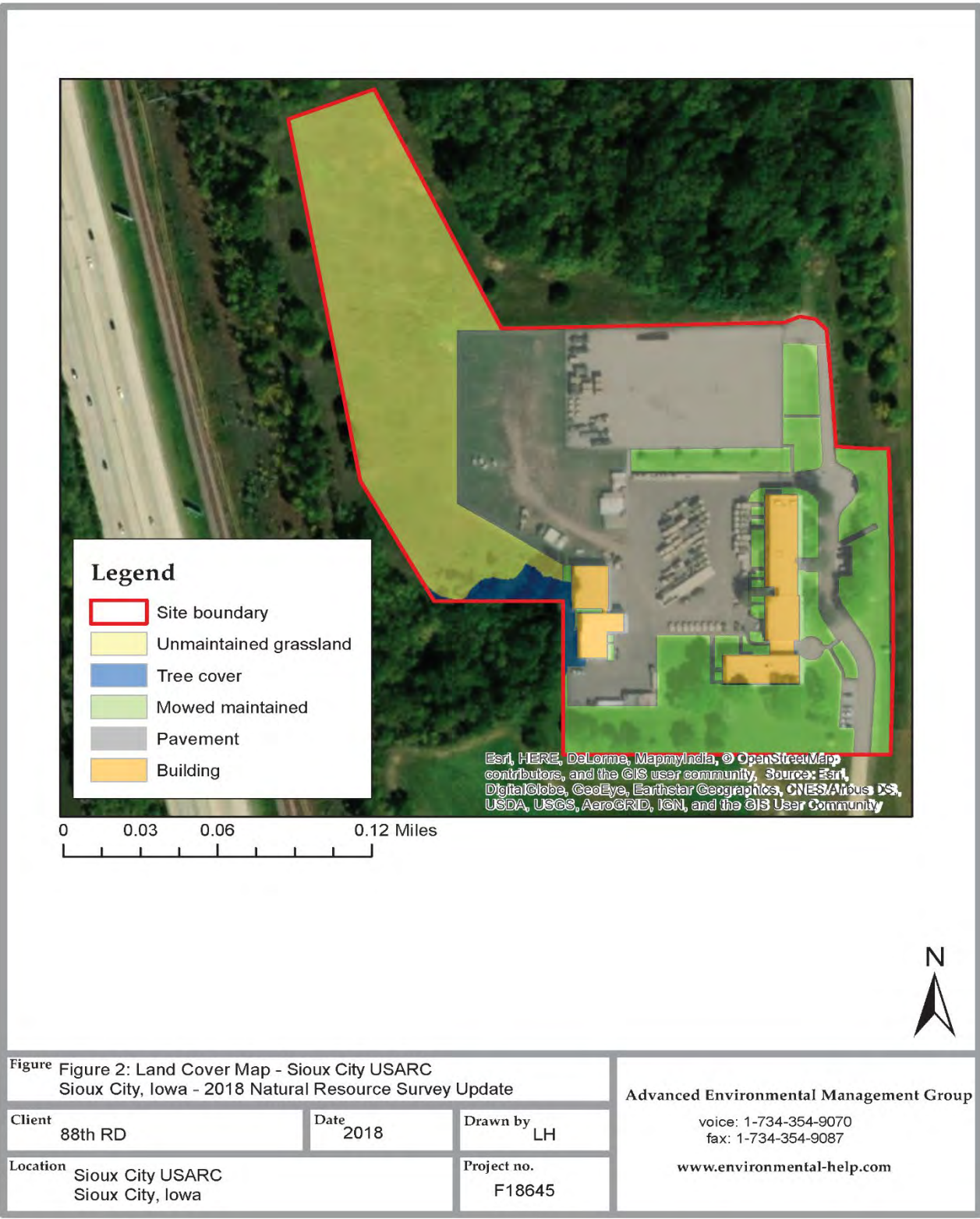
44 The site is bordered by natural areas on the north and is adjacent to a busy road to the east. In
45 addition, the site is located on a bluff, at least 100 feet above the Missouri River, which limits access
46 from the west. Based on this, wildlife may pass through the site, but the area offers limited to no habitat.

1 **4.1.8 Special Interest Areas**

2 No special interest areas occur within 1,000 feet of the site.

3

4



1
2
3

Figure 4.1 - Site Map – IA032/19645

1
2 **4.2 Parkhurst**
3 **ARC/OMS/DS**
4 **(IL001/17812)**

5 **Medium Resource**

6 10S100 South Frontage Road
7 Darien, IL 60561-1780

8 **County:** Du Page

9 **Buildings:** 2

10 **Acres:** 12.65

11 **Last Field Survey:** 2020



12 The Parkhurst ARC/OMS/DS (IL001/17812) contains an administrative building, OMS, and associated parking
13 areas. The separate parking areas support military vehicles or private vehicle parking. Light maintenance of
14 vehicles and equipment is conducted at the OMS. Fencing surrounds the entire property denoting the site
15 boundary. The 88th RD owns the land and two buildings that comprise site IL001/17812. (ENSAFE IL001, 2020)

16 **4.2.1 Geographic Location and Size**

17 IL001/17812 is located in the city of Darien, in southeastern Du Page County. Acreage for the site from
18 the Real Property Report shows the acreage as 12.65 acres. The site is bounded by Waterfall Glen
19 Forest Preserve, which contains mixed deciduous forest. Frontage road is located along the eastern
20 boundary of the property. (ENSAFE IL001, 2020)

21 **4.2.2 Geological Resources**

22 **Physiography and Geology**

23 The facility is located within the Central Lowland Physiographic Province of the Northern Region. Broad
24 till plains, generally uneroded (stable) or in early erosional stages characterizes this province. The
25 geologic formations in this region are characterized as Middle Silurian. (ENSAFE IL001, 2020)

26 The Valparaiso-Wheaton Morainal Complex ecoregion features undulating topography and many small
27 lakes and marshes. Pastureland, wooded areas, lakes, and wetlands are common, with urban and
28 suburban development also increasing in recent years. Forest density has increased following the
29 modern era practice of wildfire suppression. (ENSAFE IL001, 2020)

30 **Soils**

31 Mapped soils within the facility boundaries belong to the following three soil map units: Orthents, clayey
32 — undulating; Ozaukee silt loam — 2 to 4 percent slopes; and Ozaukee silt loam — 6 to 12 percent
33 slopes, eroded. All three of these soil map units are considered hydric within DuPage County. (ENSAFE
34 IL001, 2020)

35 **Topography**

36 Onsite elevations range from approximately 690 to 710 above sea level. (ENSAFE IL001, 2020)

37 **4.2.3 Water Resources**

38 **Watershed and Surface Waters**

39 The facility is within the Des Plaines Watershed (Hydrologic Unit Code 07120004). IL001 does not
40 contain onsite surface waters. (ENSAFE IL001, 2020)

1
2 **Floodplains**

3 to Federal Emergency Management Agency geographic information systems data (Panel 17043C0276J),
4 a 100-year floodplain is located approximately 75 feet south of this facility along a small unnamed creek
5 (ENSAFE IL001, 2020).

6 **Wetlands**

7 The United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data indicates,
8 IL001 does not contain potential wetlands; however, the 2013 survey observed that the drainage area
9 located along the southern edge of the property was characterized by several wetland attributes including
10 dominance of wetland plants, hydric soil indicators, and saturated hydrologic conditions. (ENSAFE IL001,
11 2020)

12 During the 2021 field survey, this storm water detention basin was dominated by wetland vegetation,
13 indicating that it maintains saturated or inundated hydrologic conditions throughout much of the growing
14 season, and appears to be functioning as a wetland. The basin measures approximately 20 feet wide
15 (on average) by 500 feet long. To the west and south of the facility potential wetlands are shown on
16 NWI data within 1,000 feet of IL001. (ENSAFE IL001, 2020)

17 **4.2.4 Cultural Resources**

18 An architectural inventory was completed for this property and the buildings determined not eligible for
19 the NRHP. However, the buildings were not 50 years of age and should be reevaluated in the future
20 (2045). No further architectural evaluations are required during this ICRMP period. (ICRMP IL, 2020)

21 Archaeological inventories have been completed for this facility and no historic properties were identified
22 and no artifacts were recovered. There is little potential for intact archaeological resources due to a high
23 degree of soil disturbance at the property.

24 Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review of
25 this 2020-2024 ICRMP Update. (ICRMP IL, 2020)

26 The ICRMP for sites located in Iowa will be furnished upon request.

27 **4.2.5 Biological Resources**

28 The site lacks natural vegetation communities. There are two ecological communities at the facility.
29 Maintained grass and storm water detention basin are the ecological communities represented. During
30 the facility surveys, no listed or candidate, federal, state, or Army-identified species-at-risk animals or
31 plants. (ENSAFE IL001, 2020)

32 **Land Cover and Ecological Communities**

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Building/Structure	1.73	13.7
Maintained Grass	4.10	32.4
Parking Lot/Paved Road	5.95	47.0
Sidewalk/Concrete/Gravel	0.56	4.5
Storm water Detention Basin	0.30	2.4
Totals	12.65	100%

33 (ENSAFE 2020)

1
2 **Vegetation Communities**

3 **Maintained Grass**

4 Kentucky bluegrass (*Poa pratensis*) with a variety of native and non-native lawn weeds dominates
5 the maintained grass areas. These areas are mowed frequently during the growing season.
6 (ENSAFE IL001, 2020)

7 Several lawn weeds and planted flowers were observed during the survey, including:

8	Smooth brome	<i>Bromus inermis</i> (invasive)
9	Eastern purple coneflower	<i>Echinacea purpurea</i>
10	Orange daylily	<i>Hemerocallis fulva</i>
11	Yellow daylily	<i>Hemerocallis lilioasphodelus</i>
12	Common tansy	<i>Tanacetum vulgare</i>

13 Additionally, various trees are planted for landscaping around the main building and the east
14 and south Site borders including:

15	Tatarian maple	<i>Acer tataricum</i>
16	Redbud	<i>Cercis canadensis</i>
17	Cockspur thorn	<i>Crataegus crus-galli</i>
18	Winged spindle	<i>Euonymus alatus</i>
19	Honeylocust	<i>Gleditsia triacanthos</i>
20	Eastern red cedar	<i>Juniperus virginiana</i>
21	Sweetgum	<i>Liquidambar styraciflua</i>
22	White pine	<i>Pinus strobus</i>
23	Chinquapin oak	<i>Quercus muehlenbergii</i>
24	Northern red oak	<i>Quercus rubra</i>
25	Buckthorn	<i>Rhamnus cathartica</i> (invasive)

26 **Storm water Detention Basin**

27 The storm water basin measures approximately 0.29 acres and appears to be constructed for
28 retention of storm water runoff and sediments. This basin includes unmaintained vegetation
29 (including hydrophytic vegetation), and the Natural Resources Conservation Service soil map
30 units in this area are hydric soils. The basin likely provides limited wetland functions; however,
31 the drainage area would not likely be considered jurisdictional, as it receives upland storm water
32 drainage from facility runoff. (ENSAFE IL001, 2020) Dominant species observed during the
33 survey include:

34	Black maple	<i>Acer nigrum</i>
35	Hemp dogbane	<i>Apocynum cannabinum</i>
36	American burnweed	<i>Erechtites hieraciifolius</i>
37	Late thoroughwort	<i>Eupatorium serotinum</i>
38	Green ash	<i>Fraxinus pennsylvanica</i>
39	Oxeye daisy	<i>Leucanthemum vulgare</i>
40	Mild waterpepper	<i>Persicaria hydropiperoides</i>
41	Lady's-thumb smartweed	<i>Persicaria maculosa</i>
42	Common reed	<i>Phragmites australis</i> (invasive)
43	Common self-heal	<i>Prunella vulgaris</i>
44	Buckthorn	<i>Rhamnus cathartica</i> (invasive)
45	Curly dock	<i>Rumex crispus</i>
46	Black willow	<i>Salix nigra</i>
47	Chinese foxtail	<i>Setaria faberi</i> (invasive)
48	Canada germander	<i>Teucrium canadense</i>

1	Narrowleaf cattail	<i>Typha angustifolia</i>
2	Great mullein	<i>Verbascum Thapsus</i> (invasive)
3	Riverbank grape	<i>Vitis riparia</i>

4 **Wildlife**

5 During the facility survey any wildlife encountered were recorded to include the following
6 species. (ENSAFE IL001, 2020) Wildlife species noted included:

7 **Birds:**

8	Red-winged blackbird	<i>Agelaius phoeniceus</i>
9	Red-shouldered hawk	<i>Buteo lineatus</i>
10	American crow	<i>Corvus brachyrhynchos</i>
11	American robin	<i>Turdus migratorius</i>

12 **Mammals:**

13	Unidentified squirrel	<i>Sciurus spp</i>
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14 **Insects:**

15	Monarch butterfly	<i>Danaus plexippus</i>
16	dragonfly	Unidentified

17 Waterfall Glen Forest Preserve is an expansive natural area to the south of the facility that
18 includes forest, wetland (both forested and emergent), and riverine habitats. This Preserve
19 likely provides habitat for a variety of animals, including amphibians, birds, insects, mammals,
20 and reptiles through the year. This habitat is available for many songbirds and bats, including
21 listed species, for nesting, roosting, and/or foraging during the breeding season or spring and
22 fall migrations. Apart from the onsite storm water basin, there is generally limited natural habitat
23 within the facility’s boundaries; however, the landscaped areas should be conserved in order to
24 continue to provide potential habitat for animals adapted to suburban habitats. (ENSAFE IL001,
25 2020)

26 **Listed Species**

27 Based on the USFWS Information for Planning and Consultation (IPaC) (2020) project planning tool
28 (Attachment D), there are records of two federally endangered species and three federally threatened
29 species near IL001:

30 **Listed Endangered:**

31	Hine's emerald dragonfly	<i>Somatochlora hineana</i>
32	Leafy prairie-clover	<i>Dalea foliosa</i>

33 **Listed Threatened:**

34	Prairie bush-clover	<i>Lespedeza leptostachya</i>
35	Northern long-eared bat	<i>Myotis septentrionalis</i>
36	Eastern prairie fringed orchid	<i>Platanthera leucophaea</i>

37 **Candidate Species**

38	Monarch butterfly	<i>Danaus plexippus</i>
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39 The best habitat for Hine’s emerald dragonfly (E) is calcareous (high calcium carbonate) spring-fed
40 wetlands, marshes, and sedge meadows overlaying dolomite bedrock. There are no such areas within
41 the IL001 facility that would support the Hine’s emerald dragonfly. Hine’s emerald dragonfly has not been
42 observed at the facility. (ENSAFE IL001, 2020)

1 Leafy prairie clover (E) optimal habitat conditions include full sun, low levels of inter-species competition,
2 and periodic burning of the landscape. Typical habitats for this species feature thin-soiled mesic and
3 wet-mesic dolomite prairie, limestone cedar glades, and limestone barrens. The leafy prairie clover
4 struggles to thrive where woody succession has advanced and natural wildfire cycles are suppressed or
5 unmanaged via controlled burn techniques. The species' lifespan is relatively short (1-5 years), and it
6 does not have the capacity to spread vegetatively. There currently are 14 known extant populations of
7 leafy prairie clover in Illinois, including four populations in DuPage County (ENSAFE IL001, 2020).

8 Prairie bush-clover (T) occurs in disturbed and undisturbed sites in conjunction with typical prairie
9 species, but there is not a unique assemblage of species regime that is consistently associated across
10 all sites. Mesic microenvironments, including open roadsides, favor prairie bush-clover, which may be
11 underlain by clay or sandy subsoils, as well as gravel or bedrock outcrops topped by thin soil layers.
12 Historical studies suggest adverse impacts from competition with successional woody vegetation (e.g.,
13 sumac) and being shaded by mature trees (ENSAFE IL001, 2020).

14 There is no suitable roosting and foraging habitat for the northern long-eared bats (T) at the facility, nor
15 in the forested area that abuts the facility to the south of the USARC property, which is dominated by
16 invasive buckthorn trees and features a dense understory. It is likely that suitable bat habitat exists at
17 other locations within the expanses of Waterfall Glen Forest Preserve, which was outside of the scope of
18 this facility survey update. (ENSAFE IL001, 2020)

19 The eastern prairie fringed orchid (T) occurs in a wide variety of habitats, from mesic prairie to wetlands,
20 such as sedge meadows, marsh edges, fens, or occasionally sphagnum bogs. Challenges to maintaining
21 the long-term populations include reproduction from seed requiring pollination by hawkmoths, seedling
22 establishment necessitating development of mycorrhizae with soil-inhabiting fungi, and wildfire cycles
23 maintaining graminoid habitat communities suitable for this species (ENSAFE IL001, 2020)

24 Of those listed as potentially occurring, only the Hine's emerald dragonfly, leafy prairie clover, and prairie
25 bush clover are anticipated to occur at the facility per the USFWS IPaC resource list information.
26 (ENSAFE IL001, 2020)

27 The IPaC resource list indicates that there are no critical habitats in the area. (ENSAFE IL001, 2020)

28 IPaC information identified 19 migratory birds that could occur in the area:

29 American golden-plover	<i>Pluvialis dominica</i>
30 Bald eagle	<i>Haliaeetus leucocephalus</i>
31 Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
32 Bobolink	<i>Dolichonyx oryzivorus</i>
33 Cerulean warbler	<i>Dendroica cerulea</i>
34 Eastern whip-poor-will	<i>Antrostomus vociferus</i>
35 Golden eagle	<i>Aquila chrysaetos</i>
36 Henslow's sparrow	<i>Ammodramus henslowii</i>
37 Kentucky warbler	<i>Oporornis formosus</i>
38 Lesser yellowlegs	<i>Tringa flavipes</i>
39 Prothonotary warbler	<i>Protonotaria citrea</i>
40 Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
41 Rusty blackbird	<i>Euphagus carolinus</i>
42 Short-billed dowitcher	<i>Limnodromus griseus</i>
43 Wood thrush	<i>Hylocichla mustelina</i>

44 The bald eagle and golden eagle are protected under the Bald and Golden Eagle Protection Act. The
45 other species are considered Birds of Conservation Concern, and all 19 species are protected under
46 the Migratory Bird Treaty Act. None of these species were identified as present during the field survey.
47 (ENSAFE IL001, 2020)

48 There are 65 state-listed threatened and endangered species in DuPage County listed on the Illinois
49 National Heritage Database as of December 2020 (Attachment E). No state-listed threatened or

1 endangered species were observed during the 2021 Natural Resource Survey Update site visit.
2 Specific habitat requirements for threatened and endangered species that may occur at this facility are
3 not present at IL001, such that these species are unlikely to occur at the facility. (ENSAFE IL001, 2020)

4 **4.2.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

5 There does not appear to be any opportunities for outdoor recreation, public access, and agricultural out-
6 leasing on this site area. The site lacks aesthetic natural communities, hunting or fishing areas, or
7 sufficient area for crop agriculture. (ENSAFE IL001, 2020)

8 **4.2.7 Management Concerns and Issues**

9 Management recommendations include:

- 10 • Avoiding impacts to the dry storm water basin designed to function as a wetland without a
11 management plan.
- 12 • Removing invasive plant species that occur onsite (e.g., planted common buckthorn bushes) and
13 replacing with comparable native species.
- 14 • Controlling the spread of invasive species that occur along the margins of the facility's boundaries,
15 specifically smooth brome grasses observed in the northern portion of the facility.
- 16 • Coordinating with Waterfall Glen Forest Preserve to control the dense coverage of common buckthorn
17 growing just beyond the facility's boundary to the south.
- 18 • Consulting with the appropriate natural resource agencies, as needed, to ensure compliance with
19 federal and/or state regulations concerning listed species.
- 20 • Regularly review USFWS notifications and United States Army Species at Risk for new candidate
21 and listed species in the region.
- 22 • Consulting on activities to ensure compliance with state and/or local floodplain regulations. (ENSAFE
23 IL001, 2020)

24 **4.2.8 Special Interest Areas**

25 Waterfall Glen Forest Preserve surrounds the facility and extends substantially further to the south, also
26 encompassing the Argonne National Laboratory to the south. The 2,503-acre Preserve is considered a
27 premier ecological resource value open space in the County, if not northern Illinois. The undulating
28 terrain features 11 miles of trails, fishing waters, and orienteering courses for outdoor enthusiasts.
29 Additionally, an open field for model aircraft enthusiasts and youth group campground are also located
30 within the Preserve. It is also popular for its impressive nature scenery, especially Rocky Glen Waterfall
31 and Sawmill Creek Bluff Overlook. (ENSAFE IL001, 2020)

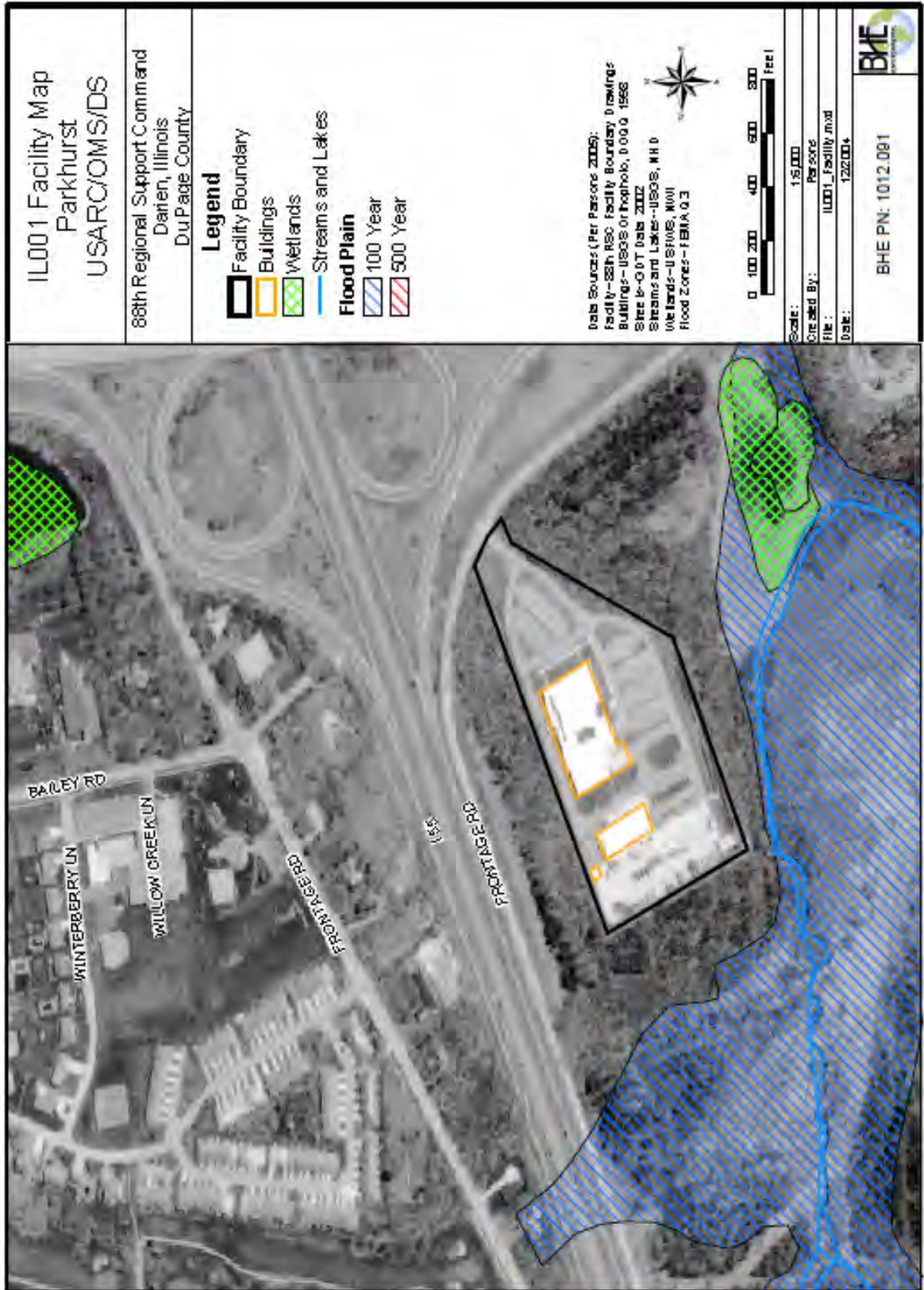


Figure 4.2 - Site Map – IL001/17812

4.3 Joliet ARC/Local Training Area (LTA) (IL079/17896)

High Resource

20610 S. Arsenal Road
Elwood, IL 60421-9201

County: Will

Buildings:

Acres: 3,573

Last Field Survey: 2020



The Joliet ARC/JTA (IL079/17896) consists of ranges, classrooms, a drop zone, rappel tower, the chemical, biological, radiological and nuclear (CBRN) chamber, small arms range, a driver's course, a river crossing course, boat launch sites, floating bridge operation and a demolition pit. The 88th RD owns all training areas, lands and buildings that comprise site IL079/17896. The IL079/17896, per the 2018 ALTA Survey, occupies approximately 3,573 acres and includes prairie lands important to the state.

The 88th Readiness Division (RD) acquired IL079/17896 from Ft. McCoy in 2008. IL079/17896 is the largest single site under the 88th RD command. The mission of IL079/17896 is to provide year-round training sites, ranges and maneuver areas for 30,000 to 40,000 Reserve, Guard, Active and senior ROTC troops from all branches of the armed services. IL079/17896 also supports training for 20,000 to 30,000 civilian (federal, state and local) law enforcement officers.

4.3.1 Geographic Location and Size

Of the 3,573 acres at IL079/17896, all but 100 acres are available for maneuvers and training. The sites available for training include ranges, training areas, classrooms, a drop zone, a 50-foot rappel tower, the CBRN chamber, a driver's course, a river crossing, boat launch sites, floating bridge operations and a demolition pit. On-site natural resources support the military mission in the following ways:

- Forested areas provide concealment and cover.
- Streams/lakes support water purification exercises and provide water access points for bridge building exercises.
- Open areas used for parachute drop zones, landing zones, engineer training sites and maneuvering.

Military training activities rotate among areas within IL079/17896, thereby allowing for regeneration of disturbed land cover and minimizing long-term impacts on the natural environment. IL079/17896 is divided into seven training areas (TAs) – TA1, TA2, TA3, TA4, TA5 North (TA5N), TA5 South (TA5S) and TA6. The 88th RD owns all training areas, lands and buildings that comprise site IL079/17896. The Joliet Training Area also includes prairie lands that are important and specific to the state.

4.3.2 Geological Resources

Physiography and Geology

The JTA is located within the Central Corn Belt Plains Level III ecoregion (on the boundary of the Illinois/Indiana Prairies and Valparaiso-Wheaton Morainal Complex Level IV ecoregions). The

1 Central Corn Belt Plains were composed of vast glaciated plains that were largely dominated by tall-
2 grass (e.g., bluestem) prairies in the 19th century, but are now dominated by agriculture land use.

3 The JTA lies within the Kankakee Plain Subdivision of the Central Lowland physiographic province.
4 Late Wisconsin glaciation in the Central Lowland province includes glaciated lowland characterized
5 by swamps, level to gently undulating plains, and ridges, all of which occur on the JTA. (ENSAFE
6 2021)

7 **Soils**

8 Dark, fertile soils characterize the Central Corn Belt Plains ecoregion. Illinois/Indiana Prairies
9 subregion is comprised mostly of dark, very fertile soils typically rich in organic material that
10 developed under tall-grass prairie ecosystems, marshes, and wet prairies in poorly drained areas,
11 and forests on concentric moraines and floodplains. The Valparaiso-Wheaton Morainal Complex
12 subregion is characterized by hilly, hummocky to rolling area containing moraines, kames, eskers,
13 and outwash plains, with small lakes and marshes formed due to the lack of a well-defined drainage
14 regime. Valparaiso-Wheaton Morainal Complex soils are largely derived from thick,
15 late--Wisconsinan glacial drift. Loess deposits occur infrequently and only as thin layers within this
16 soil type area. Alfisols are common, while Mollisols less so. In the majority (approximately 80%) of
17 the facility, bedrock occurs greater than 78 inches below ground surface. (ENSAFE 2021)

18 **Topography**

19 The facility's topography is lower towards the western portion (518 - 541 feet above mean sea level)
20 while the remainder of the facility ranges from 600 - 630 feet above mean sea level. (ENSAFE 2021)

21 **4.3.3 Water Resources**

22 **Floodplains**

23 Based on the Federal Emergency Management Agency Area Flood Insurance Rate Maps that cover
24 this facility (Panels 17197C0270G and 17197C0286G), the majority of the facility is within an area of
25 minimal flood hazard (Zone X) with 100-year flood hazard areas mostly contained within the stream
26 valleys of Jackson Creek and an unnamed tributary to the north. Base flood elevations have not been
27 determined (URS Group 2013). (ENSAFE 2021)

28 **Watershed and Surface Waters**

29 The facility is within the Des Plaines (Hydrologic Unit Code 07120004) watershed. On a sub-
30 watershed scale the southern portion of the facility drains into Jackson Creek, the only perennial
31 stream on the property, while the northern portion drains westward via agricultural ditches and
32 unnamed ephemeral tributaries to the Des Plaines River. Jackson Creek contains riffle and pool
33 sequences with bed substrate comprised mostly of cobble, gravel, sand with silt (in the pools), and
34 exposed bedrock areas (in the riffles). Additionally, boulders were observed in Jackson Creek at the
35 JTA-02 sample location in Training Area (TA) 1, during the 2021 site visit. (ENSAFE 2021)

36 A water supply lagoon is located along the shoreline of the Des Plaines River on the west side of TA
37 1 and is the only impoundment on the facility. The approximately 30-acre manmade lagoon supports
38 multiple taxa of aquatic biota including waterfowl, fish, and reptiles. Three freshwater ponds are
39 located in central portion of TA 2 along the westside of Baseline Road and provide excellent habitat
40 for various flora and fauna. (ENSAFE 2021)

41 Numerous ephemeral watercourses and other upland drainage conveyances, many of which were
42 vegetated, are located throughout IL079. (ENSAFE 2021)

43 **Wetlands**

1 The National Wetland Inventory shows both Freshwater Forested/Shrub Wetlands and Freshwater
 2 Emergent Wetlands. Numerous wetlands have been documented at the facility in previous reports,
 3 with the most recent wetland survey conducted by Advanced Environmental Management Group
 4 (AEM) in 2017. (ENSAFE 2021)

5 The 2017 wetland delineation at the facility identified 55 wetlands covering more than 280 acres, 27
 6 of which are considered potentially jurisdictional because of their connectivity to Waters of the United
 7 States (U.S.) and/or their location residing in the 100-year floodplain of a Water of the U.S.
 8 Jurisdictional status would likely change at a few of these wetlands due to the promulgation of the
 9 2021 Navigable Waters Protection Rule. The following table (Joliet Training Area (IL079) Wetlands)
 10 summarizes wetlands identified in 2017. The U.S. Army Corps of Engineers regulates wetlands under
 11 Section 404 of the Clean Water Act and would determine the jurisdictional status of these wetlands
 12 (i.e., waters of the U.S.). The Illinois Environmental Protection Agency (IEPA) would determine if
 13 these wetlands should be regulated as waters of the state and issues Water Quality Certifications
 14 under Clean Water Act Section 401, as appropriate. (ENSAFE 2021)

Joliet Training Area (IL079) Wetlands				
Wetland ID	Training Area	Cowardin Classification	Acres	Description
Wetland 1	TA 1	Palustrine forested, deciduous, temporarily flooded (PFO6A)	0.22	Depressional wetland located perpendicular to the railroad in the southeast edge of TA 1 and drains into S02.
Wetland 2	TA 1	Palustrine emergent, persistent, seasonally saturated (PEM1E)	4.00	Depressional wetland located along Arsenal Road near Gate 12 and drains to S02. Hydrologically connected to Wetland 3.
Wetland 3	TA 1	Palustrine scrub-shrub, deciduous, seasonally saturated (PSS6E)	1.80	Depressional wetland located along Arsenal Road near Gate 12 and drains to S02. Hydrologically connected to Wetland 2.
Wetland 4	TA 1	Palustrine emergent, persistent, seasonally saturated (PEM1E)	1.00	Depressional wetland bordered by two berms on the north and east sides located in the southern portion of TA 1.
Wetland 5	TA 1	Palustrine emergent, persistent, seasonally saturated (PEM1E)	62.51	Wetland located east of S01 and hydrologically connected to Wetland 6.
Wetland 6	TA 1	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	8.14	Wetland located east of S01 and within Wetland 5.
Wetland 7	TA 1	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.50	Wetland located in the southern portion of TA 1, north of Wetland 4 and west of Wetland 5, separated by berms.
Wetland 8	TA 1	Palustrine emergent, persistent, seasonally saturated (PEM1E)	1.30	This wetland pools in several areas along an ephemeral stream in the southern portion of TA 1 and eventually connects to the lagoon of the Des Plaines River.
Wetland 9	TA 1	Palustrine forested, deciduous, seasonally flooded (PFO6E)	7.50	Wetland is in the northern portion of TA 1 with S05 running through the center of the wetland. Hydrologically connected to Wetland 10.
Wetland 10	TA 1	Palustrine emergent, persistent, intermittently exposed (PEM1G)	2.17	Wetland is in the northern portion of TA 1 with S05 running through the center of the wetland. Hydrologically connected to Wetland 9.

Joliet Training Area (IL079) Wetlands				
Wetland ID	Training Area	Cowardin Classification	Acres	Description
Wetland 11	TA 1	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	1.05	This wetland is located in a wooded area in the southern portion of TA 1 and within the 100-year floodplain of Jackson Creek.
Wetland 12	TA 1	Palustrine emergent, persistent, seasonally saturated (PEM1E)	4.35	Located along the railroad spur near Millsdale Road and connects to Wetland 10 to the south. Hydrologically connected to Wetland 13.
Wetland 13	TA 1	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	13.07	Located along the railroad spur near Millsdale Road and connects to Wetland 10 to the south. Hydrologically connected to Wetland 13 and is the lowest point of the wetland.
Wetland 14	TA 2	Palustrine emergent, seasonally flooded (PEM5C)	1.00	This wetland is dominated by <i>Phragmites australis</i> and collects runoff from containment ponds along the railroad in the northeast corner of TA 2. S04 flows through the wetland.
Wetland 15	TA 2	Palustrine forested, deciduous, seasonally saturated (PFO6E)	4.78	Large depressional, ponded wetland in northeast corner of Baseline Road and Arsenal Road. Hydrologically connected to Wetland 16.
Wetland 16	TA 2	Palustrine forested, permanently flooded (PFO5H)	2.36	Southwest portion of large depressional, ponded wetland in northeast corner of Baseline Road and Arsenal Road, dominated by dead <i>Fraxinus sp.</i> Hydrologically connected to Wetland 15.
Wetland 17	TA 2	Palustrine scrub-shrub, deciduous, seasonally saturated (PSS6E)	0.30	Small wetland located at the beginning of S05 in the eastern portion of TA 2.
Wetland 18	TA 2	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.14	Slight depressional wetland located in the southeast area of TA 2. Several drainage patterns flow through the wetland.
Wetland 19	TA 2	Palustrine emergent, persistent, seasonally saturated (PEM1E)	4.90	Primarily located in a maintained field in the northern part of TA 2, west of Baseline Road.
Wetland 20	TA 2	Palustrine emergent, persistent, seasonally saturated (PEM1E)	3.96	Located in the southern portion of TA 2, west of Baseline Road. Eastern part of the wetland in an open field. Hydrologically connected to Wetland 21.
Wetland 21	TA 2	Palustrine forested, deciduous, seasonally saturated (PFO6E)	3.50	Located in the southern portion of TA 2, west of Baseline Road. Western part of the wetland in a wooded area. Hydrologically connected to Wetland 20.
Wetland 22	TA 2	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.89	Located in the northwest corner of Arsenal Road and Baseline Road next to containment ponds. This wetland is hydrologically connected to the containment ponds during times of high water.
Wetland 23	TA 2	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	25.93	This large, diverse, wetland is located east of Millsdale Road. Hydrologically connected to Wetland 24. Wetland 23 is the southern portion of this large wetland.
Wetland 24	TA 2	Palustrine emergent, persistent, seasonally saturated (PEM1E)	7.16	This large, diverse, wetland is located east of Millsdale Road. Hydrologically connected to Wetland 23.

Joliet Training Area (IL079) Wetlands				
Wetland ID	Training Area	Cowardin Classification	Acres	Description
Wetland 25	TA 2	Palustrine emergent, persistent, seasonally saturated (PEM1E)	2.00	Wetland is located east of Millsdale Road and south of Wetland 24 and is hydrologically connect to Wetland 26.
Wetland 26	TA 2	Palustrine scrub-shrub, deciduous, seasonally saturated (PSS6E)	2.24	Wetland is located east of Millsdale Road and south of Wetland 24. Northern section of the wetland and is hydrologically connect to Wetland 25.
Wetland 27	TA 2	Palustrine emergent, persistent, seasonally saturated (PEM1E)	1.92	Depressional wetland off Arsenal Road located in the south portion of TA 2, east of Wetland 9.
Wetland 28	TA 3	Palustrine emergent, persistent, seasonally saturated (PEM1E)	3.91	Slight depressional wetland located in the northwest corner of TA 3 that extends south and southwest. Abutted by S01 to the west.
Wetland 29	TA 3	Palustrine emergent, permanently flooded (PEM5H)	21.00	Large wetland, dominated by <i>Phragmites australis</i> , along the western edge of TA 3 that extend to the southern edge of the facility boundary and continues offsite
Wetland 30	TA 3	Palustrine forested, permanently flooded (PFO5H)	9.96	Aquatic bed wetland, dominated by dead <i>Fraxinus sp.</i> , located in the southwest corner of TA 3 between two railroad lines.
Wetland 31	TA 3	Palustrine emergent, persistent, seasonally saturated (PEM1E)	26.15	Large wetland in the center of TA 3 that encompasses numerous previously delineated wetlands that were hydrologically connected. The wetland extends from the north of TA 3 to the south to the facility boundary.
Wetland 32	TA 3	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.01	A small depressional wetland located in the northeast half of TA 3 with few trees and a building foundation along the northern edge.
Wetland 33	TA 3	Palustrine forested, broad-leaved deciduous, seasonally flooded (PFO1C)	0.01	Small wetland southwest of Wetland 32 that is partly in an old building foundation to the south of the wetland.
Wetland 34	TA 3	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.05	A small wetland located in the east central portion of TA 3.
Wetland 35	TA 3	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.10	This is a small wetland located in the southeast part of TA 3 with a large hillslope board to the west and raised two-track boarder to the east.
Wetland 36	TA 3	Palustrine emergent, persistent, saturated (PEM1B)	0.95	A depressional wetland in TA 3 that is sloped significantly and extends to the east and south.
Wetland 37	TA 3	Palustrine emergent, persistent, saturated (PEM1B)	0.94	A depressional wetland at the start of S08 in an open area surrounded by sloped forest.
Wetland 38	TA 3	Palustrine emergent, persistent, seasonally saturated (PEM1E)	2.36	This wetland is in the western area of TA 3 extending south and west towards Jackson Creek. Several dead <i>Fraxinus</i> trees were observed and is now an herbaceous wetland.
Wetland 39	TA 4	Palustrine forested, deciduous, semi-permanently flooded (PFO6F)	0.39	Depressional wetland located along Baseline Road in the southwest area of TA 4. The wetland had standing water in the center with S07 running through it.
Wetland 40	TA 4	Palustrine emergent, persistent, seasonally saturated (PEM1E)	7.43	The wetland is large and diverse, extending from northwest area of TA 4

Joliet Training Area (IL079) Wetlands				
Wetland ID	Training Area	Cowardin Classification	Acres	Description
				near Arsenal Road and south along Baseline Road. This wetland is hydrologically connected to Wetland 41.
Wetland 41	TA 4	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	1.45	The wetland is large and diverse, extending from northwest area of TA 4 near Arsenal Road and south along Baseline Road. This wetland is hydrologically connected to Wetland 40.
Wetland 42	TA 4	Palustrine emergent, non-persistent, seasonally saturated (PEM2E)	0.03	This is a sparsely vegetated depressional wetland located east of W02.
Wetland 43	TA 4	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	0.01	A small wetland located in the eastern area of TA 4 and is a remnant of an oxbow from Jackson Creek.
Wetland 44	TA 5	Palustrine forested, deciduous, semi-permanently flooded (PFO6F)	1.74	This wetland is located along an unnamed road east of the firing range in TA 5. It holds standing water and S08 drains from the wetland across the road.
Wetland 45	TA 5	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	0.05	Small wetland located along east edge of TA 5 along a bow in South Brandon Road. The wetland has a forested interior and opens towards the road where it terminates into S11.
Wetland 46	TA 5	Palustrine emergent, persistent, seasonally saturated (PEM1E)	1.25	A Slight depressional wetland with a high-water table located along the northeast corner of TA 5.
Wetland 47	TA 5	Palustrine forested, broad-leaved deciduous, temporarily flooded (PFO1A)	0.08	This wetland is a small depressional wetland, with standing water, in the central forested area of TA 5 south of Jackson Creek.
Wetland 48	TA 6	Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded (PSS1C)	4.23	A slight depressional wetland that extends north, following drainage into the southern part of the wetland. It is located northeast of the firing range in TA 6.
Wetland 49	TA 6	Palustrine emergent, persistent, seasonally flooded, partly drained/ditched (PEM1Cd)	12.71	This is a large wetland to the east of the firing range in TA 6. It extends south, encompassing the majority of the southern are of the firing range to the gravel road.
Wetland 50	TA 6	Palustrine emergent, persistent, seasonally flooded, partly drained/ditched (PEM1Cd)	8.54	This large wetland is located to the west of the firing range in TA 6. It extends north of the property along a drainage ditch and is hydrologically connect to Wetland 51 and 52.
Wetland 51	TA 6	Palustrine unconsolidated bottom, semi-permanently flooded, excavated (PUBFx)	3.16	This piece of the large wetland is an open water area in the southwest and is located to the west of the firing range in TA 6. It extends north of the property along a drainage ditch and is hydrologically connect to Wetland 50 and 52.
Wetland 52	TA 6	Palustrine scrub-shrub, broad-leaved deciduous, seasonally saturated, partly drained/ditched (PSS1Cd)	5.23	This piece of the large wetland is to the east of Wetland 51 and is located to the west of the firing range in TA 6. It extends north of the property along a drainage ditch and is hydrologically connect to Wetland 50 and 51.

Joliet Training Area (IL079) Wetlands				
Wetland ID	Training Area	Cowardin Classification	Acres	Description
Wetland 53	TA 6	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	0.35	The wetland is in a wooded area on the west side of TA 6. The center of the wetland has standing water with a fringe along the edge.
Wetland 54	TA 6	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.03	This small depressional wetland with few trees and is located northwest of the previous wetland in the same wooded area.
Wetland 55	TA 6	Palustrine forested, broad-leaved deciduous, seasonally saturated (PFO1E)	0.02	A small depressional wetland, with 1 willow tree, is located in the southern area of the western wooded area of TA 6.
Total			280.83	

Source: ENSAFE 2021

Numerous wetlands occur at the facility across all training areas. The largest wetlands are within Training Areas 1, 2, and 3. (ENSAFE 2021) Below is a list of commonly found vegetation observed across all the wetlands.

Dominant species include:

Common reed	<i>Phragmites australis</i>
Silver maple	<i>Acer saccharinum</i>
Green ash (alive and dead)	<i>Fraxinus pennsylvanica</i>
Cottonwood	<i>Populus deltoides</i>
Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
Giant goldenrod	<i>Solidago gigantea</i>
Poison ivy	<i>Toxicodendron radicans</i>
Narrow-leaved cattail	<i>Typha angustifolia</i> (invasive)
Grape	<i>Vitis sp.</i>

The NWI classification system indicates IL079/17896 contains approximately 356 acres of wetlands. It is estimated that one-fourth of these wetlands were unintentionally created as a result of Army activities and/or other construction projects and from the creation of excavated pits for livestock operations. Wetlands that exist along Jackson Creek were likely created by the stream's meandering and are considerably older than the man-made wetlands present on other portions of the installation. Per the NWI classification system, the dominant wetland type within IL079/17896 is temporarily flooded, broad-leaved deciduous forest (PFO1A) wetland. According to an analysis and atlas of wetland resources compiled by the Illinois Natural History Survey, other wetland types within IL079/17896 include marsh, sedge meadow and seep/fen habitat types with seasonal (PEMC) or semi-permanent (PEMF) flooding regimes. Animal species historically associated with these wetlands include waterfowl, muskrat, beaver, great blue heron, green heron, least bittern, tiger salamander, snapping turtle, red-eared slider, white-tailed deer, mink, green frog and northern water snake. (AEM 2015)

Training Area 1

Prior to the 2015 INRMP update, the Army had not conducted on-site wetland surveys within TA 1. The only wetland-related data for TA 1, available to the field biologists, included GIS shapefiles of NWI wetlands throughout the training area and a hardcopy map of wetlands delineated along the eastern edge of TA 1, east of the BNSF railroad tracks. (AEM 2015)

The BNSF railroad track which turns and extends to the east in the northeast corner of TA 1 was constructed in 2010. Most of the northeast corner of TA 1, between the railroad tracks and Millsdale Road has wetland character. At the time of the field survey, the elevation was low and

1 contained several inches of standing water (wetlands W-8 and W-9) due to recent rain. These
2 wetlands consist primarily of herbaceous vegetation (sedges; rushes; dock, and reed canary
3 grass) with some cottonwood and willow saplings. However, a portion of this northeast area within
4 TA 1 contained a prevalence of green ash trees (forested portion of wetland W-9). A forested
5 wetland (W-10) abuts the BNSF railroad tracks in the southeast portion of TA 1. This area holds
6 water and exchanges surface water flow with Jackson Creek through culverts which run beneath
7 the railroad tracks. Hawthorn and green ash are the dominant tree species in this area. Two
8 additional wetland pockets exist within the southeast corner of TA 1. One of these pockets is an
9 open water area (wetland W-11) that contains a series of duck nesting boxes. The other wetland
10 pocket is forested and dominated by green ash and cottonwood.

11 Jackson Creek bisects TA 1, west of the BNSF railroad tracks. Much of the Jackson Creek
12 floodplain displays wetland character. The area to the east of Jackson Creek is bounded by
13 the stream to the west, the Des Plaines River to the north and the BNSF railroad tracks to the
14 east. The majority of wetland present in this area is forested (wetlands W-13 and W-17), with
15 green ash the dominant tree species. As part of the mitigation effort to restore the dolomite
16 prairie/savannah, tree cover within wetland W-13 was sparse, and tree removal efforts
17 (girdling and burning) were apparent. Two emergent wetland pockets exist within the eastern
18 portion of the Jackson Creek floodplain (wetlands W-14 and W-15). An emergent wetland
19 (W-16) abuts the west bank of Jackson Creek within TA 1. This area is dominated by
20 Kentucky bluegrass and wild rye. URS field biologists observed an area within the northeast
21 corner of TA 1 with apparent wetland character; however, not classified in the NWI mapping
22 system (potential wetland 10). This wet pocket is adjacent to the BNSF railroad right-of-way.
23 The area was dominated by sedge, boneset and spiderwort and it was holding several inches
24 of water at the time of the June 2013 site assessment.

25 The TA 1 lagoon, a manmade impoundment abutting the Des Plaines River, extends into TA
26 1. This is an open water that measures approximately thirty acres in size. The Des Plaines
27 River forms the western and northern boundaries of TA 1. According to the NWI system, two
28 forested wetlands abut the Des Plaines River on the northwest edge of TA 1 (W-18). URS
29 biologists assessed this area in June 2013; however, determined that the area does not meet
30 the hydrophytic vegetation parameter and, therefore, is not considered a wetland. The
31 dominant tree species is box elder. The understory contains coralberry and honeysuckle
32 shrubs and nettle, creeping Charlie, poison ivy, Virginia creeper and black snakeroot.

33 **Training Area 2**

34 Wetland surveys were not conducted within TA 2 in 2008. The only wetland-related data for
35 TA 2, available to URS field biologists, included GIS shapefiles of NWI wetlands throughout
36 the training area and a hardcopy map of wetlands delineated along the western and northern
37 edges and throughout the central portion of TA 2. Therefore, within TA 2, URS field biologists
38 used the same wetland survey protocols adopted for TA 1.

39 In the June 2013 field assessment, URS biologists verified the existence of NWI-mapped
40 wetlands within TA 2. A series of emergent and forested wetlands exist along the southern
41 edge of TA 2, abutting and adjacent to the intersection of Arsenal Road and Baseline Road.
42 These wetlands are mapped in the NWI system, and they were also mapped in the 2008
43 wetland survey conducted on the Center Point Property, in support of the Baseline Road
44 extension project. These wetlands can generally be characterized as roadside depressions
45 within a larger surrounding old field landscape. Dominant tree species within these wetlands
46 are cottonwood, green ash, black willow and slippery elm. Dominant wetland herbaceous
47 species include reed canary grass, poison ivy, sedges and black snakeroot.

1 The northern extent of Baseline Road formerly terminated at Arsenal Road at the southern
2 boundary of TA 2. Since 2008, Baseline Road has been extended and now bisects TA 2.
3 Based on review of the 2008 wetland survey results and comparison to field observations
4 collected in June 2013, it appears that several isolated wetlands within the vicinity of this road
5 extension project no longer exist (these wetlands were also not classified in the NWI wetland
6 mapping system). In the June 2013 field assessment, URS biologists corroborated the
7 existence of other wetlands delineated in the 2008 survey, outside of the footprint of the road
8 extension project. Dominant species in the emergent wetlands include reed canary grass and
9 boneset. Dominant species in the scrub-shrub wetlands include willow, cattail, common reed
10 and reed canary grass. Dominant species in the forested wetlands include cottonwood, green
11 ash and reed canary grass.

12 An east/west trending drainage bisects the western portion of TA 2. This drainage is not
13 classified in the NWI mapping system. This feature has a somewhat defined bed and bank
14 and portions of it contained several inches of standing water during URS' June 2013 field
15 assessment. The drainage was not considered a stream and did not warrant
16 macroinvertebrate sampling. A stormwater basin (SWB-1) exists several feet north of the
17 previously referenced drainage. This basin appears to have been constructed in conjunction
18 with the Baseline Road extension project. A roadside ditch running along the west side of
19 Baseline Road feeds into this stormwater basin at the basin's northeast corner. A culvert pipe
20 also exists beneath Baseline Road, likely transporting water from east of the road. Two outlets
21 exist on the west end of the basin.

22 Within the southwest corner of TA 2, URS field biologists verified the existence of an emergent
23 wetland classified in the NWI mapping system (wetland W-5). This wetland consists of a
24 nearly monotypic stand of reed canary grass and cattail and exists within a topographic low
25 among surrounding wooded canopy. Up to two inches of standing water were present in
26 pockets throughout this wetland during the June 2013 field survey. Current and recent
27 hydrologic indicators indicated saturated conditions. W-5 is likely a jurisdictional wetland,
28 verification through the USACE is recommended.

29 **Training Area 3**

30 In November 2009, the USACE contracted BHE Environmental, Inc. to conduct wetland
31 delineation field surveys at TA 3. Twenty-five wetlands, covering approximately 46.84 acres,
32 were identified and field delineated (wetlands A through Y). Of these wetlands, fifteen
33 wetlands, in addition to portions of four other wetlands, were identified within the floodplain of
34 Jackson Creek. Emergent, scrub-shrub, forested and open water wetlands were identified.

35 Three streams, encompassing a total length of approximately 8,963 feet, were identified and
36 field delineated by BHE in November 2009. Field assessors categorized one of these
37 streams, Jackson Creek, as a lower perennial stream (R2UB2) according to the Cowardin
38 classification system. Approximately 5,022 linear feet of Jackson Creek exists within TA 3.
39 An unnamed tributary to Jackson Creek was identified in the eastern portion of TA 3 and was
40 classified as intermittent by the field assessors. This intermittent tributary receives runoff from
41 several drainageways in the eastern portion of TA 3, before flowing south into Jackson Creek.
42 Another unnamed tributary to Jackson Creek was identified in the south-central portion of TA
43 3 and was classified as ephemeral by the field assessors. This stream receives runoff from
44 surrounding upland areas and flows southwest into Jackson Creek.

45 Field biologists from URS traversed TA 3 on foot and verified the existence of the wetlands
46 previously delineated by BHE, through visual observation of land character, vegetative
47 species and signs of hydrology. URS biologists identified one wetland within TA 3 not
48 previously mapped (wetland W-2).

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Training Area 4

BHE was previously contracted to conduct wetland delineation field surveys at TA 4, TA 5 North, TA 5 South and TA 6. URS was provided a map, dated January 2010, which displays the results of BHE’s wetland surveys. These surveys occurred in late 2009. Seven wetlands were identified and field delineated (wetlands K, L and Q through U) within TA 4. Three of these wetlands occur within the floodplain of Jackson Creek. Emergent, forested and open water wetlands were identified. During the June 2013 field assessment to support this INRMP update, URS biologists traversed the western portion of TA 4 on foot and verified the existence of wetlands previously delineated by BHE. URS biologists did not observe any wetlands within TA 4 in addition to those previously delineated by BHE.

BHE identified and field delineated two streams, Jackson Creek and an unnamed tributary to Jackson Creek, within TA 4. As stated earlier, BHE categorized Jackson Creek as a lower perennial stream (R2UB2) according to the Cowardin classification system. Approximately 4,300 linear feet of Jackson Creek exists within TA 4. BHE identified an unnamed tributary to Jackson Creek within the southeast portion of TA 4. This tributary receives runoff from surrounding upland areas and flows north and west into Jackson Creek (wetlands K and L are located near the confluence of this tributary with Jackson Creek). The U.S. G.S. map displays this tributary as a faint blue line stream; indicating it is intermittent in nature. Approximately 1,000 feet of the downstream extent of this tributary traverses TA 4. The stream originates southeast of TA 4.

Training Area 5 North

As stated earlier, BHE previously conducted a wetland delineation field survey at TA 5 North. Six wetlands were identified and field delineated (wetlands M through P, W and Z) within TA 5 North. Each of these wetlands is outside of the Jackson Creek floodplain. Emergent and forested wetlands, in addition to a standing water wetland with an unconsolidated bottom were identified. During the June 2013 field assessment, URS biologists traversed TA 5 North on foot and verified the existence of wetlands previously delineated by BHE. URS biologists did not observe any wetlands within TA 5 North in addition to those previously delineated by BHE.

Jackson Creek forms the boundary between TA 5 North and TA 5 South. Approximately 10,600 linear feet of the stream defines this boundary between TA 5 North and TA 5 South. No other tributaries were identified within TA 5 North.

Training Area 5 South

In BHE’s previous wetland delineation field survey of TA 5 South, two wetlands were identified and field delineated (wetlands V and X). Both of these wetlands are within the Jackson Creek floodplain. One wetland is emergent, and one wetland is emergent/forested.

As previously stated, Jackson Creek forms the northern border of TA 5 South. BHE identified an unnamed tributary to Jackson Creek near the southeast edge of TA 5 South. This tributary receives runoff from surrounding upland areas and flows north into Jackson Creek. The U.S. G.S. map displays this tributary as a faint blue line stream; therefore, it is presumed to be intermittent in nature. Approximately 2,000 feet of the downstream extent of these tributary flows within TA 5 South. The stream originates from a pond located several feet south of TA 5 South.

Training Area 6

In BHE’s previous wetland delineation field survey of TA 6, eleven wetlands were identified and field delineated (wetlands A through J and Y). Wetlands A-G and Y were confirmed as

1 non-jurisdictional by the Chicago COE in August 2013. The COE did not determine the status
2 of wetlands H-J. During the June 2013 field assessment, URS biologists traversed TA 6 on
3 foot and verified the existence of wetlands previously delineated by BHE. Wetlands H-J
4 appeared to be isolated and non-jurisdictional. Dominant tree species in this forested stand
5 are mulberry and hackberry. The understory is dense and contains honeysuckle, nettle, garlic
6 mustard, ground ivy and gooseberry.

7 URS biologists identified one wet area within TA 6 not previously mapped (wetland W-1). This
8 area is near the eastern boundary of TA 6, adjacent to a newly constructed building. This
9 area appears to have been constructed to function as a stormwater basin; however, it is
10 densely vegetated with wetland species. If it is confirmed that this basin was constructed for
11 stormwater detention, W-1 is not a wetland. An inlet exists on the west side of the feature and
12 a broken drainage inlet exists on the east side of the feature.

13 **4.3.4 Cultural Resources**

14 Architectural inventories were completed for this facility and there is only one NRHP-eligible resource
15 within the JTA (CCC-era Bridge- JTR4B). However, the bridge sustained significant damage during
16 a 2019 weather event and lost most of its decking. In June 2022, the Illinois SHPO and the 88th RD
17 entered into an MOA to mitigate the adverse effect of proposed demolition of the bridge. The Fort
18 Worth District USACE, on behalf of the 88th RD, is currently drafting a Historic American Engineering
19 Record (HAER) of the bridge as part of the mitigation plan.

20 The majority of the remaining buildings at the facility were less than 50 years of age, or had yet to be
21 constructed, at the time of the previous inventory and should be re-evaluated in the future. None of
22 the facility buildings will turn 50 years of age during this ICRMP period. (ICRMP IL, 2020)

23 The entire facility has been surveyed for archaeological resources and there is little potential for
24 additional, intact, archaeological resources. However, there is one archaeological site (11WI1777),
25 outside of the active training area, that is eligible for the NRHP. As a result of 24 investigations, none
26 of the remaining 54 archaeological sites are recommended as NRHP-eligible. Given that the entire
27 facility has now been surveyed and all sites within active training areas recommended ineligible, with
28 Illinois SHPO concurrence, additional investigations should not be warranted at this facility. However,
29 it should be noted that Site 11WI1777, recommended eligible by Murray (1999)., is located within a
30 gas pipeline corridor/right-of-way and is not subject to JTA training actions that would disturb the site.
31 The 88th RD plans to flag the boundary as an environmentally sensitive area to ensure avoidance.
32 (ICRMP IL, 2020)

33 Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review
34 of this 2020-2024 ICRMP Update. (ICRMP IL, 2020)

35 The ICRMP for sites located in ILLINOIS will be furnished upon request.

36 **4.3.5 Biological Resources**

37 **Land Cover and Ecological Communities**

38 Seven ecological communities occur at the site - Grassland/Field, scrub/shrub, prairie,
39 woodland, and deciduous forest are the dominant ecological communities represented. The
40 ecological communities were assessed across seven different training areas and are
41 described further below. Photographs representing each land cover type are provided in the
42 facility photo log and are included in the 2021 Natural Resources Survey update which is
43 available upon request.

44 During the field surveys the contracted scientists did not observe any listed or candidate,
45 federal, state, or Army-identified species-at-risk animals or plants.

IL079 Land Cover and Ecological Communities		
Land Cover and Ecological Communities	Acres*	Percentage of Site*
Buildings	3.17	<1
Pavement Road/Parking	72.49	2
Gravel Road/Parking	54.07	2
Maintained Grass	133.31	4
Woodland	47.67	1
Deciduous Forest	1,244.00	35
Grassland/Field	219.34	6
Prairie	1,016.68	28
Scrub/Shrub	403.43	11
Wetland	281.58	8
Pond	49.72	1
Crop Land	9.28	<1
Stream	39.29	1
Total	3,573.04	100%

Source: ENSAFE 2021 Natural Resource Survey Report
 * - ENSAFE GIS calculation

Vegetation Communities

Maintained Grass

Kentucky bluegrass (*Poa pratensis*) with a variety of native and non-native lawn weeds dominates the maintained grass area. This area is mowed frequently through the growing season.

Some common lawn weeds include:

Black medick	<i>Medicago lupulina</i>
Common dandelion	<i>Taraxacum officinale</i>
White clover	<i>Trifolium repens</i> (invasive)
Ground ivy	<i>Glechoma hederacea</i>
Queen Anne's lace	<i>Daucus carota</i> (invasive)

Woodland

Between 1995 and 1998, foresters from Fort McCoy conducted an inventory of the forest resources at JTA within IL079/17896 (the JTA was formerly a sub-installation of Fort McCoy). All forested areas were documented by type, size, class, age, etc. Historically, the forested areas of IL079/17896 were continuous, particularly the bottomlands along Jackson Creek. In the present day, the majority of the forested areas are fragmented or dominated by hawthorn or other undesirable successional species. (URS, 2013 a & b)

Hawthorn is incredibly aggressive and quickly forms thickets as this species rapidly encroaches on previously farmed/grazed grasslands and clear-cut hardwood forests not managed with prescribed burns. Hawthorns create a dense canopy with very little understory growth. Within IL079/17896, several hundred acres of former prairie land, wetlands and/or forest is now comprised of monotypic stands of hawthorn. Hawthorn thickets exist within every training area at IL079/17896 except TA 6. (URS, 2013 a & b)

The 2021 field survey noted that the woodland communities were concentrated in Training Areas 1 and 2. Training area breakdowns and common species observed included:

1	Training Area 1:	
2	Harvestlice	<i>Agrimonia parviflora</i>
3	Washington hawthorn	<i>Crataegus phaenopyrum</i>
4	Green ash (dead)	<i>Fraxinus pennsylvanica</i>
5	Honey locust	<i>Gleditsia triacanthos</i>
6	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
7	Creeping jenny	<i>Lysimachia nummularia</i>
8	Osage orange	<i>Maclura pomifera</i>
9	Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
10	Bur oak	<i>Quercus macrocarpa</i>
11	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
12	Missouri gooseberry	<i>Ribes missouriense</i>
13	Multiflora rose	<i>Rosa multiflora</i> (invasive)
14	Prairie rose	<i>Rosa setigera</i>
15	Black raspberry	<i>Rubus occidentalis</i>
16	Late goldenrod	<i>Solidago altissima</i>
17	Coralberry	<i>Symphoricarpos orbiculatus</i>
18	Poison ivy	<i>Toxicodendron radicans</i>
19	Nettles	<i>Urtica sp.</i>

20	Training Area 2:	
21	Annual ragweed	<i>Ambrosia artemisiifolia</i>
22	Japanese barberry	<i>Berberis thunbergii</i> (invasive)
23	False nettle	<i>Boehmeria cylindrica</i>
24	Blunt broom sedge	<i>Carex tribuloides</i>
25	Shagbark hickory	<i>Carya ovata</i>
26	Common hackberry	<i>Celtis occidentalis</i>
27	Washington hawthorn	<i>Crataegus phaenopyrum</i>
28	Horsetail	<i>Equisetum sp.</i>
29	Grass-leaved goldenrod	<i>Euthamia graminifolia</i>
30	Orange Jewelweed	<i>Impatiens capensis</i>
31	Rice cutgrass	<i>Leersia oryzoides</i>
32	Common motherwort	<i>Leonurus cardiaca</i>
33	Osage orange	<i>Maclura pomifera</i>
34	Virginia creeper	<i>Parthenocissus quinquefolia</i>
35	Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
36	Mayapple	<i>Podophyllum peltatum</i>
37	Cottonwood	<i>Populus deltoides</i>
38	Black cherry	<i>Prunus serotina</i>
39	Bur oak	<i>Quercus macrocarpa</i>
40	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
41	Missouri gooseberry	<i>Ribes missouriense</i>
42	Black willow	<i>Salix nigra</i>
43	Black elderberry	<i>Sambucus nigra canadensis</i>
44	Coralberry	<i>Symphoricarpos orbiculatus</i>
45	American basswood	<i>Tilia americana</i>
46	American elm	<i>Ulmus americana</i>
47	Slippery elm	<i>Ulmus rubra</i>
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1 **Deciduous Forest**

2 Deciduous forest communities were observed in Training Areas 1, 3, 4, 5N, and 5S with the
3 greatest occurrence in Training Areas 3, 4, and 5. A large area of mature forest, noted as
4 Cantigny woods (so named for the first sustained American offensive of World War I, U.S.
5 Soldiers captured and held the village of Cantigny, on the Somme River in France, from
6 their German enemy.) was noted in the previous field survey within TA4 and the Arsenal
7 Road woods in TA3, are the last remaining remnants of the original forest. Training area
8 breakdowns and common species observed include:

9 **Training Area 1:**

10	Tree of heaven	<i>Ailanthus altissima</i> (invasive)
11	Hackberry	<i>Celtis occidentalis</i>
12	Washington hawthorn	<i>Crataegus phaenopyrum</i>
13	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
14	Honey locust	<i>Gleditsia triacanthos</i>
15	Black walnut	<i>Juglans nigra</i>
16	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
17	Osage orange	<i>Maclura pomifera</i>
18	Common moonseed	<i>Menispermum canadense</i>
19	Wild bergamot	<i>Monarda fistulosa</i>
20	Virginia creeper	<i>Parthenocissus quinquefolia</i>
21	Black cherry	<i>Prunus serotina</i>
22	American pokeweed	<i>Phytolacca americana</i>
23	Bur oak	<i>Quercus macrocarpa</i>
24	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
25	Missouri gooseberry	<i>Ribes missouriense</i>
26	Black raspberry	<i>Rubus occidentalis</i>
27	Late goldenrod	<i>Solidago altissima</i>
28	Coralberry	<i>Symphoricarpos orbiculatus</i>
29	Slippery elm	<i>Ulmus rubra</i>
30	Wingstem	<i>Verbesina alternifolia</i>
31	Muscadine	<i>Vitis rotundifolia</i>

32 **Training Area 3:**

33	Sugar maple	<i>Acer saccharum</i>
34	Harvest lice	<i>Agrimonia parviflora</i>
35	Wild garlic	<i>Allium</i> sp.
36	Shagbark hickory	<i>Carya ovata</i>
37	Hackberry	<i>Celtis occidentalis</i>
38	Cock-spur hawthorn	<i>Crataegus crus-galli</i>
39	Washington hawthorn	<i>Crataegus phaenopyrum</i>
40	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
41	Virginia wild rye	<i>Elymus virginicus</i>
42	Eastern daisy fleabane	<i>Erigeron annuus</i>
43	Late boneset	<i>Eupatorium serotinum</i>
44	White ash	<i>Fraxinus americana</i>
45	Green ash	<i>Fraxinus pennsylvavnic</i>
46	White avens	<i>Geum canadense</i>
47	Honey locust	<i>Gleditsia triacanthos</i>
48	Black walnut	<i>Juglans nigra</i>

1	Amur honeysuckle	<i>Lonicera maackii</i>	(invasive)
2	Morrow's honeysuckle	<i>Lonicera morrowii</i>	(invasive)
3	Osage orange	<i>Maclura pomifera</i>	
4	Wood sorrel	<i>Oxalis sp.</i>	
5	Virginia creeper	<i>Parthenocissus quinquefolia</i>	
6	Reed canary grass	<i>Phalaris arundinacea</i>	(invasive)
7	Mayapple	<i>Podophyllum peltatum</i>	
8	Black cherry	<i>Prunus serotina</i>	
9	Common hoptree	<i>Ptelea trifoliata</i>	
10	White oak	<i>Quercus alba</i>	
11	Bur oak	<i>Quercus macrocarpa</i>	
12	Northern red oak	<i>Quercus rubra</i>	
13	Common buckthorn	<i>Rhamnus cathartica</i>	
14	Missouri gooseberry	<i>Ribes missouriense</i>	
15	Multiflora rose	<i>Rosa multiflora</i>	(invasive)
16	Prairie rose	<i>Rosa setigera</i>	
17	Black raspberry	<i>Rubus occidentalis</i>	
18	Blackberry	<i>Rubus sp.</i>	
19	Round-Leaved Greenbrier	<i>Smilax rotundifolia</i>	
20	Coralberry	<i>Symphoricarpos orbiculatus</i>	
21	Poison ivy	<i>Toxicodendron radicans</i>	
22	Slippery elm	<i>Ulmus rubra</i>	
23	Wingstem	<i>Verbesina alternifolia</i>	
24	Nannyberry	<i>Viburnum lentago</i>	
25	Muscadine	<i>Vitis rotundifolia</i>	
26	Grape	<i>Vitis sp.</i>	

Training Area 4:

28	Boxelder	<i>Acer negundo</i>	
29	Sugar maple	<i>Acer saccharum</i>	
30	Harvestlice	<i>Agrimonia parviflora</i>	
31	Pawpaw	<i>Asimina triloba</i>	
32	Japanese barberry	<i>Berberis thunbergii</i>	
33	Shagbark hickory	<i>Carya ovata</i>	
34	Hackberry	<i>Celtis occidentalis</i>	
35	Drooping woodreed	<i>Cinna latifolia</i>	
36	Washington hawthorn	<i>Crataegus phaenopyrum</i>	
37	Autumn olive	<i>Elaeagnus umbellate</i>	(invasive)
38	White ash	<i>Fraxinus americana</i>	
39	Green ash	<i>Fraxinus pennsylvanica</i>	
40	Bedstraw	<i>Galium sp.</i>	
41	White avens	<i>Geum canadense</i>	
42	Sunflower	<i>Helianthus sp.</i>	
43	Black walnut	<i>Juglans nigra</i>	
44	Chinese privet	<i>Ligustrum sinense</i>	(invasive)
45	Amur honeysuckle	<i>Lonicera maackii</i>	(invasive)
46	Morrow's honeysuckle	<i>Lonicera morrowii</i>	(invasive)
47	Osage orange	<i>Maclura pomifera</i>	
48	Wild bergamot	<i>Monarda fistulosa</i>	
49	Virginia creeper	<i>Parthenocissus quinquefolia</i>	
50	Common reed	<i>Phragmites australis</i>	(invasive)

1	Mayapple	<i>Podophyllum peltatum</i>
2	Cottonwood	<i>Populus deltoides</i>
3	Black cherry	<i>Prunus serotina</i>
4	Common hoptree	<i>Ptelea trifoliata</i>
5	White oak	<i>Quercus alba</i>
6	Bur oak	<i>Quercus macrocarpa</i>
7	Pin oak	<i>Quercus palustris</i>
8	Northern red oak	<i>Quercus rubra</i>
9	Common buckthorn	<i>Rhamnus cathartica</i>
10	Missouri gooseberry	<i>Ribes missouriense</i>
11	Multiflora rose	<i>Rosa multiflora</i> (invasive)
12	Prairie rose	<i>Rosa setigera</i>
13	Black raspberry	<i>Rubus occidentalis</i>
14	Round-leaved greenbrier	<i>Smilax rotundifolia</i>
15	Late goldenrod	<i>Solidago altissima</i>
16	American basswood	<i>Tilia americana</i>
17	Poison ivy	<i>Toxicodendron radicans</i>
18	Slippery elm	<i>Ulmus rubra</i>
19	Wingstem	<i>Verbesina alternifolia</i>
20	Nannyberry	<i>Viburnum lentago</i>
21	Grape	<i>Vitis sp.</i>

Training Area 5N:

23	Sugar maple	<i>Acer saccharum</i>
24	Pawpaw	<i>Asimina triloba</i>
25	Japanese barberry	<i>Berberis thunbergii</i>
26	Stiff dogwood	<i>Cornus foemina</i>
27	Washington hawthorn	<i>Crataegus phaenopyrum</i>
28	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
29	White ash (dead)	<i>Fraxinus americana</i>
30	Green ash (alive and dead)	<i>Fraxinus pennsylvanica</i>
31	Honey locust	<i>Gleditsia triacanthos</i>
32	Hogweed	<i>Heracleum sp.</i>
33	Black walnut	<i>Juglans nigra</i>
34	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
35	Morrow's honeysuckle	<i>Lonicera morrowii</i> (invasive)
36	Tartarian honeysuckle	<i>Lonicera tatarica</i> (invasive)
37	Osage orange	<i>Maclura pomifera</i>
38	Common moonseed	<i>Menispermum canadense</i>
39	White mulberry	<i>Morus alba</i>
40	White poplar	<i>Populus alba</i>
41	Cottonwood	<i>Populus deltoides</i>
42	Black cherry	<i>Prunus serotina</i>
43	Common hoptree	<i>Ptelea trifoliata</i>
44	Swamp chestnut oak	<i>Quercus michauxii</i>
45	Pin oak	<i>Quercus palustris</i>
46	Northern red oak	<i>Quercus rubra</i>
47	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
48	Missouri gooseberry	<i>Ribes missouriense</i>
49	Multiflora rose	<i>Rosa multiflora</i> (invasive)
50	Coralberry	<i>Symphoricarpos orbiculatus</i>

1	Yellow meadow parsnip	<i>Thaspium trifoliatum</i>
2	Poison ivy	<i>Toxicodendron radicans</i>
3	American elm	<i>Ulmus americana</i>
4	Slippery elm	<i>Ulmus rubra</i>
5	Grape	<i>Vitis sp.</i>
6	Training Area 5S:	
7	Sugar maple	<i>Acer saccharum</i>
8	Pawpaw	<i>Asimina triloba</i>
9	Harvestlice	<i>Agrimonia parviflora</i>
10	Green dragon	<i>Arisaema dracontium</i>
11	Japanese barberry	<i>Berberis thunbergii</i>
12	Bitternut hickory	<i>Carya cordiformis</i>
13	Hackberry	<i>Celtis occidentalis</i>
14	Washington hawthorn	<i>Crataegus phaenopyrum</i>
15	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
16	White ash	<i>Fraxinus americana</i>
17	Green ash	<i>Fraxinus pennsylvanica</i>
18	Ground ivy	<i>Glechoma hederacea</i>
19	Honey locust	<i>Gleditsia triacnathos</i> (invasive)
20	Black walnut	<i>Juglans nigra</i>
21	Chinese privet	<i>Ligustrum sinense</i>
22	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
23	Morrow's honeysuckle	<i>Lonicera morrowii</i> (invasive)
24	Tartarian honeysuckle	<i>Lonicera tatarica</i> (invasive)
25	Osage orange	<i>Maclura pomifera</i>
26	Virginia creeper	<i>Parthenocissus quinquefolia</i>
27	Black cherry	<i>Prunus serotina</i>
28	Common hoptree	<i>Ptelea trifoliata</i>
29	White oak	<i>Quercus alba</i>
30	Bur oak	<i>Quercus macrocarpa</i>
31	Swamp chestnut oak	<i>Quercus michauxii</i>
32	Pin oak	<i>Quercus palustris</i>
33	Northern red oak	<i>Quercus rubra</i>
34	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
35	Missouri gooseberry	<i>Ribes missouriense</i>
36	Multiflora rose	<i>Rosa multiflora</i> (invasive)
37	Roundleaf greenbrier	<i>Smilax rotundifolia</i>
38	Coralberry	<i>Symphoricarpos orbiculatus</i>
39	Poison ivy	<i>Toxicodendron radicans</i>
40	Slippery elm	<i>Ulmus rubra</i>
41	Wingstem	<i>Verbesina alternifolia</i>
42	Viburnum	<i>Viburnum sp.</i>
43	Grape	<i>Vitis sp.</i>

Grassland/Field

Grassland/Field areas make up a large part of Training Areas 1, 3, and 4 with the greatest occurrence along pipeline and power-line rights-of-way. Training area breakdowns and common species observed include:

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Training Area 1:

Spotted knapweed	<i>Centaurea stoebe</i> (invasive)
Green ash (dead)	<i>Fraxinus pennsylvanica</i>
Jewelweed	<i>Impatiens capensis</i>
White mulberry	<i>Morus alba</i>
Common reed	<i>Phragmites australis</i> (invasive)
Cottonwood	<i>Populus deltoides</i>
Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
Black willow	<i>Salix nigra</i>
Late goldenrod	<i>Solidago altissima</i>
Slippery elm	<i>Ulmus rubra</i>
Grape	<i>Vitis sp.</i>

Training Area 3:

Harvest lice	<i>Agrimonia parviflora</i>
Annual ragweed	<i>Ambrosia artemisiifolia</i>
Indian hemp	<i>Apocynum cannabinum</i>
Common milkweed	<i>Asclepia syriaca</i>
False nettle	<i>Boehmeria cylindrica</i>
Corn gromwell	<i>Buglossoides arvensis</i>
Broom sedge	<i>Carex scoparia</i> (invasive)
Foxtail sedge	<i>Carex vulpinoidea</i>
Spotted knapweed	<i>Centaurea stoebe</i> (invasive)
Stiff dogwood	<i>Cornus foemina</i>
Washington hawthorn	<i>Crataegus phaenopyrum</i>
Cutleaf teasel	<i>Dipsacus laciniatus</i> (invasive)
Autumn olive	<i>Elaeagnus umbellata</i> (invasive)
Needle spikerush	<i>Eleocharis acicularis</i>
Green ash	<i>Fraxinus pennsylvanica</i>
Honey locust	<i>Gleditsia triacanthos</i>
Sunflower	<i>Helianthus sp.</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Morrow's honeysuckle	<i>Lonicera maackii</i> (invasive)
Creeping jenny	<i>Lysimachia nummularia</i>
Winged loosestrife	<i>Lythrum alatum</i>
Osage orange	<i>Maclura pomifera</i>
Yellow sweet clover	<i>Melilotus officinalis</i> (invasive)
Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
Common reed	<i>Phragmites australis</i> (invasive)
Kentucky bluegrass	<i>Poa pratensis</i>
Bur oak	<i>Quercus macrocarpa</i>
Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
Missouri gooseberry	<i>Ribes missouriense</i>
Prairie rose	<i>Rosa setigera</i>
Curly dock	<i>Rumex crispus</i>
Crown vetch	<i>Securigera varia</i> (invasive)
Carolina horsenettle	<i>Solanum carolinense</i>
Late goldenrod	<i>Solidago altissima</i>
Giant goldenrod	<i>Solidago gigantea</i>

1	Coralberry	<i>Symphoricarpos orbiculatus</i>
2	Yellow meadow parsnip	<i>Thaspium trifoliatum</i>
3	Common Cattail	<i>Typha latifolia</i> (invasive)
4	Winter vetch	<i>Vicia villosa</i>

Training Area 4:

6	Common yarrow	<i>Achillea millefolium</i>
7	Harvest lice	<i>Agrimonia parviflora</i>
8	Bull thistle	<i>Cirsium vulgare</i> (invasive)
9	Washington hawthorn	<i>Crataegus phaenopyrum</i>
10	Queen Anne's lace	<i>Daucus carota</i> (invasive)
11	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
12	Eastern daisy fleabane	<i>Erigeron annuus</i>
13	Green ash	<i>Fraxinus pennsylvavnic</i>
14	Honey locust	<i>Gleditsia triacanthos</i>
15	Common St. John's wort	<i>Hypericum perforatum</i> (invasive)
16	Black walnut	<i>Juglans nigra</i>
17	Oxeye daisy	<i>Leucanthemum vulgare</i>
18	Yellow sweet clover	<i>Melilotus officinalis</i> (invasive)
19	Late goldenrod	<i>Solidago altissima</i>
20	Poison ivy	<i>Toxicodendron radicans</i>

Prairie

Dolomite (wet, mesic and dry) and fine-textured soil (wet-mesic) prairie are the two prairie types that occur within IL079/17896. Dolomite prairie consists of native grassland communities on soil that ranges in depth from extremely shallow (patches of dolomite potentially present) to fifteen centimeters or more overlying dolomite bedrock. Fine-textured soil prairie consists of native grassland communities located on deep and fine-textured, usually silt loam or clay loam, soils. Intensive agricultural practices did not take place within dolomite prairies, given the shallow nature of the soils. As a result, several sizable pockets of this habitat type currently exist on IL079/17896 (within TA 1); however, the quality of these areas is severely degraded. Almost all of the fine-textured soil prairie was converted to farmland and today is comprised of early successional or invasive species. (URS, 2013 a & b)

Only small, severely degraded pockets of this habitat type can be found on IL079/17896. Associated native vegetation includes big bluestem, little bluestem, indiagrass and switchgrass. Associated animals include white-tailed deer, red fox, coyote, raccoon, meadow vole and prairie vole, red-tailed hawk, grasshopper sparrow, Henslow's sparrow, fox snake, garter snake, eastern bluebird and eastern meadowlark. (URS, 2013 a & b)

Prairie areas were observed in Training Areas 1, 2, 5N, and 6 with the greatest occurrence in Training Areas 2 and 6. Training area breakdowns and common species observed include:

Training Area 1:

40	Common yarrow	<i>Achillea millefolium</i>
41	Big bluestem	<i>Andropogon gerardii</i>
42	Indian hemp	<i>Apocynum cannabinum</i>
43	Common milkweed	<i>Asclepias syriaca</i>
44	Bull thistle	<i>Cirsium vulgare</i> (invasive)
45	Field bindweed	<i>Convolvulus arvensis</i>
46	Washington hawthorn	<i>Crataegus phaenopyrum</i>
47	Violet prairie clover	<i>Dalea purpurea</i>

1	Cutleaf teasel	<i>Dipsacus laciniatus</i> (invasive)
2	Eastern daisy fleabane	<i>Erigeron annuus</i>
3	Green ash (dead)	<i>Fraxinus pennsylvanica</i>
4	Honey locust	<i>Gleditsia triacanthos</i>
5	Black walnut	<i>Juglans nigra</i>
6	Birdfoot deervetch	<i>Lotus corniculatus</i> (invasive)
7	Wild bergamot	<i>Monarda fistulosa</i>
8	Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
9	Common reed	<i>Phragmites australis</i> (invasive)
10	Yellow Coneflower	<i>Ratibida pinnata</i>
11	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
12	Hairy wild petunia	<i>Ruellia humilis</i>
13	Carolina horsenettle	<i>Solanum carolinense</i>
14	Late goldenrod	<i>Solidago altissima</i>
15	Coralberry	<i>Symphoricarpos orbiculatus</i>
16	Poison ivy	<i>Toxicodendron radicans</i>
17	Ohio spiderwort	<i>Tradescantia ohiensis</i>

Training Area 2:

19	Common yarrow	<i>Achillea millefolium</i>
20	Harvestlice	<i>Agrimonia parviflora</i>
21	Redtop	<i>Agrostis gigantea</i>
22	Big bluestem	<i>Andropogon gerardii</i>
23	Common milkweed	<i>Asclepias syriaca</i>
24	Garden asparagus	<i>Asparagus officinalis</i>
25	Shagbark hickory	<i>Carya ovata</i>
26	Field thistle	<i>Cirsium discolor</i>
27	Stiff dogwood	<i>Cornus foemina</i>
28	Washington hawthorn	<i>Crataegus phaenopyrum</i>
29	Violet prairie clover	<i>Dalea purpurea</i>
30	Deptford pink	<i>Dianthus armeria</i>
31	Cutleaf teasel	<i>Dipsacus laciniatus</i> (invasive)
32	Purple coneflower	<i>Echinacea purpurea</i>
33	Autumn olive	<i>Elaeagnus umbellata</i> (invasive)
34	Eastern daisy fleabane	<i>Erigeron annuus</i>
35	Rattlesnake master	<i>Eryngium yuccifolium</i>
36	Green ash	<i>Fraxinus pennsylvanica</i>
37	Honey locust	<i>Gleditsia triacanthos</i>
38	Common St. John's wort	<i>Hypericum perforatum</i> (invasive)
39	Black walnut	<i>Juglans nigra</i>
40	Roundhead lespedeza	<i>Lespedeza capitata</i>
41	Oxeye daisy	<i>Leucanthemum vulgare</i>
42	Softhair marbleseed	<i>Lithospermum mole</i>
43	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
44	Morrow's honeysuckle	<i>Lonicera morrowii</i> (invasive)
45	Tartarian honeysuckle	<i>Lonicera tatarica</i> (invasive)
46	Switchgrass	<i>Panicum virgatum</i>
47	Common hoptree	<i>Ptelea trifoliata</i>
48	Callery pear	<i>Pyrus calleryana</i> (invasive)
49	Indian grass	<i>Sorghastrum nutans</i>
50	Reed canary grass	<i>Phalaris arundinacea</i> (invasive)

1	Common reed	<i>Phragmites australis</i> (invasive)
2	Multiflora rose	<i>Rosa multiflora</i> (invasive)
3	Prairie rose	<i>Rosa setigera</i>
4	Black raspberry	<i>Rubus occidentalis</i>
5	Blackeyed Susan	<i>Rudbeckia hirta</i>
6	Compass plant	<i>Silphium laciniatum</i>
7	Late goldenrod	<i>Solidago altissima</i>
8	Coralberry	<i>Symphoricarpos orbiculatus</i>
9	Yellow meadow parsnip	<i>Thaspium trifoliatum</i>
10	Poison ivy	<i>Toxicodendron radicans</i>

Training Area 5N:

12	Common yarrow	<i>Achillea millefolium</i>
13	Harvestlice	<i>Agrimonia parviflora</i>
14	Big bluestem	<i>Andropogon gerardii</i>
15	Indian hemp	<i>Apocynum cannabinum</i>
16	Common milkweed	<i>Asclepias syriaca</i>
17	Northern catalpa	<i>Catalpa speciosa</i>
18	Bull thistle	<i>Cirsium vulgare</i> (invasive)
19	Purple coneflower	<i>Echinacea purpurea</i>
20	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
21	Eastern daisy fleabane	<i>Erigeron annuus</i>
22	Sunflowers	<i>Helianthus sp.</i>
23	Common St. John's wort	<i>Hypericum perforatum</i> (invasive)
24	Oxeye daisy	<i>Leucanthemum vulgare</i>
25	Creeping Jenny	<i>Lysimachia nummularia</i>
26	Beardtongue	<i>Penstemon sp.</i>
27	Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
28	Narrowleaf mountain mint	<i>Pycnanthemum tenuifolium</i>
29	Prairie rose	<i>Rosa setigera</i>
30	Blackeyed Susan	<i>Rudbeckia hirta</i>
31	Black elderberry	<i>Sambucus nigra canadensis</i>
32	Crown vetch	<i>Securigera varia</i> (invasive)
33	Cup plant	<i>Silphium perfoliatum</i>
34	Late goldenrod	<i>Solidago altissima</i>
35	Yellow meadow parsnip	<i>Thaspium trifoliatum</i>
36	Poison ivy	<i>Toxicodendron radicans</i>
37	Red clover	<i>Trifolium pratense</i>
38	Corn	<i>Zea mays</i>

Training Area 6:

41	Redtop	<i>Agrostis gigantea</i>
42	Indian hemp	<i>Apocynum cannabinum</i>
43	Common milkweed	<i>Asclepias syriaca</i>
44	Chicory	<i>Cichorium intybus</i>
45	Bull thistle	<i>Cirsium vulgare</i> (invasive)
46	Washington hawthorn	<i>Crataegus phaenopyrum</i>
47	Cutleaf teasel	<i>Dipsacus laciniatus</i> (invasive)
48	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
49	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)

1	White sweet clover	<i>Melilotus albus</i>	(invasive)
2	Yellow sweet clover	<i>Melilotus officinalis</i>	(invasive)
3	White mulberry	<i>Morus alba</i>	
4	Reed canary grass	<i>Phalaris arundinacea</i>	(invasive)
5	Timothy grass	<i>Phleum pratense</i>	
6	Cottonwood	<i>Populus deltoides</i>	
7	Sulphur cinquefoil	<i>Potentilla recta</i>	
8	Callery pear	<i>Pyrus calleryana</i>	(invasive)
9	Multiflora rose	<i>Rosa multiflora</i>	
10	Smooth sumac	<i>Rhus glabra</i>	
11	Late goldenrod	<i>Solidago altissima</i>	
12	Yellow meadow parsnip	<i>Thaspium trifoliatum</i>	
13	Poison ivy	<i>Toxicodendron radicans</i>	
14	Red clover	<i>Trifolium pratense</i>	
15	Eastern gama grass	<i>Tripsacum dactyloides</i>	
16	Winter vetch	<i>Vicia villosa</i>	

17 Invasive designation indicates the species has been identified by the state of Illinois as an
18 Invasive Species of Concern.

19 **Scrub/Shrub**

20 Scrub/Shrub areas were observed in Training Areas 1, 3, 4, 5N, and 5S with the greatest occurrence
21 in Training Area 1. Training area breakdowns and common species observed include:

22 **Training Area 1:**

23	Boxelder	<i>Acer negundo</i>	
24	Common yarrow	<i>Achillea millefolium</i>	
25	Harvestlice	<i>Agrimonia parviflora</i>	
26	Big bluestem	<i>Andropogon gerardii</i>	
27	Common milkweed	<i>Asclepias syriaca</i>	
28	Hairy pagoda-plant	<i>Blephilia hirsuta</i>	
29	False nettle	<i>Boehmeria cylindrica</i>	
30	Brome	<i>Bromus sp.</i>	(invasive)
31	Foxtail sedge	<i>Carex vulpinoidea</i>	
32	Hackberry	<i>Celtis occidentalis</i>	
33	Spotted water hemlock	<i>Cicuta maculata</i>	
34	Bull thistle	<i>Cirsium vulgare</i>	(invasive)
35	Silky dogwood	<i>Cornus amomum</i>	
36	Washington hawthorn	<i>Crataegus phaenopyrum</i>	
37	Deptford pink	<i>Dianthus armeria</i>	
38	Cutleaf teasel	<i>Dipsacus laciniatus</i>	(invasive)
39	Autumn olive	<i>Elaeagnus umbellate</i>	(invasive)
40	Eastern daisy fleabane	<i>Erigeron annuus</i>	
41	Green ash (dead)	<i>Fraxinus pennsylvanica</i>	
42	Honey locust	<i>Gleditsia triacanthos</i>	
43	Common St. John's wort	<i>Hypericum perforatum</i>	(invasive)
44	Black walnut	<i>Juglans nigra</i>	
45	American water-willow	<i>Justicia americana</i>	
46	Amur honeysuckle	<i>Lonicera maackii</i>	(invasive)
47	Morrow's honeysuckle	<i>Lonicera morrowii</i>	(invasive)
48	Winged loosestrife	<i>Lythrum alatum</i>	

1	Osage orange	<i>Maclura pomifera</i>
2	White mulberry	<i>Morus alba</i>
3	Virginia creeper	<i>Parthenocissus quinquefolia</i>
4	Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
5	Common reed	<i>Phragmites australis</i>
6	Obedient plant	<i>Physostegia virginiana</i> (invasive)
7	Cottonwood	<i>Populus deltoides</i>
8	Sulphur cinquefoil	<i>Potentilla recta</i>
9	Black cherry	<i>Prunus serotina</i>
10	Common hoptree	<i>Ptelea trifoliata</i>
11	Narrowleaf mountain mint	<i>Pycnanthemum tenuifolium</i>
12	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
13	Missouri gooseberry	<i>Ribes missouriense</i>
14	Multiflora rose	<i>Rosa multiflora</i> (invasive)
15	Prairie rose	<i>Rosa setigera</i>
16	Hairy wild petunia	<i>Ruellia humilis</i>
17	Black raspberry	<i>Rubus occidentalis</i>
18	Curly dock	<i>Rumex crispus</i>
19	Black willow	<i>Salix nigra</i>
20	Dark green bulrush	<i>Scirpus atrovirens</i>
21	Woolgrass	<i>Scirpus cyperinus</i>
22	Crown vetch	<i>Securigera varia</i> (invasive)
23	Carolina horsenettle	<i>Solanum carolinense</i>
24	Late goldenrod	<i>Solidago altissima</i>
25	Coralberry	<i>Symphoricarpos orbiculatus</i>
26	Poison ivy	<i>Toxicodendron radicans</i>
27	Narrow-leaved cattail	<i>Typha angustifolia</i> (invasive)
28	Woolly mullein	<i>Verbascum Thapsus</i> (invasive)
29	Grape	<i>Vitis sp.</i>

Training Area 3:

31	Harvestlice	<i>Agrimonia parviflora</i>
32	Washington hawthorn	<i>Crataegus phaenopyrum</i>
33	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
34	Green ash	<i>Fraxinus pennsylvavnica</i>
35	Honey locust	<i>Gleditsia triacanthos</i>
36	Oxeye daisy	<i>Leucanthemum vulgare</i>
37	Morrow's honeysuckle	<i>Lonicera morrowii</i> (invasive)
38	Osage orange	<i>Maclura pomifera</i>
39	Cottonwood	<i>Populus deltoide</i>
40	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
41	Missouri gooseberry	<i>Ribes missouriense</i>
42	Multiflora rose	<i>Rosa multiflora</i> (invasive)
43	Prairie rose	<i>Rosa setigera</i>
44	Blackeyed Susan	<i>Rudbeckia hirta</i>
45	Late goldenrod	<i>Solidago altissima</i>
46	Coralberry	<i>Symphoricarpos orbiculatus</i>
47	Poison ivy	<i>Toxicodendron radicans</i>
48	Slippery elm	<i>Ulmus rubra</i>

Training Area 4:

1	Common yarrow	<i>Achillea millefolium</i>
2	Washington hawthorn	<i>Crataegus phaenopyrum</i>
3	Cutleaf teasel	<i>Dipsacus laciniatus</i> (invasive)
4	Autumn olive	<i>Elaeagnus umbellata</i> (invasive)
5	Eastern daisy fleabane	<i>Erigeron annuus</i>
6	Grass-leaved goldenrod	<i>Euthamia graminifolia</i>
7	Green ash	<i>Fraxinus pennsylvavnica</i>
8	Honey locust	<i>Gleditsia triacanthos</i>
9	Sunflower	<i>Helianthus</i> sp.
10	Oxeye daisy	<i>Leucanthemum vulgare</i>
11	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
12	Morrow's honeysuckle	<i>Lonicera morrowii</i> (invasive)
13	Common moonseed	<i>Menispermum canadense</i>
14	Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
15	Narrowleaf mountain mint	<i>Pycnanthemum tenuifolium</i>
16	Multiflora rose	<i>Rosa multiflora</i> (invasive)
17	Blackeyed Susan	<i>Rudbeckia hirta</i>
18	Common elderberry	<i>Sambucus canadensis</i>
19	Late goldenrod	<i>Solidago altissima</i>
20	Yellow meadow parsnip	<i>Thaspium trifoliatum</i>
21	Poison ivy	<i>Toxicodendron radicans</i>

Training Area 5N:

23	Harvestlice	<i>Agrimonia parviflora</i>
24	Common milkweed	<i>Asclepias syriaca</i>
25	Garden asparagus	<i>Asparagus officinalis</i>
26	Bluejoint grass	<i>Calamagrostis canadensis</i>
27	Spotted knapweed	<i>Centaurea stoebe</i> (invasive)
28	Chicory	<i>Cichorium intybus</i>
29	Bull thistle	<i>Cirsium vulgare</i>
30	Field bindweed	<i>Convolvulus arvensis</i>
31	Washington hawthorn	<i>Crataegus phaenopyrum</i>
32	Queen Anne's lace	<i>Daucus carota</i> (invasive)
33	Cutleaf teasel	<i>Dipsacus laciniatus</i> (invasive)
34	Autumn olive	<i>Elaeagnus umbellata</i> (invasive)
35	Easter daisy fleabane	<i>Erigeron annuus</i>
36	Honey locust	<i>Gleditsia triacanthos</i>
37	Oxeye daisy	<i>Leucanthemum vulgare</i>
38	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
39	Morrow's honeysuckle	<i>Lonicera morrowii</i> (invasive)
40	Tartarian honeysuckle	<i>Lonicera tatarica</i> (invasive)
41	Yellow sweet clover	<i>Melilotus officinalis</i> (invasive)
42	White mulberry	<i>Morus alba</i>
43	Reed canary grass	<i>Phalaris arundinacea</i> (invasive)
44	Common reed	<i>Phragmites australis</i>
45	Callery pear	<i>Pyrus calleryana</i> (invasive)
46	Multiflora rose	<i>Rosa multiflora</i> (invasive)
47	Prairie rose	<i>Rosa setigera</i>
48	Curly dock	<i>Rumex crispus</i>
49	Late goldenrod	<i>Solidago altissima</i>
50	Coralberry	<i>Symphoricarpos orbiculatus</i>

1	Yellow meadow parsnip	<i>Thaspium trifoliatum</i>
2	Poison ivy	<i>Toxicodendron radicans</i>
3	Red clover	<i>Trifolium pratense</i>
4	Narrow-leaved cattail	<i>Typha angustifolia</i> (invasive)

Training Area 5S:

6	Common yarrow	<i>Achillea millefolium</i>
7	Harvestlice	<i>Agrimonia parviflora</i>
8	Common milkweed	<i>Asclepias syrica</i>
9	Reedgrass	<i>Calamagrostis sp.</i>
10	Foxtail sedge	<i>Carex vulpinoidea</i>
11	Field bindweed	<i>Convolvulus arvensis</i>
12	Deptford pink	<i>Dianthus armeria</i>
13	Cutleaf teasel	<i>Dipsacus laciniatus</i> (invasive)
14	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
15	Eastern daisy fleabane	<i>Erigeron annua</i>
16	Green ash	<i>Fraxinus pennsylvanica</i>
17	Honey locust	<i>Gleditsia triacnathos</i>
18	Sunflower	<i>Helianthus sp.</i>
19	Common St. John's wort	<i>Hypericum perforatum</i> (invasive)
20	Eastern red cedar	<i>Juniperus virginiana</i>
21	Oxeye daisy	<i>Leucanthemum vulgare</i>
22	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
23	Morrow's honeysuckle	<i>Lonicera morrowii</i> (invasive)
24	Tartarian honeysuckle	<i>Lonicera tatarica</i> (invasive)
25	Osage orange	<i>Maclura pomifera</i>
26	White mulberry	<i>Morus alba</i>
27	Beardtongue	<i>Penstemon sp.</i>
28	Kentucky bluegrass	<i>Poa pratensis</i>
29	Sulphur cinquefoil	<i>Potentilla recta</i>
30	Black cherry	<i>Prunus serotina</i>
31	Callery pear	<i>Pyrus calleryana</i> (invasive)
32	Pin oak	<i>Quercus palustris</i>
33	Common buckthorn	<i>Rhamnus cathartica</i> (invasive)
34	Bristly locust	<i>Robinia hispida</i>
35	Multiflora rose	<i>Rosa multiflora</i> (invasive)
36	Prairie rose	<i>Rosa setigera</i>
37	Blackberry	<i>Rubus sp.</i>
38	Black raspberry	<i>Rubus occidentalis</i>
39	Black willow	<i>Salix nigra</i>
40	Senna	<i>Senna sp.</i>
41	Late goldenrod	<i>Solidago altissima</i>
42	Coralberry	<i>Symphoricarpos orbiculatus</i>
43	Poison ivy	<i>Toxicodendron radicans</i>
44	Slippery elm	<i>Ulmus rubra</i>
45	Muscadine	<i>Vitis rotundifolia</i>
46	Grape	<i>Vitis sp.</i>

Invasive designation indicates the species has been identified by the state of Illinois as an Invasive Species of Concern.

1 **Woodland**

2 Forest management activities include timber stand improvement, prescribed burns, oak forest
3 plantings, a firewood cutting program and a selective timber harvesting program. Areas of mature
4 oak forest within each of the seven training areas of IL079/17896 have been treated through timber
5 stand improvement methods. Undesirable tree/shrub species (e.g., hawthorn (*Crataegus spp.*);
6 common buckthorn (*Rhamnus cathartica*); and Russian olive, (*Elaeagnus angustifolia*) have been
7 shredded and bulldozed in scattered areas throughout TA 1, TA 2, TA 3 TA 4, TA 5 North and TA 5
8 South. As mentioned above, IL079/17896 maintains a forestry program. Primary goals of the
9 Forestry Program are:

- 10 • Maintain, restore, and manage forestlands to support the military mission on 88th RD owned
11 LTA.
- 12 • Promote sustainable and healthy ecosystems capable of supporting military mission and
13 conservation requirements.
- 14 • Maintain forest inventories of forest stands and keep inventory current (not older than ten
15 years).
- 16 • Harvest forests in a sustainable and financially responsible manner.
- 17 • Ensure management actions comply with all applicable laws, regulations, and guidance
18 including endangered species management.
- 19 • Ensure forest management activities support the planned military use of the land through
20 coordination with natural and cultural resource professionals (wildlife biologists, fisheries
21 biologists, archeologists, etc.) and other operational personnel.
- 22 • Clear existing roads of woody debris to facilitate vehicle access, improve safety, and to enable
23 access to training and forest stand areas.
- 24 • Implement forest Best Management Practices (BMPs) to protect water quality from non-point
25 source pollution.

26 **Wildlife**

27 IL079/17896 maintains a comprehensive wildlife management and hunting program. Goals of this
28 program include:

- 29 • Managing species diversity,
- 30 • Maintaining healthy, viable wildlife populations, and
- 31 • Improving, maintaining and restoring habitat quality.

32 Wildlife surveys have been conducted at IL079/17896 on an intermittent basis since approximately
33 1994, and include data on birds, reptiles, amphibians, fish and insects. More than 100 bird, 25
34 mammal, 15 reptile, 8 amphibian, 300 insect, 46 lichen and numerous macroinvertebrate species
35 have been identified on IL079/17896. Active wildlife population management is primarily directed
36 toward white-tailed deer and furbearing species such as coyote and raccoon through regulated
37 hunting and trapping programs. Habitat is managed to create, improve, and/or maintain diverse
38 habitats that will support native flora and fauna. Habitat quality is managed with primary emphasis
39 on the management of oak hardwood forest, exotic plants, native/natural areas and restoration of
40 tallgrass prairie. Artificial nesting structures have been established for bluebirds, Canada geese,
41 mallards, American kestrels and wood ducks. (AEM 2015)

42 IL079/17896 is extensively utilized for its high-quality hunting resource. Over 6,000 hunter days are
43 recorded per year. Hunting includes large game, white-tailed deer and turkey, small game, including
44 upland game birds, rabbit and squirrel, and trapping. This resource generates income for the
45 surrounding community. Hunting is managed by on-site biologists and wildlife conservation is a
46 primary goal of the program. (AEM 2015) The 88th RD maintains current Hunting Policies and
47 Procedures for the hunting activities taking place on JTA. (JTA Hunt 2021)

Birds

IL079/17896 is conducting a long-term monitoring program for neotropical birds, in which trends in fall and spring migrations are examined. In this monitoring program, avian point counts are conducted at permanently established census points and transects on two separate occasions during the spring and fall migrations.

The Joliet LTA is situated along the Des Plaines River and contains several natural drainages that connect to the Des Plaines River. These areas provide habitat for both aquatic/wading species such as mallards (*Anas platyrhynchos*), wood duck (*Aix sponsa*), great egret (*Ardea alba*), green heron (*Butorides virescens*), double-crested cormorant (*Phalacrocorax auratus*), and belted kingfisher (*Ceryle alcyon*), as well as riparian species such as Bell's vireo (*Vireo bellii*), Acadian flycatcher (*Empidonax virescens*), willow flycatcher (*Empidonax traillii*), and least flycatcher (*Empidonax minimus*). (Eco/Vernadero 2021)

The old field community within IL079/17896 provides critical breeding habitat for several obligate grassland bird species. Joliet LTA also contains thickets dominated predominantly by the exotic shrubs Amur honeysuckle (*Lonicera maacki*), Morrow's honeysuckle (*Lonicera morrowii*), autumn olive (*Elaeagnus umbellata*), and multiflora rose (*Rosa multiflora*). While these plants are considered invasive and/or noxious weed species requiring control, their fruits are known to provide avian species, particularly long-distance migrants, with nutrient and energy dense forage. There is also evidence that the relative abundance of fruit-bearing species may be a more important feature in determining habitat usage by migratory birds than habitat structure. (Eco/Vernadero 2021)

In 2009, a grassland and woodland bird survey was conducted. As of the 2009 survey, a record number of species had been identified within IL079/17896. A total of seventy avian species were observed; including twelve grasslands obligate and five area-sensitive woodland species of management concern. The grassland obligate species observed within IL079/17896 in 2009 included the bobolink, common yellowthroat, dickcissel, eastern meadowlark, grasshopper sparrow, Henslow's sparrow, red-winged blackbird, ring-necked pheasant, savannah sparrow, sedge wren and Vesper sparrow. The area-sensitive woodland species of management concern observed with IL079/17896 in 2009 included the great-crested flycatcher, red-eyed vireo, wood thrush, ovenbird and scarlet tanager. Despite the record number of species identified in 2009, long-term data indicate that most avian species are declining at IL079/17896. This decline in species is reflective of population trends in Illinois, as well as North America. (AEM 2015)

Joliet LTA avian point count surveys have been conducted from 2001 through 2009 and in 2017 and 2021. The 2021 mean incidence and mean abundance of bird species during these survey events is provided in (Eco/Vernadero 2021) Tables 4-1 and 4-2. From 2001 through 2009, 106-point count locations were surveyed. In 2017, the point count survey locations were increased to 232-point count locations. In 2021, the same 232-point count locations were surveyed.

For the majority of species observed, mean incidence and mean abundance increased in 2021 compared to 2017 and to previous years. This includes a number of grassland indicator avian species.

However, some species have dramatically declined in abundance and incidence since 2001, such as the Eastern bluebird. Species such as the Eastern bluebird rely upon mature trees proximate to areas with little to no understory or sparse ground cover. This habitat has greatly decreased across much of the Midwest including areas proximate to the Joliet LTA. (Eco/Vernadero 2021).

It is suspected that the majority of the species that have declined in abundance at the Joliet LTA, have had reduced abundance across the entirety of their range and the reductions are likely influenced by cumulative effects across their whole range, and not specific to any activities or habitat issues on Joliet LTA.

1 The complete 2021 Eco/Vernadero avian survey along with the associated species list is available
2 upon request or at P:\DPW\Facility Archive\IL\IL079 Joliet JTA\Environmental\IL079 Land
3 Resources\IL079 MBTA Survey.

4 **Fish, Macroinvertebrates and Water Quality**

5 ***Fish***

6 In June 1994 and March 1995, thirty-six species of fish (representing eight families) were
7 collected in Jackson Creek via use of a direct current stream shocker. In 2003, the IDNR
8 conducted a fish population survey on Jackson Creek and two of its tributaries (Jackson
9 Branch and Manhattan Branch). One of the Jackson Creek sampling locations was within
10 IL079/17896, downstream of the low-water vehicle crossing that divides TA 5 North and TA 5
11 South. Within this sampled reach of Jackson Creek, twenty-three native fish species were
12 observed. An index of biotic integrity (IBI) score was calculated for this stream reach, based
13 on the number and distribution of fish species observed. Within the Biological Classification
14 of Illinois Streams system, according to the resultant IBI score, this stream reach is classified
15 as a highly valued aquatic resource (biotic class B). (AEM 2015)

16 Beginning approximately in 2003, annual surveys for the round goby an exotic, bottom-
17 dwelling fish) were conducted within the segment of Jackson Creek. In 2007, twenty-three
18 round gobies were captured, representing the first catch since the surveys began. Of the
19 survey sites established in TA 1, TA 3 and TA 5 North, the round goby was captured only in
20 TA 1. This is the most downstream portion of Jackson Creek. The existence of the round
21 goby within the Des Plaines River had been previously documented by the USFWS. The
22 rusty crayfish, also an invasive species, was the most abundant species trapped in the 2007
23 survey. A total of 428 crayfish were trapped across TA 1, TA 3 and TA 5 North. (AEM 2015)

24 ***Macroinvertebrates***

25 Jackson Creek has been identified by the state of Illinois as a creek with exceptionally good
26 water quality, and to ensure that the activities that takes place on JTA are not negatively
27 impacting the water quality the 88th RD has monitored the water quality through regularly
28 sampling its benthic organisms over an extended period of time beginning in 2000 with
29 ongoing monitoring program. Benthic organisms are indicator species that are gauges of
30 water quality. Twenty years of data indicate that the water quality has remained stable and is
31 of good quality, supporting a wide variety of benthic organisms.

32 In 2000 and 2001-2002, benthic macroinvertebrates were sampled at various sites within
33 Jackson Creek. Similar macroinvertebrate sampling sites were established and sampled in
34 2008. For the 2000, 2001, 2002 and 2008 macroinvertebrate surveys, three Jackson Creek
35 locations were sampled: (1) Site 1 = most upstream at the low water crossing between TA 5
36 North and TA 5 South, (2) Site 2 = TA 4 within Cantigny Woods and (3) Site 3 = approximately
37 180 meters south of the Arsenal Road bridge. Sampling techniques were based upon the
38 protocol established by Illinois River Watch, as described in the IDNR Stream Monitoring
39 Manual, Fifth Edition. Riffle habitats were sampled at Sites 1 and 3. Site 2 was characterized
40 as a slow-moving, stagnant portion of Jackson Creek. Due to difficulty encountered in
41 obtaining sufficient sample at Site 2, an alternate Site 2 was established in 2008. (AEM 2015)

42 In 2013, field biologists from URS conducted an on-site macroinvertebrate survey within
43 Jackson Creek. URS personnel assessed the same stream reaches previously established:
44 (1) Site 1 at TA 5 North/TA 5 South, (2) Site 2 alt. at TA 1 and (3) Site 3 at TA 3.
45 Macroinvertebrates were sampled in accordance with the U.S. Environmental Protection
46 Agency's (USEPA) Rapid Bio assessment Protocols (RBP) for Use in Streams and Wadeable
47 Rivers. The USEPA RBP calls for the establishment of a 100-meter stream reach; however,

1 to maintain consistency with previous macroinvertebrate surveys conducted at IL079/17896,
2 a 76-meter reach length was adopted in the 2013 survey (per the Illinois River Watch
3 protocol). Organisms were collected with a rectangular frame 500-micron dip-net. Sampled
4 areas within each reach included riffles, runs, pools, undercut banks, root wads, emergent
5 vegetation and woody debris. Specimens were removed from the net and all material was
6 composited in a bucket. Field personnel rinsed and removed collected debris, containerized
7 each of the cleaned samples and introduced 70% ethyl alcohol to the samples. The samples
8 were shipped to Pennington and Associates, Inc., of Cookeville, Tennessee, for sorting and
9 identification (in accordance with RBP III) and calculation of metrics. (AEM2015)

10 The 2013 Metrics were calculated in accordance with the macroinvertebrate biotic index (MBI)
11 developed and refined by Hilsenhoff, HBI (1998). Specifically, the HBI/MBI has a scale of 0
12 to 10, in which 0 implies no tolerance to pollution and 10 implies high tolerance to pollution.
13 These same metrics had been used for the evaluation of macroinvertebrate surveys
14 conducted in 2000, 2001-2002 and 2008. Through calculation of the HBI, one can infer the
15 general pollution level of the stream. A high HBI indicates the presence of species with a high
16 tolerance to pollution, thus also a higher level of water pollution.

17 June 2013 HBI's calculated from the macroinvertebrate data collected indicate water quality
18 within Jackson Creek:

19 upstream fair (Site 1 HBI = 5.77 fair)
20 midstream fair (Site 3 HBI =5.63 fair)
21 downstream good (Site 2 alt. HBI = 4.88 good)

22 HBI's calculated from the macroinvertebrate data collected in 2000 indicated the presence of
23 very good to good water quality. HBI's calculated from the macroinvertebrate data collected
24 in 2001-2002 and 2008 indicate the presence of good water quality at Jackson Creek Sites 1,
25 2 alt. and 3. Consistent with macroinvertebrate data collected in 2000, 2001-2002 and 2008,
26 taxa from all three pollution tolerance categories were collected in the June 2013 effort. In all
27 sampling years, most of the individuals collected have been in the pollution intolerant and
28 moderately tolerant categories. (AEM 2015)

29 Another macroinvertebrate metric commonly used for evaluation of water quality is the percent
30 of insects belonging to orders Ephemeroptera, Plecoptera and Trichoptera among all insects
31 collected (EPTPC or %EPT). A high EPTPC is typically an indicator of good water quality.
32 Table 5.24 presents a tally of the EPTPC's for the 2008 data and the June 2013 data. EPTPC
33 data are affected by several factors (e.g., stream size, substrate variability, water current,
34 temperature, food resources and life cycles) and are, therefore, known to display variability.
35 (AEM 2015)

36 In 2021 a Benthic Survey was conducted at the previously established collection points (Sites
37 1, 2a, and 3) during the spring (May), summer (July) and late summer (August). A total of
38 1,252 organisms were collected, identified, and analyzed during the 2021 three-month
39 monitoring survey. Of the total collected organisms, 408 individuals were collected from Site
40 1; 372 individuals were collected from Site 2a; and 472 individuals were collected from Site 3.
41 The greatest density of sampled organisms was observed during May 2021 at Site 03. (PE
42 Ayuda JV 2021)

43 Based on the benthic communities defined for each of the three sites (1, 2A, and 3), five
44 metrics were calculated to examine spatial and seasonal relationships, to characterize
45 biological conditions in 2021, and to evaluate possible trends in long term monitoring data.
46 (PE Ayuda JV2021)

1 A summary of the findings is presented here; however, the entire report is available upon
2 request.

3 ***Macroinvertebrate Biotic Index (MBI)***

4 The MBI was used to compare average community pollution tolerance values reflecting
5 varying levels of environmental stress. Results of the 2021 survey showed that community
6 sensitivity was spatially and seasonally similar across the three sampling locations, with
7 scores ranging within Fair and Good categories. Conditions appear to be marginally more
8 favorable for benthic communities during summer monitoring events. Although differences
9 were observed among the sites, the data support the conclusion that community sensitivity
10 was relatively consistent. Slight fluctuations are likely within a natural range of variation and
11 do not reflect water quality impacts or changes in habitat quality or availability. (PE Ayuda JV
12 2021)

13 Trend analysis showed similar results in the long term in which community stress tolerance
14 remained generally consistent among the three sites and over the duration of study.
15 Regressions applied to the data had relatively low positive slopes, and although the regression
16 for Site 3 was slightly higher to reflect a slightly more stress-tolerant community compared to
17 Sites 01 and 02A, the difference was marginal and likely not significant. Long term data were
18 comparable to 2021 results, primarily falling between the Good and Fair range.

19 Comparison of these data suggests that conditions throughout the study reach at JTA have
20 not changed greatly since 2000. (PE Ayuda JV 2021)

21 ***Total Taxa Richness (TTR)***

22 TTR seasonal relationships were not strongly apparent, and results were generally consistent
23 across the three sites. Qualitatively, Sites 01 and 02A were most similar, seasonally deviating
24 by two of fewer taxa. Both of these sites were richest during summer months (June through
25 August). This corroborates patterns observed in the MBI metric from July and August,
26 although similarly, these differences are marginal and may not be significant. Site 03
27 supported greater richness than Sites 01 and 02A in May and July 2021, suggesting slightly
28 more favorable conditions in these months; however, August values were more similar across
29 sites. Physical site characteristics documented in the field may be primarily responsible for
30 these data relationships, related to differing bed material and flow velocities. Sites 01 and 03
31 contained cobble/gravel substrate and slower flow, while Site 02A had coarser boulder/cobble
32 substrate and swifter flows. These two factors may influence benthic communities due to
33 differing habitat availability/quality and potential for scour. (PE Ayuda JV 2021)

34 In evaluation of long-term results, regressions applied to the data primarily had slightly
35 negative slopes, showing minor reductions in community richness. Site 3 was an exception
36 during the fall season; however, it was not sampled at this time of year in 2021. In part, the
37 more common negative slopes were influenced by the unusually high TTR values determined
38 during the initial 2000 survey by Nearly. It is unclear whether methods were identical to later
39 surveys, whether related to sampling technique or level of taxonomy in calculating TTR. These
40 observations may support the hypothesis that conditions have slightly degraded over time;
41 however, this may also be related to variation in natural ambient conditions at the time of the
42 survey. (PE Ayuda JV 2021)

43 Further study with greater frequency of sampling would help to clarify whether these patterns
44 are indicative of minor degradation. (PE Ayuda JV 2021)

1 **Percent EPT Taxa (EPTPC)**

2 The EPTPC metric followed similar seasonal patterns across the three sample locations, with
3 highest relative abundance of sensitive EPT taxa in July at Sites 01 and 02A, and similar to
4 August conditions at Site 03. These seasonal relationships are consistent with those shown
5 in the MBI metric. As representative sensitive organisms, a correlation between the EPTPC
6 metric and community average tolerance value (MBI) is expected. Also parallel with the
7 seasonal relationships of the MBI, EPTPC shows that conditions at Site 01 and Site 02A were
8 most similar in May and July while Site 03 was most similar in July and August. Across all
9 three sites, EPT taxa represented less than 50% of the community (except Site 02A at 53.8%
10 in July 2021). In the long-term dataset, the EPTPC metric demonstrates similar slightly
11 negative regressions as seen in the TTR metric and MBI. Although these are observable as
12 best fit lines (as applied within this trend analysis), variations in the proportion of EPT taxa in
13 the community spanned a wide range of values from 2000 to 2021 (from 3% to 61%). Highest
14 seasonal percentages of EPT taxa consistently occurred between 2000 and 2008. These
15 observations support the hypothesis that environmental stressors have continued to increase
16 and have limited benthic communities at some level over the course of the 21-year study.

17 Confidence in this conclusion and trendline affinity could be greatly improved with
18 intermediate data points or future monitoring at greater frequency. (PE Ayuda JV 2021)

19 **Percent Dominant Taxon (Dom%)**

20 The proportion of the community represented by the most common taxon was evaluated
21 through the Dom% metric. Lower Dom% values demonstrate greater evenness in the
22 community and is an indication of lower environmental stress levels. This metric was not
23 included in the long-term trend analysis or historical reporting. Therefore, Dom% was only
24 applied to 2021 data to evaluate current spatial and seasonal relationships. Metric results did
25 not suggest a high level of selective pressures at any of the three sites. It is possible that
26 variation seen in the data reflect seasonal variation in ambient conditions and/or lifecycle
27 factors and do not indicate spatial or seasonal impacts. Simuliidae (black flies) and
28 Chironomidae can be very densely productive in the spring season, as observed at all three
29 sites in May. All other dominant taxa identified during July and August typically coexist in
30 relatively clean riffle habitats (*Cheumatopsyche* sp. and *Stenelmis* sp.).

31 In general, with all recorded values of %Dom less than 40%, these results are qualitatively
32 similar across seasons and sample locations, and they demonstrate relatively balanced
33 communities as an indicator of community health. (PE Ayuda JV 2021)

34 **Tolerance Distributions**

35 To evaluate the distribution of organisms of varying stress tolerance, identified taxa were
36 classified into three groups based on their established tolerance values.

37 These groups included Pollution Intolerant, Moderately Pollution Tolerant, and Pollution
38 Tolerant organisms. At all three sites, and regardless of sampling month, benthic communities
39 fluctuated between dominance by pollution intolerant taxa and dominance by moderately
40 pollution-tolerant taxa. Tolerant taxa were either absent or represented a small proportion of
41 the community, as seen at Site 01 in August, Site 02 in August, and Site 03 in June and
42 August. As previously noted, August was the only month in which tolerant taxa were present
43 at all three sites (however observed in low numbers). The Total Taxa Richness metric
44 supports this statement, as richness was highest in August at Sites 01 and 02A. Site 03
45 supported the greatest proportion of pollution intolerant organisms in each study month;
46 however, these proportions were similar. The lowest proportion of Pollution Intolerant
47 organisms was observed in May, representing approximately ¼ of the community at each site.

1 In general, the distribution of percent pollution intolerant, percent moderately pollution tolerant,
2 and percent pollution tolerant organisms were similar among sites, with minor seasonal
3 variations. (PE Ayuda JV 2021)

4 **Macroinvertebrates / Water Quality Conclusion**

5 These data do not demonstrate degradation to the benthic communities of Jackson Creek that
6 would indicate substantial changes in water quality or habitat in the vicinity of the JAAP. The
7 suite of metrics applied to these data are generally corroborative and appear to be mostly
8 reflective of fluctuating ambient conditions acted on by seasonal and other naturally occurring
9 factors. As a result of the complex, interconnected, and cumulative effects of a dynamic
10 environment, variability in biological datasets is unavoidable. Unfortunately, infrequent
11 monitoring intervals between 2000 and 2021 make it challenging to quantify representative
12 normal ranges, which would greatly increase confidence in data interpretation. Future trend
13 analysis could be improved by increasing the frequency of monitoring, ideally annually or
14 biannually, which would help to support statistical trend analysis. Regardless, the benthic
15 communities supported by all three study sites appear to be rich and productive with similar
16 ecological conditions and biological integrity, both in 2021 and in the long term. (PE Ayuda JV
17 2021)

18 **Listed Species**

19 **Vegetation – 2019 - Water willow (*Justicia americana*)** - The 2015 -2020 Region 3 INRMP
20 identified a number of species that were not found at the site. On August 25 and 26, 2019 a
21 subcontractor (Apogee) conducted a field survey for the water willow at the 88th Readiness Division
22 Joliet USARC/LTA, south of Joliet in Ellwood, Illinois. Surveys were conducted in the most suitable
23 habitat present within the project area such as sandbars, gravel bars, or mud bars of rivers, low
24 islands in rivers or ponds, shallow water or muddy banks of ponds and rivers, shallow water of upland
25 rocky streams, shallow water or wet areas of swamps, and sandy marshes. **No water willows were**
26 **encountered during field survey efforts.** (Apogee 2019)

27 **2008 - Eastern prairie fringed orchid (*Platanthera leucophaea*)** - In 2008, a survey was conducted
28 along with a written in response to the U.S. Fish and Wildlife Service letter dated August 20, 2008,
29 requesting that a search for the federally threatened eastern prairie white fringed orchid (*Platanthera*
30 *leucophaea*) be conducted due to high quality wetlands and associate species identified at the
31 Arsenal Road site. DK Environmental Services, Inc. conducted a wetland delineation of the Arsenal
32 Road site, with a report dated July 2008 that identified 46 wetland areas. Seven of these wetlands
33 (nos. 2, 7, 10, 12, 13, 22, and 25) were considered high quality as defined by the Floristic Quality
34 Index of 20 or greater and a Native Mean C of 3.5 or greater. In addition, all seven of these wetlands
35 support from one to four associate species of the eastern prairie fringed orchid (*Platanthera*
36 *leucophaea*), which include common tussock sedge (*Carex stricta*), common mountain mint
37 (*Pycnanthemum virginianum*), hairy grass-leaved goldenrod (*Solidago graminifolia nuttallii*), and
38 sawtooth sunflower (*Helianthus grosseserratus*). (BEI, 2008)

39 The field survey objective was to identify if potential habitat exists for the eastern prairie fringed orchid
40 (*Platanthera leucophaea*) at the seven wetland locations within the Arsenal Road Site. If potential
41 habitat was found it was mapped, plant inventory data was collected along with representative
42 photographs. Generally, the project limits known as the “Arsenal Road Site” is located in Channahon
43 Township, Will County, Illinois. Geographically, the study area is found in Sections 13, and 14 of
44 T34N, R10E, East of the Third Principle Meridian. (BEI, 2008)

45 **The 2008 survey results indicated that while there are several locations throughout JTA that**
46 **would provide suitable habitat for the eastern prairie fringed orchids; however, no eastern**
47 **prairie fringed orchids were found on site.** (BEI, 2008)

1 **Mammals –**

2 **Bats - 2007/2020** -The JTA falls within the historical range of the **Indiana bat (*Myotis sodalis*)** and
3 **northern long-eared bat (*M. septentrionalis*)**. The Indiana bat is a federally endangered species,
4 and the northern long-eared bat is a federally endangered species. with a 4(d) rule of the Endangered
5 Species Act of 1973. (P-G F JV 2020)

6 In 2020, the 88th RD, through the United States Army Corps of Engineers Louisville District (LCOE)
7 contracted PARS-Gannett Fleming Joint Venture (JV) to conduct a USFWS Sanctioned
8 Presence/Probable Absence (P/PA) acoustic survey for threatened and endangered (T&E) bat
9 species on the Joliet Training Area. The P/PA survey performed by Borealis Biological, as a
10 subcontractor to the JV, at the JTA between July 6 and 10, 2020. (P-G F JV 2020)

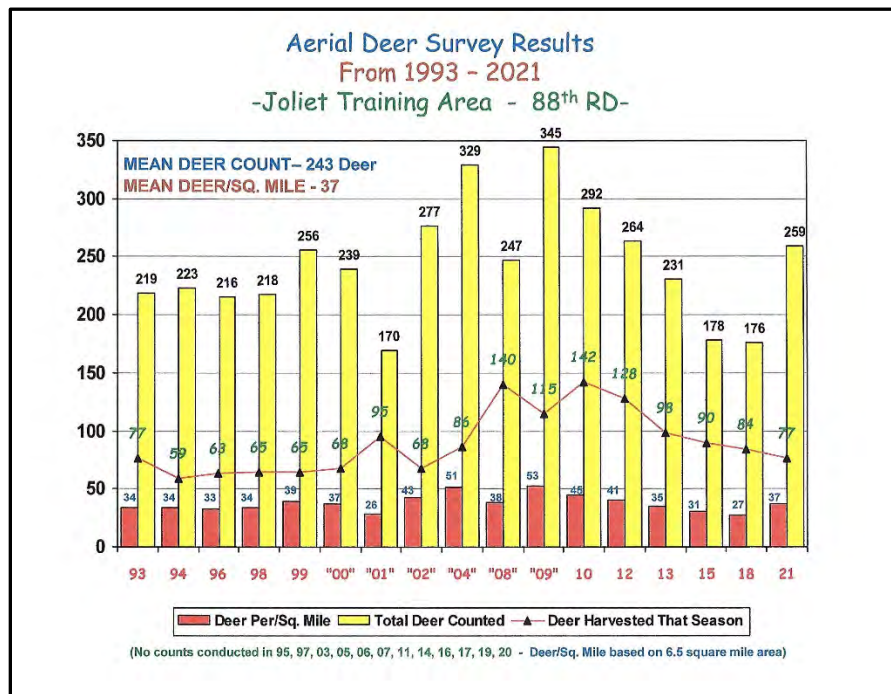
11 During the survey, five species of bats were detected including eastern red bat (*Lasiurus borealis*),
12 big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), evening bat (*Nycticeius humeralis*),
13 and little brown bat (*Myotis lucifugus*). The USFWS Illinois Field Ecological Office concurred with an
14 absence determination for Indiana bat (*Myotis sodalis*) and Northern Long-eared bat (*Myotis*
15 *septentrionalis*) in June 2023 that is valid through the end of 2025. **No T&E bat species were**
16 **detected at the JTA during the Summer 2020 P/PA survey.** (P-G F JV 2020)

17 To date, no federally endangered or threatened species have been identified at IL079/17896. No
18 SARs are reported at IL079/17896. As a result, no areas have been classified as off-limits to military
19 training due to T & E species presence.

20 **Deer Survey - 1993-2021**

21 When conditions are favorable, the JTA biologist hires a helicopter during the winter months when
22 the ground is snow covered to conduct an aerial deer survey. In 2021 conditions were right and a
23 survey took place. The raw data has been input into a graph along with the with previous 16 surveys
24 dating back to 1993. This data assists the area Biologist in deer population management, and deer
25 hunting management.

26 **Aerial Deer survey Results, 1993 - 2021**



Created by 88th RD JTA Biologist R. Berry

27

1 **Insects – 2005** - The Hine's **emerald dragonfly (*Somatochlora hineana*)** is a federally- and state-
2 listed endangered species that occurs on a limited number of sites in the mid-western United States.
3 A survey for the Hine's emerald dragonfly was conducted on JTA in 2008. (Soluk, Satyshur, 2008)

4 The species is known from several sites in the Des Plaines River Valley north of Joliet in Will, Dupage
5 and Cook Counties, Illinois. Larvae of the Hine's emerald dragonfly live for 3 to 5 years in small
6 streamlet and flowage areas fed by a combination of surface and groundwater. The presence of
7 larvae is strongly associated with the presence of dolomitic bedrock near the surface and the
8 presence of springs and seeps flowing through cattails and sedge meadows. Such features are
9 present in parts of the Joliet Training Area near Arsenal Road in western Will County. (Soluk,
10 Satyshur, 2008).

11 While several species of dragonfly were identified within the survey limits, **no Hine's emerald**
12 **dragonfly (*Somatochlora hineana*) were identified on site**; however, the presence of suitable
13 habitat for both the adult and larval stages exist on site. (Soluk, Satyshur, 2008).

14 **Currently, there are no known federally endangered or threatened species have been identified**
15 **at IL079/17896. No SARs are reported at IL079/17896. As a result, no areas have been**
16 **classified as off-limits to military training due to T & E species presence.**

17 4.3.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

18 ***Hunting and Trapping***

19 JTA is one of the two facilities within the 88th Readiness Division that supports and encourages
20 hunting on the facility. Hunting activities include deer (archery and gun), turkey, waterfowl, small
21 game and trapping. JTA also releases rooster pheasants annually for upland game hunting. This
22 program is an ecosystem management tool which provides controlled access to uniformed personnel,
23 family members, and the public to hunting, and trapping consistent with security requirements and
24 safety concerns, and the priorities of the Readiness Division's training mission. Funding to support
25 this program is through the sale of hunting and trapping permits. (JTA Hunt 2021)

26 Non-military public access to the property is limited to State of Illinois hunting license and JTA hunting
27 permit holders. Hunting permits are limited to, in most cases, through the use of a lottery system. All
28 firearm deer hunters must follow the State of Illinois firearm regulations. All archery deer hunters,
29 both traditional and crossbow, must pass an Archery Proficiency test prior to the issuance of an
30 archery hunting permit. (JTA Hunt 2021)

31 Beavers (*Castor canadensis*) have periodically impeded drainage ditch flow resulting in flooding onto
32 adjacent properties. In 2023, the beaver dams were removed and the beavers moved on.

33 ***Agricultural Out-leasing***

34 Currently there is no agricultural out-leasing at the JTA.

35 4.3.7 Management Concerns and Issues

36 The JTA Ground Maintenance Program ensures that the grounds contractor properly maintains grounds
37 in developed areas, along rights-of-way, and other selected areas according to the contract
38 specifications. Vegetation is controlled in the cantonment areas, training areas, and on ranges to provide
39 a safe area of training.

40 The JTA Biologist conducts pest control operations in accordance with the 88th RD Pest Management
41 Plan. The goal is to reduce pesticide use through integrated pest management, such as: mechanical,
42 physical, cultural, and biological controls. Controlled pests include noxious weeds and other unwanted
43 vegetation, insects, rodents, and mammals.

44 The JTA Biologist provides oversight of the hunting and permit sales program and maintenance of natural

resources.

Invasive Plant Species

The IDNR regulates invasive plant species. Under state law, invasive plant species are defined as a species not native to a particular ecosystem, including its seeds, spores, or other biological material capable of propagating that species and whose introduction does or is likely to cause economic or environmental harm. Exotic species are those plants and animals that were not present in Illinois prior to the time of European settlement. Illinois rules make it illegal for any person, corporation, political subdivision, agency, or department of the State to buy, sell, offer for sale, distribute, or plant seeds, plants, or plant parts of exotic weeds without a permit issued by the IDNR. These include a list of 28 exotic weeds and ten noxious weeds for the state of Illinois. Nonnative plants are plants not native to Illinois but are not necessarily considered to be invasive. The following table presents a list of non-native and invasive plants observed at the JTA. (PE Ayuda JV 2021)

Invasive, Noxious, and Non-native Plants observed at Joliet Training Area					
Common name	Scientific name	Illinois prohibited invasive plant*	Illinois prohibited noxious weed**	Non-native plant	Land Cover/Ecological Community
Tree of Heaven	<i>Ailanthus altissima</i>	Yes	No	Yes	Deciduous forest
Autumn olive	<i>Elaeagnus umbellata</i>	Yes	No	Yes	Prairie, deciduous forest, scrub/shrub, grassland/field
Japanese barberry	<i>Berberis thunbergii</i>	Yes	No	Yes	Woodland, deciduous forest
Amur honeysuckle	<i>Lonicera maackii</i>	Yes	No	Yes	Prairie, deciduous forest, scrub/shrub, woodland
Morrow's honeysuckle	<i>Lonicera maackii</i>	Yes	No	Yes	Scrub/shrub, Prairie, deciduous forest, grassland/field
Tartarian honeysuckle	<i>Lonicera tatarica</i>	Yes	No	Yes	Deciduous forest, scrub/shrub, prairie
Callery pear	<i>Pyrus calleryana</i>	Yes	No	Yes	Prairie, scrub/shrub
Common buckthorn	<i>Rhamnus cathartica</i>	Yes	No	Yes	Deciduous forest, scrub/shrub, grassland/field, woodland, prairie
Multiflora rose	<i>Rosa multiflora</i>	Yes	No	Yes	Scrub/shrub, woodland, prairie, deciduous forest
Chinese privet	<i>Ligustrum sinense</i>	Yes	No	Yes	Deciduous forest
Spotted knapweed	<i>Centaurea stoebe</i>	Yes	No	Yes	Grassland/field, scrub/shrub
Field thistle	<i>Cirsium discolor</i>	No	No	Yes	Prairie
Bull thistle	<i>Cirsium vulgare</i>	Yes	No	Yes	Prairie, scrub/shrub, grassland/field
Cutleaf teasel	<i>Dipsacus laciniatus</i>	Yes	No	Yes	Prairie, scrub/shrub, grassland/field
Heracleum sp.	<i>Heracleum sp.</i>	Yes	No	Yes	Deciduous forest
Crown vetch	<i>Securigera varia</i>	Yes	No	Yes	Scrub/shrub, grassland/field, prairie

Invasive, Noxious, and Non-native Plants observed at Joliet Training Area					
Common name	Scientific name	Illinois prohibited invasive plant*	Illinois prohibited noxious weed**	Non-native plant	Land Cover/Ecological Community
Reed canary grass	<i>Phalaris arundinacea</i>	Yes	No	Yes	Prairie, scrub/shrub, wetland, grassland/field, deciduous forest, woodland
Common reed	<i>Phragmites australis</i>	Yes	No	Yes	Grassland/field, prairie, scrub/shrub, wetland, deciduous forest
Narrow-leaved cattail	<i>Typha angustifolia</i>	Yes	No	Yes	Scrub/shrub, wetland
Annual ragweed	<i>Ambrosia artemisiifolia</i>	No	Yes	Yes	Woodland, grassland/field

Notes:

* Considered invasive by Illinois Department of Natural Resources

** Considered noxious by Illinois Department of Natural Resources (PE Ayuda JV 2021)

Aquatic Communities

Protecting, managing, and enhancing the resources of Jackson Creek is a high priority for natural resource management on JTA. The Army controls access and usage of the lower 6 to 7 miles of Jackson Creek. Only military vehicles are allowed to cross at one location (the Low Water Crossing on the border of TA 5N and TA 5S) with the rest of Jackson Creek is accessible only by foot traffic. Public fishing is not allowed on Jackson Creek. (PE Ayuda JV 2021)

There is an on-going Jackson Creek water quality monitoring program through the sampling of macroinvertebrates.

The metrics calculated in the 2021 macroinvertebrate sampling within Jackson Creek indicated the present of good water quality with a strong presence of Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa richness. Continued monitoring of macroinvertebrates in Jackson Creek is recommended. Consistency in sample location and time of year are important factors. (PE Ayuda JV 2021)

Vegetation Communities

Prairie

The JTA contains 1,800 acres of fine-textured soil prairie and 500 acres of dolomite prairie with potential for restoration that would provide environmental benefits. Additionally, native prairie plant species tend to be more resilient to activities associated with military training. (PE Ayuda JV 2021)

A joint venture between Center Point properties and Union Pacific Railroad Company implemented the CIGN Dolomite Prairie Enhancement Project to mitigate for the impacts to the State wetlands and waters impacted by the construction of the railroad lines. The intent of the habitat mitigation plan was to create open dolomite prairie with a mosaic of different water regimes across a majority of the site, high quality floodplain forest along Jackson Creek and a mesic woodland/savannah within the northern portion of the facility. (PE Ayuda JV 2021)

Continued maintenance of these areas supports biodiversity, ecosystems functions and diverse landscapes for training purposes.

Deciduous Forest

Fine-textured soil savanna is the rarest habitat type in Illinois. Potential exists to restore 100 to 200 acres of fine-textured soil savannah on the JTA. Savanna areas also offer excellent training opportunities for military units.

1 A restoration activity for the Savanna habitat is a priority which should include the pruning of invasive
2 honeysuckle and hawthorn along with herbicide treatment, which includes follow-on herbicide
3 application to retard/inhibit re-sprouting. (PE Ayuda JV 2021)

4 Arsenal Road Woods (TA 3) and Cantigny Woods (TA 4, 5N, 5S) are the only remaining remnants of
5 the original forest. The 2013 Forest Management Plan reports that clearing activities that had
6 occurred allowed sunlight to reach the forest floor thereby increasing the density and germination of
7 low-quality trees, sugar maples, and invasive shrubs.

8 Restoration strategies should include maintaining enough shade to avoid stimulating undesirable
9 growth and include follow-up management such as treating resprouts with herbicide, planting cover
10 crops to prevent germination of undesirable species and to provide fuel for controlled burns.
11 Management recommendations to promote recovery of both the Savannah and mature woods.
12 These management recommendations were noted in the previous survey update, and in the 2013
13 Forest Management Plan and are still applicable today. (PE Ayuda JV 2021)

14 Forest Management: The Joliet FMP was reviewed and approved for a five-year period beginning in
15 FY19 and ending in FY23. The Forest Management Plan (FMP) undergoes an annual review to
16 include forestry activities conducted in the last 4 years, and the proposed projects on the Joliet LTA.
17 The FMP is reviewed annually to ensure adherence (where feasible) to the five-year plan.

18 In FY22 a contract was awarded to an outside contractor to inventory select stands at Joliet LTA to
19 gather data to determine whether a harvest would be economically feasible in the near future.
20 Additionally, the data will be used to complete a full update of the FMP and used to ensure the
21 program is on track to meet forestry goals and objectives.

22 **Wetlands**

23 Protection of wetlands on federal lands is a priority. The 2017 wetland delineation, conducted by
24 AEM Group reported that there are 27 potentially jurisdictional wetlands due to their overland
25 connectivity to Waters of the U.S. and/or location in the 100-year floodplain of a Waters of the U.S.
26 at the JTA.

27 Management recommendations listed in the 2013 Natural Resource Survey such as restricting foot
28 and vehicular traffic; using herbicide, and biological controls etc. to control invasive and undesirable
29 vegetation, along with removal of woody vegetation using prescribed burns are still viable means of
30 protecting onsite wetland. (ENSAFE, IL079 2021)

31 **Integrated Wildland Fire Management Plan (IWFMP)**

32 Installations characterized by unimproved grounds that present a wildfire hazard and/or installations
33 that utilize prescribed fire as a land management tool are required to develop an IWFMP IAW AR
34 200-1 and AR 420-1. Installations that do not utilize prescribed fire may be waived from the
35 requirement to develop an IWFMP if they can demonstrate minimal wildfire hazard exists at the
36 installation.

37 Prescribed fire is defined as, “A wildland fire originating from a planned ignition in accordance with
38 applicable laws, policies, and regulations to meet specific objectives.” This does not include burning
39 debris piles associated with land clearing for new construction, yard trash burning (where legal),
40 campfires, or bonfires.

41 **4.3.8 Special Interest Areas**

42 The JTA is listed as an ecological resource site in the Illinois Department of Natural Resources (IDNR)
43 Prairie Parkland Macrosite. The Prairie Parklands Macrosite is one of 41 ecosystem partnership
44 areas within Illinois. Through the Ecosystems Program, IDNR encourages participation to enhance
45 and protect watersheds through ecosystem-based management. (ENSAFE IL079 2021)

1 A search of the June 2021 IDNR's Natural Heritage Database lists two Illinois Natural areas Inventory
2 (INAI) sites exist within 1,000 feet of the JTA. The two sites are the Blodgett Road Dolomite Prairie
3 (INAI Site 1513) and the Joliet Army Ammunition Plant (INAI Site 1369); both of which are within the
4 Prairie Parklands. (Manning, 2021) [00000535.pdf \(illinois.gov\)](#)

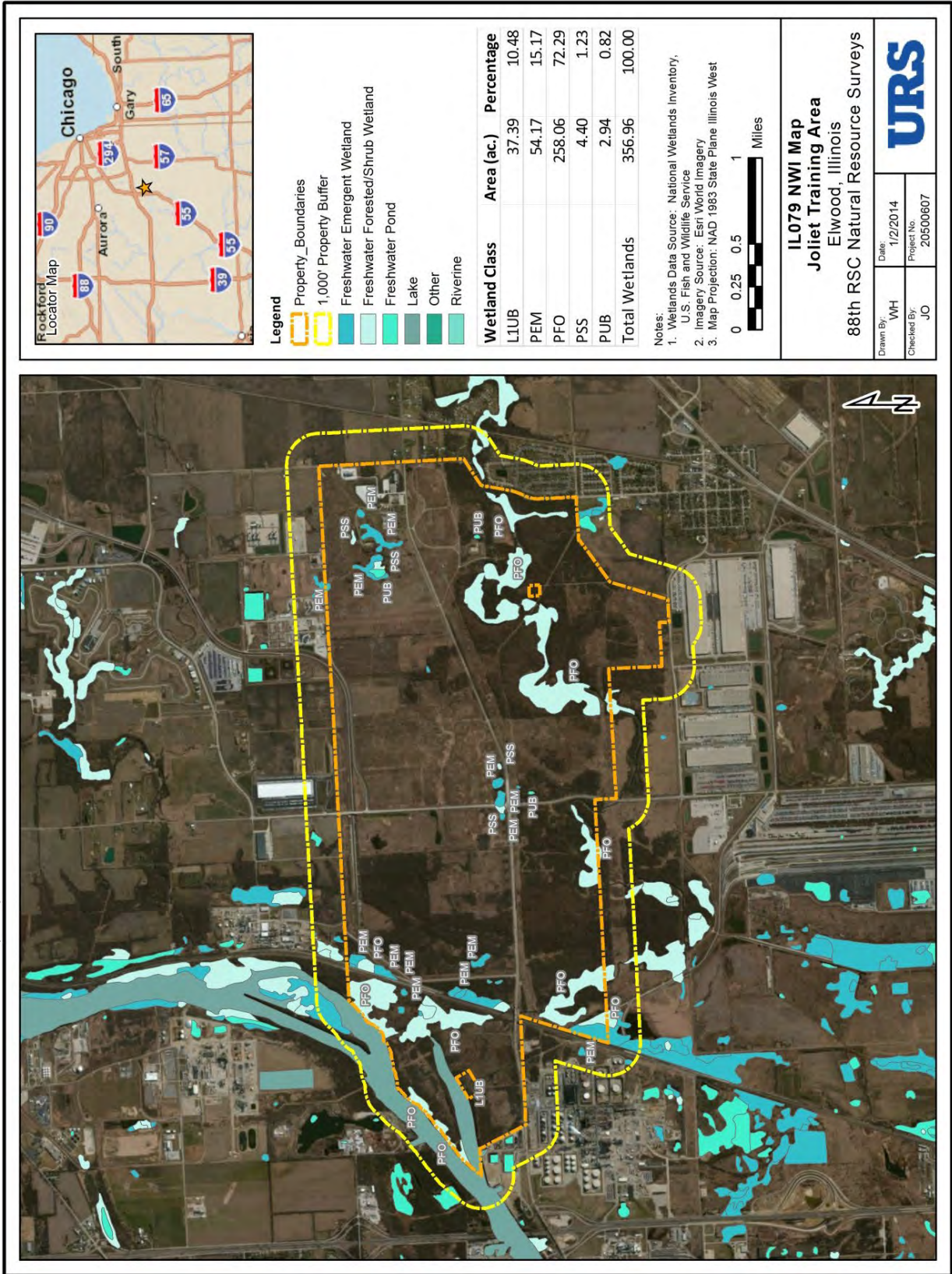
5 The Blodgett Road Dolomite Prairie is approximately 452 acres and is classified as a category II and
6 III site; therefore, it is considered to contain specific suitable habitat for state-listed species or state
7 listed species relocation and is a state-dedicated natural preserve, land and water reserve, or natural
8 heritage landmark. The Blodgett Road Dolomite Prairie is southwest of JTA and is a component of
9 the Des Plaines Wildlife Management Area. It represents some of the last dolomite prairie in Illinois.
10 The JTA was a part of Joliet Army Ammunition Plant and was separated in 1993. (Manning, 2021)

11 The former Joliet Army Ammunition Plant, which included the JTA, is approximately 5,741 acres and
12 is classified as a category II site; therefore, it may contain specific habitat suitable for state listed
13 species or state-listed species relocation. The former Joliet Army Ammunition Plant, south of JTA, is
14 now within the Midewin National Tallgrass Prairie. Part of the Joliet Army Ammunition Plant has been
15 redeveloped into an intermodal freight transportation hub, the Abraham Lincoln National Cemetery
16 and Midewin Tall grass Prairie (Manning, 2021). (ENSAFE IL079, 2021)

17 The continued expansion and encroachment of the greater of the industrial area in the direction of
18 the JTA area has potential to negatively impact the ecology of the area along with the availability of
19 land for military training.

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Figure 4.3a. - Site Map – IL079/17896



Figure 4.3b - Site Map – IL079/17896

1 **4.4 Phillip H. Sheridan AFRC**
2 **(IL131/17887)**

3 **High Resource**

4 3155 Blackhawk Drive
5 Fort Sheridan, IL 60037-1289

6 **County:** Lake

7 **Buildings:** 41

8 **Acres:** 90.4

9 **Last Field Survey:** 2020

10 The Philip H. Sheridan Reserve Center (IL131/17887)
11 consists of maintained grounds, numerous buildings
12 (including an AMSA and OMS), and parking areas. The
13 site is used for classroom training, general administrative
14 services, and light vehicle maintenance. The 88th RD owns the land and approximately 41 buildings that
15 comprise site IL131/17887.



16 **4.4.1 Geographic Location**

17 Philip H. Sheridan Reserve Center (IL131/17887) is surrounded by a single-family residential
18 development to the north and south, and commercial and residential areas to the west, while the
19 boundary with land to the east is shared with the United States Navy and single-family residents.
20 (ENSAFE IL131, 2020)

21 **4.4.2 Geological Resources**

22 **Physiography and Geology**

23 Facility IL131 is located within the central lowland physiographic province of the Northern Region,
24 which is characterized by low-lying areas with bedrock covered in glacial till. The geological
25 formations in this area are characterized as Middle Silurian (Niagaran). Underlying geology around
26 the facility are marine formations comprised mostly of dolomite mixed with limestone and shale.
27 (ENSAFE IL131, 2020)

28 **Soils**

29 The Chicago Lake Plain ecoregion is dominated by Chicago urban development. The pre
30 urbanization ecosystem consisted of prairie, fen, and marsh ecosystems, as well as scrub-oak forests
31 on sandy ridges. (ENSAFE IL131, 2020)

32 According to the United States Department of Agriculture Natural Resources Conservation Services
33 (NRCS) Web Soil Survey, soils at the facility include mapped soils within the facility boundaries
34 belong to the following soil map units:

- 35 3.0% Orthents, clayey, undulating
- 36 79.5% Ozaukee silt loam, 2–4% slopes
- 37 1.3% Ozaukee silt loam, 20–30% slopes
- 38 16.2% Ozaukee silt loam, 4–6% slopes

39 The following onsite soils are considered hydric within Lake County: Orthents, clayey, undulating;
40 Ozaukee silt loam, 2–4% slopes; and Ozaukee silt loam, 4–6% slopes. (ENSAFE IL131, 2020).

1 **Topography**

2 The facility’s topographic setting is generally flat, with elevation ranging from approximately 675 to
3 685 above mean sea level. (ENSAFE IL131, 2020)

4 **4.4.3 Water Resources**

5 **Watershed and Surface Waters**

6 The facility is within the Pike-Root watershed (Hydrologic Unit Code 04040002). There are no
7 surface waters on or within 1,000 feet of the facility. Lake Michigan is located 1,300 feet east of the
8 facility. (ENSAFE IL131, 2020)

9 **Floodplains**

10 Based on the Federal Emergency Management Agency National Flood Hazard Layer Map (Panel
11 17097CO283K), facility IL131 is in an area of minimal flood hazard (Zone X) (Federal Emergency
12 Management Agency 2020). There are no floodplains on or within 1,000 feet of the facility. (ENSAFE
13 IL131, 2020)

14 **Wetlands**

15 The United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data does
16 not report any onsite wetlands or wetlands within 1,000 feet of the facility. (ENSAFE IL131, 2020)

17 **4.4.4 Cultural Resources**

18 Architectural inventories have been completed for this property, and the historic-age buildings were
19 determined not eligible for the NRHP, however, there are 16 buildings less than 50 years of age that are
20 planned for evaluation during the appropriate time. No further architectural evaluations are required
21 during this ICRMP period.

22 Archaeological inventories have been completed for this facility and no sites were identified. Due to
23 previous disturbance, the property is considered to have low potential to contain archaeological deposits.
24 (ICRMP IL, 2020)

25 Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review of
26 this 2002-2024 ICRMP Update. Copies of all written correspondence associated with the ICRMP are
27 provided in Appendix B of the Illinois ICRMP, Consultation Correspondence. (ICRMP IL, 2020)

28 The ICRMP for sites located in ILLINOIS will be furnished upon request.

29 **4.4.5 Biological Resources**

30 **Land Cover and Ecological Communities**

31 The facility contains six main land cover types and ecological communities as presented in the table
32 that follows.

Land Cover and Ecological Communities	Calculated Area	
	Acres*	Percent of Site*
Building	8.12	9.0
Grassland/Field	5.23	5.8
Gravel	3.95	4.4
Maintained Grass	44.22	49.0
Concrete/Pavement/Parking Lot	28.48	31.6
Stormwater Detention Basin	0.20	0.2

Land Cover and Ecological Communities	Calculated Area	Percent of Site*
	Acres*	
Totals	90.20	100%

Note: * Based on Figure 2, NR Survey Report Land Cover Map (ENSAFE IL131, 2020)

Vegetation Communities

Maintained Grass

Kentucky bluegrass (*Poa pratensis*) dominates the maintained grass area along with a variety of native and non-native lawn weeds. The area is mowed frequently through the growing season. (ENSAFE IL131, 2020)

In the maintained grass areas, some common lawn weeds, shrubs, and other horticultural species include:

False aster	<i>Boltonia asteroides</i>
Chicory	<i>Cichorium intybus</i>
Queen Anne's lace	<i>Daucus carota</i>
Teasel sp.	<i>Dipsacus</i> sp.
Ground-ivy	<i>Glechoma hederacea</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
European privet	<i>Ligustrum vulgare</i>
Common toadflax	<i>Linaria vulgaris</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Narrowleaf plantain	<i>Plantago lanceolata</i>
Common self-heal	<i>Prunella vulgaris</i>
Multiflora rose	<i>Rosa multiflora</i>
Common dandelion	<i>Taraxacum officinale</i>
Lesser trefoil	<i>Trifolium dubium</i>
Red clover	<i>Trifolium pratense</i>
White clover	<i>Trifolium repens</i>

1 Various trees are planted for landscaping around the facility include:

2	Norway maple	<i>Acer platanoides</i>
3	Silver maple	<i>Acer saccharinum</i>
4	Sugar maple	<i>Acer saccharum</i>
5	Serviceberry	<i>Amelanchier canadensis</i>
6	Hackberry	<i>Celtis occidentalis</i>
7	Ash tree	<i>Fraxinus</i> sp.
8	Ginkgo tree	<i>Ginkgo biloba</i>
9	Honey locust	<i>Gleditsia triacanthos</i>
10	White mulberry	<i>Morus alba</i>
11	Serbian spruce	<i>Picea omorika</i>
12	Scots pine	<i>Pinus sylvestris</i>
13	Cottonwood	<i>Populus deltoides</i>
14	Southern red oak	<i>Quercus falcata</i>
15	Bur oak	<i>Quercus macrocarpa</i>
16	Northern red oak	<i>Quercus rubra</i>
17	Buckthorn	<i>Rhamnus cathartica</i>
18	Staghorn sumac	<i>Rhus typhina</i>
19	Black locust	<i>Robinia pseudoacacia</i>
20	Black willow	<i>Salix nigra</i>
21	Basswood	<i>Tilia americana</i>
22	American elm	<i>Ulmus americana</i>

23 **Grassland/Field**

24 Several unmaintained lawn patches (approximately 0.1 acre each) are located between the building
25 and the parking lots to provide habitat for pollinators and aesthetic value. (ENSAFE IL131, 2020)
26 Observed species include:

27	Giant ragweed	<i>Ambrosia trifida</i>
28	Brown fox sedge	<i>Carex vulpinoidea</i>
29	Field bindweed	<i>Convolvulus arvensis</i>
30	Eastern purple coneflower	<i>Echinacea purpurea</i>
31	Daisy fleabane	<i>Erigeron strigosus</i>
32	Rattlesnake master	<i>Eryngium yuccifolium</i>
33	Bird's-foot trefoil	<i>Lotus corniculatus</i>
34	Purple loosestrife	<i>Lythrum salicaria</i>
35	Honey clover	<i>Melilotus albus</i>
36	Redtop panic grass	<i>Panicum rigidulum</i>
37	Reed canary grass	<i>Phalaris arundinacea</i>
38	Common reed	<i>Phragmites australis</i>
39	Gray-headed coneflower	<i>Ratibida pinnata</i>
40	Black-eyed Susan	<i>Rudbeckia hirta</i>
41	Purple crown vetch	<i>Securigera varia</i>
42	Prairie dock	<i>Silphium terebinthinaceum</i>
43	Tall goldenrod	<i>Solidago altissima</i>

44

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1 **Storm water Detention Basin**

2 The unmaintained constructed storm water detention basin in the west-central portion of the facility
3 had several wetland attributes including dominance of hydrophytes, hydric soil indicators, and
4 saturated hydrologic conditions. (ENSAFE IL131, 2020) Observed species include:

5	Common burdock	<i>Arctium minus</i>
6	Swamp milkweed	<i>Asclepias incarnata</i>
7	Butterfly weed	<i>Asclepias tuberosa</i>
8	Chicory	<i>Cichorium intybus</i>
9	Creeping thistle	<i>Cirsium arvense</i>
10	Bull thistle	<i>Cirsium vulgare</i>
11	Field bindweed	<i>Convolvulus arvensis</i>
12	Queen Anne's lace	<i>Daucus carota</i>
13	Purple coneflower	<i>Echinacea purpurea</i>
14	Rattlesnake master	<i>Eryngium yuccifolium</i>
15	Late thoroughwort	<i>Eupatorium serotinum</i>
16	Bird's-foot trefoil	<i>Lotus corniculatus</i>
17	Purple loosestrife	<i>Lythrum salicaria</i>
18	Honey clover	<i>Melilotus albus</i>
19	Wild bergamot	<i>Monarda fistulos</i>
20	Vasey grass	<i>Paspalum urville</i>
21	Common reed	<i>Phragmites australis</i>
22	Cottonwood	<i>Populus deltoides</i>
23	Gray-headed coneflower	<i>Ratibida pinnata</i>
24	Smooth sumac	<i>Rhus glabra</i>
25	Staghorn sumac	<i>Rhus typhina</i>
26	Black locust	<i>Robinia pseudoacacia</i>
27	Curly dock	<i>Rumex crispus</i>
28	Black willow	<i>Salix nigra</i>
29	Crown vetch	<i>Securigera varia</i>
30	Compass plant	<i>Silphium laciniatum</i>
31	Cup plant	<i>Silphium perfoliatum</i>
32	Prairie dock	<i>Silphium terebinthinaceum</i>
33	Common dandelion	<i>Taraxacum officinale</i>
34	Spiderwort	<i>Tradescantia sp.</i>
35	Narrowleaf cattail	<i>Typha angustifoli</i>
36	Prairie ironweed	<i>Vernonia fasciculata</i>
37	Riverbank grape	<i>Vitis riparia</i>

38 Additionally, another storm water detention basin area to the east is similarly unmaintained but is
39 enclosed within security fencing. The vegetation community within the fenced basin area is similar

1 to the previously described storm water detention basin but did not exhibit any wetland characteristics.
2 (ENSAFE IL131, 2020) Several additional species observed:

3	Cutleaf teasel	<i>Dipsacus laciniatus</i>
4	Pine species	<i>Pinus sp.</i>
5	Northern red oak	<i>Quercus rubra</i>
6	Callery pear	<i>Pyrus calleryana</i>
7	Buckthorn	<i>Rhamnus cathartica</i>
8	Basswood	<i>Tilia americana</i>
9	Eastern red cedar	<i>Juniperus virginiana</i>

11 Wildlife

12 During the facility survey, the following wildlife species were encountered and recorded
13 Wildlife species noted included:

14 Birds:

15	Red-winged blackbird	<i>Agelaius phoeniceus</i>
16	Killdeer	<i>Charadrius vociferus</i>
17	Chipping sparrow	<i>Spizella passerine</i>
18	Tree swallow	<i>Tachycineta bicolor</i>
19	American robin	<i>Turdus migratorius</i>
20	Mourning dove	<i>Zenaida macroura</i>

21 Insects:

22	Monarch butterfly	<i>Danaus plexippus</i>
23	Sulfur butterfly	<i>Phoebis sennae</i>

24 IL131 is largely developed and provides only limited habitat supportive of wildlife. Those wildlife
25 species adapted to developed, suburban, and populated areas are likely to visit the grassland basins,
26 patches of wildflowers, and grassland/field areas, which appear to offer ecological resource value to
27 butterflies, certain insects, birds, and terrestrial mammals. Due to the facility's distance from Lake
28 Michigan, migratory birds are anticipated to prefer habitat along the lake shore and not at the facility.
29 (ENSAFE IL131, 2020)

30 Listed Species

31 Based on the USFWS Information for Planning and Consultation (IPaC) project planning tool for the
32 facility there are records of two federally endangered species, four federally-threatened, and one
33 federal candidate species near IL131:

34 Listed Endangered:

35	Piping Plover	<i>Charadrius melodus</i>
36	Northern long-eared bat	<i>Myotis septentrionali</i>
37	Karner Blue Butterfly	<i>Lycaeides melissa samuelis</i>

38 Listed Threatened:

39	Red Knot	<i>Calidris canutus rufa</i>
40	Pitcher's Thistle	<i>Cirsium pitcher</i>
41	Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>

1 **Candidate for Listing:**

2 Monarch Butterfly

(*Danaus plexippus*)

3 Piping Plover (E) uses wide, flat, open, sandy beaches with very little vegetation. The necessary
4 habitat is not present at IL131 nor the surrounding area. (ENSAFE IL131, 2020)

5 Karner Blue Butterfly (E) require a specific habitat of pine and oak savanna/barrens that have wild
6 lupine (*Lupis perennis*) plants. The caterpillars feed on the leaves of the wild lupine plants while the
7 adults feed on the nectar of the flowering plants. The requirement of the wild lupine species restricts
8 where they can survive. The necessary habitat nor food source occur at the facility. (ENSAFE IL131,
9 2020)

10 There is no suitable roosting and foraging habitat for the northern long-eared bats at IL131. (ENSAFE
11 IL131, 2020)

12 Red knot (T) is a shore bird that use sandy beaches, saltmarshes, lagoons, mudflats of estuaries and
13 bays, and mangrove swamps that contain abundance of invertebrate prey. There is no suitable
14 habitat for the red knot at the facility nor surrounding areas.

15 Pitcher's thistle (T) is native thistle to the shorelines of Lakes Michigan, Superior, and Huron. It grows
16 on the beaches and grassland dunes of those Great Lakes' shores. It is most often found in near-
17 shore plant communities, though it has been documented growing in other non-forested dune
18 habitats. It is an important pollinator species for 30 species of insects, especially bees. (ENSAFE
19 IL131, 2020)

20 The eastern prairie fringed orchid (T) occurs in a wide variety of habitats, from mesic prairie to
21 wetlands such as sedge meadows, marsh edges, fens, or occasionally sphagnum bogs. Challenges
22 to maintaining the long-term populations include reproduction from seed requiring pollination by
23 hawkmoths, seedling establishment necessitating development of mycorrhizae with soil-inhabiting
24 fungi, and wildfire cycles maintaining graminoid habitat communities suitable for this species.
25 (ENSAFE IL131, 2020)

26 Monarch Butterfly (Candidate Species) require open fields and meadows with milkweed plants. The
27 caterpillars eat the leaves of the milkweed. Milkweed plants restrict the habitat for the Monarch and
28 required habitat does not occur at IL131. (ENSAFE IL131, 2020)

29 The IPaC resource list indicated that there are no critical habitats in the area. (ENSAFE IL131, 2020)

30 IPaC information identified 13 migratory birds that could occur in the area:

31 American golden-plover	<i>Pluvialis dominica</i>
32 Bald eagle	<i>Haliaeetus leucocephalus</i>
33 Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
34 Bobolink	<i>Dolichonyx oryzivorus</i>
35 Cerulean warbler	<i>Dendroica cerulea</i>
36 Golden eagle	<i>Aquila chrysaetos</i>
37 Henslow's sparrow	<i>Ammodramus henslowii</i>
38 Lesser yellowlegs	<i>Tringa flavipes</i>
39 Prothonotary warbler	<i>Protonotaria citrea</i>
40 Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
41 Ruddy turnstone	<i>Arenaria interpres morinella</i>
42 Rusty blackbird	<i>Euphagus carolinus</i>
43 Wood thrush	<i>Hylocichla mustelina</i>

1 All 13 species are protected under the Migratory Bird Treaty Act. The bald eagle and golden eagle
2 are also protected under the Bald and Golden Eagle Protection Act and the other 11 species are
3 considered by the USFWS as Birds of Conservation Concern. (ENSAFE IL131, 2020)

4 None of these species were identified as present during the field survey. The necessary habitats for
5 the 13 migratory birds listed above are not present at IL131. (ENSAFE IL131, 2020)

6 **4.4.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

7 There does not appear to be any significant or notable opportunities for outdoor recreation, public access,
8 or agricultural out-leasing facility because it lacks natural areas for recreation, significant areas of natural
9 habitat for wildlife management, suitable hunting, and lacks sufficient available acreage to grow
10 agricultural crops.

11 **4.4.7 Management Concerns and Issues**

12 Management recommendations include the following:

- 13 • Inspecting the storm water detention basin to ensure functionality is achieving drainage
14 objectives.
- 15 • Maintaining the storm water detention basins by either mowing or hand cutting the vegetation
16 annually (at minimum).
- 17 • Monitoring for and controlling the potential spread of invasive plant species on an as-needed
18 basis, especially in areas where unmaintained vegetation is present, including the drainage
19 basin and fenced areas.
- 20 • Consulting with the appropriate natural resource agencies, as needed, to ensure compliance
21 with federal and/or state regulations concerning listed species.
- 22 • Regularly review USFWS notifications and United States Army Species at Risk for new
23 candidate and listed species in the region.
- 24 • Beavers (*Castor canadensis*) have periodically impeded drainage ditch flow resulting in
25 flooding onto adjacent properties. To maintain proper drainage, it is recommended that the
26 beavers be controlled through trapping during the legal trapping season in Illinois.

27 **Invasive Plant Species**

28 The Illinois Department of Natural Resources regulates invasive plant species. Under state
29 law, invasive plant species are defined as a species not native to a particular ecosystem,
30 including its seeds, spores, or other biological material capable of propagating that species
31 and whose introduction does or is likely to cause economic or environmental harm. An exotic
32 species are those plants and animals that were not present in Illinois prior to the time of
33 European settlement. These include a list of 28 exotic weeds and 10 noxious weeds for the
34 State of Illinois. Non-native plants are plants not native to Illinois that are not necessarily
35 considered to be invasive. (ENSAFE IL131, 2020)

36 Observed Illinois invasive plants of concern include Bull thistle, buckthorn, cutleaf teasel, reed
37 canary grass, and common reed as listed below. (ENSAFE IL131, 2020)

Invasive, Noxious, Exotic, and Non-native Plants observed at IL131						
Common name	Scientific name	Illinois prohibited invasive plant*	Illinois prohibited noxious weed**	Illinois designated exotic weed***	Non-native plant	Land Cover/Ecological Community
Bull thistle	<i>Cirsium vulgare</i>	Yes	No	No	Yes	Storm water detention basin
Cutleaf teasel	<i>Dipsacus laciniatus</i>	Yes	No	Yes	Yes	Storm water detention basin
Reed canary grass	<i>Phalaris arudinacea</i>	Yes	No	No	Yes	Grassland/Field
Common reed	<i>Phragmites australis</i>	Yes	No	No	Yes	Grassland/Field and Storm water detention basin
Buckthorn	<i>Rhamnus cathartica</i>	Yes	No	Yes	Yes	Maintained grass

1 **Notes:**

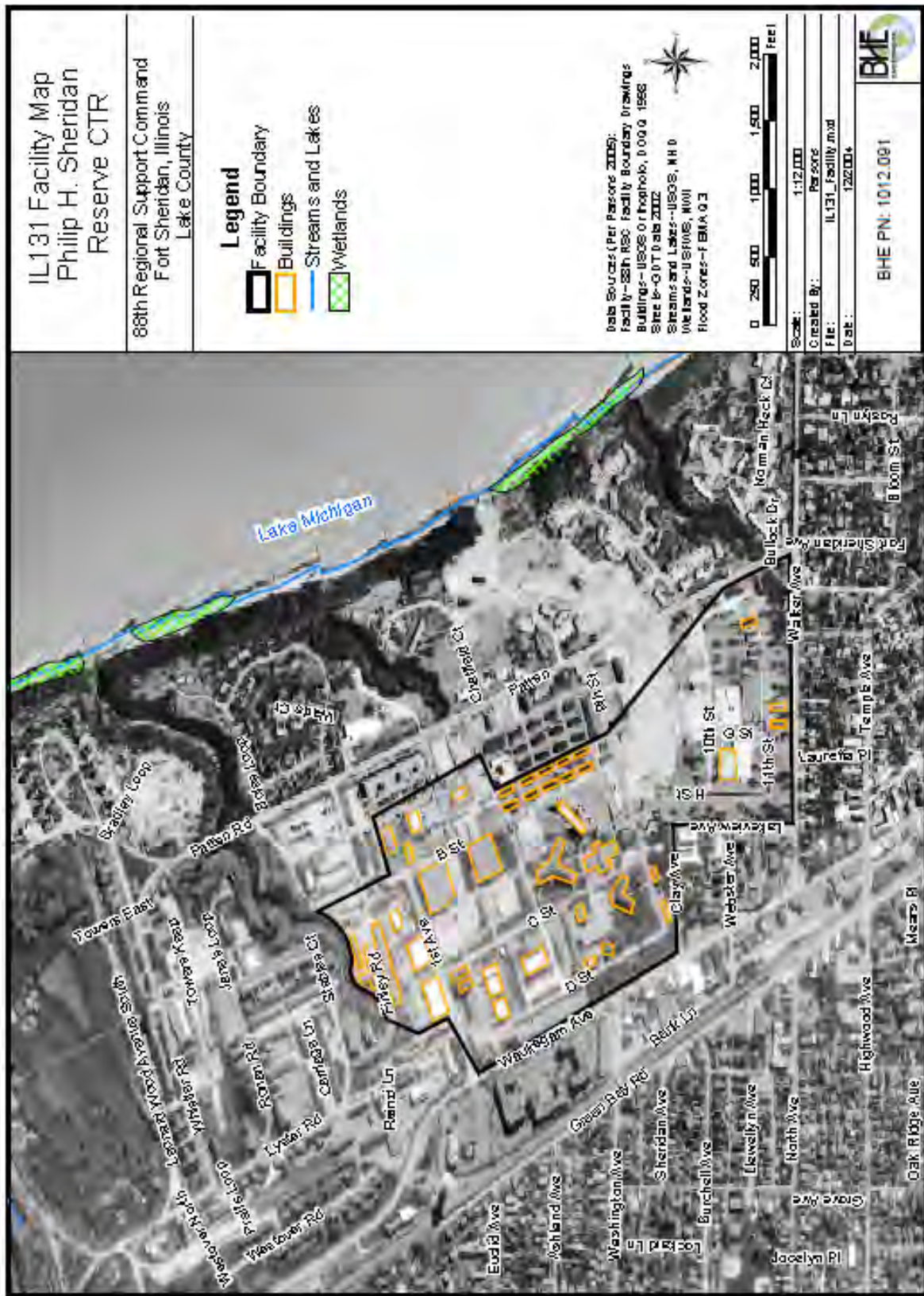
2 * Considered invasive by Illinois Department of Natural Resources

3 ** Considered noxious by Illinois Department of Natural Resources

4 *** Considered exotic by Illinois Department of Natural Resources

5 **4.4.8 Special Interest Areas**

6 Four Illinois Natural Areas Inventory (INAI) sites and one nature preserve are in the vicinity of the facility.
7 McCormick Ravine INAI Site #1008 (127 acres) is located approximately 4 miles northwest of the facility.
8 Fort Sheridan INAI Site # 1247 (2 acres) and Fort Sheridan Bluff INAI Site #1078 (93 acres) are located
9 along Lake Michigan. Hybernia–Highmoor Prairie INAI Site #1235 (50 acres) and the associated Hybernia
10 Nature Preserve (27 acres) are approximately 1-mile southwest of the facilities (URS Group 2013).



1

Figure 4.4. Site Map – IL131/17887

1 **4.5 Fort Ben Harrison ARC**
2 **(IN008/18778)**

3 **Medium Resource**

4 9851 East 59th Street
5 Indianapolis, IN 46216-1124

6 **Medium Resource**

7 **County:** Marion
8 **Buildings:** 14
9 **Acres:** 138.39

10 **Last Field Survey:** 2020

11 Fort Ben Harrison ARC consists of 12 buildings including an ARC,
12 OMS, and AMSA. The site is used for the maintenance and storage
13 of military equipment, classroom and vehicle maintenance training,
14 and to support the mission of its units. The 88th RD owns the 14
15 buildings and land that comprise IN008/18778.



16 **4.5.1 Geographic Location and Size**

17 The site is located at 9851 East 59th Street in the city of Lawrence (part of greater Indianapolis) in Marion
18 County, Indiana. Lawrence receives approximately 44 inches of rainfall and 21 inches of snowfall per
19 year on average. The average temperature for Lawrence ranges from 18.5 degrees Fahrenheit in
20 January to 84.2 degrees Fahrenheit in July. (ENSAFE IN008 2020)

21 Acreage for the facility is 138.39 acres as reported in the Real Property Detail Report. Surrounding land
22 use includes approximately 13 acres of deciduous forest on the northwest; Lee Road Park, Fall Creek
23 Valley Middle School, and a residential area to the north; residential, commercial, and light industrial
24 properties to the east and west; and an active CSX railroad line to the south. (ENSAFE IN008 2020)

25 **4.5.2 Geological Resources**

26 **Physiography and Geology**

27 This facility is located within the Loamy High Lime Till Plains ecoregion. Local geology consists of mostly
28 loamy, limy glacial till deposits from the Wisconsinan glaciation overlying the Silurian age Wabash
29 Formation consisting of limestone, dolomite, and clayey dolomite. (ENSAFE IN008 2020)

30 **Soils**

31 According to the United States Department of Agriculture, Natural Resources Conservation Services
32 (USDA-NRCS) web soil survey, soils at the site include:

- 33 69% Urban land-Crosby silt loam complex, fine-loamy subsoil, 0 to 2% slopes
- 34 17% Brookston silty clay loam-Urban land complex, 0 to 2% slopes
- 35 6% Crosby silt loam, fine-loamy subsoil-Urban land complex, 0 to 2% slopes
- 36 3% Udorthents, cut and filled
- 37 3% Miami silt loam-Urban land complex, 2 to 6% slopes, eroded
- 38 1% Urban land-Brookston complex, 0 to 2% slopes
- 39 1% Urban land-Miami silt loam complex, 2 to 6% slopes, eroded

40 Two soil map units have hydric soil components (Urban land-Brookston complex, 0 to 2% slopes,
41 40% hydric and Brookston silty clay loam-Urban land complex, 0 to 2% slopes, 65% hydric).
42 (ENSAFE IN008 2020)

1 **Topography**

2 Most of the site's topographic setting is relatively flat with an elevation approximately 840 feet
3 above mean sea level. Two moderately large hills comprised of excess soil associated with
4 building construction cover approximately 6.04 acres and are from extensive construction in the
5 mid-2010s. The tallest of these constructed hills is approximately 865 feet above mean sea level.
6 (ENSAFE IN008 2020)

7 **4.5.3 Water Resources**

8 **Watershed and Surface Waters**

9 The facility lies within the Upper White River watershed (Hydrologic Unit Code 05120201) in the
10 central part of the state; no streams or other surface water features are present at the facility.
11 (ENSAFE IN008 2020)

12 **Floodplains**

13 There are no floodplains on-site. There is a 500-year floodplain approximately 500 ft west of the site.
14 (ENSAFE IN008 2020)

15 **Wetlands**

16 There are two documented wetlands at the site covering approximately 1.85 acres in total. There is
17 a 1.11-acre forested wetland in the forested area at the north end of the facility. The second, a small,
18 0.74-acre emergent wetland is near the southeast site boundary. The boundaries of the emergent
19 wetland are marked with metal boundary signs on t-posts; the boundaries of the forested wetland are
20 unmarked. Both wetlands occur in isolated, local depressions in a generally flat landscape and do
21 not appear to be hydrologically connected to streams or other aquatic resources. The United States
22 Army Corps of Engineers determines the jurisdictional status of these wetlands relative to the Clean
23 Water Act (i.e., waters of the United States); Indiana Department of Environmental Management
24 determines if these wetlands are regulated as waters of the state. (ENSAFE IN008 2020)

25 According to National Wetland Inventory (NWI) data, there are at least 12 potential aquatic features
26 within 1,000 feet of the facility. These include a freshwater emergent wetland, riverine feature, and
27 10 freshwater ponds. NWI data did not document any additional wetlands on or near the facility.
28 (ENSAFE IN008 2020)

29 **4.5.4 Cultural Resources**

30 IN008/Fort Benjamin Harrison is located within the former boundaries of the Fort Benjamin Harrison
31 Military Reservation; however, The IN008/Fort Benjamin Harrison is located outside of the Historic
32 District Boundaries.

33 Architectural Inventories have been completed for this property and no NRHP-eligible historic building
34 or structures were identified. The Indiana SHPO concurred that Buildings 238 and 337 were
35 determined not eligible during its 2008 review and require no further management. Two buildings
36 were less than 45 years old during the SHPO review (107 [constructed 1986] and 124 [constructed
37 1981]) and should be re-evaluated when they reach 50 years of age (2036 and 2031, respectively).
38 Other recently constructed buildings (post-2000) will require evaluation in the future. Additionally, in
39 their review of the previous ICRMP, the Indiana SHPO suggested that future NRHP evaluation of the
40 built environment should include not just the relationship of the buildings to the communities in which
41 they are located but also their relationship to the history of the establishment of Reserve Centers
42 throughout the state and nation. Future evaluation of this facility should ensure these contextual
43 criteria are considered. (ICRMP IN, 2020)

44 Archaeological inventories have been completed for this facility and four sites were identified). Sites
45 12MA0384, 12MA0575, 12MA0577, and 12MA0578 have all been evaluated and determined not

1 eligible for the NRHP. (ICRMP IN, 2020)

2 Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review
3 of this 2020-2024 ICRMP Update. Copies of all written correspondence for this ICRMP are provided
4 in Appendix B, Consultation Correspondence of the 2020-2024 Indiana ICRMP. (ICRMP IN, 2020)

5 The ICRMP for sites located in ILLINOIS will be furnished upon request.

6 **4.5.5 Biological Resources**

7 **Land Cover and Ecological Communities**

8 This site is comprised of eight major land cover types.

Land Cover and Ecological Communities	Calculated Area	
	Acres*	Percent of Site*
Buildings	8.88	6.42
Paved Road/Parking	41.49	29.98
Maintained Grass	65.80	47.55
Deciduous Forest	8.99	6.50
Forested Wetland	1.11	0.80
Emergent Wetland	0.74	0.54
Excess Soil Stockpile	6.04	4.36
Detention Basins	2.22	1.60
Recreational	3.12	2.25
Totals	138.39	100

9 **Note:** * Based on the land cover map found in the 2020 NRSRVYUP

11 **Vegetation Communities**

12 Six ecological communities occur at the site. Maintained grass and deciduous forest are the dominant
13 ecological communities represented. No listed or candidate, federal, state, or Army species-at-risk
14 animals or plants were observed during the 2020 field surveys. Site conditions as observed during
15 the site visit were photographed and documented. (ENSAFE IN008 2020)

16 **Maintained Grass**

17 The maintained grass areas include lawns around the facility. The area is frequently mowed
18 through-out the growing season. Kentucky bluegrass (*Poa pratensis*) with a variety of native
19 and non-native lawn weeds and scattered trees dominates the area. (ENSAFE IN008 2020)

20 Some common lawn weeds include:

21 annual ragweed	<i>Ambrosia artemisiifolia</i>
22 black medic	<i>Medicago lupulina</i>
23 white clover	<i>Trifolium repens</i>
24 red clover	<i>Trifolium pratense</i>
25 blackseed plantain	<i>Plantago rugelii</i>
26 Korean clover	<i>Kummerowia stipulacea</i>
27 common dandelion	<i>Taraxacum officinale</i>
28 narrowleaf plantain	<i>Plantago lanceolata</i>

1	Trees for landscaping around the main buildings and parking lots include:	
2	sweetgum	<i>Liquidambar styraciflua</i>
3	eastern cottonwood	<i>Populus deltoides</i>
4	bald cypress	<i>Taxodium distichum</i>
5	black walnut	<i>Juglans nigra</i>
6	linden	<i>Tilia americana</i> var. <i>heterophylla</i>
7	tulip-poplar	<i>Liriodendron tulipifera</i>
8	redbud	<i>Cercis canadensis</i>
9	spruce	<i>Picea</i> spp.
10	hawthorn	<i>Crataegus</i> spp.

11 ***Deciduous Forest***

12 The deciduous forest area occurs along the northern boundary of the facility north of the post
 13 exchange and Lawrence Armory. (ENSAFE IN008 2020)

14 Dominant overstory trees include:

15	eastern cottonwood	<i>Populus deltoides</i>
16	American elm	<i>Ulmus americana</i>
17	black walnut	<i>Juglans nigra</i>
18	black cherry	<i>Prunus serotina</i>
19	green ash (snags)	<i>Fraxinus pennsylvanica</i>

21 Common midstory trees include:

22	honey locust	<i>Gleditsia triacanthos</i>
23	flowering dogwood	<i>Cornus florida</i>
24	redbud	<i>Cercis canadensis</i>
25	Callery pear	<i>Pyrus calleryana</i>
26	white mulberry	<i>Morus alba</i>
27	boxelder	<i>Acer negundo</i>
28	black willow	<i>Salix nigra</i>

29 Shrubs include:

30	stiff dogwood	<i>Cornus foemina</i>
31	green ash saplings	<i>Fraxinus pennsylvanica</i>
32	hawthorn	<i>Crataegus</i> spp.
33	multiflora rose	<i>Rosa multiflora</i>
34	bush honeysuckle	<i>Lonicera</i> spp.
35	autumn olive	<i>Elaeagnus umbellata</i>
36	Chinese privet	<i>Ligustrum sinense</i>

37 Understory species include:

38	Queen Anne's lace	<i>Daucus carota</i>
39	false nettle	<i>Boehmeria cylindrica</i>
40	harvestlice	<i>Agrimonia parviflora</i>
41	flat-top goldenrod	<i>Euthamia graminifolia</i>
42	tall goldenrod	<i>Solidago altissima</i>
43	wingstem	<i>Verbesina alternifolia</i>

44 Woody vines include:

45	riverside grape	<i>Vitis riparia</i>
----	-----------------	----------------------

1	Virginia creeper	<i>Prthenocissus quinquefolia</i>
2	poison ivy	<i>Toxicodendron radicans</i>
3	trumpet creeper	<i>Campsis radicans</i>
4	horsebrier	<i>Smilax rotundifolia</i>

5 **Forested Wetland**

6 There is one forested wetland in the wooded area along the northern boundary. (ENSAFE
7 IN008 2020)

8 Dominant overstory species include:

9	red maple	<i>Acer rubrum</i>
10	hackberry	<i>Celtis occidentalis</i>
11	pin oak	<i>Quercus palustris</i>
12	American sycamore	<i>Platanus occidentalis</i>
13	mockernut hickory	<i>Carya tomentosa</i>
14	southern catalpa	<i>Catalpa bignonioides</i>
15	silver maple	<i>Acer saccharinum</i>
16	American elm	<i>Ulmus americana</i>
17	green ash (snags)	<i>Fraxinus pennsylvanica</i>

18 Mid-story species include overstory species saplings and silky dogwood (*Cornus amomum*).
19 (ENSAFE IN008 2020)

20 Understory species include overstory and shrub species seedlings:

21	false nettle	<i>Boehmeria cylindrica</i>
22	beggar ticks	<i>Bidens</i> spp.
23	blunt broom sedge	<i>Carex tribuloides</i>
24	Frank's sedge	<i>Carex frankii</i>
25	swamp smartweed	<i>Persicaria hydropiperoides</i>
26	sweet woodreed	<i>Cinna arundinacea</i>
27	fowl manna grass	<i>Glyceria striata</i>

28 **Emergent Wetland**

29 There is a small emergent wetland south of the United States Army Corps of Engineers office
30 and the southeast boundary of the facility. The wetland continues offsite between the
31 boundary fence and the railroad. The wetland appears to be occasionally mowed, which has
32 restricted the establishment of woody plants. The wetland boundary is marked with several
33 signs to prevent vehicle access. (ENSAFE IN008 2020)

34 Dominant plants include:

35	barnyard grass	<i>Echinochloa crus-gall</i>
36	reed canary grass	<i>Phalaris arundinacea</i>
37	northern frogfruit	<i>Phyla lanceolata</i>
38	curly dock	<i>Rumex crispus</i>
39	redtop	<i>Agrostis gigantea</i>
40	giant ironweed	<i>Vernonia gigantea</i>
41	dark-green bulrush	<i>Scirpus atrovirens</i>
42	flat sedge	<i>Cyperus</i> spp.
43	ditch-stonecrop	<i>Penthorum sedoides</i>
44	giant goldenrod	<i>Solidago gigantea</i>
45	silver maple	<i>Acer saccharinum</i>

1	green ash	<i>Fraxinus pennsylvanica</i>
2	Callery pear	<i>Pyrus calleryana</i>

3 **Detention Basins**

4 The facility has four vegetated storm water detention basins covering a total of 2.22 acres
5 (Figure 2). Three basins are located south of East 59th Street, including basins east of the
6 USARC, west of the USMC/USN Reserve Center, and southwest of the AMSA. A network of
7 vegetated, linear ditches connects these three basins. The fourth basin is located west of the
8 Lawrence Armory and north of East 59th Street. Discharge from the detention basins flows
9 offsite into the Lawrence municipal storm water drainage system. (ENSAFE IN008 2020)

10 The detention basins support a variety of herbaceous plants, including:

11	narrow-leaved cattail	<i>Typha angustifolia</i>
12	purple loosestrife	<i>Lythrum salicaria</i>
13	annual ragweed	<i>Ambrosia artemisiifolia</i>
14	Queen Anne’s lace	<i>Daucus carota</i>
15	dogbane	<i>Apocynum cannabinum</i>
16	northern frogfruit	<i>Phyla lanceolata</i>
17	flat sedge	<i>Cyperus</i> spp.
18	Pennsylvania smartweed	<i>Persicaria pennsylvanica</i>
19	curlytop smartweed	<i>Persicaria lapathifolia</i>
20	black willow	<i>Salix nigra</i>
21	cottonwood	<i>Populus deltoides</i>
22	rough cocklebur	<i>Xanthium strumarium</i>
23	Canadian horseweed	<i>Conyza canadensis</i>
24	beggar ticks	<i>Bidens</i> spp.
25	barnyard grass	<i>Echinochloa crus-galli</i>
26	wrinkle leaf goldenrod	<i>Solidago rugosa</i>
27	Woolgrass	<i>Scirpus cyperinus</i>
28	boneset	<i>Eupatorium perfoliatum</i>
29	trumpetweed	<i>Eutrochium fistulosum</i>
30	common reed	<i>Phragmites australis</i>
31	rice cut grass	<i>Leersia oryzoides</i>)
32	late-flowering thoroughwort	<i>Eupatorium serotinum</i>

33 **Excess Soil Storage**

34 There are two soil stockpiles at IN008; both are located south of East 59th Street. The soil
35 stockpiles were the result of excavation during new building construction. That construction
36 included: the USARC, USMC/USN Reserve Center, Lawrence Armory, associated buildings
37 and parking areas, along with the storm water infrastructure (detention basins and drainage
38 ditches). (ENSAFE IN008 2020)

39 The largest stockpile is in the southwest corner of the facility. The pile covers approximately
40 4.76 acres and is approximately 25 feet high. It is vegetated with many of the same upland
41 plant species previously described for the maintained grass areas and appears to be
42 occasionally mowed. (ENSAFE IN008 2020)

43 The second stockpile is located between Letterman Avenue and the east site boundary,
44 immediately south of East 59th Street. The pile covers approximately 1.28 acres and is
45 approximately 10 feet high. It is vegetated with many of the same upland plant species

1 previously described for the maintained grass areas and appears to be regularly mowed.
2 (ENSAFE IN008 2020)

3 **Recreation Area**

4 There is a small recreation area near the southwest corner of the facility between
5 Beaumont Road and the large soil stockpile. The outdoor recreation area is approximately
6 3.12 acres and consists of a 4-lane 0.25 mile running track and an area for personnel to
7 exercise. (ENSAFE IN008 2020)

8 **Wildlife**

9 Wildlife encountered during the field survey were noted/reported. Wildlife species observed included:

10 **Birds:**

11	Canada goose	<i>Branta canadensis</i>
12	American crow	<i>Corvus brachyrhynchos</i>
13	blue jay	<i>Cyanocitta cristata</i>
14	downy woodpecker	<i>Dryobates pubescens</i>
15	mourning dove	<i>Zenaida macroura</i>
16	eastern bluebird	<i>Sialia sialis</i>
17	killdeer	<i>Charadrius vociferus</i>
18	swallow	unidentified
19	sparrow	unidentified

20 **Mammals:**

21	white-tailed deer	<i>Odocoileus virginianus</i>
22	two domestic dogs	

23 **Reptiles:**

24 an unidentified aquatic turtle.

25 **Listed Species**

26 Based on the United States Fish and Wildlife Service (USFWS) Information for Planning and
27 Consultation (IPaC) project planning tool, there are records of one federally endangered
28 species and one federally threatened species near IN008:

29 **Listed Endangered:**

30	Indiana bat	<i>(Myotis sodalis)</i>
31	northern long-eared bat	<i>(Myotis septentrionalis)</i>

32 **Listed Threatened:**

33 There are approximately 3.21 acres of potentially suitable roosting and foraging habitat for Indiana
34 and northern long-eared bats in the forested area north of the Lawrence Armory and the Fort
35 Benjamin Harrison Exchange. During the summer of 2020 the 88th Readiness Division conducted
36 an acoustic bat survey at the facility to provide updated information to assist with the management of
37 natural resources occurring on lands owned by the 88th Readiness Division. Occurrence of gray bats
38 (*Myotis grisescens*) and four other non-listed species were acoustically confirmed during the 2020
39 summer survey. Previously, no threatened or endangered bats had been identified at the facility.
40 (ENSAFE IN008 2020)

1 The IPaC resource list indicated that there are no critical habitats in the area. IPaC information
2 identified 10 migratory birds that could occur in the area:

3	American bittern	<i>Botaurus lentiginosus</i>
4	bald eagle	<i>Haliaeetus leucocephalus</i>
5	black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>
6	cerulean warbler	<i>Dendroica cerulea</i>
7	Henslow's sparrow	<i>Ammodramus henslowii</i>
8	Kentucky warbler	<i>Oporornis formosus</i>
9	prothonotary warbler	<i>Protonotria citrea</i>
10	red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
11	rusty blackbird	<i>Euphagus carolinus</i>
12	wood thrush	<i>Hylocichla mustelina</i>

13 The bald eagle is protected under the Bald and Golden Eagle Protection Act and the other nine
14 species are considered Birds of Conservation Concern. All 10 species are protected under the
15 Migratory Bird Treaty Act; none were identified as present during the field survey. (ENSAFE IN008
16 2020)

17 ***Invasive Species***

18 The Indiana Invasive Species Council serves as an advisory board which identifies and regulates
19 invasive plant species in Indiana. Invasive species are defined as; “non-native organism[s] whose
20 introduction causes or is likely to cause economic or environmental harm or harm to human, animal,
21 or plant health” (Executive Order 13751 — Safeguarding the Nation from the Impacts of Invasive
22 Species 2016). Invasive species can be plants, animals, and other organisms, including microbes.
23 Human actions are recognized as the primary means of invasive species introductions. The
24 Terrestrial Plant Rule (312 Indiana Administrative Code 18-3-25) designates 44 species of plants as
25 invasive pests, all of which are included in this guide. It is illegal to sell, gift, barter, exchange,
26 transport, or introduce these plants in the state of Indiana without a permit from the Indiana
27 Department of Natural Resources — Division of Entomology and Plant Pathology. In addition,
28 Indiana Code 14-24-12 specifically prohibits people from selling or offering to sell, giving away,
29 planting, or otherwise distributing any variety of multiflora rose (*Rosa multiflora*) or purple loosestrife
30 (*Lythrum salicaria*) without a permit from the director of the Indiana Department of Natural Resources.
31 Non-native plants are plants not native to Indiana that are not necessarily considered to be invasive.
32 Table 2 presents a list of non-native and invasive plants observed at the Fort Benjamin Harrison
33 USARC. Attachment contains the Indiana Invasive Plant List and the current legal status of
34 each species. During the August 2020 field survey, no state or federal-designated noxious weeds
35 were observed. (ENSAFE IN008 2020)

36 The emerald ash borer (*Agrilus planipennis*) is an exotic beetle from Asia that feeds largely on ash
37 trees. The beetle is found throughout most of Indiana, including Marion County. During the August
38 2020 survey, no live mature ash trees were observed. Approximately 10-15 standing dead trees were
39 present in the forested area (non-wetland and wetland) near the north boundary. All dead trees
40 observed were in the forested area along the north boundary and exhibited the characteristic D-
41 shaped holes caused by adult emerald ash borers. Since the trees are already dead, they do not
42 represent a continued source of infestation for the beetles. Currently the trees are important habitat
43 for woodpeckers and other cavity-nesting birds. For as long as the bark remains on the trees, they
44 are also potential roosting sites for Indiana and northern long-eared bats. (ENSAFE IN008 2020)

Invasive, Noxious, and Non-Native Plants Observed at IN008 — Fort Benjamin Harrison USARC/AMSA			
Common Name	Scientific Name	Current Indiana Legal Status	Land Cover/Ecological Community
Autumn olive	<i>Elaeagnus umbellata</i>	Prohibited invasive terrestrial plant per 312 IAC 18-3-25	Deciduous forest
Barnyard grass	<i>Echinochloa crus-galli</i>	None (non-native)	Emergent wetland, detention basins
Black medick	<i>Medicago lupulina</i>	None (non-native)	Maintained grass
Amur honeysuckle	<i>Lonicera maackii</i>	Prohibited invasive terrestrial plant per 312 IAC 18-3-25	Deciduous forest, excess soil pile
Callery pear	<i>Pyrus calleryana</i>	None (non-native)	Deciduous forest, emergent wetland, excess soil pile
Chicory	<i>Cichorium intybus</i>	None (non-native)	Excess soil pile
Chinese privet	<i>Ligustrum sinense</i>	None (non-native)	Deciduous forest
Common reed	<i>Phragmites australis</i>	Prohibited invasive terrestrial plant per 312 IAC 18-3-25 *	Detention basin
Curly dock	<i>Rumex crispus</i>	None (non-native)	Emergent wetland
Common dandelion	<i>Taraxacum officinale</i>	None (non-native)	Maintained grass
Kentucky bluegrass	<i>Poa pratensis</i>	None (non-native)	Maintained grass, excess soil piles
Korean clover	<i>Kummerowia stipulacea</i>	None (non-native)	Maintained grass, excess soil piles
Multiflora rose	<i>Rosa multiflora</i>	Prohibited species per IC 14-24-12 and 312 IAC 18-3-13	Deciduous forest
Narrow-leaved cattail	<i>Typha angustifolia</i>	Prohibited invasive aquatic plant per 312 IAC 18-2-23 *	Detention basin
Narrowleaf plantain	<i>Plantago lanceolata</i>	None (non-native)	Maintained grass, excess soil piles
Prostrate sandmat	<i>Euphorbia prostrata</i>	None (non-native)	Maintained grass, excess soil piles
Purple loosestrife	<i>Lythrum salicaria</i>	Prohibited species per IC 14-24-12 and 312 IAC 18-3-13 *	Detention basin
Queen Anne's lace	<i>Daucus carota</i>	None (non-native)	Deciduous forest, maintained grass, detention basin, and excess soil piles
Redtop	<i>Agrostis gigantea</i>	None (non-native)	Emergent wetland
Red clover	<i>Trifolium pratense</i>	None (non-native)	Maintained grass, excess soil piles
Reed canary grass	<i>Phalaris arundinacea</i>	Prohibited invasive terrestrial plant per 312 IAC 18-3-25 *	Emergent wetland

Invasive, Noxious, and Non-Native Plants Observed at IN008 — Fort Benjamin Harrison USARC/AMSA			
Common Name	Scientific Name	Current Indiana Legal Status	Land Cover/Ecological Community
White clover	<i>Trifolium repens</i>	None (non-native)	Maintained grass, excess soil piles
White mulberry	<i>Morus alba</i>	Prohibited invasive terrestrial plant per 312 IAC 18-3-25 *	Deciduous forest, excess soil piles

Note: * Not a state-listed noxious weed per IAC § 15-16-7-2 (2017).

4.5.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

The Fort Benjamin Harrison USARC is a gated and fenced facility with limited public access. There are no opportunities for public outdoor recreation/access, or agricultural out-leasing on this site. The site area has restricted access and lacks natural communities, hunting areas, or enough open land to grow agricultural crops. (ENSAFE IN008 2020)

4.5.7 Management Concerns and Issues

Impacts to the upland deciduous forest and the associated forested wetland at the north end of the facility and the small emergent wetland should continue to be avoided to the extent possible. The forested wetland should be protected from human disturbance. (ENSAFE IN008 2020)

Wetlands: The small emergent wetland south of the United States Army Corps of Engineers office trailer should continue to be protected from vehicle traffic and allowed to develop in accordance with current management objectives. Wetland boundary markers around the small emergent wetland should be maintained to alert maintenance crews and prevent unauthorized disturbance. The regulatory status of the wetlands would be determined by the United States Army Corps of Engineers and/or Indiana Department of Environmental Management. (ENSAFE IN008 2020)

Threatened and Endangered Species: Approximately 3 acres of suitable gray, Indiana, and northern long-eared bat habitat is present north of the Exchange. Construction of the Lawrence Armory and associated buildings and vehicle storage area has reduced the amount of bat habitat previously available at the facility by roughly half. (ENSAFE IN008 2020)

During the 2020 summer acoustic survey, five species of bats were detected, including the federally endangered gray bat (*Myotis grisescens*) (PARS-Gannett Fleming 2021). No other threatened or endangered bat species were identified during the 2020 summer acoustic survey. Gray bats are considered a year-round cave obligate species, so their only use Fort Benjamin Harrison enclave is likely for foraging over wetlands or as a flight path to reach Indian Lake, Fall Creek (both north of the facility), or a small unnamed pond (east of the facility) during the summer. (ENSAFE IN008 2020)

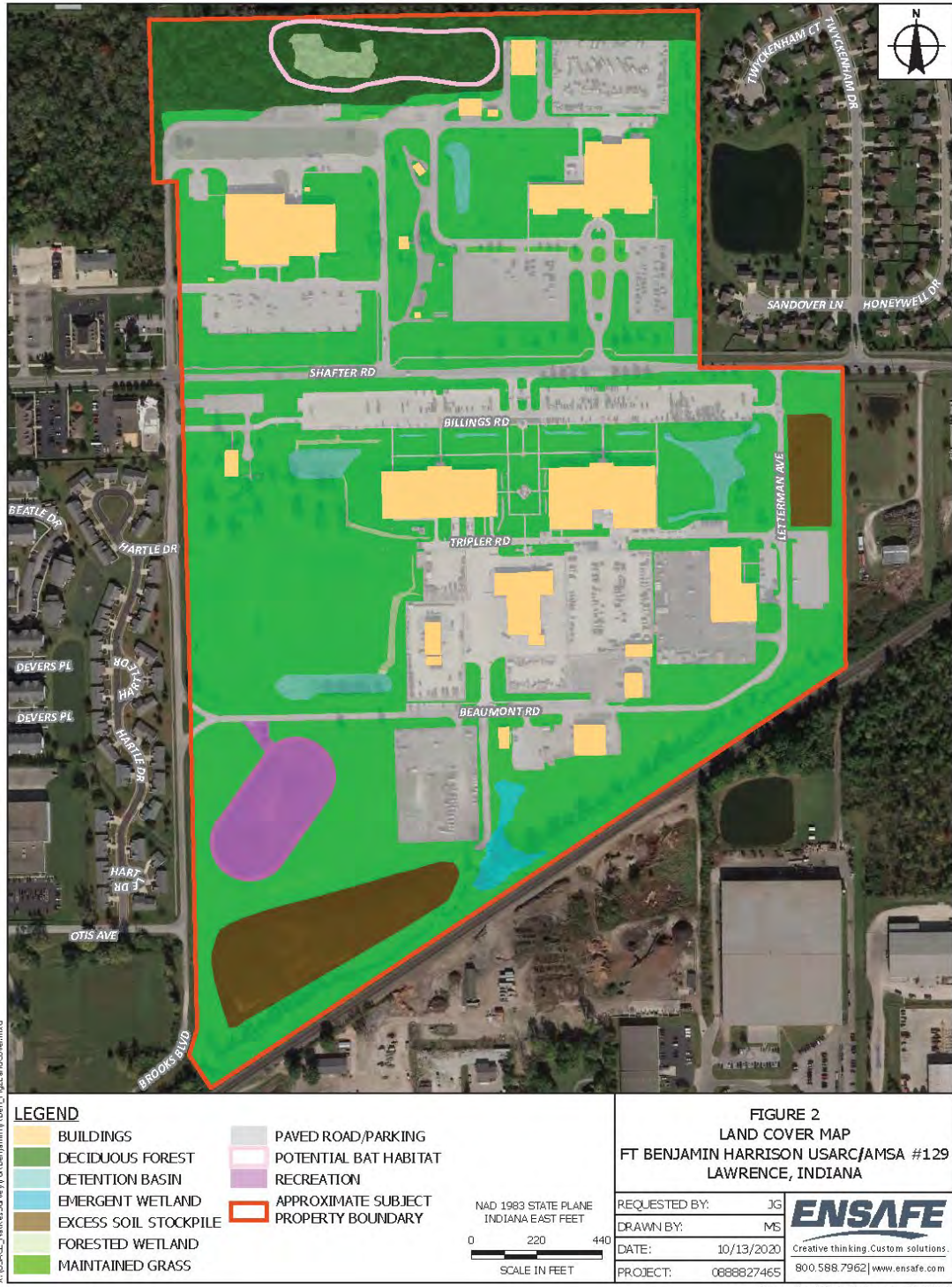
Invasive Species Management: There are several invasive pest plants established at the facility. Most of these are common in high-use areas and are controlled by periodic mowing. Outside of the intensively managed areas, Amur honeysuckle (*Lonicera maackii*), Chinese privet (*Ligustrum sinense*), and multiflora rose (*Rosa multiflora*) are widespread in both the deciduous forest and forested wetland communities and have had a negative effect on habitat quality in these ecological communities. The status of these plants should be monitored and treated, if desired, with an appropriate herbicide or other cultural treatments to control their spread. Similarly, purple loosestrife (*Lythrum salicaria*) has become established in some of the detention basins. It should be monitored and treated before this plant has a chance to become a widespread nuisance in the other three detention basins and wetlands at the facility. (ENSAFE IN008 2020)

1 **4.5.8 Special Interest Areas**

2 Special interest areas near IN008 include Fort Harrison State Park and Lee Road Park. The state
3 park is located approximately 0.15-mile northwest of IN008 and includes approximately 1,700 acres
4 of the former Fort Benjamin Harrison. The park has an inn and provides a variety of opportunities for
5 hiking, horseback riding, mountain bike riding, nature observation, fishing, history, and golf. (ENSAFE
6 IN008 2020)

7 Lee Road Park, a small community park located in Lawrence, borders IN008 on the north, and
8 includes several baseball fields, a playground, and picnic areas. In June 2020, the Lawrence
9 Department of Public Work began construction of a nature trail at the park for walking and biking.
10 (ENSAFE IN008 2020)

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Figure 4.5 - Site Map – IN008/18778

1 **4.6 Laporte Co. Veterans**
2 **ARC (IN023/18740)**

3 **High Resource**

4 8260 South 300
5 East Hamlet, IN 46532
6 (a/k/a Kingsbury)

7 **High Resource**

8 **County:** Laporte
9 **Buildings:** 3
10 **Acres:** 943

11 **Last Field Survey:** **2021**

12 The LaPorte Co Veterans ARC also known as the Kingsbury LTA, consists of undeveloped field training
13 areas, an ARC building, and an OMS. The site is used for the storage and maintenance of military equipment.
14 In addition, field vehicle training, classroom, and vehicle maintenance training occurs at this site. The 88th
15 RD owns the buildings and land that comprise IN023/18740.

16 **4.6.1 Geographic Location and Size**

17 Acreage for the facility is in the Real Property Detail Report shows the acreage as 930 acres, the 2017 ALTA
18 survey certified 934 acres. Surrounding land use includes agricultural and industrial land to the north,
19 residential, and agricultural land to the south, agricultural land to the east, and Kingsbury Fish and Wildlife
20 Area to the west. (ENSAFE 2021d) The site boundary is shown on Figure 3.6.

21 **4.6.2 Geological Resources**

22 **Physiography and Geology**

23 This site is located within the Kankakee Outwash and Lacustrine Plain physiographic province. The
24 province has flat to gently rolling terrain that is underlain by sand. Geological formations at
25 IN023/18740 are outwash fan deposits. This facility is located within the Kankakee Marsh, a part of
26 the Central Corn Belt Plains and the Elkhart Till Plains ecoregion that is a part of the Southern
27 Michigan/Northern Indiana Drift Plains ecoregion (United States Environmental Protection Agency
28 2020 [EPA Ecoregion]). The Kankakee Marsh ecoregion is nearly level to rolling drift plain with end
29 moraines, glacial outwash landforms, lacustrine flats, and scattered potholes. Local geology consists
30 of mostly Quaternary glacial outwash, alluvium, organic material, and scattered sand dunes that
31 overlie Paleozoic shale, limestone, and dolomite. (ENSAFE IN023 2021)

32 **Soils**

33 The United States Department of Agriculture, Natural Resources Conservation Services (USDA-
34 NRCS) web soil survey reports soils at the site include mapped soils within the facility boundary that
35 belong to the following map soil units:

- 36 Adrian muck, drained, 0-1% slopes;
- 37 Bourbon sandy loam;
- 38 Brems fine sand, 0-3% slopes;
- 39 Chelsea fine sand, 2-6% slopes;
- 40 Chelsea fine sand, 6-12% slopes;
- 41 Coupee silt loam, 0–2% slopes;



1 Gilford fine sandy loam;
2 Hanna sandy loam, 0-3% slopes;
3 Histolls and Aquolls; Martisco muck, drained; Morocco loamy fine sand; Pinhook loam; and Sebewa
4 loam consisting of:
5 shaly sand substratum;
6 Tracy sandy loam, 0-2% slopes;
7 Tracy sandy loam, 2-6% slopes;
8 Tyner loamy sand, 0-2% slopes;
9 Udorthents, loamy; and Washtenaw silt loam.

10 The following map soil units are considered hydric: Adrian muck, drained, 0-1% slopes; Bourbon
11 sandy loam; Gilford fine sandy loam; Histosols and Aquolls; Martisco muck, drained; Morocco loamy
12 fine sand; Pinhook loam; Sebewa loam, shaly sand substratum; and Washtenaw silt loam. (ENSAFE
13 IN023 2021))

14 **Topography**

15 The topography is relatively flat with some gently rolling hills. The elevation ranges between 690
16 and 720 feet above mean sea level with the highest point being in the northeastern portion of the
17 site. (ENSAFE IN023 2021)

18 **4.6.3 Water Resources**

19 **Watershed and Surface Waters**

20 The facility lies within the Kankakee watershed (Hydrologic Unit Code 07120001) in the northwestern
21 part of the state, approximately 20 miles southeast of Lake Michigan (EPA GRTS); no streams or
22 other surface water features are present at the facility. (ENSAFE IN023 2021)

23 A wetland survey update conducted in 2018 identified a 3,469-foot channelized, intermittent stream
24 in the southeastern corner of the facility (Advanced Environmental Management Group 2018a).
25 EnSafe biologists were not able to locate this stream during the 2020 site survey. (ENSAFE IN023
26 2021)

27 According to the National Wetland Inventory (NWI 2020), there is a freshwater pond in the southwest
28 region of the property. Upon further investigation, it was found to be a small emergent wetland and
29 no longer a surface water feature. (ENSAFE IN023 2021)

30 **Floodplains**

31 Based on the Federal Emergency Management Area Flood Insurance Rate Maps that covers this site
32 (Panels 18091C0410D, 18091C0295D, 18091C0325D, and 18091C0430D), the facility is in an area
33 of minimal flood hazard (Zone X). (ENSAFE IN023 2021)

34 **Wetlands**

35 The 2010 natural resource survey reports 177.8 acres of wetlands within the facility boundary. A
36 wetland survey conducted in 2018 identified one stream and 14 wetlands totaling 161.48 acres at the
37 facility (Advanced Environmental Management Group (AEM) 2018). The following IN023 2018
38 Aquatic Resource Summary table summarizes the wetlands observed during the 2018 delineation.

39

IN023 2018 Aquatic Resource Summary				
Resource ID	Size (acres)	Cowardin Habitat Type	Location	Notes*
<i>Wetlands</i>				
W01	2.56	Palustrine, emergent, persistent, temporarily flooded (PEM1A)	Southeast corner	
W02	33.73	Palustrine, emergent, seasonally flooded (PEM1C)	East-central	A small berm splits the finger in the southeast corner of the wetland, creating an additional small wetland
W03**	36.55	Palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A)	Northwest corner	
W04**	53.72	Palustrine, emergent, seasonally flooded (PEM1C)	Northwest corner	
W05	0.47	Palustrine, emergent, seasonally flooded (PEM1C)	Northeast quadrant	
W06	6.13	Palustrine emergent, persistent, seasonally flooded/saturated (PEM1E)	Southeast corner	Did not exhibit hydrologic or hydrophytic vegetation field indicators described in the 2018 delineation
W07	8.74	Palustrine, forested, broad-leaved deciduous, seasonally flooded/saturated (PFO1E)	Southeast corner	Appears to be smaller than previously delineated
W08	0.23	Palustrine emergent, persistent, semi-permanently flooded (PEM1F)	Southeast corner	
W09	0.30	Palustrine, forested, broad-leaved deciduous, seasonally flooded/saturated (PFO1E)	Southeast corner	
W10	4.91	Palustrine emergent, persistent, seasonally flooded/saturated (PEM1E)	Northeast corner	Appears to be smaller than previously described and is a ditched, linear wetland that drains to an unconsolidated bottom wetland
W11	0.17	Palustrine, emergent, persistent, temporarily flooded (PEM1A)	Southwest corner	
W12**	7.36	Palustrine, emergent, seasonally flooded (PEM1C)	Northwest corner	
W13	2.71	Palustrine, emergent, seasonally flooded (PEM1C)	Southwest corner	
W14	3.90	Palustrine, emergent, seasonally flooded (PEM1C)	Southwest corner	Across Tracy Road from W11
Total	161.48			
<i>Stream</i>				
S01	3,469 feet	Channelized intermittent stream	Southeast corner	Not evident in 2020 survey update

Source: Advanced Environmental Management Group 2018

Notes: The above table was assembled by EnSafe for the 2020 NRSRVYUP reporting the findings from the 2018 WTLNDSRVYUP.

* Based on 2020 NRSRVYUP field survey, * W03, W04, and W012 are part of a larger wetland complex

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1 During the 2018 WTLNDSRVYUP the Laporte County Veterans USARC contained fourteen
2 (14) wetlands that were identified and delineated during the wetland survey updates. This is
3 the same number of wetlands as previously determined in 2006. The wetlands assessed
4 during the survey update were originally determined to be isolated wetlands with no field-
5 identified connectivity to a navigable water body. The National Hydrography Data (NHD)
6 maps for streams were reviewed and located a number of drainages on the Kingsbury LTA
7 that enter the Kankakee River to the east. As such, research indicates that all of the wetlands
8 and the one stream located on the Kingsbury LTA may be characterized as jurisdictional by
9 the USACE. However, the final determination is under the purview of the USACE. If the
10 USACE determines that these wetlands are non-jurisdictional, the State of Indiana's
11 regulations protect and regulate these wetlands. Any alterations or development of these
12 wetlands will require consultation with the USACE and the state of Indiana. (AEM 2018c)

13 NWI data for the east side of the facility differs greatly from what the scientists found in the
14 field. NWI data shows a much larger wetland complex to the northwest and southeast of W10
15 on the east side of the facility. As reported in the 2006 wetland report, this wetland complex
16 no longer exists and is limited to the area shown as W10. The same applies to the area south
17 of W01 to the southern property limits on the east side of the facility that includes W07 and
18 W06. NWI shows a much larger wetland complex than actually exists on the property, it
19 seems to have dried significantly and, at the time, was limited to a series of, what visually
20 appear to be, disconnected wetlands. (AEM 2018c)

21 The larger wetlands like wetlands 2, 3, and 4 located have higher function. These wetlands
22 also displayed the ability to store large quantities of water, sustain native wetland vegetation,
23 offer high nutrient uptake with dense vegetation and high retention periods, and offered high
24 interconnectivity and habitat to wildlife. (AEM 2018c)

25 September 2020, biologists undertaking a Natural Resources Survey Update (NRSRVYUP)
26 visited each aquatic feature described in the 2018 wetland report and found that 10 of the 14
27 wetlands were consistent with their description in the report. Wetland descriptions from the
28 2020 NRSRVYUP survey were based on field observations of wetland hydrology and
29 vegetation only; intrusive soil sampling and formal wetland delineation were not included in
30 the NRSRVYUP scope of work. Wetland boundaries and acreage were estimated in the field.
31 (ENSAFE 2021d)

32 Differences observed are as follows:

- 33 • Wetland 2 is split at the southwest finger by a berm, thereby creating two wetlands.
34 There is a berm with a culvert at the southeast corner of Wetland 2 that has created a
35 small wetland.
- 36 • Wetland 10 appears to be smaller than previously described and is a ditched, linear
37 wetland that drains into an unconsolidated bottom wetland.
- 38 • Wetland 7 also appears to be smaller than previously delineated.
- 39 • Wetland 6 did not exhibit hydrologic nor hydrophytic vegetation field indicators.

40 In addition, EnSafe identified six previously undescribed potential wetlands during the 2020
41 site visit (as shown on Figure 6), including:

- 42 • a linear wetland adjacent to the south side of the road from Wetland 10 (PEM1Ed;
43 approximately 0.06 acre)
- 44 • an unconsolidated bottom wetland in the grassland/field south of Wetland 10 (PUB3H;
45 approximately 0.04 acre)
- 46 • two small linear wetlands in the forested area and along the road where Stream 01
47 was identified in the 2018 report (PEM1C; approximately 0.13 acre)

- a small, forested wetland along the south boundary due west of Wetland 6, as identified in the 2018 survey (PFO1C; approximately 0.67 acre)
- a small emergent wetland southwest of Wetland 2 divided by a berm and fed by a culvert from Wetland 2 (PEM1C; approximately 1 acre)

NWI data for IN023 is based on photointerpretation conducted in 2013 and includes approximately 276 acres of wetlands within the facility boundaries (U.S. Fish and Wildlife Service 2021) and include:

- two PEM1C freshwater emergent wetlands (50.39 acres)
- two PEM1A freshwater emergent wetlands (43.06 acres)
- two PFO1 freshwater forested/shrub wetlands (14.99 acres) in the west side of the boundary
- a PEM1A wetland (2.40 acres)
- a PEM1C wetland (0.22 acre) in the southwest corner of the property boundary
- two PEM1C wetlands (32.30 acres) in the center of the property
- a PEM1C wetland (1.07 acres) in the north central of the site
- a PSS1/EM1Cd freshwater forested/shrub wetland (29.77 acres)
- two PEM1Cd freshwater emergent wetlands (27.34 acres) in the northeast
- three PEM1A wetlands (12.76 acres)
- three PSS1A freshwater forested/shrub wetlands (10.73 acres)
- a PFO1/EM1A wetland (19.84 acres)
- a PSS1/EM1A wetland (27.98 acres) in the southeast
- a PSS1/EM1A wetland (2.60 acres)
- a PSS1 wetland (0.66 acre) in the south-southwest

NWI identifies wetlands within 1,000 feet of the facility, including:

- a PEM1A wetland adjacent to the south
- a PEM1A wetland and PEM1C wetland adjacent to the north
- two PEM1C wetlands 680 feet and 440 feet to the west
- a PFO1A wetland 680 feet to the west
- a PFO1/EM1C wetland 160 feet to the west
- a PFO1A wetland 120 feet to the east
- a PEM1A wetland 120 feet to the east

Currently, IN023 is surrounded by a mix of agricultural land and light industrial land to the north, agricultural land to the east and south, and agricultural land and the Kingsbury Fish and Wildlife Area to the west. (ENSAFE 2021d)

Previously surveyed wetlands were assessed and updated according to current site conditions. In all cases, wetlands identified in the 2018 survey and the NWI, were surveyed in accordance with USACE *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region Interim version* (Environmental Laboratory 2010) for wetlands. (ENSAFE 2021d)

4.6.4 Cultural Resources

Architectural inventories have been completed for this property; however, the buildings were less than 50 years of age during the survey and during the subsequent Indiana SHPO review in 2008. The facility buildings should be re-evaluated when they reach 50 years of age in 2039. Additionally, in their review of the previous ICRMP, the Indiana SHPO suggested that future NRHP evaluation of the built environment should include not just the relationship of the buildings to the communities in which

they are located but also their relationship to the history of the establishment of Reserve Centers throughout the state and nation. Future evaluation of this facility should ensure these contextual criteria are considered. (ICRMP IN, 2020)

Archaeological inventories have been completed for this facility. One archaeological site was identified and was determined not eligible. No further work is required. (ICRMP IN, 2020)

Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review of this 2020-2024 ICRMP Update. Copies of all written correspondence are provided in the ICRMP. (ICRMP IN, 2020)

The ICRMP for sites located in Indiana will be furnished upon request.

4.6.5 Biological Resources

Land Cover and Ecological Communities

The site is comprised of eleven major land cover types.

Land Cover and Ecological Communities	Calculated Area*	Percent of Site
	Acres	
Buildings	0.75	<1
Paved Road/Parking	14.89	2
Maintained Grass	10.26	1
Disturbed Area	18.02	2
Grassland/Field	189.18	20
Upland Scrub/Shrub	152.24	16
Deciduous Forest	316.89	33
Mixed Forest	65.06	7
Pine/Coniferous Forest	43.00	5
Forested Wetland	12.16	1
Emergent Wetland	121.38	13
Totals	943.83	100

Note:

* Calculated area based on Land Cover Map using the USA Contiguous Albers Equal Area Conic Coordinate System

Ecological Communities

Nine ecological communities occur at the site: Deciduous forest, upland scrub/shrub, and unmaintained grassland/field are the dominant ecological communities represented

Maintained grass/Landscaped areas

The maintained grass area is dominated by Bermuda grass (*Cynodon dactylon*). The area is frequently mowed through the growing season.

Various trees are planted for landscaping around the main building and along the main road, including:

red maple	<i>Acer rubrum</i>
pin oak	<i>Quercus palustris</i>
American elm	<i>Ulmus americanus</i>
red pine	<i>Pinus resinosa</i>

Other species observed:

late goldenrod	<i>Solidago altissima</i>
field thistle	<i>Cirsium discolor</i>

1 ground-ivy *Glechoma hederacea*
2 great mullein *Verbascum thapsus*

3 **Deciduous forest**

4 Deciduous forest occurs in various areas throughout the site. Dominant overstory trees
5 include:

6 cottonwood *Populus deltoides*
7 swamp chestnut oak *Quercus michauxii*
8 pin oak *Quercus palustris*
9 black walnut *Juglans nigra*
10 black cherry *Prunus serotina*
11 American elm *Ulmus americanus*
12 red maple *Acer rubrum*
13 northern red oak *Quercus rubra*
14 pecan *Carya illinoensis*
15 post oak *Quercus stellate*
16 red pine *Pinus resinosa*
17 tulip tree *Liriodendron tulipifera*
18 bitternut hickory *Carya cordiformis*
19 mockernut hickory *Carya tomentosa*

20 Common midstory trees include:

21 shagbark hickory *Carya ovata*
22 white oak *Quercus alba*
23 autumn olive *Elaeagnus umbellate* (Invasive)
24 Callery pear *Pyrus calleryana* (Invasive)

25 Common understory species included:

26 late goldenrod *Solidago altissima*
27 multiflora rose *Rosa multiflora*
28 Chinese privet *Ligustrum sinense*
29 Japanese honeysuckle *Lonicera japonica* (Invasive)
30 Japanese stilt grass *Microstegium vimineum* (Invasive)
31 motherwort *Leonurus cardiaca*
32 ground-ivy *Glechoma hederacea*
33 sensitive fern *Onoclea sensibilis*
34 horseweed *Conyza canadensis*
35 green bristlegrass *Setaria viridis*
36 smooth sumac *Rhus glabra*
37 pokeweed *Phytolacca americana*
38 Allegheny blackberry *Rubus allegheniensis*
39 sawtooth blackberry *Rubus argutus*
40 Chinese bush clover *Lespedeza cuneata* (Invasive)
41 Canadian clearweed *Pilea pumila*
42 beggar's lice *Hackelia virginiana*
43 sassafras *Sassafras albidum*

44 **Forested wetlands**

45 Forested wetlands occur in the northwest and southeast portions of the site.

46 Dominant midstory and canopy species include:

1	black willow	<i>Salix nigra</i>
2	cottonwood	<i>Populus deltoides</i>
3	swamp chestnut oak	<i>Quercus michauxii</i>
4	pin oak	<i>Quercus palustris</i>
5	black walnut	<i>Juglans nigra</i>
6	Typical understory consists of:	
7	spotted lady's thumb	<i>Persicaria maculosa</i>
8	common reed	<i>Phragmites australis</i>
9	dogbane	<i>Apocynum cannabinum</i>
10	common milkweed	<i>Asclepias syriaca</i>
11	late-flowering thoroughwort	<i>Eupatorium serotinum</i>
12	Allegheny blackberry	<i>Rubus allegheniensis</i>
13	reed canary grass	<i>Phalaris arundinacea</i> (Invasive)

14	Other plant species observed are:	
15	sensitive fern	<i>Onoclea sensibilis</i>
16	devil's beggar ticks	<i>Bidens frondosa</i>
17	American water plantain	<i>Alisma subcordatum</i>
18	ditch stonecrop	<i>Penthorum sedoides</i>
19	hedge bindweed	<i>Calystegia sepium</i>
20	spotted touch-me-not	<i>Impatiens capensis</i>
21	spotted joe-pyeweed	<i>Eutrochium maculatum</i>
22	blue cardinal flower	<i>Lobelia siphilitica</i>
23	showy goldeneye	<i>Heliomeris multiflora</i>
24	white vervain	<i>Verbena urticifolia</i>
25	Woolgrass	<i>Scirpus cyperinus</i>
26	Japanese bristlegrass	<i>Setaria faberi</i>
27	common ragweed	<i>Ambrosia artemisiifolia</i>
28	late goldenrod	<i>Solidago altissima</i>
29	pokeweed	<i>Phytolacca americana</i>
30	giant ironweed	<i>Vernonia gigantea</i>
31	Carolina horsenettle	<i>Solanum carolinense</i>
32	greasegrass	<i>Tridens flavus</i>
33	yarrow	<i>Achillea millefolium</i>
34	Allegheny blackberry	<i>Rubus allegheniensis</i>
35	prairie cordgrass	<i>Spartina pectinata</i>
36	Queen Anne's lace	<i>Daucus carota</i>
37	tulip tree	<i>Liriodendron tulipifera</i>
38	English hawthorn	<i>Crataegus laevigata</i>

39 **Emergent wetland**

40 There are several emergent wetlands site-wide, and the two largest wetlands are variations of
 41 emergent wetlands. Dominant vegetation includes:

42	reed canary grass	<i>Phalaris arundinacea</i> (Invasive)
43	spotted lady's thumb	<i>Persicaria maculosa</i>
44	water smartweed	<i>Persicaria amphibia</i>
45	black willow	<i>Salix nigra</i>
46	cottonwood	<i>Populus deltoides</i>

47 Other vegetation in emergent wetland communities is:

1	narrow-leaved cattail	<i>Typha angustifolia</i> (Invasive)
2	common reed	<i>Phragmites australis</i> (Invasive)
3	buttonbush	<i>Cephalanthus occidentalis</i>
4	duckweed	<i>Lemna minor</i>
5	blue flag iris	<i>Iris versicolor</i>
6	rice cutgrass	<i>Leersia oryzoides</i>
7	giant ironweed	<i>Vernonia gigantea</i>
8	red maple	<i>Acer rubrum</i>
9	multiflora rose	<i>Rosa multiflora</i> (Invasive)
10	false nettle	<i>Boehmeria cylindrica</i>
11	late-flowering thoroughwort	<i>Eupatorium serotinum</i>
12	harvestlice	<i>Agrimonia parviflora</i>
13	Canadian clearweed	<i>Pilea pumila</i>
14	jumpseed	<i>Polygonum virginianum</i>
15	lady fern	<i>Athyrium filix-femina</i>
16	blacksnake root	<i>Sanicula odorata</i>
17	flat-top goldenrod	<i>Euthamia graminifolia</i>
18	curly dock	<i>Rumex crispus</i>
19	smooth brome	<i>Bromus inermis</i>
20	velvet panic grass	<i>Dicanthelium scoparium</i>
21	greasegrass	<i>Tridens flavus</i>
22	common plantain	<i>Plantago major</i>
23	spotted knapweed	<i>Centaurea stoebe</i> (Invasive)
24	winterberry	<i>Ilex verticillata</i>
25	smooth sumac	<i>Rhus glabra</i>
26	black cherry	<i>Prunus serotina</i>
27	sassafras	<i>Sassafras albidum</i>
28	Woolgrass	<i>Scirpus cyperinus</i>
29	American water plantain	<i>Alisma subcordatum</i>
30	blackseed plantain	<i>Plantago rugellii</i>
31	river birch	<i>Betula nigra</i>

32 **Upland Scrub/Shrub**

33 The upland scrub/shrub community is south of the maintained road running east and west on
34 both sides of the site. Vegetation consists of:

35	late goldenrod	<i>Solidago altissima</i>
36	field thistle	<i>Cirsium discolor</i>
37	common chicory	<i>Cichorium intybus</i>
38	panicle leaf ticktrefoil	<i>Desmodium paniculatum</i>
39	beggar's lice	<i>Hackelia virginiana</i>
40	Schreber's big red stem moss	<i>Pleurozium schreberi</i>
41	maiden fern	<i>Thelypteris palustris</i>
42	common mullein	<i>Verbascum thaspus</i>
43	blackseed plantain	<i>Plantago rugellii</i>
44	black cherry	<i>Prunus serotina</i>
45	pin oak	<i>Quercus palustris</i>
46	swamp chestnut oak	<i>Quercus michauxii</i>
47	shagbark hickory	<i>Carya ovata</i>
48	white oak	<i>Quercus alba</i>
49	slippery elm	<i>Ulmus rubra</i>

1	American elm	<i>Ulmus americana</i>
2	pecan	<i>Carya illinoensis</i>
3	smooth sumac	<i>Rhus glabra</i>
4	common milkweed	<i>Asclepias syriaca</i>
5	tree of heaven	<i>Ailanthus altissima</i> (Invasive)
6	riverbank grape	<i>Vitis riparia</i>
7	shrub lespedeza	<i>Lespedeza bicolor</i>
8	Callery pear	<i>Pyrus calleryana</i>
9	autumn olive	<i>Elaeagnus umbellata</i> (Invasive)
10	smooth brome	<i>Bromus inermis</i>
11	velvet panic grass	<i>Dicanthelium scoparium</i>
12	greasegrass	<i>Tridens flavus</i>
13	climbing false buckwheat	<i>Fallopia scandens</i>
14	Chinese bushclover	<i>Lespedeza cuneata</i> (Invasive)
15	curly dock	<i>Rumex crispus</i>
16	dogbane	<i>Apocynum cannabinum</i>
17	common ragweed	<i>Ambrosia artemisiifolia</i>
18	English hawthorn	<i>Crataegus laevigata</i>
19	prairie cordgrass	<i>Spartina pectinate</i>

Grassland/Field

The grasslands are located along the north property boundary and a large area in the east side of the property. The grassland/fields are dominated by:

24	late goldenrod	<i>Solidago altissima</i>
25	multiflora rose	<i>Rosa multiflora</i> (Invasive)
26	Chinese privet	<i>Ligustrum sinense</i>
27	Japanese honeysuckle	<i>Lonicera japonica</i> (Invasive)
28	Amur Honeysuckle	<i>Lonicera maackii</i> (Invasive)
29	pin oak	<i>Quercus palustris</i>
30	cottonwood	<i>Populus deltoides</i>

Other plant species observed are:

32	motherwort	<i>Leonurus cardiaca</i>
33	ground-ivy	<i>Glechoma hederacea</i>
34	dogbane	<i>Apocynum cannabinum</i>
35	sensitive fern	<i>Onoclea sensibilis</i>
36	horseweed	<i>Conyza canadensis</i>
37	green bristlegrass	<i>Setaria viridis</i>
38	Queen Anne's lace	<i>Daucus carota</i>
39	Carolina horsenettle	<i>Solanum carolinense</i>
40	Chinese bushclover	<i>Lespedeza cuneata</i>
41	sawtooth blackberry	<i>Rubus argutus</i>
42	curly dock	<i>Rumex crispus</i>
43	common milkweed	<i>Asclepias syriaca</i>
44	Carolina horsenettle	<i>Solanum carolinense</i>
45	flat-top goldenrod	<i>Euthamia graminifolia</i>
46	prairie cordgrass	<i>Spartina pectinata</i>
47	common plantain	<i>Plantago major</i>
48	spotted knapweed	<i>Centaurea stoebe</i>
49	Japanese bristlegrass	<i>Setaria faberi</i>

1	common ragweed	<i>Ambrosia artemisiifolia</i>
2	common reed	<i>Phragmites australis</i> (Invasive)
3	sassafras	<i>Sassafras albidum</i>

4 Some larger trees were observed along the edges and in small stands within in the grasslands
5 such as:

6	white mulberry	<i>Morus alba</i> (Invasive)
7	black cherry	<i>Prunus serotina</i>
8	slippery elm	<i>Ulmus rubra</i>
9	American elm	<i>Ulmus americana</i>
10	swamp chestnut oak	<i>Quercus michauxii</i>
11	shagbark hickory	<i>Carya ovata</i>
12	Callery pear	<i>Pyrus calleryana</i>
13	white oak	<i>Quercus alba</i>

14 **Mixed Forest**

15 The Mixed Forest ecological community is a combination of hardwood deciduous, coniferous forest,
16 and scrub/shrub. The ecological community is dominated by:

17	pin oak	<i>Quercus palustris</i>
18	cottonwood	<i>Populus deltoides</i>
19	black cherry	<i>Prunus serotina</i>
20	swamp chestnut oak	<i>Quercus michauxii</i>
21	shagbark hickory	<i>Carya ovata</i>
22	beggar's lice	<i>Hackelia virginiana</i>
23	late goldenrod	<i>Solidago altissima</i>
24	multiflora rose	<i>Rosa multiflora</i> (Invasive)
25	Chinese privet	<i>Ligustrum sinense</i>
26	Japanese honeysuckle	<i>Lonicera japonica</i> (Invasive)

27 Other vegetation observed:

28	horseweed	<i>Conyza canadensis</i>
29	green bristlegrass	<i>Setaria viridis</i>
30	Queen Anne's lace	<i>Daucus carota</i> (Invasive)
31	jump seed	<i>Persicaria virginiana</i>
32	American elm	<i>Ulmus americana</i>
33	sassafras	<i>Sassafras albidum</i>
34	Allegheny blackberry	<i>Rubus allegheniensis</i>
35	late-flowering thoroughwort	<i>Eupatorium serotinum</i>
36	yarrow	<i>Achillea millefolium</i>
37	harvestlice	<i>Agrimonia parviflora</i>
38	common ragweed	<i>Ambrosia artemisiifolia</i>
39	buttonbush	<i>Cephalanthus occidentalis</i>
40	Autumn olive	<i>Elaeagnus umbellata</i> (Invasive)
41	smooth brome	<i>Bromus inermis</i>
42	velvet panic grass	<i>Dicanthelium scoparium</i>
43	spotted knapweed	<i>Centaurea stoebe</i> (Invasive)
44	common reed	<i>Phragmites australis</i> (Invasive)
45	smooth sumac	<i>Rhus glabra</i>
46	tulip tree	<i>Liriodendron tulipifera</i>
47	tree of heaven	<i>Ailanthus altissima</i> (Invasive)

1 sawtooth blackberry *Rubus argutus*
2 riverbank grape *Vitis riparia*

3 **Pine/Coniferous Forest and Pine Plantation**

4 Coniferous forest and pine plantations are scattered throughout the site. The largest area in the
5 northwest portion of the site was part of a controlled burn. Due to the controlled burn, the red pine
6 (*Pinus resinosa*) is the only canopy tree species in the northwest area within this ecological
7 community. Site-wide areas of this community type are dominated by:

8 red pine *Pinus resinosa*
9 late goldenrod *Solidago altissima*
10 multiflora rose *Rosa multiflora*
11 Chinese privet *Ligustrum sinense*
12 Japanese honeysuckle *Lonicera japonica* (Invasive)
13 black cherry *Prunus serotina*
14 slippery elm *Ulmus rubra*
15 American elm *Ulmus americana*
16 white oak *Quercus alba*
17 beggar's lice *Hackelia virginiana*

18 Other plants observed:

19 pokeweed *Phytolacca americana*
20 Allegheny blackberry *Rubus allegheniensis*
21 clearweed *Pilea pumila*
22 harvest lice *Agrimonia parviflora*
23 Pennsylvania smartweed *Persicaria pennsylvanica*
24 wrinkle leaf goldenrod *Solidago rugosa*
25 woodfern *Dryopteris carthusiana*

26 **Disturbed Area**

27 This area had some recent earthwork done (driving path clearing, tree removals, graded land, etc.).
28 Pockets of forested areas and herbaceous vegetation are limited and dominated by:

29 late goldenrod *Solidago altissima*
30 multiflora rose *Rosa multiflora* (Invasive)
31 Chinese privet *Ligustrum sinense*
32 Japanese honeysuckle *Lonicera japonica* (Invasive)
33 pokeweed *Phytolacca americana*
34 Allegheny blackberry *Rubus allegheniensis*

35 Other species observed:

36 slippery elm *Ulmus rubra*
37 American elm *Ulmus americana*
38 swamp chestnut oak *Quercus michauxii*
39 pin oak *Quercus palustris*
40 Callery pear *Pyrus calleryana*
41 white oak *Quercus alba*

42 **Wildlife**

43 During the 2020 field survey, any wildlife observations were noted.

44 Amphibian and reptile species include:

1	eastern hognose snake (juvenile)	<i>Heterodon platirhinos</i>
2	spring peeper	<i>Pseudacris crucifer</i>
3	green frog	<i>Rana clamitans</i>
4	grey tree frog	<i>Hyla versicolor</i>
5	western chorus frog	<i>Pseudacris triseriata</i>

6 Bird species observed:

7	killdeer	<i>Charadrius vociferus</i>
8	white-breasted nuthatch	<i>Sitta carolinensis</i>
9	red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
10	ruby-throated hummingbird	<i>Archilochus colubris</i>
11	eastern wood peewee	<i>Contopus virens</i>
12	blue jay	<i>Cyanocitta cristata</i>
13	American goldfinch	<i>Spinus tristis</i>
14	gray catbird	<i>Dumetella carolinensis</i>
15	Canada goose	<i>Branta canadensis</i>
16	mallard duck	<i>Anas platyrhynchos</i>
17	green heron	<i>Butorides virescens</i>
18	wild turkey	<i>Meleagris gallopavo</i>

19 Mammal species observed were:

20	white-tailed deer	<i>Odocoileus virginianus</i>
21	chipmunk	species unknown
22	ground squirrel	unidentified

23 With the exception of the approximately 13 acres of buildings, paved lots, and maintained grass, the
 24 entire site would potentially provide habitat for a variety of animals, including amphibians, birds,
 25 insects, mammals, and reptiles through the year. This habitat is available for many songbirds and
 26 bats, including listed species for nesting, roosting, and/or foraging during the breeding season or
 27 spring and fall migrations.

28 **Listed Species**

29 Based on the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation
 30 (IPaC) project planning tool, there are records of three federally endangered species and one
 31 federally threatened species near IN023:

32 Listed Endangered:

33	Indiana bat	<i>Myotis sodalis</i>
34	northern long-eared bat	<i>Myotis septentrionalis</i>
35	piping plover	<i>Charadrius melodus</i>

36 Listed Threatened:

37	eastern massasauga rattlesnake	<i>Sistrurus catenatus</i>
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38 On the USFWS Environmental Conservation Online System (ECOS), there is also the federally
 39 threated plant species, the eastern fringed orchid (*Platanthera leucophaea*) that is known to occur in
 40 LaPorte County.

41 **Bats** - In previous T&E surveys conducted in 2000 and 2011, no Indiana or northern long-eared bats
 42 were captured at the Kingsbury LTA. Summer 2020 restrictions by the USFWS prevented the capture
 43 and handling of bats due to Severe Acute Respiratory Syndrome Corona Virus-19 (SARS-CoV-19).
 44 Due to potential risks associated with transmitting SARS-CoV-19 to bats, acoustic surveys were
 45 approved by USFWS on June 24, 2020, to be performed in place of mist net surveys to assess P/PA

1 of listed bats at the Kingsbury LTA. The survey was conducted with the appropriate level of effort to
2 meet 2020 USFWS acoustic survey guidelines.

3 Bat detectors were placed within suitable habitat throughout the facility and set to record for two
4 consecutive nights totaling 25 survey nights on the 972-acre (363.12 forested acres) facility. One
5 additional survey night was performed above the required 24 detector-nights to ensure the minimum
6 effort was met in the event of adverse weather or equipment failure. Detectors recorded bat calls from
7 sunset to sunrise under favorable weather conditions. Files were analyzed using USFWS approved
8 bat acoustic software and by manual vetting. During the survey, four species of bats were detected
9 including the big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), hoary bat
10 (*Lasiurus cinereus*), and evening bat (*Nycticeius humeralis*). No T&E bat species were detected at
11 the Kingsbury LTA during the Summer 2020 P/PA survey. (P-G JV IN023 2021)

12 There is potentially suitable roosting and foraging habitat for Indiana and northern long-eared bats in
13 the forested areas and along roads and wetlands; however, during the 2020 acoustic survey, PARS-
14 Gannett Fleming Joint Venture scientists did not observe any threatened or endangered bat species.
15 (P-G JV IN023 2021)

16 **Birds** - The piping plover (*Charadrius melodus*) range maps indicate it is highly unlikely that piping
17 plovers would be found at IN023.

18 **Reptiles** - The eastern massasauga requires wetland/upland complexes with well-developed,
19 open wetlands that offer cover in the form of sedge clumps and emergent and upland areas that offer
20 hibernacula. Both habitat types were observed at IN023; therefore, the species has potential to be
21 present.

22 The IPaC resource list indicated that there are no critical habitats in the area.

23 **Additional Surveys** - Presence/absence surveys conducted in 2018 searched for the following
24 federal- and state-listed species:

25 **State-Endangered Birds:**

26	marsh wren	<i>Cistothorus palustris</i>
27	sedge wren	<i>Cistothorus platensis</i>
28	upland sandpiper	<i>Bartramia longicauda</i>
29	least bittern	<i>Ixobrychus exilis</i>
30	northern harrier	<i>Circus hudsonius</i>
31	Virginia rail	<i>Rallus limicola</i>

32 **Federal Candidate and State-Endangered Reptile:**

33	Blanding's turtle	<i>Emydoidea blandingii</i>
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34 **Federally Threatened and State-Endangered Reptile:**

35	eastern massasauga rattlesnake	<i>Sistrurus catenatus</i>
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36 **State-Endangered Mammal:**

37	Franklin's ground squirrel	<i>Poliocitellus franklinii</i>
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38
39 **Federally Endangered Insect:**

40	Karner blue butterfly	<i>Lycaeides melissa samuelis</i>
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41 During the 2018 facility surveys, AEM Group and Apogee biologists did not observe any of the state
42 or federally listed target species. AEM Group conducted the avian list of species to include marsh

1 wren (*Cistothorus palustris*), sedge wren (*Cistothorus platensis*), upland sandpiper (*Bartramia*
2 *longicauda*), least bittern (*Ixobrychus exilis*), northern harrier (*Circus cyaneus*), and Virginia rail
3 (*Rallus limicola*). The least bittern and the Virginia rail are considered marsh-dependent birds that
4 use emergent wetlands for breeding and foraging. The marsh wren, sedge wren, and northern harrier
5 are also closely associated with marshes due to their breeding and foraging habits. The upland
6 sandpiper is considered a grassland species that inhabits grassy prairies, open meadows and fields.
7 Listed bird species are predominantly wetland/salt marsh species that require substantial habitat
8 area, and that type of habitat is not located at IN023. None of the listed species were observed during
9 any of the field surveys.

10 The Blanding's turtle (*Emydoidea blandingii*) general habitat is wetlands with clean shallow water. It
11 is known to bask on logs, and will wander far from water, particularly when nesting. It generally nests
12 in sunny areas, with well-drained soil. IN023 does not support the Blanding's turtle habitat
13 requirements, therefore its presence on site is unlikely.

14 To date, Franklin's ground squirrel (*Poliocitellus franklinii*) has not been identified at the Kingsbury
15 LTA. During the 2020 field survey, biologists encountered an unidentified ground squirrel at three
16 locations, but it was not possible to determine if they were Franklin's ground squirrel. Franklin's
17 ground squirrel can be found in the tallgrass prairie areas of the northcentral United States and
18 adjacent parts of Canada. They live at the border between grassy areas and woody vegetation
19 because of the diverse food sources available. Recent range maps indicate it is unlikely that the
20 Franklin's ground squirrel would be found at this site, additionally their preferred habitat is not present
21 at the site. The Franklin's ground squirrel is listed as an endangered species in Indiana.

22 The Karner blue butterfly (*Lycaeides melissa samuelis*) The Karner blue is found only in dry, sandy
23 areas with open woods and clearings that support the wild blue lupine. Pitch pine and scrub oak are
24 the common tree species in this habitat. This type of habitat is not found at the site therefore making
25 it unlikely for this species presence.

26 There were no other listed or candidate, federal, state, or Army species-at-risk animals or plants
27 observed at the facility in 2020.

28 **4.6.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

29 There are opportunities for outdoor recreation and public access on this site based on aesthetic
30 natural communities and hunting areas. Agricultural out-leasing on this site could possibly occur in
31 the grassland fields. At this time none of these activities are taking place at IN023, due to limited
32 manpower and funding.

33 **4.6.7 Management Concerns and Issues**

34 There were no significant natural resource management issues observed at the site.

35 Additional aquatic resource studies should be conducted to resolve differences in findings noted
36 between the 2018 wetland survey update and the 2020 natural resource survey. Areas that cannot
37 be confirmed as streams or wetlands should be removed from the aquatic resource inventory, and
38 previously undocumented streams or wetlands should be described and added to the aquatic
39 resource inventory for the facility. Due to the size and quality of wetlands at Kingsbury LTA, the 88th
40 RD should consider updating aquatic resource surveys every 5 years. Wetland impacts should be
41 avoided.

42 The Facility Forest Management Plan (FMP) should be continued to meet forest management goals
43 outlined for the facility; this plan establishes objectives to meet forest management goals and desired
44 future conditions in each of the four training areas present at IN023. Management of the facility's
45 forest is an ongoing effort.

1 The Facility Invasive Species Management Plan (ISMP) should be maintained to manage presence
2 of invasive plant species at IN023. The ISMP establishes objectives to meet goals for controlling
3 invasive species in each of eight management units within each of the four training areas present at
4 IN023. Management actions in the ISMP include prescribed burning, applying herbicides, and
5 conducting follow-up surveys to characterize regrowth and determine additional actions needed.

6 Potentially suitable habitat for Indiana bats was observed at the site. The PARS-Gannett Fleming
7 Joint Venture scientists conducted an acoustic survey to detect the presence of Indiana and Northern
8 long-eared bats at IN023; no threatened or endangered bats were detected during the survey.

9 Potentially suitable habitat for eastern massasauga (federally threatened) was observed at the site.
10 Also, in 2020 an unidentified ground squirrel, possibly state-endangered Franklin's ground squirrel
11 (*Spermophilus franklinii*), was observed at three locations at the facility. Biologists conducted several
12 listed species surveys in 2018 but did not observe any of the target species at that time.

13 The 88th RD should consider periodically conducting surveys for listed species since potentially
14 suitable habitat for these species occurs at the site. Additionally, potential T&E habitat should be
15 considered when planning any large-scale changes and PMs will consult the USFWS IPaC tool for
16 potential impacts.

17 **4.6.8 Special Interest Areas**

18 Kingsbury State Fish and Wildlife Area is adjacent to the facility to the west and northeast. The area
19 is managed by the Indiana Department of Natural Resources Division of Fish and Wildlife and used
20 for public hunting and fishing.

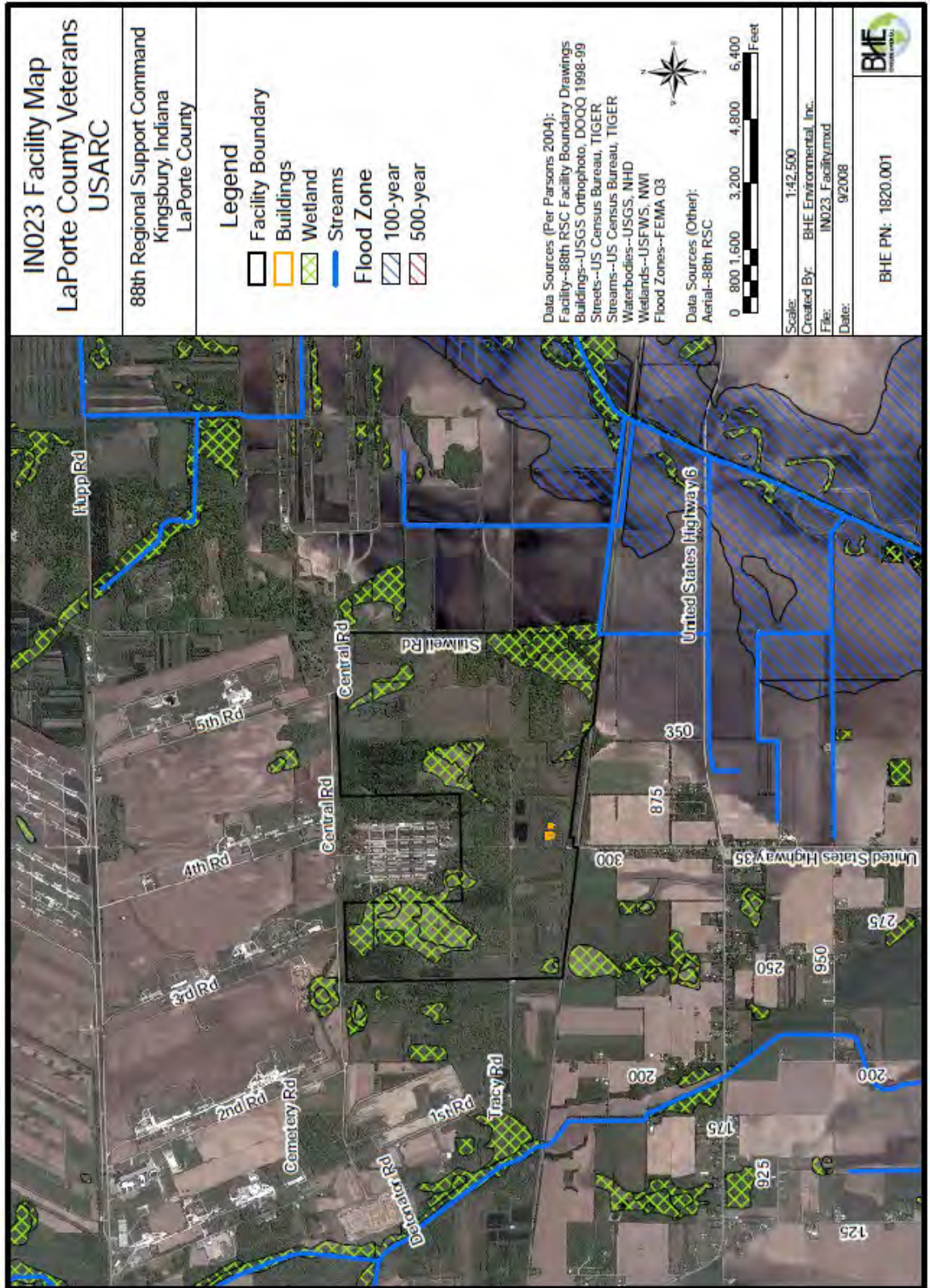


Figure 4.6 - Site Map – IN023/18740

4.7 BG Wm. H. Birbari USARC (MI009/26798)

32155 Groesbeck HWY
Fraser, MI 48026-3193

Medium Resource

County: Macomb

Acres: 5.13

Building Count: 2

Last Field Survey: 2021



BG William H. Birbari ARC (MI009/26798) consists of an ARC, an OMS, and associated parking areas. The site is used for administrative services, classroom training, and light vehicle maintenance. The 88th RD owns the land and two buildings that comprise MI009/26798.

4.7.1 Geographic Location and Size

MI009/26798 is located in the city of Fraser, population 15,552, in Macomb County. Acreage for the site from the Real Property Detail Report shows acreage as 5.13 ac. Surrounding land use includes a railroad to the west and commercial land to the north, south, and east. The site boundaries are shown on Figure 3.7.

4.7.2 Geological Resources

Physiography and Geology

The site is located within the Central Lowland physiographic province. This province is characterized by flat plains surrounding the Lake Michigan basin and extensive areas of sand dunes in the Lower Peninsula. Geological formations at MI009/26798 are Antrim Shale formations.

Soils

The USDA NRCS web soil survey identifies the following soil on-site: Sims clay loam (Map symbol: SI). During the field investigation, the following soil types were identified on-site: silty clay loam, silty clay, silt loam, and clay. (Pika-Insight JV MI009, 2021)

Topography

The topography of the site is generally flat. The site lies approximately 613.5 feet above mean sea level. (Pika-Insight JV MI009, 2021)

4.7.3 Water Resources

Watershed and Surface Waters

During the 2021 site survey, no surface waters were observed on the site. (Pika-Insight JV MI009, 2021)

Site MI009/26798 occurs within the Clinton watershed in the southeast region of the state (Pika-Insight JV MI009, 2021).

Floodplains

There is a 100-year floodplain 800 ft west and a 500-year floodplain 200 ft west of the site. Both are associated with Sweeny Drainage. (Pika-Insight JV MI009, 2021)

Wetlands

At the time of the 2021 field survey one wetland was noted. (Pika-Insight JV MI009, 2021)

Wetland 1. This wetland (0.10 acres in on-site size) is located within the southwestern corner portion of the site with the Cowardin classification of a seasonally flooded/saturated, persistent, palustrine emergent wetland (PEM1E). Wetland 1 is not recognized by the NWI. (Pika-Insight JV MI009, 2021)

The on-site portion of the wetland is a mowed grass area that appears to be mowed frequently as part of facility maintenance. Wetland 1 extends off-site to the northwest/southwest and is connected to a railroad ditch that is associated with the Canadian National Railway system. The wetland/ditch does not appear to directly connect to a navigable waterway at this time; however, the railroad ditch system may connect downstream through overland flows and culverts to Sweeney Drain to the west. Should the USACE confirm a significant nexus or direct connection to Sweeney Drain, then Wetland 1 may be considered federally jurisdictional. (Pika-Insight JV MI009, 2021)

Two sample points were established within and adjacent to the on-site portion of Wetland 1 to characterize the vegetation, soils, and hydrology. The on-site portion of Wetland 1 was primarily vegetated by Small Spikerush (*Eleocharis palustris*) and Blunt Spikerush (*Eleocharis obtusa*). The mapped soil series is Sims clay loam, a hydric soil. The USDA NRCS field indicators A11: Depleted Below Dark Surface and F3: Depleted Matrix provided evidence of hydric soil. High water table, saturation, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight JV MI009, 2021)

Plant species were given C-values by regional botanical experts F. Swink and G. Wilhelm, based on the local behavior of the species. The values range from 0 to 10 for each plant in a region. Native species may be assigned any value from 0 to 10, whereas non-native species receive a value of 0. Therefore, the native mean C-value and native FQI are only calculated in this report. Generally, a value of 3.5 or greater, is considered a high-quality plant community. (Pika-Insight JV MI009, 2021)

The native FQI value indicates overall vegetative quality of the plant community being inventoried. Generally, a value between 1–19 is low-quality, a value between 20–35 is high-quality, and a value above 35 is exceptional quality. (Pika-Insight JV MI009, 2021)

The native mean C-value for Wetland 1 was 2.40, and the native FQI of Wetland 1 was 12.0. These values indicate a low-quality plant community. (Pika-Insight JV MI009, 2021)

The Wetlands and Deepwater Habitats Classification System, identifies the Sweeney Drain on the NWI Map as a *Riverine Lower Perennial Unconsolidated Bottom Permanently Flooded (R2UBH)* feature and is located approximately 800 feet northwest of the site. This corridor appears to contain mature trees and scrub-shrub vegetation. Sweeney Drain would likely be considered a federally jurisdictional waterway by the USACE, based on its eventual connection downstream to the Clinton River and ultimately Lake St. Clair to the east. (Pika-Insight JV MI009, 2021)

4.7.4 Cultural Resources

An inventory of the built environment has been conducted for this facility, and all of the buildings at MI009/Barbari USARC were recommended not eligible for the NRHP.

The 2009 Michigan SHPO review of the Section 110 report recommended that any projects involving ground disturbance on USARC property be submitted to the Michigan

SHPO for review and comment on the potential effect to archaeological resources. To proactively address any future facility development, the 88th RD conducted an Archaeological Sensitivity Assessment (ASA). The results of the ASA for MI009/Fraser USARC concluded that the facility had a low potential to contain intact archaeological deposits and that a Phase I archaeological survey was not warranted. (ICRMP MI, 2020).

In November 2013, the Michigan SHPO concurred that no survey was required. The 88th RD initiated consultation with federally recognized Tribes and requested review of the ASA, and no responses were received. (ICRMP MI, 2020)

The ICRMP for sites located in Michigan will be furnished upon request.

4.7.5 Biological Resources

Land Cover and Ecological Communities

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Manicured Turf Grass	1.23	24%
Wetland 1	0.10	2%
Impervious Surfaces*	3.80	74%
Totals	5.13	100

*Impervious surfaces include building footprints and parking lots.

Vegetation Communities

The site contains the following ecological communities on the site: one low-quality wetland. FQI has been completed for Wetland 1 on the site and this information is included in Attachment 4. (Pika-Insight JV MI009, 2021)

The on-site portion of the wetland was primarily vegetated by:

Common Name	Scientific Name
Small Spikerush	<i>Eleocharis palustris</i>
Blunt Spikerush	<i>Eleocharis obtusa</i>

Maintained Turf Grasses

The site contains several areas of maintained turf grasses throughout the site. The main areas surround the buildings and parking areas. The areas are mowed and manicured throughout the growing season. Kentucky Bluegrass (*Poa pratensis*) dominates the turf areas. (Pika-Insight JV MI009, 2021)

Wildlife

During the field investigation, the following wildlife species were encountered on the site:

Birds:

Common Name	Scientific Name
American Robin	<i>Turdus migratorius</i>
Ring-billed Gull	<i>Larus delawarensis</i>

Mammals:

Common Name	Scientific Name
Eastern Cottontail Rabbit	<i>Sylvilagus floridanus</i>

Reptiles: None

Insects: None

The areas on the site containing habitat for the above listed species include the wetland and the turf grass areas on the site. (Pika-Insight JV MI009, 2021)

Given the developed nature of the site and the surrounding land use, only species of wildlife typically adapted to developed areas would likely utilize the site. (Pika-Insight JV MI009, 2021)

Listed Species

No federally listed species were observed on the site during the field visit. (Pika-Insight JV MI009, 2021)

Based on a July 11, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or endangered) plant or animal species habitat are not located on or adjacent to the site. (Pika-Insight JV MI009, 2021)

The IPaC lists 7 species are listed and may be present in Macomb County:

Common Name	Scientific Name
Indiana Bat	<i>Myotis sodalis</i>
Northern Long-eared Bat	<i>Myotis septentrionalis</i>
Piping Plover	<i>Charadrius melodus</i>
Red Knot	<i>Calidris canutus rufa</i>
Whooping Crane	<i>Grus american</i>
Eastern Massasauga	<i>Sistrurus catenatus</i>
Snuffbox Mussel	<i>Epioblasma triquetra</i>

Additionally, the **Monarch Butterfly (*Danaus plexippus*)** is included as a **USFWS candidate species** formally at this time. It is understood that the International Union for Conservation of Nature (IUCN) has changed the formal status of the Monarch Butterfly to Endangered worldwide; however, the USFWS has not changed the formal status of this species as of the date of this report. (Pika-Insight JV MI009, 2021)

There is no suitable on-site habitat for the Indiana Bat, Northern Long-eared Bat, Piping Plover, Red Knot, Whooping Crane, Eastern Massasauga, or Snuffbox Mussel. (Pika-Insight JV MI009, 2021)

State Listed Species

According to the Michigan State University Extension Office, a total of 42 species are listed and may be present in Macomb County. Based on the field investigation, the site does not contain any suitable habitat for the state-listed species. (Pika-Insight JV MI009, 2021)

4.7.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

There does not appear to be any opportunities for outdoor recreation, public access, hunting, or agricultural out-leasing areas on this site. This site lacks aesthetic natural communities.

4.7.7 Management Concerns and Issues

No invasive species were identified on-site that would require maintenance activities.

4.7.8 Special Interest Areas

No additional vegetated areas located within the site were examined during the field investigation to determine if they satisfied wetland criteria.

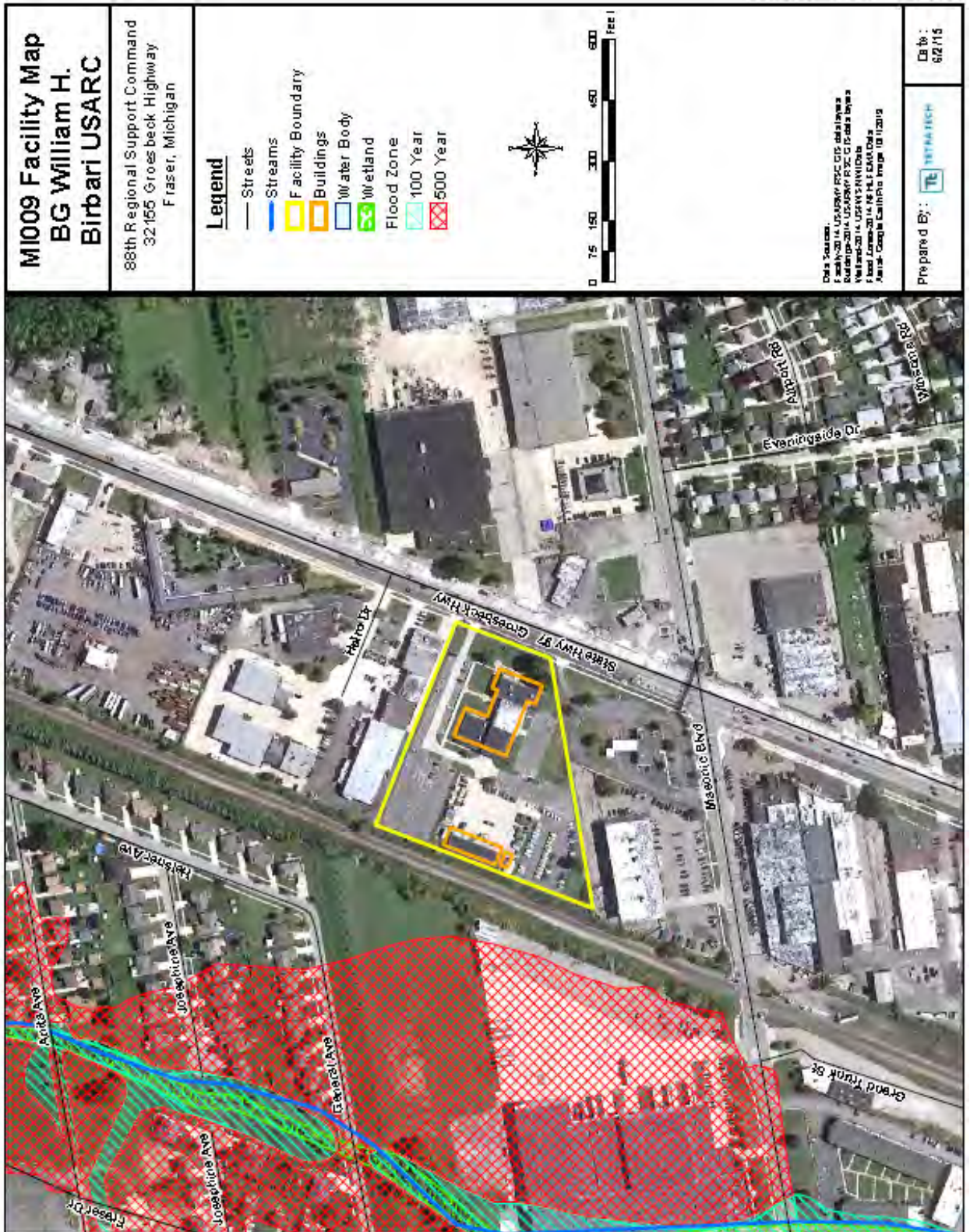


Figure 4.7. Site Map – MI009/26798

4.8 Christensen/Hattamer ARC (MI021/2653A)

204 Cherry Creek Road
Marquette, MI 49855

Medium Resource

County: Marquette

Real Property Report Acres: 5.05

Building Count: 1

Last Field Survey: 2008*

* Updated 2015



Christensen/Hattamer ARC/BMA 140 (MI021/2653A) consists of an ARC, an OMS, and associated parking areas. The site is used for administrative services, classroom training, and light vehicle maintenance. The 88th RD leases the land and the building from a private citizen owner.

4.8.1 Geographic Location and Size

MI021/2653A is located in the city of Harvey (near Marquette), population 1,297, in Marquette County. Acreage for the site was calculated at 5.05 ac in the GIS; the Real Property Detail Report does not show acreage for the site. Surrounding land use includes a pasture to the north, forested land to the south, residential land to the east, and commercial land to the west. The site boundaries are shown on Figure 3.8. (BHE MI021 2015)

4.8.2 Geological Resources

Physiography and Geology

The site is located within the Superior Upland physiographic province. This province is characterized by Precambrian rock exposed by repeated glacial erosion, short streams with many rapids and falls, and abundant lakes and swamps. Geological formations at MI021/2653A are Jacobsville sandstone (Cambrian) formations. (BHE MI021 2015)

Soils

Mapped soils within the site boundary belong to the following soil map units: Au Gres sand, 0 to 3 percent slopes; Rousseau-Ocqueoc fine sands, 0 to 6 percent slopes; and Garlic-Alcona-Voelker complex, 1 to 12 percent slopes, dissected. (BHE MI021 2015)

Topography

The site is flat with an elevation of 654 ft amsl. (BHE MI021 2015)

4.8.3 Water Resources

Watershed and Surface Waters

During the 2008 site survey, a small, on-site, un-named, seasonal stream along the western boundary was observed. The stream was dry at the time of the survey. Past surveys reported Silver Creek approximately 1,600 ft north of the site. Site MI021/2653A occurs within the Betsy-Chocolay watershed in the Upper Peninsula of the state. (BHE MI021 2015)

Wetlands

NWI data indicates no wetlands on the site. However, during the 2008 site survey, a diverse wetland (PEM) with some coniferous swamp forest and scrub/shrub inclusions was identified along the intermittent stream in the western portion of the site.

The palustrine emergent/forested/scrub-shrub (PEM/PFO/PSS) wetland is 0.30 ac in size and has a dominance of hydrophytic vegetation and positive indicators of hydrology including soil saturation in the upper 12 in, water marks, drainage patterns, and oxidized root channels in the upper 12 in of soil. The area receives water from precipitation events and the periodic flow of the intermittent stream in the center of the area. Hydric soil characteristics included gleyed or low chroma colors and slight mottling. This area meets the criteria of a wetland.

The wetland appears to have a direct hydrologic connection to the intermittent stream in the western portion of the site and is therefore potentially jurisdictional. A USACE jurisdictional determination should be sought to determine jurisdictional status. This jurisdictional determination may be completed by MDEQ if specific authority has been delegated to MDEQ by USACE.

NWI data indicates there is a 1.8-ac scrub/shrub wetland 220 ft north of the site.

Floodplains

There are no floodplains on or within 1,000 ft of the site. Past surveys reported a 100-year floodplain over 1,400 ft north of the site along the Silver Creek. (BHE MI021 2015)

4.8.4 Cultural Resources

An inventory of the built environment has been completed for this facility, and the building at the MI021/Marquette USARC was recommended not eligible for the NRHP. The Michigan SHPO concurred with this recommendation in a 2009 review of the Section 110 report. (ICRMP MI, 2020)

In 2014, Sweeney completed the Phase I survey and excavated a total of 20 shovel tests across 0.90 acres of undeveloped land at the facility. The field survey recovered no archaeological materials and identified no sites. The report was submitted for review by the Michigan SHPO and federally recognized Tribes. In November 2014, the Michigan SHPO concurred with the report recommendations that the facility is considered cleared for archaeological resources. No responses were received from federally recognized Tribes. (ICRMP MI, 2020)

Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review of this 2020-2024 ICRMP Update.

The ICRMP for sites located in Michigan will be furnished upon request.

4.8.5 Biological Resources

Land Cover and Ecological Communities

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Buildings	0.39	8
Coniferous/Hardwood Forest	1.63	32
Emergent/Forested Wetland	0.32	6
Grassland/Field	0.34	7
Maintained Grass	0.19	4

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Paved Road/Parking	2.18	43
Totals	5.05	100

Vegetation Communities

The mixed coniferous hardwood woodlot is dominated in the canopy layer by white spruce, white pine, quaking aspen, and white birch. It appears that the white pine had been part of an effort to start a harvestable plot of trees. The shrub layer is dominated by downy service berry, elderberry, choke cherry, speckled alder, and balsam poplar. The herbaceous layer is dominated by large leaved aster, poverty grass, starflowers, Canada mayflower, bracken fern, and early goldenrod. All trees appeared healthy and free of disease. The stand is young in age and small in total acreage. The uneven age of the species present causes the understory to be very thick, limiting the ability to easily traverse through the forest. This limits the possibility of the area being used for other activities such as training. (BHE MI021 2015)

The emergent wetland is dominated by white cedar in the canopy layer. The shrub layer is dominated by crack willow and red osier dogwood. The herbaceous layer is dominated by ostrich-fern, fowl mannagrass, sedge, blue joint grass, narrow-leaved cattail, Woolgrass, sensitive fern, and woodland horsetail. The grassland/field is dominated by Canada goldenrod, common burdock, common tansy, and smooth brome. (BHE MI021 2015)

The maintained lawn (around building) is dominated by Kentucky bluegrass. The landscaping trees and shrubs include silver maple, basswood cultivar, and crabapple. (BHE MI021 2015)

Wildlife

Wildlife observed during the 2008 field survey include the American goldfinch, black-capped chickadee, American crow, American robin, eastern chipmunk, red squirrels, and bees. Evidence of other animals included white-tailed deer tracks, small mammal burrows, and woodchuck burrows. Site staff reported seeing blue jays and eastern cottontails.

The coniferous forest and combination wetland offer suitable habitat to common birds and small mammals. However, given the developed nature of the site and surrounding land use, only common species of wildlife typically adapted to developed areas would likely utilize the site.

Listed Species

No listed species were observed during the 2008 field survey. No suitable habitat for listed species was observed on the site.

Federally listed species documented in Marquette County are northern long-eared bat (*Myotis septentrionalis*; PE), Kirtland's warbler (*Dendroica kirtlandii*; E), and Canada lynx (*Lynx Canadensis*; T).

No potential roosting or foraging habitat for northern long-eared bat was observed on the facility. The facility does not contain any wintering (i.e., caves) habitat. It is unlikely that this species would utilize the facility

Kirtland's warbler prefers to nest in >80 ac stands of young jack pine (*Pinus banksiana*). This habitat does not exist on the site and the species is unlikely to utilize the site.

Canada lynx are found in mature forests with dense undergrowth, but also can be found in more open forests, rocky areas, or tundra. This habitat does not exist on the site and it is unlikely that the species would be present.

Past surveys reported that MDNR had records of bald eagle (*Haliaeetus leucocephalus*) and a great blue heron (*Ardea herodias*) rookery in the area surrounding M1021/2653A, but there was a very low potential for the species to utilize the site.

4.8.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

There does not appear to be any opportunities for outdoor recreation, public access, hunting, or agricultural out-leasing areas on this site. This site lacks aesthetic natural communities.

4.8.7 Management Concerns and Issues

No invasive species were identified on-site that would require maintenance activities.

4.8.8 Special Interest Areas

No additional vegetated areas located within the site were examined during the field investigation.

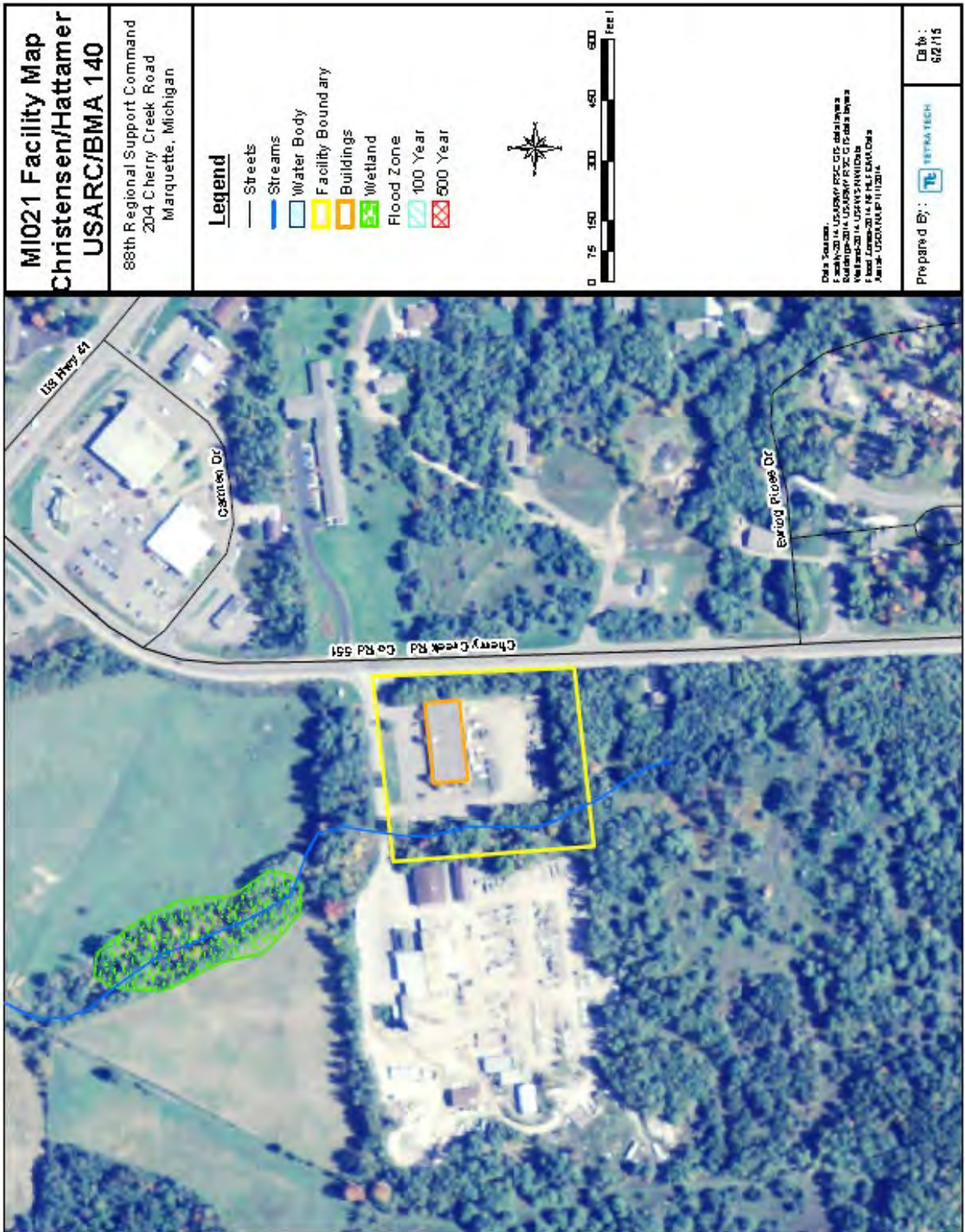


Figure 4.8 - Site Map – MI021/2653A

4.9 Donald R. Moyer ARC (MI024/26900)

2650 Watkins Lake Road
Waterford, MI 48328-1911

Medium Resource

County: Oakland
Acres: 3.80
Building Count: 1
Last Field Survey: 2021



Donald R. Moyer ARC (MI024/26900) U.S. Army Reserve Center (USARC), which includes one building, secured military equipment parking (MEP), storage, privately owned vehicle (POV) parking, two entrance driveways, sidewalks, manicured and maintained turf grass areas, one emergent/wooded wetland, and one excavated roadside ditch feature. The site is used for administrative services, classroom training, and light vehicle maintenance. The 88th RD leases the land and owns the two buildings that comprise site MI024/26900.

4.9.1 Geographic Location and Size

MI024/26900 is located in the city of Waterford, population 73,410, in Oakland County. Acreage for the site as reported in the Real Property Detail Report is 3.80 ac. The site is bounded by commercial properties and open space to the north (Children's Village School), Watkins Lake Road to the south, the Road Commission for Oakland County to the east, and the Oakland County WRC Water and Sewer Billing Office to the west. Waterford Oaks Park is approximately 1,000+ feet north of the facility. The site boundaries are shown on Figure 3.9.

4.9.2 Geological Resources

Physiography and Geology

The site is located within the Central Lowland physiographic province. This province is characterized by flat plains surrounding the Lake Michigan basin and extensive areas of sand dunes in the Lower Peninsula. Geological formations at MI024/26900 are cold water shale formations. (Pika-Insight JV MI024 2021)

Soils

United States Department of Agriculture (USDA), Natural Resources Conservation Services (NRCS) web soil survey, identifies the following soils on-site: Urban Land (59) and Aquents, sandy, loamy, undulating (41B). The soil textures identified on the site include silty clay loams, sandy loams, and silt loams. (Pika-Insight JV MI024 2021)

Hydric soils identified on the Soils Map (Exhibit F) (USDA NRCS data) are heavily present along the north, northeast corner (Wetland 1, Exhibit H), and eastern limits of the property, and extend beyond the property limits to the north and east. (Pika-Insight JV MI024 2021)

Topography

The site is relatively flat with an elevation ranging from 965 – 970 ft amsl. (Pika-Insight JV MI024 2021)

4.9.3

Water Resources

Watershed and Surface Waters

There are no surface waters on or within 1,000 ft of the site. Past surveys report an unnamed drainage approximately 1,900 ft north and Scott Lake 4,700 ft northeast of the site. Site MI024/26900 occurs within the Clinton watershed in the southeastern region of the state. (Pika-Insight JV MI024 2021)

Wetlands

Wetland 1. This wetland (0.80 acres) is located within the northern, northeastern, and eastern portions of the site. Wetland 1 continues off-site to the north and east. The wetland does not appear to directly connect to a navigable waterway. The USACE may find a significant nexus connection to the east; however, numerous roadways and railroads disrupt the direct connection to the Clinton River. Off-site culverts were not reviewed in this study. If the USACE finds a significant nexus to the Clinton River, they will take jurisdiction over Wetland 1. (Pika-Insight JV MI024 2021)

The on-site buffer surrounding the wetland consists of manicured turf grass areas and impervious structures/surfaces. This buffer does not provide functional benefits for the wetland in terms of wildlife habitat, stormwater infiltration, pollutant assimilation, and soil stabilization. (Pika-Insight JV MI024 2021)

Wetland 1 consists of emergent and wooded wetland communities. The emergent portions of the wetland are dominated by:

Common Name	Scientific Name
Common Spike-Rush	<i>Eleocharis palustris</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Common Reed	<i>Phragmites australis ssp. Australis</i>
Narrow-Leaved Cattail	<i>Typha angustifolia</i>

The wooded portions of the wetland are dominated by:

Common Name	Scientific Name
Green Ash	<i>Fraxinus pennsylvanica</i>
Virginia Creeper	<i>Parthenocissus quinquefolia</i>
Common Buckthorn	<i>Rhamnus cathartica</i>
Sandbar Willow	<i>Salix interior</i>
American Elm	<i>Ulmus americana</i>
Riverbank Grape	<i>Vitis riparia</i>

Five sample points were established within and adjacent to the on-site portion of Wetland 1 to characterize the vegetation, soils, and hydrology (Exhibit B: Aerial Photograph). The mapped soil series is Aquents, sandy, loamy, undulating (41B), a hydric soil. USDA field indicators A11: Depleted Below Dark Surface, F3: Depleted Matrix, and F6: Redox Dark Surface provided evidence of hydric soil. High water table, saturation, drainage patterns,

geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight JV MI024 2021)

The native mean Coefficient of Conservatism (C-value) for Wetland 1 was 2.5, and the native Floristic Quality Index (FQI) of Wetland 1 was 17.1. These values indicate a moderate quality plant community. (Pika-Insight JV MI024 2021)

Plant species were given Coefficient of Conservatism (C-values) by regional botanical experts based on the local behavior of the species, in this area F. Swink and G. Wilhelm 1994. The values range from 0 to 10 for each plant in a region. Native species may be assigned any value from 0 to 10, whereas non-native species receive a value of 0. Therefore, the native mean C-value and native FQI are only calculated in this report. Generally, a value of 3.5 or greater, is considered a high-quality plant community. (Pika-Insight JV MI024 2021)

The native FQI value indicates overall vegetative quality of the inventoried plant community. Generally, a value between 1–19 is low-quality, a value between 20–35 is high-quality, and a value above 35 is exceptional quality. (Pika-Insight JV MI024 2021)

The National Wetlands Inventory Database identifies one *Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded (PSS1C)* wetland located approximately 275 feet northeast of the site and one *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland located approximately 550 feet northwest of the site. Both features appear to contain mature trees, scrub-shrub, and emergent vegetation. These features may be considered to have a significant nexus to Clinton River and may be considered federally jurisdictional. (Pika-Insight JV MI024 2021)

Floodplains

There are no floodplains on or within 1,000 ft of the site. Past surveys report a 100-year floodplain approximately 2,200 ft east of the site along an unnamed drainage.

4.9.4 Cultural Resources

Architectural inventories were completed for this property and the buildings determined not eligible for the NRHP in 2001. However, the facility buildings were only 30 years old at the time of the survey. In 2023, the 88th RD completed a National Register Re-Evaluation Report and submitted a determination to SHPO (22 March 2023) that the buildings are not eligible for the NRHP. SHPO comments are pending.

In 2013, the ASA report concluded that the facility had a low potential to contain intact archaeological deposits, and that a Phase I archaeological survey was not warranted. In November 2013, the Michigan SHPO concurred that no additional survey was required. The 88th RD initiated consultation with federally recognized Tribes and requested review of the ASA, but no responses were received. (ICRMP MI, 2020)

Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review of this 2020-2024 ICRMP Update.

The ICRMP for sites located in Michigan will be furnished upon request.

4.9.5 Biological Resources

Land Cover and Ecological Communities

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Manicured Turf Grass	0.24	6%
Mature Trees & Turf Grass	0.62	17%
Wetland 1	0.80	21%
Excavated Roadside Ditch	339 Linear Feet	N/A
Impervious Surfaces*	2.13	56%
Totals	3.79	100

*Includes parking areas and building footprints.

Vegetation Communities

The site contains several areas of maintained turf grasses throughout the site. The main areas surround the buildings and parking areas. The areas are mowed and manicured throughout the growing season. The turf areas are dominated by Kentucky Bluegrass (*Poa pratensis*), Common Dandelion (*Taraxacum officinale*), and White Clover (*Trifolium repens*). (Pika-Insight JV MI024 2021)

Wildlife

During the field investigation, the following wildlife species were encountered on the site:

Birds:

Common Name	Scientific Name
Songbird	Unidentified*

*One individual songbird was noted in a large deciduous tree approximately 50 to 100 feet from the observers' location. A specific identification of the bird could not be confirmed due to obscured vision and/or prior to the departure of the bird from the site. (Pika-Insight JV MI024 2021)

Mammals:

Common Name	Scientific Name
Eastern Cottontail Rabbit	<i>Sylvilagus floridanus</i>
Groundhog	<i>Marmota monax</i>

Reptiles:

Common Name	Scientific Name
American Toad	<i>Anaxyrus americanus</i>

Insects:

Common Name	Scientific Name
Dragonflies	Unidentified
Bumble Bees	<i>Bombus</i> spp.
Japanese Beetle	<i>Popillia japonica</i>
Monarch Butterfly	<i>Danaus plexippus</i>
Common Paper Wasp	<i>Polistes exclamans</i>
Cabbage White Butterfly	<i>Pieris rapae</i>
Common Eastern Bumblebee	<i>Bombus impatiens</i>

The areas on the site containing habitat for the above listed species include the wetland and the turf grass areas on the site. (Pika-Insight JV MI024 2021)

Listed Species

USFWS Federally Listed Species

No federally listed species were observed on the site during the field visit.

Based on a July 11, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or endangered) plant or animal species habitat are located on or adjacent to the site. (Pika-Insight JV MI024 2021)

According to the IPaC, 6 species are listed and may be present in Oakland County:

Common Name	Scientific Name
Indiana Bat	<i>Myotis sodalist</i>
Northern Long-eared Bat	<i>Myotis septentrionalis</i>
Eastern Massasauga	<i>Sistrurus catenatus</i>
Rayed Bean	<i>Villosa fabalis</i>
Snuffbox Mussel	<i>Epioblasma triquetra</i>
Poweshiek Skipperling	<i>Oarisma poweshiek</i>

The site contains approximately 0.20 acres of potentially suitable habitat for the Indiana Bat and Northern Long-eared Bat, through given the surrounding habitat their presence at this location is unlikely. The presence of mature tree species with exfoliating bark may provide suitable summer day roosting habitat for the two bat species. These species day roosting requirements tend towards the exfoliated bark of large trees, as well as standing dead snags. Prior to removal of any live or dead trees, prior approval from the 88th RD Conservation Team will be required. (Pika-Insight JV MI024 2021)

The site contains approximately 0.16 acres of suitable habitat for the listed species the Poweshiek Skipperling and the Candidate species the Monarch Butterfly. Wetland 1 contains flowering forbs, and therefore supports habitat for the Poweshiek Skipperling and Monarch Butterfly. No critical habitat was identified on-site by the USFWS; however, it is recommended to avoid impacts to flowering forb species and if possible, plant additional native forbs on the site to encourage the use by potential pollinators. (Pika-Insight JV MI024 2021)

None of the areas on-site contain suitable habitats for the Eastern Massasauga, Rayed Bean, or Snuffbox Mussels. (Pika-Insight JV MI024 2021)

Additionally, the Monarch Butterfly (*Danaus plexippus*) is included as a USFWS designated candidate species at this time. It is understood that the International Union for Conservation of Nature (IUCN) has changed the formal status of the Monarch Butterfly to Endangered worldwide; however, the USFWS has not changed the formal status of this species as of the date of this report. (Pika-Insight JV MI024 2021)

Further guidance for the Monarch Butterfly is not required since it is a Candidate species and not yet fully listed as Threatened or Endangered. The Monarch Butterfly was found to warrant listing and protection under the Endangered Species Act (ESA), but resources must go to higher priority species at this time. Candidate species have no legal protection under the ESA, but agencies can still provide recommendations for them. The USFWS broadly urges the public to provide habitat for this imperiled species by planting native milkweed and nectar plants. The Monarch Butterfly should be considered in any landscaping plans as well. (Pika-Insight JV MI024 2021)

4.9.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

There does not appear to be any opportunities for outdoor recreation, public access, hunting, or agricultural out-leasing areas on this site. This site lacks aesthetic natural communities.

4.9.7 Management Concerns and Issues

No invasive species were identified on-site that would require maintenance activities.

4.9.8 Special Interest Areas

No additional vegetated areas located within the site were examined during the field investigation.

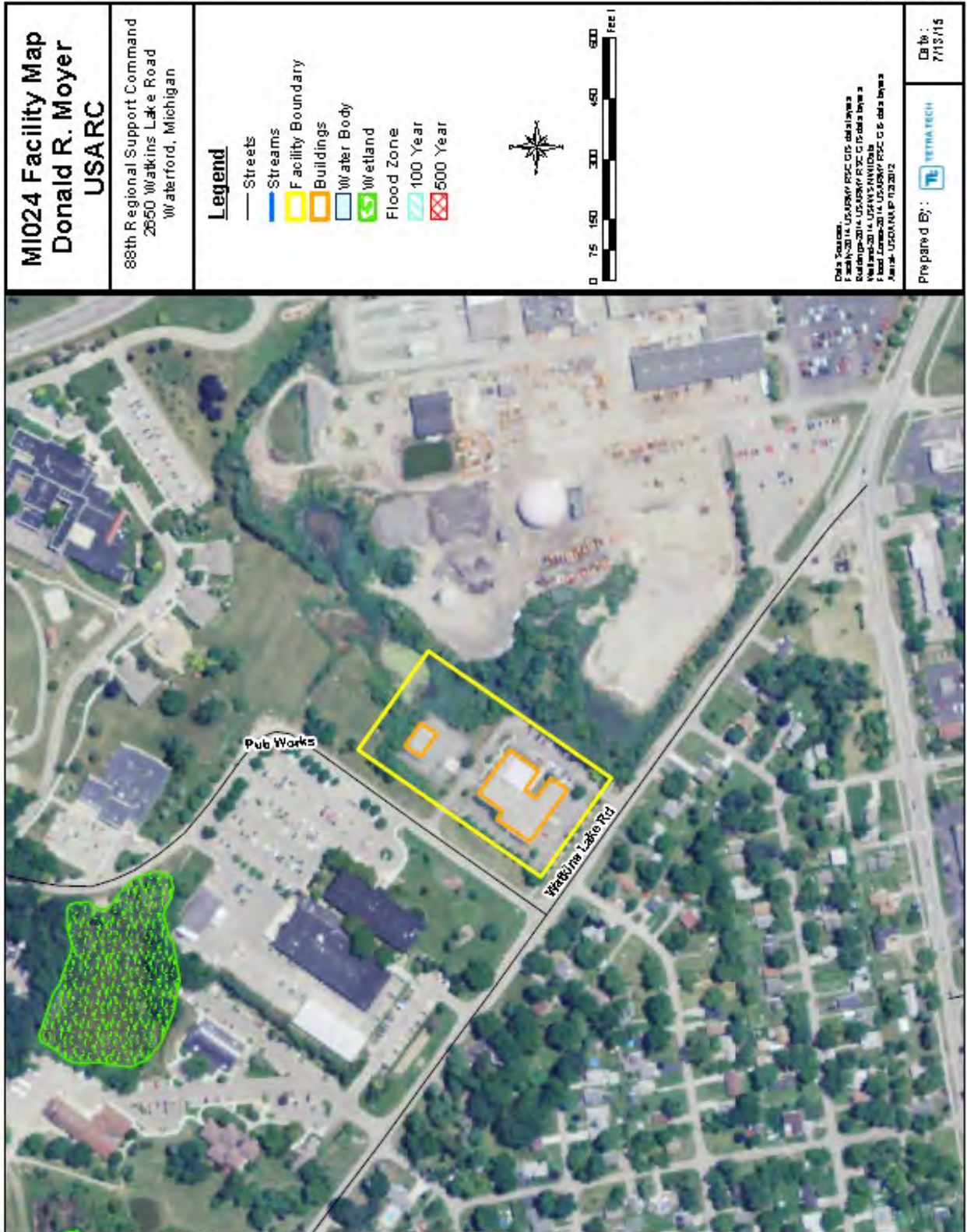


Figure 4.9 - Site Map – MI024/26900

4.10 1LT Robert L. Poxon ARC (MI029/26685)

26402 W 11 Mile Road
Southfield, MI 48034-2295

High Resource

County: Oakland

Acres: 25

Building Count: 5

Last Field Survey: 2021



1LT Robert L. Poxon ARC (MI029/26685) is a former NIKE missile site and consists of two ARC buildings, an OMS, two storage units, and associated parking areas. The site is used for light vehicle maintenance, classroom training, mobile emergency training, and field training for the hospital unit. The 88th RD owns the land and the seven buildings that comprise site MI029/26685. As of this writing the facility has FY23 authorized funding for construction of an AMSA and MEP expansion.

4.10.1 Geographic Location and Size

MI029/26685 is located in the city of Southfield, population 78,925, in Oakland County. Acreage for the site was calculated at 24.93 ac in the GIS; the Real Property Detail Report shows acreage as 26.00 ac. The site is bounded by Pebble Creek Access Road to the north, the Carnegie Park Apartments complex and Pebble Creek Park to the south, commercial buildings to the east, and Pebble Creek Park to the west. The site is located within the Rogue River watershed. The site boundaries are shown on Figure 3.10. (Pika-Insight JV MI029 2021)

4.10.2 Geological Resources

Physiography and Geology

The facility is located within the Central Lowland physiographic province. This province is characterized by flat plains surrounding the Lake Michigan basin and extensive areas of sand dunes in the Lower Peninsula. Geological formations are Sunbury shale formations. (BHE MI 2015)

Soils

The USDA NRCS web soil survey identifies the following soils on-site: Urban land; Blount loam, Erie-Huron Lake Plain, 0 to 2 percent slopes; Lenawee silty clay loam, 0 to 1 percent slopes. During the field investigation, the following soil types were identified on-site: silt, silt loam, silty clay, silty clay loam, clay, sand, sandy loam, sandy muck, and muck.

Topography

The topography of the site is generally flat and gradually decreases in elevation from northwest to southeast. The site lies approximately 702 feet above mean sea level. A small four-foot-high hill is located in the northeast corner of the site. The greatest topographical change is within the southwest corner of the site where the ground slopes down into a long, slightly curved wetland and multiple small hills stand among trees.

4.10.3

Water Resources

Watershed and Surface Waters

Facility MI029 occurs within the Detroit watershed in the southeastern region of the state.

At the time of the 2020 wetland delineation, one pond is located on the site. The pond is located west of the southernmost building on the facility and was previously identified in the 2014 report as Wetland 11. The approximately 0.10-acre pond is a result of poorly drained soil. The pond is not surrounded by a wetland buffer. (AEM MI029 2020)

No surface waters were identified on-site during the July 2022 NRSRVYUP field survey.

Pebble Creek is 400 ft south of the facility.

Wetlands

Six wetlands were delineated on May 29, 2020, during the wetland field survey. In 2014, CH2M Hill identified 11 wetlands. Though this may be perceived as a wetland “loss” there has in fact been a wetland gain since the 2014 field delineation. Though the numbers of individual wetland have diminished, their areas have increased. In some cases where there were two adjacent wetlands in 2014, in 2020 they have combined to form one larger wetland. In 2014, a total of 1.101 acres of wetland were delineated whereas in 2020 a total of 2.72 acres wetlands were delineated.

A total of 2.72 acres of wetlands were delineated within the property boundaries. The wetlands assessed have the potential to be considered jurisdictional waters by the USACE; however, this determination is within the purview of the USACE, Louisville District, Regulatory Division. These wetlands are described below. (AEM MI029, 2020)

Wetland 1

Wetland 1 (W01) a 1.85-acre palustrine, emergent, persistent, seasonally flooded/saturated (PEM1E) wetland. Wetland 1 is located along the southern boundary of the property adjacent to Wetland 3. During the 2014 field survey, what was previously delineated is a combination of wetlands 3, 4, 9, and 10 is described in 2020 as Wetland 1.

Dominant herbaceous vegetation includes common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*).

Wetland 2

Wetland 2 (W02) is a 0.20-acre palustrine, emergent, persistent, seasonally flooded/saturated (PEM1E) wetland. Wetland 2 is located west of the two centrally located warehouse buildings. In 2014, what is identified as Wetland 2 in 2020 was previously delineated as an upland area. This area has likely gained wetland characteristics due to runoff from adjacent impermeable surfaces which meets the USACE wetland criteria.

Dominant herbaceous vegetation in the wetland is common reed (*Phragmites australis*).

A similar area to the west of Wetland 2 with similar characteristics was analyzed but did not meet the USACE wetland criteria.

Wetland 3

Wetland 3 (W03) is a 0.27-acre palustrine, emergent, persistent, intermittently flooded (PEM1J) wetland. Wetland 3 is located along the southwestern corner of the property adjacent to the new Wetland 1. In the 2014 delineation, Wetland 3 (2020) was identified

as Wetland 8. Dominant herbaceous vegetation in the wetland is common reed (*Phragmites australis*).

Wetland 4

Wetland 4 (W04) is a 0.29-acre palustrine, emergent, persistent, seasonally flooded/saturated (PEM1E) wetland. Wetland 4 is within a linear ditch extending east to west, with a branch to the north, in the western portion of the property just north of Wetland 2. In 2020, Wetland 4 encompass what was identified as Wetland 5, 6, and 7 in 2014.

Dominant herbaceous vegetation includes narrow leaf cattail (*Typha angustifolia*) and purple loosestrife (*Lythrum salicaria*). Dominant sapling/shrub stratum includes gray dogwood (*Cornus racemosa*) and alder buckthorn (*Frangula alnus*).

Wetland 5

Wetland 5 (W05) is a 0.06-acre palustrine, emergent, persistent, saturated (PEM1B) wetland). Wetland 5 is a linear depression in the maintained lawn located on the northern portion of the property. Wetland 5 was identified as Wetland 2 in 2014.

Dominant herbaceous vegetation includes redtop (*Agrostis gigantea*) and common reed (*Phragmites australis*).

Wetland 6

Wetland 6 (W06) is a 0.04-acre palustrine, emergent, persistent, saturated (PEM1B) wetland. Wetland 6 was previously delineated in 2014 as Wetland 1. Wetland 6 is located in the southeastern portion of the property and resides within the ditch that extends east and west on the south side of the easternmost parking lot and along the eastern limits extending north and south adjacent to the U.S Army Reserve Center building near the entrance.

Dominant herbaceous vegetation is redtop (*Agrostis gigantea*).

Floodplains

There are no floodplains on-site.

There is a 100-year and 500-year floodplain 400 ft southwest of the facility along Pebble Creek.

4.10.4 Cultural Resources

An inventory of the built environment has been conducted for this facility, and no NRHP-eligible historic buildings were identified when the Section 110 survey was conducted. The Michigan SHPO concurred with this recommendation in 2009 during their review of the Section 110 report. However, the USARC (SF001) and OMS (SF002) were only 23 years old during the Section 110 inventory (constructed in 1978), and the two storage buildings (SF007 and SF008) were constructed in 2001. These four buildings should be evaluated for NRHP eligibility when they turn 50 years of age. (ICRMP MI 2020)

An additional architectural inventory was completed for former buildings associated with the former Nike Missile facility (Buildings SF003 and SF009) and they were determined not eligible for the NRHP. While the two buildings were both modified and consolidated in 1972, a significant portion of the combined square footage (dating to 1955) has already been evaluated and determined not eligible. The existing missile silos (200K519) have also been determined not eligible for the NRHP. No additional evaluation is required for these buildings. (ICRMP MI 2020)

Archaeological inventories have been completed for this facility. Site 20OK519 was identified and determined not eligible for the NRHP. (ICRMP MI 2020)

Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review of this 2020-2024 ICRMP Update. (ICRMP MI 2020)

The ICRMP for sites located in Michigan will be furnished upon request.

4.10.5 Biological Resources

Land Cover and Ecological Communities

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Manicured Turf Grass	0.24	6%
Mature Trees & Turf Grass	0.62	17%
Wetland 1	0.80	21%
Excavated Roadside Ditch	339 Linear Feet	N/A
Impervious Surfaces*	2.13	56%
Totals	3.79	100

*Includes parking areas and building footprints.

Vegetation Communities

The site contains the following ecological communities on the site: emergent wetland, scrub-shrub wetland, maintained turf grass areas, constructed features including drainage swale, and excavated roadside ditch. The wetland emergent/scrub-shrub wetland features were discussed in section 3.15.1 Water Resources, Wetland. (Pika-Insight JV MI029 2021)

Maintained Turf Grasses

The site contains several areas of maintained turf grasses throughout the site. The main areas surround the buildings and parking areas. The areas are mowed and manicured throughout the growing season. The turf areas are dominated by Kentucky Bluegrass (*Poa pratensis*). (Pika-Insight JV MI029 2021)

Constructed Features

The site contains a dry, constructed drainage swale and a constructed roadside ditch feature, which are both described under the Investigated Areas section below, totals approximately 2,166 linear feet on the site. (Pika-Insight JV MI029 2021)

Wildlife

During the field investigation, the following wildlife species or evidence of their presence were encountered on the site: (Pika-Insight JV MI029 2021)

Birds:

Common Name	Scientific Name
Red Winged Black Bird	<i>Agelaius phoeniceus</i>
Common Grackle	<i>Quiscalus quiscula</i>
American Robin	<i>Turdus migratorius</i>
Kildeer	<i>Charadrius vociferus</i>
Mourning Dove	<i>Zenaida macroura</i>
House Finch	<i>Haemorhous mexicanus</i>
Barn Swallow	<i>Hirundo rustica</i>

Common Name	Scientific Name
Hummingbird	Family <i>Trochilidae</i> , genus or species unidentified

Mammals:

Common Name	Scientific Name
Groundhog	<i>Marmota monax</i>
Coyote	<i>Canis latrans</i>
Eastern Cottontail Rabbit	<i>Sylvilagus floridanus</i>
White Tailed Deer	<i>Odocoileus virginianus</i>
Striped Skunk	<i>Mephitis mephitis</i>

Reptiles: None

Amphibians:

Common Name	Scientific Name
American Toad	<i>Anaxyrus americanus</i>
Frog	Order <i>Anura</i> , genus/species unidentified

Listed Species

No federally listed species were observed on the site during the field visit.

Based on a July 11, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or endangered) plant or animal species habitat are located on or adjacent to the site. (Pika-Insight JV MI029, 2021)

According to the IPaC, 5 species are listed and may be present in Oakland County:

Common Name	Scientific Name
Indiana Bat	<i>Myotis sodalist</i>
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>
Eastern Massasauga	<i>Sistrurus catenatus</i>
Snuffbox Mussel	<i>Epioblasma triquetra</i>
Poweshiek Skipperling	<i>Oarisma poweshiek</i>

Due to the abundance of large mature woodland trees, containing Boxelder, Shagbark hickory, ash, cottonwood, black willow, elm, and silver maple species, there is a possibility for potential summer roosting habitat for the Northern Long-Eared Bat and Indiana Bat. These species require roosting habitat in the exfoliated bark of large trees, as well as standing dead snags. It is recommended that further consultation and coordination with the USFWS be initiated prior to and during project permitting, in order to obtain guidance for these listed species. However, typically if tree removal is conducted during the winter months (October 31-April 1), further species surveys are not necessary. (Pika-Insight JV MI029, 2021)

7 The site contains approximately 0.75 acres of suitable habitat for the listed bat species. None
8 of the areas on-site contain suitable habitats for the Eastern Massasauga, Snuffbox Mussel,
9 or Poweshiek Skipperling. (Pika-Insight JV MI029, 2021)

10 Additionally, the Monarch Butterfly is included as a candidate species formally at this time. It
11 is understood that the International Union for Conservation of Nature (IUCN) has changed the
12 formal status of the Monarch Butterfly to Endangered worldwide; however, the USFWS has
13 not changed the formal status of this species as of the date of this report. (Pika-Insight JV
14 MI029, 2021)

1 The wooded edges contain flowering forbs, and therefore may support limited habitat for the
2 Monarch Butterfly. Further guidance for this species is not required, since it is a USFWS
3 Candidate species and not yet fully listed as threatened or endangered. The Monarch
4 Butterfly was found to warrant listing and protection under the Endangered Species Act (ESA),
5 but resources must go to higher priority species at this time. Candidate species have no legal
6 protection under the ESA, but agencies can still provide recommendations for them. The
7 USFWS broadly urges the public to provide habitat for this imperiled species by planting native
8 milkweed and nectar plants. The Monarch Butterfly should be considered in any landscaping
9 plans. (Pika-Insight JV MI029, 2021)

10 **State Listed Species**

11 Michigan State University Extension Office lists a total of 67 species as threatened or
12 endangered and may be present in Oakland County. The site does not contain any suitable
13 habitat for most of the state-listed species noted on the Michigan State University Extension
14 Office lists of threatened or endangered species that may be present in Oakland County.
15 (Pika-Insight JV MI029, 2021)

16 Based on the field investigation, the site may contain suitable habitat for the Blanchard's
17 Cricket Frog (*Acris Blanchard*), and False Hop Sedge (*Carex lupuliformis*).

18 **4.10.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

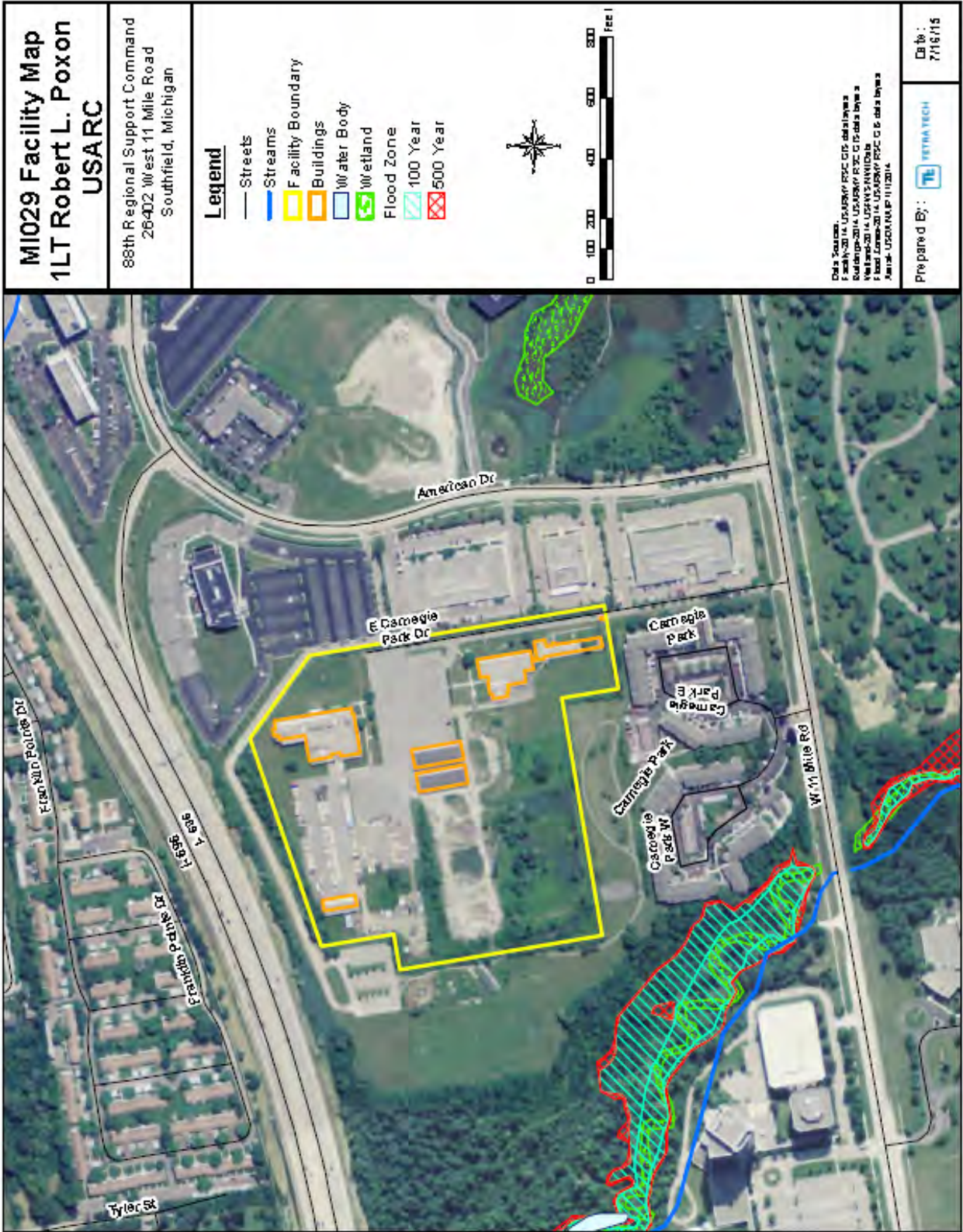
19 There does not appear to be any opportunities for outdoor recreation, public access, hunting, or
20 agricultural out-leasing areas on this site. This site lacks aesthetic natural communities.

21 **4.10.7 Management Concerns and Issues**

22 No invasive species were identified on-site that would require maintenance activities.

23 **4.10.8 Special Interest Areas**

24 No additional vegetated areas located within the site were examined during the field investigation.
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Figure 4.10 - Site Map – MI029/26685

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1 **4.11 Saginaw USARC**
2 **(MI053/26534)**

3 460 N Towerline Road,
4 Saginaw, MI 48601

5 **Medium Resource**

6 **County:**

7 **Real Property Report Acres:** 12.8

8 **Building Count:** 2

9 **Last Field Survey:** 2021



10 The Saginaw ARC consists of an Army Reserve Training Center, an OMS, and associated parking areas.
11 The facility consists of two buildings constructed in 2010. The ARC is a 30,489-square-foot building that
12 holds the offices, classroom, and training space utilized by the 88th RSC at this facility. The second building
13 is a 7,140-square-foot OMS for vehicle maintenance. The Army Reserve owns the buildings and land.

14 **4.11.1 Geographic Location and Size**

15 The Saginaw ARC is located on a 12.8-acre property, on the east side of North Towerline Road, north of
16 East Holland Road and south of Janes Roads in Buena Vista Township, Saginaw County, MI in the east-
17 central region of the state. Surrounding land use includes a mix of agriculture, commercial-industrial,
18 township administrative-education, and residential land use.

19 **4.11.2 Geological Resources**

20 **Physiography and Geology**

21 **Soils**

22 The USDA NRCS Soil Map indicates the following soil type within the site: Tappan loam, 0 to 1
23 percent slopes (map symbol: 19). Tappan loam is considered predominantly hydric in Saginaw
24 County. (Pika-Insight JV MI053 2021)

25 **Topography**

26 The topography of the site is generally flat, with localized micro-depressions. The site lies
27 approximately 604 feet above mean sea level. (Pika-Insight JV MI053 2021)

28 **Constructed Features**

29 The site contains one channelized roadside ditch that is associated with Stream 1, and totals 0.125
30 acres on the site. This feature is described above in Section 5.3 Surface Waters. No other
31 constructed features are located on the site. (Pika-Insight JV MI053 2021)

32 **4.11.3 Water Resources**

33 **Watershed and Surface Waters**

34 Stream 1/Roadside Ditch 1. This stream consists of a channelized and incised drainageway system
35 that is approximately 0.14 acres on-site and is located along the western property boundary. This
36 stream/ditch is not identified on the NWI Map; however, this feature is described as a *Riverine*
37 *Unknown Perennial Unconsolidated Bottom Organic Permanently Flooded (R5UB4H)* feature using
38 the *Cowardin Wetlands and Deepwater Habitats Classification System*. The stream/ditch appears to
39 have been constructed to aid the movement of stormwater flows from lands to the south. This stream
40 flows north until its junction with Chebovganing Creek to the north and eventually the Saginaw River.

1 Due to this direct connection, Stream 1/Roadside Ditch 1 will likely be considered federally
2 jurisdictional by the USACE. (Pika-Insight JV MI053 2021)

3 The channel of the stream averages 5 feet in width. Its banks (average 4 feet in height) are primarily
4 vegetated by Reed Canary Grass (*Phalaris arundinacea*) and Rice Cut Grass (*Leersia oryzoides*).
5 At the time of the field investigation, water depth within the channel varied between approximately
6 0.5 to 1 foot. (Pika-Insight JV MI053 2021)

7 One sample point was established within Stream 1 to characterize the vegetation, soils, and
8 hydrology (Exhibit B: Aerial Photograph). Stream 1 was primarily vegetated by Sago Pondweed
9 (*Stuckenia pectinata*). The mapped soil series is Tappan loam, 0 to 1 percent slopes (19), a hydric
10 soil. USDA field indicators F3: Depleted Matrix and A11: Depleted Below Dark Surface provided
11 evidence of hydric soil. Surface water, high water table, saturation, inundation visible on aerial
12 imagery, aquatic fauna, true aquatic plants, drainage patterns, crayfish burrows, saturation visible on
13 aerial imagery, geomorphic position, microtopographic relief, and a positive FAC-neutral test provided
14 evidence of persistent hydrology. (Pika-Insight JV MI053 2021)

15 The Macroinvertebrate Benthic Study was conducted within the on-site stream to identify any
16 macroinvertebrates utilizing the stream system. Due to stagnant water, a fine mesh dip net was used
17 for this survey. A single benthic-macroinvertebrate sampling event was conducted within the stream
18 since the habitat area consisted of a continuous drainage system on-site, that eventually connects
19 with Chebovganing Creek to the north. Observations and measurements were taken using the
20 USEPA's rapid bio-assessment methodology. (Pika-Insight JV MI053 2021)

21 The Habitat Assessment for Low Gradient Streams was conducted within the on-site stream to
22 identify the quality of the habitat within the stream system. The habitat rating was measured as
23 **marginal to poor** with a score of 61. Observations and measurements were taken using the
24 USEPA's rapid bio-assessment methodology. Please see Attachment 9 for the Habitat Assessment
25 Field Data Sheets for Low Gradient Streams. (Pika-Insight JV MI053 2021)

26 **Wetlands**

27 The Michigan Resource Inventory Program (MIRIS) Land Cover Map does not indicate any water
28 resources or wetlands within the site, or within 1,000 feet of the site. (Pika-Insight JV MI053 2021)

29 The National Wetlands Inventory (NWI) does not indicate any water resources or wetlands within the
30 site, or within 1,000 feet of the site. (Pika-Insight JV MI053 2021)

31 One small 0.40-acre wetland is within the northern portion of the Site. This wetland is identified on
32 the NWI Mapper as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland feature.
33 This singular wetland receives its hydrology from overland flow and empties into Stream 1/Roadside
34 Ditch 1 via a direct culvert to the west. The stream/ditch flows north for approximately 4 miles where
35 it connects to Chebovganing Creek. Chebovganing Creek flows north for approximately 5 miles
36 where it then merges with the Saginaw River. Due to this direct overland connection, this wetland
37 will likely be considered federally jurisdictional by the USACE. (Pika-Insight JV MI053 2021)

38 The wetland is comprised of an emergent plant community. The dominant species are Narrow-Leaf
39 Cattail (*Typha angustifolia*) and Purple Loosestrife (*Lythrum salicaria*). The mapped soil series is
40 Tappan loam, 0 to 1 percent slopes (19), a hydric soil. USDA field indicator F3: Depleted Matrix
41 provided evidence of hydric soil. High water table, saturation, saturation visible on aerial imagery,
42 geomorphic position, microtopographic relief, and a positive FAC-neutral test provided evidence of
43 persistent hydrology. (Pika-Insight JV MI053 2021)

44 **Floodplains**

45 The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map indicates the site
46 is outside the 500-year floodplain. (Pika-Insight JV MI053 2021)

1 **4.11.4 Cultural Resources**

2 A Phase I cultural resources study was conducted prior to the construction of MI053/Saginaw USARC
3 for compliance with Section 106 of the NHPA and NEPA. A total of 10 transects were traversed and
4 two ceramic sherds and two bottle sherds were randomly encountered throughout the property, but
5 no sites were identified. Archaeological clearance was recommended. As part of the cultural
6 resources study, the 88th RD initiated consultation with federally recognized Tribes regarding the
7 proposed construction and the report's recommendations. On June 26, 2008, and July 1, 2008, the
8 Saginaw Chippewa Indian Tribe of Michigan and the Little Traverse Bay Bands of Odawa Indians,
9 respectively, responded to the 88th RD and indicated neither Tribe had any information concerning
10 the presence of Traditional Cultural Properties, Sacred Sites, or Other Significant Properties on the
11 location of the proposed USARC. By letter dated August 6, 2008, the Michigan SHPO concurred that
12 no historic properties would be affected by the proposed Military Construction, Army Reserve (MCAR)
13 project.

14 An inventory of the built environment has not been conducted for this facility, as no buildings 50 years
15 or older were located on the property when the cultural resources study for the facility was conducted
16 (Demeter and Weir 2008). In compliance with Section 110 of the NHPA, the 88th RD should complete
17 architectural evaluations of buildings as they reach 50 years of age.

18 The ICRMP for sites located in Michigan will be furnished upon request.

19 **4.11.5 Biological Resources**

Land Cover Types at Saginaw USARC Facility MI053 / 26534		
Land Cover	Acres	Percent of Site
Manicured Turf Grass	7.44	58
Wetland 1	0.39	3
Stream 1 / Roadside Drainage Ditch 1	0.14	1
Impervious Surfaces*	4.92	38
TOTAL	12.89	100

20 *Includes parking lots and building footprints.

21 **Vegetation Communities**

22 **Maintained Turf Grasses**

23 The site contains several areas of maintained turf grasses throughout the site. The main areas
24 surround the buildings and parking areas. The areas are mowed and manicured throughout the
25 growing season. Kentucky Bluegrass (*Poa pratensis*) dominates the turf areas.

26 **Wildlife**

27 During the field investigation, the following wildlife species were encountered on the site:

28 **Birds:**

Common Name	Scientific Name
House Sparrow	<i>Passer domesticus</i>
American Crow	<i>Corvus brachyrhynchos</i>
Song Sparrow	<i>Melospiza melodia</i>

29 **Mammals:** None

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Reptiles:

Common Name	Scientific Name
Tadpole	Unidentified

Insects:

Common Name	Scientific Name
Bumble Bee	Unidentified
Orange Sulfur Butterfly	<i>Colias eurytheme</i>
Cabbage White Butterfly	<i>Pieris rapae</i>
Widow Skimmer Dragonfly	<i>Libellula luctuosa</i>
Mayfly Larvae	<i>Ephemeroptera</i> spp.
Dragonfly Larvae	<i>Anisoptera</i> spp.
Alderflies	<i>Sialidae</i> spp.
Riffle Beetle	<i>Elmidae</i> spp.
Scud	Unidentified
Left-coiled snail	Unidentified
Right-coiled snail	Unidentified

The areas on the site containing habitat for the above-listed species include the wetland and the stream/roadside drainage ditch located on the site.

Listed Species:

No federally listed species were observed on the site during the field visit.

Based on a July 20, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or endangered) plant or animal species habitats are not located on or adjacent to the site (Attachment 7).

According to the IPaC, 5 species are listed and may be present in Saginaw County:

Common Name	Scientific Name
Indiana Bat	<i>Myotis sodalis</i>
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>
Red Knot	<i>Calidris canutus rufa</i>
Eastern Massasauga	<i>Sistrurus catenatus</i>
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>

Additionally, the Monarch Butterfly (*Danaus plexippus*) is included as a Candidate species formally at this time. It is understood that the International Union for Conservation of Nature (IUCN) has changed the formal status of the Monarch Butterfly to Endangered worldwide; however, the USFWS has not changed the formal status of this species as of the date of this report.

The wetland and roadside drainage ditch contain flowering forbs, and therefore may support limited habitat for the Monarch Butterfly. Further guidance for this species is not required since it is a USFWS Candidate species and not yet fully listed as threatened or endangered. The Monarch Butterfly was found to warrant listing and protection under the Endangered Species Act (ESA), but resources must go to higher-priority species at this time. Candidate species have no legal protection under the ESA, but agencies can still provide recommendations for them. The USFWS broadly urges the public to provide a habitat for this imperiled species by planting native milkweed and nectar plants. The Monarch Butterfly should be considered in any landscaping plans.

1 None of the areas on-site contain suitable habitats for the Indiana Bat, Northern Long-eared Bat, Red
2 Knot, Eastern Massasauga, or the Eastern Prairie Fringed Orchid.

3 **4.11.6 Outdoor Recreation, Public Access and Agricultural Out-leasing**

4 There does not appear to be any opportunities for outdoor recreation, public access, hunting, or
5 agricultural out-leasing areas on this site. This site lacks aesthetic natural communities.

6 **4.11.7 Management Issues and Concerns:**

7 Invasive species identified on-site and are recommended for future maintenance. These include:

Common Name	Scientific Name	Approximate sq. ft.	Density
Narrow-Leaf Cattail	<i>Typha angustifolia</i>	17,425 sq. ft.	High Density
Purple Loosestrife	<i>Lythrum salicaria</i>	17,425 sq. ft.	Moderate Density

8 It is recommended to treat the Cattails with a glyphosate-based aquatic-approved herbicide, followed
9 by inter-seeding of native species 2-3 weeks after treatment.

10 It is recommended to treat the Purple Loosestrife with a triclopyr-based aquatic-approved herbicide,
11 followed by inter-seeding of native species 2-3 weeks after treatment.

12 **4.11.8 Special Interest Areas**

13 No additional vegetated sites located within the site were examined during the field investigation.

14



Figure 4.11 - Site Map – MI053/26534

1 **4.12 Arden Hills ARC (MN001/27899)**

2 4655 N Lexington Avenue
3 Arden Hills, MN 55126-5862

4 **Medium Resource**

5 **County:** Ramsey

6 **Acres:** 54.04

7 **Building Count:** 6

8 **Last Field Survey:** 2021

9 The Arden Hills ARC site consists of a USARC, with six building
10 complexes, military equipment parking (MEP), privately owned
11 vehicle (POV) parking, a south, north, and two east ingress
12 driveways, sidewalks, solar panels, manicured and maintained turf
13 grass areas, seven wetlands, deciduous forest, upland right-of-way,
14 prairie, scrub-shrub vegetation, and one constructed drainage swale
15 feature. The site is used for administrative services, classroom training, military equipment storage, and both
16 light and heavy vehicle maintenance. The 88th RD owns the land and the buildings that comprise
17 MN001/27899. (Pika-Insight JV MN001 2021)



18 **4.12.1 Geographic Location and Size**

19 The Arden Hills ARC is in the city of Arden Hills in Ramsey County. Acreage for the site from the Real
20 Property Detail Report shows acreage as 54.04 ac. The Arden Hills Army Training Site Wildlife Observation
21 Area is the site's norther limits, Highway 96 West to the south, Lexington Avenue North to the east, and
22 Sunfish Lake and the 34th Red Bull Infantry Division Headquarters of the Minnesota National Guard to the
23 west. The site limits of the property are shown on Figure 3.11. (Pika-Insight JV MN001 2021)

24 **4.12.2 Geological Resources**

25 **Physiography and Geology**

26 This site is located within the Central Lowland physiographic province. This province is characterized
27 by alternating prairie and deciduous forest with areas that are nearly flat and others with high rounded
28 hills. Geological formations at MN001/27899 are Ordovician (limestone, dolostone, and some
29 sandstone and shale) formations. (Pika-Insight JV MN001 2021)

30 **Soils**

31 Mapped soils within the site boundary belong to the following soil map units: Dundas fine sandy
32 loam; Nessel fine sandy loam, 1 to 4 percent slopes; Hayden fine sandy loam, 6 to 12 percent slopes;
33 and Seelyeville muck. The Dundas fine sandy loam and Seelyeville muck soil map units are
34 considered hydric within the county. (Pika-Insight JV MN001 2021)

35 MN001/27899 is within the Wisconsin and Minnesota Sandy Outwash MLRA. The dominant soil
36 orders in this MLRA are very deep, excessively drained to somewhat poorly drained, and sandy. The
37 soils on lowlands are very deep, poorly drained, or very poorly drained, and sandy or mucky. (Pika-
38 Insight JV MN001 2021)

39 **Topography**

40 Land within and surrounding the site is gently rolling, ranging from 900 to 965 ft amsl. (Pika-Insight
41 JV MN001 2021)

1 **4.12.3 Water Resources**

2 **Watershed and Surface Waters**

3 Site MN001/27899 is located within the Rice Creek watershed, which is part of the Upper Mississippi
4 River watershed. (Pika-Insight JV MN001 2021)

5 During the 2019 wetland survey, one stream was verified on site. Stream 1 (S01) flows onto the
6 property from the west via a culvert and continues to the northeast through a natural channel. The
7 stream has intermittent flow from Sunfish Lake and Marsden Lake (both offsite). Onsite the stream
8 traverses approximately 611feet a with an OHWM of 4 feet, an average water depth of 1 inch at the
9 time of the site visit, and an average bank-to-bank width of 4 feet. The stream banks are dominated
10 by reed canary grass (*Phalaris arundinacea*). (AEM MN001, 2019)

11 **Wetlands**

12 During the June 23, 2020, wetland field survey field scientists delineated four (4) wetlands. In 2015,
13 seven (7) wetlands were identified. Three (3) of the wetlands previously delineated were determined
14 to no longer meet the wetlands qualifications as stipulated in the *USACE 1987 Wetlands Manual and*
15 *the Northcentral and Northeast Regional Supplement*. In 2015, a total of 1.82 acre of wetland were
16 delineated whereas in 2020, a total of 1.66 wetland acres were delineated. (AEM MN001, 2019)

17 The wetlands assessed have the potential to be considered jurisdictional waters by the USACE;
18 however, this determination is under the purview of the USACE, Louisville District, Regulatory
19 Division. A total of 1.66 acres or wetland have been delineated within the property boundaries not
20 including ponds. (AEM MN001, 2019)

21 These wetland descriptions are described as follows:

22 **Wetland 1**

23 Wetland 1 (W01), a 0.88–acre palustrine, emergent, persistent, temporary flooded (PEM1A)
24 wetland. Wetland 1 is located in the southeast corner of the property in a large depression
25 and was previously delineated as Wetland 4. (AEM MN001, 2019)

26 The dominant herbaceous vegetation in the wetland includes:

- 27 reed canary grass *Phalaris arundinacea*
- 28 cock spur grass *Echinochloa crus-galli*
- 29 Woolgrass *Scirpus cyperinus*

30 **Wetland 2**

31 Wetland 2 (W02), a 0.65–acre palustrine, emergent, persistent, permanently flooded
32 (PEM1H) wetland. Wetland 2 is located on the southeast portion of the property north of
33 Wetland 1 and was previously delineated as Wetland 5. The dominant woody vine in the
34 wetland includes riverbank grape.(*Vitis riparia*). (AEM MN001, 2019)

35 The dominant herbaceous vegetation in the wetland includes:

- 36 ostrich fern *Matteuccia struthiopteris*
- 37 narrow leaf cattail *Typha angustifolia*

38 **Wetland 3**

39 Wetland 3 (W03), a 0.13 –acre palustrine emergent, persistent, temporary flooded (PEM1A)
40 wetland. Located on the northeastern portion of the property and is contained in a
41 depressional area near the northern entrance and was previously delineated as Wetland 3.
42 (AEM MN001, 2019)

1 The dominant herbaceous vegetation in the wetland includes:

2 narrow leaf cattail *Typha angustifolia*
3 blunt spike rush *Eleocharis obtusa*

4 The dominant shrub vegetation in the wetland includes:

5 sandbar willow *Salix interior*
6 black willow *Salix nigra*

7 **Wetland 4**

8 Wetland 4 (W04), a 0.004-acre palustrine, emergent, persistent, seasonally saturated
9 (PEM1E) wetland. Located on the northwestern portion of the property adjacent to the
10 intermittent stream (S01) that flows on the property and was previously delineated as Wetland
11 2. (AEM MN001, 2019)

12 The dominant herbaceous vegetation includes:

13 reed canary grass *Phalaris arundinacea*
14 jewelweed *Impatiens capensis*

15 **Floodplains**

16 A 100-year floodplain is located approximately 100 ft east of the site. Past surveys reported a
17 floodplain 2,450 ft north of the site.

18 **4.12.4 Cultural Resources**

19 MN001/Arden Hills USARC/AMSA #22(G) (Site Code 27899) facility lands were once within the
20 boundary of the Twin Cities Army Ammunition Plant (TCAAP) and today border the Arden Hills Army
21 Training Site (AHATS) to the north.

22 The land surrounding MN001/Arden Hills USARC was undeveloped farmland owned and farmed by
23 private parties until 1941 when the TCAAP was constructed in the area. The property parcel was
24 originally included in the TCAAP property but was transferred to the USAR in two phases: 6.43 acres
25 of the land was transferred in 1981, and 22.61 acres was transferred in 1986. On February 24, 2004,
26 25 acres were transferred from the Minnesota Air National Guard to the Army Reserve, expanding
27 the amount of land to the current 54.04 acres. In 2011, three additional buildings, including a Reserve
28 Center, an OMS/AMSA, and a storage building, were constructed on the newly acquired 25-acre
29 parcel.

30 Architectural inventories were completed in 2000, for this property, but no buildings were 50 years of
31 age at that time. In compliance with Section 106, the 88th RD should re-evaluate the buildings when
32 they turn 50 years of age (2041).

33 Archaeological inventories were completed in 2009 for this facility and no eligible sites were identified.
34 There was one isolated find (single jasper flake) and one site (automobile parts, brass cylinders, etc.)
35 that were likely associated with the TCAAP.

36 Following DoDI 4715.16, consultation with federally recognized Indian Tribes was conducted for the
37 review of this 2020-2024 ICRMP Update.

38 The ICRMP for sites located in Minnesota will be furnished upon request.

39
40

1 **4.12.5 Biological Resources**

2 **Land Cover and Ecological Communities**

3 The site is comprised of nine major land cover types.

Land Cover and Ecological Communities	Calculated Area	
	Acres	Percent of Site
Manicured Turf Grass	9.1	17
Prairie	6.0	11
Wetland	2.52	5
Deciduous Forest	7.3	13.5
Impervious Surfaces*	22.5	41
Scrub-Shrub Vegetation	5.2	10
Swale	0.10	0.2
Upland Right-of-Way	1.3	2.3
Totals	55.06	100

4 *Includes parking lots and building footprints.

5 **Vegetation Communities**

6 The site contains the following ecological communities on the site: prairie, deciduous forest, upland
7 right-of-way, scrub-shrub, and constructed swale. (Pika-Insight JV MN001 2021)

8 The Prairie was primarily vegetated by:

Common Name	Scientific Name
Siberian Elm	<i>Ulmus pumila</i>
Tall Goldenrod	<i>Solidago altissima</i>
Kentucky Bluegrass	<i>Poa pratensis</i>
Side Oats Grama	<i>Bouteloua curtipendula</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Switch Grass	<i>Panicum virgatum</i>

9 The Deciduous Forest was primarily vegetated by:

Common Name	Scientific Name
Reed Canary Grass	<i>Phalaris arundinacea</i>
Box Elder Maple	<i>Acer negundo</i>
Eastern Cottonwood	<i>Populus deltoides</i>
American Hazelnut	<i>Corylus americana</i>
Sandbar Willow	<i>Salix interior</i>
Silver Maple	<i>Acer saccharinum</i>
Bur Oak	<i>Quercus macrocarpa</i>
Norway Spruce	<i>Picea abies</i>
American Elm	<i>Ulmus americana</i>
Quaking Aspen	<i>Populus tremuloides</i>
River Birch	<i>Betula nigra</i>

10 The Upland Right-of-Way was primarily vegetated by:

Common Name	Scientific Name
Eastern Cottonwood	<i>Populus deltoides</i>
Sandbar Willow	<i>Salix interior</i>

Common Name	Scientific Name
Smooth Brome	<i>Bromus inermis</i>
Virginia Creeper	<i>Parthenocissus quinquefolia</i>
Riverside Grape	<i>Vitis riparia</i>

1 The Scrub-Shrub Areas were primarily vegetated by:

Common Name	Scientific Name
European Buckthorn	<i>Rhamnus cathartica</i>
Gray Dogwood	<i>Cornus racemosa</i>

2 The Constructed Swale was primarily vegetated by:

Common Name	Scientific Name
Kentucky Bluegrass	<i>Poa pratensis</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>

3 The invasives exotic species present in this vegetation community are present in low density
 4 only, and the current level of concern for these species is low. (Pika-Insight JV MN001 2021)

5 **Wildlife**

6 During the field investigation, the following wildlife species were encountered on the site:

7 **Birds:**

Common Name	Scientific Name
American Crow	<i>Corvus brachyrhynchos</i>
House Sparrow	<i>Passer domesticus</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Grey Catbird	<i>Dumetella carolinensis</i>
Northern Cardinal	<i>Cardinalis</i>
Finch	Family <i>Fringillidae</i> , genus or species unidentified

8 **Mammals:**

Common Name	Scientific Name
White Tailed Deer	<i>Odocoileus virginianus</i>

9 **Reptiles:** None

10 **Amphibians:**

Common Name	Scientific Name
Frog	Order Anura, genus or species unidentified

11 **Insects:**

Common Name	Scientific Name
Dragonflies	Family <i>Anisoptera</i> , genus or species unidentified
Grasshopper	Suborder <i>Caelifera</i> , genus or species unidentified
Yellow Jacket	Genus <i>Vespula</i> , species unidentified

12 The prairies, deciduous forests, scrub-shrub vegetation, upland right-of-way, and wetlands provide
 13 habitats for all of the fauna listed above.

14

1 **Listed Species**

2 **USFWS Federally Listed Species**

3 No federally listed species were observed on the site during the field survey.

4 Based on an August 2, 2022, review of the United States Fish and Wildlife Service (USFWS)
5 Information for Planning and Consultation (IPaC) technical assistance website, sensitive (federally
6 threatened or endangered) plant or animal species habitat are located on or adjacent to the site.

7 According to the IPaC, one species is listed and may be present in Ramsey County:

Common Name	Scientific Name
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>

8 Due to the abundance of large mature woodland trees, containing black willow, green ash, eastern
9 cottonwood, silver maple, bur oak, pin oak, and American elm species, there is a possibility for
10 summer roosting habitat for the Northern Long-Eared Bat. This species requires roosting habitat in
11 the exfoliating bark on large trees, as well as standing dead snags. **The site contains**
12 **approximately 7.3 acres of suitable roosting habitat for the Northern Long-Eared Bat species.**

13 Additionally, the Monarch Butterfly (*Danaus plexippus*) is included as a USFWS Candidate species
14 formally at this time. It is understood that the International Union for Conservation of Nature (IUCN)
15 has changed the formal status of the Monarch Butterfly to Endangered worldwide; however, the
16 USFWS has not changed the formal status of this species as of the date of this report. Further
17 guidance for this species is not required, since it is a USFWS Candidate species and not yet fully
18 listed as threatened or endangered.

19 The Monarch Butterfly was found to warrant listing and protection under the Endangered Species Act
20 (ESA), but resources must go to higher priority species at this time. Candidate species have no legal
21 protection under the ESA, but agencies can still provide recommendations for them. The USFWS
22 broadly urges the public to provide habitat for this imperiled species by planting native milkweed and
23 nectar plants. The Monarch Butterfly should be considered in any landscaping and restoration plans.
24 The woodland edges, open scrub-shrub field, and mesic prairie contain flowering forbs, and therefore
25 may support limited habitat for the Monarch Butterfly.

26 **State Listed Species**

27 No state-listed species were observed on the site during the field survey.

28 The Minnesota Department of Natural Resources (MNDNR) reports a total of 179 plant species and
29 113 other species are listed as threatened or endangered within the state.

30 Based on the field investigation, the site may contain suitable habitat for the following listed species:

Common Name	Scientific Name
Blanding's Turtle	<i>Emydoidea blandingii</i>
Northern Cricket Frog	<i>Acris blanchardi</i>
Eastern Massasauga	<i>Sistrurus catenatus</i>
Wood Turtle	<i>Glyptemys insculpta</i>
St. Croix Snaketail	<i>Ophiogomphus susbehcha</i>
Poweshiek Skipper	<i>Oarisma poweshiek</i>
Wild Quinine	<i>Parthenium integrifolium</i>
Three-Leaved Coneflower	<i>Rudbeckia triloba var. triloba</i>

31 In 1996 and 2006 the 88th RD Surveyed for the Blanding's Turtle (*Emydoidea blandingii*), with no
32 Blanding's Turtles found in the area. There is historic anecdotal information with respect to presence,
33 however; no physical evidence of their presence has been reported.

1 Northern Cricket Frog (*Acris blanchardi*), Eastern Massasauga (*Sistrurus catenatus*), and Wood
2 Turtle (*Glyptemys insculpta*). These species typically inhabit the open edges of permanent ponds,
3 farm ponds, gravel ponds, lakes, wetlands, bogs, seeps, drainage ditch, and streams / rivers. They
4 prefer open or partially vegetated mud flats, muddy or sandy shorelines, and mats of emergent
5 aquatic vegetation in shallow water. These types of habitats are found on the project area within the
6 wetland areas, scrub-shrub areas, deciduous forest, and prairie areas.

7 St. Croix Snaketail (*Ophiogomphus susbehchaclear*) prefers swift-flowing rivers, adjacent wetlands,
8 lowland forests, and mature upland forests with closed canopy and low understory. These types of
9 habitats are found on the project area within the wetland areas, scrub-shrub areas, and deciduous
10 forest.

11 Poweshiek skipperling (*Oarisma poweshiek*) (butterfly): preferential habitat includes prairie fens,
12 grassy lake and stream margins, moist meadows, sedge meadow and wet-to dry native prairies.
13 These types of habitats are found on the project area within the wetland areas and prairie areas.

14 Wild Quinine (*Parthenium integrifolium*): preferential habitats include mesic black soil prairies, sand
15 prairies, openings in rocky upland forests, savannas, scrubby barrens, limestone glades, and thickets.
16 These types of habitats are found on the project area within the wetland areas, scrub-shrub areas,
17 and prairie areas.

18 Three-Leaved Coneflower (*Rudbeckia triloba var. triloba*): Habitats include black soil prairies, prairie
19 remnants along railroads, thickets, savannas, meadows and openings in wooded areas, riverbanks,
20 edges of fens, roadsides, vacant lots, and abandoned fields. These types of habitats are found on
21 the project area within the wetland areas, scrub-shrub areas, deciduous forest, and prairie areas.

22 No state-listed species were observed on the site during the field survey.

23 4.12.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

24 There does not appear to be any opportunities for outdoor recreation, public access, hunting, or
25 agricultural out-leasing areas on this site. This site lacks aesthetic natural communities

26 4.12.7 Management Concerns and Issues

27 Several invasive species were identified on-site and are recommended for future maintenance. These
28 include:

Common Name	Scientific Name	Approximate Size	Density
Cattails	<i>Typha</i> spp.	50,000 sq. ft.	High
Reed Canary Grass	<i>Phalaris arundinacea</i>	2.5 acres	High
European Buckthorn	<i>Rhamnus cathartica</i>	Throughout Forest and Scrub-Shrub	High
Siberian Elm	<i>Ulmus pumila</i>	6 acres (sporadic throughout Prairie)	Low
Sandbar Willow	<i>Salix interior</i>	2.5 acres	High

29 It is recommended to treat Reed Canary Grass and Cattails with a glyphosate-based aquatic-
30 approved herbicide, followed by inter-seeding of native species 2-3 weeks after treatment.
31 Treatments are recommended for spring for the Reed Canary Grass and late summer/fall for the
32 Cattails.

33 It is recommended to cut the stems of the three woody species noted above and haul away the cut
34 materials. Then treat the cut stumps with a triclopyr based aquatic-approved herbicide within 4 hours
35 of cutting. Treatments are recommended for winter when other nearby herbaceous plants are
36 dormant for the season.

1 **4.12.8 Special Interest Areas**

2 Two rare features tracked by MNDNR are within 1,000 ft of the site. There is a Mesic Oak Savanna
3 (Southern) type and a Southern Wet Ash swamp Class. Past surveys reported a central dry prairie,
4 sand, and gravel subtype within a 1 mi radius of the site.

5 ***Investigated Areas***

6 One additional vegetated area located within the site was examined to determine if it satisfied
7 wetland criteria. It did not so qualify; therefore, it is referred to as an Investigated Area in this report.
8 The area is briefly described herein and a USACE data form is provided to support our negative
9 findings in the 2019 NRSRVYUP.

10 Investigated Area 1. This investigated area is located in the north-western portion of the site. This
11 area was investigated because it was dominated by hydrophytic vegetation.

12 Investigated Area 1 was primarily vegetated by:

Common Name	Scientific Name
Box Elder Maple	<i>Acer negundo</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Sandbar Willow	<i>Salix interior</i>
American Hazelnut	<i>Corylus americana</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>

13 The mapped soil series is Hayden fine sandy loam, 6 to 12 percent slopes (132C), a non-hydric soil.
14 The field investigated soils did not exhibit hydric characteristics, nor did it meet any USDA NRCS
15 hydric soil indicators. Evidence of persistent hydrology was not observed (Attachment 3).

16 Based on the non-persistent hydrology and the presence of non-hydric soil, Investigated Area 1 does
17 not qualify as a wetland.

18



1
 2
 3

Figure 4.12 - Site Map – MN001/27899

1 **4.13 Terrance A. Peterson ARC**
2 **(MN002/27700)**

3 310 NE Tenth Avenue
4 Brainerd, MN 56401-2814

5 **high Resource**

6 **County:** Crow Wing

7 **Acres:** 5

8 **Building Count:** 1

9 **Last Field Survey:** 2021



10
11
12 Terrance A. Peterson ARC consists of a single building that houses both the ARC and OMS along with
13 associated parking areas two ingress driveways, sidewalks, manicured and mowed turfgrass areas,
14 deciduous forest, and one forested wetland. The site is used for administrative services, classroom training,
15 military equipment storage, and general vehicle maintenance. The 88th RD owns the land and building that
16 comprise site MN002/27700.

17 **4.13.1 Geographic Location and Size**

18 MN002/27700 is located in the city of Brainerd, population 13,587, in Crow Wing County. Acreage
19 for the site was calculated at 5.00 ac in the GIS; the Real Property Detail Report shows acreage as
20 5.00 ac. Surrounding land use is commercial on the west and south, a wooded area to the east, and
21 a wooded area to the north with commercial land beyond the wooded area.

22 **4.13.2 Geological Resources**

23 **Physiography and Geology**

24 This site is located within the Central Lowland (Western Lake section) physiographic province.
25 This province is characterized by alternating prairie and deciduous forest with areas that are
26 nearly flat and others with high rounded hills. Geological formations at MN002/27700 are
27 Mille Lacs and North range (quartz arenite and siltstone intercalated with mafic volcanic rocks,
28 carbonaceous shale, and iron-formation) formations. (Pika-Insight MN002, 2021)

29 **Soils**

30 The USDA and NRCS web soil survey, identifies the following soils on-site: Seelyeville-
31 Seelyeville, ponded, complex, 0 to 1 percent slopes (map symbol: 540) and Barber-Urban
32 land complex, 0 to 3 percent slopes (map symbol: D70A). During the field investigation, the
33 following soil types were identified on-site: muck and sand. (Pika-Insight MN002, 2021)

34 **Topography**

35 The general topography of the site is relatively flat, with the site sloping down approximately
36 30 feet towards the northeast portion of the site. One small erosional gully was identified
37 within the southeast corner of the site. The site elevation is approximately 1,198 feet above
38 mean sea level (msl). (Pika-Insight MN002, 2021)

1 **4.13.3 Water Resources**

2 **Watershed and Surface Waters**

3 No surface waters were observed during the site visit and there are no surface waters located
4 within 1,000 ft of the site. Past surveys reported that the nearest surface water was Rice Lake
5 1,850 ft northeast of the site. Site MN002/27700 occurs within the Elk-Nokasippi watershed
6 in the northeast region of the state. (Pika-Insight MN002, 2021)

7 **Wetlands**

8 Wetland 1. This wetland (0.52 acres in on-site size) is located within the northeastern corner
9 and eastern border of the site. Wetland 1 extends off-site to the north and east. The NWI
10 Map identified Wetland 1 as a *Palustrine Forested Broad-Leaved Deciduous / Scrub-shrub*
11 *Broad-Leaved Deciduous Continuously Saturated (PFO1/SS1D)* wetland. Wetland 1 receives
12 its hydrology from on-site overland flows, as well as run-off from two storm drain culverts.
13 Wetland 1 connects to several other forested wetland complexes, before connecting to
14 Whiteley Creek to the northeast. Whiteley Creek flows into Rice Lake and eventually the
15 Mississippi River. Wetland 1 is likely federally jurisdictional by the USACE based on this direct
16 overland connection. (Pika-Insight MN002, 2021)

17 Wetland 1 is a forested wetland with dominant tree cover of Boxelder (*Acer negundo*) and
18 Green Ash (*Fraxinus pennsylvanica*), dominant scrub-shrub cover of Common Buckthorn
19 (*Rhamnus cathartica*) and Green Ash, and dominant herbaceous cover of Ostrich Lady Fern
20 (*Matteuccia struthiopteris*), Orange Jewelweed (*Impatiens capensis*), and Fowl Manna Grass
21 (*Glyceria striata*). The on-site portion of Wetland 1 is functionally and structurally similar to
22 the off-site portions of the Wetland. The on-site buffer surrounding Wetland 1 consists of a
23 manicured strip of Kentucky Bluegrass (*Poa pratensis*). (Pika-Insight MN002, 2021)

24 Two sample points were established within and adjacent to the on-site portion of Wetland 1
25 to characterize the vegetation, soils, and hydrology. The mapped soil series of Wetland 1 is
26 Seelyeville-Seelyeville, ponded, complex, 0 to 1 percent slopes (540), a hydric soil. USDA
27 field indicators A1: Histosol, A2: Histic Epipedon, and A3: Black Histic provided evidence of
28 hydric soil. Surface water, high water table, saturation, geomorphic position, and a positive
29 FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MN002, 2021)

30 Several forested wetlands and several emergent wetlands are located within 1,000 feet of the
31 site. These features are shown on the NWI Map and are described by using the Cowardin
32 Classification of Wetlands and Deepwater Habitats as:

- 33 • four *Palustrine Emergent Persistent Seasonally Flooded Partially Drained Ditched*
34 (*PEM1Cd*) wetlands within approximately 200-980 feet of the site;
- 35 • four *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetlands within
36 approximately 400-650 feet of the site;
- 37 • one *Palustrine Emergent Persistent Continuously Saturated (PEM1D)* wetland within
38 approximately 550 feet of the site;
- 39 • two *Palustrine Forested Broad-Leaved Deciduous / Scrub-shrub Broad-Leaved*
40 *Deciduous Continuously Saturated (PFO1/SS1D)* wetlands within approximately 300
41 feet of the site;
- 42 • one *Palustrine Scrub-shrub Broad-Leaved Deciduous Continuously Saturated*
43 (*PSS1D*) wetland within approximately 650 feet of the site;
- 44 • one *Palustrine Forested Needle-Leaved Deciduous / Scrub-shrub Broad-Leaved*
45 *Deciduous Continuously Saturated Organic (PFO2/SS1Dg)* wetland within
46 approximately 800 feet of the site;

- one *Palustrine Forested Needle-Leaved Deciduous / Scrub-shrub Needle-Leaved Deciduous Continuously Saturated Organic (PFO2/SS2Dg)* wetland within approximately 700 feet of the site; and
- one *Palustrine Scrub-shrub Broad-Leaved Deciduous / Emergent Persistent Seasonally Flooded (PSS1/EM1C)* wetland within approximately 700 feet of the site (Exhibit D).

The majority of these wetlands are likely considered federally jurisdictional, as they likely connect to Whiteley Creek to the northeast; however, these connections were not field verified. (Pika-Insight MN002, 2021)

Floodplains

No floodplains are located on or within 1,000 ft of the site. Past surveys reported a floodplain associated with the Mississippi River and Rice Lake 1,850 ft northeast of the site.

4.13.4 Cultural Resources

In 2013, the 88th funded an ASA of the facility. Investigators found significant previous ground disturbance on the property and recommended no further archaeological study. The Minnesota SHPO concurred on October 22, 2013. The 88th RD also initiated consultation with federally recognized Indian Tribes, but no responses were received.

An inventory of the built environment was completed for this facility in 2000, but no buildings 50 years old or older were present. In FY22, the 88th RD funded the National Register Reevaluation of the property, the findings of the inventory and evaluation report are currently pending.

Following DoDI 4715.16, consultation with federally recognized Indian Tribes was conducted for the review of this 2020-2024 ICRMP Update.

The ICRMP for sites located in Minnesota will be furnished upon request.

4.13.5 Biological Resources

Land Cover and Ecological Communities

Land Cover and Ecological Communities	Calculated Area	
	Acres	Percent of Site
Manicured Turf Grass	1.63	33
Upland Deciduous Forest	0.33	6
Forested Wetland	0.52	10
Erosional Gully	0.005	1
Impervious Surfaces*	2.5	50
Totals	5.00	100

*Includes parking lots and building footprints.

Vegetation Communities

The site contains the following ecological communities on the site: Upland Deciduous Forest and Forested Wetland.

The ***Upland Deciduous Forest*** was primarily vegetated by:

Common Name	Scientific Name
Green Ash	<i>Fraxinus pennsylvanica</i>
Honeysuckle	<i>Lonicera tatarica</i>
Woodbine	<i>Parthenocissus quinquefolia</i>

Common Name	Scientific Name
Eastern Cottonwood	<i>Populus deltoides</i>

1 The **Forested Wetland** was primarily vegetated by:

Common Name	Scientific Name
Box Elder	<i>Acer negundo</i>
Green Ash	<i>Fraxinus pennsylvanica</i>
Common Buckthorn	<i>Rhamnus cathartica</i>
Ostrich Lady Fern	<i>Matteuccia struthiopteris</i>
Orange Jewelweed	<i>Impatiens capensis</i>
Fowl Manna Grass	<i>Glyceria striata</i>

2 **Maintained Turf Grasses**

3 The site contains several areas of maintained turf grasses throughout the site. The main
 4 areas surround the buildings and parking areas. The areas are mowed and manicured
 5 throughout the growing season. Kentucky Bluegrass (*Poa pratensis*) dominates the turf
 6 areas.

7 **Constructed Features**

8 The site does not contain any constructed features.

9 **Wildlife**

10 During the field survey, the following wildlife species were encountered:

11 **Birds:**

Common Name	Scientific Name
Common Seagull	<i>Larus canus</i>

12 **Mammals:**

Common Name	Scientific Name
Eastern Grey Squirrel	<i>Sciurus carolinensis</i>
Thirteen-Lined Ground Squirrel	<i>Ictidomys tridecemlineatus</i>

13 **Reptiles: None**

14 **Insects:**

Common Name	Scientific Name
Grasshopper species	Unidentified

15 The areas on the site containing habitat for the above listed species include the forested
 16 wetland, the upland deciduous forest, and the turf grass areas on the site.

17 **Listed Species**

18 No federally listed species were observed on the site during the field visit.

19 Based on an August 2, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for
 20 Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or
 21 endangered) plant or animal species habitat are located on or adjacent to the site (Attachment 7).

22 According to the IPaC, 2 species are listed and may be present in Crow Wing County:

23

Common Name	Scientific Name
Gray Wolf	<i>Canis lupus</i>
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>

1 Additionally, the Monarch Butterfly (*Danaus plexippus*) is formally included as a USFWS Candidate
2 species at this time. It is understood that the International Union for Conservation of Nature (IUCN)
3 has changed the formal status of the Monarch Butterfly to Endangered worldwide; however, the
4 USFWS has not changed the formal status of this species as of the date of this report.

5 The woodland edges contain flowering forbs, and therefore may support limited habitat for the
6 Monarch Butterfly. Further guidance for this species is not required, since it is a USFWS Candidate
7 species and not yet fully listed as threatened or endangered. The Monarch Butterfly was found to
8 warrant listing and protection under the Endangered Species Act (ESA), but resources must go to
9 higher priority species at this time. Candidate species have no legal protection under the ESA, but
10 agencies can still provide recommendations for them. The USFWS broadly urges the public to
11 provide habitat for this imperiled species by planting native milkweed and nectar plants. The Monarch
12 Butterfly should be considered in any landscaping plans.

13 The site contains approximately 0.90 acres of suitable habitat for the Northern Long-Eared Bat
14 species. Due to the abundance of large mature woodland trees, containing Ash, Cottonwood, and
15 Silver Maple species, there is a possibility for potential summer roosting habitat for the Northern Long-
16 Eared Bat. This species preferred roosting habitat is in the exfoliating bark of large trees, as well as
17 standing dead snags. It is recommended that further consultation and coordination with the USFWS
18 be initiated prior to and during project permitting, to obtain guidance for this listed species. However,
19 typically if tree removal is conducted during the winter months (October 31-April 1), further species
20 surveys are not necessary.

21 The site does not contain suitable habitat for the Gray Wolf species.

22 **State Listed Species**

23 According to the Minnesota Department of Natural Resources (MNDNR), a total of 179 plant species
24 and 113 other species are listed as threatened or endangered within the state (Attachment 6) of the
25 *FINAL NATURAL RESOURCES SURVEY REPORT, 88TH READINESS DIVISION FACILITIES*
26 *Terrance A. Peterson USARC (Brainerd) - MN002 / 27700*, 1980 Industrial Way, Ann Arbor, Oak
27 Lawn Township, Crow Wing County, Minnesota.

28 Based on the field investigation, the site may contain suitable habitat for the following listed species:

Common Name	Scientific Name
Blanding's Turtle	<i>Emydoidea blandingii</i>
Wood Turtle	<i>Glyptemys insculpta</i>
Narrow Triangle Moonwort	<i>Botrychium lanceolatum ssp.</i>
Goblin Fern	<i>Botrychium mormo</i>
Blunt-Lobed Grapefern	<i>Botrychium oneidense</i>

29 The site does not contain suitable habitat for the remaining listed species in Attachment 6. No state-
30 listed species were observed on the site during the field visit.

31 **4.13.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

32 There does not appear to be any opportunities for outdoor recreation, public access, hunting, or
33 agricultural out-leasing areas on this site. This site lacks aesthetic natural communities.

1 **4.13.7 Management Concerns and Issues**

2 One erosional gully was identified in the far southeastern portion of the site. This gully has formed
3 due to significant overland storm water flow from a culvert. It is recommended that additional erosion
4 controls be implemented in this area in order to slow and/or stop the erosion of the ground towards
5 the site development. Any hard armament controls will likely require permitting through the USACE
6 Regulatory Division. Natural erosion controls such as bio-coir logs will likely not require permitting
7 through the USACE.

8 Overall, the site contains a high-quality forested wetland that could benefit from maintenance and
9 invasive species treatments.

10 **4.13.8 Special Interest Areas**

11 There is a huge continuous forested wetland that extends to the northeast, from the northeast corner
12 of the site and extends to Rice Lake that flows into the Mississippi River.
13
14



1
2
3

Figure 4.13 - Site Map – MN002/27700

1 **4.14 MSG Armin C. Lieder ARC**
2 **(MN005/27726)**

3 1101 S 3rd Street
4 Buffalo, MN 55313-2310

5 **Medium Resource**

6 **County:** Wright

7 **Acres:** 6.05

8 **Building Count:** 2

9 **Last Field Survey:** 2021

10 **Last Wetland Survey:** 2017



11
12 MSG Armin C. Lieder ARC consists of an ARC, an OMS, and associated parking areas. The site is used for
13 administrative services, classroom training, military equipment storage, and general vehicle maintenance.
14 The 88th RD owns the land and two buildings that comprise site MN005/27726.

15 **4.14.1 Geographic Location and Size**

16 MN005/27726 is located in the city of Buffalo, population 13,945, in Wright County. Acreage for the
17 site in the Real Property Detail Report shows acreage as 6.05 ac. Surrounding land use includes
18 Prime Waters Manufacturing to the north, 3rd Street to the south, Centennial Drive to the east, and
19 IZZA Manufacturing and Coatings and residential housing to the west. The site boundary is shown
20 on Figure 3.13. (Pika-Insight MN005 2021)

21 **4.14.2 Geological Resources**

22 **Physiography and Geology**

23 This site is located within the Central Lowland (Western Lake section) physiographic province. This
24 province is characterized by alternating prairie and deciduous forest with areas that are nearly flat
25 and others with high rounded hills. Geological formations at MN005/27726 are sandstone, shale, and
26 some carbonate (Cambrian) formations. (BHE MN005 2010)

27 **Soils**

28 The USDA, NRCS web soil survey, identifies the following soil on-site: Le Sueur loam, 1 to 3 percent
29 slopes (239). During the field investigation, the following soil types were identified on-site: silt loam,
30 silty clay loam, and clay. (Pika-Insight MN005 2021)

31 **Topography**

32 The general topography of the site is flat, with small localized micro-depressions. The site elevation
33 is approximately 987 feet above mean sea level. (Pika-Insight MN005 2021)

34 **4.14.3 Water Resources**

35 **Watershed and Surface Waters**

36 No surface waters were identified on-site during the field investigation. (Pika-Insight MN005 2021)

37 Past surveys reported that the closest surface water was a tributary to Buffalo Lake approximately
38 1,600 ft west of the site. The site is located within the Upper Mississippi River watershed. (Pika-
39 Insight MN005 2021)

1 **Floodplains**

2 No floodplains are located on or within 1,000 ft of the site. Past surveys reported that the closest
3 floodplain was associated with the tributary to Buffalo Lake approximately 1,600 ft west of the site.
4 (BHE MN005 2010)

5 **Wetlands**

6 No naturally occurring regulatory wetlands were identified on the site. (Pika-Insight MN005 2021)

7 The site contains one Constructed Stormwater Basin totaling 0.22 acres on the site. This basin is
8 located within the eastern portion of the site. The basin is dominated by an emergent plant community
9 at the bottom of the basin with a wet mesic plant community comprising its buffers. This basin is
10 described as a *Palustrine Emergent Persistent Permanently Flooded Excavated (PE1Hx)* feature
11 applying the Cowardin Classification of Wetlands and Deepwater Habitats system. The basin likely
12 gets its hydrology from overland flows. The only outlet present is a drainage culvert that appears to
13 be present in case of severe flooding events. The basin does not appear to be connected to any
14 navigable waters at this time. This area does not meet the definition of a wetland, as the basin is not
15 a normal circumstance that occurred prior to its creation. (Pika-Insight MN005 2021)

16 The Constructed Stormwater Basin was primarily vegetated by:

Common Name	Genus/Species
Shallow Sedge	<i>Carex lurida</i>
Purple Loosestrife	<i>Lythrum salicaria</i>
Reed Canary Grass	<i>Phalaris arundinacea</i>
Common Arrowhead	<i>Sagittaria latifolia</i>
White Panicked American-Aster	<i>Symphyotrichum lanceolata</i>

17 According to the Cowardin Classification of Wetlands and Deepwater Habitats system, the National
18 Wetlands Inventory map identifies one Riverine Intermittent Streambed Seasonally Flooded (R4SBC)
19 feature, one Palustrine Aquatic Bed Permanently Flooded (PABH) feature, one Palustrine Emergent
20 Persistent Seasonally Flooded (PEM1C) feature, and one Palustrine Emergent Persistent
21 Temporarily Flooded (PEM1A) feature approximately 200-500 feet northeast of the site. These
22 features are all connected to each other forming a larger Wetland system. All of these features would
23 likely be considered federally jurisdictional by the USACE, based on their eventual connection
24 downstream to Fredrick Creek and ultimately Lake Mary to the south. (Pika-Insight MN005 2021)

25 **4.14.4 Cultural Resources**

26 Architectural inventories have been completed for this property. However, the facility buildings had
27 only been recently constructed. The facility buildings should be re-evaluated once they turn 50 years
28 of age (2048). (MN ICRMP, 2020)

29 An archaeological inventory was initiated (Kachel 1990) for this facility but was halted due to
30 documented previous extensive disturbance and landscape alteration. Subsequent consultation with
31 the Minnesota SHPO determined no further work was recommended. (MN ICRMP, 2020)

32 Following DoDI 4715.16, consultation with federally recognized Indian Tribes was conducted for the
33 review of this 2020-2024 ICRMP Update.

34 There are no cultural resources agreement documents in place for this facility. (MN ICRMP, 2020)

35 The ICRMP for sites located in Minnesota will be furnished upon request.

1 **4.14.5 Biological Resources**

2 **Land Cover and Ecological Communities**

3

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Manicured Turf Grass	1.80	30%
Upland Vegetation	0.17	3%
Constructed Stormwater Basin	0.22	4%
Impervious Surfaces*	4.58	63%
Totals	6.05	100

4 **Vegetation Communities**

5 The site contains the following ecological communities on the site: Constructed Stormwater Basin
 6 with an Upland Buffer and maintained turf grass. The constructed stormwater basin is discussed in
 7 the Wetlands section, even though the area does not meet the definition of a wetland, as the basin is
 8 not a normal circumstance that occurred prior to its creation. (Pika-Insight MN005 2021)

9 The Upland Buffer was primarily vegetated by:

Common Name	Genus/Species
White Panicked American-Aster	<i>Symphyotrichum lanceolata</i>
Quack grass	<i>Elymus repens</i>

10 **Maintained Turf Grass**

11 The site contains several areas of maintained turf grasses throughout the site. The main areas
 12 surround the buildings and parking areas. The areas are mowed and manicured throughout the
 13 growing season. Kentucky Bluegrass (*Poa pratensis*) dominates the turf areas. (Pika-Insight MN005
 14 2021)

15
 16 **Wildlife**

17 During the field investigation, the following wildlife species were encountered on the site:

18 **Birds:** None

19 **Mammals:** None

20 **Reptiles:** None

21 **Insects:**

Common Name	Genus/Species
Cloudless Sulfur Butterfly	<i>Phoebis sennae</i>
Monarch Butterfly	<i>Danaus plexippus</i>
Guinea Paper Wasp	<i>Polistes exclamans</i>
Grasshoppers	<i>Orthoptera sp.</i>
Bumblebees	<i>Bombus sp.</i>
Dragonflies	<i>Odonata sp.</i>
Hornets	<i>Vespa sp.</i>
Damselflies	<i>Zygoptera sp.</i>

1 The areas on the site containing habitat for the above species include the Constructed Stormwater
2 Basin and its buffer. (Pika-Insight MN005 2021)

3 **Listed Species**

4 **USFWS Federally Listed Species**

5 No federally listed species were observed on the site during the field visit.

6 Based on an August 2, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for
7 Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or
8 endangered) plant or animal species habitat are not located on or adjacent to the site. (Pika-Insight
9 MN005 2021)

10 According to the IPaC, 1 species is listed and may be present in Wright County:

Common Name	Genus/Species
Northern Long-eared Bat	<i>Myotis septentrionalis</i>

11 Additionally, the Monarch Butterfly (*Danaus plexippus*) has been formally designated as a USFWS
12 Candidate species. It is understood that the International Union for Conservation of Nature (IUCN)
13 has changed the formal status of the Monarch Butterfly to Endangered worldwide; however, the
14 USFWS has not changed the formal status of this species as of the date of this report. (Pika-Insight
15 MN005 2021)

16 None of the areas on-site contain suitable habitat for the Northern Long-eared Bat. (Pika-Insight
17 MN005 2021)

18 **State Listed Species**

19 According to the Minnesota Department of Natural Resources (MNDNR), a total of 179 plant species
20 and 113 other species are listed as threatened or endangered within the state. (Pika-Insight MN005
21 2021)

22 Based on the field investigation, the site does not contain suitable habitat for the listed species in
23 Attachment 6. No state-listed species were observed on the site during the field visit. (Pika-Insight
24 MN005 2021)

25 **4.14.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

26 There does not appear to be any opportunities for outdoor recreation, public access, hunting, or
27 agricultural out-leasing areas on this site. This site lacks aesthetic natural communities. (Pika-Insight
28 MN005 2021)

29 **4.14.7 Management Concerns and Issues**

30 Several invasive species were identified on-site and are recommended for future maintenance.
31 These include:

Common Name	Genus/Species	Approximate sq. ft.	Density
Purple Loosestrife	<i>Lythrum salicaria</i>	2,500	High
Reed Canary Grass	<i>Phalaris arundinacea</i>	2,500	High
Hybrid Cattail	<i>Typha X glauca</i>	100	Medium
Common Reed	<i>Phragmites australis</i> <i>ssp. australis</i>	100	Low
Smooth Brome	<i>Bromus inermis</i>	1,000	Medium
Quack grass	<i>Elymus repens</i>	1,000	Low

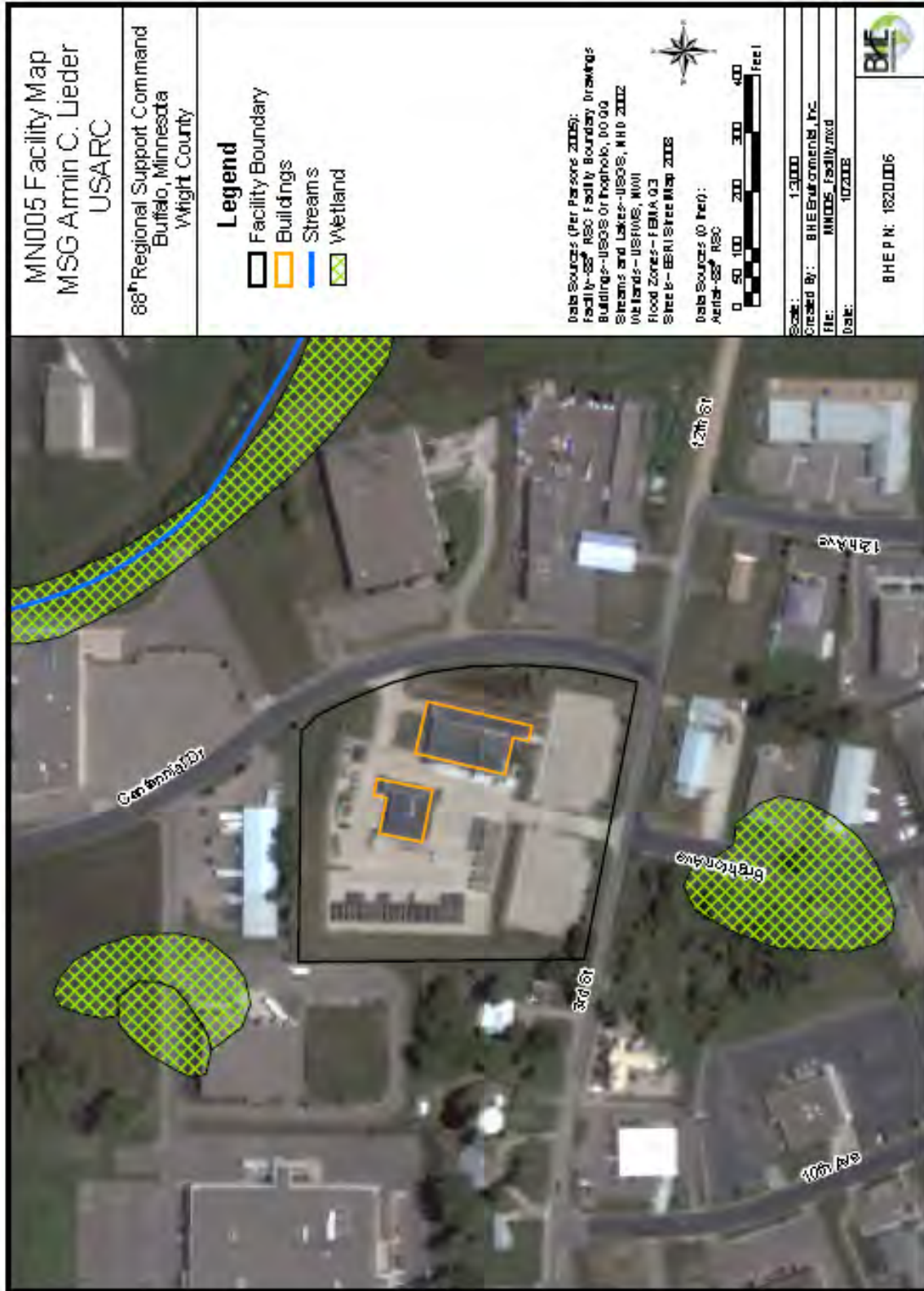
1 It is recommended to treat the smaller patches of Reed Canary Grass, Smooth Brome, Quack grass,
2 Common Reed, and Cattails with a glyphosate-based aquatic-approved herbicide, followed by inter-
3 seeding of native species 2-3 weeks after treatment. Treatments are recommended for
4 spring/summer for the Reed Canary Grass, Smooth Brome, and Quack grass, and late summer/fall
5 for the Cattails and Common Reed. (Pika-Insight MN005 2021)

6 It is recommended to treat the patches of Purple Loosestrife with a triclopyr based aquatic-approved
7 herbicide, followed by inter-seeding of native species 2-3 weeks after treatment. Treatments are
8 recommended for spring/summer for the Purple Loosestrife. (Pika-Insight MN005 2021)

9 **4.14.8 Special Interest Areas**

10 There are no special interest areas located on or within 1,000 ft of the site. (BHE MN005 2010)

11



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2
3

Figure 4.14 - Site Map – MN005/27726

1 **4.15 Belton LTA**
2 **(MO003/29880)**

3 19901 S Prospect Avenue
4 Belton, MO 64012

5 **High Resource**

6 **County:** Cass

7 **Acres:** 184

8 **Building Count:** 0

9 **Last Field Survey:** 2021

10 **Last Wetland Survey:** 2019



12 The Belton LTA consists of 184 acres land, one storage building and two concrete igloos. The site is used
13 for outdoor training. The 88th RD owns the land and three buildings that comprise MO003/29880.

14 **4.15.1 Geographic Location and Size**

15 MO003/29880 is located near the city of Belton in Cass County. This site is in the Northwest region
16 of the state. Acreage for the site as indicated in the Real Property Detail Report indicates acreage
17 as 184.00 ac. This octagonal shaped parcel is bounded by the Robinson Airport to the north, and
18 agricultural lands with private residences to the south, east, and west. The site boundary is shown
19 on Figure 3.14.

20 **4.15.2 Geological Resources**

21 **Physiography and Geology**

22 This site is located within the Osage Plains physiographic section of the Central Lowland
23 physiographic province. This section is the southernmost of three tallgrass prairie physiographic
24 areas. Geological formations at MO003/29880 are Late Pennsylvanian-Upper Series-Missourian
25 Stage (limestone and shale) formations.

26 **Soils**

27 Mapped soils within the site boundaries belong to the following soil map units: Arisburg silt loam, 1 to
28 5 percent slopes; Greenton silty clay loam, 5 to 9 percent slopes; Nowata variant silt loam, 5 to 9
29 percent slopes; and Sharpsburg silty clay loam, 2 to 5 percent slopes. Arisburg silt loam, 1 to 5
30 percent slopes soil map unit is considered hydric by the NRCS.

32 MO003/29880 is located within the Cherokee Prairie MLRA. The dominant soil orders of this MLRA
33 are generally moderately deep to very deep, well drained to poorly drained, and loamy or clayey.

34 **Topography**

35 The site is flat, with localized micro-depressions. The site generally pitches from north to south overall.
36 The site elevation is approximately 1,040 feet above mean sea level.

37 **4.15.3 Water Resources**

38 **Watershed and Surface Waters**

39 The site is located within the South Grand River watershed (East Creek sub-watershed).

1 No on-site surface waters were identified during the June 2022 field survey.

2 **Wetlands**

3 A total of 21 wetlands were identified within the site. At the time of the field survey, Wetlands 2-4,
4 11-15, 18, 19, and 21 appear to be isolated, non-federally jurisdictional wetlands as no direct
5 connections or significant nexus to navigable waterways were observed. Wetlands 1, 5-10, 16, 17,
6 and 20 may be considered federally jurisdictional, as they are located within, adjacent to, or near
7 intermittent streams. These intermittent streams may connect to East Creek located off-site to the
8 southeast, which eventually connect to the South Grand River. (Pika-Insight MO003 2021)

9 The USACE Regulatory makes the final determination regarding formal jurisdictional status of the
10 identified wetlands. (Pika-Insight MO003 2021)

11 **Wetland 1.** This wetland (0.83 acres) is located within the central portion of the site. Wetland 1
12 consists of a swale dominated by emergent and wet-prairie plant communities. Wetland 1 is
13 described as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland applying the
14 Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

15 Wetland 1 likely obtains its hydrology via overland flows. No culverts were identified within Wetland
16 1. Wetland 1 may be considered federally jurisdictional, as it appears to hydrologically connect
17 through overland flows to the intermittent stream located on-site. This stream may connect to East
18 Creek located off-site to the southeast, which eventually connects to the South Grand River. (Pika-
19 Insight MO003 2021)

20 The buffer surrounding Wetland 1 consists of upland prairie and scrub-shrub plant communities.
21 These buffers provide beneficial functions to the wetland, such as pollutant assimilation, groundwater
22 infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>
Honeysuckle species	<i>Lonicera spp.</i>

23 Four sample points were established within and adjacent to Wetland 1 to characterize the vegetation,
24 soils, and hydrology. Wetland 1 was primarily vegetated by:

Common Name	Scientific Name
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Narrow-Leaved Mountain-Mint	<i>Pycnanthemum tenuifolium</i>
Prairie Cordgrass	<i>Spartina pectinata</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>

25 The mapped soil series are Nowata variant silt loam, 5 to 9 percent slopes (40083), and Greenton
26 silty clay loam, 5 to 9 percent slopes (30080), both non-hydric soils. USDA NRCS field indicator F6:
27 Redox Dark Surface provided evidence of hydric soil. Drainage patterns, geomorphic position, and
28 a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

29 Vegetative analysis indicates this is a high-quality plant community. Wetland 1 contained numerous
30 conservative plant species that indicate a healthy and diverse plant community. (Pika-Insight MO003
31 2021)

1 **Wetland 2.** This wetland (0.03 acres) is located within the central portion of the site, north of an old
2 bunker. Wetland 2 is a slight depression that collects and retains water through overland flows. (Pika-
3 Insight MO003 2021)

4 No culverts were identified within Wetland 2. Wetland 2 consists of a wet-prairie plant community and
5 is described as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland applying the
6 Cowardin Classification of Wetlands and Deepwater Habitats. Wetland 2 appears to be an isolated,
7 non-federally jurisdictional wetland as no direct connections or significant nexus to navigable
8 waterways were observed during the field survey. (Pika-Insight MO003 2021)

9 The buffer surrounding Wetland 2 consists of an upland prairie plant community. This buffer provides
10 beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil
11 stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>

12 Two sample points were established within and adjacent to Wetland 2 to characterize the vegetation,
13 soils, and hydrology

Common Name	Scientific Name
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Red Bulrush	<i>Scirpus pendulus</i>

14 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
15 USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Surface soil
16 cracks, geomorphic position, and a positive FAC-neutral test provided evidence of persistent
17 hydrology. (Pika-Insight MO003 2021)

18 Vegetative analysis indicates this a moderate quality plant community. (Pika-Insight MO003 2021)

19 **Wetland 3.** This wetland (0.03 acres) is located within the central portion of the site, west of Wetland
20 2 and north of an old bunker. Wetland 3 consists of a wet-prairie plant community and is described
21 as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland applying the Cowardin
22 Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

23 Wetland 3 consists of a slight depression that collects and retains water through overland flows. No
24 culverts were identified within Wetland 3. Wetland 3 appears to be an isolated, non-federally
25 jurisdictional wetland as no direct connections or significant nexus to navigable waterways were
26 observed during the field survey. (Pika-Insight MO003 2021)

27 The buffer surrounding Wetland 3 consists of an upland prairie plant community. This buffer provides
28 beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil
29 stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>

Two sample points were established within and adjacent to Wetland 3 to characterize the vegetation, soils, and hydrology. Wetland 3 was primarily vegetated by:

Common Name	Scientific Name
Red Bulrush	<i>Scirpus pendulus</i>
Dark Green Bulrush	<i>Scirpus atrovirens</i>

The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil. USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Surface soil cracks, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

Vegetative analysis indicates this is a moderate quality plant community. (Pika-Insight MO003 2021)

Wetland 4. This wetland (0.03 acres) is located within the central portion of the site, south of the old bunkers, and consists of a wet-prairie plant community. Wetland 4 is described as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

Wetland 4 consists of a slight depression that collects and retains water through overland flows. No culverts were identified within Wetland 4. Wetland 4 appears to be an isolated, non-federally jurisdictional wetland as no direct connections or significant nexus to navigable waterways were observed during the field survey. (Pika-Insight MO003 2021)

The buffer surrounding Wetland 4 consists of an upland prairie plant community and a gravel roadway. This buffer provides some minimal beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>

Two sample points were established within and adjacent to Wetland 4 to characterize the vegetation, soils, and hydrology. Wetland 4 was primarily vegetated by:

Common Name	Scientific Name
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Red Bulrush	<i>Scirpus pendulus</i>
Dudley's Rush	<i>Juncus dudleyi</i>

The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil. USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Surface soil cracks, drainage patterns, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

Vegetative analysis indicates that this is a high-quality plant community with some conservative species present. (Pika-Insight MO003 2021)

Wetland 5. This wetland (0.04 acres) is located within the south-central portion of the site. Wetland 5 is described as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

1 Wetland 5 receives and retains water through overland flows. No culverts were identified within
 2 Wetland 5. Wetland 5 may be considered federally jurisdictional, as it lies near an intermittent stream
 3 located on-site. This stream may connect to East Creek located off-site to the southeast, which
 4 eventually connects to the South Grand River. (Pika-Insight MO003 2021)

5 The buffer surrounding Wetland 5 consists of upland prairie, scrub-shrub, and deciduous forest plant
 6 communities. These buffers provide beneficial functions to the wetland, such as pollutant
 7 assimilation, groundwater infiltration, soil stabilization, and wildlife habitat. The dominant species of
 8 the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Eastern Red Cedar	<i>Juniperus virginica</i>
Pin Oak	<i>Quercus palustris</i>

9 Two sample points were established within and adjacent to Wetland 5 to characterize the vegetation,
 10 soils, and hydrology. Wetland 5 was primarily vegetated by:

Common Name	Scientific Name
Prairie Cordgrass	<i>Spartina pectinata</i>

11 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
 12 USDA NRCS field indicators A12: Thick Dark Surface and F6: Redox Dark Surface provided evidence
 13 of hydric soil. Geomorphic position and a positive FAC-neutral test provided evidence of persistent
 14 hydrology. (Pika-Insight MO003 2021)

15 Vegetative analysis indicates that this is a high-quality plant community with some conservative
 16 species present. (Pika-Insight MO003 2021)

17 **Wetland 6.** This wetland (0.10 acres) is located within the south-central portion of the site. Wetland
 18 6 consists of a deep depression dominated by emergent, wet-prairie, and forested plant communities
 19 and is described on the NWI map as a *Palustrine Unconsolidated Bottom Intermittently Exposed*
 20 *Dike/Impounded (PUBGh)* feature. (Pika-Insight MO003 2021)

21 Wetland 6 obtains its hydrology via the intermittent stream identified on-site. No culverts were
 22 identified within Wetland 6. Wetland 6 may be considered federally jurisdictional, as it lies in-line with
 23 an on-site intermittent stream. This stream may connect to East Creek located off-site to the
 24 southeast, which eventually connects to the South Grand River. (Pika-Insight MO003 2021)

25 The buffer surrounding Wetland 6 consists of a deciduous forest plant community. This buffer
 26 provides beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration,
 27 soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>

Common Name	Scientific Name
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>

1 Two sample points were established within and adjacent to Wetland 6 to characterize the vegetation,
 2 soils, and hydrology. Wetland 6 was primarily vegetated by:

Common Name	Scientific Name
Rice Cut Grass	<i>Leersia oryzoides</i>
Dock-Leaf Smartweed	<i>Persicaria lapathifolia</i>

3 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
 4 USDA NRCS field indicators A1: Histosol, A2: Histic Epipedon, A10: 2cm Muck, and F3: Depleted
 5 Matrix provided evidence of hydric soil. Inundation visible on aerial imagery, water-stained leaves,
 6 saturation visible on aerial imagery, geomorphic position, and a positive FAC-neutral test provided
 7 evidence of persistent hydrology. (Pika-Insight MO003 2021)

8 Vegetative analysis indicates this is a moderate quality plant community. (Pika-Insight MO003 2021)

9 **Wetland 7.** This wetland (0.20 acres) is located within the southeastern portion of the site, east of
 10 Wetland 6. The NWI map describes Wetland 7 as a *Palustrine Emergent Persistent Seasonally*
 11 *Flooded Diked/Impounded (PEM1Ch)* wetland. (Pika-Insight MO003 2021)

12 Wetland 7 is dominated by a wet-prairie plant community and consists of a slight depression that
 13 collects and retains water through overland flows. No culverts were identified within Wetland 7.
 14 Wetland 7 may be considered federally jurisdictional, as it may hydrologically connect with an on-site
 15 intermittent stream. This stream may connect to East Creek located off-site to the southeast, which
 16 eventually connects to the South Grand River. (Pika-Insight MO003 2021)

17 The buffer surrounding Wetland 7 consists of an upland prairie plant community. This buffer provides
 18 some minimal beneficial functions to the wetland, such as pollutant assimilation, groundwater
 19 infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>

20 Two sample points were established within and adjacent to Wetland 7 to characterize the vegetation,
 21 soils, and hydrology. Wetland 7 was primarily vegetated by:

Common Name	Scientific Name
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Red Bulrush	<i>Scirpus pendulus</i>
Narrow-Leaved Mountain-Mint	<i>Pycnanthemum tenuifolium</i>
Switch Grass	<i>Panicum virgatum</i>

22 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
 23 USDA NRCS field indicator F3: Depleted Matrix provided evidence of hydric soil. Surface soil cracks,
 24 geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology.
 25 (Pika-Insight MO003 2021)

1 Vegetative analysis indicates that this is a high-quality plant community with some conservative
2 species present. (Pika-Insight MO003 2021)

3 **Wetland 8.** This wetland (0.04 acres) is located within the southeastern portion of the site, and
4 Wetland 8 is dominated by wet-prairie and deciduous forest plant communities and is classified as a
5 *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland, applying the Cowardin
6 Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

7 Wetland 8 consists of a slight depression/swale that collects and retains water through overland flows.
8 One outlet culvert was identified at the downstream end of Wetland 8. Wetland 8 may be considered
9 federally jurisdictional, as it may hydrologically connect with an intermittent stream located off-site.
10 This stream may connect to East Creek located off-site to the southeast, which eventually connects
11 to the South Grand River. (Pika-Insight MO003 2021)

12 The buffer surrounding Wetland 8 consists of a deciduous forest plant community. This buffer
13 provides beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration,
14 soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

15 Two sample points were established within and adjacent to Wetland 8 to characterize the vegetation,
16 soils, and hydrology, and is primarily vegetated by:

Common Name	Scientific Name
Fowl Mana Grass	<i>Glyceria striata</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>

17 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
18 USDA NRCS field indicator F3: Depleted Matrix provided evidence of hydric soil. Water-stained
19 leaves, surface soil cracks, drainage patterns, geomorphic position, and a positive FAC-neutral test
20 provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

21 Vegetative analysis indicates this is a low-quality plant community. (Pika-Insight MO003 2021)

22 **Wetland 9.** This wetland (0.03 acres) is located within the southeastern portion of the site, east of
23 Wetland 8. Wetland 9 is dominated by a forested plant community and is classified as a *Palustrine*
24 *Emergent Persistent Forested Broad-Leaved Deciduous Seasonally Flooded (PEM1/FO1C)* wetland,
25 applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003
26 2021)

27 Wetland 9 consists of a slight depression/swale that collects and retains water through overland flows.
28 No culverts were identified within Wetland 9. Wetland 9 may be considered federally jurisdictional,
29 as it may hydrologically connect through overland flows to the intermittent stream located off-site.
30 This stream may connect to East Creek located off-site to the southeast, which eventually connects
31 to the South Grand River. (Pika-Insight MO003 2021)

32 The buffer surrounding Wetland 9 consists of a deciduous forest plant community. This buffer
33 provides beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration,
34 soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

1 Two sample points were established within and adjacent to Wetland 9 to characterize the vegetation,
2 soils, and hydrology. Wetland 9 was primarily vegetated by:

Common Name	Scientific Name
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Fowl Manna Grass	<i>Glyceria striata</i>

3 Vegetative analysis indicates that this is a high-quality plant community with some conservative
4 species present. (Pika-Insight MO003 2021)

5 **Wetland 10.** This wetland (0.006 acres (262 square feet)) is located within the southeastern portion
6 of the site, northeast of Wetland 9. Emergent and wet-prairie plant communities dominate wetland
7 10. Wetland 10 described as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)*
8 wetland, applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight
9 MO003 2021)

10 Wetland 10 consists of an erosional feature that collects and retains water through overland flows.
11 No culverts were identified within Wetland 10. Wetland 10 may be considered federally jurisdictional,
12 as it may hydrologically connect through overland flows to the intermittent stream located off-site.
13 This stream may connect to East Creek located off-site to the southeast, which eventually connects
14 to the South Grand River. (Pika-Insight MO003 2021)

15 The buffer surrounding Wetland 10 consists of upland prairie and scrub-shrub plant communities.
16 These buffers provide beneficial functions to the wetland, such as pollutant assimilation, groundwater
17 infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>

18 Two sample points were established within and adjacent to Wetland 10 to characterize the vegetation,
19 soils, and hydrology. Wetland 10 was primarily vegetated by:

Common Name	Scientific Name
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Red Bulrush	<i>Scirpus pendulus</i>
Bristly Sedge	<i>Carex comosa</i>

20 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
21 USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Drainage

1 patterns, geomorphic position, and a positive FAC-neutral test provided evidence of persistent
2 hydrology. (Pika-Insight MO003 2021)

3 Vegetative analysis indicates that this is a high-quality plant community with some conservative
4 species present. (Pika-Insight MO003 2021)

5 **Wetland 11.** This wetland (0.15 acres) is located within the northeastern portion of the site and is
6 dominated by a wet-prairie plant community. Wetland 11 is classified as a *Palustrine Emergent*
7 *Persistent Seasonally Flooded (PEM1C)* wetland, applying the Cowardin Classification of Wetlands
8 and Deepwater Habitats. (Pika-Insight MO003 2021)

9 Wetland 11 consists of a slight depression that collects and retains water through overland flows. No
10 culverts were identified within Wetland 11. Wetland 11 appears to be isolated, and therefore may not
11 be a federally jurisdictional as no direct overland connections or significant nexus to navigable
12 waterways were observed during the field survey. (Pika-Insight MO003 2021)

13 The buffer surrounding Wetland 11 consists of upland prairie and scrub-shrub plant communities.
14 These buffers provide beneficial functions to the wetland, such as pollutant assimilation, groundwater
15 infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>

16 Two sample points were established within and adjacent to Wetland 11 to characterize the vegetation,
17 soils, and hydrology. Wetland 11 was primarily vegetated by:

Common Name	Scientific Name
Dudley's Rush	<i>Juncus dudleyi</i>
Narrow-Leaved Mountain-Mint	<i>Pycnanthemum tenuifolium</i>
Switch Grass	<i>Panicum virgatum</i>
Red Bulrush	<i>Scirpus pendulus</i>

18 The mapped soil series is Arisburg silt loam, 1 to 5 percent slopes (10000), a non-hydric soil. USDA
19 NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Geomorphic position
20 and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

21 Vegetative analysis indicates this is a high-quality plant community. Wetland 11 contained numerous
22 conservative plant species that indicate a healthy and diverse plant community. (Pika-Insight MO003
23 2021)

24 **Wetland 12.** This wetland (0.01 acres) is located within the northeastern portion of the site, southeast
25 of Wetland 11. Wetland 12 consists of a wet-prairie plant community and is classified as a *Palustrine*
26 *Emergent Persistent Seasonally Flooded (PEM1C)* wetland, applying the Cowardin Classification of
27 Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

28 Wetland 12 receives its hydrology through overland flows. No culverts were identified within Wetland
29 12. Wetland 12 appears to be isolated, and therefore not federally jurisdictional as no direct overland
30 connections or significant nexus to navigable waterways were observed during the field survey. (Pika-
31 Insight MO003 2021)

The buffer surrounding Wetland 12 consists of upland prairie and scrub-shrub plant communities. These buffers provide beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>

Two sample points were established within and adjacent to Wetland 12 to characterize the vegetation, soils, and hydrology. Wetland 12 was primarily vegetated by:

Common Name	Scientific Name
Torrey's Rush	<i>Juncus torreyi</i>
Red Bulrush	<i>Scirpus pendulus</i>
Switch Grass	<i>Panicum virgatum</i>

The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil. USDA NRCS field indicator F3: Depleted Matrix provided evidence of hydric soil. Surface soil cracks, drainage patterns, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

Vegetative analysis indicates this is a high-quality plant community with some conservative species present. (Pika-Insight MO003 2021)

Wetland 13. This wetland (0.008 acres (348 square feet)) is located within the northeastern portion of the site, southwest of Wetland 12. Wetland 13 consists of a wet-prairie plant community and is classified as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland, applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

Wetland 13 receives its hydrology through overland flows. No culverts were identified within Wetland 13. Wetland 13 appears to be an isolated, non-federally jurisdictional wetland as no direct connections or significant nexus to navigable waterways were observed during the field survey. (Pika-Insight MO003 2021)

The buffer surrounding Wetland 13 consists of a deciduous forest plant community. This buffer provides beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

Two sample points were established within and adjacent to Wetland 13 to characterize the vegetation, soils, and hydrology. Wetland 13 was primarily vegetated by:

Common Name	Scientific Name
Prairie Cordgrass	<i>Spartina pectinata</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>

The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil. USDA NRCS field indicators A12: Thick Dark Surface and F6: Redox Dark Surface provided evidence of hydric soil. Drainage patterns, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

Vegetative analysis indicates this is a moderate quality plant community. (Pika-Insight MO003 2021)

Wetland 14. This wetland (0.008 acres (348 square feet)) is located within the northeast portion of the site, west of Wetlands 12 and 13. Wetland 14 consists of a wet-prairie plant community classified as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland, applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

Wetland 14 is a slight depression that collects and retains water through overland flows. No culverts were identified within Wetland 14. Wetland 14 appears to be an isolated, non-federally jurisdictional wetland as no direct overland connections or significant nexus to navigable waterways were observed during the field survey. (Pika-Insight MO003 2021)

The buffer surrounding Wetland 14 consists of upland prairie, scrub-shrub, and forested plant communities. These buffers provide beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Gray Dogwood	<i>Cornus racemosa</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

Two sample points were established within and adjacent to Wetland 14 to characterize the vegetation, soils, and hydrology. Wetland 14 was primarily vegetated by:

Common Name	Scientific Name
Prairie Cordgrass	<i>Spartina pectinata</i>
Red Bulrush	<i>Scirpus pendulus</i>

The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil. USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Surface soil cracks, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

Vegetative analysis indicates this is a moderate quality plant community. (Pika-Insight MO003 2021)

Wetland 15. This wetland (0.02 acres) is located within the northeastern portion of the site, southeast of Wetland 14. Wetland 15 consists of emergent and wet-prairie plant communities. Wetland 15 is classified as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland, applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

Wetland 15 consists of a depression that collects and retains water through overland flows. No culverts were identified within Wetland 15. Wetland 15 appears to be an isolated, non-federally jurisdictional wetland as no direct overland connections or significant nexus to navigable waterways observed during the field survey. (Pika-Insight MO003 2021)

The buffer surrounding Wetland 15 consists of upland prairie, scrub-shrub, and forested plant communities. These buffers provide beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Gray Dogwood	<i>Cornus racemosa</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

Two sample points were established within and adjacent to Wetland 15 to characterize the vegetation, soils, and hydrology. Wetland 15 was primarily vegetated by:

Common Name	Scientific Name
Red Bulrush	<i>Scirpus pendulus</i>
Bristly Sedge	<i>Carex comosa</i>
Narrow-Leaved Mountain-Mint	<i>Pycnanthemum tenuifolium</i>
Large Barnyard Grass	<i>Echinochloa crus-galli</i>

The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil. USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Surface soil cracks, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

Vegetative analysis indicates this is a high-quality plant community with some conservative species present. (Pika-Insight MO003 2021)

Wetland 16. This wetland (0.02 acres) is located within the northeastern portion of the site and consists of forested and wet-prairie plant communities. Wetland 16 is described as a *Riverine Intermittent Streambed Seasonally Flooded (R4SBC)* feature on the NWI Map; however, it should be classified as a *Palustrine Emergent Persistent/Forested Broad-Leaved Deciduous Seasonally Flooded (PEM1/FO1C)* feature, applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

1 Wetland 16 likely obtains its hydrology from the *R4SBC* feature and overland flows. No culverts were
 2 identified within Wetland 16. Wetland 16 may be considered federally jurisdictional, as it may
 3 hydrologically connect through overland flows to the intermittent stream located on-site. This stream
 4 may connect to East Creek located off-site to the southeast, which eventually connects to the South
 5 Grand River. (Pika-Insight MO003 2021)

6 The buffer surrounding Wetland 16 consists of a forested plant community. These buffers provide
 7 beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil
 8 stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera spp</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

9 Two sample points were established within and adjacent to Wetland 16 to characterize the vegetation,
 10 soils, and hydrology. Wetland 16 was primarily vegetated by:

Common Name	Scientific Name
Fowl Manna Grass	<i>Glyceria striata</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>

11 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
 12 USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Surface soil
 13 cracks, drainage patterns, geomorphic position, and a positive FAC-neutral test provided evidence of
 14 persistent hydrology. (Pika-Insight MO003 2021)

15 Vegetative analysis indicates this is a low-quality plant community. (Pika-Insight MO003 2021)

16 **Wetland 17.** This wetland (0.02 acres) is located within the northeastern portion of the site and
 17 consists of an ephemeral depression dominated by a forested plant community. Wetland 17 is
 18 described as a *Palustrine Forested Broad-Leaved Deciduous Seasonally Flooded (PFO1C)* wetland,
 19 applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003
 20 2021)

21 Wetland 17 likely obtains its hydrology from the *Riverine Intermittent Streambed Seasonally Flooded*
 22 (*R4SBC*) feature and overland flows. No culverts were identified within Wetland 17; however, Culvert
 23 3 is located to the southeast of the wetland. Wetland 17 may be considered federally jurisdictional,
 24 as it may hydrologically connect through overland flows to the on-site intermittent stream. This stream
 25 may connect to East Creek located off-site to the southeast, which eventually connects to the South
 26 Grand River. (Pika-Insight MO003 2021)

27 The buffer surrounding Wetland 17 consists of a forested plant community. These buffers provide
 28 beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil
 29 stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>

Common Name	Scientific Name
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

1 Two sample points were established within and adjacent to the on-site portion of Wetland 17 to
 2 characterize the vegetation, soils, and hydrology. Wetland 17 was primarily vegetated by:

Common Name	Scientific Name
American Elm	<i>Ulmus americana</i>

3 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
 4 USDA NRCS field indicator F3: Depleted Matrix provided evidence of hydric soil. Watermarks,
 5 sparsely vegetated concave surface, water-stained leaves, surface soil cracks, geomorphic position,
 6 and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

7 Vegetative analysis indicates this is a moderate quality plant community. (Pika-Insight MO003 2021)

8 **Wetland 18.** This wetland (0.11 acres) is located within the northern portion of the site and is
 9 dominated by a wet-prairie plant community. Wetland 18 is described as a *Palustrine Emergent*
 10 *Persistent Seasonally Flooded (PEM1C)* wetland, applying the Cowardin Classification of Wetlands
 11 and Deepwater Habitats. (Pika-Insight MO003 2021)

12 Wetland 18 is a slight depression that collects and retains water through overland flows. No culverts
 13 were identified within Wetland 18. Wetland 18 appears to be isolated, and therefore not a federally
 14 jurisdictional wetland as no direct connections or significant nexus to navigable waterways observed
 15 during the field survey. (Pika-Insight MO003 2021)

16 The buffer surrounding Wetland 18 consists of upland prairie, scrub-shrub, and forested plant
 17 communities, as well as impervious gravel roadway. These buffers provide beneficial functions to
 18 the wetland, such as pollutant assimilation, groundwater infiltration, soil stabilization, and wildlife
 19 habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Switch Grass	<i>Panicum virgatum</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

20 Two sample points were established within and adjacent to Wetland 18 to characterize the vegetation,
 21 soils, and hydrology. Wetland 18 was primarily vegetated by:

Common Name	Scientific Name
Common Fox Sedge	<i>Carex vulpinoidea</i>
Red Bulrush	<i>Scirpus pendulus</i>
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Dudley's Rush	<i>Juncus dudleyi</i>

1 The mapped soil series is Sharpsburg silty clay loam, loess hill, 2 to 5 percent slopes (10124), a non-
2 hydric soil. USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil.
3 Surface soil cracks, drainage patterns, crayfish burrows, geomorphic position, and a positive FAC-
4 neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

5 Vegetative analysis indicates this is a high-quality plant community with some conservative species
6 present. (Pika-Insight MO003 2021)

7 **Wetland 19.** This wetland (0.01 acres (436 sf)) is located within the northern portion of the site, west
8 of Wetland 18. Emergent and forested plant communities dominate wetland 19. Wetland 19 is
9 described as a *Palustrine Emergent Persistent/Forested Broad-Leaved Deciduous Seasonally*
10 *Flooded (PEM1/FO1C)* wetland, applying to the Cowardin Classification of Wetlands and Deepwater
11 Habitats. (Pika-Insight MO003 2021)

12 Wetland 19 is a slight depressional swale that collects and retains water through overland flows. One
13 culvert was identified along the north end of Wetland 19; however, this culvert does not appear to
14 connect to any off-site jurisdictional waterways. Wetland 19 appears to be an isolated, non-federally
15 jurisdictional wetland as no direct overland connections or significant nexus to navigable waterways
16 were observed during the field survey. (Pika-Insight MO003 2021)

17 The buffer surrounding Wetland 19 consists of a forested plant community. These buffers provide
18 beneficial functions to the wetland, such as pollutant assimilation, groundwater infiltration, soil
19 stabilization, and wildlife habitat. The dominant species of the buffer include:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

20 Two sample points were established within and adjacent to Wetland 19 to characterize the vegetation,
21 soils, and hydrology. Wetland 19 was primarily vegetated by:

Common Name	Scientific Name
Common Fox Sedge	<i>Carex vulpinoidea</i>
Rice Cut Grass	<i>Leersia oryzoides</i>

22 The mapped soil series is Sharpsburg silty clay loam, loess hill, 2 to 5 percent slopes (10124), a non-
23 hydric soil. USDA NRCS field indicator F3: Depleted Matrix provided evidence of hydric soil. Surface
24 soil cracks, drainage patterns, geomorphic position, and a positive FAC-neutral test provided
25 evidence of persistent hydrology. (Pika-Insight MO003 2021)

26 Vegetative analysis indicates this is a moderate quality plant community. (Pika-Insight MO003 2021)

27 **Wetland 20.** This wetland (0.12 acres) is located within the west-central portion of the site and
28 consists of a depression dominated by emergent and wet-prairie plant communities. Wetland 20 is
29 described as a *Riverine Intermittent Streambed Seasonally Flooded (R4SBC)* wetland on the NWI
30 Map; however, it should be classified as a *Palustrine Emergent Persistent Seasonally Flooded*
31 *(PEM1C)* wetland, applying the Cowardin Classification of Wetlands and Deepwater Habitats. (Pika-
32 Insight MO003 2021)

33 Wetland 20 likely obtains its hydrology via an *R4SBC* feature that cuts through the west and south
34 portions of the site and through overland flows. No culverts were identified within Wetland 20.

1 Wetland 20 may be considered federally jurisdictional, as it may hydrologically connect through
2 overland flows to the on-site intermittent stream. This stream may connect to East Creek located off-
3 site to the southeast, which eventually connects to the South Grand River. (Pika-Insight MO003 2021)

4 The buffer surrounding Wetland 20 consists of upland prairie, scrub-shrub, and forested plant
5 communities. These buffers provide beneficial functions to the wetland, such as pollutant
6 assimilation, groundwater infiltration, soil stabilization, and wildlife habitat. The dominant species of
7 the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Big Bluestem Grass	<i>Andropogon gerardii</i>
Honeysuckle	<i>Lonicera spp.</i>
Black Cherry	<i>Prunus serotina</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>

8 Two sample points were established within and adjacent to Wetland 20 to characterize the vegetation,
9 soils, and hydrology. Wetland 20 was primarily vegetated by:

Common Name	Scientific Name
Common Fox Sedge	<i>Carex vulpinoidea</i>
Kentucky Bluegrass	<i>Poa pratensis</i>
Prairie Cordgrass	<i>Spartina pectinata</i>

10 The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil.
11 USDA NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Surface soil
12 cracks, geomorphic position, and a positive FAC-neutral test provided evidence of persistent
13 hydrology. (Pika-Insight MO003 2021)

14 Vegetative analysis indicates this is a moderate quality plant community. (Pika-Insight MO003 2021)

15 **Wetland 21.** This wetland (0.06 acres) is located within the northwestern portion of the site, adjacent
16 to the entrance driveway. Wetland 21 consists of a depressional ditch/swale that runs parallel to the
17 entrance driveway. A wet-prairie plant community dominates wetland 21. Wetland 21 is described
18 as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland, applying the Cowardin
19 Classification of Wetlands and Deepwater Habitats. (Pika-Insight MO003 2021)

20 Wetland 21 obtains its hydrology from overland flows. No culverts were identified within Wetland 21.
21 Wetland 21 appears to be an isolated, non-federally jurisdictional wetland as no direct overland
22 connections or significant nexus to navigable waterways were observed during the field survey. (Pika-
23 Insight MO003 2021)

24 The buffer surrounding Wetland 21 consists of an upland prairie plant community and impervious
25 gravel roadway. This buffer provides beneficial functions to the wetland, such as pollutant
26 assimilation, groundwater infiltration, soil stabilization, and wildlife habitat. The dominant species of
27 the buffer include:

Common Name	Scientific Name
Switch Grass	<i>Panicum virgatum</i>
Narrow-Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>

Common Name	Scientific Name
Big Bluestem Grass	<i>Andropogon gerardii</i>

1 Two sample points were established within and adjacent to Wetland 21 to characterize the vegetation,
2 soils, and hydrology. Wetland 21 was primarily vegetated by:

Common Name	Scientific Name
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Red Bulrush	<i>Scirpus pendulus</i>
Dudley's Rush	<i>Juncus dudleyi</i>
Spreading Oval Sedge	<i>Carex normalis</i>

3 The mapped soil series is Arisburg silt loam, 1 to 5 percent slopes (10000), a non-hydric soil. USDA
4 NRCS field indicator F6: Redox Dark Surface provided evidence of hydric soil. Drainage patterns,
5 geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology.
6 (Pika-Insight MO003 2021)

7 Vegetative analysis indicates this is a high-quality plant community. Wetland 21 contained numerous
8 conservative plant species that indicate a healthy and diverse plant community. (Pika-Insight MO003
9 2021)

10 The NWI Map identifies two *Riverine Unknown Perennial Unconsolidated Bottom Permanently*
11 *Flooded (R5UBH)* wetlands, six *Palustrine Unconsolidated Bottom Exposed Diked/Impounded*
12 *(PUBGh)* wetlands, and four *Riverine Intermittent Streambed Seasonally Flooded (R4SBC)* wetlands
13 within 1,000 feet of the site. (Pika-Insight MO003 2021)

14 **Floodplains**

15 FEMA GIS data were not available for this site. However, per FEMA's Map Service Center, there are
16 no floodplains on or within 1,000 ft of the site.

17 **4.15.4 Cultural Resources**

18 A Phase 1 cultural resources survey was completed for this facility in 2005, finding no archaeological
19 sites and providing minimal documentation of three concrete and earthen structures and a concrete
20 foundation (ca. 1955-1970).

21 An architectural evaluation of the concrete founds, and earthen structures was completed for this
22 facility in 2019 and none of the resources were recommended eligible for the NRHP. On 28 January
23 2020, the MO SHPO concurred that the structures are not eligible for listing in the NRHP.

24 Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review
25 of this 2019-2024 ICRMP Update.

26 The ICRMP for sites located in Missouri will be furnished upon request.

27 **4.15.5 Biological Resources**

28 **Land Cover and Ecological Communities**

29 The site is comprised of six major land cover types.

30

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Wetland	1.87	1
Prairie	111.7	60

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Scrub-Shrub	36.4	20
Impervious Surface*	13.7	7.5
Deciduous Forest	19.7	11
Constructed Stormwater Basin	0.72	0.5
Total	184.09	100

*Includes parking lots and building footprints.

Vegetation Communities

The site contains the following ecological communities on the site: wetland, upland prairie, scrub-shrub, deciduous forest, and constructed stormwater basin. A floristic quality inventory has been completed for each ecological community on the site (except the scrub-shrub zone) and this information is included in Attachment 4. An inventory for the Scrub-Shrub plant community was not completed as the vegetation is very consistent with the deciduous forest community species that are present. The Scrub-Shrub area only lacks the dominance of mature deciduous trees. (Pika-Insight MO003 2021)

The Prairie was primarily vegetated by:

Common Name	Scientific Name
Big Bluestem	<i>Andropogon gerardii</i>
Switch Grass	<i>Panicum virgatum</i>
Common Red Raspberry	<i>Rubus idaeus ssp. strigosus</i>
Narrow-Leaved Mountain-Mint	<i>Pycnanthemum tenuifolium</i>

The Wetlands were primarily vegetated by:

Common Name	Scientific Name
Red Bulrush	<i>Scirpus pendulus</i>
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Dudley's Rush	<i>Juncus dudleyi</i>
Narrow-Leaved Mountain-Mint	<i>Pycnanthemum tenuifolium</i>
Prairie Cordgrass	<i>Spartina pectinata</i>
Eastern Poison Ivy	<i>Toxicodendron radicans</i>
Rice Cut Grass	<i>Leersia oryzoides</i>
Fowl Manna Grass	<i>Glyceria striata</i>
Bristly Sedge	<i>Carex comosa</i>
Torrey's Rush	<i>Juncus torreyi</i>
Brown Fox Sedge	<i>Carex vulpinoidea</i>

The Deciduous Forest was primarily vegetated by:

Common Name	Scientific Name
Black Cherry	<i>Prunus serotina</i>
Osage Orange	<i>Maclura pomifera</i>
Eastern Cottonwood	<i>Populus deltoides</i>
Tartarian Honeysuckle	<i>Lonicera tatarica</i>
Amur Honeysuckle	<i>Lonicera maackii</i>

The Scrub-Shrub area was primarily vegetated by:

Common Name	Scientific Name
Black Cherry	<i>Prunus serotina</i>
Tartarian Honeysuckle	<i>Lonicera tatarica</i>
Amur Honeysuckle	<i>Lonicera maackii</i>
Autumn Olive	<i>Elaeagnus umbellata</i>
Eastern Red Cedar	<i>Juniperus virginiana</i>
Grey Dogwood	<i>Cornus racemosa</i>

Constructed Features

The site contains one, 0.72 acre Constructed Stormwater Basin, which is described under the Investigated Areas section below. (Pika-Insight MO003 2021)

The Constructed Stormwater Basin was primarily vegetated by:

Common Name	Scientific Name
Dark Green Bulrush	<i>Scirpus atrovirens</i>
Red Bulrush	<i>Scirpus pendulus</i>
Common Fox Sedge	<i>Carex vulpinoidea</i>
Dudley's Rush	<i>Juncus dudleyi</i>

Maintained Turf Grasses

The site does not contain any maintained turf grass areas. (Pika-Insight MO003 2021)

Wildlife

The areas on the site containing habitat for the following listed species include the wetlands, upland prairie, deciduous forest, scrub-shrub areas, and constructed stormwater basin. (Pika-Insight MO003 2021)

During the field investigation, the following wildlife species were encountered on the site:

Birds:

Common Name	Scientific Name
Great Blue Heron	<i>Ardea herodias</i>
Sparrows	Family <i>Passeridae</i> , genus or species unidentified
Wild Turkey	<i>Meleagris gallopavo</i>
Barn Swallow	<i>Hirundo rustica</i>
Northern Cardinal	<i>Cardinalis</i>
Owl	Order <i>Strigiformes</i> , genus or species unidentified
Red-Tailed Hawk	<i>Buteo Jamaicensis</i>
Grey Catbird	<i>Dumetella carolinensis</i>

Mammals:

Common Name	Scientific Name
White-Tailed Deer	<i>Odocoileus virginianus</i>

Reptiles:

Common Name	Scientific Name
Spotted Leopard Frog	<i>Lithobates pipiens</i>
Ornate Box Turtle	<i>Terrapene ornate ornata</i>

Insects:

Common Name	Scientific Name
Dragonflies	Family <i>Anisoptera</i> , genus or species unidentified
Bees	Genus <i>Bombus</i> , species unidentified
Butterflies	Order <i>Lepidoptera</i> , genus or species unidentified
Moths	Order <i>Lepidoptera</i> , genus or species unidentified
Cicada	Family <i>Cicadidae</i> , genus or species unidentified
Grasshopper	Suborder <i>Caelifera</i> , genus or species unidentified
Praying Mantis	Family <i>Mantidae</i> , genus or species unidentified

1

Crustaceans:

Common Name	Scientific Name
Crayfish	Order <i>Decapoda</i> , genus or species unidentified

2

Migratory Bird Survey: In FY19 a migratory bird survey was funded for Belton and other sites.

3

The Belton LTA is located in a rural area in Cass County, approximately 3.2 miles southwest of Belton, MO, and about 22 miles south of Kansas City. No other facilities are located on the LTA. The surrounding area is defined by medium and low-density residential development and agricultural land. The Belton LTA is approximately 178 acres in size and contains a mixture of open grassland and open and closed canopy deciduous forest. A total of 17 census locations were located within the Belton LTA. (STELL/HWA, 2021)

4

5

A total of 39 species were detected within the Belton LTA, including 34 species recorded during the point count surveys and five species recorded as flyovers or incidental observations. Of non-native species, only the European Starling was detected within the Belton LTA, which was recorded as a flyover/incidental. Only the 34 species detected during the 5-minute point count survey period and within the 100-meter radius were used in the analyses. (STELL/HWA, 2021)

6

7

8

9

A total of 29 species were detected during the first round of surveys in May, and 26 species were detected during the second round of surveys in June. Eight species were detected only during the first survey, and five species were detected only during the second survey. (STELL/HWA, 2021)

10

11

12

13

14

Given the Belton LTA is a relatively small area with limited habitat diversity, and no species of conservation concern were detected, no habitat management actions are recommended other than preserving the diversity of habitat currently on the site and maintaining and/or restoring the native plant species if possible. The highest diversity of species was found in the more forested portions of the LTA, especially the closed canopy stands in the northwestern portion and the more open canopy forest in the northeastern portion. Hence, if the goal was to maintain or improve the diversity found on the site, maintaining or expanding those habitats would likely achieve that goal. (STELL/HWA, 2021)

15

16

17

No species federally- or state-listed as threatened or endangered, species designated as Bird of Conservation Concern (BCC), or species designated as Missouri Species of Conservation Concern were detected within the Belton LTA. (STELL/HWA, 2021)

18

19

20

Listed Species

21

No federally listed species were observed on the site during the June 2022 field survey. (Pika-Insight MO003 2021)

22

23

Based on a June 23, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or endangered) plant or animal species habitat are located on or adjacent to the site. (Pika-Insight MO003 2021)

24

1 According to the IPaC, 4 species are listed and may be present in Cass County:

Common Name	Scientific Name
Indiana Bat	<i>Myotis sodalis</i>
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>
Gray Bat	<i>Myotis grisescens</i>
Mead's Milkweed	<i>Asclepias meadii</i>

2 **Bats** - The site contains approximately 19.7 acres of suitable day roosting habitat for the 3 listed bat
3 species. Due to the presence of large mature woodland trees, containing Black Cherry (*Prunus*
4 *serotina*), Eastern Cottonwood (*Populus deltoides*), and Osage Orange (*Maclura pomifera*) species,
5 there is a possibility for potential summer roosting habitat for the Northern Long-Eared Bat, Indiana
6 Bat, and Gray Bat. These species require roosting habitat of exfoliating bark of mature trees, as well
7 as standing dead snags. Further consultation and coordination with the USFWS may be required if
8 tree removal is planned for the site. However, typically if tree removal is conducted during the winter
9 months (October 31-April 1), further coordination is not necessary. (Pika-Insight MO003 2021)

10 **Mead's milkweed** (*Asclepias meadii*) - The site contains approximately 111.7 acres of suitable
11 habitat for the Mead's Milkweed species. Mead's Milkweed primarily occurs in mesic to dry-mesic
12 areas and its habitat is characterized by drought and fire-adapted vegetation. Due to the presence
13 of upland mesic prairie on the site, there is a possibility for habitat for Mead's Milkweed. Further
14 consultation and coordination with the USFWS may be required if prairie habitat is planned for
15 removal or impacts. (Pika-Insight MO003 2021)

16 On May 31, 2013, a field survey was conducted at Belton TA for Mead's milkweed. No Mead's
17 milkweed was found at this facility. Areas within Belton TA that were identified as suitable to support
18 Mead's milkweed, based on the USFWS species description included upland prairie and savanna like
19 areas with an open canopy and an understory dominated by tall grasses (USFWS, 2013b). All suitable
20 habitats were surveyed. (CH2MHill, 2014)

21 No vegetative or flowering specimens of Mead's milkweed were observed on Belton TA. Two
22 milkweed species (antelope horn milkweed [*Asclepias viridis*] and common milkweed [*Asclepias*
23 *syriaca*]) that occur in similar habitat as the target species were identified in moderate abundance on
24 Belton TA. These two species were discerned from the target species by differences in vegetative
25 morphology and floral characteristics. (CH2MHill, 2014)

26 Areas of poorly suited habitat not surveyed for Mead's milkweed included forested areas, areas
27 dominated by dense scrub shrub vegetation, the small network of gravel roads, and developed
28 facilities and utilities. (CH2MHill, 2014)

29 **Monarch Butterfly** (*Danaus plexippus*) has been formally designated as a USFWS Candidate
30 species. It is understood that the International Union for Conservation of Nature (IUCN) has changed
31 the formal status of the Monarch Butterfly to Endangered worldwide; however, the USFWS has not
32 changed the formal status of this species as of the date of this report. (Pika-Insight MO003 2021)

33 The wetlands, upland prairie, and constructed stormwater basin contain flowering forbs, and therefore
34 may support limited habitat for the Monarch Butterfly. Further guidance for this species is not required,
35 since it is a USFWS Candidate species and not yet fully listed as threatened or endangered. The
36 Monarch Butterfly was found to warrant listing and protection under the Endangered Species Act
37 (ESA), but resources must go to higher priority species at this time. Candidate species have no legal
38 protection under the ESA, but agencies can still provide recommendations for them. The USFWS
39 broadly urges the public to provide habitat for this imperiled species by planting native milkweed and
40 nectar plants. The Monarch Butterfly should be considered in any landscaping plans. (Pika-Insight
41 MO003 2021)

1
2 **State Listed Species**

3 The Missouri Department of Conservation (MDC) lists 50 State species that may be present in Cass
4 County. Out of these 50 species, the site contains potential habitat for the following 5 listed species:

Common Name	Scientific Name
Gray Bat	<i>Myotis grisescens</i>
Indiana Bat	<i>Myotis sodalis</i>
Northern long-eared bat	<i>Myotis septentrionalis</i>
Northern Harrier	<i>Circus hudsonius</i>
Prairie Massasauga	<i>Sistrurus tergeminus</i>
Mead's Milkweed	<i>Asclepias meadii</i>

5 Mammals: The site contains approximately 19.7 acres of suitable day/summer roosting
6 habitat for the 2 listed bat species. Due to the presence of large mature woodland trees,
7 containing Black Cherry (*Prunus serotina*), Eastern Cottonwood (*Populus deltoides*), and
8 Osage Orange (*Maclura pomifera*) species, there is a possibility for potential summer roosting
9 habitat for the Indiana Bat, Gray Bat and Northern long-eared bat. These species require
10 roosting habitat in the exfoliating bark of mature trees, as well as standing dead snags. (Pika-
11 Insight MO003 2021)

12 Birds: The site contains approximately 111.7 acres of suitable habitat for the Northern Harrier
13 species. The Northern Harrier breeds in wide-open habitats, ranging from the Arctic tundra to
14 prairie grasslands to fields and/or marshes. Their nests are concealed on the ground in
15 grasses or wetland vegetation. (Pika-Insight MO003 2021)

16 Reptiles: The site contains approximately 1.872 acres of suitable habitat for the Prairie
17 Massasauga species. This species is mainly found in bottomland or wet prairie areas
18 dominated by Cordgrasses, Sedges, Bulrushes, and Smartweeds, and lowlands by rivers,
19 lakes, and marshes. They prefer places where there are numerous crayfish burrows providing
20 shelter from predators and weather conditions. (Pika-Insight MO003 2021)

21 Vegetation: The site contains approximately 111.7 acres of suitable habitat for the Mead's
22 Milkweed species. Mead's Milkweed primarily occurs in mesic to dry-mesic areas and its
23 habitat is characterized by drought and fire-adapted vegetation. Due to the presence of
24 upland mesic prairie on the site, there is a possibility for habitat for Mead's Milkweed. (Pika-
25 Insight MO003 2021)

26 Based on the field investigation, the site does not contain any suitable habitat for the remaining
27 state-listed species noted in Attachment 6 of the 2021 *FINAL NATURAL RESOURCES*
28 *SURVEY REPORT 88TH READINESS DIVISION FACILITIES BELTON LTA (MO003 /*
29 *29880)* dated February 2023. (Pika-Insight MO003 2021)

30 If site development or impacts are proposed in the future, further consultation with the MDC
31 may be necessary.

32 Winter habitat for the Indiana bat and northern long-eared bat includes caves and abandoned
33 mines. Summer roost habitat includes sites typically located behind loose bark of dead or
34 dying trees or in tree cavities, while summer foraging habitats includes riparian areas, upland
35 forests, ponds, and fields. Potentially suitable summer roosting and foraging habitat for these
36 species does not exist at MO003/29880. It is possible though unlikely that these species
37 would fly over the site as part of nightly movements. (Pika-Insight MO003 2021)

Breeding, nesting, and hunting habitat for the state-endangered northern harrier includes marshes, meadows, prairies, grasslands, and agricultural fields. During the field survey, this species was identified hunting in the northcentral portion of the site (approximate latitude 38.7681, longitude -94.5605). Additional sightings of hunting northern harriers were documented outside of the property boundary, to the west of MO003/29880. Potentially suitable habitat exists throughout the prairie areas of MO003/29880. (Pika-Insight MO003 2021)

4.15.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

There does not appear to be any opportunities for outdoor recreation, public access, hunting, or agricultural out-leasing areas on this site. There are no personnel permanently located at the site to manage these activities, and the site is difficult to access. (Pika-Insight MO003 2021)

4.15.7 Management Concerns and Issues

Invasive Species - Several invasive species were identified on-site and are recommended for future maintenance. These include:

Common Name	Scientific Name	Approximate area	Density
Amur Honeysuckle	<i>Lonicera maackii</i>	36.4 acres	Medium
Tartarian Honeysuckle	<i>Lonicera tatarica</i>	36.4 acres	Medium
Chinese Bush Clover	<i>Lespedeza cuneata</i>	Located sporadically throughout the Prairie zone	Low
Oriental Bittersweet	<i>Celastrus orbiculatus</i>	Located sporadically throughout the Prairie zone	Low

It is recommended to treat the small patches of Chinese Bush Clover with a triclopyr-based aquatic approved herbicide. Treatments are recommended throughout the growing season.

It is recommended to cut the stems of the Honeysuckle species and Oriental Bittersweet to about 10 – 12 inches above ground level and haul away the cut materials, then treat the cut stumps within 4 hours of cutting with a triclopyr and glyphosate mixed aquatic-approved herbicide. Treatments are recommended for winter when other nearby herbaceous plants are dormant for the season.

4.15.8 Special Interest Areas

An additional vegetated area located within the site was examined to determine if it satisfied wetland criteria. The Investigated area is in the southwestern portion of the site.

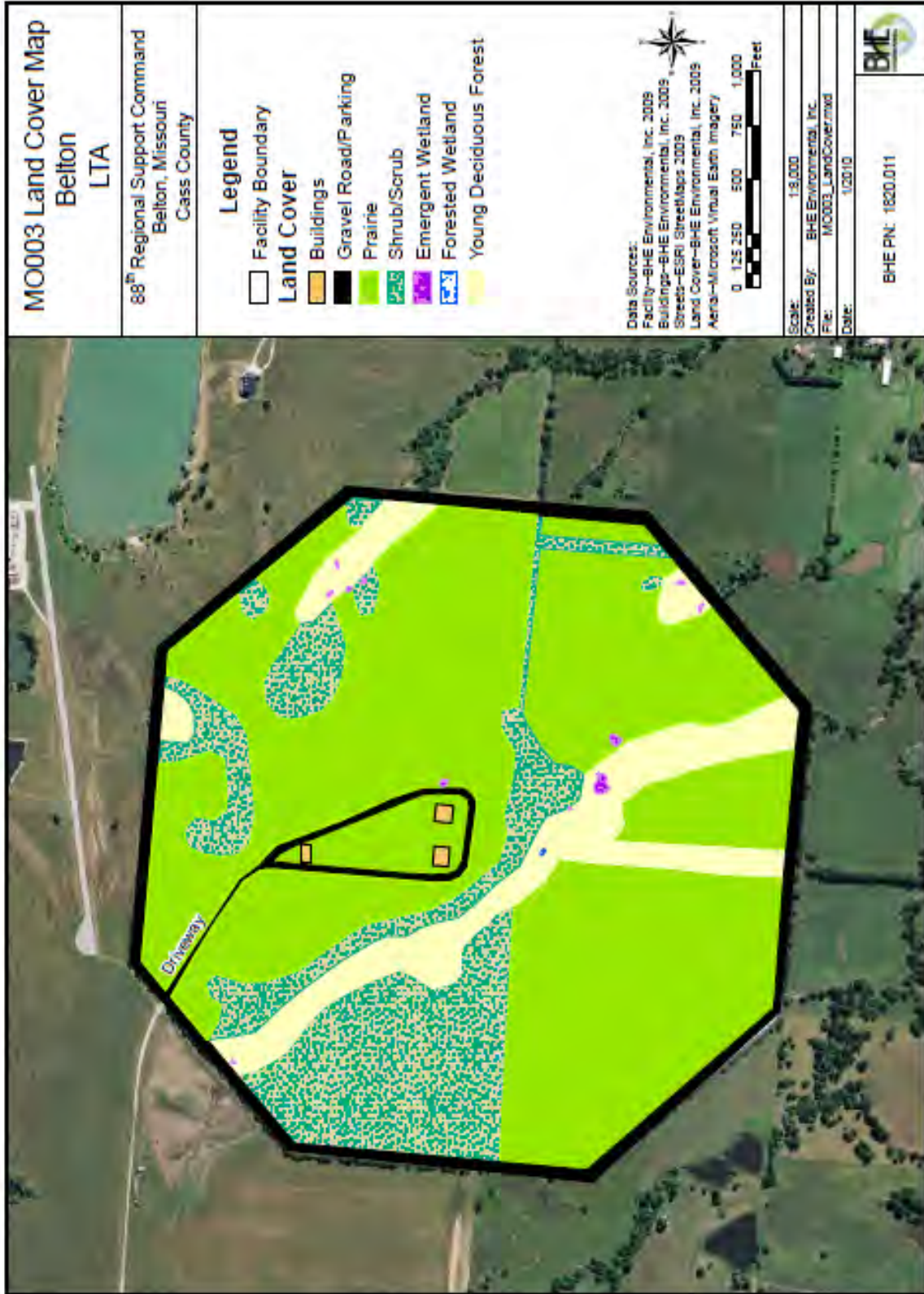
This area was investigated because it consisted of a constructed stormwater basin with a mixture of upland and hydrophytic vegetation. (Pika-Insight MO003 2021)

Investigated Area 4 was primarily vegetated by:

Common Name	Scientific Name
Red Bulrush	<i>Scirpus pendulus</i>
Dudley’s Rush	<i>Juncus dudleyi</i>

A full species inventory for the basin is in Attachment 4 found in the full report. The mapped soil series is Greenton silty clay loam, 5 to 9 percent slopes (30080), a non-hydric soil. The field investigated soils did not exhibit hydric characteristics and rocky fill material was identified at 12” below the soil surface. The soils appeared historically disturbed and filled from past activities. Surface soil cracks, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight MO003 2021)

1 Based on the presence of non-hydric soil, Investigated Area 4 does not qualify as a wetland. This
2 area should be considered exempt from regulations as it is a constructed feature for stormwater
3 management purposes. (Pika-Insight MO003 2021)



1
2
3

Figure 4.15 - Site Map – MO003/29880

1
2

Intentionally Blank

1 **4.16 Weldon Springs**
2 **ARC/LTA**
3 **(MO041/29985)**

4 191 Soldiers Drive
5 Saint Charles, MO 63304-2202

6 **High Resource**

7 **County:** St. Charles

8 **Acres:** 1,741

9 **Building Count:** 18

10 **Last Field Survey:** 2021



11
12
13
14 The Weldon Springs ARC/LTA consists of one ARC, an OMS, an administrative building, maintenance shop,
15 two pavilions, a small and large warehouse, classroom building, small arms range, confidence course,
16 mounted and dismounted land navigation course, 9 additional buildings, an LTA, and associated parking
17 areas. The site is used for administrative services, classroom training, outdoor training, light vehicle
18 maintenance, and storage. The 88th RD owns the land and buildings that comprise MO041/29985.

19 **4.16.1 Geographic Location and Size**

20 MO041/29985 is located near the city of St. Charles in St. Charles County. This site is in the Northeast
21 region of the state. Acreage for the site as reported in the Real Property Detail Report is 1,741 ac.
22 Surrounding land use includes undeveloped agricultural land to the north, undeveloped forested land to the
23 south, undeveloped forest and a public shooting range to the west. A prairie restoration area and interpretive
24 center installed by the United States Department of Energy to the east. Land to the north, west, and south
25 of the facility is public property owned by Missouri Department of Conservation, while the United States
26 Department of Energy owns property to the east. (ENSAFE MO041 2021) The site boundary is shown on
27 Figure 3.16.

28 **4.16.2 Geological Resources**

29 **Physiography and Geology**

30 Weldon Spring Training Area (WSTA) is located within the River Hills ecoregion, a part of the Interior
31 River Valleys and Hills (United States Environmental Protection Agency 2020). This area is
32 characterized by smooth to moderately dissected, forested river side-slopes and bluffs, some loess-
33 covered hills, and areas with karst features. Land cover in this region generally consists of row crops,
34 improved pasture, woodland, and oak and mesic mixed hardwood forests. MO041 is located within
35 the Springfield-Salem Plateaus section of the Ozark Plateaus physiographic division. The local
36 geology consists of Early Mississippian-Kinderhookian Series formation. (ENSAFE MO041 2021)

37 **Soils**

38 The United States (U.S.) Department of Agriculture Natural Resources Conservation Services web
39 soil survey reports, soils at the site include mapped soils within the facility boundaries belong to the
40 following soil map units: 36% Armster silt loam, 2 to 7% slopes; 2% Crider silt loam, 9 to 14%
41 slopes, eroded; 2% Dockery silt loam, 1 to 3% slopes, frequently flooded; 3% Goss silt loam, 5 to
42 14% slopes; 11% Goss very gravelly silt loam, 14 to 45% slopes; 5% Harvester-Urban land
43 complex, 2 to 9% slopes; 28% Mexico silt loam, 1 to 4% slopes, eroded; 0.3% Sensabaugh silt

1 loam, 1 to 3% slopes, frequently flooded; 4% Weller silt loam, 2 to 5% slopes; and 9% Weller silt
2 loam, 5 to 9% slopes. Dockery silt loam, 0 to 2% slopes, occasionally flooded, and Mexico silt
3 loam, 1 to 4% slopes, eroded are considered hydric within Saint Charles County. (ENSAFE MO041
4 2021)

5 **Topography**

6 The site has a rolling topography, ranging from 589 to 725 ft amsl. (ENSAFE MO041 2021)

7 **4.16.3 Water Resources**

8 **Watershed and Surface Waters**

9 The facility spans two watersheds: Peruque-Piasa (Hydrologic Unit Code 07110009) in the northern
10 portion of the site and Lower Missouri (Hydrologic Unit Code 10300200) in the southern portion of the
11 Site. Numerous wetlands have been documented at the site. (ENSAFE MO041 2021)

12 MO041 consists mostly of rolling deciduous forested land interspersed by service roads. The U.S.
13 Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data reports several potential
14 riverine (R4SBC) features in the northeast portion of the facility that flow offsite in a northeasterly
15 direction and a reach of a riverine (R4SBC) feature in the south that drains in an easterly direction
16 and eventually towards the south. There are several freshwater ponds (PUBGh) in the northern and
17 eastern portions of the site covering a total area of 5.44 acres that are shown on the NWI within facility
18 boundaries. NWI data also shows one linear wetland near the northwestern boundary of the Site.
19 NWI data did not document any additional wetlands on or near the facility. (ENSAFE MO041 2021)

20 Located throughout MO041 are numerous ephemeral watercourses and other upland drainage
21 conveyances, many of which were vegetated. (ENSAFE MO041 2021)

22 During the BHE 2015 field survey, an approximate 2.4-acre open water pond in the eastern portion
23 of the facility that originally served as a wastewater collection lagoon for TNT production lines during
24 World War II was identified. This pond is contained by berms on the north, east, and west sides, and
25 drained by an excavated bank on the south side; it appears to be fed by surface water runoff and
26 precipitation. (ENSAFE MO041 2021)

27 Historic massive road infrastructure activity while WSTA functioned as a munitions manufacturing
28 facility, dissected and diverted many previously documented streams through culverts. In June 2020,
29 Advanced Environmental Management (AEM) Group digitized 26 individual streams on the Weldon
30 Spring LTA. (ENSAFE MO041 2021)

31 A small, slow-flowing unnamed tributary of Schote Creek flows southeast to northwest through the
32 site, immediately adjacent to Wetland 10, Stream substrate is primarily cobble/gravel (approximately
33 70 percent), with the remaining substrate is a silt/mud mix. The average channel width is
34 approximately 3 feet, ranging from approximately 1 to approximately 6 feet. At the time of the 2018
35 survey, water depth averaged 8 inches, ranging from about 1 to 20 inches. Stream banks were
36 sparsely vegetated, and included sections of scrub-shrub, or small trees. An in-stream sample was
37 collected to provide representative benthic invertebrate data for the stream. The presence of
38 stoneflies and the absence of low-quality stream indicators within this sample indicated that this
39 stream is, at a minimum, of medium quality for aquatic life.

40 Deer tracks were observed on the stream banks, indicating that this creek is a water source for wildlife
41 utilizing the site. This unnamed tributary of Schote Creek has not been given a "use" designation by
42 MDNR, nor is it listed on the MDNR CWA Section 303(d) 2008 prioritization list of WQLWs.

43 Several streams, including Schote Creek and its unnamed tributaries to the north, and unnamed
44 tributaries to Little Femme Osage Creek to the south, appear to be located within 1,000 ft of the site.

1 Additionally, unnamed tributaries to Dardenne Creek are located northwest of MO041/29985. Site
 2 MO041/29985 occurs within the Peruque-Piasa watershed. (AEM 2015)

3 **Floodplains**

4 According to the FEMA GIS data, portions of this site are located within the 500-year floodplain of
 5 tributaries of Little Femme Osage Creek and Schote Creek. (ENSAFE MO041 2021)

6 **Wetlands**

7 The wetland field survey took place during June 8 – June 10, 2020, field scientists delineated fifty-
 8 two (52) wetlands, in the 2018 WETLNDSRVYUP twenty-six (26) wetlands were identified. The
 9 difference in wetland abundance may be attributed to the field conditions at the time of the respective
 10 field studies. Previously unidentified wetlands may simply not have exhibited visual wetland
 11 characteristics criteria component that would initiate investigation into whether or not there exists a
 12 wetland, and the area could have been overlooked. For example, if there are no overt signs of an
 13 area meeting the hydrological criteria component the area could have been assumed to be upland.
 14 All delineations were carried out per the USACE Regulatory 1987 Manual and the Midwest Regional
 15 Supplement. Wetland surveys were conducted using sub-meter accuracy GPS devices. (AEM
 16 2020b)

17 Provided in the table below is a summary of the delineated wetlands and an estimate as to whether
 18 they may be considered federally jurisdictional in accordance with the EPA guidance in affect at the
 19 time of the delineation. The USACE, St. Louis District, Regulatory Division determines if the wetlands
 20 assessed may be considered jurisdictional waters of the United States.

21 A total of 8.03 acres of wetland have been delineated within the property boundaries. Most of these
 22 wetlands, individually are under an acre, however; they are in abundance.

Weldon Spring (MO041) Wetlands				
Wetland ID	Potentially Jurisdictional (Y or N)	Cowardin Classification	Acres	Description
Wetland 1	Y	Palustrine, emergent, persistent, seasonally flooded (PEM1C)	0.98	Depressional area in the southwestern portion of the property. This wetland drains into Stream 1 (S01). Wetland 1 was identified as a portion of Wetland 1 (W01) in the 2018 wetland survey.
Wetland 2	Y	Palustrine, emergent, persistent, seasonally flooded (PEM1C)	0.039	Depressional wetland in the southwestern portion of the property. This wetland drains into Stream 1 (S01). Wetland 2 was previously delineated as part of Wetland 1 in 2018.
Wetland 3	Y	Palustrine emergent, persistent, seasonally flooded (PEM1C) wetland	0.02	Wetland 3 is located west of Wetland 2 on the north side of the two-track. This wetland was not previously identified.
Wetland 4	Y	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.445	Wetland 4 is contained within a depression near Stream 9 (S09). In the 2018 delineation, this wetland was identified as Wetland 03 (W03).
Wetland 5	Y	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.181	Wetland 5 is located at the base of a hill located in one of the cleared areas on site and is drained by Stream 11 (S11). The ditch is west of the training building. Wetland 5 was identified as Wetland 4 (W04) in the 2018 wetland survey.

Weldon Spring (MO041) Wetlands				
Wetland ID	Potentially Jurisdictional (Y or N)	Cowardin Classification	Acres	Description
Wetland 6	Y	Palustrine emergent, persistent, intermittently flooded (PEM1J)	0.039	The wetland is within a clearing in the northwest section of the property and is drained by Stream 14 (S14). In the 2018 delineation This wetland was identified as Wetland 5 (W05)
Wetland 7	Y	Palustrine emergent, persistent, intermittently flooded (PEM1J)	0.016	Wetland 7 is located between Wetland 6 (W06) and Wetland 8 (W08). The wetland is drained by Stream 14 (S14) and is contained within a depression along the field edge that contains Wetland 8 (W08). This wetland was previously not identified.
Wetland 8	Y	Palustrine emergent, persistent, seasonally saturated (PEM1E)	1.06	Wetland 8 is sprawled out in an open grass field and extending to the southeast to border the ponded area. The grass field is located along the two-track that parallels the northern boundary of the property and is drained by Stream 15 (S15) . This wetland was previously identified as W06/W07.
Wetland 9	Y	Palustrine emergent, persistent, seasonally flooded (PEM1C)	0.122	Wetland 9 is a depressional area in a broader grassy field that eventually feeds into a small area of standing water before draining into Stream 84 (S84). This wetland as previously delineated as Wetland 8 (W08).
Wetland 10	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.035	Wetland 10 is isolated and is sloped towards Stream 16 (S16) and is in the same linear grassy field as Wetland 9 (W09). This wetland was previously identified as Wetland 9 (W09).
Wetland 11	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.010	Wetland 11 is sloped towards Stream 16 (S16) and is located just north of Wetland 10 (W10) an This wetland was previously not identified is similar in hydrology and soils.
Wetland 12	Y	Palustrine emergent, persistent, intermittently exposed (PEM1G)	0.232	Wetland 12 is contained in the basin of an offsite pond along the northern boundary of the property. The two-track embankment limits the southern edge of the wetland. This wetland was previously identified as Wetland 19 (W19)
Wetland 13	Y	Palustrine emergent, persistent, intermittently flooded (PEM1J)	0.094	Wetland 13 drains into Stream 84 (S84). This wetland was previously identified as Wetland 23 (W23)
Wetland 14	N	Palustrine emergent, persistent, temporarily flooded (PEM1A)	0.313	Wetland 14 is in a maintained grass area, where topography allows water collection in the wetland and then to drain out of Stream 89 (S89). This wetland was previously not identified.
Wetland 15	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.030	Wetland 15 is isolated and is located adjacent to Wetland 16 (W16) lacking a significant connection and just north of Wetland 14 (W14). Wetland 15 is located in the grassy clearing. This wetland was previously not identified.

Weldon Spring (MO041) Wetlands				
Wetland ID	Potentially Jurisdictional (Y or N)	Cowardin Classification	Acres	Description
Wetland 16	Y	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.011	Wetland 16 is located adjacent to Wetland 15 (W15) lacking a significant connection and just north of Wetland 14 (W14). Wetland 16 (W16) is located along the berm that retains the adjacent pond. This wetland was previously not identified.
Wetland 17	Y	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.139	Wetland 17 is connected to Stream 17 (S17) as it flows from the maintained grassy clearing. This wetland was previously identified as Wetland 11 (W11).
Wetland 18	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.042	Wetland 18 is isolated and is located near Wetland 17 (W17) along the same grassy clearing. This wetland was not previously individually identified.
Wetland 19	Y	Palustrine emergent, persistent, intermittently flooded (PEM1J)	1.97	This is a depressional wetland near the buildings into which the storm water drains. Stream 37 (S37) serves as the water outfall after leaving the wetland. This wetland was previously identified as Wetland 13 (W13).
Wetland 20	Y	Palustrine emergent, persistent, intermittently flooded (PEM1J)	0.323	This wetland is fed from storm water runoff from the nearby buildings and drains into Stream 38 (S38). Wetland 20 was previously delineated as Wetland 14 (W14).
Wetland 21	N	Palustrine forested, deciduous, seasonally saturated (PFO6E)	0.163	Located in the southern portion of TA 2, west of Baseline Road. Western part of the wetland in a wooded area. Hydrologically connected to Wetland 20. This wetland was previously identified as W15.
Wetland 22	N	Palustrine emergent forested, persistent, and intermittently flooded (PEM1J and PFO1J)	0.073	Wetland 22 is located behind the supply storage building as the trail enters the road. The wetland is connected to Stream 54 (S54). This wetland was previously not identified.
Wetland 23	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.189	Wetland 23 was previously delineated this wetland as Wetland 18 (W18) and is intersected by Stream 108 (S108). This wetland was previously not identified.
Wetland 24	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.062	Wetland 24 is isolated and is located in a slight depressional area. This wetland was previously not identified.
Wetland 25	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.006	Wetland 25 is isolated and is located in a slight depression that runs along the edge of the road and appears to be fed by runoff from the compacted road. This wetland was previously not identified.
Wetland 26	N	Palustrine emergent, persistent, intermittently flooded (PEM1J)	0.069	Wetland 26 is isolated and appears to be the result of rutting out along the road and compaction of the soil due to traffic. During the site visit standing water was present in the road. This wetland was previously not identified.

Weldon Spring (MO041) Wetlands				
Wetland ID	Potentially Jurisdictional (Y or N)	Cowardin Classification	Acres	Description
Wetland 27	N	Palustrine emergent, persistent, intermittently flooded (PEM1J)	0.006	The wetland is isolated and located in a depressional area along the road edge. This wetland was previously not identified.
Wetland 28	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.027	The wetland is isolated and located in a depressional area along the road edge. This wetland was previously not identified.
Wetland 29	Y	Palustrine unconsolidated bottom, intermittently exposed, and diked/impounded (PUBGh)	0.451	The ponded area has continued to fill in around the edges of the wetland and wetland vegetation has begun encroaching the pond. The erosion observed along the road adjacent to the pond due to flooding is consistent with previous report observations. Wetland 29 was identified as Wetland 16 in the previous wetland survey conducted in 2018.
Wetland 30	Y	Palustrine , emergent, persistent, seasonally saturated, and palustrine, forested, deciduous, seasonally saturated (PEM1E and PFO6E)	0.013	Stream 73 (S73) intersects the wetland and is likely the main hydrologic source. Wetland 30 was identified as Wetland 22 in the previous wetland survey conducted in 2018.
Wetland 31	Y	Palustrine deciduous, seasonally saturated, intermittently flooded (PFO6EJ)	0.047	The wetland drains into Stream 1 (S01) and is located near the southwest corner of the property just north of the service road. This wetland was previously identified as Wetland 2 (W02).
Wetland 32	N	Palustrine emergent, persistent, intermittently flooded (PEM1J)	0.020	Wetland 32 (W32) is isolated and is located just north of the service road on the southern edge of the property. The wetland is a linear depression along the edge of the road. This wetland was not previously identified.
Wetland 33	N	Palustrine emergent, persistent, seasonally flooded (PEM1C)	0.078	Wetland 33 Small wetland southwest of Wetland 32 that is partly in an old building foundation to the south of the wetland. This wetland was previously identified as Wetland 21
Wetland 34	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.063	Wetland 34 is isolated. This wetland was previously not identified.
Wetland 35	Y	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.597	Wetland 35 drains into Stream 59 (S59) that runs south of this wetland. This wetland was previously identified as Wetland 20 (W20).
Wetland 36	N	Palustrine emergent, persistent, seasonally saturated, (PEM1E)	0.119	Wetland 36 (W36) is an isolated wetland. This wetland was not previously identified.
Wetland 37	N	Palustrine unconsolidated bottom with mud, semi-permanently flooded and excavated (PUB3F) wetland and palustrine emergent, persistent, temporarily flooded (PEM1A)	0.015	Stream 85 (S85) drains Wetland 37 (W37) at a small, ponded area and extends into the grassy field adjacent to the ponded area. This wetland was identified as Wetland 24 in the previous wetland survey conducted in 2018.

Weldon Spring (MO041) Wetlands				
Wetland ID	Potentially Jurisdictional (Y or N)	Cowardin Classification	Acres	Description
Wetland 38	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.030	Wetland 38 is located in a grassy field in the northeast portion of the property. Stream 87 (S87) drains into Wetland 38 (W38). This wetland was not previously identified.
Wetland 39	N	Palustrine emergent, persistent, seasonally flooded (PEM1C)	0.142	Wetland 39 (W39) is isolated and is located on an interior road near the intersection with the northern border road; the wetland is contained in a depressional area in the road likely caused from traffic erosion. This wetland was not previously identified.
Wetland 40	N	Palustrine emergent, persistent, temporarily flooded (PEM1A)	0.030	Isolated wetland located in a depression maintained grassy area.
Wetland 41	Y	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.007	Wetland 41 (W41) is located near the eastern property boundary in a depressional area that is drained into by Stream 34 (S34). Wetland 41 was previously identified as Wetland 12 in the 2018 wetland survey.
Wetland 42	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.050	Wetland 42 (W42) is isolated and is located east of Wetland 1 (W01) along the north side of the service road. This wetland was not previously identified.
Wetland 43	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.027	Wetland 43 (W43) is isolated and is located east of Wetland 42 (W42) along the north side of the service road. This wetland was not previously identified.
Wetland 44	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.08	Wetland 44 (W44) is isolated. This wetland was not previously identified.
Wetland 45	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.046	Wetland 45 (W45) is isolated and is located along the road to the firing range near the intersection with Tank trail to the southwest of the intersection. This wetland was not previously identified.
Wetland 46	N	Palustrine emergent, persistent, intermittently flooded (PEM1J)	0.158	Wetland 46 (W46) is isolated and is located along the south side of Tank trail, near the center of the property. This wetland was not previously identified.
Wetland 47	N	Palustrine forested, broad-leaved deciduous, temporarily flooded (PFO1A)	0.042	Wetland 47 (W47) is isolated and is located near the ponded area that is also accompanied by Wetland 48 (W48) and Wetland 49 (W49). This wetland complex was not previously identified.
Wetland 48	N	Palustrine, emergent, persistent, seasonally saturated (PEM1E)	0.043	Wetland 48 (W48) is drained into by Stream 113 (S113) and is located along the edge of the mowed area near Wetland 47 (W47) and Wetland 49 (W49). This wetland complex was not previously identified.
Wetland 49	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.075	Wetland 49 (W49) is isolated and is located near Wetland 47 (W47) and Wetland 48 (W48), on the eastern portion of the property. This wetland complex was not previously identified.

Weldon Spring (MO041) Wetlands				
Wetland ID	Potentially Jurisdictional (Y or N)	Cowardin Classification	Acres	Description
Wetland 50	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.078	Wetland 50 (W50) is isolated and is located along a service road on the eastern end of the property and is contained within a linear depression paralleling the road edge. This wetland was not previously identified.
Wetland 51	N	Palustrine emergent, persistent, seasonally flooded (PEM1C)	0.008	Wetland 51 (W51) is isolated located along the banks of the large, ponded area in the eastern portion of the property. This wetland complex was not previously identified.
Wetland 52	N	Palustrine emergent, persistent, seasonally saturated (PEM1E)	0.006	Wetland 52 (W52) Isolated wetland located along a service road on the eastern end of the site and contained within a depression paralleling the road edge. This wetland was not previously identified
Total			8.03	

Table source:(AEM 2020b)

4.16.4 Cultural Resources

A Phase 1 cultural resources survey was completed for this facility in 2003 and no significant archaeological resources are present within the facility boundaries. (ICRMP MO 2019).

As documented through consultation efforts, the WSTA is within ancestral territory for a number of Tribes. Previous consultation with several Tribes documented that the WSTA area once included part of their extensive hunting territories. This is evidenced by 358 prehistoric sites found just outside of the former WSOW along the little Femme Osage Creek to the southwest, and 58 sites found adjacent but outside of the WSTA boundaries. However, many sites that may have been at WSTA were likely disturbed during construction of the WSOW, which involved extensive forest clearing, grading, and later remedial actions. Correspondence during Section 106 undertakings that verified Tribal interest for activities within the WSTA property included the Osage Nation (2002, 2004, 2005, and 2019); the Omaha Tribe of Nebraska (2004); the Otoe-Missouria Tribe (2004); the Peoria Tribe of Indians of Oklahoma (2002); the Sac and Fox of the Mississippi; Sac and Fox Nation of Missouri in Kansas and Nebraska; and the Sac and Fox Nation of Oklahoma (responded as group in 2002).

Prior to any ground disturbing activities, the most current ICRMP should be consulted for procedures and SOPs in compliance with the NHPA.

Architectural resources were also recorded during the 2003 cultural resources survey. Following a 2005 agreement that the facility is not eligible for the NRHP, a subsequent study produced a historic context, building photographs, and sketch maps that the Army Reserve and the Missouri SHPO found to be adequate and sufficient to address any possible mitigation concerns for planned and future demolition on the property. Furthermore, it has been determined in consultation between the two agencies that the ruins are not eligible for listing in the NRHP. (ICRMP MO 2019).

Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review of this 2019-2024 ICRMP Update.

The ICRMP for sites located in Missouri will be furnished upon request.

1 **4.16.5 Biological Resources**
 2 **Land Cover and Ecological Communities**

3 The site is comprised of eighteen major land cover types. Totals given in the following table were
 4 derived from aerial photography and not from survey data therefore the totals vary.
 5

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Buildings	8.82	<1
Emergent Wetland and Aquatic Bed Wetland	6.21	<1
Forested Wetland	0.08	<1
Grassland/Field	314.74	18
Gravel Road, Gravel Pile, Riprap	25.60	2
Introduced Prairie	0.93	<1
Maintained Grass	50.10	3
Mature Shingle Oak Forest	44.18	3
Mature White/Black Oak Forest	112.66	7
Mixed Hardwood Forest	738.59	43
Paved Road, Parking Lot, Concrete	12.76	1
Pond, Drainage Area	6.34	<1
Red Cedar Woodland	306.11	18
Solar Panel Area	0.33	<1
Storage Tank	0.68	<1
Stream	1.65	<1
Vehicle and Equipment Storage Area	12.79	1
Young Shingle Oak Forest	6.10	<1
Young White/Black Oak Forest	65.40	4
Totals	1,714.07	100

6 Note: * Based on Land Cover Map (AEM 2020b)
 7

8 **Vegetation Communities**

9 Twelve ecological communities occur at the facility (Table 2; Figure 2). Grassland/Field, red cedar
 10 woodland, and mixed hardwood forest are the dominant ecological communities represented.
 11 During the facility survey, there were no observed plants identified as listed or candidate, federal,
 12 state, or Army-identified species-at-risk. (ENSAFE MO041 2021)

13 **Maintained Grass**

14 The maintained grass area is dominated by Kentucky bluegrass (*Poa pratensis*) with a variety of
 15 native and non-native lawn weeds. (ENSAFE MO041 2021) The area is mowed frequently through
 16 the growing season.

17 Some common lawn weeds include:

18 Black medick	<i>Medicago lupulina</i>
19 Common dandelion	<i>Taraxacum officinale</i>
20 Red clover	<i>Trifolium pratense</i>
21 White clover	<i>Trifolium repens</i> (invasive)
22 Ground ivy	<i>Glechoma hederacea</i>
23 Chicory	<i>Chicorium intybus</i>

1 Queen Anne's lace *Daucus carota* (invasive)

2 **Mixed Hardwood Forest**

3 The mixed hardwood forest areas were observed throughout the site and is the dominant
4 vegetation community. (ENSAFE 2021c)

5 Overstory trees include:

6 Eastern red cedar	<i>Juniperus virginiana</i>
7 Honey locust	<i>Gleditsia triacanthos</i>
8 Persimmon	<i>Diospyros virginiana</i>
9 Shingle oak	<i>Quercus imbricaria</i>
10 Hackberry	<i>Celtis occidentalis</i>

11 Common midstory trees and shrubs include:

12 Eastern red cedar	<i>Juniperus virginiana</i>
13 Black locust	<i>Robinia pseudoacacia</i>
14 Tree of heaven	<i>Ailanthus altissima</i> (invasive)
15 Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
16 Stiff dogwood	<i>Cornus foemina</i>
17 White mulberry	<i>Morus alba</i>
18 Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
19 Fragrant sumac	<i>Rhus aromatica</i>
20 Multiflora rose	<i>Rosa multiflora</i> (invasive)
21 Flowering dogwood	<i>Cornus florida</i>
22 Gray dogwood	<i>Cornus racemosa</i>
23 Deciduous holly	<i>Ilex decidua</i>
24 Missouri gooseberry	<i>Ribes missouriense</i>

25 Common understory species and vine species include:

26 Poison ivy	<i>Toxicodendron radicans</i>
27 Grape sp.	<i>Vitis</i> sp.
28 Annual ragweed	<i>Ambrosia artemisiifolia</i>
29 Fleabane	<i>Erigeron</i> sp.
30 White avens	<i>Geum canadense</i>
31 Japanese stilt grass	<i>Microstegium vimineum</i>
32 Trumpet creeper	<i>Campsis radicans</i>
33 Tick trefoil	<i>Desmodium canadense</i>
34 Japanese honeysuckle	<i>Lonicera japonica</i> (invasive)
35 Virginia Creeper	<i>Parthenocissus quinquefolia</i>

36 **Red Cedar Woodland**

37 The red cedar woodlands were observed site wide. (ENSAFE MO041 2021)

38 Overstory species include:

39 Eastern red cedar	<i>Juniperus virginiana</i>
40 Persimmon	<i>Diospyros virginiana</i>
41 Sassafras	<i>Sassafras albidum</i>

42 Typical midstory species include:

43 Autumn olive	<i>Elaeagnus umbellata</i>
44 Amur honeysuckle	<i>Lonicera maackii</i> (invasive)

1	Blackberry	<i>Rubus sp.</i>
2	Stiff dogwood	<i>Cornus foemina</i>
3	Multiflora rose	<i>Rosa multiflora</i> (invasive)
4	Tree of heaven	<i>Ailanthus altissima</i> (invasive)
5	Slippery elm	<i>Ulmus rubra</i>

6 Understory and vine species include:

7	Ebony spleenwort	<i>Asplenium platyneuron</i>
8	Cleavers	<i>Galium aparine</i>
9	Cinquefoil	<i>Potentilla sp.</i>
10	Fragrant sumac	<i>Rhus aromatica</i>
11	Coralberry	<i>Symphoricarpos orbiculatus</i>
12	Japanese stilt grass	<i>Microstegium vimineum</i>
13	Jumpseed	<i>Persicaria virginiana</i>
14	Missouri gooseberry	<i>Ribes missouriense</i>
15	Multiflora rose	<i>Rosa multiflora</i> (invasive)
16	Virginia creeper	<i>Parthenocissus quinquefolium</i>
17	Oriental bittersweet	<i>Celastrus orbiculata</i> (invasive)
18	Grape	<i>Vitis sp.</i>

19 **Grassland/Field**

20 Grassland/Field areas were observed throughout the site in between several other vegetation
21 communities. (ENSAFE MO041 2021)

22 Common species observed include:

23	Chinese bushclover	<i>Lespedeza cuneata</i>
24	Chinese wisteria	<i>Wisteria sinensis</i>
25	Common yarrow	<i>Achillea millefolium</i>
26	White clover	<i>Trifolium repens</i> (invasive)
27	Everlasting pea	<i>Lathyrus latifolius</i>
28	Wild onion	<i>Allium canadense</i>
29	Annual ragweed	<i>Ambrosia artemisiifolia</i>
30	Big bluestem	<i>Andropogon gerardii</i>
31	Common milkweed	<i>Asclepias syriaca</i>
32	Brome grass	<i>Bromus sp.</i>
33	Sedge	<i>Carex sp.</i>
34	Foxtail sedge	<i>Carex vulpinoidea</i>
35	Tick trefoil	<i>Desmodium canadense</i>
36	Persimmon	<i>Diospyros virginiana</i>
37	Fleabane	<i>Erigeron annua</i>
38	Grass leaved goldenrod	<i>Euthamia graminifolia</i>
39	Dovefoot geranium	<i>Geranium molle</i>
40	White avens	<i>Geum canadense</i>
41	Ox-eye daisy	<i>Leucanthemum vulgare</i>
42	Japanese honeysuckle	<i>Lonicera japonica</i> (invasive)
43	Jewelweed	<i>Impatiens capensis</i>
44	Lady's thumb	<i>Persicaria maculosa</i>
45	Kentucky bluegrass	<i>Poa pratensis</i>
46	Multiflora rose	<i>Rosa multiflora</i> (invasive)
47	Blackberry	<i>Rubus sp.</i>
48	Bulrush	<i>Scirpus sp.</i> (invasive)

1	Giant goldenrod	<i>Solidago gigantea</i>
2	Poison ivy	<i>Toxicodendron radicans</i>
3	Red clover	<i>Trifolium pratense</i>
4	Beaked corn salad	<i>Valerianella radiata</i>
5	Vervain	<i>Verbena sp.</i>
6	Ironweed	<i>Vernonia sp.</i>
7	Redtop	<i>Agrostis gigantea</i>
8	Dogbane	<i>Apocynum cannabinum</i>
9	Squarrose sedge	<i>Carex squarrosa</i>
10	Woolly mullein	<i>Verbascum thapsis</i>
11	Queen Anne's lace	<i>Daucus carota</i> (invasive)
12	Narrowleaf mountain mint	<i>Pycnanthemum tenuifolium</i>
13	Tall fescue	<i>Schenodorus arundinacea</i>
14	Compass plant	<i>Silphium laciniatum</i>
15	Common dandelion	<i>Taraxacum officinale</i>
16	Cutleaf teasel	<i>Dipsacus laciniatus</i> (invasive)
17	Thistle	<i>Cirsium sp.</i>
18	Sweet yellow clover	<i>Melilotus officinalis</i> (invasive)

19 **Mature Shingle Oak**

20 Mature shingle oak forests are in the northwest corner and north central areas of the site. (ENSAFE
21 MO041 2021)

22 The overstory species include:

23	Flowering dogwood	<i>Cornus florida</i>
24	Shingle oak	<i>Quercus imbricaria</i>
25	Sassafras	<i>Sassafras albidum</i>
26	Slippery elm	<i>Ulmus rubra</i>

27 Common midstory and shrub species include:

28	Flowering dogwood	<i>Cornus florida</i>
29	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
30	Green ash	<i>Fraxinus pennsylvanica</i>
31	Stiff dogwood	<i>Cornus foemina</i>
32	Multiflora rose	<i>Rosa multiflora</i> (invasive)
33	Coralberry	<i>Symphoricarpos orbiculatus</i>

34 Typical understory species include:

35	American hazel	<i>Corylus americana</i>
36	Deciduous holly	<i>Ilex decidua</i>
37	Japanese honeysuckle	<i>Lonicera japonica</i> (invasive)
38	Virginia creeper	<i>Parthenocissus quinquefolium</i>
39	Missouri gooseberry	<i>Ribes missouriense</i>
40	Blackberry	<i>Rubus sp.</i>

41 **Mature White/Black Oak Forest**

42 Mature white/black oak forests were observed in the southeast corner and the southwestern areas
43 of the site. (ENSAFE MO041 2021)

44 The overstory species include:

45	White oak	<i>Quercus alba</i>
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1	Black oak	<i>Quercus velutina</i>
2	Shagbark hickory	<i>Carya ovata</i>
3	Boxelder	<i>Acer negundo</i>
4	Black walnut	<i>Juglans nigra</i>
5	Red mulberry	<i>Morus rubra</i>
6	Cottonwood	<i>Populus deltoides</i>
7	Sassafras	<i>Sassafras albidum</i>
8	Slippery elm	<i>Ulmus rubra</i>

9 Common midstory and shrub species include:

10	Flowering dogwood	<i>Cornus florida</i>
11	Hackberry	<i>Celtis occidentalis</i>
12	Shagbark hickory	<i>Carya ovata</i>
13	White mulberry	<i>Morus alba</i>
14	Smooth sumac	<i>Rhus glabra</i>

15 Typical understory and vine species include:

16	Pawpaw	<i>Asimina triloba</i>
17	Hackberry	<i>Celtis occidentalis</i>
18	Slender woodoats	<i>Chasmanthium laxum</i>
19	Wild yam	<i>Dioscorea villosa</i>
20	White ash	<i>Fraxinus americana</i>
21	Amur honeysuckle	<i>Lonicera maackii</i>
22	Wild bergamot	<i>Monarda fistulosa</i>
23	Wood sorrel	<i>Oxalis sp.</i>
24	Virginia Creeper	<i>Parthenocissus quinquefolium</i>
25	Fragrant sumac	<i>Rhus aromatica</i>
26	Missouri gooseberry	<i>Ribes missouriense</i>
27	Sassafras	<i>Sassafras albidum</i>
28	Coralberry	<i>Symphoricarpos orbiculatus</i>
29	Slippery elm	<i>Ulmus rubra</i>
30	Maidenhair spleenwort	<i>Asplenium trichomanes</i>
31	Grape	<i>Vitis sp.</i>

32 **Young Shingle Oak**

33 Young shingle oak forest was observed in one west-southwest area of the site. This area had been
34 recently burned and did not display a midstory vegetation. (ENSAFE MO041 2021)

35 The overstory species include:

36	Hackberry	<i>Celtis occidentalis</i>
37	Shingle oak	<i>Quercus imbricaria</i>
38	Persimmon	<i>Diospyros virginiana</i>
39	Honey locust	<i>Gleditsia triacanthos</i>
40	Eastern red cedar	<i>Juniperus virginiana</i>
41	Black cherry	<i>Prunus serotina</i>
42	Sassafras	<i>Sassafras albidum</i>
43	Slippery elm	<i>Ulmus rubra</i>

44 Common understory and vine species include:

45	Grass leaved goldenrod	<i>Euthamia graminifolia</i>
46	Cleavers	<i>Galium sp.</i>

1	Jewelweed	<i>Impatiens capensis</i>
2	Virginia creeper	<i>Parthenocissus quinquefolium</i>
3	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
4	Lady's thumb	<i>Persicaria maculosa</i>
5	Coralberry	<i>Symphoricarpos orbiculatus</i>
6	Poison ivy	<i>Toxicodendron radicans</i>
7	Grape	<i>Vitis sp.</i>
8	Blackberry	<i>Rubus sp.</i>

9 **Young White/Black Oak Forest**

10 Young white/black oak forests were observed mostly in the southwestern areas of the site and in the
 11 southeast corner. (ENSAFE MO041 2021)

12 The overstory species include:

13	White oak	<i>Quercus alba</i>
14	Black oak	<i>Quercus velutina</i>
15	Scarlet oak	<i>Quercus coccinea</i>
16	Shingle oak	<i>Quercus imbricaria</i>
17	Easter red cedar	<i>Juniperus virginiana</i>
18	Persimmon	<i>Diospyros virginiana</i>
19	Green ash (dead)	<i>Fraxinus pennsylvanica</i>

20 Common midstory species include:

21	Flowering dogwood	<i>Cornus florida</i>
22	Tree of heaven	<i>Ailanthus altissima</i> (invasive)
23	Black oak	<i>Quercus velutina</i>
24	Sassafras	<i>Sassafras albidum</i>

25 Typical understory species include:

26	Annual ragweed	<i>Ambrosia artemisiifolia</i>
27	Trumpet creeper	<i>Campsis radicans</i>
28	Mockernut hickory	<i>Carya tomentosa</i>
29	White avens	<i>Geum canadense</i>
30	Sunflower	<i>Helianthus sp.</i>
31	Cinquefoil	<i>Potentilla sp.</i>
32	Multiflora rose	<i>Rosa multiflora</i> (invasive)
33	Coralberry	<i>Symphoricarpos orbiculatus</i>
34	Blackberry	<i>Rubus sp.</i>

35 **Introduced Prairie**

36 Introduced prairie community is located in the northeast corner of the site. (ENSAFE MO041 2021)

37 Common species observed include:

38	Chinese bushclover	<i>Lespedeza cuneata</i>
39	Autumn olive	<i>Elaeagnus umbellate</i> (invasive)
40	Rattlesnake master	<i>Eryngium yuccifolium</i>
41	Honey locust	<i>Gleditsia triacanthos</i>
42	Big bluestem	<i>Andropogon gerardii</i>
43	Common milkweed	<i>Asclepias syriaca</i>
44	Everlasting pea	<i>Lathyrus latifolius</i>
45	Eastern red cedar	<i>Juniperus virginiana</i>

1	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)
2	Switchgrass	<i>Panicum virgaum</i>
3	Woolly mullein	<i>Verbascum thapsis</i>
4	Callery pear	<i>Pyrus calleryana</i> (invasive)
5	Multiflora rose	<i>Rosa multiflora</i> (invasive)
6	Little bluestem	<i>Schizachyrium scoparium</i>
7	Compass plant	<i>Silphium laciniatum</i>
8	Narrowleaf blue-eyed grass	<i>Sisyrinchium angustifolium</i>
9	Thistle	<i>Cirsium</i> sp.
10	Indian grass	<i>Sorghastrum nutans</i>

11 **Forested Wetlands**

12 Three forested wetlands (Wetlands 22, 30, and 31) occur within the site. Wetland 22 is 0.189 acres
 13 in the center of the site and is connected to Stream 54. Wetland 30 is 0.013 acres intersected by
 14 Stream 73. Wetland 31 is 0.047 acres in the southwest corner of the site and drains into Stream 1.
 15 (ENSAFE MO041 2021)

16 Dominant overstory species include:

17	Pecan	<i>Carya illinoensis</i>
18	Hackberry	<i>Celtis occidentalis</i>
19	Persimmon	<i>Diospyros virginiana</i>
20	Eastern red cedar	<i>Juniperus virginiana</i>

21 Typical midstory species include:

22	Autumn olive	<i>Elaeagnus umbellata</i> (invasive)
23	Multiflora rose	<i>Rosa multiflora</i> (invasive)
24	Amur honeysuckle	<i>Lonicera maackii</i> (invasive)

25 Understory species include:

26	Trumpet creeper	<i>Campsis radicans</i>
27	Squarrose sedge	<i>Carex squarrosa</i>
28	Blunt broom sedge	<i>Carex tribuloides</i>
29	Green ash	<i>Fraxinus pennsylvanica</i>
30	Fowl mannagrass	<i>Glyceria striata</i>

31 **Emergent Wetlands**

32 There are 49 emergent wetlands observed site wide. All but 28 of the wetlands are connected to
 33 streams across the site (ENSAFE MO041 2021). Dominant vegetation includes:

34 Typical midstory species include:

35	Roughleaf dogwood	<i>Cornus drummondii</i>
36	Boxelder	<i>Acer negundo</i>
37	Buttonbush	<i>Cephalanthus occidentalis</i>
38	Black willow	<i>Salix nigra</i>
39	Honey locust	<i>Gleditsia triacanthos</i>

40 Understory species include:

41	Frank's sedge	<i>Carex frankii</i>
42	Dark-green bulrush	<i>Scirpus atrovirens</i>
43	Short's sedge	<i>Carex shortiana</i>
44	Nodding bulrush	<i>Scirpus pendulus</i>

1	Foxtail sedge	<i>Carex vulpenoidea</i>
2	Blunt spikerush	<i>Eleocharis obtuse</i>
3	Fowl mannagrass	<i>Glyceria striata</i>

4 Also, young American lotus (*Nelumbo lutea*) was observed within the aquatic bed wetland in the east
5 side of the facility north of the large pond. (ENSAFE MO041 2021)

6 **Stream**

7 Stream 59 occurs in the north central portions of the site. (ENSAFE MO041 2021) At Stream 59 the
8 benthic macroinvertebrate sample was collected, and the bank vegetation community is as follows:

9 Dominant canopy species include:

10	Shingle oak	<i>Quercus imbricaria</i>
11	Hackberry	<i>Celtis occidentalis</i>
12	swamp chestnut oak	<i>Quercus michauxii</i>
13	Pecan	<i>Carya illinoensis</i>
14	Bitternut hickory	<i>Carya cordiformis</i>
15	Slippery elm	<i>Ulmus rubra</i>

16 Typical midstory and understory consists of:

17	Multiflora rose	<i>Rosa multiflora</i>
18	Amur honeysuckle	<i>Lonicera maackii</i>
19	Red currant	<i>Ribes rubrum</i>
20	Autumn olive	<i>Elaeagnus umbellata</i>
21	Coralberry	<i>Symphoricarpos orbiculatus</i>

22 **Timber Assessment**

23 Six stands of mature timber were identified and selected for data collection. The stands selected
24 were within the nearest proximate to the 2014 Survey stands that still had measurable trees. Stand
25 timber volumes were estimated to conform to the local market specifications. Most of the logs tallied
26 were oaks and other hardwoods (black cherry, black locust, boxelder, hackberry, pecan, and red
27 mulberry). No black walnut of a merchantable diameter at breast height (DBH) were observed.
28 Hickory trees were scattered throughout most of the stands but only constituted a significant portion
29 of timber in Stand 5. (ENSAFE MO041 2021)

30 Tallied volumes per sample plot, by species are provided in Table 3. Timber volume per acre, stand
31 acreage, and total estimated timber volume per stand are summarized in Table 4. Summary stand
32 descriptions are as follows: (ENSAFE MO041 2021)

- 33 • Stand 1 is in the northwest corner of the facility and is a mix of hardwoods with a few medium sized
34 oaks (12-17-inches DBH range) and a hickory (12-inch DBH). The hardwoods ranged from 12- to
35 27-inches DBH and 0.5 to 2.5 merchantable logs. This stand had a number of trees that had been
36 girdled. (ENSAFE MO041 2021)
- 37 • Stand 2 is a long, relatively narrow strip of mature timber that generally follows Stream 59. Good
38 timber, predominately red oak in the 13- to 26-inch DBH range and 2.5 to 4.5 merchantable logs,
39 covered the valley and adjoining slopes. This stand understory is dominated by invasive species,
40 multiflora rose and Amur honeysuckle. (ENSAFE MO041 2021)
- 41 • Stand 3 is a small stand located northwest of the small arms firing range. Stand 3 is dominated by
42 red oaks (13- to 27-inch DBH range) and a few white oaks with DBHs of 12- and 24-inch. The red
43 oaks ranged from 2 to 4.25 merchantable logs and the white oaks had an average of 2.5 logs.
44 (ENSAFE MO041 2021)

- 1 • Stand 4 is across the road from the small arms range and covers south and west facing slopes. This
2 stand is predominately white and red oaks with a DBH range of 14- to 29-inches with 2 to 5.5 logs.
3 A couple of hickories were also counted; this stand has high quality timber. (ENSAFE MO041 2021)
- 4 • Stand 5 is in the southwestern portion of the site, southwest of Stand 4, and is on both sides of an
5 upland drainage feature. This stand is abundant with white oaks ranging from 17- to 27-inch DBH
6 and 2 to 4 logs. There are several hickory trees as well ranging from 14- to 19-inch DBH. This timber
7 stand is the most valuable at the facility. The understory is clear and has few vines. (ENSAFE MO041
8 2021)
- 9 • Stand 6 is the most extensive stand of merchantable timber at the facility and covers approximately
10 80 acres in the southeast corner. The stand has a good variety of tree species and is mostly red and
11 white oaks. The red oaks DBH range from 13- to 22-inch and 2 to 4 logs. The largest trees are along
12 the deep slopes of the stream. (ENSAFE MO041 2021)

13 Weldon Spring LTA (MO041/29985) forests contain sought after, merchantable, species such as red oak
14 (*Quercus rubra*), white oak (*Quercus alba*), and other *Quercus* species. Oak is the dominant species by
15 merchantable volume, with other merchantable species such as black cherry (*Prunus serotinus*), hack
16 berry (*Celtus occidentalis*), black locust (*Robinia pseudoacacia*) and hickory (*Carya species*) species in
17 smaller numbers. There are several stands that are in early successional stages, dominated by species
18 such as red cedar and other undesirable species. Management should focus on promoting the desirable
19 species and controlling invasives in these areas. To determine if Weldon Spring LTA is a viable option
20 for a future timber harvest, more information about the current state of the forests is needed. In 2020, a
21 timber assessment inventory was conducted as part of the Weldon Spring Natural Resource survey
22 update (NRSRVYUP). The data provided in the 2020 NRSRVYUP inventory indicated that, at this time,
23 it may not be economically feasible to harvest the sampled areas. (ENSAFE MO041 2021)

24 Therefore, in order to set the area up for potential future harvests, a forest management plan cruise is
25 recommended to determine the best way forward. (ENSAFE MO041 2021)

26 **Wildlife**

27 The following non plant species were recorded as present during the field survey at Weldon Spring during
28 the Natural Resources Survey Update of 2021. (ENSAFE 2021c)

29 **Birds:**

30	Red-winged blackbird	<i>Agelaius phoeniceus</i>
31	Red-tailed hawk	<i>Buteo jamaicensis</i>
32	Northern cardinal	<i>Cardinalis cardinalis</i>
33	Turkey vulture	<i>Cathartes aura</i>
34	Killdeer	<i>Charadrius vociferus</i>
35	Yellow-billed cuckoo	<i>Coccyzus americanus</i>
36	Northern flicker	<i>Colaptes auratus</i>
37	American crow	<i>Corvus brachyrhynchos</i>
38	Blue jay	<i>Cyanocitta cristata</i>
39	Pileated woodpecker	<i>Dryocopus pileatus</i>
40	Wood thrush	<i>Hylocichla mustelina</i>
41	Yellow-breasted chat	<i>Icteria virens</i>
42	Wild turkey	<i>Meleagris gallopavo</i>
43	Indigo bunting	<i>Passerina cyanea</i>
44	Double-crested cormorant	<i>Phalacrocorax auratus</i>
45	Scarlet tanager	<i>Piranga olivacea</i>
46	Summer tanager	<i>Piranga rubra</i>

1	Blue-gray gnatcatcher	<i>Polioptila caerulea</i>
2	Common grackle	<i>Quiscalus quiscula</i>
3	Eastern bluebird	<i>Sialia sialis</i>
4	Barred owl	<i>Strix varia</i>
5	European starling	<i>Sturnus vulgaris</i>
6	Tree swallow	<i>Tachycineta bicolor</i>
7	Carolina wren	<i>Thryothorus ludovicianus</i>
8	Eastern kingbird	<i>Tyrannus tyrannus</i>
9	Mourning dove	<i>Zenaida macroura</i>

10 **Mammals:**

11	Raccoon	<i>Procyon lotor</i>
12	Coyote	<i>Canis latrans</i>
13	Striped skunk	<i>Mephitis mephitis</i>
14	White-tailed deer	<i>Odocoileus virginianus</i>
15	Eastern gray squirrel	<i>Sciurus carolinensis</i>
16	Eastern cottontail	<i>Sylvilagus floridanus</i>
17	Field mouse	<i>Musculus spp</i>

18 **Insects:**

19	Monarch	<i>Danaus plexippus</i>
20	Zebra swallowtail	<i>Eurytides marcellus</i>
21	Eastern tiger swallowtail	<i>Papilio glaucus</i>
22	Black swallowtail	<i>Papilio polyxenes</i>
23	Cloudless sulfur	<i>Phoebis sennae</i>
24	Unidentified dragonflies	

25 **Reptiles:**

26	Five-lined skink	<i>Plestiodon fasciatus</i>
27	Black rat snake	<i>Pantherophis obsoletus</i>
28	Water snake	<i>Nerodia sp.</i>
29	Three-toed box turtle	<i>Terrapene carolina</i>
30	An unidentified aquatic turtle	

31 **Amphibians:**

32	Blanchard's cricket frog	<i>Acris blanchardi</i>
33	American toad	<i>Anaxyrus americanus</i>
34	Wood frog	<i>Lithobates sylvaticus</i>

35 **Invertebrates:**

36	Unidentified crayfish	
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37 The majority of the site is large, forested areas that likely provides habitat for a variety of animals,
 38 including amphibians, birds, insects, mammals, and reptiles through the year. This habitat is available
 39 for many songbirds and bats, including listed species, for nesting, roosting, and/or foraging during the
 40 breeding season or spring and fall migrations. The Weldon Spring Conservation area to the east and
 41 south provide additional roosting, foraging, and breeding habitat. (ENSAFE 2021c)

42 **Macroinvertebrate survey**

43 During the May 2021 survey a benthic macroinvertebrate sample was collected from an unnamed
 44 tributary to Schote Creek to help describe the water quality conditions. Field sampling procedures
 45 followed *Rapid Bioassessment Protocols (RPB) for Use in Streams and Wadeable Rivers:*

1 *Periphyton, Benthic Macroinvertebrates, and Fish, Second Edition*. The sample collection process,
2 using a 500-micron D-ring dip net, focused primarily on submerged bank root clusters in isolated
3 pools, saturated leaf litter habitat, and occasionally from cobbles in the few areas water was flowing.
4 The collected specimens were containerized, preserved, and shipped to a lab for sorting, identification
5 (in accordance with RBP III), and calculation of metrics. (ENSAFE 2021c)

6 The sample reach was about 310 feet long and consisted of four pools and three riffles. This sample
7 location was in the same location previously sampled for benthic macroinvertebrates. AEM Group
8 identified this as Stream 59 during their delineation in 2020. Stream substrate is primarily silt/mud
9 and soft sand with scattered chert gravel and cobble. The average channel width was approximately
10 5.5 feet wide, ranging from 3- to 8-feet. At the time of the survey, water was barely flowing and
11 averaged a depth of 6 inches deep, ranging from 1- to 13-inches. (ENSAFE 2021c)

12 Laboratory assessment of the sample collected in the field identified 14 different orders of organisms.
13 A total of 1,677 organisms were collected across 14 orders. The Hilsenhoff Biotic Index (HBI)
14 calculated from this data was 6.64. On a scale of 0 to 10, this HBI indicates the water quality of the
15 stream is fairly poor, with significant pollution. However, according to laboratory biologist the resulting
16 score of 6.64 was more a function of habitat than degraded water quality. The diversity of community
17 was relatively high among 52 taxa, including 165 organisms, across 7 families, within the
18 *Ephemeroptera, Plecoptera, and Trichoptera* (EPT) taxa, which are generally considered to be
19 indicative of better water quality. In addition, the community was not dominated by *Oligochaeta*, or
20 *Chironomidae*, which tend to dominate areas with significant organic pollution. The organisms that
21 dominated the collection *Physa* (snails), *Sphaeriidae* (fingernail clams), and *Culicidae* (mosquito
22 larvae), are more indicative of slow-moving stream sections with aquatic vegetation. The fourth most
23 common organism, *Neoleptophlebia* is in the order *Ephemeroptera* and listed as pollution intolerant
24 by some states. (ENSAFE 2021c)

25 The presence of EPT taxa, crayfish, and lack of development at MO041 are indicators of quality
26 habitat for other aquatic organisms including fish and amphibians. Deer and racoon tracks were
27 observed within the stream, indicating the creek is a water source for wildlife. This unnamed tributary
28 is not listed on the 2020 Missouri Department of Natural Resources Clean Water Act Section 303(d)
29 list. (ENSAFE 2021c)

30 **Migratory Bird Survey**

31 A migratory bird survey was funded in FY 19 for Weldon Spring and other sites.

32 The Weldon Spring LTA is located in St. Charles County near the town of Weldon Spring, MO, about
33 30 miles west of Saint Louis. A USARC is also located on the site, including occupied office
34 complexes, parking lots, and other facilities. Although the Weldon Spring LTA is relatively close to
35 highly populated areas, the site itself is relatively rural with extensive open space and protected areas
36 surrounding the LTA. The August A. Busch Wildlife Area is located just north of the site, and the
37 Weldon Spring Conservation Area extends south from the site. The Missouri River is located just
38 south of the facility. The existing vegetation type as per the LANDFIRE data indicates the site is
39 predominantly closed deciduous forest with patches of mixed forest and small grassland openings.
40 However, based on observations at the time of the surveys, the majority of the “forested habitat” was
41 described as mainly shrubland habitat transitioning to secondary forest with patches of primary forest
42 mainly along the southern boundary of the LTA. A total of 110 census points were located within the
43 Weldon Spring LTA. (STELL/HWA, 2021)

44 A total of 85 species were detected within the Weldon Spring LTA, including 77 species recorded
45 during the point count surveys and eight species recorded as flyovers or incidental observations. Of
46 non-native species, two were recorded: European Starling and House Sparrow. Only the 77 species

1 detected during the 5-minute point count survey period and within the 100-meter radius were used in
2 the analyses. (STELL/HWA, 2021)

3 A total of 72 species were detected during the first round of surveys in May, and 65 species were
4 detected during the second round of surveys in June. Twelve species were detected only during the
5 first survey, and 5 species were detected only during the second survey. (STELL/HWA, 2021)

6 No species federally- or state-listed as threatened or endangered were recorded on the site. Three
7 species designated by USFWS as Birds of Conservation Concern were recorded, including Chimney
8 Swift, Kentucky Warbler, and Wood Thrush. Two additional species designated as Missouri Species
9 of Conservation Concern were detected within the Weldon Spring LTA. (STELL/HWA, 2021)

10 The Weldon Spring LTA was determined to have two main bird communities, one associated with
11 early successional shrubland and secondary forest and one associated with mature closed-canopy
12 forest. The majority of the LTA was observed to be shrubland transitioning toward the secondary
13 forest. (STELL/HWA, 2021)

14 The high diversity of bird species found on the site is reflective of the different shrub and forest types
15 currently present, and active management of these areas will likely be necessary to maintain both
16 communities. Indications of previous management actions were observed in the field included girdling
17 of trees and signs of controlled burns. Given the diverse array of species tied to the early-
18 successional shrubland habitat and the regional declines in some of the species associated with
19 shrubland habitat, we would recommend thinning of some of the secondary forest to ensure a healthy
20 shrubland bird community. Similarly, we would recommend continued improvement actions in the
21 areas of mature forest, particularly along the southern boundary of the LTA. Improvements could
22 include controlled burns to reduce the understory and selected thinning and/or girdling. (STELL/HWA,
23 2021)

24 No species federally- or state-listed as threatened or endangered were recorded on the site. Three
25 species designated by USFWS as Birds of Conservation Concern were recorded, including Chimney
26 Swift, Kentucky Warbler, and Wood Thrush. Two additional species designated as Missouri Species
27 of Conservation Concern were detected within the Weldon Spring LTA. (STELL/HWA, 2021)

28 **Listed Species**

29 The USFWS lists the following species as endangered in St. Charles County:

30	Indiana bat	<i>Myotis sodalis</i>
31	northern long-eared bat	<i>Myotis septentrionalis</i>
32	gray bat	<i>Myotis grisescens</i>
33	eastern massasauga rattlesnake	<i>Sistrurus catenatus</i>
34	pallid sturgeon	<i>Scaphirhynchus albus</i>

35 Threatened species included the decurrent false aster (*Boltonia decurrens*).

36 In the 2015 INRMP the interior least tern (*Sterna* (now *Sternula*) *antillarum*) was identified as a listed
37 species, it was delisted by the USFWS on January 13, 2021. Additionally, running buffalo clover
38 (*Trifolium stolonifereum*) was federally listed at the time of the previous INRMP; however, as of
39 August 5, 2021, the USFWS considers it recovered and removed it from the endangered species list.
40 (ENSAFE MO041 2021)

41 **Mammal Surveys**

42 The Weldon Spring Training Area (WSTA) falls within the historical range of the Indiana bat (*Myotis*
43 *sodalis*), gray bat (*M.grisescens*), and northern long-eared bat (*M. septentrionalis*) all are federally
44 endangered species. (P-G JV MO041 2020)

1 In previous threatened and endangered species (T&E) surveys conducted in 2011 and 2016, Indiana
2 bats were captured at the WSTA. In the 2011 survey, a total of 15 Indiana bats were captured
3 including eight adult females, four juvenile males, two juvenile females, and one adult male. In the
4 2016 survey, a total of 10 adult, female Indiana bats were captured. Additionally, 44 northern long-
5 eared bats were also captured in the 2011 study). However, the captures occurred before northern
6 long-eared bats were federally listed as endangered. No roost trees for Indiana bats were located
7 during the 2011 study, and one roost tree was found in 2016 located approximately 600 m (0.373
8 miles) south of WSTA. Because of the captures for both species, presence is assumed for the WSTA.

9 With presence of these two species assumed, the purpose of this study is to provide updated
10 information to assist with meeting and sustaining the mission of the 88th RD's 2013 Endangered
11 Species Management Component (ESMC). Goals of the ESMC include: minimize the risk of
12 accidental take of the Indiana bat on WSTA, minimize risk of indirect impacts to maternity roosts on
13 the Weldon Spring Conservation Area, and enhance foraging habitat on WSTA while assuring
14 compliance with the Endangered Species Act (ESA) (16 U.S.C. § 1531 et seq.). (P-G JV MO041
15 2020)

16 Summer 2020 restrictions by the United States Fish and Wildlife Service (USFWS) prevented the
17 capture and handling of bats due to Severe Acute Respiratory Syndrome Corona Virus-19
18 (SARSCoV- 19). Due to potential risks associated with transmitting SARS-CoV-19 to bats, acoustic
19 surveys were approved by USFWS on June 24, 2020, to be performed in place of mist net surveys
20 to update occurrences of listed bats at the WSTA. The survey was conducted with the appropriate
21 level of effort to meet 2020 USFWS acoustic survey guidelines. Eight passive bat detectors with built-
22 in global positioning system (GPS) and bat detectors (were placed within suitable habitat throughout
23 the WSTA at 47 different locations and set to record for a total of 88 survey-nights on the
24 approximately 1,700-acre (1,300.86 forested acres) site. Detectors recorded bat calls from sunset to
25 sunrise during optimal weather conditions. Files were analyzed using USFWS approved bat acoustic
26 software and by manual vetting. During the survey, nine species of bats were detected including the
27 federally endangered Indiana bat (*Myotis sodalis*) and gray bat (*Myotis grisescens*). Indiana bats
28 were acoustically detected at five sites, including one site (WS-45) where they were previously
29 captured during the 2011 and 2016 mist-net surveys. Gray bats were acoustically detected at 63.8%
30 of sites. (P-G JV MO041, 2020)

31 Other bat species detected during the acoustic survey included:

32 eastern red bat	<i>Lasiurus borealis</i>
33 big brown bat	<i>Eptesicus fuscus</i>
34 hoary bat	<i>Lasiurus cinereus</i>
35 evening bat	<i>Nycticeius humeralis</i>
36 silver-haired bat	<i>Lasionycteris noctivagans</i>
37 little brown bat	<i>Myotis lucifugus</i>
38 tricolored bat	<i>Perimyotis subflavus</i>

39 The Northern long-eared bat was not detected during the 2020 acoustic survey. Winter habitat for
40 the Indiana bat and northern long-eared bat includes caves and abandoned mines. Summer roost
41 habitat includes sites typically located behind loose bark of dead or dying trees or in tree cavities,
42 while summer foraging habitats includes riparian areas, upland forests, ponds, and fields. Potentially
43 suitable summer roosting and foraging habitat for these species exists throughout MO041/29985. (P-
44 G JV MO041 2020)

45 Reptiles: The eastern massasauga rattlesnake (*Sistrurus catenatus*) is associated with bottomland
46 prairie habitats in north-central and northwestern Missouri. WSTA is located in central eastern MO,
47 which is outside of its known habitat, additionally the habitat types associated with this site are not

1 typically preferential habitat for the eastern massasauga, therefore there is a low likelihood of a
2 presence at this location.

3 One state species of conservation concern, ringed salamander (*Ambystoma annulatum*), has been
4 documented within 1,000 ft of the site.

5 Fish: The pallid sturgeon (*Scaphirhynchus albus*) there is no habitat on the WSTA that could support
6 the pallid sturgeon.

7 Vegetation: In 2014, T&E Species survey for Running Buffalo Clover and Decurrent False Aster.
8 WSTA contains areas of potentially suitable habitat for Running Buffalo clover. It also is possible that
9 WSTA contains suppressed populations of Running Buffalo clover in areas where the dense growth
10 of bush honeysuckle prohibits the growth of ground cover plants and potentially suppressed
11 populations could express if conditions improve through land management. WSTA lacks suitable
12 habitat for the decurrent false aster, and it is unlikely that this species would occur there. (CH2MHill,
13 2014)

14 **4.16.6 Outdoor Recreation, Public Access and Agricultural Out-leasing**

15 ***Hunting***

16 WSTA is one of the two facilities (JTA is the other) within the 88th Readiness Division that supports
17 and encourages hunting on the facility. Hunting activities include deer (gun only), and spring turkey
18 hunting. This program is an ecosystem management tool which provides controlled access to
19 uniformed personnel, family members, and the public to hunt consistent with security requirements
20 and safety concerns, and the priorities of the Readiness Division's training mission. Funding to
21 support this program is through the sale of hunting fishing and trapping permits. (WSTA Hunt 2022)

22 Non-military public access to the property is limited to State of Missouri hunting license and WSTA
23 hunting permit holders. Hunting permits are limited to, in most cases, a lottery system. All firearm
24 deer hunters must follow the State of Missouri firearm regulations. All archery deer hunters, both
25 traditional and crossbow, must pass an Archery Proficiency test prior to the issuance of an archery
26 hunting permit. (WSTA Hunt 2022)

27 WSTA hosts youth gun-deer, Veterans Administrations(VA) Disability rated Warrior hunts, and
28 Soldier / Employee gun deer events during the deer hunting season. There is also a single turkey
29 hunting event in the spring. (WSTA Hunt 2022)

30 There are no agricultural activities associated with the WSTA.

31 **4.16.7 Management Concerns and Issues**

32 **Environmental Hazards**

33 The WSTA is a subset of the former Weldon Spring Ordnance Works (WSOW). The WSOW covered
34 17,232 acres during production and operated from 1941 to 1945. The explosives production facility
35 manufactured trinitrotoluene (TNT) and dinitro toluene (DNT) for use during World War II. The plants
36 peak annual production produced 164,000 tons of explosives.

37 Groundwater at the WSTA is contaminated with nitroaromatic compounds from explosives
38 manufacturing. **Well construction, groundwater withdrawal, and potable use of the groundwater
39 is not allowed at Weldon Spring LTA.** Groundwater is being remediated at WSOW by a process
40 called monitored natural attenuation (MNA). This is a form of passive remediation that allows natural
41 processes degrade the groundwater contaminants. The Army samples the groundwater and springs
42 at WSOW regularly to monitor the success of the remediation and the degree of remaining
43 contamination.

1 In some areas of the WSOW soils were contaminated with nitroaromatic compounds, PCBs, lead and
2 semi-volatile compounds. The soils at WSTA were remediated according to the 1994 Record of
3 Decision. **Due to residual nitroaromatic soil contamination located 15-20 feet below the ground**
4 **surface there is no digging is allowed at area T-13.** An informal land-use-control (LUC) has been
5 voluntarily implemented at an area known as T-13. Area T-13 is less than one acre in size and there
6 are two metal warning signs posted adjacent to the access road.

7 Asbestos and lead-based paint generated from burning and demolition of old WSOW buildings may
8 be present throughout the LTA. **Any soil-disturbing activities outside of approved areas require**
9 **an environmental review.**

10 **Invasive Species / Wildfire Fire Management**

11 **Invasive Species Program**

12 WSTA is broken up into 13 training areas (TA) and invasive species are treated, to some extent in all
13 13 TAs. Invasive plant species identified during natural resource surveys are found in most of the
14 TAs at the Weldon Spring LTA. Control plan implementation maintains open spaces and the
15 understory clearing the honeysuckle and Russian olive. In the training areas for maneuver training
16 and protects valuable natural resources. Invasive plants degrade wildlife habitat and potential habitat
17 for rare species. Many state and county municipalities mandate that property owners must exercise
18 control over invasive plants on their property.

19 Effective invasive species control taking place throughout the WSTA, increases the 88th RD Reserve
20 Soldiers' safety through elimination of noxious plants and undesirable species that are frequently
21 found on the training areas (increased fire risk, noxious species such as mosquitoes and ticks).
22 Consistent annual treatment of invasive species (when funding is available) ensures training lands
23 will be more accessible for exercises, provide better concealment, and support improved habitat for
24 protected species.

25 In FY22, area 10 was cleared of understory in February 2022. Area 9 is scheduled for understory
26 clearing, pending FY23 funding.

27 **Wildland Fire Management Program**

28 The WSTA Integrated Wildland Fire Management Plan (IWFMP) works in concert with other
29 management plans and emergency services plans. The plan is implemented through prescribed fire
30 in three designated wildfire management areas on WSTA on a 3-year cycle. Prescribed fire supports
31 endangered species management, wildlife management, forest management, vegetation
32 management, invasive species control, wetlands management, and integration of all military and
33 recreational activities.

34 Implementation of IWFMP through controlled burns ensures effective use of financial resources to
35 achieve multiple goals, including reduced pesticide usage, enhancing Reserve Soldier safety on
36 ranges, and complying with federal laws and executive orders for protected species and eradication
37 of noxious plants. If controlled burns are not funded, the scope and realism of the training environment
38 at Weldon Spring LTA will deteriorate.

39 The last burn at WSTA took place in 2021 in cycle area 2. Cycle area 3 is scheduled for burn in FY23,
40 pending the availability of funding.

41 **4.16.8 Special Interest Areas**

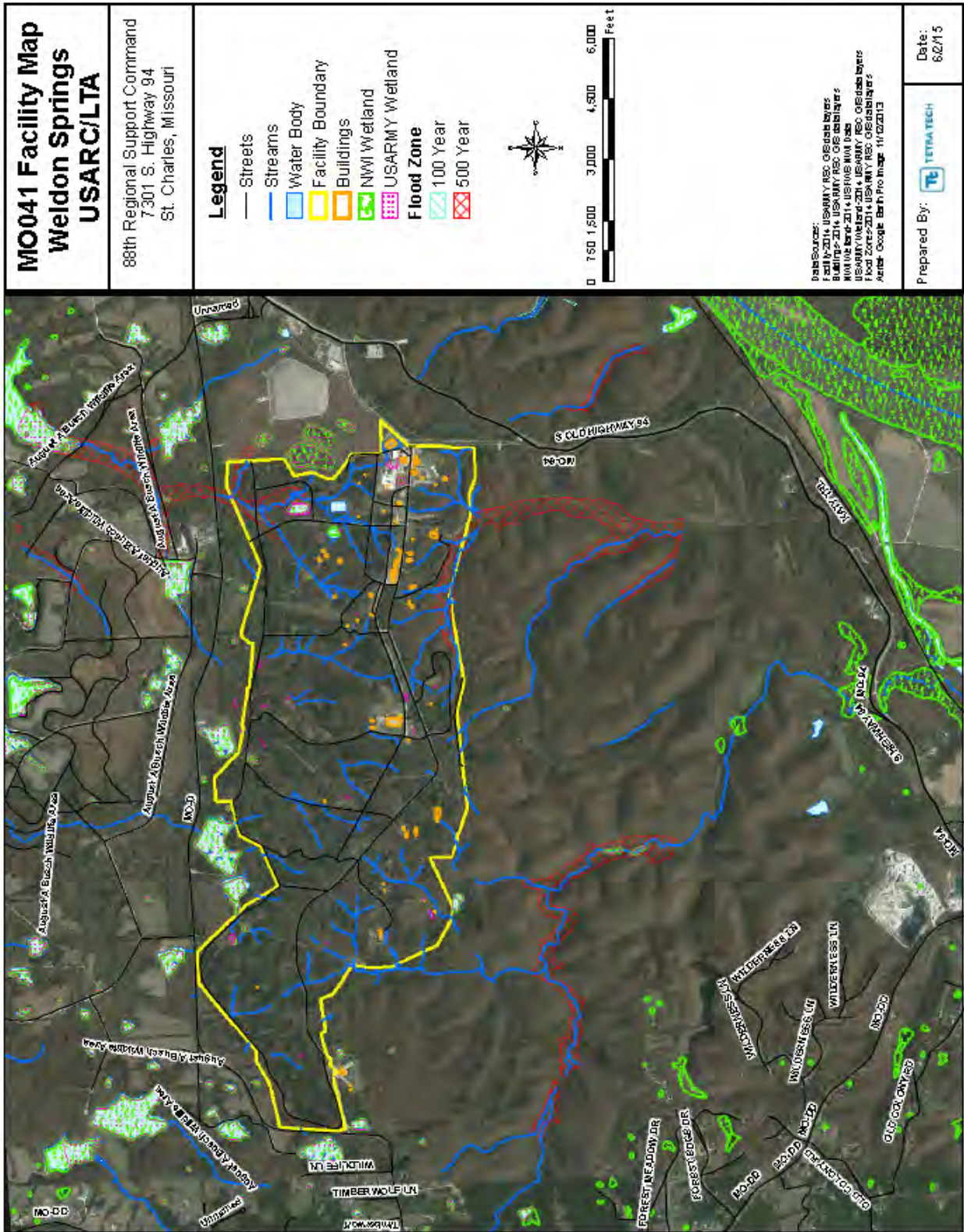
42 The Missouri Department of Conservation (MDC) reports a state-designated natural area located
43 within 1,000 ft of the site. The MDC also reports that this site is within a county with known karst
44 geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water

1 movement), which may contain cave fauna (i.e. bats etc.), many of which may be of state/federal
2 species of conservation concern. (ENSAFE MO041 2021)

3 MO041/29985 could provide opportunities for public access and outdoor recreation in the form of
4 hiking, hunting, bird-watching, and other recreational pursuits. This site may provide agricultural
5 opportunities through utilization of the land for grazing and portions of the timber resources could be
6 harvested. (ENSAFE MO041 2021)
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Figure 4.16 - Site Map – MO041/29985

1 **4.17 Kansas City ARC #2**
2 **(MO074/29504)**

3 3900 East 155TH Street
4 Kansas City MO 64147-3500

5 **High Resource**

6 **County:** Jackson

7 **Acres:** 18.35

8 **Building Count:** 2

9 **Last Field Survey:** 2021



11 The Kansas City ARC #2 consists of two buildings: the training building, and the vehicle garage/ maintenance
12 building. In addition, there is a small shed onsite and three large parking lots for military and personnel
13 vehicles. These buildings and the land composing the site are owned by the 88th RD, which uses the facility
14 as a reserve center and vehicle storage.

15 **4.17.1 Geographic Location and Size**

16 This site is located southeast of Kansas City, in Jackson County, Missouri. The acreage of the site was
17 reported as 18.35 acres according to the documentation provided by the 88th RD. The site is generally
18 bounded by commercial properties and undeveloped land to the north, E. 155th Street to the south, Corkill
19 Road and Andrews Road to the east, and commercial properties to the west. (Pika-Insight JV MO074
20 2021).

21 **4.17.2 Geological Resources**

22 **Physiography and Geology**

23 The site is within the Osage plain physiographic region. Tall grass prairies, rolling hills and woodlands,
24 characterize this region. The primary rock type is cyclic deposits, limestone and shale with minor
25 sandstone and coal.

26 **Soils**

27 United States Department of Agriculture Natural Resources Conservation Service's (USDA-
28 NRCS) online web soil survey reports the site is composed of Arisburg-urban land complex,
29 1 to 5 percent slopes (Map unit 10082) and Greenton silty clay loam, 5 to 9 percent slopes
30 (Map unit 30080). Arisburg-urban land complex has somewhat poor drainage and high runoff.
31 Arisburg-urban land complex has restrictive features of more than 80 inches. Greenton silty
32 clay loam has somewhat poor drainage and very high runoff. The depth to restrictive feature
33 is about 26 inches to abrupt textural change. (Pika-Insight JV MO074 2021)

34 **Topography**

35 The topography of the site is generally flat, with small localized micro-depressions. One
36 large hillslope is located along the western property boundary and lies approximately 20 feet
37 higher than the rest of the site. The site lies approximately 1,020 feet above mean sea level.
38 (Pika-Insight JV MO074 2021)

39 **4.17.3 Water Resources**

40 **Watershed and Surface Waters**

41 The site is located within the Missouri River watershed. (Pika-Insight JV MO074 2021)

1 Creek. This on-site unnamed creek consists of a natural drainageway system dominated by mature
2 trees and scrub-shrub vegetation and is located within the northern portion of the site. The creek is
3 approximately 360 linear feet on-site and continues west and east of the site. This creek is not
4 identified on the USGS topographic map or other mapping. The creek did not contain any water flows
5 during the site visit. The channel of the creek averages 10-15 feet in width. Its banks (average 1 foot
6 in height) are primarily vegetated by Poison Ivy. At the time of the field investigation, water depth
7 within the channel varied between approximately 2 to 4 inches. The creek does not appear to directly
8 connect to a navigable waterway at this time; however, historically it appears to have once connected
9 to Scope Creek located to the southeast of the site. Due to this historical connection, the USACE
10 may take jurisdiction over the creek feature. (Pika-Insight JV MO074 2021)

11 **Floodplains**

12 Floodplain mapping for the site is based on digital Q3 Flood data produced by FEMA. A portion of the
13 site is located in a special flood hazard area, which is inundated by a 100-year flood (FEMA Map
14 29095C0510G).

15 **Wetlands**

16 One wetland (approximately 0.13 acres in on-site size) is located within the northern portion of
17 MO074. This wetland is described as a *Riverine Intermittent Streambed Mud Seasonally Flooded*
18 *(R4SB5C)* feature, using the Cowardin Classification of Wetlands and Deepwater Habitats system.
19 Wetland 1 is associated with an intermittent creek and extends offsite to the west and east of the site.
20 The wetland/creek does not appear to directly connect to a navigable waterway at this time; however,
21 historically it appears to have once connected to Scope Creek located to the southeast of the site.
22 Due to this historical connection, the USACE may take a jurisdictional view of the wetland/creek
23 feature. (Pika-Insight JV MO074 2021)

24 The natural area corridor of Scope Creek is identified on the National Wetlands Inventory Map as
25 within 375 feet of the site, located to the southeast. This corridor appears to contain mature trees
26 and scrub-shrub vegetation. Scope Creek would likely be considered a federally jurisdictional
27 waterway by the USACE, based on its eventual connection downstream to the Blue River and
28 ultimately the Missouri River to the north. (Pika-Insight JV MO074 2021)

29 **4.17.4 Cultural Resources**

30 The facility was within the overall project area of a 1983 cultural resources inventory and evaluation
31 of Richards-Gebaur AFB; however, the tract was noted as disturbed, so no survey occurred there. A
32 cultural resources survey was completed for this facility in 2010, prior to construction (Parrish and
33 Keene 2010); no archaeological or architectural resources were found. SHPO and THPO Section 106
34 consultation was completed for the project.

35 Architectural resources do not require evaluation until they reach 50 years of age in 2063.

36 The ICRMP for facilities located in Ohio will be furnished upon request.

37 **4.17.5 Biological Resources**

38 **Land Cover and Ecological Communities**

39 The site contains five (5) main land cover types as is represented in Table 1: Cover Area and
40 Ecological Communities at MO76. The site area is covered by approximately 4.74% buildings,
41 23.38% paved roads/parking, 52.48% maintained grass, 16.46% unmaintained grass and 2.94%
42 wetland.

MO074 Land Cover Area*

Land Cover and Ecological Communities	Acres	Percent of Site
Buildings	0.87	4.74
Paved Road / Parking	4.29	23.38
Maintained Grass	9.63	52.48
Unmaintained grass	3.02	16.46
Wetlands	0.54	2.94
Totals	18.35	100

*Area calculations taken from 2016 AEM Group Natural Resource Survey

Vegetation Communities

Two vegetation communities dominate the site: tree line and maintained grass areas.

The maintained grass areas contained a mixture of cultivated non-native grasses, including crabgrass (*Digitaria spp.*), Kentucky bluegrass (*Poa pratensis*).

The western side of the property was not maintained; however, based on historic aerial photographs, it appears to be mowed often. The area contained many of the same grasses as the lawn areas, as well as other herbaceous species, including Queen Anne’s lace (*Daucus carota*), white clover (*Trifolium repens*), and crown vetch (*Securigera varia*).

During the surveys of these communities, no observed plants that were: federal/state listed candidate species, or any Army species-at-risk.

A few larger planted oak (*Quercus spp.*) trees were observed within this area with larger ones located near the stream in the north of the site.

Invasive Species

The 2016 field survey identified a limited number of invasive species, they included Queen Ann’s Lace (*Daucus carota*), white clover (*Trifolium repens*), and crown vetch (*Securigera varia*). The density or coverage area was not indicated in the 2016 report.

Wildlife

Bird surveys were conducted on the site using a five-minute interval point bird count in the evening of May 9, 2017, and morning of May 10, 2017. Count stations were positioned on the site where food, water, and habitat resources were present. These areas were mostly along the perimeter of the site, and near the wetlands within the property boundary.

Observed species included:

eastern meadowlarks	<i>Sturnella magna</i>
western kingbirds	<i>Tyrannus verticalis</i>
cardinals	<i>Cardinalis cardinalis</i>
red-winged blackbirds	<i>Agelaius phoeniceus</i>
tree swallows	<i>Tachycineta bicolor</i>
killdeer	<i>Charadrius vociferus</i>
common nighthawk	<i>Chordeiles minor</i>
mourning dove	<i>Zenaida macroura</i>
grackles	<i>Quiscalus quiscula</i>
American robins	<i>Turdus migratorius</i>
killdeer	<i>Charadrius vociferus</i>

1 house sparrow *Passer domesticus*
2 sharp-shinned hawks *Accipiter striatus*

3 Other species observed onsite were white-tailed deer and rabbits.

4 **Listed Species**

5 Based on the U.S. Fish and Wildlife services (USFWS), there are three Threatened and
6 Endangered bird species listed for Jackson County, Missouri; the Least Tern, Piping Plover and the
7 Red Knot. In addition, the Indiana bat and the Northern long-eared bat are listed as endangered
8 and threatened species. At the time of the 2016 survey, none of these species were found at the
9 site.

10 No plant or wildlife listed species or SAR were observed onsite during the 2016 NR survey or has
11 the potential to be located within the site's property limits due to lack of suitable habitat.

12 **4.17.6 Outdoor Recreation, Public Access and Agricultural Out-leasing**

13 This site does not appear provide any opportunities for outdoor recreation, public access, and
14 agricultural out-leasing on this site area. The site grounds lack aesthetic natural communities, hunting
15 areas, or the area to perform crop agriculture.

16 **4.17.7 Management Concerns and Issues**

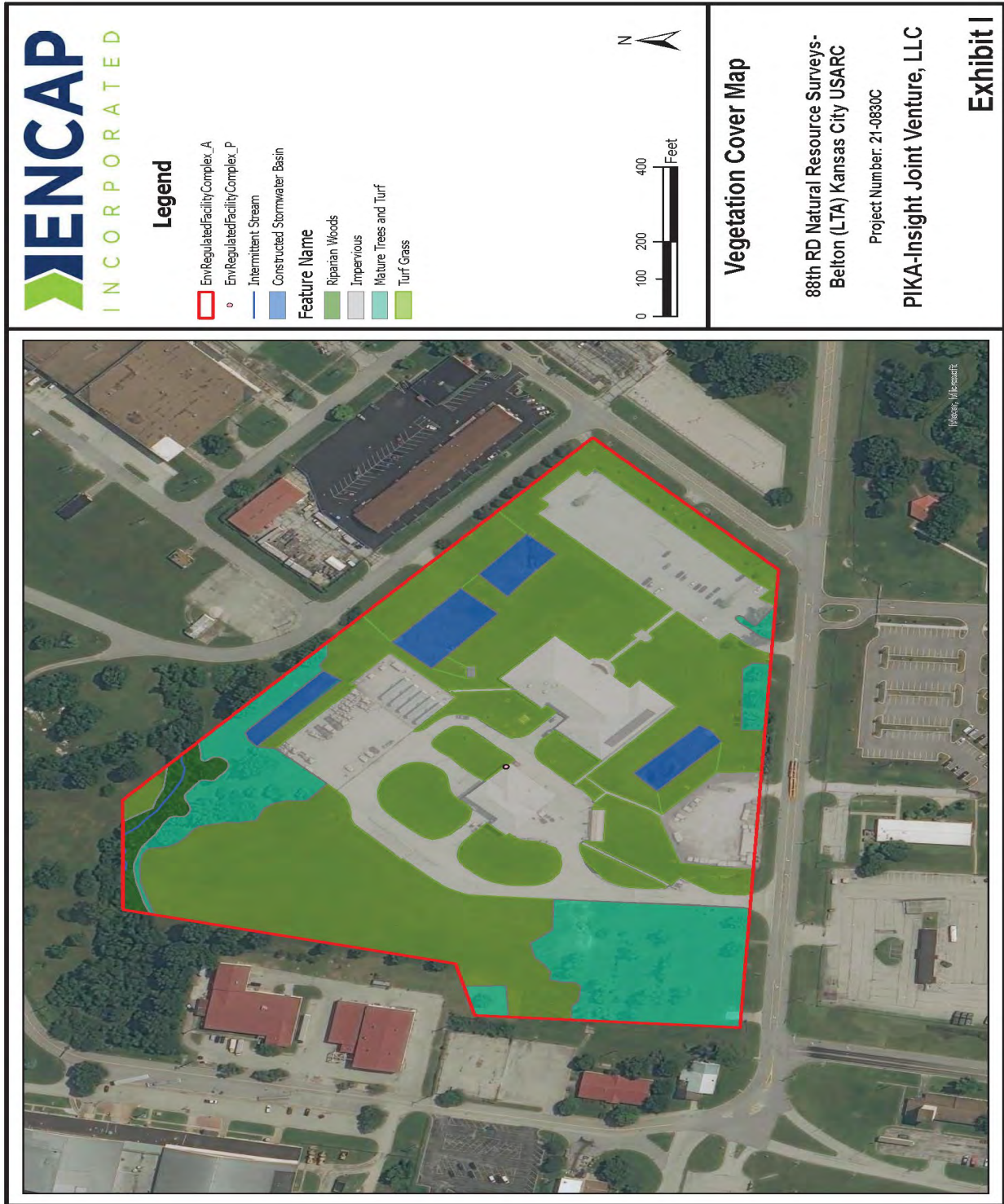
17 During the field survey, some nuisance and invasive exotic species were noted within the upland
18 areas Queen Ann's Lace (*Daucus carota*), white clover (*Trifolium repens*), and crown vetch
19 (*Securigera varia*). The density or coverage area was not indicated in the 2016 report.

20 A large number of monitoring wells are on the site that appeared to originate from an offsite facility
21 up gradient from the site. ; however, no one at the site was able to provide the field team with
22 information pertaining to them. Based on this, and the lack of macroinvertebrates observed in the
23 stream onsite, it is recommended that the health of the stream be monitored and re-evaluated.

24 **4.17.8 Special Interest Areas**

25 No special interest areas occur within 1,000 feet of the site.
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Figure 4.17 - Site Map – MO074/29504

1 **4.18 COL T.H. Morrow ARC/AMSA**
2 **#59**
3 **(OH009/39845)**

4 1600 Seymore Ave.
5 Cincinnati, OH 45237-3010

6 **Medium Resource**

7 **County:** Ross

8 **Acres:** 13.89

9 **Building Count:** 3

10 **Last Field Survey:** 2021



11 T. H. Morrow ARC/AMSA #59 consists of a U.S. Army Reserve Center (USARC), with two building
12 complexes, secured military equipment parking (MEP), privately owned vehicle (POV) parking, egress
13 driveway, sidewalks, manicured and maintained turf grass areas, dense upland woods, and two wooded
14 wetlands. This site is used to support classroom training, administrative services, and light vehicle
15 maintenance. The 88th RD owns the 3 buildings and the land that comprise OH009/39845.

16 **4.18.1 Geographic Location and Size**

17 OH009/39845 is located in the city of Cincinnati in Hamilton County. Real Property Detail Report shows
18 the acreage as 13.89 ac. The site is bounded by wooded land to the north, Seymour Avenue to the
19 south, commercial and residential land to the east, and commercial land to the west. The site boundary
20 is shown on Figure 3.17.

21 **4.18.2 Geological Resources**

22 **Physiography and Geology**

23 This site is located within the Till Plains physiographic province. The soils are some of the most fertile
24 soils in the country. The Till Plain marks the beginning of the Corn Belt. Geological formations at
25 OH009/39845 are Ordovician formations. (Pika-Insight OH009, 2023)

26 **Soils**

27 Soils underlying this site belong to the Clermont-Rossmoyne-Avonburg-Cincinnati soil region, which
28 generally consists of soils developed in areas having gently sloping to level lands. Mapped soils
29 within the boundary of the site include the following soil map units: Bonnel silt loam, 15-25 percent
30 slopes; Eldean-Urban land complex, 2-6 percent slopes; Princeton sandy loam, 2-6 percent slopes;
31 Princeton sandy loam, 6-12 percent slopes, eroded; and Wakeland silt loam, occasionally flooded.
32 (Pika-Insight OH009, 2023)

33 **Topography**

34 The general topography of the site is flat, with small localized micro-depressions. The site elevation
35 is approximately 565 feet above mean sea level. (Pika-Insight OH009, 2023)

36 **4.18.3 Water Resources**

37 **Watershed and Surface Waters**

38 The site is located within the Ohio River watershed. (Pika-Insight OH009, 2023)

39 No surface waters were observed on-site during the field study. (Pika-Insight OH009, 2023)

40 An unnamed stream is located approximately 500 ft south of the site.

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Floodplains

There are no floodplains located on or within 1,000 ft of the site.

Wetlands

Two wetlands identified on the site are potentially not federally jurisdictional under the 2021 definition of a federally regulated wetland, however, will be regulated under state of Ohio wetland regulations.

Wetland 1. This wetland (0.008 acres (~349 square feet)) is located within the northern portion of the site. Wetland 1 consists of a small micro-depression drainageway that appears to collect water from the surrounding land. Wetland 1 would be classified as a *Palustrine Scrub-shrub Broad-leaved Deciduous Seasonally Flooded (PSS1C)* wetland, according to the Cowardin Classification of Wetlands and Deepwater Habitats system. Wetland 1 is wholly located on-site, and the surface water does not appear to flow off-site. It appears that stormwater infiltrates into the ground or evaporates after rain events. Wetland 1 does not appear to be federally jurisdictional as no apparent connection to a navigable waterway was identified during the field investigation. The State of Ohio would regulate Wetland 1 under its state regulatory program. (Pika-Insight OH009, 2023)

The buffer surrounding Wetland 1 consists of dense upland woods dominated by invasive species including:

Common Name	Scientific Name
Honeysuckle	<i>Lonicera tatarica</i>
Pear	<i>Pyrus calleryana</i>
Poison Ivy	<i>Toxicodendron radicans</i>
Japanese Honeysuckle	<i>Lonicera japonica</i>

The buffer does provide minimal functional benefits for Wetland 1 consisting of stormwater filtration, infiltration, and wildlife habitat. (Pika-Insight OH009, 2023)

Two sample points were established within and adjacent to Wetland 1 to characterize the vegetation, soils, and hydrology. Wetland 1 was primarily vegetated by:

Common Name	Scientific Name
Eastern Cottonwood	<i>Populus deltoides</i>
Japanese Honeysuckle	<i>Lonicera japonica</i>
Pear	<i>Pyrus calleryana</i>
Poison Ivy	<i>Toxicodendron radicans</i>
Red-Osier Dogwood	<i>Cornus stolonifera</i>

The mapped soil series is Urban land- Udorthents complex, 0 to 12 percent slopes (UrUXC), a non-hydric soil. USDA NRCS field indicator F3: Depleted Matrix provided evidence of hydric soil. Surface soil cracks, drainage patterns, geomorphic position, and a positive FAC-neutral test provided evidence of persistent hydrology. (Pika-Insight OH009, 2023)

Wetland 2. This wetland (0.004 acres (~174 sf)) is located within the eastern portion of the site. Wetland 2 consists of a small micro-depression that appears to collect water from the surrounding land. Wetland 2 would be classified as a *Palustrine Scrub-shrub Broad-leaved Deciduous Seasonally Flooded (PSS1C)* wetland, according to the Cowardin Classification of Wetlands and Deepwater Habitats system. Wetland 2 is wholly located on-site, and the surface water does not appear to flow off-site. It appears that stormwater infiltrates into the ground or evaporates after rain events. Wetland 2 does not appear to be federally jurisdictional as no apparent connection to a navigable waterway

1 was identified during the field investigation. The State of Ohio would regulate Wetland 2 under its
2 state regulatory program. (Pika-Insight OH009, 2023)

3 The area surrounding Wetland 2 consists of areas of impervious pavement and dense upland woods
4 dominated by invasive species that include:

Common Name	Scientific Name
Honeysuckle species	<i>Lonicera spp</i>
Japanese Honeysuckle	<i>Lonicera japonica</i>
Pear	<i>Pyrus calleryana</i>
Poison Ivy	<i>Toxicodendron radicans</i>
Red-Osier Dogwood	<i>Cornus stolonifera</i>
Open turf grass (Kentucky Bluegrass)	<i>Poa pratensis</i>

5 The upland woods buffer does provide minimal functional benefits for Wetland 2 consisting of
6 stormwater filtration, infiltration, and wildlife habitat. (Pika-Insight OH009, 2023)

7 Two sample points were established within and adjacent to Wetland 2 to characterize the vegetation,
8 soils, and hydrology. Wetland 2 was primarily vegetated by:

Common Name	Scientific Name
Honeysuckle species	<i>Lonicera spp</i>
Pear	<i>Pyrus calleryana</i>
Poison Ivy	<i>Toxicodendron radicans</i>
Common Fox Sedge	<i>Carex vulpinoidea</i>
Kentucky Bluegrass	<i>Poa pratensis</i>
Common Hackberry	<i>Celtis occidentalis</i>

9 The mapped soil series is Urban land- Udorthents complex, 0 to 12 percent slopes (UrUXC), a non-
10 hydric soil. USDA field indicator F6: Redox Dark Surface provided evidence of hydric soil. Saturation
11 provided evidence of persistent hydrology. (Pika-Insight OH009, 2023)

13 4.18.4 Cultural Resources

14 An inventory of the built environment at OH009/39845 was conducted for this site in 1997 and buildings
15 were determined not eligible for the NRHP. Building CM017 was newly constructed at the time of the
16 original survey in 1997 and was thus not evaluated. Additional evaluation may be required when it turns
17 50 years of age (2047). (ICRMP Ohio 2020)

18 Archaeological inventories have been completed for this facility and no sites were identified. There is an
19 approximate 2.85-acre parcel on the west side of the facility that was not included in the 2015 survey.
20 However, based on the results of the Phase I investigation, it is unlikely this area contains any
21 archaeological deposits. No further survey is recommended at this time. (ICRMP Ohio 2020)

22 The ICRMP for facilities located in Ohio will be furnished upon request.

1 **4.18.5 Biological Resources**

2 **Land Cover and Ecological Communities**

3 The site is comprised of five major land cover types.

4

Land Cover and Ecological Communities	Calculated Area	
	Acres	Percent of Site
Manicured Turf Grass	2.49	18%
Upland Woods	7.14	51%
Wooded Wetlands	0.01	<0.1%
Impervious Surfaces*	4.30	31%
Total	13.93	100

5 *includes pavement areas and building footprints. (Pika-Insight OH009, 2023)

6 **Vegetation Communities**

7 The site contains the following ecological communities on the site: manicured turf grass, upland
8 woods, and wooded wetlands. (Pika-Insight OH009, 2023)

9 The upland woods were primarily vegetated by:

Common Name	Scientific Name
Tartarian Honeysuckle	<i>Lonicera tatarica</i>
Japanese Honeysuckle	<i>Lonicera japonica</i>
Pear	<i>Pyrus calleryana</i>
Poison Ivy	<i>Toxicodendron radicans</i>

10 The wooded wetlands were primarily vegetated by:

Common Name	Scientific Name
Eastern Cottonwood	<i>Populus deltoides</i>
Pear	<i>Pyrus calleryana</i>
Poison Ivy	<i>Toxicodendron radicans</i>
Common Fox Sedge	<i>Carex vulpinoidea</i>
Kentucky Bluegrass	<i>Poa pratensis</i>
Common Hackberry	<i>Celtis occidentalis</i>
Japanese Honeysuckle	<i>Lonicera japonica</i>
Red-Osier Dogwood	<i>Cornus stolonifera</i>

11 The site contains several areas of maintained turf grasses throughout the site. The main areas
12 surround the buildings and parking areas. The areas are mowed and manicured throughout the
13 growing season. Kentucky Bluegrass (*Poa pratensis*) dominates the turf areas. (Pika-Insight OH009,
14 2023)

15 **Wildlife**

16 Due to the developed nature of the site and the surrounding land use, wildlife species typically
17 adapted to developed areas are likely to utilize this property. (Pika-Insight OH009, 2023)

1 During the field investigation, the following wildlife species were encountered on the site:

2 *Birds:*

Common Name	Scientific Name
Northern Cardinal	<i>Cardinalis</i>
American Crow	<i>Corvus brachyrhynchos</i>
Blue Jay	<i>Cyanocitta cristata</i>
American Robin	<i>Turdus migratorius</i>
Black-Capped Chickadee	<i>Poecile atricapillus</i>
House Sparrow	<i>Passer domesticus</i>
Carolina Wren	<i>Thryothorus ludovicianus</i>
Song Sparrow	<i>Melospiza melodia</i>
Grey Catbird	<i>Dumetella carolinensis</i>

3 *Mammals:*

Common Name	Scientific Name
Eastern Grey Squirrel	<i>Sciurus carolinensis</i>
Eastern Chipmunk	<i>Tamias striatus</i>
White Tailed Deer	<i>Odocoileus virginianus</i>

4 *Reptiles:* None

5 *Insects:*

Common Name	Scientific Name
Dragonflies	Unidentified
Bumble Bees	Unidentified

6 The northern portion of the sites dense upland woods provides habitat for the above identified
7 wildlife. (Pika-Insight OH009, 2023)

8 **Listed Species**

9 *Federally Listed Species*

10 No federally listed species were observed on the site during the field survey. (Pika-Insight OH009,
11 2023)

12 Based on a June 23, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for
13 Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or
14 endangered) plant or animal species habitat are located on or adjacent to the site. (Pika-Insight
15 OH009, 2023)

16 According to the IPaC, 2 species are listed and may be present in Hamilton County:

Common Name	Scientific Name
Indiana Bat	<i>Myotis sodalist</i>
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>

17 The site contains approximately 7 acres of suitable habitat for the two listed bat species. Due to the
18 abundance of large mature woodland trees, containing Cottonwood and Maple species, there is a
19 possibility for summer roosting habitat for the Indiana Bat and Northern Long-Eared Bat. These
20 species require roosting habitat in the exfoliating bark of large trees, as well as standing dead snags.
21 If project development occurs requiring tree removal during bat pup rearing season in June or July, it

1 is recommended that further consultation and coordination with the USFWS be initiated prior to and
2 during project permitting, to obtain guidance for this listed species. However, typically if tree removal
3 is conducted outside of the pup rearing season (June 1-July 31), further species surveys are not
4 necessary. (Pika-Insight OH009, 2023)

5 Additionally, the Monarch Butterfly (*Danaus plexippus*) is included as a Candidate species formally
6 at this time. It is understood that the International Union for Conservation of Nature (IUCN) has
7 changed the formal status of the Monarch Butterfly to Endangered worldwide; however, the USFWS
8 has not changed the formal status of this species as of the date of this report. (Pika-Insight OH009,
9 2023)

10 The woodland edges contain flowering forbs, and therefore may support limited habitat for the
11 Monarch Butterfly. Further guidance for this species is not required, since it is a candidate species
12 and not yet fully listed as threatened or endangered. The Monarch Butterfly was found to warrant
13 listing and protection under the Endangered Species Act (ESA), but resources must go to higher
14 priority species at this time. Candidate species have no legal protection under the ESA, but agencies
15 can still provide recommendations for them. The USFWS broadly urges the public to provide habitat
16 for this imperiled species by planting native milkweed and nectar plants. The Monarch Butterfly
17 should be considered in any landscaping plans. (Pika-Insight OH009, 2023)

18 *State Listed Species*

19 No state listed species were observed on the site during the field survey. (Pika-Insight OH009, 2023)

20 The Ohio Department of Natural Resources (ODNR) Division of Wildlife identifies 17 plant species as
21 endangered or threatened in Hamilton County, and 45 animal species as endangered or threatened
22 in Hamilton County. (Pika-Insight OH009, 2023)

23 Based on the field investigation, the site does contain suitable habitat for the following state-listed
24 species:

Common Name	Scientific Name
Missouri Gooseberry	<i>Ribes missouriense</i>
Southern Black haw	<i>Viburnum rufidulum</i>
Indiana Bat	<i>Myotis sodalis</i>
Black-Crowned Night-Heron	<i>Nycticorax nycticorax</i>
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>

25 26 **4.18.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

27 There does not appear to be any opportunities for outdoor recreation, public access, and agricultural
28 out-leasing on this site area. The site lacks aesthetic natural communities, hunting or fishing areas,
29 or sufficient area for crop agriculture. (Pika-Insight OH009, 2023)

30 **4.18.7 Management Concerns and Issues**

31 Several invasive species were identified within the dense woods on-site and are recommended for future
32 maintenance. These include:

Common Name	Scientific Name	Approximate Acreage	Density
Japanese Honeysuckle	<i>Lonicera japonica</i>	7.14	High
Tartarian Honeysuckle	<i>Lonicera tatarica</i>	7.14	High
Pear	<i>Pyrus spp.</i>	7.14	Medium

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It is recommended to cut the stems of the 3 woody species noted above to about 2-4 inches above ground level and haul away the cut materials. Then treat the cut stumps within 4 hours of cutting with a triclopyr based aquatic-approved herbicide. Treatments are recommended for winter when other nearby herbaceous plants are dormant for the season. Once this work is completed, it is expected that native, herbaceous woodland ephemerals will develop on-site. (Pika-Insight OH009, 2023)

4.18.8 Special Interest Areas

No special interest areas occur within 1,000 feet of the site. (Pika-Insight OH009, 2023)

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Figure 4.18 - Site Map – OH009/39845

1 **4.19 Taylor Station Road**
2 **ARC**
3 **(OH028/39880)**

4 (a/k/a Blacklick)
5 765 Taylor Station Road
6 Blacklick, OH 43004-9615

7 **Medium Resource**

8 **County:** Franklin

9 **Acres:** 10.00

10 **Building Count:** 3

11 **Last Field Survey:** 2022



12 Taylor Station Road ARC (OH028/39880) consists of the ARC, an OMS, a warehouse, and associated
13 parking areas. The site supports administrative services, classroom training, a permanent combat support
14 hospital tent, and light vehicle maintenance. The parcel contains three buildings, one larger main facility
15 located on the east side of the parcel with frontage along Taylor Station Road, one smaller structure centrally
16 located on the parcel and one that closely borders the south parcel boundary. The 88th RD owns the three
17 buildings and land that comprise OH028/39880.

18 **4.19.1 Geographic Location and Size**

19 OH028/39880 is located in the city of Blacklick, population 9,229, in Franklin County. Acreage for this site
20 as reported in the Real Property Detail Report shows the acreage as 10.00 ac. Land use surrounding the
21 Site includes two storage facilities to the west and north, beyond which are residential areas and a golf
22 course, as well as various larger office buildings to the south and east. A small, forested area lies directly
23 southwest of the Site. Much of the Site itself is landscaped grasses, pavement, and gravel. The site boundary
24 is shown on Figure 3.18. (Dawson OH028, 2022)

25 **4.19.2 Geological Resources**

26 **Physiography and Geology**

27 The Description of the Ecoregions of the United States compiled by Robert G. Bailey of the U.S. Forest
28 Service in 1995, the Site is located within the Eastern Broadleaf Forest (Continental) Province (222).
29 Temperate deciduous forest is the dominant characteristic of this province, which contains tall, broadleaf
30 trees that provide a continuous and dense canopy in summer but shed their leaves completely in winter.
31 Trees common to the eastern North American deciduous forests include oak, beech, birch, hickory,
32 walnut, maple, basswood, elm, ash, tulip tree, sweet chestnut, and hornbeam. In poorly drained habitats,
33 the deciduous forest is dominated by alder, willow, ash, and elm. Forests cleared by logging allows pines
34 to develop readily as second-growth vegetation. (Dawson OH028, 2022)

35 The U.S. Environmental Protection Agency, the Site is also located within the Loamy, High Lime Till
36 Plains ecoregion (55b) which contains soils that developed from loamy, limy, glacial deposits of
37 Wisconsinan age. These soils typically have better natural drainage than those of Ecoregion 55a and
38 more natural fertility than those of Ecoregion 55d. Beech forests, oak-sugar maple forests, and elm-ash
39 swamp forests grew on the nearly level terrain. Today, corn, soybean, and livestock production are
40 widespread. (Dawson OH028, 2022)

41 **Soils**

Soil survey maps accessed through the USDA NRCS web soil survey were reviewed prior to conducting the field surveys. Three soil types were identified within the Site. The dominant soil type at the Site (Bennington silt loam) underlays 9.7 acres of the site, followed by Pewamo silty clay loam (0.5 acres). Key features of each of the map units that underlay the Site are provided in the following table. (Dawson OH028, 2022)

Soil Types at OH028

Symbol	Map Unit Name	Slope (Percent)	Drainage Class	Hydrologic Soil Group	Farmland Classification	Hydric (Y/N)
BeA	Bennington silt loam	0-2	Somewhat poorly drained	C/D	Prime farmland (if drained)	No
BeB	Bennington silt loam	2-6	Somewhat poorly drained	C/D	Prime farmland (if drained)	No
Pm	Pewamo silty clay loam	0-2	Very poorly drained	C/D	Prime farmland (if drained)	Yes

Source: NRCS 2023

Group C = Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D = Soils that have a high runoff potential when thoroughly wet. Water movement through the soils is restricted or very restricted. These soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures. (Dawson OH028, 2022)

Topography

Land on and surrounding the Site is flat with an elevation of 910 feet above mean sea level. (Dawson OH028, 2022)

4.19.3 Water Resources

Watershed and Surface Waters

The Site is located within both the Mason Run-Big Walnut Creek watershed (hydrologic unit code 050600011505) and the Headwaters Blacklick Creek Watershed (hydrologic unit code 050600011503). (Dawson OH028, 2022)

Wetlands

During the 2019 Wetland delineation survey update, one 0.75-acre, forested wetland was delineated on the southwestern corner of the property. This wetland was identified in the previous wetland survey conducted in 2015. The hydrology source seems to originate from the adjacent parking lots. This wetland qualifies as a PFO1C wetland (Palustrine, forested wetlands dominated by deciduous trees, and seasonally flooded). (AEM OH028, 2019)

Dominant herbaceous vegetation within the area include:

- cattail sedge *Carex typhina*
- green ash *Fraxinus pennsylvanica*
- American water plantain *Alisima subcordatum*

Dominant sapling/shrub stratum include:

- pin oak *Quercus palustris*
- green ash *Fraxinus pennsylvanica*

Dominant tree stratum includes:

- pin oak *Quercus palustris*

1 swamp white oak *Quercus bicolor*

2 Due to the topographic conditions of the property and the surrounding area and no identification of
3 a swale or tributary flowing to offsite waters, this is likely an isolated wetland. (AEM OH028, 2019)

4 The Ohio Rapid Assessment Method (ORAM) qualitative score for Wetland 1 is 36 out of 100,
5 indicating a Category 2 wetland. A Category 1 wetland indicates a low-quality wetland with a low level
6 of hydrologic function. (AEM OH028, 2019)

7 This wetland is not a federally jurisdictional wetland because it is isolated and doesn't appear to
8 connect to offsite waters. However, the wetland is potentially state jurisdictional due to the Ohio
9 Environmental Protection Agency (OEPA) regulation of isolated wetlands. (AEM OH028, 2019)

10 The OEPA considers this wetland to be a low quality, Category 1 wetland using the qualitative
11 assessment methodology for field use, the ORAM for Wetlands, Version 5.0 User's Manual. The
12 regulation of wetlands under Ohio's state isolated wetlands law and Sections 401 and 404 of the
13 Clean Water Act require an evaluation of the function and quality of wetlands to facilitate decisions
14 throughout the wetland permitting process. The current USACE Nationwide Permit Regional
15 Conditions for Ohio mandate that "all wetland delineations must include the latest approved version
16 of the ORAM for wetland evaluation" to determine whether the project satisfies the terms and
17 conditions of the Ohio Environmental Protection Agency's (Ohio EPA) Section 401 Water Quality
18 Certification program. (AEM OH028, 2019)

19 Should the wetland be determined to be isolated, an Ohio Isolated Wetlands Permit would be required
20 for any proposed impacts. (AEM OH028, 2019)

21 The National Wetlands Inventory (NWI) mapping indicates there are no wetlands on the site. (AEM
22 OH028, 2019)

23 NWI data indicates there is a Palustrine emergent forested (PEMF) wetland located 500 ft northeast
24 and a Palustrine Unconsolidated Bottom Intermittently Exposed Excavated (PUBGx) wetland
25 (possible a constructed drainage ditch or detention basin) located 1,000 ft northeast of the site. (AEM
26 OH028, 2019)

27 **Floodplains**

28 FEMA Flood Insurance Rate Map (FEMA Firm Panel 39049C0352K dated June 17, 2008) reports
29 the Site is not within a 100-year floodplain. The nearest area defined as a special flood hazard is a
30 Zone A without base flood elevation flood hazard area located approximately one-half mile west of
31 the Site. (Dawson OH028, 2022)

32 **4.19.4 Cultural Resources**

33 An inventory of the built environment was conducted for this facility and buildings were determined not
34 eligible for the NRHP. However, the buildings were less than 10 years of age at the time of the inventory.
35 In compliance with Section 110, the 88th RD should re-evaluate the buildings when they turn 50 years of
36 age (2039). (ICRMP Ohio 2020)

37 Archaeological inventories have been completed for this facility and no sites were identified. No further
38 work is recommended. (ICRMP Ohio 2020)

39 The ICRMP for facilities located in Ohio will be furnished upon request.

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3 **4.19.5 Biological Resources**

4 **Land Cover and Ecological Communities**

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Building	1.94	19.14
Woodland	0.30	2.94
Maintained Grass	2.12	20.84
Paved Road/Parking	5.31	52.23
Wooded Wetland	0.49	4.85
Total	10.16	100

5 (Dawson OH028, 2022)

6 **Vegetation Communities**

7 Plant species observed at the Site are presented in the following table.

8 **Plants Observed at OH028**

Common Name	Scientific Name
Amur honeysuckle	<i>Lonicera maackii</i>
Black locust	<i>Robinia pseudoacacia</i>
Common crownvetch	<i>Securigera varia</i>
Common briar	<i>Rosa canina</i>
Curly dock	<i>Rumex crispus</i>
Cutleaf teasel	<i>Dipsacus laciniatus</i>
Eastern white pine	<i>Pinus strobus</i>
Mayapple	<i>Podophyllum peltatum</i>
Muscadine	<i>Vitis rotundifolia</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Pin oak	<i>Quercus palustris</i>
Poison ivy	<i>Toxicodendron radicans</i>
Poverty rush	<i>Juncus tenuis</i>
Shagbark hickory	<i>Carya ovata</i>
Silver maple	<i>Acer saccharinum</i>
Swamp white oak	<i>Quercus bicolor</i>
Tall goldenrod	<i>Solidago altissima</i>
Tufted sedge	<i>Carex stricta</i>
White ash	<i>Fraxinus americana</i>

9 (Dawson OH028, 2022)

10 **Wildlife**

11 The Site and surrounding areas are developed and offer limited habitat to wildlife. During the Site
12 survey, DAWSON scientists observed only white-tailed deer (*Odocoileus virginianus*). (Dawson
13 OH028, 2022)

1 Previous field surveys showed a much higher diversity of fauna, especially avifauna, on the facility;
 2 however, the recent aerial photographs indicate that there has been extreme development
 3 surrounding OH028. All previously identified adjacent forests and fields are gone and so too is the
 4 fauna.

5 **Listed Species**

6 ***Federally Listed Species***

7 The table that follows includes the USFWS IPaC list of the three mammals, one insect, and one clam
 8 that have the potential to occur at or in the vicinity of the Site. (Dawson OH028, 2022)

9 The site has a small, wooded area but it is surrounded by developed commercial and light industrial
 10 facilities. Because the wooded area is so small it is unlikely to be used by any of the species listed
 11 in the table below due to its size and a lack of connectivity to larger more attractive habitat. (Dawson
 12 OH028, 2022)

13 The monarch butterfly (*Danaus plexippus*) also included in the list is currently a candidate species
 14 under Section 7 of the Endangered Species Act, and is not yet proposed for listing, therefore
 15 consultation with USFWS would not be required if a project at the facility was proposed which might
 16 impact suitable habitat for the species. A copy of the IPaC list is provided in Appendix D of the FY22
 17 *Natural Resources Survey Update*. (Dawson OH028, 2022)

18 **Potential Threatened and Endangered Species at OH028**

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur at the Site
Mammals				
Indiana bat	<i>Myotis sodalis</i>	FE	Yes, though Site does not overlap with CH.	None.
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	FE	None	
Tricolored Bat	<i>Perimyotis subflavus</i>	PE	None	
Insects				
Monarch Butterfly	<i>Danaus plexippus</i>	C	None	The potential for occasional foraging could exist in the flowering herbaceous vegetation that occurs within the seasonal wetland, but the wetland is forested with an approximately 75% to 100% closed canopy, therefore, the presence of flowering plants is limited. No milkweed (<i>Asclepasis sp.</i>) plants were observed at the site which is the host plant for the species.
Clams				
Round Hickorynut	<i>Obovaria subrotunda</i>	T	Yes, though Site does not overlap with CH.	None.

19 Source: USFWS 2023 (Dawson OH028, 2022)

20 Key: C = Candidate, CH = Critical Habitat, FE = Federally Endangered, PE = Proposed Endangered, T = Threatened

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22

1 **State and County Threatened and Endangered Species**

2 ODNR maintains a state and county list of plants and wildlife designated extirpated, endangered,
3 threatened, potentially threatened, species of concern, and special interest. ODNR offers an
4 environmental review process through the Ohio Natural Heritage database to assist in the state
5 review of potential impacts associated with a proposed project (ODNR 2023a). When a review is not
6 warranted, as is currently the case with the site, ODNR refers users to the state and county listed
7 wildlife and plant species lists. (Dawson OH028, 2022)

8 The state list is included in **Appendix E**, the Franklin County list for wildlife is included in **Appendix**
9 **F** and the Franklin County list for plants is in **Appendix G** of the FY22 *Natural Resources Survey*
10 *Update*. (Dawson OH028, 2022)

11 **Army List of Priority Species at Risk**

12 The Army's List of Priority Species at Risk identifies 65 species that would cause significant mission
13 conflict were they to be listed as threatened or endangered under the Endangered Species Act
14 (USACE 2010). None of the at-risk species listed are known to be at or in the vicinity of the Site.

15 **4.19.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

16 There does not appear to be any opportunities for outdoor recreation, public access, and agricultural
17 out-leasing on this site area. The site lacks aesthetic natural communities, hunting or fishing areas,
18 or sufficient area for crop agriculture.

19 **4.19.7 Management Concerns and Issues**

20 The field survey conducted on July 14, 2022, found common plant and wildlife species at the Site
21 with no suitable habitat to support threatened or endangered species.

22 The wetland on the southwestern corner of the Site boundary appears to have no connection to a
23 navigable water so the wetland would likely be considered non-jurisdictional by USACE and the state
24 of Ohio.

25 Management recommendations for the Site include the following:

- 26 • The SLF invasive insect species has been detected in a county adjacent to Franklin County,
27 Ohio. Proactive initiatives the facility could establish include inspecting materials, supplies, and other
28 items originating from areas where SLF has been observed.
- 29 • The Site had areas of damaged chain-linked fencing due to downed trees in the southwest
30 corner of the Site. To maintain OPSEC compliance it is recommended that the downed tree be
31 removed, and fence be repaired.
- 32 • One ash tree in the southwest corner of the site was observed to be diseased. The tree itself
33 was hollow and rotten and looked ready to fall but was noted that if it were to fall, it would not damage
34 any buildings. It is recommended that the diseased/dead ash tree be removed.

35 **4.19.8 Special Interest Areas**

36 None identified.
37



Figure 4.19 - Site Map – OH028/39880

1 **4.20 Kings Mills Memorial ARC**
2 **(OH032/39195)**

3 6195 Striker Road
4 Mainville, OH 45039-8813

5 **Medium Resource**

6 **County:** Warren

7 **Acres:** 19.00

8 **Building Count:** 5

9 **Last Field Survey:** 2022

10 **Last Wetland Survey** 2021



11 Kings Mills Memorial ARC consists of the ARC, an AMSA, a warehouse, and associated parking areas. This
12 site supports classroom training, vehicle storage and maintenance, administrative services, and minimal
13 tactical training. Fencing surrounds the entire property denoting the site boundary. The 88th RD owns the
14 buildings and land that comprise OH032/39195.

15 **4.20.1 Geographic Location and Size**

16 OH032/39195 is located in the city of Maineville in Warren County. The Real Property Detail Report
17 shows the acreage as 19.00 ac. Surrounding land use consists of deciduous forest to the north and west,
18 municipal water treatment operations to the east and institutional lands to the south. The site boundary
19 is shown on Figure 3.19.

20 **4.20.2 Geological Resources**

21 **Physiography and Geology**

22 This site is located within the Till Plains physiographic province. Geological formations at OH032/39195
23 are Ordovician formations. (DAWSON OH032 2022)

24 **Soils**

25 U.S. Department of Agriculture Natural Resources Conservation Service (USDA NRCS) Web
26 Soil Survey prior to conducting the field surveys. Four soil types were identified at the Site.
27 (DAWSON OH032 2022)

28 The dominant soil type at the Site is mapped at more than 90 percent cut and fill land. A small
29 portion of the northwest corner of the Site is mapped as non-hydric (Cincinnati silt loam, 2 to 6
30 percent slopes, eroded), as is the portion along the northwest to northeast edge of the Site
31 (Cincinnati silt loam, 2 to 6 percent slopes). Mapped soil types drain well. The soil series
32 descriptions and drainage classifications for the Site are provided the following Table. (DAWSON
33 OH032 2022)

Soil Types at OH032

Symbol	Soil Name	Slope (Percent)	Drainage Class	Hydrologic Soil Group	Farmland Classification	Hydric (Y/N)
Cu	Cut and fill land	N/A	N/A	N/A	None	N/A
CnB	Cincinnati silt loam, 2 to 6 percent slopes	2-6	Well drained	C	Prime farmland	No
CnB2	Cincinnati silt loam, 2 to 6 percent slopes, eroded	2-6	Well drained	C	Prime farmland	No
Etn6F2	Edenton Flaggy Silty Clay Loam, 25 to 50 Percent Slopes, Eroded	25-50	Well drained	C	Not Prime Farmland	No

Source: NRCS 2023 (DAWSON OH032 2022)

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

N/A = Not Applicable.

Topography

Land within and surrounding the site is relatively flat with elevations ranging from 710 to 730 ft amsl.

4.20.3 Water Resources

Watershed and Surface Waters

The drainage ditch on the western end of the site holds water much of the year. There is also a perimeter stormwater drainage that surrounds the ARC building. It appears to receive water only in times of heavy precipitation. (DAWSON OH032 2022)

The National and State Scenic Little Miami River is located approximately 470 ft north of the site. (DAWSON OH032 2022)

OH032/39195 is located within the Salt Run-Little Miami River watershed (hydrologic unit code 050902020903). The watershed is 22,594 total acres. (DAWSON OH032 2022)

Wetlands

During the site field investigation on July 29, 2021, a total of seven open ditch wetlands (wetlands 1, 2, 3a, 3b, 3.5 and 4) were identified for a total of 0.358 acres. Each wetland is manmade and is located within an earthen open ditch/detention channel. The wetlands are connected via a buried pipe beneath the roads at the site and makes up the site's stormwater conveyance system. Many of the open ditches had a culvert/concrete headwall at one or both ends of the channel. Rip rap at the culvert opening in most of channels was observed. Flooded conditions were observed in wetlands 1 and 2. No indications of erosion was observed associated with the wetlands. (Dawson OH032, 2021)

Each wetland was similarly classified as a palustrine emergent, persistent, temporarily flooded, ditched wetland (PEM1Ad) based on the Cowardian Classification System. A total of 0.358 acres were delineated and identified as wetlands. Because the wetlands have been created through site alteration for the collection of stormwaters, it was found that "normal circumstances" do not exist at the site. (Dawson OH032, 2021)

There are no navigable waters mapped within the site. (Dawson OH032, 2021)

Other open ditches were observed at the site but were shallow, lacked a define bank, and did not exhibit wetland characteristics. A portion of one open ditch at the south side of the site that does not meet the

1 criteria for a wetland appears to have all vegetation recently cleared, including woody shrubs. (Dawson
2 OH032, 2021)

3 **Wetland 1**

4 Wetland 1 is a linear, grass, open ditch located on the north and west sides of the training building.
5 The hydrology source for this wetland appears to be stormwater runoff from the nearby Site building,
6 parking lot, and precipitation. Dominant herbaceous vegetation within the wetland included:

7	water purslane	<i>Ludwigia palustris</i>
8	common reed	<i>Phragmites australis</i>
9	Bermuda grass	<i>Cynodon dactylon</i>
10	broadleaf cattail	<i>Typha latifolia</i>
11	needle spike-rush	<i>Eleocharis acicularis</i>

12 At the time of the field survey. This linear feature along the northwest side of the building was
13 observed to have a considerable amount of standing water. (Dawson OH032, 2021)

14 This drainage ditch does not appear to have a hydrologic connection offsite and would likely be
15 considered non-jurisdictional by USACE; however, only USACE can make a wetland determination.
16 Non-federally jurisdictional wetlands would likely be considered an exempted isolated wetland by the
17 state of Ohio. (Dawson OH032, 2021)

18 **Wetland 2**

19 Wetland 2 is a linear, open stormwater ditch similar to the nearby Wetland 1. Wetland 2 is located in
20 the southeast corner of the site. The hydrology source for this wetland appears to be stormwater
21 runoff from the building and adjacent parking lot. Dominant herbaceous vegetation included:

22	Bermuda grass	<i>Cynodon dactylon</i>
23	needle spike-rush	<i>Eleocharis acicularis</i>
24	broadleaf cattail	<i>Typha latifolia</i>
25	Straw-colored flatsedge	<i>Cyperus strigosus</i>
26	broadleaf arrowhead	<i>Sagittaria latifolia</i>

27 This drainage ditch exhibited areas of ponded water due to recent precipitation. Soils were muck in
28 the wetland soil sample collected at the surface (2.5Y 3/1 when compared to Munsell Soil Color
29 Book). (Dawson OH032, 2021)

30 This feature is isolated and does not have an off-site hydrologic connection and would likely be
31 considered non-jurisdictional by USACE. Non-federally jurisdictional wetlands would likely be
32 considered an exempted isolated wetland by the state of Ohio. (Dawson OH032, 2021)

33 **Wetland 3a & 3b**

34 Wetlands 3a and 3b are part of a stormwater conveyance system connected by culverts crossings
35 beneath the driveways/entrance to a parking lot. This linear feature consists of three separate open
36 ditches paralleling the south side of the access road along the northern parcel boundary. (Dawson
37 OH032, 2021)

38 The hydrology source for this wetland appears to be stormwater runoff from the site. Wetlands 3a,
39 and 3b are separated by a driveway, with a culverted headwall at each driveway. The outfall of each
40 culvert has a heavy algae mat at the ground surface. A small amount of rip rap is located at the mouth
41 of one of the outfalls, limiting vegetation; however, a small population of broadleaf cattail (*Typha*
42 *latifolia*) and water purslane (*Ludwigia palustris*) were observed through this feature. (Dawson
43 OH032, 2021)

1 This feature is isolated and does not have an off-site hydrologic connection and would likely be
2 considered non-jurisdictional by USACE. Non-federally jurisdictional wetlands would likely be
3 considered an exempted isolated wetland by the state of Ohio. (Dawson OH032, 2021)

4 **Wetland 3.5**

5 Wetland 3.5 is connected to wetland 3 (a & b) via a buried culvert. This wetland is located on the
6 north side of the on-site access road. Similar to Wetland 3a and 3b, this wetland is largest at the
7 culvert outfall, then tapers to a narrow strip at the bottom of the ditch. (Dawson OH032, 2021)

8 Vegetation is limited within the small wetland, as some rip rap is located at the culvert opening. Water
9 purslane (*Ludwigia palustris*) makes up the immediate edge of the wetland and Kentucky bluegrass
10 (*Poa pratensis*) is a dominant species in the grass ditch. (Dawson OH032, 2021)

11 This feature is isolated and does not have an off-site hydrologic connection and would likely be
12 considered non-jurisdictional by USACE. Non-federally jurisdictional wetlands would likely be
13 considered an exempted isolated wetland by the state of Ohio. (Dawson OH032, 2021)

14 **Wetland 4**

15 Wetland 4 is a linear feature located between the parking areas associated with the vehicle
16 maintenance building. Herbaceous vegetation within Wetland 4 includes:

17	fox sedge	<i>Carex vulpinoidea</i>
18	ironweed	<i>Veronia gigantea</i>
19	Joe Pye weed	<i>Eutrochium maculatum</i>
20	Canada bluegrass	<i>Poa compressa</i>
21	Kentucky bluegrass	<i>Poa pratensis</i>
22	common reed	<i>Phragmites australis</i>
23	willow	<i>salix sp.</i>
24	cattail sedge	<i>Carex typhina</i>

25 Most of wetland 4 is located at the bottom of a steeper slope so that water collects within the narrow
26 ditch bottom. This drainage ditch does not have a hydrologic connection off-site and would likely be
27 considered non-jurisdictional by USACE. Non-federally jurisdictional wetlands would likely be
28 considered an exempted isolated wetland by the state of Ohio. (Dawson OH032, 2021)

29 **Ohio Rapid Assessment Method (ORAM) for Wetlands**

30 Wetlands at this site are similar in size, wetland community/vegetation diversity, intent (open ditches),
31 and hydrologic regime, therefore one ORAM form was prepared to characterize all wetlands at this
32 site. (Dawson OH032, 2021)

33 The wetlands at this site have been created through stormwater retention within the grass covered,
34 open-ditch stormwater conveyance system. Wetlands of this type generally lack species diversity and
35 high-quality habitat, as is the case at this Site. Adjacent land is forested with little mapped water
36 features in the immediate vicinity. Considering these features are isolated the wetlands at the Site
37 are classified as a category 1 (low quality wetland) per the ORAM. The ORAM documentation is part
38 of the final Wetland Delineation Report. (Dawson OH032, 2021)

39 NWI data indicates no wetlands exist on the site but there are two wetlands within 1,000 feet of the
40 site. There is a PFO1G wetland 380 feet northeast of the site. A PFO1A is located within (a frequently
41 flooded island) the Little Miami River, 350 feet north of the site. (Dawson OH032, 2021)

42 **Floodplains**

43 The Site is not located within a Federal Emergency Management Agency 100-year floodplain. The
44 nearest floodplain is associated with the Little Miami River. (DAWSON OH032 2022)

1 **4.20.4 Cultural Resources**

2 An inventory of the built environment was conducted for this facility and buildings were determined not
 3 eligible for the NRHP. However, two of the primary buildings at this facility (K0001 and K0105) were less
 4 than 10 years of age at the time of the inventory. In compliance with Section 110, the 88th RD should
 5 complete architectural evaluation of these buildings at OH032/Maineville USARC when they turn 50 years
 6 of age. (ICRMP Ohio 2020)

7 Archaeological inventories have been completed for this facility and no sites were identified. No further
 8 work is recommended. (ICRMP Ohio 2020)

9 The ICRMP for facilities located in Ohio will be furnished upon request.

10 **4.20.5 Biological Resources**

11 **Land Cover and Ecological Communities**

12 The site is comprised of six major land cover types. (DAWSON OH032 2022)

Land Cover and Ecological Communities	Calculated Area	
	Acres	Percent of Site
Building	2.33	14.53
Forest	1.12	6.98
Grassland/Vegetated Area	0.41	2.56
Maintained Grass	4.59	26.06
Paved Road/Parking	7.79	48.57
Wetland	0.21	1.31
Total	16.04	100

13 (DAWSON OH032 2022)

14 **Vegetation Communities**

15 Most of the vegetation at the Site is landscaped turf grass. Some hydrophytic vegetation is found in
 16 the wetlands and stormwater ditches. There are two areas within the Site that grow native vegetation:
 17 one is a vegetated area located near the southern edge of the Site and the second area is along
 18 Wetland 4. (DAWSON OH032 2022)

19 **Vegetation Observed at OH032**

Common Name	Scientific Name	Type	Location
American sycamore	<i>Platanus occidentalis</i>	T	Wetlands
Box elder	<i>Acer negundo</i>	T	Wetlands
Eastern white pine	<i>Pinus strobus</i>	T	Wetlands
Norway pine	<i>Pinus resinosa</i>	T	Maintained lawn
Sugar maple	<i>Acer Saccharum</i>	T	Maintained lawn
Walnut	<i>Dipsacus fullonum</i>	T	Wetlands
Willow	<i>Salix sp.</i>	T	Wetlands
Oriental bittersweet	<i>Celastrus orbiculatus</i>	V	Wetlands
Virginia creeper	<i>Parthenocissus quinquefolia</i>	V	Wetlands
Beardtongue	<i>Penstemon sp.</i>	H	Wetlands
Common blue violet	<i>Viola sororia</i>	H	Wetlands
Common mullein	<i>Verbascum thapsus</i>	H	Wetlands
Common reed	<i>Phragmites australis</i>	H	Wetlands
Dandelion	<i>Taraxacum officinale</i>	H	Wetlands

Common Name	Scientific Name	Type	Location
Dayflower	<i>Commelina sp.</i>	H	Vegetated area
Evening primrose	<i>Oenothera biennis</i>	H	Vegetated area
Horsetail	<i>Equisetum arvense</i>	H	Wetlands
Joe Pye weed	<i>Eutrochium maculatum</i>	H	Wetlands
Lady's thumb	<i>Persicaria maculosa</i>	H	Vegetated area
Purple clover	<i>Trifolium pratense</i>	H	Wetlands
Tall ironweed	<i>Vernonia altissim</i>	H	Vegetated area
Teasel	<i>Dipsacus sp.</i>	H	Vegetated area
Three-seeded mercury	<i>Acalypha rhomboidei</i>	H	Wetlands
Water primrose	<i>Ludwigia peploides</i>	H	Wetlands
White clover	<i>Trifolium repens</i>	H	Wetlands
White vervain	<i>Verbena urticifolia</i>	H	Wetlands
Wild carrot	<i>Daucus carota</i>	H	Vegetated area
Bermuda grass	<i>Cynodon dactylon</i>	G	Wetlands
Canada bluegrass	<i>Poa compressa</i>	G	Wetlands/maintained lawn
Cattail sedge	<i>Carex typhina</i>	G	Wetlands
Fox sedge	<i>Carex vulpinoidea</i>	G	Wetlands
Foxtail	<i>Alopecurus sp.</i>	G	Vegetated area
Kentucky bluegrass	<i>Poa pratensis</i>	G	Wetlands/maintained lawn
Rice cutgrass	<i>Leersia oryzoides</i>	G	Wetlands

(DAWSON OH032 2022)

Key: T = Tree, H = Herbaceous, G = Grass, V = Vine

Vegetation Types and Acreages at OH032

Vegetation Community	Acres
Grassland/herbaceous vegetation	0.41
Forest	1.12
Turf/Grasses	4.59
Hydrophytic vegetation	0.21

(DAWSON OH032 2022)

Woodlands

The **Vegetation Observed at the Site** table includes a list of the types of trees identified during the survey. Several Norway pines, sugar maples and eastern white pines are located throughout the maintained lawn portions of the Site. Minor evidence of borer damage (holes observed in a random pattern on the bark of trees and in a linear pattern indicating sapsucker [*Sphyrapicus sp.*] activity) was observed on most trees. Two pines were bear with brown needles and were assumed dead. (DAWSON OH032 2023)

The field survey indicated that there were no trees to identified for commercially marketable timber. (DAWSON OH032 2023)

No historic or unique trees from the Department of Natural Resources and Historic Resources and/or Forestry were identified. Additionally, no National Champion Big Trees that are listed on the Big Trees registry were documented at the Site. (DAWSON OH032 2023)

1 **Wildlife**

2 The Site and surrounding agricultural fields offer limited habitat for wildlife. During 2022 the
3 Site survey, field scientists observed only racoons (*Procyon lotor*) and white-tailed deer
4 (*Odocoileus virginianus*). (DAWSON OH032 2022)

5 Wildlife observed during the 2007 site visit included:

6	field sparrow	<i>Spizella pusilla</i>
7	house sparrow	<i>Passer domesticus</i>
8	robin	<i>Turdus migratorius</i>
9	American goldfinch	<i>Spinus tristis</i>
10	common yellow-throated warbler	<i>Geothlypis trichas</i>
11	barn swallow	<i>Hirundo rustica</i>
12	blue jay	<i>Cyanocitta cristata</i>
13	indigo bunting	<i>Passerina cyanea</i>
14	northern rough wing swallow	<i>Stelgidopteryx serripennis</i>
15	song sparrow	<i>Melospiza melodia</i>
16	European starling	<i>Sturnus vulgaris</i>
17	gray tree frog	<i>Dryophytes versicolor</i>
18	pearl crescent butterfly	<i>Phyciodes tharos</i>
19	black swallow tail	<i>Papilio polyxenes</i>
20	cabbage white butterfly	<i>Pieris rapae</i>
21	zebra swallow tail	<i>Eurytides marcellus</i>

22 During the 2007 field survey it was noted that the site is mostly maintained and provides minimal
23 habitat suitable for wildlife. The PEM1E (Wetland 1) is suitable for adaptable amphibian species.
24 Wildlife species may utilize the site for foraging or as a travel corridor, utilizing the surrounding
25 deciduous forest for roosting/nesting, cover, and foraging. (DAWSON OH032 2022)

26 Overall, there is little natural habitat suitable for wildlife present on the site. Wildlife species typically
27 adapted to developed areas are likely to utilize this property. (DAWSON OH032 2022)

28 **Listed Species**

29 The table below includes the USFWS IPaC list of the two mammals, one clam, one insect, and eight
30 birds that have the potential to occur at or in the vicinity of the Site. The monarch butterfly (*Danaus*
31 *plexippus*) is currently a candidate species under Section 7 of the Endangered Species Act, and is
32 not yet proposed for listing, therefore consultation with USFWS would not be required if a project at
33 the facility was proposed which might impact suitable habitat for the species. The eight birds listed
34 are protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.
35 (DAWSON OH032 2022)

Species of Concern at OH032

Common Name	Scientific Name	Status	Critical Habitat Present	Potential to Occur at the Site
Mammals				
Indiana bat	<i>Myotis sodalis</i>	Endangered	Yes	None. No suitable habitat is located at the Site. Suitable foraging and roosting habitat likely present in nearby (off-site) forested areas bordering the Little Miami River.
Northern long-eared bat	<i>Myotis septentrionalis</i>	Threatened	No	
Birds				
Bald eagle	<i>Haliaeetus leucocephalus</i>	Species of Concern	N/A	None. No suitable habitat located at the Site. Suitable foraging and roosting habitat likely present in nearby (off-site) forested areas bordering the Little Miami River.
Cerulean warbler	<i>Dendroica cerulea</i>	Species of Concern	N/A	Marginal. Potential for incidental/occasional foraging could exist in small areas of grasslands at the Site where flowering vegetation exists.
Chimney swift	<i>Chaetura pelagica</i>	Species of Concern	N/A	
Kentucky warbler	<i>Oporornis formosus</i>	Species of Concern	N/A	
Lesser yellowlegs	<i>Tringa flavipes</i>	Species of Concern	N/A	
Prothonotary warbler	<i>Protonotaria citrea</i>	Species of Concern	N/A	
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	Species of Concern	N/A	
Wood thrush	<i>Hylocichla mustelina</i>	Species of Concern	N/A	
Insects				
Monarch butterfly	<i>Danaus plexippus</i>	Candidate	No	Marginal. Potential for occasional foraging could exist in the vegetated areas of the Site where flowering vegetation exists.
Clams				
Rayed bean	<i>Villosa fabalis</i>	Endangered	No	None. No suitable habitat is located at the Site.

(DAWSON OH032 2022)

1 **State and County Threatened and Endangered Species**

2 ODNR maintains a state and county list of plants and wildlife designated extirpated, endangered,
3 threatened, potentially threatened, species of concern, and special interest. ODNR offers an
4 environmental review process through the Ohio Natural Heritage database to assist in the state
5 review of potential impacts associated with a proposed project. When a review is not warranted, as
6 is currently the case with the Site, ODNR refers users to the state and county listed wildlife and plant
7 species lists. (DAWSON OH032 2022)

8 The state species list is included in **Appendix E**, the Warren County list for wildlife is provided in
9 **Appendix F** and the Warren County list for plants is provided in **Appendix G** of the complete *FINAL*
10 *NATURAL RESOURCE SURVEY REPORT Natural Resource Surveys and Wetland Delineations for*
11 *the 88th Readiness Division Kings Mills Memorial USARC (OH032/39195) 6195 Striker Road,*
12 *Maineville, Ohio, April 2023.* (DAWSON OH032 2022)

13 **Army List of Priority Species at Risk**

14 The Army's List of Priority Species at Risk identifies 65 species that would cause significant mission
15 conflict were they to be listed as threatened or endangered under the Endangered Species Act.
16 (DAWSON OH032 2022)

17 None of the at-risk species listed are known to be at or in the vicinity of the Site. (DAWSON OH032
18 2022)

19
20 **4.20.6 Management Concerns and Issues**

21 During the field survey conducted August 24 and 25, 2022, field scientists found common plant and
22 wildlife species at the Site and no suitable habitat to support threatened or endangered species.
23 Wooded areas off-site may offer some habitat for birds and bats. (DAWSON OH032 2022)

24 Management recommendations for the Site include the following:

- 25 • Invasive Plants. The invasive plants observed at the Site are commonly observed species in
26 their respective habitats. Given the low density at which these invasive plants were observed, they
27 are not considered management concerns at this time. (DAWSON OH032 2022)

- 28 • Invasive Insects. Proactive initiatives the facility could establish include inspecting materials,
29 supplies, and other items originating from areas where SLF has been observed. Additionally, Norway
30 pines at the Site should be monitored for hazardous conditions should branches fall as a result of
31 impacts from boring insects. The dead pines may should be cut down. The installation can institute
32 proactive initiatives such as photographing the Site from various fixed locations to better observe this
33 and other changed conditions at the Site. (DAWSON OH032 2022)

- 34 • Wetlands/Drainage Ditches. Impacts to the drainage ditch/wetlands features should be
35 avoided. Culverts should remain clear and maintained so that the drainage ditches don't pond and
36 overflow. Some of the drainage ditch wetlands may be considered jurisdictional by USACE. A
37 jurisdictional determination would be required by USACE prior to any impacts to the wetlands.
38 (DAWSON OH032 2022)

- 39 • Stormwater. In the northwest corner of the Site, there is a roughly constructed concrete
40 channel that extends down a short embankment near the side of the parking lot to the fence line.
41 Beyond the fence line there is a utility corridor, and in times of high flow, it is likely that stormwater
42 flows from the parking area, down the channel to the utility corridor, and then discharges into the Little
43 Miami River. DAWSON recommends implementing adequate containment measures for stormwater
44 in this parking area so that stormwater is contained on Site. (DAWSON OH032 2022)

1 **4.20.7 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

2 There does not appear to be any opportunities for outdoor recreation, public access, or agricultural
3 out-leasing areas on this Site. This Site lacks aesthetic natural communities; however, the Little Miami
4 River Scenic Trail can be accessed from the northwest portion of the Site. (DAWSON OH032 2022)

5 **4.20.8 Special Interest Areas**

6 Special interest areas within 1,000 ft of the site include the Little Miami Scenic State Park and the
7 Little Miami Scenic River. Both are approximately 470 ft north of the site.

8

9



1
 2
 3

Figure 4.20 - Site Map – OH032/39195

1 **4.21 1LT G.N. Faze ARC**
 2 **(OH033/39893)**

3 2190 Reed Road
 4 Lima, OH 45039-8813

5 **Medium Resource**

6 **County:** Reed

7 **Acres:** 6.00

8 **Building Count:** 2

9 **Last Field Survey:** 2019 (wetland)
 10 2022 (NRSRVYUP)



11 1LT G. N. Faze ARC consists of the ARC, an OMS, and associated parking areas. The site supports
 12 classroom training, light tactical training, and administrative services. The 88th RD owns the two buildings
 13 and 4.0 ac of the land that compose OH033/39893. The remaining 2.0 ac are leased.

14 **4.21.1 Geographic Location and Size**

15 The Site occupies a 6.00-acre parcel in rural Lima, Allen County, Ohio approximately 70 miles
 16 northwest of Columbus, Ohio. The majority of the Site is developed, landscaped areas are located at
 17 the front of the facility facing Shawnee Road. The Site is surrounded by Heritage Park to the north
 18 and east side, an electrical substation on the west side of the Site across Shawnee Road, and an
 19 educational facility on the south side beyond Reed Road. Western Ohio railroad maintains an active
 20 railroad track approximately 200 feet northwest of the Site (Dawson OH033, 2022)

21 **4.21.2 Geological Resources**

22 **Physiography and Geology**

23 The 1LT G.N. Faze ARC is located within the Till Plains physiographic province. Geological
 24 formations at OH033/39893 are Silurian formations.

25 **Soils**

26 Soil survey maps accessed through the USDA NCRS web soil survey were reviewed prior to
 27 conducting the field surveys. Two soil types were identified within the Site. (Dawson OH033, 2022)

28 The dominant soil type at the Site (Blount silt loam) underlays 2.9 acres of the site and Glynwood silt
 29 loam underlays 0.9 acres (NRCS 2023). Key features of each of the map units that underlay the Site
 30 are provided in the table that follows. (Dawson OH033, 2022)

31 **Soil Types at OH033**

Symbol	Map Unit Name	Slope (Percent)	Drainage Class	Hydrologic Soil Group	Farmland Classification	Hydric (Y/N)
BlgB1	Blount silt loam	2-4	Somewhat poorly drained	D	Prime farmland (if drained)	No
Gwg1B1	Glynwood silt loam	2-6	Moderately well drained	D	All areas are prime farmland	Yes

32 Source: NRCS 2023

33 Group D = Soils that have a high runoff potential when thoroughly wet. Water movement through the soils is restricted or
 34 very restricted. These soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures.

1 **Topography**

2 Land on and surrounding the Site is relatively flat with an elevation ranging from 840 to 843 feet above
3 mean sea level. (Dawson OH033, 2022)

4 **4.21.3 Cultural Resources**

5 An inventory of the built environment was conducted for this facility and buildings were determined
6 not eligible for the NRHP. (ICRMP Ohio 2020)

7 Archaeological inventories have been completed for this facility and no sites were identified. The
8 ASA appears to have excluded approximately 1.69 acres within the eastern property boundary (see
9 Figure 3-19). Based on the results of the ASA, there is a low potential for archaeological sites within
10 this area. (ICRMP Ohio 2020)

11 The ICRMP for facilities located in Ohio will be furnished upon request.

12 **4.21.4 Water Resources**

13 **Watershed and Surface Waters**

14 There are no naturally occurring surface waters present on the site. There is a one-acre pond
15 associated with Heritage Park located approximately 400 ft northeast of the site.

16 The Site is located partially within two watersheds, the Little Ottawa River Watershed (hydrologic unit
17 code 041000070401) and the Lima Reservoir-Ottawa River Watershed (hydrologic unit code
18 041000070306). These two smaller watersheds are subsets of the larger Ottawa River watershed
19 which is located in northwestern Ohio along the Michigan-Ohio border. The Raisin River is in
20 Michigan, with a small portion of it draining into Ohio immediately west of the Ottawa River. Together
21 the watersheds drain a total of 173 square miles in Ohio and flow through two counties. (Dawson
22 OH033, 2022)

23 **Floodplains**

24 According to the FEMA Flood Insurance Rate Map for Allen County (FEMA Firm Panel 39003C0309D
25 effective May 2, 2013), the Site is not within a 100-year floodplain. The nearest area defined as a
26 special flood hazard area is located approximately 0.40 miles west of the Site surrounding the Little
27 Ottawa River. (Dawson OH033, 2022)

28 **Wetlands**

29 During the wetland field survey on May 28, 2000 (FY19), field scientists delineated one wetland. The
30 2015, delineation identified one wetland. The area of the wetland has increased from 0.085 acres of
31 wetland in 2015, to 0.18 wetland acres were delineated 2020. (AEM OH033, 2019)

32 The wetland assessed may be considered jurisdictional. This determination is under the purview of
33 the USACE, Buffalo District, Regulatory Division. A total of 0.18 acres of wetland have been
34 delineated within the property boundaries. (AEM OH033, 2019)

35 NWI data shows no wetlands on or within 1,000 ft of the site. (AEM OH033, 2019)

36 **Wetland 1 (W01)** is a 0.18-acre, constructed linear wetland is contained within a depression along
37 the parking area fence line, in the northern portion of the property. The Wetland Code is identified as
38 PEM1E (Freshwater Emergent persistent seasonally flooded/saturated) Wetland with groundwater
39 and surface flooding that has saturated and seasonal/drainage flooding duration. (AEM OH033, 2019)

40 Herb Stratum determined at the site is dark green bulrush (*Scirpus atrovirens*), and blunt spikerush
41 (*Eleocharis obtusa*). The hydrology source for this wetland appears to be stormwater runoff from the
42 adjacent parking lot. (AEM OH033, 2019)

1 The Ohio Rapid Assessment Method (ORAM) qualitative score for Wetland 1 is 18 out of 100,
2 indicating a Category 1 wetland. A Category 1 wetland indicates a low-quality wetland with a low
3 level of hydrologic function. (AEM OH033, 2019)

4 Wetland 1 is likely a federal and state jurisdictional wetland because it potentially connects to offsite
5 waters through the stormwater system. If the wetland were determined to be isolated, it would be
6 considered a state-regulated wetland. (AEM OH033, 2019)

7 Wetland 1 is considered a low quality, Category 1 wetland. The regulation of wetlands under Ohio's
8 state isolated wetlands law and Sections 401 and 404 of the Clean Water Act require an evaluation
9 of the function and quality of wetlands to facilitate decisions throughout the wetland permitting
10 process. (AEM OH033, 2019)

11 The current USACE Nationwide Permit Regional Conditions for Ohio mandate that "all wetland
12 delineations must include the latest approved version of the ORAM for wetland evaluation" to
13 determine whether the project satisfies the terms and conditions of the Ohio Environmental Protection
14 Agency's (Ohio EPA) Section 401 Water Quality Certification program. (AEM OH033, 2019)

15 Should the wetland be determined to be isolated, an Ohio Isolated Wetlands Permit would be required
16 for any proposed impacts. (AEM OH033, 2019)

18 4.21.5 Biological Resources

19 Land Cover and Ecological Communities

Land Cover and Ecological Communities	Calculated Area	
	Acres	Percent of Site
Paved Road/Parking	2.61	44%
Building	0.39	6%
Woodland	1.73	29%
Lawn/Maintained Grass	1.17	19%
Wetland	0.10	2%
Totals	6.00	100

20 (Dawson OH033, 2022)

21 Vegetation Communities

22 The U.S. National Vegetation Classification (USNVC) broadly classifies ecoregions at a community
23 level, which categories assemblages of species and their ecological interactions. The primary
24 vegetation community on the Site is *Fraxinus pennsylvanica* – *Ulmus ssp. Celtis occidentalis* Forest
25 (Green Ash – Elm Species – Northern Hackberry Forest) which covers 1.73 acres (Gaber-
26 Langendoen 2001). No evidence of the Emerald Ash Borer (*Agrilus planipennis*) was found, the trees
27 appeared to be healthy. This vegetation community has an open to closed tree canopy that is
28 dominated by *Fraxinus pennsylvanica*, *Celtis occidentalis*, and *Ulmus americana*. The following table
29 presents the plant species observed at the Site. (Dawson OH033, 2022)

30 Other tree species that may be present include *Juglans nigra*, *Tilia americana*, *Acer saccharinum*,
31 *Populus deltoides*. *Ulmus rubra* can be part of the subcanopy. (Dawson OH033, 2022)

32 Tree stands occur along upper floodplain terraces of rivers and streams and in upland ravine bottoms.
33 Soils are moderately well-drained to poorly drained (Gaber-Langendoen 2001). The table that follows,
34 presents the plant species observed at the Site. (Dawson OH033, 2022)

1

Dominant Vegetation Observed at OH033

Common Name	Scientific Name	Type
Shagbark hickory	<i>Carya ovata</i>	T
Silky dogwood	<i>Cornus amomum</i>	T
Green ash	<i>Fraxinus pennsylvanica</i>	T
American elm	<i>Ulmus americana</i>	T
Virginia wildrye	<i>Elymus virginicus</i>	S
Nodding Fescue	<i>Festuca subverticillata</i>	S
Cleavers	<i>Galium aparine</i>	S
White avens	<i>Geum canadense</i>	S
Canadian wood nettle	<i>Laportea canadensis</i>	S
Common buckthorn	<i>Rhamnus cathartica</i>	S
Missouri gooseberry	<i>Ribes missouriense</i>	S
Western snowberry	<i>Symphoricarpos occidentalis</i>	S
Common pricklyash	<i>Zanthoxylum americanum</i>	S
Thicket creeper	<i>Parthenocissus vitacea</i>	V
Bristly greenbrier	<i>Smilax tamnoides (= Smilax hispida)</i>	V
Poison ivy	<i>Toxicodendron radicans</i>	V
Riverbank grape	<i>Vitis riparia</i>	V
Tall goldenrod	<i>Solidago altissima</i>	H

2

Key: Plant type, T = Tree, S = Shrub, V = Woody Vine, H = Herbaceous (Dawson OH033, 2022)

3

Woodlands

4

Since 1940, American Forests (a conservation organization based in Washington, D.C.), has documented the largest known specimens of every native and naturalized tree in the United States. Ohio is currently home to 16 National Champion Big Trees on the Big Trees registry (ODNR 2023b). Designation as a Big Tree through the program does not confer any special legal status, ownership, or protection. Both native and non-native trees are considered. No champion trees of Ohio are documented at the Site. (Dawson OH033, 2022)

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Wildlife

11

During the site survey, DAWSON scientists observed the following wildlife, or signs of wildlife at the Site, which is presented in the table that follows.

12

13

Wildlife Observed at the Site

Common Name	Scientific Name
Mammals	
White-Tailed Deer	<i>Odocoileus virginianus</i>
Avian	
American Goldfinch	<i>Spinus tristis</i>
American Tree Sparrow	<i>Apizelloides arborea</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Robin	<i>Turdus migratorius</i>
House Sparrow	<i>Passer domesticus</i>

(Dawson OH033, 2022)

14

The woodland at the Site and surrounding Heritage Park offers excellent habitat to wildlife.

15

Surveyors did walk through the adjacent, connected, Heritage Park and observed common avian species that likely use the wooded part of the Site. A total of 99 species are recorded on Ebird.org

16

(ebird 2022) that have been observed at Heritage Park, Fort Shawnee, Allen County, Ohio. None the species that are listed as observed at the park are state or federally listed avian species. (Dawson OH033, 2022)

Listed Species

The table that follows includes the USFWS IPaC list of the three bat species and one insect that have the potential to occur at or in the vicinity of the Site. A copy of the IPaC list is provided in **Appendix D** of the *FINAL NATURAL RESOURCE SURVEY REPORT Natural Resource Surveys and Wetland Delineations for the 88th Readiness Division 1LT G. N. FAZE USARC (Lima) (OH033/39893) 190 Reed Road, Lima, Ohio, dated May 2023, available upon request. (Dawson OH033, 2022)*

Threatened and Endangered Species at OH033

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur at the Site
Mammals				
Indiana bat	<i>Myotis sodalis</i>	FE	None, CH exists near-by, but it does not overlap with the Site boundary.	Maternity roosts are typically located in riparian and wooded wetland habitats. Typically forage in semi-open to closed forested habitats. While the site has a small semi-open wooded area, its proximity to development and disturbance from traffic on Reed Road would make this area undesirable for use. It is unlikely that the species is using any part of the wooded habitat at the site.
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	FE	None	While the site has a small semi-open wooded area, its proximity to commercial development and associated disturbances would make this area undesirable for use. It is unlikely that the species is using any part of the wooded habitat at the site.
Tricolored bat	<i>Perimyotis subflavus</i>	PE	None	While the site has a small semi-open wooded area, its proximity to commercial development and associated disturbances as well as lack of riparian and wetland areas would make this area undesirable for use. Species

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur at the Site
				typically prefers a dense canopy with a dense underbrush. The wooded part of the site has two open areas, making this less desirable to the species.
Insects				
Monarch Butterfly	<i>Danaus plexippus</i>	C	None	No habitat exists at the Site to support the species. No milkweed (<i>Asclepasis sp.</i>) plants were observed at the site which is the host plant for the species.

1 Source: USFWS 2023b (Dawson OH033, 2022)

2 Key: C = Candidate, CH = Critical Habitat, FE = Federally Endangered, PE = Proposed Endangered (Dawson OH033, 2022)

3 State and County Threatened and Endangered Species

4 ODNR maintains a state and county list of plants and wildlife designated extirpated, endangered,
5 threatened, potentially threatened, species of concern, and special interest. ODNR offers an
6 environmental review process through the Ohio Natural Heritage database to assist in the state
7 review of potential impacts associated with a proposed project (ODNR 2023a). When a review is not
8 warranted, as is currently the case with the site, ODNR refers users to the state and county listed
9 wildlife and plant species lists. (Dawson OH033, 2022)

10 The state list is included in **Appendix E**, the Allen County list for wildlife is included in **Appendix F**
11 and the Allen County list for plants is in **Appendix G** of the *FINAL NATURAL RESOURCE SURVEY*
12 *REPORT Natural Resource Surveys and Wetland Delineations for the 88th Readiness Division 1LT*
13 *G. N. FAZE USARC (Lima) (OH033/39893) 190 Reed Road, Lima, Ohio, dated May 2023, available*
14 *upon request. (Dawson OH033, 2022).*

15 Army List of Priority Species at Risk

16 The Army's List of Priority Species at Risk identifies 65 species that would cause significant mission
17 conflict were they to be listed as threatened or endangered under the Endangered Species Act
18 (USACE 2010). None of the at-risk species listed are known to be at or in the vicinity of the Site.

19 4.21.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

20 There does not appear to be any opportunities for outdoor recreation, public access, and agricultural
21 out-leasing on this site area. The site lacks aesthetic natural communities, hunting or fishing areas,
22 or sufficient area for crop agriculture.

23 4.21.7 Management Concerns and Issues

24 The field surveys conducted on July 13 and 14, 2022, found common plant and wildlife species at the
25 Site with no little suitable habitat to support threatened or endangered species.

26 The wetland on the northern Site boundary appears to have no connection to a navigable water so
27 the wetland would likely be considered non-jurisdictional by USACE and the state of Ohio.

28 Management recommendations for the Site include the following:

- 1 • On October 28, 2021, the Ohio Department of Agriculture announced a quarantine to combat
2 the spread of the spotted lanternfly (*Lycorma delicatula*; SLF). SLF is now designated a
3 destructive plant pest under Ohio law. The Spotted Lantern Fly (SLF) invasive insect species
4 has been detected in one county along the eastern state border and in two counties along
5 Lake Erie. Proactive initiatives are recommended. For example, the facility could educate staff
6 to recognize SLF and establish a process to include inspecting materials, supplies, and other
7 items originating from areas where SLF has been observed.
- 8 • Impacts to wetlands should be avoided. Should the 88th RD/installation leadership feel that
9 additional stormwater control measures are necessary at the Site, a delineation of the wetland
10 located along the north Site boundary should be conducted and USACE should conduct a
11 jurisdictional determination prior to any construction activity.

12 **Invasive Plants**

13 During the field survey, only one invasive plant was observed, the Common Buckthorn. Common
14 Buckthorn (*Rhamnus cathartica*) is an invasive shrub found throughout Ohio, the greater Midwest,
15 and a large portion of the eastern United States. However, the presence of this species does not
16 appear to be encroaching or crowding out any native species to any significant degree.

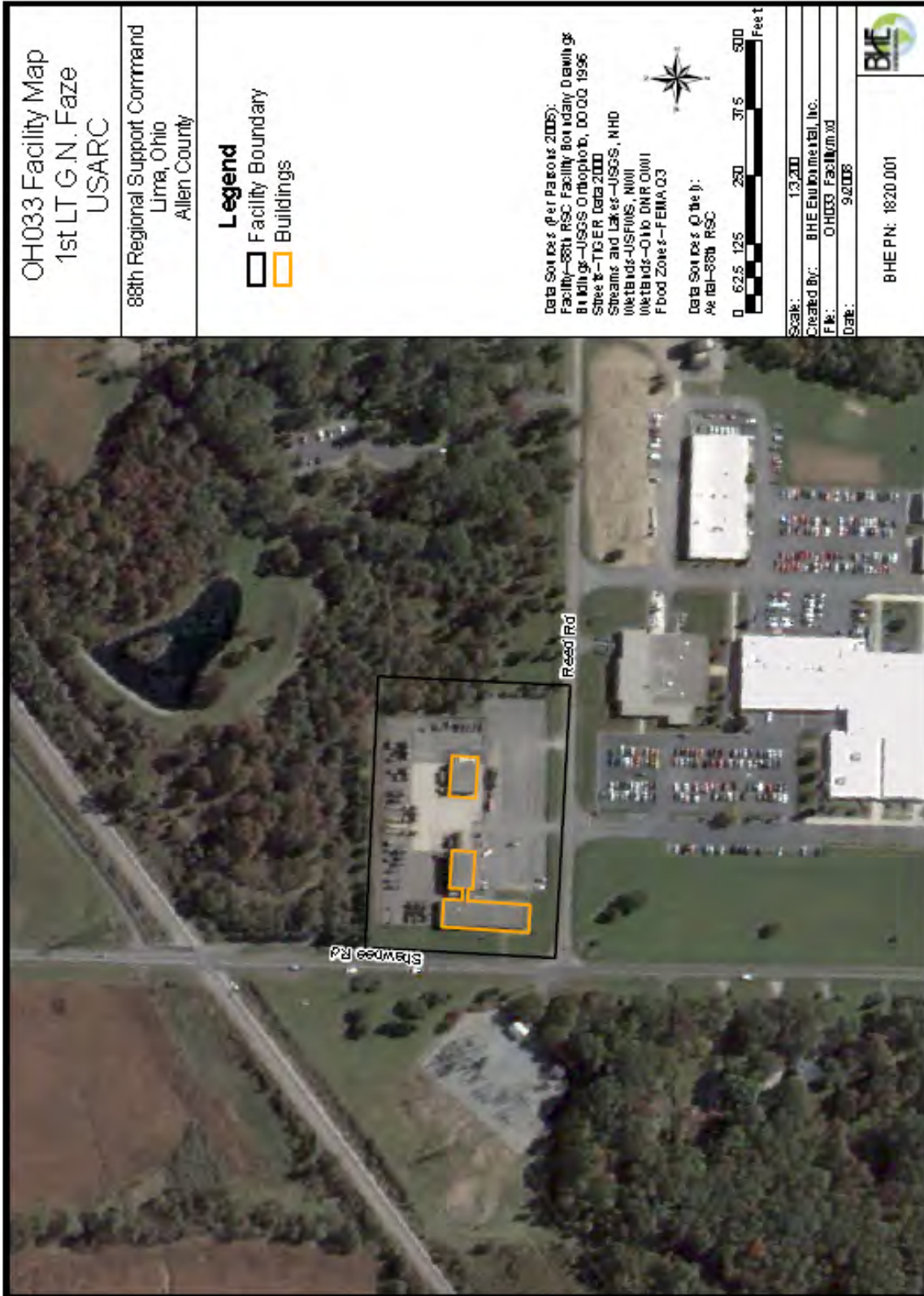
17 **Noxious Weeds**

18 In September 2018, the State of Ohio designated a list of noxious weeds that are prohibited in the
19 state.

20 None of the species on the noxious weeds list were observed at the Site.

21 **4.21.8 Special Interest Areas**

22 No special interest areas occur within 1,000 feet of the site.
23
24



1
2

Figure 4.21 - Site Map – OH033/39893

1 **4.22 SGT J.H. Cooney**
 2 **ARC/BMA**
 3 **(OH044/39954)**

4 1119 Mason Road
 5 Milan OH 44846-9507

6 **Medium Resource**

7 **County:** Erie

8 **Acres:** 10.30

9 **Building Count:** 3

10 **Last Field Survey:** 2022



11 SGT JH Cooney ARC/BMA 165 SS (OH044/39954) consists of the ARC, an OMS, an AMSA, and associated
 12 parking areas. This site supports administrative services and light vehicle maintenance. The 88th RD owns
 13 the three buildings and land that comprise OH044/39954.

14 **4.22.1 Geographic Location and Size**

15 Site OH044/39954 is located in the city of Milan, with a population of 1,453. Acreage for the site in
 16 the Real Property Detail Report shows as 10.30 ac. Land use surrounding the site includes
 17 agricultural land to the south, agricultural land and deciduous forest to the north, agricultural and
 18 residential land to the east, and National Aeronautics and Space Administration's (NASA) Plumbrook
 19 Station to the west. (Dawson OH044 2022) The site boundaries are shown on Figure 3.22.

20 **4.22.2 Geological Resources**

21 **Physiography and Geology**

22 This site is located in the Huron Erie Lake Plains physiographic province. This province is extremely
 23 flat, having once been the bottom of a much larger ancient lake. Fertile soils and a series of sandy
 24 beach ridges and dunes characterize this province in the vicinity of the site. The geology of Ohio
 25 formed beginning more than one billion years ago in the Proterozoic eon of the Precambrian. The
 26 igneous and metamorphic crystalline basement rock is poorly understood except through deep
 27 boreholes and does not outcrop at the surface. The basement rock is divided between the Grenville
 28 Province and Superior Province. (Dawson OH044 2022)

29 **Soils**

30 The dominant soil type at the Site is Elliott silt loam that underlays 5.74 acres of the site,
 31 followed by Kibbie fine sandy loam (2.45 acres) and Pewamo silty clay loam (2.13 acres).
 32 Key features of each of the map units that underlay the Site are provided in the following
 33 table. (Dawson OH044 2022)

34 **Soil Types at OH044**

Symbol	Map Unit Name	Slope (Percent)	Drainage Class	Hydrologic Soil Group	Farmland Classification	Hydric (Y/N)
EcA	Elliott silt loam	0-2	Somewhat poorly drained	C/D	Prime farmland (if drained)	No
PcA	Pewamo silty clay loam	0-1	Very poorly drained	C/D	Prime farmland (if drained)	Yes

Symbol	Map Unit Name	Slope (Percent)	Drainage Class	Hydrologic Soil Group	Farmland Classification	Hydric (Y/N)
kbA	Kibbie fine sandy loam	0-2	Somewhat poorly drained	B/D	Prime farmland (if drained)	No

1 Source: NRCS 2022 (Dawson OH044, 2022)

2 Group B = Soils that have moderately low runoff potential when thoroughly wet. These soils typically have between 10 -20
3 percent clay and 50-90 percent sand and have loamy sand or sandy loam textures.

4 Group C = Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes
5 the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water
6 transmission.

7 Group D = Soils that have a high runoff potential when thoroughly wet. Water movement through the soils is restricted or
8 very restricted. These soils typically have greater than 40 percent clay, less than 50 percent sand, and have clayey textures.

9 Topography

10 Land on and surrounding the Site is relatively flat with an elevation ranging from 650 to 670 feet above
11 mean sea level. (Dawson OH044 2022)

12 4.22.3 Water Resources

13 Watershed and Surface Waters

14 The site is located within the Sawmill Creek watershed (hydrologic unit code 041000110101). The
15 watershed is 14.3 square miles and extends to the shore of Lake Erie. (Dawson OH044 2022)

16 There are no surface waters located on the property. A series of drainage ditches drain the perimeter
17 and north central portion of the site, but do not retain water except during heavy rain events. (Dawson
18 OH044 2022)

19 Two forks of an unnamed tributary to Lake Erie lie approximately 90 ft northwest and 265 ft southeast
20 of the site. These streams are incised (i.e., excavated) drainage ditches typical of drained agricultural
21 lands. (Dawson OH044 2022)

22 Floodplains

23 According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map
24 (FEMA Firm Panel 39043C0210D dated August 28, 2008), the Site is not within a 100-year floodplain.
25 The nearest area defined as a 1% annual chance flood hazard is located approximately one mile east
26 of the Site, which is an unnamed riparian corridor generally flowing northeast toward Lake Erie.
27 (Dawson OH044 2022)

28 Wetlands

29 During the 2022 Natural Resources Survey Update (NRSRVYUP) the field survey scientists
30 delineated two linear wetlands, both created for use as stormwater retention basins.

31 Wetland W1 was located along the west and north side of the Site and W2 was located along the
32 western border of the fenced facility. Hydrologic connection between each wetland via underground
33 culverts was assumed but could not be confirmed. A culvert was observed that appear to connect
34 the retention basins to Sherer Ditch. (Dawson OH044 2022)

35 Stormwater from central locations at the facility channeled into wetland W2 via culverts and an
36 earthen swale. Surface water was not observed in either wetland. Both wetlands were dominated by
37 broadleaf cattail (*Typha latifolia*). The west side of wetland W1 was bound by a large earthen berm
38 showing very early signs of erosion/deterioration along the top of the berm. The ends of both
39 stormwater retention basins tapered to become shallow earthen swales at which point they did not
40 contain wetland features. (Dawson OH044 2022)

Both wetlands appear to connect via a culvert to the off-site Sherer Ditch located less than 100 feet north of the northwestern corner of the Site. Sherer Ditch appears to eventually drain into Lake Erie. (Dawson OH044 2022)

Under the NWPR (the regulatory directive at the time of the delineation), stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off were excluded from jurisdiction by USACE. Following Federal regulations, the State of Ohio would not likely claim jurisdiction over the wetlands at the Site. (Dawson OH044 2022)

The announcement of the final rule on December 30, 2022, will vacate the NWPR and reverted regulations to the pre-2015 interpretation of the CWA. Under this rule, drainage and irrigation ditches such as Sherer Ditch are typically jurisdictional Waters of the U.S. when they are a tributary to jurisdictional waters or are ditches in uplands with perennial or intermittent flow. Waterways that eventually drain to a navigable water would likely be considered jurisdictional. Because there appears to be a hydrologic connected to Sherer Ditch, the wetlands at the Site would likely be considered jurisdictional. Federally jurisdictional wetlands would also likely be considered jurisdictional and defined as Waters of the State by the state of Ohio. (Dawson OH044 2022)

Should the facility wish to pursue an activity that would cause impacts to the existing drainages, a jurisdictional determination should be sought early in the planning process. The table that follows presents the wetland findings. (Dawson OH044 2022)

Wetlands Observed During the NRSRVYUP

Feature	Cowardin Classification	Open Ditch (Y/N)	Wetland (Y/N)	Jurisdictional (NWPR) (Y/N)	Jurisdictional (2022 Rule) (Y/N)	Area (acres)
Wetland 1	PEM1Ad	Y	Y	N	Y	0.17
Wetland 2	PEM1Ad	Y	Y	N	Y	0.04

Notes: PEM1Ad = palustrine emergent, persistent, temporarily flooded, ditched wetland feature based on the Cowardian Classification System

4.22.4 Cultural Resources

An inventory of the built environment was conducted for this facility and buildings were determined not eligible for the NRHP. However, two of the three buildings at this facility (ML002 and ML003, both constructed in 1980) were less than 20 years old and a third building was only recently constructed when the Section 110 survey was completed in 1997. In compliance with Section 110 of the NHPA, the 88th RD should re-evaluate these buildings when the facility turns 50 years of age in 2030. (ICRMP Ohio 2020)

Archaeological inventories have been completed for this facility and no sites were identified. No further work is recommended. (ICRMP Ohio 2020)

The ICRMP for facilities located in Ohio will be furnished upon request.

4.22.5 Biological Resources

Land Cover and Ecological Communities

The Site consists primarily of landscaped grasses with the center of the site consisting primarily of pavement and buildings. The following table lists the acreage and percentage of the facility for each land cover type at the Site. (Dawson OH044 2022)

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Building	0.6	6
Grassland/Field	2.1	21
Gravel	0.2	2
Lawn/Maintained Grass	3.7	37
Paved Road/Parking	3.0	30
Wetland	0.2	2
Totals	10.06	100

(Dawson OH044, 2022)

Vegetation Communities

Herbaceous vegetation dominated the retention basins, and in an unmaintained area north of the fenced facility. Plant species observed at the Site and the Observed Vegetative Community types at the Site, respectively, follow. (Dawson OH044 2022)

Plants Species Observed During the OH044 Field Survey

Common Name	Scientific Name	Growth Form
Black Willow	<i>Salix nigra</i>	T
Coyote Willow	<i>Salix exigua</i>	T
Cottonwood	<i>Populus sect. Aigeiros</i>	T
Black walnut	<i>Juglans nigra</i>	T
Norway pine	<i>Pinus resinosa</i>	T
Peach leaved willow	<i>Salix amygdaloides</i>	T
Autumn olive	<i>Elaeagnus umbellata</i>	S
Dogwood	<i>Cornus florida</i>	S
Roughleaf dogwood	<i>Cornus drummondii</i>	S
Clover	<i>Trifolium spp.</i>	H
Bull thistle	<i>Cirsium vulgare</i>	H
Carrot	<i>Daucus carota</i>	H
Blue vervain	<i>Verbena hastata</i>	H
Wool bullrush	<i>Scirpus cyperinus</i>	H
Broadleaf Cattail	<i>Typha latifolia</i>	H
Common Mullein	<i>Verbascum</i>	H
Common Cocklebur	<i>Xanthium strumarium</i>	H
Sprengel's sedge	<i>Carex sprengelii</i>	H
Green bulrush	<i>Scirpus atrovirens</i>	H
Common chicory	<i>Cichorium intybus</i>	H
Creeping thistle	<i>Cirsium arvense</i>	H
Prairie fleabane	<i>Erigeron strigosus</i>	H
Swamp milkweed	<i>Asclepias incarnata</i>	H
Yellow sweet clover	<i>Melilotus officinalis</i>	H
Common teasel	<i>Dipsacus fullonum</i>	H
Common reed	<i>Phragmites australis</i>	H
Kentucky bluegrass/Turf	<i>Poa pratensis</i>	G
Perennial ryegrass/Turf	<i>Lolium perenne</i>	G

Key: T = Tree, S = Shrub, H = Herbaceous, G = Grass (Dawson OH044, 2022)

1
2

Observed Vegetation Communities During the OH044 Field Survey

Vegetation Community	Acreage
Ruderal Herbaceous Vegetation	2.1
Turf/Grasses	3.7
Hydrophytic Vegetation	0.2

3
4

(Dawson OH044, 2022)

Wildlife

5
6

The Site and surrounding agricultural fields offer limited habitat to wildlife. During the site survey, scientists observed the following wildlife, or signs of wildlife, presented in the table that follows:

Wildlife Observed During the OH044 Natural Resource Survey

7

Common Name	Scientific Name
BIRDS	
Redwing blackbird	<i>Agelaius phoeniceus</i>
Mourning dove	<i>Zenaida macroura</i>
Finch	<i>Fringillidae sp.</i>
INSECTS	
Cabbage white	<i>Pieris rapae</i>
Yellow sulfur	<i>Phoebis sennae</i>

8
9

(Dawson OH044, 2022)

Listed Species

10
11
12
13
14
15

The table that follows includes the USFWS IPaC list of the two mammals, two birds, one insect, and one flowering plant that has the potential to occur at or in the vicinity of the Site. The monarch butterfly (*Danaus plexippus*) is currently a candidate species under Section 7 of the Endangered Species Act, and is not yet proposed for listing, therefore consultation with USFWS would not be required if a project at the facility was proposed which might impact suitable habitat for the species. (Dawson OH044 2022)

Threatened and Endangered Species at the Site

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur at the Site
Mammals				
Indiana bat	<i>Myotis sodalis</i>	FE	Yes. Site does not overlap with CH.	None. No suitable habitat is located at the site. Minimal potential foraging and roosting habitat is present in nearby fragmented forested riparian (ditch) areas.
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	FE	None	
Birds				
Piping plover	<i>Charadrius melodus</i>	FE	Yes. Site does not overlap with CH.	None, no suitable habitat is located at or near the site.

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur at the Site
Red knot	<i>Calidris canutus rufa</i>	FT	Proposed. Site does not overlap with proposed CH.	None, no suitable habitat is located at or near the site.
Insects				
Monarch Butterfly	<i>Danaus plexippus</i>	C	None	Potential for occasional foraging could exist in the weedy grassland area of the site where flowering vegetation exists. Several milkweed (<i>Asclepasis sp.</i>) plants were observed at the site which is the host plant for the species. These plants could support breeding.
Plants				
Lakeside Daisy	<i>Hymenoxys herbacea</i>	FT	None	None. Requires sparsely vegetated rock barrens with shallow soils. This is not present at or in the immediate vicinity of the site.

Key: C = Candidate, CH = Critical Habitat, FE = Federally Endangered, FT = Federally Threatened
Source: USFWS 2022 (Dawson OH044, 2022)

State and County Threatened and Endangered Species

ODNR maintains a state and county list of plants and wildlife designated extirpated, endangered, threatened, potentially threatened, species of concern, and special interest. ODNR offers an environmental review process through the Ohio Natural Heritage database to assist in the state review of potential impacts associated with a proposed project (ODNR 2022a). When a review is not warranted, as is currently the case with the site, ODNR refers users to the state and county listed wildlife and plant species lists. (Dawson OH044 2022)

The state list is included in Appendix E, the Erie County list for wildlife is included in Appendix F and the Erie County list for plants is in Appendix G of the *NATURAL RESOURCE SURVEY REPORT Natural Resource Surveys and Wetland Delineations for the 88th Readiness Division SGT J.H. Cooney USARC/BMA #165 S-S (OH044/39945), 119 Mason Road, Milan, Ohio, dated January 2023, available upon request.* (Dawson OH044 2022)

Army List of Priority Species at Risk

The Army’s List of Priority Species at Risk identifies 65 species that would cause significant mission conflict were they to be listed as threatened or endangered under the Endangered Species Act (USACE 2010). None of the at-risk species listed are known to be at or in the vicinity of the Site. (Dawson OH044 2022)

4.22.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

There does not appear to be any opportunities for outdoor recreation, public access, and agricultural out-leasing on this site area. The site lacks aesthetic natural communities, hunting or fishing areas, or sufficient area for crop agriculture.

1 **4.22.7 Management Concerns and Issues**

2 The field survey conducted on July 13, 2022, found common plant and wildlife species at the Site
3 with no suitable habitat to support threatened or endangered species. The nearby fragmented but
4 wooded Sherer Ditch corridor offers some habitat for bats, but very little considering the immediate
5 surrounding area is predominately agriculture. (Dawson OH044 2022)

6 Management recommendations for the Site include the following:

- 7 • **Invasive plants:** The invasive plants observed at the site are commonly observed species in
8 their respective habitats. Given the density at which these invasive plants were observed, they
9 are not considered management concerns at this time. (Dawson OH044 2022)
- 10 • **Invasive insects:** The SLF invasive insect species has been detected in a county adjacent
11 to Erie County, Ohio. Proactive initiatives the facility could establish include inspecting
12 materials, supplies, and other items originating from areas where SLF has been observed.
13 (Dawson OH044 2022)
- 14 • **Trees:** Norway pines at the Site should be monitored for hazardous conditions should
15 branches fall as a result of impacts from boring insects. The installation can institute proactive
16 initiatives such as photographing the Site from various fixed locations to better observe this
17 and other changed conditions at the Site. (Dawson OH044 2022)
- 18 • **Retention Basins:** Impacts to the retention basins should be avoided. Both basins serve as
19 narrow wetland habitat at the site and appear to have connectivity via a culvert to Sherer
20 Ditch. Both wetlands may be considered jurisdictional to USACE and Ohio. A jurisdictional
21 determination would be required by USACE prior to any impacts to the wetlands. (Dawson
22 OH044 2022)

23 **4.22.8 Special Interest Areas**

24 No special interest areas occur within 1,000 feet of the site.

25



Figure 4.22 - Site Map – OH044/39954

1
 2
 3

1 **4.23 Twinsburg ARC/AMSA**
2 **#123 (OH051/39995)**

3 8770 Chamberlin Road
4 Twinsburg, OH 44087

5 **High Resource**

6 **County:** Summit

7 **Acres:** 24.09

8 **Building Count:** 2

9 **Last Field Survey:** 2020



10 The Twinsburg United States Army Reserve Center (USARC) consists of a USARC administrative building,
11 an Area Maintenance Support Activity (AMSA #123) building, MEP and POV parking lots (Site). The two
12 buildings at the facility are used for administrative services, classroom training, and light vehicle
13 maintenance. The 88th Readiness Division (88th RD) owns the two buildings and the land that comprise the
14 Twinsburg facility. (ENSAFE OH051 2021)

15 **4.23.1 Geographic Location and Size**

16 The Twinsburg USARC (OH051/39995) is located at 8770 Chamberlin Road in the city of Twinsburg,
17 in Summit County, Ohio (Site). Twinsburg receives approximately 38 inches of rainfall and 72 inches
18 of snowfall per year on average. The average temperature for Twinsburg ranges from 20.1 degrees
19 Fahrenheit in January to 82.3 degrees Fahrenheit in July. (ENSAFE OH051 2021)

20 Acreage for the facility is 24.09 acres as reported in the Real Property Detail Report. Surrounding
21 land use includes approximately 50-60 acres of deciduous forest and community park lands to the
22 west (Longwood Community Park); 13 acres of currently undeveloped, commercially zoned,
23 deciduous forest land to the north; a local towing company and Ohio Edison electrical substation and
24 transmission line to the south; and several large warehouses and distribution centers to the east.
25 (ENSAFE OH051 2021)

26 When the facility was cleared for construction of the Twinsburg USARC, as partial mitigation for loss
27 of potentially suitable roosting and foraging habitat for Indiana bats (*Myotis sodalis*), the USAR
28 protected the conservation area following consultation with the U.S. Fish and Wildlife Service
29 (USFWS). The 88th RD formally protected a 5-acre conservation area of upland forest and forested
30 wetland habitat at the northern end of the facility. (USFWS 2005). The 88th RD also protected
31 approximately 1.31 acres of forest buffer along the western edge of the facility to increase connectivity
32 with potentially suitable bat habitat at Longwood Park. The 88th RD continues to protect these areas
33 for bat habitat conservation. (ENSAFE OH051 2021)

34 **4.23.2 Geological Resources**

35 **Physiography and Geology**

36 This facility is located within the Low-lime Drift Plain ecoregion, a part of the Erie/Ontario Drift and
37 Lake Plain (United States Environmental Protection Agency 2020). This area has rolling landscape
38 composed of low rounded hills with scattered end moraines and kettle lakes. The local geology
39 consists of mostly clayey-loamy glacial till deposits from the late-Wisconsinian glaciation overlying
40 Mississippian- and Pennsylvanian-age shales and sandstones. (ENSAFE OH051 2021)

1 **Soils**

2 The U.S. Department of Agriculture Natural Resources Conservation Services web soil survey
3 reports, soils at the Site include 61% Mahoning silt loam, 0 to 2% slopes; 22% Trumbull silt loam, 0
4 to 2% slopes; and 17% Wadsworth silty clay loam, 0 to 3% slopes (Natural Resources Conservation
5 Services 2020). All three soil map units have hydric soil components (Mahoning, 5 % hydric;
6 Trumbull, 90% hydric; and Wadsworth, 10% hydric). (ENSAFE OH051 2021)

7 **Topography**

8 The site is relatively flat with an elevation of approximately 1,155 ft amsl. (ENSAFE OH051 2021)

9 **4.23.3 Water Resources**

10 **Watershed and Surface Waters**

11 The facility lies within the Cuyahoga River watershed (Hydrologic Unit Code 04110002) in the
12 northeast part of the state, approximately 20 miles southeast of Lake Erie. No streams or other
13 surface water features are present at the facility. (ENSAFE OH051 2021)

14 There is a pond located 1,200 ft west of the installation on park land. (AEM 2015)

15 **Floodplains**

16 Based on the Federal Emergency Management Agency Area Flood Insurance Rate Map that
17 covers this Site (Panel 39153C0061E), the facility is in an area of minimal flood hazard (Zone X).
18 (ENSAFE OH051 2021)

19 **Wetlands**

20 The 2020 wetland delineation at the facility identified six wetlands with a combined area of 2.48 acres
21 (Advanced Environmental Management Group [AEM Group] 2020a). A previous wetland delineation
22 conducted in 2015 identified only four wetlands at the Site with a total area of 1.374 acres (CH2M Hill
23 2015), indicating that the total number and acreage of wetlands has increased since 2015. Table 1
24 summarizes wetlands identified in 2020. The U.S. Army Corps of Engineers regulates wetlands under
25 Section 404 of the Clean Water Act and would determine the jurisdictional status of these wetlands
26 (i.e., waters of the United States). The Ohio Environmental Protection Agency regulates wetland
27 impacts under Ohio Administrative Code 3745-1-50 through -54 and Ohio Revised Code 6111 and
28 would determine if these wetlands should be regulated as waters of the state. (AEM OH051 2020)

29 NWI data indicates there are no wetlands on or within 1,000 ft of the site. (AEM OH051 2020)

Wetlands at OH051			
Wetland ID	Cowardin Classification	Acres	Description
Wetland 1	Palustrine Forested Persistent Seasonally flooded wetland (PFO1E)	0.46	Northeastern corner 5-acre conservation area; moderate-quality wetland
Wetland 2	Palustrine Emergent Persistent Semi-permanently flooded (PEM1F)	0.46	Detention basin; low-quality wetland
Wetland 3	Palustrine Forested Persistent Seasonally flooded wetland (PFO1E)	1.14	Northwestern corner 5-acre conservation area; moderate-quality wetland
Wetland 4	Palustrine Forested Broad-leaved Deciduous, Seasonally Flooded/saturated (PFO1E)	0.11	South-central side 5-acre conservation area; low-quality wetland
Wetland 5	Palustrine Emergent Persistent Seasonally flooded/saturated (PEM1E)	0.30	Southwest side of facility; low-quality wetland
Wetland 6	Palustrine Emergent Persistent Seasonally flooded/saturated (PEM1E)	0.01	Southwest side of facility; low-quality wetland
Totals		2.48	

Source: Advanced Environmental Management Group, 2020a

Wetland 2, as described in the recent wetland report, is part of the storm water detention basin that functions like a constructed wetland (AEM Group 2020a). The detention basin is adjacent to the northwest and north sides of the USARC and supports a variety of herbaceous plants. Discharge from the detention basin flows offsite into the Twinsburg storm water drainage system. (AEM OH051 2020)

OH051 is in a topographically flat area and surrounded by a mix of deciduous forest to the north and west and industrial land use to the east and south. According to the USFWS National Wetland Inventory (NWI) data, there are three, seasonally flooded palustrine (freshwater) forested/shrub wetlands covering a total area of 12.44 acres at Longwood Community Park between 430 and 870 feet west of the Site and a 1.70-acre freshwater forested/shrub wetland approximately 515 feet southeast of OH051. NWI data also shows two ponds at the park: a 2.57-acre pond approximately 1,250 feet west of the installation and a 0.25-acre pond approximately 360 feet to the west. NWI data did not document any additional wetlands on or near the facility. (AEM OH051, 2020)

4.23.4 Cultural Resources

A Phase I archaeological survey (with associated SHPO and Tribal consultation) was completed for the property in 2005, in advance of facility construction (Gardner 2005). No archaeological sites were identified.

Buildings at the facility were constructed in 2008 and the 88th RD should complete architectural evaluation once they turn 50 years of age (2058).

Following DoDI 4715.16, consultation with federally recognized Indian Tribes was conducted for the review of this 2020-2024 ICRMP Update.

The ICRMP for facilities located in Ohio will be furnished upon request.

1 **4.23.5 Biological Resources**

2 **Land Cover and Ecological Communities**

Land Cover and Ecological Communities	Calculated Area	
	Acres*	Percent of Site
Buildings	1.89	7.85
Paved Road/Parking	8.56	35.53
Maintained Grass	5.77	23.95
Deciduous Hardwood Forest	4.91	20.38
Forested Wetland	1.71	7.10
Emergent Wetland**	0.77	3.20
Detention Basin	0.48	1.99
Totals	24.09	100

3 (ENSAFE OH051 2021)

4 **Notes:** * Based on Land Cover Map (final report) ** Includes Wetland 2 (detention basin)

5 **Vegetation Communities**

6 ***Maintained Grass***

7 The maintained grass area is dominated by Kentucky bluegrass (*Poa pratensis*) with a variety
 8 of native and non-native lawn weeds. The area is mowed frequently through the growing
 9 season. (ENSAFE OH051 2021)

10 Some common lawn weeds include:

11 black medick	<i>Medicago lupulina</i>
12 common dandelion	<i>Taraxacum officinale</i>
13 common yellow oxalis	<i>Oxalis stricta</i>
14 narrowleaf plantain	<i>Plantago lanceolata</i>
15 blackseed plantain	<i>Plantago rugelii</i>
16 white clover	<i>Trifolium repens</i>
17 ground ivy	<i>Glechoma hederacea</i>
18 common selfheal	<i>Prunella vulgaris</i>
19 chicory	<i>Chicorium intybus</i>
20 Queen Anne's lace	<i>Daucus carota</i>

21 Various trees are planted for landscaping around the main building and the east and south
 22 Site borders including:

23 red maple	<i>Acer rubrum</i>
24 eastern cottonwood	<i>Populus deltoides</i>
25 American elm	<i>Ulmus americanus</i>
26 black gum	<i>Nyssa sylvatica</i>

27 ***Deciduous Forest***

28 The deciduous forest includes the upland (non-wetland) areas in the 5-acre protected area
 29 along the northern boundary and the 30-foot buffer along the west side of the property.
 30 (ENSAFE OH051 2021)

31 Dominant overstory trees include:

32 cottonwood	<i>Populus deltoides</i>
33 American elm	<i>Ulmus americana</i>
34 Red maple	<i>Acer rubrum</i>

1	northern red oak	<i>Quercus rubra</i>
2	American basswood	<i>Tilia americana</i>
3	tulip-poplar	<i>Liriodendron tulipifera</i>
4	bitternut hickory	<i>Carya cordiformis</i>
5	mockernut hickory	<i>Carya tomentosa</i>

6 Common midstory trees include:

7	American beech	<i>Fagus grandifolia</i>
8	cucumber tree	<i>Magnolia acuminata</i>
9	red mulberry	<i>Morus rubra</i>
10	sugar maple	<i>Acer saccharum</i>
11	spicebush	<i>Lindera benzoin</i>
12	glossy buckthorn	<i>Frangula alnus</i>

13 Common understory species include seedlings of overstory and midstory species:

14	poison ivy	<i>Toxicodendron radicans</i>
15	wrinkle-leaf goldenrod	<i>Solidago rugosa</i>
16	partridge berry	<i>Mitchella repens</i>
17	Canada mayflower	<i>Maianthemum canadense</i>

18 **Forested Wetlands**

19 Three forested wetlands (Wetlands 1, 3, and 4) occur in the 5-acre protected area along the
20 north boundary. (AEM Group OH051, 2020)

21 Dominant overstory species include:

22	red maple, pin oak	<i>Quercus palustris</i>
23	cucumber tree	<i>Magnolia acuminata</i>

24 Typical midstory species include:

25	Spicebush	<i>Lindera benzoin</i>
26	multiflora rose	<i>Rosa multiflora</i>
27	green ash	<i>Fraxinus pennsylvanica</i>
28	American beech	<i>Fagus grandifolia</i>
29	glossy buckthorn	<i>Frangula alnus</i>
30	common barberry	<i>Berberis vulgaris</i>

31 Understory species include seedlings of overstory and midstory species:

32	sensitive fern	<i>Onoclea sensibilis</i>
33	bladder sedge	<i>Carex intumescens</i>
34	arctic reed grass	<i>Calamagrostis cinnoides</i>
35	white grass	<i>Leersia virginica</i>
36	Jack-in-the-pulpit	<i>Arisaema triphyllum</i>
37	sweet woodreed	<i>Cinna arundinacea</i>
38	fowl manna grass	<i>Glyceria striata</i>
39	spotted lady's thumb	<i>Persicaria maculosa</i>
40	poison ivy	<i>Toxicodendron radicans</i>

41 **Emergent Wetlands**

42 There are two small emergent wetlands (Wetlands 5 and 6) west of AMSA #123 and the
43 southwest boundary of the facility that that have formed in topographic depressions
44 (AEM Group OH051, 2020).

1	Dominant vegetation includes:	
2	Wool grass	<i>Scirpus cyperinus</i>
3	dark-green bulrush	<i>Scirpus atrovirens</i>
4	narrow-leaved cattail	<i>Typha angustifolia</i>
5	giant ironweed	<i>Vernonia gigantea</i>
6	redtop	<i>Agrostis gigantea</i>
7	trumpetweed	<i>Eutrochium fistulosum</i>
8	swamp vervain	<i>Verbena hastata</i>
9	swamp milkweed	<i>Asclepias incarnata</i>
10	boneset	<i>Eupatorium perfoliatum</i>
11	fringed sedge	<i>Carex crinita</i>
12	jewelweed	<i>Impatiens capensis</i>
13	big bluestem	<i>Andropogon gerardii</i>
14	reed canary grass	<i>Phalaris arundinacea</i>
15	sallow sedge	<i>Carex lurida</i>
16	wand panic grass	<i>Panicum virgatum</i>
17	Canada thistle	<i>Cirsium arvense</i>

18 **Detention Basin**

19 The detention basin was originally designed as a detention pond and was later re-engineered
 20 to function as a dry basin. The detention basin was classified as an emergent wetland
 21 (Wetland 2) in the most recent wetland delineation (AEM Group OH051, 2020). Over time,
 22 the basin has been colonized by several wetland plants including:

23	narrow-leaved cattail	<i>Typha angustifolia</i>
24	rice cutgrass	<i>Leersia oryzoides</i>
25	swamp vervain	<i>Verbena hastata</i>
26	soft-stem bulrush	<i>Schoenoplectus tabernaemontani</i>
27	common reed	<i>Phragmites australis</i>
28	wool grass	<i>Scirpus cyperinus</i>
29	giant goldenrod	<i>Solidago gigantea</i>
30	false nettle	<i>Boehmeria cylindrica</i>
31	curly dock	<i>Rumex crispus</i>
32	climbing nightshade	<i>Solanum dulcamara</i>
33	Canada thistle	<i>Cirsium arvense</i>
34	green ash	<i>Fraxinus pennsylvanica</i>
35	Callery pear	<i>Pyrus calleryana</i>

36 **Wildlife**

37 During the facility survey, the following wildlife was encountered. Wildlife species noted
 38 included:

39 **Birds:**

40	northern cardinal	<i>Cardinalis cardinalis</i>
41	blue jay	<i>Cyanocitta cristata</i>
42	downy woodpecker	<i>Dryobates pubescens</i>
43	Canada goose	<i>Branta canadensis</i>
44	European starling	<i>Sturnus vulgaris</i>

45 **Mammals:**

46	white-tailed deer	<i>Odocoileus virginianus</i>
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1 **Insects:**

2 butterfly unidentified
3 dragonfly unidentified

4 There is large area of forested habitat to the north and west of the facility in the 5-acre
5 conservation area and Longwood Park. This large, forested area likely provides habitat for a
6 variety of animals, including amphibians, birds, insects, mammals, and reptiles through the
7 year. This habitat is available for many songbirds and bats, including listed species, for
8 nesting, roosting, and/or foraging during the breeding season or spring and fall migrations.
9 The highly developed industrial land to the east and south provides limited habitat potential
10 for animals adapted to more disturbed habitats. (ENSAFE OH051 2021)

11 ***Invasive Plant Species***

12 The Ohio Department of Agriculture regulates invasive plant species. Under state law,
13 invasive plant species are defined as plants that are not native to Ohio whose introduction
14 causes, or is likely to cause, economic or environmental harm, or harm to human health as
15 determined by scientific studies. Ohio rules prohibit the sale and distribution of 38 invasive
16 plants and 30 noxious weeds in the state. Non-native plants are plants not native to Ohio that
17 are not necessarily considered to be invasive. There are numerous species of Non-native
18 and invasive species present at Twinsburg. The 2020 Natural Resources Survey final report
19 presents in Table 3 the list of non-native and invasive plants observed at the Twinsburg
20 USARC. (ENSAFE OH051, 2021)

21 The list that follows contains eight prohibited invasive plants listed occur at the Twinsburg
22 USARC:

23 bush honeysuckle *Lonicera tatarica*
24 Callery pear *Pyrus calleryana*
25 common barberry *Berberis vulgare*
26 common reed *Phragmites australis*
27 glossy buckthorn *Frangula alnus*
28 multiflora rose *Rosa multiflora*
29 narrowleaf cattail *Typha angustifolia*
30 purple loosestrife *Lythrum salicaria*

31 Two prohibited noxious plant occur at the Site:

32 Canada thistle *Cirsium arvense*
33 purple loosestrife *Lythrum salicaria*

34 Reed canary grass (*Phalaris arundinacea*) is a non-native plant that is increasingly recognized
35 as a potential problem in native plant communities throughout the country. The Ohio Invasive
36 Plant Council classifies reed canary grass as an invasive species, but it is not currently
37 regulated by the Ohio Department of Agriculture. (ENSAFE OH051, 2021)

38 **Listed Species**

39 Based on the USFWS Information for Planning and Consultation (IPaC) project planning tool,
40 there are records of two federally endangered species and one federally-threatened species
41 near OH051:

42 ***Listed Endangered:***

43 Indiana bat *Myotis sodalis*
44 northern long-eared bat *Myotis septentrionalis*

1 **Listed Threatened:**

2 northern wild monkshood *Aconitum noveboracense*

3 There is some suitable roosting and foraging habitat for the Indiana and northern long-eared
4 bats in the forested area north of the USARC building. A single northern long-eared bat was
5 captured during a mist net survey in 2004 prior to the construction of the facility and prior to
6 the listing of the species (BHE 2004). Based on captures of both listed bat species within 2.5
7 miles of the facility made during 2004 through 2017, both species are likely to be present at
8 Twinsburg USARC, however an acoustic survey conducted in 2020 did not detect either bat
9 species on the facility. (P-G JV OH051 2021) Additionally, surveys have confirmed the
10 presence of both species in caves at Liberty Park approximately 2 miles east of the Facility,
11 suggesting that both species likely use that cave system as hibernacula (P-G JV OH051
12 2021).

13 The northern wild monkshood has very specific habitat requirements that are not present at
14 OH051 and is unlikely to occur at the Site. (P-G JV OH051 2021)

15 The IPaC resource list indicated that there are no critical habitats in the area.
16 IPaC information identified four migratory birds that could occur in the area:

17 bald eagle	<i>Haliaeetus leucocephalus</i>
18 bobolink	<i>Dolichonyx oryzivorus</i>
19 red-headed woodpecker	<i>Melanerpes erythrocephalus</i>
20 wood thrush	<i>Hylocichla mustelina</i>

21 The bald eagle is protected under the Bald and Golden Eagle Protection Act and the other
22 three species are considered Birds of Conservation Concern. All four species are protected
23 under the Migratory Bird Treaty Act. None of these species were identified as present during
24 the field survey. (P-G JV OH051 2021)

25 **4.23.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

26 There does not appear to be any opportunities for outdoor recreation, public access, and agricultural
27 out-leasing on this site area. The site lacks aesthetic natural communities, hunting or fishing areas,
28 or sufficient area for crop agriculture.

29 **4.23.7 Management Concerns and Issues**

30 Impacts to Wetlands 1, 3, and 4 and upland deciduous forest within the 5-acre conservation area
31 should continue to be avoided. Wetlands 5 and 6, the small emergent wetlands along the west side
32 of the facility should be protected from disturbance and be allowed to continue to develop. The
33 regulatory status of the wetlands would be determined by the U.S. Army Corps of Engineers and/or
34 the Ohio Environmental Protection Agency. (ENSAFE OH051, 2021)

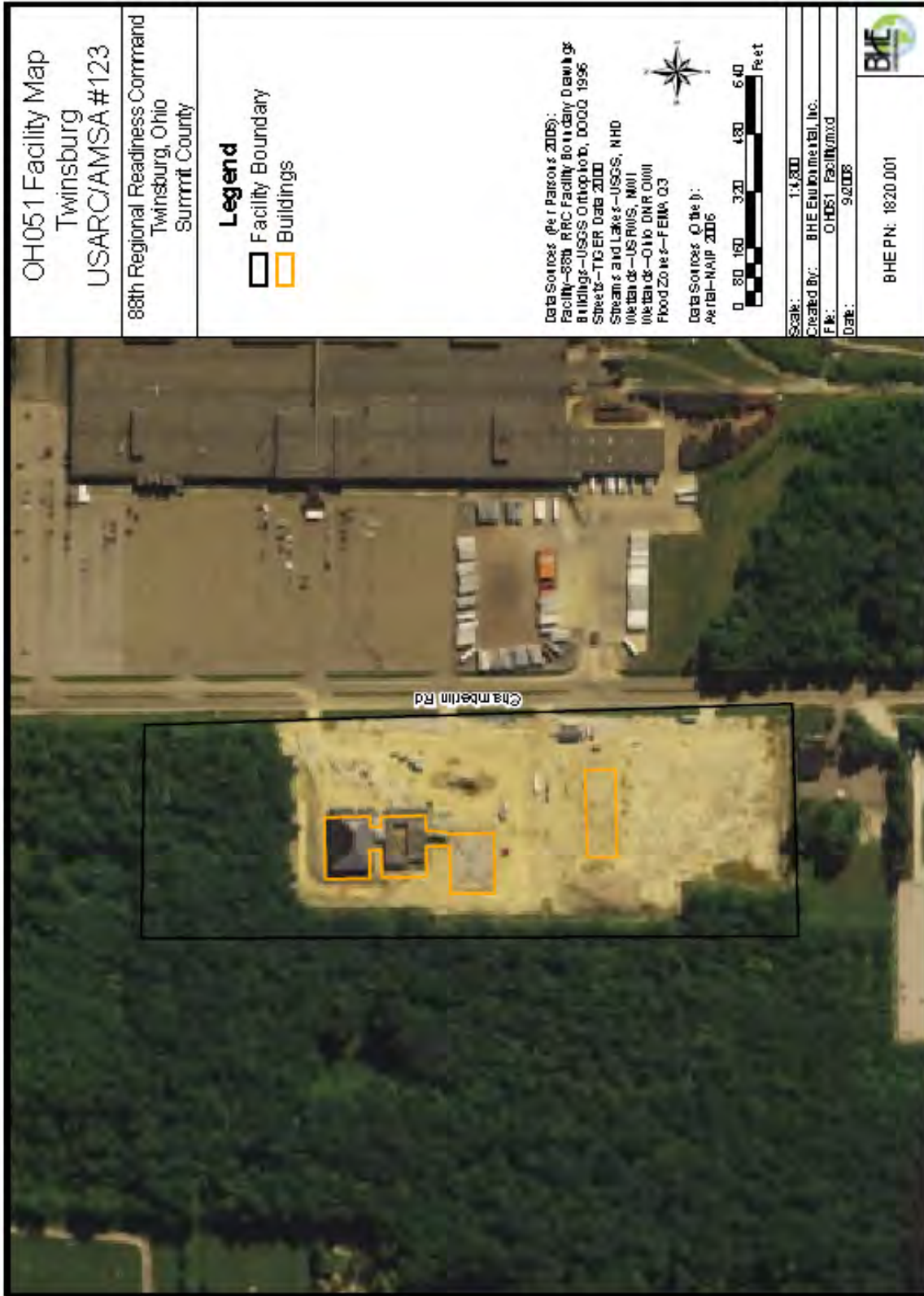
35 Neither Indiana nor northern long-eared bats were observed or captured during the 2020 acoustic bat
36 survey at OH051. (P-G JV OH051 2021) However, the lack of acoustic observations or captures
37 does not preclude their existence and/or seasonal use of habitat on the Twinsburg USARC, since
38 suitable bat habitat is present at the managed 5-acre conservation area on the north side of the
39 Facility. This area should continue to be managed in accordance with the 2005 Biological Opinion,
40 2008 Endangered Species Management Plan, and 2020 summer acoustic survey for threatened and
41 endangered bat species. The Endangered Species Management Plan for OH051 sets goals and
42 objectives for furthering the conservation of bats that may be present on, or that utilize, the facility.
43 The 2020 summer acoustic survey report provides additional details on the restrictions for habitat
44 disturbance and tree cutting. The USFWS and Ohio Division of Wildlife should be contacted if there
45 is a need to change current management objectives. (ENSAFE OH051, 2021)

1 Eight prohibited invasive plant species, including two noxious invasive plants, occur at the facility. All
2 of these species pose a threat to biodiversity of native plant communities at the facility and adjacent
3 lands. The status of these plants should be monitored and treated, if desired, with an appropriate
4 herbicide or other cultural treatments to control their spread. Glossy buckthorn poses the greatest
5 threat to habitat quality of deciduous and wetland forest communities; purple loosestrife, common
6 reed, and reed canary pose the greatest threat to emergent wetland habitat quality. (ENSAFE OH051,
7 2021)

8 It is recommended that the 88th RD continues to regularly review USFWS notifications and United
9 States Army Species at Risk for new candidate and listed species in the region. (ENSAFE OH051,
10 2021)

11 **4.23.8 Special Interest Areas**

12 Longwood Park is a 292-acre community park located in Macedonia, immediately west of the
13 facility. The park includes recreational fields, picnic areas, other amenities, and a large, forested
14 area that includes approximately 12.44 acres of forested wetlands. (ENSAFE OH051, 2021)
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Figure 4.23 - Site Map – OH051/39995

1 **4.24 COL Dudley M. Outcalt ARC**
 2 **(OH058/39846)**

3 11880 Mosteller Road
 4 Sharonville, OH 45231-1587

5 **Medium Resource**

6 **County:** Hamilton

7 **Acres:** 5.2

8 **Building Count:** 2

9 **Last Field Survey:** 2022



10 COL Dudley M. Outcalt ARC (OH058/39846) consists of the ARC, an OMS, and associated parking areas.
 11 The site provides classroom training, administrative services, and vehicle storage. The 88th RD owns the
 12 land and two buildings that compose OH058/39846.

13 **4.24.1 Geographic Location and Size**

14 OH058/39846 is located in the city of Sharonville, in Hamilton County. Acreage for the site in the Real
 15 Property Detail Report is 5.2 acres. The Site is developed, containing two permanent buildings and paved
 16 ground surface (parking lots). Landscaped areas are located at the front of the facility facing Commerce
 17 Boulevard. The Site is surrounded by various light industrial/commercial buildings on all sides. The west
 18 boundary of the site consists of an unnamed reach of the East Fork Mill Creek.. The site boundaries are
 19 shown on the Figure 3.24.

20 **4.24.2 Geological Resources**

21 **Physiography and Geology**

22 The U.S. Environmental Protection Agency (USEPA) reports the Site is also located within the Interior
 23 Plateau, Northern Bluegrass ecoregion (71d) which is deeply dissected. The east is unglaciated
 24 whereas the plains and hills of the west are mantled by leached pre-Wisconsinan till and
 25 discontinuous loess (silt-sized particles formerly deposited by wind). This ecoregion is underlain by
 26 Ordovician limestone and shale which distinguishes it from other nearby ecoregions. Today, the
 27 ecoregion is a mosaic of forest and agriculture with urban-industrial activity occurring near Cincinnati
 28 and along the Ohio River. It is wooded where steep; general, dairy, and tobacco farming occurs on
 29 less rugged sites.(Dawson OH051, 2023)

30 **Soils**

31 Soil survey maps accessed through the USDA NCRS web soil survey were reviewed prior to
 32 conducting the field surveys. One soil type was identified within the Site, Urban land-Udorthents
 33 complex. Key features of the map unit are provided in the table that follows. (Dawson OH051, 2023)

34 **Table 1. Soil Types at the Site**

Symbol	Map Unit Name	Slope (Percent)	Farmland Classification	Hydric (Y/N)	Runoff Class	Depth to Water Table	Frequency of Flooding
UrUJC	Urban land-Udorthents complex	0-12	Not prime farmland	No	High	More than 80 inches	None

35 Source: NRCS 2023 / .(Dawson OH051, 2023)

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Topography

OH058/39846 is generally flat with an elevation of 590 ft amsl. (Dawson OH051, 2023)

4.24.3 Water Resources

Watershed and Surface Waters

The Site is located partially within two watersheds, the East Fork Mill Creek-Mill Creek Watershed (050902030101) and the Sharon Creek-Mill Creek Watershed (050902030103). These two smaller watersheds are subsets of the larger Middle Ohio-Laughery Watershed (05090203) which covers approximately 1,310 square miles of land in southeastern Indiana and southwestern Ohio. The hydrology of the watershed is influenced by the Ohio River, located about 9 miles south of the Site. The Ohio River serves as the watershed's outlet. The watershed experiences significant snow accumulation in the winter months, with an average of 20-30 inches per year. This snowpack contributes to surface water resources in the spring months when snowmelt and runoff increase streamflow.

Surface water in the watershed is primarily composed of small streams and creeks, with the largest waterway Laughery Creek south of the Ohio River.

Floodplains

According to the FEMA Flood Insurance Rate Map for Hamilton County (FEMA Firm Panel 39061C0091E effective February 17, 2010), the western 1/3 of the Site is not within the 100-year floodplain, but most of the eastern 2/3 of the site is located within an area defined as a 2% annual chance flood hazard. This is considered an area of 0.1% annual chance flood with an average depth of less than one foot or with drainage areas of less than one square mile. (Dawson OH051, 2023)

Wetlands

No wetlands were observed on the site. NWI data indicates, there are no wetlands on the site. (Dawson OH051, 2023)

4.24.4 Cultural Resources

A Section 110 inventory of the built environment and an archaeological site files search were conducted for the property in 1997; none of the buildings at the OH094/Monclova USARC were recommended eligible for the NRHP. In November 2008, the 88th RD submitted this inventory report to the Ohio SHPO and potentially affiliated Tribes, requesting Section 106 review. By general letter dated April 23, 2009, the Ohio SHPO concurred that the OH058/Sharonville USARC buildings were not eligible for the NRHP.

In 2013, a formal assessment of the archaeological sensitivity of OH058/Sharonville USARC was completed (Gardner et al. 2013). The results of the ASA concluded that the facility had been disturbed by construction and other activities, had extremely limited potential to contain intact archaeological deposits, and did not warrant a Phase I archaeological survey.

In September 2013, as part of the consultation process, the 88th RD submitted the ASA to the Ohio SHPO and potentially affiliated Tribes for Section 106 review. No response was received from the Ohio SHPO. The only Tribal response came from the Peoria Tribe of Indians of Oklahoma, who stated that they were unaware of any documentation linking Indian religious sites to the facility and that they considered the property cleared for archaeological resources. Following DoDI 4715.16, consultation with federally recognized Indian Tribes was conducted for the review of this 2020-2024 ICRMP Update.

1 The ICRMP for facilities located in Ohio will be furnished upon request.

2 **4.24.5 Biological Resources**

3 **Land Cover and Ecological Communities**

Land Cover and Ecological Communities	Calculated Area	
	Acres	Percent of Site
Paved Road/Parking	2.38	50%
Building	0.59	12%
Woodland	0.29	5%
Lawn/Maintained Grass	1.50	32%
Riverine	0.04	1%
Total	4.79 *	100%

4 * This is a GIS calculated value

5 **Vegetation Communities**

Dominant Vegetation Observed at the Site

Common Name	Scientific Name	Type
American pokeweed	<i>Phytolacca americana</i>	T
Honey locust	<i>Gleditsia triacanthos</i>	T
Narrowleaf willow	<i>Salix exigua</i>	T
Slippery elm	<i>Ulmus rubra</i>	T
Amur honeysuckle	<i>Lonicera maackii</i>	S
Asiatic dayflower	<i>Commelina communis</i>	S
Black walnut	<i>Juglans nigra</i>	S
Cutleaf teasel	<i>Dipsacus laciniatus</i>	S
Evening primrose	<i>Oenothera biennis</i>	S
Hedge bindweed	<i>Calystegia sepium</i>	S
Lady's thumb	<i>Persicaria maculosa</i>	S
Virginia creeper	<i>Parthenocissus quinquefolia</i>	S
White mulberry	<i>Morus alba</i>	S
White vervain	<i>Verbena urticifolia</i>	S
Johnson grass	<i>Sorghum halepense</i>	G

6 Key: Plant type, T = Tree, S = Shrub, G = Grass

7 The herb layer is void of native vegetation due to the Amur honeysuckle shading out other
8 species.

9 The on-site trees appeared healthy with no signs of disease. The trees present are young to
10 medium aged and are species not typically valuable as timber. Little economic gain would be
11 expected as a result of harvest. For these reasons, a timber cruise was not conducted.

12 The forest understory is very dense and approximately 90 percent of the area is covered with
13 bush honeysuckle, limiting the ability to utilize the area for training. The area was considered
14 to have little to no aesthetic value.

15 The shrub/scrub areas along the southern border are dominated by tree-of-heaven and bush
16 honeysuckle both invasive species. Some native grass species are present in very low
17 numbers.

1 The invasive species present are in medium densities and may be out-competing native
2 vegetation. However, because overall habitat quality and natural value is considered fairly
3 low, management measures are not recommended.

4 **Wildlife**

5 During the 2022 field survey, scientists observed evidence of two wildlife species at the Site:
6 raccoon (*Procyon lotor*) and Canada goose (*Branta canadensis*). This site contains no
7 suitable habitat to support any of the previous species' diversity found in Site.

8 Wildlife observed during the 2008 field survey included:

9	European starling	<i>Sturnus vulgaris</i>
10	American robin	<i>Turdus migratorius</i>
11	house sparrow	<i>Passer domesticus</i>
12	American goldfinch	<i>Spinus tristis</i>
13	Northern (Baltimore) oriole	<i>Icterus galbula</i>
14	rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
15	blue gray gnatcatcher	<i>Poliophtila caerulea</i>
16	yellow warbler	<i>Setophaga petechia</i>
17	common grackle	<i>Quiscalus quiscula</i>
18	cabbage white butterfly	<i>Pieris rapae</i>
19	creek chub minnow	<i>Semotilus atromaculatus</i>
20	black-side dace minnow	<i>Phoxinus cumberlandensis</i>
21	northern water-snake	<i>Nerodia sipedon</i>
22	groundhog	<i>Marmota monax</i>

23 The dramatic drop in species diversity at the Site is likely due to increased development of
24 directly adjacent properties to the Site and beyond. Most all of the 2008 undeveloped spaces
25 surrounding the Site are gone and the on-site stream has been culverted both upstream and
26 downstream from the Site.

27 **Benthic Macroinvertebrate Survey**

28 Several samples were collected using kick and dip nets to collect samples of
29 macroinvertebrates in the unnamed stream located along the eastern limits of the property
30 were collected, with the objective of either, an understanding of the potential for impairment
31 of the stream, or an understanding of potential habitat to support threatened or endangered
32 aquatic species. Given the channelized urban setting, and multiple culverts discharging into
33 the stream from the site and adjacent parcels, it was predicted unlikely habitat to support
34 sensitive species. The streambed was approximately 8-10 feet across with steep banks on
35 either side. Two large culverts are located beneath Commerce Boulevard (adjacent to the
36 southern property limits) and connect the stream beneath the road. Two culverts were
37 observed extending into the stream from the Site, and one from the parcel on the east bank
38 of the stream. Water conditions were observed to be fairly shallow (less than 6-inches) to 1.5
39 feet below the surface in deeper pools. Water was clear and flowed in a southerly direction.

40 DAWSON observed a broken piece of a lunged (orb) snail, and several schools of shiners
41 (Order *Cypriniformes*). Common aquatic insects were observed such as water striders (Order
42 *Hemiptera*) and mayfly (Order *Ephemeroptera*) were observed. None of the organisms
43 required additional study so they were not preserved or retained. Samples and any substrate
44 material collected were returned to the stream.

1 The streambed consisted of small to medium sand and gravel with low turbidity and slow flow
 2 at the time of sampling. No riffles were observed which contributed to low diversity of species
 3 collected, as samples were only collected from stream edge and deeper pools within the
 4 reach.

5 **Listed Species**

6 **Federally Listed Species:** The table that follows, includes the USFWS IPaC list of the
 7 three bat species and one insect that have the potential to occur at or in the vicinity of the Site.
 8 An IPaC was reviewed prior the Site visit in 2022. Due to changes to the USFWS stance
 9 regarding multiple bat species that became affective in March of 2023, an updated IPaC that
 10 included these new regulations regarding bats was generated and is included in Appendix D
 11 of the 2023 *Natural Resources Survey Report for COL Dudley M Outcult ARC (OH058/39846)*.

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur at the Site
Mammals				
Indiana bat	<i>Myotis sodalis</i>	FE	None, CH exists but it does not overlap with the Site boundary.	Unlikely to occur. Maternity roosts are typically located in riparian and wooded wetland habitats. Typically forage in semi-open to closed forested habitats. While the Site has small semi-open wooded areas to the south and east, its proximity to development and disturbance from traffic on Commerce Boulevard would make this area undesirable for use. It is highly unlikely that the species is using any part of the wooded habitat at the Site. No potential roost trees or caves were observed on or adjacent to the Site.
Northern Long-eared Bat (NLEB)	<i>Myotis septentrionalis</i>	FE	None	Unlikely to occur. Similar to the Indiana bat, the NLEB prefers woodlands and forested areas, particularly for foraging. While the Site borders a riparian area, its proximity to light industrial and commercial development would make this area undesirable for use. It is unlikely that the species is using any part of the wooded habitat at the Site. No potential roost trees or caves

Common Name	Scientific Name	Status	Critical Habitat	Potential to Occur at the Site
				were observed on or adjacent to the Site.
Tricolored bat	<i>Perimyotis subflavus</i>	PE	None	Unlikely to occur. Tricolored bats have been found to use a variety of terrestrial habitats, including open forests with large trees and woodland edges, grasslands, caves and buildings in urban areas. While the Site borders a wooded riparian area, it is generally a narrow stand of trees with a close proximity to commercial development and associated disturbances that would make this area undesirable for use. No potential roost trees or caves were observed on or adjacent to the Site.
Insects				
Monarch Butterfly	<i>Danaus plexippus</i>	C	None	Marginal potential for occasional foraging could exist in the vegetated areas of the Site when flowering vegetation is blooming. No milkweed (<i>Asclepasis sp.</i>) plants were observed at the Site which is the host plant for the species.

1 Source: USFWS 2023b

2 Key: C = Candidate, CH = Critical Habitat, FE = Federally Endangered, PE = Proposed Endangered

3 **4.24.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

4 There does not appear to be any opportunities for outdoor recreation, public access, and agricultural
5 out-leasing on this site area. The site lacks aesthetic natural communities, hunting or fishing areas,
6 or sufficient area for crop agriculture.

7 **4.24.7 Management Concerns and Issues**

8 Nuisance and invasive exotic species noted during the NRSRVY were noted but density is unknown.
9 It is anticipated that the 2022 NRSRVYUP field survey will provide quantifiable data for the
10 Conservation staff to determine if control/eradication intervention is required.

11 **4.24.8 Special Interest Areas**

12 No special interest areas occur within 1,000 feet of the site.

13
14

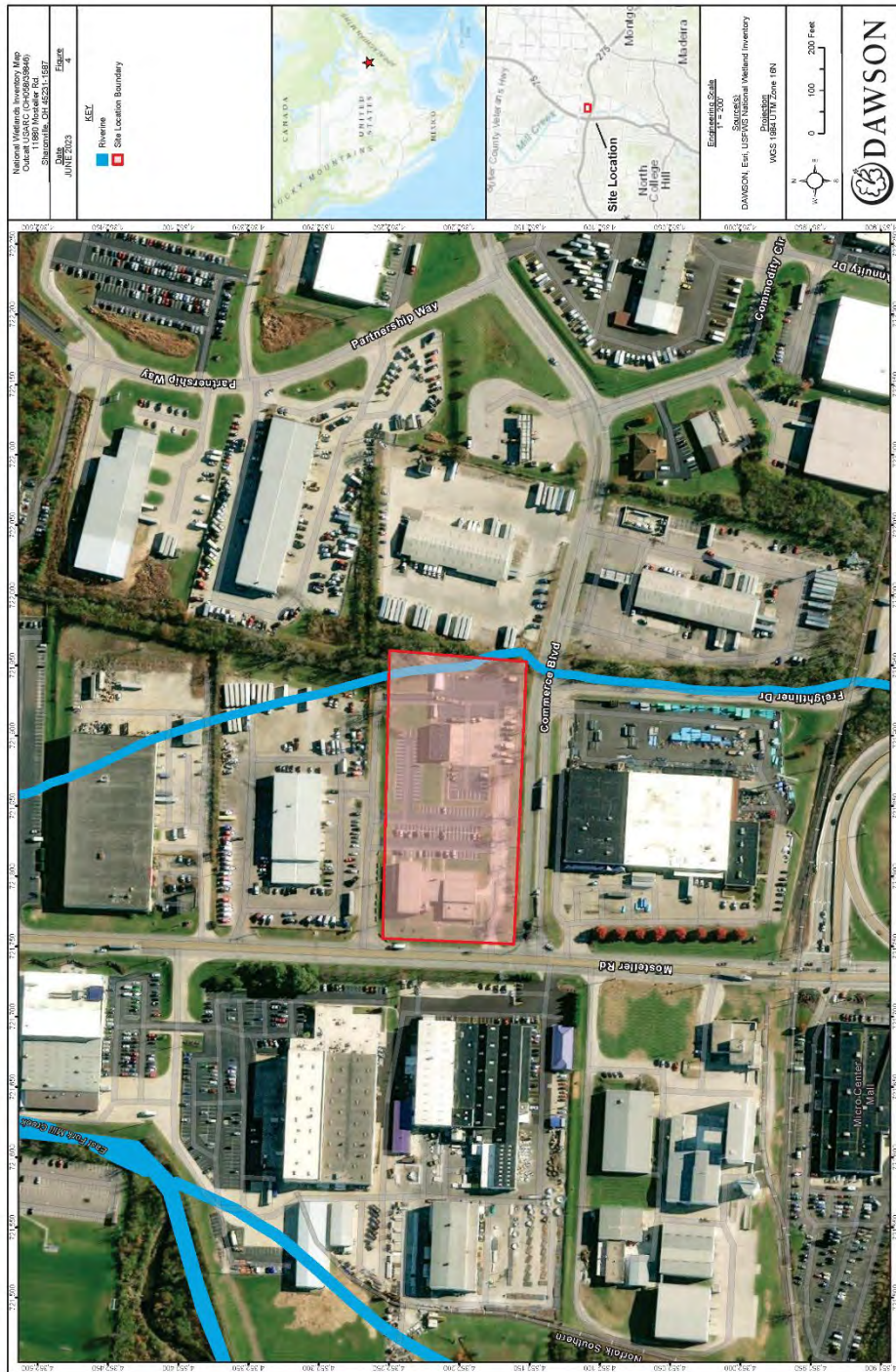


Figure 4.24 - Site Map – OH058/39846

1 **4.25 Toledo Area ARC (OH094/39760)**

2 **(a/k/a Monclova)**

3 9825 Garden Road
4 Monclova OH 43542-9738

5 **High Resource**

6 **County:** Lucas

7 **Acres:** 52.58

8 **Building Count:** 2

9 **Last Field Survey:** 2018



10 Toledo Area ARC/LTA consists of the ARC, an OMS/AMSA, associated parking areas, and an LTA. Activities
11 at the site include engineering equipment training, classroom training, administrative duties, and light tactical
12 training. The 88th RD owns the two buildings and leases the land that comprise OH094/39760.

13 **4.25.1 Geographic Location and Size**

14 This site is located in the city of Monclova in Lucas County. Acreage for the site in the Real Property Detail
15 Survey reports the acreage as 52.58 ac. Forested land surrounds the property to the north, the Toledo
16 Express Airport borders the property to the west, I-80 is directly south of the site followed by a quarry and
17 forested wetland complex, and an agricultural field lies due east of the site. The site boundary is shown on
18 Figure 3.25.

19 **4.25.2 Geological Resources**

20 **Physiography and Geology**

21 The site is located within the Huron-Erie Lake Plains physiographic province. The soils are some of
22 the most fertile soils in the country. The Till Plain marks the beginning of the Corn Belt. Geological
23 formations at OH094/39760 are Devonian formations.

24 **Soils**

25 The United States Department of Agriculture Natural Resources Conservation Service’s (USDA-
26 NRCS) online web soil survey reports, the site boundary is within the Granby loamy fine sand (65.8%);
27 Oakville fine sand, 2 to 6 percent slopes (1.3%); Ottokee fine sand, 0 to 6 percent slopes (19.9%);
28 Tedrow fine sand, 0 to 3 percent slopes (6.1%); and Udorthents, loamy (6.9%). (AEM OH094, 2018)

29 The USDA-NRCS soils map indicates that within the site boundary Granby loamy fine sands are very
30 poorly drained with restrictive layers in excess of 80 inches. Granby loamy fine sand are subject to
31 frequent ponding and are considered hydric soils. Oakville fine sands are well drained with restrictive
32 layers in excess of 80 inches. Oakville fine sands are not considered hydric soils. Ottokee fine sands
33 are moderately well drained soils with restrictive layers in excess of 80 inches. Ottokee fine sands
34 are not considered hydric soils. Tedrow fine sands are somewhat poorly drained soils with restrictive
35 layers in excess of 80 inches. Tedrow fine sands are not considered hydric soils. Udorthents, loamy
36 is has restrictive features in excess of 80 inches and a depth to water table of more than 80 inches.
37 (AEM OH094, 2018)

38 **Topography**

39 The site is nearly flat with elevations ranging from approximately 640 to 650 ft amsl. (AEM OH094,
40 2018)

1 **4.25.3 Water Resources**

2 **Watershed and Surface Waters**

3 OH094 is located within the Lake Erie watershed. (AEM OH094, 2018)

4 The nearest surface water is Cunningham Ditch, which crosses the site from northwest to southeast.
5 Cunningham Ditch is approximately 10 ft. wide, with a water depth of 1 ft. and a sandy substrate
6 dominated by submerged aquatic vegetation. Cunningham Ditch drains into Wolf Creek, a tributary
7 to Swan Creek, which is a tributary of the Maumee River, a traditionally navigable water (TNW).
8 Under the current administration, because Cunningham Ditch is considered a ditch, and ditches may
9 potentially be categorically excluded (with some exceptions) from USACE jurisdiction under the 2019
10 Clean Water Act (CWA) updates, therefore the ditch portion of the drainage may not be regulated.
11 However, until such time as the 2019 CWA updates are official, modifications or impacts to this water
12 will likely require state and USACE permits. If the federal CWA does not protect these waterbodies,
13 the Ohio EPA does regulate both surface waters and wetlands. Proposed impacts to wetlands and
14 streams on this facility should consult with the Ohio EPA before impacts occur. (AEM OH094, 2018)

15 During the 2018 field survey, three macroinvertebrate surveys were conducted along Cunningham
16 Ditch/Wolf Creek. Cunningham Ditch/Wolf Creek is classified as R3UB3. The ditch had a moderate
17 flow level with deeply incised, vegetated banks. The first survey area's substrate consisted of sand,
18 leaves and obligate aquatic vegetation. The organisms identified included *Odonata* (25), *Trichoptera*
19 (*10*), *Diptera*(5), *Rhynchobdellida* (3), *Sphaeriidae* (31), and *Isopoda* (14). The second survey area
20 had clear water and the substrate consisted of sand with organisms identified included *Sphaeriidae*
21 (53). No species were observed in two net kicks during the third survey. This survey area was near
22 a road and may be impacted by road runoff, and/or experience higher water temperatures due to
23 greater sun exposure with no canopy cover. (AEM OH094, 2018)

24 Overall, the quality of Cunningham Ditch was determined to be poor. Only one sampling area had
25 any of the specimens used for the *Ephemeroptera*, *Plecoptera*, or *Trichoptera* (EPT) index, the other
26 two locations had none. The EPT index score for the one location was Fair (indicated by observing
27 between 7 and 13 EPT), the other two sites had scores of 0, which is poor on the EPT index. (AEM
28 OH094, 2018)

29 There is one pond on the facility that is visible on the NWI Map. This 1.0999-acre pond is classified
30 as palustrine with an unconsolidated bottom (PUBH). The pond has a slight bank of about 6-8 inches
31 and is used for fishing. (AEM OH094, 2018)

32 **Floodplains**

33 Floodplain mapping for this site is based on digital Q3 Flood data produced by FEMA. The FEMA
34 mapping area that covers the site (FEMA Map 39095C0207E) is located in a Special Flood Hazard
35 area subject to inundation by a 1% annual chance flood. (AEM OH094, 2018)

36 **Wetlands**

37 During the wetland delineation that occurred over the week of October 1, 2018, 4 total wetlands were
38 delineated onsite. (AEM OH094, 2018)

39 These 4 wetlands were classified as:

- 40 Palustrine emergent, persistent, seasonally flooded/ saturated (PEM1E)
- 41 Palustrine forested, broad-leaved deciduous, seasonally flooded/ saturated (PFO1E)
- 42 Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded (PSS1C).

43 **Wetland 1** is a 0.098-acre PEM1E wetland located in a slight depression east of the onsite
44 pond and has an open canopy.

1 The surrounding upland area has some red oak trees (*Quercus rubra*), silver maples (*Acer*
2 *saccharinum*), and other broad-leaved deciduous trees.

3 The dominant herbaceous wetland vegetation included giant reed (*Phragmites australis*), an
4 invasive species. (AEM OH094, 2018)

5 **Wetland 2** is a 0.287-acre PSS1C wetland located in a concave area along the flood plain of
6 Cunningham ditch in the southeast edge of the site.

7 The wetland was dominated by wetland tree and shrub species including pin oak (*Quercus*
8 *palustris*), American elm (*Ulmus americana*), and gray dogwood (*Cornus racemosa*).

9 The surrounding upland area was a mix of broad-leaved deciduous trees including pin oak
10 (*Quercus palustris*) and American elm (*Ulmus americana*). (AEM OH094, 2018)

11 **Wetland 3** is a 0.019-acre PEM1E wetland located in a concave depression.

12 The wetland vegetation community was fairly diverse and included peachleaf willow (*Salix*
13 *amygdaloides*), American sycamore (*platanus occidentalis*), grass-leaved goldenrod
14 (*Euthamia graminifolia*), and swamp milkweed (*Asclepias incarnata*) and many additional plant
15 species.

16 The surrounding upland area is forested and contained cottonwood (*Populus deltoides*) and
17 red oak trees (*Quercus rubra*). (AEM OH094, 2018)

18 **Wetland 4** is a 0.0239-acre PFO1E located in a concave depression in the southwest corner
19 of the facility. Based on the slope of the land it appears that some of this wetland's hydrology
20 is provided by surface water runoff from Interstate-80.

21 The wetland was heavily canopied by red maple (*Acer rubrum*) and American elm (*Ulmus*
22 *americana*). The herbaceous layer included willow aster (*Symphotrichum praealtum*).

23 The surrounding upland area contained red oak (*Quercus rubra*), red maple (*Acer rubrum*),
24 and American elm (*Ulmus americana*). (AEM OH094, 2018)

25 NWI data indicate four wetlands within 1,000 feet south of the site that include a PSS1C, a
26 PSS1/EMC, a PFO1/SS1C, and a PFO1C wetland. The site is separated from these wetlands by
27 Interstate 80. The NWI data also shows emergent wetlands within 1,000 feet north of the site. The
28 site is separated from these wetlands by Garden Road (AEM OH094, 2018).

29 **4.25.4 Cultural Resources**

30 The vast majority of the land was undeveloped farmland until construction for the OH094/Monclova
31 USARC in the late 1990s. Any structures built prior to 1970 were either removed for the construction
32 of a nursing home built in 1976 or razed in 1993 and 1994 when the Toledo-Lucas County Port
33 Authority purchased the property. Land associated with the OH094/Monclova USARC was leased
34 by the U.S. Government from the Toledo-Lucas County Port Authority in 1994. Construction of
35 buildings on the facility was completed in 1996. (ICRMP OH094, 2020)

36 A Section 110 inventory of the built environment and an archaeological site files search were
37 conducted for the property in 1997; none of the buildings at the OH094/Monclova USARC were
38 recommended eligible for the NRHP. In November 2008, the 88th RD submitted this inventory report
39 to the Ohio SHPO and potentially affiliated Tribes, requesting Section 106 review. By general letter
40 dated April 23, 2009, the Ohio SHPO concurred that buildings 50 years of age were not eligible for
41 the NRHP [and should be evaluated in 2046]. (ICRMP OH094, 2020)

42 A Phase I archaeological survey of the proposed OH094/Monclova USARC was completed in June
43 2004. Koralewski et al. (2005) excavated a total of 545 shovel tests across the property and found a
44 subsurface scatter of modern (post-1950s) architectural and domestic debris representing recent

1 building demolition. No prehistoric or historical archaeological resources were identified in the project
2 area ICRMP Update - Ohio 3-107 and it was recommended that no further archaeological
3 investigations. On May 2, 2005, the Ohio SHPO concurred with the findings of this report. (ICRMP
4 OH094, 2020)

5 Following DoDI 4715.16, consultation with federally recognized Indian Tribes was conducted for the
6 review of this 2020-2024 ICRMP Update.

7 The ICRMP for facilities located in Ohio will be furnished upon request.

8 **4.25.5 Biological Resources**

9 **Land Cover and Ecological Communities**

10 The site is comprised of eleven major land cover types.

11

Land Cover and Ecological Communities	Calculated Area	
	Acres	Percent of Site
Maintained grass	5.21	9.55
Pavement	11.71	21.45
Structures	1.50	2.75
Surface Water	1.87	3.43
Treed Areas	19.85	36.37
Unmaintained grassland	14.02	25.69
Wetland	0.42	0.77
Totals	54.58	100

12 (AEM OH094, 2018)

13 **Vegetation Communities**

14 Four vegetation communities dominate the site: maintained grass, wetlands, treed areas, and
15 unmaintained grasslands. During the 2018 field survey of these communities, no federal/state listed
16 or candidate species, or Army species-at-risk animals or plants were observed. (AEM OH094, 2018)

17 The maintained grass areas were dominated by a lawn mixture, with ornamental trees located
18 sporadically throughout the lawns. (AEM OH094, 2018)

19 The grassland areas were dominated by a mix of weedy species and species that thrive in disturbed
20 areas. (AEM OH094, 2018)

21 Dominant weed species included:

22

crown vetch	<i>Securigera varia</i>
quack-grass	<i>Elymus repens</i>
common evening primrose	<i>Oenothera biennis</i>
common plantain	<i>Plantago major</i>
common fleabane	<i>Erigeron philadelphicus</i>
black medic	<i>Medicago lupulina</i>
common ragweed	<i>Ambrosia artemisiifolia.</i>

23
24
25
26
27
28

29 The treed areas were sporadic and were difficult to classify as forest because of narrow stretches of
30 land that they covered and because of the highly intermittent spacing of trees. Some small segments
31 of the site had tree distributions that were more forest like but none that would truly meet the definition
32 of a forest stand. (AEM OH094, 2018)

1 The treed areas on site were dominated by:

2	red oak	<i>Quercus rubra</i>
3	red maple	<i>Acer rubrum</i>
4	silver maple	<i>Acer saccharum</i>
5	pin oak	<i>Quercus palustris</i>
6	sycamore	<i>Platanus occidentalis</i>
7	elm	<i>Ulmus americana</i>
8	cottonwood	<i>Populus deltoides</i>
9	quaking aspen	<i>Populus tremuloides</i>

10 Some of the red oak trees on the site may be useable for commercial timber, but due to their sporadic
11 locations and potential impacts to wetland areas and streams trying to access them, timber harvest
12 is not recommended for this site. Additionally, the site has several areas where mature silver maples
13 may act as **Indiana bat** and **northern long-eared bat** (both endangered) roosting sites during the
14 summer months. If timber harvest is proposed during the summer months, surveys should be
15 conducted for the Indiana and northern long-eared bats to ensure there will be no impacts. (AEM
16 OH094, 2018)

17 The wetland plant community differed based on the wetland type. This information is summarized
18 above in the Wetland Section. (AEM OH094, 2018)

19 In 2018 an endangered species survey took place at the site surveying for an endangered plant
20 species, the twisted yellow-eyed grass (*Xyris torta*). That survey came up negative for the twisted
21 yellow-eyed grass, but the team did observe **lowland toothcup (*Rotala ramosior*)** in the southeast
22 corner of the site. The *lowland toothcup* which is not considered an Army Species at Risk or a
23 threatened or endangered species by the State of Ohio or the Federal Government, but the plant is
24 considered rare and has state threatened and endangered statuses in surrounding states (PA, MN,
25 NY, RI, CT). The status of this plant has not yet been evaluated by the Ohio Department of Natural
26 Resources, and its status could change in the future based on the plant's status in neighboring States.
27 (AEM OH094, 2018)

28 Further details of the lowland toothcup can be found in the full *Toledo Area USAR LTA*
29 (*OH094/39760*) *Natural Resources Survey* (available upon request) in the twisted yellow-eyed grass
30 field report, which details the location of the lowland toothcup at the facility. (AEM OH094, 2018)

31 **Wildlife**

32 Bird surveys were conducted on the site using a five-minute interval point bird count in the morning
33 of October 1, 2018, and October 3, 2018. Count stations were positioned on the site where food,
34 water, and habitat sources were present. AEM Group observed a number of common birds which are
35 represented by call points in the Bird Survey Results table that follows. (AEM OH094, 2018).

Bird survey results				
Survey site	Common Name	Scientific Name	Number Observed	Location
Bird 1	American robin	<i>Turdus migratorius</i>	12	Forested meadow edge in SE corner
	Mourning dove	<i>Zenaida macroura</i>	2	
	Killdeer	<i>Charadrius vociferus</i>	1	
	Blue jay	<i>Cyanocitta cristata</i>	4	
	European starling	<i>Sturnus vulgaris</i>	13	
	Ruby crowned kinglet	<i>Regulus calendula</i>	1	
	Song sparrow	<i>Melospiza melodia</i>	1	

Bird survey results				
Survey site	Common Name	Scientific Name	Number Observed	Location
Bird 2	Song sparrow	<i>Melospiza melodia</i>	2	Edge of open field
	Killdeer	<i>Charadrius vociferus</i>	1	
	Northern flicker	<i>Colaptes auratus</i>	1	
	Blue jay	<i>Cyanocitta cristata</i>	5	
	Chipping sparrow	<i>Spizella passerina</i>	1	
	European starling	<i>Sturnus vulgaris</i>	1	
	American robin	<i>Turdus migratorius</i>	15	
Bird 3	Blue jay	<i>Cyanocitta cristata</i>	1	Forested wetland southwest corner
	Killdeer	<i>Charadrius vociferus</i>	1	
	American robin	<i>Turdus migratorius</i>	3	

1 During the site visit but outside of the 5-minute Bird Surveys, the following were observed foraging
2 locations throughout the site. Bluebirds (*Sialia sialis*), woodpeckers (*Picidae spp.*), flocks of robins
3 (*Turdus migratorius*) and grackles (*Quiscalus quiscula*), sparrows (*Rafinesque spp.*), blue jays
4 (*Cyanocitta cristata*), cardinals (*Cardinalis cardinalis*), and northern flickers (*Colaptes auratus*) were
5 all observed foraging. (AEM OH094, 2018)

6 Migratory birds of prey, such as the Bald and Golden eagle have the potential to pass through or stop
7 off at the site. There is no on-site breeding or nesting habitat present for these species. (AEM OH094,
8 2018)

9 Additional observed species included darter fish and rainbow darters were observed in Cunningham
10 Ditch/Wolf Creek, and monarch butterflies were observed feeding from a field of thistle. The site also
11 contained large numbers of tracks of raccoons, turkey, deer, opossums, and small rodents like mice,
12 squirrels, and ground hogs. (AEM OH094, 2018)

13 Overall, the facility offers abundant food and habitat for woodland animals and birds and maintenance
14 and use practices at the site that encourages mutual beneficial use for animals and the required
15 training regimes. (AEM OH094, 2018)

16 Listed Species

17 The following is a list of federally listed species for Lucas County, Ohio based on the U.S. Fish and
18 Wildlife services (USFWS) Federally listed species list: (AEM OH094, 2018)

19	bald eagle	<i>Haliaeetus leucocephalus</i>	recovered
20	Kirkland's warbler	<i>Setophaga kirtlandii</i>	endangered
21	rayed bean mussel	<i>Paetulunio fabalis</i>	endangered
22	Indiana bat	<i>Myotis sodalis</i>	endangered
23	northern long-eared bat	<i>Myotis septentrionalis</i>	endangered
24	Karner blue butterfly	<i>Lycaeides melissa samuelis</i>	endangered
25	red knot	<i>Calidris canutus</i>	threatened
26	eastern prairie fringed orchid	<i>Platanthera leucophaea</i>	threatened
27	eastern massasauga	<i>Sistrurus catenatus</i>	threatened

28 The monarch butterfly (*Danaus plexippus*) is currently being considered for federal listing as
29 threatened or endangered by the U.S. Fish and Wildlife Service. This species is present at this site
30 and actively uses the thistle and milkweed on the facility for feeding and breeding, respectively. At
31 this time, the decision for listing has been moved to December of 2020. Responsible members for
32 species status updates should ensure that this status is reviewed in 2020 after this decision has been

1 made. During the field survey, scientists observed a large number (n=>20) monarch butterflies
2 feeding from a field of thistle and caterpillar chew marks on milkweed plants around the pond. (AEM
3 OH094, 2018)

4 The mature silver maples and riparian habitat at the site have the potential to provide roosting for
5 Indiana and northern long-eared bats during summer months. (AEM OH094, 2018)

6 Well-developed riparian habitat and mature uplands were found which could support the massasauga
7 rattlesnake and eastern box turtle, although neither species was encountered during the 2019 species
8 surveys. (AEM OH094, 2018)

9 Cunningham ditch/Wolf Creek was surveyed for the rayed bean mussel, but no specimens were
10 observed during the survey. The ditch's water quality appears too low to support this species. (AEM
11 OH094, 2018)

12 In 2018 / 2019 field surveys were conducted for the following listed threatened and endangered
13 species :

- 14 • Blanding's turtle (reptile) *Emydoidea blandingii*
 - 15 ○ *No presence, habitat present*
- 16 • Cross-leaved milkwort (plant) *Polygala cruciate*
 - 17 ○ *No presence, habitat present*
- 18 • Eastern Box Turtle (reptile) *Terrapene Carolina*
 - 19 ○ *No presence, habitat present*
- 20 • Eastern massasauga rattlesnake (reptile) *Sistrurus catenatus catenatus*
 - 21 ○ *No presence, habitat present.*
- 22 • Northern appressed clubmoss (plant) *Lycopodiella subapressa*
 - 23 ○ *No presence, no hospitable habitat.*
- 24 • Plains puccoon (plant) *Lithospermum caroliniense*
 - 25 ○ *No presence, habitat present*
- 26 • Racemed milkwort (plant) *Polygala polygama*
 - 27 ○ *No presence, no hospitable habitat*
- 28 • Rayed bean mussel (mollusk) *Villosa fabalis*
 - 29 ○ *No presence, unlikely habitat*
- 30 • Twisted yellow-eyed grass (plant) *Xyris torta*
 - 31 ○ *No presence, hospitable habitat*

32 None of the above listed species were found on OH094. (AEM OH094, 2018)

33 In 2018 an endangered species survey took place at the site surveying for an endangered plant
34 species, the twisted yellow-eyed grass (*Xyris torta*). That survey came up negative for the twisted
35 yellow-eyed grass, but the team did observe **lowland toothcup (*Rotala ramosior*)** in the southeast
36 corner of the site. The *lowland toothcup* which is not considered an Army Species at Risk or a
37 threatened or endangered species by the State of Ohio or the Federal Government, but the plant is
38 considered rare and has state threatened and endangered statuses in the surrounding states (PA,
39 MN, NY, RI, CT). The status of this plant has not yet been evaluated by the Ohio Department of
40 Natural Resources, and its status could change in the future based on the plant's status in neighboring
41 States. Further details of the lowland toothcup can be found in the full **Toledo Area USAR LTA**
42 **(OH094/39760) Natural Resources Survey** (available upon request) in the twisted yellow-eyed
43 grass field report, which details the location of the lowland toothcup at the facility. (AEM OH094, 2018)

44 **Critical Habitat** – Based on the USFWS Information for Planning and Consultation (IPaC), final
45 critical habitat for the Indiana bat and the Piping plover has been identified near the facility, however,
46 the facility is outside the identified critical habitat areas. There is proposed critical habitat in the area

1 for the Karner blue butterfly, however, the location of the critical habitat is not available. (AEM OH094,
2 2018)

3 No critical habitat has been designated for the eastern prairie fringed orchid, rayed bean, eastern
4 massasauga, red knot, and the Kirkland's warbler. Table 3 in the **Toledo Area USAR LTA**
5 **(OH094/39760) Natural Resources Survey** (available upon request), summarizes the threatened,
6 endangered, and army species at risk that have potential to be in Lucas County as well as the
7 potential for their occurrence on this facility. (AEM OH094, 2018)

8 **4.25.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

9 Currently there does not appear to be opportunities for outdoor recreation, public access, and
10 agricultural out-leasing on this site area. However, MO041/29985 may provide opportunities for
11 public access and outdoor recreation in the form of hiking, hunting, bird-watching, and other
12 recreational pursuits. This site may provide agricultural opportunities through utilization of the land
13 for grazing and portions of the timber resources could be harvested.

14 **4.25.7 Management Concerns and Issues**

15 During the 2018 field survey, phragmites was noted growing along the edge of the onsite pond. It is
16 recommended that treatment of these invasive species be implemented to reduce further impact or
17 spread. (AEM OH094, 2018)

18 There is potential habitat for a number of state-listed species at this facility. These species include:

- 19 • Indiana bat (mammal) *Myotis sodalis*
- 20 • northern long-eared bat (mammal) *Myotis septentrionalis*
- 21 • purplish copper (insect) *Lycaonia helloides*
- 22 • unexpected cycnia (insect) *Cycnia inopinatus*
- 23 • spotted turtle (reptile) *Clemmys guttata*

24 Surveys for these species should be conducted prior to impacting suitable potential habitat, to
25 determine the species' presence or absence at the facility. Suitable habitat needs are described in
26 Table 3 of Section 5 of the November 6, 2019, *Toledo Area USAR LTA (OH094/39760) Natural*
27 *Resources Survey* which is available upon request. (AEM OH094, 2018)

28 If the monarch butterfly is listed in December of 2020 as either federally threatened or federally
29 endangered, the facility will have to develop plans to accommodate species use of this facility as it
30 is present and uses the site for stop over and breeding. (AEM OH094, 2018)

31 It is recommended that the natural resources survey for Toledo Area USAR LTA be updated in 2023
32 if the site substantially changes so that this survey is inaccurate, or the facility makes plans for stream
33 impacts. In addition, it is recommended that management continue to review USFWS notifications
34 and ARMY SAR regularly for new candidate and listed species in the region that may utilize this site.
35 (AEM OH094, 2018)

36 **4.25.8 Special Interest Areas**

37 The Louis A. Campbell Nature Preserve is located directly south of the facility across interstate 80. It
38 is home to more than 30 state-listed plant species and is a remnant patch of the oak openings/tall
39 grass prairie habitat. Other special interest areas located within 1,000 ft of the site are a maple-oak-
40 ash swamp and an oak-hickory forest to the south, also part of the Nature Preserve. (AEM OH094,
41 2018)
42

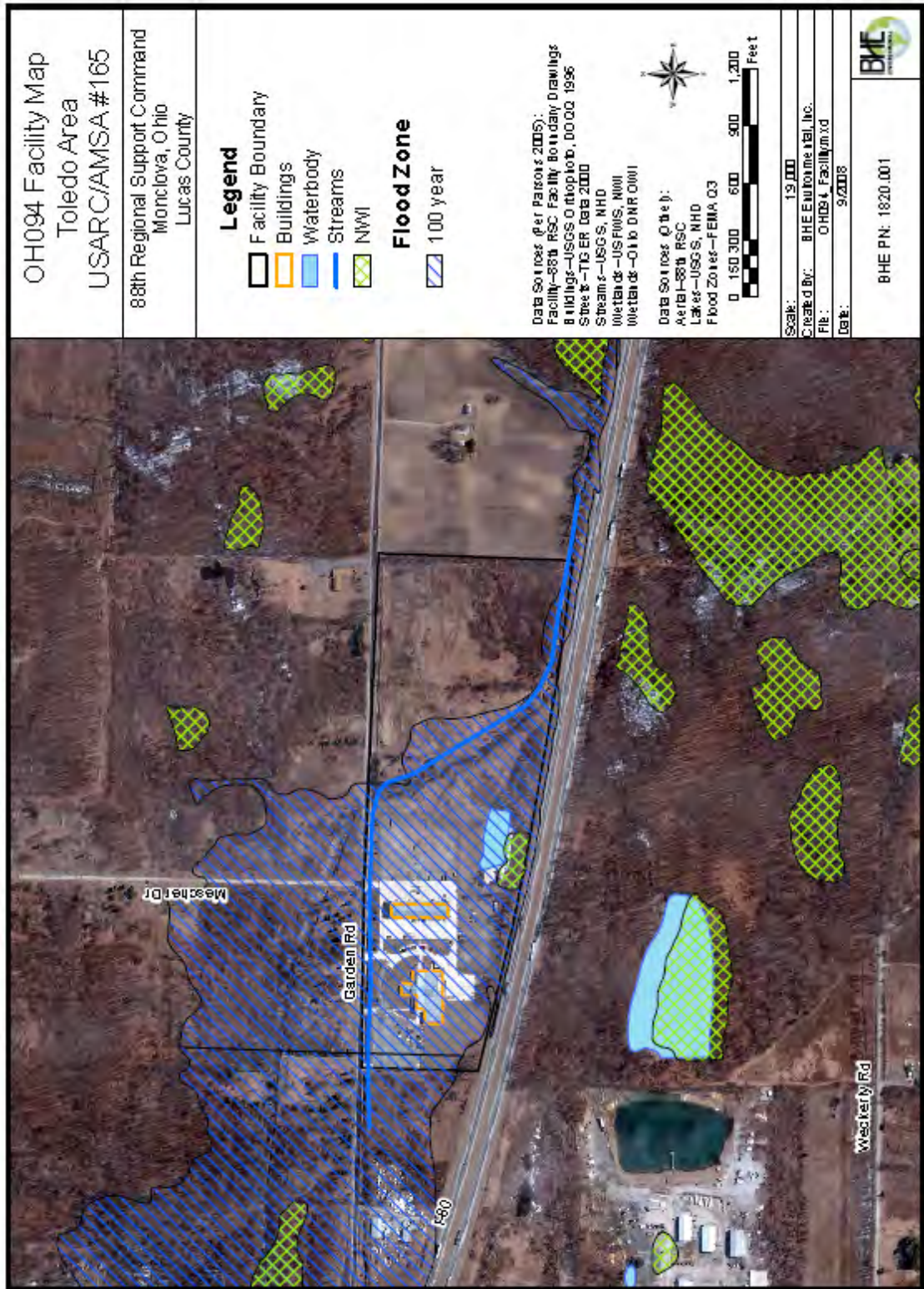
Federally Listed Species	Preferred Habitat	Potentially Suitable Habitat Present on Site ?	Potential to be Present on the Site ?
Indiana bat (<i>Myotis sodalis</i>) (E)	Roosting – trees meeting characteristics of PRT's (Romme et al. 1995) Foraging – Wetlands and streams with open flyways. Winter hibernacula - caves	No Yes – wetlands and the pond No	Yes
Piping plover (<i>Charadrius melodus</i>) (E)	Sandy beaches and nests in scrapes made in the sand.	No	No
Karner blue butterfly (<i>Lycaeides melissa samuelis</i>) (E)	Requires wild lupine to complete its life cycle. Prefers prairie habitats with wild lupine.	No	No
Eastern prairie fringed orchid (<i>Platanthera leucophaea</i>) (T)	Mesic prairie, wetland communities such as sedge meadows, marsh edges and even bogs.	No	No
Eastern massasauga (<i>Sistrurus catenatus catenatus</i>) (C)	Large, well-developed wetland/upland complexes where it prefers the cover of broad-leaved plants, emergents, and sedges	Yes – wetlands and surrounding uplands	Yes
Rayed bean mussel (<i>Villosa fabalis</i>) (C)	Lakes and small to large streams in sand or gravel.	Yes – Cunningham Ditch	Yes

1 (AEM OH094, 2018)

2 The MDC reported a state-designated natural area located within 1,000 ft of the site. The MDC also reported
3 that this site is within a county with known karst geologic features (e.g. caves, springs, and sinkholes, all
4 characterized by subterranean water movement), which may contain cave fauna, many of which are state
5 species of conservation concern. (AEM OH094, 2018)

6

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 2
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Figure 4.25 - Site Map – OH094/39760

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1 **4.26 Land for Future ARC (Eau**
2 **Claire) (WI011/55786)**

3 White Ave. & Hogarth Street
4 Eau Claire, WI 54701

5 **High Resource**

6 **County:** Chippewa
7 **Acres:** 15.00
8 **Building Count:** 0
9 **Last Field Survey:** 2022



10
11
12 This property is designated as ARC land for future use (WI011/55786) and is presently undeveloped. The
13 site is owned by the 88th RD. According to personnel at other ARC sites, this property occasionally is used
14 for field training. However, no vehicles or ground disturbing equipment are used on the site.

15 **4.26.1 Geographic Location and Size**

16 The facility is located at the intersection of Hogarth Street and White Avenue, approximately 1000
17 feet east of the Eau Claire County Municipal Airport within the corporate boundaries of the City of
18 Eau Claire, Wisconsin. The parcel is located in the NW1/4 NW1/4 of Section 34 of Hallie Township.
19 The northern portion of the City of Eau Claire lies within Chippewa County. The facility is situated on
20 a broad terrace above the Chippewa River located 0.80 miles to the north. The property is flat and is
21 395 feet above mean sea level (amsl). The Army Reserve owns 15 acres of land. (Dawson WI011,
22 2022)

23 Initially, the Military Construction Army Reserve program proposed a construction start year of FY
24 2013, and estimated completion and move-in is FY 2016. The USAR proposed to design and build
25 an approximately 50,000-square-foot, two-story, combined training/administrative building; a 10-bay
26 maintenance site; and a 670-square-foot storage building. Much of the remaining property will be
27 utilized for privately owned vehicle parking and military equipment parking. Most, if not all, of the site
28 will be disturbed during construction. Areas not built upon or used for parking will be landscaped for
29 lawn, storm drainage, and physical security requirements. These plans have not yet come to fruition.
30 (Dawson WI011, 2022)

31 The Site is bound by vacant and residential property to the north and commercial property to the
32 south, east, and west. The Chippewa County Regional Airport is located approximately 1,000 feet
33 from the northwest corner of the Site. (Dawson WI011, 2022)

34 **4.26.2 Geological Resources**

35 **Physiography and Geology**

36 The U.S. Environmental Protection Agency reports the Site also falls within the Central Wisconsin
37 Undulating Till Plain Region (51b). The 51b ecoregion land cover is a mosaic of woodland and
38 agriculture including large areas of cropland that produce silage corn, oats, barley, and some apples.
39 This ecoregion has fewer lakes, with higher trophic states, than adjacent level IV ecoregions in
40 ecoregion 51. Outcrops of sandstone comprise roughly 70% of the total area of the ecoregion. The
41 51b ecoregion has a greater percentage of agricultural land use than the adjacent ecoregion 51a.
42 The undulating to rolling irregular plains of sandy loam till and outwash sands also distinguish this

1 ecoregion from the stagnation moraines of ecoregion 51a to the west and the lacustrine sand plains
2 of ecoregion 51c to the south. (Dawson WI011, 2022)

3 **Soils**

4 Soil survey maps accessed through the USDA NCRS web soil survey were reviewed prior to
5 conducting the field surveys. Two soil types were identified within the Site. The dominant soil type is
6 Menahga loamy sand, 0 to 6 percent slopes that underlays 7.8 acres of the Site, followed by 5.4 acres
7 of Burkhardt sandy loam on the 0 to 3 percent slopes. (Dawson WI011, 2022)

8 **Topography**

9 WI011/55786 is generally flat at approximately 395 feet amsl.

10 **4.26.3 Water Resources**

11 **Watershed and Surface Waters**

12 The Site falls within the Beaver Creek-Chippewa River Watershed (Hydraulic unit code
13 070500050502) (USGS 2023). The Chippewa River is located within the watershed, approximately
14 1.25 miles north of the Site. The Chippewa River is formed by the confluence of the West Fork
15 Chippewa River (rising from the 14,500-acre Chippewa Lake, southeastern Bayfield County) and East
16 Fork Chippewa River (rising from the wetlands of the town of Knight in Iron County). Despite its
17 proximity to Lake Superior, the Chippewa basin feeds the Mississippi and was once navigable for 50
18 miles upstream from the Mississippi by Durand, flowing northeast to Eau Claire. Over 3,000 stream
19 and river miles flow through the basin and with 156,200 acres of freshwater lakes, 22,711 acres of
20 flowages and more than 150 acres of freshwater springs. (Dawson WI011, 2022)

21 **Wetlands**

22 USFWS's National Wetlands Inventory (NWI) mapping reports no mapped wetlands at the Site, and
23 none were discovered at the time of the 2021 site field survey. (Dawson WI011, 2022)

24 The nearest mapped WOTUS is a 2.26-acre riverine habitat classified as a riverine, intermittent,
25 streambed, seasonally flooded (R4SBC) 0.52 miles from the northwestern corner of the Site. (Dawson
26 WI011, 2022)

27 **Floodplains**

28 The Federal Emergency Management Agency Flood Insurance Rate Map (FEMA Firm Panel
29 55017C0750E dated March 2, 2010) reports that the Site is not within a 100-year floodplain. The
30 nearest area defined as a special flood hazard regulatory floodway is located approximately 1.5 miles
31 west of the Site. (Dawson WI011, 2022)

32 **4.26.4 Cultural Resources**

33 No buildings are located on WI011 and, therefore, no architectural evaluations are required until any
34 future buildings are 50 years of age. Archaeological inventories have been completed for this facility
35 in 2003 and no eligible sites were identified. No further work is required. (ICRMP WI, 2020)

36 Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review
37 of this 2020-2024 ICRMP Update to ascertain whether the facility contains any properties of religious,
38 traditional, or cultural importance.

39 The ICRMP for facilities located in Wisconsin will be furnished upon request.

40

1 **4.26.5 Biological Resources**

2 **Land Cover and Ecological Communities**

3 The Site was observed to consist almost entirely of undeveloped, forested and grassland. The
4 acreage and percentage of the facility for each land cover type at the Site is listed below. (Dawson
5 WI011, 2022)

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Coniferous Forest	8.3	56
Grassland/Old Field	6.37	42
Mixed Deciduous Forest	0.33	2
Totals	15.00	100

6 (Dawson WI011, 2022)

7 **Vegetation Communities**

8 Much of the Site is maintained lawn, however, herbaceous vegetation dominated the unmaintained
9 areas north of the facility. Plant species observed at the Site presented in the following table lists the
10 vegetative community types observed at the Site. (Dawson WI011, 2022)

11 Plant species observed during the Natural Resource Survey Update:

Common Name	Scientific Name	Growth Form
Alder buckthorn	<i>Rhamnus frangula</i>	T
Black oak	<i>Quercus velutina</i>	T
Blue spruce	<i>Picea pungens</i>	T
Bur oak	<i>Quercus macrocarpa</i>	T
Green ash	<i>Fraxinus pennsylvanica</i>	T
Jack pine	<i>Pinus banksiana</i>	T
Monterey cypress	<i>Cupressus macrocarpa</i>	T
Virginia pine	<i>Pinus virginiana</i>	T
White Spruce	<i>Picea glauca</i>	T
Bird's foot trefoil	<i>Lotus corniculatus</i>	H
Japanese garden juniper	<i>Juniperus procumbens</i>	H
Lady fern	<i>Athyrium filix-femina</i>	H
Spotted knapweed	<i>Centaurea stoebe</i>	H
Tatarian honeysuckle	<i>Lonicera tatarica</i>	H
Kentucky bluegrass	<i>Poa pratensis</i>	G

12 Key: T = Tree, H = Herbaceous, G = Grass (Dawson WI011, 2022)

13 **Woodlands**

14 A timber assessment was conducted while on Site on October 10, 2022, by subconsultant Mr. Michael
15 E. Dahlby with Dahlby Conservation Services, LLC of Chippewa Falls, WI. (Dawson WI011, 2022)

16 The "sticks plus trees" point sample cruising method described in the State of Wisconsin, Department
17 of Natural Resources Public Forest Land Handbook and the Timber Sale Handbook was used to
18 measure species composition, tree density, and volume of commercial timber to within 10% accuracy.
19 (Dawson WI011, 2022)

20 Sixteen sample plots, spaced approximately 170 feet apart, were located using QGIS. A
21 georeferenced map containing the sample plot locations on an aerial photograph taken in the summer
22 of 2020 was developed in QGIS and exported for use in the field with the smartphone application

1 known as Avenza Maps. Avenza Maps were used in the field to navigate to each sample point.
2 (Dawson WI011, 2022)

3 At each sample point, a 10-factor prism was used to estimate the merchantable basal area, by
4 species, within each sampling plot. From the center of each sample plot, the height and diameter at
5 breast height of a tree that was representative of the average commercial tree within 30' of lot center
6 was measured with a Biltmore Stick. The results of this measurement informed ocular estimate of
7 the physical characteristics of the rest of the commercial trees sampled within each plot. (Dawson
8 WI011, 2022)

9 Ocular estimates of the following parameters were collected, in addition to volume of merchantable
10 timber, at each sampling point:

- 11 • Abundance of terrestrial invasive plants (Common Buckthorn and Bush Honeysuckle)
- 12 • Evidence of tree decline or disease.
- 13 • Evidence of tree-related human safety hazards.
- 14 • Need for pruning or other timber stand improvement.

15 During the assessment, a total of 16 evenly spaced sample plots were georeferenced and surveyed
16 to measure species composition, tree density, and volume of commercial timber. The Site was found
17 to contain approximately 12 acres of a relatively young Jack Pine Forest type. Forest stands are of
18 the Jack Pine Forest type when Jack Pine (*Pinus banksiana*) comprises 50% or more of the basal
19 area in poletimber or sawtimber stands, or 50% or more of the stems in seedling and sapling stands.
20 Jack Pine frequently occurs in dense, even-aged stands that originate from major disturbances, such
21 as fire or logging. In stands dominated by Jack Pine, the most common associates are oak (*Quercus*
22 spp.), red pine (*Pinus resinosa*), white pine (*Pinus strobus*), aspen (*Populus* spp.), and white birch
23 (*Betula papyrifera*). Occasional associates include red maple (*Acer rubrum*), black cherry (*Prunus*
24 *serotina*), balsam fir (*Abies balsamea*), and white spruce (*Picea glauca*). (Dawson WI011, 2022)

25 Much of the Jack Pine at the Site is within the pole-size class (5 inch to 9 inch diameter at breast
26 height (DBH)) with an average height of approximately 30 feet and an average DBH of approximately
27 8 inches. The average basal area is approximately 72 square feet per acre. (Dawson WI011, 2022)

28 This relatively young Jack Pine stand would be considered pre-commercial. The average age of the
29 dominant individuals is approximately 30 years old. Jack Pine stands that are managed for fiber are
30 typically harvested between 40 and 60 years of age. Jack Pine stands that are managed for
31 sawtimber are typically harvested between 50 and 70 years of age. Given the shade intolerance of
32 Jack Pine, this species is managed on an even-aged basis using clear cut, seed tree, or shelterwood
33 silvicultural systems. (Dawson WI011, 2022)

34 There was no evidence of disease within the stand. Quaking Aspen and various oak species, which
35 are commonly associated with Jack Pine stands, are present within the parcel. The Site is not well
36 suited to Quaking Aspen and the pole-sized individuals that are present have begun to naturally
37 decline. There is little natural regeneration of Quaking Aspen, which is to be expected due to their
38 shade intolerance. Black and Bur oak saplings, of seed origin, are present along the boundaries of
39 the Jack Pine stand where more sunlight is present. (Dawson WI011, 2022)

40 No evidence of tree-related human safety hazards was observed. There was no observation of trees
41 interfering with infrastructure along the roadway or property boundaries. There does not appear to be
42 any need for pruning or other timber stand improvement at the present time. (Dawson WI011, 2022)

43 The detailed report is available upon request.

44
45

1 **Wildlife**

2 The Site and surrounding agricultural fields offer limited habitat to wildlife. During the Site survey,
3 DAWSON scientists observed the following wildlife, or signs of wildlife, presented in table below.
4 (Dawson WI011, 2022)

5 The property contains habitat suitable for many species of wildlife (e.g., birds and small mammals).
6 However, due to the surrounding commercial and residential development and nearby airport
7 property, only common wildlife adapted to developed and populated areas are likely to utilize the
8 property. (Dawson WI011, 2022)

Common Name	Scientific Name
American red squirrel	<i>Tamiasciurus hudsonicus</i>
Bumblebee	<i>Bombas spp.</i>

9 (Dawson WI011, 2022)

10 **Listed Species**

11 ***Federally Listed Species***

12 The table below includes the USFWS IPaC list of the three mammals, two aquatic invertebrates, and
13 two insects that have the potential to occur at or in the vicinity of the Site. (Dawson WI011, 2022)

Common Name	Scientific Name	Federal Status	Critical Habit	Suitable Habitat Description
Mammals				
Gray Wolf	<i>Canus Lupus</i>	Threatened	No critical habitat	None
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Endangered	No critical habitat	None
Tricolored Bat	<i>Perimyotis subflavus</i>	Proposed Endangered		
Aquatic Invertebrates				
Higgins Eye (pearly mussel)	<i>Lampsilis higginsii</i>	Endangered	No critical habitat	None
Spectaclecase (mussel)	<i>Cumberlandia monodonta</i>	Endangered	No critical habitat	None
Insects				
Karner Blue Butterfly	<i>Lycaeides malissa samualis</i>	Endangered	No critical habitat	None
Monarch Butterfly	<i>Danaus plexippus</i>	Candidate	No critical habitat	None

14 Source: USFWS 2023b

15 The monarch butterfly (*Danaus plexippus*) is currently a candidate species under Section 7 of the
16 Endangered Species Act, and is not yet proposed for listing, therefore consultation with USFWS
17 would not be required if a project at the facility was proposed which might impact suitable habitat for
18 the species. (Dawson WI011, 2022)

19 In the 2015 INRMP, it was indicated that there was sufficient coverage of lupin at the site to potentially
20 support Karner Blue butterfly (*Lycaeides malissa samualis*) reproduction, which warranted an
21 endangered species survey. However, the 2022 NRSRVYUP did not support that assertion in that

1 no lupin was found to be present on the site, and lupin is integral to successful Karner Blue Butterfly
2 reproduction/life cycle. (Dawson WI011, 2022)

3 **State Listed Species**

4 WDNR maintains a state list of plants and wildlife designated extirpated, endangered, threatened,
5 potentially threatened, species of concern, and special interest. Wisconsin State Statute 29.604 and
6 Administrative Rule Chapter NR 27 established and define Wisconsin's endangered and threatened
7 species laws. (Dawson WI011, 2022)

8 None of the state and county federally endangered species listed are known to be at or in the
9 vicinity of the Site. (Dawson WI011, 2022)

10 **Army Species at Risk**

11 The Army's List of Priority Species at Risk identifies 65 species that would cause significant mission
12 conflict were they to be listed as threatened or endangered under the Endangered Species Act.
13 (Dawson WI011, 2022)

14 None of the species at risk listed are known to be at or in the vicinity of the Site. (Dawson WI011,
15 2022)

16 **4.26.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing**

17 There does not appear to be any opportunities for outdoor recreation, public access, hunting, or
18 agricultural out-leasing areas on the Site. (Dawson WI011, 2022)

19 **4.26.7 Management Concerns and Issues**

20 The field surveys conducted on July 21 and July 22, 2022, as well as the tree survey on October
21 20, 2022, found common plant and wildlife species at the Site with no suitable habitat to support
22 threatened or endangered species. No critical habitat was observed. (Dawson WI011, 2022)

23 **4.26.8 Special Interest Areas**

24 At the time of the 2022 field survey, no areas of special interest were observed. (Dawson WI011,
25 2022)
26



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2
3

Figure 4.26 - Site Map – WI01/55786

1 **4.27 West Silver Spring Complex**
2 **(WI064/55999)**

3 4850 W Silver Spring Drive
4 Milwaukee, WI 53218-3440

5 **High Resource**

6 **County:** Milwaukee

7 **Acres:** 126.80

8 **Building Count:** 28

9 **Last Field Survey:** 2020 (NRSRVYUP)
10 2015 (WETLNSRVYUP)



11
12 The West Silver Spring Complex was constructed in 1986; however, portions of the site were constructed
13 during the 1940s. This facility supports the Army Reserve with 12 buildings of administrative space, 5 vehicle
14 maintenance, 4 storage facilities, MEP, POV, Army Band training facility, and 7 other supporting structures.
15 The primary site activities are classroom training and vehicle/equipment maintenance carried out at the site's
16 AMSA and OMS. A portion of the site was used by the Milwaukee Sanitation Department from 1957 through
17 1966 to dispose of approximately 500,000 cubic yards of solid waste. The closed and capped 40-acre landfill
18 area is located in the central portion of the site, west of Lincoln Creek. The 28 buildings and the land that
19 comprise WI064/55999 are owned by the 88th RD.

20 **4.27.1 Geographic Location and Size**

21 The West Silver Spring Complex is located northwest of downtown Milwaukee in northern Milwaukee
22 County. Acreage for the site from the Real Property Detail Report dated 17 September 2013,
23 indicates the acreage as 126.80 acres. Residential areas and McGovern Park bound the site to the
24 south, commercial and residential properties to the west, and Havenwoods State Forest to the north
25 and east. The state forest consists of 237 acres of grasslands, forests, and wetlands. It has an
26 Environmental Awareness Center and trails for nature study, hiking, biking, and cross-country skiing.
27 The site boundary is shown on Figure 3.28. (ENSAFE WI064, 2020)

28 **4.27.2 Geological Resources**

29 **Physiography and Geology**

30 This facility is located within the Lake Michigan Lacustrine Clay Plain ecoregion, a part of the
31 Southeastern Wisconsin Till Plains. This area is characterized by red calcareous clay soil, lacustrine
32 and till deposits, and a flat plain. The topography is generally flatter and features fewer lakes as
33 compared to the ecoregions to the south. Agricultural land in this ecoregion is considered prime
34 farmland with fertile soils that support a longer growing than surrounding ecoregions. Typical native
35 vegetation communities include beech, sugar maple, basswood, red oak, and white oak forests.
36 (ENSAFE WI064, 2020)

1 **Soils**

2 The U.S. Department of Agriculture Natural Resources Conservation Services web soil survey
3 reports, mapped soils within the facility boundaries belong to the following soil map units:

- 4 4.9% Ashkum silty clay loam, 0 to 2% slopes
- 5 25.0% "Landfill" (the former landfill, now capped)
- 6 49.0% Loamy Land
- 7 17.2% Mequon silt loam, 1 to 3% slopes
- 8 0.5% Ozaukee silt loam, high carbonate substratum, 2 to 6% slopes
- 9 2.1% Ozaukee silt loam, high carbonate substratum, 2 to 6% slopes, eroded
- 10 1.3% Unmapped area.

11 Ashkum silty clay loam, 0 to 2% slopes, Loamy Land, Mequon silt loam, 1 to 3% slopes, Ozaukee silt
12 loam, high carbonate substratum, 2 to 6% slopes, and 2.1% Ozaukee silt loam, high carbonate
13 substratum, 2 to 6% slopes, eroded are considered hydric within Milwaukee and Waukesha Counties.
14 (ENSAFE WI064, 2020)

15 **Topography**

16 The facility's topographic setting is relatively flat with some undulating terrain and minimal variation
17 in elevation overall. The highest elevation is located within the northeast portion of WI064. A natural
18 valley is sloped toward Lincoln Creek along the watercourses path. Onsite elevations range from
19 approximately 670 to 695 above sea level. (ENSAFE WI064, 2020)

20 **4.27.3 Water Resources**

21 **Watershed and Surface Waters**

22 The facility is within the Milwaukee watershed (Hydrologic Unit Code 04040003). (ENSAFE WI064,
23 2020)

24 WI064 contains the surface waters of Lincoln Creek, a jurisdictional water of the United States.
25 Approximately 2,600 linear feet of the creek passes through the facility, flowing generally southwest
26 before eventually emptying into the Milwaukee River approximately 5 miles offsite to the south.
27 Lincoln Creek, listed as a 303(d) impaired water, is the largest perennial tributary to the Lower
28 Milwaukee River (URS Group, 2013). The Lincoln Creek Environmental Restoration and Flood
29 Control Project was completed in June 2002 and resulted in a relatively straight, well-incised channel,
30 with stable well-vegetated riparian banks.

31 An unnamed tributary flows into Lincoln Creek in the southwestern corner of the facility. The
32 unnamed tributary features substrate primarily comprised of rip-rap but has an Ordinary High Water
33 Mark including a defined bed and bank, and would likely be considered a jurisdictional water of the
34 United States. (ENSAFE WI064, 2020)

35 **Wetlands**

36 Three wetlands and one perennial stream were identified on the site.

37 The area north of the landfill was previously evaluated for wetlands in 2009. One wetland was
38 identified along the western boundary. Wetland 1 corresponds to the wetland identified along the
39 western boundary in 2009. Other features investigated in 2009 did not meet hydric soils or
40 hydrophytic vegetation criteria and were not identified as wetlands. The WDNR visited the site on
41 September 24, 2009, to confirm the wetlands boundaries. At the time of the field survey, an engineer
42 equipment training area was under construction in the southern area where wetlands were not
43 identified in 2009; therefore, this area was not reevaluated during the 2015 wetland delineation.
44 (PARS-CH2M Hill WI064, 2015)

1 **Wetland 1 (W01)** is located on the northern portion of the site. The hydrology sources for the wetland
2 include surface runoff from the adjacent commercial development and surrounding impervious areas.
3 No clear hydrologic surface connection with any WOUS was observed; thus, Wetland 1 is most likely
4 a non-jurisdictional isolated wetland. (PARS-CH2M Hill WI064, 2015)

5 Dominant herbaceous vegetation within a 5-foot radius included fox sedge (*Carex vulpinoidea*;
6 FACW). Dominant shrub vegetation within a 15-foot radius included common buckthorn (*Rhamnus*
7 *cathartica*; FAC). Dominant tree vegetation within a 30-foot radius included eastern cottonwood
8 (*Populus deltoides*; FAC) and green ash (*Fraxinus pennsylvanica*; FACW). (PARS-CH2M Hill WI064,
9 2015)

10 This area met the three wetland criteria and is classified as a palustrine, forested broadleaved
11 deciduous, saturated (PFO1B) wetland. This is a highly disturbed, low-quality wetland. Several small
12 depressional wetlands with standing surface water (approximately 2 feet deep) were surrounded by
13 areas of densely-vegetated hydrophytic (primarily *Typha*) species. Originally these were constructed
14 as retention ponds and designed to function as wetlands. These areas have naturalized and
15 developed wetland characteristics over time. (PARS-CH2M Hill WI064, 2015)

16 The jurisdictional status of this wetland is determined by the USACE and/or Wisconsin Department
17 of Natural Resources (WDNR). (PARS-CH2M Hill WI064, 2015)

18 **Wetland 2 (W02)** is located on the southwestern portion of the site adjacent to Lincoln Creek.
19 Wetland 2 consists of five constructed retention basins with a 24-inch inlet located on the
20 northwestern portion of the wetland. The hydrology sources for the wetland include surface runoff
21 from the adjacent landfill and surrounding impervious areas. During times of excess rain or back-
22 flooding, the Wetland 2 likely receives water from Lincoln Creek. (PARS-CH2M Hill WI064, 2015)

23 Dominant herbaceous vegetation within a 5-foot radius included Torrey's rush (*Juncus torreyi*; FACW)
24 and narrow-leaved cattail (*Typha angustifolia*; OBL). Dominant shrub vegetation within a 15-foot
25 radius included sandbar willow (*Salix interior*; FACW) and green ash (*Fraxinus pennsylvanica*;
26 FACW). (PARS-CH2M Hill WI064, 2015)

27 This area met the three wetland criteria and is classified as a palustrine emergent seasonally flooded
28 diked/impounded (PEMCh) wetland. Wetland 2 is a highly disturbed low-quality wetland. Wetland 2
29 interacts with Lincoln Creek and may be considered jurisdictional by the USACE and the state of
30 Wisconsin DNR. (PARS-CH2M Hill WI064, 2015) Therefore, prior to any disturbance a USACE
31 jurisdictional determination is recommended.

32 **Wetland 3 (W03)**, is located on the southeastern portion of the Property adjacent to a parking facility
33 and storage container location. The hydrology sources for the wetland include surface runoff from
34 the adjacent landfill and surrounding impervious areas. No clear hydrologic surface connection with
35 any WOTUS was observed, thus Wetland 3 is likely a non-jurisdictional isolated wetland. (PARS-
36 CH2M Hill WI064, 2015)

37 Dominant herbaceous vegetation within a 5-foot radius included reed canary grass (*Phalaris*
38 *arundinacea*; FACW) and giant goldenrod (*Solidago gigantea*; FACW). Dominant shrub vegetation
39 within a 15-foot radius included sandbar willow (*Salix interior*; FACW). Dominant tree vegetation
40 within a 30-foot radius included eastern cottonwood (*Populus deltoides*; FAC). (PARS-CH2M Hill
41 WI064, 2015)

42 This area met the three wetland criteria and is classified as a palustrine emergent temporary flooded
43 (PEMA) wetland. Wetland 3 is a highly disturbed low-quality wetland. (PARS-CH2M Hill WI064, 2015)

44 **Floodplains**

45 Based on the Federal Emergency Management Agency National Flood Hazard Layer Map (Panels
46 55079C0038E and 55079C0076E), a portion of WI064 (Milwaukee) lies within a 100-year floodplain

1 of Lincoln Creek (see Figure 6). The remainder of the facility is in an area of minimal flood hazard
2 (Zone X). (ENSAFE WI064, 2020)

3 **4.27.4 Cultural Resources**

4 The Milwaukee USARC was initially evaluated in 1994 by the Fort McCoy Archaeology Laboratory
5 as part of the Section 110 Inventory of select Wisconsin Army Reserve Centers. The inventory found
6 that none of the buildings located at Milwaukee USARC met criteria for listing in the National Register
7 of Historic Places (NHRP). In 2011, the WI SHPO concurred with the demolition of 11 Milwaukee
8 USAC buildings (301, 302, 303, 305, 306, 307, 308, 309, 312, 313, and the Guard Shack). In 2016,
9 the WI SHPO concurred with the demolition of buildings 314, 316, and 401. In 2019, the WI SHPO
10 concurred with the Section 110 re-evaluation report for Milwaukee USARC buildings 304, 400, and
11 404, and the proposed demolition of 304. In 2023, a re-evaluation report was completed for Buildings
12 403, 405, 406, and 407. In 2023, the WI SHPO concurred with the determination that the buildings
13 are not eligible.

14 Archaeological inventories were completed for this facility in 2013 and no sites were identified. The
15 site has been heavily disturbed by construction and extremely limited potential to contain intact
16 archaeological deposits. (ICRMP WI, 2020)

17 Following DoDI 4715.16, consultation with federally recognized Tribes was conducted for the review
18 of this 2020-2024 ICRMP Update to ascertain whether the facility contains any properties of religious,
19 traditional, or cultural importance.

20 The ICRMP for facilities located in Wisconsin will be furnished upon request.

21 **4.27.5 Biological Resources**

22 **Land Cover and Ecological Communities**

23 The site is comprised of ten major land cover types.

Land Cover and Ecological Communities	Calculated Area	Percent of Site
	Acres	
Bottomland Scrub-Shrub/Riparian	9.79	7.8%
Building/Structure	4.22	3.3%
Grassland/Field	47.17	37.4%
Forest	14.83	11.8%
Maintained Grass	24.96	19.8%
Gravel/Rip Rap	2.69	2.1%
Pavement/Concrete	20.37	16.2%
Solar Panel Area	0.75	0.6%
Stream	0.88	0.7%
Wetland	0.45	0.4%
Total	126.12	100%

24 (ENSAFE WI064, 2020)

25 **Vegetation Communities**

26 Five ecological communities occur at the facility. landscaping/maintained grass, grassland/field, and
27 forest are the dominant ecological communities represented. (ENSAFE WI064, 2020)

28 During the facility surveys, no listed or candidate, federal, state, or Army-identified species-at-risk
29 animals or plants were observed. (ENSAFE WI064, 2020)

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Landscaping/Maintained Grass

The maintained grass areas are dominated by Kentucky bluegrass (*Poa pratensis*) with a variety of native and non-native lawn weeds. The area is mowed frequently through the growing season. (ENSAFE WI064, 2020)

Some common lawn weeds include:

Field bindweed	<i>Convolvulus arvensis</i>
Ground-ivy	<i>Glechoma hederacea</i>
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Broadleaf plantain	<i>Plantago major</i>
Common self-heal	<i>Prunella vulgaris</i>
Field milk thistle	<i>Sonchus arvensis</i>
Dandelion	<i>Taraxacum officinale</i>
Lesser trefoil	<i>Trifolium dubium</i>
Red clover	<i>Trifolium pratense</i>
White clover	<i>Trifolium repens</i>

Various trees planted for landscaping around the main building or naturally occurring within the maintained areas include:

Boxelder	<i>Acer negundo</i>
Black maple	<i>Acer nigrum</i>
Norway maple	<i>Acer platanoides</i>
Silver maple	<i>Acer saccharinum</i>
Sugar maple	<i>Acer saccharum</i>
Ohio buckeye	<i>Aesculus glabra</i>
Cockspur thorn	<i>Crataegus crus-galli</i>
Black hawthorn	<i>Crataegus douglasii</i>
Honey locust	<i>Gleditsia triacanthos</i>
Black walnut	<i>Juglans nigra</i>
Eastern red cedar	<i>Juniperus virginiana</i>
Morrow's honeysuckle	<i>Lonicera morrowii</i>
Tatarian honeysuckle	<i>Lonicera tatarica</i>
Callery pear	<i>Pyrus calleryana</i>
Pin oak	<i>Quercus palustris</i>
Buckthorn	<i>Rhamnus cathartica</i>
Black willow	<i>Salix nigra</i>

Additionally, this ecological community includes a relatively small (less than one acre) wooded area with unmaintained understory in the southeast corner of the facility. Species occurring in this area include:

Boxelder	<i>Acer negundo</i>
Hackberry	<i>Celtis occidentalis</i>
Virginia wild rye	<i>Elymus virginicus</i>
Daisy fleabane	<i>Erigeron strigosus</i>
White avens	<i>Geum canadense</i>
Dame's rocket	<i>Hesperis matronalis</i>
Orange jewelweed	<i>Impatiens capensis</i>

1	Eastern red cedar	<i>Juniperus virginiana</i>
2	Wild bergamot	<i>Monarda fistulosa</i>
3	Virginia creeper	<i>Parthenocissus quinquefolia</i>
4	Buckthorn	<i>Rhamnus cathartica</i>
5	Black raspberry	<i>Rubus occidentalis</i>
6	Goldenrod	<i>Solidago sp.</i>
7	Basswood	<i>Tilia americana</i>
8	Riverbank grape	<i>Vitis riparia</i>

9 **Grassland/Field**

10 The central portion of the facility is a capped former landfill that has become an open grassland field
 11 that appears to be mowed on a semi-regular basis. (ENSAFE WI064, 2020)

12 Herbaceous vegetation observed included:

13	Common yarrow	<i>Achillea millefolium</i>
14	American beachgrass	<i>Ammophila breviligulata</i>
15	Common milkweed	<i>Asclepias syriaca</i>
16	Trumpet creeper	<i>Campsis radicans</i>
17	Chicory	<i>Cichorium intybus</i>
18	Canada thistle	<i>Cirsium arvense</i>
19	Field bindweed	<i>Convolvulus arvensis</i>
20	Queen Anne's lace	<i>Daucus carota</i>
21	Tuberous pea	<i>Lathyrus tuberosus</i>
22	Yellow toadflax	<i>Linaria vulgaris</i>
23	Wild parsnip	<i>Pastinaca sativa</i>
24	Common reed	<i>Phragmites australis</i>
25	Common self-heal	<i>Prunella vulgaris</i>
26	Goldenrod	<i>Solidago sp.</i>
27	Meadow salsify	<i>Tragopogon pratensis</i>
28	Bird vetch	<i>Vicia cracca</i>

29 Additionally, trees growing intermittently along the field border included:

30	Buckthorn	<i>Rhamnus cathartica</i>
31	Black willow	<i>Salix nigra</i>

32 **Forests**

33 The approximate 10-acre wooded area in the northern portion of the facility contains mature, high
 34 quality, un-even aged, mixed hardwood forest in the northern portion and young, fair quality, even-
 35 aged, mixed hardwood forest in the southern portion. The northern portion (which comprises
 36 approximately two-thirds of the woodland area) was previously reported to exhibit characteristics of
 37 a southern mesic forest, which is an uncommon habitat type that has a state rank of S3 (a rare or
 38 uncommon community type in Wisconsin), in a 2009 survey conducted by Dr. Lee Frelich, director of
 39 Center for Hardwood Ecology Department of Forest Resources University of Minnesota. WDNR
 40 actively tracks this rare/uncommon community type. The Natural Heritage Inventory subsequently
 41 requested data from the WDNR to confirm the existence of this community type at the facility. The
 42 WDNR responded on June 10, 2013, that no southern mesic forest community was located on or
 43 within 0.25 miles of the facility. (ENSAFE WI064, 2020)

44 Dominant canopy and midstory tree species observed include:

45	Black maple	<i>Acer nigrum</i>
46	Sugar maple	<i>Acer saccharum</i>

1	Bitternut Hickory	<i>Carya cordiformis</i>
2	American beech	<i>Fagus grandifolia</i>
3	Green ash	<i>Fraxinus pennsylvanica</i>
4	Black walnut	<i>Juglans nigra</i>
5	Black cherry	<i>Prunus serotina</i>
6	Northern red oak	<i>Quercus rubra</i>

7 The understory contains a dominance of:

8	Tall agrimony	<i>Agrimonia gryposepala</i>
9	Lily of the valley	<i>Convallaria majalis</i>
10	Wild geranium	<i>Geranium maculatum</i>
11	White avens	<i>Geum canadense</i>
12	Mayapple	<i>Podophyllum peltatum</i>
13	Small Solomon's seal	<i>Polygonatum biflorum</i>
14	Buckthorn	<i>Rhamnus cathartica</i>
15	Upright carrion flower	<i>Smilax ecirrhata</i>
16	Goldenrod	<i>Solidago sp.</i>
17	Long-stemmed March violet	<i>Viola odorata</i>

18 **Bottomland Scrub-Shrub and Wetland Riparian**

19 This area is unmaintained and sits lower than the open grassland/field located to the north and west.
 20 The area includes several constructed emergent/unconsolidated bottom depressional wetlands
 21 containing standing water (approximately 2 feet deep). Additionally, the Lincoln Creek riparian buffer
 22 zone is succeeding towards densely vegetated natural buffer within including herbaceous vegetation,
 23 understory, and midstory trees. (ENSAFE WI064, 2020)

24 The bottomland scrub-shrub area where the wetlands are located includes multiple species of
 25 facultative-wetland and hydrophytic vegetation:

26	Sugar maple	<i>Acer saccharum</i>
27	Giant ragweed	<i>Ambrosia trifida</i>
28	Common milkweed	<i>Asclepias syriaca</i>
29	Smooth brome	<i>Bromus inermis</i>
30	Creeping thistle	<i>Cirsium arvense</i>
31	Silky dogwood	<i>Cornus amomum</i>
32	Cutleaf teasel	<i>Dipsacus laciniatus</i>
33	Pondweed	<i>Elodea canadensis</i>
34	Green ash	<i>Fraxinus pennsylvanica</i>
35	Orange jewelweed	<i>Impatiens capensis</i>
36	Tuberous pea	<i>Lathyrus tuberosus</i>
37	Fringed loosestrife	<i>Lysimachia ciliata</i>
38	Purple loosestrife	<i>Lythrum salicaria</i>
39	Wild parsnip	<i>Pastinaca sativa</i>
40	Common reed	<i>Phragmites australis</i>
41	Cottonwood	<i>Populus deltoides</i>
42	Gray-headed coneflower	<i>Ratibida pinnata</i>
43	Buckthorn	<i>Rhamnus cathartica</i>
44	Sandbar willow	<i>Salix interior</i>
45	Goldenrod	<i>Solidago sp.</i>
46	Purple meadow rue	<i>Thalictrum dasycarpum</i>
47	Red clover	<i>Trifolium pratense</i>
48	Narrowleaf cattail	<i>Typha angustifolia</i>

Timber Assessment

Part of the 2021 Natural Resources Survey Update included a timber stand assessment.

Three stands of mature timber were identified and selected for data collection. The stands selected were within the vicinity of the previous (2016) survey stands. Stand timber volumes were estimated to conform to the local market specifications. Most of the logs tallied were beeches and other hardwoods (i.e., hickory, oak, walnut). Each stand included one merchantable timber plot with an inclusion radius of 32 feet from the plot’s center point. (ENSAFE WI064, 2020)

Tallied volumes per sample plot are listed by species in the tables below. Diameter at breast height (DBH), timber volume per acre, stand acreage, and total estimated timber volume per stand are summarized in the tables below. The three stands are located in the forested northern portion of the facility. (ENSAFE WI064, 2020)

Summary stand descriptions are as follows:

- Stand 1 is in the northernmost portion of the facility and includes a mix of saplings dominating the understory and mature hardwoods including several large dead green ash (20 inches DBH), a medium-size burr oak (12 inch DBH), and a large white oak (40 inch DBH) that were not included in the counted because they were dead or just outside the survey radius. The tallied hardwoods ranged in size from of 14 to 30 inches DBH with heights ranging from 2 to 3.5 merchantable logs. (ENSAFE WI064, 2020)
- Stand 2 is just south of Stand 1 and just north of Stand 3 and includes a mix of saplings dominating the understory and mature hardwoods dominated by American beeches. The tallied hardwoods in this stand ranged in size from 14 to 22 inches DBH with heights ranging from 1.5 to 2.75 merchantable logs. (ENSAFE WI064, 2020)
- Stand 3 is just south of Stand 2 and includes a mix of saplings dominating the understory, younger trees comprising the midstory, and several mature hardwoods. The tallied hardwoods in this stand ranged in size from 14 to 30 inches DBH with heights ranging from 2 to 3.5 merchantable logs. (ENSAFE WI064, 2020)

Relative Distribution of Merchantable Tree Species Across Three Stands			
Species	Stand 1	Stand 2	Stand 3
American beech	226	469	219
Bitternut hickory	246	0	0
Black walnut	0	0	98
Northern red oak	0	0	226

(ENSAFE WI064, 2020)

Stand Acreage, Timber Volume per Stand, Total Estimated Timber Volume				
Stand	Size (acres)	Estimated (BF/Acre)	Total Estimate BF	Total Estimate MBF
Stand 1	0.6	2359	1416	1
Stand 2	1.23	1143	1407	1
Stand 3	7.43	219	1631	2

Notes: BF = Board Feet, MBF = Thousand Board Feet (ENSAFE WI064, 2020)

1 **Wildlife**

2 During the facility survey, field biologists recorded any wildlife encountered. (ENSAFE WI064, 2020)

3 Wildlife species noted included:

4 **Birds:**

5 Red-winged blackbird	<i>Agelaius phoeniceus</i>
6 Canada goose	<i>Branta canadensis</i>
7 Unidentified hawk	<i>Buteo sp.</i>
8 Killdeer	<i>Charadrius vociferus</i>
9 Unidentified swallow	<i>Hirundo sp.</i>
10 American goldfinch	<i>Spinus tristis</i>
11 American robin	<i>Turdus migratorius</i>
12 Eastern kingbird	<i>Tyrannus tyrannus</i>

13 **Mammals:**

14 Domestic goat	<i>Capra aegagrus hircus</i>
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15 **Amphibians:**

16 American bullfrog	<i>Lithobates catesbeianus</i>
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17 **Insects:**

18 Honeybee	<i>Apis sp.</i>
19 Orange-belted bumblebee	<i>Bombus ternarius</i>
20 Monarch butterfly	<i>Danaus plexippus</i>
21 Sulfur butterfly	<i>Phoebis sp.</i>

22 Multiple vegetative communities including forested, aquatic, and grassland ecological habitats could
23 support a variety of migratory and resident birds and mammals. Additionally, significant water
24 resources, notably Lincoln Creek and several small wetlands, provide valuable aquatic habitat for
25 wildlife and aquatic biota. (ENSAFE WI064, 2020)

26 **Macroinvertebrate Survey**

27 As part of the 2021 Natural Resource Survey Update a macroinvertebrate survey of Lincoln Creek
28 was performed a field survey to help describe water quality conditions. A benthic macroinvertebrate
29 sample was collected from available habitats using a 1-square meter, 500-micron, mesh kick net
30 within two riffle areas of the creek, where macroinvertebrate diversity and abundance are usually
31 highest, to obtain a representative sample of the stream reach. (ENSAFE WI064, 2020)

32 The sample reach was about 75 feet long and consisted of two riffles and three pools. The 2021
33 sample location is approximately 105 feet upstream from the previous macroinvertebrate sample
34 location due to the lack of riffle features at the previous location. Stream substrate is primarily riprap
35 with some gravel and sand, all of which is covered with dense filamentous algae. Channel width
36 averaged 5- to 6-feet across and the longest riffle was approximately 10 feet. At the time of the
37 survey the water depth in the riffle areas was about 3- to 4-inches and water depth ranged from 8- to
38 24-inches in the pools. (ENSAFE WI064, 2020)

39 Flow was easily observed in riffle areas. No fish were observed at the time of the survey, but local
40 residents indicated that during higher flow times of the year trout and bass could be observed within
41 this area of Lincoln Creek. (ENSAFE WI064, 2020)

42 Laboratory assessment of the field samples identified eight different orders of organisms. A total of
43 1,112 organisms were collected across the eight orders. (ENSAFE WI064, 2020)

1 The diversity of community was relatively low among ten taxa, with one organism within the
2 Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa, which are generally considered to be
3 indicative of better water quality. In addition, the community was not dominated by Oligochaeta, or
4 Chironomidae, which tend to dominate areas with significant organic pollution. The organisms that
5 dominated the collection, Isopoda (isopods) and Turbellaria (flatworms), are more indicative of slow-
6 moving stream sections with aquatic vegetation. (ENSAFE WI064, 2020)

7 The lack of stoneflies, crayfish, and strong aquatic community development at WI064 contributes to
8 lack of habitat throughout most of the year; however, for one season a year the higher water levels
9 contribute to improved habitat for other aquatic organisms including fish and amphibians. The
10 assessed area of the channel has been channelized and modified to accommodate the urban
11 environment. The section of Lincoln Creek that runs through WI064 is listed on the WDNR Clean
12 Water Act Section 303(d) list (WDNR 2021). (ENSAFE WI064, 2020)

13 **Migratory Bird Survey**

14 In FY19 a Migratory Bird Survey was funded and carried out for Milwaukee Silver Spring LTA (WI064)
15 along with other facilities.

16 The Milwaukee Silver Spring LTA is located in Milwaukee County in Milwaukee, WI. A USARC is also
17 located on the site, including numerous occupied office buildings, paved parking lots, and landscaped
18 areas. The surrounding area is heavily developed residential and commercial development; however,
19 the LTA is also adjacent to the Havenwoods State Forest Nature Area. The Milwaukee Silver Spring
20 LTA is approximately 133 acres. The habitat is a mixture of open fields and grasslands, one small
21 11-acre patch of closed-canopy deciduous forest, and several scattered patches of trees throughout.
22 A small ravine/stream that extends through the center of the site. A total of 13 census locations were
23 located within the Milwaukee Silver Spring LTA. A total of 64 species were detected within the
24 Milwaukee Silver Spring LTA, including 55 species recorded during the point count surveys and nine
25 species recorded as flyovers or incidental observations. Of non-native species, three species were
26 recorded: European Starling, House Sparrow, and Rock Pigeon. Only the 55 species detected during
27 the 5-minute point count survey period and within the 100-meter radius were used in the analyses.
28 (STELL/HWA, 2021)

29 A total of 44 species were detected during the first round of surveys in May, and 43 species were
30 detected during the second round of surveys in June. Twelve species were detected only during the
31 first survey, and 11 species were detected only during the second survey. (STELL/HWA, 2021)

32 No species federally- or state-listed as threatened or endangered were recorded on the site.
33 (STELL/HWA, 2021)

34 Three species designated by USFWS as Birds of Conservation Concern (BCC) were recorded,
35 including Bobolink (*Dolichonyx oryzivorus*), Chimney Swift (*Chaetura pelagica*), and Olive-sided
36 Flycatcher. (STELL/HWA, 2021)

37 Seven species designated as Wisconsin Species of Greatest Conservation Need were detected
38 within the Milwaukee Silver Spring LTA, including Bobolink, Brown Thrasher, Dickcissel, Eastern
39 Meadowlark, Field Sparrow, Olive sided Flycatcher (*Contopus cooperi*), and Willow Flycatcher
40 (*Empidonax traillii*). (STELL/HWA, 2021)

41 **Listed Species**

42 The USFWS does not list any species in the vicinity of the site. The Wisconsin Department of Natural
43 Resources lists five different species of interest within 1,000 feet of the site: the forked aster (*Aster*
44 *furcatus*), the slender wood sedge (*Carex digitalis*), knotweed dodder (*Cuscuta polygonorum*), Small
45 white lady's slipper (*Cypripedium candidum*) and the Butler's garter snake (*Thamnophis butleri*).

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Reptile survey

Of the state listed species, potentially suitable habitat was observed for the Butler’s garter snake. Grassland/field areas in the northern portion of the site, especially those areas adjacent to Lincoln Creek, offer suitable habitat for Butler’s garter snake (*Thamnophis butleri*).

In 2019, a field survey to determine the presence or absence of the state listed Butler’s Garter snake was subcontracted to Apogee, Inc. by Advanced Environmental Management Inc. (AEM, the prime) for the endangered species surveys.

The Wisconsin DNR identifies the Butler’s garter snake as a species of Special Concern as is the plain’s garter snake (*Thamnophis radix*). Such species are regulated by open/closed seasons. The presence of this species was reported to the WDNR by Apogee Inc. who was subcontracted to conduct the endangered species survey. Specific activities undertaken at the facility should be coordinated with the WDNR to ensure that all appropriate actions and precautions are taken when developing action plans. (Apogee WI064, 2019)

Cover-board surveys for the Butler’s garter snake (*Thamnophis butleri*) were conducted between April and June of 2019 at the 88th RD’s Silver Spring LTA/AMSA, Milwaukee, Wisconsin. Thirty cover boards (3 in. x 32 in. x 48 in. plywood) were placed in April before grass green-up in upland open canopy habitats within 100 ft of suitable wetlands where dense short grass grows. Cover boards were checked on 12 non-consecutive days from 4-28 June 2019. (Apogee WI064, 2019)

Five species of snakes were captured during survey efforts with the Butler’s garter snake being the most prevalent. Other species captured included the common garter snake (*Thamnophis sirtalis*), the plains garter snake (*Thamnophis radix*), the northern ribbon snake (*Thamnophis sauritus septentrionalis*), and the northern red-bellied snake (*Storeria occipitomaculata occipitomaculata*). (Apogee WI064, 2019)

At this time, no Endangered Species Management Component (ESMC) plan is required due to the Butler’s garter snake being a state listed species along with no actions planned to disturb the snake’s habitat at this time or in the near future.

4.27.6 Outdoor Recreation, Public Access, and Agricultural Out-leasing

There does not appear to be any opportunities for outdoor recreation, public access, and agricultural out-leasing on this site area. The site lacks aesthetic natural communities, hunting or fishing areas, or the area to perform crop growth. (ENSAFE WI064, 2020)

4.27.7 Management Concerns and Issues

Invasive Species

The WDNR regulates certain invasive plant species. The invasive species rule, Wisconsin Administrative Code NR 40, makes it illegal to possess, transport, transfer, or introduce certain invasive species in Wisconsin without a permit in an effort to limit the introduction and spread of invasive species in the state. The Wisconsin Invasive Species Council is available to assist the WDNR in managing and controlling control invasive species. At WI064 the species listed in the following Table were observed during the 2021 field survey and are regulated as ‘restricted’ species per Wisconsin Administrative Code NR 40. (ENSAFE WI064, 2020)

The full list of invasive plants is provided as Attachment H of the *Natural Resources Survey Update WI064/55999 — Milwaukee Silver Spring United States Army Reserve Center / Area Maintenance Support Activity #49*. (ENSAFE WI064, 2020)

No species categorized as "prohibited" or "prohibited/restricted", per Wisconsin Administrative Code NR 40, were observed at the Site. (ENSAFE WI064, 2020)

Additionally, Wisconsin Statutes (Chapter 66) defines a "noxious weed" as Canada [or creeping] thistle, leafy spurge, field bindweed, Japanese knotweed, any weed designated as a noxious weed by the department of natural resources by rule, and any other weed the governing body of any municipality or the county board of any county by ordinance or resolution declares to be noxious within its respective boundaries. The law requires that landowners destroy all noxious weeds on lands they own or control. (ENSAFE WI064, 2020)

Canada/creeping thistle (*Cirsium arvense*) and field bindweed (*Convolvulus arvensis*) noxious weeds were observed at the facility, in the open grassland/field area. (ENSAFE WI064, 2020)

Prohibited and Restricted Invasive, Noxious weed, and Non-native Plants observed at WI064						
Common name	Scientific name	Wisconsin prohibited invasive plant*	Wisconsin restricted invasive plant**	Wisconsin noxious weeds ***	Non-native plant	Land Cover/Ecological Community
Canada thistle	<i>Cirsium arvense</i>	No	Yes	Yes	Yes	Grassland/Field
Field bindweed	<i>Convolvulus arvensis</i>	No	No	Yes	Yes	Maintained grass and Grassland/Field
Cutleaf teasel	<i>Dipsacus laciniatus</i>	No	Yes	No	Yes	Bottomland Scrub-shrub and Wetland riparian
Dame's rocket	<i>Hesperis matronalis</i>	No	Yes	No	Yes	Maintained grass
Morrow's honeysuckle	<i>Lonicera morrowii</i>	No	Yes	No	Yes	Maintained grass
Tatarian honeysuckle	<i>Lonicera tatarica</i>	No	Yes	No	Yes	Maintained grass
Wild parsnip	<i>Pastinaca sativa</i>	No	Yes	No	Yes	Maintained grass
Common reed	<i>Phragmites australis</i>	Yes	Yes	No	Yes	Grassland/Field and Bottomland Scrub-shrub and Wetland riparian
Buckthorn	<i>Rhamnus cathartica</i>	No	Yes	No	Yes	Maintained grass, Grassland/Field, Forest, and Bottomland Scrub-shrub and Wetland riparian
Narrowleaf cattail	<i>Typha angustifolia</i>	No	Yes	No	Yes	Bottomland Scrub-shrub and Wetland riparian

Notes:

* Considered prohibited by Wisconsin Department of Natural Resources

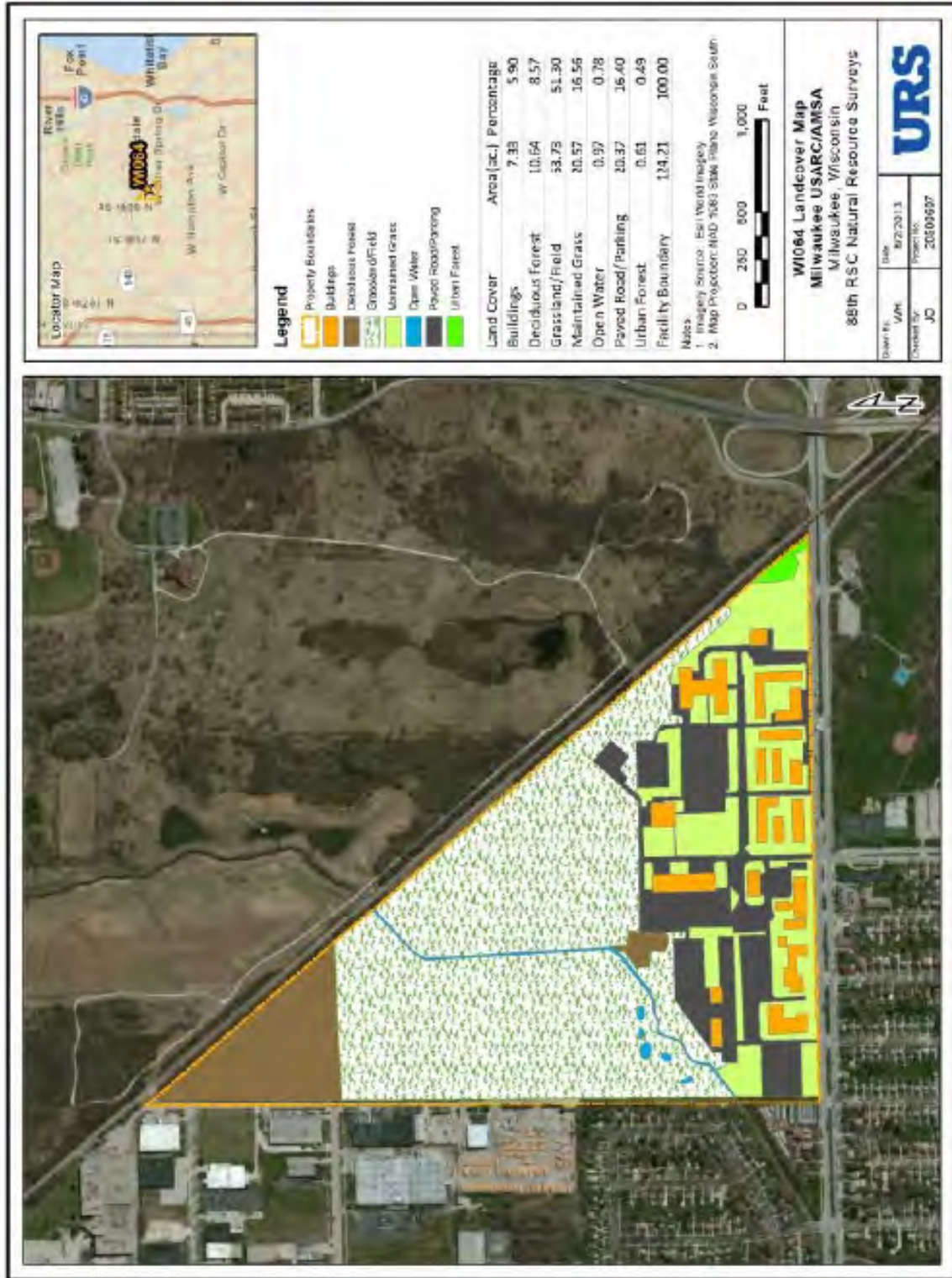
** Considered restricted by Wisconsin Department of Natural Resources

*** Considered noxious weed by Wisconsin Department of Natural Resources (ENSAFE WI064, 2020)

4.27.8 Special Interest Areas

Approximately four-acres of the northern forested area has been reported as meeting the species composition criteria for the rare or uncommon community type, known as southern mesic forest, during a 2009 study and has been previously listed as occurring near WI064 (URS Group 2013). WDNR could not confirm the presence of the southern mesic forest community type at the facility. Nevertheless, impacts to this northern forested area should be avoided to the extent practicable. The

1 relatively small acreage and overall species composition of the woodlands would likely not support a
2 commercially viable timber harvest.
3



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2
3
4

Figure 4.27 - Site Map – WI064/55999

5.0 Management Actions

This section describes the approach to management of natural resources found on 88th RD sites in USFWS Region 3. In accordance with DoD and U.S. Army policy, the USAR manages natural resources using an ecosystem management approach. That approach is based on establishing broad goals and objectives designed to meet those goals, implementing projects, and monitoring their success using quantifiable metrics. The success of this process is predicated upon the receipt of adequate funding to enact designated projects.

“A country worth defending is a country worth conserving.”

– Major General Michael Lehnert, Commanding General,
Marine Corps Installations West 2005-2009

5.1 Management Strategy

The 88th RD works to ensure that training activities are carried out in an environmentally responsible manner, whether the property is owned or leased by the 88th RD, and that natural resource management efforts along with environmental stewardship help to ensure the long-term sustainability of these lands for training.

As introduced in Section 1.3, the overall goals for natural resources management on all 88th RD lands within USFWS Region 3 are to:

- Provide quality natural resources on training areas as a critical training asset upon which to accomplish the military mission of the 88th RD.
- Manage natural resources on all 88th RD property and land, owned or leased, to assure good stewardship of public lands entrusted to the care of the Army.
- Comply with laws and regulations that pertain to the management of 88th RD land and its natural resources.

Objectives are organized by resource and numbered sequentially. Specific projects designed to achieve each objective are listed in subheadings beneath each objective (for a complete list, see Appendix C). These projects are intended to be Environmental Program Requirements submissions to integrate implementation of this INRMP to the budget process (see Section 5.3.2, *Environmental Program Requirements*).

Each project has a summary description at the beginning of the Proposed Management section. The format is as follows:

Project: Title

Military Readiness Impact: Potential positive impacts of project in supporting the military mission (e.g. construction planning, training land management, facilitates equipment maintenance, etc.)

Legal/Policy Justification: Laws, regulations, or policy compliance (e.g., participation in regional initiatives; Sikes Act, Endangered Species Act, AR 200-1, stewardship)

Funding Priority: Proposed or actual budget classification

Project Timing: Dates to be accomplished, by objective (e.g., in a particular FY, indefinitely, uncertain)

Regulatory Coordination: Agencies with whom coordination is required. Many actions that directly or indirectly affect natural resources management on 88th RD sites are common to all sites. Some actions are site-specific, and have specific projects identified.

5.2 Common Management Actions

This section presents management objectives that are common to 88th RD owned or reportable leased sites in USFWS Interior Region 3. Projects are described in a goal(s)-objective(s) format to provide process descriptions that are compatible with adaptive management analyses and overall INRMP implementation monitoring processes. For a list of planned projects by fiscal year, see Appendix C.

5.2.1 Agricultural Leases (AGLEASEIMPL)

Currently there are no Agricultural out-leasing programs within USFWS Region 3, however; the Joliet LTA (IL079/17896) is undergoing evaluation potential for future Ag Lease opportunities.

Ag lease sites must have sufficient land cover to warrant programs that are compatible with mission operations and that support conservation compliance, sustainability, and natural resources stewardship. Revenues generated from these reimbursable programs are used to maintain and improve environmental management, and agricultural management on the sites or on sites in need.

Agriculture and grazing out-leases provide low-cost open area management for mission requirements and ground cover and food sources for wildlife.

5.2.1.1 Proposed Management

Project: AGLEASEIMPL – Agricultural Out-leasing Implementation

Military Readiness Impact: Maintain access to sites and training lands for military purposes. Agriculture and grazing out-leases provide low-cost open area management for mission requirements ground cover, invasive species control, and food sources for wildlife. (Draft CRFCP, 2022)

Justification: Maintaining the capability of training lands to support the military mission (Sikes Act); compliance with the ESA and other wildlife-oriented laws

Funding Priority: Class 0

Project Timing: Goal 1:

Objectives: All objectives on an as needed basis

Regulatory Coordination: None

Goal 1. Administer an agricultural out-leasing program that provides a direct benefit to the mission and the environment.

Objective 1. Maintain out-leases for identified sites.

Objective 2. Monitor land to ensure Out-lease terms are in effect and that degradation does not occur.

Objective 3. Use revenues generated from the agricultural out-leasing program may cover the following authorized expenses: Administration of agriculture and grazing out-leases; and initiation of, improvement to, and continuing agricultural out-leases.

Objective 4: Secondly, authority is issued to cover the following expenses: Natural resource management activities, including equipment and material purchase/lease; Army-wide initiatives that improve the management of natural resources; Program management costs for personnel if their primary duty is to administer the reimbursable programs (for example, salary of installation natural resource manager);

1 Surveys and studies needed to evaluate natural resources as affected by the reimbursable
2 program activity, such as water quality, soil erosion, and biodiversity (particularly
3 threatened and endangered species and protected migratory bird species);
4 Projects that integrate reimbursable operations with mission activities (for example,
5 tactical concealment areas);
6 Soil erosion control projects to reduce erosion that has been accelerated by reimbursable
7 activities;
8 Surveys and studies needed to evaluate the status of cultural resources as affected by
9 reimbursable activities; and
10 Securing office or storage space and equipment that directly supports the reimbursable
11 program. However, reimbursable agriculture and grazing Out-lease funds may not be used
12 for major construction, ornamental landscaping, or decorative plants.

13 **Objective 5:** Control state and federally identified regulated noxious weeds (i.e., Canada
14 thistle etc.)

15 **Objective 6:** For each Ag lease, a soil and water conservation plan should be developed
16 in accordance with the installation INRMP. The plan outlines specific management actions
17 with which the lessee must comply to meet BMPs for agriculture, grazing, and ecosystem
18 management. For example, the plans usually contain provisions for the use of fertilizers,
19 pesticides, crop rotations, mowing schedule, stream fencing, and vegetation buffers.

20 5.2.2 Conservation Awareness (TRNGCNS, EARTHDAY)

21 Conservation awareness is instrumental to managing natural resources. The 88th RD's approach to
22 awareness places emphasis on education, providing military personnel and the public with insights
23 into the 88th RD's conservation challenges, with the intent that the more military personnel and the
24 public knows about the 88th RD's natural resources, they will act more responsibly towards them.
25 Both the public and the military should be made aware of the leading role today's USAR is taking as
26 a good steward of their land. They need to know what partnerships and cooperative agreements
27 have been forged and what actions are being taken to both enhance and protect natural resources in
28 the 88th RD sites.

29 Education promotes awareness of critical environmental projects and the rationale behind them.
30 Activities such as noxious weed management, erosion control, wildlife protection, etc. can be
31 accomplished with little conservation awareness effort since soldiers and the general public naturally
32 supports these easily understood efforts. However, issues such as protection of sensitive areas for
33 little understood plant and wildlife species, restrictions on troop field operations, and restrictions on
34 cutting and digging require effective conservation communication to get positive support and, perhaps
35 more importantly, to avoid adverse reactions from various users. A conservation awareness program
36 must be directed to both the external public interests and military personnel if it is to be effective.

37 Military training use brochures could contain training land sustainment restrictions for LTAs.
38 Brochures (or handbooks as they are commonly called within the ITAM program) could be focused
39 on non-commissioned officers and officers who are leaders in their units. Brochures could cover
40 soldiers' responsibilities to help the 88th RD comply with applicable environmental laws. Brochures
41 could also cover environmental procedures for field training exercises, such as maneuver damage
42 prevention, spill procedures, spill prevention procedures, earth moving procedures, etc. Brochures
43 should be sized to fit in a soldier's cargo pocket. Soldiers training cards would be focused at individual
44 soldiers, would summarize environmental requirements of field training in simple bullet form, and
45 would contain a map of LTAs showing wetlands and other restricted training areas. These cards

1 could be made out of a waterproof material, such as Tyvek, so it can fit in a soldier's pocket and not
2 disintegrate during training exercises.

3 Project to support Earth Day and provide education and awareness to the Army Reserve and
4 community in the 88th RD 19-state AOR. This small program is the 88th RD's main opportunity to
5 make the community aware of the Army Reserve's environmental program.

6 Requirements: Support Earth Day event at up to 7 locations in the 19-state AOR.

7 **5.2.2.1 Proposed Management**

8 **Project:** TRNGCNS – Training to Support Conservation Awareness, **EARTHDAY** – Provide
9 Earth Day education and awareness to 7 locations in the 19-state AOR.

10 **Military Readiness Impact:** Enables continual access to natural resources for training and
11 improves public relations.

12 **Justification:** Stewardship, Army policy

13 **Funding Priority:** Class 3

14 **Project Timing:** All objectives – ongoing or as needed.

15 **Regulatory Coordination:** None required.

16 **Goal.** Provide an understanding of 88th RD natural resources programs.

17 **Objective 1.** Review, update, and distribute natural resources information associated with
18 the 88th RD LTAs.

19 **Objective 2.** Integrate pertinent natural resources into the 88th RD Training Program and
20 provide training.

21 **Objective 3.** Create, print, and make available LTA informational materials to the LTA
22 users.

23 **Objective 4.** Provide education materials and awareness materials to 7 locations within
24 the 88th RD's 19-state AOR.

25 26 **5.2.3 Conservation Program Management (CNSPGMMGT, TRNGCNSSTAFF)**

27 The 88th RD has a need to continuously improve the success of natural resources management
28 activities through contract personnel support, professional development, and information exchange.
29 Further, the rapid development of natural resources management and many provisions within this
30 INRMP, combined with Army personnel cutbacks, have resulted in the highest need ever for outside
31 assistance with natural resources programs.

32 The capability to store, retrieve, and analyze data is central to professional management of natural
33 resources, and it is essential to implementing the adaptive management aspect of ecosystem
34 management. The 88th RD is committed to providing efficient, cost-effective systems for data storage
35 and analysis.

36 Conservation program management is discussed in greater detail in Section 5.1.

37 **5.2.3.1 Proposed Management**

38 **Project:** Conservation Program Management - CNSPGMMGT and TRNGSNSSTAFF

1 **Justification:** Compliance with Sikes Act (implementation of INRMP) and other federal laws affected
2 by this INRMP, support of the military mission, stewardship

3 **Funding Class:** Class 0

4 **Project Timing:** Objectives - ongoing indefinitely

5 **Regulatory Coordination:** None directly

6 **Goal 1.** Provide staffing of natural resource management professionals required to effectively
7 manage natural resources on 88th RD lands.

8 **Objective 1.** Provide staffing for the 88th RD natural resources program to effectively
9 implement this INRMP.

10 **Goal 2.** Provide for the training of natural resources personnel.

11 **Objective 1.** Maintain staff knowledge of management strategies at the current state
12 of the art through training and participation in workshops, conferences, and other
13 activities of regional and national professional natural resources research and
14 conservation programs.

15 **Objective 2.** Share information with natural resources experts to ensure maximum
16 benefits of adaptive management and research efforts.

17 **Objective 3.** Review literature as a necessary commitment to maintain professional
18 standards.

19 **Goal 3.** Collect, store, analyze, and use data in an efficient, cost-effective manner.

20 **Objective 1.** Develop or obtain databases to support the 88th RD natural resources
21 program; update and maintain the Environmental Management System.

22 **Goal 4.** Provide external specialized skills and resources to support 88th RD natural
23 resources programs.

24 **Objective 1.** Implement external support projects described in appropriate sections
25 of this INRMP.

26 **Objective 2.** Use contractors to assist with implementation of this INRMP.

27 **Objective 3.** Use state and federal agencies, particularly this INRMP's signatory
28 partners, the USFWS and state wildlife agencies, to assist with implementation of
29 various aspects of this INRMP.

30 **5.2.4 Cultural Resources Protection**

31 The mission of the 88th RD Cultural Resources Program (CRP) is to facilitate compliance with
32 applicable legal requirements to maintain the availability of Army Reserve owned, leased, and
33 permitted buildings and lands necessary to sustain a state of combat readiness.

34 Cultural resources are defined as historic properties in the NHPA, as cultural items in the NAGPRA,
35 as archaeological resources in the ARPA, as sacred sites (to which access is provided under the
36 AIRFA) in EO 13007, and as collections and associated records in 36 CFR Part 79. Requirements
37 set forth in NEPA, NHPA, ARPA, NAGPRA, AIRFA, 36 CFR Part 79, EO 13007, and their
38 implementing regulations define the compliance responsibilities of the USAR for management of
39 cultural resources. Regulations applicable to the USAR's management of cultural resources include
40 those promulgated by the ACHP (36 CFR Part 13 800) and the National Park Service (NPS).

41 The 88th RD Senior Commander has responsibility over the extant inventory of 88th RD-managed
42 cultural resources within the states in its area of operation, including historic structures,

1 archaeological sites, and archaeologically sensitive areas. Integrated Cultural Resources
2 Management Plans (ICRMPs) have been prepared for each state and include future plans for cultural
3 resources of each state. The ICRMP is an internal compliance and management plan that integrates
4 the entirety of a state's cultural resource program requirements with ongoing mission activities.

5 The ICRMP provides the 88th RD Managers, leadership with a guide to ensure compliance with
6 historic preservation laws and regulations and a means to measure progress toward achieving
7 outlined objectives. It allows for ready identification of potential conflicts between the 88th RD
8 missions and cultural resources, and it identifies compliance actions necessary to maintain the
9 mission-essential properties and acreage. Each reportable site is discussed individually, including: a
10 brief physical description and historical summary; data regarding cultural resources investigations
11 previously conducted within the site; archaeological and historic architectural resources and historic
12 properties within the site; and planned or scheduled projects and priorities relevant to the next five
13 year period in which the current ICRMP will be in effect.

14 **Natural Resources Management Implications and Contributions**

15 Natural resources management on 88th RD property generally has little potential to affect
16 cultural resources. Conversely, cultural resources management on the land seldom
17 significantly affects natural resources management. The only natural resource practices with
18 the potential to adversely affect cultural resources would be erosion control or wetlands
19 restoration. Erosion control and/or wetlands restoration projects involving excavation, earth
20 moving, and fill deposition can damage or bury archeological sites. Generally, however,
21 effects to archeological sites from reduced erosion are positive.

22 Even with proper review, natural resources projects still have some potential to affect
23 archeological sites through accidental discovery. If accidental discovery occurs, 88th
24 personnel would follow required procedures to minimize damage to the sites.

25 Natural resources management can be used to protect cultural resources sites. Sensitive
26 species habitat management usually involves minimizing disturbances, which also protect
27 potential archeological sites from damage. Erosion control projects can be planned to
28 specifically protect sites from erosion.

29 Integrated Cultural Resources Management Plans (ICRMP's) have been prepared for each
30 state to cover planning, programming, consultation and compliance requirements, please
31 refer to these ICRMPs with associated cultural resource management Standard Operating
32 Procedures (SOPs) as natural resources activities are planned and implemented in USFWS
33 Region 3.

34 **5.2.4.1 Proposed Action**

35 **Project:** CR - Cultural Resources Protection

36 **Military Readiness Impact:** Maintain access to sites and training lands for military purposes.

37 **Justification:** Compliance with 54 USC 100101, National Historic Preservation Act of 1966, 25 USC
38 3001-3013, Native American Graves Protection and Repatriation (1990), various cultural resources
39 laws and regulations, stewardship

40 **Funding Priority:** Class 0

41 **Project Timing:** All objectives - ongoing indefinitely

42 **Regulatory Coordination:** SHPOs, Federally-recognized Tribes, as needed

43 **Goal 1.** Implement this INRMP in a manner consistent with the protection of cultural resources
44 on 88th RD lands.

45 **Goal 2.** Comply with the National Historic Preservation Act.

1 **Objective 1.** Use results of cultural resources surveys and the ICRMPs in coordinating
2 natural resources projects.

3 **Objective 2.** Avoid or mitigate adverse effects to cultural resources from natural resources
4 management through proper review and early planning. Submit proposed projects as part of
5 NEPA review to Combat Service Support for approval, determinations of effect, and Section
6 106 consultation, as necessary.

7 **Objective 3.** Take the following protective measures upon discovery of sites:

- 8 • Upon discovery of potential cultural deposits or human remains, cease ground-disturbing
9 activities immediately and report the finding to the appointed Cultural Resources Manager
10 (CRM), the Natural Resources Environmental Protection Specialist, the Natural
11 Resources Environmental Protection Specialist, and the Area Environmental Protection
12 Specialist.
- 13 • Wait for approval from the CRM, who will consult with the SHPO and/or federally-
14 recognized Tribes, as appropriate, before resuming activity at the location.
- 15 • Consider alternatives for moving the project to another location.
- 16 • Implement mitigation measures resulting from agreement documents.

17 **Objective 4.** If cultural resources are threatened by erosion, use natural resources
18 techniques and projects to protect the resources.

19 **Objective 5.** When conducting ground-disturbing or other potential undertakings associated
20 with natural resources management, treat National Register sites with undetermined eligibility
21 status as though they were eligible for the NRHP.

22 **5.2.5 Federal / State Listed Species (Army Species at Risk) & Risk** 23 **Management (ESSRVY, ESSRVYUP, STATEESSRVY, ESMCPLN, ESCMPLNUP, and** 24 **ESMCPLNIMPL)**

25 The federal ESA of 1973, as amended (Act) requires lands under the jurisdiction of the Department
26 of the Army to conserve listed species. As defined in the Act, conservation is the use of all methods
27 and procedures necessary to bring any listed species to the point where protections provided by the
28 Act are no longer necessary. Section 7 of the Act requires the Army to consult and confer with the
29 USFWS if any action by the Army may affect a listed species or critical habitat.

30 AR 200-1 (Department of the Army, 2007) states (Section 11-2(a-e)) that the Army has five primary
31 requirements under the ESA:

- 32 • conserve listed species
- 33 • do not “jeopardize” listed species
- 34 • “consult” and “confer” with the appropriate agency(ies)”
- 35 • conduct a biological assessment
- 36 • do not “take” listed fish and wildlife species, or remove or destroy listed plant species

37 The 88th RD is committed to these five primary requirements.

38 This INRMP serves to provide *adequate management or protection*, a term that originated in the
39 definition of occupied habitat from Section 3 of the ESA. If *adequate management or protection* is
40 already in place, then additional special management (i.e., critical habitat designation) is not required

1 when lands are found to contain physical and biological features essential to the conservation of the
2 species. *Adequate management or protection* is provided by a legally operative plan that addresses
3 the maintenance and improvement of primary constituent elements important to the species and
4 manages for the long-term conservation of the species. This reasoning leads to the conclusion made
5 by the USFWS that, where applicable, federal critical habitat designation is not warranted if the
6 INRMP includes the following three criteria:

7 **1. The plan provides a conservation benefit to the species.**

8 Cumulative benefits of the management activities identified in a management plan, for the
9 length of the plan, must maintain or provide for an increase in a species' population or the
10 enhancement or restoration of its habitat within the area covered by the plan [i.e., those areas
11 deemed essential to the conservation of the species]. A conservation benefit may result from
12 reducing fragmentation of habitat, maintaining, or increasing populations, ensuring against
13 catastrophic events, enhancing and restoring habitats, buffering protected areas, or testing
14 and implementing new conservation strategies.

15 **2. The plan provides certainty that the management plan will be implemented.**

16 Persons charged with plan implementation are capable of accomplishing objectives of the
17 management plan and will request funding on an annual basis to try and maintain the
18 objectives of the plan. They have the authority to implement the plan and have obtained all
19 necessary authorizations or approvals. An implementation schedule (including completion
20 dates) for the conservation effort is provided in the plan.

21 **3. The plan provides certainty that the conservation effort will be effective.**

22 The following criteria will be considered when determining the effectiveness of the
23 conservation effort. The plan includes:

- 24 (a) biological goals (broad guiding principles for the program) and objectives (measurable
25 targets for achieving the goals);
- 26 (b) quantifiable, scientifically valid parameters that will demonstrate achievement of
27 objectives and standards for these parameters by which progress will be measured
28 are identified;
- 29 (c) provisions for monitoring and, where appropriate, adaptive management;
- 30 (d) provisions for reporting progress on implementation (based on compliance with the
31 implementation schedule) and effectiveness (based on evaluation of quantifiable
32 parameters) of the conservation effort are provided; and
- 33 (e) a duration sufficient to implement the plan and achieve benefits of its goals and
34 objectives.

35 **Army Species at Risk (SAR)**

36 In addition to federally listed species, the 88th RD is committed to actively managing Army SAR,
37 which are those species that would have a significant impact on military missions if federally listed as
38 threatened or endangered. These species may be official candidates for ESA listing, classified by
39 NatureServe as critically imperiled or imperiled on a global scale, and/or a concern for ESA listing in
40 the foreseeable future. The Army's policy is to manage SAR proactively in order to prevent ESA
41 listings that could severely degrade military readiness.

42 Species at risk (SAR) considerations should be included in the INRMP. According to DoDI 4715.03:
43 "To the extent practicable, all DoD Components shall establish policy and procedures for the
44 management of species at risk (SAR) to prioritize proactive management of those species that, if
45 listed, could adversely impact military readiness. Program objectives shall focus on efforts that have
46 the greatest potential to prevent the listing of SAR (e.g., habitat conservation, planning level surveys,

1 monitoring). Protecting these species is critical; therefore, the installation INRMP should consider
2 funding for SAR protection a high priority.” (Jones, 2020)

3 A comprehensive analysis of SAR applying these criteria on DoD lands was last completed by
4 NatureServe (2015). That analysis defined SAR as native, regularly occurring species in the United
5 States that are not federally listed under the U.S. Endangered Species Act, but are either:

- 6 • Candidates for listing under the U.S. Endangered Species Act, or
- 7 • Proposed for listing under the U.S. Endangered Species Act, or
- 8 • Critically imperiled (rounded global rank of G1 or T1), or
- 9 • Imperiled (rounded global rank of G2 or T2) plants and animals, according to the NatureServe
10 conservation status rank criteria, or
- 11 • Vulnerable birds with a rounded global rank of G3 according to the NatureServe conservation
12 status rank criteria or an IUCN status of critically endangered, endangered, vulnerable, or
13 near threatened. (Jones, 2020)

14 The Army Memorandum, *Army Species at Risk Policy and Implementing Guidance Sept 15, 2006*,
15 describes the Army’s management program for SAR. Installations should prioritize Army SAR
16 management requirements within allocated resources to ensure SAR requirements are adequately
17 addressed. However, since this list has not been updated since 2006 the 88th RD will utilize the DOD
18 Species at Risk list that can be found on DENIX (<https://www.denix.osd.mil/nr/home/>). The following
19 criterion will assist in selecting and prioritizing SAR funding.

- 20 • From the above referenced memorandum, “Installations may only select SAR for management
21 focus using the list of Army SAR. The species listed are the highest priority Army SAR based on
22 references; considerations in paragraph 7 (of the memorandum); and input from stakeholders.”
- 23 • The SAR is a high priority species and listing of the species would have a significant adverse
24 impact on the Army’s mission. Trainers and testers should assist in determining the degree of
25 mission impact.
- 26 • The species meets the definition of a SAR.
- 27 • Management of the species onsite and/or offsite could preclude the need to list the species.
28 Conservation efforts for the species could benefit the installation mission by preparing it for a
29 possible listing of the species requirements.
- 30 • The level of support from outside agencies, private landowners and/or non-governmental
31 organizations to advance the protection/management of the SAR.
- 32 • The installation mission allows for implementing strategies to prevent, or support efforts to
33 prevent, listing the species.
- 34 • The percentage of the species found onsite or contiguous to the installation and the quality of the
35 habitat to support the species is significant.
- 36 • The percentage of the species found on or contiguous to other Army or DoD installations and the
37 quality of the habitat to support the species is significant.

38 Where Army SARs are identified, the 88th RD is committed to coordinating with the USFWS to
39 assist in determining the significance of its natural resources for conservation and sustainability
40 of the species. Additional partnering is encouraged for managing Army SAR, such as partnering
41 with State Comprehensive Wildlife Conservation Plans.

1 **Other Sensitive Species**

2 The 88th RD is sensitive to those species listed as endangered or threatened under state law, but
3 not federally listed by interacting with state natural heritage programs.

4 EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* has requirements for DoD
5 to develop a memorandum of understanding (MOU) with the USFWS for the conservation of migratory
6 bird populations. This MOU is discussed further in Section 4.2.5, *Migratory Bird Management*.

7 The 88th RD recognizes its commitment to obtaining information regarding Species of Special
8 Concern, particularly as they relate to the use of RD lands and relationships to military use of these
9 lands. It is not suggested that special surveys be conducted or management practices be drastically
10 altered to accommodate these species in the same manner as federal- or state-listed species. As
11 conscientious land and wildlife stewards, however, it is important to exhibit that the 88th RD is aware
12 that these species are potentially declining.

13 **5.2.5.1 Proposed Management**

14 **Project:** ESSRVY, ESSRVYUP, STATEESSRVY, ESMCPLN, ESCMPLNUP, and
15 ESMCPLNIMPL which includes: Federally Listed Species, State Listed Species, Army Species
16 at Risk (SAR) Surveys, Management Plans, and Implementation

17 **Military Readiness Impact:** Prevents and mitigates ESA compliance impacts on military
18 activities (e.g. limiting access to training lands to prevent “take”).

19 **Justification:** 16 USC 1531-1544, Endangered Species Act (ESA) (1973) and 16 USC 670a,
20 Sikes Act and Sikes Act Improvement Act (1997) compliance, AR 200-1, stewardship

21 **Funding Priority:** Class 0

22 **Project Timing: Goal 1:**

23 **Objectives:** As needed survey /identified Federal species with PLS;

24 **Goals 2 and 3:**

25 **Objectives:** As needed survey/ identify state and SAR species with PLS

26 **Regulatory Coordination:** USFWS and state wildlife agency, as required

27 **Goal 1.** Comply with the federal, state ESA or Army Species as Risk regarding listed endangered,
28 threatened, or candidate species.

29 **Objective 1.** Identify via specialized field survey and monitoring the likely presence or
30 absence of any federally listed threatened, or endangered species that are reasonably likely
31 to occur on 88th RD owned lands.

32 **Objective 2.** If a new federally listed species is confirmed for which critical habitat may be
33 designated, update this INRMP to meet the three criteria established by the USFWS with
34 regard to avoiding critical habitat designation as stated in Section 5.2.5.

35 **Objective 3.** Coordinate with the USFWS, as necessary, to make 88th RD owned lands
36 available for studies of ESA federally listed, or candidate species and their associated
37 habitats.

38 **Objective 4.** Where appropriate, update endangered species surveys for species where
39 suitable habitat exists, but a previous survey did not identify a species presence.

40 **Objective 5.** Encourage 88th RD representatives (federal and contract) to attend various
41 symposia, workshops, and conferences that include research and management of federally
42 listed threatened, endangered, or candidate species that might occur on 88th RD lands and
43 use information to improve management programs.

1 **Goal 2.** Monitor and manage State endangered, threatened, or special status to the degree
2 possible with available funding.

3 **Objective 1.** Consider state-protected species and migratory bird species act (MBTA) in all
4 88th RD actions.

5 **Objective 2.** When possible, use actions designed for federally listed species to protect or
6 manage other sensitive species.

7 **Objective 3.** Update NRSRVYUP/PLS lists of State natural heritage identified species and
8 subsequently survey for these listed, proposed, and candidate species on 88th RD owned
9 lands.

10 **Goal 3.** Monitor and manage Army Species at Risk (SAR) status to the degree possible with
11 available funding.

12 **Objective 1.** Consider Army SAR in all 88th RD actions

13 **Objective 2.** Update PLS lists of Army SAR species and subsequently survey for these
14 species on 88th RD owned lands.

15 **Goal 4.** Endangered Species Management Component (ESMC) - Monitor and identify any
16 changes in federally listed endangered species status, and update best available scientific data,
17 and management strategies available from the USFWS and state websites.

18 **Objective 1.** If any federally listed, proposed, or candidate species are confirmed, consider
19 development of an Endangered Species Management Component Plan (ESMC Plan) that
20 meets the species' needs.

21 **Objective 2.** Coordinate with the USFWS, to develop any appropriate ESMC plans, on an as
22 needed basis, for any resident federally listed threatened, or endangered species and their
23 habitats that are confirmed on 88th RD lands.

24 **5.2.6 Ecosystem Management (ECOSYSTEMGT)**

25 **General Plant and Wildlife Management** a/k/a Ecosystem Management - The purpose of
26 ecosystem management is to improve wildlife populations by managing resources (habitat) upon
27 which they depend. This means, while considering military training and maintenance requirements,
28 evaluating the desirable species access to food, cover, and/or water. Wildlife and habitat
29 management requires analysis of ecological functions utilization and landscape level planning to
30 adjust limiting factors and promote priority endemic species. Species management priorities are
31 based on conservation needs as defined by global, regional, and local abundance; distribution and
32 threats; population trends; importance of areas to species; potential for population and/or habitat
33 management; and human interests.

34 It is the U.S. Army's policy to assure that planning for soil-disturbing activities includes revegetation
35 with native plant species. This policy implements the Presidential Executive Order (E.O.) 13148 –
36 *Greening the Government through Leadership in Environmental Management* (Office of the
37 President, 2000) and E.O. 13751, *Safe guarding the Nation from the Impacts of Invasive Species*
38 (Office of the President, 2016). These Executive Orders help ensure that soil disturbances do not
39 lead to the spread of exotic and noxious species, such as purple loosestrife (*Lythrum salicaria*), musk
40 thistle (*Carduus nutans*), Canada thistle (*Cirsium arvense*), field bindweed (*Convolvulus arvensis*),
41 leafy spurge (*Euphorbia esula*), etc. Re-establishing native herbaceous species not only prevents
42 the spread of noxious species, but it also enhances wildlife habitat and natural watershed processes.

1 In June 2014, Presidential Memorandum was issued establishing the Pollinator Health Task Force
2 (Task Force), a Federal interagency body charged with coordinating Federal efforts to promote
3 pollinator health through research, habitat creation, education and outreach, and public private
4 partnerships. In May 2015, the Task Force released its national *Strategy to Promote the Health of*
5 *Honey Bees and Other Pollinators* and accompanying *Pollinator Research Action Plan*, outlining
6 needs and priority actions to better understand pollinator losses and improve pollinator health.

7 In September 2018, the DOD issued the *DOD Pollinator Conservation Reference Guide* published
8 and distributed by the Armed Forces Pest Management Board as a technical guidance to recommend
9 policies and procedures. The guidance provides information on preserving habitat, creating habitat,
10 recommendations for mowing and the use of fire etc.

11 Periodic benthic invertebrate/macrobenthic sampling of Joliet LTA's Jackson Creek to include
12 monitoring and data trend analysis. Benthic invertebrate/macrobenthic sampling is
13 accomplished to monitor the quality of water flowing into and departing the installation which provides
14 technical data to monitor overall health of the stream ecosystem which is essential to protect
15 continued access to the stream for military training.

16 **5.2.6.1 Proposed Management**

17 ECOSYSTEMGT has the potential to overlap with other projects, particularly *Federal/State-listed*
18 *Species & Risk Management* (Section 4.2.5), *Soils Management* (Section 4.2.16), *Water*
19 *Resources Management* (Section 4.2.17), and *Wetlands Management* (Section 4.2.18).

20 **Project:** ECOSYSTEMGT – Ecosystem Management; NATIVEPLN - Native Species and
21 Plantings

22 **Military Readiness Impact:** Utilize ecosystem management and native species in mission
23 enhancing compatible locations (e.g. drop zones maintained with native vegetation)

24 **Justification:** Maintaining the capability of training lands to support the military mission (16 USC
25 670a, Sikes Act and Sikes Act Improvement Act (1997)), compliance with the 16 USC 1531-1544,
26 Endangered Species Act (ESA) (1973), 33 USC 1251-1387, Clean Water Act (1977), Executive
27 Order 13112, Presidential Memo on native species, and other wildlife-oriented laws; stewardship

28 **Funding Priority:** Class 0

29 **Project Timing:** All objectives – indefinitely, as-needed, or in conjunction with PLS

30 **Regulatory Coordination:** USFWS and state wildlife agencies, if needed.

31 **Goal 1.** Manage aquatic and terrestrial habitat to support the military mission, maintain and
32 enhance ecosystem integrity, and minimize potential impacts to the quality of wildlife habitat.

33 **Objective 1.** Periodic benthic invertebrate/macrobenthic sampling of Joliet LTA's
34 Jackson Creek to include monitoring and data trend analysis. Benthic
35 invertebrate/macrobenthic sampling is accomplished to monitor the quality of
36 water flowing into and departing the installation which provides technical data to
37 monitor overall health of the stream ecosystem which is essential to protect continued
38 access to the stream for military training.

39 **Goal 2.** Partner with USFWS, and state wildlife agencies, to maintain plant and wildlife
40 populations at target levels in accordance with endangered species recovery plans, species
41 priorities, population ecology, population health considerations, and habitat capacities.

42 **Objective 1.** Investigate potential partnerships with wildlife agencies, and interested
43 organizations to protect or enhance wildlife habitat and conserve species.

Objective 2. Evaluate the need for planning level surveys, to include sensitive species and wetlands, for all 88th RD lands and implement these surveys, if needed.

Goal 3. Conduct soil and vegetation restoration activities, when necessary, that maintain plant and wildlife populations in accordance with species priorities, population ecology, population health considerations, and habitat capacities.

Objective 1. Use native, non-invasive species to restore soil and vegetative integrity following soil-disturbing projects.

Objective 2. Perform revegetation using native, non-invasive species, as needed.

Objective 3. Consider native vegetation that would be advantageous to pollinators in all revegetation and restoration projects on 88th RD sites.

5.2.7 Forestry Management (FORESTPLN)

Maintain, restore, and manage forest lands using ecosystem-based management that prioritizes mission and secondarily generates revenue.

Forestry's initial focus was on soil stabilization, erosion control, and coordinating the production of commercial forestry products. Now, the modern Army forester sees Army lands as an integral part of Army training that also provide biological diversity, wildlife habitat, air and water quality, soil conservation, watershed protection, and recreational opportunities. While all installations with forests have forestry responsibilities, not all facilities have reimbursable forestry programs.

Forest Management in USFWS Region 3 is applicable to JTA (IL079/17986, Weldon Spring (MO041/29985), Silver Spring (WI064/55999), and Laporte County Veterans ARC (IN023/18740) which have established Forest Management Plans. The forest stands that exist on 88th RD lands tend to be in small patches. Few sites have substantive tracts of forest, most have no traditional forest management or timber harvest. In most cases, trees are located on semi-improved grounds and are kept primarily as landscaping.

Forest Management helps achieve the desired mission landscape through harvests, thinning, timber stand improvement and other silviculture methods. These management practices also help maintain forest health, minimize wildfire risk by reducing fuel loads, and improve wildlife habitat.

5.2.7.1 Proposed Management

Project: FORESTPLN, FORESTPLNUP, FORESTPLNIMPL, and FORESTPLNIMPL CRF – , and FORESTPLNIMPL CRF – Forest Plan, Forest Plan Updates, Forest Plan Implementation, and Forest Plan Implementation – Conservation Reimbursable Forestry.

Military Readiness Impact: Enables forest and tree management to enhance areas for military training and maintains safe urban landscapes on military sites. Forest management helps achieve the desired mission landscape through harvests, thinning, timber stand improvement, and other silvicultural methods. These management practices also help maintain forest health, minimize wildfire risk by reducing fuel loads, and improve wildlife habitat.

Justification: AR200-1 (2021), Executive Orders 13112 Invasive Species (1999) and E.O. 13751, Safeguarding the Nation from the Impacts of Invasive Species (2016), DODI 4150.07, DoD Pest Management Program (May 2008), Stewardship

Funding Priority: Class 0

Project Timing: Most goals and objectives are completed annually, or on an as needed basis.

Regulatory Coordination: USFWS and state wildlife agencies, as needed.

1 **Goal 1.** The mission of the Forestry Program is to support and enhance the immediate and
2 long-term military mission and meet natural resource stewardship requirements set forth in
3 federal law. In addition, the 88th RD Forestry program will manage forested areas that are
4 economically sustainable with the intent of future harvest, to be done in a way that maintains
5 a healthy, functional, diverse ecosystem that meets the needs of the mission.

6 **Objective 1.** Maintain, restore and manage forest lands to support the military mission on
7 88th RD owned LTAs.

8 **Objective 2.** Promote sustainable and healthy ecosystems capable of supporting military
9 mission and conservation requirements.

10 **Objective 3.** Forest inventories should be no greater than 10 years old for economically
11 productive forest stands.

12 **Objective 4.** Harvest forests in a sustainable and financially responsible manner.

13 **Objective 5.** Ensure management actions comply with all applicable laws, regulations,
14 and guidance including endangered species management.

15 **Objective 6.** Manage forests from an ecosystem management approach, ensuring that
16 coordination with natural and cultural resource professionals and other operational
17 personnel takes place.

18 **Objective 7.** Clear existing roads of woody debris to facilitate vehicle access, improve
19 safety, and enable access to training and forest stand areas.

20 **Objective 8.** Implement Best Management Practices (BMPs) to protect water quality from
21 non-point source pollution and protect soils from erosion.

22 **5.2.8 Grounds Management Support**

23 In managing natural resources in urban portions of its sites, the 88th RD acknowledges its
24 responsibilities as listed in Executive Order 13112, *Invasive Species* (Office of the President, 1999),
25 White House Memorandum, *Environmentally and Economically Beneficial Practices on Federal*
26 *Landscaped Grounds* (Office of the President, 1994), and Council on Environmental Quality (CEQ)
27 *Guidance for Federal Agencies on Sustainable Practices for Designed Landscapes* (2010). The
28 memorandum's requirements include:

- 29 • using regionally native plants for landscaping
- 30 • using construction practices that minimize adverse effects on the natural habitat
- 31 • reduce pollution by reducing the use of fertilizer and pesticides, using IPM, recycling green
32 waste, and minimizing runoff
- 33 • implementing water-efficient practices

34 Trees at Ft. Des Moines (IA033/19057) are contributing elements to an eligible historic site or district
35 and their maintenance requires special consideration. The 88th RD conducted a tree survey at this
36 site and developed a tree maintenance plan.

1 **5.2.8.1 Proposed Management**

2 The Operations Division funds grounds management. Thus, a specific project for grounds
3 management is not required. However, the below goal and objectives that are pertinent to natural
4 resources management are appropriate to list.

5 **Goal.** Provide support to maintain aesthetically pleasing urban landscapes at 88th RD sites that
6 maintain natural ecosystem functions as much as possible.

7 **Objective 1.** Maintain records of tree species, location, and condition on 88th RD sites to
8 support stewardship of natural areas.

9 **Objective 2.** Promote biodiversity through sound ecosystem and habitat management.

10 **Objective 3.** Provide professional advice to assist the grounds landscaping and maintenance
11 program toward the use of native species.

12 **Objective 4.** Manage natural resources within the cantonment area to meet appropriate
13 natural resources objectives.
14

15 **5.2.9 Hunting Program Implementation (HUNTINGIMPL)**

16 All 88th RD sites have been evaluated for the potential of hunting activities and in light of security
17 safety, mission, and management requirements. Hunting takes place on two of the LTAs: Joliet
18 Training Area (JTA) (IL079/17896), and Weldon Spring LTA (MO041/29985). The projected site-
19 specific requirements for the two hunting sites include; development of a hunting program to provide
20 sound wildlife management and conservation practices and game species population control.
21 Hunting opportunities on the sustainable training lands were identified during natural resource survey
22 fieldwork. The Sikes Act and E.O. 13443 requires that federal agencies develop and implement
23 hunting conservation programs as a method to maintain sustainable training lands. Without
24 successful conservation and wildlife program management, the training mission will be severely
25 affected with adverse impacts to the landscape of sustainable training lands. Project will provide for
26 successful management of wildlife populations, provide soldiers and the community with recreational
27 activities and enable successful training land conservation management.

28 Hunting activities help to maintain wildlife populations at appropriate levels, while also improving
29 soldier and family quality of life and public relations through recreation. The programs provides
30 funding that supports natural resource management projects at 88th RD installations.

31 Natural resources law enforcement on 88th RD owned and leased lands is usually provided by the
32 state agency responsible for fish and wildlife enforcement in the state in which the properties occur.
33 If enforcement issues involving federal laws were to arise, the USFWS might become involved.
34
35

36 **5.2.9.1 Proposed Management**

37 **Project: HUNTINGIMPL**

38 **Military Readiness Impact:** Hunting activities help to maintain wildlife populations at a
39 desirable level while also improving soldier and family quality of life and public relations
40 through recreation.

Justification: 16 USC 670a(b)(3); Sikes Act; E.O. 13443; DoDI 4715.3; AR200-1; 520 ILCS 30; Joliet Training Area Hunting Regulation 420-31, and 88th RD INRMPs.

Funding Priority: 1

Project Timing: Organized and licensed hunters will be allowed to legally hunt game species at both locations in accordance with the 88th hunting policies and procedures.

Regulatory Coordination: State specific Department of Natural Resources

Goal 1. Implementing a sustainable hunting program to provide sound wildlife management and conservation practices.

Objective 1. Establish and maintain these programs at IL079 and MO041

Objective 2. Increase and encourage access to outdoor activities for all Veterans, employees and their families.

Objective 3. Support and enable youth and VA rated personnel hunting access.

Objective 4. Issue permits for installation hunting access at a fair market value, to eligible personnel in accordance with the installation's hunting procedures.

Objective 5. Permit fees will be deposited in the Conservation Reimbursable Fish and Wildlife Fund. (CRFCF, 2023)

Objective 6. If public demand to hunt at an installation exceeds the allowable hunting levels at the installation, a lottery may be used to issue hunting permits.

Goal 2. Manage natural resources to support the hunting program.

Objective 1. Conduct surveys of game species, including deer and birds.

Objective 2. Stock game birds(pheasants and/or quail) as needed.

Objective 3. Establish and maintain wildlife food plots at JTA IL079 to support game and non-game species.

5.2.10 Integrated Natural Resources Management Planning (INRMP, NRSRVY, NRSRVYUP)

This INRMP is reviewed annually by the 88th RD as stipulated in AR 200-1 (Department of the Army, 2007). The list of goals and objectives can be used to guide the review and adjust programs, per the adaptive management process. Planning level surveys (PLS) a/k/a Natural Resource Surveys and Updates (NRSRVY and NRSRVYUP) and data analysis are the foundation for effective planning and decision-making. NRSRVYs are reviewed and updated when necessary on a 5-year cycle to support the INRMP update.

5.2.10.1 Proposed Management

Project: INRMPUP - Integrated Natural Resources Management Planning and Updates;
NRSRVY, NRSRVYUP – Natural Resource Survey (initial)/Updates

Military Readiness Impact: Military Facility Planning

Justification: Sikes Act compliance, AR 200-1, stewardship

Funding Priority: Class 0

Project Timing: Goal 1: **Objective 1:** annually,

Objective 2: Will take place beginning in 2024,

Objective 3: PLS/NRSRVYUP will take place on a 5 year cycle when necessary.

1 **Objective 4:** Aerial Deer survey annual requirement when
2 conditions are favorable/subject to availability of funds

3 **Regulatory Coordination:** USFWS and state wildlife agencies

4 **Goal 1.** Use coordinated planning via the INRMP to fully integrate the natural resources
5 program on 88th RD lands.

6 **Objective 1.** NRM will review this INRMP annually using project goals and
7 objectives to guide reviews; revise projects and budgets as required; coordinate
8 significant changes with the USFWS and state wildlife agencies.

9 **Objective 2.** Update the INRMP at least every five years or when major changes
10 are made to the natural resources program; coordinate these updates with the
11 USFWS and state wildlife agencies.

12 **Objective 3.** After initial natural resource survey (NRSRVY) is completed, conduct
13 planning level survey updates (NRSRVYUP) at 88th RD sites on a 5-year cycle or
14 when conditions at the site have changed to a degree that a site visit is warranted
15 to monitor trends in natural resource occurrence and extent, and/or plan
16 management actions.

17 **Objective 4.** JTA (IL079/17896) Aerial Deer Survey. Annual requirement but is
18 only conducted when conditions allow (snow on the ground). This enables proper
19 management of the herd. Subject to availability of funds.

20 **5.2.11 Integrated Training Area Management (ITAM)**

21 According to the Director of Plants and Training the 88th RD is currently part of the sustainable
22 ranges program and does not receive ITAM funding or support.

23 Integrated Training Area Management (ITAM) is an Army-wide program to provide quality
24 training environments to support the Army's military mission and helps ensure no net loss of
25 training capability (Sikes Act requirement). The ITAM program was initiated when the Army
26 realized their training lands were degrading to the point where they could no longer support
27 mission readiness training. Proper management supporting military mission readiness and
28 other multi-use activities is a challenge unique to Defense among managers of public lands.

29 The integration of stewardship principles and conservation practices pertaining to training land
30 ensures that Army lands support training missions in a sustainable manner. Force readiness
31 depends on the availability of high quality, realistic training lands. Several documents provide
32 policy and procedural guidance for the ITAM program:

33 **ITAM Program Strategy** (Department of Army, 1995). The strategy describes roles,
34 responsibilities, and relationships between the functional proponent and supporting
35 organizations, provides an overview of the ITAM policy and guidance, and describes the four
36 ITAM components. The ITAM Program Strategy, along with input provided by Army
37 conservation staff and Land Condition Trend Analysis outcomes, provided the foundation and
38 guidance for the ITAM Regulation (AR 350-4) (Department of the Army, 1998) and the
39 Procedural Manual (Department of the Army, 1999b).

40 **AR 350-19 – The Army Sustainable Range Program** (Department of the Army, 2005). This
41 regulation establishes policy for the Army's ITAM program under proponent responsibility of
42 the Deputy Chief of Staff for Operations and Plans. It defines Headquarters Department of
43 the Army, Major Army Command, and Installation responsibilities, management requirements,
44 objectives, and general guidance to implement ITAM.

1 **ITAM Procedural Manual** (Department of Army, 1999b). This document accompanies AR
2 350-19 (Department of the Army, 2005) and defines Headquarters, Department of the Army,
3 Major Army Command, and installation roles, responsibilities, and Army-wide guidance to
4 implement ITAM. Policies, procedures, and guidance in this manual are essential to achieve
5 and maintain the Army ITAM program. Army mechanisms for program management, review,
6 and information exchange include Program Management Reviews, quarterly newsletters (*The*
7 *Bridge* published by the Army Environmental Center), the ITAM website, and the annual ITAM
8 workshop.

9 **Scope of ITAM.** ITAM programs focus on training land management. ITAM funding is not
10 intended to address or correct statutory compliance or conservation requirements, perform
11 routine range maintenance or modification, or replace normal base operations activities on
12 training lands normally funded by the Real Property Maintenance Account (Department of the
13 Army, 1999b).

14 The ITAM program includes the following five component areas (modified from *Integrated*
15 *Training Area Management (ITAM) Program Strategy* (Department of the Army, 1995a)):

- 16 • The Range and Training Land Assessment, formerly Land Condition Trend Analysis
17 component is used to inventory and monitor physical and biological resources to meet the
18 multiple use demands on military installations.
- 19 • The Training Requirements Integration component integrates military training
20 requirements for land use with natural resources conditions and capabilities to support
21 these requirements.
- 22 • The Sustainable Range Awareness, formerly Training Sustainment Awareness and prior
23 to that Environmental Awareness component, improves land user understanding of the
24 impacts of their activities on the environment.
- 25 • The Land Rehabilitation and Maintenance component includes programming, planning,
26 designing, and executing land rehabilitation and maintenance to support and sustain the
27 military mission.
- 28 • The GIS supports planning decision processes to effectively manage land use and natural
29 resources.

30 Surveys of resources on sites are performed as needed for specific projects. Implementation
31 of the Range and Training Land Assessment program would not be advantageous to
32 management of site resources since the sites can easily be fully surveyed due to small
33 acreages involved for specific military training sites. Thus, the Range and Training Land
34 Assessment component of ITAM is not needed.

35 The integration of site military training requirements for land use with natural resources
36 conditions and capabilities is performed by mission planners for each site on a case-by-case
37 basis. The Training Requirements Integration component of ITAM could be implemented on
38 sites. Army Reserve lands may be required to provide increased training use in the future,
39 which Training Requirements Integration would support.

40 Sustainable Range Awareness could be used to produce military training guides to ensure
41 military training is conducted according to site-specific restrictions. The Sustainable Range
42 Awareness component of ITAM would implement a mechanism to improve land user
43 understanding of the impacts of their activities on the sites.

44 Land Rehabilitation and Maintenance has not been implemented on 88th RD sites due to lack
45 of ITAM funding. However, all training sites could benefit from Land Rehabilitation and

1 Maintenance programming, planning, design, and execution. Land Rehabilitation and
2 Maintenance projects could be used to repair damage to leased lands, should such damage
3 occur.

4 **5.2.11.1 Proposed Management**

5 **Project:** ITAM - Integrated Training Area Management

6 **Military Readiness Impact:** Maintaining the capability of training lands to support the military
7 mission.

8 **Justification:** Maintaining the capability of training lands to support the military mission (Sikes
9 Act), stewardship

10 **Funding Priority:** Not applicable since ITAM programs are currently not environmentally funded

11 **Project Timing:** All objectives – ongoing and as needed.

12 **Regulatory Coordination:** None required

13 **Goal 1.** Provide quality training environments to support the Army’s military mission and help
14 ensure no net loss of training capability.

15 **Objective 1.** Investigate the feasibility of implementing various components of the ITAM
16 program at 88th RD.

17 **Objective 2.** Survey sites for training-related damage or potential improvements to
18 training lands and develop and implement Land Rehabilitation and Maintenance projects.

19 **5.2.12 Invasive Species Management (INV SPLN)**

20 The Invasive Species Management Plans compile data re: species extent, composition, and
21 treatment options / priorities. Species addressed may include those that pose a health and safety
22 risk (i.e. poison ivy, honey locust, etc.) and those regulated by the USDA due to potential to impact
23 the economy. Implementation of the plans expands access to training lands and protects valuable
24 concealment resources. Both state and federal lists identifying noxious invasive species are
25 consulted.

26 **Noxious Weeds**

27 Noxious weeds (as determined by applicable regulatory authority) pose threats to native habitats,
28 endangered species, and plant community composition and diversity. More specifically, they threaten
29 wetland ecosystems, complicate land restoration projects, add to the cost of pest management, and
30 in general, threaten ecosystem functionality. Some noxious weeds are directly poisonous or injurious
31 to humans, livestock, and wildlife. Controlling some noxious weed species requires leadership, large
32 implementation areas, coordination, and funding between local communities, state governments and
33 other federal agencies. This reality may limit the control efforts for some noxious invasive species on
34 some 88th RD property. The 88th RD is aware of its requirements to prevent the introduction of
35 invasive species, as well as their control, per Executive Order 13112, *Invasive Species*.

36 Noxious plant control may be necessary on some 88th RD lands. Monitoring efforts help determine
37 when control efforts should be undertaken. Control efforts may include the following methods:
38 prescribed burning, mechanical means, and ground applications of herbicides.

39 Consideration of aerial herbicides application when it has been determined to be the only practical
40 means for large area control of aggressively invasive/undesirable vegetation and/or when the window
41 of opportunity is small and unmanageable by ground control techniques.

1 **5.2.12.1 Proposed Management**

2 **Project: INV SPLN, INV SPLNUP, INV SPLIMPL** – Invasive Species Management Plan/Update,
3 Implementation - update, Invasive Species Management Plans, updates and Implementation, as
4 well as general Invasive Species Management Support

5 **Military Readiness Impact:** Ensure invasive species management operations mutually protect
6 natural resources, military personnel, sites while enable military training activities.

7 **Justification:** Compliance with Executive Orders 13112, EO 13751, Safeguarding the Nation from
8 the Impacts of Invasive Species (2016), Sikes Act

9 **Funding Priority:** Class 0

10 **Project Timing: Goal 1**

11 **Objective 1** – If present in USFWS IRegion 3;

12 **Objective 2** – When identified in USFWS Region 3.

13 **All other objectives** – as needed.

14 **Regulatory Coordination:** Sikes Act, EO 13751, Local and State invasive/ toxic species
15 management requirements.

16 **Goal 1.** When funding allows control noxious and invasive plants to support the military mission,
17 promote sustained ecosystem functionality, favor native species biodiversity, and add to the quality
18 of life in the immediate areas surrounding 88th RD lands.

19 **Objective 1.** Prepare or update Invasive Species Management Plans (ISMP) at locations
20 identified as needing invasive species control.

21 **Objective 2.** Maintain and update ISMP to control invasive species at locations where needed.

22 **Objective 3.** Implement the ISMP and/or in support of the 88th RD DPW grounds services
23 contracts.

24 **Objective 4.** If pesticides (herbicides) are used, use them in such a manner as to minimize
25 impacts to sensitive animal and plant species, and follow precautionary statements on labels
26 regarding contamination of water if pesticides are sprayed near wetlands and as prescribed in the
27 Pest Management Plan.

28 **Objective 5.** Where appropriate, investigate optimal control methods for city, county, and state
29 listed noxious weeds and communicate that information to noxious weed control contractors and
30 implement application.

31 **Objective 6.** Where appropriate, if state or federally defined noxious weeds are identified during
32 the NRSRVYUP/PLS process, work orders will be submitted.

33 **5.2.13 Migratory Bird Management (MBTASRVY)**

34 Active management for birds on 88th RD land's is limited by the lack of substantial native habitat on
35 most sites. With a few exceptions, activities conducted on 88th RD sites have little potential to
36 negatively affect migratory birds. The MBTA of 1918 (16 USC 703-712; Ch. 128; 13 July 1918; 40
37 Stat. 755) as amended prohibits pursuing, hunting, taking, capturing, killing, selling, transporting, or
38 attempting to do any of the former actions to a migratory bird, or the eggs, nest, or parts of a migratory
39 bird, without a permit. The MBTA lists over 1,000 birds protected under the Act. The MBTA applies
40 only to species native to the United States. The USFWS has authority to implement the MBTA, as
41 described at <http://www.fws.gov/migratorybirds/>.

42 January 17, 2001, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory
43 Birds (66 FR 3853) requires federal agencies to consider effects of their actions on migratory birds.

1 Each federal agency taking actions that have, or are likely to have, a measurable negative effect on
2 migratory bird populations must develop and implement a memorandum of understanding (MOU)
3 with the USFWS that promotes the conservation of migratory bird populations.

4 February 2007, the Secretary of the Interior authorized an exemption from the MBTA for the DoD that
5 permits incidental take of migratory birds during military readiness activities. If the DoD determines
6 that a proposed or ongoing military readiness activity has a measurable negative effect on a
7 population of a migratory bird species, the DoD must confer and cooperate with the USFWS to
8 develop reasonable conservation measures to minimize or mitigate effects. Non-military readiness
9 activities are not exempt from the MBTA or EO 13186. The DoD must obtain a Special Purpose
10 Permit for non-military readiness actions involving take of migratory birds.

11 September 5, 2014, an updated DoD/USFWS MOU to Promote the Conservation of Migratory Birds
12 was signed (Appendix G), pursuant to Executive Order 13186. In the MOU, the DoD and USFWS
13 state that “it is important to focus on reducing stressors on bird populations, restore, and enhance
14 habitat where actions can benefit specific ecosystems and migratory birds dependent on them, and
15 recognize that actions taken to benefit some migratory bird populations may adversely affect other
16 migratory bird populations.”

17 Some of the DoD responsibilities outlined in the MOU include:

- 18 • Following all migratory bird permitting requirements for intentional take;
- 19 • Inventorying and monitoring bird populations on DoD lands to the extent feasible to facilitate
20 decisions about the need for, and effectiveness of, conservation efforts;
- 21 • Incorporating state or regional bird conservation measures in INRMPS;
- 22 • Working to protect, restore, and enhance migratory bird habitats, as practicable, on DoD-
23 managed lands, in ways that do not conflict with or impede military training and testing;
24 allowing the USFWS and other partners reasonable access to military lands (consistent with
25 requirements for safety and national security) for conducting sampling or survey programs;
26 and
- 27 • Managing military lands and non-military readiness activities in a manner that supports
28 migratory bird conservation.

29 Existing data and programs facilitate compliance with the MBTA and EO 13186. Conservation
30 priorities are established in the USFWS publication *Birds of Conservation Concern (BCC) 2021*
31 (USFWS 2021), which identifies migratory and non-migratory species at risk due to population
32 declines, naturally small ranges or population sizes, threats to habitat, or other factors. To establish
33 regional conservation efforts, BCCs are identified within USFWS Regions as well as within bird
34 conservation regions (BCRs), which are based on physiography and ecosystem features.

35 The eight-state region covered in this INRMP lies within USFWS Interior Region 3 and eight BCRs:
36 11, 12, 13., 22, 23, 24, 26, and 28 (2021, [https://www.fws.gov/migratorybirds/pdf/management/birds-
37 of-conservation-concern-2021.pdf](https://www.fws.gov/migratorybirds/pdf/management/birds-of-conservation-concern-2021.pdf)) as shown in the following map of terrestrial Bird Conservation
38 Regions (BCRs) and Marine Bird Conservation Regions (MBCRs) of North America.



(USFWS 2021)

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The purpose behind the BCRs is to:

- facilitate communication among the bird conservation initiatives;
- systematically and scientifically apportion the US into conservation units;
- facilitate a regional approach to bird conservation;
- promote new, expanded, or restructured partnerships; and
- identify overlapping or conflicting conservation priorities.

December 22, 2017, the Solicitor issued a legal opinion, M-37050, which concluded that the prohibitions of the Migratory Bird Treaty Act (“MBTA”) apply only to affirmative actions that purposefully take or kill migratory birds, their nests, or their eggs, and thus do not apply to incidental taking or killing. For the reasons set forth below, and pursuant to delegated authority, M-37050 is now revoked and withdrawn.

August 11, 2020, a district court vacated M-37050 as contrary to the unambiguous language of the MBTA. *Natural Resources Defense Council v. U.S. Dep’t of the Interior*, 478 F. Supp.

1 3d 469 (S.D.N.Y. 2020). The court concluded that MBTA “Section 2’s clear language making
2 it unlawful ‘at any time or in any manner, to ... kill ... any migratory bird’ protected by the
3 conventions is in direct conflict with [M-37050].” *Id.* at 481.

4 March 2, 2021, the United States Court of Appeals for the Second Circuit, at the request of
5 the United States, dismissed the appeal on. The lower court decision is consistent with the
6 Department of the Interior’s long-standing interpretation of the MBTA.

7 In addition, the Government of Canada raised several concerns regarding whether M-37050
8 is consistent with one of the treaties underlying the MBTA, the 1916 Convention Between the
9 United States and Great Britain (on behalf of Canada) for the Protection of Migratory Birds,
10 as amended by the 1995 Protocol Amending the 1916 Convention for the Protection of
11 Migratory Birds. M-37050 did not analyze the issues raised by Canada with regard to this
12 Convention.

13 March 8, 2021, in a Memorandum from U.S. Department of the Interior, Principal Deputy Solicitor
14 permanently revokes and withdraws M-37050.

15 August 2018, the Office of the Assistant Secretary issues a “Guidance for Addressing Migratory Bird
16 Management in INRMPS” - This memorandum provides guidance on Addressing Migratory Bird
17 Management in Integrated Natural Resources Management Plans (attached). The Guidance
18 consolidates and clarifies existing bird and bird habitat management requirements that installation
19 natural resources managers must address in their installation Integrated Natural Resource
20 Management Plans (INRMPS). The Guidance also outlines best management practices and provides
21 links to available resources that can be used to facilitate compliance with legal requirements.

22 The specific legal requirements addressed in this guidance implement the Migratory Bird Treaty Act,
23 Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds." and the
24 Migratory Bird Rule. There is specific emphasis on clarifying application of the Migratory Bird Rule
25 and the readiness authorization - which has been widely but incorrectly perceived as an exemption.

26 June 2018, DOI Memo Re: “Destruction and Relocation of Migratory Bird Nest Contents” This memo
27 replaces Migratory Bird Permit Memorandum MBPM-2 on Nest Destruction (April 15, 2003) - The
28 purpose of this memorandum is to clarify the application of the Migratory Bird Treaty Act (50 C.F.R.
29 §§ 703-712; MBTA) to the destruction and relocation of migratory bird1 nests and provide guidance
30 for advising the public regarding this issue. This Memo replaces Migratory Bird Permit Memorandum
31 MBPM-2 on Nest Destruction (April 15, 2003). This memo does not supersede or apply to other
32 Federal, State, or Tribal laws and regulations, including the Endangered Species Act (16 U.S.C. §§
33 1531; ESA) and the Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d; Eagle Act).

34 Additionally, the DoD participates in the Federal Partners in Flight (PIF) Program for the conservation
35 of Neotropical migratory birds. The DoD PIF policy is to "promote and support our partnership role in
36 the protection and conservation of birds and their habitats by protecting vital DoD lands and
37 ecosystems, enhancing biodiversity, and maintaining healthy and productive natural systems
38 consistent with the military mission." Funds to promote the DoD’s participation in the PIF Program
39 efforts come primarily from the DoD Legacy Resource Management Program. The DoD bird
40 conservation priorities relevant to 88th RD lands include:

- 41 • data collection to support the Monitoring Avian Productivity and Survivorship (MAPS) Program
42 and other regional/national monitoring projects (e.g., Christmas bird count);
- 43 • landscape level habitat conservation, especially of native grasslands;
- 44 • control invasive and nuisance species, especially feral cats;
- 45 • reducing avian mortality at communication towers and transmission lines; and
- 46 • responsible use of pesticides and other potential environmental contaminants.

1 The DoD PIF Program is made up of regional working groups. The 88th RD sites addressed in this
2 INRMP are within the PIF Eastern Working Group. Conservation challenges and priorities are
3 described in the DoD PIF Strategic Plan (2014). The DoD PIF website (<http://www.dodpif.org>)
4 provides an interactive map of BCRs with several lists of bird groups (e.g., game, migratory, non-
5 migratory, shorebirds) in need of conservation for each region. In addition to the USFWS BCCs, the
6 PIF maintains a separate list that prioritizes species for conservation efforts. Many species occur on
7 both the BCC and PIF lists.

8 Upper Mississippi / Great Lakes Joint Venture Landbird Habitat Conservation Strategy – 2020
9 Revision (**covers MN, WI, IL, IN, OH, IA, MO, MI**) not DoD.

10 [https://partnersinflight.org/resources/landbird-habitat-conservation-strategy-upper-mississippi-and-](https://partnersinflight.org/resources/landbird-habitat-conservation-strategy-upper-mississippi-and-great-lakes-region-joint-venture-2020/)
11 [great-lakes-region-joint-venture-2020/](https://partnersinflight.org/resources/landbird-habitat-conservation-strategy-upper-mississippi-and-great-lakes-region-joint-venture-2020/) | Partners in Flight Bird Conservation Plan Lower Great Lakes
12 Plain (Physiographic Area 15) 2003 | Partners In Flight Landbird Conservation Plan: Physiographic
13 Area 24: Allegheny Plateau . VERSION 1.1: August 2003 | Partners In Flight Landbird Conservation
14 Plan: Physiographic Area 22: Ohio Hills Version 1.1: April 2004

15 State PIF conservation plans ([https://www.partnersinflight.org/resources/partners-in-flight-state-bird-](https://www.partnersinflight.org/resources/partners-in-flight-state-bird-conservation-plans/)
16 [conservation-plans/](https://www.partnersinflight.org/resources/partners-in-flight-state-bird-conservation-plans/)) have been developed for some states. Each plan identifies important habitat
17 types and locations for birds listed as priority conservation species by the PIF. These plans provide
18 specific information on the breeding and wintering status of populations inhabiting each state, and
19 describe specific conservation recommendations for individual species as well as important habitats.
20 The state PIF plans should be consulted for specific conservation activities if sensitive species of
21 birds are identified on 88th RD sites.

22 Avian Knowledge Network – In 2022 The Office of the Secretary of Defense issued a memo to all of
23 DoD with the Subject : Department of Defense Avian Knowledge Network,(AKN) indicating that “

24 The Department of Defense (DoD), like other federal agencies, has significant regulatory,
25 management, and stewardship responsibilities related to migratory birds. These requirements are
26 driven primarily by the Migratory Bird Treaty Act (MBTA), the “Military Readiness Rule” (50 CFR §
27 21.15, Authorization of take incidental to military readiness activities) and Executive Order (EO)
28 13186 “Responsibilities of Federal Agencies to Protect Migratory Birds.” In accordance with EO
29 13186, DoD has also established a Memorandum of Understanding with the U.S. Fish and Wildlife
30 Service outlining the management and stewardship activities DoD will implement for migratory bird
31 conservation. All DoD natural resources conservation programs support DoD access to its land, air,
32 and water resources for realistic military training and testing and to sustain the long-term ecological
33 integrity of the resource base and the ecosystem services it provides, in accordance with the Sikes
34 Act. Collecting data and information from ongoing surveys, inventories, and monitoring are essential
35 to make informed management decisions, efficiently and effectively meet regulatory requirements
36 (e.g., the MBTA, the Sikes Act), conduct environmental analyses, and support planning to adaptively
37 manage migratory bird populations in the context of mission activities. As such, the DoD spends
38 millions of dollars annually to collect these data.”

39 The memo goes on to say “This office fully endorses the use of AKN and requests that each DoD
40 Component utilize AKN to the maximum extent practicable and provide staff the support needed to
41 make AKN the best tool for DoD. A coordinated and comprehensive approach to implement DoD’s
42 participation in the AKN will directly support the military mission and improve the quality and
43 effectiveness of bird conservation on DoD installations. For DoD to fully employ the power of AKN,
44 user training and significant initial data management is required. This office, through the DoD Legacy
45 Resource Management Program, is committed to providing baseline support and resources to help
46 implement AKN. This support will provide training and education for personnel, and technical
47 assistance related to system use and data management.” The 88th RD is committed to entering

1 future migratory bird survey data into the AKN Database, and where feasible also entering historical
2 data.

3 **5.2.13.1 Proposed Management**

4 **Project:** Migratory Bird Management (MBTASRVY)

5 **Military Readiness Impact:** Prevents and mitigates applicable MBTA compliance impacts on military
6 activities (e.g. limiting access to training lands due to a lack of considering impacts on migratory bird
7 species).

8 **Justification:** 16 USC 703-712, Migratory Bird Treaty Act (1918) and EO 13186 compliance, 16
9 USC 668-668c, Bald and Golden Eagle Protection Act (1940), 16 USC 670a, Sikes Act and Sikes Act
10 Improvement Act (1997), stewardship

11 **Funding Priority:** Class 0

12 **Project Timing: Goal 1:**

13 **Objectives 1, 2, 4, and 5** – ongoing or as needed;

14 **Objectives 3** – As needed.

15 **Regulatory Coordination:** USFWS and state wildlife agency, as required.

16 **Goal 1.** Protect migratory birds on 88th RD lands.

17 **Objective 1.** Promote and support migratory birds in compliance with the MBTA, EO 13186,
18 and other rules and agreements.

19 **Objective 2.** Improve awareness of protection afforded to migratory birds, including Bald and
20 Golden Eagles.

21 **Objective 3.** Perform migratory bird surveys (focusing on the high resource sites especially
22 the LTAs) identifying species presence or absence on 88th RD sites and population trends
23 when data allows.

24 **Objective 4.** Consider migratory birds and BCC in all 88th RD LTA actions.

25 **Objective 5.** Increase awareness of Partners in Flight (PIF) Western working group, the
26 American Bird Conservancy (ABC), the Avian Knowledge Network (AKN) and other such
27 NGOs for guidance and annually review their activities to identify regional efforts that may be
28 supported by the 88th RD.

29 **Objective 6.** Work with the Avian Knowledge Network (AKN) to fulfill the DoD directive to
30 upload Migratory Bird Survey data (past, present and future) into the AKN database.

31 **5.2.14 Natural Resources Enforcement**

32 Natural resources law enforcement on 88th RD owned and leased lands is usually provided by the
33 state agency responsible for fish and wildlife enforcement in the state in which the properties occur.
34 If enforcement issues involving federal laws were to arise, the USFWS might become involved.

35 **5.2.14.1 Proposed Management**

36 Natural resources law enforcement is a required element of INRMPs by law; however, a specific
37 project is not necessary since the function is performed entirely by other agencies. However, it is
38 appropriate to list the goal and objective for natural resources-related enforcement on 88th RD lands.

39 **Goal.** Assure legal compliance of military and civilian activities with regard to natural and cultural
40 resources on 88th RD lands.

1 **Objective.** If required, support enforcement agencies with regard to natural resources enforcement
2 on 88th RD Lands

3 **5.2.15 National Environmental Policy Act (NEPA) Implementation**

4 The National Environmental Policy Act (NEPA) of 1969 requires a federal agency to consider every
5 significant aspect of all environmental impacts for a proposed action. The U.S. Army codified the
6 implementation of NEPA in 32 Code of Federal Regulations (CFR), Part 651; Environmental Analysis
7 of Army Actions; Final Rule, March 29, 2002. The regulation requires the Army to identify significant
8 impacts from proposed actions and to incorporate that information into the decision-making process
9 for implementation of the proposed action. The regulation identifies the screening process and criteria
10 for determining a significant impact and provides the hierarchy for the documentation of the impact
11 analysis.

12 The 88th RD Environmental Division is responsible for ensuring that the appropriate level of NEPA
13 analysis and documentation is provided for projects, training missions, and other proposed actions.
14 The process of reviewing and preparing NEPA documentation often involves direct coordination with
15 various natural resources partners.

16 In 32 CFR, Part 651.33, the regulation lists the INRMP as a plan that normally requires and EA to
17 document the analysis of impacts for all of the proposed actions discussed in the INRMP. Once an
18 Environmental Assessment (EA) has been prepared for an INRMP, natural resources activities may
19 be categorically excluded in accordance with 32 CFR 651.29 and 32 CFR Appendix B to Part 651 (d)
20 and documented by a record of environmental consideration (REC), (if required) which tiers off the
21 broader analysis of the EA.

22 In accordance with NEPA, a Programmatic EA was completed for the 2024-2028 USFWS Region 3
23 INRMP Update (Appendix G).

24 **5.2.16 Pest Management (IPMP)**

25 The 88th RD has prepared and implemented an Integrated Pest Management Plan (IPMP). Plans
26 are reviewed and updated annually (IPMPUP). The IPMP is to be used as a tool to control pests,
27 reduce reliance on pesticides, enhance environmental protection, maximize the use of integrated
28 pest management techniques, and minimize cost and risk. This plan applies to all activities and
29 individuals working, residing at, or otherwise doing business for the 88th RD. The Plan identifies
30 elements of the program responsibilities, including, human health and safety, environmental
31 sensitivities, pest identification, pest management, and pesticide storage, transportation, use, and
32 disposal. Pest management programs on Army lands are regulated via AR 200-5 (Department of
33 Army, 1999), which includes the Sikes Act, EO 13112, DOD I 4715.3, AND 21 MAR 97, Memo from
34 ASCIM, Federal Insecticide, Fungicide, and Rodenticide ACT- 40 CFR 152, 7 USC 136, and DODI
35 4150.7.

36 **Insects**

37 Insect pests can be a general nuisance, carry diseases and/or viruses, and/or pose a threat to
38 habitats and plant community composition and diversity. Examples of insect pests applicable to 88th
39 RD sites include (but are not limited to) mosquitos, ticks, emerald ash borer (*Agrilus Planipennis*),
40 Japanese beetles (*Popillia japonica*), and the elm leaf beetle (*Xanthoglaeruca luteola*). Insect control
41 efforts are not currently anticipated to be necessary on 88th RD lands.

1 **Animals**

2 Animal pests can be a general nuisance, carry diseases and/or viruses, and/or pose a threat to
3 habitats and plant community composition and diversity. Examples of animal pests applicable to 88th
4 RD sites include (but are not limited to) birds, squirrels, rodents, beavers, feral dogs, feral cats,
5 skunks, and opossums. Animal control efforts are not currently required on 88th RD lands in USFWS
6 Region 3.

7 Potential avian nuisance species identified on 88th sites include but are not limited to: European
8 starling (*Sturnus vulgaris*), House sparrow (*Passer domesticus*), rock dove (common pigeon)
9 (*Columba livia*), and swallows (genus *Hirundo*). Starlings, house sparrow, and pigeon are species
10 not covered under the MBTA and removal of nesting material etc. does not require any permits from
11 the USFWS. Swallows, all swallows along with any species of bird that makes a mud nest is protected
12 by the USFWS under the MBTA and any nest disturbing activates or attempts to remove the bird itself
13 from a location requires permits from the USFWS.

14 Detailed information on the avian removal process is available in the 88th's Integrated Pest
15 Management Plan (IPMP).

16 **Viruses**

17 Hantavirus crosses the species boundary from rodent to humans through contact with rodent urine,
18 saliva, or feces. Some strains of Hantaviruses can be fatal in humans. Rodent feces are the primary
19 virus transmission method, control of rats and mice in areas frequented by humans are key for
20 disease prevention.

21 West Nile Virus, a mosquito born Old World virus first detected in the United States in New York City
22 in 1999, has made rapid geographic expansion and has established itself in new areas enzootic each
23 year. There is no documented evidence of person-to-person or animal-to-person transmission of
24 West Nile Virus. There is no reason to destroy any animal that is detected with West Nile Virus.
25 There is no vaccine, and no effective treatments other than general treatment for viruses are
26 recommended.

27 Tick borne diseases are becoming more numerous.
28 <https://www.cdc.gov/ticks/tickbornediseases/index.html>

29 Prevention strategies include reducing numbers of mosquitoes (removing standing water and
30 insecticide spraying) and preventing mosquitoes from biting humans. Persons working on natural
31 resources projects in areas suspected of West Nile Virus should use mosquito repellent and use long-
32 sleeved clothing. Insect repellents with DEET (N, Ndiethyl-3-methylbenzamide) are effective against
33 mosquitoes. Products with at least 50 percent DEET have been proven to be more effective than
34 repellants with lower amounts of DEET and those without any DEET. Permethrin, a product with
35 repellent and insecticide characteristics, has been approved for use by the USEPA and is affective if
36 applied to clothing and other fabrics but should NOT be applied to the skin. The 88th RD Pest
37 Management Plan has more detail on West Nile Virus.

38 **Environmental Considerations**

39 The presence of endangered species or species of concern and their habitat, especially amphibian
40 and invertebrate species, requires that special precautions be followed closely during any pest
41 management activities that could affect these species. Wetlands require special precautions if
42 herbicides are used in their vicinity.
43

1 **5.2.16.1 Proposed Management**

2 **Project: IPMP, IPMPUP** – Integrated Pest Management Plan, update, Invasive Species Management
3 Plans, updates and Implementation, as well as general Pest Management Support

4 **Military Readiness Impact:** Ensure pest management operations mutually protect natural resources,
5 military personnel, equipment, and facilities while enabling military activities.

6 **Justification:** Compliance with Executive Order 13112, EO 13751, Safeguarding the Nation from the
7 Impacts of Invasive Species (2016)

8 **Funding Priority:** Class 0

9 **Project Timing:** **Goal 1 Objective 1** – All Sites

10 **Goal 2 Objective 1** – None present in Region 3;

11 **Regulatory Coordination:** Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as
12 amended, Sikes Act, EO 13751

13 **Goal 1.** Use coordinated planning to fully integrate the 88th RD AOR IPMP program on 88th RD
14 lands.

15 **Objective 1.** Internally review this IPMP annually using project goals and objectives to guide
16 reviews; revise projects and budgets as required.

17 **Objective 2 .** Ensure proper reporting and documentation of the pesticide use is delivered
18 within the month of application to the Pest Management Coordinator.

19 **Goal 2.** Control populations of pest insects, animals, and disease vectors at 88th RD sites to
20 maintain human health standards, prevent the degradation of sites and training lands, and
21 minimize threats to habitats and plant community composition and diversity.

22 **Objective 1.** Monitor and control pest populations at 88th RD sites as needed.

23 **5.2.17 Soils Management and Sediment Control (SLSH20MGT)**

24 Management of soil erosion and sediment runoff is critical to maintaining the functionality of training
25 areas, supporting native vegetation, and protecting water quality. Most states require permits and
26 storm water pollution prevention plans for construction activities that disturb more than one acre of
27 ground.

28 Disturbance of soils and vegetation during training (e.g., excavating force protection structures or
29 frequent use of bivouac sites) creates potential sources of erosion and sedimentation. Improper
30 recovery after digging also contributes to soil degradation. Inversion of soil layers during digging (i.e.,
31 placement of fertile topsoil beneath infertile sub-surface layers) impairs re-vegetation of the recovered
32 area. Eroded soils may restrict use of land by hindering passage of soldiers on foot and in vehicles,
33 potentially leading to closure of training areas for rehabilitation. Erosion that results in runoff of
34 sediment-laden water to streams potentially affects aquatic biota.

35 Guidance in AR 200-1 instructs the Army to:

- 36 • Maintain in water soil erosion within USDA or NRCS soil surveys tolerance limits.
- 37 • Ensure soil sediment in wetlands and waterways is within compliance limits (e.g., Total
38 Maximum Daily Load (TMDLs)).
- 39 • Minimize the potential impact of land use on soil erosion and sedimentation when and
40 where possible to include:
 - 41 ○ locating physically intensive land disturbing activities on the least erodible soils;
42 considering seasonal/climatic variations in soil erosion potential when

- scheduling intensive mission operations and real property management activities;
- o identifying and rehabilitating lands disturbed by operations and real property management activities; and
- o ensuring that turbidity and sediment levels (i.e., from sediment-laden runoff etc.) do not irreparably degrade aquatic biota and habitat from an ecosystem perspective, or significantly impact shallow ground water aquifers.

Many of the 88th RD sites are small and mostly covered with impermeable or semi-impermeable surfaces, the potential for creating bare soil on most sites is minimal. However, awareness of the potential for soil degradation and pro-active management are keys to preventing soil management problems.

Soil conservation and management on 88th RD sites involves the implementation of best management practices (BMPs) commonly recommended by the U.S. Environmental Protection Agency (USEPA), National Pollutant Discharge Elimination System (NPDES). Measures include preventing/minimizing the creation of bare and disturbed soil areas, identifying soil erosion and sedimentation, and restoring areas undergoing or susceptible to erosion and sedimentation.

Disturbed soils and vegetation through anthropogenic or natural causes are stabilized and repaired using methods including seeding, mulching, and applying gravel or geo-textiles. To the extent practicable, installation of semi-permeable surfaces (e.g., gravel) will be preferred over impermeable surface (e.g., asphalt, pavement) to promote natural storm water absorption and drainage.

Soils management and sediment control is primarily accomplished through proper activity review, mission siting, scheduling, identification of soils damage, erosion, and rectification, and where appropriate, working with the lessor or property owner.

5.2.17.1 Proposed Management

Project: SLSH2OMGT - Soils and Water Management
Military Readiness Impact: Maintaining the capability of training lands to support the military mission
Justification: Maintaining the capability of training lands to support the military mission (Sikes Act), compliance with the CWA, stewardship
Funding Priority: Class 0
Project Timing: Objectives 1 through 6 - indefinitely, as needed, in conjunction with PLS
Regulatory Coordination: U.S. Army Corps of Engineers (CWA) where applicable

Goal 1. Ensure protection of all soils on 88th RD lands.

Objective 1. Use soil conditions and inventory data to make decisions regarding land use, restoration options, and wildlife habitat management options. Identify soil types and their erosion potential/tolerance levels on 88th RD sites.

Objective 2. Monitor 88th RD lands periodically for erosion and effects of erosion control; locate erosion sites for implementation of appropriate erosion control. Develop and implement Soil Erosion and Sediment Control Component Plans when needed.

Objective 3. Avoid/minimize disturbance to the ground on 88th RD sites that results in bare soil and potential erosion. Use appropriate erosion and sedimentation control BMPs during all soil disturbing activities. Ensure proper activity review, mission siting, scheduling, and approval of military operations on 88th RD lands to minimize any potential soil damage or future erosion.

1 **Objective 4.** Inspect LTAs after military operations to identify and rectify soil disturbances in a
2 timely manner.

3 **Objective 5.** Ensure that graded and disturbed areas on 88th RD lands are revegetated with
4 native species as needed to maintain soil integrity and prevent erosion.

5 **Objective 6.** Create a layer in the GIS database that identifies highly erodible soils at each
6 site. Create a separate layer that identifies existing erosion problems.

7 **5.2.18 Water Resources Management (SLSH2OMGT)**

8 Groundwater monitoring and drinking water management are not part of the Natural
9 Resources/Conservation responsibilities within the Army and thus are not covered in this INRMP.
10 Surface waters are minimal on 88th RD lands, and there is generally no reason to suspect that water
11 quality parameters in these waters are other than normal for these types of water bodies.

12 Conduct soil and water resources management on 88th RD training land maneuver areas to include
13 preventing or controlling sedimentation, beach or stream bank erosion if not attributable to maneuver
14 damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the
15 lack of maintenance to real property. Control BMPs may include actions taken to prevent and remedy
16 naturally occurring erosion (not caused by maneuver damage or improperly maintained real property)
17 such as planting ground cover and stabilizing erosion prone areas to surface water quality.

18 AR 200-1, *Environmental Protection and Enhancement*, (Department of the Army, 2007) establishes
19 the following objectives for water resources on Army lands:

- 20 • Conserve all water resources.
- 21 • Control or eliminate sources of pollution to surface or ground waters through conventional or
22 innovative treatment systems.
- 23 • Demonstrate leadership in attaining the national goal of zero discharge of water pollutants.
- 24 • Provide drinking water that meets applicable standards.
- 25 • Cooperate with federal, state, and local regulatory authorities in forming and implementing
26 water pollution control plans.
- 27 • Control or eliminate runoff and erosion through sound vegetative and land management
28 practices.
- 29 • Consider nonpoint source pollution abatement in all construction, installation operations, and
30 land management plans and activities.
- 31 • The objectives below are general to other projects, and they do not require funding beyond
32 what is associated with the original project. Thus, a specific project for the use of water quality
33 information for project decisions is not required. However, the below goal and objectives are
34 appropriate to list.

35 **5.2.18.1 Proposed Management**

36 **Project:** SLSH2OMGT – Soils and Water Management

37 **Military Readiness Impact:** Maintaining the capability of training lands to support the military
38 mission.

39 **Justification:** Clean Water Act, stewardship

40 **Funding Priority:** Class 0

1 **Project Timing:** No projects planned.

2 **Regulatory Coordination:** Handled by Department of Public Works and Department of Training

3 **Goal 1.** Soil and water resources management to protect surface water quality and prevent and
4 remedy naturally occurring erosion on 88th RD lands.

5 **Objective 1.** Control or eliminate runoff and erosion that could affect surface waters.

6 **Objective 2.** Consider non-point source pollution abatement in construction, operations, and land
7 management plans and activities.

8 **Objective 3.** Use site-specific water testing for natural resources and other programs as needed
9 during the next five years.

10 **Objective 4.** Use water related PLS inventory data to make decisions regarding land use,
11 restoration options, and fish and wildlife habitat management options.
12

13 5.2.19 Wetlands Management (WTLNDSRVY, WTLNDSRVYUP, WTLNDRESTR)

14 The U.S. Congress enacted the Clean Water Act to *restore and maintain the chemical,*
15 *physical, and biological integrity of the Nation's waters.* Section 404 of the Clean Water Act
16 delegates jurisdictional authority over wetlands to the USACE and the USEPA. Waters of the
17 United States protected by the Clean Water Act include rivers, streams, estuaries, and most
18 ponds, lakes, and wetlands. In general terms, wetlands are lands where saturation with water
19 is the dominant factor determining the nature of soil development and the types of plant and
20 animal communities living in the soil and on its surface.

21 The USACE and USEPA jointly define wetlands as *areas that are inundated or saturated by*
22 *surface or ground water at a frequency and duration sufficient to support, and that under*
23 *normal circumstances do support, a prevalence of vegetation typically adapted for life in*
24 *saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar*
25 *areas.*

26 Services provided by wetlands include, but are not limited to: groundwater recharge,
27 groundwater discharge, flood flow alteration/water retention, sediment stabilization, sediment
28 or toxicant retention, nutrient removal or transformation, production export, wildlife
29 diversity/abundance, aquatic diversity/abundance, uniqueness/heritage, and recreation.

30 EO 11990, *Protection of Wetlands* (1977) and the Clean Water Act (1977) require no wetland
31 losses on federal lands in the United States. Wetlands on each parcel of land are small and
32 scattered. Although small, these areas are essential to the survival or well-being of many
33 wildlife species. The quality of wetland watersheds affects the quality of wetland plant and
34 animal communities. Protection and maintenance of existing wetlands are the primary thrust
35 of wetland management on 88th RD lands. The 88th RD's management policy is that none
36 of its actions will have an adverse effect on wetlands, either on properties that it owns or on
37 those upon which it trains.

38 The Clean Water Act (1977), Section 404, requires that a permit be obtained for any activity
39 that may affect *waters of the United States, including wetlands.* The U.S. Army Corps of
40 Engineers (USACE) has the primary responsibility for administering the Section 404
41 permitting process. Activities in wetlands that require federal permits include but are not
42 limited to drainage, interception of water, placement of fill material, ditching activities when
43 the excavated material is side cast, mechanized land clearing, land leveling, most road
44 construction, and dam construction. The USACE permit process requires coordination with

1 the USFWS and SHPO to assess potential impacts to waters of the U.S., protected species,
2 and cultural resources, respectively.

3 Environmental review is the primary means of detecting threats to wetlands on 88th RD lands.
4 If necessary, projects with potential impacts would be referred to the Corps of Engineers to
5 determine if jurisdictional wetlands are implicated, establish mitigation procedures, and/or
6 obtain permits. Wetland-affecting projects require NEPA documentation per 32 CFR Part 651
7 – Environmental Analysis of Army Actions.

8 Wetland Restoration - Wetlands within the 88th RD's AOR that have been identified as having
9 reduced or compromised hydrologic function and/or ecological integrity may be subject to
10 restoration efforts. Restoration of compromised functioning wetlands have been incorporated
11 in the applicable INRMPS.

12 **5.2.19.1 Proposed Management**

13 **Project:** WTLNDSRVY, WTLNDSRVYUP, WTLNDRESTR – Wetlands Surveys, Updates, and
14 Restoration

15 **Military Readiness Impact:** Prevents and mitigates applicable wetland related compliance impacts
16 on military activities (e.g., limiting access to training lands due to a lack of considering impacts on
17 wetlands).

18 **Justification:** Compliance with 33 USC 1251-1387, Clean Water Act (1977), EO 11990 Protection
19 of Wetlands (1977), stewardship, AR-200-1

20 **Funding Priority:** Class 0

21 **Project Timing:** All objectives – ongoing indefinitely, in conjunction with PLS

22 **Regulatory Coordination:** USACE (CWA objectives)

23 **Goal 1.** Where applicable and in conjunction with lessors, establish and maintain a baseline
24 database of wetland resources on 88th RD lands.

25 **Objective 1.** Use site-specific surveys to evaluate wetland resources, including jurisdictional
26 status, if any wetland impacts are proposed.

27 **Objective 2.** Map wetlands at 88th RD sites and enter data into GIS databases.

28 **Goal 2.** Manage wetlands to ensure *no net loss*, per Executive Order 11990.

29 **Objective 1.** Use the environmental review process to protect wetlands.

30 **Objective 2.** Provide certified jurisdictional wetland delineation (and permit application, if
31 necessary) if a project is planned in a suspected wetland.

32 **Objective 3:** Wetland delineations shall be updated no more frequently than every 5-years,
33 unless mission objectives require updates sooner.

34 **Objective 4:** Wetlands within the 88th RD's AOR that have been identified as having reduced
35 or compromised hydrologic function and/or ecological integrity may be subject to restoration
36 efforts.

37 **Goal 3.** Wetland delineations will be updated no more than every 5 years, or as project planning
38 requires.

1 **5.2.20 Wildland Fire Management (WLD FIREPLN, WLD FIREPLNUP,**
2 **WLD FIREPLNIMPL)**

3 The 88th RD recognizes the importance of having plans in place for preventing and suppressing
4 wildland fires and for implementing site-specific application of prescribed burns for broader
5 ecosystem management goals.

6 Fire is a natural component of many ecosystems in the United States. Among other ecosystem
7 functions, fire can recycle nutrients that might otherwise be trapped for long periods in the dead
8 organic matter that exists in many environments because of the slow rates of decay. Fire can also
9 stimulate the growth and survival of fire-dependent species by providing the specific site conditions,
10 including seed release, soil, light, and nutrients, that are critical for reproduction.

11 **Integrated Wildland Fire Management Plan (IWFMP)** Installations characterized by unimproved
12 grounds that present a wildfire hazard and/or installations that utilize prescribed fire as a land
13 management tool are required to develop an IWFMP IAW AR 200-1 and AR 420-1. Installations that
14 do not utilize prescribed fire may be waived from the requirement to develop an IWFMP if they can
15 demonstrate minimal wildfire hazard exists at the installation.

16 Wildland fire management is an ongoing initiative for the 88thRD. It is important that plans are in
17 place for preventing and suppressing wildland fires and for implementing site-specific application of
18 prescribed burns for broader ecosystem management goals. Integrated Wildland Fire Management
19 Plans (IWFMPs) that are compliant and integral with the INRMP, the installations' existing fire and
20 emergency services program plan(s), and the 2020-2025 ICRMP were developed for the affected
21 LTAs.

22 The 88th RD recognizes and will comply with the 15 March 2021 revised Wildland Fire Guidance
23 Memorandum: "**Army Installation Wildland Fire Program Implementation Guidance**". Wildland
24 fire management is an ongoing or planned initiative at locations where prescribed burns are planned.
25 These are:

- 26 • Joliet ARC/JTA (IL079/17896)
- 27 • Laporte Co Veterans ARC (IN023/18740)
- 28 • Belton ARC (MO003/29880)
- 29 • Weldon Spring ARC (MO041/29985)

30 Currently, Fire Management plans exist for these locations. A request for exemption to the plans and
31 reoccurring evaluations requirement for all 88th RD sites is at USARC ARIMD for coordination with
32 Army G-9. Assessments in accordance with the Guidance have identified all 88th RD sites as low
33 risk for wildland fires. Additionally, all prescribed burns on 88th RD land is accomplished via trained
34 and certified contractors that comply with all requirements within the Army Guidance. The SOW for
35 these prescribed fires has been reviewed by Army Wildland Fire experts and Army G-9. The 88th
36 RD has no internal capability to perform prescribed burns or emergency fire response.

37 **5.2.20.1 Proposed Management**

38 **Project:** WLD FIREPLN, WLD FIREPLNUP, WLD FIREPLNIMPL - Wildland Fire Management
39 Plans, Updates, and Implementation

40 **Military Readiness Impact:** Maintain access to sites and training lands for military purposes.

41 **Justification:** Maintaining the capability of training lands to support the military mission (Sikes
42 Act); compliance with the ESA and other wildlife-oriented laws; stewardship

43 **Funding Priority:** Class 0

44 **Project Timing:**

1 **Goal 1: Objectives 1 – 3** - As required

2 **Objective 4** - Reevaluations every 5 years

3 **Goal 2:** all objectives – Ongoing or as needed

4 **Goal 3: Objective 1 – When appropriate, annually update wildland fire management**
5 **plans.**

6 **Objective 2** – As appropriate based on availability of funding and
7 burn cycle management.

8 **Objective 3** – Annually, when appropriate.

9 **Objective 4** – As needed

10 **Regulatory Coordination:** Local community for burn permits when conducting
11 prescribed burns.

12 **Goal 1.** Ensure appropriate facility evaluation using the Army Installation Wildland Fire Program
13 Implementation Guidance checklist.

14 **Objective 1:** Commands are to send a written waiver request along with justification as
15 documented on this determination checklist to Deputy Chief of Staff, G-9 Installation Services,
16 Environmental Division (DAIN-ISE) Wildland Fire Program POC.

17 **Objective 2:** Upon request approval, DAIN-ISE will provide a documented IWFMP
18 requirement waiver to the Command. Installation and Command will keep a copy of the waiver
19 on file.

20 **Objective 3:** Installations waived from IWFMP development will subsequently be removed
21 from annual wildland fire reporting requirements within the Environmental Quality Reporting
22 (EQR) survey structure.

23 **Objective 4:** Sites granted a IWFMP waiver should be re-evaluated every five years to ensure
24 no changes to hazards and risks at the site.

25 **Goal 2.** Prevent and suppress wildfires to protect the quality of military lands and maintain
26 ecosystem biodiversity and military functionality.

27 **Objective 1.** Suppress wildfires as soon as possible, unless areas are scheduled for
28 prescribed burning.

29 **Objective 2.** Ensure that firebreaks are properly maintained.

30 **Goal 3.** Implement a contracted prescribed burning program to maintain and enhance military
31 mission capabilities and enhance ecosystem biodiversity and functionality on 88th RD land.

32 **Objective 1.** Develop and implement IWFMPs for sites that have acreage in which ecosystem
33 management with prescribed fire is feasible.

34 **Objective 2.** Implement the prescribed burning program to attain acreage goals for burning,
35 as a major component of the grassland restoration program, and to remove exotic species
36 and control woody vegetation encroachment at each 88th RD site.

37 **Objective 3.** Secure burn permits for each 88th RD site as necessary.

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5.3 Management Objectives - High Resource Sites

This section presents management objectives for each identified 88th RD owned or leased high resource site in USFWS Region 3. Projects are described with goal(s)-objective(s) identified to provide process descriptions that are compatible with adaptive management analyses and overall INRMP implementation monitoring processes. A detailed description of the Goals and Objectives are provided in Section 5.2 Common Management Actions. Projects planned for outyears can be found in Appendix C.

1 **5.3.1 Parkhurst ARC/OMS/DS (IL001/17812)**

2 **5.3.1.1 Management Issue – Invasive Species Management**

3 Management concerns identified in the 2020 NRSRVYUP included:

- 4 • Removing invasive plant species that occur onsite (e.g., planted common buckthorn bushes) and
5 replacing with comparable native species.
- 6 • Controlling the spread of invasive species that occur along the margins of the facility’s boundaries,
7 specifically smooth brome grasses observed in the northern portion of the facility.
- 8 • Coordinating with Waterfall Glen Forest Preserve to control the dense coverage of common
9 buckthorn growing just beyond the facility’s boundary to the south.

10 **Proposed Management** – Section 5.2.13 Invasive Species Management – Applicable Goals and
11 Objectives; Goal 1, Objectives 1, 4 – 6. Additionally, Section 5.2.16 Pest Management – Applicable
12 Goals and Objectives: Goal 1, Objectives 1 & 2 and Goal 2, Objective 1.

13 **5.3.1.2 Management Issue – Federal / State Listed Species**

14 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the
15 official USFWS status over the coming 5-years, and should it become listed evaluate as per USFWS
16 protocol.

17 **Proposed Management** – Section 5.2.5 Federal / State Listed Species – Applicable Goals and
18 Objectives: Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 1 and
19 2.

20 **5.3.1.3 Management Issue – Wetlands Management**

21 The drainage ditch located in the southern portion of IL001/17812 meets the criteria of a wetland.
22 Since the area was constructed as a stormwater detention area, it is not likely that the area is
23 jurisdictional as long as stormwater is still directed to the ditch and detained there. Jurisdictional
24 status should be confirmed prior to any activities that may affect it. Where practicable, impacts to this
25 area should be avoided. Unavoidable impacts will be assessed and properly mitigated.

26 **Proposed Management:** Section 5.2.19 - Wetlands Management - Applicable Goals and
27 Objectives: Goal 1, Objectives 1&2, Goal 2, Objectives 1 – 3 and 4 as needed and Goal 3.

1 **5.3.2 Joliet ARC/JTA (IL079/17896)**

2 IL079/17896 spans 3,580 acres and contains substantial natural resources (Jackson Creek, floodplains,
3 wetlands, grassland, prairie, and deciduous forest), with land used for training, habitat, and outdoor
4 recreation (hunting). The site has a site-specific Invasive Species Management Plan (ISMP).

5 **5.3.2.1 Management Issue – Agricultural Leases**

6 Currently there are no Agricultural out-leasing programs within USFWS Region 3.

7 **Proposed Management:** Section 5.2.1 – Agricultural Leases - Applicable Goals and Objectives:
8 None at the time of this publication

9 **5.3.2.2 Management Issue – Cultural Resources**

10 The mission of the 88th RD Cultural Resources Program (CRP) is to facilitate compliance with
11 applicable legal requirements to maintain the availability of Army Reserve owned, leased, and
12 permitted buildings and lands necessary to sustain a state of combat readiness. Cultural resource
13 projects may be found in the State appropriate Integrated Cultural Resource Management Plan
14 (ICRMP)

15 **Proposed Management:** Section 5.2.4 – Cultural Resources Protection - Applicable Goals and
16 Objectives: Goal 1, and Goal 2, Objectives 1 - 5

17 **5.3.2.3 Management Issue – Federal / State Listed Species (Army Species at
18 Risk) & Risk Management**

19 The federal ESA of 1973, as amended (Act) requires lands under the jurisdiction of the Department
20 of the Army to conserve listed species. As defined in the Act, conservation is the use of all methods
21 and procedures necessary to bring any listed species to the point where protections provided by the
22 Act are no longer necessary. Section 7 of the Act requires the Army to consult and confer with the
23 USFWS if any action by the Army may affect a listed species or critical habitat.

24 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species, currently and will likely
25 be listed within the upcoming 5-year cycle; therefore, endangered species surveys and endangered
26 species management plans may be required during this INRMPS tenure.

27 The following species have not been identified as on site; however, favorable habitat conditions have
28 been identified and therefor the potential for them to be on the JTA LTA exists:

29 Eastern Prairie fringed orchid	<i>Platanthera leucophaea</i> (Nutt.) Lindl.) - Potential 30 Habitat (Last survey 2008)
31 Leafy prairie clover	<i>Dalea foliosa</i> - Potential suitable habitat. Never 32 surveyed.
33 Lakeside Daisey	<i>Hymenoxys herbaca</i> - Potential suitable habitat. Never 34 surveyed.
35 Hine's emerald dragonflies	<i>Somatochlora hineana</i> (Last survey 2005)
36 Northern Long-eared bat	<i>Myotis septentrionalis</i> (Last Survey 2020)
37 Indiana bat	<i>Myotis sodalist</i> (Last Survey 2020)

1 Eastern massasauga *Sistrurus catenatus* (Never surveyed)

2 In FY23 the 88th RD received funding to survey for the following endangered on JTA where on-site
3 potential habitat does exist: Leafy prairie clover (*Dalea foliosa*), Hine's emerald dragonfly
4 (*Somatochlora hineana*) and Northern Long-eared bat (*Myotis septentrionalis*). Should any of the
5 above listed species be discovered as the site an endangered species management plan may be
6 required as per USFWS directive.

7 The results of the 2020 USFWS approved presence/absence surveys for the NLEB and Indiana bat
8 supports the determination that they are not present on JTA.

9 **Proposed Management:** Section 5.2.5 – Federal/State Listed Species (Army Species at Risk) &
10 Risk Management - Applicable Goals and Objectives: Goal 1, Objectives 1 – 5; Goal 2, Objectives 1
11 -3; Goal 3 Obj. 1 – 2, Goal 4 when applicable.

12 5.3.2.4 Management Issue - Forestry

13 Maintain, restore, and manage forest lands using ecosystem-based management that prioritizes
14 mission and secondarily generates revenue.

15 Forest management activities include timber stand improvement, prescribed burns, oak forest
16 plantings, a firewood cutting program, and a selective timber harvesting program. Areas of mature
17 oak forest within each of the seven training areas of the JTA have been treated through timber stand
18 improvement methods. Undesirable tree/shrub species (e.g., hawthorn, common buckthorn, and
19 Russian olive) have been shredded and bulldozed in scattered areas throughout TA 1, TA 2, TA 3
20 TA 4, TA 5 North and TA 5 South. Goals of the forestry program include:

- 21 • Supporting JTA's training and mobilization requirements
- 22 • Incorporating ecosystem management principles into management of the forest resources
- 23 • Monitoring non-native pests
- 24 • Providing for other multiple uses of the forest resources, such as outdoor recreation, hunting,
25 wildlife habitat, soil erosion protection, watershed protection, clean air and noise abatement

26 The conversion of oak/hickory upland and floodplain forests to monotypic stands of sugar maple and
27 the invasion of exotic species are concerns relevant to both forestry and wildlife. Mast producing
28 trees serve a vital role in supporting the dietary requirements of wildlife and providing nesting habitat
29 for several species of neotropical birds, such as the cerulean warbler (*Dendroica cerulea*) and the
30 red-eyed vireo. Arsenal Road Woods (TA 3) and Cantigny Woods (TA 4) are the only remaining
31 remnants of the original forest. Preserving these areas through prescribed burns, timber stand
32 improvement and selective harvesting of mature trees is the top priority of the JTA Forest
33 Management Program. Management recommendations to promote recovery of upland and floodplain
34 forests within the JTA include:

- 35 • Increase prescribed burning activities in these areas, which will control the spread of fire
36 intolerant tree species (e.g., sugar maple) and invasive species (e.g., garlic mustard, multiflora
37 rose).
- 38 • Continue timber stand improvement projects. These projects reduce the sugar maple
39 understory and increase oak regeneration.
- 40 • Continue the selective harvesting program.
- 41 • Plant oak seedlings in treated areas.
- 42 • Use funds generated from the selective harvesting program to plant seedlings in designated
43 oak forest restoration areas within TA 4.

- Restore upland forest areas.

Monotypic stands of hawthorn reduce biodiversity; these areas should be returned to their original upland forest or prairie community types. Dense stands of hawthorn limit foot traffic and prohibit vehicular maneuvers necessary for the military training. Management recommendations to combat establishment of hawthorn thickets within the JTA include:

- Continue to treat hawthorn thickets with mechanical methods.
- Plant areas adjacent to existing upland forest with oak seedlings, thereby expanding the upland forest community.

The site Forestry Management Plan (FMP) should be implemented to meet forest management goals outlined for the site. The FMP establishes objectives to meet forest management goals and Desired Future Conditions in each of the four Training Areas present at IL079. The Desired Future Condition describes the forest structure and ecosystem components that will characterize the final state of management units outlined in the FMP. Management actions in the FMP include prescribed burning, thinning, and conducting follow up surveys to determine additional actions needed.

Proposed Management: Section 5.2.7 – Forestry Management - Applicable Goals and Objectives: Goal 1, Objectives 1 - 8

5.3.2.5 Management Issue – Ecosystem Management

The purpose of habitat management is to improve wildlife populations by managing resources (habitat) upon which they depend. This means, while considering military training and maintenance requirements, evaluating the desirable species access to food, cover, and/or water. Wildlife and habitat management requires analysis of ecological functions utilization and landscape level planning to adjust limiting factors and promote priority endemic species. Species management priorities are based on conservation needs as defined by global, regional, and local abundance; distribution and threats; population trends; importance of areas to species; potential for population and/or habitat management; and human interests.

The JTA maintains a comprehensive wildlife management program. Goals of this program include:

- Managing species diversity,
- Maintaining healthy, viable wildlife populations, and
- Improving, maintaining and restoring habitat quality.

Sampling of Joliet LTA's Jackson Creek provides benthic invertebrate/macroinvertebrate densities and species diversity through monitoring and data trend analysis. Benthic invertebrate / macroinvertebrate sampling is accomplished to monitor the quality of water flowing into and departing the installation which provides technical data to monitor overall health of the stream ecosystem which is essential to protect continued access to the stream and surrounding lands for military training.

The following management recommendations were presented in the previous INRMP for the JTA. Many of these recommendations mirror the ongoing recommendations of the grassland and avian survey reports, and are still applicable:

- Protect and restore areas where native prairie species are found.
- Special attention and effort will be made to maintain the dolomite prairie found in TA 1, due to the rarity of this community type in the Chicago region as well as the entire United States.

- Re-establish the fine-textured soil grassland areas that originally existed in TA 2, TA 5 North, TA 5 South, and TA 6. Special emphasis should be given to TA 2 and TA 6, which span more than 1,400 acres and represent one of the largest contiguous grassland areas remaining in the Greater Chicago region.
- Control or eradicate invasive species wherever possible.
- Remove hedge rows. Studies have shown that certain species of grassland birds are less apt to use fragmented grasslands.
- Remove encroaching stands of hawthorn.
- Increase prescribed burning operations, particularly within TA 2, despite the challenges presented by the increase in truck traffic on Arsenal and Baseline Roads in recent years.
- During the initial planting phase of prairie restoration sites, use a diverse plant mix including forbs and short-stature grasses. Thus, a prevalence of monotypic community-forming tall stature prairie grasses is not encouraged.
- Diversify crop plantings to enhance available brows for desired game species to include a higher proportion of native perennial species.
- Periodic fish survey sampling of Joliet LTA's Jackson creek to include monitoring and data trend analysis. Fish survey sampling is accomplished on a 5-year cycle to monitor the health and diversity of fish in Jackson Creek which, along with the Macroinvertebrate survey are indicators of the overall health of the stream ecosystem which is essential to protect continued access to the stream for military training.

Proposed Management: Section 5.2.6 – Ecosystem Management - Applicable Goals and Objectives: Goal 1, Objective 1; Goal 2, Objectives 1 – 2; Goal 3, Objectives 1 – 3.

Jackson Creek has been identified by the state of Illinois as a creek with exceptionally good water quality, and to ensure that the activities that takes place on JTA are not negatively impacting the water quality the 88th RD has monitored the water quality through regularly sampling its benthic organisms over an extended period of time beginning in 2000, with an ongoing monitoring program. Benthic organisms are indicator species that indicate water quality. Twenty years of data indicate that the water quality has remained stable and is of good quality, supporting a wide variety of benthic organisms.

Monitor the Jackson Creek benthic organisms on a regular cycle to ensure water quality entering, exiting and within the LTA.

Proposed Management: Section 5.2.6 – Ecosystem Management -Goal 1, Objective 1.

5.3.2.6 Management Issue - Grounds Management Support

The Grounds Maintenance Program ensures that the grounds maintenance contractor properly maintains grounds in developed areas, along rights-of-way, and other selected areas according to contract specifications. The FOS directs the operation of the Grounds Maintenance Program in the cantonment area. Vegetation is controlled in the training areas and on ranges by the JTA Biologist and Range Control to provide a safe area for training. Vegetation is maintained so that it does not grow unchecked, thereby preventing fire hazards, eliminating refuge for insects, reducing rodent habitat, and controlling noxious weeds.

Manage natural resources in urban portions of its sites, the 88th RD acknowledges its responsibilities as listed in E.O. 13112, *Invasive Species*, White House Memorandum, *Environmentally and*

1 *Economically Beneficial Practices on Federal Landscaped Grounds, and CEQ Guidance for Federal*
2 *Agencies on Sustainable Practices for Designed Landscapes.*

3 The memorandum's requirements include:

- 4 • using regionally native plants for landscaping
- 5 • using construction practices that minimize adverse effects on the natural habitat
- 6 • reduce pollution by reducing the use of fertilizer and pesticides, using IPM, recycling green
7 waste, and minimizing run-off
- 8 • implementing water-efficient practices

9 ***Proposed Management:*** *Section 5.2.8 - Grounds Management Support- Applicable Goals and*
10 *Objectives – Goal 1, Objectives 1-4*

11 **5.3.2.7 Management Issue - Hunting Program Implementation**

12 The projected site-specific requirements for the JTA hunting program include maintenance of the
13 hunting program to provide sound wildlife management and conservation practices, and game
14 species population control.

15 ***Proposed Management:*** *Section 5.2.9 - Hunting Program Implementation - Applicable Goals and*
16 *Objectives: Goal 1, Objectives 1 – 6; Goal 2, Objectives 1 – 3.*

17 **5.3.2.8 Management Issue – INRMP Natural Resource Survey / Updates**

18 Natural Resource Surveys and Updates (NRSRVY and NRSRVYUP) a/k/a Planning level surveys
19 (PLS) and data analysis are the foundation for effective planning and decision-making. NRSRVYs
20 are reviewed and updated when necessary, on a 5-year cycle to support the INRMP update.

21 Aerial Deer Survey. Annual requirement but is only conducted when conditions allow (snow on the
22 ground). This enables proper management of the herd.

23 ***Proposed Management:*** *Section 5.2.10 - Integrated Natural Resources Management Planning -*
24 *Applicable Goals and Objectives: Goal 1, Objective 3 - 4*

25 **5.3.2.9 Management Issue - Integrated Training Area Management**

26 Currently, the ITAM program has no presence on 88th RD properties; however, sources within the
27 88th RD DPW indicate that negotiations are underway to initiate the program at 88th RD LTA facilities
28 in FY24 and JTA may be the plot program.

29 ***Proposed Management:*** *Section 5.2.11 - Integrated Training Area Management – Possible*
30 *applicable Goals and Objectives: Goal 1, Objectives 1 & 2.*

31 **5.3.2.10 Management Issue – Invasive Species**

32 The Invasive Species Management Plans (ISMP) compile data regarding species extent,
33 composition, and treatment options / priorities. Species addressed may include those that pose a
34 health and safety risk, those regulated by the USDA due to potential to impact the economy, along
35 with state and federal lists identifying noxious invasive species are consulted. Implementation of the
36 ISMP expands access to training lands and supports biodiversity. A complete list from the 2021
37 NRSRVUUP is included in the Joliet ARC/LTA Facility Profile Section 3.9.7 Management Concerns.

1 **Proposed Management** – Section 5.2.12 Invasive Species Management – Applicable Goals and
2 Objectives - Goal 1, Objectives 1, 4 – 6. Additionally, Section 4.2.15 Pest Management –
3 Applicable Goals and Objectives: Goal 1 Objectives 1 & 2 and Goal 2 Objective 1. Section 5.2.20
4 Wildfire Management - Applicable Goals and Objectives: Goal 3, Objectives 1-3.

5 **5.3.2.11 Management Issues - Migratory Bird Management**

6 Migratory bird assessments required to identify and document occurrence of birds protected under
7 the Migratory Bird Treaty Act (MBTA). Surveys planned every three years for several years to
8 establish some trend data to determine if migratory bird populations are stable, increasing, or
9 declining to ensure compliance.

10 The JTA contains one of the last remaining large old field communities in the region and provides
11 critical breeding habitat for seven obligate grassland bird species. The 88th RD is continuing a long-
12 term monitoring program at JTA for neotropical birds, in which trends in fall and spring migrations are
13 examined. In this monitoring program, avian point counts and surveys of active nests are conducted
14 at permanently established census points and transects in the summer months.

15 At the Joliet LTA, avian point count surveys have been conducted from 2001 through 2009 and in
16 2017 and 2021. From 2001 through 2009, 106-point count locations were surveyed. In 2017, the
17 point count survey locations were increased to 232-point count locations. In 2021, the same 232-
18 point count locations were surveyed. For most species observed, mean incidence and mean
19 abundance increased in 2021 compared to 2017 and to previous years. This includes a number of
20 grassland indicator avian species. However, some species have dramatically declined in abundance
21 and incidence since 2001, such as the Eastern bluebird. Species such as the Eastern bluebird rely
22 upon clumps of mature trees proximate to areas with little to no understory or sparse ground cover.
23 This habitat has greatly decreased across much of the Midwest including areas proximate to the Joliet
24 LTA. This decline in species is reflective of population trends in Illinois, as well as North America.
25 Providing suitable housing for the Bluebird population may assist in population increases across JTA.

26 **Avian Knowledge Network**

27 As per the 2022 DoD Memorandum from the Office of the Assistant Secretary of Defense, Mr. Richard
28 G. Kidd (signed 06DEC2022) SUBJECT: Department of Defense Avial Knowledge Network Program;
29 “. . . DoD has established a Memorandum of Understanding with the U.S. Fish and Wildlife Service
30 outlining the management and stewardship activities DoD will implement for migratory bird
31 conservation. All DoD natural resources conservation programs support DoD access to its land, air,
32 and water resources for realistic military training and testing and to sustain the long-term ecological
33 integrity of the resource base and the ecosystem services it provides, in accordance with the Sikes
34 Act. Collecting data and information from ongoing surveys, inventories, and monitoring are essential
35 to make informed management decisions, efficiently and effectively meet regulatory requirements
36 (e.g., the MBTA, the Sikes Act), conduct environmental analyses, and support planning to adaptively
37 manage migratory bird populations in the context of mission activities.

38 “To address these challenges, DoD began partnering with other federal agencies (i.e., U.S. Fish and
39 Wildlife Service, Bureau of Land Management, U.S. Forest Service) in the development of the Avian
40 Knowledge Network (AKN) in 2016. The AKN is a national clearinghouse for avian data and decision
41 support tool for assessing bird population health, status and trends, specific stressors, and
42 conservation measures. The AKN connects partner datasets, includes metadata and data
43 assumptions, contains powerful data analysis tools, and is a permanent archive of all data records.”

44 **Proposed Management:** Section 5.2.13 - Migratory Bird Management - Applicable Goals and
45 Objectives: Goal 1, Objectives 1 - 6

1 **5.3.2.12 Management Issues - National Environmental Policy Act**

2 The 88th RD Environmental Division is responsible for ensuring that the appropriate level of NEPA
3 analysis and documentation is provided for projects, training missions, and other proposed actions.
4 The process of reviewing and preparing NEPA documentation often involves direct coordination with
5 various natural resources partners.

6 The regulation requires the Army to identify significant impacts from proposed actions and to
7 incorporate that information into the decision-making process for implementation of the proposed
8 action. The regulation identifies the screening process and criteria for determining a significant impact
9 and provides the hierarchy for the documentation of the impact analysis.

10 **Proposed Management:** Section 5.2.14 - National Environmental Policy Act (NEPA)
11 *Implementation - Applicable Goals and Objectives: Contingent upon need*

12 **5.3.2.13 Management Issue – Pest Management/Invasive Species Management**

13 The 88th RD has prepared and implemented an Integrated Pest Management Plan (IPMP). IPMPs
14 are reviewed and updated annually (IPMPUP). The IPMP provides the necessary documentation
15 and guidance which is the foundational reference tool for consultation on mechanisms and
16 procedures for controlling pests, reducing reliance on pesticides, enhancing environmental
17 protection, maximizing the use of integrated pest management techniques, and minimizing cost and
18 risk. The IPMP applies to all pest management activities associated with individuals working, residing
19 at, or otherwise doing business for the 88th RD.

20 The JTA Biologist conducts pest control operations, and these operations are guided by the Pest
21 Control Management Plan. One goal of the Plan is to reduce pesticide use through integrated pest
22 management (i.e., use of mechanical, physical, cultural, and biological controls before chemical
23 control). Controlled pests include noxious weeds and other unwanted vegetation, termites,
24 mosquitoes, flies, wasps, crawling insects, spiders, mice, gophers, and other vertebrate pests.

25 Invasive plant species threaten native species populations and can impact landscape diversity.
26 Invasive species also render the JTA lands unfavorable for military training. As part of the 2021
27 NRSRVYUP a field survey of noxious/invasive plant species at the JTA was conducted.

28 The Invasive Species Management Plan (ISMP) serves to guide JTA managers in the control and
29 removal of invasive species within the installation. The ISMP incorporated information from the
30 previous JTA INRMP (2015) and the updated Integrated Pest Management Plan, IPMP. Within the
31 JTA, BHE (2004) mapped 34 noxious/invasive plant species that may negatively impact training
32 operations and degrade natural habitat. BHE observed several of these species to occur only in
33 scattered, individual instances: common St. John’s wort, common privet, ground ivy (creeping
34 Charlie), field bindweed and spotted knapweed. During the June 2021 survey, field biologists
35 traversed the seven training areas of the JTA on foot to verify the existence and distribution of
36 noxious/invasive species previously mapped by BHE.

37 **Proposed Management:** Section 5.2.16 – Pest Management - Applicable Goals and Objectives:
38 *Goal 1, Objective 1; Goal 2, Objective 1, contingent upon need*

39 **5.3.2.14 Management Issue - Soils Management and Sediment Control**

40 Soils management and sediment control is critical to maintaining the functionality of training areas,
41 supporting native vegetation, and protecting water quality. Most states require permits and storm
42 water pollution prevention plans for construction activities that disturb more than one acre of ground.

1 Disturbance of soils and vegetation during training creates potential sources of erosion and
2 sedimentation. Improper recovery after digging also contributes to soil degradation. Inversion of soil
3 layers during digging (i.e., placement of fertile topsoil beneath infertile sub-surface layers) impairs re-
4 vegetation of the recovered area.

5 Eroded soils may restrict use of land by hindering passage of soldiers on foot and in vehicles,
6 potentially leading to closure of training areas for rehabilitation.

7 Erosion that results in runoff of sediment-laden water to streams negatively affects aquatic biota.

8 **Proposed Management:** Section 5.2.17 - Soils Management and Sediment Control - Applicable
9 Goals and Objectives: Goal 1, Objectives 1 through 6 - indefinitely, as needed, in conjunction with
10 PLS

11 **5.3.2.15 Management Issue – Water Resources (SLH2OMGT)**

12 Conduct soil and water resources management on 88th RD training land maneuver areas to include
13 preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver
14 damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the
15 lack of maintenance to real property. Control BMPS may include actions taken to prevent and remedy
16 naturally occurring erosion (not caused by maneuver damage or improperly maintained real property)
17 such as planting ground cover and stabilizing erosion prone areas to surface water quality.

18 **Proposed Management:** Section 5.2.18 – Water Resources Management - Applicable Goals and
19 Objectives: Goal 1, Objectives 1 through 4

20 **5.3.2.16 Management Issue – Wetlands Management**

21 The Clean Water Act protects waters of the United States including rivers, streams, estuaries, and
22 most ponds, lakes, and wetlands. In general terms, wetlands are lands where saturation with water
23 is the dominant factor determining the nature of soil development and the types of plant and animal
24 communities living in the soil and on its surface.

25 Environmental review is the primary means of detecting threats to wetlands on 88th RD lands. If
26 necessary, projects with potential impacts would be referred to the Corps of Engineers to determine
27 if jurisdictional wetlands are implicated, establish mitigation procedures, and/or obtain permits.
28 Wetland-affecting projects require NEPA documentation per 32 CFR Part 651 – Environmental
29 Analysis of Army Actions.

30 Wetland Restoration - Wetlands within the 88th RD's AOR that have been identified as having
31 reduced or compromised hydrologic function and/or ecological integrity may be subject to restoration
32 efforts. Restore wetlands functions and values to 20 acres of the North South Seep at IL079/17896
33 and 94.2 acres of Prairie.

34 The management recommendations listed below were compiled by the JTA Biologist and presented
35 in the previous INRMP for the JTA. These recommendations are still applicable to the installation:

- 36 • Training in wetland areas should be restricted to foot traffic only when the ground is not frozen
37 (JTA Reg 385-1, para. 2-1.d.). During the winter months, it is presumed that vehicular damage
38 will not occur, and it is possible to cross wetlands with vehicles.
- 39 • Prescribed burning conducted for the purpose of controlling undesirable plant species and
40 inhibiting succession has been conducted and will likely continue.

- Invasive species are a concern and have the potential to degrade the JTA's wetlands. All likely methods of control will be tested, including herbicides, hand-pulling, burning, water depth manipulation and biological controls.
- Remove woody vegetation, conduct prescribed burns and remove encroaching hawthorn (*Crataegus spp.*) thickets from the North-South seep area, a unique natural wetland area located in TA 2 and TA 3.

Proposed Management: Section 5.2.19 - Wetlands Management - Applicable Goals and Objectives: Goal 1, Objectives 1-3, Goal 2, Objectives 1 – 3 and 4 as needed

5.3.2.17 Management Issue - Wildland Fire

The 88th RD recognizes the importance of having plans in place for preventing and suppressing wildland fires and for implementing site-specific application of prescribed burns for broader ecosystem management goals.

Fire is a natural component of many ecosystems in the United States. Among other ecosystem functions, fire can recycle nutrients that might otherwise be trapped for long periods in the dead organic matter that exists in many environments because of the slow rates of decay. Fire can also stimulate the growth and survival of fire-dependent species by providing the specific site conditions, including seed release, soil, light, and nutrients, that are critical for reproduction.

JTA is on a burning cycle to inhibit woody vegetation and manage invasive species. As stipulated, JTA has a Wildland Fire Management Plan which receives annual updates and is fully updated on a 5-year cycle.

Proposed Management: Section 5.2.20 - Wildland Fire Management - Applicable Goals and Objectives: Goal 2, Objectives 1 – 4, Goal 3, Objectives 1 - 4

5.3.2.18 Management Issue – Public Access

Public access on 88thRD sites is predominantly related to organized activities such as hunting (bow and gun), and trapping and is limited. The JTA Biologist directs the Public Access Programs. The goals of the Public Access Programs include protecting and maintaining the natural resources and managing the hunting, and permit sales programs. Management of forest areas and other habitats provides for hunting, trapping, and wildlife viewing.

Wildlife population management within the JTA is primarily directed toward white-tailed deer and furbearing species such as coyote and raccoon through regulated hunting and trapping programs. Habitat within the JTA is managed to create, improve, or maintain diverse habitats that will support native flora and fauna. Habitat quality is managed with primary emphasis on the management of oak hardwood forest, exotic plants, native/natural areas, and restoration of tallgrass prairie.

Include artificial nesting structures when and where feasible for bluebirds, Canada geese, mallards, American kestrels, osprey, and wood ducks.

JTA is extensively utilized for its high-quality hunting resource. More than 6,000 hunter days are recorded per year. Hunting includes large game, white-tailed deer and turkey, small game, including upland game birds, rabbit, and squirrel, and trapping. This resource generates income for the surrounding community. JTA hunting is managed by an on-site biologist, and wildlife conservation is a primary goal of the program.

Proposed Management: Section 5.2.9 –Hunting Implementation Program - Applicable Goals and Objectives: Goal 1, Objectives 1-6, Goal 2 Objectives 1-3

1 **5.3.3 Phillip H. Sheridan AFRC (IL131/17887)**

2 **5.3.3.1 Management Issue – Federal / State Listed Species**

3 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the
4 official USFWS status over the coming 5-years, and should it become listed, evaluate as per USFWS
5 protocol.

6 **Proposed Management** – Section 5.2.5 Federal / State Listed Species – Applicable Goals and
7 Objectives; Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 2 and
8 2.

9 **5.3.3.2 Management Issue – Invasive Species Management**

10 A 0.20 acre constructed non-jurisdictional stormwater detention basin with wetland attributes occurs
11 at IL131/17887. Invasive species are associated with the basin. The growth of these species in the
12 basin is likely due to the lack of mowing. Mowing within the basin is recommended to control invasive
13 plant species. Control of the plant species may also enhance the functionality of the basin by
14 increasing capacity. Local management may be consulted to inspect the stormwater basin to
15 optimize performance.

16 **Proposed Management** – Section 5.2.12 Invasive Species Management – Applicable Goals and
17 Objectives: Goal 1, Objectives 1, 4 – 6. Additionally, Section 5.2.16 Pest Management – Applicable
18 Goals and Objectives: Goal 1, Objectives 1&2 and Goal 2, Objective 1.

19 **5.3.4 Fort Ben Harrison ARC (IN008/18778)**

20 IN008/18778 contains ~15.3 acres of deciduous forest, 1.1 acres of emergent wetland, 0.7 acres of
21 forested wetland, and 1.5 acres of scrub/shrub. Suitable habitat exists for the federally listed Indiana
22 bat (*Myotis sodalist*). Invasive species are mostly associated with the forests.

23 **5.3.4.1 Management Issue – Federal and State-Listed Species Management**

24 Approximately 3 acres of suitable gray, Indiana, and northern long-eared bat habitat is present north
25 of the Exchange. Construction of the Lawrence Armory and associated buildings and vehicle storage
26 area has reduced the amount of bat habitat previously available at the facility by roughly half.
27 (ENSAFE IN008 2020)

28 During the 2020 summer acoustic survey, five species of bats were detected, including the federally
29 endangered gray bat (*Myotis grisescens*) (PARS-Gannett Fleming 2021). No other threatened or
30 endangered bat species were identified during the 2020 summer acoustic survey. Gray bats are
31 considered a year-round cave obligate species, so their only use Fort Benjamin Harrison enclave is
32 likely for foraging over wetlands or as a flight path to reach Indian Lake, Fall Creek (both north of the
33 facility), or a small unnamed pond (east of the facility) during the summer. (ENSAFE IN008 2020)

34 **Proposed Management:** Section 5.2.5 Federal and State-Listed Species Management – Applicable
35 Goals and Objectives; Goal 1, 1 – 4. When funding allows and where necessary Goals 2 Objectives
36 1 – 3 and Goal 3, Objective 1 & 2. If endangered species have a confirmed presence on-site Goal 4,
37 Objectives 1 & 2.

38 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the
39 official USFWS status over the coming 5-years, and should it become listed, evaluate as per USFWS
40 protocol.

1 **Proposed Management** – Section 5.2.5 Federal / State Listed Species – Applicable Goals and
2 Objectives: Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 2 and
3 2.

4 **5.3.4.2 Management Issue – Forestry Management**

5 IN008/18778 contains 15 acres of deciduous forest. A review of the forest resources will determine
6 if a forestry management plan is needed.

7 Bush honeysuckle, an invasive species, is dense in forested areas of the site and treatment is
8 recommended. Other invasive species observed were present in low densities.

9 In the 2015 INRMP it was identified that green ash trees, a dominant canopy species in portions of
10 both the deciduous forest and forested wetlands areas, are found on the site. Tree health should be
11 monitored to detect presence of emerald ash borer. Passive monitoring will identify then remove
12 dead trees as needed.

13 **Proposed Management:** Section 5.2.7 Forestry Management – Applicable Goals and Objectives;
14 Goal 1 Objectives 1 - 8

15 **5.3.4.3 Management Issue – Invasive Species/Pest Management**

16 There are several invasive pest plants established at the facility. Most of these are common in high-
17 use areas and are controlled by periodic mowing.

18 Outside of the intensively managed areas, Amur honeysuckle (*Lonicera maacki*), Chinese privet
19 (*Ligustrum sinense*), and multiflora rose (*Rosa multiflora*) are widespread in both the deciduous forest
20 and forested wetland communities and have had a negative effect on habitat quality in these
21 ecological communities. Similarly, purple loosestrife (*Lythrum salicaria*) has become established in
22 some of the detention basins. It should be monitored and treated before this plant has a chance to
23 become a widespread nuisance in the other three detention basins and wetlands at the facility.

24 The status of these three plant species should be monitored and treated with an appropriate herbicide
25 or other cultural treatments to control their spread. (ENSAFE IN008 2020)

26 **Proposed Management** – Section 5.2.12 Invasive Species Management – Applicable Goals and
27 Objectives; Goal 1, Objectives 1, 4 – 6. Additionally, Section 5.2.16 Pest Management – Goal 1
28 Objectives 1 & 2 and Goal 2 Objective 1.

29 **5.3.4.4 Management Issue – Wetlands Management**

30 The small emergent wetland south of the United States Army Corps of Engineers office trailer should
31 continue to be protected from vehicle traffic and allowed to develop in accordance with current
32 management objectives. Wetland boundary markers around the small emergent wetland should be
33 maintained to alert maintenance crews and prevent unauthorized disturbance. The regulatory status
34 of the wetlands would be determined by the United States Army Corps of Engineers and/or Indiana
35 Department of Environmental Management. (ENSAFE IN008 2020)

36 **Proposed Management:** Section 5.2.19 – Wetlands Management - Applicable Goals and
37 Objectives: Goal 1, Objective 1&2; Goal 2 - Objectives 1 – 3, and Goal 3.

5.3.5 LaPorte Co Veterans ARC (IN023/18740)

IN023/18740 contains approximately 219 acres of grassland/field, 230 acres of scrub/shrub, 210 acres of deciduous hardwood forest, 49 acres of mixed forest, 79 acres of coniferous forest, 25 acres of forested wetlands, and 152 acres of emergent wetlands. Potential suitable habitat exists for the federally listed Indiana bat (*Myotis sodalist*), federally listed Karner blue butterfly (*Lycaeides melissa samuelis*), and federal candidate eastern massasauga (*Sistrurus catenatus*), which is also an Army SAR, as well as numerous migratory birds. The site has a site-specific FMP to manage the forested lands, IWFMP for preventing wildfires and implementing prescribed burns, and ISMP to manage invasive species.

5.3.5.1 Management Issue – Federal and State-Listed Species Management

Potentially suitable habitat for Indiana bats was observed at the site. In 2020, PARS-Gannett Fleming Joint Venture scientists conducted an acoustic survey to detect the presence/absence of Indiana and Northern long-eared bats at IN023; a presence absence survey should be conducted in 2025. The results of the USFWS approved presence/absence for the NLEB and Indiana bat supports the determination that they are not present on IN023.

No threatened or endangered bat species were detected during the 2020 survey.

Potentially suitable habitat for eastern massasauga (federally threatened) was observed at the site during the 2020 field survey. Also, in 2020 an unidentified ground squirrel, possibly state-endangered Franklin's ground squirrel (*Spermophilus franklinii*), was observed at three locations at the facility. Biologists conducted several listed species surveys in 2018 but did not observe any of the target species at that time.

Periodic field surveys for listed species, where suitable habitat exists, should be considered to re-affirm the species' status at the site.

Proposed Management: Section 5.2.5 Federal and State-Listed Species Management – Applicable Goals and Objectives; Goal 1, 1 – 4. When funding allows and where necessary Goal 2 Objectives 1 – 3 and Goal 3, Objective 1 & 2. If endangered species have a confirmed presence on-site Goal 4, Objectives 1 & 2.

The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the official USFWS status over the coming 5-years, and should it become listed evaluate as per USFWS protocol.

Proposed Management – Section 5.2.5 Federal / State Listed Species – Applicable Goals and Objectives; Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 1 and 2. If endangered species have a confirmed presence on-site Goal 4, Objectives 1 & 2.

5.3.5.2 Management Issue – Forestry Management

The site Forestry Management Plan (FMP) should be implemented to meet forest management goals outlined for the site. The FMP establishes objectives to meet forest management goals and Desired Future Conditions in each of the four Training Areas present at IN023/18740. The Desired Future Condition describes the forest structure and ecosystem components that will characterize the final state of management units outlined in the FMP. Management actions in the FMP include prescribed burning, thinning, and conducting follow up surveys to determine additional actions needed.

Proposed Management: Section 5.2.7 Forestry Management - Applicable Goals and Objectives; Goal 1, Objectives 1-8.

1 **5.3.5.3 Management Issue – Invasive Species Management**

2 The Facility Invasive Species Management Plan (ISMP) should be maintained to manage presence
3 of invasive plant species at IN023. The ISMP establishes objectives to meet goals for controlling
4 invasive species in each of eight management units within each of the four training areas present at
5 IN023. Management actions in the ISMP include prescribed burning, applying herbicides, and
6 conducting follow-up surveys to characterize regrowth and determine additional actions needed.

7 **Proposed Management** – Section 5.2.12 *Invasive Species Management – Applicable Goals and*
8 *Objectives; Goal 1, Objectives 1, 4 – 6. Additionally, Section 5.2.16 Pest Management – Applicable*
9 *Goals and Objectives; Goal 1, Objectives 1 &2 and Goal 2, Objective 1. Also, Section 5.2.20*
10 *Wildland Fire Management – Applicable Goals and Objectives; Goal 2, Objectives 1 -3, Goal 3,*
11 *Objectives 1 – 3.*

12 **5.3.5.4 Management Issue – Migratory Bird Management**

13 Grassland and wetlands at IN023/18740 provide habitat for migratory birds. Regular migratory bird
14 surveys should be conducted to determine what species are utilizing the habitat, and what specific
15 management actions may be needed to protect and enhance habitat for these species at
16 IN023/18740.

17 Migratory Bird Surveys were completed in 2017 and 2021. Two data sets is not enough data to
18 evaluate migratory bird presence or trends. Continued Migratory Bird Surveys will provide enough
19 data to determine the ecological value of the area to the migratory bird population in the area. It is
20 recommended that Migratory Bird Surveys take place every 3 years to develop a data set that can
21 provide bird species trending information.

22 Additionally, a 2018 State Endangered species survey for marsh wren (*Cistothorus palustris*), sedge
23 wren (*Cistothorus platensis*), upland sandpiper (*Bartramia longicauda*), least bittern (*Ixobrychus*
24 *exilis*), northern harrier (*Circus cyaneus*), and Virginia rail (*Rallus limicola*) was completed at the site
25 and none of the identified species have a presence on site.

26 **Proposed Management** – Section 5.2.13 - *Applicable Goals and Objectives; Goal 1. Objectives 1-*
27 *6.*

28 **5.3.5.5 Management Issue – Public Access**

29 Public access on 88thRD sites is predominantly related to organized activities such as hunting (bow
30 and gun), and trapping and is limited. The goals of the 88th RD Public Access Programs include
31 protecting and maintaining the natural resources upon which public access depend and managing
32 the hunting, firewood cutting, and permit sales programs. Management of forest areas and other
33 habitats provides for hunting, trapping, firewood cutting, and wildlife viewing.

34 Wildlife population management is primarily directed toward white-tailed deer and furbearing species
35 such as coyote and raccoon through regulated hunting and trapping programs. Habitat is managed
36 so as to create, improve, or maintain diverse habitats that will support native flora and fauna. Habitat
37 quality is managed with primary emphasis on the management of oak hardwood forest, exotic plants,
38 native/natural areas, and restoration of tallgrass prairie. Artificial nesting structures have been
39 established for bluebirds, Canada geese, mallards, American kestrels, and wood ducks.

40 Hunting includes large game, white-tailed deer and turkey, small game, including upland game birds,
41 rabbit, and squirrel, and trapping. This resource generates income for the surrounding community.
42 Hunting is managed by on-site biologists, and wildlife conservation is a primary goal of the program.

1 Currently there is no on-site biologists or other manpower to support a public access program at this
2 Site at this time.

3 **Proposed Management** – Section 5.2.9.- Hunting Program Implementation – Applicable Goals and
4 Objectives: Goal 1, Objectives 1-6

5 **5.3.5.6 Management Issue – Wetlands Management**

6 Impacts to wetlands should be avoided. Final jurisdictional status is under the purview of the USACE
7 and IDEM. Should the USACE determine the wetlands to be jurisdictional under §404 of the CWA,
8 a §404 permit from the USACE and a §401 water quality certification from the IDEM would be required
9 for proposed impacts. Should any of the wetlands be determined isolated, an Indiana Isolated
10 Wetland Permit would be required for proposed impacts.

11 **Proposed Management** – Section 5.2.19 Wetlands Management – Applicable Goals and
12 Objectives – Goal 1, Objectives 1 & 2, Goal 2, Objectives 1 – 4, and Goal 3.

13 **5.3.5.7 Management Issue – Wildland Fire Management**

14 The site Integrated Wildfire Management Plan (IWFMP) should be implemented to meet wildland fire
15 management goals outlined for the site. The IWFMP establishes objectives to meet wildland fire
16 management goals and Desired Future Conditions for the forest structure and ecosystem
17 components, as outlined in the FMP. Management actions in the IWFMP include prescribed burning,
18 thinning, and conducting follow-up surveys to determine what further actions may be warranted.

19 Kingsbury LTA is on a burning cycle to inhibit woody vegetation and manage invasive species. As
20 stipulated, Kingsbury LTA has a Wildland Fire Management Plan.

21 **Proposed Management** – Section 5.2.20 Wildland Fire Management – Applicable Goals and
22 Objectives - Goal 1, Objectives 1 – 4, Goal 2, Objectives 1 & 2; Goal 3, Objectives 1 – 3.

1 **5.3.6 Terrance A. Peterson ARC (MN002/27700)**

2 MN002/27700 contains 0.43 acres of deciduous hardwood forest and 0.81 acres of forested
3 wetlands.

4 **5.3.6.1 Management Issue – Federal / State Listed Species**

5 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the
6 official USFWS status over the coming 5-years, and should it become listed evaluate as per USFWS
7 protocol.

8 **Proposed Management** – Section 5.2.5 Federal / State Listed Species – Applicable Goals and
9 Objectives: Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 2 and
10 2. If endangered species have a confirmed presence on-site Goal 4, Objectives 1 & 2.

11 **5.3.6.2 Management Issue – Invasive Species Management**

12 A site ISMP should be developed and implemented to manage the presence of invasive plant species
13 at MN002/27700. The ISMP will establish objectives to meet goals for controlling invasive species.
14 Management actions in the ISMP may include prescribed burning, applying herbicides, and
15 conducting follow up surveys to characterize regrowth and determine additional actions needed.

16 **Proposed Management** – Section 5.2.12 Invasive Species Management Applicable Goals and
17 Objectives – Goal 1, Objectives 4 – 6.

18 **5.3.6.3 Management Issue – Water Resources Management**

19 One erosional gully was identified in the far southeastern portion of the site. This gully has formed
20 due to significant overland storm water flow from a culvert. It is recommended that additional erosion
21 controls be implemented in this area in order to slow and/or stop the erosion of the ground towards
22 the site development. Any hard armament controls will likely require permitting through the USACE
23 Regulatory Division. Natural erosion controls such as bio-coir logs will likely not require permitting
24 through the USACE.

25 **Proposed Management** – Section 5.2.18 Water Resources Management – Applicable Goals and
26 Objectives – Goal 1, Objective 1.

27 **5.3.6.4 Management Issue – Wetlands Management**

28 Impacts to the PFO1E wetland should be avoided. Activities potentially impacting the wetland may
29 require a permit from, MNDNR, MPCA, MBWSR, or USACE, depending upon which agencies claim
30 jurisdiction. Should the USACE determine the wetland to be jurisdictional under §404 of the CWA, a
31 §404 permit from the USACE and a §401 water quality certification from MPCA would be required for
32 any proposed impacts, along with other agencies.

33 **Proposed Management** – Section 5.2.19 Wetlands Management – Applicable Goals and Objectives;
34 Goal 2, Objectives 1 -4.

1 **5.3.7 Belton ARC (MO003/29880)**

2 MO003/29880 contains a small, slow-flowing, unnamed tributary of West Fork East Creek, a drainage ditch,
3 and small pond, along with 0.21 acres of emergent wetland, 0.01 acres of forested wetland, 112.59 acres of
4 prairie, 36.53 acres of shrub/scrub, and 19.71 acres of deciduous forest. The state-listed northern harrier
5 (*Circus cyaneus*) has been observed at the site, and suitable habitat exists for the federally threatened
6 Mead's milkweed (*Asclepias meadii*). Erosion is associated with the drainage ditch and throughout the site.
7 Invasive species are associated with the prairie.

8 **5.3.7.1 Management Issue – Cultural Resources**

9 The mission of the 88th RD Cultural Resources Program (CRP) is to facilitate compliance with
10 applicable legal requirements to maintain the availability of Army Reserve owned, leased, and
11 permitted buildings and lands necessary to sustain a state of combat readiness.

12 Cultural Resource

13 **Proposed Management:** Section 5.2.4 – Cultural Resources Protection - Applicable Goals and
14 Objectives: Goal 1, Goal 2, Objectives 1 - 5

15 **5.3.7.2 Management Issue – Ecosystem Management**

16 The purpose of habitat management is to improve wildlife populations by managing resources
17 (habitat) upon which they depend. This means, while considering military training and maintenance
18 requirements, evaluating the desirable species access to food, cover, and/or water. Wildlife and
19 habitat management requires analysis of ecological functions utilization and landscape level planning
20 to adjust limiting factors and promote priority endemic species. Species management priorities are
21 based on conservation needs as defined by global, regional, and local abundance; distribution and
22 threats; population trends; importance of areas to species; potential for population and/or habitat
23 management; and human interests.

24 Maintain a comprehensive wildlife management program. Goals of this program include:

- 25 • Managing species diversity,
- 26 • Maintaining healthy, viable wildlife populations, and
- 27 • Improving, maintaining and restoring habitat quality.

28 **Proposed Management:** Section 5.2.6 – Ecosystem Management - Applicable Goals and
29 Objectives: Goal 1, Objective 1; Goal 2, Objectives 1 & 2; Goal 3, Objectives 1 – 3.

30 **5.3.7.3 Management Issue – Federal / State Listed Species (Army Species at**
31 **Risk) & Risk Management**

32 The federal ESA of 1973, as amended (Act) requires lands under the jurisdiction of the Department
33 of the Army to conserve listed species. As defined in the Act, conservation is the use of all methods
34 and procedures necessary to bring any listed species to the point where protections provided by the
35 Act are no longer necessary. Section 7 of the Act requires the Army to consult and confer with the
36 USFWS if any action by the Army may affect a listed species or critical habitat.

37 With the 2023 federal listing of the Northern Long-eared Bat (*Myotis septentrionalis*), it was suggested
38 in the 2021 NRSRVYUP that a bat survey could be warranted at this site due to the density of suitable
39 day roosting trees and foraging habitat present.

1 In the 2021 NRSRVYUP it was indicated that there is suitable habitat for the Mead's milkweed
2 (*Asclepias meadii*), and a survey looking specifically for the milkweed is warranted.

3 **Proposed Management:** Section 5.2.5 – Federal/State Listed Species (Army Species at Risk) &
4 Risk Management - Applicable Goals and Objectives: Goal 1, Objectives 1 – 5; Goal 2, Objectives 1
5 - 3; Goal 3 Obj. 1 – 2, Goal 4 when applicable.

6 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the
7 official USFWS status over the coming 5-years, and should it become listed evaluate as per USFWS
8 protocol.

9 **Proposed Management** – Section 5.2.5 Federal / State Listed Species – Applicable Goals and
10 Objectives: Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 2 and
11 2. If endangered species have a confirmed presence on-site Goal 4, Objectives 1 & 2.

12 **5.3.7.4 Management Issue – Forestry**

13 Previously it was indicated that there should be an FMP for this facility; however, the Desired Future
14 Conditions is to maintain the prairie ecosystem to include prescribed burning, thinning, and
15 conducting follow up surveys to determine additional actions needed. No FMP is required for this site
16 as forestry harvest would not be economically feasible.

17 **Proposed Management:** Section 5.2.7 – Forestry Management - Applicable Goals and Objectives:
18 None

19 **5.3.7.5 Management Issue – Federal and State-Listed Species Management**

20 Potentially suitable habitat for Mead's milkweed exists in the grassland areas located throughout the
21 site. This species is listed as federally threatened by the USFWS and is therefore protected under
22 the ESA. To ensure compliance with the ESA, surveys should be conducted prior to development of
23 any areas considered as potentially suitable habitat for this species.

24 The northern harrier has been identified on the site. Potentially suitable habitat for the northern harrier
25 exists throughout the site. This species is listed as state-endangered by the MDC and is therefore
26 protected under Missouri's 3 CSR 10-4.111 Endangered Species. To ensure compliance with these
27 regulations, surveys should be conducted prior to development of any areas considered as potentially
28 suitable habitat for this species.

29 **Proposed Management:** Section 5.2.5 – Federal / State-Listed Species - Applicable Goals and
30 Objectives: Goal 1, Objective 1; Goal 2, Objectives 1 – 2; Goal 3, Objectives 1 – 3.

31 **5.3.7.6 Management Issue – Invasive Species Management**

32 The site Invasive Species Management Plan (ISMP) should be implemented to manage the presence
33 of invasive plant species at MO003/29880. The ISMP establishes objectives to meet goals for
34 controlling invasive species. Management actions in the ISMP may include prescribed burning,
35 applying herbicides, and conducting follow up surveys to characterize regrowth and determine
36 additional actions needed.

37 Scattered areas of the invasive-exotic sericea lespedeza have been identified in the prairie areas in
38 the eastern portion of the site. This species is recognized as a major threat to grasslands in Missouri
39 and Kansas and measures should be taken to eradicate it from this site. These measures include a
40 combination of prescribed burning, herbicide application, and mowing. Detailed discussions of these
41 measures are provided in the MO003/29880 Biological Assessment completed in 2005. The

1 remaining invasive-exotic species (multiflora rose, Japanese honeysuckle, nodding plumeless thistle,
2 and spotted St. John's wort) documented at this site are present in moderate densities. Within the
3 next 5-years complete a survey to support the development of an updated Invasive Species
4 Management Plan.

5 This site has several high-quality prairie species present. Many of these species are fire dependent
6 and the lack of fire or other disturbances are allowing woody tree species to expand on the property.
7 Osage orange and honey locust are locally abundant in portions of MO003/29880 and appear to be
8 spreading, therefore representing a threat to the biodiversity of the prairie community. These species
9 represent a threat to the integrity of the natural communities if they remain uncontrolled. Additionally,
10 the long thorns of the honey locust are hazardous to soldiers and equipment in these areas.

11 **Proposed Management** – Section 5.2.12 *Invasive Species Management – Applicable Goals and*
12 *Objectives - Goal 1, Objectives 1, 4 – 6. Additionally, Section 5.2.15 Pest Management – Goal 1*
13 *Objectives 1 &2 and Goal 2 Objective 1.*

14 **5.3.7.7 Management Issue – Migratory Bird Management**

15 Grasslands and wetlands at MO003/29880 provide habitat for migratory birds. A migratory bird
16 survey waws conducted in 2021 and should be continued at regular intervals to determine species
17 trends and which species are utilizing the habitat, and what specific management actions may be
18 needed to protect and enhance habitat for these species at MO003/29880.

19 **Avian Knowledge Network**

20 As per the 2022 DoD Memorandum from the Office of the Assistant Secretary of Defense, Mr. Richard
21 G. Kidd (signed 06DEC2022) SUBJECT: Department of Defense Avial Knowledge Network Program;
22 “. . . DoD has established a Memorandum of Understanding with the U.S. Fish and Wildlife Service
23 outlining the management and stewardship activities DoD will implement for migratory bird
24 conservation. All DoD natural resources conservation programs support DoD access to its land, air,
25 and water resources for realistic military training and testing and to sustain the long-term ecological
26 integrity of the resource base and the ecosystem services it provides, in accordance with the Sikes
27 Act. Collecting data and information from ongoing surveys, inventories, and monitoring are essential
28 to make informed management decisions, efficiently and effectively meet regulatory requirements
29 (e.g., the MBTA, the Sikes Act), conduct environmental analyses, and support planning to adaptively
30 manage migratory bird populations in the context of mission activities.

31 “To address these challenges, DoD began partnering with other federal agencies (i.e., U.S. Fish and
32 Wildlife Service, Bureau of Land Management, U.S. Forest Service) in the development of the Avian
33 Knowledge Network (AKN) in 2016. The AKN is a national clearinghouse for avian data and decision
34 support tool for assessing bird population health, status and trends, specific stressors, and
35 conservation measures. The AKN connects partner datasets, includes metadata and data
36 assumptions, contains powerful data analysis tools, and is a permanent archive of all data records.”

37 **Proposed Management:** Section 5.2.13 - *Migratory Bird Management - Applicable Goals and*
38 *Objectives: Goal 1, Objectives 1 - 6*

39 **5.3.7.8 Management Issues - National Environmental Policy Act**

40 The 88th RD Environmental Division is responsible for ensuring that the appropriate level of NEPA
41 analysis and documentation is provided for projects, training missions, and other proposed actions.
42 The process of reviewing and preparing NEPA documentation often involves direct coordination with
43 various natural resources partners.

1 The regulation requires the Army to identify significant impacts from proposed actions and to
2 incorporate that information into the decision-making process for implementation of the proposed
3 action. The regulation identifies the screening process and criteria for determining a significant impact
4 and provides the hierarchy for the documentation of the impact analysis.

5 **Proposed Management:** Section 5.2.15 - National Environmental Policy Act (NEPA)
6 Implementation - Applicable Goals and Objectives: Contingent upon need

7 **5.3.7.9 Management Issue – Pest Management/Invasive Species Management**

8 The 88th RD has prepared and implemented an Integrated Pest Management Plan (IPMP). IPMPs
9 are reviewed and updated annually (IPMPUP). The IPMP provides the necessary documentation
10 and guidance which is the foundational reference tool for consultation on mechanisms and
11 procedures for controlling pests, reducing reliance on pesticides, enhancing environmental
12 protection, maximizing the use of integrated pest management techniques, and minimizing cost and
13 risk. The IPMP applies to all pest management activities associated with individuals working, residing
14 at, or otherwise doing business for the 88th RD.

15 **Proposed Management:** Section 5.2.16 – Pest Management - Applicable Goals and Objectives:
16 Goal 1, Objective 1; Goal 2, Objective 1, contingent upon need

17 **5.3.7.10 Management Issue – Water Resources**

18 Minor erosion was identified at several locations across MO003/29880. Future management of
19 MO003/29880 should consider re-vegetation of these areas to prevent additional erosion from
20 becoming an issue in future years.

21 **Proposed Management:** Section 5.2.18 – Water Resources Management - Applicable Goals and
22 Objectives: Goal 1, Objectives 1 through 4

23 **5.3.7.11 Management Issue – Wetlands Management**

24 Impacts to wetlands should be avoided. Final jurisdictional status is under the purview of the USACE
25 and MDNR. Should the USACE determine the wetlands to be jurisdictional under Section 404 of the
26 CWA, a Section 404 permit from the USACE and a Section 401 WQC from the MDNR would be
27 required for any proposed impacts. Additionally, compliance with Missouri Clean Water Law is
28 required for wetland impacts, and consultation with MDNR should be initiated for proposed wetland
29 impacts.

30 **Proposed Management:** Section 5.2.19 - Wetlands Management - Applicable Goals and
31 Objectives: Goal 1, Objectives 1&2, Goal 2, Objectives 1 – 3 and 4 as needed, and Goal 3.

32 **5.3.7.12 Management Issue – Wildland Fire Management**

33 The site IWFMP should be implemented to meet wildland fire management goals outlined for the site.
34 The IWFMP establishes objectives to meet wildland fire management goals and reflect Desired
35 Future Conditions for the forest structure and ecosystem components at MO003/29880, as outlined
36 in the FMP. Management actions in the IWFMP include prescribed burning, thinning, and conducting
37 follow-up surveys to determine further actions.

38 Belton LTA is on a burning cycle to inhibit woody vegetation and manage invasive species. As
39 stipulated, Belton LTA has a Wildland Fire Management Plan.

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Proposed Management: Section 5.2.20 - Wildland Fire Management - Applicable Goals and Objectives: Goal 2, Objectives 1 & 2, Goal 3, Objectives 1 - 3

5.3.8 Weldon Spring ARC/LTA (MO041/29985)

MO041/29985 contains 14 wetlands and numerous drainage ditches. A small, slow-flowing unnamed tributary of Schote Creek flows southeast to northwest through the site. Portions of MO041/29985 are located within a 500-year floodplain. MO041/29985 contains approximately 1,130 acres of forested land and approximately 190 acres of old field/introduced prairie. Potentially suitable habitat exists for the federally listed Indiana bat (*Myotis sodalis*), and northern long-eared bat (*Myotis septentrionalis*). There are documented occurrences of the Indiana bat and northern long-eared bat on site, and one state species of conservation concern, ringed salamander (*Ambystoma annulatum*), has been documented within 1,000 ft of the site. Invasive species are associated with all land cover types. Several areas on the site have erosion issues. The results USFWS approved presence/absence surveys for the NLEB supports the determination that it is not present on WSTA.

5.3.8.1 Management Issue – Cultural Resources

The mission of the 88th RD Cultural Resources Program (CRP) is to facilitate compliance with applicable legal requirements to maintain the availability of Army Reserve owned, leased, and permitted buildings and lands necessary to sustain a state of combat readiness.

Proposed Management: Section 5.2.4 – Cultural Resources Protection - Applicable Goals and Objectives: Goal 1, Goal 2, Objectives 1 - 5

5.3.8.2 Management Issue – Forestry Management

The site Forestry Management Plan (FMP) should be implemented to meet forest management goals outlined for the site. The FMP establishes objectives to meet forest management goals and Desired Future Conditions at MO041/29985. The Desired Future Conditions describe the forest structure and ecosystem components that will characterize the final state of management units outlined in the FMP. Management actions in the FMP include prescribed burning, thinning, and conducting follow up surveys to determine additional actions needed.

Proposed Management – Section 5.2.7 Forestry Management - Goal 1 - Objectives – 1-8

5.3.8.3 Management Issue – Federal and State-Listed Species Management

Indiana bat (*Myotis sodalis*) and northern long-eared bat (*M. septentrionalis*) were captured on MO041/29985 as part of Army contracted bat studies in 2011. In 2020 an acoustic array survey was conducted at WSTA to update previous data. Due to USFWS imposed COVID-19 restrictions handling bats were not allowed so survey was strictly acoustic following USFWS protocols. Presence/Absence survey was completed at the WSTA for the Indiana bat (*Myotis sodalis*), northern long-eared bat (*M. septentrionalis*), and gray bat (*M. grisescens*). The 2020 acoustic confirmed both the gray bat and Indiana bat had presence at the site. There are 2 known roost trees found in 2011 for Indiana bats 0.3 and 0.5 miles southeast of the property boundary (from the southeastern corner). There are other Indiana bat records within 2.5 miles of the project area to the west and records across the river within 5 miles of the project area. Additional species detected during the 2020 survey included, tricolored bats, and little brown bats.

Potentially suitable summer roosting and foraging habitat for Indiana bats and northern long-eared bats includes sites located behind loose bark of dead or dying trees or in tree cavities, and riparian areas, upland forests, ponds, and fields.

Both the gray bat and the Indiana are protected under the ESA. Additionally, these species are listed as state-endangered by the MDC and are protected under Missouri's 3 CSR 10-4.111 Endangered

1 Species. To ensure compliance with these regulations, surveys should be conducted prior to
2 development of any areas considered as potentially suitable habitat for these species.

3 Given the above information, in 2022 an Endangered Species Management Component (ESMC) Plan
4 was funded to comply with current regulation regarding the potential for federally identified
5 endangered species found or the potential for them to exist at WSTA.

6 In 2024, a follow-up presence/absence bat survey is scheduled to take place.

7 In the 2015 INRMP two plant species were identified as Federally listed and requiring surveys. One
8 was the Running Buffalo clover, which was delisted in 2021, and the second was the Decurrent False
9 Aster. A 2014 survey for the Decurrent False Aster found that WSTA lacks suitable habitat, and it is
10 unlikely that this species would occur there.

11 **Proposed Management** – Section 5.2.5 - Federal and State-Listed Species Management –
12 *Applicable Goals and Objectives: Goal - 1, Objective 1 – 5. When funding allows, Goal - 2,*
13 *Objectives 1 – 3; Goal - 3, Objectives 1 – 2; Goal 4 - When applicable.*

14 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the
15 official USFWS status over the coming 5-years, and should it become listed evaluate as per
16 USFWS protocol.

17 **Proposed Management** – Section 5.2.5 Federal / State Listed Species – *Applicable Goals and*
18 *Objectives; Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 1 and*
19 *2.*

20 **5.3.8.4 Management Issue – Hunting Program Implementation**

21 The projected site-specific requirements for the WSTA hunting site include maintenance of a hunting
22 program to provide sound wildlife management and conservation practices, and game species
23 population control.

24 **Proposed Management:** Section 5.2.9 - *Hunting Program Implementation - Applicable Goals and*
25 *Objectives: Goal 1, Objectives 1 – 6; Goal 2, Objectives 1 – 3.*

26 **5.3.8.5 Management Issue – Invasive Species Management Plan**

27 WSTA is broken up into 13 training areas (TA) and invasive species are treated, to some extent in all
28 13 TAs. Invasive plant species identified during natural resource surveys are found in most of the
29 TAs at the Weldon Spring LTA. Control plan implementation maintains open spaces and the
30 understory clearing the red cedar and multiflora rose. In the training areas for maneuver training and
31 protects valuable natural resources. Invasive plants degrade wildlife habitat and potential habitat for
32 rare species.

33 The site Invasive Species Management Plan (ISMP) should be implemented to manage the presence
34 of invasive plant species at MO041/29985. The ISMP establishes objectives to meet goals for
35 controlling invasive species. Management actions in the ISMP may include prescribed burning,
36 applying herbicides, and conducting follow up surveys to characterize regrowth and determine
37 additional actions needed.

38 **Proposed Management** – Section 5.2.12 *Invasive Species Management – Applicable Goals and*
39 *Objectives - Goal 1, Objectives 1, 4 – 6. Additionally, Section 5.2.16 Pest Management –*
40 *Applicable Goals and Objectives: Goal 1 Objectives 1 & 2 and Goal 2 Objective 1. Section 5.2.20*
41 *Wildfire Management - Applicable Goals and Objectives: Goal 2, Objective 1, and Goal 3,*
42 *Objectives 1-4.*

1 **5.3.8.6 Management Issue – Migratory Bird Management**

2 The prairie and wetlands at MO041/29985 provide habitat for migratory birds. Conduct periodic
3 migratory bird surveys to determine what species are utilizing the habitat, and what specific
4 management actions may be needed to protect and enhance habitat for these species at
5 MO041/29985.

6 MO041/29985 is occasionally used by aircraft, so consideration should be given to the development
7 and implementation of a site -specific BASH prevention program.

8 **Avian Knowledge Network**

9 As per the 2022 DoD Memorandum from the Office of the Assistant Secretary of Defense, Mr. Richard
10 G. Kidd (signed 06DEC2022) SUBJECT: Department of Defense Avial Knowledge Network Program;
11 “. . . DoD has established a Memorandum of Understanding with the U.S. Fish and Wildlife Service
12 outlining the management and stewardship activities DoD will implement for migratory bird
13 conservation. All DoD natural resources conservation programs support DoD access to its land, air,
14 and water resources for realistic military training and testing and to sustain the long-term ecological
15 integrity of the resource base and the ecosystem services it provides, in accordance with the Sikes
16 Act. Collecting data and information from ongoing surveys, inventories, and monitoring are essential
17 to make informed management decisions, efficiently and effectively meet regulatory requirements
18 (e.g., the MBTA, the Sikes Act), conduct environmental analyses, and support planning to adaptively
19 manage migratory bird populations in the context of mission activities.

20 “To address these challenges, DoD began partnering with other federal agencies (i.e., U.S. Fish and
21 Wildlife Service, Bureau of Land Management, U.S. Forest Service) in the development of the Avian
22 Knowledge Network (AKN) in 2016. The AKN is a national clearinghouse for avian data and decision
23 support tool for assessing bird population health, status and trends, specific stressors, and
24 conservation measures. The AKN connects partner datasets, includes metadata and data
25 assumptions, contains powerful data analysis tools, and is a permanent archive of all data records.”

26 **Proposed Management:** Section 5.2.13 - Migratory Bird Management - Applicable Goals and
27 Objectives: Goal 1, Objectives 1 - 6

28 **5.3.8.7 Management Issue – Pest Management**

29 The site Invasive Species Management Plan (ISMP) should be implemented to manage the presence
30 of invasive plant species at MO041/29985. The ISMP establishes objectives to meet goals for
31 controlling invasive species. Management actions in the ISMP include prescribed burning, applying
32 herbicides, and conducting follow up surveys to characterize regrowth and determine additional
33 actions needed.

34 Multiflora rose is a dominant vegetative component observed at relatively high densities in both the
35 young post-agricultural disturbed forest and the red cedar woodland shrub layers. This species is
36 likely spreading within these forested communities and may represent a threat to the biodiversity of
37 both these forests and the higher quality oak forests on-site. Thusly, through outcompeting native
38 plants for resources, this species may represent a threat to the integrity of these forested areas if it
39 remains uncontrolled.

40 The invasive-exotic Amur honeysuckle is a dominant vegetative component observed at relatively
41 high densities in several land cover types. This species is spreading within the communities and
42 represents a threat to the biodiversity of these communities. This species represents a threat to the
43 integrity of the natural communities if it remains uncontrolled.

1 The invasive-exotic sericea lespedeza is a vegetative component observed at relatively high densities
2 in the old fields, introduced prairie, and roadsides. This species is spreading within the communities
3 and represents a threat to the biodiversity of these communities. This species represents a significant
4 threat to the integrity of the natural communities if it remains uncontrolled.

5 Numerous other invasive-exotic species exist at the site in varying degrees of density, and these
6 species may represent a significant threat to the integrity of the natural communities if they remain
7 uncontrolled.

8 The 88th RD has prepared and implemented an Integrated Pest Management Plan (IPMP). IPMPs
9 are reviewed and updated annually (IPMPUP). The IPMP provides the necessary documentation
10 and guidance which is the foundational reference tool for consultation on mechanisms and
11 procedures for controlling pests, reducing reliance on pesticides, enhancing environmental
12 protection, maximizing the use of integrated pest management techniques, and minimizing cost and
13 risk. The IPMP applies to all pest management activities associated with individuals working, residing
14 at, or otherwise doing business for the 88th RD.

15 **Proposed Management:** Section 5.2.15 – Pest Management - Applicable Goals and Objectives:
16 Goal 1, Objective 1; Goal 2, Objective 1, contingent upon need

17 **5.3.8.8 Management Issue – Soils Management**

18 Several areas on the site are experiencing erosion problems. One area consisting of approximately
19 17 acres located southwest has considerable erosion. Numerous gravel roads on the site are
20 experiencing erosion within and adjacent to the roadway. Numerous culverts are in need of
21 maintenance because they have deteriorated, gotten clogged up with debris, or are completely
22 washed out. The proper construction and installation of culverts and low water crossings provides
23 for healthier aquatic communities downstream. Numerous areas along the perimeter fence line where
24 drainage flows under the fence are experiencing similar erosion problems. The base of the erosion
25 gullies exceed six feet from the bottom of the standing perimeter fence.

26 **Proposed Management:** Section 5.2.17 - Soils Management and Sediment Control - Applicable
27 Goals and Objectives: Goal 1, Objectives 1 through 6 - indefinitely, as needed, in conjunction with
28 PLS.

29 **5.3.8.9 Management Issue – Water Resources**

30 MO041/29985 contains numerous drainage ditches. A small, slow-flowing unnamed tributary of
31 Schote Creek flows southeast to northwest through the site. Portions of MO041/29985 are located
32 within a 500-year floodplain.

33 **Proposed Management:** Section 5.2.18 – Water Resources Management - Applicable Goals and
34 Objectives: Goal 1, Objectives 1 through 4

35 **5.3.8.10 Management Issue – Wetlands Management**

36 Impacts to wetlands should be avoided. Final jurisdictional status is under the purview of the USACE
37 and MDNR. Should the USACE determine the wetlands to be jurisdictional under Section 404 of the
38 CWA, a Section 404 permit from the USACE and a Section 401 WQC from the MDNR would be
39 required for any proposed impacts. Additionally, compliance with Missouri Clean Water Law is
40 required for wetland impacts, and consultation with MDNR should be initiated for proposed wetland
41 impacts.

1 **Proposed Management:** Section 5.2.19 - Wetlands Management - Applicable Goals and
2 Objectives: Goal 1, Objectives 1-2, Goal 2, Objectives 1 – 3 and 4 as needed and Goal 3.

3 **5.3.8.11 Management Issue – Wildland Fire Management**

4 The site IWFMP should be implemented to meet wildland fire management goals outlined for the site.
5 The IWFMP establishes objectives to meet wildland fire management goals and reflect Desired
6 Future Conditions for the forest structure and ecosystem components at MO041/29985, as outlined
7 in the FMP. Management actions in the IWFMP include prescribed burning, thinning, and conducting
8 follow-up surveys to determine further actions.

9 WSTA is on a burning cycle to inhibit woody vegetation and manage invasive species. As stipulated,
10 WSTA has a Wildland Fire Management Plan.

11 **Proposed Management:** Section 5.2.20 - Wildland Fire Management - Applicable Goals and
12 Objectives: Goal 2, Objectives 1 & 2, Goal 3, Objectives 1 - 3

13 **5.3.8.12 Management Issue – Public Access**

14 Public access on 88thRD sites is related to organized activities such as deer hunting. The JTA
15 Biologist directs the Public Access Programs. The goals of the Public Access Programs include
16 protecting and maintaining the natural resources upon which public access depend and managing
17 the WSTA hunting program.

18 Wildlife population management within the WSTA is primarily directed toward white-tailed deer
19 through the regulated hunting program. Habitat within the WSTA is managed to create, improve, and
20 maintain diverse habitats that will support native flora and fauna. Habitat quality is managed with
21 primary emphasis on the management of oak hardwood forest, controlling exotic plants, encouraging
22 native/natural areas, and restoration of tallgrass prairie.

23 **Proposed Management:** Section 5.2.9 –Hunting Implementation Program - Applicable Goals and
24 Objectives: Goal 1, Objectives 1-6, Goal 2 Objectives 1-3
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5.3.9 Twinsburg ARC/AMSA #123 (OH051/39995)

OH051/39995 contains a detention basin, approximately 5.3 acres of deciduous hardwood forest, and 1.7 acres of forested wetland. Suitable roosting and foraging habitat is present for the federally listed Indiana bat (*Myotis sodalis*), and Northern Long-eared bat (*Myotis septentrionalis*), and the “proposed for listing” Tricolored bat (*Perimyotis subflavus*).

5.3.9.1 Management Issue – Federal and State-Listed Species Management

In 2005, the USFWS issued a Biological Opinion (BO) and Incidental Take Statement (ITS) for proposed construction of the OH051/39995 site. The BO found, in part, that establishment of forested set-asides and proposed wetland mitigation in the construction plan would beneficially affect Indiana bats, and construction of OH051/39995 would indirectly affect Indiana bats due to loss of high-quality habitat for summer roosting and foraging Indiana bats. The BO/ITS contains obligatory Reasonable and Prudent Measures and Terms and Conditions designed to minimize effects to Indiana bats, with which the 88th RD must comply in order to avoid violating Section 9 of the ESA.

Further, in 2008, the 88th RD finalized an Endangered Species Management Plan for OH051/39995, effective through 2011, which sets goals and objectives for furthering the conservation of Indiana bats that may be present on or utilize the site. In surveys conducted in 2004, 2016, and 2019 no Indiana bats were detected. In 2004, an NLEB was captured. The 2019 Acoustic Survey did not identify any current (listed as of 2023) endangered bat species at the site. Near-by captures of both species have been documented within 2.5 miles of Twinsburg ARC, suggesting the presence of these bat species in the area of the facility.

Although no Indiana bats or NLEB have been detected, observed or captured at OH051/39995 for more than 19-years, suitable habitat for both bat species is present and managed on the site within the 5-acre set aside. This area should continue to be managed in accordance with the 2005 Biological Opinion (BO).

Another bat survey is planned in 2024.

Proposed Management – Section 5.2.5 - Federal and State-Listed Species Management - Goal - 1, Objective 1 – 5; Goal - 2, Objectives 1 – 3; Goal - 3, Objectives 1 – 2; Goal 4 – Objectives 1-2, when applicable.

The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the official USFWS status over the coming 5-years, and should it become listed evaluate as per USFWS protocol.

Proposed Management – Section 5.2.5 Federal / State Listed Species – Applicable Goals and Objectives: Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 1 and 2. If endangered species have a confirmed presence on-site Goal 4, Objectives 1 & 2.

5.3.9.2 Management Issue – Wetlands Management

The Clean Water Act protects waters of the United States including rivers, streams, estuaries, and most ponds, lakes, and wetlands. In general terms, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface.

Environmental review is the primary means of detecting threats to wetlands on 88th RD lands. If necessary, projects with potential impacts would be referred to the Corps of Engineers to determine

1 if jurisdictional wetlands are implicated, establish mitigation procedures, and/or obtain permits.
2 Wetland-affecting projects require NEPA documentation per 32 CFR Part 651 – Environmental
3 Analysis of Army Actions.

4 Impacts to forested wetlands should be avoided. A detailed survey should be undertaken to
5 determine if the detention pond currently located in the northern portion of the site is draining wetlands
6 within the 5-acre set aside. Following modification of the detention basin into a dry basin, the basin
7 should be evaluated to determine if wetland characteristics are present. Final jurisdictional status is
8 under the purview of the USACE, and wetland markers present on the property suggest jurisdictional
9 status has already been determined.

10 ***Proposed Management:*** Section 5.2.18 - Wetlands Management - Applicable Goals and
11 *Objectives: Goal 1, Objectives 1-3, Goal 2, Objectives 1 – 3 and 4 as needed.*

1 **5.3.10 Toledo (Monclova) Area ARC (OH094/39760)**

2 OH094/39760 contains 1.92 acres of perennial stream, approximately 1.5 acres of wetlands, an
3 approximately 1-acre pond, 10.35 acres of deciduous forest, 15.17 acres of grassland/field, and 1.36 acres
4 of scrub/shrub. Approximately half of the site lies in a 100-year flood zone. Suitable habitats present for the
5 federally listed Indiana bat (*Myotis sodalis*), candidate eastern massasauga (*Sistrurus catenatus*), and
6 candidate rayed bean (*Villosa fabalis*). Potentially suitable habitat is present for numerous other state-listed
7 species documented within 1,000 feet of the site.

8 **5.3.10.1 Management Issue – Federal / State-Listed Species Management**

9 In 2019 field surveys for the species listed below were conducted. The results are reported in the
10 list. Though there were no presence findings across the board, suitable potential habitat has been
11 determined to be present. Therefore, monitoring of the site should continue to confirm the species'
12 presence or absence at the site.

- 13 • Blanding's turtle (reptile) *Emydoidea blandingii*
 - 14 ○ No presence, habitat present
- 15 • Eastern Box Turtle (reptile) *Terrapene Carolina*
 - 16 ○ No presence, habitat present
- 17 • Eastern massasauga rattlesnake (reptile) *Sistrurus catenatus*
 - 18 ○ No presence, habitat present.
- 19 • Cross-leaved milkwort (plant) *Polygala cruciate*
 - 20 ○ No presence, habitat present
- 21 • Northern apressed clubmoss (plant) *Lycopodiella subapressa*
 - 22 ▪ No presence, no hospitable habitat.
- 23 • Plains puccoon (plant) *Lithospermum caroliniense*
 - 24 ○ No presence, habitat present
- 25 • Racemed milkwort (plant) *Polygala polygama*
 - 26 ▪ No presence, no hospitable habitat
- 27 • Twisted yellow-eyed grass (plant) *Xyris torta*
 - 28 ○ No presence, hospitable habitat
- 29 • Rayed bean mussel (mollusk) *Villosa fabalis*
 - 30 ▪ No presence, unlikely habitat

31 The northern apressed clubmoss (plant) (*Lycopodiella subapressa*) and the Racemed milkwort (plant)
32 (*Polygala polygama*) may be removed from the monitoring list as no hospitable habitat for either
33 species was identified on site. Additionally, the presence of the rayed bean mussel (*Villosa fabalis*)
34 is also unlikely as no suitable habitat was identified at the site.

35 **Proposed Management** – Section 5.2.5 - Federal and State-Listed Species Management.
36 *Applicable Goals and Objectives: Goal 1 Objectives 1 – 4. As funding allows, Goal 2, Objectives 1 -*
37 *3. Goal 3, Objectives 1 and 2. Where determined to be necessary, Goal 4, Objective 1 and 2.*

38 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the
39 official USFWS status over the coming 5-years, and should it become listed evaluate as per USFWS
40 protocol.

41 **Proposed Management** – Section 5.2.5 Federal / State Listed Species – *Applicable Goals and*
42 *Objectives: Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 1 and*
43 *2.*

1 **5.3.10.2 Management Issue – Invasive Species**

2 The site Invasive Species Management Plan (ISMP) should be implemented to manage the presence
3 of invasive plant species at MO041/29985. The ISMP establishes objectives to meet goals for
4 controlling invasive species. Management actions in the ISMP may include prescribed burning,
5 applying herbicides, and conducting follow up surveys to characterize regrowth and determine
6 additional actions needed.

7 **Proposed Management** – Section 5.2.12 Invasive Species Management – Applicable Goals and
8 Objectives - Goal 1, Objectives 1, 4 – 6. Additionally, Section 5.2.16 Pest Management –
9 Applicable Goals and Objectives: Goal 1 Objectives 1 & 2 and Goal 2 Objective 1. Section 5.2.20
10 Wildfire Management - Applicable Goals and Objectives: Goal 3, Objectives 1-4.

11 **5.3.10.3 Management Issue – Migratory Bird Management**

12 The prairie, woodlands, and wetlands at OH094/39760 provide habitat for migratory birds. Conduct
13 periodic migratory bird surveys to determine what species are utilizing the habitat, and what specific
14 management actions may be needed to protect and enhance habitat for these species at
15 OH094/39760.

16 **Avian Knowledge Network**

17 As per the 2022 DoD Memorandum from the Office of the Assistant Secretary of Defense, Mr. Richard
18 G. Kidd (signed 06DEC2022) SUBJECT: Department of Defense Avial Knowledge Network Program;
19 “. . . DoD has established a Memorandum of Understanding with the U.S. Fish and Wildlife Service
20 outlining the management and stewardship activities DoD will implement for migratory bird
21 conservation. All DoD natural resources conservation programs support DoD access to its land, air,
22 and water resources for realistic military training and testing and to sustain the long-term ecological
23 integrity of the resource base and the ecosystem services it provides, in accordance with the Sikes
24 Act. Collecting data and information from ongoing surveys, inventories, and monitoring are essential
25 to make informed management decisions, efficiently and effectively meet regulatory requirements
26 (e.g., the MBTA, the Sikes Act), conduct environmental analyses, and support planning to adaptively
27 manage migratory bird populations in the context of mission activities.

28 “To address these challenges, DoD began partnering with other federal agencies (i.e., U.S. Fish and
29 Wildlife Service, Bureau of Land Management, U.S. Forest Service) in the development of the Avian
30 Knowledge Network (AKN) in 2016. The AKN is a national clearinghouse for avian data and decision
31 support tool for assessing bird population health, status and trends, specific stressors, and
32 conservation measures. The AKN connects partner datasets, includes metadata and data
33 assumptions, contains powerful data analysis tools, and is a permanent archive of all data records.”

34 **Proposed Management:** Section 5.2.13 - Migratory Bird Management - Applicable Goals and
35 Objectives: Goal 1, Objectives 1 - 6

36 **5.3.10.4 Management Issue – Water Resources**

37 OH094/39760 contains 1.92 acres of perennial stream. Approximately 50 percent of the site lies in
38 the 100-year, zone AE flood zone of Wolf Creek. Development within the floodplain area may require
39 a permit and should be evaluated prior implementing such activities on the installation.

40 **Proposed Management** – Section 5.2.18 - Water Resources Management. Applicable Goals and
41 Objectives: Goal 1, Objective 1, 2, 4.

1 **5.3.10.5 Management Issue – Wetlands Management**

2 Impacts to wetlands should be avoided. Impacts may require a permit from either OEPA or USACE.
3 Wetlands, including Cunningham Ditch, appearing to have a hydrological connection to surface
4 waters, and wetlands with no apparent connection to surface waters, were observed. Should the
5 USACE determine the wetlands and/or drainage ditch (i.e., stream) to be jurisdictional under §404 of
6 the CWA, a §404 permit from the USACE and a §401 water quality certification from the OEPA would
7 be required for any proposed impacts. Should wetlands be determined to be isolated, an Ohio
8 Isolated Wetland Permit would be required for any proposed impacts.

9 **Proposed Management:** Section 5.2.19 - Wetlands Management - Applicable Goals and
10 Objectives: Goal 1, Objectives 1-2, Goal 2, Objectives 1 – 3 and 4 as needed, and Goal 3.

11

1 **5.3.11 Land for Future ARC (Eau Claire) (WI011/55786)**

2 WI011/55786 is undeveloped and contains 8.3 acres of coniferous forest, 6.37 acres of grassland/old field,
3 and 0.33 acres of mixed deciduous forest. Potentially suitable habitat exists for the federally listed Karner
4 blue butterfly (*Lycaeides melissa samuelis*) and state listed loggerhead shrike (*Lanius ludovicianus*). The
5 invasive species common buckthorn and spotted knapweed are widespread. Future construction will
6 require tree clearing.

7 **5.3.11.1 Management Issue – Forestry Management**

8 Future construction of this site will require tree-clearing. Where practicable, mature trees on the site
9 should be preserved during site development. The northern half of the site contains substantial
10 quantities of jack pine (*Pinus banksiana*) in the 4- to 8-inch diameter at breast height (dbh) category,
11 with some in the 12-inch dbh size class and may be marketable as pulp wood.

12 **Proposed Management:** Section 5.2.7 - Forestry Management – When applicable, Goal 1
13 Objectives 1 - 8

14 **5.3.11.2 Management Issue – Federal and State-Listed Species Management**

15 The Monarch Butterfly (*Danaus plexippus*) is currently a Candidate species. Closely monitor the
16 official USFWS status over the coming 5-years, and should it become listed evaluate as per USFWS
17 protocol.

18 **Proposed Management** – Section 5.2.5 Federal / State Listed Species – Applicable Goals and
19 Objectives: Goal 1 – Objectives 1-4. If the need for an ESMC is identified Goal 4, Objectives 1 and
20 2.

21 **5.3.11.3 Management Issue – Invasive Species Management**

22 Butter and eggs (*Linaria vulgaris*), field bindweed (*Convolvulus arvensis*), common buckthorn
23 (*Rhamnus cathartica*), and spotted knapweed (*Centaurea maculosa*) were observed on the site and
24 are considered invasive species. Due to limited distribution, butter and eggs and field bindweed are
25 not regarded as a current management concern. Common Buckthorn is extremely dense in some
26 areas and will likely control tree seedling development in several places within the jack pine (*Pinus*
27 *banksiana*) woods. Spotted knapweed (*Centaurea maculosa*) was very common and dispersed
28 through areas of grassland/old field, but no dense patches of spotted knapweed were observed.
29 However, the spread of spotted knapweed on the site should be monitored, and if construction is
30 planned, spotted knapweed should be eradicated and/or construction equipment should be
31 thoroughly cleaned prior to exiting the site to prevent spread of this aggressive, invasive species.
32 The WDNR has several excellent resources on spotted knapweed eradication and control.

33 **Proposed Management** – Section 5.2.12 Invasive Species Management – Applicable Goals and
34 Objectives - Goal 1, Objectives 1, 4 – 6. Additionally, Section 5.2.16 Pest Management –
35 Applicable Goals and Objectives: Goal 1 Objectives 1 & 2 and Goal 2 Objective 1.
36

1 **5.3.12 West Silver Spring Complex (WI064/55999)**

2 Lincoln Creek, the largest perennial tributary to the Lower Milwaukee River, crosses WI064/55999. There is
3 also a small tributary to Lincoln Creek that meanders into and outside of the site. Portions of the site are in
4 a 100-year floodplain. WI064/55999 contains 10.64 acres of deciduous forest (including 4 acres of rare
5 southern mesic forest), 63.73 acres of grassland/field (mostly covering two closed landfills), 0.61 acres of
6 urban forest, and 0.97 acres of open water (including five retention ponds with hydrophytic vegetation).
7 Suitable habitat is present for the state-listed Butler’s garter snake (*Thamnophis butleri*) has a confirmed
8 presence via a field survey in 2018. Salmon have been observed migrating up Lincoln Creek. In the previous
9 INRMP the American gromwell (*Lithospermum latifolium*) (plant) was called out as having potential; presence;
10 however, a 2018 not only did not find presence, but also identified that the habitat requirements for the
11 American gromwell were not present at WI064. Invasive species are associated with the forests and
12 grasslands.

13 **5.3.12.1 Management Issue – Federal and State-Listed Species Management**

14 Grassland/field areas in the northern portion of the site, especially those areas adjacent to Lincoln
15 creek, offer suitable habitat for the state of Wisconsin listed Butler’s garter snake. Where practicable,
16 impacts to this potentially suitable habitat should be avoided. Unavoidable impacts should be
17 minimized, assessed, and properly mitigated. Prior to undertaking activities that will impact this
18 habitat; a survey to detect presence of the species should be conducted.

19 **Proposed Management** – Section 4.2.5 *Federal and State-Listed Species Management – Goal 1,*
20 *Objectives 1 – 5. Goal 2, Objectives 1-3. Where feasible Goal 3, Objectives 1 and 2. When determined*
21 *to be necessary, Goal 4, Objectives 1 and 2.*

22 **5.3.12.2 Management Issue – Forestry Management**

23 A forest inventory was completed in August 2021. The results of the inventory indicated that there
24 are numerous large diameter trees, some reaching diameter as large as 40 inches DBH. However,
25 due to the small size (10.64 acres) of the tract, tree species present, and costs for completing NEPA
26 requirements, it is not economically feasible to conduct a timber harvest. Estimated 2021 timber
27 value was less than \$13,000.00. There is a considerable number of invasive species that would need
28 to be managed. The force management plan will not be updated and maintained for this property
29 due to these conditions. Additionally, a survey was conducted by Dr. Lee Frelich, director of Center
30 for Hardwood Ecology Department of Forest Resources University of Minnesota (2009) who
31 determined that the northern portion of the tract is considered an old growth beech, sugar maple
32 forest with oak, basswood, white ash and shagbark hickory as the most dominant species. This tract
33 is approximately 7 acres.

34 Trees in this area range from 200+ years to small seedlings; it is suspected this area has never been
35 logged. Because such a tiny proportion of old growth remains, unlogged remnants of this forest type
36 are valuable from the old growth perspective. Additionally, beech bark disease has affected most of
37 the remaining old growth forests where that species is present throughout its range. Beech bark
38 disease has spread to Wisconsin, it was discovered in Door County, Wisconsin, in September 2009.
39 (Wisconsin DNR 2023). The neighboring Havenwood State Forest express interest in their 1980s
40 master plan in accessing the property and the west landfill for educational purposes. If there is no
41 existing military need for this portion of the property other entities may be interested in acquiring it
42 through the property disposal process.

43 Dr. Frelich also stated that this 4-acre wooded area in the northernmost corner of the property exhibits
44 characteristics and species composition of a southern mesic forest community, which has a state

rank of S3 indicating the community type is rare or uncommon in Wisconsin and is actively tracked by WDNR. Currently the WDNR has not confirmed this. Goals for the Silver Spring forestry program include:

- Supporting unit training and mission requirements
- Incorporating ecosystem management principles into management of the forest resources
- Monitoring and managing invasive species, while promoting regeneration of native species as funding allows
- Maintaining the old growth forest in its natural state, and monitoring for beech bark disease
- Ensure management actions comply with all applicable laws, regulations, and guidance including endangered species management.

Proposed Management: *Since this site will not be managed as an economically viable forest tract, applicable management will be limited to Section 5.2.6 Ecosystem Management – Goal 3 Objectives 1 & 2.*

5.3.12.3 Proposed Management - Invasive Species Management Plan

The Invasive Species Management Plans compile data regarding species extent, composition, and treatment options / priorities. Species addressed may include those that pose a health and safety risk, those regulated by the USDA due to potential to impact the economy, along with state and federal lists identifying noxious invasive species are consulted. Implementation of the plans expands access to training lands and protects valuable concealment resources. A complete list from the 2021 NRSRVUUP is included in the West Silver Spring Profile in Section 3.9.7 Management Concerns.

Proposed Management – Section 5.2.12 Invasive Species Management – Applicable Goals and Objectives - Goal 1, Objectives 1 – 6. Additionally, Section 5.2.16 Pest Management – Applicable Goals and Objectives: Goal 1 Objectives 1 & 2 and Goal 2 Objective 1. Section 5.2.20 Wildfire Management - Applicable Goals and Objectives: Goal 3, Objectives 1-4.

5.3.12.4 Proposed Management - Migratory Bird Survey

A migratory bird survey was conducted in 2021 and should be continued at regular intervals to determine species trends and which species are utilizing the habitat, and what specific management actions may be needed to protect and enhance habitat for these species at WI064.

Avian Knowledge Network

As per the 2022 DoD Memorandum from the Office of the Assistant Secretary of Defense, Mr. Richard G. Kidd (signed 06DEC2022) SUBJECT: Department of Defense Avial Knowledge Network Program; “. . . DoD has established a Memorandum of Understanding with the U.S. Fish and Wildlife Service outlining the management and stewardship activities DoD will implement for migratory bird conservation. All DoD natural resources conservation programs support DoD access to its land, air, and water resources for realistic military training and testing and to sustain the long-term ecological integrity of the resource base and the ecosystem services it provides, in accordance with the Sikes Act. Collecting data and information from ongoing surveys, inventories, and monitoring are essential to make informed management decisions, efficiently and effectively meet regulatory requirements (e.g., the MBTA, the Sikes Act), conduct environmental analyses, and support planning to adaptively manage migratory bird populations in the context of mission activities.

“To address these challenges, DoD began partnering with other federal agencies (i.e., U.S. Fish and Wildlife Service, Bureau of Land Management, U.S. Forest Service) in the development of the Avian

1 Knowledge Network (AKN) in 2016. The AKN is a national clearinghouse for avian data and decision
2 support tool for assessing bird population health, status and trends, specific stressors, and
3 conservation measures. The AKN connects partner datasets, includes metadata and data
4 assumptions, contains powerful data analysis tools, and is a permanent archive of all data records.”

5 **Proposed Management:** Section 5.2.13 - Migratory Bird Management - Applicable Goals and
6 Objectives: Goal 1, Objectives 1 - 6

7 **5.3.12.5 Management Issue – Pest Management**

8 Invasive species have established in the southern third of this wooded area that was logged within
9 the past 50 years (approximately 5 acres) rendering it non-representative of the southern mesic forest
10 fragment and a threat to that community. To avoid further encroachment into the southern mesic
11 forest community, invasive species in this area should be treated, or the property disposed to an
12 interested party if it is no longer required for the military mission. Regular mowing or other
13 management of the grasslands should also be undertaken to control potential encroachment of
14 invasive plants, e.g., bull thistle, to this community.

15 The landfill cap requires mowing at minimum once a year to prevent woody vegetation from
16 penetrating and compromising the sanitary landfill cap.

17 **Proposed Management – Section 4.2.16 - Pest Management - Applicable Goals and Objectives:**
18 Goal 1, Objective 2, Goal 2.

19 **5.3.12.6 Management Issue – Water Resources**

20 Lincoln Creek flows through WI064/55999. This stream is a jurisdictional water of the United States
21 and construction activities within this waterway must comply with Section 404 of the Clean Water Act.
22 Portions of an unnamed tributary to Lincoln Creek also flow through WI064/55999. This stream is
23 likely a jurisdictional water of the United States and construction activities within this waterway must
24 therefore comply with Section 404 of the Clean Water Act.
25

26 Jurisdictional floodplain areas are located adjacent to Lincoln Creek and along the western site
27 boundary. Any construction activities proposed within floodplains would likely require consultation
28 with County and State officials to comply with state and/or local floodplain regulations.

29 **Proposed Management:** – Section 5.2.18 - Water Resources Management Applicable Goals and
30 Objectives: Goal 1 - 4

31 **5.3.12.7 Management Issue – Wetlands Management**

32 The five retention ponds constructed as part of the Lincoln Creek Project have wetland
33 characteristics. These areas may be considered jurisdictional if they are no longer being used for the
34 purpose they were constructed and should be delineated and confirmed with the USACE and WDNR.
35 Where practicable, impacts to these ponds should be avoided. Unavoidable impacts should be
36 assessed and properly mitigated.

37 **Proposed Management:** – Section 5.2.19 - Wetlands Management. Applicable Goals and
38 Objectives: Goal 1, Objective 1 and 2, Goal 2, Objectives 1 – 3.
39

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6.0 Implementation

This section of the INRMP provides further detail on resources and processes for implementing this INRMP, including personnel, partners, projects and funding, and monitoring and review.

6.1 Organization and Personnel

This plan is only as good as the 88th RD's capability to implement it. This INRMP was prepared with a goal of 100 percent implementation. Below are described the organization, personnel, and funding needed to implement the management actions described in Section 5.3.

Organization

The 88th RD's Environmental Division has the responsibility of implementing this plan, operating under a number of policies, and budgetary constraints. The 88th RD can implement much of this INRMP and fulfill general goals and policies established in Section 1.0.

Personnel

The following staffing is available to implement this INRMP within the 88th RD:

- A team of Environmental Protection Specialists assigned to the Conservation Program
- A team of Regional Environmental Protection Specialist (REPS) assigned to Environmental Compliance
- Two Department of the Army Civilian (DAC) Branch Chiefs
- One over-hire DAC Wildlife Biologist
- And the support of the DPW and other Environmental Program areas.

Command Support

Command support is essential to implementation of this INRMP. This INRMP is endorsed by and has the support of the 88th RD Commander. The Command is not only dedicated to implementation of this INRMP, as required by the Sikes Act and other federal laws, but also in strengthening its environmental stewardship goals and accomplishments. The 88th RD Command is dedicated to enabling the military mission on 88th RD lands, ensuring no net loss of natural resources while maintaining and improving lands utilized for mission readiness.

6.2 Other Partners and Resources

6.2.1 Other Defense Organizations

U.S. Army Reserve Command (ARC)

Installation Management Directorate

The Installation Management Directorate, located in Fort Liberty, North Carolina, is responsible for providing policy, guidance, and support to the 88th RD DPW Environmental Division's natural resources program by:

- reviewing natural resources management plans and programs, and
- ensuring that effective natural resources stewardship is an identifiable and accountable function of management.

1 The Installation Management Directorate will conduct an onsite evaluation of this natural
2 resources program at least once every three years and will act as trustee over the overall natural
3 resources program.

4 **Army Environmental Command (USAEC)**

5 The Army Environmental Command, located at Fort Sam Houston, Austin, TX, provides oversight,
6 centralized management, and execution of Army environmental programs and projects. It has
7 support capabilities in the areas of NEPA, endangered species, cultural resources, environmental
8 compliance, and related areas.

9 **Army Public Health Command**

10 The Army Public Health Command, located at Aberdeen Proving Ground, MD, promotes health
11 and prevents disease, injury, and disability in Soldiers and retirees, their families, and Army
12 civilians. It has support capabilities for diseases that can be spread by pest animals and insects.

13 **U.S. Army Corps of Engineers (USACE)**

14 The USACE assists the 88th RD by administering contracts for outside or other agency support,
15 contracting environmental personnel to function within the ED, and administering wetland permits
16 in accordance with sections 404 and 401 of the CWA. These contracts include those involved
17 with sensitive species surveys and others.

18 **6.2.2 Other Federal Agencies**

19 **U.S. Fish and Wildlife Service (USFWS)**

20 The USFWS provides technical advice for 88th RD property management of natural resources
21 on, particularly threatened and endangered species. Additionally, the USFWS recommends ways
22 to avoid, minimize, rectify, reduce, or compensate for damaging impacts to important fish and
23 wildlife resources and their habitats that may be attributed to land and water resource
24 development proposals. AR 200-1 (Department of Army, 2007), Chapter 11, provides guidance
25 to be followed by the 88th RD when dealing with the USFWS for endangered species
26 management.

27 In accordance with the Sikes Act, the USFWS is a signatory cooperator in the implementation of
28 this INRMP. Appendix F contains specific items of agreement as required by the Sikes Act.

29 **U.S. Forest Service (USFS)**

30 The USFS is a multi-faceted agency that manages and protects 154 national forests and 20
31 grasslands in 44 states and Puerto Rico. The agency's mission is "To sustain the health, diversity,
32 and productivity of the nation's forests and grasslands to meet the needs of present and future
33 generations." It augments this work through partnerships with public and private agencies that
34 help plant trees, improve trails, educate the public, and improve conditions in wildland/urban
35 interfaces and rural areas.

36 **Environmental Protection Agency (EPA)**

37 The USEPA is involved in a host of federal programs related to natural resources management,
38 particularly in the wetlands permitting process. US EPA's core mission is protection of human
39 health and the environment, and is committed to providing clean air, water, and land for all
40 Americans. (EPA, website)

6.2.3 State Agencies

State Wildlife Agencies

The state wildlife agencies have Natural Heritage programs as part of a Natural Heritage Network with comparable programs in all 50 states, most Canadian provinces, and 14 Latin American countries. Their heritage programs maintain the most comprehensive databases on each state's rare plant and animal species and natural communities. This information is a compilation of historical records from museum and herbarium collections, as well as from field surveys.

Illinois Department of Natural Resources, Indiana Department of Natural Resources, Iowa Department of Natural Resources, conserve and enhance our natural resources in cooperation with individuals and organizations to improve the quality of life in Iowa and ensure a legacy for future generations.

Michigan Department of Natural Resources, The Michigan Department of Natural Resources is the agency of the state of Michigan charged with maintaining natural resources such as state parks, state forests, and recreation areas. It is governed by a director appointed by the Governor and accepted by the Natural Resources Commission

Minnesota Department of Natural Resources, The mission of the Minnesota Department of Natural Resources (DNR) is to work with Minnesotans to conserve and manage the state's natural resources, to provide outdoor recreation opportunities, and to provide for commercial uses of natural resources in a way that creates a sustainable quality of life.

Missouri Department of Conservation, protect and manage the fish, forest, and wildlife of the state, also facilitate and provide opportunity for all citizens to use, enjoy, and learn about these resources.

Ohio Department of Natural Resources, The Ohio Department of Natural Resources is the Ohio state government agency charged with ensuring "a balance between wise use and protection of our natural resources for the benefit of all.

Wisconsin Department of Natural Resources are signatory cooperators for implementation of this INRMP. Appendix F contains specific items of agreement among these state wildlife agencies, the USFWS (Region 3), and the 88th RD, as required by the Sikes Act.

State Historic Preservation Offices

The Illinois, Indiana, Iowa, Michigan, Missouri, Minnesota, Ohio, and Wisconsin State Historic Preservation Offices administer historic preservation programs and are responsible for overseeing the implementation of the National Historic Preservation Act in their states. State Historic Preservation Officers serve as repositories for locations of archeological sites within Army Reserve properties. State Historic Preservation Officers work with the 88th RD Cultural Resource Manager, 88th RD Cultural Resource Program Manager and 88th RD Site Managers in recording site information and providing consultation for site protection and mitigation. These activities may affect certain natural resources managed on Army Reserve property.

6.2.4 Native American Tribes

The United States has a unique legal relationship with Indian tribal governments as set forth in the Constitution of the United States, treaties, statutes, executive orders, and court decisions. Since the formation of the Union, the United States has recognized Indian tribes as domestic dependent nations under its protection. Executive Order 13175 and the *American Indian and Alaska Native Policy* (Department of Defense, 1998) establish regular and meaningful consultation and collaboration with Indian tribal governments. The 88th RD provides a process that permits elected officials and other

1 representatives of Indian tribal governments to provide meaningful and timely input on actions or
2 policies that might be of tribal interest, such as those that affect sacred or Indian cultural sites. Native
3 American Tribes that may be consulted are listed in the ICRMPs.

4 **6.3 Identified Projects and Funding Requests**

5 **6.3.1 Project/Program Summary**

6 Projects, goals, and objectives within this INRMP can be used to monitor the effectiveness of natural
7 resources management at 88th RD LTAs. Appendix C contains a list of all projects, goals, and
8 objectives for this INRMP in the order they appear.

9 **6.3.2 Environmental Program Requirements**

10 The USAR Environmental Budget Report provides the primary means for identifying current and
11 projected environmental requirements and resources needed to execute the 88th RD's natural
12 resources program. The budget report is used for a variety of purposes: planning, programming,
13 budgeting, and forecasting costs; documenting past accomplishments and expenditures; tracking
14 project execution and monitoring performance; refining and validating requirements for the budget
15 year; and supporting the program for outyear requirements.

16 **Environmental funds** are a special subcategory of Operations and Maintenance funds. They are
17 set aside by the Department of Defense for environmental purposes but are still subject to restrictions
18 of Operations and Maintenance funds. Compliance with laws is the key to getting environmental
19 funding. Environmental funds are most commonly used for projects that maintain or return the
20 installation to compliance with federal or state laws, especially if noncompliance is accompanied by
21 Notices of Violation or other enforcement agency actions.

22 "Must fund" classifications include mitigation identified within *Findings of No Significant Impact* and
23 items required within Federal Sites Compliance Agreements. This INRMP is a Federal Sites
24 Requirement Agreement, and some projects and programs within it are used to mitigate various
25 military activities. In addition, 1997 amendments to the Sikes Act require implementation of INRMPs,
26 which make implementation of this INRMP a priority for funding.

27 **6.3.3 Operations and Maintenance Funds**

28 Certain projects within this INRMP are either partially or fully funded with Operations and Maintenance
29 Funds. General site pest management (exclusive of invasive weed control and other range-related
30 pest management) and general grounds maintenance are in this category. Operations and
31 Maintenance Funds are not included in budget estimates for this INRMP.

32 **6.3.4 Training Funds**

33 ITAM funding requests are not submitted via the EPR process. Instead, the Integrated Workplan
34 Analysis Module is used to channel ITAM funding requests from the 88th RD to the Office of the
35 Deputy Chief of Staff for Operations and Plans. This funding avenue will be developed as ITAM is
36 evaluated for 88th RD LTAs.

6.4 Annual and Five-Year Reviews

INRMPs are reviewed annually to assess progress made toward achieving goals and objectives and identify possible new projects, as well as every five years to determine whether the existing INRMP is being implemented and effective to meet the requirements of the Sikes Act. DoD's INRMP Implementation Manual covers INRMP reviews, updates, and revisions (DoDM 4715.03, 2013).

6.4.1 Stakeholder Coordination

DoD has established partnerships with federal and state regulatory agencies to support the common goals of managing natural resources, conserving native species, and recovering threatened and endangered species. To develop and implement these natural resources management strategies, the USAR partners closely with the USFWS and state DNRs within Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin. Those agencies participate in the preparation of the INRMP, as well as annual reviews of the progress and effectiveness of the Plan. The USAR also affords an opportunity for public comment during development of the Plan.

The DoD also has formed partnerships with nongovernmental organizations (NGOs) such as Partners in Flight (PIF). The 88th RD will use the data and regional management strategies provided by these NGOs to provide additional regional context to this INRMP.

6.4.2 Annual Review Process

To monitor INRMP implementation and progress towards goals, the 88th RD Environmental Division NRM completes the following steps, annually at the end of each fiscal year:

- (1) Review the INRMP and document progress toward its objectives, taking into consideration that success/progress towards INRMP objectives is closely tied to funding availability.
- (2) Complete the annual review by providing the status of each project found in Appendix C to the Commanding General via the Environmental Division Chief to communicate progress of achieving the INRMP goals.
- (3) The Director of Public Works will validate and certify the annual update as current.
- (4) Provide a brief report of the annual review to the 88th RD CG or designated alternate.
- (5) Annual reviews shall verify that:
 - projects have been budgeted for and implementation is on schedule; contingent upon availability of funding.
 - projects and activities for the upcoming years have been identified and included in the INRMP review.
 - an evaluation has occurred to identify significant changes to the site's mission requirements or its natural resources.
 - no net loss of training capability has occurred due to implementation of the INRMP in accordance with the Sikes Act.

1 **6.4.3 Annual Review Summaries**

2 Annual review summaries are provided in Appendix D. This includes the Environmental Division
3 Chief summary information paper that is provided to the Commanding General.

4 **6.4.4 Five-Year Review Process**

5 The INRMP will be reviewed and revised every 5 years by the Environmental Division and coordinated
6 within the 88th RD. Coordination will include the Regional Directors of USFWS Region 3, and
7 Directors of the state fish and wildlife agencies. After coordination is completed, the draft will be
8 proposed to the 88th RD Commanding General for approval. The review is intended to determine
9 whether the existing INRMP is being implemented and effective to meet the requirements of the Sikes
10 Act and contribute to the conservation and rehabilitation of natural resources on 88th RD sites.

11 If the review process determines that no revision is necessary, the existing INRMP will continue to
12 provide guidance for natural resources management on 88th RD sites. If the review process
13 determines that the INRMP needs revising, there is no set time limit to complete the INRMP revisions.
14 Until the USFWS Regional Director and state fish and wildlife agency directors mutually agree upon
15 the INRMP revision, the current INRMP remains in effect.

16 If there is no substantive changes to the INRMP then a memorandum from the 88th RD's Commander
17 will be sent to the agencies notifying them that there are no substantive changes, with a request for
18 their concurrence. Examples of substantive changes are:

- 19 • Acquisition of a new high resource site.
20 • Discovery since the last 5-year review of a federally listed species under the ESA on a site.
21 • Loss of greater than 5 acres of jurisdictional wetlands requiring mitigation.
22 • An alteration to the 88th RD's mission that dramatically changes training capability requirements
23 and impacts natural resource management. This is to ensure no net loss of training capability
24 has or will occur due to implementation of the INRMP in accordance with the Sikes Act.

25 After 90 days, the memorandum will then become part of the existing INRMP, and the five-year review
26 is complete. Responses or the lack thereof will be included in the documentation.

1 **6.5 Stakeholder Coordination and Public Involvement**

2 **6.5.1 Public Involvement**

3 National Environmental Policy Act – NEPA – This Integrated Natural Resource Management Plan will
4 go through the NEPA process to ensure it complies with the associated regulations. The public will
5 be given the opportunity to comment on the document prior to it being finalized.

6 Educating the users and visitors of 88th RD sites is key to integrating this Plan with USAR activities
7 and is a priority of the natural resources management strategy. Projects involving education are
8 found throughout this INRMP. Other projects involving creation or update of fact sheets, web pages,
9 soldier/user field cards and other innovative educational ideas are designed to inform personnel of
10 the importance of natural resources conservation, not only for the purpose of land stewardship, but
11 also to support the military mission.

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APPENDICES

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Appendix A	Laws, Regulations, and Executive Orders
Appendix B	Low Resource Site Profiles
Appendix C	Project Lists
Appendix D	Annual Review Summaries
Appendix E	Component Plans
Appendix F	Stakeholder Coordination
Appendix G	NEPA Documentation

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Appendix A: Laws, Regulations, and EOs

Compliance Requirements

The INRMP is the primary mechanism for compliance with natural resources laws and regulations. Federal, state, and local laws and regulations may apply to proposed management actions in this plan.

Sikes Act

The Sikes Act (as amended) requires an integrated natural resources management plan be prepared and implemented for each military installation, unless the absence of significant natural resources makes preparation of a plan inappropriate. Pursuant to the Sikes Act, INRMPs include (DoDM 4715.03):

- Mission Sustainability: The goal of DoD environmental programs and policies is conserving the environment for mission sustainability. INRMPs should enable the preparedness of the Military Services to provide for no net loss in the capability of military installation lands to support the military mission of the installation.
- Managing Threatened and Endangered Species: The INRMP incorporates inventory, monitoring, and management of ESA listed species and agreed upon elements of specific ESA consultations.
- Implementation: INRMP implementation must comply with applicable federal laws.
- Accommodation of Public Access: The INRMP identifies areas available to the general public (for hunting, fishing, and trapping) to the extent that the use is not inconsistent with the needs of fish and wildlife resources, subject to requirements necessary to ensure safety and military security.
- Review: Incorporate USFWS and state fish and wildlife agencies into preparing, reviewing, revising, updating, and implementing INRMPs in accordance with the Tripartite Memorandum of Understanding (<http://www.denix.osd.mil/nr/upload/Sikes-Tripartite-MOU.pdf>).

National Environmental Policy Act (NEPA)

NEPA requires disclosure of environmental impacts created by proposed major federal actions. The intent of NEPA is to better inform decision-makers of potential impacts from proposed projects and to utilize this information early in the project planning process. AR 200-1 (*Environmental Protection and Enhancement*) (Department of the Army, 2007) and the Council on Environmental Quality *Implementing Guidelines for NEPA* (40 CFR Parts 651) recommend an environmental assessment be completed for natural resources management plans.

Endangered Species Act (ESA)

This INRMP has the signatory approval of the USFWS. This signature approval includes agreement that the INRMP complies with the Endangered Species Act. Review of the INRMP is informal consultation with regard to the Endangered Species Act.

Army Regulations

AR 200-1 (*Environmental Protection and Enhancement*) (Department of the Army, 2007) implements Federal, State, and local environmental laws and DOD policies for preserving, protecting, conserving, and restoring the quality of the environment. Some of these areas affect and/or are affected by natural resources programs (e.g., water quality, pollution prevention, restoration).

AR 350-19 (The Army Sustainable Range Program) (Department of the Army 2005) defines the ITAM program's objectives as achieving optimal sustained use of lands for training and testing, integrating Army training and other mission requirements for land use with sound natural resources management, and advocating proactive conservation and land management priorities.

1 **Laws and Regulatory Instruments**

2 Presented below is a list of the most significant, but not complete, federal and state laws and regulations
3 and other regulatory instruments that govern implementation of this INRMP.

4 **Federal Laws**

- 5 American Indian Religious Freedom Act (42 USC, as amended through 1996)
- 6 Archaeological and Historic Preservation Act of 1974 (PL 93-291; 88 Stat. 174; 16 USC 469 *et seq.*)
- 7 Archaeological Resources Protection Act of 1979 (PL 96-95; 16 USC 470aa-II, as amended through
8 1988)
- 9 Bald Eagle Golden Eagle Protection Act (PL 95-616 (92 Stat. 3114), as amended through 1978)
- 10 Clean Air Act (as amended through 1990)
- 11 Clean Water Act (CWA) of 1978
- 12 Conservation and Rehabilitation Program on Military and Public Lands (PL 93-452, as amended
13 through 2013)
- 14 Conservation Programs on Military Reservations (PL 90-465, as amended through 1986)
- 15 Endangered Species Act (ESA) of 1973 (PL 95-632, as amended through 1982)
- 16 Erosion Protection Act (33 USC 426e-426h)
- 17 Federal Sites Compliance Act of 1992 (PL 102-386; amending 42 USC 6961)
- 18 Federal Insecticide Fungicide and Rodenticide Act (FIFRA) (7 USC 136 *et seq.*, as amended through
19 2007)
- 20 Federal Water Pollution Control Act Amendments of 1972 (PL 92-522)
- 21 Fish and Wildlife Conservation Act of 1980 (PL 96-366; 16 USC 2901, as amended through 1989)
- 22 Fish and Wildlife Coordination Act (PL 89-72, 79 Stat. 216, as amended through July 9, 1965)
- 23 Fish and Wildlife Conservation and Natural Resource Management Programs on Military Reservation
24 (Amends Public Law 86-797 [Sikes Act] PL 96-561)
- 25 Migratory Bird Conservation Act (Chapter 257; 45 Stat 1222; 16 USC 715 *et seq.*, as amended through
26 1986)
- 27 Migratory Bird Treaty Act (PL 65-186; 16 USC 703 *et seq.*, as amended through 1998)
- 28 Native American Graves Protection and Repatriation Act of 1990 (25 USC, Section 3001 *et seq.*)
- 29 National environmental Policy Act (NEPA) of 1969 (as amended, PL 91-190; 42 USC 4321 *et seq.*, as
30 amended through 1982)
- 31 National Historic Preservation Act of 1966 (as amended, PL 89-665; 16 USC 470 *et seq.*, as amended
32 through 1992)
- 33 Non-game Act (PL 93-366, as amended through 1977)
- 34 Noxious Plant Control Act (PL 90-583, as amended in 1990)
- 35 Plant Protection Act of 2000 (replaces Federal Noxious Weed Act of 1973 (PL 93-629))
- 36 Sikes Act Improvement Act of 1997 (PL 105-85, as amended; USC Title 16)
- 37 Watershed Protection and Flood Prevention Act (PL 92419; 68 Stat 666, as amended & 86 Stat 667; 16
38 USC 1001)

39 **Executive Orders and Presidential Memoranda**

- 40 Executive Order 11593, Protection and Enhancement of the Cultural Environment (1971)
- 41 Executive Order 11988, Floodplain Management (2015)

1 Executive Order 11991, Protection and Enhancement of Environmental Quality: Amends Executive
2 Order 11514 (1977)
3 Executive Order 12608, Protection of Wetlands: Amends Executive Order 11990 (1987)
4 Executive Order 12898, Environmental Justice (1994), Amended by Executive Order 12948 (1995)
5 Executive Order 13007, Indian Sacred Sites (1996)
6 Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks
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8 Executive Order 13175, Consultation and Coordination with Indian Tribal Governments (2000)
9 Executive Order 13112, Invasive Species (1999)
10 Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (2001)
11 Executive Order 13653, Preparing the United States for the Impacts of Climate Change (2013)
12 Executive Order 13693, Planning for Federal Sustainability in the Next Decade (2015)
13 Presidential Memorandum, Environmentally and Economically Beneficial Practices on Federal
14 Landscaped Grounds (1994)
15 Presidential Memorandum, Government-to-Government Relations with Native American Tribal
16 Governments (1994)
17 Presidential Memorandum, Creating a Federal Strategy to Promote the Health of Honey Bees and
18 Other Pollinators (2014)
19 Center for Environmental Quality (CEQ) Guidance for Federal Agencies on Sustainable Practices for
20 Designed Landscapes (2011)

21 **Department of Defense (DoD) Directives/Instructions**

22 DoD Directive 4150.7, DoD Pest Management Program (2008)
23 DoD Directive 4700.4, Natural Resources Management Program (1989)
24 DoD Directive 4710.1, Archaeological and Historic Resources Management (1984)
25 DoDM 4715.03, Integrated Natural Resources Management Plan (INRMP) Implementation (2013)
26 DoD Directive 4715.1E, Environment, Safety, and Occupational Health (ESOH) (2005)
27 DoDI 4715.9, Environmental Planning and Analysis (1996)
28 DoDI 5000.13, Natural Resources (1976)
29 DoD Directive 7310.5, Accounting for Production and Sale of Forest Products (1988)
30 DoD, American Indian and Alaska Native Policy (1998)

31 **Army Regulations (AR)**

32 AR 200-1, Environmental Protection and Enhancement (Department of the Army, 2007)
33 AR 350-19, The Army Sustainable Range Program (Department of the Army, 2005)
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Appendix B: Low Resource Site Profiles

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**88th Readiness Division
USFWS Region 3
Excessed/Disposed Properties
Between 2015 and 2023**

Legacy Code/ Facility ID	NAME	LOCATION	Disposition / Disposal Date
IA008/19525	Creston USARC	Creston	15 March 2017
IA018/19605	Robert C. Kadgihn USARC	Iowa City	17 Aug 2023
IA019/19495	Burlington USARC	Middletown	20 April 2016
IA024/19635	Pocahontas USARC	Pocahontas	Disposal Pending
IA027/19675	Washington USARC	Washington	Excessed Pending Disposal
IA028/1990B	Washington	Washington	31 Jan 2019
IL003/17815	Fox Valley Memorial USARC	Aurora	Excessed Pending Disposal
IL005/17825	PFC R. Gantner USARC	Belleville	Excessed Pending Disposal
IL020/17861	CPT R. B. Chapman USARC	Danville	14 July 2020
IL050/17885	Zega Brothers USARC	Harvey	23 April 2018
IL061/17505	Orland Park USARC	Orlando Park	20 July 2016
IL065/17935	Lincoln-Douglas USARC	Quincy	17 Sept 2018
IL066/17955	Rockford USARC	Rockford	07 June 2018
IL183/17884	Granite City USARC (Land)	Granite City	09 May 2016
IN001/18605	1LT C. L. Waples USARC	Anderson	20 Sept 2016
IN016/18915	R. M. Moore USARC	Indianapolis	23 August 2018
IN079/1835E	GSA DFAS USARC	Lawrence	24 March 2015
MI003/26765	G. B. Dolliver USARC/AMSA	Battle Creek	10 May 2018
MN015/27860	E. L. Peterson Memorial USARC	Fergus Falls	25 Oct 2016
MN019/2110A	Mankato	Mankato	31 July 2015
MN027/27333	Rochester	Rochester	28 Feb 2018
MN047/27965	H. H. Sibley Memorial USARC	Winthrop	07 Sept 2017
MO029/29005	ARC ST. LOUIS #2	St Louis	26 Oct 2017
MO075/29984	Cape Girardeau ARC	Cape Girardeau	30 June 2015
OH001/39805	Schaffer USARC/AMSA #3 BMA	Akron	05 Feb 2015
OH005/39830	SSG G. J. Conaway USARC	Cadiz	08 Nov 2019
OH041/39905	Marion Engr. Depot East LTA	Marion	16 Jan 2018
OH108/39994	Boston Heights	Boston Heights	24 March 2015
WI008//55775	Dodgeville Memorial USARC	Dodgeville	Disposal Pending
WI004/55770	Wm. J. Huempfner ARC	Beloit	12 June 2018
WI029/5538A	Hurley USARC	Hurley	07 Nov 2016
WI032/55860	Rusk City Veteran Mem. USARC	Ladysmith	07 April 2017

Illinois Low Resource Sites

- IL003/17815 – Fox Valley Memorial USARC – Exceeded
- IL005/17825 – Gantner AFRC – Exceeded
- IL006/17830 – SGT Krause/PFC Goodrich USARC
- IL007/17827 – SGT Bruce G. Howerter USARC
- IL011/17849 – SGT James W. Robinson Jr. USARC
- IL021/17683 – MAJ Herbert J. Dexter USARC
- IL027/17666 – Forest Park AFRC
- IL035/17898 – North Shore Memorial USARC
- IL045/17884 – Granite City USARC
- IL051/17549 – Vietnam Vet Memorial USARC
- IL064/17928 – Veterans Memorial USARC
- IL068/17308 – Machesney Park USARC
- IL072/17965 – MAJ M.D. O'Donnell USARC
- IL073/17840 – 2LT R.H. Stephens USARC



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1 **IL003/17815 – Excessed**
2 **Fox Valley Memorial USARC**

3 661 Sullivan RD
4 Aurora, IL 60506

5 **County:** Kane

6 **Real Property Report Acres:** 3.62

7 **Building Count:** 2

8 **% Cover:** Not available

9 **Last Field Survey:** Desktop only



10 The Fox Valley Memorial USARC site is located in Aurora, Kane County. Surrounding land use
11 includes a residential to the north, south, and east, and open land with residential and commercial
12 properties to the east.

13 **Land Use**

14 The site is used for classroom training, general administrative services, and light vehicle
15 maintenance. The 88th RSC owns the land and 2 buildings that comprise IL003/17815. (No change
16 CMM 20Apr21)

17 **Natural Resources**

18 **Ecoregion:** Prairie-Forest Border

19 **Wetlands:** A site survey has not been conducted at this site therefore; no site-specific data
20 is available. According to NWI data, there are no wetlands on-site. (Verified unchanged from NWI
21 website data CMM 20Apr21)

22 **Vegetation:** A site survey has not been conducted at this site therefore; no site-specific data
23 is available. There are no undisturbed vegetative communities within or adjacent to site.

24 **Wildlife:** A site survey has not been conducted at this site therefore; no site-specific data is
25 available.

26 **Listed species:**

27	Indiana Bat	<i>Myotis sodalist</i> , FE
28	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT
29	prairie bush clover	<i>Lespedeza leptostachya</i> , FT
30	sheepnose mussel	<i>Plethobasus cyphus</i> , FE

31 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
32 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 20Apr21)

33 **Other Considerations:** None.

34 **Management Issues and Concerns:** None.

35
36

37 (Updated CMM 20Apr21)

1 **IL005/17825 – Excessed**

2 **PFC R. Gantner USARC**

3 500 South Belt East

4 Belleville, IL 61607

5 **County:** St. Clair

6 **Real Property Report Acres:** 6.70

7 **% Cover:** Deciduous Forest (17%)

8 Paved Road/Parking (42%)

9 Buildings (9%)

10 Maintained Grass (32%)

11 (No change CMM 20Apr21)

12 **Last Field Survey:** 2007



13 The PFC R. Gantner USARC consists of a USARC, an OMS, paved and gravel parking areas,
14 mixed deciduous forest, and maintained lawns. South Belt East Road and Freeburg Avenue serve,
15 respectively, as the northern and western property limits. A tree line serves as the approximate
16 southern property limits. Surrounding land use includes a cemetery to the south and east of the
17 site. To the west and north of the site is predominantly residential mixed with commercial facilities.

18 **Land Use**

19 The site includes two buildings; one is for classroom training, general administrative services and
20 the other for light vehicle maintenance. The 88th RD owns both buildings and the 6.70 acres of land
21 that comprise site IL005/17825. (No change CMM 20Apr21)

22 **Natural Resources**

23 **Ecoregion:** Interior Plateau

24 **Wetlands:** No wetlands were observed during the 2007 field survey. According to NWI data,
25 there are no wetlands on the site. The closest wetland is located approximately 150 feet
26 northeast of the site based on NWI data. (Verified unchanged from NWI website data CMM 20Apr21)

27 **Vegetation:**

28 **Lawn/Herbaceous Layer:**

29	Kentucky bluegrass	<i>Poa pratensis</i>
30	common dandelion	<i>Taraxacum officinale</i>
31	English plantain	<i>Plantago lanceolate</i>

32 **Canoy Layer:**

33	American beech	<i>Fagus grandifolia</i>
34	Sweetgum	<i>Liquidambar styraciflua</i>
35	American sycamore	<i>Platanus occidentalis</i>
36	honey locust	<i>Gleditsia triacanthos</i>
37	black cherry	<i>Prunus serotina</i>
38	black locust	<i>Robinia pseudoacacia</i>
39	shingle oak	<i>Quercus imbricaria</i>
40	bur oak	<i>Quercus macrocarpa</i>

1	silver maple	<i>Acer saccharinum</i>
2	hackberry	<i>Celtis occidentalis</i>
3	American elm	<i>Ulmus Americana</i>

4 **Wildlife:** During the 2007 field survey biologists observed several bird species including:

5	European starling	<i>Sturnus vulgaris</i>
6	northern cardinal	<i>Cardinalis cardinalis</i>
7	American robin	<i>Turdus migratorius</i>
8	mourning dove	<i>Zenaida macroura</i>
9	groundhog	<i>Sciuridae Spp.</i>
10	eastern gray squirrel	<i>Sciurus carolinensis</i>
11	short-tailed shrews	<i>Blarina brevicauda</i>
12	buckeye butterfly	<i>Junonia coenia</i>
13	orange sulfur butterfly	<i>Colias eurytheme</i>
14	pearl crescent butterfly	<i>Phyciodes tharos</i>
15	skipper	<i>Hesperiidae Spp.</i>

16 The property is largely developed and provides minimal habitat suitable to support
 17 wildlife. Wildlife species adapted to developed and populated areas are likely to utilize
 18 the property.

19 **Listed Species:** No listed species were observed during the field survey. No suitable habitat
 20 for listed species was observed.

21	Indiana bat	<i>Myotis sodalist</i> , FE
22	pallid sturgeon	<i>Scaphirhynchus albus</i> , FE
23	Illinois cave amphipod	<i>Gammarus acherondytes</i> , FE
24	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT
25	decurent false aster	<i>Boltonia decurrens</i> , FT

26 No state listed species have been documented on or within 1,000 feet of the site.

27 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
 28 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 20Apr21)

29 **Other Considerations:** None.

30 **Management Issues and Concerns:** None.

31 (Updated CMM 22Oct20)

32 (QA/QC STL 30Nov2020)

33

34

1 **IL006/17830**

2 **SGT Krause/PFC Goodrich USARC**

3 1109 E Lafayette Street
4 Bloomington, IL 61701

5 **County:** McLean

6 **Real Property Report Acres:** 5.00

7 **Building Count:** 2

8 **% Cover:** Building (13%)
9 Paved Road/Parking (30%)
10 Maintained Grass (57%)
11 (No change CMM 12Aug20)



12 **Last Field Survey:** 2007

13 The SGT Krause/PFC Goodrich USARC consists a USARC, OMS, maintained lawns and
14 associated parking. Surrounding land use includes residential development to the north, commercial
15 development to the south and west, and industrial/commercial development to the east.

16 **Land Use**

17 The site uses include classroom training, general administrative services, and light vehicle
18 maintenance. The 88th RD owns the land and two buildings that comprise site IL006/17830. (No
19 change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Central Corn Belt Plains

22 **Wetlands:** No wetlands were observed during the 2007 field survey. NWI data reports no
23 wetlands on or within 1,000 feet of the site. The closest wetland is approximately 1,500 feet
24 north of the site. (Verified unchanged from NWI website data CMM 3Sep20)

25 **Identified Species:** This site lacks undisturbed vegetation communities. Vegetation
26 observed during the 2007 field survey included:

27 **Lawn/Herbaceous Layer:**

28	Kentucky bluegrass	<i>Poa pratensis</i>
29	white clover	<i>Trifolium repens</i>
30	English plantain	<i>Plantago lanceolate</i>
31	crown vetch	<i>Securigera varia</i>
32	foxtail	<i>Alopecurus spp.</i>

33 **Shrub Layer:**

34	Arrowwood viburnum	<i>Viburnum dentatum</i>
35	nannyberry viburnum	<i>Viburnum lentago</i>
36	winged euonymus	<i>Euonymus alatus</i>
37	bush honeysuckle	<i>Lonicera maackii</i>
38	burning bush	<i>Euonymus alatus</i>

1 **Canopy Layer:**

2 Honey locust	<i>Gleditsia triacanthos</i>
3 sugar maple	<i>Acer saccharum</i>
4 Norway maple	<i>Acer platanoides</i>
5 red pine	<i>Pinus resinosa</i>
6 American yew	<i>Taxus canadensis</i>
7 Bradford pear	<i>Pyrus calleryana</i>
8 mulberry	<i>Morus spp.</i>
9 black cherry	<i>Prunus serotina</i>
10 apple	<i>Malus domestica</i>
11 dogwood	<i>Cornus florida</i>

12 **Wildlife:** The property is entirely maintained/developed and provides little habitat
13 suitable to support wildlife. Wildlife species adapted to developed and populated areas
14 are likely to utilize the property.

15 Species observed during the 2007 field survey:

16 American robin	<i>Turdus migratorius</i>
17 European starling	<i>Sturnus vulgaris</i>
18 northern cardinal	<i>Cardinalis cardinalis</i>
19 house sparrow	<i>Passer domesticus</i>
20 mallard	<i>Anas platyrhynchos</i>

21 Anecdotal information from the site manager indicated several eastern cottontails
22 (*Sylvilagus floridanus*) have been observed on the site along with Fox squirrel (*Sciurus*
23 *niger*), an orange sulfur butterfly (*Colias eurytheme*), and a red admiral butterfly
24 (*Vanessa atalanta*).

25 **Listed Species:**

26 Northern long-eared bat	<i>Myotis septentrionalis</i> FE
27 Indiana Bat	<i>Myotis sodalis</i> , FE
28 Eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

29 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
30 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 22Oct20)

31 At the time of the 2007 field survey, no listed species were observed. Additionally, no suitable
32 habitat for listed species was observed on the site.

33 **Other Considerations:** None.

34 **Management Issues and Concerns:** None.

35
36 (Updated CMM 22Oct20)

37 (QA/QC STL 30Nov2020)

38

1 **IL007/17827**

2 **SGT Bruce G. Howerter USARC**

3 2080 N 4th ST
4 Canton, IL 61520

5 **County:** Fulton

6 **Real Property Report Acres:** 6.01

7 **Building Count:** 2

8 **% Cover:** Maintained Grass (55%)
9 Paved Road/Parking (33%)
10 Buildings (12%)
11 (No change CMM 12Aug20)

12 **Last Field Survey:** 2007



13 The SGT Bruce G. Howerter USARC consists of a USARC, an OMS, maintained lawns and
14 associated parking. Surrounding land use includes predominantly agricultural land. However, land
15 use to the east also includes a railroad/road and land use to the west includes limited residential
16 areas.

17 **Land Use**

18 The site is used for classroom training, general administrative services, and light vehicle
19 maintenance. The 88th RD owns the two buildings and the 6.00 acres of land that comprise site
20 IL007/17827. The remaining 0.01 acre of land is leased. (No change CMM 31Aug20)

21 **Natural Resources**

22 **Ecoregion:** Interior River Valleys and Hills

23 **Wetlands:** No wetlands were observed on the site during the 2007 field survey. NWI data
24 reports no wetlands on or within 1,000 feet of the site. The closest wetland is located 1,300
25 feet west of the property. (Verified unchanged from NWI website data CMM 3Sep20)

26 **Vegetation:** This site lacks natural vegetation communities.

27 **Lawn/Herbaceous Layer:**

28 Kentucky bluegrass (*Poa pratensis*)
29 ribwort plantain (*Plantago lanceolate*)

30 **Shrub Layer:** None

31 **Canopy Layer:**

32 mulberry *Morus spp.*
33 red maple *Acer rubrum*
34 red pine *Pinus resinosa*

35 **Wildlife:** The property is developed and provides minimal habitat suitable to
36 support wildlife. Wildlife species adapted to developed and populated areas are
37 likely to utilize the property.

38 Species observed during the 2007 field survey;

1	European starling	<i>Sturnus vulgaris</i>
2	house sparrow	<i>Passer domesticus</i>
3	cabbage white butterfly	<i>Pieris rapae</i>
4	orange sulfur butterfly	<i>Colias eurytheme</i>

5 **Listed Species:**

6	Northern long-eared bat	<i>Myotis septentrionalis</i> FE
7	Indiana Bat	<i>Myotis sodalis</i> , FE
8	Eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , F
9	Decurrent False Aster	<i>Boltonia decurrens</i> , FT

10 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
 11 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 22Oct20)

12 At the time of the 2007 field survey, no listed species were observed. Additionally, no
 13 suitable habitat for listed species was observed on the site.

14 **Other Considerations:** None.

15 **Management Issues and Concerns:** None.

16

17 (Updated CMM 22Oct20)

18 (QAQC STL 30Nov2020)

19

1 **IL011/17849**
2 **SGT James W. Robinson, Jr. USARC**
3 7400 S. Pulaski Road
4 Chicago, IL 60629

5 **County:** Cook

6 Real Property Report Acres: 6.74

7 **Building Count:** 4
8 **% Cover:** Maintained Grass (25%)
9 Paved Road/Parking (65%)
10 Buildings (10%)
11 (No change CMM 12Aug20)



12 **Last Field Survey:** 2007

13 The SGT James W. Robinson Jr. USARC consists of a USARC, an OMS, and two large parking
14 areas. Surrounding land use includes industrial/commercial development on the south and east
15 side, commercial development to the west, and railroads to the north.

16 **Land Use**

17 The site is used for staging and storage of military vehicles and equipment, classroom training,
18 general administrative services, and light vehicle maintenance. The 88th RD owns the land and four
19 buildings that comprise site IL011/17849. (No change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Central Corn Belt Plains

22 **Wetlands:** No wetlands were observed during the 2007 field survey. NWI data reports a 0.72
23 acre emergent wetland immediately north of the site, but not on site. (Verified from NWI website data
24 CMM 3Sep20)

25 **Vegetation:** This site lacks natural vegetation communities.

26 **Lawn/Herbaceous Layer:**

27	Kentucky bluegrass	<i>Poa pratensis</i>
28	English plantain	<i>Plantago lanceolata</i>
29	crown vetch	<i>Securigera varia</i>
30	common chicory	<i>Cichorium intybus</i>
31	common dandelion	<i>Taraxacum officinale</i>

32 **Shrub Layer:** No shrub layer present

33 **Canopy Layer:**

34	Black pine	<i>Pinus thunbergii</i>
35	Honey locust	<i>Gleditsia triacanthos</i>
36	green ash	<i>Fraxinus pennsylvanica</i>
37	American sycamore	<i>Platanus occidentalis</i>

38

1 **Wildlife:** The property is developed and provides minimal habitat suitable to support wildlife.
2 Common wildlife species adapted to developed and populated areas are likely to utilize the
3 property.

4 Common birds observed during the 2007 field survey:

5	American crows	<i>Corvus brachyrhynchos</i>
6	American robin	<i>Turdus migratorius</i>
7	rock dove	<i>Columba livia</i>
8	American goldfinch	<i>Spinus tristis</i>
9	European starling	<i>Sturnus vulgaris</i>
10	Cabbage white butterfly	<i>Pieris rapae</i>

11 **Listed Species:** No listed species were observed during the 2007 field survey. Suitable
12 habitat for listed species was not observed on the site.

13	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
14	Hine's emerald dragonfly	<i>Somatochlora hineana</i> , FE
15	eastern massasauga	<i>Sistrurus c. catenatus</i> , FT
16	piping plover	<i>Charadrius melodus</i> , FE
17	red knot	<i>Calidris canutus rufa</i> , FT
18	prairie bush clover	<i>Lespedeza leptostachya</i> , FT
19	leafy-prairie clover	<i>Dalea foliosa</i> , FE
20	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

21 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
22 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 1Mar21)

23 **Other Considerations:** None.

24 **Management Issues and Concerns:** None.

25
26 (Updated CMM 1Mar21)

27 (QA/QC STL 14May21)

28

1 **IL021/17683**

2 **MAJ Herbert J. Dexter USARC**

3 2300 N 22nd Street

4 Decatur, IL 62526

5 **County:** Macon

6 **Real Property Report Acres:** 6.09

7 **Building Count:** 2

8 **% Cover:** Maintained Grass (25%)

9 Paved Road/Parking (65%)

10 Drainage Area (2%)

11 Buildings (8%)

12 (No change CMM 12Aug20)

13 **Last Field Survey:** 2007

14 The MAJ Herbert J. Dexter USARC consists of a USARC, an OMS, parking areas, and maintained
15 lawns. Surrounding land use includes industrial/commercial to the north, south, and east;
16 commercial development lies to the west.

17 **Land Use**

18 The site is used for classroom training, general administrative services, and light vehicle
19 maintenance. The 88th RD owns the two buildings and 6.09 acres of land that compose site
20 IL021/17683. (No change CMM 31Aug20)

21 **Natural Resources**

22 **EPA Ecoregion:** Central Corn Belt Plains

23 **Wetlands:** No wetlands were observed on the site during the 2007 field survey. NWI data
24 reports no wetlands on the site. A wetland is located approximately 70 feet north of the site.
25 (Verified unchanged from NWI website data CMM 4Sep20)

26 **Vegetation:** The site lacks natural vegetation communities.

27 **Lawn/Herbaceous Layer:**

28	Kentucky bluegrass	<i>Poa pratensis</i>
29	white clover	<i>Trifolium repens</i>
30	common dandelion	<i>Taraxacum officinale</i>
31	common chicory	<i>Cichorium intybus</i>
32	foxtail	<i>Alopecurus spp.</i>
33	English plantain	<i>Plantago lanceolate</i>

34 **Shrub Layer:** No shrub layer present

35 **Canopy Layer:**

36	Red oak	<i>Quercus rubra</i>
37	mulberry	<i>Morus spp.</i>
38	Norway maple	<i>Acer platanoides</i>



1 **Wildlife:** The property is developed and provides minimal habitat suitable to support wildlife.
2 Wildlife species adapted to developed and populated areas are likely to utilize the property.

3 Species observed during the 2007 field survey:

4	eastern garter snakes	<i>Thamnophis sirtalis</i>
5	mourning dove	<i>Zenaida macroura</i>
6	American goldfinch	<i>Spinus tristis</i>
7	cabbage white butterfly	<i>Pieris rapae</i>
8	common buckeye butterfly	<i>Junonia coenia</i>
9	orange sulfur butterfly	<i>Colias eurytheme</i>

10 **Listed Species:** No listed species were observed during the 2007 field survey. Suitable
11 habitat for listed species was not observed on the site.

12	Indiana bat	<i>Myotis sodalist</i> , FE
13	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
14	Eastern prairie-fringed orchid	<i>Platanthera leucophaea</i> , FT

15 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
16 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 2Mar21)

17 **Other Considerations:** None.

18 **Management Issues and Concerns:** None.

19
20 (Updated CMM 2Mar21)

21 (QAQC STL 14MAY21)

22

1 **IL027/17666**
2 **Forest Park AFRC**
3 7402 W Roosevelt Road
4 Forest Park, IL 60130

5 **County:** Cook

6 **Real Property Report Acres:** 3.63

7 **Building Count:** 4

8 **% Cover:** Buildings (18%)
9 Paved Road/Parking (73%)
10 Maintained Grass (9%)
11 (No change CMM 12Aug20)



12 **Last Field Survey:** 2007

13 The Forest Park AFRC is used by USAR and the US Navy Recruiters. The property consists of a
14 Reserve Training Center, Army storage building, unused garage, and one large parking area.
15 Surrounding land use is commercial development.

16 **Land Use**

17 The site is used for indoor pistol training, classroom training, general administrative services, and
18 light vehicle maintenance. The 88th RD owns the buildings and land that comprise site IL027/17666.
19 (No change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Central Corn Belt Plains

22 **Wetlands:** No wetlands were observed on the property during the 2007 field survey. NWI
23 data reports no wetlands are present on or within 1,000 feet of the site. The closest wetland
24 is located 3,300 feet west of the site along the Des Plaines River. (Verified unchanged from NWI
25 website data CMM 4Sep20)

26 **Vegetation:** No natural vegetation communities were identified during the survey.

27 **Lawn/Herbaceous Layer:**

28 Kentucky bluegrass *Poa pratensis*
29 common dandelion *Taraxacum officinale*

30 **Shrub Layer:** No shrub layer present

31 **Canopy Layer:**

32 American yew *Taxus canadensis*
33 mulberry *Morus spp.*
34 silver maple *Acer saccharinum*
35 red maple *Acer rubrum*
36 white ash *Fraxinus americana*

37 **Wildlife:** The property is developed and provides minimal habitat suitable to support wildlife.
38 Wildlife species adapted to developed and populated areas are likely to utilize the property.

1 Biologists observed ring-billed gull (*Larus delawarensis*), rock dove (*Columba livia*), and
2 mourning dove (*Zenaida macroura*).

3 **Listed Species:** No listed species were observed during the 2007 field survey. Suitable
4 habitat for listed species does not exist on the site.

5	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
6	eastern massasauga	<i>Sistrurus c. catenatus</i> , FT
7	piping plover	<i>Charadrius melodus</i> , FE
8	red knot	<i>Calidris canutus rufa</i> , FT
9	Hine's emerald dragonfly	<i>Somatochlora hineana</i> , FE
10	prairie bush clover	<i>Lespedeza leptostachya</i> , FT
11	leafy-prairie clover	<i>Dalea foliosa</i> , FE
12	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

13 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
14 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 3Mar21)

15 **Other Considerations:** None.

16 **Management Issues and Concerns:** None.

17

18 (Updated CMM 3Mar21)

19 (QA/QC STL 14MAY21)

20

1 **IL035/17898**

2 **North Shore Memorial USARC**

3 BLDG 900, 401 Anderson Road
4 Lake Forest, IL 60037

5 **County:** Lake

6 **Real Property Report Acres:** 13.45

7 **Building Count:** 4

8 **% Cover:** Buildings (6%),
9 Pavement/Gravel (44%),
10 Maintained Grass/Landscaping
11 (43%) Deciduous Forest (6%)
12 (No change CMM 12Aug20)



13 **Last Field Survey:** 2013

14 The North Shore Memorial USARC consists of four buildings (including the USARC and an OMS),
15 parking areas, and two small urban forests. Surrounding land use to the north of the site includes
16 light residential development with a wooded buffer between the USARC and the residences. The
17 eastern property boundary is shared with a cemetery and a golf course lies directly south of the site.
18 McKinley Road is located to the west of the site.

19 **Land Use**

20 The site is used for classroom training, general administrative services, and light vehicle
21 maintenance. The 88th RD owns the land and four buildings that comprise site IL035/17898.
22 According to a USACE drawing provided by the 88th RD ED and dated May 1998, a former landfill
23 and missile fueling area historically was located on the property. The majority of these areas have
24 been graded and developed with buildings, parking lots, or maintained lawns. (No change CMM 31Aug20)

25 **Natural Resources**

26 **EPA Ecoregion:** Central Corn Belt Plains

27 **Wetlands:** No wetlands were observed during the 2013 field survey. NWI data reports no
28 wetlands are present on or within 1,000 feet of the site. According to the NWI data, the
29 closest wetland lies 2,600 feet east of the site. (Verified unchanged from NWI website data CMM 4Sep20)

30 **Vegetation:** The site mostly consists of a well-maintained landscape with mowed grass, a
31 few landscaping trees, and two small woodlots adjacent to the northern property boundary.
32 The northeast corner of the property is bordered by a thin scrub-shrub growth.

33 There are two small woodlots; neither of which are individually, or collectively, commercially
34 viable. The stands cover a combined total of approximately 0.91 acres, and contain high
35 quality, even aged, upland mixed hardwood forest. Tree health within the surveyed area is
36 generally good to excellent. No evidence of disease or safety hazards were observed. Stand
37 1 contains approximately 2,360 board feet of standing timber per acre for a total of
38 approximately 1,416 board feet of standing timber. Stand 2 contains approximately 2,780
39 board feet of standing timber per acre for a total of approximately 862 board feet of standing
40 timber. No timber management activities (e.g., thinning, trimming, etc.) are required at this

1 time or in the immediate future. Individual trees on the lists of champion or historic trees are
2 not present. These stands would likely not support a commercially viable timber harvest due
3 to the small acreage covered by the stands and resulting low volumes of timber available to
4 harvest.

5 **Lawn/Herbaceous Layer:**

6	Kentucky bluegrass	<i>Poa pratensis</i>
7	common dandelion	<i>Taraxacum officinale</i>
8	white clover	<i>Trifolium repens</i>
9	Japanese clover	<i>Kummerowia striata</i>
10	English plantain	<i>Plantago lanceolat</i>

11 **Shrub Layer:**

12	common buckthorn	<i>Rhamnus spp.</i>
13	white ash	<i>Fraxinus americana</i>
14	staghorn sumac	<i>Rhus typhina</i>
15	hawthorn	<i>Crataegus spp.</i>
16	plum trees	<i>Prunus subg. Prunus</i>

17 **Canopy Layer:**

18	white oak	<i>Quercus alba</i>
19	shagbark hickory	<i>Carya ovata</i>
20	white ash	<i>Fraxinus americana</i>
21	white pine	<i>Pinus strobus</i>
22	scrub pine	<i>Pinus virginiana</i>
23	red pine	<i>Pinus resinosa</i>
24	hawthorn	<i>Crataegus spp.</i>
25	staghorn sumac	<i>Rhus coriaria</i>
26	northern red oak	<i>Quercus rubra</i>
27	eastern cottonwood	<i>Populus deltoids</i>

28 **Wildlife:** The property is largely developed and provides minimal habitat suitable to support
29 wildlife or migratory birds. Wildlife species adapted to developed and populated areas are
30 likely to utilize the property.

31 Wildlife observed during the 2013 field survey included:

32	brown-headed cowbird	<i>Molothrus ater</i>
33	northern cardinal	<i>Cardinalis cardinalis</i>
34	blue jay	<i>Cyanocitta cristata</i>
35	brown thrasher	<i>Toxostoma rufum</i>
36	mourning dove	<i>Zenaida macroura</i>
37	American robin	<i>Turdus migratorius</i>
38	European starling	<i>Sturnus vulgaris</i>
39	northern mockingbird	<i>Mimus</i>

40 **Listed Species:** No listed species were observed during the 2013 field survey. No suitable
41 habitat for listed species was observed.

42	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
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1	Piping plover	<i>Charadrius melodus</i> , FE
2	red knot	<i>Calidris canutus rufa</i> , FT
3	Karner blue butterfly	<i>Lycaeides melissa samuelis</i> , FE
4	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT
5	Pitcher's thistle	<i>Cirsium pitcheri</i> , FT
6	F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,	
7	T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 3Mar21)	

8 **Other Considerations:** None.

9 **Management Issues and Concerns:** The Illinois state-listed noxious weed list identifies the
10 Canada thistle (*Cirsium arvense*) as a noxious weed. It has been identified on site in as a low
11 occurrence.

12
13 (Updated CMM 3Mar21)

14 (QA/QC STL 14MAY21)

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16

1 **IL045/17884**

2 **Granite City USARC**

3 195 East First Street
4 Granite City, IL 62040

5 **County:** Madison

6 **Real Property Report Acres:** 30.00

7 **Building Count:** 3

8 **% Cover:** Buildings (6%)
9 Maintained Grass (61%)
10 Paved Road/Parking (33%)

11 **Last Field Survey:** 2020

12 **Land Use**

13 This facility consists of an organizational maintenance shop and area maintenance support activity
14 building. The facility is used for classroom training, general administrative services, light vehicle
15 maintenance, and military vehicle garage storage and paved lot parking. Additionally, parking for
16 facility personnel and civilians is located in the southern portion of the facility. The 88th Readiness
17 Division owns the land and buildings that comprise facility IL045.

18 The area surrounding the facility is described as follows: America’s Central Port District owns the
19 industrial/commercial land surrounding the facility to the west, north, east, and across East Street
20 to the south; additionally, Junior Properties of Illinois LLC owns property across East Street to the
21 southeast. America’s Central Port District also owns a wastewater treatment facility on the land
22 west of the facility, which is operated by Granite City.

23 **Natural Resources**

24 **EPA Ecoregion:** Central Corn Belt Plains

25 **Topography:**

26 The property is located within the Middle Mississippi Alluvial Plain of the Interior River Valleys
27 and Hills Region. Nearly all of the naturally occurring pre-settlement prairies, marshes,
28 swamps, and forests have been drained and converted to agricultural, grazing, or developed
29 land. The site overlays the Cahokia Formation, which is described as very fine-, fine-, and
30 medium-grained sand stratified and moderately to well-sorted alluvium characterized by point
31 bar and channel deposits

32 **Wetlands:** No on-site wetlands were observed on the site during the 2020 field survey. the
33 National Wetland Inventory data reports no wetlands present within the facility. The closest
34 National Wetland Inventory wetland is located approximately 715 feet northwest of IL045
35 along the Chain of Rocks Canal.

36 **Vegetation:**

37 **Lawn/Herbaceous Layer:**

38 Kentucky bluegrass *Poa pratensis*
39 foxtails *Setaria* spp.



1	fescue	<i>Festuca spp.</i>
2	clover	<i>Trifolium spp.</i>
3	spotted sandmat	<i>Chamaesyce maculata</i>
4	mat sandbur	<i>Cenchrus longispinus</i>
5	annual ragweed	<i>Ambrosia artemisiifolia</i>
6	peppergrass	<i>Lepidium virginicum</i>
7	curly dock	<i>Rumex crispus</i>
8	chicory	<i>Cichorium intybus</i>
9	redtop panicgrass	<i>Panicum rigidulum</i>
10	sulphur cinquefoil	<i>Potentilla recta</i>
11	English plantain	<i>Plantago lanceolata</i>

12 Additionally, there were several less frequently maintained areas in the northern portion of
 13 the facility, along margins of pavement areas and fences and around the bases of trees and
 14 bushes where other plants were observed, including;

15	big bluestem	<i>Andropogon gerardii</i>
16	Canada goldenrod	<i>Solidago altissima</i>
17	Japanese bristlegrass	<i>Setaria faberi</i>
18	Canadian horseweed	<i>Conyza canadensis</i>
19	hairy white oldfield aster	<i>Symphotrichum pilosum</i>
20	fuzzybean	<i>Strophostyles spp.</i>
21	riverbank grape	<i>Vitis riparia</i>
22	West Indian nightshade	<i>Solanum ptychanthum</i>
23	sweet sagewort	<i>Artemisia annua</i>
24	carelessweed	<i>Amaranthus palmeri</i>
25	common mullein	<i>Verbascum thapsus</i>

26 In the northern section, bushes and small-to-medium-sized trees observed included:

27	amur honeysuckle	<i>Lonicera maackii</i>
28	blue spruce	<i>Picea pungens</i>
29	white mulberry	<i>Morus alba</i>

30 Several mature, naturally occurring trees in the northern portion were observed, including:

31	bur oak	<i>Quercus macrocarpa</i>
32	green ash	<i>Fraxinus pennsylvanica</i>
33	cottonwood	<i>Populus deltoides</i>

34 Landscaping trees were planted along the south and east property boundaries, as well as between
 35 the main southern parking lot and the main training building, notably:

36	silver maple	<i>Acer saccharinum</i>
37	eastern red cedar	<i>Juniperus virginiana</i>

38 Plant species identified during the 2020 field survey that are classified by the state of Illinois as
 39 invasive, noxious, or toxic are identified in Section 5.6 Invasive Species, Table 2.

40 The Illinois Noxious Weed Law designates certain plants as noxious weeds in the state of Illinois.
 41 These include 10 Illinois State-listed Noxious Weeds. Although no noxious weeds were observed at
 42 the site during the survey, several non-native and/or invasive plant species were noted, including one

1
2
3

Illinois designated exotic weed, Amur honeysuckle (*Lonicera maackii*) per the Illinois Exotic Weed Act. The table that follows lists the non-native plant species observed during the survey.

Noxious, Exotic, and Non-native Plants Observed at Granite City United States Army Reserve Center					
Common Name	Scientific Name	Illinois Noxious Weed	Illinois Exotic Weed	Non-Native Plant	Land Cover/Ecological Community
Amur honeysuckle	<i>Lonicera maackii</i>	No	Yes	Yes	Maintained grass/landscaped area
Annual ragweed	<i>Ambrosia artemisiifolia</i>	No	No	Maybe*	Maintained grass/landscaped area
Blue spruce	<i>Picea pungens</i>	No	No	Maybe*	Maintained grass/landscaped area
Chicory	<i>Cichorium intybus</i>	No	No	Yes	Maintained grass/landscaped area
Common dandelion	<i>Taraxacum officinale</i>	No	No	Yes	Maintained grass/landscaped area
Common mullein	<i>Verbascum thapsus</i>	No	No	Yes	Maintained grass/landscaped area
Curly dock	<i>Rumex crispus</i>	No	No	Yes	Maintained grass/landscaped area
English plantain	<i>Plantago lanceolata</i>	No	No	Yes	Maintained grass/landscaped area
Fescue	<i>Festuca</i> spp.	No	No	Maybe*	Maintained grass/landscaped area
Japanese bristlegrass	<i>Setaria faberi</i>	No	No	Yes	Maintained grass/landscaped area
Red clover	<i>Trifolium pratense</i>	No	No	Yes	Maintained grass/landscaped area
Sulphur cinquefoil	<i>Potentilla recta</i>	No	No	Yes	Maintained grass/landscaped area
Sweet sagewort	<i>Artemisia annua</i>	No	No	Yes	Maintained grass/landscaped area
White clover	<i>Trifolium repens</i>	No	No	Yes	Maintained grass/landscaped area

Noxious, Exotic, and Non-native Plants Observed at Granite City United States Army Reserve Center					
Common Name	Scientific Name	Illinois Noxiou s Weed	Illinois Exotic Weed	Non- Native Plant	Land Cover/Ecological Community
White mulberry	<i>Morus alba</i>	No	No	Yes	Maintained grass/landscaped area
Yellow foxtail	<i>Setaria pumila</i>	No	No	Yes	Maintained grass/landscaped area

Note:

* Plant species is of ambiguous origin depending on species, subspecies, or phenotype.

Wildlife: Common bird species observed during the survey included:

American robin	<i>Turdus migratorius</i>
blue jay	<i>Cyanocitta cristata</i>
European starling	<i>Sturnus vulgaris</i>
mourning dove	<i>Zenaida macroura</i>
killdeer	<i>Charadrius vociferous</i>
northern mockingbird	<i>Mimus polyglottos</i>
red-winged blackbird	<i>Agelaius phoeniceus</i>

The property is largely developed and provides minimal habitat suitable to support wildlife. Common wildlife species adapted to developed and populated areas are likely to utilize the property.

Listed Species: There were no listed species observed during the field survey; no suitable habitat for listed species was observed.

The United States Fish and Wildlife Service listed seven federally threatened or endangered species that could occur at the facility (Attachment D); no federal candidate species were included:

Federally Endangered:

northern long-eared bat	<i>Myotis septentrionalis</i>
Indiana bat	<i>Myotis sodalis</i>
least tern	<i>Sterna antillarum</i>
pallid sturgeon	<i>Scaphirhynchus albus</i>
spectacle case mussel	<i>Cumberlandia monodonta</i>

Federally Threatened:

eastern prairie fringed orchid	<i>Platanthera leucophaea</i>
eastern massasauga rattlesnake	<i>Sistrurus catenatus</i>
decurent false aster	<i>Boltonia decurrens</i>

Additionally, the state of Illinois lists threatened or endangered species by county that have been observed. Madison County documents 26 listed species, including:

Endangered

northern long-eared bat	<i>Myotis septentrionalis</i>
spectacle case mussel	<i>Cumberlandia monodonta</i>

1 Indiana bat *Myotis sodalist*
2 pallid sturgeon *Scaphirhynchus albus*

3 Threatened

4 decurrent false aster *Boltonia decurrens*

5 The USFWS Information, Planning, and Consultation (IPaC) resource list indicates that there
6 are no critical habitats in the area. IPaC information identified no other listed species that
7 are anticipated to occur within Madison County; however, IPaC information identified certain
8 birds protected under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act
9 that warrant attention:

10 bald eagle *Haliaeetus leucocephalus*
11 red-headed woodpecker *Melanerpes erythrocephalus*
12 semipalmated sandpiper *Calidris pusilla*

13 The bald eagle is protected under the Bald and Golden Eagle Protection Act and the
14 other two species are considered Birds of Conservation Concern; none of these three
15 birds species were identified as present during the field survey.

16 **Other Considerations:** None.

17 **Management Issues and Concerns:**

18 No Illinois Noxious Weeds were observed during the 2020 field survey. One Illinois Exotic Weed
19 (Amur honeysuckle) was observed, along with multiple non-native plants. Consequently, landscaping
20 or maintenance personnel should be aware of the plant species listed in table found above, to ensure
21 that noxious weeds and other non-native species do not spread to an extent that they become difficult
22 to control or eradicate. For these reasons, IL045 should consider implementing an Integrated Pest
23 Management Plan, which will allow facility managers to specifically focus on invasive animals and
24 plants at the facility before they become a problem by using a variety of biological,
25 physical/mechanical, and chemical controls.

26

27

1 **IL051/17549**

2 **Vietnam Vet Memorial USARC**

3 18960 S. Halsted Street
4 Homewood, IL 60430

5 **County:** Cook

6 **Real Property Report Acres:** 13.14

7 **Building Count:** 3

8 **% Cover:** Buildings (7%)
9 Maintained Grass (56%)
10 Paved Road/Parking (37%)
11 (No change CMM 12Aug20)

12 **Last Field Survey:** 2007



13 The Vietnam Vet Memorial USARC consists of the USARC, an OMS, and paved parking areas.
14 The site is surrounded on the north, south, and west by Apollo Park (a small community park). Land
15 east of the property contains a multi-family residential development.

16 **Land Use**

17 The site is used for the staging and maintenance of vehicles, classroom training, general
18 administrative services, and light vehicle maintenance. The 88th RD owns the land and five
19 buildings that compose site IL051/17549. (No change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Central Corn Belt Plains

22 **Wetlands:** No on-site wetlands were observed on the site during the 2007 field survey. NWI
23 data report one large wetland area is located 80 feet and 150 feet south of the site. There is
24 also the same wetland located approximately 650 feet to the east of the site. (Verified from NWI
25 website data CMM 4Sep20)

26 **Vegetation:** No natural vegetation communities were identified during the survey

27 **Lawn/Herbaceous Layer:**

28	Kentucky bluegrass	<i>Poa pratensis</i>
29	white clover	<i>Trifolium repens</i>
30	common dandelion	<i>Taraxacum officinale</i>
31	white aster	<i>Symphotrichum ericoides</i>
32	river grape	<i>Vitis riparia</i>
33	poison ivy	<i>Toxicodendron radicans</i>

34 **Shrub Layer:** No shrub layer is present.

35 **Canopy Layer:**

36	silver maple	<i>Acer saccharinum</i>
37	mulberry	<i>Morus spp.</i>
38	eastern cottonwood	<i>Populus deltoids</i>

1 **Wildlife:** The property is developed and provides minimal habitat suitable to support wildlife.
2 Wildlife species adapted to developed and populated areas are likely to utilize the property.

3 Wildlife observed during the 2007 field survey included:

4	American goldfinch	<i>Spinus tristis</i>
5	American crows	<i>Corvus brachyrhynchos</i>
6	American robin	<i>Turdus migratorius</i>
7	northern flicker	<i>Colaptes auratus</i>
8	northern cardinal	<i>Cardinalis cardinalis</i>
9	field sparrow	<i>Spizella pusilla</i>
10	eastern bluebird	<i>Sialia sialis</i>

11 **Listed Species:** No listed species were observed during the 2007 field survey. Suitable
12 habitat for listed species was not observed on the site.

13	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
14	Hine's emerald dragonfly	<i>Somatochlora hineana</i> , FE
15	Rusty patch bumble bee	<i>Bombus affinis</i> , FE
16	eastern massasauga	<i>Sistrurus c. catenatus</i> , FT
17	piping plover	<i>Charadrius melodus</i> , FE
18	red knot	<i>Calidris canutus rufa</i> , FT
19	prairie bush clover	<i>Lespedeza leptostachya</i> , FT
20	leafy-prairie clover	<i>Dalea foliosa</i> , FE
21	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

22 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
23 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 3Mar21)

24 **Other Considerations:** None.

25 **Management Issues and Concerns:** None.

26
27 (Updated CMM 3Mar21)

28 (QA/QC STL 14MAY21)

29
30

1 **IL064/17928**
 2 **Veterans Memorial USARC**
 3 2700 Plank Road
 4 Peru, IL 61354
 5 **County:** LaSalle
 6 **Real Property Report Acres:** 5.00
 7 **Building Count:** 2
 8 **% Cover:** Buildings (9%),
 9 Paved Road/Parking (28%)
 10 Maintained Grass (63%)
 11 (No change CMM 12Aug20)
 12 **Last Field Survey:** 2007



13 The Veterans Memorial USARC consists of maintained grounds and a USARC, OMS and
 14 associated parking. Surrounding land use includes agricultural land.

15 **Land Use**

16 The site is used for classroom training, general administrative services, and staging and
 17 maintenance of military vehicles. The 88th RD owns the land and two buildings that comprise site
 18 IL064/17928. (No change CMM 31Aug20)

19 **Natural Resources**

20 **EPA Ecoregion:** Central Corn Belt Plains

21 **Wetlands:** No wetlands were observed on the property during the 2007 field survey.
 22 According to NWI data, there are no wetlands on or within 1,000 feet of the site. The closest
 23 wetland is approximately 9,000 feet south of the site along the Illinois River. (Verified unchanged
 24 from NWI website data CMM 4Sep20)

25 **Vegetation:** The site lacks natural vegetation communities.

26 **Lawn/Herbaceous Layer:**

27	Kentucky bluegrass	<i>Poa pratensis</i>
28	common dandelion	<i>Taraxacum officinale</i>
29	white clover	<i>Trifolium repens</i>
30	English plantain	<i>Plantago lanceolata</i>
31	wood sorrel	<i>Oxalis stricta</i>
32	ground ivy	<i>Glechoma hederracea</i>

33 **Shrub Layer:** There is no shrub layer present

34 **Canopy Layer:**

35	Red maple	<i>Acer rubrum</i>
36	hackberry	<i>Celtis occidentalis</i>
37	mulberry	<i>Morus spp.</i>
38	white oak	<i>Quercus alba</i>
39	sugar maple	<i>Acer saccharum</i>

1 **Wildlife:** Wildlife species observed during the 2007 field survey were:

2	mourning dove	<i>Zenaida macroura</i>
3	European starling	<i>Sturnus vulgaris</i>
4	orange sulfur butterfly	<i>Colias eurytheme</i>

5 The property is developed and provides minimal habitat suitable to support wildlife. Common
6 wildlife species adapted to developed and populated areas are likely to utilize the property.

7 **Listed Species:** No listed species were observed during the 2007 field survey. Suitable
8 habitat for listed species was not observed on the site.

9	Indiana bat	<i>Myotis sodalis</i> , FE
10	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
11	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT
12	decurent false aster	<i>Boltonia decurrens</i> , FT

13 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
14 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 3Mar21)

15 **Other Considerations:** None.

16 **Management Issues and Concerns:** None.

17

18 (Updated CMM 3Mar21)

19 (QA/QC STL 14MAY21)

20

21

1 **IL068/17308**

2 **Machesney Park ARC**

3 9899 Gregory Road,
4 Machesney Park, IL 61115

5 **County:** Winnebago

6 **Real Property Report Acres:** 15.25

7 **Building Count:** 1

8 **% Cover:** Buildings Impervious surfaces
9 (33%), Drainage Swales (23%), and
10 Maintained Grass (44%)



11 **Last Field Survey:** 2021

12 U.S. Army Reserve Center (USARC), consists of one building complex, secured military equipment parking
13 (MEP), privately owned vehicle (POV) parking, an entrance driveway, sidewalks, one solar panel, manicured
14 and maintained turf grass areas, and one constructed drainage swale feature. The project area is bounded
15 by commercial development to the north, Steele Drive to the south, commercial development and Burden
16 Road to the east, and fallow land to the west.

17 **Land Use**

18 The site is used for classroom training, general administrative services, and light vehicle
19 maintenance. The 88th RD owns the land and building that comprise site IL068/17965.

20 **Natural Resources**

21 **EPA Ecoregion:** Central Corn Belt Plains

22 **Wetlands:** No regulatory wetlands were identified on the site during the June 2022 site visit.

23 One constructed drainage swale feature is located within the western, southern and eastern
24 portions of this site. The swale consists of several dry portions along the west and east sides,
25 with a wetter portion near the southern portion of the site. The drainage swale receives
26 stormwater from direct pipe inlets throughout the site and from off-site sources. The
27 stormwater flows south towards an off-site detention basin, and eventually flows into an off-
28 site creek to the south.

29 The wetland portion of the swale feature was primarily vegetated by:

Common Name	Scientific Name
Common Fox Sedge	<i>Carex vulpinoidea</i>
Narrow Leaved Mountain Mint	<i>Pycnanthemum tenuifolium</i>
Foxglove Beardtongue	<i>Penstemon digitalis</i>
Kentucky Bluegrass	<i>Poa pratensis</i>

30
31 This feature appears to have been constructed and planted with native species sometime
32 between 2011 and 2013 years. The constructed drainage feature should not be considered
33 a regulatory wetland by federal or local authorities, as the feature has been constructed for
34 stormwater management purposes in previously upland conditions.

An unnamed off-site creek is located approximately 325 feet south of the site. The off-site creek is identified as a R4SBC (Riverine Intermittent Streambed that is Seasonally Flooded) on the NWI Map and an Intermittent Drainageway on the Topo Map. The off-site creek is likely to be considered federally jurisdictional by the USACE, based on its eventual connection downstream to Willow Creek and ultimately the Rock River to the southwest.

Vegetation: The site contains the following ecological communities on the site: Upland Drainage Swale and Wetland Drainage Swale (see wetland section above). A floristic quality inventory has been completed for each ecological community on the site and this information and is available in Attachment 4 of the *2021 Natural Resources Survey Report* (Available upon request).

The upland portion of the swale feature was primarily vegetated by:

Common Name	Scientific Name
Kentucky Bluegrass	<i>Poa pratensis</i>
Tall Goldenrod	<i>Solidago altissima</i>
Perennial Rye	<i>Lolium perenne</i>
Foxglove Beardtongue	<i>Penstemon digitalis</i>
Wild Bergamot	<i>Monarda fistulosa</i>

Lawn/Herbaceous Layer: The site contains several areas of maintained turf grasses throughout the site. The main areas surround the buildings and parking areas. The areas are mowed and manicured throughout the growing season. The turf areas are dominated by Kentucky Bluegrass (*Poa pratensis*) species.

Shrub Layer: There is no shrub layer present.

Canopy Layer: No canopy layer was noted

Wildlife: During the field investigation, the following wildlife species were encountered on the site:

Birds:

Common Name	Genus/Species
Red Winged Black Bird	<i>Agelaius phoeniceus</i>
Common Grackle	<i>Quiscalus quiscula</i>

Reptiles: None

Insects:

Common Name	Scientific Name
Dragonflies	Unidentified
Bumble Bees	Unidentified
Eastern Tent Caterpillar	<i>Malacosoma americanum</i>

Identified habitat locations on the site include the constructed drainage swale areas.

1 The property is developed and provides minimal habitat suitable to support a diversity of
2 wildlife. Wildlife species adapted to developed and populated areas are likely to utilize the
3 property.

4 **Listed Species:** No federally listed species were observed on the site during the field visit.

5 Based on an August 22, 2022 review of the U.S. Fish and Wildlife Service (USFWS)
6 Information for Planning and Consultation (IPaC) technical assistance website, sensitive
7 (federally threatened or endangered) plant or animal species habitat are located on or
8 adjacent to the project area.

9 According to the IPaC, 6 species are listed and may be present in Winnebago County:

Common Name	Genus/Species
Indiana Bat	<i>Myotis sodalis</i>
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>
Hine's Emerald Dragonfly	<i>Somatochlora hineana</i>
Rusty Patched Bumble Bee	<i>Bombus affinis</i>
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>
Prairie Bush-Clover	<i>Lespedeza leptostachya</i>

10
11 Additionally, the Monarch Butterfly (*Danaus plexippus*) is included as a Candidate species
12 formally at this time. It is understood that the International Union for Conservation of Nature
13 (IUCN) has changed the formal status of the Monarch Butterfly to Endangered worldwide;
14 however, the USFWS has not changed the formal status of this species as of the date of this
15 report.

16 The site contains approximately 3.57 acres of suitable habitat for the Rusty Patched Bumble
17 Bee and Monarch Butterfly listed species. The constructed drainage swale contains
18 flowering forbs, and therefore supports habitat for the Rusty Patched Bumble Bee and
19 Monarch Butterfly. No critical habitat was identified on-site by the USFWS; however, it is
20 recommended to avoid impacts to flowering forb species and if possible, plant additional
21 native forbs on the site to encourage the use by potential bees.

22 Further guidance for the Monarch Butterfly is not required, since it is a USFWS Candidate
23 species and not yet fully listed as Threatened or Endangered. The Monarch Butterfly was
24 found to warrant listing and protection under the Endangered Species Act (ESA), but
25 resources must go to higher priority species at this time. Candidate species have no legal
26 protection under the ESA, but agencies can still provide recommendations for them. The
27 USFWS broadly urges the public to provide habitat for this imperiled species by planting
28 native milkweed and nectar plants. The Monarch Butterfly should be considered in any
29 landscaping plans as well.

30 None of the areas on-site contain suitable habitats for the Indiana Bat, Northern Long-Eared
31 Bat, Hine's Emerald Dragonfly, Eastern Prairie Fringed Orchid, or Prairie Bush-Clover.

32 **Other Considerations:** None.

33 **Management Issues and Concerns:** None.

Intentionally blank

1 **IL072/17965**

2 **MAJ M. D. O'Donnell USARC**

3 4480 S 6th Street, Frontage RD E.
4 Springfield, IL 62703

5 **County:** Sangamon

6 **Real Property Report Acres:** 7.00

7 **Building Count:** 2

8 **% Cover:** Buildings (8%),
9 Paved Road/Parking (18%),
10 and Maintained Grass (74%)
11 (No change CMM 12Aug20)



12 **Last Field Survey:** 2007

13 The MAJ M.D. O'Donnell USARC consists of the USARC, an OMS, parking areas, and maintained
14 lawns. Surrounding land use includes soccer fields to the north, Illinois state government buildings
15 to the south, a highway to the west, and agriculture to the east. The agricultural land use is
16 maintained pasture with a drainage ditch that approaches the southeastern edge of the property.

17 **Land Use**

18 The site is used for classroom training, general administrative services, and light vehicle
19 maintenance. The 88th RD owns the land and two buildings that comprise site IL072/17965. (No
20 change CMM 31Aug20)

21 **Natural Resources**

22 **EPA Ecoregion:** Central Corn Belt Plains

23 **Wetlands:** No wetlands were observed during the 2007 field survey. According to NWI data,
24 no wetlands occur at this site and the closest wetland is located 550 feet southeast of the
25 site. (Verified unchanged from NWI website data CMM 4Sep20)

26 **Vegetation:** The site lacks natural vegetation communities.

27 **Lawn/Herbaceous Layer:**

28 Kentucky bluegrass *Poa pratensis*
29 white clover *Trifolium repens*
30 English plantain *Plantago lanceolata*
31 common dandelion *Taraxacum officinale*

32 **Shrub Layer:** There is no shrub layer present.

33 **Canopy Layer:** The trees were located on west of the USARC building.

34 Pin oak *Quercus palustris*
35 littleleaf linden *Tilia cordata*
36 red maple *Acer rubrum*

37 **Wildlife:** Birds observed at the site during the 2007 field survey included:

38 American robin *Turdus migratorius*

1 American crows *Corvus brachyrhynchos*
2 red-tailed hawk *Buteo jamaicensis*
3 Canada goose *Branta canadensis*

4 Other wildlife observed included:

5 Fox squirrels *Sciurus niger*
6 buckeye butterfly *Junonia coenia*
7 viceroy butterfly *Limenitis archippus*
8 white-tailed deer *Odocoileus virginianus*

9 The property is developed and provides minimal habitat suitable to support a diversity of
10 wildlife. Wildlife species adapted to developed and populated areas are likely to utilize the
11 property.

12 **Listed Species:** No listed species were observed during the 2007 field survey. Suitable
13 habitat for listed species was not observed on the site.

14 Indiana bat *Myotis sodalist*, FE
15 Northern long-eared bat *Myotis septentrionalis*, FE
16 eastern prairie fringed orchid *Platanthera leucophaea*, FT

17 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
18 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 3Mar21)

19 **Other Considerations:** None.

20 **Management Issues and Concerns:** None.

21

22 (Updated CMM 3Mar21)

23 (QA/QC STL 14MAY21)

24

25

1 **IL073/17840**

2 **2LT R. H. Stephens USARC**

3 2001 E Main Street
4 Urbana, IL 61801

5 **County:** Champaign

6 **Real Property Report Acres:** 5.94

7 **Building Count:** 2

8 **% Cover:** Buildings (7%)
9 Paved Road/Parking (27%)
10 Maintained Grass (66%)
11 (No change CMM 12Aug20)



12 **Last Field Survey:** 2007

13 The 2LT R. H. Stephens USARC consists of the USARC, an OMS, maintained lawns, and parking
14 areas. Surrounding land use consists of residential development to the north, an animal control site
15 to the south, vacant land to the east, and a US Post Office to the west.

16 **Land Use**

17 The site is used for classroom training, general administrative services, and light vehicle
18 maintenance. The 88th RD owns the two buildings and leases the lands that comprise site
19 IL073/17840. (No change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Central Corn Belt Plains

22 **Wetlands:** No wetlands were observed on the site during the 2007 field survey. According
23 to NWI data, there are no wetlands on or within 1,000 feet of the site. According to the NWI
24 data, the closest wetland is located 2,400 feet north of the site. (Verified unchanged from NWI website
25 data CMM 4Sep20)

26 **Vegetation:** The site lacks natural vegetation communities. Landscape trees are located
27 mostly on the north side of the USARC building.

28 **Lawn/Herbaceous Layer:**

29 Kentucky bluegrass *Poa pratensis*
30 crown vetch *Securigera varia*

31 **Shrub Layer:** Bush honeysuckle *Lonicera maackii*

32 **Canopy Layer:**

33 Tulip poplar *Liriodendron tulipifera*
34 American sycamore *Platanus occidentalis*
35 hackberry *Celtis occidentalis*
36 pecan *Carya illinoensis*
37 Honey locust *Gleditsia triacanthos*
38 red maple *Acer rubrum*
39 Chinese elm *Ulmus parvifolia*

1 white ash *Fraxinus americana*
2 wild cherry *Prunus avium*
3 crabapple *Malus domestica*

4 **Wildlife:** The property is developed and provides minimal habitat suitable to support wildlife.
5 Common wildlife species adapted to developed and populated areas are likely to utilize the
6 property. Wildlife observed in the 2007 survey:

7 eastern cottontails *Sylvilagus floridanus*
8 rock dove *Columba livia*
9 European starling *Sturnus vulgaris*
10 American robin *Turdus migratorius*

11 **Listed Species:** No listed species were observed during the 2007 field survey. Suitable
12 habitat for listed species was not observed on the site.

13 Indiana bat *Myotis sodalis*, FE
14 Northern long-eared bat *Myotis septentrionalis* FE
15 Eastern prairie fringed orchid *Platanthera leucophaea* FT
16 Prairie bush-clover *Lespedeza leptostachya* FT

17 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
18 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 4Mar21)

19 **Other Considerations:** None.

20 **Management Issues and Concerns:** None.

21

22 (Updated CMM 4Mar21)

23 (QA/QC STL 14MAY21)

24

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Iowa Low Resource Sites

- | | |
|------------------------------------|---|
| 3 IA001/19490 – USAR Center | 9 IA025/19640 – Freeman-Davis ARC |
| 4 IA006/19504 – Cherokee ARC | 10 IA027/19675 – Washington ARC |
| 5 IA007/19505 – Council Bluffs ARC | 11 IA030/19685 – Waterloo AFRC |
| 6 IA009/19545 – Davenport ARC | 12 IA033/19057 – Des Moines Reserve Complex |
| 7 IA010/19547 – Decorah ARC | 13 IA036/19560 – Fort Dodge ARC |
| 8 IA014/19903 – Dubuque ARC | 14 IA047/1990D – Cedar Falls AMSA |

15
16
17



IA001/19490

Ames USARC Center

2110 S. Duff Avenue
Ames, IA 50010

County: Story

Real Property Report Acres: 5.16

Building Count: 3

% Cover: Buildings (18%)
Maintained Grass (35%)
Paved Road/Parking (47%)
(No change CMM 14Aug20)



Last Field Survey: 2009

The USARC consists of a USARC, an Organizational Maintenance Shop (OMS), an additional building, and associated parking areas. Surrounding land use includes roadways and undeveloped land to the north, undeveloped land to the east, roadways to the west, and commercial land to the south.

Land Use

The site includes administrative services, classroom training, and light vehicle maintenance. The 88th RD owns the three buildings and leases the land that comprises IA001/19490. (No change CMM 31Aug20)

Natural Resources

EPA Ecoregion: Western Corn Belt Plains

Wetlands: During the 2009 field survey there were no wetlands identified on-site. A previous survey conducted in 2005 identified a wetland to the north of IA001/19490. This wetland was located outside of the site boundary, along the edge of a drainage ditch. NWI data indicates two palustrine emergent (PEM) wetlands located approximately 250 feet east (PEMCd) and 675 feet east (PEMAd) from the site. (Verified unchanged from NWI website data CMM 4Sep20)

Vegetation: The site lacks native vegetation communities. At the time of the 2009 field survey, the Canada thistle (*Cirsium arvense*), classified as a primary noxious weed by the Iowa Department of Agriculture and Land Stewardship through the Iowa Weed Law. At the time of the 2009 field survey, this species is present in low densities.

Lawn/Herbaceous Layer:

Kentucky bluegrass	<i>Poa pratensis</i>
tall fescue	<i>Festuca arundinacea</i>

Shrub Layer: No shrub layer is present.

Canopy Layer:

Austrian pine	<i>Pinus nigra</i>
cultivated crabapple	<i>Malus domestica</i>

At the time of the 2009 field survey, the trees observed at this site appeared healthy with no signs of disease.

No trees at this site qualify as candidates for the IDNR Big Tree Registry.

Wildlife: IA001/19490 offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use, wildlife species typically adapted to developed areas are likely to utilize the site.

Wildlife observed during the 2009 site survey included:

European starling	<i>Sturnus vulgaris</i>
barn swallow	<i>Hirundo rustica</i>
blue jay	<i>Cyanocitta cristata</i>
rock dove	<i>Columba livia</i>
common yellowthroat	<i>Geothlypis trichas</i>
eastern cottontails	<i>Sylvilagus floridanus</i>

Barn swallow (*Hirundo rustica*) were nesting above the northern entranceway to the main building.

Listed Species: The 2009 field survey identified neither listed species nor suitable habitat for listed species.

Indiana bat	<i>Myotis sodalis</i> , FE
Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
Prairie bush-clover	<i>Lespedeza leptostachya</i> , FT
Western prairie fringed orchid	<i>Platanthera praeclara</i> , FT

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 5Mar21)

Other Considerations: None.

Management Issues and Concerns: At the time of the 2009 field survey, the Canada thistle (*Cirsium arvense*), is present in low densities. The Iowa Department of Agriculture and Land Stewardship classify this species as a primary noxious weed.

(Updated CMM 5Mar21)

(QA/QC STL 08Jun2021)

IA006/19504

Cherokee USARC

1807 Industrial Road,
Cherokee, IA 51012

County: Cherokee

Real Property Report Acres: 5.21

Building Count: 3

% Cover: Maintained Grass (57%)
Paved Road/Parking (36%)
Buildings (7%)
(No change CMM 14Aug20)

Last Field Survey: 2010



The Cherokee USARC consists of a USARC, an OMS, one additional building, along with associated parking areas. Surrounding land use includes commercial land to the north, east, and west, and roadways and residential properties to the south.

Land Use

The site uses include administrative services, classroom training, light vehicle maintenance, and storage. The 88th RD owns the three buildings, and leases the land that comprises IA006/19504.
(No change CMM 31Aug20)

Natural Resources

EPA Ecoregion: Western Corn Belt Plains

Wetlands: During the 2010 field survey there were no wetlands identified on-site. NWI data identifies three wetlands located within 1,000 feet of the site:

- approximately 450 feet east of the site a palustrine unconsolidated shore (PUSC_x) wetland
- approximately 650 feet east of the site, another PUSC_x wetland
- approximately 800 feet east of the site a palustrine unconsolidated bottom (PUBG_x)/PUSC_x wetland complex

(Verified unchanged from NWI website data CMM 4Sep20)

Vegetation: The site lacks native vegetation communities. This community has documented Noxious weed species. Three primary noxious weeds: Canada thistle (*Cirsium arvense*), field bindweed (*Convolvulus pluricaulis*), leafy spurge (*Euphorbia esula*), and one secondary noxious weed: Queen Anne's lace (*Daucus carota*).

At the time of the 2010 field survey, the above listed noxious/exotic species were present in low densities.

Lawn/Herbaceous Layer:

Kentucky bluegrass
tall fescue

Poa pratensis
Festuca arundinacea

smooth brome *Bromus inermis*

Shrub Layer: No shrub layer is present.

Canopy Layer:

Norway spruce *Picea abies*
green ash *Fraxinus pennsylvanica*

At the time of the 2010 field survey, trees observed at this site appeared to be healthy with no signs of disease. No trees at this site qualify for the IDNR Big Tree Registry.

Wildlife: IA006/19504 offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use, wildlife species typically adapted to developed areas are likely to utilize the site.

Wildlife observed during the 2010 site survey included:

blue jay *Cyanocitta cristata*
mourning dove *Zenaida macroura*
killdeer *Charadrius vociferus*
eastern cottontails *Sylvilagus floridanus*

Listed Species: The 2010 field survey identified neither listed species nor suitable habitat for listed species.

Northern long-eared bat *Myotis septentrionalis*, FE
Western prairie fringed orchid *Platanthera praeclara*, FT
Prairie bush clover *Lespedeza leptostachya*, FT

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 5Mar21)

Other Considerations: None.

Management Issues and Concerns: At the time of the 2010 field survey, the Canada thistle (*Cirsium arvense*), field bindweed (*Convolvulus pluricaulis*), Queen Anne's lace (*Daucus carota*), leafy spurge (*Euphorbia esula*) are classified as a primary noxious weed by the Iowa Department of Agriculture and Land Stewardship. These species were present in low densities.

(Updated CMM 5Mar21)

(QA/QC STL 08Jun2021)

IA007/19505

Council Bluffs USARC

1015 North 25th Street,
Council Bluffs, IA 51501

County: Pottawatomoni

Real Property Report Acres: 9.00

Building Count: 3

% Cover: Paved Road/Parking (36%),
Maintained Grass (59%),
Buildings (5%)
(No change CMM 14Aug20)



Last Field Survey: 2010

The Council Bluffs USARC consists of a USARC, an OMS, one additional building, and associated parking areas. Surrounding land use includes residential properties to the north, south, and east, with recreational land to the west.

Land Use

The site uses include administrative services, classroom training, light vehicle maintenance, and storage. The 88th RD owns the three buildings and land that comprises Site IA007/19505. (No change CMM 31Aug20)

Natural Resources

EPA Ecoregion: Western Corn Belt Plains

Wetlands: During the 2010 field survey there were no wetlands identified on-site. NWI data indicates no wetlands are present on or within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 4Sep20)

Vegetation: The site lacks native vegetation communities.

Lawn/Herbaceous Layer:

Kentucky bluegrass	<i>Poa pratensis</i>
tall fescue	<i>Festuca arundinacea</i>
nimblewill	<i>Muhlenbergia schreberi</i>
creeping Charlie	<i>Glechoma hederacea</i>

Shrub Layer: No shrub layer is present.

Canopy Layer:

Honey locust	<i>Gleditsia triacanthos</i>
American sycamore	<i>Platanus occidentalis</i>
Austrian pine	<i>Pinus nigra</i>

At the time of the 2010 field survey, trees observed at this site appeared to be healthy with no signs of disease. No trees at this site qualify for the IDNR Big Tree Registry.

Wildlife: Site IA007/19505 offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use, only wildlife species typically adapted to developed areas are likely to utilize the site.

Species observed during the 2010 site survey included:

blue jay	<i>Cyanocitta cristata</i>
European starling	<i>Sturnus vulgaris</i>
American robin	<i>Turdus migratorius</i>
Fox squirrels	<i>Sciurus niger</i>
eastern cottontails	<i>Sylvilagus floridanus</i>

Listed Species: The 2010 field survey identified neither listed species nor suitable habitat for listed species.

northern long-eared bat	<i>Myotis septentrionalis</i> , FT
western prairie fringed orchid	<i>Platanthera praeclara</i> , FT
prairie bush clover	<i>Lespedeza leptostachya</i> , FT
piping plover	<i>Charadrius melodus</i> , FT
pallid sturgeon	<i>Scaphirhynchus albus</i> , FE

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 5Mar21)

Other Considerations: None.

Management Issues and Concerns: None.

(Updated CMM 5Mar21)

(QA/QC STL 08Jun2021)

IA009/19545

Davenport USARC

3440 N. Division Street
Davenport, IA 52806

County: Scott

Real Property Report Acres: 5.95

Building Count: 3

% Cover: Building (15%)
Paved Road/Parking (65%)
Maintained Grass (20%)
(No change CMM 14Aug20)

Last Field Survey: 2010



The Davenport USARC consists of a USARC, an OMS, one additional building, and associated parking areas. Surrounding land use includes residential properties to the north and east and recreational land (baseball field) to the south and west.

Land Use

Site usage includes administrative services, classroom training, light vehicle maintenance, and storage. The 88th RD, owns 5.38 acres of land, the three buildings, and leases the remaining 0.57 acres of land that comprises Site IA009/19545. (No change CMM 31Aug20)

Natural Resources

EPA Ecoregion: Western Corn Belt Plains

Wetlands: During the 2010 field survey there were no wetlands identified on-site. NWI data indicates no wetlands are present on or within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 4Sep20)

Vegetation: The site lacks native vegetation communities.

Lawn/Herbaceous Layer:

Kentucky bluegrass	<i>Poa pratensis</i>
tall fescue	<i>Festuca arundinacea</i>
crabgrass	<i>Digitaria spp.</i>

Shrub Layer: No shrub layer is present.

Canopy Layer:

White pine	<i>Pinus strobus</i>
Norway maple	<i>Acer platanoides</i>

At the time of the 2010 field survey, trees observed at this site appeared to be healthy with no identified signs of disease. No trees at this site qualify for the IDNR Big Tree Registry.

Wildlife: Site IA009/19545 offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use, wildlife species typically adapted to developed areas are likely to utilize the site.

Wildlife observed during the 2010 site survey included:

blue jay	<i>Cyanocitta cristata</i>
mourning dove	<i>Zenaida macroura</i>
house sparrow	<i>Passer domesticus</i>
European starling	<i>Sturnus vulgaris</i>
killdeer	<i>Charadrius vociferus</i>
northern cardinal	<i>Cardinalis cardinalis</i>
eastern cottontails	<i>Sylvilagus floridanus</i>

Listed Species: The 2010 field survey identified neither listed species nor suitable habitat for listed species.

Western prairie fringed orchid	<i>Platanthera praeclara</i> , FT
Prairie bush clover	<i>Lespedeza leptostachya</i> , FT
Eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT
Indiana bat	<i>Myotis sodalist</i> , FE
Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
Eastern massasauga	<i>Sistrurus catenatus</i> , FT
Higgins eye pearly mussel	<i>Lampsilis higginsii</i> , FE
Sheepnose mussel	<i>Plethobasus cyphus</i> , FE
Spectaclecase mussel	<i>Cumberlandia monodonta</i> , FE

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 5Mar21)

Other Considerations: None.

Management Issues and Concerns: None.

(Updated CMM 5Mar21)

(QA/QC STL 08Jun2021)

IA010/19547 – Excessed Decorah USARC

404 Heivly Street
Decorah, IA 52101

County: Winneshiek

Real Property Report Acres: 5.00

Building Count: 2

% Cover: Maintained Grass (34%)
Paved Road/Parking (57%)
Buildings (9%)
(No change CMM 20Apr21)

Last Field Survey: 2009



The Decorah USARC consists of a USARC, an OMS, and associated parking areas. Surrounding land use includes recreational land to the north, commercial land to the south, commercial land and residential properties to the west, and recreational (baseball park) and commercial land to the east.

Land Use

The site uses include administrative services, classroom training, and light vehicle maintenance. The 88th RD owns the buildings and leases the land. (No change CMM 20Apr21)

Natural Resources

Ecoregion: Driftless Area

Wetlands: During the 2009 field survey there were no observable wetlands identified on-site. NWI data indicates several wetlands located within 1,000 feet of the site, and includes:

- approximately 400 feet north and west of the site, a riverine lower perennial unconsolidated bottom (R2UBH) wetland
- approximately 500 feet northwest of the site, a palustrine forested (PFO1A) wetland
- approximately 600 feet east of the site, a palustrine unconsolidated bottom (PUBGh) wetland
- approximately 1,000 feet west of the site, a palustrine emergent (PEMA) wetland

(Verified unchanged from NWI website data CMM 20Apr21)

Vegetation: The site lacks native vegetation communities.

Lawn/Herbaceous Layer:

Kentucky bluegrass
tall fescue

Poa pratensis
Festuca arundinacea

Shrub Layer: No shrub layer is present.

Canopy Layer:

silver maple

Acer saccharinum

green ash

Fraxinus pennsylvanica

Wildlife: The site offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use, species typically adapted to developed areas are likely to utilize the site.

Wildlife observed during the 2009 site survey included:

blue jay

Cyanocitta cristata

American crow

Corvus brachyrhynchos

European starling

Sturnus vulgaris

house sparrow

Passer domesticus

rock pigeon

Columba livia

cedar waxwing

Bombycilla cedrorum

killdeer

Charadrius vociferous

turkey vulture

Cathartes aura

gray squirrel

Sciurus carolinensis

Listed Species: The 2009 field survey identified neither listed species nor suitable habitat for listed species. The IDNR did not report any state-listed species on or within 1,000 feet of the site.

northern long-eared bat

Myotis septentrionalis, FE

western prairie fringed orchid

Platanthera praeclara, FT

prairie bush clover

Lespedeza leptostachya, FT

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 20Apr21)

Other Considerations: None.

Management Issues and Concerns: None.

(Updated CMM 20Apr21)

(QA/QC STL 08Jun2021)

IA014/19903

Dubuque USARC

10685 Jet Center Drive
Dubuque, IA 52003

County: Dubuque

Real Property Report Acres: 15.00

Building Count: 2

% Cover: Maintained Grass (54%)
Paved Road/Parking (22%)
Drainage Ditch (4%)
Deciduous Forest (12%)
Grassland/Field (4%)
Open Water (1%)
Buildings (3%)
(No change CMM 14Aug20)



Last Field Survey: 2015

The Dubuque USARC consists of a USARC, an OMS, and associated parking areas. Surrounding land use includes undeveloped land to the north and east and agricultural land to the south and west.

Land Use

The site uses include administrative services, classroom training, and light vehicle maintenance. The 88th RD owns the buildings and leases the land that comprises IA014/19903. (No change CMM 31Aug20)

Natural Resources

EPA Ecoregion: Driftless Area

Wetlands: During the 2015 field survey there were no observable wetlands identified on-site. NWI data indicates several wetlands located within 1,000 feet of the site, and includes two palustrine unconsolidated bottom (PUBGx) wetlands located in the northwest corner of the site. However, field survey ground-truthing revealed, these two NWI PUB wetlands are wastewater treatment lagoons not wetlands. NWI data reports no wetlands within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 4Sep20)

Vegetation: The site lacks native vegetation communities other than on the woodlot portion of the site. The 2015 field survey documented noxious weed species in this community. Two secondary noxious weeds: Queen Anne's lace (*Daucus carota*) and Multiflora rose (*Rosa multiflora*) are present throughout the woodlot. These species are present at low densities.

Lawn/Herbaceous Layer:

Kentucky bluegrass
Common couch
black snakeroot
honestwort

Poa pratensis
Elymus repens
Actaea racemosa
Cryptotaenia Canadensis

Shrub Layer:

Missouri gooseberry	<i>Ribes missouriense</i>
blackberry	<i>Rubus fruticosus</i>

Canopy Layer:

Green ash	<i>Fraxinus pennsylvanica</i>
bur oak	<i>Quercus macrocarpa</i>
black cherry	<i>Prunus serotina</i>
pignut hickory	<i>Carya glabra</i>

Trees observed at this site all appeared to be healthy with no overt signs of disease. No trees at this site qualify for the IDNR Big Tree Registry.

Wildlife: Most of IA014/19903 offers little suitable habitat for wildlife species. Therefore, given the developed nature of the site wildlife species typically adapted to developed areas are likely to utilize the majority of the site. However, the intact woodlot on the northeastern portion of the site offers opportunities for nesting birds, stopover sites for neotropical migrant birds, small mammal habitat, and other potential wildlife habitat typically associated with deciduous woodland.

Avian species observed during the 2015 site survey included:

American crows	<i>Corvus brachyrhynchos</i>
European starling	<i>Sturnus vulgaris</i>
blue jay	<i>Cyanocitta cristata</i>
hairy woodpecker	<i>Leuconotopicus villosus</i>
black-capped chickadee	<i>Poecile atricapillus</i>
white-breasted nuthatch	<i>Sitta carolinensis</i>
wild turkey	<i>Meleagris gallopavo</i>
northern cardinal	<i>Cardinalis cardinalis</i>
northern flicker	<i>Colaptes auratus</i>

Insects noted during the 2015 field survey included monarch butterfly (*Danaus plexippus*).

Mammals observed during the 2015 field survey:

gray squirrel	<i>Sciurus carolinensis</i>
raccoon	<i>Procyon lotor</i>
opossum	<i>Didelphis virginiana</i>
white-tailed deer	<i>Odocoileus virginianus</i>
eastern chipmunk	<i>Tamias striatus</i>
deer mouse	<i>Peromyscus maniculatus</i>

Listed Species: The 2015 field survey identified neither listed species nor suitable habitat for listed species.

Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
Western prairie fringed orchid	<i>Platanthera praeclara</i> , FT
Eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

Prairie bush clover	<i>Lespedeza leptostachya</i> , FT
Northern monkshood	<i>Aconitum noveboracense</i> , FT
Higgins eye pearly mussel	<i>Lampsilis higginsii</i> , FE
Spectaclecase mussel	<i>Cumberlandia monodonta</i> , FE
Iowa Pleistocene snail	<i>Discus macclintocki</i> , FE

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 8Mar21)

Other Considerations: None.

Management Issues and Concerns: The Queen Anne's lace (*Daucus carota*) and Multiflora rose (*Rosa multiflora*) are classified as a primary noxious weed by the Iowa Department of Agriculture and Land Stewardship. During the 2015 field survey, these species are present in low densities.

(Updated CMM 8Mar21)

(QA/QC STL 07Jun2021)

IA025/19640

Freeman-Davis USARC

1801 Gishwiller Road
Sac City, IA 50583

County: Sac

Real Property Report Acres: 4.76

Building Count: 3

% Cover: Maintained Grass (57%)
Paved Road/Parking (35%)
Buildings (8%)
(No change CMM 14Aug20)



Last Field Survey: 2010

The Freeman-Davis USARC facility consists of a USARC/OMS, an additional building, and associated parking areas. Surrounding land use includes agricultural land to the south and west, public land (school) to the north, and residential properties to the east.

Land Use

The facility is used for administrative services, classroom training, light vehicle maintenance, and storage. The 88th RD owns the three buildings and leases the land that comprises Facility IA025.
(No change CMM 31Aug20)

Natural Resources

EPA Ecoregion: Western Corn Belt Plains

Wetlands: No wetlands were observed on-site during the 2009 site survey. According to the NWI data, there is a palustrine emergent (PEMA) wetland located approximately 700 ft south of the facility. (Verified unchanged from NWI website data CMM 4Sep20)

Vegetation: The facility lacks native vegetation communities.

The following non-dominant invasive-exotic species were documented in this community: velvetleaf (*Abutilon theophrasti*), Canada thistle (*Cirsium arvense*), and Japanese meadowsweet (*Spiraea japonica*). These invasive-exotic species are present in low densities.

Lawn/Herbaceous Layer: Kentucky bluegrass (*Poa pratensis*).

Shrub Layer: No shrub layer is present.

Canopy Layer:

Austrian pine	(<i>Pinus nigra</i>)
green ash	(<i>Fraxinus pennsylvanica</i>)
Honey locust	(<i>Gleditsia triacanthos</i>)

Trees observed at this facility all appeared to be healthy and no signs of disease were identified. No trees at this facility are listed on the IDNR Big Tree Registry.

Wildlife: Facility IA025 offers little suitable habitat for wildlife species. Given the developed nature of the facility and the surrounding land use, only common wildlife species typically adapted to developed areas are likely to utilize the facility.

Wildlife observed during the 2009 site survey included:

house sparrow	(<i>Passer domesticus</i>)
house finch	(<i>Haemorhous mexicanus</i>)
mourning dove	(<i>Zenaida macroura</i>)
chipping sparrow	(<i>Spizella passerina</i>)
blue jay	(<i>Cyanocitta cristata</i>)
red-tailed hawk	(<i>Buteo jamaicensis</i>)

Listed Species: No listed species were observed during the 2009 field survey. No suitable habitat for listed species was observed on the facility.

Listed species potentially in Sac County:

Western prairie fringed orchid	(<i>Platanthera praeclara</i>),
prairie bush clover	(<i>Lespedeza leptostachya</i>),
Topeka shiner	(<i>Notropis topeka</i>), and
northern long-eared bat	(<i>Myotis septentrionalis</i>).

The IDNR did not report any state-listed species on or within 1,000 ft of the facility.

Other Considerations: None.

Management Issues and Concerns: None.

Intentionally blank

IA027/19675 – Excessed Washington Memorial USARC

1411 N. Marion Avenue
Washington, IA 52353

Real Property Report Acres: 4.17

Building Count: 2

% Cover: Buildings (10%)
Gravel Road/Parking (17%)
Maintained Grass (39%)
Paved Road/Parking (34%)
(No change CMM 20Apr21)



Last Field Survey: 2009

The Washington USARC consists of a USARC, OMS, and associated parking areas. Surrounding land use includes residential land to the north and east, residential and agricultural land to the south, and agricultural land to the west.

Land Use

The site uses include administrative services, and one for light vehicle maintenance. The 88th RD owns the buildings and leases the land that comprises IA027/19675. (No change CMM 20Apr21)

Natural Resources

Ecoregion: Western Corn Belt Plains

Wetlands: During the 2009 field survey there were no observable wetlands identified on-site. NWI data indicates no wetlands located on or within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 20Apr21)

Vegetation: The site lacks native vegetation communities.

Lawn/Herbaceous Layer:

Kentucky bluegrass	<i>Poa pratensis</i>
tall fescue	<i>Festuca arundinacea</i>

Shrub Layer: No shrub layer is present.

Canopy Layer:

white spruce	<i>Picea glauca</i>
green ash	<i>Fraxinus pennsylvanica</i>
white pine	<i>Pinus strobus</i>

Wildlife: Site IA027/19675 offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use, wildlife species typically adapted to developed areas are likely to utilize the site. The only wildlife observed during the 2009 site survey was American goldfinch (*Spinus tristis*).

Listed Species: During the 2009 field survey, there were neither listed species nor habitat for listed species identified. Additionally, the IDNR did not report any state-listed species on or within 1,000 feet of the site.

Indiana bat
northern long-eared bat

Myotis sodalist, FE
Myotis septentrionalis, FE

western prairie fringed orchid
prairie bush clover

Platanthera praeclara, FE
Lespedeza leptostachya, FT

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 20Apr21)

Other Considerations: None.

Management Issues and Concerns: None.

(Updated CMM 20Apr21)

(QA/QC STL 07Jun2021)

IA030/19685

Waterloo AFRC

1689 Burton Avenue
Waterloo, IA 50703

County: Black Hawk

Real Property Report Acres: 4.82

Building Count: 3

% Cover: Buildings (9%),
Paved Road/Parking (53%)
Maintained Grass (38%)
(No change CMM 14Aug20)

Last Field Survey: 2010



The Waterloo AFRC consists of an OMS, an AFRC, a storage building, and associated parking areas. Surrounding land use includes recreational and commercial land to the north, recreational land (ballpark) to the south and west, and commercial and residential properties to the east.

Land Use

The site uses include administrative services, light vehicle maintenance and storage. The 88th RD owns the buildings and land that comprise IA030/19685. (No change CMM 31Aug20)

Natural Resources

EPA Ecoregion: Western Corn Belt Plains

Wetlands: During the 2010 field survey there were no observable wetlands identified on-site. NWI data indicates one wetland located on or within 1,000 feet of the site: approximately 500 feet to the northeast of the site, palustrine unconsolidated bottom (PUBHx)/palustrine unconsolidated shore (PUSA) complex. (Verified unchanged from NWI website data CMM 4Sep20)

Vegetation: The site lacks native vegetation communities.

Lawn/Herbaceous Layer:

Kentucky bluegrass	<i>Poa pratensis</i>
crabgrass	<i>Digitaria spp.</i>
white clover	<i>Trifolium repens</i>
tall fescue	<i>Festuca arundinacea</i>

Shrub Layer: No shrub layer is present.

Canopy Layer:

Sugar maple	<i>Acer saccharum</i>
pin oak	<i>Quercus palustris</i>
white fir	<i>Abies concolor</i>

Trees observed at this site appeared to be healthy with no overt signs of disease.

No trees at this site qualify for the IDNR Big Tree Registry.

Wildlife: Site IA030/19685 offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use wildlife species adapted to developed areas are likely to utilize the site.

Avian species observed during the 2009 site survey included:

American crows	<i>Corvus brachyrhynchos</i>
rock dove	<i>Columba livia</i>)
Canada goose	<i>Branta canadensis</i>

Mammals observed during the 2009 field survey:

eastern cottontails	<i>Sylvilagus floridanus</i>
Fox squirrels	<i>Sciurus niger</i>
common mole	<i>Scalopus aquaticus</i>

Listed Species: The 2010 field survey identified neither listed species nor suitable habitat for listed species.

northern long-eared bat	<i>Myotis septentrionalis</i> , FE
western prairie fringed orchid	<i>Platanthera praeclara</i> , FT
prairie bush clover	<i>Lespedeza leptostachya</i> , FT
eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 8Mar21)

Other Considerations: None.

Management Issues and Concerns: None.

(Updated CMM 8Mar21)

(QA/QC STL 07Jun2021)

IA033/19057

Des Moines Reserve Complex

Bldg. 100, 225 E. Army Post Rd.,
Des Moines, IA 50315

County: Polk

Real Property Report Acres: 39.86

Building Count: 5

% Cover: Buildings (6%)
Paved Road/Parking (48%)
Maintained Grass (48%)
(No change CMM 14Aug20)

Last Field Survey: 2009



The Des Moines Reserve Complex consists of a USARC, an OMS/AMSA, four additional buildings, a wash rack, and associated parking areas. Surrounding land use includes commercial land to the north, east, and west, and residential properties to the south.

Land Use

The site uses include administrative services, one for classroom training, one for vehicle maintenance, and two for storage. The 88th RD owns the buildings and land that comprise IA033/19057. (No change CMM 31Aug20)

Natural Resources

Ecoregion: Western Corn Belt Plains

Wetlands: During the 2009 field survey there were no observable wetlands identified on-site. NWI data reports two wetlands within 1,000 feet of the northern portion of the site: a palustrine emergent (PEMCx) wetland located approximately 350 feet east of the site and a palustrine unconsolidated bottom (PUBFx) wetland located approximately 500 feet east of the site.

Additionally, there are three NWI wetlands within 1,000 feet of the southern portion of the site:

- a palustrine unconsolidated bottom (PUBGx) located approximately 700 feet southwest of the site,
- a palustrine unconsolidated bottom (PUBGh) located approximately 750 feet east of the site, and
- a palustrine unconsolidated bottom (PUBGx) located approximately 800 feet south of the site. (Verified unchanged from NWI website data CMM 4Sep20)

Vegetation: The site lacks native vegetation communities. The 2009 field survey documented a noxious weed species in this community. The 2009 field survey identified a secondary noxious weed species in this community: Queen Anne's lace (*Daucus carota*). At the time of the 2009 field survey, these invasive-exotic species are present in low densities.

Lawn/Herbaceous Layer: Species identified during the 2009 field survey included:

Kentucky bluegrass	<i>Poa pratensis</i>
tall fescue	<i>Festuca arundinacea</i>
Common couch grass	<i>Elymus repens</i>

Shrub Layer: No shrub layer is present.

Canopy Layer: Species identified during the 2009 field survey included:

Blue spruce	<i>Picea pungens</i>
Norway spruce	<i>Picea abies</i>
American sycamore	<i>Platanus occidentalis</i>
Austrian pine	<i>Pinus nigra</i>
silver maple	<i>Acer saccharinum</i>
cultivated crabapple	<i>Malus domestica</i>

At the time of the 2009 field survey, the trees at this site appeared to be healthy with no overt signs of disease. No trees at this site qualify for the IDNR Big Tree Registry.

Wildlife: Site IA033/19057 offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use, wildlife species typically adapted to developed areas are likely to utilize the site.

Avian species observed during the 2009 site survey included:

red-winged blackbird (<i>Agelaius phoeniceus</i>)	common grackle (<i>Quiscalus quiscula</i>)
blue jay (<i>Cyanocitta cristata</i>)	house sparrow (<i>Passer domesticus</i>)
European starling (<i>Sturnus vulgaris</i>)	northern flicker (<i>Colaptes auratus</i>)
American crows (<i>Corvus brachyrhynchos</i>)	chimney swift (<i>Chaetura pelagica</i>)
sharp-shinned hawk (<i>Accipiter striatus</i>)	rock dove (<i>Columba livia</i>)
mourning dove (<i>Zenaida macroura</i>)	

Mammals included raccoon (*Procyon lotor*), and Fox squirrels (*Sciurus niger*).

Listed Species: The 2010 field survey identified neither listed species nor suitable habitat for listed species.

Indiana bat	<i>Myotis sodalis</i> , FE
northern long-eared bat	<i>Myotis septentrionalis</i> , FE
western prairie fringed orchid	<i>Platanthera praeclara</i> , FT
prairie bush clover	<i>Lespedeza leptostachya</i> , FT

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 12Mar21)

Other Considerations: Buildings T-106, 117,

149, and 152 are part of Ft. Des Moines III National Historic Landmark (NHL).

Management Issues and Concerns: The Iowa Department of Agriculture and Land Stewardship classify Queen Anne's lace (*Daucus carota*) as a primary noxious weed. At the time of the 2009 field survey, this species was present in low densities.

(Updated CMM 12Mar2021) (QA/QC STL 07Jun2021)

Intentionally blank

1 **IA036/19560 – Excessed**
2 **Fort Dodge USARC**

3 1627 Nelson Avenue
4 Fort Dodge, IA 50501

5 **County:** Webster

6 **Real Property Report Acres:** 4.48\

7 **Buildings** 1

8 **% Cover:** Buildings (6%)
9 Paved Road/Parking (29%)
10 Maintained Grass (65%)
11 (No change CMM 20Apr21)

12 **Last Field Survey:** 2009



13 The Fort Dodge USARC consists of a USARC and associated parking areas. Surrounding land use
14 includes agricultural land to the north and west, commercial land (Ft. Dodge Airport) to the south,
15 and recreational land (ballpark) to the east.

16 **Land Use**

17 The site uses include administrative services and classroom training. The 88th RD owns the building
18 and leases the land that comprises Site IA036/19560. (No change CMM 20Apr21)

19 **Natural Resources**

20 **Ecoregion:** Western Corn Belt Plains

21 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on-
22 site. Additionally, according to the NWI data, there are no wetlands located on or within
23 1,000 feet of the site. (Verified unchanged from NWI website data CMM 20Apr21)

24 **Vegetation:**

25 **Lawn/Herbaceous Layer:**

26 Kentucky bluegrass	<i>Poa pratensis</i>
27 white clover	<i>Trifolium repens</i>
28 tall fescue	<i>Festuca arundinacea</i>
29 birdsfoot trefoil	<i>Lotus corniculatus</i>

30 **Shrub Layer:** No shrub layer or canopy layer are present.

31 **Canopy Layer:** Species not listed. All trees observed in 2009 site survey were
32 ornamental (non-native) trees.

33 **Wildlife:** Site offers little suitable habitat for wildlife species. Given the developed
34 nature of the site and the surrounding land use, only common wildlife species typically
35 adapted to developed areas are likely to utilize the site. Wildlife observed during the
36 2009 site survey included:

37 European starling	<i>Sturnus vulgaris</i>
38 mourning dove	<i>Zenaida macroura</i>

1	killdeer	<i>Charadrius vociferous</i>
2	Canada goose	<i>Branta Canadensis</i>
3	house finch	<i>Haemorhous mexicanus</i>
4	Cooper's hawk	<i>Accipiter cooperii</i>
5	Red-tailed hawk	<i>Buteo jamaicensis</i>

6 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat for listed
7 species.

8	northern long-eared bat	<i>Myotis septentrionalis</i> , FE
9	western prairie fringed orchid	<i>Platanthera praeclara</i> , FE
10	prairie bush clover	<i>Lespedeza leptostachya</i> , FT
11	Topeka shiner	<i>Notropis topeka</i> , FT

12 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
13 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 20Apr21)

14 **Other Considerations:** None.

15 **Management Issues and Concerns:** None.

16
17 (Updated CMM 20Apr21)

18 (QA/QC STL 07Jun2021)

19

1 **IA047/1990D**

2 **Cedar Falls AMSA**

3 5502 Nordic Drive, Cedar Falls, IA 50613

4 **County:** Black Hawk

5 **Real Property Report Acres:** 1.52

6 **Building Count:** 1

7 **% Cover:** Buildings (24%)
8 Gravel Road/Parking (35%)
9 Paved Road/Parking (16%)
10 Maintained Grass (25%)
11 (No change CMM 14Aug20)



12 **Last Field Survey:** 2010

13 The Cedar Falls AMSA consists of an AMSA and associated parking areas. Surrounding land use
14 includes commercial and agricultural land and roadway to the north, commercial land to the south
15 and west, and commercial land and roadway to the east.

16 **Land Use**

17 The site uses include vehicle maintenance. The 88th RD leases the building and land that comprise
18 IA047/1990D. (No change CMM 31Aug20)

19 **Natural Resources**

20 **Ecoregion:** Western Corn Belt Plains

21 **Wetlands:** During the 2010 field survey there were no observable wetlands identified on-
22 site.

23 NWI data reports several wetlands located within 1,000 feet of the site. Four wetlands are
24 located east/northeast of the site: three palustrine unconsolidated bottom (PUBFh) wetlands
25 (located 550 feet northeast, 500 feet east, and 750 east), and a palustrine emergent (PEMCh)
26 wetland (located 400 feet east). Additionally, a PEMB wetland is located approximately 650
27 feet north of the site. (Verified unchanged from NWI website data CMM 4Sep20)

28 **Vegetation:** At the time of the 2010 field survey, the site lacked native vegetation
29 communities. Noxious weed species included one primary noxious weed: Canada thistle
30 (*Cirsium arvense*) and two secondary noxious weeds: Queen Anne’s lace (*Daucus carota*)
31 and common sunflower (*Helianthus annuus*). These species are present in low densities.

32 **Lawn/Herbaceous Layer:**

33 Kentucky bluegrass (*Poa pratensis*)
34 tall fescue (*Festuca arundinacea*)
35 white clover (*Trifolium repens*)

36 **Shrub Layer:** No shrub layer is present.

37 **Canopy Layer:** Green ash (*Fraxinus pennsylvanica*).

1 Trees observed at this site all appeared to be healthy and no signs of disease were identified.
2 No trees at this site qualify for the IDNR Big Tree Registry.

3 **Wildlife:** Site IA047/1990D offers little suitable habitat for wildlife species. Given the
4 developed nature of the site and the surrounding land use, only those wildlife species
5 adapted to developed areas are likely to utilize the site.

6 Avian species observed during the 2009 site survey included:

7	rock dove	<i>Columba livia</i>)
8	American robin	<i>Turdus migratorius</i>)
9	mourning dove	<i>Zenaida macroura</i>)
10	Canada goose	<i>Branta canadensis</i>)
11	blue jay	<i>Cyanocitta cristata</i>)
12	house sparrow	<i>Passer domesticus</i>)

13 Mammals observed during the 2009 field survey included:

14	house mouse	<i>Mus musculus</i>)
15	raccoon	<i>Procyon lotor</i>)
16	white-tailed deer	<i>Odocoileus virginianus</i>)
17	eastern cottontails	<i>Sylvilagus floridanus</i>)

18 **Listed Species:** The 2010 field survey identified neither listed species nor suitable habitat
19 for listed species.

20	northern long-eared bat	<i>Myotis septentrionalis</i> , FE
21	western prairie fringed orchid	<i>Platanthera praeclara</i> , FT
22	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT
23	prairie bush clover	<i>Lespedeza leptostachya</i> , FT
24	Rusty patch bumble bee	<i>Bombus affinis</i> , FE

25 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
26 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 12Mar21)

27 **Other Considerations:** None.

28 **Management Issues and Concerns:** The Iowa Department of Agriculture and Land
29 Stewardship classify Canada thistle (*Cirsium arvense*), Queen Anne's lace (*Daucus carota*), and
30 common sunflower (*Helianthus annuus*) as noxious weeds. This species is present in low densities.

31
32 (Updated CMM 12Mar21)

33 (QA/QC STL 07Jun2021)

34

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Indiana Low Resource Sites

1
2
3

- | | | | |
|----|---|----|---------------------------------------|
| 4 | IN002/18625 – COL Kenneth P. Williams ARC | 13 | IN023/18740 – Laporte Co Veterans ARC |
| 5 | IN004/18607 – SGT Charles H. Seston USAC | 14 | IN027/18735 – Roper R. Peddicord ARC |
| 6 | IN005/18655 – SGT James W. Harlan
ARC/AMSA | 15 | IN030/18790 – Richmond ARC |
| 8 | IN008/18778 – Fort Ben Harrison ARC | 16 | IN032/18825 – Everitt B. Hunley ARC |
| 9 | IN010/18675 – BMA 133 | 17 | IN033/18856 – Lyle J. Thompson ARC |
| 10 | IN011/18675 – PFC Wm L. Gillespie ARC | 18 | IN034/18857 – Maple Lane ARC |
| 11 | IN014/18699 – CPL Robert Shaffer ARC | 19 | IN036/18875 – Robert R. Mosele ARC |
| 12 | IN020/18725 – James T. St Clair ARC | 20 | IN085/18301 – Michigan City USARC |

21



Intentionally blank

1 **IN002/18625**

2 **COL Kenneth P. Williams USARC**

3 520 South Woodcrest Drive

4 Bloomington, IN 47401

5 **County:** Monroe

6 **Real Property Report Acres:** 3.50

7 **Building Count:** 2

8 **% Cover:** Maintained Grass (58%)

9 Paved Road/Parking (29%)

10 Buildings (13%)

11 (No change CMM 17Aug20)

12 **Last Field Survey:** Desktop Only



13 The COL Kenneth P. Williams USARC consists of the USARC and associated parking areas.
14 Surrounding land use includes commercial/industrial area to the North, East and West, and
15 residential/open areas to the South.

16 **Land Use**

17 The site uses includes for administrative services, classroom training, and light vehicle
18 maintenance. The 88th RD owns the buildings and land that comprise site IN002/18625. (No change
19 CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Interior Plateau

22 **Wetlands:** NWI data reports no wetlands identified on-site. There are no wetlands within
23 1,000 feet of the site. There are wetlands located 3,100 feet northeast of the site. (Verified
24 unchanged from NWI website data CMM 4Sep20)

25 **Vegetation:** This site has received no field survey.

26 **Wildlife:** This site has received no field survey.

27 **Listed Species:** This site has received no field survey. No habitat is present at this site for
28 the listed species.

29 Indiana bat

Myotis sodalist, FE

30 Northern long-eared bat

Myotis septentrionalis, FE

31 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
32 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 13Mar21)

33 **Other Considerations:** None.

34 **Management Issues and Concerns:** None.

35
36 (Updated CMM 13Mar2021)

37 (QA/QC STL 10Jun2021)

Intentionally blank

1 **IN004/18607**

2 **SGT Charles H. Seston USARC**

3 Building 724, Camp Atterbury
4 Edinburgh, IN 46124

5 **County:** Johnson

6 **Real Property Report Acres:** 10.24

7 **Building Count:** 2

8 **% Cover:** Paved Road/Parking (40%),
9 Maintained Grass (52%),
10 Buildings (8%)
11 (No change CMM 17Aug20)

12 **Last Field Survey:** 2010



13 The SGT Charles H. Seston USARC consists of the USARC, an Organizational Maintenance Shop
14 (OMS), and associated parking areas. Surrounding land use includes a school and football field
15 that are a part of Camp Atterbury to the north, Camp Atterbury facilities to the south and east, and
16 wooded areas associated with Camp Atterbury to the west.

17 **Land Use**

18 The site uses include vehicle maintenance, classroom training, and administrative services. The
19 88th RD owns the two buildings and land that comprise IN004/18607. (No change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Eastern Corn Belt Plains

22 **Wetlands:** During the 2010 field survey there were no observable wetlands identified on-
23 site. NWI data reports, no wetlands located on or within 1,000 feet of the site. The nearest
24 wetlands are located 3,400 feet southwest of the site. (Verified unchanged from NWI website data CMM
25 4Sep20)

26 **Vegetation:** The site lacks native vegetation communities.

27 **Lawn/Herbaceous Layer:** The maintained grass areas are dominated by Kentucky
28 bluegrass (*Poa pratensis*).

29 Other observed species:

- | | | |
|----|----------------------|----------------------------|
| 30 | goldenrod | <i>Solidago spp.</i> |
| 31 | English plantain | <i>Plantago lanceolate</i> |
| 32 | crabgrass | <i>Digitaria spp.</i> |
| 33 | columbine (cultivar) | <i>Aquilegia spp.</i> |
| 34 | white clover | <i>Trifolium repens</i> |
| 35 | yellow hop clover | <i>Trifolium campestre</i> |

36 **Shrub Layer:** There is no distinct shrub layer present.

37 **Canopy Layer:** Landscaping trees and shrubs included:

- | | | |
|----|----------------------|------------------------|
| 38 | linden tree/basswood | <i>Tilia americana</i> |
|----|----------------------|------------------------|

1	white pine	<i>Pinus strobus</i>
2	blue spruce	<i>Picea pungens</i>
3	apple	<i>Malus domestica</i>
4	white mulberry (invasive)	<i>Morus spp.</i>
5	Tartarian honeysuckle	<i>Lonicera tatarica</i>

6 **Wildlife:** Due to the developed nature of the site and the surrounding land use wildlife
7 species adapted to developed areas are likely to utilize this property.

8 Wildlife observed during the 2010 field survey included:

9	American robin	<i>Turdus migratorius</i>
10	European starling	<i>Sturnus vulgaris</i>
11	orange sulphur butterfly	<i>Colias eurytheme</i>

12 **Listed Species:** The 2010 field survey identified neither listed species nor suitable habitat
13 for listed species.

14	Indiana bat	<i>Myotis sodalist</i> , FE
15	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE

16 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
17 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 13Mar21)

18 **Other Considerations:** None.

19 **Management Issues and Concerns:** None.

20

21 (Updated CMM 13Mar21)

22 (QA/QC STL 10Jun2021)

1 **IN005/18655**

2 **SGT James W. Harlan USARC/AMSA**

3 2900 Division Street,
4 Evansville, IN 47711

5 **County:** Vanderburgh

6 **Real Property Report Acres:** 10.16

7 **Building Count:** 2

8 **% Cover:** Paved Road/Parking (30%)

9 Buildings (9%)

10 Gravel Road/Parking (28%)

11 Maintained Grass (33%)

12 (No change CMM 17Aug20)

13 **Last Field Survey:** 2010



14 The SGT James Harlan USARC/AMSA consists of the USARC, the AMSA, and associated parking
15 areas. Land use surrounding the site includes a stadium with adjoining baseball field to the north,
16 a school and National Guard building to the east, and a school and stadium to the west. Along the
17 southern border, there is residential land, commercial land, and SR 66.

18 **Land Use**

19 The site uses include vehicle maintenance, classroom training, and administrative services. The
20 88th RD owns the two buildings and 4.99 acres of land that comprise IN005/18655. The remaining
21 acreage is leased. (No change CMM 31Aug20)

22 **Natural Resources**

23 **EPA Ecoregion:** Interior River Lowland

24 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on-
25 site.

26 NWI data reports several wetlands located within 1,000 feet of the site. NWI data reports a
27 PUBGx wetland located 575 feet east of the site. (Verified unchanged from NWI website data CMM 4Sep20)

28 **Vegetation:** The site lacks native vegetation communities.

29 **Lawn/Herbaceous Layer:**

30 Kentucky bluegrass *Poa pratensis*

31 Other species observed:

32 yellow hop clover *Trifolium campestre*

33 white clover *Trifolium repens*

34 English plantain *Plantago lanceolate*

35 common cinquefoil *Potentilla simplex*

36 violets *Viola spp.*

37 **Shrub Layer:** There is no shrub layer present.

38 **Canopy Layer:** Landscaping trees included:

1	white mulberry (invasive)	<i>Morus spp.</i>
2	red maple	<i>Acer rubrum</i>
3	pin oak	<i>Quercus palustris</i>
4	trumpet creeper	<i>Campsis radicans</i>
5	Chinese elm (invasive)	<i>Ulmus parvifolia</i>
6	Siberian elm (invasive)	<i>Ulmus pumila</i>

7 **Wildlife:** Due to the developed nature of the site and the surrounding land use, there is little
8 habitat suitable for wildlife. Only wildlife species typically adapted to developed areas are
9 likely to utilize this property.

10 Avian species observed during the 2009 field survey:

11	mocking bird	<i>Mimus polyglottos</i>
12	American robin	<i>Turdus migratorius</i>
13	mourning dove	<i>Zenaida macroura</i>
14	song sparrow	<i>Melospiza melodia</i>
15	common grackle	<i>Quiscalus quiscula</i>
16	killdeer	<i>Charadrius vociferus</i>
17	chimney swift	<i>Chaetura pelagica</i>
18	rock dove	<i>Columba livia</i>
19	European starling	<i>Sturnus vulgaris</i>

20 Insects observed during the 2009 field survey:

21	zebra swallowtail	<i>Protographium marcellus</i>
22	eastern tailed blue butterfly	<i>Cupido comyntas</i>

23 Mammals observed:

24	Fox squirrels	<i>Sciurus niger</i>
25	eastern common mole	<i>Scalopus aquaticus</i>

26 **Listed Species:** The 2010 field survey identified neither listed species nor suitable habitat
27 for listed species.

28	Indiana bat	<i>Myotis sodalist</i> , FE
29	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE

30 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
31 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 13Mar21)

32 **Other Considerations:** None.

33 **Management Issues and Concerns:** None.

34

35 (Updated CMM 13Mar21)

36 (QA/QC STL 10Jun2021)



1 **IN010/18675**
 2 **BMA 133 (Fort Wayne)**
 3 4311 Engle Ridge Road
 4 Fort Wayne, IN 46804
 5 **County:** Allen
 6 **Real Property Report Acres:** 1.21
 7 **Building Count:** 1
 8 **% Cover:** No data
 9 **Last Field Survey:** Desktop Only

10 BMA #133 consists of one building situated on one acre of land located in an industrial district of
 11 Fort Wayne, Indiana. The U.S. Government leased the building and land associated with BMA
 12 #133 in 1971. The site sits on hilly terrain approximately two miles north of the Norfolk and
 13 Western Railroad line.

14 **Land Use**

15 The site uses include administrative services, classroom training, and light vehicle maintenance.
 16 The 88th RD leases the building and land that comprise the site. (No change CMM 31Aug20)

17 **Natural Resources**

18 **EPA Ecoregion:** Interior Plateau

19 **Wetlands:** NWI data reports there are no wetlands identified on-site. There are no wetlands
 20 within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 4Sep20)

21 **Vegetation:** This site has received no field survey.

22 **Wildlife:** This site has received no field survey.

23 **Listed Species:** This site has received no field survey. No suitable habitat exists on this site
 24 to support the listed species.

- 25 Indiana bat *Myotis sodalist*, FE
- 26 Northern long-eared bat *Myotis septentrionalis*, FE
- 27 Eastern massasauga *Sistrurus catenatus*, FT

28 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
 29 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 13Mar21)

30 **Other Considerations:** None.

31 **Management Issues and Concerns:** None.

32
 33 (Updated CMM 13Mar21)
 34 (QA/QC STL 10Jun2021)

1 **IN011/18675**

2 **PFC William L. Gillespie USARC**

3 2223 Nuttman Avenue

4 Fort Wayne, IN 46809

5 **County:** Allen

6 **Real Property Report Acres:** 7.01

7 **Building Count:** 2

8 **% Cover:** Maintained Grass (33%)

9 Paved Road/Parking (56%)

10 Buildings (11%)

11 (No change CMM 17Aug20)



12 **Last Field Survey:** Desktop Only

13 The PFC William L. Gillespie USARC consists of the USARC and associated parking areas.

14 Surrounding land use includes residential land.

15 **Land Use**

16 The site uses include administrative services, classroom training, and light vehicle maintenance.

17 The 88th RD owns the 2 buildings and land that comprise IN011/18675. (No change CMM 31Aug20)

18 **Natural Resources**

19 **EPA Ecoregion:** Eastern Corn Belt Plains

20 **Wetlands:** NWI data reports no wetlands identified on-site. There are no wetlands within
21 1,000 feet of the site. There is a river located 1,145 feet southeast of the site and a pond
22 located 600 feet to the north. (Verified from NWI website data CMM 4Sep20)

23 **Vegetation:** This site has received no field survey.

24 **Wildlife:** This site has received no field survey.

25 **Listed Species:** This site has received no field survey. No suitable habitat exists on this site
26 to support the listed species.

27 Indiana bat *Myotis sodalist*, FE

28 Northern long-eared bat *Myotis septentrionalis*, FE

29 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
30 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 14Mar21)

31 **Other Considerations:** None.

32 **Management Issues and Concerns:** None.

33
34 (Updated CMM 14Mar21)

35 (QA/QC STL 10Jun2021)

1 **IN014/18699**

2 **CPL Robert Shaffer USARC**

3 4521 Hoosier Boulevard
4 Grissom AFB, Peru, IN 46971

5 **County:** Miami

6 **Real Property Report Acres:** 5.95

7 **Building Count:** 2

8 **% Cover:** Maintained Grass (45%)
9 Paved Road/Parking (45%)
10 Buildings (10%)
11 (No change CMM 17Aug20)



12 **Last Field Survey:** Desktop Only

13 The CPL Robert Shaffer USARC consists of the USARC building along with associated parking
14 areas. Surrounding land use includes military, commercial, agricultural, and industrial land to the
15 North, agricultural and military areas to the South, and military, commercial, and industrial areas to
16 the East and West.

17 **Land Use**

18 The site uses include for administrative services, classroom training, and light vehicle maintenance.
19 The 88th RD owns the 2 buildings and is permitted by the Air Force to use the land that comprises
20 IN014/18699. (No change CMM 31Aug20)

21 **Natural Resources**

22 **EPA Ecoregion:** Eastern Corn Belt Plains

23 **Wetlands:** NWI data reports there are no wetlands identified on-site. There are no wetlands
24 within 1,000 feet of the site. There is a wetland located 1,480 feet east of the site. (Verified from
25 NWI website data CMM 5Sep20)

26 **Vegetation:** This site has received no field survey.

27 **Wildlife:** This site has received no field survey.

28 **Listed Species:** This site has received no field survey. No suitable habitat exists on this site
29 to support the listed species.

- | | | |
|----|-------------------------|------------------------------------|
| 30 | Indiana bat | <i>Myotis sodalist</i> , FE |
| 31 | Northern long-eared bat | <i>Myotis septentrionalis</i> , FE |

32 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
33 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 14Mar21)

34 **Other Considerations:** None.

35 **Management Issues and Concerns:** None.

36
37 (Updated CMM 14Mar21)

38 (QA/QC STL 10Jun2021)

1 **IN020/18725**

2 **James T. St. Clair USARC/AMSA 131**

3 11th and Penn Street
4 Jeffersonville, IN 47130

5 **County:** Clark

6 **Real Property Report Acres:** 5.28

7 **Building Count:** 3

8 **% Cover:** Maintained Grass (9%),
9 Paved Road/Parking (70%),
10 Buildings (21%)
11 (No change CMM 17Aug20)

12 **Last Field Survey:** Desktop Only



13 The James T. St. Clair USARC/AMSA 131 consists of the USARC, AMSA, and associated parking
14 areas. Industrial land surrounds this site.

15 **Land Use**

16 The site uses include administrative services, classroom training, and light vehicle maintenance.
17 The 88th RD owns the 2 buildings and land that comprise IN020/18725. (No change CMM 31Aug20)

18 **Natural Resources**

19 **EPA Ecoregion:** Eastern Corn Belt Plains

20 **Wetlands:** NWI data reports there are no wetlands identified on-site. There are no wetlands
21 within 1,000 feet of the site. There is a wetland 1,290 feet north of the site. (Verified unchanged
22 from NWI website data CMM 5Sep20)

23 **Vegetation:** This site has received no field survey.

24 **Wildlife:** This site has received no field survey.

25 **Listed Species:** This site has received no field survey. No suitable habitat exists on this site
26 to support the listed species.

- | | | |
|----|-------------------------|------------------------------------|
| 27 | Indiana bat | <i>Myotis sodalist</i> , FE |
| 28 | Northern long-eared bat | <i>Myotis septentrionalis</i> , FE |
| 29 | Gray bat | <i>Myotis grisescens</i> , FE |

30 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
31 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 14Mar21)

32 **Other Considerations:** None.

33 **Management Issues and Concerns:** None.

34
35 (Updated CMM 14Mar21)

36 (QA/QC STL 10Jun2021)

1 **IN030/18790**

2 **Richmond USARC**

3 1801 Dana Parkway

4 Richmond, IN 47374

5 **County:** Wayne

6 **Real Property Report Acres:** 5.47

7 **Building Count:** 2

8 **% Cover:** Paved Road/Parking: (25%)

9 Maintained Grass (67%)

10 Building (6%)

11 Scrub/Shrub (2%)

12 (No change CMM 17Aug20)



13 **Last Field Survey:** 2008

14 Richmond USARC consists of the USARC building along with associated parking areas.
15 Surrounding land use includes commercial and agricultural lands to the north, commercial and
16 residential to the south, residential to the east, and agricultural to the west.

17 **Land Use**

18 The site uses include classroom training, administrative services, and light vehicle maintenance.
19 The 88th RD owns the building and land that comprise IN030/18790. (No change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Eastern Corn Belt Plains

22 **Wetlands:** During the 2008 field survey there were no observable wetlands identified on-
23 site. NWI data reports, no wetlands located on or within 1,000 feet of the site. (Verified unchanged
24 from NWI website data CMM 5Sep20)

25 **Vegetation:** The site lacks native vegetation communities.

26 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the maintained
27 grass areas . Other observed species included:

28	crabgrass	<i>Digitaria spp.</i>
29	white clover	<i>Trifolium repens</i>
30	peppergrass	<i>Lepidium virginicum</i>
31	yellow hop clover	<i>Trifolium campestre</i>
32	field bindweed	<i>Convolvulus pluricaulis</i>
33	yellow wood sorrel	<i>Oxalis stricta</i>

34 **Shrub Layer:** The shrub/scrub-tree line area consisted of:

35	riverside grape	<i>Vitis riparia</i>)
36	white mulberry (invasive)	<i>Morus spp.</i>
37	Norway maple (invasive)	<i>Acer platanoides</i>
38	multiflora rose (invasive)	<i>Rosa spp.</i>

1 **Canopy Layer:** Landscaping trees and shrub include:

2	American yew	<i>Taxus canadensis</i>
3	Norway spruce	<i>Picea abies</i>
4	black ash	<i>Fraxinus nigra</i>
5	Honey locust	<i>Gleditsia triacanthos</i>

6 **Wildlife:** The scrub/shrub-treelined could support limited common wildlife species. Due to
7 the developed nature of the site and the surrounding land use wildlife species adapted to
8 developed areas are likely to utilize this property.

9 Wildlife species observed during the 2008 field survey:

10	American robin	<i>Turdus migratorius</i>
11	common grackle	<i>Quiscalus quiscula</i>
12	barn swallow	<i>Hirundo rustica</i>
13	cabbage white butterfly	<i>Pieris rapae</i>
14	black swallowtail butterfly	<i>Papilio polyxenes</i>
15	skipper	<i>Hesperiidae Spp.</i>

16 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
17 for listed species.

18	Indiana bat	<i>Myotis sodalist</i> , FE
19	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE

20 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
21 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 15Mar21)

22 **Other Considerations:** None.

23 **Management Issues and Concerns:** None.

24

25 (Updated CMM 15Mar21)

26 (QA/QC STL 10Jun2021)

1 **IN032/18825**
2 **Everitt B. Hunley USARC**
3 601 West Armory Place
4 Scottsburg, IN 47107
5 **County:** Scott
6 **Real Property Report Acres:** 3.87
7 **Building Count:** 2
8 **% Cover:** Maintained Grass (52%),
9 Paved Road/Parking (38%)
10 Buildings (11%)
11 (No change CMM 17Aug20)



12 **Last Field Survey:** Desktop Only

13 The Everitt B. Hunley USARC consists of the USARC building along with the associated parking
14 areas. Commercial and industrial land surrounds this site

15 **Land Use**

16 The site uses include administrative services, classroom training, and light vehicle maintenance.
17 The 88th RD owns the two buildings and land that comprise IN032/18825. (No change CMM 31Aug20)

18 **Natural Resources**

19 **EPA Ecoregion:** Eastern Corn Belt Plains

20 **Wetlands** NWI data reports there are no wetlands identified on-site. There are no wetlands
21 within 1,000 feet of the site. There is a wetland located 1,530 feet west of the site. (Verified
22 unchanged from NWI website data CMM 5Sep20)

23 **Vegetation:** This site has received no field survey.

24 **Wildlife:** This site has received no field survey.

25 **Listed Species:** This site has received no field survey. No suitable habitat exists on this site
26 to support the listed species.

- 27 Indiana bat *Myotis sodalists*, FE
28 Northern long-eared bat *Myotis septentrionalis*, FE

29 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
30 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 15Mar21)

31 **Other Considerations:** None.

32 **Management Issues and Concerns:** None.

33
34 (Updated CMM 15Mar21)

35 (QA/QC STL 10Jun2021)

1 **IN033/18856**

2 **L. J. Thompson USARC/AMSA # 133**

3 3401 Boland Drive
4 South Bend, IN 46628

5 **County:** St. Joseph

6 **Real Property Report Acres:** 11.60

7 **Building Count:** 3

8 **% Cover:** Buildings (11%),
9 Paved Road/Parking (45%)
10 Maintained Grass (40%),
11 Drainage Ditch (4%)
12 (No change CMM 17Aug20)

13 **Last Field Survey:** 2010



14 Lyle J. Thompson USARC/AMSA 133 consists of the USARC, OMS, and AMSA buildings along
15 with the associated parking areas. Surrounding land use includes commercial and light industrial
16 land.

17 **Land Use**

18 Site uses include administrative services, classroom training, and vehicle maintenance. The 88th
19 RD owns the three buildings and leases the land that comprises IN033/18856. (No change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Southern Michigan/Northern Indiana Drift Plains

22 **Wetlands:** During the 2010 field survey there were no observable wetlands identified on-
23 site. NWI data reports, no wetlands located on or within 1,000 feet of the site. There is a
24 wetland located 1,270 feet north of the site. (Verified unchanged from NWI website data CMM 5Sep20)

25 **Vegetation:** The site lacks native vegetation communities.

26 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the maintained
27 grass area.

28 Other species observed:

29 white clover *Trifolium repens*
30 yellow hop clover *Trifolium campestre*

31 **Shrub Layer:** Burning bush *Euonymus alatus*

32 **Canopy Layer:** Landscaping trees include:

33 green ash *Fraxinus pennsylvanica*
34 white pine *Pinus strobus*
35 American yew *Taxus canadensis*
36 red cedar *Juniperus virginiana*
37 eastern white cedar *Thuja occidentalis*
38 black cherry *Prunus serotina*

1 white mulberry (invasive) *Morus spp.*
2 red pine *Pinus resinosa*
3 Spirea *Spiraea Spp.*

4 **Wildlife:** The site offers little to no habitat for wildlife. Due to the developed nature of the site
5 and the surrounding land use wildlife species adapted to developed areas are likely to utilize
6 this property.

7 Wildlife species observed during the 2010 field survey:

8 American crows *Corvus brachyrhynchos*
9 common grackle *Quiscalus quiscula*
10 mourning dove *Zenaida macroura*
11 killdeer *Charadrius vociferus*
12 thirteen-lined ground squirrel *Ictidomys tridecemlineatu*

13 At the time of the 2010 field survey, a colony of 15-20 thirteen-lined ground squirrels were
14 observed along the northern border of the site.

15 **Listed Species:** The 2010 field survey identified neither listed species nor suitable habitat
16 for listed species.

17 Indiana bat *Myotis sodalist*, FE
18 Northern long-eared bat *Myotis septentrionalis*, FE

19 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
20 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 15Mar21)

21 **Other Considerations:** None

22 **Management Issues and Concerns:** None.

23
24 (Updated CMM 15Mar21)

25 (QA/QC STL 10Jun2021)

26

1 **IN034/18857**

2 **Maple Lane USARC**

3 2402 East Rose Street

4 South Bend, IN 46635

5 **County:** St. Joseph

6 **Real Property Report Acres:** 8.43

7 **Building Count:** 2

8 **% Cover:** Buildings (11%)

9 Paved Road/Parking (46%)

10 Maintained Grass (43%)

11 (No change CMM 17Aug20)

12 **Last Field Survey:** 2010



13 Maple Lane USARC consists of the USARC, the OMS buildings along with the associated parking
14 areas. Surrounding land use includes residential land to the north and east with a combination of
15 commercial and industrial land to the west. To the south, land use includes residential, commercial,
16 and industrial lands.

17 **Land Use**

18 Activities at the site include classroom training and administrative services. The 88th RD owns the
19 two buildings and land that comprise IN034/18857. (No change CMM 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Southern Michigan/Northern Indiana Drift Plains

22 **Wetlands:** During the 2010 field survey there were no observable wetlands identified on, or
23 within 1,000 ft of the site. There is a wetland located 1,740 feet north of the site. (Verified
24 unchanged from NWI website data CMM 5Sep20)

25 **Vegetation:** The site lacks native vegetation communities.

26 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the maintained
27 grass areas.

28 Other species observed:

29	red fescue	<i>Festuca rubra</i>
30	yellow hop clover	<i>Trifolium campestre</i>
31	English plantain	<i>Plantago lanceolate</i>
32	white clover	<i>Trifolium repens</i>
33	violets	<i>Viola spp.</i>
34	common cinquefoil	<i>Potentilla simplex</i>

35 **Shrub Layer:** The landscaping shrubs include:

36	burning bush	<i>Euonymus alatus</i>
37	red osier dogwood	<i>Cornus florida</i>
38	forsythia	<i>Forsythia spp.</i>
39	maple leaf viburnum	<i>Viburnum spp.</i>

1 American yew *Taxus canadensis*
2 red cedar *Juniperus virginiana*

3 **Canopy Layer:** The landscaping trees include:

4 blue spruce *Picea pungens*
5 pin oak *Quercus palustris*
6 pear *Pyrus spp.*
7 Norway spruce *Picea abies*
8 white mulberry (invasive) *Morus spp.*
9 river birch *Betula nigra*
10 Norway maple (invasive) *Acer platanoides*
11 red maple *Acer rubrum*
12 black cherry *Prunus serotina*

13 **Wildlife:** Due to the developed nature of the site and the surrounding land use wildlife
14 species adapted to developed areas are likely to utilize this property.

15 Wildlife species observed during the 2010 field survey:

16 chimney swift *Chaetura pelagica*
17 American robin *Turdus migratorius*
18 northern flicker *Colaptes auratus*
19 mourning dove *Zenaida macroura*
20 cabbage white butterfly *Pieris rapae*
21 groundhog *Marmota monax*
22 eastern cottontails *Sylvilagus floridanus*
23 Fox squirrels *Sciurus niger*

24 **Listed Species:** The 2010 field survey identified neither listed species nor suitable habitat
25 for listed species.

26 Indiana bat *Myotis sodalist*, FE
27 Northern long-eared bat *Myotis septentrionalis*, FE

28 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
29 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 15Mar21)

30 **Other Considerations:** None.

31 **Management Issues and Concerns:** None.

32

33 (Updated CMM 15Mar21)

34 (QA/QC STL 10Jun2021)

1 **IN036/18875**

2 **Robert R. Mosele USARC**

3 401 East Davis Drive
4 Terre Haute, IN 47802

5 **County:** Vigo

6 **Real Property Report Acres:** 5.74

7 **Building Count:** 2

8 **% Cover:** Maintained Grass (36%)
9 Paved Road/Parking (50%)
10 Buildings (14%)
11 (No change CMM 17Aug20)

12 **Last Field Survey:** Desktop Only



13 Robert R. Mosele USARC consists of the USARC building along with the associated parking areas.
14 Surrounding the site are commercial and residential areas to the north, a school track to the south,
15 a school to the east, and. commercial area to the west.

16 **Land Use**

17 The site uses include administrative services, classroom training, and light vehicle maintenance.
18 The 88th RD owns the two buildings and leases the land that comprise IN036/18875. (No change CMM
19 31Aug20)

20 **Natural Resources**

21 **EPA Ecoregion:** Interior River Lowland

22 **Wetlands** NWI data reports there are no wetlands identified on-site. There are no wetlands
23 within 1,000 feet of the site. There is a wetland located 1,795 feet north of the site. (Verified
24 unchanged from NWI website data CMM 5Sep20)

25 **Vegetation:** This site has received no field survey.

26 **Wildlife:** This site has received no field survey.

27 **Listed Species:** This site has received no field survey. No suitable habitat exists on this site
28 to support the listed species.

29 Indiana bat *Myotis sodalist*, FE
30 Northern long-eared bat *Myotis septentrionalis*, FE

31 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
32 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 15Mar21)

33 **Other Considerations:** None.

34 **Management Issues and Concerns:** None.

35 (Updated CMM 15Mar21)

36 (QA/QC STL 10Jun2021)

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Michigan Sites

- MI011/26958 – Dr. Mary E. Walker Memorial ARC
- MI013/26840 – Raymond Zussman ARC
- MI014/26855 – CPT David D. Phillips ARC
- MI016/26865 – Kalamazoo Memorial ARC
- MI020/26797 – MG George A. Custer ARC/AMSA
- MI023/26895 – 2LT Walter Haupt ARC
- MI030/26955 – Demus T. Craw ARC
- MI053/26534 – Saginaw ARC



1
2

Intentionally blank

1 **MI011/26958**

2 **Dr. Mary E. Walker**
3 **Memorial USARC**

4 3870 Three Mile Road
5 Grand Rapids, MI 49544

6 **County:** Kent

7 **Real Property Report Acres:** 13.80

8 **Building Count:** 2

9 **% Cover:** Buildings (12%)
10 Paved Road/Parking (47%)
11 Maintained Grass (37%)
12 Open Water (4%)
13 (No change CMM 21Aug20)

14 **Last Field Survey:** 2008



15 The Dr. Mary E. Walker Memorial USARC consists of USARC and OMS buildings along with the
16 associated parking areas. Surrounding land use includes a road and commercial land to the north,
17 agricultural land to the south, a palustrine scrub-shrub (PSS) wetland to the east, and commercial
18 land to the west.

19 **Land Use**

20 The site uses include administrative services, classroom training, and light vehicle maintenance.
21 The 88th owns the land and building that comprise MI011/26958. (No change CMM 1Sep20)

22 **Natural Resources**

23 **EPA Ecoregion:** Southern Michigan/Northern Indiana Drift Plain

24 **Wetlands:** During the field survey in 2008, edges of the detention basin had some wetland
25 characteristics. However, the thin areas on the borders of the basin, lack a dominance of
26 hydrophytic vegetation and signs of wetland hydrology, and therefore do not meet wetland
27 criteria. In 2007, MDNR agreed in writing that this basin is not a wetland and is exempt from
28 state and Federal wetland regulation. (Verified unchanged from NWI website data CMM 6Sep20)

29 NWI data reported a seasonally flooded, persistent, palustrine scrub-shrub (PSS1C) wetland
30 is located in the eastern portion of the site and extends across the eastern boundary towards
31 the east. This is no longer a wetland, but does include the area that is now the detention
32 basin. NWI also indicated the following off-site wetlands:

- 33 • a PSS1C wetland 150 feet east; a temporarily flooded, persistent, palustrine forested
- 34 wetland (PFO1A) 785 feet west;
- 35 • a saturated, persistent, palustrine scrub-shrub wetland (PSS1B) 585 feet southwest;
- 36 • a semi-permanently flooded palustrine emergent wetland (PEMF) 806 feet southwest;
- 37 • a saturated, deciduous, palustrine forested wetland (PFO6B) 1,000 feet southwest;
- 38 and
- 39 • an intermittently exposed, palustrine unconsolidated bottom wetland (PUBG) 430 feet
- 40 northwest.

1 **Vegetation:** There is little native vegetation except the narrow area around the basin.

2 The invasive-exotic autumn olive (*Elaeagnus umbellata*) is present at low density, with only
3 a few scattered individuals documented around the pond margins. The autumn olive is not a
4 listed noxious weed in Michigan. Thusly, the current level of concern for this species at this
5 site is low.

6 **Lawn/Herbaceous Layer:** The maintained lawn is dominated by:

7	Kentucky bluegrass	<i>Poa pratensis</i>
8	English plantain	<i>Plantago lanceolata</i>
9	chicory	<i>Cichorium intybus</i>

10 The dominant species in the herbaceous layer near the narrow basin area consists of:

11	water plantain	<i>Alisma spp.</i>
12	grass-leaved goldenrod	<i>Solidago spp.</i>
13	narrow-leaved cattail	<i>Typha angustifolia</i>
14	black bulrush	<i>Scirpus atrovirens</i>
15	lurid sedge	<i>Carex lurida</i>
16	Canada goldenrod	<i>Solidago spp.</i>
17	soft rush	<i>Juncus effusus</i>
18	Woolgrass	<i>Scirpus cyperinus</i>

19 **Shrub Layer:** The dominant shrub species in the narrow area shrub layer is:

20	sandbar willow	<i>Salix exigua</i>
21	gray dogwood	<i>Cornus florida</i>

22 **Canopy Layer:** peachleaf willow (*Salix amygdaloides*) and black willow (*Salix nigra*)
23 dominate the canopy layer in the narrow area around the basin.

24 The dominate landscaped trees and shrubs include:

25	red maple	<i>Acer rubrum</i>
26	red oak	<i>Quercus rubra</i>
27	pin oak	<i>Quercus palustris</i>
28	Japanese spirea	<i>Spiraea japonica</i>
29	viburnum– introduced	<i>Viburnum spp.</i>
30	white pine	<i>Pinus strobus</i>
31	Austrian pine	<i>Pinus nigra</i>

32 **Wildlife:** This site offers little suitable habitat to wildlife species. Given the developed nature
33 of the site and the surrounding land use species of wildlife adapted to developed area would
34 likely utilize the site.

35 Wildlife observed during the site survey include:

36	green heron	<i>Butorides virescens</i>
37	mourning dove	<i>Zenaida macroura</i>
38	barn swallow	<i>Hirundo rustica</i>
39	rock dove	<i>Columba livia</i>
40	green frog	<i>Rana clamitans</i>
41	northern leopard frog	<i>Lithobates pipiens</i>

1 muskrat *Ondatra zibethicus*

2 Additionally noted were multiple small mammal burrows.

3 **Listed Species:** The 2010 field survey identified neither listed species nor suitable habitat
4 for listed species.

5 Indiana bat *Myotis sodalist*, FE

6 Northern long-eared bat *Myotis septentrionalis*, FE

7 Whooping crane *Grus americana*, FE

8 Eastern massasauga *Sistrurus catenatus*, FT

9 Snuffbox mussel *Epioblasma triquetra*, FE

10 Karner blue butterfly *Lycaeides Melissa samuelis*, FE

11 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
12 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 15Mar21)

13 **Other Considerations:** None.

14 **Management Issues and Concerns:** None.

15

16 (Updated CMM 15Mar21)

17 (QA/QC STL 10Jun2021)

1 **MI013/26840**

2 **Raymond Zussman USARC**

3 3200 South Beech Daly Road,
4 Inkster, MI 48141

5 **County:** Wayne

6 **Real Property Report Acres:** 4.38

7 **Building Count:** 2

8 **% Cover:** Buildings (20%)
9 Paved Road/Parking (56%),
10 Maintained Grass (24%)
11 (No change CMM 21Aug20)



12 **Last Field Survey:** Desktop Only

13 The Raymond Zussman USARC consists of a USARC and associated parking areas. Surrounding
14 land use is residential land.

15 **Land Use**

16 The site uses include for vehicle staging, classroom training, and light maintenance. The 88th RD
17 owns the land and the two buildings that comprise MI013/26840. (No change CMM 1Sep20)

18 **Natural Resources**

19 **EPA Ecoregion:** Southern Michigan/Northern Indiana Drift Plain

20 **Wetlands:** NWI data reports no wetlands on site or within 1,000 feet of the site. There is a
21 palustrine wetland 6,100 feet northwest of the site. (Verified unchanged from NWI website data CMM
22 6Sep20)

23 **Vegetation:** This site has received no field survey.

24 **Wildlife:** This site has received no field survey.

25 **Listed Species:** This site has received no field survey. No habitat exists on this site for the
26 listed species.

27	Indiana bat	<i>Myotis sodalist</i> , FE
28	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
29	eastern massasauga	<i>Sistrurus catenatus</i> , FT
30	Whooping crane	<i>Grus americana</i> , FE
31	Snuffbox mussel	<i>Epioblasma triquetra</i> , FE
32	Karner blue butterfly	<i>Lycaeides Melissa samuelis</i> , FE

33 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
34 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 15Mar21)

35 **Other Considerations:** None.

36 **Management Issues and Concerns:** None.

37 (Updated CMM 15Mar21) (QA/QC STL 10Jun2021)

1 **MI014/26855**

2 **CPT David D. Phillips USARC**

3 1401 West Argyle Street

4 Jackson, MI 49202

5 **County:** Jackson

6 **Real Property Report Acres:** 5.89

7 **Building Count:** 2

8 **% Cover:** Buildings (7%)
9 Deciduous Forest (30%),
10 Maintained Grass (22%)
11 Paved Road/Parking (41%)
12 (No change CMM 21Aug20)

13 **Last Field Survey:** 2008



14 The CPT David D. Phillips USARC consists of USARC and OMS buildings, along with associated
15 parking areas. Surrounding land use includes corporate land to the east, forested land to the west,
16 and residential land to the north and south.

17 **Land Use**

18 The site uses include administrative services, classroom training, and light vehicle maintenance.
19 The 88th RD owns the land and two buildings that comprise site MI014/26855. (No change CMM 1Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Southern Michigan/Northern Indiana Drift Plain

22 **Wetlands:** During the 2008 field survey there were no observable wetlands identified on, or
23 within 1,000 ft of the site. NWI data reports are no wetlands on or within 1,000 feet of the
24 site. (Verified unchanged from NWI website data CMM 6Sep20)

25 **Vegetation:** The invasive-exotic poison ivy (*Toxicodendron radicans*) is present at high
26 density and could impair usability of the area for training purposes. The understory of
27 honeysuckle (*Lonicera spp.*) and buckthorn (*Rhamnus spp.*) (both present in high densities
28 throughout this vegetation community) makes traversing the woodlot difficult and limits the
29 possibility of using the area for training. These species, despite their omission from federal
30 and state noxious lists, are widely recognized as invasive-exotic species.

31 **Lawn/Herbaceous Layer:** The dominant herbaceous layer species in the deciduous woodlot
32 consists of:

- | | | |
|----|--------------------|------------------------------------|
| 33 | Kentucky bluegrass | <i>Poa pratensis</i> |
| 34 | common blue violet | <i>Viola sororia</i> |
| 35 | Virginia creeper | <i>Parthenocissus quinquefolia</i> |
| 36 | wild geranium | <i>Geranium maculatum</i> |
| 37 | may-apple | <i>Malus domestica</i> |
| 38 | poison ivy | <i>Toxicodendron radicans</i> |

1 **Shrub Layer:** The dominant shrub layer species in the deciduous woodlot is:

2	choke cherry	<i>Prunus virginiana</i>
3	wild black cherry	<i>Prunus serotina</i>
4	Amur honeysuckle	<i>Lonicera maackii</i>
5	Tatarian honeysuckle	<i>Lonicera tatarica</i>
6	common buckthorn	<i>Rhamnus spp.</i>

7 **Canopy Layer:** The dominant canopy layer species in the deciduous woodlot consists of:

8	black oak	<i>Quercus velutina</i>
9	white oak	<i>Quercus alba</i>
10	wild black cherry	<i>Prunus serotina</i>

11 All trees appeared healthy with no overt signs of disease. The species of trees present are
12 typically valuable timber species but are of a young age. The small average size of the trees
13 in the stand suggests that there would be little economic gain through harvest. Thus, no
14 timber survey was conducted.

15 **Wildlife:** Wildlife observed during the site survey included:

16	northern cardinal	<i>Cardinalis cardinalis</i>
17	American robin	<i>Turdus migratorius</i>
18	black-capped chickadee	<i>Poecile atricapillus</i>
19	American goldfinch	<i>Spinus tristis</i>
20	cabbage white butterfly	<i>Pieris rapae</i>
21	cicadas	<i>Cicadoidea spp.</i>
22	Fox squirrels	<i>Sciurus niger</i>
23	white-tailed deer	<i>Odocoileus virginianus</i>

24 Additionally, the 2008 survey also noted: small mammal burrows, songbird nests, squirrel
25 nests, and old (unused) groundhog (*Marmota monax*) burrows.

26 The deciduous forest on the site offers forage and cover to common birds and small
27 mammals. However, given the developed nature of the site and surrounding land use species
28 of wildlife adapted to developed areas would likely utilize the site.

29 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
30 for listed species.

31	Indiana bat	<i>Myotis sodalist</i> , FE
32	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
33	Whooping crane	<i>Grus americana</i> , FE
34	eastern massasauga	<i>Sistrurus catenatus</i> , FT
35	Mitchell's satyr butterfly	<i>Neonympha mitchelli</i> Mitchell, FE
36	Poweshiek skipperling	<i>Oarisma powershiek</i> , FE

37 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
38 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 15Mar21)

39 **Other Considerations:** None.

1 **Management Issues and Concerns:** Poison ivy (*Toxicodendron radicans*), honeysuckle
2 (*Lonicera spp.*) and common buckthorn (*Rhamnus spp.*) are found in high densities on this site and
3 may limit the ability to use the site for training. These species, despite their omission from federal
4 and state noxious lists, are widely recognized as invasive-exotic species.

5

6 (Updated CMM 15Mar21)

7 (QA/QC STL 10Jun2021)

1 **MI016/26865**

2 **Kalamazoo Memorial ARC**

3 5243 Portage Road,
4 Kalamazoo, MI 49002

5 **County:** Kalamazoo

6 **Real Property Report Acres:** 6.62

7 **Building Count:** 2

8 **% Cover:** Buildings (11%)
9 Paved Road/Parking (71%)
10 Maintained Grass (18%)

11 **Last Field Survey:** 2008



12 The Kalamazoo Memorial ARC is located in the city of Kalamazoo, Kalamazoo County and consists of a
13 ARC, an OMS, and associated parking areas. Surrounding land use includes an airport to the east and
14 commercial land to the north, south, and west.

15 **Land Use**

16 The site is used for administrative services, classroom training, and light vehicle maintenance. The 88th RD
17 owns the land and two buildings that comprise site MI016/26865.

18 **Natural Resources**

19 **EPA Ecoregion:** Southern Michigan/Northern Indiana Drift Plain

20 **Wetlands:** No wetlands were observed during the 2008 field survey. Past surveys reported a
21 palustrine wetland 1,100 feet southwest of the site .

22 NWI data reports there are no wetlands on or within 1,000 feet of the site.

23 **Vegetation:** The site lacks native vegetation communities.

24 **Lawn/Herbaceous Layer:** The maintained grass areas are dominated by Kentucky
25 bluegrass (*Poa pratensis*).

26 **Landscaping trees and shrubs include:**

- | | | |
|----|-------------------|----------------------------|
| 27 | blue spruce | <i>Picea pungens</i> |
| 28 | Norway maple | <i>Acer platanoides,</i> |
| 29 | crabapple | <i>Malus spp.</i> |
| 30 | Japanese barberry | <i>Berberis thunbergii</i> |
| 31 | Forsythia | <i>Forsythia spp.</i> |
| 32 | red maple | <i>Acer rubrum</i> |
| 33 | Siberian elm | <i>Ulmus pumila</i> |

34 **Wildlife:** Wildlife observed during the 2008 field survey included:

- | | | |
|----|--------------------|------------------------------|
| 35 | house sparrow | <i>Passer domesticus</i> |
| 36 | ring-billed gull | <i>Larus delawarensis</i> |
| 37 | purple finch | <i>Haemorhous purpureus</i> |
| 38 | rock dove | <i>Columba livia</i> |
| 39 | American crow | <i>Corvus brachyrhynchos</i> |
| 40 | American goldfinch | <i>Spinus tristis</i> |

1	European starling	<i>Sturnus vulgaris</i>
2	Eastern cottontail	<i>Sylvilagus floridanus</i>
3	groundhogs	<i>Marmota monax</i>

4 MI016/26865 offers little suitable habitat for wildlife species. Given the developed nature of the site
5 and surrounding land use, only common species of wildlife typically adapted to developed areas
6 would likely utilize the site.

7 **Listed Species:** No listed species were observed during the 2008 field survey. No suitable habitat
8 for listed species was observed on the site .

9 **Listed species potentially in Kalamazoo County:**

10	Indiana bat	<i>Myotis sodalis</i>
11	eastern massasauga	<i>Sistrurus catenatus</i>
12	Mitchell’s satyr butterfly	<i>Neonympha mitchelli</i>

13 No state-listed species have been documented on or within 1,000 feet of the site .

14 No potential roosting or foraging habitat for the Indiana bat was observed on the site . The site does
15 not contain any wintering habitat (i.e., caves). It is unlikely that this species would utilize the site .

16 The eastern massasauga typically is found in large, well-developed wetland/upland complexes where
17 it prefers the cover of broad-leafed plants, emergents, and sedges. Past surveys reported that
18 eastern massasauga had the potential to occur on or near the site; however, the presence of potential
19 habitat on the site was not observed and believes the species is unlikely to utilize the property.
20 Recent land-use changes at the site may account for this loss of potential habitat (e.g. the northern
21 portion of the site was previously a field but is now entirely paved).

22 Mitchell’s satyr butterfly is found exclusively in fen habitats. This type of habitat does not exist on the
23 site . As such, this species is not likely to utilize the site.

24 **Other Considerations:** None.

25 **Management Issues and Concerns:** None.

26

27 (Updated STL14APR2023)

28

1 **MI020/26797**

2 **MG George A. Custer USARC/AMSA**

3 34451 Schoolcraft Road

4 Fort Livonia, MI 48150

5 **County:** Wayne

6 **Real Property Report Acres:** 8.63

7 **Building Count:** 3

8 **% Cover:** Buildings (14%)

9 Paved Road/Parking (29%)

10 Maintained Grass (57%)

11 (No change CMM 21Aug20)

12 **Last Field Survey:** 2008



13 The MG George Custer USARC/AMSA consists of USARC, and AMSA building along with
14 associated parking areas. Surrounding land use includes an interstate to the north and corporate
15 land to the south, west, and east.

16 **Land Use**

17 The site uses include administrative services, classroom training, AMSA, and light vehicle
18 maintenance. The 88th RD owns the land and three buildings that comprise site MI020/26797. (No
19 change CMM 1Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Southern Michigan/Northern Indiana Drift Plain

22 **Wetlands:** During the 2008 field survey there were no observable wetlands identified on site.

23 NWI reports a forested wetland approximately 970 feet northeast of the site. (Verified unchanged
24 from NWI website data CMM 6Sep20)

25 **Vegetation:** There is little native vegetation on this site.

26 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the maintained
27 grass areas.

28 **Shrub Layer:** The shrub layer consists of wild rose (*Rosa spp.*).

29 **Canopy Layer:** The canopy lawyer consists mainly of the following landscaping trees:

30	Norway maple	<i>Acer platanooides</i>
31	silver maple	<i>Acer saccharinum</i>
32	red maple	<i>Acer rubrum</i>
33	blue spruce	<i>Picea pungens</i>
34	crabapple	<i>Malus domestica</i>
35	sugar maple	<i>Acer saccharum</i>

36 **Wildlife:** Given the developed nature of the site and the surrounding land use, wildlife
37 species adapted to developed areas are likely to utilize the site. MI020/26797 offers little
38 suitable habitat for wildlife species.

1 During the 2008 field survey, the only wildlife observed was a rock dove (*Columba livia*).

2 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
3 for listed species.

4	Indiana bat	<i>Myotis sodalis</i> , FE
5	northern long-eared bat	<i>Myotis septentrionalis</i> , FE
6	piping plover	<i>Charadrius melodus</i> , FE
7	red knot	<i>Calidris canutus rufa</i> , FT
8	eastern massasauga	<i>Sistrurus catenatus</i> , FT
9	northern riffleshell	<i>Dysnomia torulosa rangiana</i> , FE
10	eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

11 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
12 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 16Mar21)

13 **Other Considerations:** None.

14 **Management Issues and Concerns:** None.

15

16 (Updated CMM 16Mar21)

17 (QA/QC STL 10Jun2021)

1 **MI023/26895**

2 **2LT Walter Haupt USARC**

3 1430 Parslow Drive
4 Muskegon, MI 49441

5 **County:** Muskegon

6 **Real Property Report Acres:** 4.87

7 **Building Count:** 2

8 **% Cover:** Buildings (10%)
9 Paved Road/Parking (67%)
10 Maintained Grass (22%)
11 (No change CMM 21Aug20)

12 **Last Field Survey:** Desktop Only



13 The 2LT Walter Haupt USARC consists of the USARC and associated parking areas. Surrounding
14 land use includes wooded area to the north, vacant fallow land to the east, residential and vacant
15 fallow land to the south, and McGraft Park to the west.

16 **Land Use**

17 The site uses include vehicle staging, classroom training, and light maintenance. The 88th RD owns
18 the land and two buildings that comprise MI023/26895. (No change CMM 1Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Southern Michigan/Northern Indiana Drift Plain

21 **Wetlands:** This site has received no field survey.

22 NWI data reports 5 separate wetlands, described as

- 23 • PEMG 100 feet northwest;
- 24 • PEMG 780 feet southwest running south;
- 25 • PEMG 890 feet west; a PSS1G 185 feet north;
- 26 • PUB/EM2G 180 feet west; a PUBH 515 feet west; and
- 27 • PUB/EMF 715 feet southwest of the site.

28 (Verified unchanged from NWI website data CMM 6Sep20)

29 **Vegetation:** This site has received no field survey.

30 **Wildlife:** This site has received no field survey.

31 **Listed Species** This site has received no field survey; however, it is unlikely to host listed
32 species nor suitable habitat for listed species.

33 Indiana bat	<i>Myotis sodalis</i> , FE
34 northern long-eared bat	<i>Myotis septentrionalis</i> , FE
35 piping plover	<i>Charadrius melodus</i> , FE
36 red knot	<i>Calidris canutus rufa</i> , FT
37 eastern massasauga	<i>Sistrurus catenatus</i> , FT
38 Karner blue butterfly	<i>Lycaeides Melissa samuelis</i> , FE

1 pitcher's thistle *Cirsium pitcher*, FT

2 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
3 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 16Mar21)

4 **Other Considerations:** None.

5 **Management Issues and Concerns:** In 2022 it was discovered that 2LT Walter Haupt
6 USARC (MI023/2653A) experienced a 12 – 18-inch stormwater drain failure outside the fence line
7 on the northwest corner of the MEP area sometime in October/November 2021 time frame. The
8 incident blew out a hole that appears to be to be approximately 25-50 feet in length, 10-15 feet wide
9 and 10 - 15 feet deep. The storm drain effluent outfall was directly into Ruddiman Lagoon that has
10 a direct connection to Lake Muskegon, then to Lake Michigan. Ruddiman Lagoon appears to be an
11 ancient sinched off oxbow that is fed by Ruddiman Creek and assorted drainages.

12 The blow-out displaced multiple cubic yards of material. The location of the blow-out discharge
13 terminated near the northern edge of Ruddiman lagoon at the opposite end of the connection to
14 Lake Muskegon. The makeup of which consisted of an estimated 14 – 24 inches of organic layer
15 and the preponderance of the rest appears to be a sandy material. All this information has been
16 ascertained from photographs and Google maps of the affected area. It is unclear what or when
17 the incident happened, but the gaping hole and storm drain connections need to be reestablished
18 and the blow-out area needs to be filled and stabilized to prevent additional erosion into Ruddiman
19 Lagoon.

20 FY23 funds have been programmed for reconstruction of the storm-drain and outfall. Construction
21 is anticipated to begin in late FY23.

22

23

24 (Updated CMM 16Mar21)

25 (QA/QC STL 10Jun2021)

1 **MI030/26955**

2 **Demus T. Crow USARC**

3 901 Airport Access Road

4 Traverse City, MI 49684

5 **County:** Grand Traverse

6 **Real Property Report Acres:** 4.85

7 **Building Count:** 1

8 **% Cover:** Buildings (9%)

9 Maintained Grass (43%)

10 Paved Road/Parking (48%)

11 (No change CMM 21Aug20)

12 **Last Field Survey:** 2008



13 The Demus T. Crow USARC consists of a USARC, an OMS, and associated parking areas.
14 Surrounding land use includes a cemetery to the north and an airport to the south, east, and west.

15 **Land Use**

16 The site uses include light maintenance of vehicles and equipment and classroom training. The 88th
17 RD owns 4.72 acres of the land and the two buildings that comprise site MI030/26955. The West
18 Cheery Capital Municipal Airport permits the remaining acreage to the 88th RD. (No change CMM 1Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** North Central Hardwoods

21 **Wetlands:** During the 2008 field survey there were no observable wetlands identified on site.
22 NWI data reports no wetlands on or within 1,000 feet of the site. (Verified unchanged from NWI website
23 data CMM 6Sep20)

24 **Vegetation:** There is no native vegetation on this site.

25 **Lawn/Herbaceous Layer:**

26 Kentucky bluegrass *Poa pratensis*

27 **Shrub Layer:** Choke cherry *Prunus virginiana*

28 **Canopy Layer:**

29 black oak *Quercus velutina*

30 red maple *Acer rubrum*

31 **Wildlife:** Given the developed nature of the site and surrounding land use species of wildlife
32 adapted to developed areas would likely utilize the site.

33 Wildlife observed during the 2008 field survey included:

34 house sparrow *Passer domesticus*

35 chipping sparrow *Spizella passerina*

36 black-capped chickadee *Poecile atricapillus*

37 blue jay *Cyanocitta cristata*

38 downy woodpecker *Picoides pubescens*

1	white-breasted nuthatch	<i>Sitta carolinensis</i>
2	European starling	<i>Sturnus vulgaris</i>
3	American goldfinch	<i>Spinus tristis</i>
4	American robin	<i>Turdus migratorius</i>
5	monarch butterfly	<i>Danaus plexippus</i>
6	eastern chipmunk	<i>Tamias striatus</i>

7 Additional field observations include squirrel nests, eastern common mole (*Scalopus*
8 *aquaticus*) trails and mounds, and small mammal burrows.

9 The staff reported past sightings of

10	wild turkey	<i>Meleagris gallopavo</i>
11	red fox	<i>Vulpes vulpes</i>
12	white-tailed deer	<i>Odocoileus virginianus</i>
13	eastern cottontails	<i>Sylvilagus floridanus</i>
14	striped skunk	<i>Mephitis mephitis</i>
15	raccoon	<i>Procyon lotor</i>
16	ducks	Unspecified

17 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
18 for listed species.

19	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
20	Red knot	<i>Calidris canutus rufa</i> , FT
21	eastern massasauga	<i>Sistrurus catenatus</i> , FT
22	Pitcher’s thistle	<i>Cirsium pitcher</i> , FT

23 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
24 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 16Mar21)

25 **Other Considerations:** None.

26 **Management Issues and Concerns:** None.

27

28 (Updated CMM 16Mar21)

29 (QA/QC STL 10Jun2021)

1 **MI053/26534**

2 **Saginaw USARC**

3 460 N Towerline Road,
4 Saginaw, MI 49684

5 **County:** 48601

6 **Real Property Report Acres:** 12.8

7 **Building Count:** 2

8 **% Cover:** Buildings/Parking lots 38%

9 Maintained Grass 58%

10 Wetland 3%

11 Stream 1%

12 **Last Field Survey:** 2021



13 The Saginaw ARC consists of an Army Reserve Training Center, an OMS, and associated parking areas.
14 The facility is located on a 12.8-acre property, on the east side of North Towerline Road, north of East
15 Holland Road and south of Janes Roads in Buena Vista Township, Saginaw County, MI in the east-central
16 region of the state. Surrounding land use includes a mix of agriculture, commercial-industrial, township
17 administrative-education, and residential land use. The facility consists of two buildings constructed in
18 2010. The ARC is a 30,489-square-foot building that holds the offices, classroom, and training space
19 utilized by the 88th RSC at this facility. The second building is a 7,140-square-foot OMS for vehicle
20 maintenance. The Army Reserve owns the buildings and land.

21 **Land Use**

22 **EPA Ecoregion:** Huron/Erie Lake Plain

23 **Wetlands:**

24 One 0.40 acre wetland is within the northern portion of the Site. This wetland is identified on the NWI
25 Mapper as a *Palustrine Emergent Persistent Seasonally Flooded (PEM1C)* wetland feature. This
26 singular wetland receives its hydrology from overland flow and empties into Stream 1/Roadside Ditch
27 1 via a direct culvert to the west. The stream/ditch flows north for approximately 4 miles where it
28 connects to Chebovganing Creek. Chebovganing Creek flows north for approximately 5 miles where
29 it then merges with the Saginaw River. Due to this direct overland connection, this wetland will likely
30 be considered federally jurisdictional by the USACE.

32 The site contains the following ecological communities on the site: Wetland 1 and Stream 1/Roadside
33 Ditch 1. A floristic quality inventory has been completed for each ecological community on the site
34 and this information is included in Attachment 4.

35 Wetland 1 was primarily vegetated by:

Common Name	Scientific Name
Narrow-Leaf Cattail	<i>Typha angustifolia</i>
Purple Loosestrife	<i>Lythrum salicaria</i>

36 There are no identified wetlands within a 1,000 ft. radius of the site.

1 **Surface Water:**

2 Stream 1/Roadside Ditch 1. This stream consists of a channelized and incised drainageway system
3 that is approximately 0.14 acres on-site and is located along the western property boundary. This
4 stream/ditch is not identified on the NWI Map; however, this feature is described as a *Riverine*
5 *Unknown Perennial Unconsolidated Bottom Organic Permanently Flooded (R5UB4H)* feature using
6 the Cowardin Wetlands and Deepwater Habitats Classification System.

7 Stream 1/Roadside Ditch 1 was primarily vegetated by:

Common Name	Scientific Name
Sago False Pondweed	<i>Stuckenia pectinata</i>

8 The stream/ditch appears to have been constructed to aid the movement of stormwater flows from
9 lands to the south. This stream flows north until its junction with Chebovganing Creek to the north
10 and eventually the Saginaw River. Due to this direct connection, Stream 1/Roadside Ditch 1 will likely
11 be considered federally jurisdictional by the USACE.

12 **Vegetation:**

13 **Lawn/Herbaceous Layer:** The site contains several areas of maintained turf grasses
14 throughout the site. The main areas surround the buildings and parking areas. The areas
15 are mowed and manicured throughout the growing season. The turf areas are dominated by
16 Kentucky Bluegrass (*Poa pratensis*).

17 **Shrub Layer:** None

18 **Canopy Layer:** None

19 **Wildlife:**

20 During the field investigation, the following wildlife species were encountered on the site:

21 **Birds:**

Common Name	Scientific Name
House Sparrow	<i>Passer domesticus</i>
American Crow	<i>Corvus brachyrhynchos</i>
Song Sparrow	<i>Melospiza melodia</i>

22 **Mammals:** None

23 **Reptiles:**

Common Name	Scientific Name
Tadpole	Unidentified

24 **Listed Species:**

25 No federally listed species were observed on the site during the field visit.

26 Based on a July 20, 2022, review of the U.S. Fish and Wildlife Service (USFWS) Information for
27 Planning and Consultation (IPaC) technical assistance website, sensitive (federally threatened or
28 endangered) plant or animal species habitats are not located on or adjacent to the site (Attachment
29 7).

30 According to the IPaC, 5 species are listed and may be present in Saginaw County:

Common Name	Scientific Name
Indiana Bat	<i>Myotis sodalis</i>
Northern Long-Eared Bat	<i>Myotis septentrionalis</i>
Red Knot	<i>Calidri canutus rufa</i>
Eastern Massasauga	<i>Sistrurus catenatus</i>
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>

1 Additionally, the Monarch Butterfly (*Danaus plexippus*) is included as a Candidate species formally
2 at this time. It is understood that the International Union for Conservation of Nature (IUCN) has
3 changed the formal status of the Monarch Butterfly to Endangered worldwide; however, the USFWS
4 has not changed the formal status of this species as of the date of this report.

5 The wetland and roadside drainage ditch contain flowering forbs, and therefore may support limited
6 habitat for the Monarch Butterfly. Further guidance for this species is not required since it is a USFWS
7 Candidate species and not yet fully listed as threatened or endangered. The Monarch Butterfly was
8 found to warrant listing and protection under the Endangered Species Act (ESA), but resources must
9 go to higher-priority species at this time. Candidate species have no legal protection under the ESA,
10 but agencies can still provide recommendations for them. The USFWS broadly urges the public to
11 provide a habitat for this imperiled species by planting native milkweed and nectar plants. The
12 Monarch Butterfly should be considered in any landscaping plans.

13 None of the areas on-site contain suitable habitats for the Indiana Bat, Northern Long-eared Bat, Red
14 Knot, Eastern Massasauga, or the Eastern Prairie Fringed Orchid.

15 **Other Considerations:** None.

16 **Management Issues and Concerns:** None.

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Missouri Low Resource Sites

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- MO001/29880 - Belton USARC/AMSA #57
- MO004/29825 – Bethany ARC
- MO006/29830 – Columbia ARC
- MO008/29832 – Farmington ARC
- MO013/29898 – Independence ARC
- MO014/29855 – Jefferson City ARC
- MO015/29865 – Joplin ARC
- MO018/29879 – Kirksville AFRC
- MO024/29925 – Springfield AFRC/AMSA #54
- MO026/29935 – St Joseph ARC
- MO028/29967 – St Louis ARC #3
- MO030/29955 – St Louis ORD PLT #4
- MO031/29975 – Washington ARC
- MO054/2900A – Springfield ARC AMSA #54
- MO076/29342 – Kansas City ARC #1



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1 **MO001/29880**

2 **Belton USARC/AMSA #57**

3 1200 Westover Road, Building 330,
4 Belton, MO 64012

5 **County:** Cass

6 **Real Property Report Acres:** 11.40

7 **Building Count:** 3

8 **% Cover:** Buildings (12%)
9 Drainage Ditch (<1%)
10 Maintained Grass (37%)
11 Paved Road/Parking (51%)
12 No change CMM 24Aug20)

13 **Last Field Survey:** 2009



14 The Belton USARC/AMSA #57 consists of USARC and OMS/AMSA, an additional building, along
15 with the associated parking areas. Surrounding land use to the north is a public land (school), to
16 the south is residential property, to the west is recreational land (golf course), and to the east is
17 mixed residential and recreational land.

18 **Land Use**

19 The site uses include administrative services, classroom training, light vehicle maintenance, and
20 storage. The 88th RD owns the land and three buildings associated with MO001/29880. (No change
21 CMM 1Sep20)

22 **Natural Resources**

23 **EPA Ecoregion:** Central Irregular Plains

24 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
25 NWI data reports a palustrine unconsolidated bottom (PUBGh) wetland located
26 approximately 950 ft southeast of the site. (Verified unchanged from NWI website data CMM 6Sep20)

27 **Vegetation:** There is no native vegetation on this site. The 2009 field survey documented
28 the invasive-exotic nodding plumeless thistle (*Carduus nutans*) as a non-dominant species
29 in this community. It is not a listed noxious weed in Missouri. At the time of the 2009 field
30 survey the nodding plumeless thistle was in low density, and at the time, the level of concern
31 for this species at this site is low.

32 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
33 maintained lawn.

34 **Shrub Layer:** Japanese yew (*Taxus cuspidate*) and crab apple (*Malus domestica*).

35 **Canopy Layer:** Siberian elm (*Ulmus pumila*), American sycamore (*Platanus*
36 *occidentalis*), and European basswood (*Tilia americana*).

37 Trees observed at this site appeared to be healthy with no overt signs of disease.

38 No trees at this site qualify for the Missouri State Champion Tree List.

1 **Wildlife:** Site MO001/29880 offers little suitable habitat for wildlife species. Given the
2 developed nature of the site and the surrounding land use wildlife species adapted to
3 developed areas are likely to utilize the site.

4 Wildlife observed during the 2009 site survey included:

5	mourning dove	<i>Zenaida macroura</i>
6	European starling	<i>Sturnus vulgaris</i>
7	blue jay	<i>Cyanocitta cristata</i>
8	killdeer	<i>Charadrius vociferus</i> (regional high priority species).
9	gray squirrel	<i>Sciurus carolinensis</i>
10	eastern common mole	<i>Scalopus aquaticus</i>

11 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
12 for listed species.

13	Indiana bat	<i>Myotis sodalis</i> , FE
14	Gray bat	<i>Myotis grisescens</i> , FE
15	northern long-eared bat	<i>Myotis septentrionalis</i> , FE
16	Mead's milkweed	<i>Asclepias meadii</i> , FT

17 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
18 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 17Mar21)

19 **Other Considerations:** None.

20 **Management Issues and Concerns:** Monitor the invasive-exotic nodding plumeless thistle
21 (*Carduus nutans*), which was documented in low densities at the time of the 2009 field survey. It is
22 not a listed noxious weed in Missouri.

23
24 (Updated CMM 17Mar21)

25 (QA/QC STL 10Jun2021)

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1 **MO004/29825**

2 **Bethany USARC**

3 2802 Miller Street
4 Bethany, MO 64424

5 **County:** Harrison

6 **Real Property Report Acres:** 3.42

7 **Building Count:** 2

8 **% Cover:** Buildings (5%)
9 Paved Road/Parking (31%)
10 Maintained Grass (64%)
11 (No change CMM 24Aug20)

12 **Last Field Survey:** 2009



13 The Bethany USARC consists of a USARC, OMS for storage, along with the associated parking
14 areas. Surrounding land use includes residential property to the north, undeveloped land (woodlot)
15 to the south, and commercial land to the west and east.

16 **Land Use**

17 The site uses include administrative services, classroom training, and storage. The 88th RD owns
18 the land and buildings that comprise MO004/29825. (No change CMM 1Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Central Irregular Plains

21 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.

22 NWI data reports that there are three wetlands located within 1,000 ft of the site:

- 23 • three palustrine unconsolidated bottom (PUBGh) wetlands located approximately:
 - 24 ○ 400 ft south,
 - 25 ○ 425 ft southwest, and
 - 26 ○ 825 ft southeast of the site.

27 (Verified unchanged from NWI website data CMM 6Sep20)

28 **Vegetation:** There is no native vegetation on this site. The following documented non-
29 dominant invasive-exotic species were in this community: multiflora rose (*Rosa spp.*) and
30 field bindweed (*Convolvulus pluricaulis*). These species are present in low densities. Both
31 species are listed noxious weeds in Missouri.

32 **Lawn/Herbaceous Layer:** Kentucky bluegrass *Poa pratensis*

33 **Shrub Layer:** Japanese yew *Taxus cuspidate*

34 **Canopy Layer:** Slippery elm *Ulmus rubra*

35 Trees observed at this site appeared to be healthy with no overt signs of disease. No
36 trees at this site qualify for the Missouri State Champion Tree List.

1 **Wildlife:** Site MO004/29825 offers little suitable habitat for wildlife species. Given the
2 developed nature of the site and the surrounding land use wildlife species adapted to
3 developed areas are likely to utilize the site.

4 Wildlife observed during the 2009 site survey included Fox squirrels (*Sciurus niger*) and blue
5 jay (*Cyanocitta cristata*).

6 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
7 for listed species.

8	Indiana bat	<i>Myotis sodalist</i> , FE
9	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
10	Mead's milkweed	<i>Asclepias meadii</i> , FT
11	western prairie fringed orchid	<i>Platanthera praeclara</i> , FT

12 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
13 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 17Mar21)

14 **Other Considerations:** None.

15 **Management Issues and Concerns:** Multiflora rose (*Rosa spp.*) and field bindweed
16 (*Convolvulus pluricaulis*) are listed noxious weeds in Missouri. At the time of the 2009 field survey,
17 both were in low densities

18
19 (Updated CMM 17Mar21)

20 (QA/QC STL 10Jun2021)

1 **MO006/29830**

2 **Columbia USARC**

3 1306 Business Loop 70W

4 Columbia, MO 65201

5 **County:** Boone

6 **Real Property Report Acres:** 5.42

7 **Building Count:** 3

8 **% Cover:** Buildings (10%)

9 Grassland/Field (21%)

10 Maintained Grass (34%)

11 Paved Road/Parking (35%)

12 (No change CMM 24Aug20)

13 **Last Field Survey:** 2009



14 The Columbia USARC consists of a USARC, two additional buildings, along with associated parking
15 areas. Surrounding land use includes recreational and commercial land to the north, roadways and
16 commercial land to the south, residential property (apartments) to the west, and commercial land to
17 the east.

18 **Land Use**

19 The site uses include administrative services, classroom training, and storage. The 88th RD owns
20 the land and buildings that comprise MO006/29830. (No change CMM 1Sep20)

21 **Natural Resources**

22 **EPA Ecoregion:** Interior River Valleys and Hills

23 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
24 Additionally, NWI data reports no wetlands on or within 1,000 ft of the site. (Verified unchanged
25 from NWI website data CMM 6Sep20)

26 **Vegetation:** At the time of the 2009 field survey, the maintained lawn contained no
27 identifiable invasive-exotic species.

28 At the time of the 2009 field survey, field grassland/field area non-dominant invasive-exotic
29 species consisted of multiflora rose (*Rosa spp.*) and Japanese honeysuckle (*Lonicera spp.*).
30 These species are present in low densities. In Missouri, the multiflora rose is a listed noxious
31 weed

32 **Lawn/Herbaceous Layer:** The maintained lawn consists of:

33	Kentucky bluegrass	<i>Poa pratensis</i>
34	red clover	<i>Trifolium pratense</i>
35	white clover	<i>Trifolium repens</i>
36	bead grass	<i>Paspalum bushii</i>

37 The grassland/field consists of:

38	Canada goldenrod	<i>Solidago spp.</i>
39	blackberry	<i>Rubus fruticosus</i>

1	smooth brome	<i>Bromus inermis</i>
2	tall thistle	<i>Cirsium altissimum</i>
3	purpletop	<i>Tridens flavus</i>
4	green foxtail	<i>Alopecurus spp.</i>

5 **Shrub Layer:** In the maintained lawn, no shrub layer is present.

6 The grassland/field consists of:

7	trumpet creeper	<i>Campsis radicans</i>
8	smooth sumac	<i>Rhus glabra</i>
9	frost grape	<i>Vitis riparia</i>
10	Virginia creeper	<i>Parthenocissus quinquefolia</i>
11	coralberry	<i>Symphoricarpos orbiculatus</i>
12	Bradford pear	<i>Pyrus calleryana</i>

13 **Canopy Layer:** The maintained lawn consists of:

14	pin oak	<i>Quercus palustris</i>
15	Blue spruce	<i>Picea pungens</i>
16	white pine	<i>Pinus strobus</i>
17	redbud	<i>Cercis canadensis</i>
18	sweetgum	<i>Liquidambar styraciflua</i>
19	red oak	<i>Quercus rubra</i>
20	yellow oak	<i>Quercus muehlenbergii</i>
21	black gum	<i>Nyssa sylvatica</i>

22 In the grassland/field, no canopy layer is present.

23 Trees observed at this site appeared to be healthy with no overt signs of disease. No
24 trees at this site qualify for the Missouri State Champion Tree List.

25 **Wildlife:** Wildlife observed during the 2009 site survey included:

26	eastern phoebe	<i>Sayornis phoebe</i>
27	chimney swift	<i>Chaetura pelagica</i>
28	gray catbird	<i>Dumetella carolinensis</i>
29	rock dove	<i>Columba livia</i>
30	eastern common mole	<i>Scalopus aquaticus</i>

31 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
32 for listed species.

33	Indiana bat	<i>Myotis sodalis</i> , FE
34	Gray bat	<i>Myotis grisescens</i> , FE
35	northern long-eared bat	<i>Myotis septentrionalis</i> , FE

36 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
37 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 18Mar21)

38 **Other Considerations:** The MDC reported that this site is within a county with known karst
39 geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water
40 movement), which may contain cave bat fauna, many of which may be state bat species (listed
41 above) of conservation concern.

1 **Management Issues and Concerns:** The multiflora rose (*Rosa spp.*), present in low
2 densities, is listed as a noxious weed in Missouri.

3

4 (Updated CMM 18Mar21)

5 (QA/QC STL 10Jun2021)

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1 **MO008/29832**

2 **Farmington USARC**

3 1610 W. Columbia Street
4 Farmington, MO 63640

5 **County:** St. Francois

6 **Real Property Report Acres:** 4.60

7 **Building Count:** 2

8 **% Cover:** Buildings (9%)
9 Paved Road/Parking (23%)
10 Maintained Grass (68%)
11 (No change CMM 24Aug20)

12 **Last Field Survey:** 2009



13 The Farmington USARC consists of a USARC, an additional building, and associated parking areas.
14 Surrounding land uses include: commercial land to the north, undeveloped land to the south and
15 west, and commercial and undeveloped land to the east.

16 **Land Use**

17 The site uses include administrative services and classroom training. The 88th RD leases the land
18 and owns the buildings that comprise MO008/29832. (No change CMM 1Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Ozark Highlands

21 **MLRA:** Ozark Highland

22 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
23 Additionally, NWI data reports there are no wetlands located on or within 1,000 ft of the site.
24 (Verified unchanged from NWI website data CMM 6Sep20)

25 **Vegetation:** There is no native vegetation on this site. The following documented non-
26 dominant invasive-exotic species identified during the 2009 field survey:

27	Japanese honeysuckle	<i>Lonicera japonica</i>
28	multiflora rose	<i>Rosa spp.</i>
29	Johnsongrass	<i>Sorghum halepense</i>
30	tree of heaven	<i>Ailanthus altissima</i>
31	autumn olive	<i>Elaeagnus umbellata</i>

32 At the time of the 2009 field survey, these species were present in low densities. The
33 multiflora rose and Johnsongrass are listed noxious weeds in Missouri.

34 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*).

35 **Shrub Layer:** Flowering dogwood (*Cornus florida*) and crab apple (*Malus domestica*).

36 **Canopy Layer:**

37	Pin oak	<i>Quercus palustris</i>
38	yellow oak	<i>Quercus muehlenbergii</i>

1	red oak	<i>Quercus rubra</i>
2	bur oak	<i>Quercus macrocarpa</i>
3	hackberry	<i>Celtis occidentalis</i>
4	sugar maple	<i>Acer saccharum</i>

5 Trees observed at this site appeared healthy with no overt signs of disease. No trees at this
6 site qualify for the Missouri State Champion Tree List.

7 **Wildlife:** Site MO008/29832 offers little suitable habitat for wildlife species. Given the
8 developed nature of the site and the surrounding land use wildlife species adapted to
9 developed areas are likely to utilize the site.

10 Wildlife observed during the 2009 field survey included:

11	chipping sparrow	<i>Spizella passerine</i>
12	blue jay	<i>Cyanocitta cristata</i>
13	great-horned owl	<i>Bubo virginianus</i>
14	eastern common mole	<i>Scalopus aquaticus</i>
15	Fox squirrels	<i>Sciurus niger</i>

16 **Listed Species:** The 2010 field survey identified neither listed species nor suitable habitat
17 for listed species.

18	Indiana bat	<i>Myotis sodalis</i> , FE)
19	Gray bat	<i>Myotis grisescens</i> , FE
20	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE

21 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
22 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 18Mar21)

23 **Other Considerations:** The MDC reported that this site is within a county with known karst
24 geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water
25 movement), which may contain cave bat fauna, many of which may be the bat state species of
26 conservation concern.

27 **Management Issues and Concerns:** At the time of the 2009 field survey, Multiflora rose
28 (*Rosa spp.*) and Johnsongrass (*Sorghum halepense*) are present on this site in low densities. The
29 state of Missouri lists both these as noxious weeds.

30

31 (Updated CMM 18Mar21)

32 (QA/QC STL 10Jun2021)

1 **MO013/29898**

2 **Independence USARC**

3 11101 Independence Avenue
4 Independence, MO, 64054

5 **County:** Jackson

6 **Real Property Report Acres:** 4.00

7 **Building Count:** 2

8 **% Cover:** Buildings (17%)
9 Maintained Grass (22%)
10 Paved Road/Parking (61%)
11 (No change CMM 24Aug20)

12 **Last Field Survey:** 2009



13 The Independence USARC consists of a USARC, OMS, along with associated parking areas.
14 Surrounding land use includes roadways/undeveloped/residential land to the north, undeveloped
15 land to the south, residential land (trailer park) to the west, and residential land to the east.

16 **Land Use**

17 The site uses include administrative services, classroom training, and light vehicle maintenance.
18 The 88th RD owns the land and buildings that comprise MO013/29898. (No change CMM 1Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Western Corn Belt Plains

21 **MLRA:** Iowa and Missouri Deep Loess Hills

22 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
23 Additionally, NWI data reports there are no wetlands located on or within 1,000 ft of the site.
24 (Verified unchanged from NWI website data CMM 6Sep20)

25 **Vegetation:** There is no native vegetation communities. The following documented non-
26 dominant invasive-exotic species in this community: Johnsongrass (*Sorghum halepense*)
27 and field bindweed (*Convolvulus pluricaulis*). The state of Missouri lists both species as
28 noxious weeds. These species are present in low densities.

29 **Lawn/Herbaceous Layer:** Kentucky bluegrass *Poa pratensis*

30 **Shrub Layer:** No shrub layer is present.

31 **Canopy Layer:**

32	Ginkgo	<i>Ginkgo biloba</i>
33	red oak	<i>Quercus rubra</i>
34	box elder	<i>Acer negundo</i>
35	white ash	<i>Fraxinus americana</i>
36	sweetgum	<i>Liquidambar styraciflua</i>
37	sunburst locust	<i>Gleditsia triacanthos</i>
38	red maple	<i>Acer rubrum</i>
39	pin oak	<i>Quercus palustris</i>

1 Trees observed at this site appeared healthy with no overt signs of disease. No trees
2 at this site qualify for the Missouri State Champion Tree List.

3 **Wildlife:** Site MO013/29898 offers little suitable habitat for wildlife species. Given the
4 developed nature of the site and the surrounding land use wildlife species adapted to
5 developed areas are likely to utilize the site.

6 Wildlife during the 2009 field survey included:

7	chimney swift	<i>Chaetura pelagica</i>
8	blue jay	<i>Cyanocitta cristata</i>
9	turkey vulture	<i>Cathartes aura</i>
10	eastern common mole	<i>Scalopus aquaticus</i>
11	eastern gray squirrel	<i>Sciurus carolinensis</i>

12 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
13 for listed species.

14	Indiana bat	<i>Myotis sodalis</i> , FE
15	Gray bat	<i>Myotis grisescens</i> , FE
16	northern long-eared bat	<i>Myotis septentrionalis</i> , FE

17 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
18 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 18Mar21)

19 **Other Considerations:** The MDC reported that this site is within a county with known karst
20 geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water
21 movement), which may contain cave bat fauna, many of which are state species of conservation
22 concern.

23 **Management Issues and Concerns:** Johnsongrass (*Sorghum halepense*) and field
24 bindweed (*Convolvulus pluricaulis*) are present in low densities. The state of Missouri lists both
25 species as noxious weeds.

26

27 (Updated CMM 18Mar21)

28 (QA/QC STL 15Jun2021)

1 **MO014/29855**

2 **Jefferson City USARC**

3 1749 Tanner Bridge Road

4 Jefferson, MO 65101

5 **County:** Cole

6 **Real Property Report Acres:** 6.00

7 **Building Count:** 2

8 **% Cover:** Buildings (8%)
9 Deciduous Forest (10%),
10 Grassland/Field (8%)
11 Gravel Road/Parking (9%)
12 Maintained Grass (42%)
13 Paved Road/Parking (23%)
14 (No change CMM 24Aug20)



15 **Last Field Survey:** 2009

16 The Jefferson City USARC consists of a USARC, OMS, and additional building, along with the
17 associated parking areas. Surrounding land use includes undeveloped/residential land to the north,
18 undeveloped land to the south and east (woodlot), and residential land to the west.

19 **Land Use**

20 The site uses include administrative services, classroom training, and light vehicle maintenance.
21 The 88th RD owns the land and buildings that comprise MO014/29855. (No change CMM 1Sep20)

22 **Natural Resources**

23 **EPA Ecoregion:** Interior River Valleys and Hills

24 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
25 Additionally, NWI data reports there are no wetlands located on or within 1,000 ft of the site.
26 (Verified unchanged from NWI website data CMM 6Sep20)

27 **Vegetation:** There are three vegetation communities on this site.

28 During the 2009 field survey Amur honeysuckle (*Lonicera maackii*), and common privet
29 (*Ligustrum vulgare*) were observed. Both species are widely recognized as invasive-exotic
30 species but not listed as noxious by Missouri. These species are present in low densities.

31 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
32 maintained lawn.

33 Additional grassland/field herbaceous species included:

- | | | |
|----|-------------------|--------------------------------|
| 34 | fescue | <i>Festuca spp.</i> |
| 35 | windmill grass | <i>Chloris spp.</i> |
| 36 | English plantain | <i>Plantago lanceolate</i> |
| 37 | common ragweed | <i>Ambrosia artemisiifolia</i> |
| 38 | smooth crabgrass | <i>Digitaria spp.</i> |
| 39 | Queen Anne's lace | <i>Daucus carota</i> |

1 curly dock *Rumex crispus*

2 The deciduous forest dominant herbaceous species:

3 wild rye *Elymus canadensis*

4 white avens *Geum canadense*

5 white snakeroot *Ageratina altissima*

6 poison ivy *Toxicodendron radicans*

7 black raspberry *Rubus occidentalis*

8 Canada germander *Teucrium canadense*

9 **Shrub Layer:** The maintained lawn is Japanese yew (*Taxus cuspidate*) in the shrub
10 layer.

11 The grassland/field has no shrub or layer.

12 The deciduous forest dominant shrub species included:

13 Amur honeysuckle *Lonicera maackii*

14 fragrant sumac *Rhus aromatica*

15 common privet *Ligustrum vulgare*

16 **Canopy Layer:**

17 pin oak *Quercus palustris*

18 Norway maple *Acer platanoides*

19 Siberian elm *Ulmus pumila*

20 The grassland/field has no canopy layer.

21 The deciduous forest is dominated by black walnut (*Juglans nigra*), white ash
22 (*Fraxinus americana*), pin oak (*Quercus palustris*), and slippery elm (*Ulmus rubra*).

23 Trees observed at this appeared healthy with no overt signs of disease. No trees at
24 this site qualify for the Missouri State Champion Tree List.

25 **Wildlife:** Wildlife observed during the 2009 site survey included

26 blue jay *Cyanocitta cristata*

27 American crows *Corvus brachyrhynchos*

28 European starling *Sturnus vulgaris*

29 American robin *Turdus migratorius*

30 house wren *Troglodytes aedon*

31 eastern common mole *Scalopus aquaticus*

32 white-tailed deer *Odocoileus virginianus*

33 eastern gray squirrel *Sciurus carolinensis*

34 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
35 for listed species.

36 Indiana bat *Myotis sodalis*, FE

37 Gray bat *Myotis grisescens*, FE

38 northern long-eared bat *Myotis septentrionalis*, FE

39 Topeka shiner *Notropis topeka*, FE

1 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
2 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 18Mar21)

3 **Other Considerations:** The MDC reported that this site is within a county with known karst
4 geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water
5 movement), which may contain cave bat fauna, many of which are state species of conservation
6 concern.

7 **Management Issues and Concerns:** None.

8

9 (Updated CMM 18Mar21)

10 (QA/QC STL 15Jun2021)



1 **MO015/29865**
2 **Joplin USARC**
3 1001 N Murphy Boulevard
4 Joplin, MO 64801
5 **County:** Jasper
6 **Real Property Report Acres:** 6.00
7 **Building Count:** 3
8 **% Cover:** Buildings (8%)
9 Maintained Grass (54%)
10 Paved Road/Parking (38%)
11 (No change CMM 24Aug20)
12 **Last Field Survey:** 2009

13 The Joplin USARC consists of a USARC, an OMS, an additional building, and associated parking
14 areas. Surrounding land use includes public land (college)/recreational land (park) to the north, and
15 recreational land (park) to the south, west, and east.

16 Land Use

17 The site uses include administrative services, classroom training, light vehicle maintenance, and
18 storage. The 88th RD owns the land and buildings that comprise MO015/29865. (No change CMM
19 1Sep20)

20 Natural Resources

21 **EPA Ecoregion:** Ozark Highlands

22 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
23 Additionally, according to the NWI data, there are no wetlands located on or within 1,000 ft
24 of the site. (Verified unchanged from NWI website data CMM 6Sep20)

25 **Vegetation:** There is no native vegetation community at this site.

26 The following non-dominant invasive-exotic species documented in this community include
27 common couch (*Elymus repens*) and field bindweed (*Convolvulus pluricaulis*). These
28 species are present in low densities. The state of Missouri lists field bindweed as a noxious
29 weed.

30 **Lawn/Herbaceous Layer:** Bermuda grass (*Cynodon dactylon*) dominates the
31 maintained lawn.

32 **Shrub Layer:** No shrub layer is present.

33 **Canopy Layer:**

34	Sweetgum	<i>Liquidambar styraciflua</i>
35	red mulberry	<i>Morus spp.</i>
36	pin oak	<i>Quercus palustris</i>
37	American elm	<i>Ulmus Americana</i>

38 Trees observed at this site appeared to be healthy with no overt signs of disease. No
39 trees at this site qualify for the Missouri State Champion Tree List.

1 **Wildlife:** Site MO015/29865 offers little suitable habitat for wildlife species. Given the
2 developed nature of the site and the surrounding land use wildlife species adapted to
3 developed areas are likely to utilize the site.

4 Wildlife observed during the 2009 site survey included:

5	blue jay	<i>Cyanocitta cristata</i>
6	American crows	<i>Corvus brachyrhynchos</i>
7	eastern bluebird	<i>Sialia sialis</i>
8	turkey vulture	<i>Cathartes aura</i>

9 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
10 for listed species.

11	Indiana bat	<i>Myotis sodalis</i> , FE
12	Gray bat	<i>Myotis grisescens</i> , FE
13	northern long-eared bat	<i>Myotis septentrionalis</i> , FE
14	Neosho mucket (mussel)	<i>Lampsilis rafinesqueana</i> , FE

15 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
16 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 18Mar21)

17 **Other Considerations:** The MDC reported that this site is within a county with known karst
18 geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water
19 movement), which may contain bat cave fauna, many of which are state species of conservation
20 concern.

21 **Management Issues and Concerns:** During the 2009 field survey, a noxious weed in
22 Missouri, field bindweed (*Convolvulus pluricaulis*) was present in low densities.

23
24 (Updated CMM 18Mar21)

25 (QA/QC STL 15Jun2021)

1 **MO018/29879**

2 **Kirksville AFRC**

3 3105 N Industrial Rd

4 Kirksville, MO 63501

5 **County:** Adair

6 **Real Property Report Acres:** 10.94

7 **Building Count:** 1

8 **% Cover:** Emergent Wetland (2%)

9 Grassland/Field (86%)

10 Gravel Road/Parking (1%)

11 Maintained Grass (10%)

12 Paved Road/Parking (1%)

13 (No change CMM 24Aug20)



14 **Last Field Survey:** 2009

15 The Kirksville AFRC consists of a USARC, associated parking areas, and lawn/landscaping.
16 Surrounding land use includes agricultural land to the north and west, agricultural land/roadway to
17 the south, and commercial land/roadway to the east.

18 **Land Use**

19 The site uses include administrative services, classroom training, light vehicle maintenance, and
20 storage. The 88th RD owns the land and building associated with MO018/29879. (No change CMM
21 1Sep20)

22 **Natural Resources**

23 **EPA Ecoregion:** Central Irregular Plains

24 **MLRA:** Central Mississippi Valley Wooded Slopes, Western Portion

25 **Wetlands:** The 2009 field survey identified a single wetland at MO018/29879, located in the
26 southeastern portion of the site. This wetland is a small (0.08 ac) herbaceous classified as
27 a palustrine emergent persistent temporarily flooded (PEM1A).

28 The wetland species included:

29	blue vervain	<i>Verbena hastate)</i>
30	blunt spike rush	<i>Eleocharis obtuse)</i>
31	black bulrush	<i>Scirpus atrovirens)</i>
32	fox sedge	<i>Cyperaceae spp.)</i>

33 The emergent wetland has no shrub or canopy layer.

34 Hydric soil was evidenced by the depleted matrix (10 YR 3/2). P

35 Primary hydrological indicators identified within this wetland were surface water (4 inches),
36 a high water table (surface), the presence of reduced iron in the soil, and soil saturation
37 (surface).

1 This wetland appears to be in stable condition, and no observed threats to its functioning
2 capabilities were in evidence during the field survey. However, new construction planned for
3 this site indicates that the wetland will likely be removed from the property.

4 USACE completed a jurisdictional determination (JD) on this wetland in February 2010. The
5 JD determined this wetland to be non-jurisdictional. This wetland was not identified by an
6 environmental assessment recently completed at the site which determined that “no wetlands
7 have been identified on the proposed site.”

8 According to the NWI data, there are no wetlands located on or within 1,000 ft of the site.
9 (Verified unchanged from NWI website data CMM 6Sep20)

10 **Vegetation:** There are three vegetation communities on this site.

11 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
12 maintained lawn.

13 The dominant herbaceous species of the grassland/field includes:

14	fescue	<i>Festuca spp.</i>
15	Queen Anne’s lace	<i>Daucus carota</i>
16	spear thistle	<i>Cirsium vulgare</i>
17	timothy	<i>Phleum pretense</i>
18	heath aster	<i>Symphotrichum ericoides</i>
19	path rush	<i>Juncus tenuis</i>
20	Indian hemp	<i>Apocynum cannabinum</i>
21	white vervain	<i>Verbena urticifolia</i>
22	late eupatorium	<i>Eupatorium serotinum</i>

23 Spear thistle (*Cirsium vulgare*) and Queen Anne’s lace (*Daucus carota*) are widely
24 recognized as an invasive-exotic species but not listed as noxious in Missouri. These
25 species are present in low density.

26 **Shrub Layer:** The maintained lawn has no shrub layer present.

27 The grassland/field has no shrub layer.

28 **Canopy Layer:** The maintained lawn has no canopy layer present.

29 The grassland/field has no canopy layer.

30 **Wildlife:** Wildlife observed during the 2009 site survey included:

31	killdeer	<i>Charadrius vociferus</i>
32	mourning dove	<i>Zenaida macroura</i>
33	gray catbird	<i>Dumetella carolinensis</i>

34 At the time of the 2009 field survey, free-ranging cattle were on-site. It seems that the cattle
35 wander onto MO018/29879 from adjacent properties if the entrance gate is ajar.

36 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
37 for listed species.

38	Indiana bat	<i>Myotis sodalis</i> , FE
39	Gray bat	<i>Myotis grisescens</i> , FE
40	northern long-eared bat	<i>Myotis septentrionalis</i> , FE

1 Mead's milkweed *Asclepias meadii*, FT

2 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
3 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 19Mar21)

4 **Other Considerations:** None.

5 **Management Issues and Concerns:** None.

6

7 (Updated CMM 19Mar21)

8 (QA/QC STL 15Jun2021)

1 **MO024/29925**

2 **Springfield AFRC/AMSA #54**

3 1110 N. Fremont Avenue,
4 Springfield, MO 65802

5 **County:** Greene

6 **Real Property Report Acres:** 18.34

7 **Building Count:** 4

8 **% Cover:** Buildings (7%),
9 Paved Road/Parking (50%)
10 Maintained Grass (42%)
11 Drainage Ditch (1%)
12 (No change CMM 24Aug20)

13 **Last Field Survey:** 2009



14 The Springfield AFRC/AMSA #54 consists of an AFRC, an AMSA, and associated parking areas.
15 Surrounding land use includes developed land to the north, public land (school)/residential property
16 to the south, commercial/recreational land to the east, and residential property to the west.

17 **Land Use**

18 The site uses include administrative services, classroom training, light vehicle maintenance, and
19 storage. The 88th RD owns the land and buildings that comprise MO024/29925. (No change CMM
20 1Sep20)

21 **Natural Resources**

22 **EPA Ecoregion:** Ozark Highlands

23 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
24 Additionally, NWI data reports no wetlands located on or within 1,000 ft of the site. (Verified
25 unchanged from NWI website data CMM 6Sep20)

26 **Vegetation:** There is no native vegetation communities on this site.

27 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
28 maintained lawn.

29 **Shrub Layer:** The maintained lawn:

- | | | |
|----|------------------|-------------------------------|
| 30 | American holly | <i>Ilex opaca</i> |
| 31 | crab apple | <i>Malus domestica</i> |
| 32 | creeping juniper | <i>Juniperus horizontalis</i> |
| 33 | burning bush | <i>Euonymus alatus</i> |

34 **Canopy Layer:** The maintained lawn:

- | | | |
|----|-----------------|------------------------------|
| 35 | sugar maple | <i>Acer saccharum</i> |
| 36 | Bradford pear | <i>Pyrus calleryana</i> |
| 37 | sunburst locust | <i>Gleditsia triacanthos</i> |
| 38 | pin oak | <i>Quercus palustris</i> |
| 39 | Siberian elm | <i>Ulmus pumila</i> |

1	sweetgum	<i>Liquidambar styraciflua</i>
2	Austrian pine	<i>Pinus nigra</i>
3	loblolly pine	<i>Pinus taeda</i>

4 A small number of the pin oak at this site appeared to have dead limbs. This is likely
5 a result of the aging process, because pin oak have a limited lifespan (approximately
6 125 years).

7 The remaining trees observed at this site appeared healthy with no overt signs of
8 disease. No trees at this site qualify for the Missouri State Champion Tree List.

9 **Wildlife:** Site MO024/29925 offers little suitable habitat for wildlife species. Given the
10 developed nature of the site and the surrounding land use wildlife species adapted to
11 developed areas are likely to utilize the site.

12 Wildlife observed during the 2009 site survey included:

13	American crows	<i>Corvus brachyrhynchos</i>
14	mourning dove	<i>Zenaida macroura</i>
15	European starling	<i>Sturnus vulgaris</i>
16	Eastern common mole	<i>Scalopus aquaticus</i>

17 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
18 for listed species.

19	Indiana bat	<i>Myotis sodalis</i> , FE
20	Gray bat	<i>Myotis grisescens</i> , FE
21	northern long-eared bat	<i>Myotis septentrionalis</i> , FE
22	Ozark cavefish	<i>Amblyopsis rosae</i> , FT

23 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
24 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 19Mar21)

25 **Other Considerations:** The MDC reported that this site is within a county with known karst
26 geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water
27 movement), which may contain cave bat fauna, many of which are state species of conservation
28 concern.

29 **Management Issues and Concerns:** None.

30

31 (Updated CMM 19Mar21)

32 (QA/QC STL 15Jun2021)

1 **MO026/29935**

2 **St Joseph USARC**

3 1201 North 36th Street,
4 St Joseph, MO 64506

5 **County:** Buchanan

6 **Real Property Report Acres:** 4.00

7 **Building Count:** 2

8 **% Cover:** Buildings (7%)
9 Paved Road/Parking (43
10 Maintained Grass (50%)
11 (No change CMM 24Aug20)

12 **Last Field Survey:** 2009



13 The St Joseph USARC consists of a USARC, an OMS, and associated parking areas. Surrounding
14 land use includes commercial land to the north, south, and east, and public land (school) to the
15 west.

16 **Land Use**

17 The site uses include administrative services, classroom training, and light vehicle maintenance.
18 The 88th RD owns the land and buildings that comprise MO026/29935. (No change CMM 1Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Western Corn Belt Plains

21 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
22 Additionally, according to the NWI data, there are no wetlands located on or within 1,000 ft
23 of the site. (Verified unchanged from NWI website data CMM 6Sep20)

24 **Vegetation:** During the 2009 field survey, the invasive-exotic tree of heaven (*Ailanthus*
25 *altissima*) is present in low density. The state of Missouri does not list Tree of heaven as
26 noxious species.

27 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
28 maintained lawn.

29 **Shrub Layer:** The maintained lawn is white cedar (*Thuja occidentalis*).

30 **Canopy Layer:** The maintained lawn hackberry (*Celtis occidentalis*) and white pine
31 (*Pinus strobus*).

32 Trees observed at this site all appeared to be healthy and no signs of disease were
33 identified. No trees at this site qualify for the Missouri State Champion Tree List.

34 **Wildlife:** Site MO026/29935 offers little suitable habitat for wildlife species. Given the
35 developed nature of the site and the surrounding land use wildlife species adapted to
36 developed areas are likely to utilize the site.

37 Wildlife observed during the 2009 field survey included:

38 blue jay

Cyanocitta cristata

1 eastern common mole *Scalopus aquaticus*
2 eastern cottontails *Sylvilagus floridanus*
3 Fox squirrels *Sciurus niger*
4 raccoon *Procyon lotor*

5 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
6 for listed species.

7 Indiana bat *Myotis sodalis*, FE
8 northern long-eared bat *Myotis septentrionalis*, FE

9 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
10 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 19Mar21)

11 **Other Considerations:** None.

12 **Management Issues and Concerns:** None.

13

14 (Updated CMM 19Mar21)

15 (QA/QC STL 15Jun2021)

1 **MO028/29967**

2 **Sverdrup USARC/AMSA**

3 4301 Goodfellow Boulevard

4 St Louis, MO 63120

5 **County:** St. Louis

6 **Real Property Report Acres:** 20.88

7 **Building Count:** 3

8 **% Cover:** Buildings (10%),
9 Drainage Ditch (<1%)
10 Paved Road/Parking (66%)
11 Maintained Grass (24%)
12 (No change CMM 24Aug20)

13 **Last Field Survey:** 2009



14 The Sverdrup USARC/AMSA consists of a USARC, two OMS/AMSA, an additional building, and
15 associated parking areas. Surrounding land use includes military land (USARC Site MO030/29955)
16 to the north, residential land to the south and west, and commercial land to the east.

17 **Land Use**

18 The site is used for administrative services, classroom training, and light vehicle maintenance. The
19 88th RD owns the land and buildings that comprise MO028/29967. (No change CMM 1Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Interior River Valleys and Hills

22 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
23 Additionally, according to the NWI data, there are no wetlands located on or within 1,000 ft
24 of the site. (Verified unchanged from NWI website data CMM 6Sep20)

25 **Vegetation:** The following documented non-dominant invasive-exotic species were in this
26 community:

- | | | |
|----|----------------------|--------------------------|
| 27 | multiflora rose | <i>Rosa spp.</i> |
| 28 | Japanese honeysuckle | <i>Lonicera japonica</i> |
| 29 | Johnsongrass | <i>Sorghum halepense</i> |

30 These species are present in low densities. Multiflora rose and Johnsongrass are classified
31 as noxious weeds in Missouri.

32 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
33 maintained lawn.

34 **Shrub Layer:** The maintained/landscaped lawn consists of:

- | | | |
|----|-------------------|---------------------------|
| 35 | common juniper | <i>Juniperus communis</i> |
| 36 | Japanese yew | <i>Taxus cuspidate</i> |
| 37 | flowering dogwood | <i>Cornus florida</i> |

1 **Canopy Layer:** The maintained/landscaped lawn consists of:

2	pin oak	<i>Quercus palustris</i>
3	sugar maple	<i>Acer saccharum</i>
4	crab apple	<i>Malus domestica</i>
5	white pine	<i>Pinus strobus</i>
6	sunburst locust	<i>Gleditsia triacanthos</i>
7	scarlet oak	<i>Quercus coccinea</i>
8	sweetgum	<i>Liquidambar styraciflua</i>

9 Trees observed at this site appeared to be healthy with no overt signs of disease. No trees
10 at this site qualify for the Missouri State Champion Tree List.

11 **Wildlife:** Site MO028/29967 offers little suitable habitat for wildlife species. Given the
12 developed nature of the site and the surrounding land use wildlife species adapted to
13 developed areas are likely to utilize the site.

14 Wildlife observed during the 2009 site survey included:

15	European starling	<i>Sturnus vulgaris</i>
16	mourning dove	<i>Zenaida macroura</i>
17	mockingbird	<i>Mimus polyglottos</i>
18	house sparrow	<i>Passer domesticus</i>
19	chimney swift	<i>Chaetura pelagica</i>
20	rock dove	<i>Columba livia</i>
21	eastern cottontails	<i>Sylvilagus floridanus</i>

22 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
23 for listed species.

24	Indiana bat	<i>Myotis sodalis</i> , FE
25	northern long-eared bat	<i>Myotis septentrionalis</i> , FE

26 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
27 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 19Mar21)

28 **Other Considerations:** The MDC reported that this site is within a county with known karst
29 geologic features (e.g., caves, springs, and sinkholes, all characterized by subterranean water
30 movement), which may contain cave fauna, many of which are state species of conservation
31 concern.

32 **Management Issues and Concerns:** Multiflora rose (*Rosa spp.*) and Johnsongrass
33 (*Sorghum halepense*) are present in low densities. The state of Missouri classifies Multiflora rose
34 and Johnsongrass as noxious weeds.

35
36 (Updated CMM 19Mar21)

37 (QA/QC STL 15Jun2021)

1 **MO030/29955**

2 **St Louis ORD PLT #4**

3 6400 Stratford Avenue

4 St Louis, MO 63102

5 **County:** St. Louis

6 **Real Property Report Acres:** 17.39

7 **Building Count:** 4

8 **% Cover:** Buildings (3%)
9 Paved Road/Parking (33%)
10 Grassland/Field (2%)
11 Maintained Grass (62%)
12 (No change CMM 24Aug20)



13 **Last Field Survey:** 2009

14 The St Louis ORD PLT #4 consists of four buildings and associated parking areas. Surrounding
15 land use includes residential land to the north and west, military land (USARC Site MO028/29967)
16 to the south, and commercial land to the east.

17 **Land Use**

18 The site is used exclusively for storage. The 88th RD owns the land and buildings that comprise
19 MO030/29955. (No change CMM 1Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Interior River Valleys and Hills

22 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
23 Additionally, according to the NWI data, there are no wetlands located on or within 1,000 ft
24 of the site. (Verified unchanged from NWI website data CMM 6Sep20)

25 **Vegetation:** The following documented non-dominant invasive-exotic species were in this
26 community:

- | | | |
|----|---------------------------|--------------------------------|
| 27 | nodding plumeless thistle | <i>Carduus nutans</i> |
| 28 | cheatgrass | <i>Bromus tectorum</i> |
| 29 | field bindweed | <i>Convolvulus pluricaulis</i> |

30 These species are present in low densities. Field bindweed is classified as a noxious weed
31 in Missouri.

32 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
33 maintained lawn.

34 The grassland/field:

- | | | |
|----|----------------|--------------------------------|
| 35 | fescue | <i>Festuca spp.</i> |
| 36 | common ragweed | <i>Ambrosia artemisiifolia</i> |
| 37 | Bermuda grass | <i>Cynodon dactylon</i> |
| 38 | curly dock | <i>Rumex crispus</i> |
| 39 | yellow foxtail | <i>Alopecurus spp.</i> |

1 **Shrub Layer:** The maintained lawn has no shrub layer.

2 The grassland/field has no shrub layer.

3 **Canopy Layer:** The maintained lawn has Japanese honeysuckle (*Lonicera japonica*)
4 and tree of heaven (*Ailanthus altissima*).

5 The grassland/field has no shrub or canopy layers are present.

6 Trees observed at this site appeared to be healthy with no overt signs of disease. No
7 trees at this site qualify for the Missouri State Champion Tree List.

8 **Wildlife:** Wildlife observed during the 2009 site survey included:

9	European starling	<i>Sturnus vulgaris</i>
10	mourning dove	<i>Zenaida macroura</i>
11	mockingbird	<i>Mimus polyglottos</i>
12	chimney swift	<i>Chaetura pelagica</i>

13 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
14 for listed species.

15	Indiana bat	<i>Myotis sodalis</i> , FE
16	Gray bat	<i>Myotis grisescens</i> , FE
17	northern long-eared bat	<i>Myotis septentrionalis</i> , FE
18	decurent false aster	<i>Boltonia decurrens</i> , FT

19 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
20 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 19Mar21)

21 **Other Considerations:** The MDC reported that this site is within a county with known karst
22 geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water
23 movement), which may contain cave bat fauna, many of which are state species of conservation
24 concern.

25 **Management Issues and Concerns:** Field bindweed (*Convolvulus pluricaulis*) is present in
26 low densities. The state of Missouri recognizes field bindweed as a noxious weed.

27

28 (Updated CMM 19Mar21)

29 (QA/QC STL 15Jun2021)

1 **MO031/29975**

2 **Washington USARC**

3 1101 North Park Drive
4 Washington, MO 63090

5 **County:** Franklin

6 **Real Property Report Acres:** 4.52

7 **Building Count:** 2

8 **% Cover:** Buildings (11%)
9 Paved Road/Parking (27%)
10 Deciduous Forest (14%)
11 Drainage Ditch (<1%)
12 Maintained Grass (48%)
13 (No change CMM 24Aug20)



14 **Last Field Survey:** 2009

15 The Washington USARC consists of a USARC, OMS, and associated parking areas. Surrounding
16 land use includes undeveloped and residential land to the north, residential land to the south and
17 west, and undeveloped land to the east.

18 **Land Use**

19 The site uses include administrative services, classroom training, and light vehicle maintenance.
20 The 88th RD owns the land and buildings that comprise MO031/29975. (No change CMM 1Sep20)

21 **Natural Resources**

22 **EPA Ecoregion:** Interior River Valleys and Hills

23 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.

24 NWI data reports there is a palustrine forested (PFO1A) wetland located approximately 600
25 ft northeast of the site. (Verified unchanged from NWI website data CMM 6Sep20)

26 **Vegetation:**

27 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
28 maintained lawn.

29 Kentucky bluegrass (*Poa pratensis*) dominates the small woodlots.

30 **Shrub Layer:** Box elder (*Acer negundo*) and winter creeper (*Euonymus fortune*)
31 dominant the maintained lawn.

32 The small woodlots dominant species:

33	elderberry	<i>Sambucus spp.</i>
34	winter creeper	<i>Euonymus fortune</i>
35	shingle oak	<i>Quercus imbricaria</i>
36	Amur honeysuckle	<i>Lonicera maackii</i>

37 **Canopy Layer:** The maintained lawn is dominated by white oak (*Quercus alba*) and
38 black walnut (*Juglans nigra*).

1 The small woodlots dominant species:

2	black oak	<i>Quercus velutina</i>
3	hackberry	<i>Celtis occidentalis</i>
4	red mulberry	<i>Morus spp.</i>
5	Honey locust	<i>Gleditsia triacanthos</i>

6 Trees observed at this site appeared to be healthy with no overt signs of disease. No
7 trees at this site qualified for the Missouri State Champion Tree List.

8 **Wildlife:** Wildlife observed during the 2009 site survey included:

9	blue jay	<i>Cyanocitta cristata</i>
10	eastern phoebe	<i>Sayornis phoebe</i>
11	northern cardinal	<i>Cardinalis cardinalis</i>
12	chimney swift	<i>Chaetura pelagica</i>
13	red-bellied woodpecker	<i>Melanerpes carolinus</i>
14	eastern common mole	<i>Scalopus aquaticus</i>
15	white-tailed deer	<i>Odocoileus virginianus</i>

16 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
17 for listed species.

18	Indiana bat	<i>Myotis sodalis</i> , FE
19	Gray bat	<i>Myotis grisescens</i> , FE
20	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE

21 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
22 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 19Mar21)

23 **Other Considerations:** The MDC reported that this site is within a county with known karst
24 geologic features (e.g. caves, springs, and sinkholes, all characterized by subterranean water
25 movement), which may contain cave bat fauna, many of which are state species of conservation
26 concern.

27 **Management Issues or Concerns:** None.

28

29 (Updated CMM 19Mar21)

30 (QA/QC STL 15Jun2021)

1 **MO054/2900A**
2 **Springfield USARC AMSA #54**

3 2235 North Farm Road 185,
4 Springfield, MO 65802

5 **County:** Greene

6 **Real Property Report Acres:** 3.00

7 **Building Count:** 1

8 **% Cover:** Buildings (8%)
9 Gravel Road/Parking (22%)
10 Maintained Grass (4%)
11 Paved Road/Parking (66%)
12 (No change CMM 24Aug20)

13 **Last Field Survey:** 2009



14 The Springfield USARC AMSA #54 consists of a USARC, two attached maintenance facilities, and
15 associated parking areas. Surrounding land use includes commercial land to the north and west,
16 agricultural land to the south, and residential land (manufactured home park) to the east.

17 **Land Use**

18 The site uses include administrative services, maintenance, and classroom training. The 88th RD
19 leases the land and building that comprise MO054/2900A. (No change CMM 1Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Ozark Highlands

22 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.

23 According to the NWI data, there is a palustrine unconsolidated bottom (PUBGx) wetland
24 located approximately 650 ft northwest of the site. (Verified unchanged from NWI website data CMM
25 6Sep20)

26 **Vegetation:** No documented invasive-exotic species were in this community.

27 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
28 maintained lawn.

29 **Shrub Layer:** No shrub layer is present.

30 **Canopy Layer:** No canopy layer is present.

31 **Wildlife:** Site MO054/2900A offers little suitable habitat for wildlife species. Given the
32 developed nature of the site and the surrounding land use wildlife species adapted to
33 developed areas are likely to utilize the site.

34 Wildlife observed during the 2009 site survey included:

35 killdeer	<i>Charadrius vociferus</i>
36 northern cardinal	<i>Cardinalis cardinalis</i>
37 American goldfinch	<i>Spinus tristis</i>
38 mourning dove	<i>Zenaida macroura</i>

1	American crows	<i>Corvus brachyrhynchos</i>
2	European starling	<i>Sturnus vulgaris</i>
3	eastern cottontails	<i>Sylvilagus floridanus</i>

4 **Listed Species:** The 2009 field survey identified neither listed species nor suitable habitat
5 for listed species.

6	Indiana bat	<i>Myotis sodalis</i> , FE
7	Gray bat	<i>Myotis grisescens</i> , FE
8	northern long-eared bat	<i>Myotis septentrionalis</i> , FT
9	Ozark cavefish	<i>Amblyopsis rosae</i> , FT

10 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
11 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 19Mar21)

12 **Other Considerations:** The Missouri Department of Conservation (MDC) reported that this site
13 is within a county with known karst geologic features (e.g., caves, springs, and sinkholes, all
14 characterized by subterranean water movement), which may contain cave bat fauna, many of which
15 are state species of conservation concern.

16 **Management Issues and Concerns:** None.

17

18 (Updated CMM 19Mar21)

19 (QA/QC STL 15Jun2021)

1 **MO076/29342**

2 **USAR Center, Kansas City USARC #1**

3 15303 Andrews Road
4 Kansas City, MO 64147

5 **County:** Jackson

6 **Real Property Report Acres:** 15.93

7 **Building Count:** 2

8 **% Cover:** Buildings (7.47%),
9 Paved Road/Parking (35.97%)
10 Maintained Grass (49.09%)
11 Unmaintained Grass (4.71%)
12 Tree lines (2.76%)
13 (No change CMM 19Mar21)

14 **Last Field Survey:** 2016



15 **Land Use**

16 The Kansas City USARC #1 site in Kansas City, Missouri consists of two buildings: the training
17 center and a warehouse. In addition, a large part of the property is parking lot. The 88th RD owns
18 the buildings and the land.

19 **Natural Resources**

20 **EPA Ecoregion:** Central Irregular Plains

21 **Wetlands:** NWI reports no wetlands on this site. There is a stream approximately 550 feet
22 southeast of the site. (Verified from NWI website data CMM 6Sep20)

23 **Vegetation:** Two vegetation communities dominate the site: a tree line and maintained
24 grass areas.

25 **Lawn/Herbaceous layer:** The maintained grass areas contain a mixture of
26 cultivated non-native grasses, including crabgrass (*Digitaria spp.*), Kentucky
27 bluegrass (*Poa pratensis*).

28 **Shrub Layer:** The area in the northeast is an unmaintained grassland area that
29 extends farther north and east offsite into an unmaintained grassland area with
30 some ornamental trees. This area contained many of the same grasses as the lawn
31 areas, as well as other herbaceous species, including yarrow (*Achillea millefolium*)
32 and goldenrods (*Solidago spp.*)

33 The tree line along Scope Creek contained a large number of shrubs, including gray
34 dogwood (*Cornus racemosa*), Amur's honeysuckle (*Lonicera maacki*), and multiflora
35 rose (*Rosa multiflora*), as well as some larger trees. Scope Creek, extends through
36 the southeast portion of the site.

37 **Canopy Layer:** northern hackberry (*Celtis occidentalis*), silver maple (*Acer*
38 *saccharinum*), and box-elder (*Acer negundo*), Small hawthorn trees (*Crataegus*
39 *spp.*) and elm trees (*Ulmus spp.*).

1 The invasive species Amur honeysuckle (*Lonicera maacki*) and multiflora rose (*Rosa*
2 *multiflora*) were located sporadically within the tree line, with the exception of a few
3 documented areas where they dominated the tree line. The multiflora rose is a listed
4 noxious weed in Missouri.

5 **Wildlife:** Bird surveys identified the following species:

6	northern mockingbirds	<i>Mimus polyglottos</i>
7	eastern kingbirds	<i>Tyrannus tyrannus</i>
8	western kingbirds	<i>Tyrannus verticalis</i>
9	scissor-tailed flycatchers	<i>Tyrannus forficatus</i>
10	cardinals	<i>Cardinalis cardinalis</i>
11	yellow warblers	<i>Setophaga petechia</i>
12	American goldfinches	<i>Spinus tristis</i>
13	gray catbirds	<i>Dumetella carolinensis</i>
14	Baltimore orioles	<i>Icterus galbula</i>
15	European starlings	<i>Sturnus vulgaris</i>
16	black-capped chickadees	<i>Poecile atricapillus</i>
17	American robins	<i>Turdus migratorius</i>
18	killdeers	<i>Charadrius vociferus</i>
19	Canada geese	<i>Branta canadensis</i>
20	blue jays	<i>Cyanocitta cristata</i>

21 **Listed Species:** The 2016 field survey identified neither listed species nor suitable habitat
22 for listed species on site. Potentially suitable habitat for the two bat species to forage exists
23 along Scope Creek, but no suitable roost trees.

24	Indiana bat	<i>Myotis sodalis</i> , FE
25	gray bat	<i>Myotis grisescens</i> , FE
26	northern long-eared bat	<i>Myotis septentrionalis</i> , FE

27 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
28 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 22Mar21)

29 **Other Considerations:** None.

30 **Management Issues or Concerns:** Multiflora rose (*Rosa multiflora*) was observed on the
31 site and is a listed noxious weed in Missouri.

32

33 (Updated CMM 22Mar21)

34 (QA/QC STL 15Jun2021)

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Low Resource Sites in Minnesota

MN011/27845 – Duluth ARC

MN018/27895 – Mankato ARC

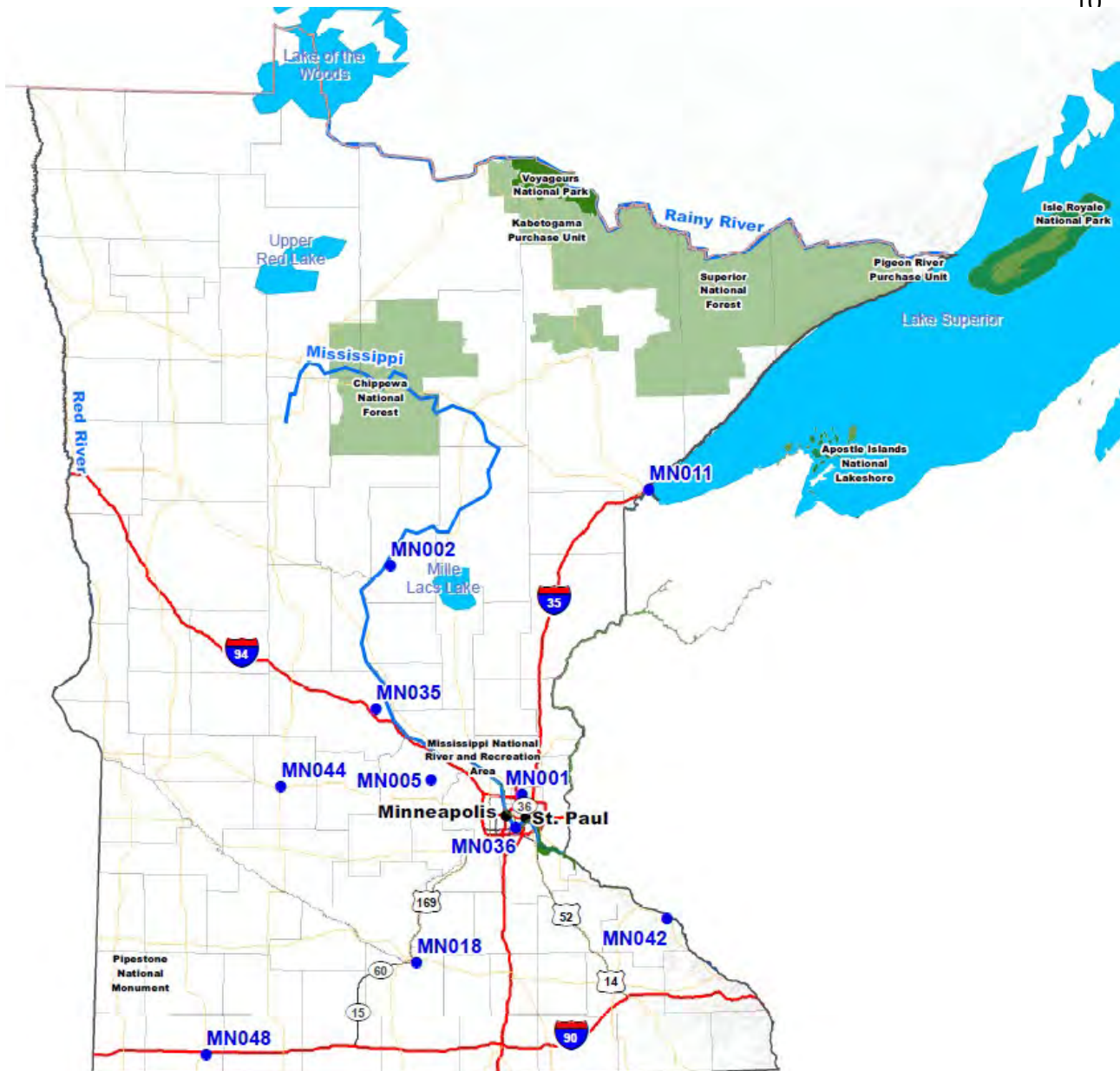
MN036/27865 – Fort Snelling ARC

MN042/27940 – Wabasha Memorial ARC

MN044/27950 – Willmar Memorial ARC

MN048/27975 – Worthington Memorial ARC

10



1 **MN011/27845**

2 **Duluth USARC**

3 1500 Saint Louis Avenue

4 Duluth, MN 55802

5 **County:** St. Louis

6 **Real Property Report Acres:** 4.00

7 **Building Count:** 1

8 **% Cover:** Buildings (17%)

9 Gravel Road/Parking (9%)

10 Maintained Grass (25%)

11 Paved Road/Parking

12 (49%) (No change CMM 25Aug20)



13 **Last Field Survey:** Desktop Only

14 The Duluth USARC consists of a USARC and associated parking areas. Surrounding land use is
15 the Superior Bay Aquatic Center to the north, a nursing home to the south, a residential area to the
16 east, and Duluth Harbor Basin to the west.

17 **Land Use**

18 The site uses includes light and heavy vehicle maintenance, military equipment storage, classroom
19 training, and administrative services. The 88th RD owns the land and the building that comprise
20 MN011/27845. (No change CMM 1Sep20)

21 **Natural Resources**

22 **EPA Ecoregion:** Northern Lakes and Forests

23 **Wetlands:** This site has received no field survey. No on site wetlands. Site is located on the
24 shore of Lake Superior. (Verified unchanged from NWI website data CMM 6Sep20)

25 **Vegetation:** This site has received no field survey.

26 **Wildlife:** This site has received no field survey.

27 **Federally Listed Species:** No suitable habitat exists on this site with no beach for the shore
28 birds and fully paved or maintained grass on the site.

29 Northern long-eared bat *Myotis septentrionalis*, FE

30 Canada lynx *Lynx Canadensis*, FT

31 Piping plover *Charadrius melodus*, FE

32 Red knot *Calidris canutus rufa*, FT

33 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
34 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 22Mar21)

35 **Other Considerations:** None.

36 **Management Issues or Concerns:** None.

37 (Updated CMM 22Mar21) (QA/QC STL 15Jun2021)

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1 **MN018/27895**

2 **Mankato USARC**

3 1550 Pohl Road
4 Mankato, MN 56001

5 **County:** Blue Earth

6 **Real Property Report Acres:** 9.07

7 **Building Count:** 3

8 **% Cover:** Buildings (7%)
9 Paved Road/Parking (37%)
10 Maintained Grass (49%)
11 Gravel Road/Parking (7%)
12 (No change CMM 25Aug20)



13 **Last Field Survey:** 2008

14 The Mankato USARC consists of USARC and OMS buildings, a storage building, along with
15 associated parking areas. Surrounding land use is residential to the north and east. The land to the
16 west is a park and lake. Agricultural and residential land is to the south.

17 **Land Use**

18 The site uses include for administrative services, classroom training, military equipment storage,
19 and general vehicle maintenance. The 88th RD owns the three buildings and leases the land that
20 comprises site MN018/27895. (No change CMM 1Sep20)

21 **Natural Resources**

22 **EPA Ecoregion:** Northern Central Hardwoods

23 **Wetlands:** During the 2009 field survey there were no observable wetlands identified on site.
24 NWI data indicates no wetlands located on-site.

25 Off-site, NWI data indicates the following wetlands: an excavated, intermittently exposed,
26 palustrine unconsolidated bottom (PUBGx) wetland 300 feet northwest associated with the
27 unnamed lake; a PEMFx wetland 475 feet southwest; an excavated, semi-permanently
28 flooded (PEMFx) wetland 635 feet southwest; and an excavated, semi-permanently flooded,
29 palustrine unconsolidated bottom (PUBFx) wetland 975 feet southwest. (Verified unchanged from
30 NWI website data CMM 6Sep20)

31 **Vegetation:**

32 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) and white clover
33 (*Trifolium repens*) dominate the maintained lawn.

34 Other species recorded in this community included:

- | | | |
|----|-------------------------|------------------------|
| 35 | common blue violet | <i>Viola sororia</i> |
| 36 | curly dock | <i>Rumex crispus</i> |
| 37 | yellow foxtail | <i>Alopecurus spp.</i> |
| 38 | common evening-primrose | <i>Rosa spp.</i> |
| 39 | white sweet clover | <i>Melilotus albus</i> |

1 barnyard grass *Echinochloa spp.*

2 **Shrub and Canopy Layer:** The landscaping trees and shrubs are:

3	sunburst locust	<i>Gleditsia triacanthos</i>
4	Austrian pine	<i>Pinus nigra</i>
5	white ash	<i>Fraxinus americana</i>
6	crab apple	<i>Malus domestica</i>
7	Blue spruce	<i>Picea pungens</i>
8	high bush cranberry	<i>Viburnum trilobum</i>
9	lilac	<i>Syringa spp.</i>
10	Japanese spiraea	<i>Spiraea japonica</i> (invasive exotic species)
11	sugar maple	<i>Acer saccharum</i>
12	cottonwood	<i>Populus spp.</i>
13	swamp white oak	<i>Quercus bicolor</i>
14	mugo pine	<i>Pinus mugo</i>
15	common buckthorn	<i>Rhamnus spp.</i> (invasive exotic species)

16 The common buckthorn is listed as a restricted noxious weed in Minnesota.

17 **Wildlife:** Wildlife observed during the 2008 site survey included:

18	blue jay	<i>Cyanocitta cristata</i>
19	black-capped chickadee	<i>Poecile atricapillus</i>
20	northern cardinal	<i>Cardinalis cardinalis</i>
21	American goldfinch	<i>Spinus tristis</i>
22	downy woodpecker	<i>Picoides pubescens</i>
23	monarch butterfly	<i>Danaus plexippus</i>
24	thirteen-lined ground squirrel	<i>Ictidomys tridecemlineatus</i>

25 MN018/27895 offers little suitable habitat for wildlife species. Given the developed nature of
26 the site and the surrounding land use, only species typically adapted to developed areas are
27 likely to utilize the site.

28 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
29 for listed species. There is limited habitat, thus this endangered bat is very unlikely.

30 Northern long-eared bat *Myotis septentrionalis*, FE

31 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
32 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 22Mar21)

33 **Other Considerations:** None.

34 **Management Issues and Concerns:** The common buckthorn (*Rhamnus spp.*) was
35 observed on the site and is listed as a restricted noxious weed in Minnesota.

36

37 (Updated CMM 22Mar21)

38 (QA/QC STL 15Jun2021)

1 **MN036/27865**

2 **Fort Snelling USARC**

3 Building 506, Roeder Circle

4 Fort Snelling, MN 55111

5 **County:** Hennepin

6 **Real Property Report Acres:** 47.46

7 **Building Count:** 8

8 **% Cover:** Buildings (9%)
 9 Paved Road/Parking (33%)
 10 Maintained Grass (37%)
 11 Grassland/Field (13%)
 12 Gravel Road/Parking (5%)
 13 Deciduous Hardwood Forest (3%)
 14 Open Water (<1%)
 15 (No change CMM 25Aug20)



16 **Last Field Survey:** 2008

17 The Fort Snelling USARC consists of three administration buildings, three AMSA/OMS buildings, a
 18 gate guard building, and associated parking areas. Surrounding land use includes Highway 62 to
 19 the north, Minneapolis St. Paul International Airport and the Minnesota Air National Guard 133rd to
 20 the south, parking and a federal building to the east, and US Air Force Reserve 934th to the west.

21 **Land Use**

22 The site uses include administrative services, classroom training, light and heavy vehicle
 23 maintenance, and military equipment storage. The 88th RD owns all seven buildings and the land
 24 that comprise MN036/27865. (No change CMM 1Sep20)

25 **Natural Resources**

26 **EPA Ecoregion:** Northern Central Hardwoods

27 **Wetlands:** No wetlands were observed during the 2008 site survey.

28 According to the NWI data, there are no wetlands located on or within 1,000 feet of the site.
 29 (Verified unchanged from NWI website data CMM 6Sep20)

30 **Vegetation:**

31 **Lawn/Herbaceous Layer:** The maintained lawn dominant species:

32	Kentucky bluegrass	<i>Poa pratensis</i>
33	yellow foxtail	<i>Alopecurus spp.</i>
34	butter-and-eggs	<i>Linaria vulgaris</i>
35	common dandelion	<i>Taraxacum officinale</i>

36 The low maintenance area (mowed once per year typically) in the northern portion of
 37 the site has slightly different dominant flora:

38	smooth brome	<i>Bromus inermis</i>
39	spotted knapweed	<i>Centaurea stoebe</i>

1	flowering spurge	<i>Euphorbia corollata</i>
2	field thistle	<i>Cirsium discolor</i>
3	Indian grass	<i>Sorghastrum nutans</i>
4	Spear Thistle	<i>Cirsium vulgare</i>
5	hoary vervain	<i>Verbena stricta</i>
6	crown vetch	<i>Securigera varia</i>
7	Canada thistle	<i>Cirsium arvense</i>

8 **Trees/shrubs layer:**

9	white mulberry	<i>Morus spp.</i>
10	Tatarian honeysuckle	<i>Lonicera tatarica</i> (invasive exotic species).

11 The deciduous woodlot dominant herbaceous layer includes:

12	Virginia creeper	<i>Parthenocissus quinquefolia</i>
13	common ragweed	<i>Ambrosia artemisiifolia</i>
14	Canada goldenrod	<i>Solidago spp.</i>
15	poison ivy	<i>Toxicodendron radicans</i>
16	white snakeroot	<i>Geratina altissima</i>
17	curly dock	<i>Rumex crispus</i>
18	white sweet clover	<i>Melilotus albus</i>
19	birdsfoot trefoil	<i>Lotus corniculatus</i>

20 **Shrub Layer:** The maintained lawn area has no shrub layer.

21 The low maintenance area (mowed once per year typically) in the northern portion of
22 the site has shrubs in white mulberry (*Morus spp.*).

23 The deciduous woodlot dominant shrub layer includes:

24	smooth sumac	<i>Rhus glabra</i>
25	choke cherry	<i>Prunus virginiana</i>
26	common buckthorn	<i>Rhamnus spp.</i> (invasive exotic species)
27	red osier dogwood	<i>Cornus florida</i>
28	common privet	<i>Ligustrum vulgare</i>

29 **Canopy Layer:** The maintained lawn area landscaping trees are:

30	horse chestnut	<i>Aesculus hippocastanum</i>
31	Norway maple	<i>Acer platanoides</i>
32	Honey locust	<i>Gleditsia triacanthos</i>
33	common juniper	<i>Juniperus communis</i>
34	crab apple	<i>Malus domestica</i>
35	American elm	<i>Ulmus Americana</i>
36	white pine	<i>Pinus strobus</i>
37	Norway pine	<i>Pinus resinosa</i>
38	red maple	<i>Acer rubrum</i>
39	white spruce	<i>Picea glauca</i>
40	Arbor vitae	<i>Thuja spp.</i>
41	Japanese spiraea	<i>Spiraea japonica</i> (invasive exotic species)
42	viburnum	<i>Viburnum spp.</i>

1	little leafed linden	<i>Tilia cordata</i>
2	sugar maple	<i>Acer saccharum</i>
3	bur oak	<i>Quercus macrocarpa</i>
4	Colorado blue spruce	<i>Picea pungens</i>
5	green ash	<i>Fraxinus pennsylvanica</i>
6	cottonwood	<i>Populus spp.</i>
7	Russian olive	<i>Elaeagnus angustifolia</i>
8	burning bush	<i>Euonymus alatus</i>
9	Japanese barberry	<i>Berberis thunbergii</i>

10 The deciduous woodlot canopy layer is dominated by:

11	red elm	<i>Ulmus rubra</i>
12	box elder	<i>Acer negundo</i>
13	cottonwood	<i>Populus deltoides</i>
14	white mulberry	<i>Morus spp.</i>
15	Norway maple	<i>Acer platanoides</i>
16	white ash	<i>Fraxinus americana</i>
17	Quaking aspen	<i>Populus tremuloides</i>

18 At the time of the 2008 field survey, all the trees appeared healthy and with no overt
 19 signs of disease. The trees present are young (less than 20 years old) and not
 20 considered valuable timber species. The average height of these trees was 35 feet,
 21 and the average dbh 8 inches. Thus, no timber survey. The understory is thick, limiting
 22 the potential to utilize the area for recreation or other activities. The forest has little to
 23 no aesthetic value.

24 A number of the observed species are state of Minnesota noxious weeds under three
 25 different levels of classification.

- 26 • Control List: Prohibited noxious weeds which are listed to be controlled, are
 27 plants established throughout Minnesota or regions of the state. Species on
 28 this list must be controlled, meaning efforts must be made to prevent the
 29 spread, maturation and dispersal of any propagating parts, thereby
 30 reducing established populations and preventing reproduction and spread
 31 as required by Minnesota Statutes, Section 18.78.
 - 32 ○ Found on site: spotted knapweed (*Centaurea stoebe*) and Canada
 33 thistle (*Cirsium arvense*)
- 34 • Restricted Noxious Weeds: are plants that are widely distributed in
 35 Minnesota and are detrimental to human or animal health, the environment,
 36 public roads, crops, livestock or other property, but whose only feasible
 37 means of control is to prevent their spread by prohibiting the importation,
 38 sale, and transportation of their propagating parts in the state. Plants
 39 designated as Restricted Noxious Weeds may be reclassified if effective
 40 means of control are developed.
 - 41 ○ Found on site: Crown vetch (*Securigera varia*), common buckthorn
 42 (*Rhamnus spp.*), Tatarian honeysuckle (*Lonicera tatarica*), and
 43 Japanese barberry (*Berberis thunbergii*)

- Specially Regulated Plants: are plants that may be native species or have demonstrated economic value, but also have the potential to cause harm in non-controlled environments.
 - Found on site: Poison ivy (*Toxicodendron radicans*)

Wildlife: MN036/27865 offers little suitable habitat for wildlife species. Given the developed nature of the site and the surrounding land use wildlife species adapted to developed areas are likely to utilize the site.

Wildlife observed during the 2008 site survey included:

American goldfinch	<i>Spinus tristis</i>
downy woodpecker	<i>Picoides pubescens</i>
field sparrow	<i>Spizella pusilla</i>
eastern bluebird	<i>Sialia sialis</i>
chipping sparrow	<i>Spizella passerina</i>
song sparrow	<i>Melospiza melodia</i>
blue jay	<i>Cyanocitta cristata</i>
eastern phoebe	<i>Sayornis phoebe</i>
gray catbird	<i>Dumetella carolinensis</i>
black-capped chickadee	<i>Poecile atricapillus</i>
northern flicker	<i>Colaptes auratus</i>
mourning dove	<i>Zenaida macroura</i>
red-tailed hawk	<i>Buteo jamaicensis</i>
Cooper's hawk	<i>Accipiter cooperii</i>
gray squirrel	<i>Sciurus carolinensis</i>
cottontail rabbit	<i>Sylvilagus spp.</i>
orange sulphur butterfly	<i>Colias eurytheme</i>

Listed Species: The 2008 field survey identified neither listed species nor suitable habitat for listed species. There is limited habitat, thus the endangered bat is very unlikely. The muscles require either deep water or streams with a swift current, neither of which exist on this site.

Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
Higgins eye (mussel)	<i>Lampsilis higginsii</i> , FE
Snuffbox mussel	<i>Epioblasma triquetra</i> , FE
Winged maple leaf (mussel)	<i>Quadrula fragosa</i> , FE

F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered, T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 22Mar21)

Other Considerations: There are no on-site special interest areas. However, documented within 1,000 feet of the site are Mesic Prairie (Southern) Type, Mesic Oak Savanna (Southern) Type, and a Southern Wet Ash Swamp Class.

Past surveys reported a black ash (*Fraxinus nigra*) seepage swamp, a rare moist cliff, Minnehaha Park, a central mesic oak savanna, Fort Snelling State Park, and a central mesic prairie located within a 1-mile radius of the site.

1 **Management Issues and Concerns:** At the time of the 2008 field survey, the invasive exotic
2 species recorded at this facility were present at low densities and do not appear to be at a density
3 that would impair usability of the area for training purposes.

4 Noxious Weed on the Control List meaning efforts must be made to prevent the spread, maturation
5 and dispersal of any propagating parts, thereby reducing established populations and preventing
6 reproduction and spread as required by Minnesota Statutes, Section 18.78. Species found on the
7 site: spotted knapweed (*Centaurea stoebe*), and Canada thistle (*Cirsium arvense*).

8 Restricted Noxious Weeds: Crown vetch (*Securigera varia*), common buckthorn (*Rhamnus spp.*),
9 Tatarian honeysuckle (*Lonicera tatarica*), and Japanese barberry (*Berberis thunbergii*).

10 Special Regulated Plant: Poison ivy (*Toxicodendron radicans*).

11

12 (Updated CMM 22Mar21)

13 (QA/QC STL 16Jun2021)

1 **MN042/27940**

2 **Wabasha Memorial USARC**

3 100 Highway 60, Wabasha, MN 55981

4 **County:** Wabasha

5 **Real Property Report Acres:** 6.98

6 **Building Count:** 2

7 **% Cover:** Buildings (12%),
8 Paved Road/Parking (41%)
9 Maintained Grass (25%)
10 Deciduous Hardwood Forest (22%)
11 Intermittent Stream (<1%)
12 (No change CMM 25Aug20)



13 **Last Field Survey:** 2008

14 The Wabasha Memorial USARC consists of USARC, an OMS, and associated parking areas.
15 Surrounding land use includes open field, industrial and commercial land to the north across
16 Highways 60 and 61, old-field and grassland to the east, old field and residential land to the west
17 across Highway 60, and agriculture and forest to the south.

18 **Land Use**

19 The site uses include administrative services, classroom training, military equipment storage, and
20 general vehicle maintenance. The 88th RD owns the two buildings and the land that comprise site
21 MN042/27940. (No change CMM 1Sep20)

22 **Natural Resources**

23 **EPA Ecoregion:** Driftless Area

24 **Wetlands:** NWI data reports no wetlands on-site, and the 2008 field survey reported no
25 wetlands.

26 Off-site, NWI identifies:

- 27 • Approximately 515 feet west an excavated, intermittently exposed, palustrine
28 unconsolidated bottom PUBGx wetland
- 29 • Approximately 650 feet northwest, an excavated, intermittently exposed, palustrine
30 emergent (PEMGx) wetland
- 31 • Approximately 515 feet northeast a temporarily flooded, broad-leaved deciduous,
32 palustrine forested (PFO1A) wetland. (Verified from NWI website data CMM 6Sep20)

33 **Vegetation:**

34 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
35 maintained lawn.

36 The dominant herbaceous layer consists of:

37	stream-bank wild rye	<i>Elymus riparius</i>
38	wood nettle	<i>Laportea canadensis</i>
39	calico aster	<i>Symphotrichum lateriflorum</i>

1	white snakeroot	<i>Ageratina altissima</i>
2	white avens	<i>Geum canadense</i>
3	tall goldenrod	<i>Solidago spp.</i>
4	Canada honewort	<i>Cryptotaenia canadensis</i>
5	ground ivy	<i>Glechoma hederacea</i>

6 The bottomland forest dominant herbaceous layer consists of:

7	grape woodbine	<i>Parthenocissus vitacea</i>
8	white snakeroot,	<i>Ageratina altissima</i>
9	Canada goldenrod	<i>Solidago spp.</i>
10	horseweed	<i>Erigeron Canadensis</i>
11	black raspberry	<i>Rubus occidentalis</i>
12	crown vetch	<i>Securigera varia</i>
13	smooth brome	<i>Bromus inermis</i>
14	wild parsnip	<i>Pastinaca sativa</i> (invasive species)

15 **Shrub Layer:** The maintained lawn has no shrub layer.

16 The deciduous hardwood forest has two areas (bottomland and oak) that differ slightly
17 in shrub layer species composition.

18 The bottomland forest located in the southern portion of the site dominate shrub layer
19 is common buckthorn (*Rhamnus spp.*) (Invasive exotic species), and elderberry
20 (*Sambucus spp.*).

21 The oak woodlot shrub layer is dominated by:

22	choke cherry	<i>Prunus virginiana</i>
23	gray dogwood	<i>Cornus florida</i>
24	smooth sumac	<i>Rhus glabra</i>
25	wild plum	<i>Prunus americana</i>
26	Tatarian honeysuckle	<i>Lonicera tatarica</i> (invasive exotic species)

27 **Canopy Layer:** The deciduous hardwood forest has two areas (bottomland and oak)
28 that differ slightly in composition of the canopy layer species.

29 In the bottomland forest located in the southern portion of the site box elder maple
30 (*Acer negundo*) and cottonwood (*Populus sect. Aigeiros*) dominate the canopy layer.
31 Trees in the bottomland forest all appeared healthy with no overt signs of disease.
32 The dominant species are not typically marketable timber species with little or no
33 economic gain expected through harvest. The understory is thick, limiting the ability
34 to utilize the area for training or recreation.

35 The oak woodlot, which is less than an acre, is located in the northern portion of the
36 site is dominated by black oak (*Quercus velutina*) in the canopy layer. Trees in the
37 oak forest appeared healthy and free of disease. At the time of the 2008 field survey
38 there were only five young to medium age black oak trees are present in this area.
39 Therefore, little or no expected economic gain through harvest. The area is small and
40 along the property boundary, limiting the ability to utilize the area for training or
41 recreation.

1 The landscaping trees and shrubs are European basswood (*Tilia americana*), white
2 ash (*Fraxinus americana*), Siberian elm (*Ulmus pumila*), and Russian olive
3 (*Elaeagnus angustifolia*).

4 **Wildlife:** MN042/27940 offers suitable habitat for common birds and mammals in the
5 deciduous forest in the north and south of the site. However, given the surrounding land use
6 and developed nature of the site, only species of wildlife typically adapted to developed areas
7 would utilize the site.

8 Wildlife observed during the 2008 field survey include:

9 American goldfinch	<i>Spinus tristis</i>
10 barn swallow	<i>Hirundo rustica</i>
11 black-capped chickadee	<i>Poecile atricapillus</i>
12 mourning dove	<i>Zenaida macroura</i>
13 blue jay	<i>Cyanocitta cristata</i>
14 European starling	<i>Sturnus vulgaris</i>
15 field sparrow	<i>Spizella pusilla</i>
16 downy woodpecker	<i>Picoides pubescens</i>
17 song sparrow	<i>Melospiza melodia</i>
18 eastern phoebe	<i>Sayornis phoebe</i>
19 crow	<i>Corvus brachyrhynchos</i>
20 tufted titmouse	<i>Baeolophus bicolor</i>
21 common mole	<i>Scalopus aquaticus</i>
22 gray squirrel	<i>Sciurus carolinensis</i>
23 ground hog	<i>Marmota monax</i>
24 raccoon	<i>Procyon lotor</i>
25 eastern cottontails	<i>Sylvilagus floridanus</i>

26 There was evidence of deer (*Odocoileus virginianus*), wild turkey (*Meleagris gallopavo*), and
27 American toad (*Anaxyrus americanus*). The POC reported that bald eagles (*Haliaeetus*
28 *leucocephalus*) often fly north of the site.

29 **Listed Species:** The 2010 field survey identified neither listed species nor suitable habitat
30 for listed species.

31 Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
32 Rusty patched bumble bee	<i>Bombus affinis</i> , FE
33 Higgins eye (mussel)	<i>Lampsilis higginsii</i> , FE
34 Sheepnose mussel	<i>Plethobasus cyphyus</i> , FE
35 Spectaclecase mussel	<i>Cumberlandia monodonta</i> , FE

36 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
37 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 22Mar21)

38 **Other Considerations:** There are no special interest areas on or within 1,000 feet of the site.
39 Past surveys reported that two southeast oak forests, mesic subtypes, and two southeast dry
40 prairies, bedrock bluff subtypes, which within 1 mile of the site. The MNDNR tracks these types of
41 sites.

1 **Management Issues and Concerns:** At the time of the 2008 field survey, wild parsnip
2 (*Pastinaca sativa*) listed as a control species effort must be made to prevent the spread, maturation
3 and dispersal of any propagating parts, thereby reducing established populations, and preventing
4 reproduction and spread as required by Minnesota Statutes, Section 18.78.

5 Restricted Noxious Weeds: are plants that are widely distributed in Minnesota and are detrimental
6 to human or animal health, the environment, public roads, crops, livestock or other property, but
7 whose only feasible means of control is to prevent their spread by prohibiting the importation, sale,
8 and transportation of their propagating parts in the state. Found on site: Crown vetch (*Securigera*
9 *varia*) and Tatarian honeysuckle (*Lonicera tatarica*).

10

11 (Updated CMM 22Mar21)

12 (QA/QC STL 16Jun2021)

1 **MN044/27950**

2 **Willmar Memorial AFRC**

3 612 North Highway 71

4 Willmar, MN 56201

5 **County:** Kandiyohi

6 **Real Property Report Acres:** 5.20

7 **Building Count:** 2

8 **% Cover:** Buildings (10%)
9 Paved Road/Parking (67%)
10 Maintained Grass (22%)
11 (No change CMM 25Aug20)

12 **Last Field Survey:** 2008



13 The Willmar Memorial AFRC consists of an administration building, OMS, storage building, and
14 associated parking areas. Surrounding land use includes the following: Willmar Lake and I-71
15 Business Route to the north; a railroad to the south; light industrial and commercial land to the east;
16 and residential land and Kandiyohi County Museum to the west.

17 **Land Use**

18 This site includes administrative services, classroom training, military equipment storage, and light
19 vehicle maintenance.

20 The 88th RD co-owns the administrative building, owns the storage building, and leases the land
21 that comprises site MN044/27950. The 88th RD is co-located with the Minnesota Army National
22 Guard (who owns the other half of the administration building and other OMS building on the
23 property). (No change CMM 1Sep20)

24 **Natural Resources**

25 **EPA Ecoregion:** Western Corn Belt Plains

26 **Wetlands:** NWI data reports no wetlands on-site, and the 2008 field survey reported no
27 wetlands.

28 A 0.02-acre drainage ditch is located in the northwest corner of the site; however, during the
29 2008 site survey the area was entirely maintained grass.

30 Approximately 100 feet south of the site there is an excavated, semi-permanently flooded,
31 palustrine unconsolidated bottom (PUBFx) wetland.

32 Approximately 295 feet north of the site a permanently flooded, limnetic, lacustrine
33 unconsolidated bottom (L1UBH) wetland. (Verified from NWI website data CMM 7Sep20)

34 **Vegetation:**

35 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
36 maintained lawn.

37 Other species recorded included:

38 common blue violet *Viola sororia*

1	Japanese yew	<i>Taxus cuspidate</i>
2	elderberry	<i>Sambucus spp.</i>
3	common dandelion	<i>Taraxacum officinale</i>
4	yellow foxtail	<i>Alopecurus spp.</i>
5	white clover	<i>Trifolium repens</i>
6	birdsfoot trefoil	<i>Lotus corniculatus</i>

7 **Shrub/Canopy Layer:** The landscaping trees and shrubs observed during the 2008
8 field survey:

9	Japanese spiraea	<i>Spiraea japonica</i>
10	creeping juniper	<i>Juniperus horizontalis</i>
11	white ash	<i>Fraxinus americana</i>
12	mugo pine	<i>Pinus mugo</i>
13	viburnum	<i>Viburnum spp.</i>

14 **Wildlife:** MN044/27950 offers little suitable habitat for wildlife species; however, those
15 adapted to developed areas are likely to utilize the site.

16 Wildlife observed during the 2008 field survey consisted of:

17	American goldfinch	<i>Spinus tristis</i>
18	house sparrow	<i>Passer domesticus</i>
19	blue jay	<i>Cyanocitta cristata</i>
20	chimney swift	<i>Chaetura pelagica</i>
21	downy woodpecker	<i>Picoides pubescens</i>
22	black-capped chickadee	<i>Poecile atricapillus</i>
23	rock dove	<i>Columba livia</i>
24	American crows	<i>Corvus brachyrhynchos</i>
25	white breasted nuthatch	<i>Sitta carolinensis</i>
26	common yellow throat	<i>Geothlypis trichas</i>
27	Canada goose	<i>Branta canadensis</i>

28 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
29 for listed species.

30 Northern long-eared bat *Myotis septentrionalis*, FE

31 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
32 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 22Mar21)

33 **Other Considerations:** None.

34 **Management Issues or Concerns:** None.

35
36 (Updated CMM 22Mar21)

37 (QA/QC STL 01Jul2021)



1 **MN048/27975**
2 **Worthington Memorial USARC**
3 1012 Milton Avenue,
4 Worthington, MN 56187

5 **County:** Nobles

6 **Real Property Report Acres:** 3.00

7 **Building Count:** 2

8 **% Cover:** Buildings (4%)
9 Paved Road/Parking (15%)
10 Maintained Grass (81%)
11 (No change CMM 25Aug20)

12 **Last Field Survey:** Desktop Only

13 The Worthington Memorial USARC consists of an administrative building, vehicle maintenance site
14 and associated parking. Surrounding land use is entirely residential.

15 **Land Use**

16 This site uses include classroom training, light vehicle maintenance, administrative services, and
17 military equipment storage. The 88th RD owns the two buildings and the land that comprise
18 MN048/27975. (No change CMM 1Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** North Central Hardwoods

21 **Wetlands:** This site has received no field survey. NWI data reports there is a forested
22 wetland located 900 feet south of the site. (Verified unchanged from NWI website data CMM 7Sep20)

23 **Vegetation:** This site has received no field survey.

24 **Wildlife:** This site has received no field survey.

25 **Listed Species:** None.

26 Northern long-eared bat *Myotis septentrionalis*, FE
27 Prairie bush-clover *Lespedeza leptostachya*, FT

28 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
29 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 23Mar21)

30 **Other Considerations:** None.

31 **Management Issues and Concerns:** None.

32

33 (Updated CMM 23Mar21)

34 (QA/QC STL 01Jul2021)

Ohio

Low Resource Facilities

- OH004/39825 – PVT William Knight ARC
- OH008/39840 – SGT Lawrence W. Skaggs ARC
- OH018/39887 – 83rd Division Memorial ARC/AMSA
- OH020/39868 – Lapointe ARC
- OH024/39870 – Delaware Memorial ARC
- OH048/3913E – PFC Devin J. Grella ARC/AMSA #3
- OH063/39975 – Troy Memorial ARC
- OH095/39865 – Rickenbacker ARC
- OH110/39296 – DSCC AFRC
- OH117/39080 – USAR Center



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1 **OH004/39825**

2 **PVT William Knight USARC**

3 630 Newdale Drive

4 Bryan, OH 43506

5 **County:** Williams

6 **Real Property Report Acres:** 3.00

7 **Building Count:** 2

8 **% Cover:** Buildings (6%)

9 Maintained Grass (27%)

10 Paved Road/Parking (67%)

11 (No change CMM 25Aug20)

12 **Last Field Survey:** Desktop only



13 The PVT William Knight USARC consists of a USARC and associated parking areas. Surrounding
14 land use includes residential and institutional lands to the north and east, and institutional lands to
15 the south and west.

16 **Land Use**

17 This site used include classroom training and vehicle maintenance. The 88th RD owns the 2
18 buildings and leases the land that compose OH004/39825. (No change CMM 2Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Eastern Corn Belt Plains

21 **Wetlands:** There are no wetlands within 1,000 feet of the site. (Verified unchanged from NWI website
22 data CMM 7Sep20)

23 **Vegetation:** This site has received no field survey.

24 **Wildlife** This site has received no field survey.

25 **Listed Species:** This site has received no field survey.

26 Indiana bat

Myotis sodalist, FE

27 Northern long-eared bat

Myotis septentrionalis, FE

28 Copperbelly water snake

Nerodia erythrogaster neglecta, FT

29 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
30 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 23Mar21)

31 **Other Considerations:** None.

32 **Management Issues and Concerns:** None.

33
34 (Updated CMM 23Mar21)

35 (QA/QC STL 01Jul2021)

1 **OH008/39840**

2 **SGT Lawrence W. Skaggs USARC**

3 1836 Western Avenue

4 Chillicothe, OH 45601

5 **County:** Ross

6 **Real Property Report Acres:** 4.00

7 **Building Count:** 2

8 **% Cover:** Buildings (8%)

9 Paved Road/Parking (50%)

10 Maintained Grass (42%)

11 (No change CMM 25Aug20)

12 **Last Field Survey:** Desktop only



13 The SGT Lawrence W. Skaggs USARC consists of a USARC and associated parking areas.
14 Surrounding land use includes a residential land to the north, south, and west and industrial land to
15 the east.

16 **Land Use**

17 The 88th RD owns the two buildings and land that compose OH008/39840. No land use reported.
18 (No change CMM 2Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Western Allegheny Plateau

21 **Wetlands:** This site has received no field survey. NWI data reports a freshwater pond 700
22 feet southwest of the site. (Verified from NWI website data CMM 7Sep20)

23 **Vegetation:** This site has received no field survey.

24 **Wildlife:** This site has received no field survey.

25 **Federally Listed Species:**

- 26 Indiana bat *Myotis sodalist*, FE
- 27 Northern long-eared bat *Myotis septentrionalis*, FE

28 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
29 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 23Mar21)

30 **Other Considerations:** None.

31 **Management Issues and Concerns:** None.

32
33 (Updated CMM 23Mar21)

34 (QA/QC STL 01Jul2021)

1 **OH018/39887**

2 **83rd Division Memorial USARC/AMSA**

3 165 North Yearling Road, Whitehall, OH 43213

4 **County:** Ross

5 **Real Property Report Acres:** 19.94

6 **Building Count:** 3

7 **% Cover:** Buildings (17%)
8 Maintained Grass (22%)
9 Paved Road/Parking (61%)
10 (No change CMM 25Aug20)

11 **Last Field Survey:** 2008



12 The 83rd Division Memorial USARC/AMSA consists of a USARC, OMS, AMSA, and associated
13 parking areas. The surrounding land use includes industrial and commercial lands to the north and
14 south, residential land to the east, and a military defense supply center to the west.

15 **Land Use**

16 The site uses include administrative services, classroom training, and vehicle maintenance. The
17 88th RD owns the three buildings and land that comprise OH018/39887. (No change CMM 2Sep20)

18 **Natural Resources**

19 **EPA Ecoregion:** Eastern Corn Belt Plains

20 **Wetlands:** The 2008 field survey reported no wetlands; NWI data reports no wetlands on-
21 site or within 1,000 feet of the site. (Verified from NWI website data CMM 7Sep20)

22 **Vegetation:** Except for the maintained grass area (0.59 acres), the remainder is hard
23 surface.

24 **Lawn/Herbaceous Layer:** The maintained grass is dominated by Kentucky bluegrass
25 (*Poa pratensis*).

26 Other species observed were:

27	common plantain	<i>Plantago major</i>
28	English plantain	<i>Plantago lanceolate</i>
29	Hawkweed	<i>Hieracium spp.</i>
30	hop clover	<i>Trifolium campestre</i>
31	white clover	<i>Trifolium repens</i>
32	common chickweed	<i>Stellaria media</i>

33 **Shrub/Canopy Layer:** Landscaping trees and shrubs include:

34	spruce species	<i>Picea spp.</i>
35	apple	<i>Malus domestica</i>
36	American yew	<i>Taxus canadensis</i>
37	hawthorn	<i>Crataegus spp.</i>
38	Japanese barberry	<i>Berberis thunbergii</i>

1 burning bush *Euonymus alatus*
2 white pine *Pinus strobus*

3 There is paper birch (*Betula papyrifera*) in the maintained area outside the fence.

4 **Wildlife:** Due to the developed nature of the site and the surrounding land use wildlife
5 species adapted to developed areas are likely to utilize this property.

6 Wildlife observed during the 2008 field survey included:

7 house sparrow *Passer domesticus*
8 American robin *Turdus migratorius*
9 goldfinch *Spinus tristis*
10 European starling *Sturnus vulgaris*
11 mourning dove *Zenaida macroura*

12 **Federally Listed Species:** The 2008 field survey identified neither listed species nor suitable
13 habitat for listed species.

14 Indiana bat *Myotis sodalist*, FE
15 Northern long-eared bat *Myotis septentrionalis*, FE
16 Scioto madtom (fish) *Noturus trautmani*, FE

17 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
18 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 23Mar21)

19 **Other Considerations:** None.

20 **Management Issues and Concerns:** None.

21

22 (Updated CMM 23Mar21)

23 (QA/QC STL 01Jul2021)

1 **OH020/39868**

2 **LaPointe USARC**

3 38 N. Woodman Drive

4 Dayton, OH 45431

5 **County:** Montgomery

6 **Real Property Report Acres:** 10.00

7 **Building Count:** 4

8 **% Cover:** Buildings (4%)
9 Paved Road/Parking (27%)
10 Gravel Road/Parking (5%)
11 Maintained Grass (64%)
12 (No change CMM 25Aug20)



13 **Last Field Survey:** 2008

14 The LaPointe USARC consists of the USARC, an OMS, storage building, and associated parking
15 areas. Surrounding land use includes is the Wright-Patterson Air Force Base to the north and
16 east boundary of this site. Along the south boundary is Colonel Glenn Highway and commercial
17 land, and to the west is grassland field and hardwood forest.

18 **Land Use**

19 The site is used for classroom training, administrative services, vehicle storage and light vehicle
20 maintenance. The 88th RD owns the buildings and 10.0 acres of the land at OH020/39868. Wright
21 Patterson Air Force Base permits the remaining 5.10 acers to the 88th RD. (No change CMM 2Sep20)

22 **Natural Resources**

23 **EPA Ecoregion:** Eastern Corn Belt Plains

24 **Wetlands:** The 2008 field survey reported no wetlands; NWI data reports a drainage ditch
25 with riverine habitat associated with the Mad River is immediately south of the site. (Verified
26 from NWI website data CMM 7Sep20)

27 **Vegetation:**

28 **Lawn/Herbaceous Layer:** The maintained grass areas consists of:

29 Kentucky bluegrass *Poa pratensis*
30 chickweed *Stellaria media*
31 white clover *Trifolium repens*
32 bush honeysuckle *Lonicera maackii*

33 **Shrub/Canopy Layer:** Landscaping trees and shrubs include:

34 green ash *Fraxinus pennsylvanica*
35 red oak *Quercus rubra*
36 sugar maple *Acer saccharum*
37 American yew *Taxus canadensis*

38 **Wildlife:** Due to the developed nature of the site and the surrounding land use, wildlife
39 species adapted to developed areas are likely to utilize this property.

1 Wildlife observed during the field survey included:

2	killdeer	<i>Charadrius vociferus</i>
3	yellow warbler	<i>Setophaga petechia</i>
4	European starling	<i>Sturnus vulgaris</i>
5	house sparrow	<i>Passer domesticus</i>
6	American robin	<i>Turdus migratorius</i>
7	brown thrasher	<i>Toxostoma rufum</i>
8	common grackle	<i>Quiscalus quiscula</i>
9	barn swallow	<i>Hirundo rustica</i>
10	downy woodpecker	<i>Picoides pubescens</i>
11	northern cardinal	<i>Cardinalis cardinalis</i>
12	orange sulfur butterfly	<i>Colias eurytheme</i>
13	eastern common mole	<i>Scalopus aquaticus</i>
14	groundhog	<i>Marmota monax</i>

15 Observed on site: squirrel nests. Observed directly off-site: deer prints

16 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
17 for listed species.

18	Indiana bat	<i>Myotis sodalist</i> , FE
19	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
20	eastern massasauga rattlesnake	<i>Sistrurus catenatus</i> , FT

21 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
22 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 24Mar21)

23 **Other Considerations:** Approximately 0.25 miles (1,320 feet) north of the site is the Five
24 Creeks Metropark along the Mad River.

25 **Management Issues and Concerns:** None.

26
27 (Updated CMM 24Mar21)

28 (QA/QC STL 01Jul2021)

1 **OH024/39870**

2 **Delaware Memorial USARC**

3 450 Pennsylvania Avenue

4 Delaware, OH 43015

5 **County:** Delaware

6 **Real Property Report Acres:** 4.00

7 **Building Count:** 4

8 **% Cover:** Buildings (10%)
9 Paved Road/Parking (41%)
10 Maintained Grass (49%)
11 (No change CMM 25Aug20)

12 **Last Field Survey:** Desktop only



13 The Delaware Memorial USARC consists of a USARC and associated parking areas. Surrounding
14 land use includes residential land to the north, south, and west and institutional land to the east.

15 **Land Use**

16 No land use reported. The 88th RD owns the buildings and land that compose OH024/39870. (No
17 change CMM 2Sep20)

18 **Natural Resources**

19 **EPA Ecoregion:** Eastern Corn Belt Plains

20 **Wetlands:** NWI data reports no wetlands on site or within 1,000 feet of the site. (Verified
21 unchanged from NWI website data CMM 7Sep20)

22 **Vegetation:** This site has received no field survey.

23 **Wildlife:** This site has received no field survey.

24 **Listed Species:** There is no suitable habitat on site for the listed species.

25 Indiana bat *Myotis sodalist*, FE
26 Northern long-eared bat *Myotis septentrionalis*, FE
27 rayed bean mussel *Villosa fabalis*, FE

28 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
29 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 24Mar21)

30 **Other Considerations:** None.

31 **Management Issues and Concerns:** None.

32
33 (Updated CMM 24Mar21)

34 (QA/QC STL 01Jul2021)

1 **OH048/3913E**

2 **PFC Devin J. Grella USARC/AMSA #3**

3 3688 Highland Park NW
4 North Canton, OH 44720

5 **County:** Stark

6 **Real Property Report Acres:** 10.02

7 **Building Count:** 3

8 **% Cover:** Buildings (15%)
9 Paved Road/Parking (64%)
10 Maintained Grass (21%)
11 (No change CMM 25Aug20)



12 **Last Field Survey:** 2008

13 The PFC Devin J. Grella USARC/AMSA #3 consists of the USARC, OMS/AMSA shop, two storage
14 sheds, and associated parking areas. Surrounding land use includes commercial and industrial land
15 to the north and south, forested and industrial land to the east, and industrial land to the west.

16 **Land Use**

17 The site is used for classroom training, administrative services, and battle assembly activities. There
18 is vehicle maintenance conducted at the OMS/AMSA. The 88th RD owns the two buildings and two
19 sheds that comprise OH048/3913E. (No change CMM 2Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Erie Drift Plain

22 **Wetlands:** No wetlands were observed during the site survey. NWI data reports no wetlands
23 on or within 1,000 feet of the site.

24 Prior reports note that the entire site was once covered with a wetland. During the 2008 site
25 survey, it was evident that these wetlands filled to accommodate construction of site
26 OH048/3913E and surrounding developments. (Verified unchanged from NWI website data CMM 7Sep20)

27 **Vegetation:**

28 **Lawn/Herbaceous Layer:** The maintained grass areas consists of:

29	Kentucky bluegrass	<i>Poa pratensis</i>
30	white clover	<i>Trifolium repens</i>
31	English plantain	<i>Plantago lanceolate</i>
32	hop clover	<i>Trifolium campestre</i>
33	common cinquefoil	<i>Potentilla simplex</i>
34	vetch	<i>Vicia spp.</i>
35	Canada thistle	<i>Cirsium arvense</i> (invasive)
36	sheep's sorrel	<i>Rumex acetosella</i>
37	common dandelion	<i>Taraxacum officinale</i>

38 **Shrub/Canopy Layer:** Landscaping trees and scrub areas consists of:

39	silver maple	<i>Acer saccharinum</i>
----	--------------	-------------------------

1	white ash	<i>Fraxinus americana</i>
2	black cherry	<i>Prunus serotina</i>
3	autumn olive	<i>Elaeagnus umbellata</i> (invasive)
4	burning bush	<i>Euonymus alatus</i>
5	creeping juniper	<i>Juniperus horizontalis</i>

6 There is water horsetail (*Equisetum fluviatile*) along the eastern fence; horsetail also
7 is scattered lightly in the eastern maintained grass areas. These plants are most likely
8 remnants of the wetland that once covered the site prior to its construction.

9 Invasive species were present in low density and do not present a management
10 concern.

11 **Wildlife:** The vegetation on the site is entirely maintained grass with landscaping trees and
12 shrubs, which provides very little suitable habitat for wildlife. Due to the developed nature of
13 the site and the surrounding land use, only common wildlife species typically adapted to
14 developed areas are likely to utilize this property.

15 Wildlife species observed during the 2008 site survey included:

16	American robin	<i>Turdus migratorius</i>
17	common grackle	<i>Quiscalus quiscula</i>
18	European starling	<i>Sturnus vulgaris</i>
19	yellow warbler	<i>Setophaga petechia</i>
20	chipping sparrow	<i>Spizella passerina</i>

21 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
22 for listed species.

23	Indiana bat	<i>Myotis sodalist</i> , FE
24	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE

25 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
26 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 24Mar21)

27 **Other Considerations:** None.

28 **Management Issues and Concerns:** Canada thistle (*Cirsium arvense*) is listed as a noxious
29 weed in Ohio.

30
31 (Updated CMM 24Mar21)
32 (QA/QC STL 01Jul2021)

1 **OH063/39975**

2 **Troy Memorial USARC**

3 126 Schaftsbury Road
4 Troy, OH 45373

5 **County:** Miami

6 **Real Property Report Acres:** 4.00

7 **Building Count:** 2

8 **% Cover:** Buildings (4%)
9 Paved Road/Parking (20%)
10 Maintained Grass (76%)
11 (No change CMM 25Aug20)



12 **Last Field Survey:** Desktop only

13 The Troy Memorial USARC consists of the USARC and associating parking areas. Surrounding
14 land use includes residential land to the north and east and institutional land to the south and west.

15 **Land Use**

16 No land use reported. The 88th RD owns the two buildings and land that comprise OH063/39975.
17 (No change CMM 2Sep20)

18 **Natural Resources**

19 **EPA Ecoregion:** Eastern Corn Belt Plains

20 **Wetlands:** This site has received no field survey; NWI data reports no wetlands on-site or
21 within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 7Sep20)

22 **Vegetation:** This site has received no field survey.

23 **Wildlife:** This site has received no field survey.

24 **Listed Species** This site has received no field survey.

25 Indiana bat *Myotis sodalist*, FE
26 Northern long-eared bat *Myotis septentrionalis*, FE

27 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
28 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 24Mar21)

29 **Other Considerations:** None.

30 **Management Issues and Concerns:** None.

31
32 (Updated CMM 24Mar21)
33 (QA/QC STL 01Jul2021)

1 **OH095/39865**

2 **Rickenbacker USARC**

3 7351 Zistel Street
4 Columbus, OH 43217

5 **County:** Franklin

6 **Real Property Report Acres:** 27.88

7 **Building Count:** 1

8 **% Cover:** Buildings (6%),
9 Paved Road/Parking (28%)
10 Maintained Grass (66%)
11 (No change CMM 25Aug20)

12 **Last Field Survey:** 2008



13 The Rickenbacker USARC consists of a USARC, storage area, and associated parking areas.
14 Surrounding land use includes industrial lands to the north, south, and west. Along the eastern
15 border is Rickenbacker Airport (Columbus Regional Airport Authority) and industrial land.

16 **Land Use**

17 The site uses include minor tactical and classroom training along with vehicle storage and
18 maintenance. The 88th RD owns the building and 23.88 acres and leases 4 acres of the land that
19 compose OH095/39865. (No change CMM 2Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Eastern Corn Belt Plains

22 **Wetlands** The 2008 field survey reported no wetland; NWI data reports a wetland 660 feet
23 west of the site.

24 The 2008 field survey noted, hydrophytic vegetation within the northern drainage ditches.
25 These areas were maintained grass areas exhibiting no wetland characteristics. The ditches
26 were dry and do not appear to retain water for the long term but rather detained water during
27 heavy rain events. (Verified unchanged from NWI website data CMM 7Sep20)

28 **Vegetation:**

29 **Lawn/Herbaceous Layer:** The maintained grass areas consisted of:

- | | | |
|----|--------------------|----------------------------|
| 30 | Kentucky bluegrass | <i>Poa pratensis</i> |
| 31 | white clover | <i>Trifolium repens</i> |
| 32 | English plantain | <i>Plantago lanceolata</i> |
| 33 | common plantain | <i>Plantago major</i> |
| 34 | common chickweed | <i>Stellaria media</i> |

35 **Shrub Layer:** There is no shrub layer present.

36 **Canopy Layer:** A single ornamental cherry (*Prunus spp.*) was planted along the
37 eastern corner of the building. Airport, proximity precludes planting or managing
38 vegetation, which attracts wildlife.

1 **Wildlife:** Due to the developed nature of the site and the surrounding land use wildlife
2 species adapted to developed areas are likely to utilize this property.

3 Observed species included:

4 European starling	<i>Sturnus vulgaris</i>
5 mourning dove	<i>Zenaida macroura</i>
6 American robin	<i>Turdus migratorius</i>
7 common grackle	<i>Quiscalus quiscula</i>
8 killdeer	<i>Charadrius vociferus</i>
9 eastern meadowlark	<i>Sturnella magna</i>

10 **Listed Species:** The 2008 field survey identified neither listed species nor suitable habitat
11 for listed species.

12 Indiana bat	<i>Myotis sodalist</i> , FE
13 Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
14 Scioto madtom (fish)	<i>Noturus trautmani</i> , FE

15 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
16 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 25Mar21)

17 **Other Considerations:** None.

18 **Management Issues and Concerns:** None.

19
20 (Updated CMM 25Mar21)

21 (QA/QC STL 01Jul2021)

1 **OH117/39080**

2 **Trenton USARC**

3 2700 Wayne Madison Road

4 Trenton, OH 45067

5 **County:** Butler

6 **Real Property Report Acres:** 19.96

7 **Building Count:** 3

8 **% Cover:** Buildings (6%)
9 Paved Road/Parking (31%)
10 Maintained Grass (63%)
11 Tree cover (1%)
12 (No change CMM 25Aug20)



13 **Last Field Survey:** 2016

14 The Trenton USARC consists of an administrative building, an OMS, storage building, associated
15 parking areas. Surrounding land use includes agricultural land to the north and east with a large
16 brewery to the west and a wastewater treatment plant to the south.

17 **Land Use**

18 The site uses include administrative, classroom training, and light vehicle maintenance. The 88th
19 RD owns the building and 19.96 acres of the land that compose OH117/39080. (No change CMM 2Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Eastern Corn Belt Plains

22 **Wetlands:** This site has received no field survey; NWI data reports no wetlands within 1,000
23 feet of the site. (Verified unchanged from NWI website data CMM 7Sep20)

24 **Vegetation:** Two dominant vegetation communities at the site by: a small tree line and
25 maintained grass areas.

26 **Lawn/Herbaceous Layer:**

27 crabgrass *Digitaria spp.*
28 Kentucky bluegrass *Poa pratensis*
29 clover *Trifolium spp.*

30 **Shrub Layer:** There is no shrub layer present.

31 **Canopy Layer:**

32 white mulberry *Morus alba*
33 hackberry *Celtis occidentalis*
34 Amur honeysuckle *Lonicera maackii*

35 **Wildlife:** Bird surveys conducted on the site. Due to the developed nature of the site and
36 the surrounding land use wildlife species adapted to developed areas are likely to utilize
37 this property.

1 Observed at the site:
2 mourning doves *Zenaida macroura*
3 European starlings *Sturnus vulgaris*
4 killdeer *Charadrius vociferus*

5 **Listed Species:** The 2016 field survey identified neither listed species nor suitable habitat
6 for listed species.

7 Indiana bat *Myotis sodalist*, FE
8 Northern long-eared bat *Myotis septentrionalis*, FE

9 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
10 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 25Mar21)

11 **Other Considerations:** None.

12 **Management Issues and Concerns:** The state of Ohio lists the Amur honeysuckle
13 (*Lonicera maackii*) as a restricted noxious weed.

14
15 (Updated CMM 25Mar21)

16
17 (QA/QC STL 01Jul2021)

18

Wisconsin Low Resource Facilities

- WI001/55750 – Appleton ARC/OMS
- WI003/55760 – Beaver Dam Memorial ARC/OMS
- WI009/5524A – Eau Claire AMSA #155
- WI010/55785 – Eau Claire ARC – Leased, controlled by guard
- WI014/55805 – Fond Du Lac ARC
- WI030/55840 – Junction City ARC
- WI040/55897 – USAR Center
- WI047/55955 – Pewaukee Memorial ARC/OMS
- WI049/55985 – William F. Fale ARC/OMS
- WI050/55976 – Sturtevant ARC
- WI090/55456 – Wausau ARC



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1 **WI001/55750**
 2 **Appleton USARC/OMS**
 3 1824 N. Ballard Road
 4 Appleton, WI 54911
 5 **County:** Outamamie
 6 **Real Property Report Acres:** 4.00
 7 **Building Count:** 3
 8 **% Cover:** Buildings (20%)
 9 Maintained Grass (35%)
 10 Paved Road/Parking (45%)
 11 (No change CMM 25Aug20)
 12 **Last Field Survey:** 2007



13 Appleton USARC/OMS consists of the USARC, OMS and associated parking areas. Surrounding
 14 land use includes commercial properties to the north, south, and east, and residential properties to
 15 the west.

16 **Land Use**

17 The site uses include classroom training, general administrative services, and light vehicle
 18 maintenance. The 88th RD owns the three buildings and the land that comprise WI001/55750. (No
 19 change CMM 2Sep20)

20 **Natural Resources**

21 **EPA Ecoregion:** Southeastern Wisconsin till plains

22 **Wetlands:** The 2007 field survey reported no wetland; research indicated no wetlands are
 23 onsite or located within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 8Sep20)

24 **Vegetation:** This site lacks native vegetation communities.

25 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
 26 maintained grass areas.

27 **Shrub/Canopy Layer:** Planted white ash (*Fraxinus americana*) are scattered
 28 throughout the eastern maintained grass area.

29 **Wildlife:** The 2007 survey observed the following:

30 house sparrow *Passer domesticus*
 31 mourning dove *Zenaida macroura*

32 **Listed Species:** The 2007 field survey identified neither listed species nor suitable habitat
 33 for listed species.

34 Northern long-eared bat *Myotis septentrionalis*, FE

35 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
 36 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 26Mar21)

37 **Other Considerations:** None.

- 1 **Management Issues and Concerns:** None.
- 2 (Updated CMM 26Mar21)
- 3 (QA/QC STL 06Jul2021)

1 **WI003/55760**

2 **Beaver Dam Memorial USARC**

3 220 Gould Street
4 Beaver Dam, WI 53916

5 **County:** Dodge

6 **Real Property Report Acres:** 3.00

7 **Building Count:** 2

8 **% Cover:** Maintained Grass (60%), Buildings
9 and pavement (40%) (No change CMM
10 25Mar21)



11 **Last Field Survey:** Desktop Only

12 The Beaver Dam Memorial USARC consists of an USARC and OMS. Surrounding land use includes
13 a high school property to the east and residential area to the north, south, and west.

14 **Land Use**

15 The site used include classroom training, general administrative services, and light vehicle
16 maintenance. The 88th RD owns the two buildings and the land that comprise WI003/55760. (No
17 change CMM 2Sep20)

18 **Natural Resources**

19 **EPA Ecoregion:** Southeastern Wisconsin Till Plains

20 **Wetlands:** This site has received no field survey; NWI data reports no wetlands within 1,000
21 feet of the site. (Verified unchanged from NWI website data CMM 8Sep20)

22 **Vegetation:** This site has received no field survey.

23 **Wildlife:** This site has received no field survey.

24 **Listed Species:** This site has received no field survey. Suitable habitat is likely not present.

25 Northern long-eared bat *Myotis septentrionalis*, FE

26 Whooping crane *Grus americana*, FE

27 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
28 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 26Mar21)

29 **Other Considerations:** None.

30 **Management Issues and Concerns:** None.

31
32 (Updated CMM 26Mar21)

33 (QA/QC STL 06Jul2021)

1 **WI009/5524A**

2 **Eau Claire AMSA #155**

3 3810 McIntyre Avenue

4 Eau Claire, WI 54703

5 **County:** Chippewa

6 **Real Property Report Acres:** 1.83

7 **Building Count:** 1

8 **% Cover:** Not Available

9 **Last Field Survey:** Desktop Only



10 The Eau Claire AMSA #155 consists of an AMSA. Surrounding land use includes commercial and
11 industrial.

12 **Land Use**

13 The site uses include light vehicle maintenance. The 88th RD leases the land and building that
14 comprise WI009/5524A. (No change CMM 2Sep20)

15 **Natural Resources**

16 **EPA Ecoregion:** North Central Hardwood Forests

17 **Wetlands:** This site has received no field survey; NWI data reports no wetlands on-site or
18 within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 8Sep20)

19 **Vegetation:** This site has received no field survey.

20 **Wildlife:** This site has received no field survey.

21 **Listed Species** This site has received no field survey. Suitable habitat is likely not present.

22 Northern long-eared bat *Myotis septentrionalis*, FE

23 Sheepsnose mussel *Plethobasus cyphus*, FE

24 Karner blue butterfly *Lycaeides melissa samuelis*.

25 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
26 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 29Mar21)

27 **Other Considerations:** None.

28 **Management Issues and Concerns:** None.

29
30 (Updated CMM 29Mar21)

31 (QA/QC STL 06Jul2021)

1 **WI010/55785**

2 **Eau Claire USARC**

3 2005 Keith Street,
4 Eau Claire, WI 54701

5 **County:** Eau Claire

6 **Real Property Report Acres:** 4.00

7 **Building Count:** 2

8 **% Cover:** Not Available

9 **Last Field Survey:** Desktop Only



10 The Eau Claire USARC consists of an USARC and OMS. Surrounding land use includes residential
11 to the north and west, and a school property to the south and east.

12 **Land Use**

13 The site is used for general administrative services, classroom training, and light vehicle
14 maintenance. The 88th RD owns both the land and 2 buildings that comprise WI010/55785. (No
15 change CMM 2Sep20)

16 **Natural Resources**

17 **EPA Ecoregion:** North Central Hardwood Forests

18 **Wetlands:** This site has received no field survey; NWI data reports no wetlands on-site or
19 within 1,000 feet of the site. (Verified unchanged from NWI website data CMM 8Sep20)

20 **Vegetation:** This site has received no field survey.

21 **Wildlife:** This site has received no field survey.

22 **Listed Species:** This site has received no field survey. Suitable habitat is likely not present.

- 23 Northern long-eared bat *Myotis septentrionalis*, FE
- 24 Karner blue butterfly *Lycaeides melissa samuelis*, FE
- 25 Rusty patch bumble bee *Bombus affinis*, FE

26 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
27 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 30Mar21)

28 **Other Considerations:** None.

29 **Management Issues and Concerns:** None.

30
31 (Updated CMM 30Mar21)

32 (QA/QC STL 06Jul2021)

1 **WI014/55805**

2 **Fond Du Lac ARC**

3 474 Fond Du Lac Avenue,
4 Fond Du Lac, WI 54935

5 **County:** Fon du Lac

6 **Real Property Report Acres:** 2.93

7 **Building Count:** 2

8 **% Cover:** Paved Road/Parking/Buildings (50%)

9 Maintained Grass/Trees (50%)

10 (No change CMM 25Aug20)



11 **Last Field Survey:** Desktop Only

12 The Fond Du Lac USARC consists of an ARC and OMS. Surrounding land use includes residential
13 to the east and west, residential, and undeveloped to the north, and semi-improved and unimproved
14 fairground property to the south.

15 **Land Use**

16 The site is used for classroom training, general administrative services, light vehicle maintenance,
17 and storage. The 88th RD owns the 2 buildings and leases the land that comprise WI014/55805.
18 (No change CMM 2Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Southeastern Wisconsin Till Plains

21 **Wetlands:** This site has received no field survey; NWI data reports no wetlands within 1,000
22 feet of the site. (Verified unchanged from NWI website data CMM 8Sep20)

23 **Vegetation:** This site has received no field survey.

24 **Wildlife:** This site has received no field survey.

25 **Listed Species:** This site has received no field survey. Suitable habitat is likely not present.

26 Northern long-eared bat

Myotis septentrionalis, FE

27 Whooping crane

Grus americana, FE

28 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
29 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 30Mar21)

30 **Other Considerations:** None.

31 **Management Issues and Concerns:** None.

32
33 (Updated CMM 30Mar21)

34 (QA/QC STL 06Jul2021)

1 **WI030/55840**

2 **Junction City USARC**

3 201 County Road G,
4 Junction City, WI 54443

5 **County:** Portage

6 **Real Property Report Acres:** 6.00

7 **Building Count:** 2

8 **% Cover:** Buildings (8%)
9 Maintained Grass (61%)
10 Paved Road/Parking (31%)
11 (No change CMM 25Aug20)



12 **Last Field Survey:** 2007

13 The Junction City USARC is located north of downtown Junction City, Portage County and consists
14 of the USARC and associated parking areas. Surrounding land use includes vacant and agricultural
15 land to the north, school property to the south, residential property to the east, and a cemetery and
16 agricultural land to the west.

17 **Land Use**

18 The facility is used for classroom training, general administrative services, and light vehicle
19 maintenance. The 88th RD owns the two buildings and leases the land that comprises
20 WI030/55840. (No change CMM 2Sep20)

21 **Natural Resources**

22 **EPA Ecoregion:** North Central Hardwood Forests

23 **Wetlands:** No wetlands were observed on the facility. A 3.41 acre freshwater pond is located
24 150 feet north of the facility. (Verified from NWI website data CMM 8Sep20)

25 **Vegetation:** This facility lacks natural vegetative communities.

26 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the maintained
27 grass areas.

28 **Shrub Layer:** There is no shrub layer present.

29 **Canopy Layer:** Landscape trees observed during the survey were pitch pine (*Pinus rigida*),
30 red maple (*Acer rubrum*), Norway maple (*Acer platanoides*), crabapple (*Malus domestica*),
31 blue spruce (*Picea pungens*), and red cedar (*Juniperus virginiana*).

32 **Wildlife:** Mourning dove (*Zenaida macroura*) and American goldfinch (*Spinus tristis*) were
33 observed. The property is entirely maintained/developed and provides little habitat suitable
34 to support wildlife diversity. Only common wildlife species adapted to developed and
35 populated areas are likely to utilize the property.

36 **Listed Species:** No listed species were observed during the field survey. Suitable habitat for
37 listed species was not observed on the facility.

1
2
3
4
5
6

Listed species potentially in Portage County: Karner blue butterfly (*Lycaeides melissa samuelis*) and Fassett's locoweed (*Oxytropis campestris var. chartacea*).

No state-listed species are documented on or within 1,000 feet of the facility.

Other Considerations: None.

Management Issues and Concerns: None.

1 **WI040/55897**

2 **Army ARC/OMS**

3 1030 Rock Ledge Lane,
4 Neenah, WI 54956

5 **County:** Winnebago

6 **Real Property Report Acres:** 7.00

7 **Building Count:** 3

8 **% Cover:** Deciduous Forest (5%),
9 Maintained Grass (52%),
10 Buildings/Pavement (43%)
11 (No change CMM 25Aug20)

12 **Last Field Survey:** 2007



13 The site consists of a USARC, OMS, Storage building, MEP, and POV parking. The site is
14 located near an area of mixed residential and light industrial use with at gravel pit to the south.

15 **Land Use**

16 The site uses include classroom training, general administrative services, and light vehicle
17 maintenance. The 88th RD owns the three buildings and the land. (Updated CMM 2Sep20)

18 **Natural Resources**

19 **EPA Ecoregion:** Southeastern Wisconsin till plains

20 **Wetlands:** NWI data reports no wetlands on the site. However, satellite imagery shows two
21 constructed detention ponds on-site, which may have wetland properties. (Verified from NWI
22 website data CMM 8Sep20)

23 **Vegetation:** This site has received no field survey since construction completed in 2009.

24 **Wildlife:** Common wildlife species adapted to developed and populated areas may utilize or
25 travel through the property.

26 Avian species observed during the 2007 field survey: Mourning dove (*Zenaida macroura*)
27 and American goldfinch (*Spinus tristis*). The property is fully developed and provides little
28 habitat suitable to support an abundance of wildlife.

29 **Listed Species:** The 2007 field survey identified neither listed species nor suitable habitat

Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
Whooping crane	<i>Grus americana</i> , FE
eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

34 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
35 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 31Mar21)

36 **Other Considerations:** None.

37 **Management Issues and Concerns:** None.

38 (Updated CMM 31Mar21) (QA/QC STL 06Jul2021)

1 **WI047/55955**

2 **Pewaukee Memorial USARC/OMS**

3 619 W Wisconsin Avenue

4 Pewaukee, WI 53072

5 **County:** Waukesha

6 **Real Property Report Acres:** 6.00

7 **Building Count:** 2

8 **% Cover:** Buildings (6%)
 9 Deciduous Forest (5%)
 10 Grassland/Field (24%)
 11 Maintained Grass (34%)
 12 Drainage Ditch (1%)
 13 Paved Road/Parking (30%)
 14 (No change CMM 25Aug20)



15 **Last Field Survey:** 2007

16 The Pewaukee Memorial USARC/OMS consists of the USARC, OMS, and associated parking
 17 areas. Surrounding land use includes a tree line and residential property to the north, a road,
 18 residential, and commercial properties to the south, a road, residential area, and a city park to the
 19 east, and a road and commercial property to the west.

20 **Land Use**

21 The site uses include the staging of military vehicles and equipment, classroom training, general
 22 administrative services, and light vehicle maintenance. The 88th RD owns the three buildings and
 23 the land that comprise WI047/55955. (No change CMM 2Sep20)

24 **Natural Resources**

25 **EPA Ecoregion:** Southeastern Wisconsin Till Plains

26 **Wetlands:** Wetlands on the site are limited to a drainage ditch, located along the interior of
 27 the western property limits, and appears to be retaining water as part of the stormwater
 28 management system. It is located between the road and a sidewalk and is an isolated
 29 manmade drainage feature is maintained by mowing the more shallow areas; however, in
 30 un-maintained portions, hydrophytic vegetation has established. This ditch averages
 31 approximately 2 feet wide and 70 feet long. Based on observations made during the 2007
 32 field survey, the ditch is not a wetland.

33 NWI identifies an emergent wetland approximately 450 feet west of the site. This wetland
 34 area is within the 100-year floodplain noted above. (Verified from NWI website data CMM 8Sep20)

35 **Vegetation:**

36 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) and clover (*Trifolium*
 37 *spp.*) dominate maintained grass areas.

38 The species in the grassland area in the northern portion of the site Includes:

39 Queen Anne's lace

Daucus carota

1	birds-foot trefoil	<i>Lotus corniculatus</i>
2	grape vine	<i>Vitis spp.</i>
3	common couch	<i>Elymus repens</i>
4	clover	<i>Trifolium spp.</i>

5 The dominant vegetative species in the drainage ditch along the interior of the western
6 property boundary is cattail (*Typha spp.*).

7 Other species recorded in the drainage ditch were:

8	soft-stem bulrush	<i>Schoenoplectus tabernaemontani</i>
9	spikerush	<i>Eleocharis palustris</i>
10	smartweed	<i>Polygonum spp.</i>
11	beggarticks	<i>Bidens spp.</i>
12	blue vervain	<i>Verbena hastata</i>
13	duckweed	<i>Lemnoideae spp.</i>
14	purple loosestrife	<i>Lythrum salicaria</i>
15	rice cut grass	<i>Leersia oryzoides</i>
16	thimble weed	<i>Anemone virginiana</i>
17	needlegrass rush	<i>Juncus roemerianus</i>

18 This hydrophytic vegetation was limited to few areas within the ditch; areas of
19 maintained grass also occurred throughout the ditch.

20 **Shrub Layer:** There is no shrub layer present.

21 **Canopy Layer:** The tree line at the northern edge of the property includes:

22	shagbark hickory	<i>Carya ovata</i>
23	bush honeysuckle	<i>Lonicera maackii</i>
24	sapling/mature box elder	<i>Acer negundo</i>
25	smooth sumac	<i>Rhus glabra</i>

26 Maintained grass area have the following native trees: bur oak (*Quercus macrocarpa*),
27 black walnut (*Juglans nigra*), and silver maple (*Acer saccharinum*).

28 **Wildlife:** The property is largely developed and provides minimal habitat suitable to support
29 wildlife diversity. Common wildlife species adapted to developed and populated areas are
30 likely to utilize the property.

31 Three bird species were recorded: chimney swift (*Chaetura pelagica*), barn swallow (*Hirundo*
32 *rustica*), and American crows (*Corvus brachyrhynchos*).

33 **Listed Species:** The 2007 field survey identified neither listed species nor suitable habitat

34	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
35	Poweshiek skipperling	<i>Oarisma poweshiek</i> , FE
36	Eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT

37 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
38 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 1Apr21)

39 **Other Considerations:** None.

40 **Management Issues and Concerns:** None. (Updated CMM 1Apr21) (QA/QC STL 06Jul2021)

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1 **WI049/55985**

2 **William F. Fale USARC/OMS**

3 2913 Erie Avenue
4 Sheboygan, WI 53081

5 **County:** Sheboygan

6 **Real Property Report Acres:** 4.00

7 **Building Count:** 2

8 **% Cover:** Paved Road/Parking/Buildings (50%)
9 Open Area/Maintained Grass/Scattered Trees (50%)
10 (No change CMM 25Aug20)



11 **Last Field Survey:** Desktop Only

12 The William F. Fale USARC/OMS consists of an USARC and OMS. Surrounding land use includes
13 commercial to the south and west, roads and park to the north, and open area and residential to the
14 east.

15 **Land Use**

16 The site uses include classroom training, general administrative services, light vehicle maintenance,
17 and storage. The 88th RD owns the land and 2 buildings that comprise WI049/55985. (No change CMM
18 2Sep20)

19 **Natural Resources**

20 **EPA Ecoregion:** Southeastern Wisconsin Till Plains

21 **Wetlands:** This site has received no field survey. NWI data reports no wetlands on-site
22 though there is a wetland located approximately 1,200 feet southwest of the site. (Verified
23 unchanged from NWI website data CMM 8Sep20)

24 **Vegetation:** This site has received no field survey.

25 **Wildlife:** This site has received no field survey.

26 **Listed Species:** This site has received no field survey. Suitable habitat is likely not present.

27	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
28	Red knot	<i>Calidris canutus rufa</i> , FT
29	Eastern prairie fringed orchid	<i>Platanthera leucophaea</i> , FT
30	Pitcher's thistle	<i>Cirsium pitcher</i> , FT

31 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
32 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 1Apr21)

33 **Other Considerations:** None.

34 **Management Issues and Concerns:** None.

35 (Updated CMM 1Apr21)

36 (QA/QC STL 06Jul2021)

1 **WI050/55976**

2 **Sturtevant USARC**

3 1855 Wisconsin Street

4 Sturtevant, WI 53177

5 **County:** Racine

6 **Real Property Report Acres:** 10.85

7 **Building Count:** 2

8 **% Cover:** Buildings (9%),

9 Drainage Area (<1%)

10 Grassland/Field (14%)

11 Gravel Road/Parking (3%)

Maintained Grass (33%)

Paved Road/Parking (37%)

Shrub/Scrub (4%)

(No change CMM 25Aug20)



12 **Last Field Survey:** 2007

13 The Sturtevant USARC consists of the USARC and associated parking areas. Surrounding land
14 use includes a road and residential apartments to the north, a vacant agricultural field and prison
15 site to the south, a road and commercial property to the east, and a road, railroad, vacant lot, and
16 commercial property to the west.

17 **Land Use**

18 The site uses include the staging of military vehicles and equipment, firefighting equipment training,
19 classroom training, and light vehicle maintenance. The 88th RD owns the two buildings and land
20 that comprise WI050/55976. (No change CMM 2Sep20)

21 **Natural Resources**

22 **EPA Ecoregion:** Central Corn Belt Plains

23 **Wetlands:** At the time of the 2007 field survey, no observed wetlands on-site or within 1,000
24 feet of the site. (Verified unchanged from NWI website data CMM 8Sep20)

25 **Vegetation:**

26 **Lawn/Herbaceous Layer:** Kentucky bluegrass (*Poa pratensis*) dominates the
27 maintained grass areas.

28 Grassland species in the southern portion of the site included:

- | | | |
|----|--------------------|------------------------------------|
| 29 | Canada goldenrod | <i>Solidago spp.</i> |
| 30 | common milkweed | <i>Asclepias syriaca</i> |
| 31 | evening primrose | <i>Rosa spp.</i> |
| 32 | Kentucky bluegrass | <i>Poa pratensis</i> |
| 33 | reed canary grass | <i>Phalaris arundinacea</i> |
| 34 | Spear Thistle | <i>Cirsium vulgare</i> |
| 35 | Queen Anne's lace | <i>Daucus carota</i> |
| 36 | Virginia creeper | <i>Parthenocissus quinquefolia</i> |
| 37 | calico aster | <i>Symphotrichum lateriflorum</i> |

1 **Shrub Layer:** Species in the shrub/scrub areas in the southern portion of the site
2 included:

3	common buckthorn	<i>Rhamnus spp.</i>
4	autumn olive	<i>Elaeagnus umbellata</i>
5	juvenile box elder maple	<i>Acer negundo</i>

6 Other species in the shrub/scrub area include burning bush (*Euonymus alatus*) and
7 red osier dogwood (*Cornus florida*).

8 **Canopy Layer:**

9	Norway maple	<i>Acer platanoides</i>
10	ornamental basswood	<i>Tilia americana</i>
11	blue spruce	<i>Picea pungens</i>

12 **Wildlife:** The property is largely developed and provides minimal habitat suitable to support
13 wildlife diversity. Common wildlife species adapted to developed and populated areas are
14 likely to utilize the property.

15 Nine bird species were observed:

16	cedar waxwing	<i>Bombycilla cedrorum</i>
17	American crows	<i>Corvus brachyrhynchos</i>
18	barn swallow	<i>Hirundo rustica</i>
19	mourning dove	<i>Zenaida macroura</i>
20	gray catbird	<i>Dumetella carolinensis</i>
21	American goldfinch	<i>Spinus tristis</i>
22	song sparrow	<i>Melospiza melodia</i>
23	house sparrow	<i>Passer domesticus</i>
24	chimney swift	<i>Chaetura pelagica</i>

25 Three insect species were also observed: Monarch butterfly (*Danaus plexippus*), honey bee
26 (*Apis spp.*), and blister beetle (*Meloidae spp.*).

27 Small mammal activity was noted in the grassland field, as evidenced by paths.

28 **Listed Species:** The 2007 field survey identified neither listed species nor suitable habitat

29	Northern long-eared bat	<i>Myotis septentrionalis</i> , FE
30	Red knot	<i>Calidris canutus rufa</i> , FT

31
32
33 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
34 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 2Apr21)

35 **Other Considerations:** None.

36 **Management Issues and Concerns:** None.

37
38 (Updated CMM 2Apr21)

1

2 (QA/QC STL 06Jul2021)

3

1 **WI090/55456**

2 **Wausau USARC**

3 5700 North 28th Avenue

4 Wausau, WI 54401

5 **County:** Marathon

6 **Real Property Report Acres:** 19.96

7 **Building Count:** 2

8 **% Cover:** Buildings (6.51%)

9 Paved Road/Parking (18.49%)

10 Open Water (0.62%)

11 Maintained Grass (74.38%)

12 (No change CMM 25Aug20)



13 **Last Field Survey:** 2013

14 The Wausau USARC consists of the USARC and associated parking areas. Surrounding land use
15 includes County Road WW and agricultural fields to the north, N 28th Avenue and commercial
16 properties to the east, Flagstone Lane with residential houses and commercial farm to the south
17 and N 32nd Avenue and Swiderski Equipment to the west.

18 **Land Use**

19 The site uses include classroom training, general administrative services, storage and light vehicle
20 maintenance. The 88th RD owns the land and three buildings that comprise WI090/55456. (No change
21 CMM 2Sep20)

22 **Natural Resources**

23 **EPA Ecoregion:** North Central Hardwood Forests

24 **Wetlands:** At the time of the 2013 field survey, no observed wetlands on-site. A 4.97 acre
25 freshwater-forested wetland is located 800 feet west of the site. Additionally, the Wisconsin
26 Wetland Inventory (WWI) has identified two small areas of wetlands soils within the 1,000-
27 foot buffer of the site to the northeast. (Verified unchanged from NWI website data CMM 8Sep20)

28 **Vegetation:** The maintained greenspace dominated by Kentucky bluegrass (*Poa pratensis*)
29 and small-planted trees surrounding the parking lot, access roads and interspersed in the
30 grass around the building.

31 **Wildlife:** The property is largely developed and provides minimal habitat suitable to support
32 wildlife diversity. Wildlife species adapted to developed and populated areas are likely to
33 utilize the property. During the 2013 field survey, observed minimal wildlife activity.

34 Several observed birds species included: house sparrow (*Passer domesticus*) and red-
35 winged blackbird (*Agelaius phoeniceus*).

36 **Listed Species:** The 2007 field survey identified neither listed species nor suitable habitat

37 Northern long-eared bat

Myotis septentrionalis, FE

38 Whooping crane

Grus americana, FE

1 F=Federal listed species, S=State listed species, A=Army species at risk species, E=Endangered,
2 T=Threatened, C=Species of Concern (USFWS IPAC verified CMM 2Apr21)

3 **Other Considerations:** None.

4 **Management Issues and Concerns:** None.

5

6 (Updated CMM 2Apr21)

7 (QA/QC STL 06Jul2021)

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Appendix C: Project Lists

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FY23 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3	INRMPUP	Annual review and update of INRMP	\$11,880.00	Per update	IN-HOUSE	Planned
IL079/17896	AG/LEASEIMPL	21A ARA money to control invasive species at Joliet LTA (IL079/1789). 200 acres located in TA 6. This amount requested from the US Army Ag lease program will either supplant VENQ funding or if funds are not received, the FY23 requirements will be VENQ funded. The 88th RD Mead LTA (NE010/3185) US Army Ag Lease generates \$250,000.00 of AG funding per year.	\$181,500.00	Per COE admin costs per site	RPTS / VENQ	Planned
USFWS Region 3	EARTH DAY	Project to support Earth Day and provide education and awareness to the Army Reserve and community .	\$7,000.00	Inclusive	VENQ	Planned
IL079/17896	ECOSYSMGT	88th RD natural resources program and INRMP requirements specify benthic invertebrate/macroinvertebrate sampling of Joliet LTA's Jackson Creek.	\$0.00	Per plan	VENQ	Contingent upon need
USFWS Region 3 (TBD)	ESMCPLN	An Endangered Species Management Component (ESMC) may be required when a threatened and endangered species is found on an 88th RD site.	\$0.00	Per plan	VENQ	No requirement
USFWS Region 3 (TBD)	ESMCPLNUP	Update to an existing Endangered Species Management Component (ESMC) is required. This revision will capture newly listed species, best available scientific data, and management strategies.	\$55,000.00	Per plan	VENQ	No requirement
USFWS Region 3 (TBD)	ESMCPLNIMPL	Implementation of existing Endangered Species Management Component (ESMC) is required and will capture newly listed species, best available scientific data, and management strategies	\$0.00	Per plan	VENQ	No requirement

FY23 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	ESSRVY	To determine whether a federally threatened or endangered species is present on sites within the 88th RD	\$26,000.00	\$13,000.00 per species	VENQ	Contingent upon need
USFWS Region 3 (TBD)	ESSRVYUP	Funding is required to update previous determination as to whether the federally threatened or endangered species are present on sites within the 88th RD. The 88th RD has projected site specific requirements. Previous endangered surveys have determined that that there is potential habitat for the threatened or endangered species on select sites.	\$26,000.00	\$13,000.00 per species survey	VENQ	Contingent upon need
USFWS Region 3 (TBD)	FORESTPLN	Forest Management Plans (per INRMP requirements) for lands in the 88th RD's AOR will be developed for locations on an as needed basis.	\$29,000.00	Per location	IN-HOUSE	Contingent upon need
IL079/17896	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. 20.5 acres (Middle of TA 2)	\$60,277.38	\$2,940.36 / acre	QMUN / VENQ	Planned
IN023/18740	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. 11 acres (Stands MH-1 & MH-9).	\$31,482.00	\$2,862.00 / acre	QMUN / VENQ	Planned
MO041/29985	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. 60 acres (Eastern end of TA 9 - Stand 17).	\$171,720.00	\$2,862.00 / acre	QMUN / VENQ	Planned
IL079/17896	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$9,000.00	Per update	IN-HOUSE	Planned
IN023/18740	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$8,000.00	Per update	IN-HOUSE	Planned

FY23 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
MO041/29985	FORESTPLNU P	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUS E	Planned
WI064/55999	FORESTPLNU P	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUS E	Planned
IL079/17896	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities and enable successful training land conservation management. 1) 80 ac food plot/habitat Improvement \$7,000.00. 2) Stocking of game birds = \$13,828.80. 3) Misc. Supplies = \$1,500.00. 4) Equipment (to include calipers, tape measures) = \$1,500.00.	\$23,828.80	Per Site	VENQ/ IN HOUS E	Planned
MO041/29985	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities and enable successful training land conservation management. Transportation and per diem costs to operate the annual Youth Hunt, Wounded Warrior Hunt and Soldier/Employee hunt, 3 to 5 personnel involved with each hunt = \$3,500.00.	\$3,500.00	Per Site	VENQ/ IN HOUS E	Planned
USFWS Region 3 (TBD)	INVSPLN	The Invasive Species Management Plans compile invasive species data including those regulated by the USDA for potential to impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$0.00	Per plan	VENQ	Contingent upon need
USFWS Region 3 (TBD)	INVSIMPLIMPL	Invasive plant species identified during natural resource surveys within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$0.00	Per site	QMUN	Contingent upon need

FY23 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IL079/17896	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 200 acres located in TA 5 N. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$181,500.00	\$907.50/acre	QMUN	Planned
IN023/18740	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 75 acres located in TA 4. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$147,125.00	\$1,237.50/ac. (clearing) \$550.00/ac. (herbicide)	QMUN	Planned
MO041/29985	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open up lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 75 acres located in TA9. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$66,000.00	\$880.00 / acre	QMUN	Planned
USFWS Region 3 (TBD)	INV SIMPLMNT	Invasive and noxious species identified in the INRMP will have work orders submitted.	\$0.00	Per site	QMUN	Contingent upon need
IL079/17896 IN023/18740 MO003/29246 MO041/29985 OH094/39760 WI064/55999	INV SPLNUP	The Invasive Species Management Plans compile data to address species that may pose a health and safety risk, and those identified by the USDA as noxious that may impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$45,000.00	\$7,500.00 per site	IN-HOUSE	Planned

FY23 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	LTADVELOP	Funding is required to develop and maintain the 88th RD LTAs for unit training, along with integration of all military and recreational activities on 88th RD lands. LTA development is required to promote long term sustainability of 88th RD lands to support military training.	\$0.00	Per location	VENQ	Contingent upon need
MO003/29246	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (1565 acres, 34 census points).	\$5,947.60	Per update	VENQ	Planned
MO041/29985	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (1565 acres, 220 census points).	\$24,413.00	Per update	VENQ	Planned
USFWS Region 3 (TBD)	NRSRVY	The PLS/INRMP policy memorandum requires execution of initial planning level surveys (NRSRVY) including flora, fauna, soil, topography, vegetative communities, and surface water. NRSRVY reports spatial data used for mission planning, environmental compliance assessments for site development and construction projects, natural resources management, endangered species management, and a variety of other planning purposes.	\$209,612.00	\$20,761.00 per location	VENQ	Contingent upon need
IL079/17896	NRSRVYUP	Aerial Deer Survey. 21X. This is not included in the NRSRVYUP IGE this will have its own IGE JTA deer survey is an annual requirement but is only conducted when conditions allow (snow on the ground). This enables proper management of the herd. Cost is usually > \$2,000 cost estimate and is executed with 21X funds.	\$2,000.00	Per update	21X	Planned
USFWS Region 3 (TBD)	NRSRVYUP	Execution of NRSRVYUP of flora, fauna, soil, topography, vegetative communities, and surface water. Installations require updates to basic information for natural resources management and long-term mission support, including documentation of the various ecological characteristics that exist on the installation.	\$209,612.00	\$25,761.18 per update	VENQ	Contingent upon need

FY23 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IL079/17896	SLSH20MGT	Funding is required to conduct soil and water resources management on 88th RD training land maneuver areas to include preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. a.) JTA TA4 Construct Soil Erosion control for head cutting (w/ no current design estimate is approx. = \$35,000.00/location, estimate 5 locations per TA). = \$175,000.00. b.) TA2 erosion design based off earlier Joliet Soil Erosion Feasibility Study = \$45,000.00 c.) Recurring req. LTA parking area and road gravel. = \$2,500.00. d.) LTA Gravel needed to for LTA training area parking lots and LTA training area roads = \$15,000.00 e.) TA2 Soil Erosion Feasibility Study for erosion head cutting = \$22,000.00	\$259,500.00	By project	VENQ / QRPA / QDEH	Planned
MO041/29985	SLSH20MGT	Funding is required to conduct soil and water resources management on 88th RD training land maneuver areas to include preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. a.) Phase 2 (NW) Weldon Spring road culvert and erosion design project. = \$95,000.00 b.) Recurring req. LTA parking area and road gravel.= \$1,500.00.	\$96,500.00	By project	VENQ / QRPA / QDEH	Planned
USFWS Region 3 (TBD)	STATEESSRV Y	Funding is required to determine whether the state endangered species are present on sites within the 88thRD. Recent NRSRVYUPs determine if there is potential habitat for the state endangered species on select sites.	\$26,000.00	\$13,000.00 per species	VENQ	Contingent upon need

FY23 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
Various USFWS Region 3 locations	TRNGCNS	Funding is required to train field staff and tenant units on natural resources program requirements and environmental stewardship. This includes development of training materials and conducting the training sessions via multiple methods. The number of personnel trained will be specific to units exercising / stationed at the LTA/site; approximately 1 training event is conducted per year.	\$47,450.00	N/A	VENQ	Planned
IL079/17896	WLDFIREPLNI MPL	Integrated Wildland Fire Management Plans (IWFMP) identifies fire management needs and actions on the ground including prescribed burning and wildfire suppression. These plans must be reviewed on an annual basis to ensure that mission priorities and the best available scientific data and methods have been incorporated. This activity is limited to the LTAs. Cycle #4: 720 acres (TA 5 N & TA 5 S)	\$500.00	\$0.71 / acre	VENQ / In House	Planned
IN023/18740	WLDFIREPLNI MPL	Project description same as above. C- Cycle #2: 367 acres (TA 4). \$25,000.00 in 21F funds will be requested for IN023/18740 Kingsbury LTA	\$41,452.65	\$112.95 / acre	VENQ / 21F	Planned
MO003/29246	WLDFIREPLNI MPL	Project description same as above. Cycle #2: 73 acres (TA 1)	\$11,952.29	\$163.73 / acre	VENQ	Planned
MO041/29885	WLDFIREPLNI MPL	Project description same as above. Cycle #1: 600 acres (TA 1, TA 2, TA 3 & TA 5) \$25,000.00 in 21F funds will be requested for MO041 / 29885 Weldon Spring LTA.	\$83,226.00	\$138.71 / acre	VENQ / 21F	Planned
IL079/17896 IN023/18740 MO003/29246 MO041/29885	WLDFIREPLNU P	Updates to Integrated Wildland Fire Management Plans (IWFMP) identifies fire management needs and actions on the ground including prescribed burning and wildfire suppression. These plans are reviewed and updated every five years to ensure mission specific priorities, along with incorporating the best available scientific data and methods.	\$60,00.00	\$15,000. 00 per site	In- house	Planned
USFWS Region 3 (TBD)	WTLNDPERMI T	USACE Section 404 wetland permitting for construction projects impacting wetlands or waters of the U.S. within 88th RD's AOR are subject to permit requirements under the Clean Water Act.	\$0.00	Project specific	VENQ	No requiremen t

FY23 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	WTLNDRESTR	Wetlands within the 88th RD's AOR identified as having reduced or compromised hydrologic function and/or ecological integrity. Restoration of these wetlands has been incorporated in the INRMPs.	\$50,000.00	Location specific	VENQ	Contingent upon need
USFWS Region 3 (TBD)	WTLNDSRVY	Initial wetland delineation takes place after the initial NRSRVY indicated that the wetlands at a particular 88th RD site requires a detailed evaluation of the wetlands present to determine if they are potentially jurisdictional.	\$0.00	Per site	VENQ	No Requirement
USFWS Region 3 (TBD)	WTLNDSRVYU P	Wetland delineation updates take place on either a 5-year cycle or on an as needed basis.	\$0.00	Per site	VENQ	Contingent upon need
88th RD	CNSPGMMGT	Annual salaries and benefits.	\$302,000.00	N/A	VENQ	Planned
88th RD	TRNGCNSSTAFF	Professional development and training.	\$17,085.00	N/A	VENQ	Planned

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3	INRMPUP	Annual review and update of INRMP	\$12,519.00	Per update	IN - HOUSE	Planned
IL079/17869 MO041/29880	AG/LEASEIMPL	21A ARA money to control invasive species at: Joliet LTA (IL079/17896) - 150 acres estimated cost is approx. \$136,125.00 (\$907.50 x 150 = \$136,125.00) located in TA 1. Weldon Spring (MO041/29880) - 100 acres estimated cost is approx. \$88,000.00 (\$880.00 x 100 = \$88,000.00) located in TA 13. This amount requested from the US Army Ag lease program will either supplant VENQ funding or if funds are not received, the FY24 requirements will be VENQ funded.	\$224,125.00	\$136,125.00 \$88,000.00	VENQ 21A / VENQ	Planned
USFWS Region 3	EARTH DAY	Project to support Earth Day and provide education and awareness to the Army Reserve and community	\$7,000.00	Inclusive	VENQ	Planned
IL079/17896	ECOSYSMGT	88th RD natural resources program & INRMP requirements specify benthic invertebrate / macroinvertebrate sampling of Joliet LTA's Jackson Creek, data analysis includes establishing trend analysis	\$56,242.00	Per plan	VENQ	Contingent upon need
USFWS Region 3 (TBD)	ESMCPLN	An Endangered Species Management Component (ESMC) may be required when a threatened/endangered species is found on an 88th RD site.	\$0.00	Per plan	VENQ	Contingent upon need
MO041/29985	ESMCPLNUP	Update to an existing Endangered Species Management Component (ESMC) as required. This revision has been carried forward and will capture newly listed species, best available scientific data, and management strategies.	\$5,000.00	Per plan	In house	Contingent upon need
MO041/29985	ESMCPLNIMPL	Implementation of existing Endangered Species Management Component (ESMC) as required and will capture newly listed species, best available scientific data, and management strategies	\$60,000.00	Per plan	VENQ	Contingent upon need
WI011/55786	ESSRVY	Funding is required to determine whether the federally threatened & endangered (T&E) species are present on facilities within the 88th RD. Recent planning level surveys	\$35,000.00	Per plan	VENQ	Contingent upon need

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		have determined that that there is potential habitat for the T&E species on select facilities. Additionally, the US Fish & Wildlife Service lists these species as a T&E species in the county(s) that the facility is located within. FY24 Requirements: 1 facility/1 species Karner blue butterfly (<i>Lycaeides melissa samuelis</i>)				
IN008/18778 MO041/29985	ESSRVYUP	FY24 Requirements: 2 facilities/2 bat surveys at IN008/18778 and MO041/29985. The results will be used to inform future planning and funding prioritization decisions. Results will also be included in future INRMP updates. Updated species occurrence data enable more efficient consultations with USFWS, reducing the likelihood of delays to mission activities.	\$66,000.00	\$33,000.00 per species survey	VENQ	Planned
USFWS Region 3 (TBD)	FORESTPLN	Forest Management Plans (per INRMP requirements) for lands in the 88th RD's AOR will be developed for locations on an as needed basis.	\$0.00	Per location	IN - HOUSE	Contingent upon need
IL079/17896	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. 20.5 acres (Middle of TA 2),	\$101,070.87	\$4,930.29 / acre	QMUN/ VENQ	Planned
IN023/18740	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. 67 acres (Stands TA 1, MH-1, MH-2, MH-3, MH-9, & TA 4)	\$117,585.00	\$1,755.00 / acre	QMUN/ VENQ	Planned
MO041/29985	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. 60 acres (Eastern end of TA 9 – Stand 17)	\$171,720.00	\$2,862.00 / acre	QMUN/ VENQ	Planned

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
WI064/55999	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. 11 acres	\$83,628.74	\$7,602.61	QMUN/VE NQ	Planned
IL079/17896	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUSE	Planned
IN023/18740	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUSE	Planned
MO041/29985	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUSE	Planned
WI064/55999	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUSE	Planned
IL079/17896	HUNTINGIMPL	Funding required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities, and enable successful training land conservation management. 1) 80 ac food plot/habitat Improvement \$8,500.00. 2) Stocking of game birds = \$14,243.66. 3) Misc. Supplies (to include paper, printing, envelopes, mailing) = \$1,500.00. 4) Equipment (to include Scale to weigh deer) = \$1,150.00.	\$25,743.66	Per Site	VENQ/ IN HOUSE	Planned
MO041/9985	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities, and enable successful training land conservation management. Transportation and per diem costs to operate the annual Youth Hunt, Wounded Warrior Hunt, and Soldier/Employee hunt, 3 to 5 personnel involved with each hunt = \$3,500.00.	\$3,500.00	Per Site	VENQ/ IN HOUSE	Planned
USFWS Region 3 (TBD)	INVSPLN	The Invasive Species Management Plans compile invasive species data including those regulated by the USDA for potential to impact the economy. Implementation of the	\$0.00	Per plan	VENQ	Contingent upon need

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		plans expands access to training lands and protects valuable concealment resources.				
USFWS Region 3 (TBD)	INVSIMPLIMPL	Invasive plant species identified during natural resource surveys within the 88th RD's AOR may limit LTA access. Implementation of control plans open up lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$0.00	Per site	QMUN	Contingent upon need
IL079/7896	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 150 acres located in TA 1. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$136,125.00	\$907.50/ acre	QMUN	Planned
IN023/18740	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 100 acres (clearing) and 25 acres (herbicide) located in TA 3 & 4. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted	\$137,500.00	\$1,237.50/ acre (clearing) \$550.00/ acre (herbicide)	QMUN	Planned

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
MO003/29246	INV SPL NIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 183 acres located on entire LTA. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$124,806.00	\$682.00 / acre	QMUN	Planned
MO041/29985	INV SPL NIMPL	Invasive plant species have been identified during previous natural resource surveys at several facilities within the 88th RD's AOR. Implementation of control plans will open lands for maneuver training and protect valuable concealment resources. Invasive plants are also currently degrading wildlife habitat and potential habitat for rare species. 100 acres located in TA 12.	\$88,000.00	\$880.00 x 100	QMUN	Planned
IL079/17896 IN023/18740 MO003/29246 MO041/29985 OH094/39760 WI064/55999	INV SPL NUP	Updates to the Invasive Species Management Plans to address species that may pose a health and safety risk, and those identified by the USDA as noxious that may impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$195,000.00	\$25,000 per facility \$7,500.00 per site for updates	IN-HOUSE	Planned
USFWS Region 3 (TBD)	LTA DEVELOP	Funding is required to develop and maintain the 88th RD LTAs for unit training, along with integration of all military and recreational activities on 88th RD lands. LTA development is required to promote long term sustainability and will provide long term sustainability of 88th RD lands to support military training.	\$0.00	Per location	VENQ	Contingent upon need
IL079/17896	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (3,750 ac/412 census points)	\$45,732.00	Per update	VENQ	Planned

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IN023/18740	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (930 ac/138 census points)	\$28,014.00	Per update	VENQ	Planned
MO003/29246	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (138 ac/34 census points)	\$11,152.00	Per update	VENQ	Planned
MO041/29985	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (1,565 ac/220 census points)	\$19,140.00	Per update	VENQ	Planned
WI064/55999	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (127 ac/26 census points)	\$9,672.00	Per update	VENQ	Planned
USFWS Region 3 (TBD)	NRSRVY	The initial PLS/INRMP policy memorandum requires execution of planning level surveys (NRSRVY) including flora, fauna, soil, topography, vegetative communities, and surface water. NRSRVY reports spatial data used for mission planning, environmental compliance assessments for site development and construction projects, natural resources management, endangered species management, and a variety of other planning purposes.	\$0.00	Per location	VENQ	Contingent upon need
IL079/17896	NRSRVYUP	Aerial Deer Survey. This is not included in the NRSRVYUP IGE this will have its own IGE JTA deer survey is an annual requirement but is only conducted when conditions allow (snow on the ground). This enables proper management of the herd. Cost is usually > \$2,000 cost estimate and is executed with 21X funds.	\$2,500.00	Per update	21X	Planned

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IL079/17896	SLSH20MGT	Funding is required to conduct soil and water resources management on 88th RD training land maneuver areas to include preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. a.) JTA TA 1 Construct Soil Erosion control for head cutting = \$22,000.00 b.) TA 5 N erosion design based off earlier Joliet Soil Erosion Feasibility Study = \$45,000.00 c.) TA 1 soil erosion design based off earlier Joliet Soil Erosion Feasibility Study = \$45,000.00 d.) Recurring req. LTA parking area and road gravel. = \$2,500.00. e.) Gravel needed for LTA training area parking lots and LTA training area roads = \$15,000.00	\$129,500.00	By project	VENQ/ QRPA/ QDEH	Contingent upon need
MO041/29985	SLSH20MGT	Funding required for soil & water resources management on 88th RD training land maneuver areas to include preventing or controlling sedimentation, beach/stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. Recurring req. LTA parking area and road gravel = \$1,500.00.	\$1,500.00	By project	VENQ / QRPA / QDEH	Contingent upon need
USFWS Region 3 (TBD)	STATEESSRVY	Funding is req to determine whether the state endangered species are present on sites within the 88thRD. Recent NRSRVYUPs determine if there is potential habitat for the state endangered species on select sites.	\$0.00	By project	VENQ	Contingent upon need
USFWS Region 3 locations (TBD)	TRNGCNS	Funding is req to train field staff and tenant units on natural resources prgm reqs & envl stewardship. Includes development of training materials and conducting training sessions via multi methods. The number of personnel	\$4,635.00	\$4,635.00	VENQ	Planned

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		trained will be specific to units exercising / stationed at the LTA/site; approx 1 training event conducted per year.				
IL079/17896	WLDFIREPLNIM PL	Integrated Wildland Fire Management Plans (IWFMP) identifies fire management needs and actions on the ground including prescribed burning and wildfire suppression. These plans must be reviewed on an annual basis to ensure that mission priorities and the best available scientific data and methods have been incorporated. This activity is limited to the LTAs. Cycle #1: 880 acres (TA 5 N & TA 5 S)	\$110,217.89	\$125.25 / acre	VENQ / In House	Planned
IN023/18740	WLDFIREPLNIM PL	Project description same as above. Cycle #2: 367 acres (TA 4)	\$45,965.87	\$125.25 / acre	VENQ	Planned
MO003/29246	WLDFIREPLNIM PL	Project description same as above. Cycle #2: 73 acres (TA 1)	\$10,667.05	\$146.12 / acre	VENQ	Planned
MO041/29885	WLDFIREPLNIM PL	Project description same as above. Cycle #1: 600 acres (TA 1, TA 2, TA 3, & TA 5)	\$84,972.24	\$141.62 / acre	VENQ	Planned
IL079/17896 IN023/18740 MO003/29246 MO041/29985	WLDFIREPLNUP	Updates to Integrated Wildland Fire Management Plans (IWFMP) includes documentation of prescribed fires preformed to date, review of BMPs, and reprioritization of projects. These plans must be reviewed and updated on an annual basis to ensure mission specific priorities, along with incorporating the best available scientific data and methods.	\$133,000.00	\$33,250.00 per site	In-House	Planned
MI023/26895	WTLNDPERMIT	USACE Section 404 wetland permitting for construction projects impacting wetlands or waters of the U.S. within 88th RD's AOR are subject to permit requirements under the Clean Water Act. Added as unplanned for FY23 to support stormdrain blowout.	\$18,566.00	Project specific	VENQ	Planned
IL079/17896	WTLNDRESTR	Wetlands within the 88th RD's AOR identified as having reduced or compromised hydrologic function and/or ecological integrity. Restoration of these wetlands is incorporated in the INRMPs. 20 acres in TA 2 and 94 acres in TA 1.	\$131,379.00	\$1,034.00/acre	VENQ	Contingent upon need

FY24 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	WTLNDSRVY	Initial wetland delineation takes place after the initial NRSRVY indicated that the wetlands at a particular 88th RD site requires a detailed evaluation of the wetlands present to determine if they are potentially jurisdictional.	\$0.00	Per site	VENQ	No Requirement
IN008/18778	WTLNDSRVYU P	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. Medium resource site.	\$25,502.00	Project specific	VENQ	Planned
IN023/18740	WTLNDSRVYU P	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. High resource site.	\$51,246.00	Project specific	VENQ	Planned
MI021/2653A	WTLNDSRVYU P	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. Medium resource site.	\$17,482.00	Project specific	VENQ	Planned
MN002/27700	WTLNDSRVYU P	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. Medium resource site.	\$17,944.00	Project specific	VENQ	Planned
MO041/29985	WTLNDSRVYU P	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. High resource site.	\$45,518.00	Project specific	VENQ	Planned
OH033/39893	WTLNDSRVYU P	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. Medium resource site.	\$17,042.00	Project specific	VENQ	Planned
88th RD	CNSPGMMGT	Annual salaries and benefits	\$302,000.00	N/A	VENQ	Planned
88th RD	TRNGCNSSTAF F	Professional development and training	\$17,085.00	N/A	VENQ	Planned

FY 25 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3	INRMPUP	Annual review and update of INRMP	\$12,894.00	Per update	IN-HOUSE	Planned
USFWS Region 3	AG/LEASEIMPL	Funds will be used for infrastructure improvements. These improvements include, but not limited to gate installation/maintenance and gravel entries/road maintenance.	\$16,804.00	\$11,500.00 per COE admin costs per site	RPTS / VENQ	No activity planned
USFWS Region 3	EARTH DAY	Project to support Earth Day and provide education and awareness to the Army Reserve and community	\$7,000.00	Inclusive	VENQ	Planned
IL079/17896	ECOSYSMGT	88th RD natural resources program and INRMP requirements specify monitoring and trends analysis of data of benthic invertebrate/macroinvertebrate sampling of Jackson Creek. Off year.	\$0.00	Per project	VENQ	No requirements
USFWS Region 3	ESMCPLN	An Endangered Species Management Component (ESMC) may be required when a threatened and endangered species is found on an 88th RD site.	\$82,500.00	Per plan	VENQ	No Requirement
MO041/29985	ESMCPLNUP	Update to an existing Endangered Species Management Component (ESMC) is required. This revision will capture newly listed species, best available scientific data, and management strategies.	\$5,000.00	Per plan	VENQ	Contingent upon need
USFWS Region 3	ESMCPLNIMPL	Implementation of existing Endangered Species Management Component (ESMC) is required and will capture newly listed species, best available scientific data, and management strategies	\$0.00	per plan	VENQ	No Requirement
USFWS Region 3 (TBD)	ESSRVY	Funding is required to determine whether the federally threatened or endangered (T&E) species are present on facilities within the 88th RD. Recent planning level surveys have determined that that there is potential habitat for the T&E species on select facilities. Additionally, the USFWS lists these species as a T&E species in the county(s) that the facility is located within. FY25 Requirements: 1 facility/2 species. TBD.	\$72,100.00	\$36,050.00 per species	VENQ	Contingent upon need

FY 25 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	ESSRVYUP	Funding is required to update previous determination as to whether the federally threatened & endangered (T&E) species are present on sites within the 88th RD. The 88th RD has projected site specific requirements. Previous T&E surveys may have determined that there is potential habitat for the T&E species on select sites.	\$68,000.00	\$34,000.00 per species survey	VENQ	Contingent upon need
USFWS Region 3 (TBD)	FORESTPLN	Forest Management Plans (per INRMP requirements) for lands in the 88th RD's AOR will be developed for locations on an as needed basis.	\$29,000.00	Per location	IN-HOUSE	Contingent upon need
IL079/17896	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. (17.5 acres)	\$88,868.41	\$5,078.19/acre	QMUN / VENQ	Planned
IN023/18740	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. (27.4 acres)	\$80,771.36	\$2,947.86/acre	QMUN / VENQ	Planned
MO041/29985	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. (84 acres)	\$247,620.24	\$2,947.00/acre	QMUN / VENQ	Planned
WI064/55999	FORESTPLNIM PL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. (11 acres)	\$1,916.48	\$174.25/acre	QMUN / VENQ	Planned
IL079/17896	FORESTPLNUP	Updates to existing Forest Management Plans 5-year update (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN-HOUSE	Planned
IN023/18740	FORESTPLNUP	Updates to existing Forest Management Plans 5-year update (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN-HOUSE	Planned

FY 25 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
MO041/29985	FORESTPLNU P	Updates to existing Forest Management Plans 5-year update (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUS E	Planned
WI064/55999	FORESTPLNU P	Updates to existing Forest Management Plans 5-year update (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUS E	Planned
IL079/17896	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities, and enable successful training land conservation management. 1) 80 ac food plot/habitat improvement \$7,500.00. 2) Stocking of game birds = \$14,670.97. 3) Misc. Supplies to include paper, printing, envelopes, mailing = \$1,500.00. 4) Equipment (Targets for archery qualifications) = \$1,500.00. 5) Office permit sales and supplies = \$1,500.00	\$26,670.97	Per Site	VENQ/ IN HOUS E	Planned
MO041/29985	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities, and enable successful training land conservation management. Transportation and per diem costs to operate the annual Youth Hunt, Wounded Warrior Hunt and Soldier/Employee hunt, 3 to 5 personnel involved with each hunt = \$4,000.00.	\$4,000.00	Per Site	VENQ/ IN HOUS E	Planned
USFWS Region 3 (TBD)	INV SPLN	The Invasive Species Management Plans compile invasive species data including those regulated by the USDA for potential to impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$0.00	Per plan	VENQ	Contingent upon need

FY 25 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	INVSIMPLIMPL	Invasive plant species identified during natural resource surveys within the 88th RD's AOR may limit LTA access. Implementation of control plans open up lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$0.00	Per site	QMUN	Contingent upon need
IL079/17896	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 150 acres located in TA 1.	\$82,500.00	\$550.00 / acre (herbicide)	QMUN	Planned
IN023/18740	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 100 acres located in TA 4.	\$55,000.00	\$550.00 / acre (herbicide)	QMUN	Planned
MO041/29985	INV SPLNIMPL	Invasive plant species identified during natural resource surveys at facilities within the 88th RD's AOR may limit access. Implementation of control plans will open lands for maneuver training and protect valuable concealment resources. Invasive plants are also currently degrading wildlife habitat and potential habitat for rare species on 225 acres located in TA 1.	\$198,000.00	\$880.00 per acre	QMUN	Planned
USFWS Region 3 (TBD)	INVSIMPLMNT	Invasive and noxious species identified in the INRMP work orders will be submitted.	\$0.00	per site	QMUN	Contingent upon need

FY 25 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IL079/17896 IN023/18740 MO003/29246 MO041/29985 OH094/39760 WI064/55999	INV SPLNUP	Updates to the Invasive Species Management Plans compile data to address species that may pose a health and safety risk, and those identified by the USDA as noxious that may impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$45,000.00	\$7,500.00 per site	IN-HOUSE	Planned
USFWS Region 3 (TBD)	LTA DEVELOP	Funding is required to develop and maintain the 88th RD LTAs for unit training, along with integration of all military and recreational activities on 88th RD lands. LTA development is required to promote long term sustainability and will provide long term sustainability of 88th RD lands to support military training.	\$0.00	Per location	VENQ	Contingent upon need
USFWS Region 3 (TBD)	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). No requirements in FY25.	\$0.00	Per update	VENQ	Planned
USFWS Region 3 (TBD)	NRSRVY	The PLS/INRMP policy memorandum requires execution of initial planning level surveys (NRSRVY) including flora, fauna, soil, topography, vegetative communities, and surface water. NRSRVY reports spatial data used for mission planning, environmental compliance assessments for site development and construction projects, natural resources management, endangered species management, and a variety of other planning purposes.	\$26,000.00	Per location	VENQ	Contingent upon need
IL079/17896	NRSRVYUP	Aerial Deer Survey. This is not included in the NRSRVYUP IGE this will have its own IGE JTA deer survey is an annual requirement but is only conducted when conditions allow (snow on the ground). This enables proper management of the herd. Cost is usually > \$2,000 cost estimate and is executed with 21X funds.	\$2,500.00	Per update	21X	Planned
USFWS Region 3 (TBD)	NRSRVYUP	The PLS/INRMP policy memorandum requires execution of planning level survey updates including flora, fauna, soil, topography, vegetative communities, and surface water.	\$224,500.00	\$23,000.00 per location	VENQ	Contingent upon need

FY 25 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		Installations require updates to basic information for natural resources management and long-term mission support, including documentation of the various ecological characteristics that exist on the installation. Survey reports and spatial data are used for mission planning, environmental compliance assessments for site development and construction projects, natural resources management, endangered species management, and a variety of other planning purposes.				
IL079/17896	SLSH20MGT	<p>Funding is required to conduct soil and water resources management on 88th RD training land maneuver areas to include preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property.</p> <p>a.) JTA TA 5 N Construct Soil Erosion control for head cutting. (w/ no current design estimate is approx. \$35,000.00/location, estimate 5 locations per TA). = \$175,000.00</p> <p>b.) JTA TA 1 Construct Soil Erosion control for head cutting. (w/ no current design estimate is approx. \$35,000.00/location, estimate 5 locations per TA). = \$175,000.00</p> <p>c.) TA 3 soil erosion feasibility study for erosion head cutting = \$22,000.00</p> <p>d.) TA 3 soil erosion design based off earlier Joliet Soil Erosion Feasibility Study = \$45,000.00</p>	\$417,000.00	By project	VENQ / QRPA / QDEH	Planned
MO041/29985	SLSH20MGT	Funding is required to conduct soil and water resources management on 88th RD training land maneuver areas to include preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or	\$11,000.00	By project	VENQ / QRPA / QDEH	Planned

FY 25 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		other erosion resulting from the lack of maintenance to real property. Weldon Spring road culvert and erosion design project = \$11,000.00				
USFWS Region 3 (TBD)	STATEESSRVY	Funding is required to determine whether the state endangered species are present on sites within the 88thRD. Recent NRSRVYUPs determine if there is potential habitat for the state endangered species on select sites.	\$30,000.00	\$15,000.00 per species	VENQ	Contingent upon need
USFWS Region 3 locations (TBD)	TRNGCNS	Funding is required to train field staff and tenant units on natural resources program requirements and environmental stewardship. This includes development of training materials and conducting the training sessions via multiple methods. The number of personnel trained will be specific to units exercising / stationed at the LTA/site; approximately 1 training event will be conducted per year.	\$4,774.00	\$4,774.00	VENQ	Planned
IL079/17896	WLDFIREPLNI MPL	Integrated Wildland Fire Management Plans (IWFMP) identifies fire management needs and actions on the ground including prescribed burning and wildfire suppression. These plans must be reviewed on an annual basis to ensure that mission priorities and the best available scientific data and methods have been incorporated. This activity is limited to the LTAs. Cycle #2: 1,300 acres (TA 1 & west side of TA 2)	\$162,821.88	\$125.25 / acre	VENQ / In House	Planned
IN023/18740	WLDFIREPLNI MPL	Project description same as above. Cycle #3: – 255 acres (TA 1 and north end of TA3)	\$28,476.36	\$111.67 / acre	VENQ	Planned
MO041/29885	WLDFIREPLNI MPL	Project description same as above. Cycle #2: 525 acres (TA 4, TA 6, TA 7, TA 8, & TA 10)	\$68,607.00	\$130.68 / acre	VENQ	Planned

FY 25 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IL079/17896 IN023/18740 MO003/29246 MO041/29985	WLDIFIREPLNU P	Updates to Integrated Wildland Fire Management Plans (IWFMP) includes documentation of prescribed fires performed to date, review of BMPs, and reprioritization of projects. These plans must be reviewed and updated on an annual basis to ensure mission specific priorities, along with incorporating the best available scientific data and methods.	\$30,00.00	\$7,500.00 per site	In-House	Planned
USFWS Region 3 (TBD)	WTLNDPERMIT	USACE Section 404 wetland permitting for construction projects impacting wetlands or waters of the U.S. within 88th RD's AOR are subject to permit requirements under the Clean Water Act.	\$0.00	Project specific	VENQ	No Requirement
IL079/17896	WTLNDRESTR	Wetlands within the 88th RD's AOR identified as having reduced or compromised hydrologic function and/or ecological integrity. Restoration of these wetlands is incorporated in the INRMPs. (102 acres in TA 3 & 94 acres in TA 1)	\$222,052.00	\$1,049.00/acre	VENQ	Contingent upon need
USFWS Region 3 (TBD)	WTLNDSRVY	Initial wetland delineation takes place after the initial NRSRVY indicated that the wetlands at a particular 88th RD site requires a detailed evaluation of the wetlands present to determine if they are potentially jurisdictional.	\$0.00	Per site	VENQ	No Requirement
OH028/39880 OH044/39954 OH051/39995 OH094/39760 MI029/26685 MN001/27899 MN035/27927 MO003/29880	WTLNDSRVYU P	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. Six medium and 2 high resource sites.	\$130,898.00	Approx. \$16,362.00 per site	VENQ	Planned
88th RD	CNSPGMMGT	Annual salaries and benefits.	\$302,000.00	N/A	VENQ	Planned
88th RD	TRNGCNSSTAFF	Professional development and training.	\$17,085.00	N/A	VENQ	Planned

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3	INRMPUP	Initiate 5-year INRMP update	\$206,525.00	Per update	VENQ	Planned
USFWS Region 3 (TBD)	AG/LEASEIMPL	Funds will be used for infrastructure improvements. These improvements include, but not limited to gate installation/maintenance and gravel entries/road maintenance.	\$16,964.00	\$11,500.00 per COE admin costs per site	VENQ 21A / VENQ	Planned
USFWS Region 3	EARTH DAY	Project to support Earth Day and provide education and awareness to the Army Reserve and community	\$7,000.00	Inclusive	VENQ	Planned
IL079/17896	ECOSYSMGT	88th RD natural resources program and INRMP requirements specify benthic invertebrate/macroinvertebrate sampling of Joliet LTA's Jackson Creek. Off year.	\$0.00	Per plan	VENQ	No requirement
USFWS Region 3 (TBD)	ESMCPLN	An Endangered Species Management Component (ESMC) may be required when a threatened and endangered species is found on an 88th RD site.	\$85,000.00	Per plan	VENQ	Contingent upon need
MO041/29985	ESMCPLNIMPL	Implementation of existing Endangered Species Management Component (ESMC) is required and will capture newly listed species, best available scientific data, and management strategies	\$64,000.00	Per plan	VENQ	No requirement
MO041/29985	ESMCPLNUP	Update to an existing Endangered Species Management Component (ESMC) is required. This revision has been carried forward to capture newly listed species, best available scientific data, and management strategies.	\$5,000.00	Per plan	VENQ	Contingent upon need
USFWS Region 3 (TBD)	ESSRVY	Funding is required to determine whether the federally threatened or endangered (T&E) species are present on facilities within the 88th RD. Recent planning level surveys have determined that there is potential habitat for the T&E species on select facilities. Additionally, the USFWS lists these species as a T&E species in the county(s) that the facility is located within. FY26 Requirements: 1 facility/2 species. TBD.	\$74,264.00	\$37,132.00 per species	VENQ	Contingent upon need

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	ESSRVYUP	Funding is required to update previous determination as to whether the federally threatened or endangered species are present on sites within the 88th RD. The 88th RD has projected site specific requirements. TBD. Previous endangered surveys have determined that there is potential habitat for the threatened or endangered species on select sites.	\$70,000.00	\$35,000.00 per species	VENQ	Contingent upon need
USFWS Region 3 (TBD)	FORESTPLN	Forest Management Plans (per INRMP requirements) for lands in the 88th RD's AOR will be developed for locations on an as needed basis.	\$29,000.00	Per location	IN- HOUSE	Contingent upon need
IL079/17896	FORESTPLNI MPL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to a realistic training environment. (52.1 acres Southern edge of TA 5S, Stands 7C, 7E, 7A, & 1)	\$272,511.0 0	\$5,230.54 / acre	QMUN/ VENQ	No requirement
IL079/17896	FORESTPLNU P	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN- HOUSE	Planned
IN023/18740	FORESTPLNU P	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN- HOUSE	Planned
MO041/29985	FORESTPLNU P	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN- HOUSE	Planned
WI064/55999	FORESTPLNU P	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN- HOUSE	Planned
IL079/17896	HUNTINGIMP L	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities and enable successful training land conservation management. 1) 80 ac food plot/habitat Improvement \$7,500.00. 2) Stocking of game birds = \$15,111.10. 3) Misc. Supplies (to include paper, printing, envelopes, mailing) = \$1,000.00.	\$26,611.10	Per Site	VENQ/ IN HOUSE	Planned

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		4) Equipment (to include calipers, tape measures) = \$1,500.00. 5) Office and permit sales and supplies = \$1,500.00				
MO041/29985	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities and enable successful training land conservation management. 1) transportation and per diem costs to operate the annual Youth Hunt, Wounded Warrior Hunt and Soldier/Employee hunt, 3 to 5 personnel involved with each hunt = \$3,500.00.	\$4,000.00	Per Site	VENQ/ IN HOUSE	Planned
USFWS Region 3 (TBD)	INV SPLN	The Invasive Species Management Plans compile invasive species data including those regulated by the USDA for potential to impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$0.00	Per plan	VENQ	Contingent upon need
IL079/17896	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at facilities within the 88th RD's AOR may limit access. Implementation of control plans will open lands for maneuver training and protect valuable concealment resources. Invasive plants are also currently degrading wildlife habitat and potential habitat for rare species. 143 acres located in TA 4.	\$129,772.50	\$907.50 per acre (clearing)	QMUN	Planned
IN023/18740	INV SPLNIMPL	Invasive plant species have been identified during previous natural resource surveys at several facilities within the 88th RD's AOR. Implementation of control plans will open lands for maneuver training and protect valuable concealment resources. Invasive plants are also currently degrading wildlife habitat and potential habitat for rare species. 330 acres located in TA 1, TA 2, TA 3, and TA 4	\$181,500.00	\$550.00 per acre (herbicide)	QMUN	Planned
MO003/29246	INV SPLNIMPL	Invasive plant species have been identified during previous natural resource surveys at several facilities within the 88th RD's AOR. Implementation of control plans will open lands	\$124,806.00	\$682.00 per acre	QMUN	Planned

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		for maneuver training and protect valuable concealment resources. Invasive plants are also currently degrading wildlife habitat and potential habitat for rare species. 183 acres located on entire LTA.				
MO041/29985	INVSPNIMPL	Invasive plant species have been identified during previous natural resource surveys at several facilities within the 88th RD's AOR. Implementation of control plans will open up lands for maneuver training and protect valuable concealment resources. Invasive plants are also currently degrading wildlife habitat and potential habitat for rare species. 50 acres located in TA 11.	\$44,000.00	\$880.00 per acre	QMUN	Planned
IL079/17896 IN023/18740 MO003/29246 MO041/29985 OH094/39760 WI064/55999	INVSPLNUP	Updates to the Invasive Species Management Plans compile data to address species that may pose a health and safety risk, and those identified by the USDA as noxious that may impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$45,000.00	\$7,500.00 per site	IN-HOUSE	Planned
USFWS Region 3 (TBD)	LTADEVELOP	Funding is required to develop and maintain the 88th RD LTAs for unit training, along with integration of all military and recreational activities on 88th RD lands. LTA development is required to promote long term sustainability and will provide long term sustainability of 88th RD lands to support military training.	\$0.00	Per location	VENQ	Contingent upon need
USFWS Region 3 (TBD)	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). No requirements in FY26.	\$0.00	Per update	VENQ	No requirements

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	NRSRVY	The PLS/INRMP policy memorandum requires execution of initial planning level surveys (NRSRVY) including flora, fauna, soil, topography, vegetative communities, and surface water. NRSRVY reports spatial data used for mission planning, environmental compliance assessments for site development and construction projects, natural resources management, endangered species management, and a variety of other planning purposes.	\$27,000.00	Per location	VENQ	Contingent upon need
IL079/17896	NRSRVYUP	Aerial Deer Survey. This is not included in the NRSRVYUP IGE this will have its own IGE JTA deer survey is an annual requirement but is only conducted when conditions allow (snow on the ground). This enables proper management of the herd. Cost is usually > \$2,000 cost estimate and is executed with 21X funds.	\$2,500.00	Per update	21X	Planned
USFWS Region 3 (TBD)	NRSRVYUP	The PLS/INRMP policy memorandum requires execution of PLS updates including flora, fauna, soil, topography, veg communities, & surface water. Installations req updates to basic info for natural resources mgmnt & long-term mission sppt, incl documentation of installation ecological characteristics. Survey reports & spatial data for mission planning, envl compliance assmnts for site development & const. projects, natural resources mgmnt, endangered species mgmnt, & other planning purposes.	\$170,500.00	\$24,000.00 per location	VENQ	Contingent upon need

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IL079/17896	SLSH20MGT	<p>Funding is required to conduct soil and water resources management on 88th RD training land maneuver areas to include preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property.</p> <p>a.) JTA TA3 Construct Soil Erosion control for head cutting (with no current design estimate is a rough estimate = \$35,000.00, per location, estimate 5 locations per TA) = \$175,000.00.</p> <p>b.) JTA Reassess TA 4 Soil Erosion Feasibility for erosion head cutting = \$22,000.00.</p> <p>c.) JTA TA 4 soil erosion design based off earlier Joliet Soil Erosion Feasibility Study = \$45,000.00.</p> <p>d.) Recurring req. LTA parking area and road gravel. = \$2,700.00.</p> <p>e.) LTA Gravel needed to for LTA training area parking lots and LTA training area roads = \$15,500.00</p>	\$242,000.00	By project	VENQ / QRPA / QDEH	Planned

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
MO041/29985	SLSH20MGT	Funding is required to conduct soil and water resources management on 88th RD training land maneuver areas to include preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. Recurring req. LTA parking area & road gravel = \$1,500.00.	\$1,500.00	By project	VENQ / QRPA / QDEH	Planned
USFWS Region 3 TBD	STATEESSRVY	Funding is required to determine whether the state endangered species are present on sites within the 88thRD. Recent NRSRVYUPs assess the potential habitat for the state endangered species at select sites.	\$32,000.00	\$16,000.00 per species	VENQ	Contingent upon need
USFWS Region 3 locations	TRNGCNS	Funding is required to train field staff and tenant units on natural resources program requirements and envl stewardship. This includes development of training materials and conducting the training sessions via multiple methods.	\$4,917.00	4,917.00	VENQ	Planned
IL079/17896	WLDFIREPLNIMPL	Integrated Wildland Fire Management Plans (IWFMP) identifies fire management needs and actions on the ground including prescribed burning and wildfire suppression. These plans must be reviewed on an annual basis to ensure that mission priorities and the best available scientific data and methods have been incorporated. This activity is limited to the LTAs. Cycle #3: 700 acres (TA 3 & TA 4)	\$87,673.32	\$125.25 / acre	VENQ / In House	Planned

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IN023/18740	WLDFIREPLNIM PL	Project description same as above. Cycle #1: 317 acres (TA 2, TA 3, & TA 4)	\$39,703.49	\$125.25 / acre	VENQ	Planned
MO003/29246	WLDFIREPLNIM PL	Project description same as above. Cycle #1: 111 acres (TA 1)	\$16,219.66	\$146.12 / acre	VENQ	Planned
MO041/29885	WLDFIREPLNIM PL	Project description same as above. Cycle #3: 575 acres (TA 9, TA 11, TA 12, TA 13, AA1 & AA2)	\$81,431.73	\$141.62 / acre	VENQ	Planned
IL079/17896 IN023/18740 MO003/29246 MO041/29985	WLDFIREPLNU P	Updates to Integrated Wildland Fire Management Plans (IWFMP) includes documentation of prescribed fires preformed to date, review of BMPs, and reprioritization of projects. These plans must be reviewed and updated on an annual basis to ensure mission specific priorities, along with incorporating the best available scientific data and methods.	\$30,00.00	\$7,500.0 0 per site	In- house	Planned
IL079/17896	WTLNDPERMIT	USACE Section 404 wetland permitting for construction projects impacting wetlands or waters of the U.S. within 88th RD's AOR are subject to permit requirements under the Clean Water Act. Construction of Jackson Creek low water crossing with require such a permit.	\$24,500.00	Project specific	VENQ	Planned
IL079/17896	WTLNDRESTR	Wetlands within the 88th RD's AOR identified as having reduced or compromised hydrologic function and/or ecological integrity. Restoration of these wetlands is incorporated in the INRMPs. (102 acres in TA 3)	\$123,660.0 0	\$1,080.0 0	VENQ	Planned
USFWS Region 3 TBD	WTLNDSRVY	Initial wetland delineation takes place after the initial NRSRVY indicated that the wetlands at a particular 88th RD site requires a detailed evaluation of the wetlands present to determine if they are potentially jurisdictional.	\$0.00	Per site	VENQ	No requireme nt
IN085/18301 OH032/14681	WTLNDSRVYU P	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. Medium resource sites.	\$49,715.00	\$24,857. 00 per site	VENQ	Planned
88th RD	CNSPGMMGT	Annual salaries and benefits.	\$302,000.0 0	N/A	VNEQ	Planned

FY26 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
88th RD	TRNGCNSSTAF F	Professional development and training.	\$17,085.00	N/A	VENQ	Planned

FY27 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3	INRMUP	Annual review and update of INRMP	\$13,697.00	per update	IN-HOUSE	Planned
USFWS Region 3	AG/LEASEIMPL	Funds will be used for infrastructure improvements. These improvements include, but not limited to gate installation/maintenance and gravel entries/road maintenance.	\$17,128.00	\$11,500.00 per COE admin costs per site	VENQ 21A / VENQ	Planned
USFWS Region 3	EARTH DAY	Project to support Earth Day and provide education and awareness to the Army Reserve and community.	\$7,000.00	Inclusive	VENQ	Planned
IL079/17896	ECOSYSMGT	88th RD natural resources program and INRMP requirements specify monitoring and trends analysis of data of benthic invertebrate/ macroinvertebrate sampling of Joliet LTA's Jackson Creek. Off year.	\$0.00	Per project	VENQ	No requirement
USFWS Region 3 (TBD)	ESMCPLN	An Endangered Species Management Component (ESMC) may be required when a threatened and endangered species is found on an 88th RD site.	\$0.00	Per plan	VENQ	Contingent upon need
USFWS Region 3 (TBD)	ESMCPLNIMPL	An Endangered Species Management Component Plan Implementation/Update may be required if a threatened and endangered species is found on an 88th RD site.	\$0.00	Per plan	VENQ	Contingent upon need
MO041/29985	ESMCPLNUP	Update to an existing Endangered Species Management Component (ESMC) is required. This revision has been carried forward from FY15 to FY21, and will capture newly listed species, best available scientific data, and management strategies.	\$70,500.00	Per plan	VENQ	Contingent upon need
USFWS Region 3 (TBD)	ESSRVY	Funding is required to determine whether the federally threatened or endangered species are present on facilities within the 88th RD. Recent planning level surveys have determined that there is potential habitat for the threatened or endangered species on select facilities. Additionally, the US Fish & Wildlife Service lists	\$76,492.00	\$38,246.00 per plan	VENQ	Planned

FY27 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		these species as a threatened or endangered species in the county(s) that the facility is located within. FY27 Requirements: 1 facility/2 species. TBD.				
USFWS Region 3 (TBD)	ESSRVYUP	Funding is required to update previous determination as to whether the federally threatened or endangered species are present on sites within the 88th RD. The 88th RD has projected site specific requirements. Previous endangered surveys have determined that that there is potential habitat for the threatened or endangered species on select sites.	\$72,000.00	\$36,000.00 per plan	VENQ	Contingent upon need
USFWS Region 3 (TBD)	FORESTPLN	Forest Management Plans (per INRMP requirements) for lands in the 88th RD's AOR will be developed for locations on an as needed basis.	\$29,000.00	Per location	IN-HOUSE	Contingent upon need
IL079/17896	FORESTPLNIMPL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to 40.2 acres of realistic training environment.	\$216,576.00	\$5,387.45 / acre	QMUN / VENQ	Planned
IL079/17896	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN-HOUSE	Planned
IN023/18740	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUSE	Planned
MO041/29985	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUSE	Planned
WI064/55999	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$5,000.00	Per update	IN HOUSE	Planned
IL079/17896	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities, and enable successful training land conservation management.	\$27,531.36	Per Site	VENQ/ IN HOUSE	Planned

FY27 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
MO041/29985	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities, and enable successful training land conservation management.	\$4,200.00	Per Site	VENQ/ IN HOUSE	Planned
USFWS Region 3 (TBD)	INVSPLN	The Invasive Species Management Plans compile invasive species data including those regulated by the USDA for potential to impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$0.00	Per plan	VENQ	No requiremen t
USFWS Region 3 (TBD)	INVSIMPLIMPL	Invasive plant species identified during natural resource surveys within the 88th RD's AOR may limit LTA access. Implementation of control plans open up lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$0.00	Per site	QMUN	Contingent upon need
IL079/17896	INVSPNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 185 acres located in TA 1.	\$167,887.5 0	\$907.50/ acre	QMUN/V ENQ	Contingent upon need
IN023/18740	INVSPNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 115 acres located in TA 3 & TA 4.	\$142,312.5 0	\$1,237.50 /acre	QMUN/V ENQ	Contingent upon need
MO041/29985	INVSPNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources.	\$66,000.00	\$880.00/ acre	QMUN/V ENQ	Contingent upon need

FY27 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 75 acres located in TA 3.				
IL079/17896 IN023/18740 MO003/29246 MO041/29985 OH094/39760 WI064/55999	INV SPLNUP	Updates to the Invasive Species Management Plans compile data to address species that may pose a health and safety risk, and those identified by the USDA as noxious that may impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$45,000.00	\$7,500.00 per site	IN-HOUSE	Planned
USFWS Region 3 (TBD)	LTA DEVELOP	Funding is required to develop and maintain the 88th RD LTAs for unit training, along with integration of all military and recreational activities on 88th RD lands. LTA development is required to promote long term sustainability of 88th RD lands to support military training.	\$0.00	Per location	VENQ	Contingent upon need
IL079/17896	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (3,750 acres/412 census points)	\$45,732.00	Per update	VENQ	Planned
IN023/18740	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (930 acres/138 census points)	\$30,498.00	Per update	VENQ	Planned
MO003/29246	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (138 acres/34 census points)	\$12,172.00	Per update	VENQ	Planned
MO041/29985	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (1,565 acres/220 census points)	\$20,900.00	Per update	VENQ	Planned
WI064/55999	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). (127 acres/26 census points)	\$10,556.00	Per update	VENQ	Planned

FY27 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	NRSRVY	The PLS/INRMP policy memorandum requires execution of initial planning level surveys (NRSRVY) including flora, fauna, soil, topography, vegetative communities, and surface water. NRSRVY reports spatial data used for mission planning, environmental compliance assessments for site development & const. projects, natural resources management, endangered species management, and a variety of other planning purposes.	\$28,000.00	Per location	VENQ	Planned
IL079/17896	NRSRVYUP	Aerial Deer Survey. This is not included in the NRSRVYUP IGE this will have its own IGE JTA deer survey is an annual requirement but is only conducted when conditions allow (snow on the ground). This enables proper management of the herd. Cost is usually > \$2,000 cost estimate and is executed with 21X funds.	\$2,500.00	Per update	21X	Planned
USFWS Region 3 (TBD)	NRSRVYUP	Execution of NRSRVY Update for flora, fauna, soil, topography, vegetative communities, and surface water. Installations require updates to basic information for natural resources management and long-term mission support, including documentation of the various ecological characteristics that exist on the installation.	\$174,500.00	\$25,000.00 per update	VENQ	Planned
IL079/17896	SLSH20MGT	Funding is required to conduct soil and water resources management on 88thRD training land maneuver areas to include preventing or controlling sedimentation, beach/ stream bank erosion (if not attributable to maneuver damage), tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. 7 projects identified at JTA: a.) TA4 Construct Soil Erosion control for head cutting = \$175,000.00 b.) TA2 soil erosion design based = 45,000.00 c.) TA2 Soil Erosion Feasibility Study for erosion head cutting = \$22,000.00	\$242,000.00	By project	VENQ / QRPA / QDEH / In House	Planned
MO041/29985	SLSH20MGT	Funding is required to conduct soil and water resources management on 88thRD training land maneuver areas to include	\$1,500.00	By project	VENQ / QRPA /	Planned

FY27 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. LTA parking area and road gravel. = \$1,500.00			QDEH / In House	
USFWS Region 3 (TBD)	STATEESSRVY	Funding is required to determine whether the state endangered species are present on sites within the 88thRD. Recent NRSRVYUPs determine if there is potential habitat for the state endangered species on select sites.	\$34,000.00	\$17,000.00 per species	VENQ	Contingent upon need
USFWS Region 3 (TBD)	TRNGCNS	Funding is required to train field staff and tenant units on natural resources program requirements and environmental stewardship. This includes development of training materials and conducting the training sessions via multiple methods. The number of personnel trained will be specific to units exercising / stationed at the LTA/site; approximately 1 training event will be conducted per year.	\$5,065.00	\$5,065.00	VENQ	Contingent upon need
IL079/17896	WLDFIREPLNIM PL	Integrated Wildland Fire Management Plans (IWFMP) identifies fire management needs and actions on the ground including prescribed burning and wildfire suppression. These plans must be reviewed on an annual basis to ensure that mission priorities and the best available scientific data and methods have been incorporated. This activity is limited to the LTAs. Cycle #4 (720 ac) (TA 5 N & TA 5 S); Cycle #3 (700 ac) (TA3 & TA4)	\$90,178.27	\$125.25/acre	VENQ	Planned
IN023/18740	WLDFIREPLNIM PL	Same project description as above. Cycle #2 (367 ac) (TA 4)	\$45,965.87	\$125.25 / acre	VENQ	Planned
MO003/29246	WLDFIREPLNIM PL	Same project description as above. Cycle #2 (73 ac) (TA 1)	\$10,667.05	\$146.12/ acre	VENQ	Planned
MO041/29985	WLDFIREPLNIM PL	Same project description as above. Cycle #1 (600 ac) (TAs 1, 2, 3, & 5).	\$84,972.24	\$141.62 / acre	VENQ	Planned

FY27 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IL079/17896 IN023/18740 MO003/29246 MO041/29985	WLDFFIREPLN UP	Updates to Integrated Wildland Fire Management Plans (IWFMP) includes documentation of prescribed fires performed to date, review of BMPs, and reprioritization of projects. These plans must be reviewed and updated on an annual basis to ensure mission specific priorities, along with incorporating the best available scientific data and methods.	\$30,00.00	\$7,500.00 per site	In-House	Planned
USFWS Region 3 (TBD)	WTLNDPERMIT	USACE Section 404 wetland permitting for construction projects impacting wetlands or waters of the U.S. within 88th RD's AOR are subject to permit requirements under the Clean Water Act.	\$0.00	Project specific	VENQ	No requirement
IL079/17896	WTLNDREST R	Wetlands within the 88th RD's AOR identified as having reduced or compromised hydrologic function and/or ecological integrity. Restoration of these wetlands is incorporated in the applicable INRMPs. North section of north-south seep in TA1 (39 acres).	\$56,322.00	\$1,098.00 / acre	VENQ	Planned
USFWS Region 3 (TBD)	WTLNDSRVY	Initial wetland delineation takes place after the initial NRSRVY indicated that the wetlands at a particular 88th RD site requires a detailed evaluation of the wetlands present to determine if they are potentially jurisdictional.	\$0.00	Per site	VENQ	No requirement
MN002/27700	WTLNDSRVYUP	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. Medium resource site.	\$24,406.00	Per site	VENQ	Planned
IL079/17896	WTLNDSRVYUP	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. High resource site.	\$175,034.00	Per site	VENQ	Planned
88th RD	CNSPGMMGT	Annual salaries and benefits	\$398,000.00	N/A	VENQ	Planned
88thRD	TRNGCNSSTAFF	Professional development and training	\$17,085.00	N/A	VENQ	Planned

FY28 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3	INRMPUP	Annual review and update of INRMP	\$14,090.00	Per update	IN- HOUSE	Planned
USFWS Region 3	AG/LEASEIMPL	Funds will be used for infrastructure improvements. These improvements include, but not limited to gate installation/maintenance and gravel entries/road maintenance	\$17,269.00	\$11,500.00 per COE admin costs per site	VENQ 21A / VENQ	Planned
USFWS Region 3	EARTH DAY	Project to support Earth Day and provide education and awareness to the Army Reserve and community.	\$7,000.00	Inclusive	VENQ	Planned
IL079/17896	ECOSYSMGT	88th RD natural resources program and INRMP reqmnts, specify monitoring and trends analysis of data of benthic invertebrate/macrobenthic sampling of Joliet LTA's Jackson Creek.	\$57,929.00	Per project	VENQ	Planned
USFWS Region 3 (TBD)	ESMCPLN	An Endangered Species Management Component (ESMC) may be required when a threatened and endangered species is found on an 88th RD site.	\$90,000.00	Per plan	VENQ	Contingent upon need
USFWS Region 3	ESMCPLNIMPL	An Endangered Species Management Component Plan Implementation/Update may be required if a threatened and endangered species is found on an 88th RD site.	\$68,000.00	Per plan	VENQ	No requirement
USFWS Region 3	ESMCPLNUP	Update to an existing Endangered Species Management Component (ESMC) is required. This revision has been carried forward from FY15 to FY21, and will capture newly listed species, best available scientific data, and management strategies.	\$5,000.00	Per plan	VENQ	Contingent upon need
USFWS Region 3 (TBD)	ESSRVY	Funding is required to determine whether the federally threatened or endangered (T&E) species are present on facilities within the 88th RD. Recent planning level surveys have determined that there is potential habitat for the T&E species on select facilities. Additionally, the USFWS lists these species as a threatened or endangered species in the county(s) that the facility is located within. FY28 Requirements: 1 facility/2 species. TBD	\$78,786.00	\$39,393.00 per species survey	VENQ	Contingent upon need

FY28 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	ESSRVYUP	Funding is required to update previous determination as to whether the federally threatened or endangered species are present on sites within the 88th RD. The 88th RD has projected site specific requirements. Previous endangered surveys have determined that there is potential habitat for the threatened or endangered species on select sites. FY28 Requirements: 1 facility/2 species. TBD	\$74,000.00	\$37,000.00 per species survey	VENQ	Contingent upon need
USFWS Region 3 (TBD)	FORESTPLN	Forest Management Plans (per INRMP requirements) for lands in the 88th RD's AOR will be developed for locations on an as needed basis.	\$29,000.00	Per site	IN-HOUSE	Contingent upon need
IL079/17896	FORESTPLNIMPL	Implementation may include control of invasive species, prescribed burning, or timber harvests to minimize risk of catastrophic fires and ensure Reserve Soldiers' safety and access to 46.12 acres of realistic training environment.	\$255,923.00	\$5,549.00 / acre	QMUN / VENQ	Planned
IL079/17896	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$25,000.00	Per update	IN-HOUSE	Planned
IN023/18740	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$25,000.00	Per update	IN HOUSE	Planned
MO041/29985	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88th RD's AOR.	\$25,000.00	Per update	IN HOUSE	Planned
WI064/55999	FORESTPLNUP	Updates to existing Forest Management Plans annually (per INRMP requirements) for lands in the 88 th RD's AOR.	\$25,000.00	Per update	IN HOUSE	Planned
IL079/17896	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities, and enable successful training land conservation management.	\$27,531.36	Per Site	VENQ/ IN HOUSE	Planned
MO041/29985	HUNTINGIMPL	Funding is required to provide for successful management of wildlife populations, provide soldiers and the community with recreational activities, and enable successful training land conservation management.	\$4,200.00	Per Site	VENQ/ IN HOUSE	Planned
USFWS Region 3 (TBD)	INVSPLN	The Invasive Species Management Plans compile invasive species data including those regulated by the USDA for potential to impact the economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.	\$0.00	Per plan	VENQ	No requirement

FY28 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	INVSIMPLIMPL	Invasive plant species identified during natural resource surveys within the 88th RD's AOR may limit LTA access. Implementation of control plans open up lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species. Sites with identified invasive and/or noxious species via the NRSRVYUPs and in the INRMP will have work orders submitted.	\$0.00	Per site	QMUN	Contingent upon need
IL079/17896	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 121 acres located in TA 2.	\$112,598.97	\$930.57/acre	QMUN/ VENQ	Planned
IN023/18740	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 115 acres located in TA 3 and TA 4.	\$68,310.00	\$594.00 /acre	QMUN/ VENQ	Planned
MO003/29246	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 183 acres, which is the entire LTA.	\$134,790.48	\$736.56/acre	QMUN/ VENQ	Planned
MO041/29985	INV SPLNIMPL	Invasive plant species identified during previous natural resource surveys at several facilities within the 88th RD's AOR may limit LTA access. Implementation of control plans open lands for maneuver training and protect valuable concealment resources. Invasive plants may also degrade wildlife habitat and potential habitat for rare species on 250 acres located in TA 12.	\$222,750.00	\$891.00 /acre	QMUN/ VENQ	Planned
IL079/17896 IN023/18740 MO003/29246 MO041/29985	INV SPLNUP	Updates to the Invasive Species Management Plans compile data to address species that may pose a health and safety risk, and those identified by the USDA as noxious that may impact the	\$45,000.00	\$7,500.00 per site	IN- HOUSE	Planned

FY28 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
OH094/39760 WI064/55999		economy. Implementation of the plans expands access to training lands and protects valuable concealment resources.				
USFWS Region 3 (TBD)	LTADVELOP	Funding is required to develop and maintain the 88th RD LTAs for unit training, along with integration of all military and recreational activities on 88th RD lands. LTA development is required to promote long term sustainability of 88th RD lands to support military training.	\$0.00	Per location	VENQ	Contingent upon need
USFWS Region 3 (TBD)	MBTASRVY	These assessments identify and document occurrence of birds protected under the Migratory Bird Treaty Act (16 USC § 703 – 712). No requirements in FY28.	\$0.00	Per update	VENQ	Planned
USFWS Region 3 (TBD)	NRSRVY	The PLS/INRMP policy memorandum requires execution of initial planning level surveys (NRSRVY) including flora, fauna, soil, topography, vegetative communities, and surface water. NRSRVY reports spatial data used for mission planning, environmental compliance assessments for site development & const. projects, natural resources management, endangered species management, and a variety of other planning purposes.	\$29,000.00	Per location	VENQ	Planned
IL079/17896	NRSRVYUP	Aerial Deer Survey. This is not included in the NRSRVYUP IGE this will have its own IGE JTA deer survey is an annual requirement but is only conducted when conditions allow (snow on the ground). This enables proper management of the herd. Cost is usually > \$2,000 cost estimate and is executed with 21X funds.	\$2,500.00	Per update	21X	Planned
USFWS Region 3 (TBD)	NRSRVYUP	Execution of NRSRVY Update for flora, fauna, soil, topography, vegetative communities, and surface water. Installations require updates to basic information for natural resources management and long-term mission support, including documentation of the various ecological characteristics that exist on the installation.	\$178,500.00	\$26,000.00 per update	VENQ	Planned
IL079/17896	SLSH20MGT	Funding is required to conduct soil and water resources management on 88thRD training land maneuver areas to include preventing or controlling sedimentation, beach/ stream bank erosion (if not attributable to maneuver damage), tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. 7 projects identified at JTA:	\$242,000.00	By project	VENQ / QRPA / QDEH / In House	Planned

FY28 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
		a.) TA2 Construct Soil Erosion control for head cutting = \$175,000.00 b.) TA5 soil erosion design based = 45,000.00 c.) TA5 soil erosion feasibility study for erosion head cutting = \$22,000.00				
MO041/29985	SLSH20MGT	Funding is required to conduct soil and water resources management on 88thRD training land maneuver areas to include preventing or controlling sedimentation, beach, or stream bank erosion if not attributable to maneuver damage, tank trail maintenance, road maintenance, firebreaks, or other erosion resulting from the lack of maintenance to real property. LTA parking area and road gravel. = \$1,500.00	\$1,500.00	By project	VENQ / QRPA / QDEH / In House	Planned
USFWS Region 3 (TBD)	STATEESSRVY	Funding is required to determine whether the state endangered species are present on sites within the 88thRD. Recent NRSRVYUPs determine if there is potential habitat for the state endangered species on select sites.	\$36,000.00	\$18,000.00 per species	VENQ	Contingent upon need
USFWS Region 3 (TBD)	TRNGCNS	Funding is required to train field staff and tenant units on natural resources program requirements and environmental stewardship. This includes development of training materials and conducting the training sessions via multiple methods. The number of personnel trained will be specific to units exercising / stationed at the LTA/site; approximately 1 training event will be conducted per year.	\$5,217.00	\$5,217.00	VENQ	Contingent upon need
IL079/17896	WLDFIREPLNIMPL	Integrated Wildland Fire Management Plans (IWFMP) identifies fire management needs and actions on the ground including prescribed burning and wildfire suppression. These plans must be reviewed on an annual basis to ensure that mission priorities and the best available scientific data and methods have been incorporated. This activity is limited to the LTAs. Cycle #1 (880 ac) (East side of TA2 & TA4)	\$110,217.89	\$125.25/ acre	VENQ	Planned
IN023/18740	WLDFIREPLNIMPL	Same project description as above. Cycle #3 (255 ac) (TA 1 & TA 3)	\$28,476.36	\$111.67 / acre	VENQ	Planned
MO041/29985	WILDFIREPLNIMPL	Same project description as above. Cycle #2 (525 ac) (TA4, TA 6, TA 7, TA 8 & TA 10)	\$68,607.00	\$130.68/ acre	VENQ	Planned

FY28 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
IL079/17896 IN023/18740 MO003/29246 MO041/29985	WILDFIREPLNUP	Updates to Integrated Wildland Fire Management Plans (IWFMP) includes documentation of prescribed fires preformed to date, review of BMPs, and reprioritization of projects. These plans must be reviewed and updated on an annual basis to ensure mission specific priorities, along with incorporating the best available scientific data and methods. Plan is on a 5-year revision cycle.	\$146,000.00	\$36,500.00 per site	In-House	Planned

FY28 PLANNED						
LOCATION	PROJECT	BRIEF DESCRIPTION	COST	PER UNIT	MDEP	STATUS
USFWS Region 3 (TBD)	WTLNDPERMIT	USACE Section 404 wetland permitting for construction projects impacting wetlands or waters of the U.S. within 88th RD's AOR are subject to permit requirements under the Clean Water Act.	\$0.00	Project specific	VENQ	No requirement
IL079/17896	WTLNDRESTR	Wetlands within the 88th RD's AOR identified as having reduced or compromised hydrologic function and/or ecological integrity. Restoration of these wetlands is incorporated in the applicable INRMPs. North section of north-south seep in TA1 (39 acres).	\$58,194.00	\$1,146.00 / acre	VENQ	Planned
USFWS Region 3 (TBD)	WTLNDSRVY	Initial wetland delineation takes place after the initial NRSRVY indicated that the wetlands at a particular 88th RD site requires a detailed evaluation of the wetlands present to determine if they are potentially jurisdictional.	\$0.00	Per site	VENQ	No Requirement
IN008/18778	WTLNDSRVYUP	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. Medium resource site.	\$26,690.00	Project specific	VENQ	Planned
IN023/18740	WTLNDSRVYUP	Wetland delineation updates take place either on a 5-year cycle or on an as needed basis. High resource site.	\$58,929.00	Project specific	VENQ	Planned
88th RD	CNSPGMMGT	Annual salaries and benefits	\$398,000.00	N/A	VENQ	Planned
88thRD	TRNGCNSSTAFF	Professional development and training	\$17,085.00	N/A	VENQ	Planned

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Appendix D: Annual Review Summaries

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1 **Appendix E: Component Plans**

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3 **Endangered Species Management Component Plan (ESMC)**

4 St. Charles USARC LTA (Weldon Spring) (MO041/29985)

5 **Forestry Management Component Plans**

6 Joliet Training Area (IL079/17896)

7 Laporte County Veterans USARC LTA (Kingsbury) (IN023/18740)

8 St. Charles USARC LTA (Weldon Spring) (MO041/29985)

9 **Invasive Species Management Component Plans**

10 Joliet Training Area (IL079/17896)

11 Laporte County Veterans USARC LTA (Kingsbury) (IN023/18740)

12 Belton LTA (MO003/29880)

13 St. Charles USARC LTA (Weldon Spring) (MO041/29985)

14 Toledo Area USAR LTA (Monclova) (OH094/39760)

15 West Silver Spring Complex LTA (Milwaukee) WI064/55999)

16 **Wildland Fire Management Component Plans**

17 Joliet Training Area (IL079/17896)

18 Laporte County Veterans USARC LTA (Kingsbury) (IN023/18740)

19 Belton LTA (MO003/29880)

20 St. Charles USARC LTA (Weldon Spring) (MO041/29985)

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1 **Appendix F: Stakeholder Coordination**

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3 Tripartite Memorandum of Understanding

4 MOU Between DoD and USFWS to Promote the Conservation of Migratory Birds

5 Permanent Withdrawal of Solicitor Opinion M-37050 “The Migratory Bird Treaty Act Does Not Prohibit
6 Incidental Take”

7 INTERAGENCY AGREEMENT between the UNITED STATES FISH AND WILDLIFE SERVICE and
8 the UNITED STATES ARMY for the CONSERVATION OF NATURAL RESOURCES ON ARMY
9 CONTROLLED LANDS

10 Department of Defense Avian Knowledge Network Program

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Appendix G: NEPA Documentation

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2 MEMORANDUM FOR RECORD

3 SUBJECT: USFWS Region 3 Integrated Natural Resources Management
4 Programmatic Environmental Assessment
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6 The 88th RD is in the process of updating the Integrated Natural Resources Management Plan (INRMP)
7 for the US Fish and Wildlife Service (USFWS) Region 3 that consists of Illinois, Indiana, Iowa, Michigan,
8 Minnesota, Missouri, Ohio, and Wisconsin. Part of this process includes completing the National
9 Environmental Policy Act (NEPA) documentation.

10 In accordance with NEPA, we are preparing a Programmatic Environmental Assessment (PEA).
11 Scoping letters will be sent to interested State and Federal regulators and Federally recognized Indian
12 Tribes in March 2024. It is anticipated that the PEA will be available for 30-day public review in
13 approximately May 2024. The 88th RD will carefully review the public comments received on the Draft
14 Final PEA and address them, as appropriate, in the Final PEA.

15 If there are any questions, or additional information is required, please contact Mr. Duane Meighan
16 phone at (608) 388-0308 or email at duane.l.meighan.civ@army.mil or Ms. Theresa Bosma at (405)
17 612-4079 or email at theresa.l.bosma.ctr@army.mil.

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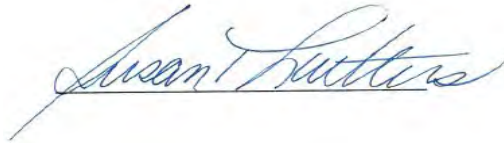
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Gryphon Contractor
88th Readiness Division

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