U.S. FISH AND WILDLIFE
SERVICE

Draft Environmental Assessment

Proposed Habitat Conservation Plan and Incidental Take Permit of Hine's emerald dragonfly, Blanding's turtle, and spotted turtle in association with legally authorized activities in and around the lower Des Plaines River Valley in Will County, Illinois.

Estimated cost to prepare: $146,208

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EXECUTIVE SUMMARY

On October 9, 2020, Hanson Aggregates Midwest, Inc. d/b/a Hanson Material Service (HMS), an aggregate mining company operating stone quarries in the vicinity of Romeoville, in Will County, Illinois, submitted an application to the U.S. Fish and Wildlife Service (Service) for an Incidental Take Permit (ITP) under section 10(a)(1)(B) of the federal Endangered Species Act (ESA).

If issued, the ITP would cover incidental take of the federal and state-listed Hines' emerald dragonfly (*Somatochlora hineana*) and the state-listed Blanding's turtle (*Emydoidea blandingii*) and spotted turtle (*Clemmys guttata*) that could result from HMS' legally authorized activities associated with continued surface mining, and other associated mining activities and habitat restoration activities within the lower Des Plaines River Valley. HMS has requested incidental take authorization for a 30-year period to cover all the mining activities that require a permit. In addition to the application for an ITP, is a Habitat Conservation Plan (HCP) that was revised and submitted on October 9, 2020 to the Service. The revised HCP details the various ways HMS will ensure its activities do not negatively impact the listed species. Leafy prairie clover and the lakeside daisy are included in the HCP but, because they are plants, do not require an ITP under the ESA.

Issuance of an ITP by the Service is a discretionary federal action subject to review under the National Environmental Policy Act (NEPA). To comply with the NEPA, the Service prepared this Environmental Assessment (EA). The EA analyzes and discloses the potentially affected environment and the degree of the effects if the Service issues an ITP to HMS conditioned upon implementation of the HMS's HCP (the "Proposed Action Alternative").

The potentially affected environments include lands on and around HMS' properties in the lower Des Plaines River Valley as well as the Forest Preserve District of Will County's (FPDWC's) Lockport Prairie and Romeoville Prairie Nature Preserves.

Five alternatives were considered for analysis. Three of these were carried forward for analysis: two action alternatives, the No-Action Alternative, the Proposed Action Alternative, the Early Planning Alternative. Resources potentially affected by the action alternatives include surface water, groundwater, soils, vegetation, wetlands, critical habitat, Illinois Nature Preserves, recreation, and the Covered Species (Hine's emerald dragonfly, Blanding's turtle, and spotted turtle).

CHAPTER 1: PURPOSE AND NEED FOR ACTION

1.1 Overview

This Environmental Assessment (EA) prepared by the U.S. Fish and Wildlife Service (Service) evaluates and publicly discloses the potential environmental impacts that could result from issuance of an Endangered Species Act (ESA) Incidental Take Permit (ITP) to Hanson Aggregates Midwest, Inc. d/b/a Hanson Material Service (HMS) authorizing incidental take of the Hines' emerald dragonfly (HED), Blanding's turtle (BT), and spotted turtle (ST). This EA was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), NEPA implementing regulations at 40 CFR § 1500-1508, and Service policies and procedures for compliance with those laws and regulations (See Department Manual (USFWS 2004) and Department of Interior (DOI) regulations at 43 CFR Part 46). The Service is the federal agency responsible for preparation of this EA.

The EA describes and analyzes two "action alternatives" and one "no action alternative." A discussion of the potentially affected environments provides a context and baseline from which our impact analysis was structured. These include physical resources (e.g., surface and groundwater), biological resources (e.g., wetlands, Critical Habitat, migratory birds and other wildlife), federally and state listed species, and socioeconomic resources (e.g., land use, economic impacts, and transportation). The scope of our analysis covers impacts that are reasonably foreseeable, potentially significant, and likely to occur as a result of our issuance of an ITP to HMS.

The EA process will culminate with a decision made by the Service on one of the three alternatives. If we find that the alternative selected will not result in significant environmental impacts, we will issue a "Finding of No Significant Impact" (FONSI). If we find that the alternative selected will result in significant environmental impacts, we will issue a Notice of Intent to prepare an Environmental Impact Statement (EIS).

1.2 Purpose and Need for the Proposed Action

The Service's purpose in considering the proposed action is to fulfill our authority under the ESA. Non-federal applicants (Private landowners, corporations, state or local governments, or other non-federal entities) whose otherwise lawful activities may result in the incidental "take" of animals listed as threatened or endangered under the ESA can apply to the Service for an ITP so that their activities may proceed without potential violations of section 9 of the ESA. Section 9 of the ESA and its implementing regulations prohibit the take of animals listed as federally threatened or endangered. Take, as defined by the ESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. "Incidental take" is defined by the ESA as take that is "incidental to, and not the purpose of, the carrying out of an otherwise lawful activity." The ESA includes mechanisms that provide exceptions to the Section 9 take prohibitions. These are addressed in section 7(a)(2) for federal actions and section 10(a)(1)(B) of the ESA for non-federal actions.

HMS, an aggregate mining company operating stone quarries in the vicinity of Romeoville, Will County, Illinois, has applied to the Service for an ITP to authorize take of threatened or endangered species that may result from their continued and expanded mining operations in the lower Des Plaines River Valley. Three species protected by the federal ESA occur on or near HMS' property: the HED, leafy prairie clover (LPC), and lakeside daisy (LD). Two other species, BT and ST, have been

petitioned for federal listing and have the potential to be federally listed before or during the requested permit period. On October 9, 2020, the Service received an application from HMS for an ITP under the authority of section 10(a)(1)(B) of the ESA. If the application is approved and the Service issues a permit, the ITP would authorize incidental "take" of the three wildlife species ("Covered Species") under provisions of Section 10 of the ESA. Conservation of the two listed plant species would be considered under provisions of Section 7 of the ESA. The Service has prepared this EA to inform the public of our proposed action and the effects of the proposed action and its alternatives, seek information from the public, and to use information collected and analyzed to make better informed decisions concerning this ITP application. If approved, the ITP would require implementation of an HCP, which HMS has submitted as part of its ITP application.

1.3 Proposed Action

The Proposed action being evaluated by this EA is the issuance of an ESA ITP to HMS by the Service that would authorize the incidental take of the Covered Species within the Planning Area for a period of 30 years and the Covered Activities namely, continued surface mining, other associated mining activities, and implementation of the conservation plan in the associated HCP, in accordance with the statutory and regulatory requirements of the ESA.

The decision whether to issue an ITP will be primarily based upon the statutory and regulatory criteria, further detailed in Section 1.5, below. In applying these criteria, the Service will also analyze the effect of HMS' activities on the Covered Species within the Permit and Planning Areas as well as the effects of proposed conservation measures. Generally, the Planning Area includes all the lands for the HCP to be implemented and the Permit Area is where the incidental take authorization applies. The Planning Area encompasses lands owned by HMS, including lands designated HED Critical Habitat Units (CHUs) 2 and 7 as shown in HCP Figures 2, 9.2 and 9.7. The Planning Area encompasses the Permit Area (here after referred to as HMS property), Lockport Prairie Nature Preserve (LPNP) (CHU 1) to the south and Romeoville Prairie Nature Preserve (CHU 3) to the north of the Planning Area, and adjacent estimated groundwater recharge areas for wetlands that provide HED habitat in CHUs 1, 2, and 7, as shown in HCP Figure 4. These determinations will be documented in the ESA Section 10 Findings document, and the ESA Section 7 consultation, and resulting Biological Opinion (BO).

1.4 Scope of the EA Analysis

As the lead federal agency, the Service has prepared this EA to analyze the proposed issuance of an ITP and associated action of approving the HCP. The EA also analyzes the anticipated effects of the Covered Activities, including mining activities; avoidance and minimization measures (AMMs); and implementation of proposed mitigation measures on the human environment within the Planning Area (Figure 1, Appendix A, from HCP Figure 3). As required by NEPA, this EA also evaluates alternatives to the Proposed action, developed in response to public, stakeholder, and agency comments, including a No-Action Alternative, which serves as a baseline for comparison of potential effects of the Proposed action and alternatives.

Project Record Location and Incorporation by Reference

This EA incorporates by reference the project record (40 CFR1501.12) which contains specialist reports and other technical documentation used to support the analysis in this EA and the HCP.

1.5 Regulatory and Policy Framework

This EA was developed in compliance with and consideration of the following guidance, laws, and regulations.

1.5.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) process is "a procedural statute intended to ensure Federal agencies consider the environmental impacts of their actions in the decision-making process" 40 CFR § 1500.1. The Council on Environmental Quality (CEQ) updated its regulations for Federal agencies to implement NEPA, with an effective date of September 14, 2020. 85 Fed. Reg. 43304 (July 16, 2020). The Service is conducting its NEPA analysis under the updated regulations.

Issuance of an ITP constitutes a discretionary federal action by the Service and is thus subject to NEPA, which requires that all federal agencies assess the effects of their actions on the human environment by preparing an EA or an EIS to document the potential effects of the federal action (42 USC § 4332). Accordingly, the Service has prepared this EA to evaluate the potential impacts associated with issuance of an ITP and implementation of the HCP and to evaluate alternatives.

1.5.2 Endangered Species Act

This EA was developed in compliance with the ESA which covers federally listed threatened and endangered species and designated critical habitat governed by the ESA and its implementing regulations found at 50 CFR Parts 13 and 17. The 1982 amendments to the ESA established a provision in section 10 that allows for "incidental take" of endangered and threatened species of wildlife by non-federal entities (16 U.S.C. §1539).

To obtain a permit under section 10 of the ESA, an applicant must submit an HCP to the Service that specifies; 1) the impact which will likely result from such taking; 2) what steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps; 3) what alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and 4) such other measures that the Secretary of Interior may require as being necessary or appropriate for purposes of the HCP.

1.5.3 National Historic Preservation Act

The National Historic Preservation Act (NHPA) at 54 U.S.C. §§ 300101-307108, and the implementing regulations at 36 C.F.R. Part 800, require Federal agencies to take into account the effect of their actions on historic properties and provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on those effects. Section 106 of the NHPA (54 U.S.C. § 306108), requires federal agencies to initiate an evaluation and consultation if the agency determines that its actions are an undertaking. Pursuant to 36 C.F.R. § 800.16(y), an "undertaking" is defined as a "project, activity or program funded in whole or part under the direct or indirect jurisdiction of a federal agency." For undertakings for which Section 106 is applicable, the Service completes the consultation process to comply with statutory requirements.

The Advisory Council on Historic Preservation (ACHP) and each state's State Historic Preservation Officer (SHPO) or the Tribal Historic Preservation Officer (THPO) are the primary entities consulted. If an individual activity with the potential to affect historic resources were planned, the site-specific

consultation as required by Section 106 of the NHPA would be conducted with the SHPO or THPO as necessary.

The Service has determined that if an ITP is issued to HMS for its Covered Activities, it does not constitute an undertaking that has potential effects on historic properties. Therefore, the Service has no further Section 106 obligations.

On April 4 & 8, 2013, the Illinois Deputy State Historic Preservation Officer (DSHPO) (through the Illinois Historic Preservation Agency (IHPA)) responded to the submittal of a Historical and Archaeological Inventory and documentation of past inventories for several HMS properties included in the HCP Permit Area pursuant to Section 106 of the NHPA and the ACHP's regulations at 36 CFR 800, which require identification and evaluation of cultural resources. Inventories were conducted on properties where earth moving may be conducted during the permit period and includes Middle, River, Fitzpatrick Seep, ComEd, and Long Run Parcels. The DSHPO concluded that no significant historic, architectural, or archeological resources are found on these properties. Renewal letters dated July 29, 2015 and July 10, 2018 were received from the DSHPO at Illinois Department of Natural Resources (IDNR). These letters can be found in HMS' CWA Section 404 permit application submitted to the USACE on January 30, 2019.

1.5.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 USC §§ 703- 712) (MBTA), implements various treaties and conventions between the U.S. and Canada, Japan, Mexico, and the former Soviet Union for the protection of migratory birds. The MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species as is taking of any parts, nests, or eggs of such birds without prior authorization by the Service.

1.5.5 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA at 16 USC §§ 668 et seq., as amended), prohibits anyone without a permit issued by the Secretary of Interior from taking bald or golden eagles, including their parts, nests, or eggs. Take is defined in the BGEPA as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." Disturb is defined as any activity that can result in injury to an eagle, or cause nest abandonment or decrease in productivity by impacting breeding, feeding, or sheltering behavior. This EA includes discussion of potential effects associated with implementing the HCP as it relates to bald eagle take and/or protections.

1.5.6 Habitat Conservation Planning and Incidental Take Permit Processing Handbook (HCP Handbook)

The Service and the National Marine Fisheries Service jointly published the HCP Handbook in 2016. The HCP Handbook describes requirements, procedures, and guidance for incidental take permits and habitat conservation plan development under the ESA

1.5.7 Illinois Endangered Species Protection Act

As described in the general provisions of the Illinois Endangered Species Act (IESPA at 520 ILCS 10), species listed as endangered or threatened by the State of Illinois may not be taken, possessed, transported or sold. Several species listed by Illinois as threatened or endangered are known to occur in the Permit or Planning Area. These species are discussed in Section 3.4.

1.5.8 Illinois Natural Areas Preservation Act

The Illinois Natural Areas Preservation Act (INAPA at 525 ILCS 30) establishes a statewide system of protected natural areas throughout Illinois and prohibits any person from willfully damaging, destroying or removing any object from a dedicated natural area. Under the INAPA, if any agency of state or local government authorizes, funds, or carries out any actions which are likely to result in the destruction or adverse modification of any registered natural area, it must engage in consultation with the Department of Natural Resources. The Nature Preserves Commission, created by the INAPA, is charged with oversight of nature preserves.

1.5.9 Federal Clean Water Act

The federal Clean Water Act (CWA at 33 U.S.C. §§1251-1387) is intended to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The regulations implementing the CWA protect waters of the United States, including wetlands (33 CFR § 328.3). The CWA prohibits the discharge of pollutants into navigable waters from point and nonpoint sources unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit program applies to storm water and point-source discharges. The U.S. Environmental Protection Agency (USEPA) has delegated regulatory authority for the NPDES program to the Illinois Environmental Protection Agency (IEPA), pursuant to Section 402 of the CWA. However, the USEPA maintains concurrent enforcement authority for violations of the CWA.

Section 303(d)

Section 303(d) of the CWA lists streams and other waters of the United States that have "Water Quality Limited Segments" or portions that do not meet water-quality standards, even after point sources of pollution have installed the minimum required levels of pollution-control technology.

Section 401

Under CWA Section 401, applicants for a federal license or permit, such as a Section 404 permit, must obtain certification from the state that the activity will not adversely affect water quality. The Section 401 certification or waiver for the proposed action is under the jurisdiction of the IEPA.

Section 404

Wetlands are defined for regulatory purposes in the Code of Federal Regulations as areas "inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR § 328.3, 40 CFR § 230.3). The USACE has authority under CWA Section 404 to issue permits for the discharge of "dredged or fill material" into waters of the United States, including wetlands, subject to oversight by USEPA. Because the removal of overburden by HMS in connection with its mining operation in Romeoville may result in the discharge of dredged or fill material into wetlands, HMS is applying for a 404 permit from the USACE.

Section 402 National Pollutant Discharge Elimination System

The USEPA has delegated regulatory authority for the NPDES program to the IEPA pursuant to Section 402 of the CWA. However, the USEPA maintains concurrent enforcement authority for violations of the CWA. HMS is required to obtain an NPDES construction general permit from the IEPA to control storm water runoff during construction activities. A provision of an NPDES permit requires that a storm water pollution prevention plan (SWPPP) be developed in advance of construction

activity in accordance with the general permit and implemented concurrently with the beginning of construction activities.

1.6 Decisions by the Service

Federal regulations (50 CFR § 17.22(b)(2), 50 CFR § 17.32(b)(2)) require the Service to determine whether to issue HMS an ITP, based on whether HMS has demonstrated the following:

- The action resulting in incidental take is an otherwise lawful activity.
- The impacts of the proposed taking are minimized and mitigated to the maximum extent practicable.
- The applicant ensures adequate funding will be provided to implement the conservation measures proposed in the HCP.
- The proposed take will not appreciably reduce the likelihood of survival and recovery of a species in the wild.
- The HCP contains procedures to deal with unforeseen circumstances.

If all of these criteria are satisfied, then an ITP can be issued by the Service to HMS.

The Service must also evaluate the proposed action and alternatives to determine whether this EA is adequate to support a Finding of No Significant Impact (FONSI), or whether an Environmental Impact Statement (EIS) is necessary. The aspects of the human environment that may be affected by the proposed action and the other alternatives are analyzed in Chapter 4 of this EA.

1.7 Agency Consultation and Public Participation

HMS' HCP represents the culmination of years of cooperation, planning, and studies by many parties to develop a conservation plan for the Covered Species in a portion of the lower Des Plaines River Valley. The development of the HCP required a large and broad-reaching effort (including many partners and integrating many disciplines), and it reflects the current state of knowledge on the Covered Species and an understanding of local ecosystems and groundwater hydrology.

1.7.1 Agency Consultation and Scoping

For more than a decade, the Service worked with the Applicant to assess their proposed actions and avoid and minimize impacts to resources. The Service has conducted reviews of the known and potential stresses on each of the Covered Species and their known or potential habitat found on HMS property and within the Planning Area. A description of the HCP planning process and coordination with other agencies and stakeholders can be found in Sections 1.2 and 1.3 of the HCP. In addition, the Service reviewed the public comments that the Army Corps of Engineers (Corps) received during the public notice of their receipt of a Clean Water Act section 404 application and the Service took into consideration comments and information provided by interested parties and stakeholders.

1.7.2 EA Public Review

In accordance with NEPA and Service policy guidance, this EA will be circulated for public review and comment. The public review period will be initiated with the publication of the Notice of Availability (NOA) in the Federal Register (FR). The public comment period will extend for 30 days from the date of publication of the NOA in the FR.

CHAPTER 2: ALTERNATIVES

This chapter begins with a description of the process to determine the proposed action and alternatives to this action, including alternatives considered but eliminated from further consideration. Alternatives carried forward for detailed analysis are subsequently described.

2.1 Formulation and Evaluation of Alternatives

The alternatives in this EA do not focus on HMS' proposed operations or mining plan, which have been considered and evaluated in the HCP review process, but rather on identifying actions that would be practical, feasible, meet the permit issuance criteria in Section 10(a)(2)(B) of the ESA and the implementing regulations for the ESA (50 CFR § 17.22(b)(2)(i)), and achieve the purpose and need of the proposed action. The Service further screened alternatives based on potential effects on Covered Species and compliance with the ESA; scoping comments; extent and practicability of minimization and mitigation measures, and consistency with Service policy.

2.2 Alternatives Considered But Eliminated From Further Consideration

2.2.1 Alternative 1- Shorter Permit Time Alternative:

Under this alternative, the permit issued to HMS would be for a shorter duration than requested by the applicant (e.g., 20 years), and, near the end of the permit period, HMS would likely apply for a permit renewal. The applicant's anticipation of the renewal process may provide more incentive to fully implement the approved HCP, however the applicant's ability to continue mining operations will be contingent on complying with the permit throughout the permit term in any case. Furthermore, the monitoring and reporting requirements in the proposed HCP assures compliance with the HCP and provides a process for addressing and reducing uncertainty about potential impacts and the effectiveness of the conservation program. In addition, renewing the permit earlier would create additional administrative burden on both the Service and HMS without benefit to the public or the resources.

HMS is requesting a 30-year permit to cover the expected duration of the surface mining operations and to begin subsurface mining included in its current mining plan for its Romeoville facility that could impact Covered Species. A permit of this length provides HMS with regulatory certainty over the entire duration of its proposed surface mining activities that could impact Covered Species. In addition, the proposed permit duration of 30 years secures the benefits of the HCP for the Covered Species (e.g., habitat restoration and addressing changed circumstances) over a longer time period. Since the proposed permit duration serves the purpose and need of both the Covered Species and the Applicant, and shorter permit durations would reduce these benefits, this alternative is rejected from further consideration.

2.2.2 Alternative 2 – Previously Considered Groundwater Impact Avoidance Measure Alternatives:

Several other scenarios were evaluated for mining the remaining reserves at the Romeoville Quarry to optimize collection of bedrock reserves while reducing the potential impacts on groundwater conditions at nearby wetland habitats, and while maintaining groundwater resources for municipal water supplies. Adaptations and revisions of the mining plan and avoidance measures considered have included:

reducing the number of parcels being mined, maintaining or enlarging existing set-backs, installing grout curtains, constructing various infiltration/detention ponds, as well as elevating the base of the quarry (which would decrease reserves).

Several parcels considered for mining have been eliminated from the mining plan, including the Spangler and North Parcels (Section 3.2 of HCP), which reduces the groundwater impacts. Set-backs are being maintained in proposed parcels except for Middle Parcel where access limitations increase mining set-backs. In addition, surface mining has been reduced in Pierce Eich and Middle Quarries.

Circulation of discharge water into infiltration ponds on the south side of Pierce Eich Quarry and detention of surface runoff in Far North Parcel have also been considered but will not be utilized. Infiltration ponds on the south side of Pierce Eich Quarry were found to be inefficient at limiting the expansion of the cone of depression to the south. It was found that the groundwater head pressure would not be built along the face of the quarry, but rather water would be either re-circulated or lost to evaporation. A detention pond on the north side of Far North Parcel was also evaluated to limit potential influences north of this parcel. However, this pond is not required since groundwater levels at Romeoville Prairie NP will not be affected by expansion of the Quarry.

Adjusting the base elevation of the unmined sections of Pierce Eich and Middle Parcels was assessed. This option was also found to be ineffective at limiting the propagation of the cone of depression for two reasons: 1) the already-mined-areas of the Quarry dictate the regional groundwater elevation (so the groundwater sink will be maintained), and 2) the most-permeable section of the Silurian Aquifer is the uppermost section of weathered bedrock which would likely be dewatered in either scenario. In addition, raising the base elevation reduces reserves, which does not meet HMS' purposes.

The installation of grout curtains around portions of Pierce Eich Quarry and Middle Parcels was also considered. Simulations of various grout curtain placements within the model yielded unsatisfactory results. Partial grout curtains allow by-passing of the hydraulic barrier when modeled since water levels can equilibrate around the extent of the barrier. There is also uncertainty in the simulations conducted with a full grout curtain installed, since the conceptual model of groundwater conditions for this site assumes that the fractured dolomite aquifer acts as equivalent porous media (EPM). Therefore, fluid transfer can occur both through the network of interconnected fractures, and within the rock matrix. The porous media approach assumes that fracture spacing is sufficiently close and interconnected, relative to the scale of the model, so that continuity of flow exists. These assumptions are valid at larger scales within the model, but local variations of groundwater flow may not be represented accurately. For this reason, modeling likely underestimates grout curtain effectiveness, so it is believed that the grout curtain would be more effective since hydraulic connection between fracture sets would be significantly reduced. The size of individual cells in the model are too large along the perimeter of the quarry to track small fracture sets that are the primary conduits of groundwater flow which would be limited by the grout curtain. Thus, it is difficult to demonstrate the true effectiveness of a grout curtain without adjusting the hydraulic characteristics and depth of the hydraulic barrier. In addition, tremendous installation costs of a grout curtain prohibited it from further consideration.

Therefore, the above groundwater impact avoidance and minimization measures (AMMs) were rejected because they are less effective than those planned under the alternatives carried forward, not needed, and/or not cost effective. As a result of these limitations, these alternatives did not achieve the

purpose and need of the Service to protect the Covered Species.

2.3 Alternatives Carried Forward for Detailed Analysis

2.3.1 Alternative 1 - No-Action Alternative

NEPA requires that we consider a No-Action Alternative. Under a No-Action Alternative, the Service would not issue an ITP under Section 10(a)(2)(B) of the ESA. The only surface mining that would likely take place at the Romeoville facility would be in East Parcel (36 acres) at the north end of East Quarry where an ESA permit would not be required because no impacts to listed species are expected from mining there. Mining this area would likely be completed in approximately six years.

The Middle Parcel, including the approximately 6-acre dolomite prairie, would not be mined under this alternative.

HMS would not implement the restoration and land management and protection activities proposed in the HCP. The no-action alternative would result in no ecological restoration or management of HMS parcels that provide Covered Species' habitat or potential habitat (i.e. Fitzpatrick Seep, River South, ComEd, Long Run, River, North, Far North, River North, and River Parcels), which are currently degrading. Nor would HMS implement any of the groundwater impact avoidance measures proposed under the Proposed Action Alternative or Early Planning Alternative.

2.3.2 Alternative 2 - Proposed Action Alternative (HMS' Proposed HCP)

The Proposed Action Alternative evaluated by this EA is the Service's issuance of an ITP for the incidental taking of three "Covered Species" (Take Species) and their habitat (including designated Critical Habitat) that may result from the Covered Activities, provided that HMS would implement the HCP. The HCP, developed under Section 10(a)(1)(B) of the ESA, provides an opportunity to address and contribute to the conservation and recovery needs of Covered Species and habitats (and additionally provides avoidance measures for two endangered plant species (non-take species)). The Proposed Action Alternative includes the following components:

- The Service would issue an ITP for a term of 30 years, including approval of the HCP.
- HMS would implement the HCP, including avoidance measures, compensatory mitigation, and adaptive management, as appropriate.

The proposed ITP would authorize the loss of 49.6 acres of adult HED foraging and dispersal habitat (but no larval habitat), including 40.8 acres as a result of mining of Middle Parcel, 8.4 additional acres from the development of the setback areas at the west end of North and Far North Parcels, and 0.4 acres from building an access road for mitigation activities on ComEd Parcel. These activities are also estimated to impact 29.5 acres of the BT and potential ST habitat on Middle Parcel (29.1 ac) and ComEd Parcel (0.4 ac) which are within the 49.6 acres of HED habitat impacts.

As part of the Proposed Action Alternative, HMS will restore, enhance, or maintain 354 acres of habitat for the HED and the other Covered Species on 519 acres of land that will be permanently protected under a deed restriction on eight HMS parcels. This includes salvaging and transplanting the wet-mesic dolomite prairie in Middle Parcel (6.0 acres) to the ComEd Parcel. Restoration plans are described in Chapter 5 of the HCP and in the Restoration Plan Set (HCP, Appendix F).

HMS also plans to implement a number of impact avoidance and minimization measures to prevent take of the HED and other Covered Species, and to prevent potential groundwater impacts to their habitat. The groundwater impact avoidance measures will include infiltration galleries in River South Bluff Parcel and an infiltration basin on Forest Preserve District of Will County (FPDWC) property at the southwest corner of Renwick Road and Route 53. In addition, Pierce Eich quarry will be filled after mining is complete and will serve as a long-term avoidance measure for potential groundwater impacts. These measures are described in Chapter 5 of the HCP and are included as preliminary designs in HMS' Final Groundwater Model and Report (AECOM 2013b) and addressed in several other groundwater modeling documents (AECOM 2014, AECOM 2015a, and AECOM 2016). HMS will also implement measures during subsurface mining to prevent downward movement and loss of groundwater from the upper aquifer to avoid impacts to the wetlands and to protect worker safety.

Permitting the Covered Activities associated with the proposed mining of surface reserves in Pierce Eich Quarry, Middle Quarry, and Middle Parcel will result, through an approved Habitat Conservation Plan, in the protection, preservation, restoration, and management of high quality habitat in this area of the lower Des Plaines River Valley.

2.3.2.1 Permit Duration

HMS developed the HCP to provide compliance with the ESA for 30 years and seeks an ITP for the duration of 30 years. Surface mining at their Romeoville facility is estimated to take about 35 years. However, since mining East Parcel will not require an ITP or ITA, HMS is seeking a 30-year permit.

2.3.2.2 Covered Species

Species covered by the HCP include the HED, BT, ST, LPC, and LD. An ITP is not required under the ESA for the take of listed plant species.

2.3.2.3 Covered Land

The Covered Land consists of the "Permit Area" (HMS' property) consisting of 2,072 acres and the "Planning Area" consisting of 35,445 (Figure 1, Appendix, from HCP Figures 3). HMS's property is within the Planning Area and for the scope of this analysis will be referred to as the Planning Area.

The Planning Area contains all HMS properties at its Romeoville facility, which is within or adjacent to the lower Des Plaines River Valley. It contains areas with springs, seeps, dolomite prairie communities, and other wetland habitats currently used by the HED, BTs, and LPC. LD and ST are found in the Planning Area but have not been documented HMS' property. HMS' property also includes historic and potentially restorable habitat that may be used in the future by the Covered Species with the implementation of the mitigation measures included in the HCP.

The Planning Area includes parcels adjacent to the HMS' property that contain Covered Species habitat and lands that have been determined to be important groundwater recharge areas for wetlands that provide habitat for the HED and other Covered Species. The Planning Area also includes portions of the Villages of Romeoville, Homer Glen, Lemont, Orland Park, and Cities of Crest Hill and Lockport, as well as parcels owned and managed by FPDWC (Appendix A, Figure 1).

2.3.2.4 Covered Activities

Under the Proposed Action Alternative, HMS would continue surface mining its two currently active mines, Pierce Eich and Middle Quarries, and expand surface mining into Middle Parcel and East Parcel for a total of 187 acres at the Romeoville facility. HMS proposes to mine 35 additional acres in Pierce Eich and one additional acre in Middle Quarry. Pierce Eich Quarry will be mined first and, after mining is nearly complete there, HMS will resume mining Middle Quarry and begin surface mining in Middle Parcel. Approximately 115 acres of the 125 acres in Middle Parcel and 36 acres in East Quarry will be mined. The Covered Activities and the mining plan are described in greater detail in Chapter 3 of the HCP and HMS' Mining Plan (HCP, Appendix E).

The surface mining process requires removal of overburden material (i.e. soil and vegetation) prior to removing limestone along the quarry wall using explosives. Although mining (i.e. limestone removal) in Middle Parcel will not begin until approximately 2027, overburden removal will start within the first few years of the mining plan implementation. As an avoidance measure during the stripping (i.e. overburden removal) phase, the highest quality vegetation and habitat in Middle Parcel, the 6.0-acre wet dolomite prairie located in the central portion of the parcel, will be carefully salvaged and transplanted to a mitigation parcel (ComEd Parcel).

About halfway through the surface mining operations requiring an ITP at the Romeoville facility, which HMS expects to take approximately 30 years, HMS will begin sub-surface mining operations at the facility. Underground mining will take place in the Galena-Platteville formation located approximately 200 feet below the bottom of the quarries (approximately 300 feet below ground surface) and will occur under each of the three surface mined parcels included in this plan (during the ITP period) as well as other HMS parcels (after the ITP period). HMS plans to use the room and pillar method of extraction for its sub-surface mining.

While HMS does not plan to surface mine on the North and Far North Parcels (which will be preserved in perpetuity by deed restrictions along with other parcels further described in Chapter 5), the HMS will retain a small setback strip along the west side of those parcels (350' back from Route 53) for possible future development (see attached Figure 16 (dated 1/11/16) from the 10/9/20 HCP). The setback areas on North and Far North Parcels are 6.49 and 10.65 acres, respectively.

HMS also will undertake extensive habitat restoration and management activities that will be covered by the ITP. These activities will include, among others, cutting and applying herbicide to invasive shrubs and trees, applying herbicide to invasive herbaceous species, seeding and planting native species, conducting prescribed burns, and disking and tilling soil in specific locations. These activities are summarized in Section 2.3.2.7 below and described in more detail in the mitigation sections of Chapter 5 of the HCP and the Restoration Plan Set (HCP Appendix F).

In addition to habitat restoration activities, HMS plans to implement measures to avoid potential groundwater impacts to the HED and other Covered Species habitat. These measures, including the installation of infiltration galleries in the River South Bluff Parcel and creation of an infiltration pond on FPDWC property at the southwest corner of Route 53 and Renwick Road, are discussed more in Section 2.3.2.5 below, in Chapter 5 of the HCP, and described in detail in HMS' Final Groundwater Model and Report (AECOM 2012 and 2013b).

2.3.2.5 Avoidance and Minimization Measures

Under the proposed ITP, HMS will implement the following measures to avoid and minimize take of the Covered Species and impacts to their habitat to the maximum extent practicable. These practices include avoid mining several parcels, groundwater impact avoidance measures, minimizing the impact of take in Middle Parcel, avoidance measures during operations and restoration, and a public education and outreach program on the species and water conservation.

HMS will Avoid Mining Certain Parcels

Approximately 15 acres in Pierce Eich Parcel and nine acres of Middle Quarry that could be mined under the Illinois Mining Regulations will not be mined and will avoid and reduce potential groundwater impacts (HCP Figure 15.2). This is an 11% (24 ac./211 ac.) reduction in HMS' potential surface mining area. In addition, surface mining of North Parcel (approx. 29 acres) and Spangler Property (approx. 61 acres), which were included or considered for inclusion in previous mining plans, are not included in the Covered Activities. These two parcels, which would have increased the surface mining area by 48% (90 ac./187ac.), were not added to the plan in order to prevent potential groundwater impacts and additional wetland and Critical Habitat impacts. The HCP requires HMS to forego mining over 110 acres to ensure potential hydrological impacts to groundwater are kept to a minimum and reduces wetland impacts by over 19 acres and Critical Habitat impact by about 29 acres.

Under the HCP, HMS will not surface mine but instead will permanently protect the following parcels through the use of deed restriction: River South, Fitzpatrick Seep, River, River South Bluff, North (except along Route 53), Far North (except along Route 53), River North, ComEd, and Long Run Parcels (see attached Figure 16 (dated 1/11/16) from the 10/9/20 HCP).

HMS will avoid Groundwater Impacts

The ITP will require HMS to implement measures to avoid potential impacts surface mining may have on groundwater conditions in HED larval habitat. Measures to avoid potential groundwater-related impacts include: 1) the supplement of shallow groundwater in River South Bluff Parcel, and 2) the enhancement of surface water infiltration in FPDWC property located at the southwest corner of Renwick Rd. and Rt. 53. In addition, dewatering in the Pierce Eich Quarry will be terminated after surface mining in that parcel is complete. Inundation of the mined area west of Route 53 will occur after the parcel is mined and will provide long-term avoidance measures for potential groundwater impacts occurring in the future. For more detailed information regarding groundwater impact avoidance measures, refer to Section 5.1.3 of the HCP.

HMS will Minimize Impacts and Take in Middle Parcel

HMS will salvage vegetation and substrates (i.e., soil) of the wet-mesic dolomite prairie in Middle Parcel (6.0 acres) to re-use in restoring areas in the ComEd Parcel (Restoration Plan Set, HCP Appendix F). This transplant will result in re-establishing this plant community and habitat in a parcel (ComEd) that will be restored and preserved in perpetuity under the HCP.

Extensive overburden removal in Middle Parcel will start after restoration of River, North, Far North, and River North Parcels (i.e., brushing, thinning, and controlling *Phragmites*), and this restoration is anticipated to take two years. This will allow the adult HED habitat in Middle Parcel (including the entire wet-mesic dolomite prairie) to remain until restoration of adult HED habitat in the adjacent parcels are complete. In addition, a portion of ComEd or Long Run Parcels will also be restored prior to the wet-mesic prairie transplant. According to the surface mining plan (see HCP Appendix E), the

transplant will not start until about three years after receiving the ITP. This should allow time to review and adjust restoration activities in the other HMS properties before proceeding with final impacts to habitat in Middle Parcel. Furthermore, this schedule also will allow for the salvaging of substrates and desirable native plant materials to take place during the appropriate phenological period to assure the most successful re-establishment of these plant communities in the former scraped and removed spoil pile locations in ComEd Parcel.

HMS Will Avoid Take During Mining Operations and Restoration
Several measures will be taken during the mining process to avoid taking adult HED or harming remaining habitat (see HCP Mining Plan, Appendix E). They include removing overburden outside flying season or active turtle season, operating all vehicles at reduced speeds (<15 mph) during HED flying season, conducting all blasting according to State limits and at a sufficient distance from remaining habitat of Covered Species, keeping a vegetation buffer adjacent to the wet-mesic dolomite prairie on Middle Parcel until the prairie is removed, and implementing dust, sediment, and fluid spill protection and control measures (see HCP Section 5.1.3).

HMS mitigation involves restoring, enhancing, and maintaining approximately 354 acres of land. Several measures will be taken during these efforts to avoid taking individual HED or impacting habitat. These measures include minimizing construction of access roads, avoiding placing access roads in wetlands areas, maintaining surface flow after construction of access roads, using vehicles and heavy equipment only in frozen or dry conditions or on access roads, operating vehicles at low speeds (< 15 mph) during adult flying season, allowing only hand tools and careful foot traffic in larval habitat areas, restricted use of herbicides in larval habitat, no spray application of herbicide during peak adult flying season, and completing rivulet creation or modification (including hydrology) only in areas unoccupied by larval HED. For a complete list of avoidance measures that will be taken during restoration, see Section 5.1.3 of the HCP.

Measures to Avoid and Minimize Impacts to Turtles

Prior to any construction operations (i.e., activities that involve heavy equipment, such as truck or front end loaders) during either overburden removal or restoration, measures will be taken to avoid taking or harming covered turtle species. These avoidance and minimization measures include maintaining and repairing fencing on the west and north sides and adding fencing to the east side of Middle Quarry expansion area adjacent to turtle habitat, conducting tree and brush removal and earth moving activities during turtle dormant season, installing silt fencing around the construction area prior to these activities, trapping and relocating turtles in construction areas prior to commencing activities, and training restoration crews to identify BT and ST. A complete list of AMMs related to the covered turtle species can be found in Section 5.2.3 of the HCP.

Measures to Avoid and Minimize Impacts to Leafy Prairie Clover

HMS will locate and flag all LPCs located within planned construction areas (i.e., where heavy equipment, such as trucks and front-end loaders, are used) within ComEd and Long Run Parcels. Where possible, construction activities will avoid these plants. Where it is not possible, HMS will use composite matting (or similar low impact measure) or will remove and transplant LPC plants to other suitable areas in these parcels or plant them back in the same location after construction is finished. Or as part of mitigation, LPC will be planted in a nursery to be used for seed production for future restoration efforts. LPC are most likely to be found in the construction area during the spoil pile

removal and wet prairie transplant operations. Potential impacts to LPC outside of HMS property from mining will be avoided through HMS's proposed hydrological mitigation measures.

Measures to Avoid and Minimize Impacts to Lakeside Daisy
Potential impacts to LD outside of HMS property from mining will be avoided through HMS's proposed hydrological mitigation measures.

2.3.2.6 Incidental Take Authorized
The proposed ITP would authorize the loss of 49.6 acres of adult HED foraging and dispersal habitat (but no larval habitat). HMS' calculation of HED incidental take is discussed in detail in Section 5.1.4 of the HCP, and the estimated impact of this take is discussed in Section 5.1.5 of the HCP. No impacts to larval habitat are anticipated from proposed mining because all groundwater impacts to larval habitat areas (i.e., River South and Lockport Prairie) will be avoided through avoidance measures included in the HCP (see Section 5.1.3).

Approximately 50 acres of adult HED habitat or 49.6 ac/1,526 ac or 3.3%) within Critical Habitat Units in the lower Des Plaines River Valley will be impacted. Mitigation measures designed to offset this take (i.e., habitat restoration) are scheduled to be completed before all habitat impacts on Middle Parcel have taken place.

HMS will be authorized to take up to 12 BT and two ST on Middle Parcel and other HMS parcels as a result of the Proposed Action Alternative. The actual take is anticipated to be less. The presence of BT on Middle Parcel was confirmed in a recent study by INHS (Feng and Dreslik 2015) that found six juvenile BT on the parcel.

Proposed activities are also estimated to impact 29.5 acres (that overlap with the 49.6 acres of impacted HED habitat) of the BT, and potential ST, habitat on Middle and ComEd Parcels. Little take in the form of mortality of either covered turtle species is anticipated to occur during mining operations in Middle Parcel or transplant activities in ComEd Parcel because a number of avoidance and minimization measures will be implemented before and during these activities to prevent the take of the turtle species. However, there is a possibility that a few burrowed or inactive turtles could be overlooked during monitoring, resulting in take.

No take in the form of mortality of either covered turtle species is anticipated to occur during the development or use of the upland setback areas on North and Far North Parcels because the same avoidance and minimization measures will be implemented, as needed, in these areas to prevent the take of the turtle species. HMS' calculation of incidental take of covered turtles is described in detail in Section 5.2.4 of the HCP, and the estimated impact of this take is discussed in Section 5.2.5.

With the implementation of avoidance measures, we anticipate very little (<10 individual plants) to no impact of LPC plants and no impacts are anticipated for the LD.

2.3.2.7 Compensatory Mitigation

Hine's Emerald Dragonfly Compensatory Mitigation
HMS proposes the following mitigation package to offset estimated habitat impacts and incidental take of the HED from the surface mining of Middle Parcel. Although these mitigation efforts are designed to benefit the HED, the habitat improvements will also benefit the other Covered Species (i.e., spotted and

BT and LPC). Elements of this type of program include a remedial restoration phase structured around necessary intervention to quickly improve the ecological health of the communities on which the HED and the other Covered Species depend, followed by a maintenance phase, which maintains the desirable ecological conditions. Restored and managed areas will be monitored to provide feedback on the effectiveness of both phases which will facilitate adaptive management. The mitigation package for the HED is designed to meet the following biological goals:

1. River South and Fitzpatrick Seep: Improve and expand current adult and larval HED habitat areas through the reduction of invasive species.

2. Long Run and ComEd parcels: Restore adult and potential larval habitats. Adult habitat will be expanded through the reduction of invasive species, especially woody species. Historic and potential larval habitat may be restored in areas where appropriate hydrology, soil, and plant structure exist or can be developed during adult habitat restoration.

3. Middle Parcel: Salvage vegetation from the highest quality habitat area by transplanting wet-mesic dolomite prairie plants and soil in Middle Parcel to upland areas in ComEd Parcel where topsoil has been scraped off or existing spoil piles and topsoil will be removed.

4. River, North, Far North, and River North Parcels: Restore and enhance adult HED habitat by removing invasive shrubs and trees and reducing *Phragmites*.

5. Habitat protection: All parcels with restored or enhanced habitat will be protected in perpetuity (i.e. North, Far North, River North, River, River South, Fitzpatrick Seep, ComEd and Long Run). In addition, River South Bluff Parcel will also be protected in perpetuity to help ensure protection of habitat in River South Parcel. Permanent protection will be provided by placing a deed restriction over these parcels. More details are found in the funding section (Chapter 7) of the HCP.

Additional details of this plan can be found in Section 5.1.7 of the HCP and the Restoration Plan Set (HCP Appendix F).

Turtle Compensatory Mitigation

HMS' mitigation includes creating open habitat and restoring or enhancing native open communities (i.e. mesic and wet prairie and sedge meadow) on eight of HMS' mitigation parcels (River South, Fitzpatrick Seep, River, North, Far North, River North, ComEd and Long Run), located on both the west and east sides of the river. All of these parcels will be permanently protected under the HCP. A summary of the amount of BT and ST habitat and potential habitat improved and preserved is found in Table 8 and Section 5.1.7 of the HCP. A total of 406 acres of potential BT and ST habitat will be preserved under this HCP, and 354 acres of turtle habitat will be restored, enhanced, or maintained.

HMS will provide additional mitigation for take of BT by creating and enhancing nesting habitat near adult wetland habitat in River Parcel. HMS will also remove the shrub and tree line along railroad tracks on the west side of River Parcel to reduce cover for turtle nest predators and will trap or otherwise remove egg predators, such as raccoons, in this area if there is evidence of substantial egg predation.

Other Species Compensatory Mitigation

Leafy prairie clover: If take of LPC occurs during HMS' mitigation activities for the other Covered

Species, HMS will collect seeds on site (and/or from recovered plants gown in a nursery) for one season and hand broadcast the seeds into areas from which LPC plants were removed or other suitable areas in the same parcel.

2.3.2.8 Monitoring, Reporting, and Adaptive Management

As part of the ITP requirements, HMS will be required to conduct monitoring. The monitoring proposed by HMS is described in detail in the HCP and appendices. HMS' monitoring and reporting program will (1) document implementation of and compliance with avoidance and minimization measures (AMMs) and mitigation measures; (2) document both the anticipated and actual take of Covered Species (whether through individuals or surrogates, such as acres of habitat lost/impacted); (3) evaluate the effectiveness of the conservation program; (4) assess the need for responses to changed circumstances or adaptive management; (5) document the implementation and effectiveness of any measures undertaken to respond to changed circumstances or adaptive management measures; (6) conduct validation monitoring of hydrologic parameters used in predictive modeling; and (7) explain how implementation, including funding, will continue to be assured.

2.3.3 Alternative 3 – Early Planning Alternative

The Early Planning Alternative has the same proposed mining activities and groundwater impact avoidance measures as the Proposed Action Alternative but with a different mitigation package that results in less long-term conservation. The Proposed Action Alternative provides more habitat restoration, enhancement, and maintenance and more acres protected in perpetuity than the Early Planning Alternative.

The Early Planning Alternative is a mitigation alternative that was proposed earlier in the evolution of this project. Unlike the current conservation mitigation included in the Proposed Action Alternative, this alternative did not permanently protect the parcels closest to where habitat would be lost (i.e., Middle Parcel) as a result of Covered Activities. The Proposed Action Alternative permanently protects five parcels (i.e., River, North, Far North, River North, as well as River South Bluff Parcel) that were temporarily protected under the previous alternative in addition to the four parcels (i.e., River South, Fitzpatrick Seep, ComEd and Long Run) that were already selected for permanent protection under the previous alternative. All five parcels are located on the west side of the river and closest to larval habitat and the area of habitat loss. The addition of the five parcels increases the number of acres permanently protected by 162 acres for a total of 519 acres protected in perpetuity under deed restriction. In addition, the Proposed Action Alterative incorporates 29 additional acres of habitat restoration, enhancement and maintenance than the Early Planning Alternative, and more directly and effectively addresses the impacts of the habitat loss. Therefore, the additional habitat restoration and protection (under the Proposed Action Alternative provides greater long-term habitat protection and fulfillment of the covered species life history requirements.

CHAPTER 3: POTENTIALLY AFFECTED ENVIRONMENT

3.1 Introduction

The "Affected Environment" means the area (national, regional, or local) and its resources e.g., listed species and designated critical habitat) which may be impacted by the Applicant's Alternative and alternatives. For the purpose of this EA, this includes the Permit and Planning Area where the ITP and HCP will apply, respectively. In evaluating the resources, the Service determined that the Covered

Activities do not affect some resource categories at all, affect some resource categories only minimally, and affect others measurably such than an effects analysis is warranted. The resources that could potentially be appreciably affected by implementation of the Proposed Action Alternative (which is authorization of an ITP that includes the Proposed mining plan and implementation of the conservation measures found in the HCP) are described in this chapter. The potential impacts to these resources resulting from the Proposed Action Alternative are analyzed in Chapter 4.

Overview

The following analysis of the potentially affected environments provides a context and baseline from which our impact analysis was structured. These include physical resources (e.g., surface and groundwater), biological resources (e.g., wetlands, Critical Habitat, migratory birds and other wildlife), federally and state listed species, and socioeconomic resources (e.g., land use, economic impacts, and transportation). The scope of our analysis covers impacts that are reasonably foreseeable, potentially significant, and likely to occur as a result of our issuance of an ITP to HMS.

The Planning Area is located within the lower Des Plaines River Valley in Will County, Illinois (HCP Figure 1, Appendix A). The Planning Area is 35,445 acres, and encompasses the HMS' property, (CHUs 1, 3, and 7), and the estimated ground water recharge area (and buffers, where estimated) for springs and wetlands in CHU 1, River South Parcel in CHU 2, and ComEd and Long Run Parcels in CHU 7 (HCP Figure 4, Appendix A). As a result, the Planning Area includes portions of Romeoville, Crest Hill, and Joliet on the west side of the river, and Lockport, Homer Glen, Lemont, and Orland Park on the east side. Most of the estimated recharge areas and buffers to CHU 1 & 2 contain residential development and agricultural land (HCP Figure 5, Appendix A). The area within the recharge area was dominated by agricultural land but in recent years contains more developed land (i.e., institutional, transportation, and industrial) and some open land, whereas the area outside the recharge area but within a two-mile buffer has been dominated by residential development for many years with some agricultural land, open space, and other development. Large portions of the area within the recharge zones are owned or managed by individual public or private entities, including Lewis University, Joliet Port Authority, and the FPDWC (HCP Figure 3, Appendix A). The estimated recharge zone for CHU 7 is dominated by residential development, agricultural land, and open space. This area contains numerous smaller landowners than those on the west side of the river, except for FPDWC which owns/manages several preserves in this area. Further, these FPDWC sites contain several higher recharge potential areas within the estimated recharge zone (AECOM 2011). Long Run Seep Nature Preserve (part of CHU 7), owned by IDNR, is also located in this part of the Planning Area. The FPDWC and IDNR are conservation agencies that manage land with the goal of supporting biodiversity and other natural resources, scientific research, and public education. In addition, Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) owns numerous vacant properties along the river and canals for flood control and water conveyance. ComEd also has rights of way and easements in the Planning Area.

HMS' property that will be covered under the ITP is within the Planning Area and is 2,072 acres in size, and its boundaries were drawn to include all properties in HMS' Romeoville facility (Figure 1, Appendix A; HCP Figure 3). These properties are listed in Table 1 below and total 1,437 acres. HMS properties include production facilities with surface aggregate mines, roads, conveyors, sorting and screening operations, an office, maintenance facilities, closed landfills, and a shipping port on the Chicago Sanitary and Ship Canal. HMS' holdings also include properties purchased for conservation

purposes and are included in the mitigation plan in the HCP. Other operations on and adjacent to HMS property includes an asphalt plant owned by Palumbo, a ready-mix concrete plant operated by Prairie Materials, a pre-stress concrete plank plant operated by Illini Precast, a concrete pipe yard owned by Lucky Development and operated by Concrete Specialties, and a concrete crushing facility operated by Concrete Xchange. NRG Energy and ComEd also have properties and easements within the Planning Area (Figure 1, Appendix A; HCP Figure 3). These include NRG Energy's Will County Station and railroad properties and ComEd's substation, ROWs, and transmission easements.

Table 1. HMS Properties within the HCP Planning Area.

Hanson Material Service Properties	Acreage
East Quarry	218.7
East Parcel	46.7
Far North Parcel	50.4
Fitzpatrick Seep	5.5
ComEd Parcel	103.0
Lockport Shop Parcel	75.0
Long Run Parcel	182.6
Middle Parcel	124.9
Middle Quarry	80.1
North Parcel	31.4
Pierce Eich Quarry	268.5
River North Parcel	24.8
River Parcel	61.0
River South Bluff Parcel	23.7
River South Parcel	65.7
Stone Processing Parcel	74.9
HMS Total	**1,436.9**

The Planning Area is 35,445 acres, and encompasses the HMS' property, CHUs 1, 3, and 7, and the estimated ground water recharge area (and buffers, where estimated) for springs and wetlands in CHU's 1,3 and 7 (Figure 1, Appendix A; HCP Figure 3). As a result, the Planning Area includes portions of Romeoville, Crest Hill, and Joliet on the west side of the river, and Lockport, Homer Glen, Lemont, and Orland Park on the east side. Most of the estimated recharge areas and buffers to CHU 1 & 2 contain residential development and agricultural land (HCP Figure 5, Appendix A). The area within the recharge area was dominated by agricultural land but in recent years contains more developed land (i.e., institutional, transportation, and industrial) and some open land, whereas the area outside the recharge area but within a two-mile buffer has been dominated by residential development for many years with some agricultural land, open space, and other development. Large portions of the area within the recharge zones are owned or managed by individual public or private entities, including Lewis University, Joliet Port Authority, and the FPDWC (HCP Figure 3, Appendix A). The estimated recharge zone for CHU 7 is dominated by residential development, agricultural land, and open space. This area contains numerous smaller landowners than those on the west side of the river, with the exception of FPDWC which owns/manages several preserves in this area. Further, these FPDWC sites

contain several higher recharge potential areas within the estimated recharge zone (AECOM 2011). Long Run Seep Nature Preserve (part of CHU 7), owned by IDNR, is also located in this part of the Planning Area. The FPDWC and IDNR are conservation agencies that manage land with the goal of supporting biodiversity and other natural resources, scientific research, and public education. In addition, Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) owns numerous vacant properties along the river and canals for flood control and water conveyance. ComEd also has Rights of Way and easements in both the Planning Area.

3.2 Physical Resources

Surface Water

The Planning Area is located within the lower Des Plaines River Valley which is part of a 378 square mile watershed that includes portions of Cook, DuPage, and Will Counties. The Des Plaines River is the main river system present in the valley. Waterways within the Planning Area include the Illinois and Michigan (I & M) Canal, Chicago Sanitary and Ship (CSS) Canal, Long Run Creek, Fiddyment Creek, and Mink Creek. The I & M and CSS Canals were excavated to allow shipping by barge. Both Canals generally parallel the Des Plaines River. Long Run and Fiddyment Creeks are located east of the Des Plaines River and flow into the I & M Canal. Mink Creek is located west of the river and flows west to the DuPage River.

Aside from Long Run and Fiddyment Creek, there are no named tributaries to the Des Plaines River within the Planning area. Long Run Creek is the only named tributary that runs through the Planning Area. Water from surface, storm water, and groundwater sources flow to the Des Plaines River via ditches or small rivulets (sometimes called streamlets) that flow through wet dolomite prairies, marshes, and floodplain forests. HMS operates a sump pump on Middle Quarry that is permitted by IEPA to discharge quarry seepage, stormwater and recycled water from mining operations into the Des Plaines River. Refer to the HCP Mining Plan in Appendix E of the HCP for discharge location.

The majority of the slope of the watershed is one foot per mile; however, the slope is steeper between Lockport and Joliet, where it is approximately 5.25 feet per mile. The valley above Lockport is surrounded by 80-100-foot bluffs that are located 1,500 to 2,500 feet east and west of the Des Plaines River (IDNR 2000). The bluff height within the Planning Area, however, is variable.

Groundwater

Infiltration in the groundwater recharge zones supplies the shallow aquifers that feed the springs, seeps, and wetlands known to support the HED and the turtle species. AECOM investigations have provided the hydraulic properties of the aquifer in the vicinity of the Romeoville Quarry and have documented groundwater levels and flows of groundwater that discharge to larval habitat areas within the Permit and Planning Areas. Past mining and use of shallow groundwater municipal wells in the Planning area have had an effect on groundwater that may have affected sensitive habitat areas (GAS 2008).

GRAEF hydrologists estimated the probable groundwater recharge zones for the primary seasonal seepage locations found in Lockport Prairie and River South (GAS 2004, 2005a and 2005b) (HCP Figure 4, Appendix A). The recharge area for ComEd and Long Run Parcels on the east side of the Des Plaines River was delineated by AECOM (2011) (HCP Figure 4, Appendix A). The estimated recharge area is very large (22.7 square miles) and extends southeast from the parcels approximately 11 miles (AECOM 2011) (HCP Figure 4, Appendix A). This is several times the size of the recharge zones for

Lockport Prairie and River South on the west side of the river, but all areas extend to the highest potentiometric surfaces that divide groundwater flow on each respective side of the river. The estimated recharge zones and buffers have been used to define the extent of the Planning Area because maintaining groundwater recharge function is important for preserving the springs and suitable HED habitats on each of these properties.

The largest consumers of groundwater in the area are local municipalities. The closest municipal user to the quarry operations is the Village of Romeoville. The water usage information obtained from the Village of Romeoville (summarized in Table 3-3 of AECOM (2012)) indicates the Village pumped an estimated 1.6 billion gallons of groundwater in 2010 for an estimated population of 46,000, of that total, it was estimated that 60% of the withdrawal (about 2.7 million gallons a day) was obtained from shallow wells completed in the Silurian Aquifer. Using the estimated well capacities obtained from the water utility, a breakdown of pumping rates per Village CWS (community water supply) well was estimated. The most productive well in the Village is Well #3, which is located approximately 1.5 miles northwest of the Quarry and yields over 1,300 gpm. Such high yielding municipal wells are uncommon in the Silurian Aquifer in northeast Illinois (Roadcap et al. 1993). Other wells were assigned discharge rates estimated based on water usage summaries (Dziegielewski 2009). The active wells in each network were then used to determine an average yield/well and used in the MODFLOW simulations.

Local community water supply (CWS) wells may contribute to the drawdown of the groundwater resources in the project area. The CWS, trailer park, and subdivision water supplies that are active within the modeled area are summarized in Table 3-4 found in AECOM (2012). The closest wells to the quarry operations include several residential wells and the Collegeview water supply wells. The locations of these wells are illustrated on Figure 4-2, and the Village of Romeoville CWS wells are shown on Figure 4-1 in AECOM (2012). All remaining CWS wells included in the model domain are illustrated on Figure 3-7d. Background information on these wells, including location, facility and aquifer type is summarized on Table 3-2 found in AECOM (2012). These data were obtained from the Illinois Environmental Protection Agency (IEPA, 2012).

Additional potential negative effects on groundwater resources are dependent on where the nearby communities of Romeoville or Crest Hill select to expand their current well capacities or build additional wells in the shallow aquifer. The Village of Romeoville, which is closer to the quarry, is a Supporting Partner to the HCP and has committed not to construct any additional shallow wells (see HCP, Appendix D). The Village has not installed any wells since their 2013 commitment letter (Eric Bjork, personal communication 2020). They have proposed installing a replacement shallow well to blend with water from a deep well.

Geology

The HCP Planning Area lies on the northern flank of a Paleozoic bedrock structure known as the Kankakee Arch, which separates the Illinois Basin and Michigan Basin. As a result of this structure, the bedrock has an easterly dip, resulting in exposure of the oldest formations along the Des Plaines River. The near surface bedrock formations are sedimentary rocks formed in ancient, shallow to deep seas. In the area of the Des Plaines River Valley, this is primarily Silurian Period dolomite bedrock of the Niagara Series. Covering the bedrock are deposits of dolomite 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. Vertical cliffs were carved by torrential meltwaters from this most recently glaciated

portion of Illinois.

Soils

Lands within the lower Des Plaines River Valley have well-drained glacial outwash soils that support seeps, fens, and springs. Thicker, silty soils overlying glacial till occur on the bluffs and lands outside the Des Plaines River Valley.

In the river valley, there are areas of exposed dolomite or very thin soils over dolomite. These areas have a high magnesium content in the soil due to the weathering of the exposed dolomite bedrock. The extra magnesium favors a unique plant community, many of which grow nowhere else (for more details on dolomite prairie, click here).

While the low gravel ridges parallel to the river stay dry, the floodplain environments stay wet for long periods. The highly resistant surface rocks and "tight" layering of underlying dolomite limestone rocks have both a seasonally high-water table and do not quickly encourage infiltration of groundwater. Therefore, seasonally wet or inundated conditions are common in some areas. Soils, although thin, are hydric in these areas. Groundwater recharge areas for the seeps extend beyond the Des Plaines River geologic valley and into glacial till deposits (HCP Figure 4 & 5, Appendix A). Throughout its current range, the HED is found in areas where dolomitic limestone is near the surface and groundwater is emerging as seeps or springs (USFWS 2001, 75 FR 21394-21453).

Much of the soils on HMS property where Covered Activities will occur have already been highly disturbed by previous scraping or filling. Scraped areas have very little soil with no organic matter development. Filled areas have received refuse and spoil from past activities. The only area in Middle Parcel with undisturbed native soils is in the wet-mesic dolomite prairie that will be transplanted as part of mitigation. East Parcel has been and is currently being used in mining operations. It contains a former sediment basin, the current surge pile, and other mine processing areas. Most of the parcel is covered with mining product (*i.e.* limestone gravel) but some areas are vegetated. Apart from the narrow floodplain along its west edge, these vegetated areas do not contain native soils. Soils outside the floodplain are highly disturbed and have formed in recent decades. The floodplain will not be disturbed during mining.

Climate

The lower Des Plaines River Valley has a temperate, humid, continental climate. It is possible that climate change will affect Covered Species and their habitat within the Planning Area over the term of the ITP and HCP. The Chicago Climate Action Plan (CCAP) (2008) states that temperatures have risen by 2.6°F since 1980 and that 15 of the last 20 years have experienced above average annual temperatures. Potential climate change impacts in the Planning Area include longer growing seasons, range and distribution changes for plants and animals, earlier onset of plant blooming and animal migration in spring, variation in the timing, intensity, and amount of precipitation, later freeze dates, and earlier ice-off dates. The extents of these possible effects on the Covered Species are addressed in more detail in Section 8 of the HCP.

Air Quality

The Planning Area is located along the western edge of urban development in the Chicago-Naperville-

Joliet, IL-IN-WI Core-Based Statistical Area[1] (Chicago CBSA). The Planning Area is predominantly on the windward side of the Chicago CBSA. These two factors contribute to the Planning Area generally having better air quality than the Chicago CBSA, despite the lower Des Plaines River Valley containing an industrial corridor. Data collected by IEPA and published by the EPA as Air Quality Index Reports (USEPA 2017-2019a and 2017-2019b) show this trend to be the case in a comparison of air quality days for the Chicago CBSA and Will County from 2017 through 2019.

Under the Clean Air Act, EPA has established National Ambient Air Quality Standards (NAAQS) for 6 types of air pollution considered harmful to public health and the environment: particulate matter (PM10 and PM2.5), ozone, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead. Ozone is a regional pollutant while particulate matter is considered to be both a regional and local pollutant. Carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead are considered to be local pollutants. The Chicago CBSA and Will County are designated as currently meeting NAAQS attainment standards for particulate matter (PM10), sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead.

On June 11, 2012, the USEPA designated portions of the Chicago metropolitan area, including Will County, as marginal nonattainment for the 2008 ozone National Ambient Air Quality Standard (NAAQS). Failing to attain the standard by the deadline, and subsequent deadlines, resulted in the reclassification of the area to "serious" ozone nonattainment (Federal Register, Vol 83, N 223, 11/14/2018).

3.3 Biological Resources

Vegetation

Historic Conditions

Based on early aerial photographs (HCP Figure 7, Appendix A) original land survey records and maps (INHS 2002) (HCP Figure 8, Appendix A), and current conditions, the Planning Area historically contained extensive prairies that transitioned to open wetlands where hydrology was appropriate. Some wooded riparian areas with scattered oak savanna and small forest copses were also present along the Des Plaines River. Examples of remnant historic prairies and open wetland are found in some FPDWC preserves within the Planning Area. Over time, a majority of the land has been converted from pre-settlement prairies, woodlands, and wetlands to agricultural uses and residential, industrial, and other commercial development (HCP Figure 5, Appendix A).

Current Vegetation

Vegetation found in the lower Des Plaines River valley ranges from remnant high quality natural areas, such as Lockport Prairie, Romeoville Prairie, and River South Parcel, to disturbed or degraded vacant areas, to highly altered lands, such as developed areas and quarries (HCP Figure 5, Appendix A; HMS Restoration Plan Set, Appendix F). These disturbed lands include large areas that have been used for decades for approved landfills (that have since been closed), scraped and spoil areas, ditches, dikes, old railroad beds, power lines, railroad easements, and fence lines. Most of these disturbed lands are dominated by weedy and invasive plant species and provide little or no habitat for the Covered Species. The vegetation found in the lower Des Plaines River valley outside HMS's property includes conventional landscaping in developed areas, some areas of natural land-cover, and many other areas of

1 Core Based Statistical Area is defined by the federal Office of Management and Budget for use by federal statistical agencies. The Chicago CBSA includes the Chicago, Naperville, Joliet metro area, as well as the metro areas surrounding Gary, Indiana and Kenosha County, Wisconsin.

row-cropped agricultural fields.

Native plant communities within HMS' property and surrounding areas include dolomite prairie, sedge meadow, and emergent marsh (cattail or bulrush), wetland shrubland, upland woodland, and young floodplain forest. Non-native communities include marsh (common reed), wet meadow (reed canary grass), turf, Eurasian meadow/old field, and upland shrubland (European buckthorn).

Dolomite prairies occur where dolomite is close enough to the surface (e.g., within six feet) to influence plant species composition, resulting in a unique natural community. Estimates of remaining acreage of dolomite prairie in Illinois vary, but all are extremely low; from a 1992 Illinois survey showing that only about 140 acres of dolomite prairie remain, to a 2008 estimate of less than 600 acres of remnant and restored dolomite prairie occurring in Illinois. Approximately 6 acres of wet-mesic dolomite prairie occur on Middle Parcel and an additional 13 acres also occur on HMS' North and ComEd Parcels.

Most of the remnant natural areas are found on publicly owned preserves (e.g. Lockport and Romeoville Prairies), although some are also found on HMS properties (e.g. River South and ComEd Parcels). Even the remnant natural areas (*e.g.*, Lockport and Romeoville Prairies) have experienced some level of impacts from the initial agricultural conversion, such as livestock grazing, and subsequent development activities. In addition, invasive plants, both woody and herbaceous, continue to threaten the diversity, composition, structure, and ecological function of these remnant communities. Groundwater-fed natural wetlands dominated by graminoid (grass-like) plants, such as marsh, sedge meadow, and dolomite prairie, with underlying dolomitic bedrock are the remnant communities that provide habitat to the HED (USFWS 2005). These communities have likely been impacted by changes in groundwater due to increased development in the recharge areas (GAS 2005a and 2008).

The negative effects of invasive herbaceous species, such as narrow-leaved cattail, reed canary grass, and common reed and invasive woody species, on the HED habitat has been listed as a threat to the species in the HED Recovery Plan (USFWS 2001) and 5-Year Review (USFWS 2013). Meirzwa (2007) suggests that dense cattail growth and resulting thick thatch layer may inhibit adult use of breeding habitat. Other research indicates that common reed and reed canary grass degrade larval habitat areas by reducing crayfish burrow densities (USFWS 2013). In addition, in-field observations suggest that adult HED avoid heavily wooded areas (USFWS 2013).

Other research also has documented the negative impacts of invasive species' encroachment on native plant communities (Apfelbaum and Sams 1987; Apfelbaum 1985). Species such as reed canary grass, cattail, and common reed form dense monocultures that prevent the growth and reproduction of native plant species. Diverse native plant communities provide food, shelter, nesting space, and protection for wildlife. Research has also documented that invasive herbaceous (e.g. common reed and reed canary grass) and woody (e.g. buckthorn) species can negatively affect the behavior and habitat of adult and larval HED (USFWS 2014). The substantial decline of habitats as a result of invasion by exotic and weedy species, as described above, will reduce the ability of HMS' parcels and other habitat areas to support the HED, the covered turtles, and LPC.

Wetlands

HMS has identified wetlands on all its parcels that are involved in planned mining or conservation activities of the HCP. All wetland areas on these properties were delineated in fall 2018 or spring 2019 and shown in Figures 6.1 & 6.2 of Appendix A of the HCP.

Wetlands are changing on each of the properties, including within the protected and managed nature preserves. In the time that the HED has been under careful investigation, some of the highest quality wetlands (*e.g.*, sedge meadows) have been invaded by aggressive weedy species, such as cattails (Mierzwa 2008). Unmanaged cattail thatch reduces access that ovipositing adult HED require and have changed the patterns used by foraging HED. 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*), represent a great risk to wetland biodiversity and the HED habitat. These species can reduce wetland biodiversity through aggressive competition, shade suppression, thatch build-up, and dewatering (Chicago Region Biodiversity Council 1999; Zedler and Kercher 2004). Applied Ecological Services (AES) has observed the expansion of common reed and buckthorn on HMS properties over the past 14 year as reflected in revised vegetation / land cover maps of the parcels (e.g., Middle and ComEd Parcels).

Other activities which may contribute to the degradation of wetlands on HMS' property include historic agricultural ditches through wetlands, nutrient and contaminant (e.g. deicing materials) loading in storm water runoff, erosion and sedimentation, ground water impacts from land use and development activities, and hydraulic segregation due to railroad beds and roadways.

Critical Habitat

Critical habitat is defined in Section 3 of the Endangered Species Act as: (i) the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species (USFWS 2007b). (See, 16 U.S. C. § 1532)

In 2010, the Service finalized the designation of critical habitat for the HED (USFWS 2010). In Illinois, there are seven CHUs for the HED located along the lower third of the lower Des Plaines River Valley near Lockport. HMS owns property that includes all of CHUs 2 and a portion of CHU 7. CHUs 1 and 3 are also found within the Planning Area but outside of HMS' property. All CHUs within the Planning Area are described in Section 1.6 of the HCP.

To be designated critical habitat for the HED, an area must contain the following physical and biological features essential to the conservation of the species.

For egg deposition and larval growth and development (larval habitat):

1) Organic soils (histosols, or with organic surface horizon) overlying calcareous substrate (predominantly dolomite and limestone bedrock);
2) Calcareous water from intermittent seeps and springs and associated shallow, small, slow flowing streamlet channels, rivulets, and/or sheet flow within fens;
3) Emergent herbaceous and woody vegetation for emergence facilitation and refugia;
4) Occupied burrows maintained by crayfish for refugia; and
5) Prey base of aquatic macroinvertebrates, including mayflies, aquatic isopods, caddisflies, midge larvae, and aquatic worms.

For adult foraging; reproduction; dispersal; and refugia necessary for roosting, resting, escape from male harassment, and predator avoidance (especially during the vulnerable teneral stage) (adult habitat):

6) Natural plant communities near the breeding/larval habitat which may include fen, marsh, sedge meadow, dolomite prairie, and the fringe (up to 328 ft (100m)) of bordering shrubby and forested areas with open corridors for movement and dispersal; and
7) Prey base of small, flying insect species (e.g., dipterans).

Illinois Nature Preserves

A separate protection system exists in Illinois under the authority of the Illinois Natural Areas Protection Act (INAPA) for areas with a Nature Preserve designation. No protected Illinois Nature Preserves exist within the HMS' property. However, six Illinois Nature Preserves are found within the Planning Area. Lockport Prairie is located south of the HMS' property, Romeoville Prairie is located to the north of HMS' property, and Long Run Seep is located to the east of HMS' property.

General Wildlife

Historically, the Lower Des Plaines River Valley supported an abundance of wildlife species. Changes in vegetation and wildlife habitat within the Planning Area have been considerable over time, with the exception of the few remaining natural area remnants. Most of the native wildlife diversity of the region and in the Planning Area has declined or has been extirpated, with exceptions for those species that flourish in urban environments (Chicago Region Biodiversity Council 1999; Chicago Wilderness consortium 2006; Greenberg 2002). However, many rare and declining native species are still found in the largest remnant natural areas (e.g. nature preserves and HMS properties) in the Permit and Planning Areas.

Bald Eagles

Within the Planning Area, a pair of bald eagles has been nesting on an island in the Des Plaines River since 2010, and bald eagles use the river corridor during their annual spring and fall migration. Ongoing mining activities within the Planning Area have been observed to have no appreciable effect on the pair of bald eagles; they have been observed to be unaffected even during blasting activities by the USFWS personnel (Sailor 2010). Mining under each of the alternatives considered would be no closer to the nesting pair than past mining. Therefore, proposed mining activities within the Planning Area are expected to have no appreciable effect on Bald eagles, therefore they are not further analyzed below.

3.4 Covered Species

Federal and state listed animal and plant species with known records of occurrence within the Planning Area since 2002 are covered by the HCP. These species are: Federally-listed species - HED (endangered), LPC (endangered), LD (endangered); Illinois-listed species - HED (endangered), BT (endangered), ST (endangered), LPC (endangered), LD (endangered). Summaries of each endangered species is found below.

Hine's emerald dragonfly

A full species profile of the HED is available in Section 2.2.1 of the HCP. Detailed Recovery Plans have been prepared by the Service for the HED (USFWS 2001). The conservation package included in the HCP positively contributes to the goals of this Recovery Plan.

The HED is a federally and state listed endangered species that survives at only a few locations in

Illinois, Wisconsin, Missouri, Michigan, and Ontario, Canada. Based on the current population status and distribution, and the continuing threats to the species and its habitat, the HED continues to be in danger of extinction throughout all or a significant portion of its range.

The HED breeding season lasts from early June to late August in Illinois (USFWS 2001; Vogt and Cashatt 1994, 1997). Females oviposit (lay eggs) in shallow water of rivulets and channels or in muddy depressions within marsh or sedge meadows with thin soils over dolomite bedrock (USFWS 2001, USFWS 2005, Nuzzo 1995, and Mierzwa et al. 1998). Eggs overwinter and hatch in the spring (Soluk and Satyshur 2005). HED ecology is linked with the ecology and behavior of burrowing crayfish. The burrows 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).

Adults use wetlands and 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). Adult flight season in Illinois can start as early as late May and ends in early October (Vogt and Cashatt 1994; Soluk et al. 1996; Mierzwa et al. 1997).

The HED is known to occur at several sites in Illinois, shown in Table 3 of the HCP (USFWS 2005; Mierzwa and Webb 2012a; Soluk 2005, Soluk et al. 2007, Soluk and Worthington 2010). The Illinois sites occur along an approximately 18-mile length of the lower Des Plaines River Valley (13 miles along the river and 5 miles along the Cal-Sag Channel) with the largest populations in the southern part of the area (River South Parcel and Lockport Prairie) (HCP Figures 9.0-9.7, Appendix A). The HED has also been recently found 30 miles northwest of this area at Spring Lake Nature Preserve and Spring Creek Valley Forest Preserve in Cook County (Cashatt 2016; Soluk et al. 2016) as well as further to the west in Winnebago County, IL (Gibbons 2020).

The current HED larval population size in Illinois (lower Des Plaines River Valley) was estimated by Soluk and Mierzwa (2012) to be 2,063 and may be in the range of 1,000 to 3,000. Data used in the analysis were collected in Lockport Prairie Nature Preserve, Long Run Seep Nature Preserve, Keepataw Forest Preserve, and HMS' River South, Middle, Long Run and ComEd Parcels. In addition, this data was compared to adult data from HMS' parcels collected in the same years to check and help calibrate total (larval and adult) population estimates. Using the calibration model, the adult population was estimated to be within the range of 87 to 243 adults which is well below the recovery criteria of 1,500 adults.

Tables C-1, C-2 and C-3 in Appendix C of the HCP provide a summary of the recorded foraging-flying adult HED in HMS' Middle, ComEd, Long Run, and River South Parcels (Mierzwa and Webb 2012a and 2012b). Data indicate population numbers have been generally lower in recent years in these parcels. The populations at Middle and River South Parcels were generally lower between 2005 and 2011 than they were in the previous ten years (1995 to 2004). Based on the results of the most recent surveys (2011) in Middle and River South Parcels, current adult populations are estimated to be 4 and 71 individuals in these parcels, respectively. The current adult population in ComEd and Long Run Parcels is estimated to be about 5 individuals based on the 2011 survey results.

While the Illinois population is one of the smallest in its range it is also one of the most genetically diverse which makes it important to the survival and recovery of the species.

The principal threat to the HED in Illinois is habitat degradation and alteration which results from various development activities (USFWS 2001). In addition, invasive vegetation can also impact HED habitat and behavior. Fragmentation or barriers to movement can lead to reduced population sizes and/or a loss in genetic diversity. Changes in surface and subsurface hydrology could adversely affect larval and breeding habitat by changing water temperature, flow, chemistry, and volume (USFWS 2005). Groundwater, which also drives wetland hydrology, could be impacted by various development activities, such as mining or use of municipal and private wells (GAS 2008; USFWS 2005).

The HCP further discusses the USFWS' HED Recovery Plan, its goals, and how those goals are addressed by the plan (see HCP Sections 2.2.1and 5.1.2).

Blanding's turtle

A full species profile of the BT is available in Section 2.2.1 of the HCP.

The BT was listed in Illinois as state endangered in 2009 (IESPB 2009) due to being formerly widespread but nearly extirpated from Illinois due to habitat destruction, collecting, or other development pressures (IESPB 2012). BT was petitioned in 2012 for federal listing (CBD 2014). A 90-day "substantial" finding was published by USFWS on July 1, 2015, indicating that listing may be warranted for the BT (after further review).

There are no Recovery Plans for the BT in Illinois, but significant research on their local populations and ecology, along with recovery efforts elsewhere, have been used to help determine the conservation needs for these species in the HCP. In the absence of recovery plans, guidance from researchers (M. Dreslik and D. Mauger) with local knowledge and experience with the turtles' ecologies has played a crucial role in conservation planning for these species in the HCP.

The BT 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 to move between wetland complexes. The BT habitat includes the clean waters of 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. The turtles winter most often underwater, partially buried in soft substrate.

The BT was likely historically more widespread throughout Illinois, primarily throughout the northern third of the state, but today, the species' range is limited to north and northeast Illinois in localized, small, often isolated sub-populations. The highest concentration of BTs occurs in northeast Illinois (McHenry, Lake, Kane, Cook, DuPage, and Will Counties).

Figure 10 in Appendix A of the HCP shows the parcels with known recent (2002-2015) BT occurrences in the Planning Area. This figure shows that the BT has been found recently in a number of parcels throughout the Planning Area including Lockport Prairie, Romeoville Prairie, HMS' Long Run, ComEd, Middle, North, Far North, and River North Parcels and the adjacent ComEd ROWs. In the spring of 2015, the Illinois Natural History Survey (INHS) captured six juvenile BTs on Middle Parcel, one hatchling on River North Parcel, and three adults and one juvenile on ComEd Parcel (Feng and Dreslik 2015).

Figure 12 in Appendix A of the HCP shows the mapped potential habitat of BTs on HMS' properties

within the Planning Area. Only 29.1 acres of moderate or high-ranking potential BT habitat is found in Middle Parcel. This consists of cattail and *Phragmites* dominated marsh, wet-mesic dolomite prairie, and old-field vegetation (HCP Table C-4 in Appendix C). Most of the parcel (95.8 acres) has been disturbed in the past (e.g. filled or scrapped), and these areas are considered low potential habitat. In addition, barriers to access to the site also limit the use of this parcel to this species (see Section 5.2.4 of the HCP).

Spotted turtle

A full species profile of the ST is available in Section 2.2.1 of the HCP.

The ST became listed as a state endangered species in Illinois in 1977 due to restricted habitats or low population levels in Illinois (IESPB 2012). It was petitioned in 2012 for federal listing (CBD 2014), and USFWS published its 90-day finding on July 1, 2015, indicating that listing may be warranted for the ST (after further review). The ST is state-listed in Illinois, but currently there are no plans to develop a state-wide recovery plan. The Planning Area represents the western-most extent of the range of the ST in North America and is the only location where it co-occurs with the BT in Illinois (Harding 1997; personal communication with B. Semel, IDNR 2010). In the absence of recovery plans, guidance from researchers (M. Dreslik and D. Mauger) with local knowledge and experience with the turtles' ecologies has played a crucial role in conservation planning for this species in the HCP.

The ST is a semi-aquatic species that spends most of its time in wetland habitat, but often moves into uplands as it travels between wetland complexes or to aestivate. STs inhabit shallow vegetated wetlands with a soft substrate, including shallow marshes, sedge meadows, cattail marshes, and wet dolomite prairies. Females nest in open, sunny locations with moist well-drained soils in sedge meadows and wet prairies. Females nest from May to July and may lay one clutch of 3-5 eggs.

The greatest threats to the ST are habitat loss and fragmentation due to invasive plant species changing the structure of wetland communities, changes in hydrology, urban development, and collection for the pet trade industry. STs are also vulnerable to predation by over-abundant predators such as raccoons. In addition, STs appear to be poor dispersers; new habitat opportunities are unlikely to be colonized, and isolated populations are unlikely to find each other. Delayed sexual maturity and low fecundity also limits population growth of the species (Harding 1997; Harding 2013).

In Illinois, the ST has always had a limited distribution, and is believed to have historically occurred only within the northeastern counties. Today, the ST is limited to the lower Des Plaines River Valley in Will County. Figure 11 in Appendix A of the HCP shows the parcels within the Planning Area with known recent (2002-2015) ST occurrences. These include only Lockport Prairie and Romeoville Prairie (Banning et. al 2006). However, like the BT, suitable habitat occurs in the Planning Area outside of these preserves (HCP Figure 13, Appendix A).

STs have been documented in both Romeoville Prairie Nature Preserve and Lockport Prairie Nature Preserve (Anthonysamy 2012; Banning et al. 2006). During HED survey work conducted since 1994, incidental observations of turtles were noted however, no ST was ever observed within HMS property (Mierzwa, unpublished field notes). In addition, the first formal ST survey was conducted on HMS properties by the INHS in spring 2015, but no STs were found. Therefore, it is presumed that STs do not occur within the HMS properties, and those present within the surrounding nature preserves are remaining onsite and not migrating into the lower-quality habitats available within HMS' property.

Figure 13 in Appendix A of the HCP shows the mapped potential habitat of STs on HMS' property. Only 29.1 acres of moderate or high-ranking potential ST habitat are found in Middle Parcel. These consist of cattail and *Phragmites* dominated marsh, wet-mesic dolomite prairie, and old-field vegetation (Table C-5). Most of the parcel (95.8 acres) has been disturbed in the past (e.g., filled or scraped), and these areas are considered low potential habitat. Based on limited confirmed occurrences of ST in the area and their limited mobility, it is unlikely that they use the parcel (see HCP Section 5.2.4)

Leafy Prairie Clover

A full species profile of the PC is available in Section 2.2.2 of the HCP. The LPC was listed as federally endangered in 1991 (USFWS 1991). The species is listed as endangered in Illinois (Illinois Endangered Species Protection Board 1990). A Recovery Plan exists for the LPC (USFWS 1996). The goals of this plan and how those goals are addressed in the HCP are discussed in Sections 2.2.2 and 5.3 of the HCP.

The Illinois population of the LPC is disjunctive, where it is now restricted to dolomite prairies on river terraces in the northeastern part of the state (Kurz and Bowles 1981). Several LPC populations have been monitored within and outside the Planning Area. These include Lockport Prairie Nature Preserve, Romeoville Prairie Nature Preserve, Lockport Prairie East, and HMS' ComEd Parcel (Radke *et al.* 2004a, 2004b) (Figure 14, Appendix A and Table C-6, Appendix C of the HCP). LPC is also found in Long Run Parcel and Dellwood Park West Nature Preserve which is located immediately south of Lockport Prairie East (Figure 14, Appendix A of the HCP). HMS consultants (Radke *et al.* 2004a, 2004b) counted 3,345 plants in 2004 in the ComEd parcel. Additional LPC populations have been found in ComEd Parcel since the surveys (AES 2012) and one has been found at the far north end of Long Run Parcel near ComEd Parcel (J. Mengler, personal communication, 2011). Vegetation management proposed under the HCP would likely increase the size of the population at HMS' ComEd and Long Run Parcels has been observed at neighboring preserves (e.g. Dellwood Park, Lockport Prairie East, etc.) when invasive woody species are removed.

Lakeside Daisy

A full species profile of the LD is available in Section 2.2.2 of the HCP. The LD was listed as federally threatened in 1988. A Recovery Plan has been prepared by the Service (USFWS 1996). The two known LD sites in Will County are located in Lockport Prairie Nature Preserve and Romeoville Prairie Nature Preserve. LD is not found on HMS' property.

3.5 Social and Economic Resources

Land Use

Present-day land use across the Planning Area is depicted in Figure 1 (Appendix A; HCP Figure 3). Current land use within the Planning Area is a highly fragmented mix of residential and industrial development, agriculture, and open space. Figure 1 also provides a map of county, municipal, park and forest preserve, and large private land holdings boundaries within the Planning Area. HMS' property within the Planning Area consists of quarries, industrial developments, and remnant natural areas.

Economic Impact

The Planning Area is in Will County, Illinois, which is part of the CHICAGO CBSA, the third-most populous metropolitan area in the U.S. with 9,461,105 people (U.S. Census Bureau 2012). The Chicago CBSA is a major center for finance, transportation, and distribution, and has the third-largest gross

metropolitan product in the U.S. worth approximately $532 billion in 2010 (Greyhill Advisors 2011). As no people live within HMS' property, the following set of representative data (USCB 2011) from surrounding areas will be used in addition to economic data from HMS to describe socioeconomics.

Major sectors of the local economy in Will County include manufacturers' shipments ($13.6 billion), merchant wholesaler sales ($11.0 billion), and retail sales ($6.8 billion) (USCB 2011). The largest sectors of employment for Will County residents are retail trade (39,959), health care and social assistance (39,955), manufacturing (36,319), educational services (26,816), and transportation and warehousing (21,546) (USCB 2010). Per capita income in Will County is $29,000, and median household income is $72,500. 7.0% of persons live below the poverty line. Per capita income in Romeoville is $23,000 and median household income is $64,000. 6.0% of persons live below the poverty line.

Mining, quarrying, and oil and gas extraction are listed as employing 115 Will County residents (USCB 2010). However, there are a number of quarries in Will County which collectively employ many more than 115 people (Personal communication, R. Boisvert). Many of the employees reside in surrounding Cook and DuPage counties and are not reflected in these numbers. The median earnings for jobs in this sector exceeded the median household income for residents of Will County, as well as for Romeoville and Lockport (USCB 2010).

HMS has been continuously operating stone quarries in the Romeoville facility for more than sixty years. These quarries provide aggregate resources to clients and projects throughout Northeastern Illinois, and HMS employs 85 people directly and indirectly through ongoing operations at the Romeoville facility. This facility is unique in Illinois because its location allows HMS to mine, process, and ship limestone products via truck, train or barge. This integration of extraction and processing and proximity to a unique multimodal shipping facility constitutes a significant competitive advantage to HMS and provides a cost savings to HMS' customers.

HMS has supported, and continues to support, conservation efforts benefiting the Covered Species within their property at the Romeoville facility. In addition, as part of the HCP planning efforts, HMS has financially supported public education and outreach for the HED through partnership with Bluestem Communications, a specialist in environmental education and outreach.

Human Health and Safety

HMS's property consists of open pit limestone quarries, industrial developments, transportation corridors, and undeveloped natural areas. HMS' property contains the usual risks to human health and safety normally associated with these types of industrial activities and land uses. HMS' Romeoville mines and facilities are either inaccessible to the general public or access is controlled by chain link fences and gates that are either locked or otherwise controlled or posted against trespassing.

Environmental Justice

No people reside within HMS's property. The qualifying minority and low-income statistics for populations surrounding HMS' property are presented in the following table of Minority and Low-Income Populations (USCB 2011). In no case does a qualifying minority or low-income group constitute greater than 50% of the population or a "meaningfully greater" percentage in the regions surrounding HMS' property. As a result, the considered alternatives do not differ in respect to environmental justice.

Table 2. Minority and Low-Income Populations Adjacent to HMS' Property.

% of Population	Illinois	Will Co.	Romeoville	Lockport	Lemont	Crest Hill	Homer Glen
Hispanic	15.8	15.6	29.9	8.2	5.1	17.9	4.9
Black (non-Hispanic)	14.5	11.2	11.5	1.4	0.4	21.8	0.6
Asian	4.6	4.6	6.4	1.3	1.6	2.5	1.7
American Indian or Alaskan Native	0.3	0.3	0.5	0.1	0.1	0.3	0.1
Native Hawaiian or Pacific Islander	0.0	Z*	Z	Z	Z	Z	Z
People in Poverty 2005-2009	12.4	7.0 (2009)	6.0	6.7	3.5	8.2	3.3

* Value greater than zero but less than half unit of measure shown

Transportation

The Planning Area is within a regionally and locally important transportation corridors including roadways, railways, shipping channels, and one airport. IL-53 is a regionally important roadway that bisects a portion of the western side of HMS' property, roughly paralleling the western side of the lower Des Plaines River Valley. 135th Street/Romeoville Road is a regionally important east-west roadway that offers the only local crossing of the Des Plaines River and Chicago Sanitary and Ship Canal for at least two miles in either direction. New Avenue is a regionally important roadway that runs immediately to the east of HMS' property, roughly paralleling the eastern side of the Des Plaines River valley. HMS vehicle traffic serves as an insignificant percentage of traffic on all three roadways. All three of these roads will be continually used for transportation of limestone products to purchasers as well as temporarily used for habitat conservation activities in the Proposed Action Alternative.

Freight railways owned by Canadian National and BNSF bisect HMS' property as well, running along the eastern side of the Des Plaines River Valley. Passenger rail service running along these same freight lines includes regional Amtrak service and the Metra Heritage Corridor commuter line with stops in Lemont, Romeoville and Lockport. A railway spur owned by NRG Energy is used to transport coal parallel to the western shore of the Des Plaines River, running through HMS's property. HMS has a spur railway line as well running along the western shore of the Chicago Sanitary and Ship Canal.

Shipping channels currently include the Chicago Sanitary and Ship Canal and historically included the I&M Canal, both of which run through HMS' property. HMS has a barge loading station along the Chicago Sanitary and Ship Canal within HMS' property and ships limestone products via the canal.

Lewis University Airport is located in the vicinity of the western edge of the Planning Area. When HMS has mined the remaining acreage covered by the Surface Mining Permit issued 20 years ago by the State of Illinois for the Pierce Eich Quarry, the Permit indicates that HMS will isolate the quarry, discontinue dewatering operations and allow groundwater to gradually fill the quarry. Over 10 years ago the airport extended one of its runways to within approximately 1,400 feet of the final expansion of the Pierce Eich quarry. As the quarry fills, the Airport operator may find it necessary to expand or enhance its wildlife hazard management program.

Utilities

An array of utilities related to water, electricity generation and transmission, communications, and commodity transportation are located within HMS' property and the Planning area.

Immediately south of the HMS property, the Metropolitan Water Reclamation District of Greater Chicago operates the Bear Trap Dam along the Chicago Sanitary and Ship Canal. Further south, the Lockport Powerhouse and Controlling Work Dam is located at the confluence of the Chicago Sanitary and Ship Canal and the Des Plaines River.

Several municipalities operate wastewater treatment facilities, sewerage systems and groundwater withdrawal wells within the Planning Area. Private wells are also common in Homer Glen and unincorporated areas within the Planning Area. These facilities are much more numerous and cover a larger area than HMS facilities and are located within the groundwater recharge zones for the HED habitat located on River South Parcel, Lockport Prairie Nature Preserves, ComEd and Long Run Parcels, and Long Run Seep Nature Preserve.

A number of active overhead electric transmission and distribution lines cross the Planning Area. A corridor of active buried cables and pipelines runs adjacent to and through HMS' property, generally parallel to and in the vicinity of the railway lines on the eastern flank of the lower Des Plaines River Valley. This utility corridor includes active underground fiber optic and communication lines, as well as active gasoline and natural gas pipelines. Enbridge, Wolverine, Westshore/Buckeye, and Unocal operate pipelines that transmit petroleum. Adjacent to these pipelines, Oneoak operates pipelines that transmits propane and butane. Nicor operates a natural gas pipeline along the same corridor. MCI runs a fiber optic line and AT&T runs a communication line though the same corridor. In addition, there are abandoned phone lines and pipelines in this corridor as well.

One active power plant, Will County Generating Station, is operated by NRG Energy at the north end of the Planning Area. This power generation facility relies on coal deliveries through HMS' property, via the NRG Energy's railway spur. ComEd delivers electricity via overhead power transmission lines that bisect lands within HMS' property.

Cultural Resources

On April 4th & 8th, 2013 the Illinois Deputy State Historic Preservation Office (DSHPO) responded to the submittal of an archaeological survey and other documentation for HMS' property within the Planning Area (i.e. Middle Parcel, River Parcel, Fitzpatrick Seep, Long Run, and ComEd Parcels) pursuant to Section 106 of the NHPA (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR 800, which require identification and evaluation of cultural resources. The Illinois DSHPO indicated that there are no significant historic, architectural, and archaeological resources located in the project area and therefore the project is in compliance with Section 106 of NHPA. These letters have expired, and renewal letters dated July 29, 2015 and July 10, 2018 were received from the DSHPO.

Two cultural resources occur within the Planning Area, but not on HMS property. The I & M Canal National Heritage Corridor in the lower Des Plaines River Valley and Historic U.S. Route 66 running along IL-53 bisect the Planning Area. Again, neither of these resources is located on HMS property.

A number of historic and cultural resources exist outside of HMS' property, but within the Planning Area. While a number of sites in the Planning Area are listed with the National Register of Historic Places (NRHP)[2], the only NRHP-listed site adjacent to HMS' property is the Fitzpatrick House.

2 See Nat' Register Historic Places database and Google Map kmz file of MidWest area; Illinois Historic Preservation Agency HAARGIS (Historic Architectural/Archeological Resources GIS) Database (http://gis.hpa.state.il.us/hargis/).

Located along Route-53 and bordering HMS property, this site was donated by HMS to Lewis University. Though not a protected historical site, the Isle La Cache Museum is part of the FPDWC, and it is located on 135th Street adjacent to the Des Plaines River north of HMs' property.

Recreation

No recreation areas exist within HMS' property. However, a number of local recreational spaces and parks are located within the Planning area in the surrounding municipalities of Romeoville, Lockport, Lemont, Homer Glen, and Crest Hill. The I & M Canal Trail and State Park begins south of the HMS' property, in Lockport.

Visual Resources

The lower Des Plaines River Valley is a heavily industrialized landscape with few vantage points. What landscape can be seen is of negligible scenic value. No publicly-accessible scenic overlooks allow visual reference to HMS property, and quarries owned by HMS are screened from view along IL-53 by earthen berms.

Education

No educational facilities exist within the HMS' property. Lewis University and Romeoville High School are located in the Planning Area immediately west of HMS' property. No other educational facilities exist within the vicinity of HMS' property.

Noise

Existing ambient noise is emitted from a number of ongoing industrial and transportation activities within and adjacent to HMS' property, including overhead power lines, vehicular traffic, rail traffic, barge traffic, manufacturing, mining machinery, petroleum refinery, and airplane noise. Within HMS' property, intermittent noise is emitted from blasting activities within Pierce Eich Quarry that may be perceived by residents of the Collegeview subdivision. However, blasting activities are subject to Illinois DNR Mining regulations and a stringent set of restrictions agreed to between HMS and the Village of Romeoville in a 1995 Annexation Agreement. Part of ongoing efforts to reduce any perceived noise impacts includes re-orienting the quarry walls to minimize perceived noise and vibrations. Refer to the Mining Plan in Appendix E of the HCP for more detailed information.

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

4.1 Introduction and Approach

This chapter describes the environmental effects of the three alternatives retained for detailed analysis: the No-Action Alternative, the Proposed Action Alternative, and the Early Planning Alternative. The chapter is organized by alternatives, with an evaluation of each resource under each alternative and corresponds to the organization of Chapter 3. It focuses on the reasonably foreseeable environmental effects that could result from each of the alternatives.

4.2 Environmental Consequences of the No-Action Alternative #1

The No-Action Alternative involves the Service not issuing an ITP nor approving the HCP. HMS' activities would be limited to those mining activities that would not affect federally protected species, and therefore would not require an ITP. HMS would not be able to mine more than 300 million tons of

reserves; the HMS would only be able to surface mine in the East Parcel, for about six years. That area can be mined without an ITP because no impact to the Covered Species or their habitat would result from mining. Also, HMS would not implement any conservation measures (i.e., AMMs or mitigation) to benefit the Covered Species under this alternative.

The Middle Parcel would not be mined under this alternative. The remaining dolomite prairie and wetlands on this site would be expected to remain, though they are surrounded by weedy woody (e.g., buckthorn) and herbaceous (e.g., *Phragmites*) species and would likely continue to degrade and lose habitat functions.

Mining operations at the Romeoville facility would likely be completed in approximately six years and the HMS would not be able to mine further until the Covered Species are no longer listed. This would result in HMS losing 57 million tons of surface stone reserves and more than 300 million tons of subsurface reserves, which were acquired and, in most cases, permitted for mining prior to the listing of the Covered Species. According to HMS, this would cost them millions of dollars, and result in the loss of over 205 well-paying jobs, and severely damage the local economy.

Since this alternative includes very limited mining at the Romeoville facility (36 acres in East Parcel), the local area would have to be supplied largely with limestone from other quarries outside the region. The typical truck delivery distance from the Romeoville facility to HMS customers is approximately 10 miles. The next closest HMS limestone location is the Federal Quarry in McCook, Illinois, approximately 20 miles from Romeoville. The increase in delivery distance increases the delivered cost of the limestone to customers. Since limestone would be shipped a longer distance, the trucks on the road will be traveling a longer distance and generating more pollutants.

Without an ITP, HMS would not implement the restoration and land management and protection activities proposed in the HCP. The no-action alternative would result in no ecological restoration or management of HMS parcels that provide Covered Species' habitat or potential habitat (i.e. Fitzpatrick Seep, River South, ComEd, Long Run, River, North, Far North, River North, and River Parcels), which are currently degrading. These are the largest undeveloped, unprotected, and unmanaged private parcels that provide habitat for the HED and the other Covered Species in the lower Des Plaines River Valley. They represent a potential linkage across the landscape that would reduce genetic and population isolation between protected lands that contain the Covered Species. As such, these lands represent some of the most promising locations for habitat restoration for the maintenance and expansion of the HED, BT and ST, and LPC habitats and populations in the Des Plaines River Valley. Without the active management of these sites, the current and potential future habitat they contain will continue to degrade.

In addition, HMS would not implement any of the groundwater impact avoidance measures proposed under the Proposed Action Alternative. While the proposed groundwater enhancement measures are intended to prevent groundwater impacts from future surface mining, these engineered enhancements could provide the flexibility of supplying additional water to HED breeding habitat in periods of extended droughts. These infiltration galleries and other measures would not be constructed in this alternative, and so they would not be available if needed to respond to drought conditions.

4.2.1 Physical Resources

Surface Water

Under the No-Action Alternative, the only surface mining that would take place at the Romeoville facility would be in East Parcel (36 acres) at the north end of East Quarry. HMS has an NPDES permit (#ILR0033375) for all of its Romeoville facility mining operations. Surface waters will be protected by the implementation of appropriate sediment and erosion control measures as required by the permit for all current and future mining operations. Therefore, the No-Action Alternative is not expected to have an impact on surface waters.

In addition, HMS' mining of East Parcel will have no impact on wetlands and very limited effect on surface waterways. No surface waterways will be impacted (i.e. physically altered) by this surface mining operation. The Des Plaines River will continue to receive excess water that is captured in and pumped out of all the quarries. The water captured in quarries is from the small amount of groundwater that seeps through the quarry walls and from precipitation. This water is recycled through and reused in the Romeoville Quarry's operations, with any surplus water discharged into the Des Plaines River under an NPDES permit. The area from which this groundwater is captured may eventually decrease after all surface mining is complete because the quarries that are no longer mined will likely no longer be pumped and will eventually be allowed to fill. Since the current discharge to the river is controlled/regulated by an NPDES permit, the reduction in discharge under the No-Action Alternative is not expected to have a significant effect on surface water.

Groundwater

Under the No-Action Alternative quarry operations will only mine surface reserves in East Parcel.

HMS plans to surface mine 36 acres of dolomitic bedrock in East Parcel. This area is part of the mining operations and includes a former settling pond and product stockpiles. This area contains no wetlands or Covered Species habitat. HMS plans to remove overburden from this area and then begin quarrying. Dewatering of all existing open pits would continue at least for the approximately six years of quarrying in East Parcel. Thus, groundwater conditions would initially remain similar to background (existing) conditions for this period of time.

Due to its location between the Des Plaines River and the Canal (to the west and east, respectively), and the open quarry pit to the south, East Parcel is essentially isolated from other portions of the facility that are hydraulically connected to the Silurian Aquifer. Steady-state simulations of the East Quarry construction indicate that the maximum extent of drawdown extends about 1,500 feet to the north in the area of the Midwest Generation power plant (Refer to Figure 2-1 of AECOM 2014). The River and Canal are both hydraulically connected with the Silurian Bedrock Aquifer. These hydraulic barriers result in a very limited amount of additional drawdown from the expanded surface mining operation. The drawdown (from existing conditions) is limited to only areas that are immediately adjacent to the new mined parcel. This includes a very steep cone of depression on the thin strip of land on the west edge of the new mining parcel adjacent to the River, as well as the small area near the Facility's office, scale and processing plant.

A slight cone of depression of less than three feet is anticipated north of the mined parcel. Long-term drawdown is again limited by the hydraulic controls of the River and Canal. NRG Energy's Romeoville Plant is located immediately north of East Parcel and is almost all developed land with little vegetation.

No habitat exists in the area of predicted drawdown. Thus, surface mining of the northern portion of the East Quarry will not impact local hydrology or habitat for the Covered Species. Furthermore, since this area is essentially hydraulically isolated from other areas of the Silurian Aquifer, East Parcel construction will not affect the quality or quantity of groundwater supplying local community and private wells.

After the East Parcel is mined, there would be little value in the Romeoville Facility as an aggregate source and production plant, so it is likely that dewatering of the quarries would be discontinued. Eventually, after all equipment is removed, the pumps would be stopped, and the quarries would naturally inundate. Groundwater levels adjacent to the quarries would return to near-preconstruction levels. The rebounding of water levels in this area would result in a positive net affect for the groundwater supplies at nearby habitat areas and at private residences and at the Collegeview wells. The rise of groundwater levels would reduce the total dynamic head in the water supply wells since higher water levels require less lift and power to bring the water to the surface. It is important to note that the final groundwater conditions after abandonment of the facility for the Proposed Action Alternative and No-Action Alternative are very similar with the only difference being the timing of the eventual filling of the quarries.

Geology

The No-Action Alternative will not remove additional bedrock from the Pierce Eich Quarry, Middle Quarry, or Middle Parcel. Maintaining the bedrock in these parcels is a major difference (along with no mitigation being performed) between the No-Action Alternative, the Proposed Action Alternative and Early Planning Alternative. The No-Action Alternative also does not include any subsurface mining.

The proposed quarry in the East Parcel will have only marginal effects on the remaining bedrock. Minor blast-induced fracturing or expansion of existing fractures, joints or bedding planes may occur adjacent to the blast area (Rustan et al. 2010). Blasting induced discontinuities are unlikely to extend further than the established mining offsets. The drilling and blasting conducted in the East Parcel will expose new faces of bedrock which become open to atmospheric conditions. Freshly exposed bedrock will experience increases in mechanical and chemical weathering.

However, the exposure of bedrock is trivial and will not significantly impact the overall geology and hydrogeology at the site since chemical and physical properties of the rock will not change, potential for seismic activity will not change, isostatic changes are not anticipated and groundwater geochemistry changes will not induce dissolution of the dolomitic rock. Groundwater quality changes are not anticipated in the East Parcel due to its proximity to major surface water features. Finally, slumps and landslides are of little concern due to the stability of the rock. The rock properties that make the dolomitic bedrock a good aggregate also make stable quarry walls. The exposed mining faces will eventually become nearly saturated when the Quarry is ultimately filled. Thus, the quarrying of the dolomitic bedrock planned in the No-Action Alternative is not anticipated to affect local geology beyond the removal of the bedrock in the East Parcel.

Soils

Under the No- Action Alternative, the dolomite prairie areas of Middle Parcel would not be mined. However, it is expected that in the absence of restoration or management, the plant community would continue to transition over time from native dolomite prairie species to invasive species such as *Phragmites*, with associated changes in soil composition.

Additionally, under this alternative there would be no restoration and management of vegetation in Covered Species habitat or potential habitat areas in other parcels on HMS' property. As a result, there is the potential for the degradation of native soils through the expansion of invasive species, such as *Phragmites* and buckthorn, in these parcels as well. Buckthorn, a common invasive shrub in the Planning Area, is known to have allelopathic effects that inhibit the germination of some native species (Klionsky et. al. 2011; Seltzner and Eddy 2003). In addition, this and other invasive shrubs and trees often grow so dense that they shade-suppress native ground layer vegetation and over time will deplete the native seed bank in the soil.

Climate

While the No-Action Alternative will involve less mining at the Romeoville facility and as a result will produce less greenhouse gasses, it will not reduce regional greenhouse gas emissions. Discontinuing mining at Romeoville (after approximately six years) will result in former customers having to find limestone products from other quarries that are likely further away, which will result in higher fuel consumption for product delivery. In addition, it is much more likely that the product from these other mines will be shipped by truck which is much less fuel efficient than shipping by barge. Shipping by barge is nine times as fuel efficient as shipping by truck and produces less than 1/5 of the greenhouse gases and other air pollutants. HMS' Romeoville facility is one of the only regional limestone quarries that can ship its product by barge, and it ships most of its product by barge.

Air Quality

Locally, air quality may initially improve under the No-Action Alternative after mining operations cease at the Romeoville facility after approximately six years, as use of mining equipment at the site is discontinued and local truck traffic reduced. However, this alternative may also have negative effects on regional air quality due to the shift to trucking from shipping by barge as described under the Climate section above.

In order to ship 1.3 million tons (average annual barge shipments) of aggregate material by truck, an additional 59,000 truck shipments would be on the surface roads and interstates around Chicago annually. Truck shipping emits considerably more air pollutants than barge shipping due to the increased amount of diesel fuel consumed by trucks. The difference in the amount of air contaminants emitted during truck and barge shipping is listed in Table 3, below.

Table 3. Air emissions produced transporting aggregate material.

Air Emissions (Grams/Ton-mile)				
Transport-type	Hydrocarbons	Particulate Matter	Nitrogen Oxides	Carbon Monoxide
Barge	0.014123	0.007955	0.27435	0.0432
Truck	0.10	0.06	1.45	0.37

Based on the above emissions, the increased truck traffic resulting from a shift to aggregate from another quarry that cannot be shipped by barge would significantly increase air pollution in the Chicago area. As a result, the No-Action Alternative may increase regional air pollution and have a negative impact on air quality.

4.2.2 Biological Resources

Vegetation

Under the No-Action Alternative, East Parcel will be the only area mined or developed. There is little vegetation on the portion of this parcel that will be mined and what is found in this area is highly disturbed and dominated by weedy species. The floodplain forest on its west edge is also dominated by weedy species but will not be impacted by the mining.

The No-Action Alternative would result in no ecological restoration or management of HMS' other parcels that provide Covered Species' habitat or potential habitat (i.e. Fitzpatrick Seep, River South, ComEd, Long Run, River, and the North Parcels (North, Far North and River North Parcels)). These are the largest undeveloped, unprotected, and unmanaged private parcels that provide habitat for the HED in Illinois, and habitat for the other Covered Species in the lower Des Plaines River Valley. They represent a potential linkage across the landscape that reduces genetic and population isolation between currently protected lands that contain the Covered Species. As such, these lands represent some of the most promising locations for habitat restoration for the maintenance and expansion of the HED, BT and ST, and LPC habitats and populations in the Des Plaines River Valley. Without the active management of these sites, the current and potential future habitat they contain will continue to degrade mostly through the expansion of invasive vegetation. The effects of invasive vegetation on HED habitat and other wildlife is discussed in more detail in Section 2.3.1 of this document.

Wetlands

Surface mining of East Parcel under the No-Action Alternative will have no impact on wetlands as there are no wetlands in the area to be mined. The floodplain forest on its west edge likely contains wetlands but will not be impacted by the mining.

Wetlands are common on other HMS' parcels within their property, and most of the habitat or potential habitat for the Covered Species within the HMS' property is provided by these wetlands. However, as explained in the Vegetation section above, these wetlands will continue to degrade, mostly through the expansion of invasive species, without ecological restoration and management, which is not included in the No-Action Alternative. This likely habitat loss through continuing encroachment of invasive species such as *Phragmites* is expected to continue on the six acres of wet-mesic dolomite prairie remaining on Middle Parcel as well as HMS' other parcels on their property.

Critical Habitat

USFWS has designated Critical Habitat for the HED. Critical Habitat Units (CHUs) and Primary Constituent Elements (PCEs) for the HED are discussed in Section 2.3.2 and 3.3 of this document and Section 5.1.6 of the HCP. East Parcel is not designated Critical Habitat; therefore, no Critical Habitat will be impacted under the No-Action Alternative. In addition, there are no groundwater impacts to any CHUs or their PCEs from mining East Parcel because it is isolated from nearby CHUs by neighboring water bodies (i.e. Des Plaines River and two canals).

However, as described under the Vegetation section above, without ecological restoration and management (which is not included in the No-Action Alternative), the ecological quality of HMS' parcels that are within CHUs will decline. This decline will likely lead to the loss or reduction of PCEs in these parcels. Therefore, there could be a negative effect on PCEs under the No-Action Alternative because no ecological restoration or management will occur.

General Wildlife

Activities under the No-Action Alternative will occur near, but not adjacent to, waterways and will not require crossing any streams or ponds other than on existing bridges. The No-Action Alternative will not result in discharges of seepage or recycled water into the Des Plaines River greater or different in quality than already permitted. As mining concludes in approximately six years, discharges will decrease. Mining East Parcel will require the removal of little vegetation, all of which is weedy, and thus will have minimal impact on wildlife habitat.

However, without the restoration and management of other parcels proposed in the HCP, wildlife habitat will continue to degrade, and negatively affect wildlife, including birds.

4.2.3 Federal and State Listed Species

Hine's Emerald Dragonfly

Surface mining in the East Parcel (36 acres) will not impact the HED or its habitat because it is not present on this parcel. East Quarry is separated from all HED habitat areas by the Des Plaines River on the west and two canals (Chicago Sanitary and Ship Canal and the Illinois & Michigan Canal) on the east. Thus, no potential impacts to the groundwater hydrology in habitat areas are expected from mining in this area. Therefore, there are no anticipated affects to HED or its habitat from mining under the No-Action Alternative.

The No-Action Alternative would also result in no ecological restoration or management of HMS' other parcels that provide the HED and other Covered Species' habitat or potential habitat (i.e. Fitzpatrick Seep, River South, ComEd, Long Run, River, and the North Parcels). These are the largest undeveloped, unprotected, and unmanaged private parcels that provide habitat for the HED in Illinois, and habitat for the other Covered Species in the lower Des Plaines River Valley. They represent a potential linkage across the landscape that reduce genetic and population isolation between currently protected lands that contain the Covered Species. As such, these lands represent some of the most promising locations for habitat preservation and restoration for the maintenance and expansion of the HED, BT and ST, and LPC habitats and populations in the Des Plaines River Valley. Without the active management of these sites, the current and potential future habitat they contain will continue to degrade, mostly through the expansion of invasive species. The effects of invasive species on HED habitat and other wildlife are discussed in more detail in Section 2.3.1 of this document.

This alternative also does not include any of the groundwater impact avoidance measures proposed by HMS under the Proposed Action Alternative. While the proposed groundwater enhancement measures are intended to prevent groundwater impacts from future surface mining, these engineered enhancements are flexible in their design and may be utilized to prevent or reduce unforeseen groundwater impacts from other anthropogenic sources, such as increased withdrawal of nearby community water supply wells and/or citing of new production wells. The proposed hydrological enhancements under the Proposed Action Alternative also provide the flexibility of supplying additional water in periods of extended droughts. The benefit of improving local hydrology will not be realized under the No-Action Alternative.

Blanding's Turtle and Spotted Turtle

East Parcel contains no turtle habitat. In addition, there are no groundwater impacts to any turtle habitat areas from mining East Parcel because it is isolated from nearby potential habitat areas by neighboring

water bodies (i.e. Des Plaines River and canals). Thus, no effects to turtles or turtle habitat will occur during the mining of this parcel. However, as is the case with the HED, without the implementation of the Conservation Program (AMMs and mitigation) in the HCP under the Proposed Action Alternative, turtle habitat and potential turtle habitat will continue to degrade in quality and quantity over time and will leave large portions of existing habitat unprotected, thereby negatively affecting the turtle population.

Leafy Prairie Clover

LPC is not found on East Parcel where mining would occur under the No-Action Alternative and, therefore, mining activities will have no effect on the LPC population. However, LPC is found within HMS' ComEd Parcel, and the lack of management of its habitat areas under the No-Action Alternative may negatively affect the species by reducing the suitability of its habitat.

Lakeside Daisy

We do not anticipate impacts to the LD populations occurring at Lockport Prairie Nature Preserve or Romeoville Prairie Nature Preserve under the No-Action Alternative, as no groundwater impacts to Lockport Prairie or Romeoville Prairie are expected from mining only East Parcel.

4.2.4 Social and Economic Resources

Land Use

All mining included in the No-Action Alternative will take place on land owned by HMS, all of which is authorized/zoned for mining. Therefore, the No-Action Alternative will not have any effect on land use within the Permit or Planning Area.

Economic Impact

Under the No-Action Alternative, mining would only occur on East Parcel and would conclude entirely in approximately six years. This alternative would deprive HMS of the opportunity to quarry all but a very small amount of its remaining surface reserves in the Des Plaines River Valley. This would result in HMS losing 57 million tons of surface stone reserves and more than 300 million tons of subsurface reserves which were acquired for mining prior to the listing of the Covered Species. This will cost the HMS millions of dollars in revenue. Current surface mining operations at this facility employ (directly or indirectly) approximately 85 people and provides aggregate product to local and regional markets.

The Romeoville facility is particularly important to HMS regional mining operations because it is the only regional limestone quarry that can ship materials via truck, rail, and barge. Because of its location on the Chicago Sanitary and Ship Canal, two-thirds (or 67%) of the products from the Romeoville facility is shipped via barge to locations along the Illinois Waterway System from Chicago to Peoria. If the Romeoville facility were no longer in operation, all this material would have to be supplied via truck, which is more costly and less fuel-efficient than shipping by barge. In addition to the increase in fuel consumption to ship aggregate by truck, there would be increased equipment use and manpower, raising costs even more. This translates to at least $5 more per ton to ship from Romeoville to Chicago by truck rather than by barge (more than a 300% increase in costs). HMS typically ships approximately 1.3 million tons of material from the Romeoville quarry via barge annually. It would cost an additional $6.5 million to transport this same material by truck. Barge delivery is not available at other HMS facilities in the Chicago area. This transportation option is critical to HMS' operations and will become increasingly so as fuel prices are anticipated to rise in the future.

Without the ability to expand surface mining operations while continuing to use the associated processing and shipping facility, there will be no financial resources to continue any conservation efforts, including restoration, management, and preservation of habitat areas on HMS' property.

Human Health and Safety

None of the activities in the No-Action Alternative will pose any increase in risks to employees of HMS, its guests, or the general public. However, this alternative foreseeably results in shifting local and regional aggregate customers to other sources of aggregate that would be transported by truck rather than barge as occurs at this HMS facility. Far fewer accidents and fatalities are associated with shipping freight by barge than by train or truck. There is one injury in the marine transport sector for every 125 in rail and 2171 in the highway sectors and one fatality in the marine transport sector for every 22 in rail and 155 in the highway sectors (National Waterways Foundation, 2008). Therefore, this shift in mode of aggregate transportation may negatively affect the safety of aggregate delivery.

Hazardous Materials

The No-Action Alternative includes mining in East Parcel only; no additional or different hazardous materials are expected to be used. Therefore, no change in the use of hazardous materials is expected under the No-Action Alternative.

No appreciable effects related to the contaminated site within HMS' property (Buckeye/West Shore oil spill in Long Run Parcel) or the four others located in the Planning Area (Toyal America, Chevron, Cliffs Container, and Illiana Scrap) are expected to be associated with implementing the No-Action Alternative. In sum, no appreciable effects associated with hazardous materials on-site or in the Planning Area are anticipated to occur by implementing the No-Action Alternative.

Transportation

Under the No-Action Alternative mining activities are expected to continue at current or reduced rates for six years and then stop altogether. Likewise, limestone product will continue to be shipped to customers/market from this facility by barge, train, or truck for six years.

Because of its location on the Chicago Sanitary and Ship Canal, approximately two-thirds (or 67%) of the products from the Romeoville facility are shipped via barge to locations along the Illinois Waterway system from Chicago to Peoria. If the Romeoville facility were no longer in operation, all of this material would have to be supplied via truck, which is more costly and significantly less fuel-efficient than shipping by barge. Barges can move one ton of cargo 514 miles on a single gallon of fuel, while trucks can haul the same amount of cargo on one gallon of diesel fuel only 59 miles. In addition to the increase in fuel consumption to ship aggregate by truck, there would be increased equipment use and manpower, raising costs even more. This translates to at least $5 more per ton to ship from Romeoville to Chicago by truck rather than by barge (more than a 300% increase in costs). HMS typically ships approximately 1.3 million tons of material from the Romeoville quarry via barge annually. It would cost an additional $6.5 million to transport this same material by truck.

In addition, fewer accidents and fatalities are associated with shipping freight by barge than by train or truck. There is one injury in the marine transport sector for every 125 in rail and 2,171 in the highway sector as well as one fatality in the marine transport sector for every 22 in rail and 115 in the highway sectors. Barge delivery is not available at other HMS facilities in the Chicago area.

The frequency of train track crossings is not expected to change under the No-Action Alternative for the first six years as mining continues in East Parcel. Following the conclusion of mining at East Parcel, vehicle traffic associated with mining will cease, therefore removing any effects on rail traffic or railroad tracks.

Train and truck traffic associated with mining activities at the Romeoville facility is expected to continue at about the same rate during the six years of mining under the No-Action Alternative, and then will cease after mining operations conclude thereby reducing local train and truck traffic. However, ending mining at the Romeoville facility will result in much more truck traffic regionally. It will require an additional 59,000 truck shipments on the surface roads and interstates around Chicago annually to replace recent average annual barge shipments (1.3 million tons). Therefore, the No-Action Alternative may have a beneficial effect on local traffic but a negative effect on regional traffic.

Utilities

Mining under the No-Action Alternative will not occur in areas that affect overhead transmission and distribution lines or buried cables, pipelines, fiber optic, or communications lines. None of the activities under the No-Action Alternative will have any effect on the Bear Trap dam just south of HMS' property or the Will County Generating Station at the north end of HMS' property.

Cultural Resources

There are no cultural or historic resources on HMS' property; therefore, implementation of the No-Action Alternative will have no effect on cultural or historic resources.

Recreation

None of the land that will be mined under the No-Action Alternative is accessible to the public; therefore, it provides no recreational value. Without implementation of the conservation package, no additional land will be preserved or maintained for future public access or passive recreation. Therefore, the implementation of the No-Action Alternative will have no effect on existing recreational value or access but may decrease future recreational resources on HMS' property.

Visual Resources

The No-Action Alternative will result in no appreciable effect to visual resources. Implementation of the No-Action Alternative will neither allow views of quarries nor will any views of scenic value be blocked. There are berms on the east and north sides of Pierce Eich Quarry and the west side of Middle Parcel to block the view of the quarries from Rt. 53, and both will remain in place.

Education

Implementation of the No-Action Alternative will have no effect on either Lewis University or Romeoville High School. Although there will be some reduction in noise because mining will take place further way from the schools and end after approximately six years, this will not appreciably affect educational opportunities at these schools.

Noise

Quarrying at the Romeoville Facility advances by drilling and blasting techniques by coring holes parallel to an open face and placing charges in them. Blasting is regulated by the IDNR and the Village of Romeoville and is only conducted during permitted hours. Rock blasting technologies are developed to limit ground motion and air concussion. Ground shaking and air concussion are mitigated through

properly designed blasts. Most of the energy of the blasts work to dislodge the rock from the quarry face. Remaining energy is released through the air and as vibrations along the ground surface which propagate to the surface a few meters from the detonation (Rustan et al. 2010).

Within HMS' property, existing operational noise from proposed mining activities would cease entirely after six years. Additionally, mining in East Quarry would be further away from residential or educational facilities which might be affected by noise. Blasting activities are regulated by IDNR and were restricted further by the Village of Romeoville in the 1995 Annexation Agreement. Noise impacts from the No-Action Alternative will not change appreciably from current conditions on HMS' property but may decrease in the Planning Area.

4.2.5 Summary of Environmental Consequences of the No-Action Alternative

Noise will likely be positively affected under this alternative. Climate and air quality will be negatively affected because this alternative will result in more truck traffic to supply the regional aggregate market. Biological resources and federally listed species will be negatively impacted because this alternative does not include the preservation, restoration, and management of vegetation and habitat areas within HMS' property leaving them to degrade over time. The local economy will be negatively impacted because of the drastically reduced mining activity at the Romeoville facility under this alternative, and transportation may be positively affected locally but regionally will likely be negatively impacted through increased truck traffic.

4.3 Environmental Consequences of Alternative #2 - Proposed Action Alternative

The Proposed Action Alternative includes issuing an ITP and approving the proposed HCP. The HCP includes the conservation measures (AMMs and mitigation) designed to address the potential impacts from activities covered by the permit (i.e. Covered Activities). Under the Proposed Action Alternative, mining activities will be extended for an additional 35 years and will include surface mining in Pierce Eich Quarry, Middle Quarry, Middle Parcel, and East Parcel, as well as subsurface mining under the Romeoville Facility (HCP Figure 15.1, Appendix A and Appendix E).

4.3.1 Physical Resources

Surface Water

HMS has an NPDES permit (#ILR0033375) for its Romeoville facility mining operations. The Des Plaines River receives excess water that is captured in and pumped out of the quarries. The water captured in quarries is from the small amount of groundwater that seeps through the quarry walls and from precipitation. This water is recycled through and reused in the Romeoville Quarry's operations, with any surplus water discharged into the Des Plaines River under an NPDES permit. The water captured in the quarries is expected to increase as surface mining expands. However, not all of the quarry water will be discharged to the river, because under the Applicant's Proposed HCP Alternative some of the quarry water will be rerouted to the proposed infiltration galleries in River South Bluff Parcel to augment ground water. Under the Applicant's Proposed HCP, the amount discharged to the river is not expected to increase significantly, if at all. In addition, after mining is completed in Pierce Eich Quarry, the tunnel connecting it to Middle Quarry will be plugged and the quarry will be filled by groundwater and precipitation, further reducing the amount of quarry water being discharged to the river.

In addition to the current NPDES permit that covers mining operations (which include overburden removal that will impact wetlands), a soil erosion and sediment control (SE/SC) plan will need to be developed and approved for all wetland impact areas as part of the Clean Water Act Sections 401 Water Quality Certification and 404 Wetland Permit. Practices included in the required SE/SC plans will be constructed to meet minimum standards and specifications in the *Illinois Urban Manual* (AISWCD 2013). A separate NPDES permit also will be obtained for the planned prairie transplant operations in Long Run and ComEd Parcels, adding further protections to surface waters in those parcels. In addition, many of the Avoidance and Minimization Measures outlined in the HCP (HCP Section 5.1.3) are consistent with the measures required by the above permits and will also prevent or reduce surface water quality impacts.

An infiltration pond also will be installed on FPDWC property in the southwest corner of Route 53 and Renwick Road under the Proposed Action Alternative to enhance groundwater recharge in this area (AECOM 2014 and 2016). The infiltration pond will be constructed by installing a berm to hold back surface water before it drains north through a culvert under Renwick Road. The infiltration pond will be over 13 acres in size and will detain runoff that is conveyed to this area from a 186-acre watershed located west of the pond. The infiltration pond will act as a hydrologic buffer between HMS' Quarries and Lockport Prairie Nature Preserve and will prevent groundwater influence that mining operation could have on the preserve. As a result, more surface water will infiltrate further up in the watershed (i.e. west of Rt. 53) and less will be discharged east of Route 53 and north of Renwick Road.

Groundwater

Potential impacts from the Proposed Action Alternative to area groundwater have been investigated and evaluated through groundwater modeling (AECOM 2012, 2013b and 2014b; Kay et al. 2018). Impacts to area groundwater could have consequences for sensitive environmental receptors, such as HED larval habitat in nearby wetland areas and Illinois Nature Preserves, as well as for private, community, and municipal water wells.

The groundwater model constructed for the Romeoville Quarry simulates groundwater flow within the Silurian Aquifer over a large regional area. The domain of the model extends west to the DuPage River, north to Bolingbrook, east to the confluence of the Sanitary and Ship and Cal-Sag Canals and south to southern Joliet. The vertical domain of the groundwater model is limited to the Silurian Aquifer and hydraulically connected overburden deposits because the Silurian Aquifer is hydraulically isolated from the deeper Cambrian–Ordovician Aquifer system by the Maquoketa Group (AECOM|STS, 2008).

Groundwater modeling indicates that the maximum extent of influence from the proposed Romeoville Quarry expansion occurs in the final two years of mining in Pierce Eich Quarry. The potential drawdown from current conditions will reach a maximum level in 5 to 8 years from present depending on the progression of mining in Pierce Eich Quarry. The maximum extent of influence from the quarry extends primarily to the south-southwest for about a mile. The northern limit of influence is just north of Romeoville High School, approximately parallel to the elevated power lines located west of the NRG Power Station. In the east, the capture zone of Middle Parcel is bounded by the Des Plaines River. The limit of influence to the south and west extend almost to the western and southern extents of the Lewis Airport runways as illustrated in Figure 4-1 (Appendix A).

The total area of influence of the Romeoville Quarry appears to encompass an area of almost three-square miles. The existing capture zone does not extend to Village of Romeoville production wells

located north and west of the site. The closest Romeoville Well is #3, which is located over a mile north of the limit of the quarry's influence. Romeoville Well #3 is modeled to be continuously pumped at almost 500 gallons per minute (gpm) throughout the entire 44-year transient model simulation. Thus, this single well is simulated to withdraw over 11.5 billion gallons of water during the simulation periods. Predicting some drawdown would appear reasonable considering the high rate of withdrawals at this well, however, as illustrated in Figure 4-1 (Appendix A), no interference is anticipated to occur at this important well from the proposed mining plan. Groundwater levels will recover quickly once mining in the Pierce Eich Quarry is complete and the parcel is allowed to naturally inundate.

Potential Impacts to Community Water Supply Wells

The only community water supply (CWS) wells within the projected cone of depression for the surface mine include the Collegeview Subdivision wells. The surface mining has had an influence on the Collegeview CWS wells since mining began in Pierce Eich Quarry in the late 1990s. The projected change in groundwater levels from the expansion into the Pierce Eich Parcels were simulated in groundwater modeling simulations conducted during the mid-1990's. As a result of the projected decline in water supplies from the then-existing Collegeview CWS wells, HMS installed a new water-supply well in 2002 to supplement the neighborhood water supply system. This well (Collegeview Well #4) was installed on the south-southwest side of the neighborhood to offset the projected reductions in groundwater supplies at the then existing wells. Water levels have been monitored south of Pierce Eich Quarry to evaluate observed groundwater levels and compare them to projected groundwater levels that were developed during simulation of the construction of the Pierce Eich Quarry. Thus, residents of the Collegeview Subdivision will not be impacted by the expansion of Pierce Eich Quarry since measures have already been taken to avoid potential impacts to the groundwater supply. Inundation of Pierce Eich Quarry will cause groundwater levels in the area to rise. The rebounding of water levels in the Collegeview area will not affect the groundwater supplies of the Collegeview wells, except for reducing the total dynamic head in the CWS wells since the higher water levels will require less lift.

The greatest drawdown within the Shallow Bedrock Aquifer within Collegeview Subdivision will be observed in the northern portion of the neighborhood. The predicted drawdown on the northern portion of the neighborhood will be 5 to 10 feet lower than pre-mining groundwater levels. Along Airport Road, the predicted drawdown will be about 3 feet. These drawdowns remain within the target drawdowns established in 1995 for this area. A new CWS well (Collegeview Well #4) was installed to supplement water supplies to accommodate this degree of drawdown. Therefore, the maximum drawdown is within the acceptable groundwater elevation range that was established when the new well was designed to supplement existing water supplies

The groundwater modeling simulations for the Collegeview Subdivision CWS wells were re-evaluated in 2012 using a new groundwater model that was constructed to assist in the HCP evaluations. The predicted groundwater elevations from 1995 and 2012 modeling simulations are tabulated in Table 4.

The above summary suggests that the original estimates of resulting groundwater levels in Collegeview Subdivision, which were used to evaluate impacts of Pierce Eich Quarry construction and design of the mitigation water supply well, conservatively assumed the magnitude of drawdown from the Quarry since all of the updated groundwater levels are predicted to be higher. Thus, the on-going groundwater supplies at the Collegeview CWS wells coupled with positive results from independent groundwater modeling simulations indicate that the groundwater impacts from the construction of the Pierce Eich

Table 4. Predicted groundwater elevations from 1995 and 2012 modeling simulations.

Collegeview Subdivision Well No.:	Predicted elevation at completion of mining based on 1995 modeling (ft. msl)	Minimum groundwater elevation based on independent modeling conducted in 2012 (ft. msl)	Difference in Predicted Head (ft.)
1	570	575	+5
2	562	578	+16
3	550	570	+20
4	575	590	+15

Notes: The yield of Well no. 3 was predicted to drop, but still adequately produces water. Well no. 4 was simulated in the 1995 model, but its location was estimated.

Quarry have already been mitigated. Furthermore, future groundwater impacts will be mitigated by filling the Pierce Eich Quarry after mining is completed.

Similar results are observed at other local private residential wells along Airport Road, Route 53, and Taylor Road. The revised groundwater modeling resulted in less drawdown, which was typically on the order of 10 feet, when current head was compared to the 1995 results. However, private wells that are located either on or within a few blocks of Route 53 may show significant fluctuations in water elevations that may not be distinguished in the model because of proximity to the quarry face. Local fracture networks that are in hydraulic communication with the quarry face may affect wells in this area. Precautionary groundwater monitoring will continue near these residential wells.

Much of the expanded area of drawdown is located in the northeastern portion of the Pierce Eich Quarry beneath Romeoville High School and extending west to about Troxel Avenue. Two private residential wells are located in this area: the Poodle Shop well and a residential well just to its west, as illustrated on Figure 4-2 (Appendix A). The 1995 modeling results indicated the anticipated Silurian potentiometric levels would be about 557 feet above mean sea level (msl) at the residential well and 540 ft. msl at the Poodle Shop well. Current simulations indicate that water levels will be higher at maximum drawdown levels. At the maximum extent of drawdown, the anticipated potentiometric levels are 580 ft. msl at the residential well and 570 ft. msl at the Poodle Shop well. The estimated steady state water level after completion of the Pierce Eich quarry and Middle Parcel (after the Pierce Eich quarry is filled) is over 600 ft. msl at both wells. Therefore, despite construction of the Pierce Eich Quarry and Middle Parcel, the anticipated groundwater conditions at the nearest private wells will be higher than estimated prior to original zoning approval in the 1990s. Similar conditions will be experienced at other CWS and private wells after the Pierce Eich quarry is inundated since groundwater levels will equilibrate to pre-existing conditions. Since the quarry has a limited area of influence, the filling of the Pierce Eich Quarry will not have any effect at most CWS wells. However, private residential water wells adjacent to the quarry (Figure 4-2) will exhibit noticeably higher water levels that will reduce the head required to pump the water and may increase yields since the upper portion of the Silurian Bedrock is more transmissive.

Potential Impacts to Natural Communities and Sensitive Species

Groundwater is observed to discharge at the ground surface along various portions of the River South Bluff Parcel. The discharged water then drains to the Des Plaines River via culverts beneath the railroad

line or through the coarse gravel ballast below the tracks. If potentiometric groundwater levels drop in this area, groundwater discharges that occur along the eastern slope of the River South Bluff Parcel will likely decrease. Groundwater modeling completed for the Romeoville Quarry indicates that mining the Pierce Eich Quarry could lead to temporary declines in shallow groundwater levels in the vicinity of the River South Bluff Parcel, and may possibly result in a reduction in Lockport Prairie, if the proposed avoidance measures are not implemented. Rivulets fed by groundwater seeps at River South Bluff Parcel and at Lockport Prairie Nature Preserve support breeding for the endangered HED.

The proposed HCP describes HMS' plans to implement measures to avoid and minimize the potential impacts surface mining may have on the quantity and quality of groundwater within surrounding Lockport Prairie, River South, and other high-quality habitats in the Planning Area. Preliminary design concepts of these AMMs are included in AECOM 2013b, 2014b, 2015a, 2015b, 2015c, and 2016. The Proposed mining plan simulated in the groundwater model includes the following operational and avoidance measures of the HCP:

1. Surface mining at the HMS Romeoville facility will be limited to the Pierce Eich Quarry until approximately 2026.
2. Groundwater enhancements will be constructed in the River South Bluff Parcel and at the southwest corner of Rt. 53 and Renwick Rd. after permits are obtained. Construction will begin within two months after the ITP is issued.
3. Infiltration galleries at River South Bluff Parcel will begin operation shortly after installation. The systems will be operated and maintained for the entire duration of mining in the Pierce Eich Quarry and will continue after mining completion until groundwater baseline conditions are reached and groundwater levels are no longer impacted by the quarry.
4. The pond on FPDWC property at the southwest corner of Rt. 53 and Renwick Rd. is designed to provide a dual purpose throughout the life of the surface mining operation plan. It will provide groundwater infiltration and runoff management. The infiltration pond will be maintained by HMS until baseline conditions are reached after inundation of the Pierce Eich Quarry.
5. When surface mining in the Pierce Eich Quarry approaches completion, mining will begin in the Middle Parcel/Middle Quarry. After the Pierce Eich quarry mining is completed, a water barrier (tunnel plug) will be installed between the Pierce Eich and Middle Quarries. This barrier will be located under the Route 53 road embankment and will block the future dewatering of the Pierce Eich Quarry. Mining will continue in Middle Parcel/Middle Quarry during and after the closing of the Pierce Eich Quarry. Dewatering in the Pierce Eich Quarry will cease when the water barrier is complete.
6. When Middle Parcel surface mining operations are complete, dewatering will continue into the future since underground mining support may be located in Middle Quarry.

Conclusion

Implementation of the groundwater AMMs (River South infiltration gallery, FPDWC pond, and the inundation of Pierce Eich Quarry) will protect sensitive habitat areas during mining operations. With these measures in place, predicted water level variations will remain within historically observed levels during mine construction. Thus, mine construction will not result in changes (increases or decreases) to water levels and impacts are not projected in sensitive habitat areas (for the Covered Species). Groundwater quality variations are also not anticipated based on the proposed mining plan. The

groundwater AMMs under this alternative may have a beneficial effect on the local groundwater levels.

Under the Proposed Action Alternative, the ITP would require the applicant to implement the HCP and conduct ongoing monitoring of groundwater levels in wells that could be affected by mining or AMMs so that currently unforeseen changes in local groundwater levels as result of the applicant's activities can be detected and addressed (Groundwater Monitoring Plan, HCP Appendix G-1).

Geology

The quarrying of the dolomitic bedrock planned in the Proposed Action Alternative is not anticipated to affect the local geology (apart from removing the planned reserves). General environmental consequences of continued mining at East Quarry are described in the No Action Alternative, the Proposed Action Alternative is expected to result in similar impacts, though spread over the additional parcels to be mined. All of the described changes will not significantly impact the overall geology and hydrogeology at the site since chemical and physical properties of the rock will not change, potential for seismic activity will not change, isostatic changes are not anticipated, and groundwater geochemistry changes will not induce dissolution of the dolomitic rock.

Soils

All soils in areas to be mined will be stripped and removed. Hydric soils lost will be compensated for through wetland restoration within the mitigation parcels. Standard Best Management Practices will minimize or eliminate soil erosion and sedimentation into local waterways.

The remnant wet-mesic dolomite prairie in Middle Parcel (6.0 acre) appears to be the only area to be mined or developed under the Proposed Action Alternative to have intact native soil. All other areas have evidence of previous disturbance or degradation. The soil of this area will be salvaged and transplanted with the vegetation to the ComEd Parcel as part of mitigation. Restoration plans are summarized in Chapter 2 of the HCP and described in greater detail in Section 5 of the HCP and in the Restoration Plan Set (HCP, Appendix F).

Climate

While project implementation would produce greenhouse gas emissions as a result of the operation of mining equipment, worker vehicles, and transporting product to market, most of the aggregate produced at this facility is shipped by barge which is much more fuel-efficient than other forms of transportation used to transport aggregate produced at alternate facilities (see Section 2.3.1).

Air Quality

Temporary and localized increases in pollutant concentrations would occur during the project. These would consist of tailpipe emissions from equipment exhaust, fugitive dust emissions from vehicular traffic, and fugitive dust emissions from soil and rock disturbances. These emissions would vary with time of day and activity. During project operation, vehicle travel and maintenance activities might generate minor tailpipe emissions and fugitive dust, but these activities would be limited in extent and should have no appreciable air quality impacts. Furthermore, as indicated in the Climate section, the Romeoville facility, because it ships much of its aggregate product by barge, which is much more fuel efficient than other modes of transportation, produces less air pollutants than most other limestone mines of it size in the region.

4.3.2 Biological Resources

Vegetation

Under the Proposed Action Alternative, Middle Parcel is the only parcel to be surface mined that contains a higher quality remnant native community consisting of a six-acre wet-mesic dolomite prairie. All other areas of Middle Parcel have been highly disturbed or have very degraded vegetation. Pierce Eich Quarry, Middle Quarry, and East Parcel do not contain native plant communities. The areas to be developed on North and Far North Parcels along Rt. 53 also do not contain quality native vegetation.

Although all vegetation in surface mining areas will be cleared, the high-quality remnant wet-mesic dolomite prairie in Middle Parcel will be salvaged and transplanted to ComEd Parcel as part of habitat restoration in that parcel. While this remnant prairie has significant vegetation value, it is not essential to the listed species that are being considered for an ITP. Vegetation management, however, will benefit the federally listed species being considered for an ITP. Changes to groundwater are more likely to impact listed species without the mitigation that has been proposed. Avoidance measures (described in the Groundwater section) will be implemented to prevent any potential groundwater changes that could result from planned mining activities and could negatively impact the native vegetation in LPNP and River South.

On the benefit side,182 acres of native vegetation will be restored, 139 acres will be enhanced, and 33 acres will be maintained on HMS' mitigation parcels. As a result, there will be a net increase in higher quality native vegetation under the Proposed Action Alternative. Therefore, the Proposed Action Alternative, through its mitigation measures, will have a beneficial effect on vegetation.

Wetlands

Expanded surface mining and other development activities under this Proposed Action Alternative will impact federal jurisdictional wetlands on Middle Parcel but no other parcels. Wetlands are found on Middle Parcel, 29.7 acres of which will be impacted during mining operations. In addition, 0.4 acres of wetlands may be filled in the ComEd and Long Run Parcels in creating the access road to be used during restoration activities. Most impacted wetlands are low quality dominated by weedy species such as *Phragmites* or cattail (HCP Figure 17, Appendix A).

Under the Proposed Action Alternative, the applicant proposes to salvage and transport soils and vegetation from the 6acre wet-mesic dolomite prairie on Middle Parcel to degraded areas within the ComEd Parcel. HMS demonstrated the effectiveness of the restoration techniques they plan to utilize for habitat restoration in ComEd and Long Run Parcels and many of the other mitigation parcels (AES 2013). The techniques will be used to restore and enhance native communities throughout ComEd Parcel including area adjacent to the transplant recipient areas and will be used to manage these areas as well as the transplant itself.

All wetland impacts (30.1 acres = 29.7 ac. + 0.4 ac.) will be covered under a joint CWA Sections 401 and 404 permit and will require mitigation.

The wetland mitigation plan includes restoring (creating) 30.1 acres of wetlands (including the 6 acre wet-mesic dolomite prairie transplant) and enhancement of 225 acres of wetland on four of the wetland mitigation parcels (River South, Fitzpatrick Seep, Long Run, and ComEd). Therefore, no net loss of wetlands will occur, and all impacts will be fully mitigated. This mitigation is part of the overall habitat mitigation plan for Covered Species included in the HCP which includes approximately 255 acres of

wetland habitat restoration and enhancement (see HMS Additional Information for Hanson Material Service Middle Parcel Mining Project submitted to the Corps on August 26, 2020). HMS will place all mitigation areas under a deed restriction (HCP Appendix J). Mitigation plans are summarized in Attachment 9 of this August 26, 2020 submittal and described in the Wetland Mitigation Plan Set in Attachment 8 as well as in Section 5 of the HCP and in the Restoration Plan Set (HCP, Appendix F). As a result, there will be no net loss of wetlands and an improvement in quality in approximately 225 acres of wetlands under the Proposed Action Alternative. Therefore, the Proposed Action Alternative, through its mitigation measures, will have a substantial beneficial effect on wetlands.

Critical Habitat

USFWS has designated Critical Habitat for the HED. Effects to Critical Habitat Units (CHUs) and Primary Constituent Elements (PCE) for the HED are discussed in Section 2.3.2 and 3.3 of this document and Section 5.1.6 of the HCP. Further analysis of the impacts to critical habitat are analyzed in the Service's Biological Opinion on HMS's draft HCP.

General Wildlife

Activities under this Proposed Action Alternative will not occur adjacent to waterways (other than habitat restoration activities such as brush removal) or require crossing the streams or ponds other than on existing bridges. Effects to aquatic habitat will be avoided by using standard water and soil conservation practices during construction and operation of the project, including habitat restoration activities (see Surface Water section of this chapter). This Alternative will not result in discharges of seepage or recycled water into the Des Plaines River greater or different in quality than already permitted.

Mining and other development activities under this Alternative are not expected to affect fish and wildlife, including migratory birds. The areas to be mined or developed have been greatly altered in the past (i.e., from earth moving) and include only a small fraction of the habitat relied on by wildlife within the lower Des Plaines River Valley, and the value of the remaining habitat has been reduced due to degradation by invasive species. The habitat that will be lost to future mining and other development activities (49.6 acres of adult HED habitat and 29.1 acres of covered turtle habitat), will be compensated for by the proposed Covered Species habitat restoration (182 acres), enhancement (139 acres), maintenance (33 acres), and preservation (519 acres) activities included in the HCP. In sum, this Alternative will have no appreciable effect on fish and will likely benefit wildlife populations.

4.3.3 Federal and State Listed Species

Hine's Emerald Dragonfly

The incidental take analysis will culminate in the Service's Biological Opinion on the draft HCP. Based on the HCP, Proposed Action Alternative will result in the loss of approximately 49.6 acres of adult HED foraging and/or dispersal habitat in Middle, North, Far North, and Long Run and ComEd Parcels, and HMS is requesting take for this loss of habitat. This loss represents 3.3% of the known adult HED habitat (49.6 ac/1,526 ac) within CHUs in the lower Des Plaines River Valley (HCP Figure 9.0, Appendix A). Note that there is known HED habitat in the lower Des Plaines River Valley and elsewhere in Illinois that is outside of the CHUs. Therefore, this take is expected to have a very limited effect on the overall health and viability of the HED population within the lower Des Plaines River Valley. Consequently, no impacts are expected range wide to HED populations in other states.

There will be no loss of adult habitat elsewhere in the HCP Planning Area. With the implementation of groundwater impact avoidance measures, there are no anticipated impacts to larval habitat as the result of HMS planned activities.

No take of adult HED in the form of mortality is anticipated to occur during mining operations in Middle Parcel because all stripping (removal of overburden) will be conducted, as much as possible, outside the adult flying season (May 15 to October 15). If overburden removal is conducted during flying season all vehicles will travel at very low speeds (i.e., < 15 mph) to avoid take. In addition, actual mining will follow overburden removal and will occur at least 150 feet away from remaining adult HED habitat. No take of larvae is anticipated because recent studies have found no evidence of successful breeding or appropriate larval habitat conditions on the parcel. In addition, no take of adult HED is anticipated during the development of the setback areas on North and Far North Parcels because similar avoidance measures will be used.

No take of adult or larval HED is anticipated during the mining operations at Pierce Eich because it does not contain HED habitat. HMS plans to implement a number of measures to avoid potential impacts its surface mining may have on the contribution of groundwater to larval and adult HED habitat at River South and Lockport Prairie. Measures to avoid potential groundwater related impacts are summarized in the Groundwater section of this chapter and discussed in detail in Section 5.1.3 of the HCP and associated appendix.

Surface mining in East Parcel (36 acres) and Middle Quarry (1 acre) will not impact the HED or its habitat because it is not present in these parcels. East Quarry is separated from all larval habitat areas by the Des Plaines River or two canals. Thus, no potential impacts to the groundwater hydrology in habitat areas are expected from mining in this area. Likewise, no potential groundwater impacts to nearby larval habitat (e.g., River South) are expected from mining Middle Quarry.

In addition to avoidance measures, HMS' HCP includes mitigation to compensate for the impact of take resulting from the loss of habitat. HMS' package includes restoring, enhancing, and maintaining habitat in eight of its parcels: ComEd, Long Run, Fitzpatrick Seep, River South, River, North, Far North, and River North Parcels. In total, HMS will restore 182 acres, enhance 139 acres, and maintain 33 acres of HED adult habitat on 519 acres of permanently protected land. As a result, the HCP will protect 17.9% of all HED Critical Habitat in Illinois and will increase known adult HED habitat in Illinois CHUs by 11.9%. The habitat restoration plan is summarized in Section 2.3.2.7 of this document and described in greater detail in Section 5.1.7 and Appendix F (Restoration Plan Set) of the HCP. According to the schedule in the HCP, much of the habitat restoration will have occurred prior to the loss of the adult HED habitat at Middle Parcel.

Blanding's Turtle and Spotted Turtle

Middle Parcel contains about 29.1 acres of potential ST and BT habitat (HCP Figures 12 & 13). These potential habitat areas contain most of the wetlands on site. The remainder of the site is fill deposits, scraped areas, buckthorn thickets, and young woodlands.

Since HMS is mining almost all of the Middle Parcel, it is estimated to impact all of the potential BT and ST habitat (29.1 acres) on the parcel. BTs have been found on Middle Parcel and other nearby HMS parcels, but little take in the form of mortality of this turtle species is anticipated to occur during mining operations in Middle Parcel because a number of avoidance and minimization measures will be

implemented before and during mining operations to prevent the take of the turtle species (see Section 5.2.3 of the HCP). BT is also known to occur on ComEd and Long Run Parcels, and the same AMMs will be used in these parcels during mitigation activities. Potential habitat for these turtles is found near but not in the setback areas of North and Far North Parcels, so applicable AMMs will be used during any development activities on these sites. Based on the documented occurrences of BT in Middle Parcel and the rest of HMS' property and the AMMs it will implement, HMS does not expect to take more than six BTs but is requesting take for a total of twelve individuals of this species as precaution. This level of take is not expected to have a significant effect on the regional population.

Because STs are not believed to be present on any HMS' property, proposed activities would have no impact on the species. However, as a precaution, take is requested for a total of two STs. This is not expected to have a significant effect on the Illinois population. These take estimates do not include live turtles encountered and/or trapped onsite and relocated to safe, appropriate habitat, during planned avoidance activities. Mitigation for take of BT and ST will be provided mostly through the mitigation measures proposed for HED summarized in Section 2.3.2.7 of this document and described in greater detail in Section 5.1.7 and Appendix F (Restoration Plan Set) of the HCP. In total, HMS will restore, enhance, and maintain 354 acres of turtle habitat on 519 acres of permanently protected land. All of the permanently protected parcels in the HCP contain known or potential habitat for both covered turtle species.

Neither Middle Quarry nor East Parcel contain turtle habitat. Thus, no take of turtles or loss of turtle habitat will occur during the mining of these parcels.

Pierce Eich Parcel does not contain covered turtle habitat, thus no take of turtles during surface mining will occur during mining. HMS plans to implement a number of measures to avoid potential impacts its surface mining may have on the contribution of groundwater to covered turtle habitat in River South and Lockport Prairie. Measures to avoid potential groundwater related impacts are summarized in the Groundwater section of this chapter and discussed in detail in Section 5.1.3 of the HCP and appendix.

The take calculation above describes the reasonable worst-case estimate of take of individuals by HMS, including instances where the impacts to habitat rise to the level of potential harm. Below, we further explain the possible impact this reasonable worst-case take is anticipated to have on BT and ST at the individual and population level.

Blanding's Turtle

Individual Level

Based on the assessment of the potential biological impacts and take in the HCP, Covered Activities that can cause take (that were not avoided or self-mitigating) include only the removal of foraging habitat, movement/dispersal corridor, and possible nesting habitat during the surface mining of Middle Parcel. This mining will result in the loss of 29.1 acres of habitat potentially used by an estimated population of up to eight individuals (adults, juveniles, and hatchlings). Mining Middle Parcel could also impact habitat on North and Far North Parcels. These impacts, if they occur, are likely to be minor because the wetlands on these parcels are supported by surface water.

There could be as many as eight BTs (adult, juveniles, and hatchlings) present on Middle Parcel when fencing and other turtle protection measures go in prior to clearing for mining. HMS anticipates monitoring will locate approximately two of these turtles which would be rescued and moved and

released, but there could be up to six more not located and killed during land clearing and mining. Despite precautions described in the HCP, the potential presence of BTs across all the mining and mitigation parcels means there is the potential for some incidental take of turtles from HMS activities over the permit period. Therefore, HMS is requesting take of up to 12 individual BTs.

Removal of vegetation at Middle Parcel will displace BTs that would have used that habitat in future seasons, and therefore result in impacts. Once exclusion fences are in place any movement from other locations into or through Middle Parcel would be precluded. Because BTs have large home ranges and move between core areas, displaced animals are expected to use North Parcel, Far North Parcel, and River North Parcel. Habitat restoration will occur on all three of these parcels. Ponds and river backwaters on River Parcel also offer potential habitat, especially after restoration activities remove invasive species and increase habitat diversity. All four of these parcels will be permanently protected under HMS' HCP.

Because there is no suitable habitat to the west of Middle Parcel, where IL Rt. 53, agricultural fields, a quarry, and residential subdivisions predominate; or to the south, where an existing quarry is present; loss of Middle Parcel is not expected to disrupt migration corridors. To reach the next known occupied and suitable site to the south (River South Parcel, more than 1,600 yards distant) already requires that animals move to or almost to the Des Plaines River. Proposed mining activities will not affect the river or riverbank.

Although BTs have been found on Middle Parcel, several barriers restrict their access to the site. Deep historic fill and tree and shrub cover on the north portion of the site are a partial barrier to the dolomite prairie, although it appears that at least a few turtles successfully cross this area. Other barriers to dispersal include a quarry to the south and three sets of railroad tracks to the east between Middle Parcel and the Des Plaines River. However, culverts and ditches are thought to offer a connection to the Des Plaines River.

Suitable BT's habitat, however, is found in nearby parcels. Suitable permanent or semi-permanent aquatic habitat is known to be present on Lockport Prairie, Romeoville Prairie, and River South Parcel, and probably on River, North, Far North, and River North Parcels. Based on available observations, BT activity centers are believed to be present at Lockport Prairie, Romeoville Prairie, River South, in river backwaters of River North Parcel, and in a marsh complex within the utility corridor south and east of Far North Parcel.

Nesting was documented at Far North Parcel in 2010, and suitable nesting habitat is available in other parcels near Middle Parcel. Very similar well- drained uplands are present on parts of River and North Parcels as well as Far North Parcel. All are currently accessible to turtles, and all have nearby wetland habitat for juvenile dispersal and foraging. Therefore, loss of Middle Parcel habitat is not likely to constrain future breeding opportunities for the species. Some of the proposed enhancement (e.g. thinning of trees on River Parcel and management of *Phragmites* on River South) would enhance habitat, resulting in a likely long-term net gain in available habitat for BT. Clearing of buckthorn and shrub cover on upland parts of River South in particular would enhance potential nesting habitat which is not currently available because of nearly complete shading. A juvenile was found near an area to be cleared in the mid-1990s, suggesting that enhancement could expand already existing breeding habitat.

In summary, loss of Middle Parcel habitat would reduce the area of habitat available to BTs in the

future. This loss of habitat would be unlikely to reduce breeding success because 1) the area to be impacted is not unusually high quality turtle habitat; 2) areas of equal habitat value are available and fairly widespread in the vicinity; and 3) some areas not currently available as nesting or foraging habitat would become available to BTs as a result of HCP restoration activities.

Three adults and one juvenile BTs were found on the ComEd Parcel (Feng and Dreslik 2015) but appear to be relatively uncommon there. While restoration activities at this site may temporarily displace one or two turtles, the species will experience a longer-term net gain from habitat restoration.

Population Level
Congdon et al. (1993) identified demographic-level threats to BT populations as a result of recruitment levels insufficient to sustain populations over long periods of time. Factors contributing to low recruitment may include nest predation by artificially over-abundant omnivores such as raccoons and skunks and highway mortality of adult female turtles. No covered activity is expected to increase road crossings or egg predation; therefore, alternatives would not be significantly different. Mitigation activities (i.e. reducing cover for or trapping predators) may help reduce egg predation, and it may be possible to reduce road-related mortality of adult turtles by placing exclusion fencing in a way that eliminates or reduces crossings of the quarry access road. Because covered activities would not increase long-term population level impacts and may actually mitigate road impacts and egg predation to some extent, and because of the low level of requested take relative to the regional population, the covered activities are not expected to have a significant effect at the population level. Much larger populations are found at other nearby sites, such as LPNP, RPNP and Keepataw Preserve and River South Parcel.

Spotted Turtle
Although STs are not believed to be present on Hanson Material Service property, and proposed activities are not anticipated to have any impact on the species, HMS is requesting take of two STs as a precaution. This take would have no effect on the Illinois population.

Leafy Prairie Clover
LPC is not found on any parcels where mining or other development activities will occur under the Proposed Action Alternative. However, there are populations on HMS' ComEd and Long Run Parcels where mitigation habitat restoration activities will occur. With the implementation of avoidance measures, HMS anticipates very little (<10 individual plants) to no take of LPC plants. A very small portion of the population on ComEd and Long Run Parcels and an even smaller portion of the entire population found within the Planning Area and the entire lower Des Plaines River Valley will be affected. As mitigation, if take occurs, the affected area will be reseeded from wild-harvested seeds from nearby populations in the ComEd and Long Run Parcels. The impact of possible take of LPC plants from HMS activities will be insignificant. As a result, any needed mitigation, although beneficial, will have a minimal effect on the LPC population.

Lakeside Daisy
The populations of LD at Lockport Prairie and Romeoville Prairie would be vulnerable to impacts of groundwater drawdown if it were to occur. No groundwater impacts to the Romeoville Prairie are anticipated. Potential groundwater impacts to LPNP as a result of the proposed mining activities are small and located at the north end of the parcel. This alternative includes the implementation of groundwater impact avoidances measures which are designed to prevent drawdown at Lockport Prairie; therefore, no take of LD is anticipated.

4.3.4 Social and Economic Resources

Land Use

All mining and other planned development activities included in the Proposed Action Alternative will take place on or under land owned by HMS, all of which is authorized/zoned for mining or will be prior to mining. Nearly all the remaining un-mined parcels owned by HMS will be protected (i.e. preserved) and much of this land will be restored to improve habitat and overall ecological health. Therefore, this alternative will not have any effect on land use within the Planning Area.

Economic Impact

The Proposed Action Alternative allows HMS to continue surface mining at its Romeoville facility for approximately 35 more years and begin subsurface mining operations during that time. Current surface mining operations at this facility employ (directly or indirectly) 85 people and provide aggregate product to local and regional markets.

The Romeoville facility is particularly important to HMS regional mining operations because it is the only regional limestone quarry that can ship materials via truck, rail, and barge. Therefore, this facility is a critical limestone source for HMS serving both local and regional markets. Because of its location on the Chicago Sanitary and Ship Canal, two-thirds (or 67%) of the products from the Romeoville facility (approximately 1.3 million tons each year) are shipped via barge.

In addition, all of the HED conservation efforts on HMS property depend on the continued economic viability of HMS' Romeoville facility. The proposed expansion of surface mining operations and continued use of the associated processing and shipping facility will provide financial resources to continue conservation efforts on HMS' property, including restoration and management of habitat areas.

Human Health and Safety

None of the activities in this Alternative, including expanded mining activities or habitat mitigation activities, will pose any increase in risks to employees of HMS, its guests, or the general public, with the exception of subsurface mining. There are industry-wide accepted safety standards/protocols for conducting subsurface mining which are enforced by the Mine Safety and Health Administration. HMS will adopt and follow these standards as it plans for, initiates, and conducts its subsurface mining. This Alternatives will have no effect on risks to human health and safety.

Hazardous Materials

The Proposed Action Alternative largely includes the continuation of current mining operations; therefore, no additional or different hazardous materials are expected to be used. Subsurface mining also will not include the use of any other hazardous materials. Invasive species control on the mitigation sites will utilize the same types of herbicides and herbicide practices that FPDWC and IDNR use in preserves in the Planning Area. Therefore, little to no change in the use of hazardous materials is expected under the Proposed Action Alternative. With safe storage and appropriate use, any impacts associated with on-site hazardous materials are expected to be unappreciable.

No effects related to the contaminated site within HMS' property (Buckeye/West Shore oil spill in Long Run Parcel) or the four others located in or adjacent to the Planning Area (Toyal America, Chevron, Cliffs Container, and Illiana Scrap) are expected to be associated with implementing the Proposed Action Alternative. HMS' proposed restoration and management in ComEd and Long Run

Parcels will be coordinated, as needed, with the clean-up and restoration efforts in the Buckeye/West Shore oil spill area but will not impact them.

Transportation

Under the Proposed Action Alternative limestone product will continue to be produced from surface mining at the Romeoville quarry for 30-35 years and shipped to customers/market by barge, train, or truck. Because of its location on the Chicago Sanitary and Ship Canal, approximately two-thirds (or 67%) of the products from the Romeoville facility are shipped via barge.

Transporting aggregate product by barge benefits the local community and the environment by reducing traffic, improving air quality, and reducing the quarry's carbon footprint. In addition, far fewer accidents and fatalities are associated with shipping freight by barge than by train or truck. There is one injury in the marine transport sector for every 125 in rail and 2171 in the highway sector as well as one fatality in the marine transport sector for every 22 in rail and 115 in the highway sectors.

Mining activities are expected to continue at current or recently experienced rates, and therefore are not expected to result in additional barge traffic. However, if there is an increase, this canal can accommodate an increase in barge traffic associated with the Proposed Action Alternative.

Neither train nor truck traffic associated with mining activities at the Romeoville facility is expected to increase from current conditions under the Proposed Action Alternative.

Vehicles associated with mining activities that cross the railroad tracks will have to yield to train traffic just as any other roadway users currently do. The frequency of these crossings is not expected to change under the Proposed Action Alternative, except at the tracks east of ComEd Parcel during the dolomite prairie transplant which is estimated to take only a few months. Any project loads that cross railroad tracks will not exceed the weight of loads from current mining activities, and additional loads will not affect railroad tracks differently than existing loads from current mining activities.

This Alternative will pose neither physical encroachments nor visual impairments to take-off and landing operations for planes or pilots using the Chicago-Romeoville Airport in the Planning Area west of HMS' property. Some of the mitigation areas on HMS' property are within 10,000 meters of the airport. The wetland and habitat restoration and enhancement included in the HCP will create neither open water wetlands nor wetlands that hold standing open water for more than 48 hours and should not impact aviation or affect the airport's wildlife hazard management program.

Utilities

Proposed mining will not occur in areas that affect overhead transmission and distribution lines or buried cables, pipelines, fiber optic, or communications lines. Some of the habitat restoration activities, however, will occur near some of these facilities. Some restoration and management activities on River South, ComEd, and North Parcels will occur near overhead power lines. These activities will avoid utility poles and towers and will be coordinated with ComEd to ensure that proper safety protocol is followed. In addition, restoration activities on ComEd and Long Run Parcels, including earth moving, will occur near the Oneoak and Wolverine pipelines. Similarly, these activities will be coordinated with the pipeline operators. None of the activities under the Proposed Action Alternative will have any effect on the Bear Trap dam just south of HMS' property or the Will County Generating Station at the north end of the Planning Area.

In sum, this Alternative will have no effect on utilities related to water, electricity generation and transmission, communications, and commodity (i.e. gas) transportation which are located within HMS' property or in the Planning Area.

Cultural Resources

Based on responses received by the Army Corps of Engineers for the public notice of receipt of the Clean Water Act 404 application, there will be no adverse effects to cultural or historic resources as a result of the Proposed Action Alternative. A response was received by the Miami Tribe of Oklahoma (2019), where they confirmed that they are not aware of a cultural or historic site linked to the project site. In addition, the Illinois State Historic Preservation Office (2019), confirmed that no historic properties will be affected by this Alternative .

Recreation

None of the land that will be mined or developed under this Alternative is accessible to the public; therefore, it provides no recreational value. The mitigation package of the HCP includes the preservation of over 500 acres within HMS' property. Much of this land will be managed to maintain habitat quality and some may allow public access for passive recreation after the ITP term. Therefore, the implementation of the HMS's HCP may increase recreational resources within HMS' property.

Visual Resources

Implementation of the Proposed Action Alternative will neither allow views of quarries nor will any views of scenic value be blocked. There is a berm on the east and north sides of Pierce Eich Quarry and the west side of Middle Parcel to block the view of the quarries from Rt. 53, and both will remain in place. The removal or weedy trees and invasive shrubs on the mitigation parcels, however, will improve the public's view of remnant and restored natural communities, including the transplanted wet-mesic dolomite prairie. Therefore, this Alternative will have a small beneficial effect on visual resources.

Education

Implementation of the Proposed Action Alternative will have little effect on Lewis University or Romeoville High School other than possibly noise during continued surface mining at Pierce Eich Quarry. Although noise from mining will last almost 30 years longer than under the No Action Alternative, it will decrease over time as mining moves to the other side of Rt. 53 and further away from both schools. As discussed below, implementing this Alternative will include continued mining of Pierce Eich Quarry and the renewed mining of Middle Quarry and Parcel which will have little appreciable effect on the noise level from that operation, but it will last for a longer duration. The longer duration of noise from the mining operation, or its decrease over time, will not affect the educational opportunities at either school.

Noise

Expanding quarry operations to Middle Parcel, Middle Quarry, and East Parcel would move mining activities further away from any adjacent residential or educational facilities which may reduce noise in these adjacent areas. Blasting activities are regulated by the IDNR and are subject to a more stringent set of restrictions agreed to between HMS and the Village of Romeoville in a 1995 Annexation Agreement. Part of ongoing efforts to reduce any perceived noise impacts includes re-orienting the quarry walls in Pierce Eich Quarry to minimize perceived noise and vibrations, and this would continue under the Proposed Action Alternative. Refer to the Mining Plan, Appendix E of the HCP for more detailed information. Noise impacts from this Alternative may not change appreciably or decrease

slightly from current conditions on HMS' property or those in the Planning Area. Compared to the No Action Alternative, however, existing noise levels would continue beyond the next six years for approximately 30 years.

4.3.5 Summary of Environmental Consequences

Mitigation measures under the Applicant's Proposed Action Alternative will avoid negative effects to surface water, groundwater, soils, vegetation, wetlands, critical habitat, and Illinois Nature Preserves; and federal and state-listed species (HED, BT, and ST). The planned AMMs and mitigation measures in the HCP are expected to prevent or offset potential impacts to all these resources, and in many cases may provide a positive net benefit. In addition, recreation resources may be positively affected by the Proposed Action Alternative. All other resources would not be measurably affected by the Covered Activities, and therefore do not require conservation measures.

4.4 Environmental Consequences of Alternative #3, Early Planning Alternative

Under the Early Planning Alternative, nearly the same amount of land would be restored or enhanced as under the Proposed Action Alternative, but less would be permanently preserved. Under this alternative, the permitted activities and all AMMs and most mitigation activities would be the same as under the Proposed Action Alternative, but the habitat restoration and preservation package would permanently protect only River South, Fitzpatrick Seep, ComEd, and Long Run Parcels (357 acres) and temporarily protect (during the permit period) North, Far North, River North, River and River South Bluff Parcels.

The Early Planning Alternative does not permanently protect the parcels closest to where habitat would be lost (i.e., Middle Parcel) as a result of Covered Activities. The Proposed Action Alternative permanently protects the four parcels (i.e., River South, Fitzpatrick Seep, ComEd and Long Run) that were already selected for permanent protection under the Early Planning Alternative and includes an additional five parcels (i.e., River, North, Far North, River North, as well as River South Bluff Parcel) that would only be temporarily protected under the Early Planning Alternative. The additional five parcels are located on the west side of the river and closest to HED larval habitat and the area of covered species habitat loss (i.e., Middle Parcel). The addition of the five parcels increases the number of acres permanently protected by 162 acres for a total of 519 acres protected in perpetuity under deed restriction. In addition, the Proposed Action Alterative incorporates 29 additional acres of habitat restoration, enhancement and maintenance than would be implemented under the Early Planning Alternative, and more directly and effectively addresses the impacts of the habitat loss. Therefore, the additional habitat restoration and protection under the Proposed Action Alternative provides greater long-term habitat protection and fulfillment of the covered species life history requirements than would the Early Planning Alternative.

4.4.1 Physical Resources

Surface Water

Under the Early Planning Alternative, all activities that may affect surface water are the same as under the Proposed Action Alternative (see Section 4.3.1) with two exceptions. Ecological restoration would occur along Long Run Creek in Long Run Parcel, but the wetlands on North, Far North, and River North, which are strongly influenced by surface water, would not be improved or permanently preserved. These are not likely to have much effect on surface water because restoration along the creek

that low in the watershed will only have marginal water quality benefits and the wetlands on those parcels are federally protected under the Clean Water Act.

Therefore, the Early Planning Alternative, like the Proposed Action Alternative, would not have any significant effect on surface waters with the implementation of erosion control measures and groundwater impact avoidance measures.

Groundwater

Under the Early Planning Alternative, all activities that may affect groundwater are the same as under the Proposed Action Alternative (see Section 4.3.1). Differences in preservation of parcels and area of habitat restoration and enhancement would not result in a different effect on groundwater.

Therefore, although the mining activities under the Early Planning Alternative (as with the Proposed Action Alternative), would impact local groundwater levels, however the avoidance and mitigation measures that have been or will be implemented would prevent any significant effects to local wetlands and Covered Species habitat areas, municipal well, and other local potable wells. The groundwater AMMs under this alternative would, however, have a beneficial effect on the local groundwater levels.

Geology

The mining plan under the Early Planning Alternative is the same as under the Applicant's Proposed Action Alternative (see Section 4.3.1) and effects to geology are also the same.

Soils

Activities under the Early Planning Alternative that may affect soils are the same as under the Proposed Action Alternative (see Section 4.3.1).

Climate

Activities under the Early Planning Alternative that may affect the climate are nearly the same as under the Proposed Action Alternative (see Section 4.3.1). The only difference between the two alternatives is that under the Early Planning Alternative less land is being preserved and slightly less area is being restored or enhanced. More restoration likely will not have a net effect on greenhouse gases and the climate. Habitat restoration activities will produce some additional greenhouse gases; however, the restored plant communities will sequester more carbon than the current degraded communities which may offset this increase. Preservation of less land also will have little to no effect on climate because the parcels not being preserved (River and the North parcels) are currently vegetated and have no activities occurring on them and will remain that way because they contain large areas of wetlands.

Air Quality

Activities under the Early Planning Alternative that may affect air quality are nearly the same as under the Proposed Action Alternative (see Section 4.3.1). The only difference between the two alternatives is that under the Early Planning Alternative less land is being preserved (162 acres) and slightly less area is being restored or enhanced (29 acres). This difference will not result in a change in air quality.

4.4.2 Biological Resources

Vegetation

Impacts to vegetation from mining activities are the same under the Proposed Action Alternative and the Early Planning Alternative. Where these alternatives differ is in the quantity of anticipated benefits

from the proposed restoration, enhancement, and preservation commitments under the Proposed Action Alternative.

In the Early Planning Alternative, no restoration or enhancement will be conducted on North, Far North, or River North Parcels, whereas 46 acres of restoration and enhancement will occur on under the Proposed Action Alternative.

About 220 acres of native vegetation will be restored, and 95 acres will be enhanced on HMS' mitigation parcels within HMS' property. This includes an additional 53 acres of restoration and enhancement on Long Run Parcel not included in the Proposed Action Alternative, but it does not include 46 acres of restoration and enhancement on the three North Parcels or some of the improvements on other parcels, such as River Parcel, that is included in the Proposed Action Alternative. As a result, there will be an increase in higher quality native vegetation under the Early Planning Alternative, but 29 more acres under the Proposed Action Alternative. In addition, the Proposed Action Alternative will preserve more acres of vegetation (162 acres), much of which is native. Therefore, this alternative, as well as the Proposed Action Alternative, through mitigation measures, will have a beneficial effect on vegetation.

Wetlands

Surface mining and other development under the Early Planning Alternative will have the same impact to federally jurisdictional wetlands as the Proposed Action Alternative (see Section 4.3.2), and mitigation activities will also be similar. The benefits to wetlands are not as great under the Early Planning Alternative because slightly less area (most of which is wetland) will be restored or enhance and much less (162 acres) will be permanently protected.

Critical Habitat

The Service has designated Critical Habitat for the HED. Critical Habitat Units (CHUs) and Primary Constituent Elements (PCE) for the HED are discussed in Section 2.3.2 and 3.3 of this document and Section 5.1.6 of the HCP. Below is a summary of the anticipated impacts to Critical Habitat under the Early Planning Alternative. Further analysis of the potential impacts to critical habitat are analyzed in the Service's Biological Opinion on HMS's draft HCP.

Illinois Nature Preserves

Activities under the Early Planning Alternative that may affect the three Illinois Nature Preserves in the Planning Area (Lockport Prairie, Romeoville Prairie, and Long Run Seep) are the same as under the Proposed Action Alternative (see Section 4.3.2). The AMMs used to prevent potential impacts from these activities are also the same.

General Wildlife

With the exception of ecological restoration along Long Run Creek in Long Run Parcel, activities under the Early Planning Alternative that could affect ponds, streams, or other waterways are the same as under the Proposed Action Alternative (see Section 4.3.2).

Mining and other development activities, as well as AMMs to prevent impacts from those activities, are the same under this alternative as they are under the Proposed Action Alternative.

4.4.3 Federal and State Listed Species

Hine's Emerald Dragonfly

Mining and other development activities, as well as AMMs to prevent impacts from those activities, are the same under the Early Planning Alternative as they are under the Proposed Action Alternative (See Section 4.3.3). Therefore, the anticipated take from these activities (loss of approximately 49.6 acres of adult HED foraging and/or dispersal habitat in Middle, North, Far North, and Long Run and ComEd Parcels) is also the same.

In addition to avoidance measures, this alternative includes a large mitigation package to compensate for the impact of take resulting from the loss of habitat. This package restores and enhances more habitat (315 acres) but permanently protects less land (357 acres) than under the Proposed Action Alternative. The Early Planning Alternative includes restoring and enhancing habitat in five parcels: ComEd, Long Run, Fitzpatrick Seep, River South, and River Parcels. In total, HMS would restore ~220 acres and enhance 95 acres of HED adult habitat under this alternative. However, most of the habitat restoration and enhancement (~200 acres) would take place on the opposite side of the river from the area of habitat loss (i.e. Middle Parcel). Habitat restoration and enhancement would only occur on one parcel (River Parcel) adjacent to Middle Parcel, and neither this parcel nor any other adjacent or nearby parcel to the north would be permanently protected (see attached Figure16 from the 1/31/14 Pre-Decisional Draft HCP).

The HED is expected to benefit from the conservation program (AMMs and mitigation) in this alternative but not as much as under Proposed Action Alternative because it does not address the impact of take (i.e. loss of dispersal habitat and connectivity) as well. Under the Early Planning Alternative, nearly the same amount of land would be restored or enhanced as under the Proposed Action Alternative, but less would be permanently preserved. Under this alternative, the permitted activities and all AMMs and most mitigation activities would be the same as under the Proposed Action Alternative, but the habitat restoration and preservation package would permanently protect only River South, Fitzpatrick Seep, ComEd, and Long Run Parcels (357 acres). This alternative would restore or enhance 315 acres of habitat on the four permanently protected parcels plus River Parcel. In contrast, the Proposed Action Alternative would permanently protect all of these parcels (519 acres),

Blanding's Turtle and Spotted Turtle

Mining and other development activities, as well as AMMs and most mitigation activities, are the same under the Early Planning Alternative as they are under the Proposed Action Alternative (See Section 4.3.3). Requested take from these activities (12 BT and 2 ST) is also the same. Take would result from the loss of 29.1 acres of BT habitat and potential ST habitat in Middle Parcel and related activities, as well as potential impacts to habitat on parcels adjacent to Middle Parcel and mitigation activities in ComEd and Long Run Parcels.

Mitigation for take of BT and STs under this alternative will be provided mostly through restoration and enhancement of habitat and is in the same areas as the HED habitat improvements. In total, HMS will restore or enhance 315 acres of turtle habitat on 357 acres of permanently protected land. All of the permanently protected parcels in this alternative contain known or potential habitat for both covered turtle species. However, as with the HED habitat restoration, most of the restoration and enhancement (~200 acres) would take place on the opposite side of the river from the area of habitat loss (i.e. Middle Parcel). Restoration and enhancement would only occur on one parcel (River Parcel) adjacent to Middle

Parcel, and neither this parcel nor any other adjacent or nearby parcel to the north would be permanently protected (HCP Figure. 16). All of these parcels contain know BT habitat.

Under the Proposed Action Alternative, we further explain the possible impact this reasonable worst-case take is anticipated to have on BT and ST at the individual and population level (See Section 4.3.3). Because the Covered Activities are the same under both alternatives, the possible impacts would be the same. However, mitigation is not as significant under this alternative and therefore, so is its likely effectiveness. This is explained below.

Blanding's Turtle

Under the Proposed Action Alternative, we conclude that the loss of habitat in Middle Parcel would be unlikely to reduce breeding success because: 1) the area to be impacted is not unusually high quality turtle habitat; 2) areas of equal habitat value are available and fairly widespread in the vicinity; and 3) some areas not currently available as nesting or foraging habitat would become available to BTs as a result of HCP restoration activities.

Displaced animals are expected to use North Parcel, Far North Parcel, River North Parcel, and River Parcel. However, under this alternative, none of these parcels would be permanently protected and restoration and enhancement would only occur on one of these parcels (River Parcel).

These parcels provide important habitat to BT. Suitable permanent or semi-permanent aquatic habitat is likely to be present in all of these parcels. Based on available observations, BT activity centers are believed to be present in river backwaters of River North Parcel and in a marsh complex within the utility corridor south and east of Far North Parcel. In addition, nesting was documented at Far North Parcel in 2010, and suitable nesting habitat is available in other parcels near Middle Parcel. Very similar well drained uplands are present on parts of River and North Parcels as well as Far North Parcel. All are currently accessible to turtles, and all have nearby wetland habitat for juvenile dispersal and foraging. Therefore, loss of Middle Parcel habitat is not likely to constrain future breeding opportunities for the species provided these parcels are protected and their habitat is managed. However, these parcels are not permanently protected under this alternative and habitat restoration will occur on only one of them. So, mitigation under this alternative will not be as effective as under the Proposed Action Alternative. Furthermore, population impacts are more likely to occur if these breeding areas are not preserved.

Spotted Turtle

Although STs are not believed to be present on HMS property, and proposed activities are not anticipated to have any impact on the species, HMS is requesting take of two STs as a precaution. This take would have no effect on the Illinois population.

Conclusion

Both turtles are expected to benefit from the conservation program (AMMs and mitigation) in this Early Planning Alternative, but the benefit, especially for BT, is not as great as under the Proposed Action Alternative because it does not address the impact of take as effectively.

Leafy Prairie Clover

All Covered Activities, including AMMs and mitigation activities, that could affect the LPC are the same under this alternative as they are under the Proposed Action Alternative (See Section 4.3.3).

Lakeside Daisy
This alternative includes the same groundwater impact avoidances measures to prevent drawdown at Lockport Prairie as included in the Proposed Action Alternative; and so similarly no take of LD is anticipated.

4.4.4 Social and Economic Resources

Land Use
All mining and other planned development activities included in the Early Planning Alternative will take place on or under land owned by HMS, all of which is authorized/zoned for mining or will be prior to mining. Most of the remaining un-mined parcels owned by HMS will be protected (*i.e.*, preserved), but not all will be protected permanently, including River, North, Far North, and, River North Parcels under this alternative. All of these parcels will be preserved under the Proposed Action Alternative. Most of the protected land will be restored or enhanced to improve habitat and overall ecological health. There are no plans to mine or develop the remaining unprotected HMS parcels under this alternative.

Economic Impact
The Early Planning Alternative includes the same mining plan as the Proposed Action Alternative (see Section 4.3.4), and expected economic impact is equivalent to the Proposed Action Alternative.

Human Health and Safety
None of the activities in the Early Planning Alternative, including expanded mining activities or habitat mitigation activities, will pose any increase in risks to employees of HMS, its guests, or the general public. The expected consequences of the Early Planning Alternative on human health and safety are equivalent to the expected consequences of the Proposed Action Alternative.

Transportation
Mining activities and conservation measures (AMMs and mitigation), with the exception of the location of habitat restoration and enhancements efforts, are the same under the Early Planning Alternative as under the Proposed Action Alternative (see Section 4.3.4).

Utilities
Mining activities and conservation measures (AMMs and mitigation), with the exception of the location of habitat restoration and enhancements efforts, are the same under the Early Planning Alternative as under the Proposed Action Alternative (see Section 4.3.4). Although there is about the same restoration and enhancement under this alternative, less will occur near overhead powerlines because no restoration will occur on the North Parcels.

Cultural Resources
Implementation of the Early Planning Alternative will have no effect on cultural or historic resources.

Recreation
The mitigation package of the Early Planning Alternative includes the preservation of over 300 acres within HMS' property. Much of this land will be managed to maintain habitat quality and some may allow public access for passive recreation after the ITP term. Therefore, the implementation of the Early Planning Alternative may increase recreational resources within HMS' property but less than under the Proposed Action Alternative which will permanently protect over 500 acres.

Visual Resources
The expected consequences of the Early Planning Alternative on visual resources are equivalent to the expected consequences of the Proposed Action Alternative.

Education
Implementation of the Early Planning Alternative will not differ from the Proposed Action Alternative in regard to potential effects on either Lewis University or Romeoville High School.

Noise
The proposed Mining Plan is the same under the Early Planning Alternative as it is under the Proposed Action Alternative, therefore, noise impacts are equivalent to those of the Proposed Action Alternative.

4.4.5 Summary of Environmental Consequences
The planned AMMs and mitigation measures under this alternative would be expected to prevent or offset potential impacts to all these resources, and in many cases may provide a positive net benefit. However, benefits to some of the federal and state-listed species, as well as some of the biological and social and economic resources, likely would not be as great as under the Proposed Action Alternative.

The Early Planning Alternative includes more habitat restoration and enhancement in Long Run Parcel (approximately 53 acres more) than the Proposed Action Alternative but none in North, Far North, River North Parcels (current plan includes approximately 46 acres in those three parcels). However, the Proposed Action Alternative still restores or enhances all of ComEd Parcel and the northern 62 acres (approximately) of Long Run Parcel contiguous with ComEd Parcel (see Restoration Plan Set in HCP Appendix F). The Proposed Action Alternative package permanently protects the four parcels closest to the area of habitat loss and restores, enhances, and maintains more acres (354) than the Early Planning Alternative, and therefore more directly and effectively addresses the impacts of the habitat loss.

CHAPTER 5: COORDINATION AND CONSULTATION

5.1 Agency Coordination
In support of the application to expand surface mining in Will County, Illinois the Applicant consulted with the USFWS, IDNR, and Army Corps of Engineers. The Service has been engaged the IDNR in discussions relating to the mitigation plan and avoidance measures for state and federally endangered species as well as other shared trust resources. The Service has also been engaged with the Army Corps of Engineers and US EPA regarding the federally endangered species covered under this EA as they are associated with Waters of the United States and wetland impacts from the proposed project will be covered under a joint CWA Sections 401 and 404 permit and will require mitigation.

5.2 Distribution of the Draft Environmental Assessment
In accordance with NEPA, this EA, as well as the HCP and other application materials, will be circulated for public review and comment. A 30-day public comment period will be initiated with the publication of the Notice of Availability in the FR. Comments received on this draft EA will be incorporated into and appended to the final EA.

5.3 List of Preparers

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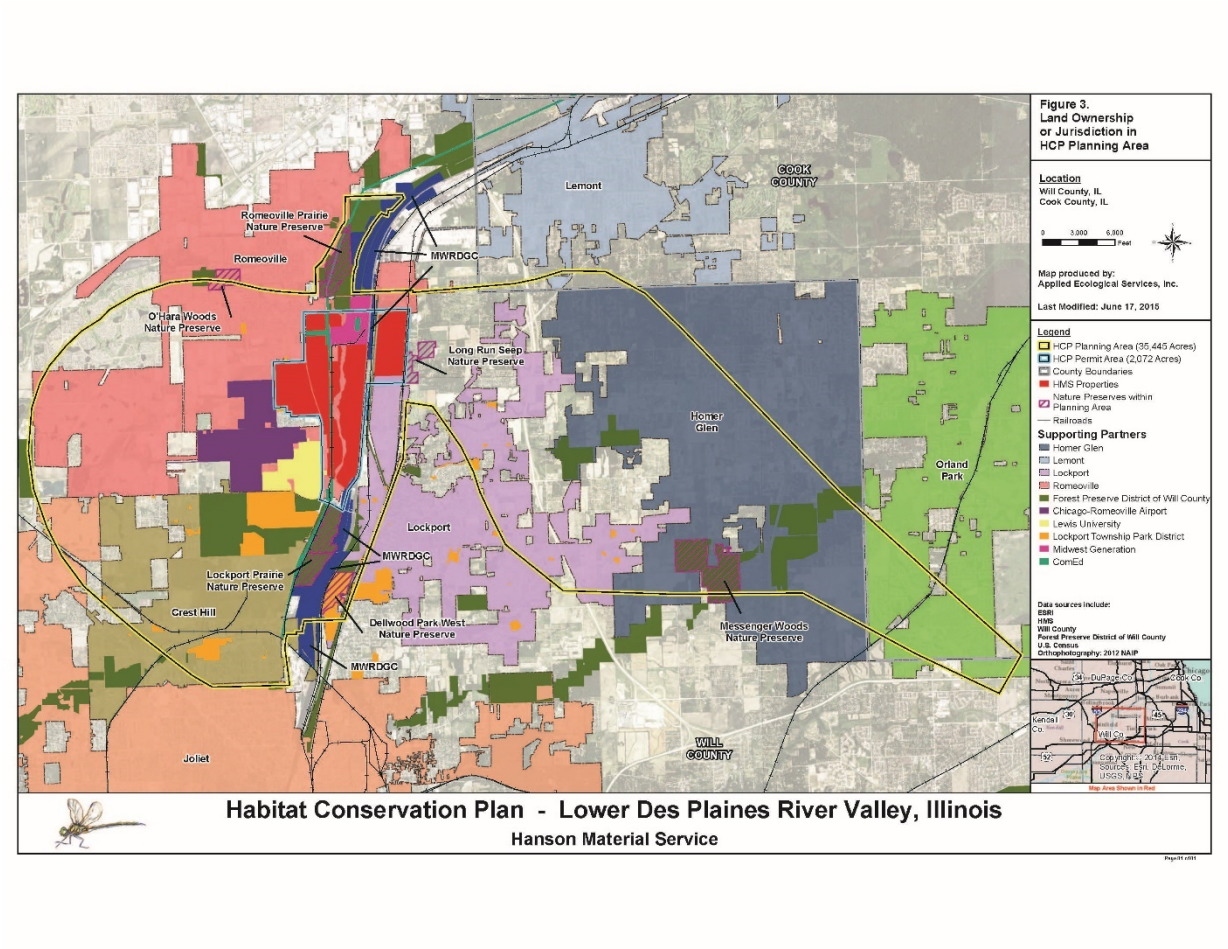
APPENDIX A: FIGURES

Figure 1. Habitat Conservation Plan, Planning Area (Figure 3 of Habitat Conservation Plan)



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APPENDIX C: ACRONYMS

Acronym	Definition
AECOM	Architecture, Engineering, Consulting, Operations, and Maintenance
AES	Applied Ecological Services, Inc.
AMM	Avoidance and Minimization Measure
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe
BO	Biological Opinion
BT	Blanding's turtle
CBD	Center for Biological Diversity
CBSA	Core-Based Statistical Area
CCAP	Chicago Climate Action Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CH	Critical Habitat
CHU	Critical Habitat Unit
CMAP	Chicago Metropolitan Agency for Planning
CN	Canadian National
ComEd	Commonwealth Edison
CSS	Chicago Sanitary and Ship Canal
CWA	Clean Water Act
CWS	Community water supply
DSHPO	Deputy State Historic Preservation Office
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FPD	Forest Preserve District
FPDCC	Forest Preserve District Cook County
FPDDC	Forest Preserve District DuPage County
FPDWC	Forest Preserve District of Will County
GAS	Graef, Anhalt, Scholemer and Associates
GHA	Gewalt Hamilton Associates, Inc.
GHG	Greenhouse gas
GIS	Geographic Information System
HCP	Habitat Conservation Plan
HED	Hine's emerald dragonfly
HMS	Hanson Material Service
I & M	Illinois & Michigan
IDNR	Illinois Department of Natural Resources
IEPA	Illinois Environmental Protection Agency
IESPA	Illinois Endangered Species Protection Act
IESPB	Illinois Endangered Species Protection Board

Acronym	Definition
ILCS	Illinois Compiled Statutes
INAPA	Illinois Natural Areas Preservation Act
INHS	Illinois Natural History Survey
INPC	Illinois Nature Preserve Commission
ITA	Incidental Take Authorization
ITP	Incidental Take Permit
LD	Lakeside Daisy
LDRV	Lower Des Plaines River Valley
LPC	leafy prairie clover
LPNP	Lockport Prairie Nature Preserve
MBTA	Migratory Bird Treaty Act
MWGen	Midwest Generation
MWRDGC	Metropolitan Water Reclamation District of Greater Chicago
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NOAA	National Oceanic and Atmospheric Administration
NRG	NRG Energy
PCE	Primary Constituent Elements
PM	Particulate matter
RIV	Relative Importance
ROD	Record of Decision
ROW	Right of Way
RPNP	Romeoville Prairie Nature Preserve
SE/SC	Soil erosion and sediment control
SHPO	State Historic Preservation Officer
ST	Spotted turtle
SWPPP	Storm Water Pollution Prevention Plan
USACE	United States Army Corps of Engineers
USC	United States Code
USCB	United States Census Bureau
USDOI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDNR	Wisconsin Department of Natural Resources
WFO	Weather Forecast Office