

# **DRAFT RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT FOR THE 2010 LOCKPORT OIL SPILL**

## **WILL COUNTY, ILLINOIS**

November 2023

DRAFT FOR PUBLIC REVIEW



**Prepared by:**  
United States Fish and Wildlife Service  
United States Department of the Interior  
and  
Natural Resource Trustees for the State of Illinois

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## SUMMARY

A natural resource damage assessment (NRDA) allows natural resource trustees to recover damages for injury caused by an unauthorized release of oil, and is described under Oil Pollution Act (OPA) Section 1006(c) (33 U.S.C. § 2706(c)). The OPA NRDA regulations (15 C.F.R. § 990) provide a process for natural resource trustees (Trustees) to determine injuries, assess damages, and develop and implement restoration projects that compensate the public for injuries to natural resources and services impacted by an incident.

The Trustees include the United States Department of the Interior acting through the United States Fish and Wildlife Service, the Illinois Department of Natural Resources, and the Illinois Environmental Protection Agency. This Draft Damage Assessment and Restoration Plan and Environmental Assessment (DARP/EA) has been prepared by the Trustees that manage or control the natural resources and their services injured or lost due to the incident. This Draft DARP/EA is intended to inform the public about the natural resource and service injuries and the restoration alternatives that can compensate for those injuries.

Through the OPA NRDA process, the Trustees reached a negotiated settlement with West Shore Pipe Line Company and Buckeye Pipe Line Company, the responsible parties (RPs). The RPs paid \$7,200,000 to the Trustees to settle claims for natural resource injury. The Trustees will use these funds to restore the injured natural resources.

This Draft DARP/EA presents information about an oil spill that occurred on December 13-14, 2010 (The Incident). The Incident occurred in Will County, Illinois and affected an area that contains significant natural resources. The DARP/EA contains information on the spill response, NRDA, legal authorities, and public participation. Information is also presented on the estimates of exposure and/or injury to natural resources and their services caused by the Spill, the Trustees' proposed restoration alternatives, analysis of the restoration alternatives under the OPA NRDA Regulation selection criteria, and Trustees' preferred restoration alternative and associated environmental compliance analyses.

The Incident originated from a pipeline operated by Buckeye Partners, L.P. and owned by West Shore Pipeline Company and discharged approximately 1,857 barrels of oil into a wetland near Lockport, Illinois. The affected wetland area is designated critical habitat for the endangered Hines emerald dragonfly (*Somatochlora hineana*) (HED) and provides habitat for other wetland species. A wetland area of approximately 5.15 acres was most directly impacted by the pooled oil and the resulting response actions. An additional wetland area of approximately 48 acres, was likely affected by dissolved phase constituents of the oil and hydrologic changes due to response actions. The affected property is privately owned by Hanson Material Service Corp. and is part of a habitat conservation planning area for HED, Blanding's turtle (*Emydoidea blandingii*), and spotted turtle (*Clemmys guttata*).

The Trustees performed an injury assessment and quantification and concluded that the Incident resulted in significant and long-lasting injury to critical habitat for the HED, to habitat for Blanding's turtle, migratory birds, and other wetland species and wetland ecosystem services.

The Trustees evaluated a range of restoration alternatives comprised of primary and/or compensatory restoration that address specific injuries to HED and wetland habitat associated with the Incident. Primary actions directly restore the natural resources and services to pre-spill conditions on an accelerated timeframe compared to natural recovery. Compensatory restoration actions provide resource services to compensate the public for losses pending recovery of resources injured by the Incident. The alternatives considered are: no action/natural recovery, land acquisition and conservation, habitat restoration and enhancement, and HED captive rearing and introduction. The Trustees have identified a preferred restoration alternative that meets OPA NRDA criteria and the Trustees' goals and objectives to protect and restore HED, Blanding's turtle, and migratory bird habitat, and augment the HED population. Projects may include land acquisition and conservation; habitat creation, restoration, and enhancement; and HED captive rearing and introduction/reintroduction.

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## ABBREVIATIONS AND ACRONYMS

AR	Administrative Record
CFR	Code of Federal Regulations
DARF	Damage Assessment and Restoration Plan
DOI	United States Department of the Interior
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
HEA	Habitat Equivalency Analysis
IDNR	Illinois Department of Natural Resources
IEPA	Illinois Environmental Protection Agency
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NRDA	Natural Resource Damage Assessment
OPA	Oil Pollution Act of 1990
RP(s)	Responsible Party(ies)
Trustees	Natural Resource Trustees
USC	United States Code
US EPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
WSPL	West Shore Pipe Line Company

## **GLOSSARY**

### **Administrative Record**

A publicly available record to document the basis for trustee decisions pertaining to restoration, opened concurrently with the publication of the Notice of Intent to Conduct Restoration Planning.

### **Baseline**

The condition of natural resources and services that would have existed had the incident not occurred.

### **Compensatory Restoration**

Any action (or alternative), or combination of actions (or alternatives), to restore, rehabilitate, replace or acquire the equivalent taken to compensate for interim losses of natural resources and services that occur from the date of the incident until recovery.

### **Damages**

Damages means damages specified in section 1002 of OPA (33 U.S.C. § 1002(b)), and includes the costs of assessing these damages, as defined in section 1001(5) of OPA (33 U.S.C. § 2701(5)).

### **Incident**

Any occurrence or series of occurrences having the same origin, resulting in the discharge or substantial threat of discharge of oil into or upon navigable waters or adjacent waters.

### **Injury**

An observable or measurable adverse change in a natural resource or impairment of a natural resource service.

### **Natural Resource Damage Assessment**

The process of collecting and analyzing information to evaluate the nature and extent of injuries resulting from an incident, and determine the restoration actions needed to bring injured natural resources and services back to baseline and make the environment and public whole for interim losses.

### **Natural Resources**

Land, fish, wildlife, biota, air, ground water, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States, any state or local government, Indian tribe, or any foreign government.

### **Natural Resource Services**

Functions performed by a natural resource for the benefit of another resource and/or the public.

### **Natural Resource Trustees**

Those officials of the federal and state governments, of Indian tribes, and of foreign governments, designated under 33 U.S.C. § 2706(B) of the Oil Pollution Act of 1990.

### **Oil**

Oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

### **Primary Restoration**

Any action (or alternative), or combination of actions (or alternatives), to restore, rehabilitate, replace or acquire the equivalent that returns injured natural resources and services to baseline.

### **Recovery**

The return of injured natural resources and services to baseline.

### **Response**

Containment and removal of oil or a hazardous substance from water and shorelines or the taking of other actions as may be necessary to minimize or mitigate damage to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, and public and private property, shorelines, and beaches.

## 1.0 INTRODUCTION

The U.S. Fish and Wildlife Service (USFWS), the Illinois Department of Natural Resources (IDNR), and the Illinois Environmental Protection Agency (IEPA), collectively known as the Natural Resource Trustees (hereafter, Trustees), are undertaking a Natural Resource Damage Assessment (NRDA) pursuant to the Oil Pollution Act of 1990 (OPA), 33 USC 2701, *et seq.* This Draft Damage Assessment and Restoration Plan and Environmental Assessment (DARP/EA) was prepared by the Trustees to inform the public of natural resource injuries caused by the December 13-14, 2010 Lockport Oil Spill (Incident) in Will County, Illinois, and the proposed restoration projects that would compensate for those injuries.

This Draft DARP also serves as an EA under the National Environmental Policy Act (NEPA) and addresses the potential impact of the proposed restoration actions to be implemented under the direction of the Trustees pursuant to this Draft DARP/EA on the quality of the physical, biological, and cultural environment. This Draft DARP/EA was prepared in accordance with the Oil Pollution Act (OPA, 33 U.S.C. §2701, *et seq.*), the OPA Natural Resource Damage Assessment regulations (15 C.F.R. Part 990), and other applicable laws and regulations.

As described in detail below, the Trustees propose restoration that would be undertaken in northeastern Illinois. Figure 1 depicts the location of the proposed restoration project area in relation to the location of the Incident.

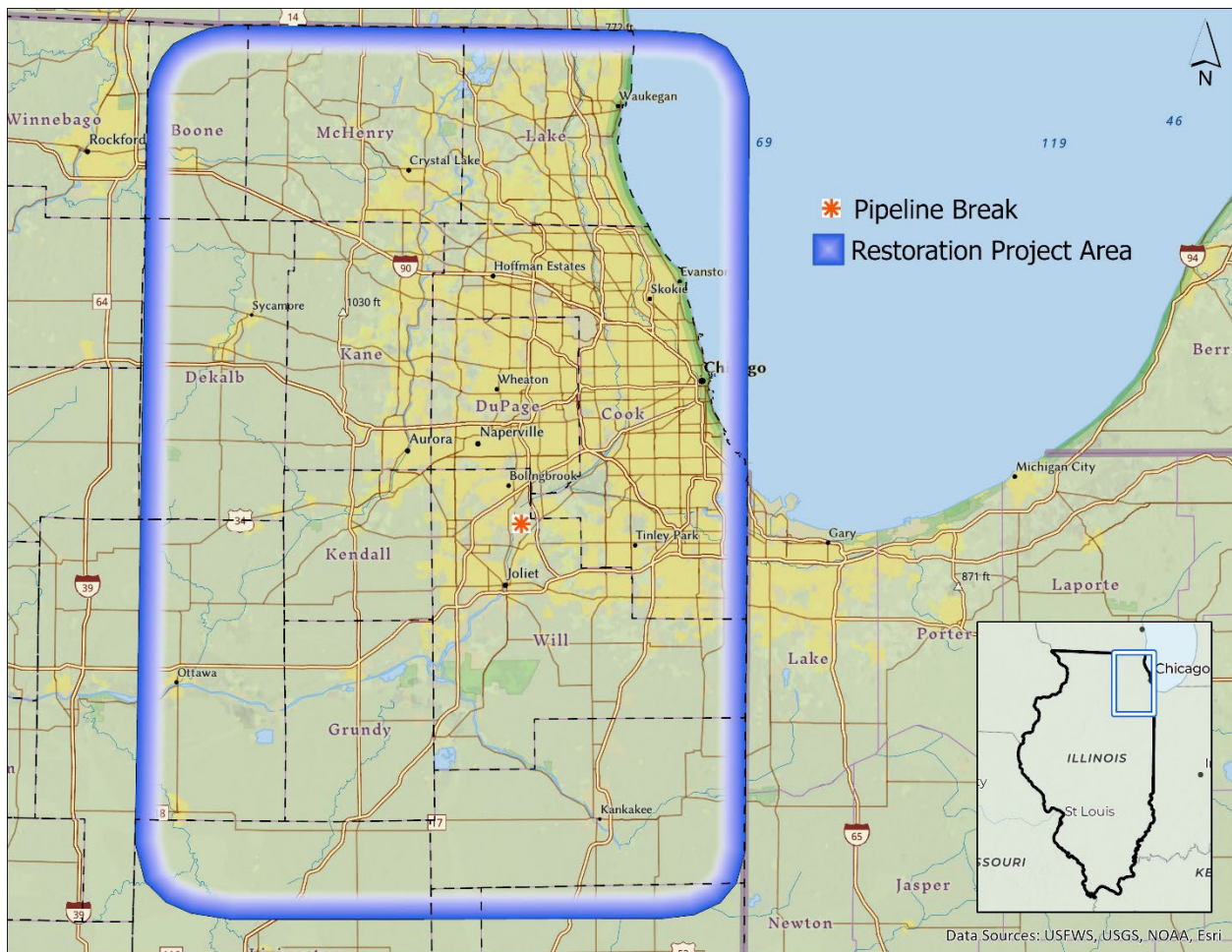


Figure 1. Location of the Spill and project area for the proposed restoration.

## 1.1 Summary of the Spill and Injury to Natural Resources

On December 14, 2010, West Shore Pipe Line Company (responsible party; RP) reported an accidental release of approximately 1,857 barrels of oil from a pipeline operated by Buckeye Partners, L.P. (RP) in Will County, Illinois, (southeast ¼ of Section 2, Township 36 North, Range 10 East; Figure 1). The crude oil flowed southward from the pipeline, through a drainage ditch along the west side of New Avenue and the east side of the Illinois Central railroad tracks. The oil moved west, first through a culvert under the railroad tracks and then through a culvert under a service access road, into a wetland. The affected wetland, privately owned by Hanson Material Service Corporation, is commonly known as the Long Run Parcel, and is designated as Critical Habitat Unit 7 for the endangered Hines emerald dragonfly (HED). A 1.74 acre containment area was constructed from booms and hay bales in an attempt to contain the oil and prevent constituent transport.

On December 31, 2010, warmer air temperatures and rain melted snow on and near the spill Site (Site), resulting in significant flooding of the area. The contaminated flood water breached the containment area, impacting an additional estimated 48 acres of adjacent wetlands (Figure 2).

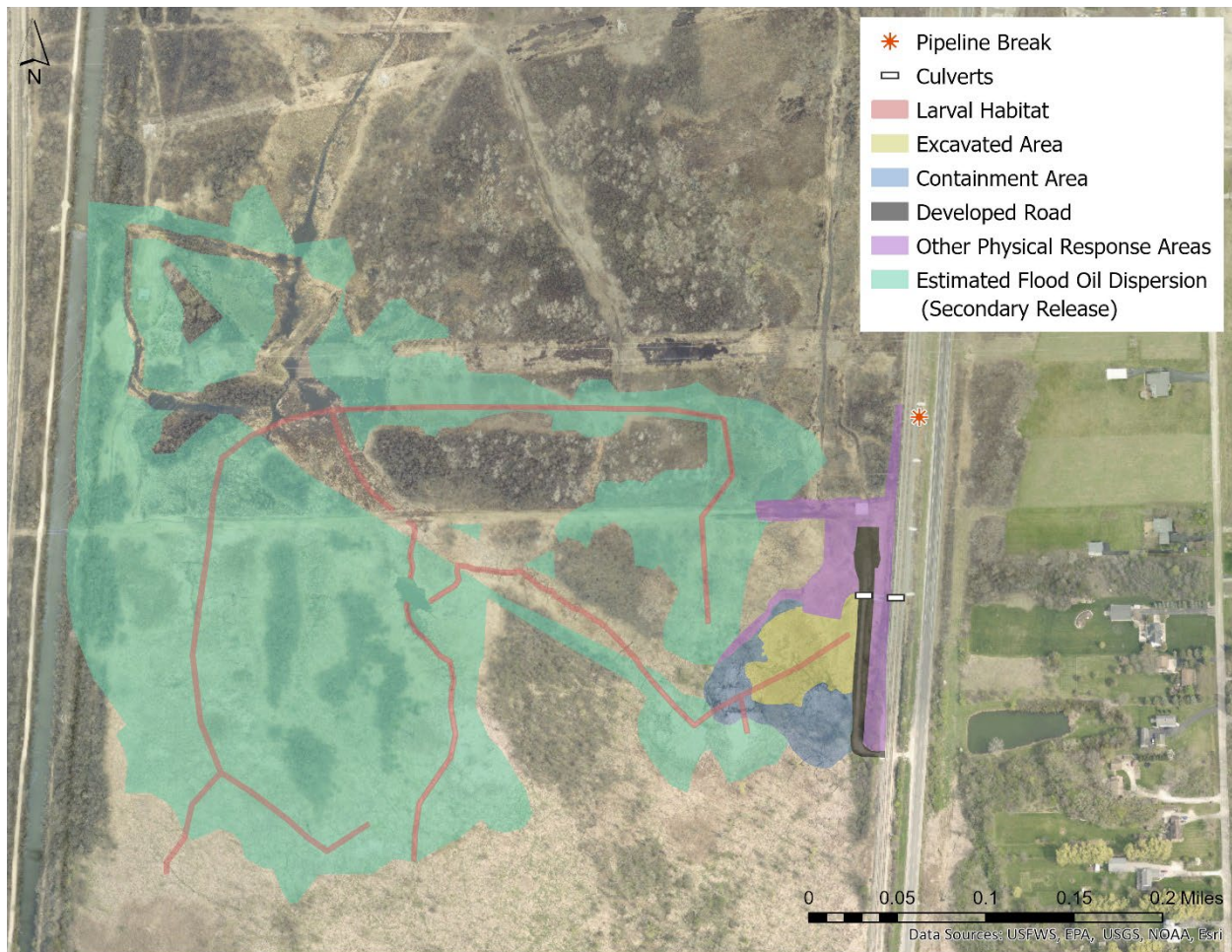
### *Summary of Response Actions*

The RPs undertook responsibility for cleanup of the Site, which was overseen by the US Environmental Protection Agency (US EPA). Emergency response efforts aimed to recover potentially mobile oil as quickly as possible, while minimizing additional impacts to natural resources. Response actions as described in the Hey Associates 2019 Biological Assessment included:

- Pipeline shutdown on 12/14/2010.
- A perimeter containment barrier was constructed beyond the farthest extent of visual oiling to prevent further migration. The containment barrier was constructed from certified weed-free straw bales, hard containment (floating) boom, and soft sorbent boom.
- Soil borings, rock borings, and surface trenches were constructed to locate migrating oil.
- For lightly oiled areas, oil was recovered using vacuum trucks, skimmers, absorbent booms and pads, physical herding, and trench sumps.
- Excavations to remove oiled soil, rock, and sediment occurred in 2011, 2012, and 2015. An estimated 3,000 to 4,000 cubic yards of contaminated material was removed for offsite disposal; the US EPA estimates this material contained approximately 2,000 gallons of oil.
- Two boats outfitted with a water jet array, designed to hydraulically agitate sediments, were deployed for three weeks. This system “released” oil from sediment, allowing the oil to float to the surface where it could be recovered by skimmers and vacuum trucks. It is estimated this process recovered approximately 2,000 gallons of oil.
- Groundwater monitoring wells were installed throughout the Site in March, June, and October 2011.
- Air quality was monitored at the Site to ensure the protection of workers.
- Systems to recover remaining oil included nine recovery sumps installed with nine stubs and drain tile in strategic locations. The sumps, stubs, and drain tile were removed in August 2019.

The response activities resulted in further injury to natural resources and their services. Best practices were utilized in an attempt to minimize injury, but specific impacts as a result of response activities include:

- The perimeter containment barrier, constructed to prevent further oil migration, remained in place for 5 years.
- Excavation and disposal of soil impacted 2.29 acres of HED Critical Habitat.
- Roadway expansion



**Figure 2. Location of the Spill, including the pipeline, culverts, containment area, and estimated secondary release area.**

On January 7, 2013, the Trustees signed a Memorandum of Understanding to coordinate natural resource damage and restoration activities associated with injuries to trust natural resources caused by the Incident. The Trustees established a Technical Working Group that regularly met with the RPs to share Site information, discuss assessment activities, and identify injuries. In September 2014, the Trustees entered into a Cooperative Agreement with the RPs to facilitate a cooperative process for assessing and resolving natural resource damages. The land use descriptors shown in Figure 2 were developed cooperatively by the Technical Working Group.

## 1.2 Purpose and Need

The purpose of the proposed alternatives is to restore the natural resources and resource services that were injured as a result of the Incident by implementing restoration actions that restore the same types of resources and services as the ones that were injured. There is a need to compensate the public for injuries resulting from the Incident to HED, Blanding's turtle, migratory birds, and wetland habitat.

## **1.3 NRDA Authority and Process**

### ***Overview of NRDA and OPA***

The OPA NRDA regulations (15 C.F.R. § 990) provide a step-by-step process for natural resource trustees to determine injuries, assess damages, and develop and implement restoration projects that compensate the public for injuries to natural resources and services impacted by an incident. This process includes three phases:

- Preassessment;
- Restoration Planning; and
- Restoration Implementation.

### ***Preassessment Phase***

The purpose of the Preassessment Phase is to determine whether Trustees have jurisdiction to pursue restoration under OPA and, if so, whether it is appropriate to proceed with restoration planning. During the Preassessment Phase, the Trustees determined that they had jurisdiction to pursue restoration under OPA based on the requirements of 15 C.F.R. § 990.41(a).<sup>1</sup> The Trustees also determined, pursuant to 15 C.F.R. § 990.42(a), that injuries to natural resources and natural resource services had resulted from the Incident, that response actions did not, and would not, adequately address the injuries resulting from the Incident, and that feasible restoration alternatives existed to address the injuries.

### ***Restoration Planning Phase***

Based on those determinations, on January 7, 2013, the Trustees issued the Notice of Intent (NOI) to Conduct Restoration Planning for the NRDA case associated with the Incident. In the Restoration Planning Phase, the Trustees evaluated and quantified the nature and extent of injuries to natural resources and services, and determined the need for, type of, and scale of appropriate restoration actions. Using the information developed during the cooperative agreement process and restoration planning phase, the Trustees developed this Draft DARP/EA.

The first component of the Restoration Planning Phase is injury assessment, where the Trustees evaluated, through a cooperative agreement, injury to Hine's emerald dragonfly, Blanding's turtle, migratory birds, other wetland species and services, and wetland habitat. Further detail regarding the Trustees' injury assessment and quantification is discussed in Chapter 2.

The second component of the Restoration Planning Phase is restoration selection. Considering the nature and extent of exposure and/or injuries to natural resources caused by the Spill, the Trustees developed a plan for restoring the injured resources and services. The restoration objectives are to:

- Compensate the public for injuries to trust resources and ecosystem services;
- Supplement HED populations through captive rearing, and restore larval habitat;
- Acquire, restore, and conserve, Blanding's turtle, and migratory bird habitat; and
- Mitigate for injury to wetlands and associated ecosystem services in consultation with the U.S. Army Corps of Engineers.

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<sup>1</sup> To determine that legal jurisdiction exists to conduct a NRDA, 15 C.F.R. § 990.41(a) requires the Trustees to first determine if the oil spill constituted an "incident" as defined by 15 C.F.R. § 990.30. Second, the Trustees must decide if the incident was not an "excluded discharge" within the meaning of OPA Section 1002(c) (i.e., the incident was not authorized by permits issued under federal, state, or local law, or did not originate from a public vessel or from an onshore facility subject to the Trans-Alaska Pipeline Authorization Act). And third, potential injury to trust resources and services under designated federal and state trusteeship of the Trustees had occurred because of the incident.

The Trustees identified a reasonable range of restoration alternatives and evaluated those alternatives using the criteria from 15 C.F.R. § 990.54:

- Cost to carry out the alternative;
- Extent to which each alternative is expected to meet the Trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses;
- Likelihood of success of each alternative;
- Extent to which each alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative;
- Extent to which each alternative benefits more than one natural resource and/or service; and
- Effect of each alternative on public health and safety.

Trustees' preferred alternative has a combination of projects (alternatives B, C and D) including HED captive rearing, HED larval habitat restoration, and acquisition and/or conservation with or without restoration of Blanding's turtle, migratory bird habitat, and wetland species dependant habitat.

Sums recovered in settlement of such claims, other than reimbursement of trustee costs, may only be expended in accordance with a restoration plan such as this. Under the terms of the NRDA settlement, the RPs have agreed to pay \$7.2 million to the Trustees for natural resource damages and wetland mitigation. The amount of this payment reflects the Trustees' estimated costs of planning, implementation, oversight, and monitoring of the proposed restoration project.

Public participation on the draft DARP/EA will be provided during a 30 day comment period. The Trustees will prepare a final DARP/EA with responses to public comments.

### ***Restoration Implementation Phase***

The final phase in the NRDA is the Restoration Implementation Phase, which includes conducting the restoration and monitoring its effectiveness.

## **1.4 National Environmental Policy Act Compliance**

Any restoration of natural resources under OPA must comply with NEPA, as amended (42 U.S.C. § 4321, *et seq.*), and its implementing regulations (40 C.F.R. §§ 1500-1508) with respect to federal actions that may significantly impact the human environment. In compliance with these regulations, this Draft DARP/EA summarizes the current environmental setting of the proposed restoration to be implemented under the direction and control of the Trustees, describes the purpose and need for action, identifies alternative actions, assesses their applicability and environmental consequences, and summarizes opportunities for public participation in the decision-making process. Project-specific NEPA documents may also need to be prepared as plans become more specific, and these documents would refer to this Draft DARP/EA.

If there is a significant change to any of the restoration projects proposed for selection in this Draft DARP/EA, the Trustees will consider an additional environmental analysis in accordance with the NEPA regulations. These regulations typically require a supplemental NEPA analysis be prepared if new information arises that would substantively impact previous decision-making or if there is a significant change to a selected restoration project (40 C.F.R. § 1502(9)(c)). The decision as to whether a change is significant considers both the context and intensity of the proposed change (40 C.F.R. § 1508.27). Project changes that are not deemed significant could be outlined in a supplemental information report for posting to the administrative record.

## **1.5 Federal and State Trustees and Their Responsibilities**

The Federal Trustee for this NRDA is the United States Department of the Interior (DOI), represented by the USFWS. State Trustees for Illinois are designated by the Governor of Illinois and include IDNR and IEPA. Each of these agencies is a designated natural resource trustee under § 1006 (b) of OPA, 42 U.S.C. § 2706(b), the National Contingency Plan, 40 C.F.R. §§ 300.600, 300.605. Each designated Trustee is authorized to act on behalf of the public to assess and recover natural resource damages, and to plan and implement actions to restore natural resources and resource services injured or lost as the result of a discharge or discharges of oil. The Trustees are working cooperatively pursuant to a Memorandum of Understanding.

## **1.6 Compliance with other Authorities**

### ***Endangered Species Act***

The Endangered Species Act (ESA) of 1973 (16 U.S.C. §§1531, *et seq.*) requires federal agencies to conserve endangered and threatened species and to conserve the ecosystems upon which these species depend. The habitat of endangered, threatened, and rare species takes on special importance because of state and federal laws, and the protection and conservation of these species requires diligent management.

**Compliance:** Consultation under Section 7 of the ESA will be completed by U.S. Fish and Wildlife Service prior to expenditure of Trustee restoration funds.

### ***Migratory Bird Treaty Act***

The Migratory Bird Treaty Act of 1918 (16 U.S.C. §§ 703-712) prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior, U.S. Fish and Wildlife Service.

**Compliance:** Permits will be obtained from the U.S. Fish and Wildlife Service if needed.

### ***National Historic Preservation Act***

The National Historic Preservation Act requires that federal projects be evaluated for potential harm to historic site and requires avoidance or minimization of such harm.

**Compliance:** A review of potential impacts to historic sites will be completed.

### ***Archeological Resources Protection Act***

The Archeological Resources Protection Act was enacted “to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before October 31, 1979” (16 U.S.C. §470aa (b)).

**Compliance:** A review of potential impacts to archaeological sites will be completed if applicable.

## **1.7 Coordination and Scoping**

### ***Coordination with the Responsible Parties***

In 2014, the RPs entered into a Cooperative Agreement regarding evaluation of injury and natural resource damages related to the Incident with the three Trustees. As required by the regulations at 15 C.F.R. § 990.14 (c)(4), the Trustees, however, retained final authority to make determinations regarding injury quantification and restoration alternatives development.

### ***Public Notification***

This Draft DARP/EA provides information about the nature and extent of natural resource injuries resulting from the incident and identifies a preferred restoration alternative that would address those injured resources. Public review of the Draft DARP/EA is an integral component of the restoration planning phase. Public comment is consistent with all state and federal laws and regulations that apply to the NRDA process, including Section 1006 of OPA, the OPA NRDA regulations (15 C.F.R. Part 990) and the regulations implementing NEPA (40 C.F.R. §§1500, *et seq.*).

This Draft DARP/EA is available to the public for a 30-day comment period, which will begin on the date of the public notice announcing availability of the Draft DARP/EA, at the following website link:

<https://fws.gov/project/lockport-buckeye-natural-resource-damage-assessment-and-restoration>

An additional opportunity for public review will be provided in the event that the Trustees decide to make significant changes to the Draft DARP/EA based on the initial public comments. Comments on this Draft DARP/EA should be sent to:

Edward Karecki  
United States Fish and Wildlife Service  
230 S Dearborn, Suite 2938  
Chicago, IL 60604-1507  
Email: edward\_karecki@fws.gov

### ***Administrative Record***

The Trustees have maintained records to document the information considered by the Trustees as they developed this Draft DARP/EA. These records may include additional information and documents, such as public comments received on the Draft DARP/EA, and other related restoration planning documents. The Administrative Record for this case is available to the public, and will be housed at the following physical location:

United States Fish and Wildlife Service  
230 S. Dearborn, Suite 2938  
Chicago, IL 60604

Arrangements should be made in advance to review the record or to obtain copies of documents in the record by contacting Edward Karecki, Environmental Contaminants Specialist, at (847) 366-2349 or edward\_karecki@fws.gov.

## **2.0 INJURY ASSESSMENT AND QUANTIFICATION**

This section describes the potential injuries and the quantification of the potential ecological service losses caused by the Incident and subsequent response actions. It begins with an overview of the Trustees' preassessment evaluation, assessment strategy, and restoration planning. The remainder of the section presents the results of Trustee assessments for the specific resources affected by the Incident, including the approaches used to determine potential or actual injuries and quantify service losses.

### **2.1 Preassessment Evaluation**

The Trustees for the Incident initiated preassessment activities on December 15, 2010, immediately after being notified of the discharges. Preassessment activities, as defined by OPA, focused on collecting ephemeral data essential to determine whether:

- Injuries have resulted, or are likely to result, from the discharges of oil;
- Response actions have adequately addressed, or are expected to address, such injuries; and
- Feasible restoration actions exist to address the potential injuries.

Based on information collected since 2010, the Trustees determined that natural resources and services have been injured and that response actions were not expected to fully address the injuries. Throughout the injury assessment and restoration planning process, the Trustees used analytical results, expert scientific judgment, information generated through response activities, and literature on the fate and effects of oil spills on natural resources and their services to arrive at the best estimate of the injuries.

### **2.2 Injury Assessment and Determination**

The Trustees concluded that the Spill resulted in significant and long-lasting injury to critical habitat for the HED, to habitat for Blanding's turtle (*Emydoidea blandingii*) and migratory birds, and wetland habitat and ecosystem services.

#### ***Wetland Habitat Injury Assessment***

The Trustees utilized the Blanding's turtle and migratory birds as representative resources for the injured wetland system to create a general estimate of lost ecological services.

The Blanding's turtle is listed as endangered in the State of Illinois. The Site is one of six sites in Will County, Illinois, where this species is found. To support Blanding's turtles, a significant amount of wetland habitat is required. The home range of Blanding's turtles is large, averaging tens of hectares and sometimes exceeding 100 hectares (247 acres). The Incident impacted moderate to high quality foraging and breeding habitat for the Blanding's turtle (Figure 3).

The Lower DesPlaines River Valley provides breeding habitat and important migratory stop-over habitat for hundreds of species of birds protected by the Federal Migratory Bird Treaty Act, including waterfowl, shorebirds, raptors, waterbirds, and land birds. The bald eagle, which is afforded protection by the Federal Bald and Golden Eagle Protection Act, is known to occur in the valley. A pair of bald eagles has been nesting on an island within the Des Plaines River since at least 2010 and bald eagles use the river corridor during their annual spring and fall migration. Migratory bird habitat has been disturbed as a result of the Incident since December 2010, impacting ten seasons of breeding, nesting, and foraging. Migratory birds have been observed in areas contaminated by the Incident, and while hazing devices were utilized to prevent avian injury, these devices were not always effective or functional.



**Figure 3. Wetland injured by the Spill (USFWS)**

### ***Hine's Emerald Dragonfly Injury Assessment***

The HED is a federally and state listed endangered species. HED spend six years as larvae, requiring a continuous groundwater fed streamlet flowing through wetland areas. HED larvae over-winter in the underground burrows of the devil crayfish (*Lacunicambarus aff. Diogenes*). The conditions suitable for HED habitat requirements are believed to exist only in dolomite prairie wetlands. Very few of these wetlands remain undisturbed. This Incident and the response actions impacted approximately 25.5% (1.22 acres) of the available 4.78 acres of breeding habitat for the species in Illinois.

The Site was the focus of annual adult HED surveys for seven years prior to the Incident. These surveys documented an increasing level of HED activity, including the presence of teneral adults and adults exhibiting territorial behavior. Several acres of this habitat were impacted by the Incident and response actions. The Site had not previously been identified as viable habitat for HED larvae, but following the Incident researchers identified potentially viable streamlets and conducted a larval survey. HED larvae of several different ages were identified downstream from the excavated area, confirming that the Site served as HED larval habitat for at least several years. No larval surveys have been conducted at the Site since 2011, but due to the physical removal of existing habitat and both hydrologic and chemical impacts, the Trustees believe that the Site no longer contains larval habitat and that it will not provide larval habitat for at least 30 years.

## **2.3 Injury Quantification and Scaling**

### ***Wetland Injury Quantification and Scaling***

The Trustees used Habitat Equivalency Analysis (HEA) to calculate service losses resulting from injured natural resources at the Site and to estimate the restoration costs needed to address those losses. A HEA is an economic tool to estimate damages and is a restoration-based approach to natural resource valuation that can account for changes in the baseline condition while estimating the amount of past and future interim losses. The fundamental concept is that compensation for lost ecological services can be accomplished by restoration projects that provide comparable services.

A HEA has three steps: (1) assess the present value of lost services and the time until the injured resource is restored to its baseline condition, (2) select appropriate compensatory restoration projects, and (3) identify the size of the project that will equate the total quantity of lost services to the total quantity of replacement services discounted over time. The model accounts for the amount of time over which ecological services were diminished, the amount of ecological service decrease, and the acreage over which the service changes occurred. These ecological service losses began immediately after the Incident.

The oil spill into Long Run Parcel had a devastating and long-lasting impact on the habitat for Blanding's turtle, migratory birds, and other wetland species. To assess these injuries, the Trustees divided the Site into five Areas of Potential Injury (API): Excavation (1.6 acres); Containment (1.7 acres); Other Physical Response (3 acres); Channel (8.6 acres); Flood Dispersion (49.8 acres); and Developed Road (0.49 acres). The Trustee Working Group reached general agreement on the size and context of the APIs, but disagreed as to the extent and duration of some of the injury. In the smaller, most intensely impacted APIs, the Trustees determined that there was significant injury to the habitat resources expected to last approximately 30 years. In the two largest APIs, the degree to which the habitat resources were impacted and the speed with which these could recover were less certain and would require extensive field testing over 60 acres of wetlands. In recognition of this lack of information and preferring to avoid the delay necessary to conduct such studies, the Trustees adopted a mid-point of potential injuries, resulting in a total loss of 454.3 Discounted Service Acre Years (DSAYs).

### ***Hine's Emerald Dragonfly Injury Quantification and Scaling***

The Trustees utilized a Resource Equivalency Analysis (REA) to calculate population and service losses resulting from injured larval habitat for the endangered HED. A REA is an economic tool designed to quantify injuries to individual species. The REA involved a stable model population that assumed a constant number of larvae within each age class, and a constant number of adults emerging and breeding annually. This model was informed by field surveys of baseline HED larvae density in 8 locations considered similar to the Site. Restoring a lost population of HED larvae includes replacing the number of larvae lost (baseline) in addition to an amount of larvae that accounts for the time between injury and restoration (interim loss). An HED unit population is the estimated total larvae of all age classes required to produce one adult. A present value discount of three percent per year was applied to account for the time between injury and restoration. The area of HED habitat affected by the Incident was estimated at 0.386 acres. Utilizing the stable model population, the Trustees estimated the HED larvae associated with the impacted 0.386 acres to be 55 unit populations in 2011; utilizing a present value discount, the value is 69.7 unit populations in 2019.

To estimate the larval stage HED lost at the Site, the Trustees gathered data from known nearby larval habitats in seven similar wetland streamlets to calculate a simple average larval density of 1.02 larvae older than 1 year per meter of streamlet habitat (1.02 L1+/streamlet-meter). This average was then applied to the 1,562 streamlet meters mapped at the Site. Adjusting this loss (increase) to account for the time since the injury (present value, relative to 2019), and the uncertainty of both actual larval habitat and its recovery at these streamlets, the Trustees estimated a total loss of 31 discounted HED unit-populations (DHUPs).

### 3.0 RESTORATION ALTERNATIVES

The goal of restoration under OPA is to compensate the public for injuries to natural resources and services from an oil spill. This goal is achieved by returning injured natural resources to their baseline condition, if possible, and by compensating for any interim losses of natural resources and services during the period of recovery to baseline.

Restoration actions under the OPA NRDA regulations are either primary or compensatory. Primary restoration is any action, including natural recovery, that returns injured natural resources and services to baseline. The regulations require that the Trustees consider natural recovery under primary restoration (15 C.F.R. § 990.53). The Trustees may select natural recovery under three conditions:

- If feasible;
- If cost-effective primary restoration is not available; or
- If injured resources will recover quickly to baseline without human intervention.

Alternative primary restoration activities can range from natural recovery, to actions that prevent interference with natural recovery, to more intensive actions expected to return injured natural resources and services to baseline faster or with greater certainty as compared to natural recovery.

Compensatory restoration is any action taken to compensate for interim losses of natural resources and services that occur from the date of the Incident until recovery. The type and scale of compensatory restoration may depend on the nature of the primary restoration action and the level and rate of recovery of the injured natural resources and/or services given the primary restoration action. When identifying the compensatory restoration components of the restoration alternatives, the Trustees must first consider compensatory restoration actions that provide services of the same type and quality and of comparable value to those that were lost. If compensatory actions of the same type and quality and of comparable value cannot provide a reasonable range of alternatives, the Trustees then consider other compensatory restoration actions that would provide services of at least comparable type and quality as those lost.

#### 3.1 Restoration Criteria

Pursuant to the OPA NRDA regulations (15 C.F.R. § 990.54), Trustees evaluated restoration alternatives based on the following criteria, presented in the order given in the regulations:

1. **Cost to carry out the alternative:** This criterion considers the cost associated with implementation of the restoration project relative to expected resource and service benefits. Projects that provide similar benefits but that are less expensive are preferred.
2. **Extent to which each alternative is expected to meet Trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses:** The primary goal of any compensatory restoration project is to provide a level of quality of resources and services comparable to those lost due to the assessed injuries. In meeting that goal, among other things, the potential relative productivity of the habitat to be restored, whether the habitat is being created or enhanced, proximity to the injury, and the type of resources being restored. The location and type factors are commonly referred to as "nexus" criteria.
3. **Likelihood of success of each alternative:** Considers technical factors that represent risk to successful project construction, project function, or long-term viability of the restored habitat. This includes site-specific factors, such as whether a project is technically and procedurally sound, utilizes proven methods, involves sufficient acreage that is suitable and available for project implementation, and whether there are potential institutional or legal constraints. Alternatives that are susceptible to future degradation or loss as a result of factors such as erosion are considered less viable. Trustees also considered whether long-term maintenance of the project is likely to be necessary and/or feasible.

4. **Extent to which each alternative would prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative:** Restoration actions should not result in additional losses of natural resources and should minimize the potential to affect surrounding resources during implementation. Projects with less potential to adversely impact surrounding resources are generally viewed more favorably. Compatibility of the project with the surrounding land use and potential conflicts with endangered species are also considered.
5. **Extent to which each alternative benefits more than one natural resource and/or service:** This criterion addresses the interrelationships among natural resources, and between natural resources and the services they provide. Projects that provide benefits to more than one resource and/or yield more beneficial services overall, are viewed more favorably. For example, although recreational benefits are not an explicit objective in this Draft DARP/EA, the potential for a restoration project to enhance recreational use of an area is considered favorable.
6. **Effect of each alternative on public health and safety:** Projects that would negatively affect public health or safety are not appropriate.

These are the Trustees' restoration goals and objectives:

1. **Compensate the public for injuries to trust resources;**
2. **Supplement HED populations through captive rearing, and restore HED larval habitat;**
3. **Acquire, restore, and conserve Blanding's turtle and migratory bird habitat; and**
4. **Mitigate for injury to wetlands through restoration.**
5. **Cost effectiveness.**

### 3.2 Restoration Alternatives

Using the restoration criteria, the Trustees evaluated a range of restoration alternatives which would compensate the public for losses caused by the Incident. The proposed projects include a combination of land acquisition and restoration for enhancing, and conserving critical habitat for the HED, Blanding's turtle, migratory birds, and wetland dependant species; as well as HED propagation for introduction/reintroduction into HED larval habitat.

#### *Alternative A: No Action/Natural Recovery*

NEPA and the OPA NRDA regulations require the Trustees to evaluate an alternative in which no actions are taken by a federal agency. Here, the no-action alternative would mean that the Trustees would take no direct action to restore injured natural resource habitat, create new habitat, enhance existing habitat, nor supplement HED populations. Instead, the Trustees would rely solely on natural recovery for the achievement of restoration goals. While the Trustees believe that natural recovery will occur over varying time scales for the resources exposed to and/or injured by the Spill, the interim losses suffered would not be fully compensated under a no-action alternative.

The principal advantages of this approach are the ease of implementation and lack of costs because natural processes rather than humans determine the trajectory of the system. This approach, more so than any of the others, recognizes the capacity of entire watersheds for self-healing over time and does not directly alter existing habitats.

However, OPA clearly establishes the Trustees' responsibility to seek compensation for interim losses pending recovery of the natural resources. This responsibility cannot be completely addressed through a no-action alternative. The Trustees have determined that the no-action alternative and on-site restoration alternative are not preferred because they do not provide adequate compensatory restoration. Losses were,

and continue to be, suffered during the period of recovery from this spill and technically feasible and cost-effective alternatives exist to compensate for these losses.

### ***Alternative B: Land Acquisition and Conservation***

Under this alternative, the Trustees would pursue fee-simple purchase on lands suitable for prairie and wetland habitat conservation for migratory birds and Blanding's turtle. Purchased lands would be managed by a conservation agency and placed under a conservation easement. These lands will be selected based on habitat restoration potential, proximity to tracts currently managed for conservation, cost per acre, and risk of development. Acquisition may be leveraged by using other funding sources to the extent available for this purpose. Any acquired lands would be deeded to a willing federal or state land management agency and would be managed to conserve trust resources. Approximately 135 acres of habitat are needed to restore the injured resource.

### ***Alternative C: HED Habitat Acquisition, Restoration, Creation***

Approximately 46 acres of historic and potential HED habitat may be acquired and/or restored or created in areas where appropriate hydrology, soil, and plant structure exist or can be developed during restoration.

Reduction of invasive species may be conducted in some areas. Restoration activities may include, cutting and removing and/or applying herbicide to invasive shrubs and trees and herbaceous species. Conducting prescribed burns, and discing and tilling soil in specific locations may need to be undertaken prior to seeding and planting of cover species. Seeding in larval habitat will occur on foot in late fall under dry conditions.

Removing woody vegetation in larval habitat areas will be conducted on foot using only hand tools (e.g., chainsaws). Herbicide application done by hand wicking (or other methods approved by USFWS) within a 20-meter buffer of HED larval habitat with aquatic-approved herbicides. Herbicide can be applied to cut woody vegetation within larval habitat buffer by dabbing or painting (or other methods approved by USFWS). Applying herbicide by foliar spraying invasive vegetation will be conducted only outside of the 20-meter buffer around HED larval habitat and with an aquatic-approved herbicide and surfactant.

Creating or modifying rivulets may occur only in areas unoccupied by larval HED at the time of the restoration. HED occupied rivulets or other larval habitat areas will be modified only with approval from USFWS, when activities will not negatively impact the species.

Stockpiling and/or burning piles of cut vegetation may occur in upland areas. Chipping of woody vegetation may take place in low quality upland areas. Prescribed burns will be conducted outside of HED flight season.

Attention to current conditions and best management practices will be used to avoid impact to HED, listed turtle species, migratory birds, and other wildlife. Some funds may be retained to allow for long term maintenance of the restoration.

### ***Alternative D: HED Captive Rearing and Introduction***

Captive rearing of HED larvae will be used to enhance populations. Survivorship from egg to adult in the wild is less than one percent. Captive rearing can raise this to a level as high as fifty percent. A program coordinator and field/lab technicians will operate rearing tanks and associated equipment. Field crews will collect eggs in the field, rear larvae at a hatchery, release them in suitable habitat, and monitor their success. The program will run for approximately ten years to compensate for injuries to HED.

### ***Alternative E: On-Site Restoration***

Under this alternative the trustees would attempt to restore habitat at the Incident location. The remedial actions used to remove oil contamination resulted in changes to hydrology that make wetland rivulet restoration not feasible. Dolomite prairie may be achievable, but would require additional clean up, and studies of the new hydrologic conditions. Additional soil may need to be removed and then the area stabilized with fill and erosion control measures to allow for vegetative regrowth to occur. This would require the use of heavy excavating equipment and an off-site repository for the contaminated soil.

Reduction of invasive species may need be conducted in some areas as the area is highly disturbed from the clean-up activities. Restoration activities may include, cutting and removing and/or applying herbicide to invasive shrubs and trees and herbaceous species. Conducting prescribed burns, and discing and tilling soil in specific locations may need to be undertaken prior to seeding and planting of cover species.

Residual contamination from the Incident could result in additional injury and make restoration unsuccessful.

### 3.3 Alternatives Analysis

**Table 1. Alternatives Analysis based on OPA criteria and Trustees' goals**

<b>Alternative</b>	<b>A: No Action / Natural Recovery</b>	<b>B: Land acquisition and conservation</b>	<b>C: HED habitat acquisition &amp; restoration or creation</b>	<b>D: HED captive rearing &amp; introduction</b>	<b>E: On-Site Restoration</b>
<b>Cost Effective</b>	Yes- no cost	Yes – cost/acre will be considered	Yes – focuses on historic and potential habitat	Yes – increases survival to adulthood	No – Hydrology cannot be restored
<b>Restoration Goals</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>
Compensate Public	No	Yes	Yes	Yes	No
Supplement HED	No	Yes	Yes	Yes	No
Turtle/bird Habitat	No	Yes	Yes	No	Maybe
Mitigate Injury	No	Yes	Yes	Yes	No
<b>Likelihood of Success</b>	Low- may require decades	High- proven technique	High- proven technique, experienced personnel	Medium-emerging technique, experienced personnel	Low – hydrology cannot be restored, residual contamination
<b>Prevent Further Injury</b>	No- additional interim losses due to residual contamination	Yes- prevent development of habitat	Yes- with use of BMPs for restoration	N/A	No – additional interim losses due to residual contamination
<b>Multiple Benefits</b>	No	Yes- multiple wetland species and services, including turtles and migratory birds, will benefit	Yes- multiple wetland species and services including HED will benefit	No - only HED	No
<b>Public Health &amp; Safety</b>	N/A	Pass	Pass	N/A	Pass

## 4.0 AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

This section provides additional information, consistent with NEPA requirements, on the physical, biological, and cultural environments within the proposed project area in which the selected restoration action would occur.

Additionally, the Trustees assess the environmental consequences to determine whether implementation of any of these alternatives may significantly affect the quality of the human environment.

The following definitions will be used to characterize the nature of the various environmental consequences evaluated in this Draft DARP/EA:

- *Short-term or long-term impacts.* In general, short-term impacts are those that would occur only with respect to a particular activity or for a finite period. Long-term impacts are those that are more likely to be persistent and chronic.
- *Direct or indirect impacts.* A direct impact is caused by a proposed action and occurs contemporaneously at or near the location of the action. An indirect impact is caused by a proposed action and might occur later in time or farther removed in distance but still be a reasonably foreseeable outcome of the action.
- *Negligible, minor, moderate, or major impacts.* These relative terms are used to characterize the magnitude of an impact. Negligible impacts are generally not quantifiable and do not have perceptible impacts on the human environment. Minor impacts are generally those that might be perceptible but, in their context, are not amenable to measurement because of their relatively inconsequential effect. Moderate impacts are those that are more perceptible and, typically, more amenable to quantification or measurement. Major impacts are those that, in their context and due to their intensity (severity), have the potential to meet the thresholds for significance set forth under NEPA (40 C.F.R. § 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the requirements of NEPA.
- *Adverse or beneficial impacts.* An adverse impact is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental resource and beneficial impacts on another resource.
- *Cumulative impacts.* Cumulative impacts are defined as the “impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 C.F.R. § 1508.8). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period within a geographic area.

### 4.1 Physical Environment

Proposed restoration activities will occur in northeastern Illinois. The area contains developed land (i.e., institutional, transportation, and industrial), residential development, agricultural land, open space, and undeveloped lands.

The Des Plaines, Fox, and Kankakee River watersheds have a temperate, humid, continental climate. The warmest month of the year is July with an average high temperature of 84.0 °F, January is the coldest month of the year with an average low temperature of 15.8 °F. Average annual precipitation is 40.07

inches per year with July being the wettest month. Average annual snowfall is 32.3 inches per year, the majority of which falls in December and January.

Geologically, the proposed project area lies on the northern flank of a Paleozoic bedrock structure known as the Kankakee Arch, which separates the Illinois and Michigan Basins. The near surface bedrock formations are sedimentary rocks formed in ancient, shallow to deep seas. Covering the bedrock are deposits of flagstones, cobble, and gravel deposited by outlet flow from glacial Lake Chicago. On the lower terrace is a layer of alluvium deposited by the Des Plaines River.

Areas within the Des Plaines, Fox, and Kankakee River Valleys have well-drained glacial outwash soils that support seeps, fens, and springs. Low gravel ridges parallel to the rivers are generally dry, while the floodplain environments stay wet for long periods. The surface rocks and layering of underlying limestone rocks have a seasonally high water table and do not quickly encourage infiltration of ground water. Therefore, seasonally wet or inundated conditions are common in some areas creating fens, marshes, and wet prairies, including dolomite prairies.



**Figure 4. Lockport Prairie Nature Preserve, example of a dolomite prairie (IDNR)**

### ***Impacts***

Alternative A: Long-term direct adverse impacts include residual contamination of sediment and groundwater and changes to wetland hydrology.

Alternative B: No impacts to the physical environment are expected.

Alternative C: Short-term direct minor adverse impacts to the soil from restoration activities are possible, including movement of soil for the creation of rivulets, and compaction from access to the sites by heavy equipment if needed. Long-term direct and indirect beneficial impacts are anticipated by protecting natural systems and preventing contamination and erosion associated with development.

Alternative D: No impacts to the physical environment are expected.

Alternative E: Short-term direct minor adverse impacts to the soil from restoration activities are possible, including movement of soil, and compaction from access to the sites by heavy equipment. Long-term direct adverse impacts include residual contamination of sediment and groundwater and changes to wetland hydrology.

## 4.2 Biological Environment

Plant communities in this area include dolomite prairie, sedge meadow, emergent marsh, wetland shrubland, upland woodland, and young floodplain forest area (Figures 5 & 6). Invasive plant species, such as common reed (*Phragmites australis*), reed canary grass (*Phalaris arundinacea*), narrow-leaved and hybrid cattail (*Typha angustifolia* and *Typha X glauca*), purple loosestrife (*Lythrum salicaria*), and smooth and European buckthorn (*Rhamnus frangula* and *Rhamnus cathartica*), are observed in many of the wetlands in the proposed project.



**Figure 5. Lockport Prairie - a groundwater fed wetland with rivulets that supports HED. (Credit: Christie Schmidt)**



**Figure 6. Blanding's turtle habitat (Credit: Tim Pignato Jr.)**

Hundreds of bird species protected by the federal Migratory Bird Treaty Act spend at least some portion of the year within the proposed project area, which provides suitable breeding habitat and important migratory stop-over habitat for birds. Birds known include waterfowl, shorebirds, raptors, waterbirds, and land birds (Table 2).

**Table 2. Birds of Northeastern Illinois**

<b>Waterfowl</b>	<b>Waterbirds</b>	<b>Raptors</b>	<b>Shorebirds</b>
<ul style="list-style-type: none"> <li>• Canada goose</li> <li>• wood duck</li> <li>• mallard</li> <li>• American black duck</li> <li>• blue-winged teal</li> <li>• bufflehead</li> </ul>	<ul style="list-style-type: none"> <li>• double-crested cormorant</li> <li>• great blue heron</li> <li>• great egret</li> <li>• sora</li> </ul>	<ul style="list-style-type: none"> <li>• sharp-shinned hawk</li> <li>• Cooper’s hawk</li> <li>• red-tailed hawk</li> <li>• bald eagle</li> <li>• American kestrel</li> <li>• great horned owl</li> </ul>	<ul style="list-style-type: none"> <li>• killdeer</li> <li>• greater yellowlegs</li> <li>• lesser yellowlegs</li> <li>• solitary sandpiper</li> <li>• spotted sandpiper</li> <li>• American woodcock</li> <li>• Wilson’s snipe</li> </ul>
<b>Land birds</b>			
<ul style="list-style-type: none"> <li>• downy woodpecker</li> <li>• hairy woodpecker</li> <li>• house wren</li> <li>• willow flycatcher</li> <li>• red-eyed vireo</li> <li>• blue jay</li> <li>• American crow</li> <li>• swamp sparrow</li> <li>• house finch</li> </ul>	<ul style="list-style-type: none"> <li>• brown-headed cowbird</li> <li>• black-capped chickadee</li> <li>• white-breasted nuthatch</li> <li>• eastern wood peewee</li> <li>• red-winged blackbird</li> <li>• black-and-white warbler</li> <li>• common yellowthroat</li> <li>• American goldfinch</li> </ul>	<ul style="list-style-type: none"> <li>• American robin</li> <li>• tree swallow</li> <li>• gray catbird</li> <li>• cedar waxwing</li> <li>• yellow warbler</li> <li>• American redstart</li> <li>• Ovenbird</li> <li>• common grackle</li> </ul>	<ul style="list-style-type: none"> <li>• scarlet tanager</li> <li>• indigo bunting</li> <li>• northern cardinal</li> <li>• song sparrow</li> <li>• field sparrow</li> <li>• chipping sparrow</li> <li>• savannah sparrow</li> <li>• Baltimore oriole</li> </ul>

**Impacts**

Alternative A: Long-term direct adverse impacts are anticipated due to loss of habitat.

Alternative B: Long-term direct and indirect beneficial impacts to the vegetation and species utilizing these areas are expected by conserving protected habitats and preventing further development of habitat through conservation easements.

Alternative C: Short-term direct minor adverse impacts to the biological environment from restoration activities are possible, including disturbance to vegetation during invasive species management, and other habitat enhancement practices. Best management practices related to invasives control and non-chemical weed control will be employed, including timing of application and/or treatments, and use of an aquatic-approved herbicide and surfactant when applicable. Long-term direct and indirect beneficial impacts to the vegetation and species utilizing these areas are expected by creating, restoring, and/or enhancing habitats, especially to HED, turtles, and migratory birds.

Alternative D: Long-term direct beneficial impacts to HED are expected by increasing the population and collecting additional data on HED lifecycles and survivability.

Alternative E: Short-term direct minor adverse impacts to the biological environment from restoration activities are possible, including disturbance to vegetation during invasive species management, and other habitat enhancement practices. Long-term direct adverse impacts are anticipated due to loss of habitat.

### 4.3 Threatened and Endangered Species

#### *Hine's emerald dragonfly*

The HED (*Somatochlora hineana*; Figure 7) was Federally listed as endangered on January 26, 1995 (60 Fed. Reg. 5267). Critical habitat was designated for this species on September 5, 2007 (72 Fed. Reg. 51102). The critical habitat designation was revised on April 23, 2010 (75 Fed. Reg. 21394).

Throughout its current range, the HED is typically known to occupy areas where limestone bedrock is near the surface and groundwater emerges as seeps or springs.

Hine's emerald dragonfly egg overwintering and subsequent larval development takes 3-5 years (Soluk and Satyshur 2005). Captive rearing experiments, Soluk et al. (2009) estimate that larval development takes 4.87 winters to emergence. Approximately 8% of the larval population, age 1 or above, are pre-emergent referred to as F-0 larvae (Foster and Soluk 2004).

The larvae have the capability to move about a terrestrial environment, a characteristic that may set them apart from other aquatic insect larvae (Soluk et al. 1999). The HED larvae are restricted to wetland habitats (e.g. marshes, seeps, and sedge meadows) with thin soils over limestone bedrock (USFWS 2001; USFWS 2005; Nuzzo 1995; and Mierzwa et al. 1998). Larvae eat smaller insects and shed their skin many times. The HED larvae then crawl out of the water and shed their skin a final time, emerging as flying adults.

Adult HED use wetlands as well as a mixture of adjacent uplands. Adults will also fly over and forage in open upland areas such as meadows and old fields (Vogt and Cashatt 1994) but will avoid large areas of open water and dense shrub thickets or forested areas (USFWS 2005). HED ecology is linked with the ecology and behavior of the burrowing devil crayfish (*Cambarus diogenes*) and possibly other species of burrowing crayfish. The burrows of the devil crayfish provide refuge for the HED larvae both from dry conditions in mid to late summer, and during the winter (Soluk et al. 1999; Pintor and Soluk 2006).

A USFWS biological opinion identified ten habitat sites in the lower Des Plaines River Valley that make up the Illinois population and together function as a metapopulation (USFWS 2005). The USFWS HED Recovery Plan identifies three potential subpopulations in Illinois, all located within the proposed project area.



**Figure 7. Adult Hine's emerald dragonfly. (Photo courtesy of Dan Soluk)**

## ***Impacts***

Alternative A: Long-term direct adverse impacts to HED are anticipated due to loss of critical habitat.

Alternative B: Long-term direct beneficial impacts to HED are expected by conserving protected habitats and preventing further development of critical habitat through conservation easements.

Alternative C: Short-term direct minor adverse impacts to HED from restoration activities are possible, including disturbance to vegetation during invasive species management, and other habitat enhancement practices. Best management practices related to invasives control and non-chemical weed control will be employed. Prescribed burns will be conducted outside of HED flight season. Applying herbicide by foliar spraying invasive vegetation will be conducted only outside of the 20-meter buffer around HED larval habitat. Long-term direct beneficial impacts to HED are expected by creating, restoring, and/or enhancing critical habitat.

Alternative D: Long-term direct beneficial impacts to HED are expected by increasing the population and collecting additional data on HED lifecycles and survivability.

Alternative E: Long-term direct adverse impacts to HED are anticipated due to loss of critical habitat.

## ***Blanding's turtle***

The Blanding's turtle (*Emydoidea blandingii*; Figure 8) is listed as endangered by Illinois and was petitioned in 2012 for Federal listing, and a 90-day finding was published by the Service on July 1, 2015 (80 Fed. Reg. 37568), indicating that listing may be warranted for the Blanding's turtle. The status review for the Blanding's turtle is underway.

It is a semi-aquatic species that spends most of its time in wetland habitat but moves long distances over land to reach nesting locations or other wetland complexes. The Blanding's turtle habitat includes marshes, ephemeral wetlands, vegetated ponds, wet prairies, sedge meadows, oxbows, fens, and slow-moving waters in sloughs and rivers. Adjacent uplands containing open grasslands or old fields in sandy soils are commonly used as nesting habitat. Blanding's turtles are primarily carnivorous, feeding on crayfish, snails, insects, crustaceans, worms, small fish, frogs, and aquatic plants. The turtle is a long-lived species; individuals require 14 to 21 years to reach sexual maturity and can live up to 75 years. The turtles winter most often underwater, partially buried in soft substrate.

The Blanding's turtle range is concentrated in the Great Lakes region. Blanding's turtle was likely historically more widespread throughout Illinois, primarily throughout the northern third of the state, but today the species' range is limited to northern and northeastern Illinois in localized, small, often isolated sub-populations.



**Figure 8. Blanding's turtle (The Nature Conservancy)**

***Impacts***

Alternative A: Long-term direct moderate adverse impacts to Blanding's turtle are anticipated due to loss of habitat.

Alternative B: Long-term direct beneficial impacts to Blanding's turtle are expected by conserving protected habitats and preventing further development through conservation easements.

Alternative C: Short-term direct minor adverse impacts to Blanding's turtle from restoration activities are possible, including disturbance to vegetation during invasive species management, and other habitat enhancement practices. Best management practices related to invasives control and non-chemical weed control will be employed. Chipping of woody vegetation will take place in low quality upland areas. Removing woody vegetation in larval habitat areas will be conducted on foot using only hand tools (e.g., chainsaws). Long-term direct beneficial impacts to Blanding's turtle are expected by creating, restoring, and/or enhancing habitat.

Alternative D: No impacts to the Blanding's turtle are expected.

Alternative E: Long-term direct moderate adverse impacts to Blanding's turtle are anticipated due to loss of habitat.

**4.4 Archeological and Cultural Resources**

The Illinois & Michigan Canal National Heritage Corridor runs along the west boundary of the property impacted by the Incident.

***Impacts***

No impacts from restoration activities are expected. Trustees will coordinate with the Illinois State Historic Preservation Office to complete a Section 106 review as needed for specific project sites.

## 4.5 Cumulative Impacts

CEQ regulations for implementing NEPA require the assessment of cumulative impacts in the decision-making process. CEQ defines cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR §1508.7). As stated in the CEQ handbook, *Considering Cumulative Effects* (CEQ, 1997), cumulative impacts need to be analyzed in terms of the specific resource, ecosystem, and human community being affected and should focus on impacts that are truly meaningful. Cumulative impacts should be considered for all alternatives, including the No Action alternative.

Alternative A: No action would result in long-term direct adverse cumulative impacts to HED, Blanding’s turtle, wetland species and wetland services. The incident resulted in loss of habitat for these species. The remediation of the site has improved conditions, but did not restore all services or compensate for losses. Future future land development is expected to continue causing habitat loss and reduced populations of these species. All of the identified affected resources would remain in their current conditions, including conditions described in the affected environment as degrading in any “future without project” scenarios. Benefits to target species or other resources that would also benefit from the alternative would not be realized. The No Action alternative would not contribute to long-term restoration benefits to physical, biological, or threatened and endangered species and would contribute to degradation of the environment in the project area.

Alternative B: Land acquisition is consistent with the Trustees’ restoration goals and is not expected to contribute substantially to short-term or long-term, adverse cumulative impacts on the physical or biological environment when analyzed in combination with other past, present, and reasonably foreseeable future actions. Long-term direct beneficial cumulative impacts to HED, Blanding’s turtle, migratory birds, wetland species and wetland services are expected by creating additional protected habitats and preventing further development of designated critical habitat. The condition of the current project area reflects water quality impacts from urban development, industry, transportation, agricultural runoff and other sources throughout the area. This alternative would have no adverse environmental impacts and therefore would not contribute to adverse cumulative impacts. If this alternative is carried out in conjunction with other habitat restoration efforts, it may result in long-term beneficial cumulative impacts to the physical and biological environment and threatened and endangered species because of the potential for synergistic effects of this alternative with those other restoration activities.

Alternative C: Habitat acquisition and enhancement is consistent with the Trustees’ restoration goals and is not expected to contribute substantially to short-term or long-term, adverse cumulative impacts on the physical or biological environment when analyzed in combination with other past, present, and reasonably foreseeable future actions. Long-term direct beneficial cumulative impacts to HED, Blanding’s turtle, and migratory birds are expected by creating, restoring, and/or enhancing wetland habitat. The condition of the current project area reflects water quality impacts from urban development, industry, transportation, agricultural runoff and other sources throughout the area. If this alternative is carried out in conjunction with other habitat restoration efforts, it may result in long-term beneficial cumulative impacts to the physical and biological environment and threatened and endangered species because of the potential for synergistic effects of this alternative with those other restoration activities.

Alternative D: Captive rearing and introduction of HED is consistent with the Trustees’ restoration goals and is not expected to contribute substantially to short-term or long-term, adverse cumulative impacts on the physical or biological environment when analyzed in combination with other past, present, and reasonably foreseeable future actions. Long-term direct beneficial cumulative impacts to HED are expected by supplementing the population. If this alternative is carried out in conjunction with other habitat restoration efforts, it may result in long-term beneficial cumulative impacts to threatened and endangered

species because of the potential for synergistic effects of this alternative with those other restoration activities.

Alternative E: On-site habitat restoration and enhancement is possibly partially consistent with the Trustees' restoration goals, however restoration of the lost rivulet habitat is not feasible because of changes to hydrology from remedial actions. Additionally, some residual contamination is expected to remain in the area and necessitate further remediation or longer-term natural revegetation, so will neither contribute to nor contradict short-term or long-term, adverse cumulative impacts on the physical or biological environment when analyzed in combination with other past, present, and reasonably foreseeable future actions. The On-Site restoration alternative would not contribute to long-term restoration benefits to physical, biological, or threatened and endangered species and would potentially contribute to degradation of the environment in the project area.

The Trustees concluded that although one of the projects (Alternative C) may have a minor, short-term incremental contribution to adverse cumulative impacts, the contribution would not be substantial over the long-term. Alternatives B and C have the potential to provide long-term beneficial cumulative impacts to the physical and biological environment as well as threatened and endangered species. Alternative D has the potential to provide long-term beneficial cumulative impacts to threatened and endangered species. Thus, the Trustees conclude that the Alternatives B, C, and D would not contribute substantially to adverse cumulative impacts when added to other past, present, or reasonably foreseeable future actions.

#### **4.6 Components Not Affected or Not Analyzed in this Document**

No social or economic impacts are expected from the proposed restoration projects because of the isolated small-scale nature and types of projects proposed. Proposed activities, including operation of heavy construction equipment, are not expected to produce air pollutants at levels to exceed state air quality standards.

## 4.7 Summary

**Table 3 Summary of Environmental Consequences for Alternatives A-D**

Alternative	Environmental Impacts			
	Physical	Biological	Threatened and Endangered Species	Cumulative
<b>A: No Action/ Natural Recovery</b>	Long term direct minor adverse	Long-term direct minor adverse	Long-term direct moderate adverse	None
<b>B: Land acquisition and conservation</b>	None	Long-term direct and indirect beneficial	Long-term direct beneficial	Long-term direct beneficial
<b>C: HED habitat acquisition, restoration, creation</b>	Short-term direct minor adverse; long-term direct and indirect beneficial	Short-term direct minor adverse; long-term direct and indirect beneficial	Short-term direct minor adverse; long-term direct beneficial	Long-term direct beneficial
<b>D: HED captive rearing and introduction</b>	None	Long-term direct beneficial	Long-term direct beneficial	Long-term direct beneficial
<b>E: On Site Restoration</b>	Short-term direct, minor adverse; long-term direct adverse	Short-term direct, minor adverse; long-term direct adverse	Long-term direct adverse	Long term direct neutral

## 4.8 Preferred Alternative

The Preferred Alternatives of this Draft DARP/EA includes Alternatives B, C, and D because they meet the restoration project selection criteria, and the Trustees' goals and objectives to protect and restore HED, Blanding's turtle, migratory bird, and wetland dependent species habitat and augment the HED population. This alternative also restores wetland ecosystem services. Work performed as part of the Preferred Alternative would remain subject to meeting all permitting and other environmental compliance requirements to ensure the projects are implemented in accordance with applicable laws and regulations. The no-action alternative and on-site restoration alternative are not preferred because they do not provide adequate compensatory restoration. On site restoration is not feasible because of changes to hydrology resulting from remedial actions.

## 4.9 Categorical Exclusions

The USFWS has determined that the actions to be performed are covered by the NEPA categorical exclusions found in 516 DM 8.5. The potentially applicable exclusions are listed below:

B.3: The construction of, or the addition of, small structures or improvements, including structures and improvements for the restoration of wetland, riparian, instream, or native habitats, which result in no or only minor changes in the use of the affected local area. The following are examples of activities that may be included.

- (a) The installation of fences.
- (b) The construction of small water control structures
- (c) The planting of seeds or seedlings and other minor revegetation actions.
- (d) The construction of small berms or dikes.
- (e) The development of limited access for routine maintenance and management purposes and public use.

B.4: The use of prescribed burning for habitat improvement purposes, when conducted in accordance with local and State ordinances and laws.

B.5: Fire management activities, including prevention and restoration measures, when conducted in accordance with Departmental and Service procedures.

B.6: The reintroduction or supplementation (e.g., stocking) of native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible environmental disturbances are anticipated.

Documentation of categorical exclusions will be completed and included with the Administrative Record.

Upon completion of the public comment period, and if warranted, Categorical Exclusions, an Environmental Action Statement and a FONSI will be circulated for signature by the DOI Authorized Official upon publication of the notice of availability of this Final RP/EA. These documents will remain within the administrative record for this matter.

## **5.0 MONITORING PROGRAM AND PERFORMANCE CRITERIA**

Following project implementation, the Trustees will monitor the project to evaluate and document restoration effectiveness, including performance criteria for determining the success of restoration or need for interim corrective action.

Monitoring will assess whether habitats are sufficiently restored to meet restoration goals and objectives for HED, Blanding's turtle and migratory birds.

### **5.1 Management Objectives, Monitoring Methodologies, and Corrective Actions**

Restored and managed areas will be monitored to determine effectiveness, inform adaptive management, and allow program changes and refinements to increase effectiveness. Monitoring will assess whether habitats are sufficiently restored to meet restoration goals and objectives for HED, Blanding's turtle, and migratory birds and if species of interest are occupying habitat enhancement areas. Wetland function and ecosystem services will also be considered.

## 6.0 REFERENCES

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