

Environmental Assessment for General Matter's Site Preparation and Licensing Activities in Parcel A of the Paducah Site in McCracken County, Kentucky



U.S. DEPARTMENT OF ENERGY PORTSMOUTH PADUCAH PROJECT OFFICE
Paducah, KY

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APPLICANT DISCLOSURE STATEMENT:

This Environmental Assessment was prepared by General Matter, Inc., and supported by Leidos, Inc., under the direction and independent evaluation of the U.S. Department of Energy (DOE) pursuant to NEPA and the DOE NEPA Implementing Procedures.

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Acronyms and Abbreviations

APE	Area of Potential Effect
BCC	Birds of Conservation Concern
BMP	best management practice
CAA	Clean Air Act
CFR	Code of Federal Regulations
CHFS	Cabinet for Health and Family Services
CO	carbon monoxide
CX	Categorical Exclusion
dB	decibel
DD&D	deactivation, decommissioning, and demolition
DNL	day-night average sound level
DOE	U.S. Department of Energy
DOE-EM	DOE Office of Environmental Management
DUF ₆	depleted uranium hexafluoride
EA	Environmental Assessment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ER	Environmental Report
ESA	Endangered Species Act
F	Fahrenheit
FFPA	Farmland Protection Act
FTA	U.S. Federal Transit Administration
GeM	General Matter, Inc.
GLE	Global Laser Enrichment, LLC
GMPEF	General Matter Paducah Enrichment Facility
HALEU	high-assay, low-enriched uranium
HAP	hazardous air pollutant
HF	hydrogen fluoride
KAR	Kentucky Administrative Regulations
KDAQ	Kentucky Division for Air Quality
KDFWR	Kentucky Department of Fish and Wildlife Resources
L ₅₀	sound level that exceeds 50 percent of the time
LEU	low-enriched uranium
MBTA	Migratory Bird Treaty Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NRC	U.S. Nuclear Regulatory Commission
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
O ₃	ozone
Pb	lead
PGDP	Paducah Gaseous Diffusion Plant
PLEF	Paducah Laser Enrichment Facility

PM ₁₀	coarse particulate matter with diameters less than 10 micrometers
PM _{2.5}	fine particulate matter with diameters less than 2.5 micrometers
ROD	Record of Decision
S-Rank	state ranked
SHPO	State Historic Preservation Office
SO ₂	sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
UF ₆	uranium hexafluoride
USACE	U.S. Army Corps of Engineers
U.S.	United States
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VdB	decibels of vibration velocity
WKWMA	West Kentucky Wildlife Management Area

1.0 INTRODUCTION

General Matter, Inc. (GeM), is a private United States (U.S.)-based company formed in 2024 to develop and commercialize uranium enrichment capability in the United States. On August 5, 2025, the U.S. Department of Energy (DOE) signed a lease with GeM for Parcel A (approximately 100 acres) of the Paducah Site. The execution of this lease was contingent upon GeM’s use of this parcel to develop a new private-sector domestic uranium enrichment facility, helping to usher in a new nuclear renaissance for the nation (DOE, 2025a).

GeM is currently preparing a license application for the U.S. Nuclear Regulatory Commission (NRC) to construct and operate a low-enriched uranium (LEU) and high-assay, low-enriched uranium (HALEU) enrichment facility. This facility will hereby be referred to as the General Matter Paducah Enrichment Facility (GMPEF). This license, if approved, would authorize GeM to possess and use special nuclear, source, and by-product material. Before the construction and operation of the GMPEF can begin, however, certain site preparation activities—to include the licensing, construction, and operation of essential radiological and nonradiological auxiliary facilities—must take place. These activities—to include the eventual construction and operation of the GMPEF—will occur on approximately 100 acres of Federal land leased from DOE’s Paducah Site (Leasing Parcel A). DOE has indicated that all Proposed Action activities on Parcel A constitute as a Federal action and are subject to the National Environmental Policy Act (NEPA) (Volume 42 of the U.S. Code [U.S.C.], Section (§) 4321 et seq.). Therefore, this Environmental Assessment (EA) has been prepared to evaluate the potential environmental impacts of its Proposed Action in accordance with DOE NEPA implementing procedures (June 16, 2026).

Following the conclusion of this initial NEPA evaluation and the potential approval of necessary licenses, further NEPA documentation and environmental reviews will be conducted by the NRC as part of their independent regulatory oversight and licensing process for the construction, operation, and eventual decommissioning of the GMPEF.

1.1 Background

1.1.1 Historical Context of the Paducah Site

The 3,556-acre DOE Paducah Site (formerly known as the Paducah Gaseous Diffusion Plant [PGDP]) has a long-standing industrial history. Previous operations at the Paducah Site include the Kentucky Ordnance Works, a trinitrotoluene (or TNT) manufacturing plant that was pivotal in the U.S. military’s production of high explosives during World War II. As the war ended, however, the plant’s munitions mission became obsolete and the Kentucky Ordnance Works officially closed in 1945 (DOE, 2026).

As Cold War tensions escalated in the early 1950s, the Atomic Energy Commission (DOE’s predecessor) and the Department of Defense identified the vacant site for atomic repurposing. The PGDP was established as the second of three Federal sites—alongside Oak Ridge, Tennessee, and Portsmouth, Ohio—designed to expand the U.S. nuclear weapons program’s uranium enrichment capacity. Initially, Paducah functioned as a “feed facility,” producing LEU to be further enriched into weapons-grade levels at its sister plants (Swift & Staley, n.d.). However, by the mid-1960s, the PGDP transitioned to primarily fuel commercial nuclear power reactors (DOE, 2026).

For over 60 years, PGDP utilized gaseous diffusion technology. This technology separates uranium isotopes by pushing uranium hexafluoride (UF₆) gas through barriers or microporous membranes to separate the lighter, fissile isotope uranium-235 from the heavier, more abundant isotope uranium-238. By 2013, shifting market demands and growing production costs led the United States Enrichment Corporation to cease operations.¹ In October 2014, the United States Enrichment Corporation officially returned the facility to the DOE's Office of Environmental Management (DOE-EM), who oversees cleanup of legacy contamination related to the U.S. Environmental Protection Agency's (EPA) 1994 designation of the PGDP as a Superfund Site.

Although all uranium enrichment operations at the Paducah Site have ended, DOE maintains several missions at the site. These missions include environmental monitoring, remediation, and surveillance to ensure protection of site personnel, the environment, and the community; conversion of depleted uranium hexafluoride (DUF₆) to an oxide; and deactivation, decontamination, and decommissioning of uranium enrichment facilities to prepare for demolition.

1.1.2 Reestablishing Paducah's Enrichment Capacity

In December 2024, GeM was awarded \$2 million as a base amount for preparation of future domestic LEU-related task orders (DOE, 2024a). In January 2026, GeM was awarded \$900 million to establish a domestic HALEU enrichment capacity at Paducah (DOE, 2024a).

Alongside these awards, DOE signed a lease with GeM for Parcel A (approximately 100 acres) of the Paducah Site to serve as the proposed location for the GMPEF. The transfer of DOE's property to GeM is permitted under *The Transfer of Real Property at Defense Nuclear Facilities for Economic Development* guidelines (10 Code of Federal Regulations [CFR] 770), the Department of Energy Organization Act (42 U.S.C. § 7256(c)-(f)), and the National Defense Authorization Act (50 U.S.C. § 2811). Additionally, this lease further supports recent legislative policies, such as the Inflation Reduction Act (Public Law 117-169), Bipartisan Infrastructure Law (42 U.S.C. § 18701 et seq.), and Consolidated Appropriations Act, 2024 (Public Law 118-42). In alignment with these policies, the Leasing of Parcel A aims to reestablish domestic uranium enrichment capacities.

1.1.3 Legacy Material Repurposing

DOE also expects the construction of a new enrichment capacity will accelerate cleanup activities at the Paducah Site by repurposing legacy materials. The Lease of Parcel A provides GeM with a minimum of 7,600 cylinders of existing UF₆ (DOE, 2025b), and these cylinders will provide material in the exact chemical form required for enrichment, thus offering GeM a supply of feed material as well as reducing DOE-EM's liability to process DUF₆ as part of its cleanup mission. DOE expects GeM's repurposing of this legacy material will save the American taxpayers approximately \$800 million in avoided disposal costs (DOE, 2025b). Additionally, it may shorten GeM's production timeline by nearly a decade by eliminating the need for mining and milling as well as establishing a conversion capacity.

¹ The Energy Policy Act of 1992 (42 U.S.C. § 13201) privatized uranium enrichment, so operational responsibility for the PGDP was transferred to the United States Enrichment Corporation in 1993.

1.2 Purpose and Need

The purpose of the Proposed Action is to complete site preparation activities and license, construct, and operate essential radiological and nonradiological auxiliary facilities in time to support the broader GMPEF project schedule. Completing the NEPA evaluation of these activities ahead of the NRC primary license ensures a smoother transition into full-scale construction and operation of the broader GMPEF Site, thus helping GeM more rapidly (1) establish a domestic LEU and HALEU enrichment capacity to support national energy demands as the industry pivots away from Russian supply, and (2) reduce DOE-EM's cleanup scope at the Paducah Site—effectively lowering costs to American taxpayers—by repurposing existing legacy cylinders of UF₆.

1.3 Related NEPA Evaluations

In 2004, DOE issued the *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Paducah, Kentucky, Site* (DOE/EIS-0359), hereafter referred to as the 2004 EIS (DOE, 2004), and Record of Decision (ROD) (69 Federal Register [FR] 44654), which evaluated the environmental impacts of construction and operating a facility to convert DOE's inventory of DUF₆ into a stable form of uranium oxide for disposal or industrial reuse. This analysis established protocols for safe cylinder management, staging, and chemical processing of these materials. This current EA incorporates, by reference, the analysis in the 2004 EIS, specifically its established analysis for the large-scale staging, handling, and on-site movement of this legacy material. Additionally, by utilizing the waste disposition and transportation protocols established in the subsequent supplemental EIS (SEIS), *Final Supplemental Environmental Impact Statement Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride; Kentucky, Ohio, Tennessee* (DOE/EIS-0359-S1 and DOE/EIS-0360-S1), hereafter referred to as the 2020 SEIS (DOE, 2020) and ROD (85 FR 34610), GeM can ensure that the relocation of these cylinders to the proposed UF₆ storage pad and eventual disposal adheres to proven safety and environmental standards.

In 2015, DOE issued the *Paducah Gaseous Diffusion Plant Potential Land and Facilities Transfers Environmental Assessment* (DOE/EA-1927) (DOE, 2015a), which evaluated the environmental consequences of transferring federally owned land and facilities at the Paducah Site to private entities for economic development. The 2015 EA established the baseline for transitioning the site from Federal oversight to heavy industrial and commercial reuse. The evaluation concluded that impacts across all resource areas—including air, water, and ecology—would be SMALL, except for socioeconomics, which would experience MODERATE, beneficial impacts. This led to a Finding of No Significant Impact (or FONSI) for the site's transition to industrial reuse, concluding that such land transfers and subsequent reindustrialization would not significantly affect the human or natural environment.

In 2025, DOE issued four Categorical Exclusion (CX) determinations under 10 CFR Part 1021, Appendix B, to authorize initial activities on Parcel A. The *CX for the Lease of Real Property (Leasing Parcel A) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (CX-270990) evaluated the action of leasing 100 acres of real property of the PGDP. The *CX for Site Characterization and Environmental Monitoring (Parcel A) at the Paducah Gaseous Diffusion Plant, Paducah* (CX-270817) authorized GeM as the lessee (tenant) to conduct site characterization and environmental monitoring activities, to include geotechnical soil borings and

baseline sampling on Parcel A. Subsequently, *CX for Site Preparation Including Tree Clearing (Parcel A) at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky* (CX-270853) authorized early site preparation, including the clearing and grubbing of approximately 70 acres of vegetation. The *CX for General Matter, Inc. Site Preparation (Parcel A) at the Paducah Gaseous Diffusion Plant, Kevil, McCracken, Kentucky* (451.1a-093) evaluated the action of rough grading Parcel terrain A after completing tree-clearing activities. These determinations established that the preliminary stages of the project do not individually or cumulatively have a significant effect on the human environment. This EA builds upon those authorized actions by evaluating the next phase of site development, including the construction and operation of radiological and nonradiological auxiliary facilities.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVE

2.1 Proposed Action

The Proposed Action is to complete site preparation activities and license, construct, operate, and eventually decommission essential radiological and nonradiological auxiliary facilities in time to support the broader GMPEF project schedule. These Proposed Action activities include the following:

- Complete preliminary site preparation activities that are not included in NRC's 10 CFR 70.4 and 10 CFR 40.4 definitions of "construction."
- Construct, operate, and eventually decommission a UF₆ storage pad, and to receive and store Depleted-up-to-Natural UF₆ at the GMPEF Site, licensed by the Commonwealth of Kentucky.

A more detailed description of each of these Proposed Action activities is provided in the subsequent sections.

2.1.1 Description of Site Preparation Activities

The NRC, the Federal agency responsible for regulating the nation's civilian use of radioactive materials, is the responsible agency for licensing the construction and operation of the GMPEF. Given NRC's oversight of activities with potential radiation risks, NRC's definition of "construction" in 10 CFR 70.4 and 10 CFR 40.4 does not extend to include specific activities without components of radioactive handling. These exclusions include the following activities:

- Site exploration, including necessary borings, to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;
- Preparation of the site for construction of the facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;
- Erection of fences and other access control measures that are not related to the safe use, or security, of radiological materials subject to licensing;
- Excavation;

- Erection of support buildings (e.g., construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;
- Building of service facilities (e.g., paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines);
- Procurement and fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or
- Taking any other action that has no reasonable nexus to radiological health and safety or common defense and security.

Initiating these activities prior to NRC's primary license is permitted because they have no reasonable radiological nexus to health, safety, or common defense and security. From this list, this EA plans to analyze the activities described in Table 1, "Description of Proposed Site Preparation Activities." A complete description of site preparation activities, to include descriptions of the necessary equipment and best management practices (BMPs) is provided in Appendix A, *Detailed Description of Proposed Site Preparation Activities*.

The Proposed Action construction activities would span approximately 6 months, followed by approximately 2 years of construction of the NRC licensed GMPEF. Within the Conceptual Site Plan footprint for the GMPEF, the administrative and other support buildings, parking lots, and maintained landscaped areas included in the Proposed Action are highlighted in Figure 1, "General Matter Paducah Enrichment Facility Conceptual Site Plan." As a result of final grading, the outfalls of the Conceptual Site Plan footprint for the GMPEF is highlighted in Figure 2, "Proposed Outfalls at the General Matter Paducah Enrichment Facility Site."

Table 1. Description of Proposed Site Preparation Activities

Activity	Brief Description
Site Clearing	Site clearing involves the removal of all surface vegetation, including trees, shrubs, and brush, within the project's approximate footprint.
Rough Grading	Rough grading activities include reshaping the existing topography to reach an ideal elevation for building foundations, roads, and utility corridors. This process involves "cutting" (excavating high areas) and "filling" (depositing and compacting soil in low areas) to manage site drainage and achieve the necessary slope for structural stability.
Soil Characterization, Treatment, Stabilization, and Improvements	Soil characterization, treatment, stabilization, and improvements include borings and mechanical or chemical modifications to the soil to increase its load-bearing capacity and control its shrink-swell properties. The following soil treatment, stabilization, and improvement technologies may be used: - Densification (vibro-compaction), - Drainage enhancement (stone columns), - Reinforcement (deep soil mixing, cement grouting), and/or - Other techniques like microbial induced desaturation or calcite precipitation to bind soil particles.
Installation of Underground Utilities	Installations of underground utility corridors and the installation of subsurface storage tanks. Initial activities would focus on establishing temporary power via overhead lines or underground conduits to support construction trailers and equipment. As site development progresses, permanent utility infrastructure would be installed, including electrical duct banks, telecommunications, potable water lines, and fire suppression water mains. Additionally, USTs may be installed to support facility operations. These may include tanks for emergency generator fuel (diesel), process-related chemicals, or stormwater attenuation. Installation involves deep excavation, the placement of reinforced concrete pads or engineered bedding, and the integration of leak detection and secondary containment systems. Outside the GMPEF Site there would be the following utility connections: - Connection to the DOE Paducah Site water distribution system or municipal water distribution system. - Connection to the DOE Paducah Site sanitary sewer system or municipal sanitary sewer system. - Connection to the DOE natural gas line south of the cylinder storage yard, or other accessible natural gas line. Natural gas supplied by Atmos Energy. - Connection to existing electrical lines at the new GMPEF substation. Electricity provided by the Tennessee Valley Authority or other utility able to provide service to the DOE site. - Connection to telecommunication/fiber optic lines, including existing AT&T lines.
Final Grading	Final grading is the precise, localized smoothing and contouring of the topsoil or subgrade immediately preceding structural placement. This final stabilization stage ensures correct structural load-bearing parameters and establishes exact, engineered slopes necessary to manage localized stormwater runoff into planned drainage channels without disrupting existing site remedial configurations.
Construction of Administrative Buildings	Construction of administrative buildings and support structures includes the assembly and construction of administrative, security, and support facilities within the GMPEF Site. Initial work would involve the mobilization of temporary field offices (e.g., modular trailers anchored to the ground using rods and cables). These temporary units would house contractor employees and security staff during the multi-year construction phase. Permanent construction would follow and include administration and security buildings. Supporting infrastructure includes the installation of perimeter security fencing—typically chain-link fabric topped with barbed wire—and the

Activity	Brief Description
	establishment of access roads (with potential options for connection to Hobbs Road) and parking lots. All facilities would be integrated with site-wide utilities and portable sanitary facilities to maintain hygiene during construction. Facilities currently planned within the GMPEF project area include: - Administrative and Security Building - Warehouse Building - Central Utilities Building - Access Roads - Parking Lots - Equipment Storage Pads Buildings would resemble typical industrial/warehouse buildings. Maximum building height is expected to be 50 ft. During construction, the tallest construction equipment would likely be cranes at approximately 300 ft. Outdoor lighting would be shielded to minimize impacts to surrounding users and to comply with applicable Federal, state, and local laws and regulations. In addition, a short access road would connect the GMPEF to Hobbs Road and Dyke Road.

Key: DOE = U.S. Department of Energy; ft = feet; GMPEF = General Matter Paducah Enrichment Facility; UST = underground storage tank

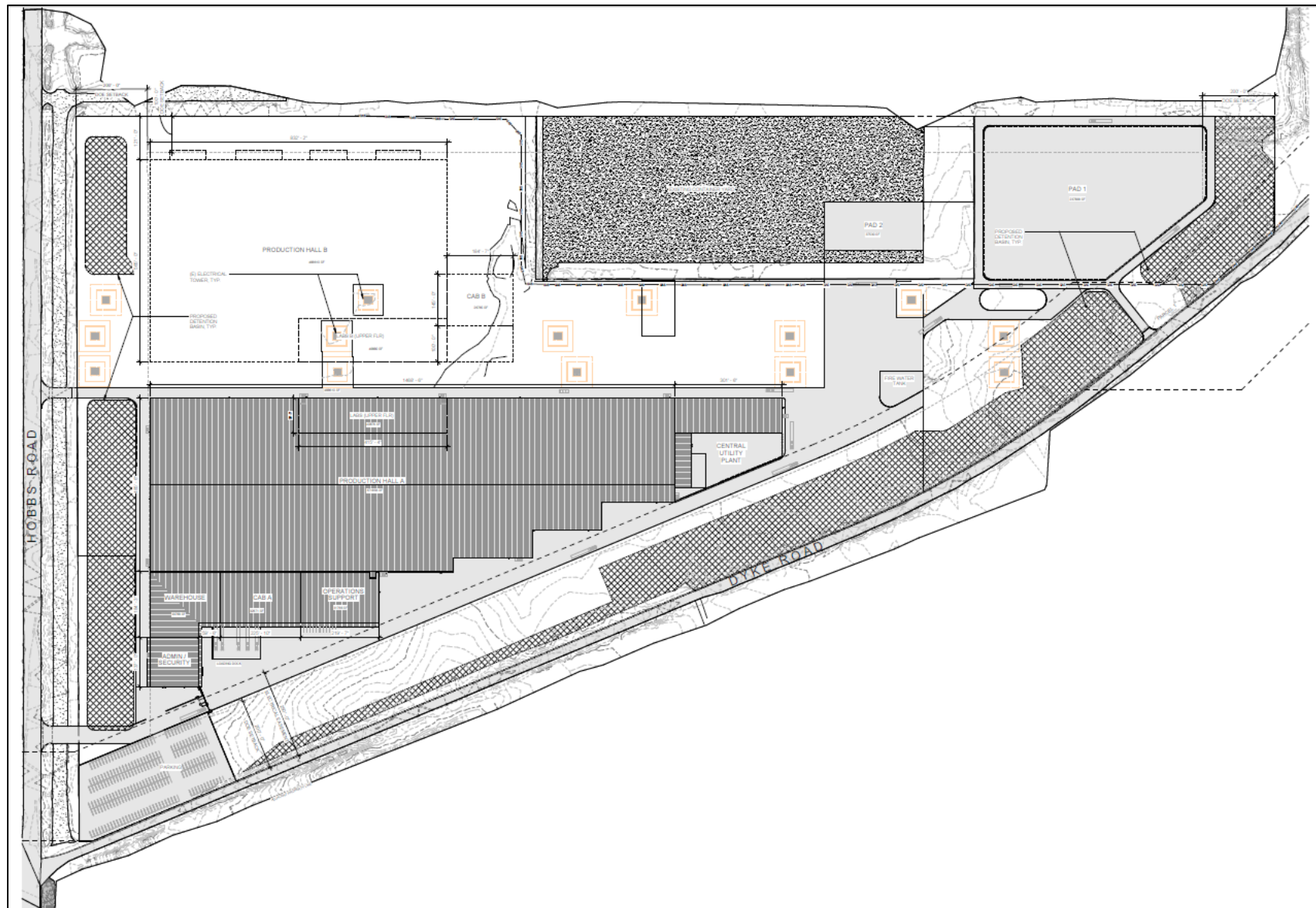


Figure 1. General Matter Paducah Enrichment Facility Conceptual Site Plan

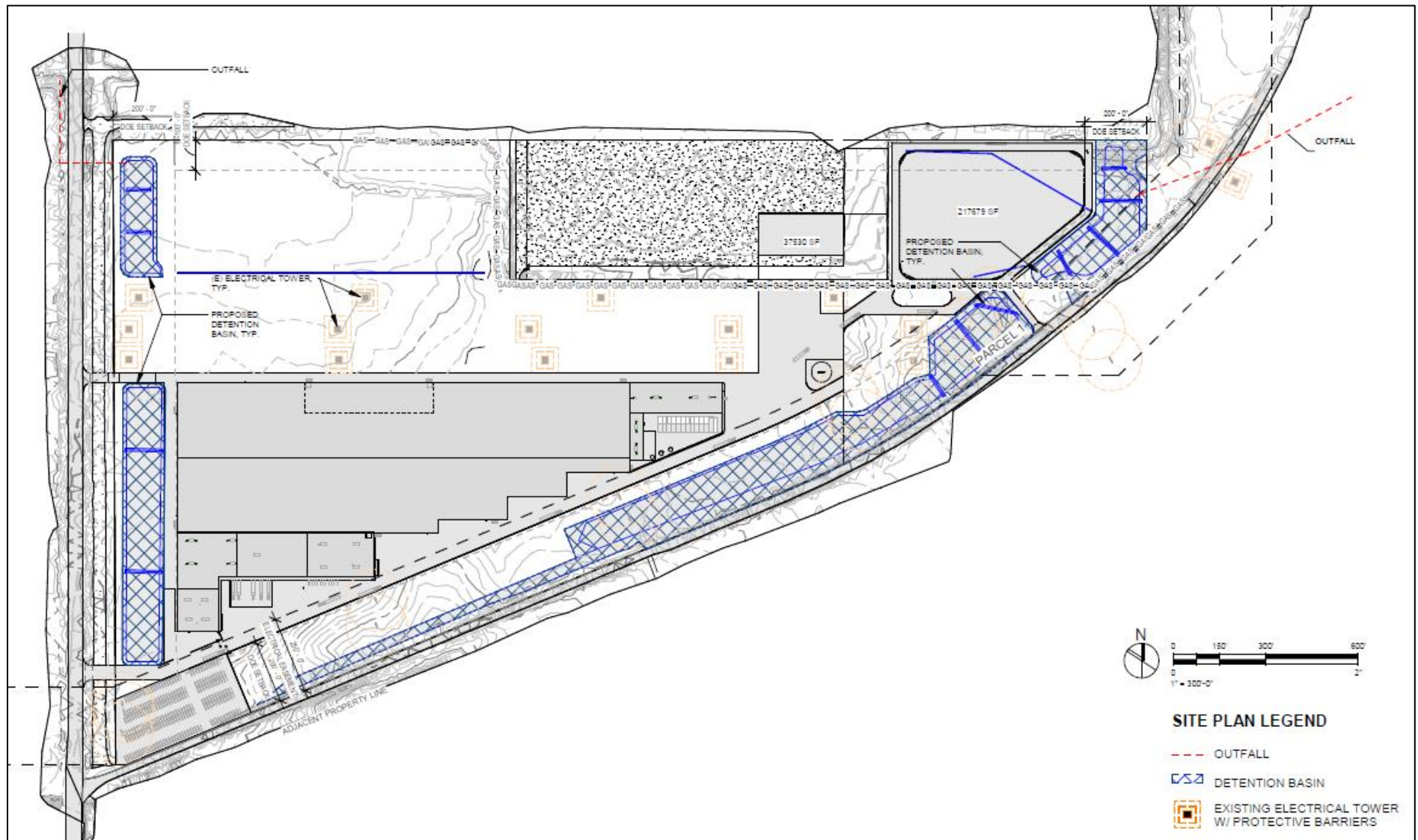


Figure 2. Proposed Outfalls at the General Matter Paducah Enrichment Facility Site

2.2 UF₆ Storage Pad Activities

As part of the Proposed Action, GeM plans to construct, operate, and eventually decommission a UF₆ storage pad, and to receive and store Depleted-up-to-Natural UF₆ at the GMPEF Site, licensed by the Commonwealth of Kentucky.

2.2.1 Description of Kentucky State's Licensing Authority

Under the Atomic Energy Act (42 U.S.C. § 2011), the NRC may transfer certain regulatory authorities to a state. Kentucky became the first such "Agreement State" in 1962. This transfer of authority allows the Kentucky Cabinet for Health and Family Services (CHFS) to license and inspect byproduct, source, and special nuclear materials used within its state borders (NRC, 2025). However, per 10 CFR 150.15(a)(1), the NRC retains exclusive jurisdiction over the construction and operation of any production or utilization facility, such as the GMPEF. Because auxiliary support structures—including the UF₆ storage pad—do not meet the legal definition of a production facility, they may be licensed directly through the Commonwealth of Kentucky.

2.2.2 Construction of the UF₆ Storage Pad

The UF₆ Cylinder Pad (see Figure 3, "Proposed UF₆ Storage Pad at the General Matter Paducah Enrichment Facility Site") will be designed and constructed to store source material, including up to 3,500 full UF₆ cylinders (solid depleted and natural), empty cylinders, and heeled cylinders. The pad will support cylinder surveillance, inspection, maintenance, storage, movement, and handling of UF₆ cylinders owned by GeM at the Paducah Plant Site.

The UF₆ Storage Pad will be constructed with the following specifications:

- **Location:** UF₆ Cylinder Pad-1 will be located in the northeast corner of Parcel A (see Figure 3)
- **Size:** Approximately 220,000 square feet
- **Capacity:** Storage of up to 3,500 48-inch UF₆ cylinders
- **Construction:** Reinforced concrete designs will support full cylinder weight of 33,000 lbs each, with 44,500 lbs per bearing end spread over contact areas
- **Storage Configuration:** Cylinders will be stored in a honeycomb pattern, stacked up to three high
- **Drainage:** A slight slope will be constructed to prevent ponding of flammable liquids (e.g., diesel fuel)
- **Access Points:** The perimeter road(s) (Dyke Road and potentially Hobbs Road) would be used for receiving and delivery of materials, in addition to the access adjacent to DOE cylinder storage yards
- **Stormwater Management:** A dedicated detention pond will manage runoff from the pad
- **Security:** Perimeter fencing will be constructed around the cylinder pad

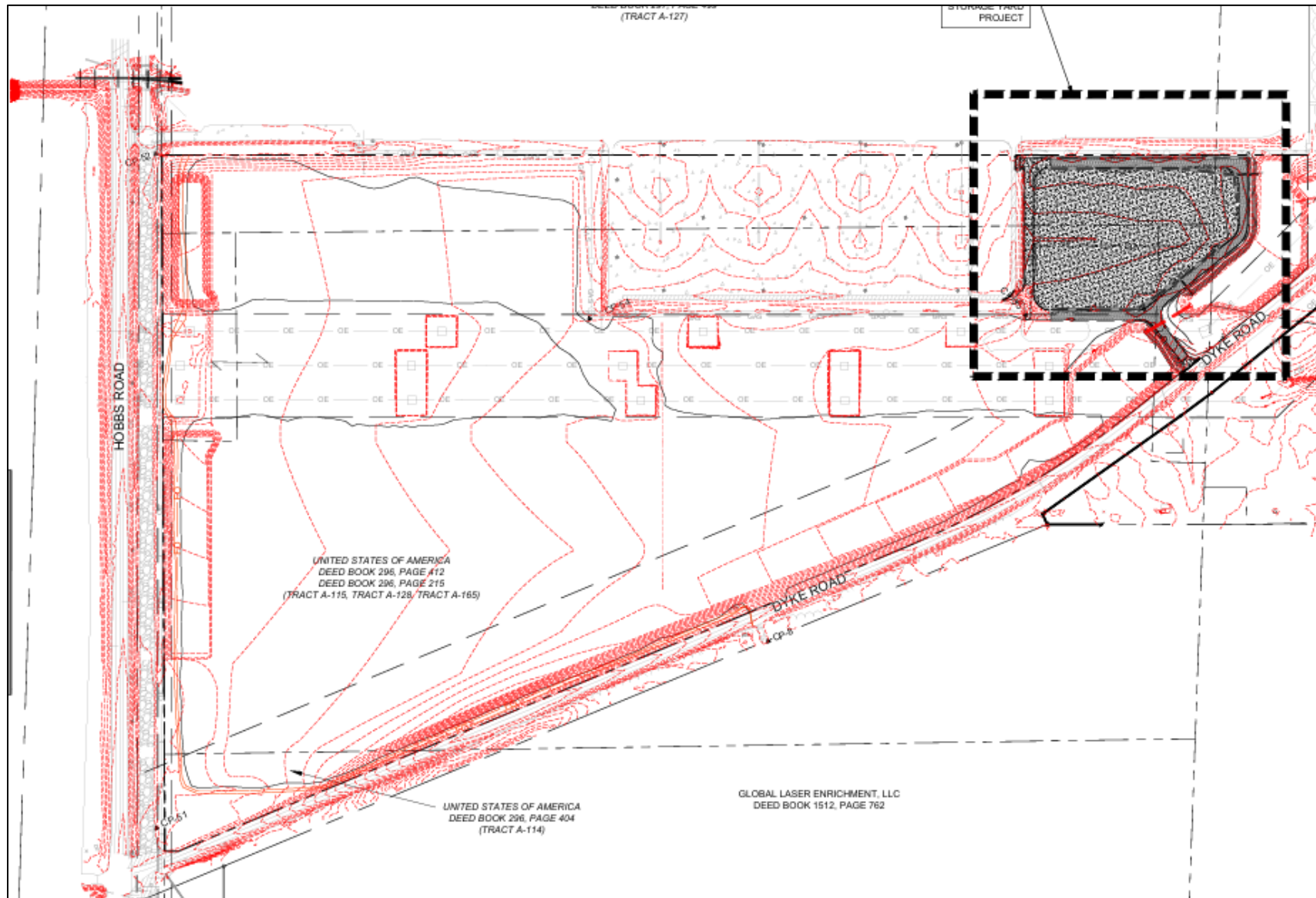


Figure 3. Proposed UF₆ Storage Pad at the General Matter Paducah Enrichment Facility Site

2.2.3 Operation of the UF₆ Storage Pad

During the operational phase, the facility will safely receive, handle, and store Depleted-up-to-Natural UF₆ feed material.

DOE's existing UF₆ cylinders will be transported from the adjacent DOE cylinder storage yards directly onto the GMPEF Site (Parcel A). These standard 14-ton industrial containers will be transported across designated on-site haul routes utilizing heavy-haul vehicles. Once on-site, the cylinders will be offloaded using specialized heavy cranes and tow motors. Workers will then arrange the cylinders on the reinforced concrete or steel cradles to prevent rolling and eliminate direct ground contact. The storage pad will act as both a secure, intermediate staging area for feed material (DUF₆) to GeM's eventual re-enrichment activities and a storage area for UF₆ to cool after exiting the cascades.

Throughout the operational phase, facility personnel will conduct regular physical and radiological inspections to monitor cylinder corrosion, verify valve integrity, and confirm container weights. Per the Kentucky CHFS's radioactive handling requirements, stormwater runoff will be sampled for radiological and hazardous contaminants as part of permitted releases.

The construction, operation, and eventual decommissioning of the UF₆ storage pad will meet the Commonwealth of Kentucky's licensing requirements and ensure protectiveness of both human health and safety, and the environment. Decommissioning activities related to the UF₆ Storage Pad are further discussed in Section 3.8, *Deactivation, Decommissioning, and Demolition Activities*.

2.3 No Action Alternative

Under the No Action Alternative, the Proposed Action activities, except for those already completed (i.e., site clearing and rough grading), would not occur.

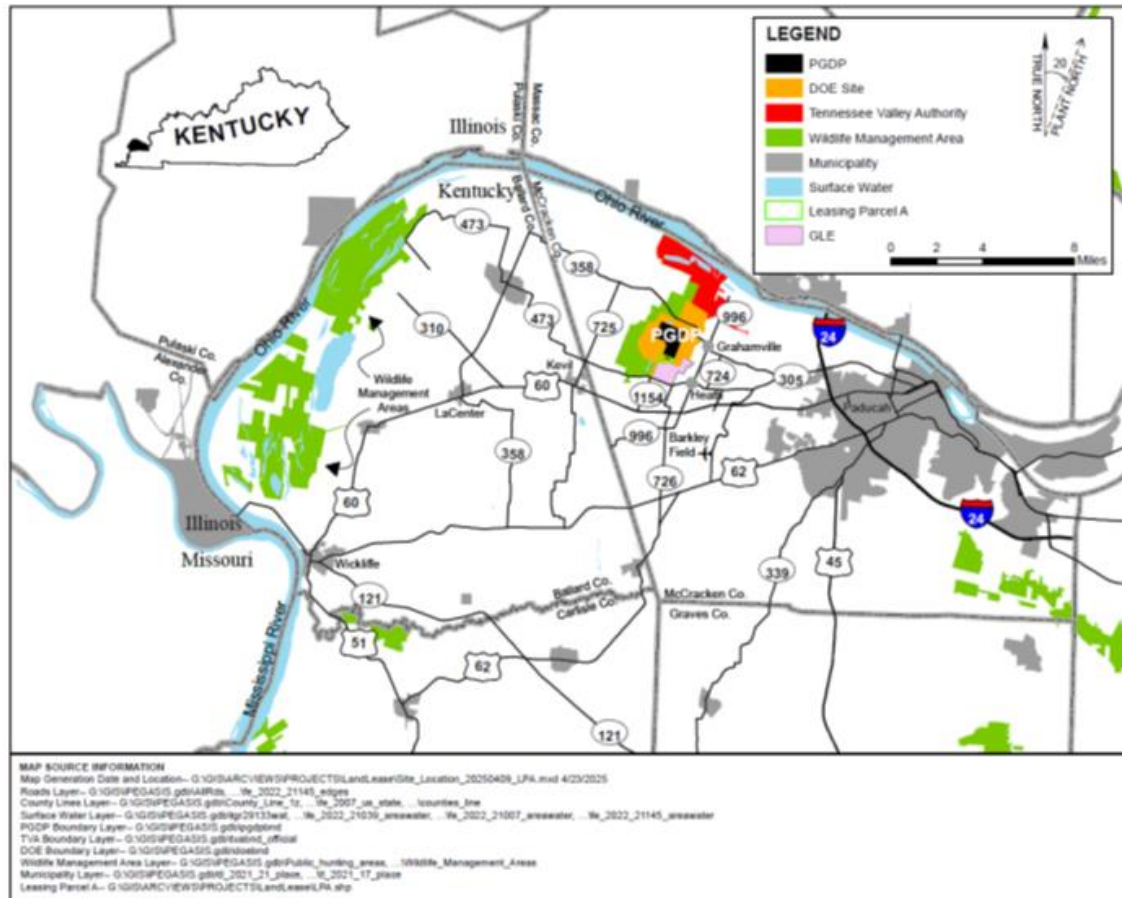
Potential environmental impacts that would result from the implementation of the Proposed Action and No Action Alternative are presented in Chapter 3.0, *Affected Environment and Potential Environmental Consequences*.

3.0 AFFECTED ENVIRONMENT AND POTENTIAL ENVIRONMENTAL CONSEQUENCES

In accordance with NEPA (42 U.S.C. § 4321 et seq.), this section describes the affected environment and environmental consequences associated with the Proposed Action as defined in Section 2.1, *Proposed Action*, and the No Action Alternative as defined in Section 2.3, *No Action Alternative*.

3.1 Introduction

The site proposed for the GMPEF is situated on approximately 100 acres of land leased from the southern side of the DOE Paducah Site (Leasing Parcel A). This tract of land will be referred to as the GMPEF Site throughout the remainder of this EA. The GMPEF Site spans between latitudes (North) 37° 05' 51.42" and 37° 06' 09.83", and between longitudes (West) 88° 49' 13.85" and 88° 48' 26.58", and is located approximately 10 miles west of Paducah in McCracken County, Kentucky (see Figure 4, "General Matter Paducah Enrichment Facility Site Location").

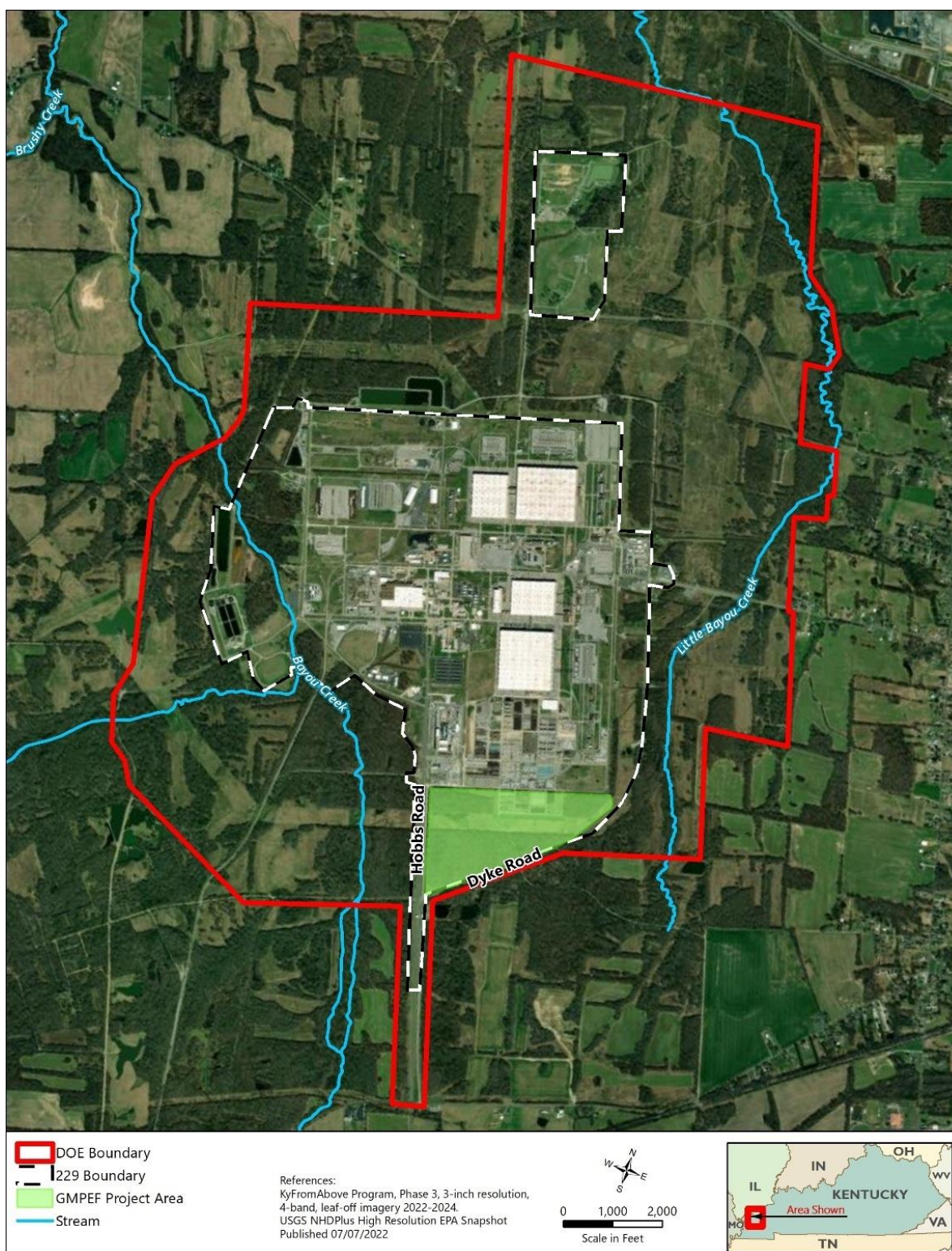


Source: DOE (2025c)

Figure 4. General Matter Paducah Enrichment Facility Site Location

The GMPEF Site (see Figure 5, “General Matter Paducah Enrichment Facility Site”) contains an approximately 10-acre UF₆ cylinder storage yard (C-745-T Cylinder Storage Yard), a high voltage transmission line right-of-way, and is bordered by the following:

- **North:** The industrial core of the Paducah Site. A DUF₆ conversion facility operated by Mission Conversion Services Alliance, LLC, is also located on the Paducah Site.
- **East:** Dyke Road. East of Dyke Road is a forest area of the DOE Paducah Site that was previously utilized as part of the West Kentucky Wildlife Management Area (WKWMA). Following recent land transfers, future use of the area would include industrial uses.
- **South:** Dyke Road. South of Dyke Road is approximately 691 acres of property owned by Global Laser Enrichment, LLC (GLE). GLE plans to construct and operate the Paducah Laser Enrichment Facility (PLEF) at this location. This area consists of forested and former agricultural fields that were formerly part of the WKWMA.
- **West:** Hobbs Road, which is the access road to the Paducah Site. West of Hobbs Road is a portion of the DOE Paducah Site that consists of mostly forested land that was previously licensed to Kentucky as part of the WKWMA. Following recent land transfers, future use of the area would include industrial uses.



Source: DOE (2025c)

Figure 5. General Matter Paducah Enrichment Facility Site

The Paducah Site is on a 3,556-acre Federal reservation in a rural area of McCracken County, Kentucky, approximately 10 miles west of Paducah, and 3.5 miles south of the Ohio River (Figure 5). The former PGDP occupies approximately 615 acres within a fenced industrial area (referred to as the “Limited Area”) at the Paducah Site.

3.2 Resources Considered but Dismissed from Further Analysis

3.2.1 Land Use

The Proposed Action is located on approximately 100 acres (Leasing Parcel A) of the Paducah Site, which is specifically designated for industrial reuse, as analyzed in the *Paducah Gaseous Diffusion Plant Potential Land and Facilities Transfers Environmental Assessment* (DOE/EA-1927) (DOE, 2015a). The construction of a UF₆ storage pad is consistent with the site’s legacy as a nuclear fuel cycle facility. Furthermore, there is no conflict with local zoning or the McCracken County Comprehensive Plan for any of the activities associated with the Proposed Action. The effects of the Proposed Action on prime farmland are considered as part of the “Geology and Soils” resource area (Section 3.6).

3.2.2 Visual Resources

Visual impacts will be negligible due to the site’s existing industrial character and its isolation from public view. The facility is surrounded by lands previously utilized by the WKWMA, which provides a significant wooded buffer. Following recent land transfers, future use of the area would include industrial land uses. Proposed auxiliary structures as part of the Proposed Action are similar in height and profile to previous and existing site buildings in proximity to the site and will not alter the viewshed for off-site receptors located over a mile away.

3.2.3 Socioeconomics

While the reasonably foreseeable GMPEF will create 140 high-paying jobs (Kentucky.gov, 2025; PaducahKY.gov, 2025), the early site works and auxiliary facility construction require a relatively small, temporary workforce. This level of activity will not trigger significant shifts in population, housing demand, or the need for new public services.

3.2.4 Waste Management

Waste management associated with the Proposed Action’s site preparation activities are expected to be routine in nature and managed under existing, pre-approved site protocols. Initial activities, such as clearing and grubbing, primarily generate non-hazardous land-clearing debris (e.g., vegetation, soil, and wood), which is managed in accordance with the site’s existing land-use and recycling policies.

Waste management associated with the receipt and storage of UF₆ cylinders at the proposed UF₆ storage pad was dismissed from detailed discussion because the Proposed Action plans to utilize these cylinders as feed material for commercial re-enrichment rather than waste destined for disposal. The environmental impacts associated with the physical handling, on-site staging, and internal transport of these cylinders have been comprehensively analyzed in the 2004 EIS (DOE, 2004) and subsequent ROD (69 FR 44654) in the 2020 SEIS (DOE/EIS-0359-S1 and DOE/EIS-0360-S1) (DOE, 2020) and subsequent ROD (85 FR 34610). Consequently, no significant impacts to waste management are anticipated from the Proposed Action activities.

3.2.5 Transportation

The PGDP transportation infrastructure was originally designed to support a significant workforce and heavy industrial shipments. Current project-related traffic for site preparation is minimal compared to the site's historical capacity. The movement of the 7,600 UF₆ cylinders to the storage pad will occur entirely on site using interior roads previously analyzed for heavy-load safety in the 2004 EIS (DOE, 2004) and subsequent ROD (69 FR 44654) in the 2020 SEIS (DOE, 2020) and subsequent ROD (85 FR 34610). That analysis also established that the movement of compliant DUF₆ cylinders within the Paducah Site—conducted in accordance with established Nuclear Safety and the U.S. Department of Transportation protocols—results in no significant impact to public and occupational health or the environment.

3.2.6 Public Health and Safety

The Proposed Action would not result in significant impacts on human health or the environment. The proposed UF₆ storage pad would be constructed and operated in compliance with radioactive materials licenses issued and administered under the regulatory authority of the Kentucky CHFS pursuant to Kentucky state regulations 211.844. These state licensing procedures establish rigorous, legally binding controls on radiological containment, shielding, and effluent monitoring designed to be protective of public health and worker safety. Potential health and safety risks associated with the handling, staging, and storage of uranium materials at the DOE Paducah Site were comprehensively evaluated under 2004 EIS (DOE, 2004) and subsequent ROD (69 FR 44654) in the 2020 SEIS (DOE, 2020) and subsequent ROD (85 FR 34610). These findings verified that localized management, container movement, and staging of radiological materials—including depleted uranium configurations—would result in negligible public or worker doses.

All operations will comply with the strict regulatory thresholds and As Low As Reasonably Achievable (also referred to as ALARA) standards established and enforced under Kentucky state regulations 902 Kentucky Administrative Regulations (KAR) 100:015 and 902 KAR 100:019. By operating within these approved boundaries under state-enforced compliance programs, the Proposed Action activities present no new or unanalyzed pathway for public exposure or occupational health impacts.

3.2.7 Infrastructure

The Proposed Action would not result in significant impacts on existing site infrastructure or regional utility networks. Proposed site preparation activities and the construction and operation of the radiological auxiliary facilities—including the UF₆ storage pad—would occur entirely within the heavily industrialized footprint of the DOE Paducah Site. All new facilities would be integrated with new and existing site-wide utility systems for long-term operation. Operational demand for the completed storage pad would be negligible relative to current baseline allocations managed by the DOE Portsmouth/Paducah Project Office. Furthermore, existing site access roads and internal heavy-haul corridors will adequately accommodate the minor, temporary increase in construction traffic and regular radiological transport configurations. Because no new off-site utility lines or major roadway modifications are required, no measurable disruptions to public or site-wide infrastructure would occur.

3.3 Air Resources

Air quality refers to concentrations of various air pollutants in the atmosphere. Air quality is defined by the size and topography of the air basin, the local and regional meteorological influences, and the types and concentrations of pollutants in the atmosphere.

3.3.1 Affected Environment

This section describes the existing air quality conditions of the GMPEF Site and surrounding area.

3.3.1.1 Air Quality

3.3.1.1.1 Applicable Air Quality Standards and Regulations

The EPA, pursuant to the Clean Air Act (CAA), is the responsible Federal agency for developing, implementing, and enforcing national air pollution control programs. The CAA directs the EPA to establish National Ambient Air Quality Standards (NAAQS), which consist of two levels of standards. Primary NAAQS set limits to protect public health, including the health of sensitive populations, such as people with asthma and other respiratory conditions, children, and the elderly. Secondary NAAQS set limits to protect public welfare; prevent visibility impairment; and prevent damage to animals, crops, vegetation, and buildings. The EPA has set NAAQS for the following principal air pollutants, which are called criteria air pollutants (EPA, 2025a):

- Carbon monoxide (CO);
- Lead (Pb);
- Ozone (O₃);
- Nitrogen dioxide (NO₂);
- Coarse particulate matter with diameters less than 10 micrometers (PM₁₀);
- Fine particulate matter with diameters less than 2.5 micrometers (PM_{2.5}); and
- Sulfur dioxide (SO₂).

Ozone is formed in the atmosphere by photochemical reactions of previously emitted pollutants called precursors. Ozone precursors are mainly nitrogen oxides and photochemically reactive Volatile Organic Compounds. In the presence of sunlight, the maximum effect of precursor emissions on ozone levels usually occurs several hours after they have been emitted and many miles from their source. Ozone concentrations are highest during the warmer months of the year and coincide with the period of maximum insolation. Inert pollutants, such as CO, tend to have the highest concentrations during the colder months of the year when light winds and nighttime/early morning surface-based temperature inversions inhibit atmospheric dispersion. Maximum inert pollutant concentrations usually are found near an emission source. Maximum PM₁₀ concentrations can occur in combination with fugitive dust generated by ground-disturbing activities (such as the operation of vehicles on unpaved surfaces and agricultural activities) and high wind events. PM_{2.5} is produced by many types of combustion sources such as motor vehicles, power plants, residential wood burning, forest fires, and agricultural burning. PM_{2.5} poses the greatest public health concern because it can be inhaled deep into the lungs.

Air toxics are air pollutants that are known or suspected of causing cancer or other serious health effects (e.g., reproductive effects or birth defects) or adverse environmental effects. The CAA establishes a list of hazardous air pollutants (HAPs) and directs the EPA to regulate emissions of these HAPs from stationary industrial sources. National ambient concentration standards for HAPs analogous to the criteria air pollutant NAAQS have not been established. Instead, the EPA develops and promulgates national air emission standards to limit the amount of HAP emissions released into the atmosphere from specific categories of stationary sources. These standards are called the National Emission Standards for Hazardous Air Pollutants and are based on implementing selected air pollutant control technologies or work practices (EPA, 2026a).

The Kentucky Division for Air Quality (KDAQ), under the Kentucky Energy and Environment Cabinet, is responsible for implementing and enforcing state and Federal air pollution control programs in Kentucky. The KDAQ enforces ambient air quality standards by monitoring air quality, developing rules to regulate and to permit stationary sources of air emissions, and managing the air quality attainment planning processes in Kentucky. The Kentucky General Assembly enacts state air pollution laws. The Kentucky ambient air quality standards equate to the NAAQS for CO, Pb, O₃, NO₂, PM₁₀, and SO₂, but there are differences between the state and national standards for PM_{2.5}. Additionally, Kentucky has its own ambient air quality standards for gaseous fluorides, hydrogen sulfide, odors, and total fluorides.

The KDAQ does not regulate air emissions of radionuclides from sources. The state agency responsibility for regulation of the possession, use, transfer, transportation, and disposal of radioactive materials within Kentucky is the Kentucky CHFS, Radiation Health Branch.

3.3.1.1.2 Regional Ambient Air Quality

The KDAQ and Louisville Metro Air Pollution Control District operate and maintain air monitors to measure ambient air concentrations of criteria air pollutants at more than 30 locations around the state (KDAQ, 2025). The final data recorded for each monitoring station are reported to the EPA's Air Quality System database, which compiles and summarizes nationwide ambient air monitoring data.

There is one ambient air monitoring station currently operating in the vicinity of the GMPEF Site that measures criteria pollutants. This station, the Paducah Transit monitor (AQS Site ID 21145-1027) located in Paducah, monitors O₃, NO₂, SO₂, and PM_{2.5} and is operated by KDAQ. The closest CO and PM₁₀ monitoring stations to the GMPEF Site are the Evansville-Lloyd and Evansville-Buena Vista monitors in Indiana, respectively. There are no Pb monitoring stations near the GMPEF Site. From 1990 to 2022, O₃, NO₂, PM₁₀, PM_{2.5}, and SO₂ were measured at the Jackson Purchase monitoring station, which was located 2.8 miles southeast of the current Paducah Transit monitor. That station was decommissioned and replaced with the Paducah Transit monitoring station in 2023.

From 2022 through 2024, ambient concentrations of NO₂ and SO₂ measured at the Paducah monitoring station did not exceed the applicable NAAQS and state standard levels (EPA, 2025b). During this period, O₃ concentrations exceeded the 8-hour 2015 standard of 0.070 parts per million once in 2022 and 2024 and six times in 2023. However, the definition of the 2015 O₃ standard is based on the annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years; this statistic for the period 2022 through 2024 equates to 0.067 parts per million, which is slightly below the standard. During this same monitoring period, PM_{2.5} concentrations exceeded the 24-

hour 2012 standard of 35 microns per cubic meter once in 2022 and twice in 2023. The definition of the 2012 PM_{2.5} standard is based on the annual 98th percentile value, averaged over 3 years and the value of this metric for the period 2022 through 2024 equates to 22 microns per cubic meter, which is well below the standard.

As defined in the CAA, the EPA issues a legal status designation about whether an area violates a NAAQS or contributes to a NAAQS violation in a neighboring area. An attainment area is defined as a geographic area that meets the NAAQS. The EPA designates an area as a nonattainment area if air quality monitoring shows that the area violates a NAAQS for a given criteria pollutant. An area could be a nonattainment area for one NAAQS and an attainment area for other NAAQS. A nonattainment area can be re-designated as an attainment area if it can maintain the applicable standard for at least 10 years. These areas are called maintenance areas. Currently, the EPA designates McCracken County and its neighboring counties as attainment areas for all NAAQS (EPA, 2026b).

3.3.1.1.3 Existing Air Emissions

Currently, most of the existing GMPEF Site has been cleared and rough graded; it has no substantial air emissions. A UF₆ cylinder storage yard associated with the adjacent DOE Paducah Site exists just north of the project site. Emissions associated with this existing storage yard are limited to occasional use of mobile equipment to handle cylinders of UF₆.

The nearest substantial source of emissions in proximity to the project site is the DOE Paducah Site. The DOE Paducah Site processes UF₆ into uranium oxide powder, aqueous hydrogen fluoride (HF), and calcium fluoride. The environmental remediation, waste management, and decontamination and decommissioning missions at the DOE Paducah Site operate under a KDAQ sitewide Title V permit (DOE, 2025d). The conversion facility building and HF loading area operate under a KDAQ conditional major operating air permit for purposes of controlling HF vapors and particulate uranium oxide (KDAQ, 2021). Activities at the DOE Paducah Site that could generate fugitive emissions include the transport and disposal of waste, decontamination of equipment, and environmental remediation activities. Annual air emissions for the DOE Paducah Site due to operations under the Title V and conditional major operating air permits are available from the KDAQ.

3.3.1.2 Meteorology and Climatology

Due to its latitude and location on the eastern side of North America, the GMPEF Site experiences a humid subtropical climate. This climate is characterized by hot and humid summers, relatively mild winters, abundant precipitation, and minor differences in precipitation totals between seasons.

The weather in Kentucky is primarily influenced by the position of the polar jet stream and its associated storm systems and a large system of atmospheric high pressure known as the Bermuda High. Seasonal variations in the positions and strengths of these systems are key factors in the weather changes in the area.

During summer, the Bermuda High attains its greatest strength and most northerly position, where it is centered east of Kentucky. The counterclockwise atmospheric circulation around the Bermuda High brings warm and moist tropical air from the Gulf of America into the region. As a result, summers in Kentucky are usually hot and humid. Cumulus clouds and afternoon thunderstorms are common during the summer months. The remnants of tropical storms also can move into the

region from the Gulf and can augment rainfall in late summer and early fall. Drier conditions occur when the Bermuda High moves westward over the region.

During winter, a weakening Bermuda High and an intensifying jet stream result in the frequent passage of polar storm systems through Kentucky. These storm systems bring rain and occasional ice or snow, followed by drier conditions due to the influence of cold continental air.

Meteorological data collected by the National Weather Service at Barkley Regional Airport, located about 3 miles southeast of the GMPEF Site, were used to describe the climatic conditions of the project site and adjacent area. Based on measurements at the Barkley Regional Airport, the average high and low temperatures for the warmest month of the year (July) are 89.9 and 69.4 degrees Fahrenheit (°F), respectively. The average high and low temperatures for the coldest month of the year (January) are 44.7 and 27.3 °F, respectively (MRCC, 2025a). The highest temperature recorded at Barkley Regional Airport for the period from 1938 through August 2025 is 108 °F, which occurred in July 1942 and June 2012 (NWS, 2025a). The lowest temperature recorded during this period is -15 °F, which occurred in January 1985 (NWS, 2025b).

The mean annual precipitation for the Barkley Regional Airport is 50.3 inches (MRCC, 2025a). April and August are the wettest and driest months of the year, respectively. The highest 24-hour rainfall rate of 7.5 inches occurred in September 1985 (NWS, 2025c). The Paducah area receives occasional snowfalls. On average, the region receives about 9.0 inches of snow per year. The highest 24-hour snowfall rate of 14.2 inches occurred in December 2004 (NWS, 2025d). Freezing rain poses a risk to power systems and trees. For the period 1948 through 2000 freezing rain on average occurred 2 to 3 days per year in the Paducah area and 6 to 9 hours per year (MRCC, 2025b). Hail occurs in the project region, usually in association with thunderstorms. On average, damaging hail (greater than 0.75 inches in diameter) occurred from 4 to 6 days per year, based on data from 1986 to 2015 (Storm Prediction Center, 2025a). The high season for hail in the region is late spring.

Thunderstorms occur approximately 54 to 63 days per year in the project area (National Oceanic and Atmospheric Administration, 2025). A common cause of thunderstorms is when cooler air associated with polar fronts converges with warm and moist Gulf air in the region. In comparison to the entire United States, the project area has a relatively high occurrence of thunderstorms. Severe thunderstorms can produce lightning, damaging winds, and hail.

Between 1950 and 2024, 22 tornadoes have been reported in McCracken County. Of these tornadoes, five were estimated as F2 on the Fujita scale (winds of 113 to 157 miles per hour), 11 as F1 (winds of 72 to 113 miles per hour), and the remaining 6 as F0 (winds of 40 to 72 miles per hour). An F2 tornado occurred on March 3, 2023, and produced approximately \$1.3 million in damage within the county (Storm Prediction Center, 2025b). Data for the period 1986 through 2015 show that a tornado occurred within 25 miles of the project site 1 to 1.25 days per year, which is the second highest rating for areas within the continental United States (Storm Prediction Center, 2025a).

Figure 6, “Wind Speed and Wind Direction Frequencies (wind rose) for data Recorded at the Barkley Regional Airport for the Period 1973 to 2025,” shows a graphic of wind speed and wind direction frequencies (wind rose) for data recorded at the Barkley Regional Airport for the period 1973 to 2025 (Iowa Environmental Mesonet, 2025a). These data show that winds in the project area prevail from the south-southeast to southwest directions. The annual average wind speed at the airport is 7 miles per hour. Extreme winds occur at Barkley Regional Airport due to events

such as thunderstorm downdrafts, microbursts, or tornadoes. The highest wind gust measured at the airport from 1973 to 2025 was 84 miles per hour, which occurred during a severe thunderstorm on May 18, 1995 (Iowa Environmental Mesonet, 2025b).

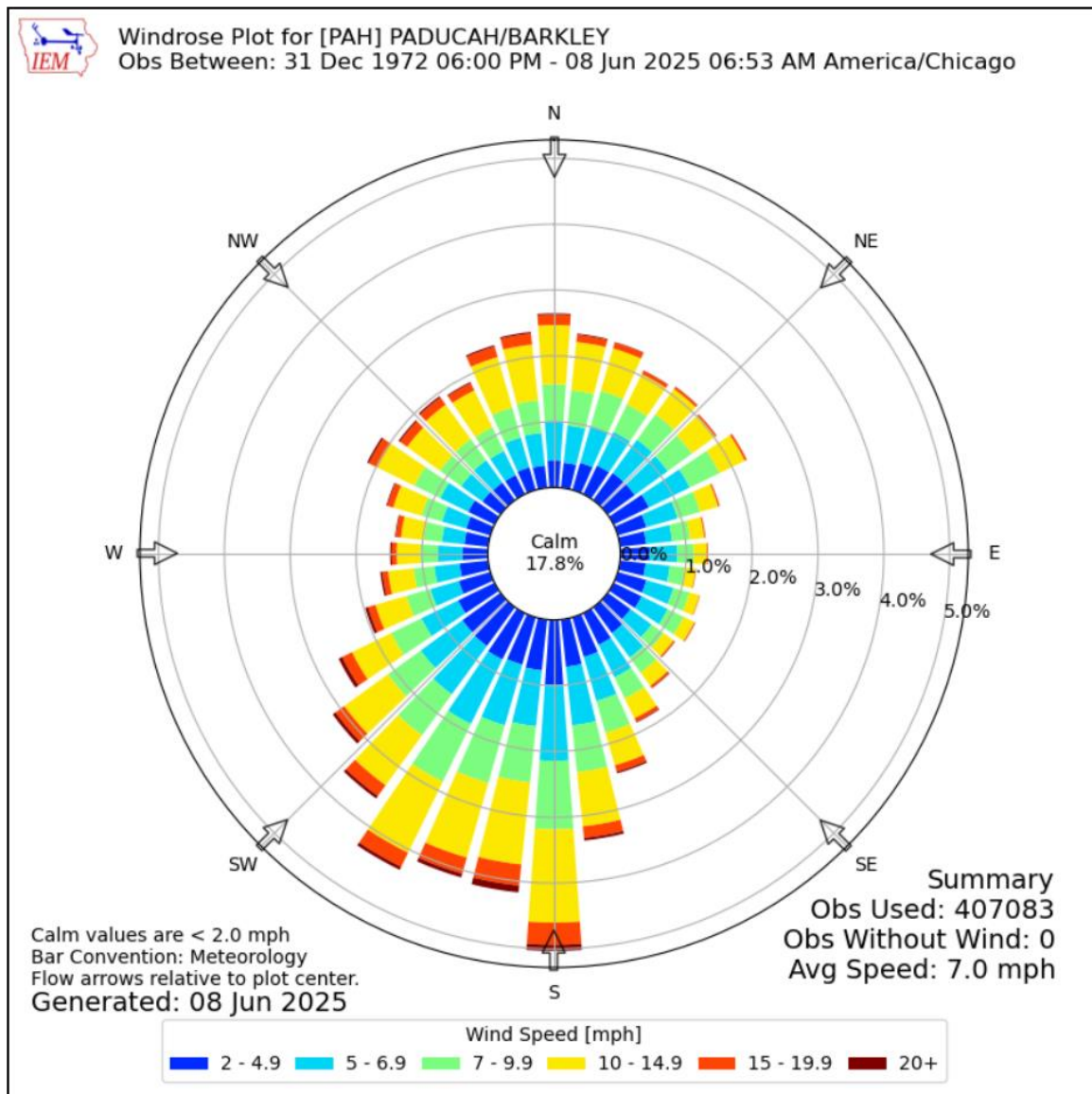


Figure 6. Wind Speed and Wind Direction Frequencies (wind rose) for Data Recorded at the Barkley Regional Airport for the Period 1973 to 2025

3.3.2 Potential Environmental Consequences

Construction and operation of the Proposed Action would result in air emissions of criteria pollutants and HAPs. The following analysis evaluates the impact of projected emissions from the Proposed Action relative to air quality conditions within the project area and applicable Federal and state air pollution standards and regulations. Air emissions controls planned to minimize air quality impacts from construction and operation of the Proposed Action are discussed in Section 2.1, *Proposed Action*, and Appendix A, *Detailed Description of Proposed Site Preparation Activities*.

3.3.2.1 Proposed Action Alternative

3.3.2.1.1 Construction

Construction of the Proposed Action would require site clearing and grading, building and security fencing construction, and roadway and utility development. Air quality impacts from construction activities would result from (1) combustive emissions (such as volatile organic compounds, CO, and nitrogen oxides), due to the use of fossil-fuel-powered equipment, trucks, and worker commuter vehicles; and (2) fugitive dust emissions (PM₁₀ and PM_{2.5}), due to the operation of equipment on exposed soil.

Site clearing and grading would result in the highest amounts of construction equipment usages and resulting combustive and fugitive dust emissions during any construction phase. Building and infrastructure development would include substantially lower construction equipment usages and resulting air emissions. The project construction contractor would implement protective measures to minimize the generation of fugitive dust during construction and to comply with KAR Title 401, Chapter 063, Regulation 010 (401 KAR 63:010 [Fugitive Emissions]). Implementation of these measures would reduce fugitive dust emissions from active disturbed areas by up to 74 percent compared to uncontrolled levels (Countess Environmental, 2006).

Air emissions from project construction would occur over large portions of the project site and the mobile and intermittent operation of most emission sources over such a large area would contribute to dispersed ambient air pollutant impacts at off-site locations. Currently, McCracken County attains all NAAQS. Due to its remoteness, emissions from construction of the Proposed Action would not combine with substantial emissions from nearby off-site sources. Therefore, on-site air emissions from construction of the Proposed Action would not contribute to an exceedance of a national or Kentucky ambient air quality standard. The ambient impact of construction emissions due to more distant off-site sources, such as haul trucks or worker commuter vehicles, would be substantially less than those that would occur adjacent to the project site. Therefore, construction of the Proposed Action would produce less than significant air quality impacts.

3.3.2.1.2 Operation

Air quality impacts from operation of the Proposed Action would occur from (1) diesel-powered trucks that transport Depleted-up-to-Natural UF₆ cylinders; (2) diesel-powered mobile equipment (such as forklifts and gantry cranes) that handle cylinders of Depleted-up-to-Natural UF₆ within the cylinder storage pad; (3) a diesel-powered electric generator with a combined power output of 1 megawatt for use in the event of power outages (otherwise, operated 1 hour per month for routine maintenance testing); and (4) worker commuter vehicles. The region of influence for the air quality analysis includes the area surrounding the GMPEF and generally within a few miles of a proposed emission source.

Operation of the proposed Depleted-up-to-Natural UF₆ cylinder storage pad would not require any continuous combustion activities and therefore would produce minimal amounts of air pollutant emissions. Air quality impacts from the Proposed Action would be greatest directly adjacent to the project site. Trucks and vehicles that access the project site would produce more dispersed and intermittent air quality impacts along local and regional roadways that link to the project site.

In conclusion, impacts from criteria pollutant and HAP emissions from operation of the Proposed Action would remain below the NAAQS and HAP regulatory levels. Therefore, operation of the Proposed Action would produce less than significant air quality impacts.

3.3.2.1.3 Control of Air Quality Impacts

The Proposed Action would implement a program that incorporates air emissions controls during proposed construction and operational activities. Components of this program would include the following.

Construction

Potential measures that would mitigate fugitive dust emissions during construction include the following:

- Water the GMPEF Site and unpaved roads when dust emanates from these areas.
- Implement speed limits for vehicles traveling on paved and unpaved roads.
- Remove dirt from truck tires by driving over a gravel pad prior to leaving the GMPEF Site or unpaved access road to avoid spreading sediments on paved roads.
- Cover trucks that carry soil and debris to reduce dust emissions while driving on roadways.
- Pave access road and parking lots as soon as practicable.

Operations

Control systems and measures that would lessen the release of air emissions into the atmosphere from planned operations include the following:

- Design process features that inherently lower the potential for air emissions.
- Implement air emissions control systems to capture and remove air pollutants.
- Implement monitoring and inspection programs to detect any air emissions from equipment malfunction so that corrective action can be taken promptly.
- Adhere to work practices to prevent or reduce air emissions.

Implement a periodic inspection and maintenance program for Depleted-up-to-Natural UF₆ cylinders stored on the outdoor cylinder storage pad.

Store organic solvents, paints, and other liquids containing volatile organic compounds in containers covered with tightly fitting lids.

3.3.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action activities, except for those already completed (i.e., site clearing and rough grading), would not occur. Therefore, no new construction or operation activities related to the GMPEF would proceed or result in additional air emissions. Air emissions under this alternative would occur from the occasional use of equipment that handle cylinders of UF₆ at the existing Paducah Site cylinder storage yard and maintain the transmission line right-of-way (described in Section 3.3.1, *Affected Environment*).

3.4 Ecological Resources

Ecological resources include the plant and animal species, habitats, and ecological relationships of the land and water areas within GMPEF Site, which is defined as the area directly or indirectly affected by the Proposed Action described in Section 2.1, *Proposed Action*. Particular consideration is given to special status species, which are those species protected under Federal or state law, including threatened and endangered species, migratory birds, and bald and golden eagles. For the purposes of this EA, special status species include plant and animal species that are federally listed (U.S. Fish and Wildlife Service [USFWS]) or state-listed (Kentucky Department of Fish and Wildlife Resources [KDFWR]) for protection. Identifying which species occur in an area affected by an action may be accomplished through on-site surveys, literature reviews and coordination with appropriate Federal and state regulatory agency representatives, resource managers, and other knowledgeable experts.

3.4.1 Affected Environment

The following section provides an overview of the GMPEF Site's current ecological baseline environment summarized from existing documentation and field studies conducted July 28–30, 2025, to support the NRC License Application. For a detailed description and analysis of the terrestrial and aquatic communities within direct proximity of the GMPEF Project Area, refer to Section 2.5 of the *2023 Paducah Gaseous Diffusion Plant Paducah Site Annual Site Environmental Report* (DOE, 2024b).

3.4.1.1 Vegetation

The GMPEF Site is located within EPA's Level IV Ecoregion 74b: The Loess Plains, a productive agricultural area consisting of gently rolling uplands, broad bottomlands, and terraces. Natural vegetation is typically composed of oak-hickory forest and bluestem prairie (EPA, 2024). Grasslands and forested wetlands once widespread have largely been replaced by cropland and mixed agriculture. Historically, vegetation of this region was comprised of bottomland deciduous forest woodland abundant in green ash (*Fraxinus pennsylvanica*) and Carolina ash (*Fraxinus caroliniana*), elm species (*Ulmus* sp.), eastern cottonwood (*Populus deltoides*), sugarberry (*Celtis laevigata*), sweetgum (*Liquidambar styraciflua*), water tupelo (*Nyssa aquatica*), oak species (*Quercus* sp.), and bald cypress (*Taxodium distichum*) (Bailey, 1995). The GMPEF Project Area was converted to agricultural land sometime prior to the 1940s but began regenerating to forested woodland around the 1970s (DOE, 2015b).

3.4.1.2 Fish and Wildlife

Refer to the KDFWR's State Wildlife Action Plan for a detailed description of Kentucky's wildlife species and habitats, including a complete listing of the 527 Species of Greatest Conservation Need in the state (KDFWR, 2023).

Wildlife documented in the area includes species indigenous to forests, scrub-shrub, and open grassland communities such as rabbits (*Sylvilagus* sp.), raccoon (*Procyon lotor*), eastern cottontail (*Sylvilagus floridanus*), eastern gray squirrel (*Sciurus carolinensis*), white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), and various small rodents such as bats, mice, voles, and moles. Typical birds of the area include European starling (*Sturnus vulgaris*), cardinal (*Cardinalis cardinalis*), red-winged blackbird (*Agelaius*

phoeniceus), mourning dove (*Zenaida macroura*), bobwhite quail (*Colinus virginianus*), turkey (*Meleagris gallopavo*), killdeer (*Charadrius vociferus*), American robin (*Turdus migratorius*), eastern meadowlark (*Sturnella magna*), eastern bluebird (*Sialia sialis*), blue jay (*Cyanocitta cristata*), red-tail hawk (*Buteo jamaicensis*), and great horned owl (*Bubo virginianus*). Reptile and amphibian species that are common to this area include garter snake (*Thamnophis sirtalis*), eastern box turtle (*Terrapene carolina*), common snapping turtle (*Chelydra serpentina*), various frog and toad species (southern leopard frog [*Lithobates sphenoccephalus*], gray treefrog [*Dryophytes versicolor*], cricket frog [*Acris crepitans*], American toad [*Anaxyrus americanus*]), eastern fence lizard (*Sceloporus undulatus*), and red-eared slider (*Trachemys scripta elegans*) (DOE, 2024b; DOE, 2025c).

Aquatic habitats within the GMPEF Site are limited to isolated wetlands, and two ephemeral streams. No fish species have been documented within these areas, and no macroinvertebrates (e.g., shells or larvae) were observed at the time of the wetland delineation (CEC, 2025c; DOE, 2024b). While ephemeral areas may still support fish spawning and nursing at times of flow, the ephemeral streams within the GMPEF Site are not likely to support aquatic wildlife, such as clams or freshwater fish species, as they do not provide direct connectivity (separated by an upland area) to the larger Little Bayou Creek, located just east of the GMPEF Project Area (CEC, 2025c).

3.4.1.3 Special Status Species

3.4.1.3.1 Federally Threatened and Endangered Species

Provisions under Section 7 of the Endangered Species Act (ESA) (16 U.S.C. 1531-1544), as amended, require that any action likely to adversely affect a species classified as federally protected be subject to review by the USFWS. The USFWS Information for Planning and Consultation online system was accessed on August 22, 2025, to request an *Official Species List* to identify federally listed species protected under the ESA with the potential to occur within the GMPEF Site (USFWS, 2025a). Table 2, "Special Status Species with Potential to Occur Within the GMPEF Project Area" presents these species. There is no federally designated critical habitat on site or within the immediate vicinity of the GMPEF Site (USFWS, 2025a).

Table 2. Special Status Species with Potential to Occur Within the General Matter Paducah Enrichment Facility Project Area

Common Name	Scientific Name	Status		Known Occurrence at the Paducah Site	Suitable Habitat Within the GMPEF Project Area?
		Federal ^a	State ^b		
Mammals					
Gray bat	<i>Myotis grisescens</i>	FE	S2	No	No
Indiana bat	<i>Myotis sodalis</i>	FE	S1S2	No	Yes
Tricolored bat	<i>Perimyotis sodalis</i>	PE	S2	No	Yes
Southeastern myotis	<i>Myotis austroriparius</i>	-	SE	No	Yes
Birds					
Whooping crane	<i>Grus americana</i>	EXP, MBTA	SNA	No	No
Loggerhead shrike	<i>Lanius ludovicianus</i>	MBTA	S3S4	No	Yes
Clams					
Clubshell	<i>Pleurobema clava</i>	FE	S1	No	No
Fanshell	<i>Cyprogenia stegaria</i>	FE	S1	No	No
Fat pocketbook	<i>Potamilus capax</i>	FE	S2	No	No

Common Name	Scientific Name	Status		Known Occurrence at the Paducah Site	Suitable Habitat Within the GMPEF Project Area?
		Federal ^a	State ^b		
Longsolid	<i>Fusconaia subrotunda</i>	FT	S3	No	No
Orangefoot pimpleback (pearly mussel)	<i>Plethobasus cooperianus</i>	FE	S1	No	No
Pink mucket	<i>Lampsilis abrupta</i>	FE	S1	No	No
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	FT	S2	No	No
Ring pink	<i>Obovaria retusa</i>	FE	S1	No	No
Rough pigtoe	<i>Pleurobema plenum</i>	FE	S1	No	No
Sheepnose mussel	<i>Plethobasus cyphus</i>	FE	S1	No	No
Spectaclecase	<i>Cumberlandia monodonta</i>	FE	S2S3	No	No
Reptiles					
Northern crayfish frog	<i>Lithobates aereolatus circulosus</i>	-	S3	No	Yes
Insects					
Monarch butterfly	<i>Danaus plexippus</i>	PT	S4	No	No
Plants					
Cream wild indigo	<i>Baptisia leucophaea</i> var. <i>leucophaea</i>	-	S2	No	Yes
Prairie milkweed	<i>Asclepias hirtella</i>	-	S2	No	Yes
Rosinweed	<i>Silphium integrifolium</i>	-	S3S4	No	Yes
Compassplant	<i>Silphium laciniatum</i>	-	S2	No	Yes

Sources: (KDFWR, 2023; DOE, 2024b; OKNP, 2025; USFWS, 2025a)

Key: FE = federally listed as endangered under the Endangered Species Act; FT = federally listed as threatened under the Endangered Species Act; MBTA = species federally protected under the Migratory Bird Treaty Act; PE = federally proposed for listing as endangered under the Endangered Species Act; PT = federally proposed for listing as threatened under the Endangered Species Act; S1 = state-listed Critically Imperiled; S2= state-listed Imperiled, S3= state-listed Vulnerable, S4= state-listed Apparently Secure; SNA = state not applicable (not a suitable target for conservation activities, long distance aerial migrants)

Notes:

^a U.S. Fish and Wildlife Service

^b Kentucky Department of Fish and Wildlife Resources

None of the of the 16 federally listed species listed in Table 2 have been historically reported as sighted on the 3,556-acre DOE Paducah Site, although potential suitable summer habitat exists for the federally endangered Indiana bat (*Myotis sodalis*) and proposed endangered tricolored bat (*Perimyotis subflavus*) within the approximately 70-acre mixed-growth forested areas of the GMPEF Site (DOE, 2024b). As such, targeted species surveys for federally listed bat species were conducted via mist-netting on the evenings of August 5–7, 2025 (CEC, 2025b). As part of the Bat Study Plan, USFWS requested that surveys also include the federally endangered northern long-eared bat (*M. septentrionalis*). No Federal- or state-listed bat species were captured over the 10 complete net-nights of sampling. In total, 14 eastern red bats (*Lasiurus borealis*) and one evening bat (*Nycticeius humeralis*) were documented (CEC, 2025b). There are no caves within the GMPEF Project Area that would support gray bats (*M. grisescens*).

Suitable habitat for the 11 federally listed clam species was not found present within the GMPEF Site. Potential suitable habitat may occur in Bayou Creek located directly east and near the mouth of the creek at the Ohio River located about 3.5 miles away.

Neither the monarch butterfly (federally proposed threatened) nor their host plant (milkweed - *Asclepias* sp.) were incidentally observed during the waters delineation survey in late June or during the mist-net survey for Federal- and state-listed bats (CEC, 2025a; CEC, 2025b; CEC, 2025c). It is unlikely that the GMPEF Site could support populations of this species.

3.4.1.3.2 Migratory Birds

The Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703–712) of 1918 prohibits actions resulting in the pursuit, capture, killing, and/or possession of any protected migratory bird, nest, egg, or parts thereof. Additionally, the 2013 Memorandum of Understanding on Migratory Birds between DOE and the USFWS regarding Executive Order (EO) 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, direct Federal agencies to take certain actions to further implement the MBTA, which is applicable to the GMPEF Site. DOE takes measures to minimize impacts to migratory birds by avoiding disturbance of active nests.

The USFWS maintains a list of designated migratory birds occurring in various regions of the United States. Birds of Conservation Concern (BCC) are a subset of MBTA-protected species identified by the USFWS as those in the greatest need of additional conservation action to avoid future listing under the ESA. BCC have been identified at three geographic scales: National, USFWS Regions, and Bird Conservation Regions, which are the smallest geographic scale at which BCC have been identified, and the lists of BCC species at this scale are expected to be the most useful for governmental agencies to consider in complying with the MBTA and EO 13186 (USFWS, 2021). According to the *USFWS Birds of Conservation Concern* (USFWS, 2021), the GMPEF Site is located within Region 24 – Central Hardwoods, under the Mississippi Flyway north American migration route. The Ohio River also serves as a major flyway for migratory waterfowl (DOE, 2024b).

3.4.1.3.3 Bald and Golden Eagles

The bald eagle (*Haliaeetus leucocephalus*) is protected by the Bald and Golden Eagle Protection Act (16 U.S.C. 668c; 50 CFR 22.3) of 1942 even though it has been delisted under the ESA. Bald eagles can be seen just about anywhere in Kentucky, especially during the migration and winter season (September–March). Occurrences of bald eagles at the GMPEF Site may include overflights during their spring and fall migrations.

Golden eagles (*Aquila chrysaetos*), also protected under the Bald and Golden Eagle Protection Act, winter in Kentucky from November to March, utilizing large, undisturbed forest blocks within the Appalachian Plateau, the Daniel Boone National Forest, Bernheim Forest, Land Between the Lakes, and around Lake Cumberland. While there are no documented breeding pairs of golden eagles in Kentucky, it is possible they pass through or near the Paducah area during the winter months. However, they prefer specific habitats, and western Kentucky is not a prime location for sightings (KDFWR, 2012).

3.4.1.3.4 State-Listed Species

While Kentucky does not have a comprehensive standalone state ESA, it provides protection by automatically listing species that are federally designated as endangered under the KAR 301 KAR 3:061 and Kentucky Revised Statute § 150.183. As such, the Office of Kentucky Nature Preserves Biological Assessment Tool was accessed on September 11, 2025, to generate a report of endangered species, important natural communities, and conservation lands in a specified project

area for which the Office of Kentucky Nature Preserves maintains data (OKNP, 2025). Refer to Appendix B, *Agency Consultation*, for a copy of the Occurrence Report.

Results of the report identified a total of seven state ranked (S-Rank) species; including three species (loggerhead shrike [*Lanius ludovicianus*], prairie milkweed [*Asclepias hirtella*], and rosinweed [*Silphium integrifolium*]) that have been documented within the DOE Paducah Site and or WKWMA through direct field surveys and four S-Rank species with potential to occur within one mile of the GMPEF Site (northern crayfish frog (*Lithobates aeroelatus circulosus*), compassplant (*Silphium laciniatum*), cream wild indigo [*Baptisia leucophaea* var. *leucophaea*], and southeastern myotis (*Myotis austroriparius*) (OKNP, 2025). Table 2 presents these species. Additionally, the *Occurrence Report* identified several Species of Greatest Conservation Need with historical ranges that overlap the GMPEF Site. S-Rank and Species of Greatest Conservation Need species are a scientific assessment used by conservation programs, but legal protection is a separate process that must be granted under either the Federal ESA or Kentucky state law.

Of the seven S-Rank species identified, only three species (*southeastern myotis*, *compassplant*, and *loggerhead shrike*) have potential suitable habitat within the GMPEF Site. None of these species have been historically observed within the DOE Paducah Site (DOE, 2024b) nor were they incidentally observed during the waters delineation survey or during the mist-net survey for Federal- and state-listed bats (CEC, 2025a; CEC, 2025b; CEC, 2025c). Only the loggerhead shrike is protected under law (MBTA), all other species are regarded in the State Wildlife Action Plan that guides conservation efforts and decision-making (KDFWR, 2023).

3.4.1.4 Wetlands

Title 10 CFR Part 1022 establishes procedures for complying with EO 11988, *Floodplain Management*, and EO 11990, *Protection of Wetlands*. DOE takes steps to minimize or eliminate any impacts to wetlands. A waters delineation survey was conducted on July 28–30, 2025, to identify, characterize, and delineate wetlands, streams, and other waters located within the GMPEF Project Area. A total of 22 wetlands, totaling approximately 10.55 acres and two ephemeral streams, totaling approximately 459 linear feet were delineated (CEC, 2025c). The following wetland types were identified on site:

- Palustrine scrub-shrub wetland: Woody vegetation less than 20 feet tall dominate this wetland class. Plant species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. Scrub-shrub wetlands include shrub swamps and bogs.
- Palustrine forested wetland: Woody vegetation 20 feet or taller dominate this wetland class. Forested wetlands generally include an overstory of trees, an understory of young trees and shrubs, and an herbaceous layer.
- Palustrine unconsolidated bottom: Nontidal wetland that is lacking vegetation but is less than 8 hectares (20 acres) in size with a water depth in the deepest part of basin less than 2.5 meters (8.2 feet) at low water. Includes all wetlands and deepwater habitats with at least 25 percent cover of particles smaller than stones (less than 6–7 centimeters), and a vegetative cover less than 30 percent.

None of the wetlands or ephemeral streams would be considered waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers (USACE). The ditches, erosional gullies,

and/or vegetated swales observed did not exhibit defined bed and banks, ordinary high-water marks, or other salient characteristics of jurisdictional waters (CEC, 2025c). Although Little Bayou Creek and Big Bayou Creek border the Paducah Site to the east and west, the ephemeral streams within the GMPEF Site do not provide direct connectivity to either waterbody. There is an upland area that hinders direct connectivity to Little Bayou Creek, and topographical berms and roads between the GMPEF Site and Big Bayou Creek.

The wetland and stream features are non-jurisdictional features that meet the Federal waters of the United States exclusions listed under 33 CFR Part 328 (b) as either ditches excavated wholly in and draining only dry land and that do not carry a relatively permanent flow of water; and/or swales and erosional features (e.g., gullies, small washes) characterized by low volume, infrequent, or short duration flow.

3.4.1.5 Environmentally Sensitive Areas

The GMPEF Site is not located within any designated environmentally sensitive areas. Land licensed to the WKWMA is located approximately 1.7 miles north of the site. Following recent land transfers, the WKWMA consists of approximately 4,494 acres of land within McCracken County for recreational use such as hunting, fishing, and horseback riding (KDFWR, 2025).

3.4.2 Potential Environmental Consequences

The approximately 100-acre GMPEF Site was evaluated for potential impacts resulting from the Proposed Action, as detailed in Section 2.1.1, *Description of Site Preparation Activities* and Section 2.2, *Uranium Hexafluoride (UF₆) Storage Activities*. It was assumed the entire site would be developed and would therefore permanently impact and replace the existing natural habitat and anthropogenic altered habitat as described in Section 3.4, *Ecological Resources*.

Under the Proposed Action, potential impacts on ecological resources could include temporary and permanent disturbance, degradation, or loss of habitat from land-clearing activities or disturbance or displacement of wildlife due to an increase in noise and human activity. Impacts could also include fragmentation of remaining habitats resulting from project developments, increases in human-wildlife interactions (such as encounters and collisions between wildlife and motor vehicles), and potential radiological exposure.

3.4.2.1 Proposed Action

3.4.2.1.1 Impacts on Vegetation and Wildlife

Under implementation of the Proposed Action, direct and indirect impacts to vegetation and wildlife would occur. Direct impacts include habitat loss from the permanent conversion of forested and herbaceous land to developed industrial land. Approximately 100 acres (including around 70 acres of mixed-growth forests, emergent and forested wetlands, ephemeral streams, and around 31 acres of transmission line corridor right-of-way with herbaceous vegetation and emergent wetlands) would be entirely removed. Vegetation subject to clearing could support foraging, nesting, and other behaviors for mammals, birds (including migratory birds and BCC), and reptiles. Wildlife utilizing the area would be permanently displaced by the development. Mobile species (such as deer, rabbits, turkey, foxes, raccoons, and coyotes) would likely flush from the site to similar habitat(s) available nearby, including the adjacent locations within the WKWMA. Less mobile species, such as invertebrates and small reptiles, would not be able to

move to similar habitat and would be directly impacted by construction activities. To help prevent incidental wildlife mortality during construction activities, trenches (if used during construction) left open overnight would be inspected for animals that should be removed prior to backfilling. Escape ramps would also be placed at less than 45-degree angles in trenches to provide exit strategies for animals. Construction activities could also result in potential collisions between wildlife and motor vehicles. Mortality to wildlife caused by a collision could be minimized by reducing speeds to less than 15 miles per hour and increasing awareness of construction crews to the presence of any animals that may frequent the area. If an animal is observed in the road, vehicles will stop and wait until the animal leaves the road, and if necessary, encourage the animal to move on by driving forward slowly.

Direct impacts such as the interruption of breeding patterns and behavioral modification could also occur from construction-related noise, as wildlife in the vicinity could be temporarily disturbed by the change to the ambient environment and additional human activity. However, noise resulting from the proposed construction activities would be localized, relatively short term (approximately 6 months), and only occur during daylight hours. Sound levels associated with the Proposed Action are estimated to be below EPA sound-level guidance and therefore would not likely disturb wildlife (or Federal- or state-listed species) (refer to Section 3.7, *Noise and Vibration*, for additional information regarding noise impacts). It is anticipated that mobile wildlife species would likely flush from the site to similar habitat(s) available nearby, including the adjacent locations within the WKWMA.

Indirect impacts to wildlife from habitat fragmentation could also occur. Land clearing would cause disturbances in the landscape resulting in new habitat edges, potentially disrupting wildlife ecosystem processes and habitats. The degree of the loss would depend on the behavior response of the individual species. Infrastructure and traffic could impose dispersal barriers to most non-flying terrestrial animals. Animal-friendly fencing would be installed around the GMPEF so that wildlife cannot be injured by or entangled in the site's security fence. While the loss of continuous available natural habitat would occur, large tracts of unaffected habitats in the region (e.g., the WKWMA) able to support wildlife movement would still be available in direct proximity to the site.

Radiological exposure has different effects on ecological resources where some species are more sensitive than others. For the Proposed Action, radiological impacts on human health (see Section 3.2.6, *Public Health and Safety*) were used as a measure to determine the need to address the potential impacts on ecological resources. Radiological exposure from the Proposed Action would not differ significantly from current levels, and radiological impacts on human health was determined to be small; therefore, impacts on ecological resources were considered to be small and not analyzed in further detail. Furthermore, the project design provides additional structures, spill prevention, and management plans (e.g., wastewater discharge, waste management) that would contain and control any spills.

In summary, implementation of the Proposed Action would noticeably alter the composition of habitat within the GMPEF Project Area but would not destabilize the existence of these communities off site; therefore, direct and indirect impacts to existing vegetation and wildlife on site would not be considered significant.

3.4.2.1.2 Impacts on Special Status Species

3.4.2.1.3 Federally Listed Species

Similar to the analysis of impacts on vegetation and wildlife, direct and indirect impacts on federally listed species with potential to occur on site would not be considered significant.

Clearing, grading, and construction activities associated with the Proposed Action would not be likely to result in adverse impacts on federally threatened and endangered species. No federally listed species or designated critical habitats have been recorded within the GMPEF Site nor were any federally listed species observed during the ecological surveys conducted in July and August of 2025 (CEC, 2025a; CEC, 2025b; CEC, 2025c). Additionally, no federally listed species have been historically documented within the DOE Paducah Site (DOE, 2024b).

On October 28, 2025, the USFWS sent a concurrence letter stating they agree with the effects determinations made for federally listed species with potential to occur and that the requirements of Section 7 of the ESA have been fulfilled for this project (USFWS, 2025b) (refer to Appendix B, *Agency Consultation*, for a copy of the letter).

Effects determination rationales for federally listed and proposed species are described below.

Indiana, Gray, and Tricolored Bats

Indiana and tricolored bats have potential suitable summer habitat within the GMPEF Site; however, neither species were detected during recent mist net surveys (CEC, 2025b). It is possible either species may still transverse the site, notably because tricolored bats were acoustically detected in 2024 directly south of the GMPEF Project Area during surveys for the proposed PLEF (GLE, 2025). The primary threat to federally listed bat species in Kentucky is the loss and degradation of mature bottomland hardwood forests due to agricultural conversion and urban expansion. Habitat alteration has greatly reduced the amount of suitable summer roosting and foraging habitat. Tree clearing of mature upland forests is seen as a threat (KDFWR, 2026). To offset direct impacts to federally listed bat species, the USFWS recommends tree removal occur between October 1 and March 31 to protect bats during their summer roosting, which typically lasts from April 1 to October 31, and pup-rearing seasons between May 15 to July 31 (USFWS, 2023).

Noise disturbance can cause behavioral changes, with bats avoiding loud areas and modifying their echolocation calls to navigate interferences. The degree of sensitivity varies by species, with some bats less affected by noise than others. While mist net survey did not detect Federal- or state-listed bat species, it is possible some may still transverse the site. For the GMPEF, it is expected that noise effects from construction would be short term and would only affect wildlife in the immediate vicinity. Those affected would generally be able to return to surrounding areas after construction is complete.

Many bat species can be sensitive to short-wavelength light (such as blue and ultraviolet) and cause them to avoid lit areas, thus disrupting foraging, migration, and roosting. As such, GeM will use low impact, warm-toned, low-intensity, and directional light for outdoor facility lighting when constructing and operating the GMPEF as well as avoid (where possible) unnecessary illumination altogether in an effort to minimize potential impacts (e.g., disorientation or disruption of nocturnal activities such as commuting and foraging) to bat species that may migrate through the area. These efforts, combined with the absence results of the mist net survey, indicate that implementation of the Proposed Action would not have adverse impacts on federally listed bat species.

It is anticipated that clearing, grading, and construction activities associated with the Proposed Action *may affect but would not be likely to adversely affect* federally endangered Indiana bat and the federally proposed endangered tricolored bat. Additionally, there are no caves within the GMPEF Project Area for gray bats to inhabit. As such, implementation of the Proposed Action would have *no effect* on federally endangered gray bats.

Clams

Soil disturbance can potentially result in water quality impacts to streams through erosion and sedimentation. To minimize these impacts, GeM will develop a site-specific Stormwater Pollution Prevention Plan (SWPPP) and implement the best appropriate soil erosion prevention management practices to ensure waste materials, soil, and construction debris are contained. As such, the Proposed Action would have *no effect* on the federally listed clam species presented in Table 2.

Monarch Butterfly

Neither the monarch butterfly (federally proposed threatened) nor their host plant (milkweed - *Asclepias* sp.) were incidentally observed during the survey in late June or during the mist-net survey for Federal- and state-listed bats (CEC, 2025a; CEC, 2025b; CEC, 2025c). While sparse milkweed plants may possibly be present, it is unlikely that the GMPEF Site could support large populations of migrating monarch butterflies. As such, clearing, grading, and construction activities associated with the Proposed Action are not likely to jeopardize the continued existence of the federally proposed threatened species.

Migratory Birds

The undeveloped habitat within the GMPEF Site generally attracts many types of birds. While any habitat loss could adversely affect individual birds, the amount of impacted habitat is relatively small compared to similar habitats immediately available (e.g., the WKWMA). The USFWS recommends excluding vegetation clearing during migratory bird nesting season, generally occurring between March through August (USFWS, 2020). To comply with these recommendations and to reduce potential impacts to migratory bird species, tree clearing would occur outside of the migratory bird nesting season. Overall, population-level effects to any migratory bird species are not expected.

Noise resulting from construction activities would be localized, short term, and only occur during daylight hours. As such, significant impacts to migratory birds (including BCC) would not be anticipated under implementation of the Proposed Action.

Bald and Golden Eagles

No bald or golden eagles or eagle nesting is known to occur at GMPEF Project Area or in the immediate vicinity and therefore impacts to sensitive nesting habitats would not occur. No significant impacts to eagles protected under the Bald and Golden Eagle Protection Act are anticipated to result from implementation of the Proposed Action.

3.4.2.1.4 State-Listed Species

Impacts on state-listed species with potential to occur on site would not be considered significant.

S-Rank species identified by the Office of Kentucky Nature Preserves Biological Assessment Tool have not been historically documented within the DOE Paducah Site under the Paducah environmental management programs (DOE, 2024b) nor were any state-listed species observed

during surveys conducted in July and August of 2025 (CEC, 2025a; CEC, 2025b; CEC, 2025c). Only two species, state endangered southeastern myotis and state threatened compassplant, have potential suitable habitat within the GMPEF Site. Impacts on these species would not be considered significant per the same rationale as previously discussed in the analysis of impacts on federally listed species.

3.4.2.2 Impacts on Wetlands

The Proposed Action would permanently impact about 10.55 acres of wetlands (approximately 459 linear feet of streams) and convert up to approximately 100 acres of pervious area to impervious surfaces, resulting in increased stormwater runoff volumes that would be controlled with post-construction stormwater management BMPs. As described in Section 3.4.1.4, *Wetlands*, none of the on-site wetlands or streams would be considered waters of the United States under the jurisdiction of USACE. On December 19, 2025, USACE granted an Approved Jurisdictional Determination for the site and officially concurred with the “no permit required” determination, thus satisfying compliance with Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act (USACE, 2025). Additionally, the KEEC issued concurrence that this project does not require a 401 Water Quality Certification due to the lack of jurisdictional impacts (refer to Appendix B, *Agency Consultation*, for a copy of the correspondence).

Little Bayou Creek and Big Bayou Creek border the Paducah Site to the east and west; however, the ephemeral streams within the GMPEF Site do not provide direct connectivity to either waterbody. There is an upland area that hinders direct connectivity to Little Bayou Creek, and topographical berms and roads between the GMPEF Site and Big Bayou Creek. Biological monitoring of both creeks has been conducted since 1987. Biological monitoring was conducted by University of Kentucky from 1987 to 1991, and by staff of the Environmental Sciences Division at Oak Ridge National Laboratory from 1991 through March 1999. In March 1998, renewed Kentucky Pollutant Discharge Elimination System permits were issued to DOE and the United States Enrichment Corporation (ORNL, 1999). For this project, GeM will obtain Kentucky Pollutant Discharge Elimination System permit coverage for one or multiple additional outfalls to Bayou Creek and Little Bayou Creek.

While site preparation and construction and operation of essential nonradiological and radiological auxiliary facilities would noticeably alter the composition of wetland habitat within the GMPEF Project Area, these features were classified as non-Waters of the United States by USACE (USACE, 2025). As such, impacts to wetlands would not be considered significant under implementation of the Proposed Action.

3.4.2.3 No Action Alternative

Under the No Action Alternative, the Proposed Action activities, except for those already completed (i.e., site clearing and rough grading), would not proceed. Although vegetation, wildlife, and wetland habitats would be directly impacted through habitat loss from the permanent conversion of undeveloped land to industrial land, impacts from construction related noise and disturbance from human activity, vehicle or equipment wildlife collision(s), mortality, and radiological exposure would not occur.

3.5 Cultural Resources

Cultural resources refer to the physical evidence or places of past human activity, including prehistoric and historic sites, structures, objects, artifacts, and landscapes with cultural, historical, archaeological, or architectural significance. In accordance with NEPA, Federal agencies must identify, evaluate, and disclose potential impacts to cultural resources caused by Federal actions. This process is often coordinated with Section 106 of the National Historic Preservation Act (NHPA) and other relevant laws.

Cultural resources are protected under several Federal and state laws, most notably NHPA of 1966, as amended (Title 54 U.S.C. § 300101 et seq.). Section 106 of the NHPA requires Federal agencies to consider the effects of their undertakings on historic properties—defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) (36 CFR 800.16(l)(1)). Compliance with the NHPA, as well as Kentucky state regulations and DOE/DOE-licensed property requirements, is mandatory for all Proposed Action activities.

3.5.1 Affected Environment

This section describes the existing condition of cultural resources within the GMPEF Site.

3.5.1.1 Area of Potential Effect

The Area of Potential Effect (APE) for this EA includes the approximate 100-acre parcel (Leasing Parcel A)—where direct impacts from ground-disturbing activities may occur. It also includes a 0.25-mile (400-meter) buffer to account for potential indirect effects (visual, auditory, atmospheric) to historic properties. The APE encompasses the GMPEF Site and is part of the larger DOE Paducah Site in McCracken County, Kentucky.

The following sections describe the current cultural resources baseline at the GMPEF Site, summarized from the Kentucky Historic Commission's existing documentation and DOE-conducted field studies (2025). Detailed descriptions of these resources are available in the 2025 Archaeological Survey, A Phase I Archaeological Reconnaissance for Leasing Parcel A, McCracken County, Kentucky.

3.5.1.2 Records Review and Previous Investigations

A comprehensive records review was conducted using data from the Kentucky Office of State Archaeology, the Kentucky Heritage Council, and the NRHP. This review included a 2-kilometer radius around the GMPEF Site (approximately 100-acres) to identify previously recorded archaeological sites and historic-age resources. Within this radius, five archaeological sites (15McN94, 15McN103, 15McN253, 15McN254, and 15McN255) were recorded. None of these archaeological sites intersect with the project area.

The PGDP, located directly north of Parcel A, is an NRHP-eligible historic district due to its Cold War military significance. Five historic-age resources and one cemetery are also within 2 kilometers of the GMPEF Site, but none intersect with the project area.

Six professional archaeological investigations have been conducted within 2 kilometers of the APE. One previous survey intersected with Parcel A but did not meet current State Historic Preservation Officer (SHPO) standards, prompting a new Phase I survey.

No existing surveys, records, or documented findings have identified the existence of historic properties within the GMPEF Site.

3.5.1.2.1 Phase I Field Survey Findings

To fulfill compliance requirements, a Phase I archaeological survey was conducted in May 2025 for the GMPEF Site; it covered the approximately 87-acre project area footprint. This survey performed systematic pedestrian surveys, visual inspections of disturbed areas, and screened shovel testing at 20-meter intervals across 89.5 percent of the project area.

The survey identified one previously unrecorded archaeological site on Parcel A: 15McN256. This site identified a late 19th-to-20th-century historic farmstead and/or residence. However, it lacks archaeological integrity and was recommended not eligible for inclusion in the NRHP. The Kentucky Heritage Council concurred with these findings.

Consequently, no historic properties were identified within the project area.

3.5.1.3 Agency Consultation

On July 3, 2025, the Kentucky Heritage Council (which serves as the SHPO) concurred with the Phase I survey findings for Parcel A that no historic properties eligible for the NRHP listing would be affected by the Proposed Action.

The proposed GMPEF Site in this EA (described in Section 3.0, *Affected Environment and Potential Environmental Consequences*), overlaps with the project footprint identified and consulted upon in the Phase I Survey Findings. Site investigations at Leasing Parcel A have been completed and the SHPO has concurred with the determination of no NRHP-eligible resources within the GMPEF Site. As a result, consultation with the Kentucky SHPO will be amended with the new undertaking presented in accordance with Section 106 of the NHPA.

3.5.2 Potential Environmental Consequences

3.5.2.1 Proposed Action

Currently, there are no NRHP-eligible resources present within Parcel A. The only archaeological site identified with the project area (15McN256) is not eligible for the NRHP. The Kentucky SHPO has concurred with these findings and recommendations. Therefore, the Proposed Action activities are not expected to have any adverse effects on cultural resources.

The Proposed Action activities will follow all applicable Federal and state cultural resource regulations. Ongoing compliance will be ensured through adherence to the Cultural Resource Management Plan (DOE, 2006).

3.5.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action activities, except for those already completed (i.e., site clearing and rough grading), would not occur. Consequently, no new direct or indirect impacts to cultural resources would take place. For all proposed activities, ongoing regulatory compliance will be ensured through adherence to all applicable Federal and state cultural resource regulations, the Cultural Resource Management Plan (DOE, 2006).

3.6 Geology and Soils

Geology refers collectively to the composition, structure, and other characteristics of the earth, whereas the term “soils” refers specifically to unconsolidated materials on or very near to the surface. This section discusses conditions at the GMPEF Site (see Section 1.1, *Background*) and potential impacts of the Proposed Action (Section 2.1, *Proposed Action*). Additional information on geology and soils in areas near (and geologically similar to) the GMPEF Site is presented in the 2025 PLEF Environmental Report (ER) and the 2015 PGDP EA for potential land and facility transfers, which are incorporated by reference (GLE, 2025; DOE, 2015a).

3.6.1 Affected Environment

This section describes aspects of geology and soils at the GMPEF Site that are relevant to the determination of impacts associated with the Proposed Action. Specifically, this section describes local geology, soils, prime farmland, seismic hazard, and other geologic hazards at the GMPEF Site.

3.6.1.1 Local Geology

The GMPEF Site is located near the northern boundary of the Mississippi embayment of the Gulf Coastal Plain Province, a large sedimentary trough that accumulated thick layers of sand, silt, and clay during the Cretaceous and Tertiary periods. Bedrock in the area consists of Mississippian limestone and shale and includes a large number of fault lines (Kentucky Geologic Survey, 2007; GLE, 2025; Bexfield, et al., 2005). Overlying the bedrock are the McNairy and Clayton Formations, which are often indistinguishable and collectively referred to as the McNairy Formation. The McNairy Formation consists of sand with frequent lenses of silt and clay in the upper portions. Overlying this is the Porters Creek Clay, now mostly eroded except in the southern PGDP area. Above these, the Continental Deposits—formed by ancient river systems and later modified by glacial activity—consist of gravel, sand, clay, and silt, with lake deposits present in the upper layers. The region is capped by loess, wind-blown silt from glacial retreat (Kentucky Geologic Survey, 2007; GLE, 2025).

3.6.1.2 Soils and Topography

Soil types on the GeM Parcel include Routon, Calloway, and Grenada silt loams in addition to urban-Udorthents Complex soils (NRCS, 2026). Routon and Calloway silt loam soils are poorly drained while Granada silt loam soil is well drained (USDA, 2026). All four soil types present have low shrink-swell potential (GLE, 2025). Topography in the GMPEF Site is mostly flat with gentle slopes not exceeding 6 percent grade (NRCS, 2026).

3.6.1.3 Prime Farmland

Prime farmland is land defined by the U.S. Department of Agriculture (USDA) as having the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops. It produces high crop yields with minimal energy and economic resources and sustains the least environmental damage.

Calloway silt loam, which makes up 13.5 acres (13 percent of the GMPEF Site) and Routon silt loam, which make up 65.4 acres (65 percent of the GMPEF Site) are considered prime farmland

if drained of excess water (USDA, 2026). Grenada silt loam, which makes up 7.4 acres (7 percent of the GMPEF Site) is considered farmland of state importance (USDA, 2026).

3.6.1.4 Seismic Hazard

The GMPEF Site is located near the New Madrid Seismic Zone, which has an elevated earthquake hazard (Bexfield, et al., 2005; GLE, 2025). Studies of seismic features and resulting seismic hazard conducted in the region and at the PLEF Site, located immediately south of the GMPEF Site, show that potential seismic activity is a distinct hazard in the local area. The presence of thick alluvium is of concern because of the possibility of augmented shaking and liquefaction during a strong earthquake (Kentucky Geologic Survey, 2007). Recognizing that seismic hazard exists, construction projects in the area include ground stabilization and other measures to minimize risk (GLE, 2025).

3.6.1.5 Other Geologic Hazards

Geologic hazards other than seismic activity are considered to pose minimal risk at the GMPEF Site. These hazards include the following:

- The annual risk of flooding on the GMPEF Site is less than 1 percent (Federal Emergency Management Agency, 2026).
- There is currently no volcanic activity in the region.
- Because the GMPEF Site does not include steep slopes (slopes are 6 percent grade or less), landslides and soil creep are not considered geologic hazards of particular concern.
- There are no instances of sinkholes or prominent karst geology in McCracken County (Karathanasis, 2018).
- McCracken County is categorized as having “low” indoor radon potential meaning that the average level of radon is between 0 and 2.7 picocuries per liter (EPA, 1993).

3.6.2 Potential Environmental Consequences

The following analysis evaluates the potential soils and geological impacts of the Proposed Action and No Action Alternatives and presents potential mitigation measures.

3.6.2.1 Proposed Action

The Proposed Action, which is described in Section 2.1, *Proposed Action*, includes several component activities on the GMPEF Site with potential to impact the geology and soils resource area. All components of the Proposed Action would be conducted in compliance with the existing GeM Kentucky Pollutant Discharge Elimination System Construction Stormwater Permit. BMPs are described in Appendix A, *Complete Description of Proposed Site Preparation Activities*.

Several of the site preparation activities defined in the Proposed Action would help identify and address potential issues relating to soils and geology (e.g., site exploration activities). Site exploration would generate information on site suitability (e.g., foundation conditions) through use of borings and other data collection methods. This information would be used during site and facility design to ensure that soils and geological impacts are minimized. Preparation of the site for construction would involve installation of erosion and sediment control measures (e.g., silt

fencing and straw wattles) prior to clearing the site of vegetation, construction of temporary roads and development of borrow areas. Rough grading would alter the existing site topography by removing material from certain areas and filling other areas. Post-grading topography would be designed to manage site drainage and avoid slopes that would be unstable while providing areas with ideal surface elevations for construction of building foundations, roads, and utility corridors. Soils would be characterized, appropriately treated, and stabilized to ensure load-bearing capacity and control shrink-swell properties.

The installation of underground utilities and storage tanks, final grading, and the construction of administrative buildings and support structures would benefit from the preparatory steps (e.g., exploration, grading, treatment, and stabilization) not included in NRC's definition of "construction" in 10 CFR 70.4 and 10 CFR 40.4. Installation of underground utilities would involve deep excavation. The placement of reinforced concrete pads or engineered bedding and the integration of leak detection and secondary containment would mitigate risks, including those related to geologic hazards. Final grading would ensure proper load-bearing capacity and engineered slopes for effective stormwater drainage while preserving pre-existing site remediation features. Facilities would be constructed in a manner appropriate local soil and geological conditions, as ascertained through site exploration and characterization.

Seismic and other hazards would be minimized, where appropriate, through appropriate design of structures and ground stabilization. As noted previously, earthquake hazards in the area have been evaluated as part of prior projects, and soil stabilization is expected to be required as part of the Proposed Action to mitigate this hazard. Steep slopes are not present on the GMPEF Site. Also, as noted previously, site grading would avoid creation of unstable slopes and surfaces would be stabilized as appropriate to further reduce risk of landslide or soil creep. Other geologic hazards (e.g., radon, flooding, etc.) are considered to be of lesser concern at the GMPEF Site.

Operation of infrastructure and facilities on the GMPEF Site would result in minimal impacts to geology and soils. Erosion would not occur in areas in which construction resulted in impervious surfaces. Outside of structure footprints, site design features and surface stabilization (e.g., through planting grass) would minimize the potential erosion. Hazards associated with seismic activity and other geologic hazards would be minimized through appropriate structure design and ground stabilization.

The Farmland Protection Policy Act (FFPA) (7 U.S.C. § 4201 et seq.) requires Federal agencies to consider the effects of activities that would irreversibly convert farmland (directly or indirectly) to non-agricultural use prime farmland, unique farmland, and land of statewide or local importance. Because prime farmland is a non-renewable natural resource, the FFPA requirement exists to protect and preserve soil characteristics that are capable of supporting high food crop yields, even if the potentially affected area is not currently being used for farming. Under the Proposed Action, the approximately 100-acre GMPEF Site, which includes a combined 86.3 acres of soil types considered prime farmlands or farmlands of state importance, would be developed and become unavailable for agricultural use. As such, compliance with the FFPA was initiated through the completion and submittal of USDA Natural Resource Conservation Service (NRCS) Form AD-1006 (*Farmland Conversion Impact Rating*). The form acts as the official Land Evaluation and Site Assessment tool used by agencies to measure impacts, score conversion risks, and document compliance. The form was submitted on June 2, 2026, and NRCS input was received on June 9, 2026. For the GMPEF Site, the farmland conversion impact rating scored lower than the mitigation threshold requirement.

Impacts to geology and soils associated with the construction and operation of the UF₆ Storage Pad would be similar to those described under site preparation activities. BMPs would be employed in accordance with the SWPPP, and measures to minimize risks associated with geologic hazards would be the same as those described for site preparation activities.

In summary, the potential impacts to soils and geology would be minimized through site and facility design features and through application of the BMPs described in Appendix A, *Complete Description of Proposed Site Preparation Activities*. As a result, no significant effects to soils and geology would occur as a result of the Proposed Action alone or in combination with other Reasonably Foreseeable Actions.

3.6.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action activities, except for those already completed (i.e., site clearing and rough grading), would not occur. Therefore, no new construction or operation activities related to the GMPEF would proceed or result in additional impacts to geology and soils.

3.6.2.3 Mitigation

No additional mitigation measures for geology and soils beyond those described in Appendix A, *Detailed Description of Proposed Site Preparation Activities*, are proposed at this time.

3.7 Noise and Vibration

Noise is generally defined as unwanted sound. Sound level is described using a logarithmic unit of measure, the decibel (dB). Normal speech equates to a sound level of approximately 60 dB and sound levels above 120 dB begin to be felt inside the human ear as discomfort. The frequency of a sound (i.e., whether it is high- or low-pitched) also affects how it is perceived and its potential effects. All sound levels referenced in this EA are “A-weighted,” meaning that they have been mathematically adjusted to emphasize frequencies heard most efficiently by the human ear. Sound environments are a complex mixture of many sounds that vary over time. Sounds can be described intuitively using their maximum level. For construction equipment, the maximum noise level would be experienced while the equipment is operating at full power. Sound environments can also be described using the sound level exceeded during some percentage of a specified time. For example, the sound level that is exceeded 50 percent of the time during a 1-hour measurement period (abbreviated as “1-hour L₅₀”) is often used to describe existing noise environments. When sound levels are logarithmically averaged over a 24-hour period with a 10 dB penalty applied to noise events between 10:00 p.m. and 7:00 a.m., the resulting sound descriptor is the Day-Night Average Sound Level (DNL).

Like noise, perceptible ground-borne vibration also has the potential to cause annoyance. The intensity of vibrations, as perceived by humans, is described using decibels of vibration velocity (VdB). Humans are typically able to perceive vibrations at greater than 65 VdB (FTA, 2018). A person standing 100 feet from a rail line during a freight train pass-by typically experiences approximately 82 VdB (Southwest Light Rail, 2015). Certain types of heavy construction equipment generate noticeable vibrations in nearby areas. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads (FTA, 2018).

3.7.1 Affected Environment

This section describes baseline sound and vibration conditions, sensitive locations, and applicable regulations and guidelines.

3.7.1.1 Baseline Sound and Vibration Conditions

Sound levels measured in rural areas, such as those surrounding the GMPEF Site, are typically relatively low, at approximately 45 dB DNL (EPA, 1974). Noise levels are typically higher in locations with intensive human activity, such as vehicle traffic and industrial equipment operations. Baseline sound level measurements in August 2024 at locations near the GMPEF Site were consistent with these generalized expectations for ambient sound levels. The measurements, which were taken at two locations along Woodville Road in support of the PLEF ER, show baseline hourly L_{50} during working hours (i.e., 7:00 a.m. to 5:00 p.m.) ranging from 43 to 57 dB. Measured DNL values at the two sites were 60 and 61 dB. The measured DNL values reflect relatively brief time periods that included vehicular traffic on Woodville Road and activities at the nearby Woodville Road substation resulted in elevated noise levels (GLE, 2025). Given the rural nature of the area, ground vibrations induced by human activities can be assumed to be minimal under baseline conditions.

3.7.1.2 Sensitive Locations

The closest residence to the GMPEF Site is approximately 4,300 feet south along Woodville Road. Other sensitive locations, which include other residences, are located at greater distances from the GMPEF Site.

3.7.1.3 Regulations and Guidelines

Neither McCracken County nor the State of Kentucky have established quantitative limitations on acceptable community sound levels. Therefore, Federal regulations and criteria for noise and vibration are applied in this analysis.

EPA has identified 55 dB DNL outdoors as a noise level adequate to protect public health and welfare with an adequate margin of safety (EPA, 1974). At this level, noise is audible but is not expected to result in activity interference or excessive annoyance. It is worth noting that sound levels exceed this EPA guideline criteria within a large portion of the United States (EPA, 1974).

Hearing conservation regulations, such as the Occupational Safety and Health Administration regulations published at 29 CFR Part 1910.95, apply to workplace environments. In accordance with the Occupational Safety and Health Administration and similar regulations, workers are required to wear hearing protection in environments where potentially hazardous noise levels exist.

The U.S. Federal Transit Administration (FTA) has adopted criteria for use in the assessment of potential vibration impacts. For frequent events (occurring more than 70 times per day) at residences, the FTA has established vibration levels of less than 72 VdB as being generally acceptable (FTA, 2018).

3.7.2 Potential Environmental Consequences

The following analysis evaluates the potential noise and vibration impacts of the Proposed Action and No Action Alternatives and presents potential mitigation measures.

3.7.2.1 Proposed Action

As described in Section 2.1, *Proposed Action*, this EA includes multiple component activities and considers noise and vibration effects of site preparation and construction activities, as well as noise and vibration generated during day-to-day operations of infrastructure and proposed facilities.

Heavy equipment used for site clearing, rough grading, soil stabilization, utilities/storage tank installation, and construction of buildings/support structures would generate locally elevated noise levels during the approximately 6 months in which these activities are under way. Rough Grading would involve equipment generating the highest noise levels, and the other component activities of the Proposed Action (e.g., construction of buildings and support structures) would generate slightly lower noise levels. Construction of UF₆ Storage would involve use of heavy equipment types similar to those used for construction of support facilities and would generate similar noise and vibration levels. The activities would take place during normal working hours and workers would wear hearing protection in accordance with applicable workplace hearing conservation regulations. Table 3 lists maximum and equivalent noise levels generated by representative equipment types at the reference distance of 50 feet and at the closest noise-sensitive location, a residence 4,300 feet south of the GMPEF Site (see Section 3.7.1.2, *Sensitive Locations*).

Table 3. Noise Levels Generated by Representative Equipment Types

Equipment Description	Maximum Noise Level (dB) at Distance (ft)		Default Usage Factor (% of workday)	DNL at Distance (ft)	
	50	4,300		50	4,300
Scraper	84	45	40	75	37
Dozer	82	43	40	73	35
Grader	83	44	40	74	36
Front End Loader	79	40	40	70	32
Roller	80	41	20	68	30
Dump Truck	76	37	40	67	29
Water Truck (Flat Bed)	74	35	40	65	27
Overall Combined	89	51	n/a	80	42

Key: % = percent; dB = decibel; DNL = day-night average sound level; ft = feet; n/a = not applicable

Note:

Equipment reference noise levels, default usage factors, and calculation methods used to estimate maximum and time-averaged noise levels at distances greater than the reference distance are in accordance with the Federal Highway Administration's Roadway Construction Noise Model (FHWA, 2006). Estimated noise levels assume no shielding (as would be provided by stands of trees or structures) and assume that all equipment would be operating at the closest location on the parcel to the sensitive location. Therefore, results shown are conservative and may overestimate actual noise levels.

During a hypothetical time when all of the listed equipment types are in operation simultaneously, the combined maximum noise level at the closest noise-sensitive location would be 51 dB (Table 3). As noted in Section 3.7.1.1, *Baseline Sound and Vibration Conditions*, 1-hour noise levels measured at two locations along Woodville Road ranged from 43 to 57 dB L₅₀. During times in which ambient sound levels (i.e., sound other than those generated by the Proposed Action) are higher than noise levels generated by the Proposed Action, noise associated with the Proposed Action would not be distinctly audible. Vehicular traffic associated with the Proposed Action would incrementally increase traffic on nearby roads, generating individual pass-by noise levels comparable to existing traffic on these roads.

Because heavy equipment usage would be limited to daylight hours, the dB penalty applied in calculation of the DNL metric for nighttime noise events would not be incurred. Table 3 lists time-averaged noise levels reflecting the default usage factor for each equipment type (i.e., the percentage of the workday during which the equipment is in use). The time-averaged noise level for a day when all equipment is operating would be 42 dB DNL, which is well below the 55 dB level recommended by EPA as protective of human health and welfare with an adequate margin of safety.

The equipment type generating the highest ground vibration levels would be a drill rig, which generates 87 VdB at the reference distance of 25 feet (FTA, 2018). Ground vibration attenuates with distance by a VdB value that is the logarithm of the ratio of the receptor distance to the reference distance multiplied by a factor of 30 (FTA, 2018). Using this generalized relationship, it can be estimated that vibration levels would be reduced to levels that are imperceptible (i.e., less than 65 VdB) within approximately 150 feet of the source activity (e.g., a drill rig). The FTA *Transit Noise and Vibration Impact Assessment Manual* indicates that vibration from trucks along roadways is unlikely to be perceptible, even if the receptor is close to a major roadway (FTA, 2018).

Noise sources during day-to-day operations of infrastructure and facilities included in the Proposed Action would include support equipment (e.g., electrical equipment, heating, ventilation, and air conditioning units) as well as vehicular traffic on site and on nearby roads. Representative equipment types, such as electrical transformers, when sized appropriately for industrial applications, generate approximately 75 dB at a distance of 3 feet (GLE, 2025). If no acoustic shielding is assumed to be provided by intervening structures or vegetation, noise generated by such equipment would be well below ambient sound levels at the closest noise-sensitive location to the GMPEF Site (a residence 4,300 feet away) and therefore not distinctly audible. Vehicular traffic associated with day-to-day operations would generate pass-by noise levels similar to ongoing traffic, and effects would be limited to an incremental increase in the number of pass-by events at locations along nearby roads.

Construction and operation of the PLEF is proposed to occur on land south of the GMPEF Site that is closer to the closest noise-sensitive locations than the GMPEF Site. At the closest sensitive location, PLEF construction would generate 53 dB DNL, as discussed in PLEF ER Section 4.7 (GLE, 2025). This is more than 10 dB louder than the 42 dB DNL generated by the Proposed Action at the same location. Therefore, if the Proposed Action and PLEF construction were to overlap in time, the contribution of noise generated by the Proposed Action to the overall noise level would be negligible.

The construction and operation of GMPEF facilities that are not included in the Proposed Action would be expected to generate noise levels similar to those associated with the current Proposed Action. Construction of the GMPEF would be expected to use equipment types similar to equipment used for the Proposed Action. If GMPEF construction were to occur at the same time as the Proposed Action construction, noise levels at the closest sensitive locations would be slightly higher than with the Proposed Action alone but would remain below EPA criteria levels.

In summary, site preparation, construction and day-to-day operations on the GMPEF Site associated with the Proposed Action would generate noise levels well below the EPA effects criteria level of 55 dB at the closest noise-sensitive location (4,300 feet away). Noise generated by the Proposed Action would not be distinctly audible at times with high ambient sound levels, and

vibrations generated by the Proposed Action would not be perceptible at the closest sensitive location. The noise and vibration impacts of the Proposed Action would be not significant alone or in combination with other Reasonably Foreseeable Actions.

3.7.2.2 No Action Alternative

Under the No Action Alternative, the Proposed Action activities, except for those already completed (i.e., site clearing and rough grading), would not occur. Therefore, there would not be additional time during which localized noise and vibration at and near the GMPEF Site would be elevated. Because no additional noise and vibration would occur under the No Action Alternative, there would be no additional impacts.

3.7.2.3 Mitigation

No mitigation measures for noise and vibration are proposed at this time.

3.8 Deactivation, Decommissioning, and Demolition Activities

Deactivation, decommissioning, and demolition (DD&D) are the final phases of a nuclear facility's lifecycle, designed to safely close, dismantle, and cleanup sites for reuse or license termination. Deactivation is initiated immediately upon permanent shutdown to transition the facility into a safe, stable, and low-risk condition. DD&D activities would be limited to the Proposed Action activities (i.e., site preparation activities and the UF₆ storage pad) and not the eventual GMPEF. This phase involves removing special nuclear, source, and by-product material; draining operational coolants; and de-energizing non-essential systems to mitigate immediate radiological and chemical hazards. Once stabilized, decommissioning will begin to systematically remove a facility's hazardous footprint. Activities will focus on the decontamination of structures, the removal of contaminated piping and components, and the off-site disposal of radioactive waste to reduce residual radioactivity below regulatory limits. Following license termination, the final phase, demolition, will remove the remaining physical structures. Conventional industrial demolition techniques will be used to dismantle buildings and cooling towers, remediate subsurface soils, and restore the site to a greenfield or brownfield status suitable for future reuse.

3.8.1 Affected Environment

At the end of the GMPEF's lifecycle, GeM would be responsible for the DD&D of all Proposed Action activities identified in this EA (i.e., site preparation activities and the UF₆ storage pad) within Leasing Parcel A. These DD&D activities would not include the eventual GMPEF. Instead, following the conclusion of this initial NEPA evaluation, further NEPA documentation and environmental reviews will be conducted by the NRC which will outline the eventual decommissioning of the GMPEF.

3.8.2 Potential Environmental Consequences

3.8.2.1 Proposed Action Alternative

The environmental consequences associated with the eventual DD&D of the proposed UF₆ storage pad, to include the nonradiological administrative buildings, are anticipated to be bound by, and similar in scale to, the impacts evaluated for site preparation and construction activities. The specifics of the DD&D of these facilities aren't ripe for a meaningful quantitative analysis given

the early design phase of the project and potential for decades of operation. However, DD&D activities typically act in the reverse sequence of facility construction, therefore, the nature of the environmental consequences remains functionally similar.

As discussed in Chapter 3.0, *Affected Environment and Potential Environmental Consequences*, the construction of these facilities will yield a negligible environmental impact due to the highly industrialized, previously disturbed nature of the PGDP footprint. The local baseline environment already features heavy industrial zoning, heavily managed infrastructure, and ongoing remediation and deactivation activities. Consequently, the physical mechanisms of future dismantling and demolition will mirror the baseline construction activities in the following ways:

- Acoustic and Air Quality Stressors: The heavy machinery, diesel emissions, and vehicular traffic required to deconstruct concrete foundations and steel superstructures will be equivalent to those utilized during excavation, grading, and structural assembly. Standard dust-suppression and engineering controls applied during construction will similarly mitigate fugitive dust during demolition.
- Terrestrial and Ecological Footprint: Because these facilities will be constructed entirely within a heavily cleared industrial zone, future DD&D activities will not cause new footprint expansion, vegetation clearing, or critical habitat fragmentation. The geographic scope of impact is inherently limited to the pre-disturbed boundary.
- Stormwater and Soil Cohesion: Soil disturbance during foundation removal mirrors the initial grading and excavation phase. Runoff will be managed through identical BMPs, including silt fencing and retention structures, ensuring negligible sedimentation impacts to nearby surface waters.

While DD&D activities introduce distinct waste-handling requirements—specifically the segmentation, characterization, and disposition of low-level radiological and nonhazardous industrial waste—the primary physical impacts on the surrounding air, soil, and water pathways are fundamentally equivalent to construction. Given that the construction of the proposed facilities will not significantly degrade the local environment, the execution of DD&D activities are similarly expected to result in negligible, temporary, and localized environmental consequences.

3.8.3 No Action Alternative

Under the No Action Alternative, the Proposed Action activities—except for those already completed (i.e., site clearing and rough grading)—would not proceed. Under this scenario, DD&D activities would not be necessary as the radiological and nonradiological auxiliary facilities would not be licensed, constructed, or operated.

3.9 Reasonably Foreseeable Future Actions

GeM is preparing its NRC license application process for the construction, operation, and eventual decommissioning for the GMPEF on Leasing Parcel A. This Reasonably Foreseeable Future Action, if approved, will allow GeM to operate a commercial uranium enrichment facility. To accommodate this, GeM would make a capital investment of \$1.5 billion and generate approximately 140 high-paying jobs, which would positively impact the local McCracken County and Paducah economies (Kentucky.gov, 2025; PaducahKY.gov, 2025). The GMPEF would be constructed and operated on approximately 100 acres within the former PGDP (Leasing Parcel A), which is a heavily disturbed

and industrialized area. This facility may alter local viewsheds, but it would not introduce uncharacteristic industrial elements into the larger Paducah Site or McCracken County. Utility demands to operate the site would significantly increase compared to the current cease in operations. However, modern enrichment technologies are considerably more energy efficient than historical gaseous diffusion technologies; thus, they would be minor in comparison to the site's historic utilities baseline.

Following the approval of necessary licenses, further NEPA documentation and environmental reviews will be conducted by the NRC as part of their independent regulatory oversight and licensing process for the facility's operation. This NEPA review would include a formal quantitative analysis on the construction, operation, and eventual decommissioning impacts on both human health and safety, and the environment.

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5.0 REFERENCES

- Bailey, R. G. (1995). *Description of the Ecoregions of the United States*. Retrieved September 3, 2025, from U.S. Forest Service: <https://www.fs.usda.gov/land/ecosysgmt/>.
- Bexfield, C. E., McBride, J. H., Pugin, A. M., Nelson, W. J., Larson, T. H., & Sargent, S. L. (2005). *The Olmsted fault zone, southernmost Illinois: A key to understanding seismic hazard in the northern new Madrid seismic zone*.
- CEC. (2025a). Personal communication between Civil and Environmental Consultants Biologists Ryan Thies, Haley Abner, and Leidos Senior Ecologist Sarah B. Rauch (via teleconference) on September 3, 2025. Subject: Habitat characterizations of the GMPEF Project Area and incidental special status species observations.
- CEC. (2025b). Bat Survey Report – Indiana Bat, Northern-long eared Bat, & Tricolored Bat Mist Net Survey at the Proposed General Matter Paducah Site. Paducah, McCracken County, Kentucky: Civil and Environmental Consultants, Inc. Prepared for Leidos, Inc. USFWS Project Code: #2025-0117162. CEC Project 352-951. September 2025.

- CEC. (2025c). *Waters Delineation Report – General Matter Paducah Site*. Paducah, McCracken County, Kentucky: Civil and Environmental Consultants (CEC), Inc. Prepared for Leidos, Inc. CEC Project 352-951. September 2025.
- Countess Environmental. (2006). *WRAP Fugitive Dust Handbook*. Westlake Village, CA: Prepared for the Western Governors' Association.
- DOE. (2004). *Final Environmental Impact Statement for Construction and Operation of a Depleted Uranium Hexafluoride Conversion Facility at the Paducah, Kentucky, Site*. Washington, DC: Department of Energy. Retrieved from <https://www.energy.gov/sites/default/files/EIS-0359-FEIS-01-2004.pdf>
- DOE. (2006). *Cultural Resources Management Plan for the Paducah Gaseous Diffusion Plant, Paducah, Kentucky*. U.S. Department of Energy Office of Environmental Management. Prepared by CDM Federal Services, Inc.
- DOE. (2015a). *Paducah Gaseous Diffusion Plant Final Environmental Assessment for Potential Land and Facilities Transfers, McCracken County, Kentucky; DOE/EA-1927*. U.S. Department of Energy.
- DOE. (2015b). *Sitewide Evaluation Report for the Soils Operable Unit at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky, DOE/LX/07-1256&D2/R1*. U.S. Department of Energy Portsmouth/Paducah Project Office. Retrieved from <https://pubdocs.pad.pppo.gov/Soils%20Operable%20Unit%20%28Soils%20OU%29/Sitewide%20Evaluation/Sitewide%20Evaluation%20Report/Sitewide%20Evaluation%20Report%20D2R1.pdf>.
- DOE. (2020). *Final Supplemental Environmental Impact Statement for Disposition of Depleted Uranium Oxide Conversion Product Generated from DOE's Inventory of Depleted Uranium Hexafluoride*. Washington, DC: Department of Energy. Retrieved from https://www.energy.gov/sites/prod/files/2020/04/f73/final-eis-0359-s1-and-eis-0360-s1-duf6-2020-2-chapters_0.pdf
- DOE. (2020). *Paducah Gaseous Diffusion Plant Final Environmental Assessment for Disposition of Waste and Materials (DOE/EA-2116)*. U.S. Department of Energy. Retrieved from <https://www.energy.gov/documents/fonsi-final-ea-2116-paducah-waste-mgmt-2020-07pdf-0>.
- DOE. (2024a). *Domestic Low Enriched Uranium Supply Chain*. Retrieved May 13, 2026, from U.S. Department of Energy: <https://www.energy.gov/ne/domestic-low-enriched-uranium-supply-chain>
- DOE. (2024b). *Paducah Site Annual Site Environmental Report 2023*. Prepared for the U.S. Department of Energy Office of Environmental Management by Four Rivers Nuclear Partnership LLC. FRNP-RPT-0337. Retrieved from <https://pubdocs.pad.pppo.gov/Annual%20Site%20Environmental%20Report%20%28ASER%29/2023%20ASER/2023%20ASER.pdf>.
- DOE. (2025a). *Uranium Enrichment, Explained*. Retrieved May 13, 2026, from U.S. Department of Energy: <https://www.energy.gov/ne/articles/uranium-enrichment-explained>. November 4.

- DOE. (2025b). *Energy Department Turns Liabilities Into Assets — Unleashing a New Nuclear Renaissance*. Retrieved May 13, 2026, from U.S. Department of Energy: <https://www.energy.gov/em/articles/energy-department-turns-liabilities-assets-unleashing-new-nuclear-renaissance>. August 5.
- DOE. (2025c). *DOE/LX/07-2522&D2 Leasing Data Package for Leasing Parcel A, Paducah Gaseous Diffusion Plant, Paducah, Kentucky*. U.S Department of Energy.
- DOE. (2025d). *Paducah Site Annual Site Environmental Report 2024*. U.S. Department of Energy. FRNP-RPT-0376. Retrieved from <https://www.energy.gov/pppo/articles/2024-paducah-annual-site-environmental-report>.
- DOE. (2026). *Paducah Background*. Retrieved May 13, 2026, from U.S. Department of Energy: <https://www.energy.gov/pppo/paducah-background>.
- EPA. (1974). *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety; EPA 550/9-74-004*.
- EPA. (1993). *EPA Map of Radon Zones*. Retrieved from U.S. Environmental Protection Agency: <https://www.epa.gov/sites/default/files/2014-08/documents/kentucky.pdf>. May 12.
- EPA. (2024). *Level III and IV Ecoregions of the Continental United States*. Retrieved September 3, 2025, from Environmental Protection Agency: <https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-continental-united-states>.
- EPA. (2025a). *NAAQS Table*. Retrieved May 14, 2026, from U.S. Environmental Protection Agency: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>. Last updated on November 4, 2025.
- EPA. (2025b). *Monitor Values Report - McCracken County for years 2022-2024*. Retrieved from U.S. Environmental Protection Agency: <https://www.epa.gov/outdoor-air-quality-data/monitor-values-report>.
- EPA. (2026a). *National Emission Standards for Hazardous Air Pollutants (NESHAP)*. Retrieved May 14, 2026, from U.S. Environmental Protection Agency: <https://www.epa.gov/stationary-sources-air-pollution/national-emission-standards-hazardous-air-pollutants-neshap-8>.
- EPA. (2026b). *Green Book: Kentucky Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants*. Retrieved May 14, 2026, from U.S. Environmental Protection Agency: https://www3.epa.gov/airquality/greenbook/anayo_ky.html.
- Federal Emergency Management Agency. (2026). *FEMA Flood Data Viewers and Geospatial Data*. Retrieved May 12, 2026, from FEMA's National Flood Hazard Layer Viewer: <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>.
- FHWA. (2006). *Roadway Construction Noise Model User's Manual*. Federal Highway Administration.
- FTA. (2018). *Transit Noise and Vibration Impact Assessment Manual*. Federal Transit Administration. FTA Report No. 0123.

- GLE. (2025). *Environmental Report for the Paducah Laser Enrichment Facility*. Washington, D.C.: Global Laser Enrichment.
- Iowa Environmental Mesonet. (2025a). *IEM :: Site Wind Roses - Wind Rose Plots for [PAH] Paducah/Barkley*. Retrieved from https://mesonet.agron.iastate.edu/sites/windrose.phtml?station=PAH&network=KY_ASOS.
- Iowa Environmental Mesonet. (2025b). *ASOS Network ASOS-AWOS-METAR Data Download - Paducah/Barkley*. Retrieved from https://mesonet.agron.iastate.edu/request/download.phtml?network=KY_ASOS.
- Karathanasis, A. (2018). *Kentucky Soil Atlas*.
- KDAQ. (2021). *Air Quality Permit - Final - Issued under 401 KAR 52:030 - Source Name: Depleted Uranium Hexafluoride Conversion Facility; Mailing Address: 5509 Hobbs Road Paducah, KY 42001*. Kentucky Division for Air Quality. Retrieved from Kentucky Division for Air Quality: <https://www.emcbc.doe.gov/SEB/Files/OSMS/DocLib/Permit%20F-21-018%20Final%207-27-2021.pdf>.
- KDAQ. (2025). *Kentucky's Air - Fiscal Year 2024 Annual Report*. Kentucky Division for Air Quality. Retrieved from <https://eec.ky.gov/Environmental-Protection/Air/Division%20Reports/DAQ%202024%20Annual%20Report.pdf>.
- KDFWR. (2012). *Golden Eagle Research*. Kentucky Department of Fish & Wildlife Resources. Retrieved from <https://fw.ky.gov/Kentucky-Afield/Documents/Goldeneagleresearch.pdf>.
- KDFWR. (2023). *Kentucky's State Wildlife Action Plan (SWAP)*. Frankfort, KY: Kentucky Department of Fish & Wildlife Resources. Retrieved from https://fw.ky.gov/WAP/Documents/2023_SWAP_PublicComment_AR02.pdf.
- KDFWR. (2025). *West Kentucky WMA*. Retrieved August 25, 2025, from Kentucky Department of Fish and Wildlife Resources: <https://fw.ky.gov/News/Pages/PSA-Portion-of-West-Kentucky-WMA-A-Tracts-closed-to-public-access-2025-12.aspx>.
- KDFWR. (2026). *Southeastern Myotis*. Retrieved May 13, 2026, from Kentucky Department of Fish & Wildlife Resources: <https://fw.ky.gov/Wildlife/Pages/Southeastern-Myotis.aspx>.
- Kentucky Geologic Survey. (2007). *Paducah, Geologic Map #14, Series XII*.
- Kentucky.gov. (2025). *Gov. Beshear Joins General Matter To Celebrate Milestone for \$1.5 Billion Uranium Enrichment Facility in Paducah, Set To Create 140 Full-Time Jobs*. Retrieved May 13, 2026, from Commonwealth of Kentucky: <https://www.kentucky.gov/Pages/Activity-stream.aspx?n=GovernorBeshear&prId=2549>. August 5.
- MRCC. (2025a). *Monthly NCEI Normals - PADUCAH BARKLEY REGIONAL AP*. Retrieved from Midwestern Regional Climate Center: <https://mrcc.purdue.edu/newclimate/station/monthly-normals>.
- MRCC. (2025b). *Ice Storms*. Retrieved from Midwestern Regional Climate Center: https://mrcc.purdue.edu/living_wx/icestorms.

- National Oceanic and Atmospheric Administration. (2025). *Thunderstorms - Annual Mean Thunderstorm Days (1993-2018) - for the U.S.* Retrieved from <https://www.noaa.gov/jetstream/thunderstorms>.
- NRC. (2025). *Agreement States*. Retrieved May 13, 2026, from U.S. Nuclear Regulatory Commission: <https://www.nrc.gov/agreement-states>. Page Last Reviewed/Updated Tuesday, September 30, 2025.
- NRCS. (2026). *Web Soil Survey Home*. Retrieved from U.S. Department of Agriculture Natural Resources Conservation Service: <https://websoilsurvey.sc.egov.usda.gov/app/>
- NWS. (2025a). *Record High Temperatures by Day for Paducah, KY*. Retrieved from National Weather Service: <https://www.weather.gov/pah/PaducahDailyNormalsAndRecords>.
- NWS. (2025b). *Record Low Temperatures by Day for Paducah, KY*. Retrieved from National Weather Service: <https://www.weather.gov/pah/PaducahDailyNormalsAndRecords>.
- NWS. (2025c). *Daily Precipitation Records for Paducah, KY*. Retrieved from National Weather Service: <https://www.weather.gov/pah/PaducahDailyNormalsAndRecords>.
- NWS. (2025d). *Historic Snowfalls - Paducah, KY*. Retrieved from National Weather Service: <https://www.weather.gov/pah/PaducahSnowfallClimatology>.
- OKNP. (2025). *Office of Kentucky Nature Preserves (OKNP) Biological Assessment Tool*. Frankfort, KY: Office of Kentucky Nature Preserves. Requested September, 12, 2025.
- ORNL. (1999). *Big Bayou Creek and Little Bayou Creek Watershed Monitoring Program*. Oak Ridge, TN: Oak Ridge National Laboratory. Retrieved June 9, 2026, from https://digital.library.unt.edu/ark:/67531/metadc694710/m2/1/high_res_d/5707.pdf.
- PaducahKY.gov. (2025). *General Matter to Construct \$1.5 Billion Uranium Enrichment Facility in Paducah*. Retrieved May 13, 2026, from <https://paducahky.gov/news/general-matter-construct-15-billion-uranium-enrichment-facility-paducah>. News Release issued by Greater Paducah Economic Development, August 5.
- Southwest Light Rail. (2015). *Vibration Fact Sheet*. Retrieved from <https://metro council.org/getattachment/458e5e99-f1fb-4ab1-8fd7-d2261cbd637a/Southwest-LRT-Vibration-Fact-Sheet.aspx>.
- Storm Prediction Center. (2025a). *Severe Weather Maps, Graphics, and Data Page - Hail Climatology -- Old Severe Hail (Greater Than 0.75")*. Retrieved from National Oceanic and Atmospheric Administration: <https://www.spc.noaa.gov/wcm/#data>.
- Storm Prediction Center. (2025b). *Severe Weather Maps, Graphics, and Data Page - Severe Weather Database Files (1950-2024). U.S. TORNADOES* (1950-2024)*. Retrieved from National Oceanic and Atmospheric Administration: <https://www.spc.noaa.gov/wcm/#data>.
- Swift & Staley. (n.d.). *The Story of the Paducah Gaseous Diffusion Plant: Megawatts to Megatons to Megawatts*.

- USACE. (2025). *Official Consultation Letter - Approved Jurisdictional Determination and No Permit Required for the General Matter Paducah Enrichment Facility Project on the Paducah Site in McCracken County, Kentucky*. Department of the Army. U.S. Army Corps of Engineers, Louisville District. December 19, 2025.
- USDA. (2026). *Official Soil Series Descriptions*. Retrieved from U.S. Department of Agriculture: <https://www.nrcs.usda.gov/resources/data-and-reports/official-soil-series-descriptions-osds>. May 12.
- USFWS. (2020). *Project Recommendations for Migratory Bird Conservation*. U.S. Fish and Wildlife Service, Utah Field Office (May 2020). Retrieved from https://www.fws.gov/sites/default/files/documents/Utah_Field_Office_Migratory_Bird_Recommendations_2020.pdf.
- USFWS. (2021). *Birds of Conservation Concern 2021, Migratory Bird Program*. U.S. Fish and Wildlife Service.
- USFWS. (2023). *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines*. U.S. Fish and Wildlife Service. Retrieved from https://www.fws.gov/sites/default/files/documents/USFWS_Range-wide_IBat_%26_NLEB_Survey_Guidelines_2023.05.10_0.pdf.
- USFWS. (2025a). *Information for Planning and Consultation (IPaC) Online Project Planning Tool*. Retrieved August 22, 2025, from U.S. Fish and Wildlife Service: <https://ipac.ecosphere.fws.gov/>.
- USFWS. (2025b). *Official Consultation Letter - FWS 2025-0117162; GEM-LIC-2025-006; NRC Docket Number: 07007040, ER for the General Matter Paducah Enrichment Facility Project on the Paducah Site in McCracken County, Kentucky*. United States Department of the Interior. Fish and Wildlife Service Kentucky Services Field Office. October 28, 2025.

Appendix A: Detailed Description of Proposed Site Preparation Activities

The U.S. Nuclear Regulatory Commission (NRC), the Federal agency responsible for regulating the nation's civilian use of radioactive materials, is the responsible agency for licensing the construction and operation of the General Matter Paducah Enrichment Facility (GMPEF). Given NRC's oversight of activities with potential radiation risks, NRC's definition of "construction" in 10 Code of Federal Regulations (CFR) 70.4 and 10 CFR 40.4 does not extend to include specific activities without components of radioactive handling. These exclusions include the following:

- Site exploration, including necessary borings, to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;
- Preparation of the site for construction of the facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;
- Erection of fences and other access control measures that are not related to the safe use of, or security of, radiological materials subject to licensing;
- Excavation;
- Erection of support buildings (e.g., construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;
- Building of service facilities (e.g., paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines);
- Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or
- Taking any other action that has no reasonable nexus to radiological health and safety or Common defense and security.

Initiating these activities prior to NRC's primary license is permitted because they have no reasonable radiological nexus to health, safety, or common defense and security. From this list, this Environmental Assessment plans to analyze the activities the following activities.

Site Clearing

Site clearing involves the removal of all surface vegetation, including trees, shrubs, and brush, within the project's approximate footprint. These activities would utilize heavy earthmoving equipment including bulldozers, excavators with clearing attachments, front-end loaders, wood chippers, and dump trucks. After vegetation removal, crews would begin grubbing to extract root systems and organic matter to ensure a stable subgrade. To minimize impacts during site clearing activities, the following best management practices (BMPs) would be implemented:

- Erosion and Sediment Control: Before clearing begins, perimeter controls such as silt fencing and straw wattles will be installed to prevent sediment runoff into adjacent areas or drainage ditches.

- **Fugitive Dust Suppression:** Water trucks will be deployed regularly to dampen exposed soils and haul roads, ensuring compliance with air quality standards for particulate matter.

Rough Grading

Rough grading activities include reshaping the existing topography to reach an ideal elevation for building foundations, roads, and utility corridors. This process involves “cutting” (excavating high areas) and “filling” (depositing and compacting soil in low areas) to manage site drainage and achieve the necessary slope for structural stability. “Cutting” activities would utilize scrapers, bulldozers, motor graders, and front-end loaders. Compaction of “fill” areas would be performed using sheepsfoot or smooth-drum vibratory rollers to meet geotechnical density requirements. Grading activities may also include the use of cementation as a drying agent for the soil. Dump trucks and water trucks would also be in continuous use to transport materials and manage soil moisture. To minimize impacts during rough grading activities, the following BMPs would be implemented:

- **Stormwater Control:** Consistent with the SWPPP, sediment basins or traps would be constructed to capture runoff. Diversion swales would be used to direct “clean” upslope water around the disturbed area.
- **Stabilized Construction Entrances:** Stone-pad entrances would be maintained to prevent “track-out” of mud onto Dyke Road or Hobbs Road.
- **Soil Stabilization:** Any areas of rough grading that remain inactive for more than 14 days would be temporarily stabilized using mulch, soil binders, or temporary seeding.

Soil Characterization, Treatment, Stabilization, and Improvements

Soil characterization, treatment, stabilization, and improvements include borings and mechanical or chemical modifications to the soil to increase its load-bearing capacity and control its shrink-swell properties. Mechanical stabilization utilizes scrapers, front-end loaders, and bulldozers for soil blending, followed by vibratory or sheepsfoot rollers to achieve high-density compaction. Chemical stabilization would utilize reclaimer/stabilizer mixers to inject and blend binding agents like lime, Portland cement, or fly ash directly into the soil to create a more reliable substrate. Soil improvements may also include the installation of aggregate column/piers, soil-mixing, and potentially auger-cast pile methods. to improve the load-bearing capacity of the soil. These activities are essential to prevent structural settling or washing collapse once the facility is operational. To mitigate impacts from these soil stabilization activities, the following BMPs would be applied to the following:

- **Erosion Control Blankets and Mats:** For areas with steeper slopes or high erodibility, geotextiles or erosion control blankets would be staked to the surface to prevent soil loss.
- **Binding Agent Containment:** For chemical stabilization, dust-control measures would be strictly enforced during the delivery and mixing of agents like lime or cement to prevent airborne particulates.
- **Soil pH and Fertility Management:** If stabilization involves the future use of vegetation, soil tests would be conducted to manage pH and avoid the excess application of lime or fertilizers, which can lead to nutrient leaching into nearby waterways.

- Soil Stabilization: Any areas of rough grading that remain inactive for more than 14 days would be temporarily stabilized using mulch, soil binders, or temporary seeding.

Installation of Underground Utilities and Storage Tanks

Installation of underground utilities and storage tanks includes the excavation, placement, and backfilling of underground utility corridors and the installation of subsurface storage tanks. Initial activities would focus on establishing temporary power via overhead lines or underground conduits to support construction trailers and equipment. As site development progresses, permanent utility infrastructure would be installed, including electrical duct banks, telecommunications, potable water lines, and fire suppression water mains.

Additionally, underground utilities and storage tanks may be installed to support facility operations. These may include tanks for emergency generator fuel (diesel), process-related chemicals, or stormwater attenuation. Installation involves deep excavation, the placement of reinforced concrete pads or engineered bedding, and the integration of leak detection and secondary containment systems.

Outside the GMPEF Site, there would be the following utility connections:

- Connection to the U.S. Department of Energy (DOE) Paducah Site water distribution system or municipal water distribution system.
- Connection to DOE Paducah Site sanitary sewer system or municipal sanitary sewer system.
- Connection to DOE natural gas line south of the cylinder storage yard, or other accessible natural gas line. Natural gas supplied by Atmos Energy.
- Connection to existing electrical lines at the new GMPEF substation. Electricity provided by the Tennessee Valley Authority or other utility able to provide service to the DOE site.
- Connection to telecommunication/fiber optic lines, including existing AT&T lines.

These activities utilize backhoes, excavators, and trenchers for digging utility runs and may additionally require front-end loaders for backfilling material and plate compactors or “jumping jacks” to ensure soil stability around the pipes and tanks. Cranes or boom trucks would be used to lower storage tanks into position. To minimize impacts from these ground-improvement activities, the following BMPs would be applied to the following:

- Trench Safety and Erosion Control: Trenches would be managed to prevent cave-ins, and check dams or silt fencing would be used to prevent sediment from escaping open excavations during rain events.
- Spill Prevention: Storage tanks would be installed with secondary containment and automated leak-detection systems to comply with the Clean Water Act and state-specific underground utilities and storage tanks regulations.
- Utility Locating: Before digging, utility “one-call” services and site-specific geophysical surveys would be used to identify and protect existing DOE Paducah Site infrastructure.

Final Grading

Final grading is the precise, localized smoothing and contouring of the topsoil or subgrade immediately preceding structural placement. Unlike rough grading—which reshapes broader site topography—final grading operations utilize specialized equipment such as skid-steers, precision motor graders, and small excavators to prepare the ground surface for slab-on-grade concrete pours, asphalt paving, concrete aprons, and facility foundations. This final stabilization stage ensures correct structural load-bearing parameters and establishes exact, engineered slopes necessary to manage localized stormwater runoff into planned drainage channels without disrupting existing site remedial configurations. To mitigate impacts from these soil stabilization activities, the following BMPs would be applied to the following:

- Silt Fence and Fiber Roll Deployment: Installation of sediment barriers may be implemented along the downslope perimeter of the flatwork and pad areas before final leveling begins to ensure sediment control and prevent runoff.
- Phased Water Spraying: Fine water misters may be used ahead of skid-steers and graders to bind loose topsoil without creating mud as a dust controlling measure.
- Equipment Speed Limits: A site-specific speed limit (15 miles per hour) may be utilized for dump trucks and construction vehicles moving across unpaved surfaces.
- Covered Haul Loads: Open-bed dump trucks may be secured with tarps when transporting excess fill dirt or fine aggregate material across the site.

Construction of Administrative Buildings and Support Structures

Construction of administrative buildings and support structures includes the assembly and construction of administrative, security, and support facilities within the GMPEF Site. Initial work would involve the mobilization of temporary field offices (e.g., modular trailers anchored to the ground using rods and cables). These temporary units would house contractor employees and security staff during the multi-year construction phase. Permanent construction would follow and include administration and security buildings. Supporting infrastructure includes the installation of perimeter security fencing—typically chain-link fabric topped with barbed wire—and the establishment of access roads (with potential options for connection to Hobbs Road) and parking lots. GeM will be responsible for contracting its own security to manage its portion of the site. This contractor would be responsible for complying, coordinating, and integrating with DOE's on-site security personnel.

All facilities would be integrated with site-wide utilities and portable sanitary facilities to maintain hygiene during construction. Facilities currently planned within the GMPEF Project Area include the following:

- Administrative and security building,
- Warehouse building,
- Central utilities building,
- Access roads,
- Parking lots, and
- Equipment storage pads.

Buildings would resemble typical industrial/warehouse buildings. Maximum building height is expected to be 50 feet. During construction, the tallest construction equipment would likely be cranes at approximately 300 feet. Outdoor lighting would be shielded to minimize impacts to surrounding users and to comply with applicable Federal, state, and local regulations. In addition, a short access road would connect the GMPEF to Dyke Road, and options may be included for the potential use of Hobbs Road as an access point as well.

During these construction activities, cranes, forklifts, and man-lifts would be used to move structural steel and heavy equipment. Additionally, semi-trucks and flatbed trailers would deliver modular office units and security trailers. Post-hole diggers or augers would be utilized for perimeter fencing and paving machines and rollers would assist in the construction of access roads and parking lots.

To minimize impacts from these construction activities, the following BMPs would be applied to the following:

- Trench Safety and Erosion Control: Trenches would be managed to prevent cave-ins, and check dams or silt fencing would be used to prevent sediment from escaping open excavations during rain events.
- Soil Management: Excavated soils would be stockpiled in designated areas and protected with sediment barriers; any contaminated soil encountered during excavation would be handled according to a Contaminated Soil Management Plan.
- Utility Locating: Before digging, utility “one-call” services and site-specific geophysical surveys would be used to identify and protect existing DOE Paducah Site infrastructure.

The Proposed Action construction activities would span approximately 6 months, followed by approximately 2 years of construction of the NRC licensed low-enriched uranium and high-assay, low-enriched uranium GMPEF. Within the Conceptual Site Plan footprint for the GMPEF, the administrative and other support buildings, parking lots, and maintained landscaped areas included in the Proposed Action are highlighted (see Figure A-1, “General Matter Paducah Enrichment Facility Conceptual Site Plan”).

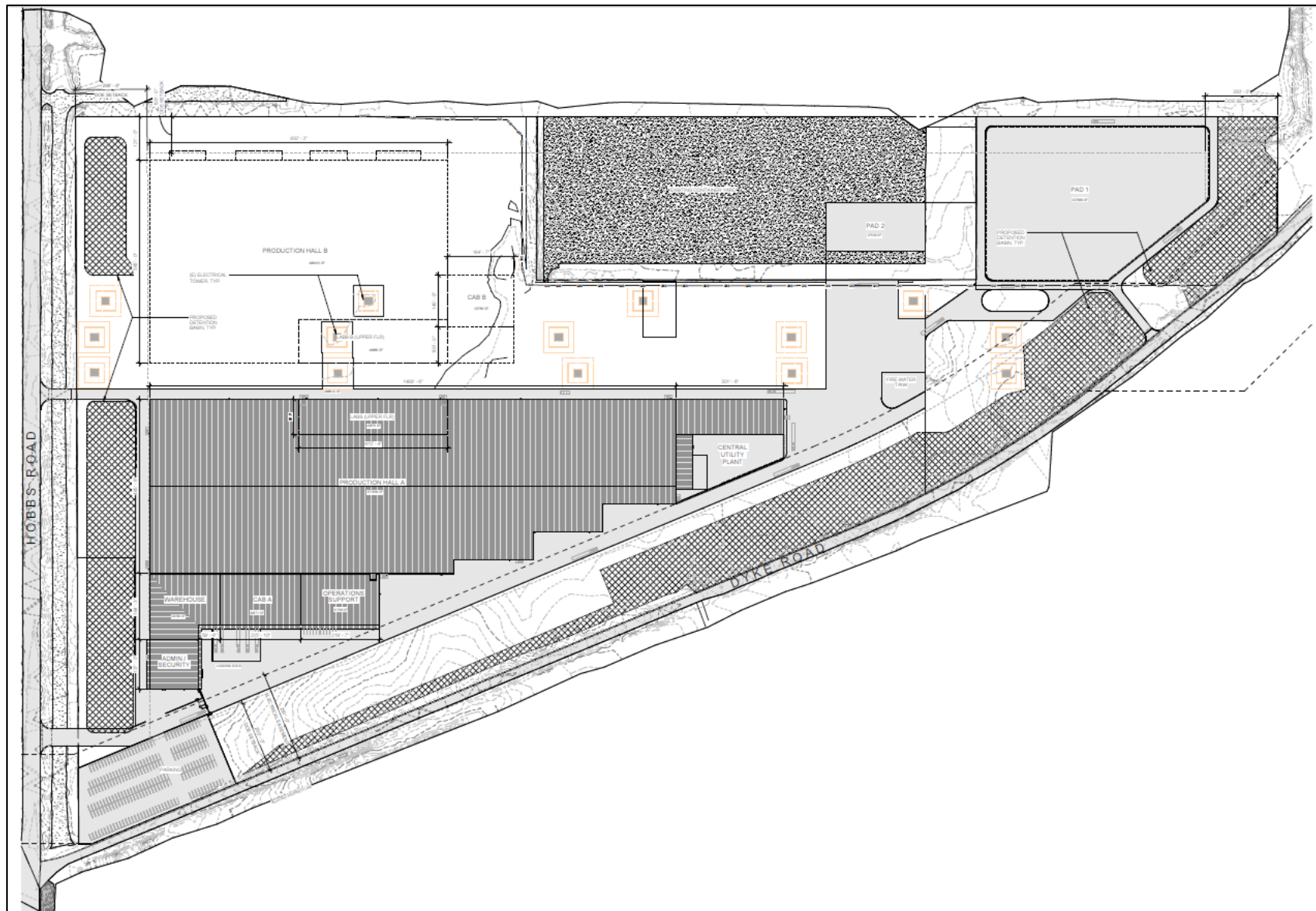


Figure A-1. General Matter Paducah Enrichment Facility Conceptual Site Plan

Appendix B: Agency Consultation

B-1. General Matter Section 7 Informal Consultation Request for Concurrence Letter



September 18, 2025
NRC Docket Number: 07007040

GEM-LIC-2025-006

From:

Jantien Shizuru
General Matter, Inc.
1 Letterman Dr., Bldg D 5th Floor
San Francisco, CA 94129-1494 USA

To:

U.S. Fish and Wildlife Service Kentucky Field Office
Attn: Seth Bishop
Fish and Wildlife Biologist-Consultation
330 West Broadway, Room 265
Frankfort, KY 40601

Subject: USFWS PROJECT CODE #2025-0117162: Section 7 Informal Consultation Request for Concurrence

Dear Mr. Bishop,

General Matter, Inc. (GeM) is preparing an Environmental Report (ER) for the United States (U.S.) Nuclear Regulatory Commission (NRC) to support the licensing of the proposed General Matter Paducah Enrichment Facility (GMPEF). GeM proposes to locate the GMPEF on land leased from the U.S. Department of Energy (DOE) Paducah Site (formerly the Paducah Gaseous Diffusion Plant [PGDP]) near Paducah, Kentucky. The land is leased pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 120(h)(3)(A), the Hall Amendment, 42 *United States Code* (U.S.C.) 7256(c-f), and 10 *Code of Federal Regulations* (CFR) Part 770, *Transfer of Real Property at Defense Nuclear Facilities for Economic Development*.

This letter serves to facilitate informal Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS), and to request concurrence with GeM's determination of effects to federally listed species from the Proposed Action. DOE, as owner of the property, does not intend to consult separately with USFWS regarding the GMPEF.

Project Description. The GMPEF Project Area is approximately 101 acres in size and located at the approximate latitude and longitude of 37.099501, -88.813831 (Attachment 1, Figure 1), south of the PGDP. The PGDP occupies a 3,556-acre DOE-owned Site, approximately 1,427 acres of which were licensed to the Commonwealth of Kentucky as part of the West Kentucky Wildlife Management Area (DOE 2024). The 101-acre GMPEF Project Area comprises mixed-growth forests with numerous emergent and forested wetlands, ephemeral streams, ponds, and a transmission line corridor right-of-way with herbaceous vegetation and emergent wetlands. Under the Proposed Action, the entire GMPEF Project Area will be developed.

Threatened and Endangered Species. The USFWS's Information for Planning and Consultation (IPaC) online system was accessed on August 22, 2025, to identify federally listed species protected under the Endangered Species Act (ESA) (16 U.S.C. §§ 1531–1544, as amended) with potential to occur within the GMPEF Project Area. Attachment 2 presents the *Official Species List*, which includes 16 federally listed, proposed listed, and/or experimental non-essential species, as identified by the USFWS IPaC Report.

General Matter

There are no designated critical habitats within the GMPEF Project Area (USFWS Project Code: 2025-0117162; USFWS 2025).

Tree-clearing: None of the 16 federally listed species (see Attachment 2) have been historically reported as sighted on the PGDP DOE Site, although potential suitable summer habitat for the federally endangered Indiana bat (*Myotis sodalis*) and proposed endangered tricolored bat (*Perimyotis subflavus*) occurs within the approximately 70 acres of mixed-growth forested areas of the GMPEF Site (DOE 2024). As such, targeted species surveys were conducted via mist-netting on the evenings of August 5–7, 2025 (CEC 2025c). No Federal- or State -listed bat species were captured over the 10 complete net-nights of sampling (CEC 2025c). Refer to Attachment 3 for a copy of the *Bat Survey Report – Indiana Bat, Northern-long eared Bat, & Tricolored Bat Mist Net Survey at the Proposed General Matter Paducah Site*.

The primary threat to federally listed bat species in Kentucky is the loss and degradation of mature bottomland hardwood forests due to agricultural conversion and urban expansion. The USFWS recommends tree removal occur between October 1 and March 31 to protect bats during their summer roosting, which typically lasts from April 1 to October 31, and pup-rearing seasons between May 15 to July 31 (USFWS 2023). To offset direct impacts to federally listed bat species, tree removal for the GMPEF would occur in October at the earliest, outside of the bat maternity/pup season that extends between May 15 to July 31 in Kentucky. As such, it is anticipated that tree clearing within the GMPEF Project Area is **not likely to adversely affect** (NLAA) federally endangered **Indiana bats** or federally proposed endangered **tricolored bats**. Additionally, there are no caves within the GMPEF Project Area that would support gray bats. Implementation of the Proposed Action would have **no effect** on federally endangered **gray bats** (*Myotis grisescens*).

Site Preparation, Construction, and Operation of the GMPEF: In addition to tree clearing, site preparation and construction would generate noise on site. Noise disturbance can cause behavioral changes, with bats avoiding loud areas and modifying their echolocation calls to navigate interferences. The degree of sensitivity varies by species, with some bats less affected by noise than others. While mist net survey did not detect federally listed bat species, it is possible some may still transverse the site. For the GMPEF, it is expected that noise effects from construction would be short term and would only affect wildlife in the immediate vicinity. Those affected would generally be able to return to surrounding areas after construction is complete. Facility operation sound levels are estimated to be below U.S. Environmental Protection Agency sound-level guidance.

Many bat species can be sensitive to short-wavelength light (such as blue and ultraviolet) and cause them to avoid lit areas, thus disrupting foraging, migration, and roosting. As such, GeM will use low-impact, warm-toned, low-intensity, and directional light for outdoor facility lighting when constructing and operating the GMPEF, and avoid (where possible) unnecessary illumination altogether in an effort to minimize potential impacts (e.g., disorientation or disruption of nocturnal activities such as commuting and foraging) to bat species that may migrate through the area. These efforts, combined with the absence results of the mist-net survey, indicate that implementation of the Proposed Action would have minimal impacts on federally listed bat species.

Additionally, a general habitat assessment and Waters Delineation survey was conducted July 28–30, 2025, to identify and characterize habitat, and then delineate wetlands, streams, and other waters located within the Project Area. Suitable habitat for the 11 federally listed mussel species was not found present within the GMPEF Project Area (CEC 2025a–c). Potential suitable habitat may occur in Bayou Creek located directly east (around 550 feet away) and near the mouth of the creek at the Ohio River located about 3 miles away. Due to increased traffic and equipment used during site preparation and construction of the GMPEF, soil disturbance associated with construction activities would occur. Soil disturbance can potentially result in water quality impacts to streams through erosion and sedimentation. To minimize



these impacts, GeM will develop a site-specific stormwater pollution prevention plan and implement the best appropriate soil erosion prevention management practices to ensure waste materials, soil, and construction debris are contained. As such, site preparation, construction, and operation of the GMPEF would have **no effect** on the federally threatened **longsolid** (*Fusconaia subrotunda*) and **rabbitsfoot** (*Quadrula cylindrica cylindrica*); and federally endangered **clubshell** (*Pleurobema clava*), **fanshell** (*Cyprogenia stegaria*), **fat pocketbook** (*Potamilus capax*), **orangefoot pimpleback** (pearlymussel) (*Plethobasus cooperanmus*), **pink mucket** (*Lampsilis abrupta*), **ring pink** (*Obovaria retusa*), **rough pigtoe** (*Pleurobema plenum*), **sheepnose mussel** (*Plethobasus cyphus*), and **spectaclecase** (*Cumberlandia monodonta*).

Neither the monarch butterfly (federally proposed threatened) nor their host plant (milkweed - *Asclepias* sp.) were incidentally observed during the survey in late June or during the mist-net survey for Federal- and State-listed bats (CEC 2025a–c). It is unlikely that the GMPEF Project Area could support populations of this species. While sparse milkweed plants may possibly be present, it is unlikely that the GMPEF Site Project Area could support large populations of migrating monarch butterflies. As such, site preparation, construction, and operation of the GMPEF is not likely to jeopardize the continued existence of the federally proposed threatened species.

Please refer to the table in Attachment 4 for the full list of federally listed species, their preferred habitats, and effects determination rationale summaries.

Conclusion. The Proposed Action is not anticipated to result in adverse impacts on federally threatened and endangered species. No federally listed species or designated critical habitats have been recorded within the GMPEF Project Area nor were any federally listed species observed during surveys conducted in July or August of 2025 (CEC 2025a–c). Additionally, no federally listed species have been historically documented within the PGDP Site under the Paducah environmental management programs (DOE 2024).

In accordance with Section 7(c) of the ESA, and as part of the National Environmental Policy Act (42 U.S.C. §4321 et seq. [1969]) review process, we request your agency's input on the effects determinations for the ESA protected species described herein. GeM respectfully requests that the USFWS please provide comments by October 31, 2025. In the meantime, if you have any comments or questions, please contact me at jantien@generalmatter.com, or (424) 323-0650. Thank you.

Sincerely,

Jantien Shizuru

Jantien Shizuru

Enclosures:

- Attachment 1, Site Location Map
- Attachment 2, IPaC Trust Resource Report
- Attachment 3, *Bat Survey Report – Indiana Bat, Northern-long eared Bat, & Tricolored Bat Mist Net Survey at the Proposed General Matter Paducah Site*
- Attachment 4, Potential for Impacts from the Proposed Action to Federally Listed Species Known to Occur or With Potential to Occur in the Project Area



References:

CEC 2025a. Civil and Environmental Consultants (CEC), Inc. *Waters Delineation Report – General Matter Paducah Site*. Paducah, McCracken County, Kentucky. Prepared for Leidos, Inc. CEC Project 352-951. September 2025.

CEC 2025b. Personal communication between CEC Biologist's Ryan Thies, Haley Abner, and Leidos Senior Ecologist Sarah B. Rauch (via teleconference) on 3 September 3, 2025. Subject: Habitat characterizations of the GMPEF Project Area and incidental special status species observations.

CEC 2025c. Civil and Environmental Consultants (CEC), Inc. *Bat Survey Report – Indiana Bat, Northern-long eared Bat, & Tricolored Bat Mist Net Survey at the Proposed General Matter Paducah Site*. Paducah, McCracken County, Kentucky. Prepared for Leidos, Inc. USFWS Project Code: #2025-0117162. CEC Project 352-951. September 2025.

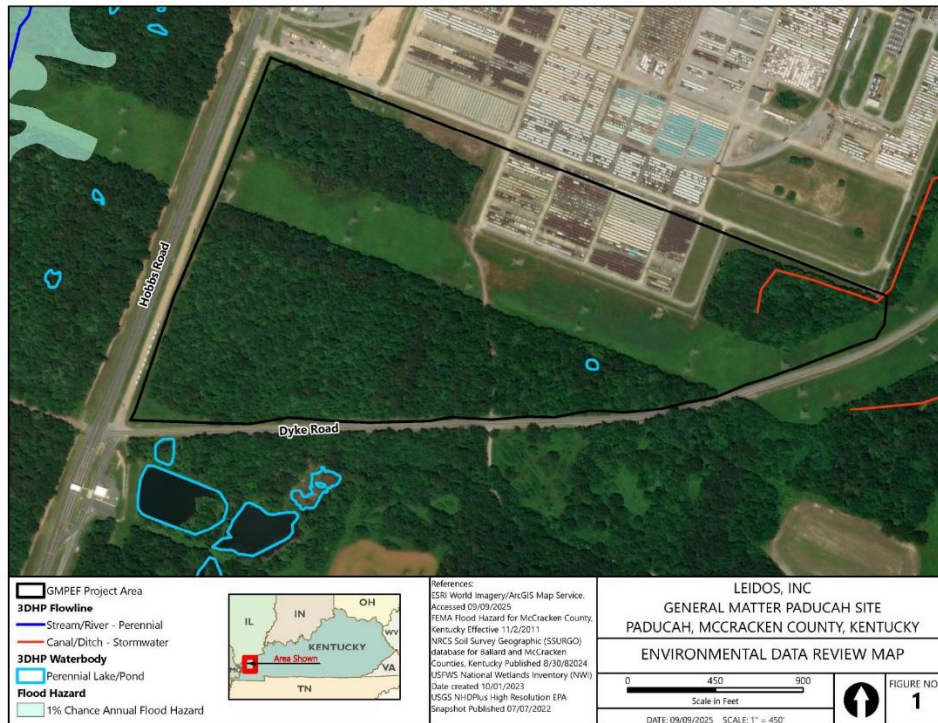
DOE 2024. U.S. Department of Energy (DOE). *Paducah Gaseous Diffusion Plant. Paducah Site Annual Site Environmental Report*. Prepared for the U.S. Department of Energy Office of Environmental Management by Four Rivers Nuclear Partnership LLC. FRNP-RPT-0337.

USFWS 2023. United States Fish and Wildlife Service. Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines. March 2023. Retrieved online September 10, 2025, from:
https://www.fws.gov/sites/default/files/documents/USFWS_Range-wide_IBat_%26_NLEB_Survey_Guidelines_2023.05.10_0.pdf

USFWS 2025. United States Fish and Wildlife Service (USFWS). Information for Planning and Consultation. Project Code: 2025-0117162. Retrieved online August 22, 2025, at:
<https://ipac.ecosphere.fws.gov/>.



ATTACHMENT 1
SITE LOCATION MAP





ATTACHMENT 2

IPAC TRUST RESOURCE REPORT



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
J C Watts Federal Building, Room 265
330 West Broadway
Frankfort, KY 40601-8670
Phone: (502) 695-0467 Fax: (502) 695-1024
Email Address: kentuckyesi@fws.gov



In Reply Refer To:
Project Code: 2025-0117162
Project Name: LEU Paducah Site

08/22/2025 19:55:30 UTC

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

Project code: 2025-0117162

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human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do..>

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

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Project code: 2025-0117162

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Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Kentucky Ecological Services Field Office

J C Watts Federal Building, Room 265

330 West Broadway

Frankfort, KY 40601-8670

(502) 695-0467

Project code: 2025-0117162

08/22/2025 19:55:30 UTC

PROJECT SUMMARY

Project Code: 2025-0117162

Project Name: LEU Paducah Site

Project Type: Power Gen - Nuclear

Project Description: Proposed energy development project.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@37.1022717,-88.81562706608511,14z>



Counties: McCracken County, Kentucky

Project code: 2025-0117162

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ENDANGERED SPECIES ACT SPECIES

There is a total of 16 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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MAMMALS

NAME	STATUS
Gray Bat <i>Myotis grisescens</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: The project area includes potential gray bat habitat. Species profile: https://ecos.fws.gov/ecp/species/6329 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/6422.pdf	Endangered
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: The project area includes 'potential' habitat. All activities in this location should consider possible effects to this species. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/6422.pdf	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Whooping Crane <i>Grus americana</i> Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non- Essential

CLAMS

NAME	STATUS
Clubshell <i>Pleurobema clava</i> Population: Wherever found; Except where listed as Experimental Populations No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3789 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	Endangered
Fanshell <i>Cyprogenia stegaria</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4822 General project design guidelines:	Endangered

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Project code: 2025-0117162

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NAME	STATUS
https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	
Fat Pocketbook <i>Potamilus capax</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2780 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	Endangered
Longsolid <i>Fusconaia subrotunda</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9880	Threatened
Orangefoot Pimpleback (pearlymussel) <i>Plethobasus cooperianus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1132 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	Endangered
Pink Mucket (pearlymussel) <i>Lampsilis abrupta</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7829 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	Endangered
Rabbitsfoot <i>Quadrula cylindrica cylindrica</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5165 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	Threatened
Ring Pink <i>Obovaria retusa</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4128 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	Endangered
Rough Pigtoe <i>Pleurobema plenum</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6894 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPFCKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	Endangered
Sheepnose Mussel <i>Plethobasus cyphus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat.	Endangered

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Project code: 2025-0117162

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NAME	STATUS
Species profile: https://ecos.fws.gov/ecp/species/6903 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPECKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	
Spectaclecase (mussel) <i>Cumberlandia monodonta</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/7867 General project design guidelines: https://ipac.ecosphere.fws.gov/project/KD3PPECKCVG77LDUPCLJMKBY2E/documents/generated/5639.pdf	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is proposed critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

Project code: 2025-0117162

08/22/2025 19:55:30 UTC

IPAC USER CONTACT INFORMATION

Agency: Civil & Environmental Consultants, Inc.
Name: Katie Astroth
Address: 1450 Beale Street
Address Line 2: Suite 305
City: St. Charles
State: MO
Zip: 63303
Email: kastroth@cecinc.com
Phone: 3143305638

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Department of Energy



ATTACHMENT 3

BAT SURVEY REPORT

**INDIANA BAT, NORTHERN-LONG EARED BAT, & TRICOLORED BAT
MIST-NET SURVEY AT THE PROPOSED GENERAL MATTER PADUCAH SITE**

**INDIANA BAT, NORTHERN LONG-EARED BAT, & TRICOLORED BAT
MIST-NET SURVEY
AT THE PROPOSED
GENERAL MATTER PADUCAH SITE
PADUCAH, MCCRACKEN COUNTY, KENTUCKY**

**Prepared for:
MR. MIKE ARMSTRONG
U.S. FISH & WILDLIFE SERVICE
FRANKFORT, KENTUCKY**

**Prepared by:
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
INDIANAPOLIS, INDIANA**

CEC PROJECT 352-951

USFWS PROJECT CODE #2025-0117162

SEPTEMBER 2025



Civil & Environmental Consultants, Inc.

Indianapolis

530 E. Ohio Street, Suite G | Indianapolis, IN 46204 | p: 317-655-7777 f: 317-655-7778 | www.cecinc.com

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2.0 METHODS	2
3.0 RESULTS	3
3.1 HABITAT.....	3
3.2 MIST NET SURVEY.....	4
4.0 CONCLUSIONS	5

APPENDICES

- Appendix A – Figures
- Appendix B – Photographs
- Appendix C – Field Data Sheets

1.0 INTRODUCTION

Civil & Environmental Consultants, Inc. (CEC) was retained by Leidos, Inc. to complete a mist-net survey for the federally endangered Indiana bat (*Myotis sodalis*), federally endangered northern long-eared bat (*M. septentrionalis*), and proposed endangered tricolored bat (*Perimyotis subflavus*) at the proposed General Matter Paducah Site (Project) located in Paducah, McCracken County, Kentucky (Project; Appendix A, Figure 1).

The Project Area is approximately 102.63 acres in size and is located at the approximate latitude and longitude of 37.099501, -88.813831 (Appendix A, Figure 1). The Project proposes tree clearing of approximately 70 acres for land development. The Project Area is mostly forested with a transmission line corridor right-of-way (ROW) crossing the central portion, and a cylinder storage pad to the northeast. The vicinity surrounding the Project is mostly forested and with a large area of development to the north (Appendix A, Figure 2).

This mist-net survey was completed to investigate if Indiana bats, northern long-eared bats, and/or tricolored bats were present within the Project area during the summer maternity months (i.e., June 1 to August 15). A mist-net survey was designed and performed to meet two objectives: first, to document the presence, or probable absence of the federally listed bats in the Project Area; second, to document the presence of other bat species within the Project Area.

2.0 METHODS

CEC submitted a mist-net survey plan to the U.S. Fish and Wildlife Service Kentucky Field Office (USFWS) on July 31, 2025. The study plan was designed to assess the presence, or probable absence, of Indiana, northern long-eared, and tricolored bats at the Project. Survey authorization was granted by USFWS on August 1, 2025. The USFWS project code is 2025-0117162.

Mr. Ryan Slack, a Federally permitted CEC biologist, completed mist-netting on the evenings of August 5-7, 2025. Field reconnaissance was completed prior to netting in order to establish mist-net sets that would maximize the success of the survey. Based on the proposed forested area to be impacted (approximately 70 acres), one (1) mist net site with two (2) to four (4) net sets were chosen for a total of ten (10) net-nights over three (3) nights of survey. The flight corridors and foraging habitat at the one (1) site selected for net placement were determined to have the highest potential to capture an Indiana bat, northern long-eared bat, and/or tricolored bat within the vicinity of the Project area.

The Project was sampled for ten (10) complete net-nights at one (1) site (two [2] nets x one [1] night + four [4] nets x two [2] nights). The survey sites were sampled beginning at sunset and lasting for a minimum of five (5) hours. Weather conditions were monitored nightly at each mist net site. Temperatures in the Project area during the survey were within acceptable limits based on USFWS guidelines. CEC decontaminated field gear according to the most current USFWS white-nose syndrome decontamination protocol released in March 2024.

Captured bats were identified to species, sex, reproductive condition, age, weight, length of right forearm, and time and location/net site of capture were recorded for all captured bats. All survey efforts were conducted in a manner consistent with technical criteria outlined in the USFWS document; *USFWS 2024 Range-Wide Indiana Bat & Northern Long-Eared Bat Survey Guidelines*, dated March 2024.

3.0 RESULTS

The following section provides a detailed description of the mist-net sites and presents the bat capture results. The evenings of August 5-7, 2025, were complete survey nights. Nets A, B, C, and D were surveyed on August 5-6, and Nets E and F were surveyed on August 7, 2025.

3.1 HABITAT

The Project Area consists of mostly mixed-growth forests with numerous emergent and forested wetlands, ephemeral streams, ponds, and a transmission line corridor ROW with herbaceous vegetation and emergent wetlands. The forested areas of the Project Area contain suitable bat roosting habitat with several trees and snags with exfoliating bark and/or cavities. The predominant tree species at the mist net site were red maple (*Acer rubrum*), shellbark hickory (*Carya laciniosa*), common hackberry (*Celtis occidentalis*), sweetgum (*Liquidambar styraciflua*), and American elm (*Ulmus americana*). The predominant tree species observed within the forested woodland areas included pumpkin ash (*Fraxinus profunda*), green ash (*F. pennsylvanica*), red maple, boxelder (*Acer negundo*), American elm, American sycamore (*Platanus occidentalis*), oaks (*Quercus sp.*) and shellbark hickory. The herbaceous understory included amur honeysuckle (*Lonicera maackii*), sumac (*Rhus sp.*), and poison ivy (*Toxicodendron radicans*).

Dominant tree species in the northwestern forested area included red maple, silver maple (*Acer saccharinum*), box elder, shellbark hickory, common hackberry, pumpkin ash, green ash, honey locust (*Gleditsia triacanthos*), American sycamore, black cherry (*Prunus serotina*), black willow (*Salix nigra*), white oak (*Quercus alba*), northern red oak (*Q. rubra*), and American elm.

Predominant tree species in the northeastern forested area included red maple, silver maple, box elder, common hackberry, pumpkin ash, green ash, honey locust, American sycamore, black cherry, black willow, white oak, northern red oak, and American elm.

Predominant tree species in the southern forested area included red maple, silver maple, box elder, common hackberry, pumpkin ash, green ash, honey locust, American sycamore, black cherry,

black willow, white oak, and American elm. Photographs of the habitat are provided in Appendix B.

3.2 MIST NET SURVEY

At Site 1, Nets A, E, and F were located in interior forest, and Nets B, C, and D were located in an upland forest corridor (Appendix A, Figure 2). Net A was a 7.5-meter high by 6-meter wide net set, Net B was 7.5-meter high by 9-meter wide net set, Net C was a 7.5-meter high by 9-meter wide net set, Net D was a 7.5-meter high by 9-meter wide net set, Net E was a 7.5-meter high by 9-meter wide net set, and Net F was a 7.5-meter high by 6-meter wide net set. Photographs of mist-net sets are provided in Appendix B.

In total, 14 eastern red bats (*Lasiurus borealis*) and one (1) evening bat (*Nycticeius humeralis*) were captured over the ten (10) complete net-nights of sampling. Data sheets containing all bat capture data recorded in the field are provided in Appendix C.

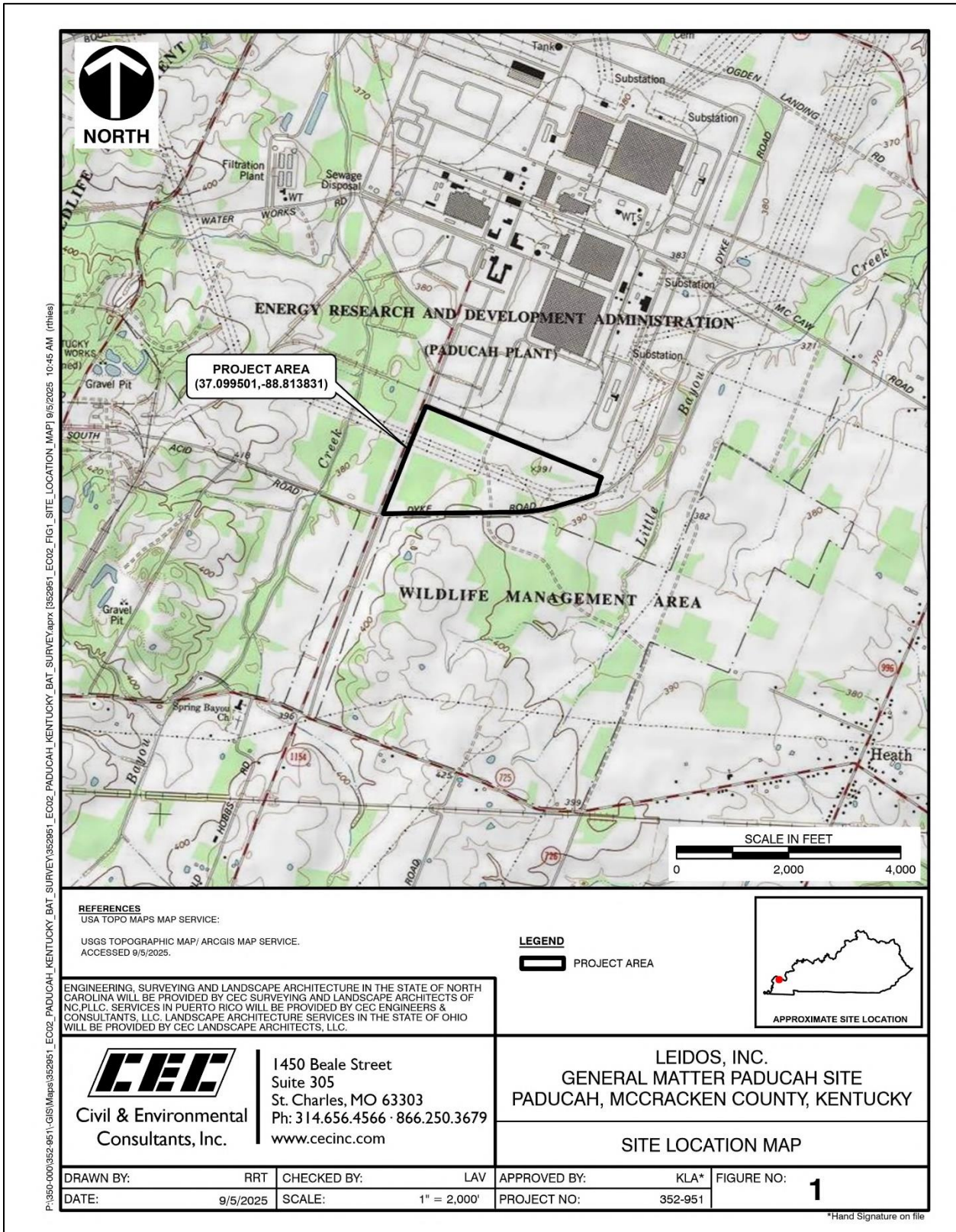
4.0 CONCLUSIONS

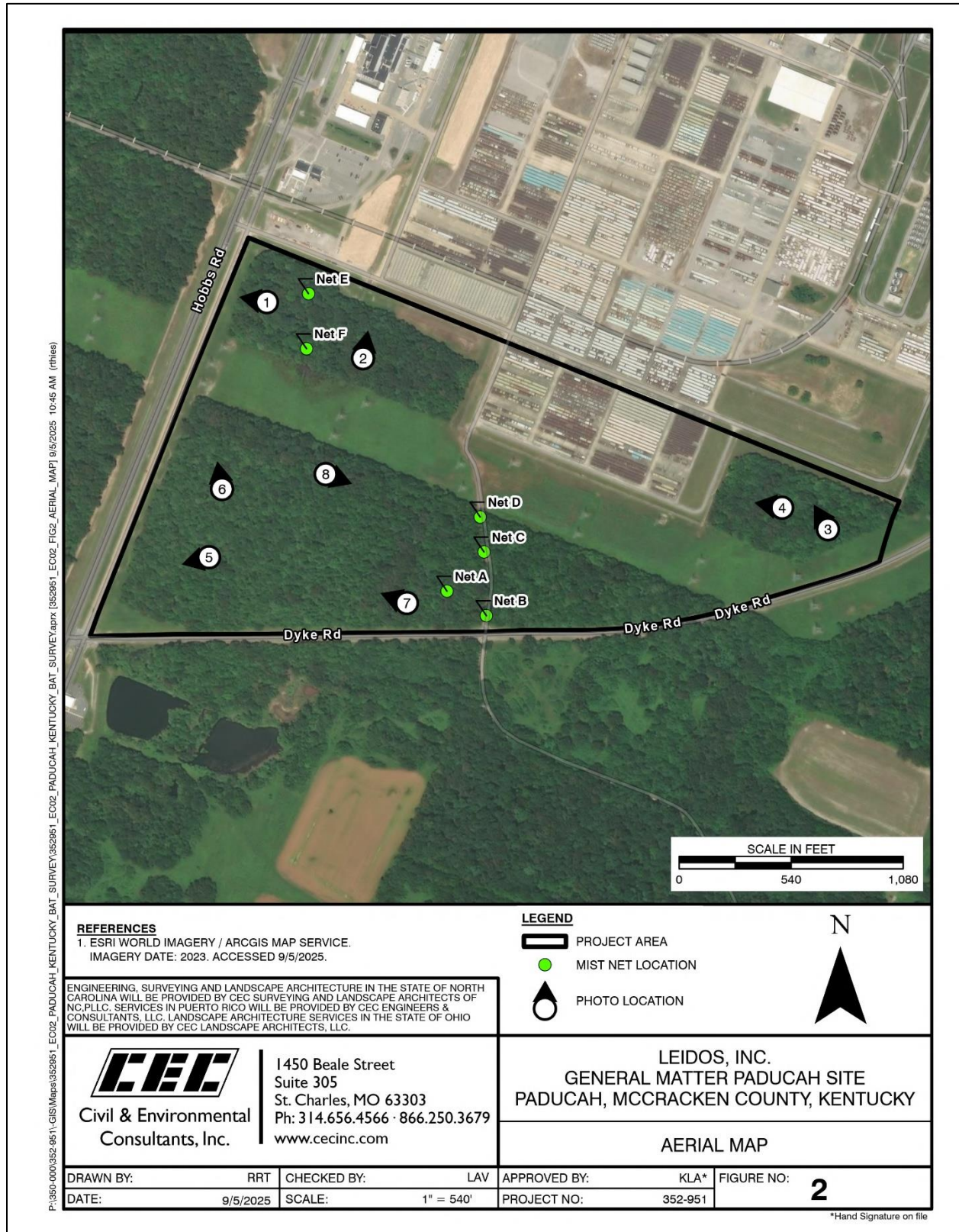
CEC completed an Indiana bat, northern long-eared bat, and tricolored bat presence/probable absence mist-net survey for the proposed tree clearing activity associated with the proposed General Matter Paducah Site located in McCracken County, Kentucky, on the evenings of August 5-7, 2025. In total, 14 eastern red bats and one (1) evening bat were captured over ten (10) complete net-nights of sampling. No Indiana bats, northern long-eared bats, or tricolored bats were captured during the survey.

It is CEC's opinion that the results of this survey indicate that proposed clearing of forest within the Project area is not likely to adversely affect Indiana bats, northern long-eared bats, or tricolored bats. This report requests concurrence from the USFWS with this determination.

APPENDIX A
FIGURES

Civil & Environmental Consultants, Inc.





APPENDIX B
PHOTOGRAPHS

Civil & Environmental Consultants, Inc.



Photo 1: Overview of the northwestern forested area, facing north.



Photo 2: Overview of the northwestern forested area, facing east.



Photo 3: Overview of the northeastern forested area, facing northwest.



Photo 4: Overview of the northeastern forested area, facing west.



Civil & Environmental Consultants, Inc.
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Phone: 317-655-7777 Toll Free: 877-746-0749

LEIDOS, INC.
GENERAL MATTER PADUCAH SITE
PADUCAH, MCCracken COUNTY, KENTUCKY
CEC PROJECT # 352-951

Photographs Taken: July 2025



Photo 5: Overview of the southern forested area, facing north.



Photo 6: Overview of the southern forested area, facing northeast.



Photo 7: Overview of the southern forested area, facing west.



Photo 8: Overview of the southern forested area, facing west.



Civil & Environmental Consultants, Inc.
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LEIDOS, INC.
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PADUCAH, MCCracken COUNTY, KENTUCKY
CEC PROJECT # 352-951

Photographs Taken: July 2025



Photo 9: Site 1, Net A



Photo 10: Site 1, Net B



Photo 11: Site 1, Net C



Photo 12: Site 1, Net D



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Photographs Taken: August 2025



Photo 13: Site 1, Net E



Photo 14: Site 1, Net F



Photo 15: Eastern red bat



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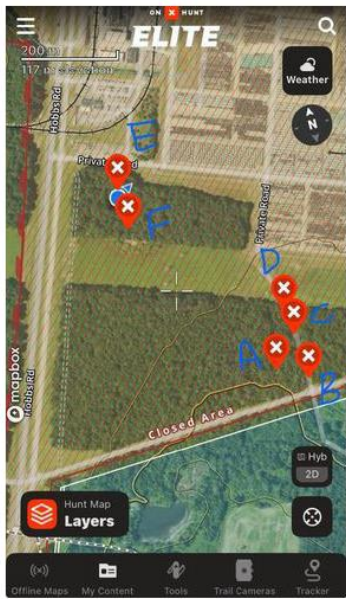
Photographs Taken:

August 2025

APPENDIX C
FIELD DATA SHEETS

Civil & Environmental Consultants, Inc.

Environmental Assessment for General Matter's Site Preparation and Licensing Activities in Parcel A of the Paducah Site in McCracken County, Kentucky

Site No. 1	Project Name: General Matter Paducah Site
Date: August 5, 2025	Project Number: 352-951
Net Site Diagram	
	
Comments:	

Dominant Vegetation (Scientific Name)
Ulmus americana
Celtis occidentalis
Liquidambar styraciflua
Acer rubrum
Carya laciniosa

Nets by Habitat						
Unit	Creek/Riparian	Pond	Field Edge	Open Field	Bottomland Forest	Upland Forest
A	☐	☐	☐	☐	☐	☐
B	☐	☐	☐	☐	☐	☐
C	☐	☐	☐	☐	☐	☐
D	☐	☐	☐	☐	☐	☐
E	☐	☐	☐	☐	☐	☐
F	☐	☐	☐	☐	☐	☐

Nets by Habitat						
Unit	Wetland	Interior Forest	Forest Edge	Corridor	Bridge	Cave/Mine
A	☐	☒	☐	☐	☐	☐
B	☐	☐	☐	☒	☐	☐
C	☐	☐	☐	☒	☐	☐
D	☐	☐	☐	☒	☐	☐
E	☐	☒	☐	☐	☐	☐
F	☐	☒	☐	☐	☐	☐

Net Height (m) X Net Length (m)			
Net	Net Length	Net Height	Total
A	6	7.5	45
B	9	7.5	67.5
C	9	7.5	67.5
D	9	7.5	67.5
E	9	7.5	67.5
F	6	7.5	45
Total Area (m ²)			360

Other Species:

Environmental Assessment for General Matter's Site Preparation and Licensing Activities in Parcel A of the Paducah Site in McCracken County, Kentucky

CEC Bat Capture Data Sheet

Site No. 1	Project Name: General Matter Paducah Site	Date: August 5, 2025
County: McCracken	State: Kentucky (KY)	Client: Leidos, Inc.
Permit # (State & Fed): ES07358A-14 (fed), SC2511245 (KY)		Surveyors: Ryan Slack, Carlie Richardson

No.	Time	Species ¹	Age	Sex	Repro. Cond. ²	RFA (mm)	Mass (g)	Net	Height (m)	Wing Score	Band # Type	Transmitter Freq.
1	20:17	LABO	A	M	TD	40	10	C	2.5	0		
2	20:20	LABO	A	F	N	40	11.5	D	2	0		
3	20:20	LABO	A	M	TD	39	10.5	D	4	0		
4	22:33	LABO	J	M	N	41	9.5	C	3	0		
5	22:35	LABO – Escaped	UN	UN				C	5.5			
6	22:47	LABO – Escaped	UN	F				D	4			
7	00:20	LABO	J	F	N	40	10.2	B	2.5	0		
8	00:37	LABO – Recapture		F				B	6	0		
9	00:47	LABO	J	F	N	42	10	C	7	0		
10	01:09	LABO	A	M	N	41	13	B	2.5	0		

Moon Phase:		Percent
Waxing Gibbous		88%
	Rise	Set
Moon	17:45	01:56
Sun	06:04	19:57

Time	Temp	Sky ³	Wind ⁴
19:57	79 °F	2	0
20:57	77 °F	2	0
21:57	75 °F	2	0
22:57	73 °F	1	0
23:57	73 °F	0	0
00:57	72 °F	0	0

Net Coordinates		
Net	Latitude	Longitude
A	37.099153	-88.814508
B	37.098846	-88.813845
C	37.099687	-88.813917
D	37.100147	-88.813999

Total Net Area (m ²)
247.5

Bat Capture Remarks:

¹Species Code: Rafinesque's big-eared bat *Corynorhinus rafinesquii* (CORR), Townsend's big-eared bat *Corynorhinus townsendii* (COTO), Ozark big-eared bat *Corynorhinus townsendii ingens* (COTI), Big brown bat *Eptesicus fuscus* (EPFU), Florida bonneted bat *Eumops floridanus* (EUFU), Silver-haired bat *Lasiurus noctivagus* (LANO), Eastern red bat *Lasiurus borealis* (LABO), Hoary bat *Lasiurus cinereus* (LACI), Northern yellow bat *Lasiurus intermedius* (LAIN), Seminole bat *Lasiurus seminolus* (LASE), Southeastern myotis *Myotis austroriparius* (MYAU), Gray bat *Myotis grisescens* (MYGR), Eastern small-footed myotis *Myotis leibii* (MYLE), Little brown bat *Myotis lucifugus* (MYLU), Northern long-eared bat *Myotis septentrionalis* (MYSE), Indiana bat *Myotis sodalis* (MYSO), Evening bat *Nycticeius humeralis* (NYHU), Tricolored bat *Perimyotis subflavus* (PESU), Brazilian free-tailed bat *Tadarida brasiliensis* (TABR)

²Repro. Cond (Reproductive Condition): (PR) pregnant; (L) lactating; (PL) post-lactating; (N) non-reproductive; (TD) testes descended

³Sky Code: 0- Clear, 1- Few Clouds, 2- Partly Cloudy, 3- Cloudy or Overcast, 4- Smoke or Fog, 5- Drizzle or Light rain, 6- Thunderstorm

⁴Wind Code : 0- Calm (0 mph), 1- Light wind (1-3 mph), 2- Light breeze (4-7 mph), 3- Gentle breeze (8-12 mph), 4- Moderate breeze (13-18 mph)

*Environmental Assessment for General Matter's Site Preparation and Licensing Activities in Parcel A of
the Paducah Site in McCracken County, Kentucky*

CEC Bat Capture Data Sheet

Site No. 1	Project Name: General Matter Paducah Site	Date: August 6, 2025
County: McCracken	State: Kentucky (KY)	Client: Leidos, Inc.
Permit # (State & Fed): ES07358A-14 (fed), SC2511245 (KY)		Surveyors: RAS, CAR

No.	Time	Species ¹	Age	Sex	Repro. Cond. ²	RFA (mm)	Mass (g)	Net	Height (m)	Wing Score	Band # Type	Transmitter Freq.
1	21:30	LABO	J	F	N	40	10.25	C	4	0		
2	21:44	LABO – Recapture		F				C	7.25	0		
3	22:30	LABO	J	M	N	39	8.9	D	4	0		
4	00:00	LABO	J	F	N	41	11.25	C	1.5	0		
5	00:30	NYHU	A	M	N	35	10.25	C	6	0		
6	00:57	LABO	J	M	N	39	8.5	C	5	0		

¹**Species Code:** Rafinesque's big-eared bat *Corynorhinus rafinesquii* (CORA), Townsend's big-eared bat *Corynorhinus townsendii* (COTO), Ozark big-eared bat *Corynorhinus townsendii ingens* (COTI), Big brown bat *Eptesicus fuscus* (EPFU), Florida bonneted bat *Eumops floridanus* (EUF), Silver-haired bat *Lasionycteris noctivagans* (LANO), Eastern red bat *Lasiurus borealis* (LABO), Hoary bat *Lasiurus cinereus* (LACI), Northern yellow bat *Lasiurus intermedius* (LAIN), Seminole bat *Lasiurus seminolus* (LASE), Southeastern myotis *Myotis austroriparius* (MYAU), Gray bat *Myotis grisescens* (MYGR), Eastern small-footed myotis *Myotis leibii* (MYLE), Little brown bat *Myotis lucifugus* (MYLU), Northern long-eared bat *Myotis septentrionalis* (MYSE), Indiana bat *Myotis sodalis* (MYSO), Evening bat *Nycticeius humeralis* (NYHU), Tricolored bat *Perimyotis subflavus* (PESU), Brazilian free-tailed bat *Tadarida brasiliensis* (TABR)

²**Repro. Cond (Reproductive Condition):** (PR) pregnant; (L) lactating; (PL) post-lactating; (N) non-reproductive; (TD) testes descended

³**Sky Code:** 0- Clear, 1- Few Clouds, 2- Partly Cloudy, 3- Cloudy or Overcast, 4- Smoke or Fog, 5- Drizzle or Light rain, 6- Thunderstorm

⁴**Wind Code :** 0- Calm (0 mph), 1- Light wind (1-3 mph), 2- Light breeze (4-7 mph), 3- Gentle breeze (8-12 mph), 4- Moderate breeze (13-18 mph)

Moon Phase:		Percent
Waxing Gibbous		94%
	Rise	Set
Moon	18:34	02:52
Sun	06:05	19:56

Time	Temp	Sky ³	Wind ⁴
19:56	82 °F	0	0
20:56	80 °F	0	0
21:56	77 °F	0	0
22:56	75 °F	0	0
23:56	73 °F	0	0
00:56	72 °F	0	0

Net Coordinates		
Net	Latitude	Longitude
A	37.099153	-88.814508
B	37.098846	-88.813845
C	37.099687	-88.813917
D	37.100147	-88.813999

Total Net Area (m ²)
247.5

Bat Capture Remarks:

*Environmental Assessment for General Matter's Site Preparation and Licensing Activities in Parcel A of
the Paducah Site in McCracken County, Kentucky*

CEC Bat Capture Data Sheet

Site No. 1	Project Name: General Matter Paducah Site	Date: August 7, 2025
County: McCracken	State: Kentucky (KY)	Client: Leidos, Inc.
Permit # (State & Fed): ES07358A-14 (fed), SC2511245 (KY)		Surveyors: RAS, CAR

No.	Time	Species ¹	Age	Sex	Repro. Cond. ²	RFA (mm)	Mass (g)	Net	Height (m)	Wing Score	Band # Type	Transmitter Freq.
1	21:30	LABO – Escaped	UN	UN				F	3.5			

¹**Species Code:** Rafinesque's big-eared bat *Corynorhinus rafinesquii* (CORA), Townsend's big-eared bat *Corynorhinus townsendii* (COTO), Ozark big-eared bat *Corynorhinus townsendii ingens* (COTI), Big brown bat *Eptesicus fuscus* (EPFU), Florida bonneted bat *Eumops floridanus* (EUF), Silver-haired bat *Lasionycteris noctivagans* (LANO), Eastern red bat *Lasiurus borealis* (LABO), Hoary bat *Lasiurus cinereus* (LACI), Northern yellow bat *Lasiurus intermedius* (LAIN), Seminole bat *Lasiurus seminolus* (LASE), Southeastern myotis *Myotis austroriparius* (MYAU), Gray bat *Myotis grisescens* (MYGR), Eastern small-footed myotis *Myotis leibii* (MYLE), Little brown bat *Myotis lucifugus* (MYLU), Northern long-eared bat *Myotis septentrionalis* (MYSE), Indiana bat *Myotis sodalis* (MYSO), Evening bat *Nycticeius humeralis* (NYHU), Tricolored bat *Perimyotis subflavus* (PESU), Brazilian free-tailed bat *Tadarida brasiliensis* (TABR)

²**Repro. Cond (Reproductive Condition):** (PR) pregnant; (L) lactating; (PL) post-lactating; (N) non-reproductive; (TD) testes descended

³**Sky Code:** 0- Clear, 1- Few Clouds, 2- Partly Cloudy, 3- Cloudy or Overcast, 4- Smoke or Fog, 5- Drizzle or Light rain, 6- Thunderstorm

⁴**Wind Code :** 0- Calm (0 mph), 1- Light wind (1-3 mph), 2- Light breeze (4-7 mph), 3- Gentle breeze (8-12 mph), 4- Moderate breeze (13-18 mph)

Moon Phase:		Percent
Waxing Gibbous		98%
	Rise	Set
Moon	19:16	03:55
Sun	06:05	19:55

Time	Temp	Sky ³	Wind ⁴
19:55	82 °F	0	0
20:55	80 °F	0	0
21:55	78 °F	0	0
22:55	76 °F	0	0
23:55	74 °F	1	0
00:55	73 °F	2	0

Net Coordinates		
Net	Latitude	Longitude
E	37.103026	-88.816955
F	37.102297	-88.816958

Total Net Area (m ²)
112.5

Bat Capture Remarks:



ATTACHMENT 4
POTENTIAL FOR IMPACTS FROM THE PROPOSED ACTION
TO FEDERALLY LISTED SPECIES KNOWN TO OCCUR OR WITH POTENTIAL TO OCCUR IN THE
GMPEF PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING STATUS	HABITAT	HISTORICALLY OBSERVED AT THE PGDP?	POTENTIAL FOR IMPACTS FROM THE PROPOSED ACTION/ EFFECTS DETERMINATION
Mammals					
Gray bat	<i>Myotis grisescens</i>	FE	Gray bats roost, breed, rear young and hibernate in caves year-round. They migrate between summer and winter caves and will use transient or stopover caves along the way. Mating occurs as bats return to winter caves in September and October. By November, most gray bats are hibernating. Few caves meet their specific roost requirements. This results in about 95% of the populations hibernating in less than 20 caves (KDFWR, 2025b)	No	<i>No effect.</i> There have been no historical observations of gray bats within or in direct proximity (~1 mile) of the GMPEF Project Area. Suitable hibernation habitat (i.e., caves) is not present within the proposed action area. No federal or state listed bat species were detected during targeted mist net surveys. (CEC 2025c).
Indiana bat	<i>Myotis sodalis</i>	FE	In Kentucky, the Indiana bat's habitat changes seasonally: during winter, they hibernate in caves and mines, particularly in karst (cave-rich) regions of the state like Mammoth Cave. During the summer, they live in forested areas, roosting under loose bark on dead or dying trees or within tree crevices to form maternity colonies and raise their young. They also forage for insects in forested areas, especially near streams and other water bodies (KDFWR, 2025c).	No	<i>Not likely to adversely affect.</i> No federal or state listed bat species were detected during targeted mist net surveys (CEC, 2025c). Tree removal would occur outside of the bat maternity/pup season that extends between May 15 to July 31. Noise associated with construction activities would be short term and facility operation sound levels are estimated to be below EPA sound-level guidance. Low impact facility lighting will be used to minimize potential impacts (e.g., disorientation or disruption of nocturnal activities such as commuting and foraging) to bat species that may migrate through the area.
Tricolored bat	<i>Perimyotis sodalis</i>	PE	In Kentucky, the tricolored bat occupies forested habitats for summer roosting, often in dense foliage, high tree canopies, and hollow trees, while also using mines, rock shelters, and quarries for winter hibernation. The species is widespread across the state and requires healthy, large, mature deciduous trees in heterogeneous forest landscapes, with	No	

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING STATUS	HABITAT	HISTORICALLY OBSERVED AT THE PGDP?	POTENTIAL FOR IMPACTS FROM THE PROPOSED ACTION/ EFFECTS DETERMINATION
			significant habitat loss from development and wind farms posing a major threat (KDFWR, 2025d).		
Birds					
Whooping crane	<i>Grus americana</i>	EXP, MBTA	The whooping crane is a bi-annual migrant, traveling between its summer habitat in central Canada, and its wintering grounds on the Texas coast, across the Great Plains of the U.S. in the spring and fall of each year. Kentucky is primarily a migration stopover point for the Eastern Migratory Population, rather than a typical habitat for breeding or wintering (USFWS, n.d.).	No	<i>No effect.</i> There have been no historical observations of whooping cranes within or in direct proximity (~1 mile) of the GMPEF Project Area. Species occurrence would be limited to over-flights during their spring and fall migrations; presence would be transient in nature.
Clams					
Clubshell	<i>Pleurobema clava</i>	FE	Typically found in flowing waters of medium to large rivers in main channels over firm sand and gravel substrates. Habitat is associated with its host fishes, minnows (KDFWR, 2023).	No	<i>No effect.</i> Lack of suitable habitat within the proposed action area. Potential suitable habitat may occur in Bayou Creek located east of the GMPEF Project Area and near the mouth of the creek at the Ohio River located about 3 miles away. Soil disturbance can potentially result in water quality impacts to streams through erosion and sedimentation. To minimize these impacts, GeM will develop a site-specific stormwater pollution prevention plan and implement the best appropriate soil erosion prevention management practices to ensure waste materials, soil, and construction debris are contained.
Fanshell	<i>Cyprogenia stegaria</i>	FE	Typically found in flowing waters of medium to large rivers in main channels over firm sand and gravel substrates. Habitat is associated with its host fishes, darters (KDFWR, 2023).	No	
Fat pocketbook	<i>Potamilus capax</i>	FE	Typically found in slack waters of large rivers within side channels over sand, mud and organic debris substrates. Habitat is associated with its host fish, the freshwater drum (KDFWR, 2023).	No	
Longsolid	<i>Fusconaia subrotunda</i>	FT	Typically found in flowing waters of medium to large rivers in main channels over firm sand and gravel substrates. Host fishes are unknown (KDFWR, 2023).	No	

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING STATUS	HABITAT	HISTORICALLY OBSERVED AT THE PGDP?	POTENTIAL FOR IMPACTS FROM THE PROPOSED ACTION/ EFFECTS DETERMINATION
Orangefoot pimpleback (pearlymussel)	<i>Plethobasus cooperianus</i>	FE	Typically found in flowing waters of large rivers in main channels over firm sand, gravel, and mud substrates. Host fish is unknown (KDFWR, 2023).	No	
Pink mucket	<i>Lampsilis abrupta</i>	FE	Typically found in flowing waters of medium to large rivers in main channels over firm sand, gravel, and mud substrates. Habitat is associated with its host fishes, black basses, walleye and sauger (KDFWR, 2023).	No	
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	FT	Typically found in flowing waters of medium to large rivers on channel edges over firm sand and mud substrates. Habitat is associated with its host fishes, minnows. (KDFWR, 2023).	No	
Ring pink	<i>Obovaria retusa</i>	FE	Typically found in flowing waters of medium to large rivers in main channels over firm sand, gravel, and mud substrates. Host fish is unknown (KDFWR, 2023).	No	
Rough pigtoe	<i>Pleurobema plenum</i>	FE	Typically found in flowing waters of medium to large rivers in main channels over firm sand and gravel substrates. Habitat is associated with its host fishes, minnows. (KDFWR, 2023).	No	
Sheepnose mussel	<i>Plethobasus cyphus</i>	FE	Typically found in flowing waters of medium to large rivers in main channels over firm sand, gravel, and mud substrates. Habitat is associated with its host fishes, minnows and sauger. (KDFWR, 2023).	No	
Spectaclecase	<i>Cumberlandia monodonta</i>	FE	Typically found in flowing waters of large rivers in main channels over firm sand and gravel under large rocks. Habitat is	No	

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING STATUS	HABITAT	HISTORICALLY OBSERVED AT THE PGDP?	POTENTIAL FOR IMPACTS FROM THE PROPOSED ACTION/ EFFECTS DETERMINATION
			associated with its host fishes, mooneye and goldeye (KDFWR, 2023).		
Insects					
Monarch Butterfly	<i>Danaus plexippus</i>	PT	Monarch butterfly habitat in Kentucky consists of prairies, meadows, and grasslands that provide essential host plants (milkweed) for caterpillars and nectar-producing flowers for adults. Migrating monarchs occur near water sources (KDFWR, 2025a).	No	<i>No effect.</i> May occur as transient species between October and April (Kentucky is within the migration path for the eastern populations). Milkweeds are the only plants that monarch butterflies will lay their eggs on. Large populations of milkweed species would not be impacted under implementation of the Proposed Action.

Key: EXP = experimental population (designated population of whooping cranes introduced into a historically occupied area that is geographically separate from the species' only naturally existing migratory flock); FE = federally endangered; FT = federally threatened; PGDP = Paducah Gaseous Diffusion Plant; PT = proposed federally threatened; MBTA = Migratory Bird Treaty Act

Additional Sources: CEC, 2025b-c; DOE, 2023; KDFWR, 2023; USFWS, 2025a

References:

- CEC 2025b. Personal communication between CEC Biologist's Ryan Thies, Haley Abner, and Leidos Senior Ecologist Sarah B. Rauch (via teleconference) on 3 September 3, 2025. Subject: Habitat characterizations of the GMPEF Project Area and incidental special status species observations.
- CEC 2025c. Civil and Environmental Consultants (CEC), Inc. *Bat Survey Report – Indiana Bat, Northern-long eared Bat, & Tricolored Bat Mist Net Survey at the Proposed General Matter Paducah Site*. Paducah, McCracken County, Kentucky. Prepared for Leidos, Inc. USFWS Project Code: #2025-0117162. CEC Project 352-951. September 2025.
- DOE 2023. U.S. Department of Energy (DOE). *Paducah Gaseous Diffusion Plant. Paducah Site Annual Site Environmental Report*. FRNP-RPT-0337.
- KDFWR. 2023. Kentucky Department of Fish and Wildlife Resources (KDFWR). *KY Wildlife Action Plan*. September 1, 2023.
- KDFWR. 2025a. Monarch Butterflies Species Profile. Retrieved September 9, 2025 from: <https://fw.ky.gov/Wildlife/Pages/MonarchButterflies.aspx>.
- KDFWR. 2025b. Gray Bat. Species Profile. Retrieved September 9, 2025 from: <https://fw.ky.gov/Wildlife/Pages/Gray-Bat.aspx>.
- KDFWR. 2025c. Indiana Bat. Species Profile. Retrieved September 9, 2025 from: <https://fw.ky.gov/Wildlife/Pages/Indiana-Bat.aspx>.
- KDFWR. 2025d. Tricolored Bat. Species Profile. Retrieved September 9, 2025 from: <https://fw.ky.gov/Wildlife/Pages/Tricolored-Bat.aspx>.
- USFWS. United States Fish and Wildlife Service (USFWS). No date (no date). ECOS Environmental Conservation Online System. Whooping crane (*Grus americana*). Retrieved online September 8, 2025 from: <https://ecos.fws.gov/ecp/species/758>.
- USFWS 2025a. United States Fish and Wildlife Service (USFWS). Information for Planning and Consultation. Project Code: 2025-0117162. Retrieved online August 22, 2025 at: <https://ipac.ecosphere.fws.gov/>.

B-2. U.S. Fish and Wildlife Service Section 7 Concurrence Letter



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

October 28, 2025

Jantien Shizuru
General Matter, Inc.
1 Letterman Dr., Bldg. D 5th Floor
San Francisco, CA 94129-1494 USA

Re: FWS 2025-0117162; GEM-IJC-2025-006; NRC Docket Number: 07007040,
Environmental Report (ER) for the General Matter Paducah Enrichment Facility Project
on the Paducah Site in McCracken County, Kentucky

Dear Jantien Shizuru:

The U.S. Fish and Wildlife Service's (Service) Kentucky Field Office (KFO) has reviewed the above referenced request for concurrence and environmental report received September 19, 2025. The KFO offers the following comments in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Project Description

On behalf of the U.S. Department of Energy (DOE), General Matter, Inc. (GeM) conducted field work and prepared an environmental report to support the licensing and construction of the proposed General Matter Paducah Enrichment Facility (GMPEF). GeM proposes to locate the GMPEF on land leased from the DOE Paducah Site (formerly the Paducah Gaseous Diffusion Plant) near Paducah, Kentucky. The action area is approximately 101-acre in size and comprises mixed-growth forests with numerous emergent and forested wetlands, ephemeral streams, ponds, and a transmission line corridor right-of-way with herbaceous vegetation and emergent wetlands. The entire GMPEF action area would be developed as part of the proposed action.

Federally Listed Species

GeM has determined that the proposed action will have "no effect" on the gray bat (*Myotis grisescens*), longsolid (*Fusconaia subrotunda*), rabbitsfoot (*Quadrula cylindrica cylindrica*), clubshell (*Pleurobema clava*), fanshell (*Cyprogenia stegaria*), fat pocketbook (*Potamilus capax*), orangefoot pimpleback (pearlymussel) (*Plethobasus cooperianus*), pink mucket (*Lampsilis abrupta*), ring pink (*Obovaria retusa*), rough pigtoe (*Pleurobema plenum*), sheepnose mussel (*Plethobasus cyphus*), and spectaclecase (*Cumberlandia monodonta*) due to lack of suitable habitat in the action area. There is no requirement to request concurrence with "no effect" determinations; however, the KFO acknowledges these determinations and has no additional comments or concerns regarding these species.

2

GeM has also determined that the proposed action has the potential to affect the federally endangered Indiana bat (*Myotis sodalis*), and the federally proposed tricolored bat (*Perimyotis subflavus*) and monarch butterfly (*Danaus plexippus*).

Indiana Bat and Tricolored Bat

CEC Inc. qualified biologists conducted presence / absence mist net surveys within the vicinity of the proposed action area between August 5-7, 2025. The surveys were conducted in accordance with the Service's "2025 Range-Wide Indiana Bat Summer Survey Guidelines." During the mist netting surveys, 15 bats were captured representing two species; however, no federally-listed or federally-proposed bat species were captured. Therefore, we believe that the Indiana bat and tricolored bat are not likely to be using habitat in the action area during the summer. In addition, biologists conducted a field survey of the action area to identify any potential caves and/or features that could be used as winter habitat. No suitable caves and/or cave-like features were identified. Based on these results, the proposed action is not anticipated to adversely affect suitable winter habitat for these species. The Service concurs that the proposed action is *not likely to adversely affect* the Indiana bat or tricolored bat.

Monarch Butterfly

GeM has determined that the proposed action would not jeopardize the continued existence of the species. Based on our knowledge of the species, and the relatively small reduction in potentially suitable habitat in comparison within the species range, we acknowledge your determination that the proposed action is not likely to jeopardize the continued existence of the monarch butterfly.

Conclusion

In view of these findings, we believe that the requirements of section 7 of the Endangered Species Act have been fulfilled for this project. Your obligations under section 7 must be reconsidered, however, if: (1) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered, (2) the proposed action is subsequently modified to include activities, which were not considered during this consultation, or (3) new species are listed, or critical habitat designated.

If you have any questions regarding the information that we have provided, please contact Phil DeGarmo at (502) 695-0468 extension 46110 or Phil_DeGarmo@fws.gov.

Sincerely,

MARK

CANTRELL

For Joshua Lillpop
Acting Field Supervisor

Digitally signed by
MARK CANTRELL

Date: 2025.10.28

13:37:00 -05'00'

B-3. Office of Kentucky Nature Preserves Biological Assessment Tool



Andy Beshear
Governor

Energy and Environment Cabinet

Office of Kentucky Nature Preserves

300 Sower Boulevard
Frankfort, Kentucky 40601
Telephone: 502-782-7828
EEC.KYBAT@ky.gov

Rebecca W. Goodman
Secretary

Zack Couch
Executive Director

Requested on Thursday, September 11, 2025 by Sarah B. Rauch, Leidos

Re: Kentucky Biological Assessment Data Request 250911S01
General Matter, LLC - GMPEF
Other, 1 mile buffer.
MCCRACKEN County, Kentucky

This letter is in response to your data request for the project referenced above. We have reviewed our Natural Heritage Program Database to determine if any of the endangered, threatened, or special concern plants, animals, features, or exemplary natural communities monitored by the Office of Kentucky Nature Preserves are noted within your submitted project area.



@KentuckyEEC | EEC.KYGOV

As Equal Opportunity Employer M/F/D



Andy Beshear
Governor

Energy and Environment Cabinet
Office of Kentucky Nature Preserves

300 Sower Boulevard
Frankfort, Kentucky 40601
Telephone: 502-782-7828
EEC.KYBAT@ky.gov

Rebecca W. Goodman
Secretary

Zack Couch
Executive Director

Thank you for using the Office of Kentucky Nature Preserves' Biological Assessment Tool.

This report provides site-specific biological data for the proposed project area, offering documented occurrences of rare, threatened, and endangered species. Unlike other tools which may model potential species presence, this tool delivers verified field data collected by biologists, ensuring an accurate understanding of site conditions. Some regulatory processes request this information for project siting, permitting, and conservation planning. Understanding the presence of endangered, threatened, or special concern plants, animals or exemplary natural communities may help avoid delays, mitigate risks, and support compliance with environmental guidelines.

Key Findings included in the report:

- A - Occurrences which intersect the project area
- B - Occurrences which intersect the buffer around the project area
- C - References and Recommendations relevant to occurrences near to or within the project area

We would like to take this opportunity to remind you of the [terms](#) of the data request license, which you agreed upon in order to submit your request. Data and data products received from the Office of Kentucky Nature Preserves, including any portion thereof, may not be reproduced in any form or by any means without the express written authorization of the Office of Kentucky Nature Preserves. These products are provided on a temporary basis for the express project (described above) of the requester, and may not be redistributed, resold or copied without the written permission of the Office of Kentucky Nature Preserves.

Please note that the quantity and quality of data are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in Kentucky have never been thoroughly surveyed and new plants and animals are still being discovered. For these reasons, we cannot provide a definitive statement on the presence, absence, or condition of biological elements in any part of Kentucky. These reports summarize the existing information known to the Kentucky Natural Heritage Database at the time of the request. They should never be regarded as final statements on the occurrences being considered, nor should they be substituted for on-site surveys required for environmental assessments. Please note that certain sensitive occurrences may be listed in this table but are not represented in the accompanying map.

If you have any questions, or if we can be of further assistance, please do not hesitate to contact our office by email at EEC.KYBAT@ky.gov.

Sincerely,

Handwritten signature of Alexis R. Sheehan.

Alexis R. Sheehan
Database Administrator
Office of Kentucky Nature Preserves

Handwritten signature of Sydnie Hansen.

Sydnie Hansen
GIS Analyst
Office of Kentucky Nature Preserves

[@KentuckyEEC](#) | EEC.KY.GOV

An Equal Opportunity Employer M/F/D

A. Project Area - Occurrence Report

This section details occurrences that have been documented within the project footprint through direct field surveys. Presence is based on confirmed biological observations. The table below includes the species' status at state and federal levels, as well as the dates each occurrence was last observed. Please review Precision, as it is indicative of the location uncertainty of the individual records.

Botanical
Ecological
Zoological



ID	Classification	Scientific Name	Common Name	Precision	Fed. Status	State Status	G Rank	S Rank	SWAP	Last Obs. Date	Habitat	Location
9354	Vascular Plants	<i>Baptisia leucophaea</i> var. <i>leucophaea</i>	Cream Wild Indigo	Sec.		Threatened	G4C5T4	S2		1997-05-11	Prairies and open dry or upland woods; sunfills.	WEST KY WMA, RD AROUND NUCLEAR PLANT (DIXIE RD.)
14297	Vascular Plants	<i>Asclepias hirtella</i>	Prairie milkweed	Gen.		Threatened	G5	S2	Ytz	2022-07-14	Fields, barrens and roadsides	West KY WMA (Best Source) Intersection of Ogden Landing Rd and WMA Rd, approx. 0.2mi east of Boldry School Road (001B), Ogden Landing Road 0.7mi west of intersection with Metropolis Lake Rd (001C) Along Woodville Road, KY 725. On North side of road in
15952	Breeding Birds	<i>Lanius ludovicianus</i>	Loggerhead Shrike	Quad.		Special Concern	G4	S3S4B,S4	Ytz	1988		CW block of quadrangle
16692	Vascular Plants	<i>Silphium integrifolium</i>	Rodnweed	Min.			G5	S3S4		1986-07-19		From downtown Paducah, KY take KY 60 west for 11 miles. Population on south side of road near intersection of KY 76.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METT/ASA, USGS, EPA, NPS, USDA, USFWS

B. Buffer Area - Occurrence Report

This section details occurrences recorded within the project footprint, as well as the designated buffer area surrounding the project site. While these species are not directly within the project footprint, their proximity may influence project planning due to habitat connectivity or regulatory considerations.

Botanical
Ecological
Zoological



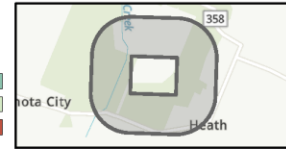
ID	Classification	Scientific Name	Common Name	Precision	Fed. Status	State Status	G Rank	S Rank	SWAP	Last Obs. Date	Habitat	Location
1398	Mammals	<i>Myotis austroriparius</i>	Southeastern Myotis	Sec.		Special Concern	G4	S3	Yes	1999-07-14		Sensitive Element - Contact OKNP at EEC.KYBAT@ky.gov
3488	Amphibians	<i>Lithobates areolatus circulosus</i>	Northern Crawfish Frog	Sec.		Special Concern	G4T4	S3		1991-03-20		Circa 0.2 air mi E of KY 1154, ca 1.2 rd mi N of its jct w/ US 60 (007A), 10.0 mi W of Paducah, nr US 60 at jct Magruder and Woodville [KY 725] roads (007B), N side KY 725, NE of jct MacGruder Rd (007C), and SW of Magruder Rd, just S of RR tracks (007D).
5676	Amphibians	<i>Lithobates areolatus circulosus</i>	Northern Crawfish Frog	Sec.		Special Concern	G4T4	S3		1991-03-18		West Kentucky WMA, N side Water Works Rd, just W of filtration plant.
6935	Vascular Plants	<i>Silphium laciniatum</i>	Compassplant	Sec.		Threatened	G5	S2		2022-07-14	Prairies and barrens.	West Kentucky Wildlife Management Area, N of KY 725 between KY 725 and KY 1154 (015E)-Jct of Magruder Road and Ill Gulf Central RR tracks (015A); S side of KY 725, ca 0.3 rd mi E of KY 1154 (015G); N side of KY 725, ca 0.3 rd mi (015C), ca 0.35 rd mi (01
7092	Vascular Plants	<i>Silphium laciniatum</i>	Compassplant	Sec.		Threatened	G5	S2		1993-07	Prairies and barrens.	WEST KENTUCKY WILDLIFE MANAGEMENT AREA BETWEEN SPRING BAYOU (BAYOU) CREEK AND ACID RD, CA 0.3 AIR MI NNW OF SPRING BAYOU CHURCH.
7779	Vascular Plants	<i>Silphium laciniatum</i>	Compassplant	Sec.		Threatened	G5	S2		2024-08-07	Prairies and barrens.	West Kentucky Wildlife Management Area, along both sides of unnamed gravel rd, ca 0.1 air mi S of South Acid Road (016A), old field between Bayou Creek and Acid Rd, ca 0.3 air mi N of Spring Bayou Church (016E), not specified (016B, 016C, 016D, 016F, and
8345	Amphibians	<i>Lithobates areolatus circulosus</i>	Northern Crawfish Frog	Sec.		Special Concern	G4T4	S3		1991-03-20		Circa 0.4 air mi NW of Spring Bayou Church on KY 725 (008A) and ca 0.7 rd mi W of Spring Bayou Church on KY 725 on N side of rd (008B).
12049	Fishes	<i>Lepomis miniatus</i>	Redspotted Sunfish	Sec.		Threatened	G5	S2	Yes	2004-08-04		Bayou Creek, McCracken County: at KY 725 crossing
12576	Amphibians	<i>Lithobates areolatus circulosus</i>	Northern Crawfish Frog	Sec.		Special Concern	G4T4	S3		2007-03-14		

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METNUSA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (1 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

Botanical
Ecological
Zoological



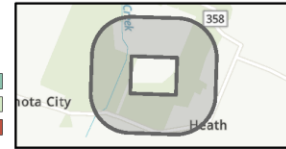
There are federally known Indiana bat habitats (outer-tier) within your project footprint. Coordinate with USFWS Kentucky Field Office at (502) 695-0468 or KentuckyES@fws.gov
This project area overlaps with one or more wetlands recorded in the NWI. Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes. Visit https://www.fws.gov/program/national-wetlands-inventory
The proposed project area overlaps with the species range for Ambystoma talpoideum, Mole Salamander. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Siren intermedia, Lesser Siren. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Hyla avivoca, Bird-voiced Treefrog. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Podilymbus podiceps, Pied-billed Grebe. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Podiceps auritus, Horned Grebe. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Botaurus lentiginosus, American Bittern. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Ixobrychus exilis, Least Bittern. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Ardea alba, Great Egret. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Butorides virescens, Green Heron. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Nycticorax nycticorax, Black-crowned Night-heron. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Nyctanassa violacea, Yellow-crowned Night-heron. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Cygnus buccinator, Trumpeter Swan. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (2 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

Botanical
Ecological
Zoological



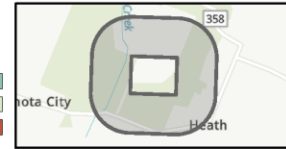
The proposed project area overlaps with the species range for <i>Anas rubripes</i> , American Black Duck. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Aythya marila</i> , Greater Scaup. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Aythya affinis</i> , Lesser Scaup. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Lophodytes cucullatus</i> , Hooded Merganser. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Pandion haliaetus</i> , Osprey. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Haliaeetus leucocephalus</i> , Bald Eagle. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Circus hudsonius</i> , Northern Harrier. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Accipiter striatus</i> , Sharp-shinned Hawk. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Falco sparverius</i> , American Kestrel. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Falco peregrinus</i> , Peregrine Falcon. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Colinus virginianus</i> , Northern Bobwhite. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Rallus limicola</i> , Virginia Rail. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Rallus elegans</i> , King Rail. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Porzana carolina</i> , Sora. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Pluvialis squatarola</i> , Black-bellied Plover. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (3 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

Botanical
Ecological
Zoological



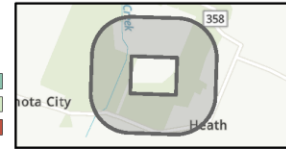
The proposed project area overlaps with the species range for <i>Pluvialis dominica</i> , American Golden-plover. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Charadrius melodus</i> , Piping Plover. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Tringa flavipes</i> , Lesser Yellowlegs. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Tringa solitaria</i> , Solitary Sandpiper. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Actitis macularius</i> , Spotted Sandpiper. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Bartramia longicauda</i> , Upland Sandpiper. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Calidris alba</i> , Sanderling. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Calidris pusilla</i> , Semipalmated Sandpiper. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Calidris alpina</i> , Dunlin. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Calidris himantopus</i> , Stilt Sandpiper. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Calidris subruficollis</i> , Buff-breasted Sandpiper. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Limnodromus griseus</i> , Short-billed Dowitcher. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Gallinago delicata</i> , Wilson's Snipe. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (4 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

Botanical
Ecological
Zoological



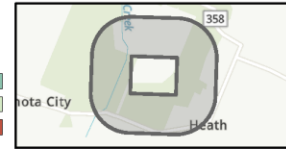
The proposed project area overlaps with the species range for Scolopax minor, American Woodcock. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Phalaropus tricolor, Wilson's Phalarope. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Stercula antillarum athalassos, Interior Least Tern. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Chlidonias niger, Black Tern. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Coccyzus americanus, Yellow-billed Cuckoo. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Tyto alba, Barn Owl. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Asio flammeus, Short-eared Owl. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Antrostomus carolinensis, Chuck-will's-widow. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Antrostomus vociferus, Whip-poor-will. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Melanerpes erythrocephalus, Red-headed Woodpecker. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Empidonax traillii, Willow Flycatcher. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Empidonax minimus, Least Flycatcher. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Riparia riparia, Bank Swallow. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for Thryomanes bewickii, Bewick's Wren. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (5 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

Botanical
Ecological
Zoological



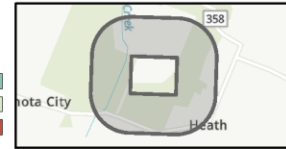
The proposed project area overlaps with the species range for <i>Cistothorus stellaris</i> , Sedge Wren. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Hylocichla mustelina</i> , Wood Thrush. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Lanius ludovicianus</i> , Loggerhead Shrike. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Vireo bellii</i> , Bell's Vireo. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Vermivora cyanoptera</i> , Blue-winged Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Vermivora chrysotera</i> , Golden-winged Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Setophaga tigrina</i> , Cape May Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Setophaga virens</i> , Black-throated Green Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Setophaga discolor</i> , Prairie Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Setophaga striata</i> , Blackpoll Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Setophaga cerulea</i> , Cerulean Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Protonotaria citrea</i> , Prothonotary Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Limothlypis swainsonii</i> , Swainson's Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (6 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

Botanical
Ecological
Zoological



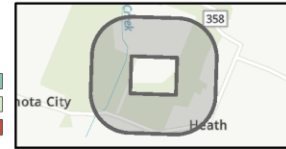
The proposed project area overlaps with the species range for <i>Parkesia motacilla</i> , Louisiana Waterthrush. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Geothlypis formosa</i> , Kentucky Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Cardellina canadensis</i> , Canada Warbler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Spiza americana</i> , Dickcissel. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Spizella pusilla</i> , Field Sparrow. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Passerculus sandwichensis</i> , Savannah Sparrow. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Ammodramus savannarum</i> , Grasshopper Sparrow. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Centronyx henslowii</i> , Henslow's Sparrow. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Dolichonyx oryzivorus</i> , Bobolink. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Sturnella magna</i> , Eastern Meadowlark. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Euphagus carolinus</i> , Rusty Blackbird. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Ichthyomyzon castaneus</i> , Chestnut Lamprey. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Acipenser fulvescens</i> , Lake Sturgeon. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (7 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

Botanical
Ecological
Zoological



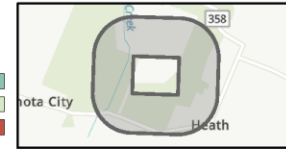
The proposed project area overlaps with the species range for <i>Polyodon spathula</i> , Paddlefish. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Atractosteus spatula</i> , Alligator Gar. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Esox niger</i> , Chain Pickerel. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Hybognathus hayi</i> , Cypress Minnow. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Notropis maculatus</i> , Tailfin Shiner. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Cyprinella venusta</i> , Blacktail Shiner. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Macrhybopsis hyostoma</i> , Shoal Chub. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Erimyzon sucetta</i> , Lake Chubsucker. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Noturus stigmosus</i> , Northern Madtom. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Lepomis miniatus</i> , Redspotted Sunfish. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Etheostoma proeliare</i> , Cypress Darter. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Myotis austroriparius</i> , Southeastern Myotis. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Myotis sodalis</i> , Indiana Bat. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (8 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

Botanical
Ecological
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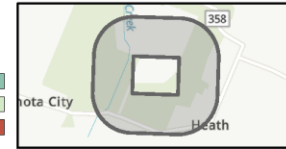
The proposed project area overlaps with the species range for <i>Myotis septentrionalis</i> , Northern Long-Eared Bat. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Perimyotis subflavus</i> , Tricolored Bat. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Corynorhinus rafinesquii</i> , Rafinesque's Big-eared Bat. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Sylvilagus aquaticus</i> , Swamp Rabbit. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Peromyscus gossypinus</i> , Cotton Mouse. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Farancia abacura reinwardtii</i> , Western Mudsnake. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Agkistrodon piscivorus</i> , Northern Cottonmouth. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Crotalus horridus</i> , Timber Rattlesnake. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Bombus pensylvanicus</i> , American Bumble Bee. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Euphyes dukesi</i> , Dukes' Skipper. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Satyrus favonius ontario</i> , Northern Oak Hairstreak. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Danaus plexippus plexippus</i> , Monarch. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (9 of 10)

OKNP references the following references and recommendations regarding this project's potential impacts to natural resources within or surrounding the project area. These recommendations are based on state and federal conservation guidelines and may help proactively address potential constraints. Please contact the applicable office should you have further questions with regard to these references and recommendations related to the project area.

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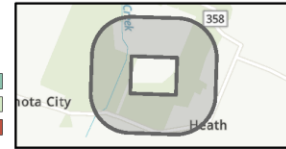
The proposed project area overlaps with the species range for <i>Papaipema</i> sp. 5, Rare Cane Borer Moth. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Anodontoides ferussacianus</i> , Cylindrical Papershell. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Cumberlandia monodonta</i> , Spectaclecase. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Ellipsaria lineolata</i> , Butterfly. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Elliptio crassidens</i> , Elephantear. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Lampsilis abrupta</i> , Pink Mucket. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Lampsilis ovata</i> , Pocketbook. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Ligumia recta</i> , Black Sandshell. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Obovaria olivaria</i> , Hickorynut. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Obovaria retusa</i> , Ring Pink. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Plethobasus cooperianus</i> , Orangefoot Pimpleback. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Plethobasus cyphus</i> , Sheepnose. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Pleurobema cordatum</i> , Ohio Pigtoe. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.
The proposed project area overlaps with the species range for <i>Potamilus capax</i> , Fat Pocketbook. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at https://app.fw.ky.gov/kyswap/ for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

C. References and Recommendations (10 of 10)

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Botanical
Ecological
Zoological



The proposed project area overlaps with the species range for *Potamilus purpuratus*, Bleuler. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at <https://app.fw.ky.gov/kyswap/> for information on possible management, research and habitat restoration efforts.

The proposed project area overlaps with the species range for *Theliderma cylindrica*, Rabbitsfoot. This species is noted as a Species of Greatest Conservation Need in Kentucky's State Wildlife Action Plan. Review the Action Plan at <https://app.fw.ky.gov/kyswap/> for information on possible management, research and habitat restoration efforts.

Map Credits: Commonwealth of Kentucky, Esri, TomTom, Garmin, SafeGraph, METANASA, USGS, EPA, NPS, USDA, USFWS

Thank you for using the Office of Kentucky Nature Preserves Biological Assessment Tool.

OKNP's species dataset relies on continuous monitoring and surveying for species of concern throughout the state. Any records of species of concern found within this project area would greatly benefit the quality and comprehensiveness of the statewide dataset for rare, threatened and endangered species. If you would like to contribute any additional species information, please do not hesitate to contact our office by email at EEC.KYBAT@ky.gov or by phone at 502-782-7828.

Quick Key

For a full report key, visit naturepreserves.org

Global Rank (GRANK) - Estimate of species abundance on a global scale

GX	Presumed extinct
GH	Possibly extinct; Missing
G1	Extremely Rare
G2	Rare
G3	Uncommon
G4	Common
G5	Very Common
GNR	Not ranked
GU	Unrankable due to lack of information
?	Indicates Uncertainty
T #	Appended for infraspecific taxa
Q	Indicates Questionable

State Rank (SRANK) - Estimate of species abundance in Kentucky

SX	Presumed extirpated
SH	Possibly extirpated
S2	Rare
S3	Uncommon
S4	Many Occurrences
S5	Very Common
SNR	Not ranked
SU	Unrankable due to lack of information
SNA	Not Applicable
?	Indicates Uncertainty
B	Indicates breeding population
N	Indicates non-breeding population

Precision - The precision of a record

Sec.	Seconds; Can be accurately mapped within a 3-second radius (approximately 100 ft)
Min.	Minutes; Can be mapped within a 1-minute radius (approximately 1.5 miles)
Gen.	General; Only known to a place name (within about 5 miles)
Cnty.	County; Only known to the county
Quad.	Quad; Only known to the county



B-4. U.S. Army Corps of Engineers Approved Jurisdictional Determination Letter



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT
600 DR. MARTIN LUTHER KING JR PL
LOUISVILLE, KY 40202

December 19, 2025

Regulatory Division
South Branch
ID No. LRL-2025-00707-mlk

General Matter, Inc.
ATTN: Jantien Shizuru
13397 Lakefront Drive, Suite 100
Earth City, MO 63045
jantien@generalmatter.com

Dear Jantien Shizuru:

This letter is in regard to your correspondence dated September 23, 2025, requesting an Approved Jurisdictional Determination (AJD) sent on your behalf by Civil & Environmental Consultants, Inc., for a 103-acre property located northeast of the intersection of Hobbs Road and Dyke Road, 5 miles west of the City of Paducah, McCracken County, Kentucky (Latitude: 37.1006 N and Longitude: 88.814361 W).

The site was reviewed pursuant to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act of 1899. Section 404 of the CWA requires that a Department of the Army (DA) permit be obtained for the placement or discharge of dredged and/or fill material into "waters of the United States (U.S.)," including wetlands, prior to conducting the work (33 U.S.C. 1344). Section 10 of the Rivers and Harbors Act of 1899 requires that a DA Permit be obtained for structures or work in or affecting navigable "waters of the U.S.," prior to conducting the work (33 U.S.C. 403).

Based on the information provided to this office the site contains wetlands and streams which are not considered to be "waters of the U.S." and are not regulated under Section 404 of the Clean Water Act. However, this determination does not relieve you of the responsibility to comply with applicable state law. We urge you to contact the Kentucky Division of Water, 300 Sower Boulevard, Frankfort, Kentucky 40601 to determine the applicability of state law to your project.

This letter contains an AJD for the aforementioned site. If you object to the AJD, you may request an administrative appeal under Corps regulations at 33 C.F.R. Part 331. Enclosed you will find ENG Form 6287, Notification of Administrative Appeal Options and Process and Request for Appeal. If you request to appeal the AJD, you must submit the completed form to the Lakes and Rivers Division Office at the address listed on the enclosed ENG Form 6287.

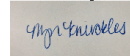
In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Part 331.5, and that it has been received by the Division Office within **60 days** of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by **February 17, 2026**. It is not necessary to submit an RFA form to the Division office if you do not object to the determination in this letter.

This jurisdictional determination is valid for a period of five years from the date of this letter unless new information warrants revision of the determination before the expiration date.

The delineation included herein has been conducted to identify the location and extent of the aquatic resource boundaries and/or the jurisdictional status of aquatic resources for purposes of the Clean Water Act for the particular site identified in this request. This delineation and/or jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should discuss the applicability of a certified wetland determination with the local USDA service center prior to starting work.

If you have any questions, please contact us by writing to the District Regulatory Office at the above address, ATTN: CELRL-RDS, or contact me directly at 502-315-6709 or Meagan.l.knuckles@usace.army.mil. Any correspondence on this matter should refer to our ID Number LRL-2025-00707-mlk. A copy of this letter will be furnished to your authorized agent.

Sincerely,



Date:
2025.12.19
08:54:44 -05'00'

Meagan Knuckles
Senior Project Manager, South Branch
Regulatory Division

Enclosures

Copy Furnished:

Ms. Laura Vrabel
Civil & Environmental Consultants, Inc.
lvrabel@cecinc.com

Sarah Rauch
Leidos
sarah.e.bresnan@leidos.com

B-5. U.S. Army Corps of Engineers No Permit Required Letter



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT
600 DR. MARTIN LUTHER KING JR PL
LOUISVILLE, KY 40202

December 19, 2025

Regulatory Division
South Branch
ID No. LRL-2025-00707-mlk

General Matter, Inc.
ATTN: Jantien Shizuru
13397 Lakefront Drive, Suite 100
Earth City, MO 63045
jantien@generalmatter.com

Dear Jantien Shizuru:

This is in regard to your letter, dated September 23, 2025, requesting an Approved Jurisdictional Determination (AJD) and a no permit required determination, sent on your behalf by Civil & Environmental Consultants, Inc., concerning the proposed 103-acre General Matter Paducah Enrichment Facility located northeast of the intersection of Hobbs Road and Dyke Road, 5 miles west of the City of Paducah, McCracken County, Kentucky (Latitude: 37.1006 N and Longitude: 88.814361 W). We have reviewed the submitted application in accordance with the provisions of Section 404 of the Clean Water Act.

Based on the information submitted by you, it does not appear that a Department of the Army permit will be needed since the project identified by the boundary on the attached "Site Plan, A-100," dated July 12, 2025, would not involve a discharge of dredged and/or fill material below the Ordinary High Water elevation of any "waters of the United States (U.S.)" or any wetlands. "Waters of the U.S." include all waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce.

If the project would necessitate the discharge of dredged or fill material into "waters of the U.S.," including wetlands, plans should be submitted for our review.

Our comments on this project are limited to only those effects which may fall within our area of jurisdiction and thus does not obviate the need to obtain other permits from State or local agencies. Lack of comments on other environmental aspects should not be construed as either concurrence or nonconcurrence with stated environmental effects.

If we can be of any further assistance, please contact this office at the above address, ATTN: CELRL-RDS or call me at 502-315-6709. Any correspondence on this matter should refer to our ID Number LRL-2025-00707-mlk.

Sincerely,

A handwritten signature in black ink, appearing to read "Sarah Keller".

Date: 2025.12.19
07:46:37 -05'00'

Sarah Keller
Chief, South Branch
Regulatory Division

Copy Furnished:

Ms. Laura Vrabel
Civil & Environmental Consultants, Inc.
lvrabel@cecinc.com

Ms. Sarah Rauch
Leidos
sarah.e.bresnan@leidos.com

B-6. Kentucky Energy and Environment Cabinet State Wetland Compliance Correspondence

From: [Lindsay, Ben E \(EEC\)](#) on behalf of [EEC DEP 401 Water Quality Certification](#)
To: [Rauch, Sarah B. \[US-US\]](#); [EEC DEP 401 Water Quality Certification](#); [Lindsay, Ben E \(EEC\)](#)
Subject: EXTERNAL: RE: State Wetland Compliance Question
Date: Thursday, May 28, 2026 9:23:07 AM
Attachments: [image001.png](#)
[image002.png](#)

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Hi Sarah,

Thank you for providing this. Based upon the attached AJD and "No Permit Required" Letter, this project does not require a 401 WQC due to the lack of jurisdictional impacts. If you have any further questions or concerns, please feel free to reach out.

Best,

Ben Lindsay
Environmental Biologist I
Water Quality Certification Section
Kentucky Energy and Environment Cabinet
300 Sower Blvd, Frankfort, KY 40601
Office: 502-782-2638 ; Cell: 502-330-8424
ben.lindsay@ky.gov



From: Rauch, Sarah B. [US-US] <SARAH.E.BRESNAN@leidos.com>
Sent: Thursday, May 28, 2026 10:06 AM
To: EEC DEP 401 Water Quality Certification <401WQC@ky.gov>; Lindsay, Ben E (EEC) <ben.lindsay@ky.gov>
Subject: RE: State Wetland Compliance Question

Hi Ben,

Thank you for the timely response. Please find the attached consultation letters from the USACE for the project and let me know if you have any questions. The proponent has received a Kentucky

Pollution Discharge Elimination System (KPDES) Stormwater Permit for construction.

Regards,

Sarah B. Rauch, CSE | Leidos

Senior Ecologist

Exploration, Energy, and Environment (E3) Division

sarah.e.bresnan@leidos.com | www.leidos.com

+1 (314) 443-9111 **M**

From: Lindsay, Ben E (EEC) <ben.lindsay@ky.gov> **On Behalf Of** EEC DEP 401 Water Quality Certification

Sent: Wednesday, May 27, 2026 12:27 PM

To: Rauch, Sarah B. [US-US] <SARAH.E.BRESNAN@leidos.com>

Cc: EEC DEP 401 Water Quality Certification <401WQC@ky.gov>

Subject: EXTERNAL: RE: State Wetland Compliance Question

Good afternoon Sarah,

Thank you for reaching out. If USACE has determined that no permit is required for this project, you will not need a 401 Water Quality Certification from our section. Can you please provide the AJD and the "No Permit Required" letter that you received from USACE?

Other permits from DOW may be required. Please contact the Floodplain Management Section (502-564-3410 or DOWFloodplain@ky.gov) if you have questions regarding the Floodplain/ Stream Construction Permit requirements. If the project will disturb one acre or more of land, or is part of a larger common plan of development or sale that will ultimately disturb one acre or more of land, a Kentucky Pollution Discharge Elimination System (KPDES) Stormwater Permit shall be required. Please contact the DOW Surface Water Permits Branch (502-564-3410 or SWPBSupport@ky.gov) for more information. If the project needs to develop a Groundwater Protection Plan (GPP), or impacts a Wellhead Protection Area (WHPA) or Sinkhole, please contact the Watershed Management Branch (502-564-3410).

Best,

Ben Lindsay

Environmental Biologist I

Water Quality Certification Section

Kentucky Energy and Environment Cabinet

300 Sower Blvd, Frankfort, KY 40601
Office: 502-782-2638 ; Cell: 502-330-8424
ben.lindsay@ky.gov



From: Rauch, Sarah B. [US-US] <SARAH.E.BRESNAN@leidos.com>
Sent: Tuesday, May 26, 2026 4:09 PM
To: EEC DEP ENVHELP <ENVHELP@ky.gov>
Cc: EEC DEP 401 Water Quality Certification <401WQC@ky.gov>; Schuster, Jessica (EEC) <jessica.schuster@ky.gov>
Subject: Re: State Wetland Compliance Question

Much appreciated!

Sarah B. Rauch, CSE | Leidos
Senior Ecologist
Climate, Energy and Environment (CEE) Division

sarah.e.bresnan@leidos.com | www.leidos.com
+1 (314) 443-9111 M

From: EEC DEP ENVHELP <ENVHELP@ky.gov>
Sent: Tuesday, May 26, 2026 2:49:57 PM
To: Rauch, Sarah B. [US-US] <SARAH.E.BRESNAN@leidos.com>
Cc: EEC DEP 401 Water Quality Certification <401WQC@ky.gov>; Schuster, Jessica (EEC) <jessica.schuster@ky.gov>
Subject: EXTERNAL: FW: State Wetland Compliance Question

Sarah,

I've copied the 401 Water Quality Certification Team. Someone from the group will get back to you soon. If they do not, the branch can be reached at 502-564-3410.

Best,

Brittany Kring

Appendix C: Coordination with Natural Resource Conservation Service

Austin, Jay K. [US-US]

From: Brown, Perri - FPAC-NRCS, KY <Perri.Brown@usda.gov>
Sent: Tuesday, June 09, 2026 12:45 PM
To: Austin, Jay K. [US-US]
Cc: Wampler, Christina - FPAC-NRCS, KY; Rauch, Sarah B. [US-US]; Harr, Ernie Jr. [US-US]; Lawson, Miranda N. [US-US]
Subject: EXTERNAL: RE: Request for input on Farmland Conversion Impact Rating for the General Matter Paducah Enrichment Facility
Attachments: General Matter Paducah Enrichment Facility.pdf; GMPEF_AD1006.pdf

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Mr. Austin,

My apologies for the delay in response for your time sensitive project.

Please find the attached documents in response to the request for AD-1006 completion for FPPA purposes. I thought your project might be exempt from FPPA due to "Urban Area" classification through the US Census, but it wasn't within that classification. With that being determined, I went ahead with the report. You will now need to complete Parts VI and VII and return the completed form to me.

For any further NEPA assistance with this project, please contact Christina Wampler.

If I may be of further assistance please let me know.

Thanks,

Perri P. Brown
Resource Soil Scientist
FPAC-NRCS | Soils

 **U.S. DEPARTMENT OF AGRICULTURE**
Natural Resources Conservation Service
3100 Alvey Park Drive West, Owensboro, KY, 42303
p: (270) 684-9286 | c: (270) 359-9498

From: Austin, Jay K. [US-US] <JOHN.K.AUSTIN@leidos.com>
Sent: Tuesday, June 2, 2026 8:36 AM
To: Brown, Perri - FPAC-NRCS, KY <Perri.Brown@usda.gov>
Cc: Wyatt, Kinzie - FPAC-NRCS, KY <kinzie.wyatt@usda.gov>; Wampler, Christina - FPAC-NRCS, KY <christina.r.wampler@usda.gov>; Rauch, Sarah B. [US-US] <SARAH.E.BRESNAN@leidos.com>; Harr, Ernie Jr. [US-US] <Ernest.Harr@leidos.com>; Lawson, Miranda N. [US-US] <Miranda.N.Lawson@leidos.com>
Subject: Request for input on Farmland Conversion Impact Rating for the General Matter Paducah Enrichment Facility

Perri - Your input is requested on the attached Form AD-1006 (Farmland Conversion Impact Rating) for the proposed General Matter Paducah Enrichment Facility. General Matter, Inc. proposes to develop a new private-sector uranium enrichment facility on land leased from the Department of Energy (DOE) within the existing Paducah Site (formerly known as the Paducah Gaseous Diffusion Plant). The project currently being assessed pursuant to the National Environmental Policy Act (see attached maps and supporting information) affects 101 acres of DOE-owned land and would support enrichment of legacy materials which would then be available for energy production.

As noted in attached supporting materials, the project would make 86.3 acres of land with soil types classified as prime farmland (if drained) or farmland of state importance (according to information accessed on the USDA Web Soil Survey) unavailable for agriculture. The affected area is not being used for agriculture currently. The other 14.7 acres within the 101-acre site are currently developed and therefore the status of these acres as potential farmland would not be changed by the project.

If you need any additional information or would like to discuss this project further, please let me know. Input is requested at your earliest convenience to support this time-sensitive project.

R,
Jay Austin

Jay Austin | Leidos
Environmental Scientist / NEPA Specialist Exploration, Energy and Environment (E3)
john.k.austin@leidos.com | www.leidos.com
+1 (757) 269-2033 O | +1 (757) 880-7859 M

From: Brown, Perri - FPAC-NRCS, KY <Perri.Brown@usda.gov>
Sent: Friday, May 29, 2026 10:56 AM
To: Rauch, Sarah B. [US-US] <SARAH.E.BRESNAN@leidos.com>; Wyatt, Kinzie - FPAC-NRCS, KY <kinzie.wyatt@usda.gov>; Wampler, Christina - FPAC-NRCS, KY <christina.r.wampler@usda.gov>
Cc: Austin, Jay K. [US-US] <JOHN.K.AUSTIN@leidos.com>
Subject: RE: [External Email]process routing question - Prime Farmland AD1006 form

Sarah,

Please send any information regarding this request to myself and/or Christina Wampler.

Thanks,

Perri P. Brown
Resource Soil Scientist
FPAC-NRCS | Soils

 **U.S. DEPARTMENT OF AGRICULTURE**
Natural Resources Conservation Service
3100 Alvey Park Drive West, Owensboro, KY, 42303
p: (270) 359-5853 | c: (270) 889-3304

From: Rauch, Sarah B. [US-US] <SARAH.E.BRESNAN@leidos.com>
Sent: Wednesday, May 20, 2026 11:17 AM
To: Wyatt, Kinzie - FPAC-NRCS, KY <kinzie.wyatt@usda.gov>

Cc: Austin, Jay K. [US-US] <JOHN.K.AUSTIN@leidos.com>

Subject: [External Email]process routing question - Prime Farmland AD1006 form

Hello Kinzie,

I am preparing a prime farmland AD-1006 form (Farmland Conversion Impact Rating) for a project located in West Paducah, McCracken County, Kentucky. Once complete, are you the contact I should send the form to? If not, can you please provide contact information for the correct USDA NRCS field office reviewer?

Thank you for your time,

Sarah B. Rauch, CSE | Leidos

Senior Ecologist

Exploration, Energy, and Environment (E3) Division

sarah.e.bresnan@leidos.com | www.leidos.com

+1 (314) 443-9111 **M**

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*Environmental Assessment for General Matter's Site Preparation and Licensing Activities in Parcel A of
the Paducah Site in McCracken County, Kentucky*

U.S. Department of Agriculture							
FARMLAND CONVERSION IMPACT RATING							
PART I (To be completed by Federal Agency)				Date Of Land Evaluation Request 29 May 2026			
Name of Project General Matter Paducah Enrichment Facility				Federal Agency Involved Department of Energy			
Proposed Land Use Industrial				County and State McCracken County, KY			
PART II (To be completed by NRCS)				Date Request Received By NRCS 5/29/2026		Person Completing Form: Perri Brown	
Does the site contain Prime, Unique, Statewide or Local Important Farmland? (If no, the FPPA does not apply - do not complete additional parts of this form)				YES ☒ NO ☐		Acres Irrigated 68 acres	
						Average Farm Size 176 acres	
Major Crop(s) Corn		Farmable Land In Govt. Jurisdiction Acres: 96.54 % 153,947 acres		Amount of Farmland As Defined in FPPA Acres: 85.44 % 136,250			
Name of Land Evaluation System Used McCracken Co. LESA		Name of State or Local Site Assessment System		Date Land Evaluation Returned by NRCS 6/9/2026			
PART III (To be completed by Federal Agency)				Alternative Site Rating			
				Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly				86.3			
B. Total Acres To Be Converted Indirectly				0			
C. Total Acres In Site				101			
PART IV (To be completed by NRCS) Land Evaluation Information							
A. Total Acres Prime And Unique Farmland				78.90			
B. Total Acres Statewide Important or Local Important Farmland				7.40			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted				0.06			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value				83.56			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)				58			
PART VI (To be completed by Federal Agency) Site Assessment Criteria (Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)				Maximum Points	Site A	Site B	Site C
1. Area In Non-urban Use				(15) 2			
2. Perimeter In Non-urban Use				(10) 8			
3. Percent Of Site Being Farmed				(20) 0			
4. Protection Provided By State and Local Government				(20) 0			
5. Distance From Urban Built-up Area				(15) 0			
6. Distance To Urban Support Services				(15) 0			
7. Size Of Present Farm Unit Compared To Average				(10) 0			
8. Creation Of Non-farmable Farmland				(10) 0			
9. Availability Of Farm Support Services				(5) 5			
10. On-Farm Investments				(20) 0			
11. Effects Of Conversion On Farm Support Services				(10) 0			
12. Compatibility With Existing Agricultural Use				(10) 0			
TOTAL SITE ASSESSMENT POINTS				160	15	0	0
PART VII (To be completed by Federal Agency)							
Relative Value Of Farmland (From Part V)				100	58	0	0
Total Site Assessment (From Part VI above or local site assessment)				160	15	0	0
TOTAL POINTS (Total of above 2 lines)				260	73	0	0
Site Selected: Site A		Date Of Selection 9 June 2026		Was A Local Site Assessment Used? YES ☐ NO ☒			
Reason For Selection: Site meets all project requirements and has a relatively low site assessment score (of 73).							
Name of Federal agency representative completing this form: Jay Austin (Leidos)						Date: 9 June 2026	
<i>(See Instructions on reverse side)</i>						Form AD-1006 (03-02)	

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

- Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, <http://fppa.nrcs.usda.gov/lesa/>.
- Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s) of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map, or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)
- Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.
- Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.
- Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.
- Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.
- Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM
(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.
2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.

Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site A}$$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.