Final Environmental Assessment

Proposed Solar Project
Sidney, Cheyenne County, Nebraska

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Prepared for:
U.S. Department of Agriculture
Rural Development Service

and

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List of Acronyms and Abbreviations

APE	Area of Potential Effect
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CREC	Controlled Recognized Environmental Condition
CSW	Construction Storm Water
DC	Direct Current
DNL	Day-Night Average Sound Level
EA	Environmental Assessment
EMF	Electromagnetic Fields and Interference
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FCL	Formally Classified Land
FEMA	Federal Emergency Management Agency
FPPA	Farmland Protection Policy Act
FONSI	Finding of No Significant Impact
IPaC	Information, Planning, and Conservation System
kW	Kilowatt
LEP	Limited English Proficiency
MEAN	Municipal Energy Agency of Nebraska
NAAQS	National Ambient Air Quality Standards
NDEE	Nebraska Department of Environment and Energy
NDNR	Nebraska Department of Natural Resources
NEPA	National Environmental Policy Act
NGPC	Nebraska Game and Parks Commission
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NOA	Notice of Availability
NO_2	Nitrogen Dioxide

NOI	Notice of Intent
NO_x	Nitrogen Oxides
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
O_3	Ozone
OSHA	Occupational Safety and Health Administration
PAD-US	Protected Lands Database of the U.S.
Pb	Lead
POI	Point of Interconnection
PPA	Power Purchase Agreement
PV	Photovoltaic
REC	Recognized Environmental Condition
RUS	Rural Utilities Service
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SWPPP	Stormwater Pollution Prevention Plan
T&E	Threatened and Endangered
THPO	Tribal Historic Preservation Office
TNW	Traditionally Navigable Water
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile Organic Compounds
WOTUS	Waters of the United States

Introduction

This Environmental Assessment (EA) was prepared in accordance with Title 7 of the Code of Federal Regulations (CFR) Part 3100 (7 CFR 3100), which prescribes the policies and procedures of the U.S. Department of Agriculture (USDA) for implementing the National Environmental Policy Act (NEPA) of 1969, as amended, Title 7 CFR 1970 which provides environmental policies and procedures for the Rural Utilities Service (RUS), the regulations of the Council on Environmental Quality, 40 CFR parts 1500 through 1805, and the USDA Rural development guidance document 1970-C. Guidance document 1970-C serves as a guide for preparing EAs under NEPA. An EA is a concise public document used by the USDA to determine whether impacts associated with a project justify a finding of no significant impact or if preparation of an Environmental Impact Statement is needed.

USDA, Rural Development is a mission area that includes three federal agencies – Rural Business-Cooperative Service, Rural Housing Service, and Rural Utilities Service. The agencies have in excess of 50 programs that provide financial assistance and a variety of technical and educational assistance to eligible rural and tribal populations, eligible communities, individuals, cooperatives, and other entities with a goal of improving the quality of life, sustainability, infrastructure, economic opportunity, development, and security in rural America. Financial assistance can include direct loans, guaranteed loans, and grants in order to accomplish program objectives. The Applicant, SE Municipal Solar LLC is applying for funds under the Powering Affordable Clean Energy (PACE) Program for a Renewable Energy Resource (RER) system. The funding will be in the form of a Project Loan for approximately 56% of the total project cost. The Project Loan will receive 40% loan forgiveness through the PACE program. The Applicant submitted a letter of intent for the project which was approved on November 27th, 2023 and RUS is in the process of reviewing the completed PACE Application which was submitted on December 29th, 2023.

An applicant seeking financial assistance from the USDA must sufficiently describe its proposal so that the USDA can apply the appropriate environmental review procedures for the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [U.S.C] 4321, et seq.), related to review and approval. Serving as the lead federal agency, the RUS is responsible for compliance with NEPA, and as such, RUS must decide whether or not to provide financing assistance for this proposed project. Pursuant to CFR 7, the USDA must demonstrate that any decision complies with NEPA and requires that the environmental consequences of the proposed action and its alternatives be examined. This EA presents such an examination. The RUS's decision to approve financial assistance will be the analysis outlined in this EA in addition to subsequent detailed engineering and financial reviews.

The Municipal Energy Agency of Nebraska (MEAN) issued a request for proposals soliciting distributed solar electric generation for the City of Sidney, Nebraska. Distributed generation refers to electricity, usually from renewable sources, that is situated near the users as opposed to centralized generation from power plants where the electricity would have to be

transmitted greater distances (thus increasing costs) to the consumer. SE Municipal Solar, LLC (SE Municipal Solar) prepared the winning bid to develop a solar facility and connect to the City of Sidney's electric grid, as well as obtain all necessary permits.

Terracon, retained by the applicant (SE Municipal Solar), has prepared this assessment in accordance with 7 CFR 1970, Subparts A (Environmental Policies) and C (NEPA EAs) as well as 40 CFR 1500. As part of this process, RUS will complete an independent analysis of this document to concur with scope and content. Once this analysis is complete, RUS may adopt this assessment as its EA in accordance with 7 CFR 1794.41.

1.0 PURPOSE AND NEED

1.1 Project Description

The proposed project site is located on property zoned for industrial use by the City of Sidney (2022c). A United States Geological Survey (USGS) topographic map is provided as Figure 2. The facility will be built on land owned by the City of Sidney and leased to SE Municipal Solar. The energy generation system (Proposed Action) would include the construction and operation of a 4,486-kilowatt (kW) direct current (DC) photo voltaic (PV) solar energy power system.

The 22-acre site will be developed for distributed solar power generation, which includes the solar panels and associated support structures (racking), electrical inverters/transformers, buried electrical conduit, access apron, and security fencing. The proposed solar generation facility will be placed on land owned by Sidney, connecting to its municipal electric distribution system.

The project will deliver its generation to a transformer on site. Power will not be exported from Sidney's electric distribution system. The point of interconnection (POI) would be located adjacent to the site's southern boundary on the north side of Elm Street. SE Municipal Solar will be responsible for running a buried connection line to the point of interconnection to Sidney's grid. There will be no transmission lines constructed in association with this project.

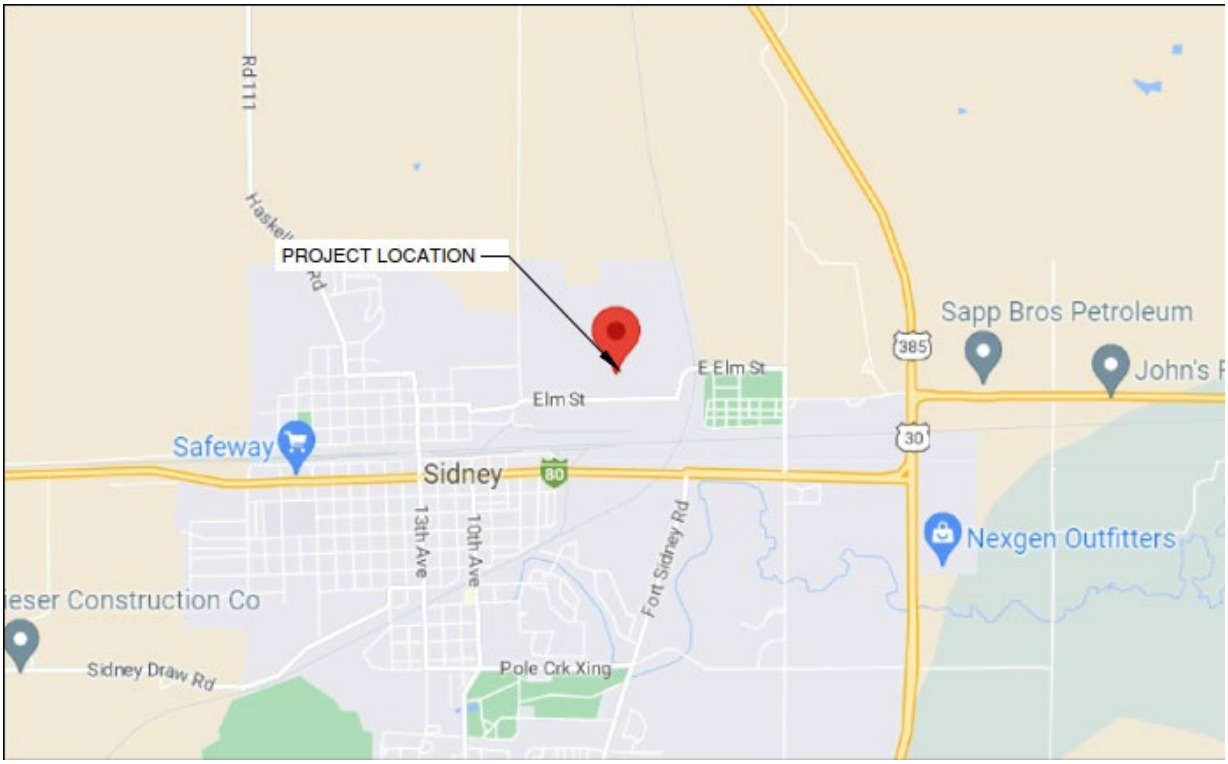

Figure 1. Project Location

All project facilities would be designed, constructed, and operated in accordance with applicable laws, City and County ordinances, regulations, and standards. Construction of the project is anticipated to begin in 2023 and should take approximately four to six months to complete once construction begins. All construction lay down areas would be located within the boundaries of the site footprint, outside of designated buffer zones. Proposed project development plans are illustrated on Figure 2; however, layout is subject to change within the fenced area.

The project is located within Parcel ID 170001237, in Section 29, Township 14 North, Range 49 West, Cheyenne County, Nebraska. The site is adjoined to the north by a sand borrow pit and the former Sidney Landfill, to the east by the former Sidney Landfill, to the west by the Sidney Power District Facility laydown yard, and to the south by Elm Street, a vehicle impound lot, small substation, and agricultural land. The surrounding region is generally characterized by agricultural activity. The Sidney Municipal Airport is located approximately 3.3 miles south of the site. The Greenwood Cemetery is located 0.25 mile east of the southeast corner of the site. The site is situated in the Nebraska panhandle approximately 9 miles north of the Colorado border and approximately 55 miles east of the Wyoming border.

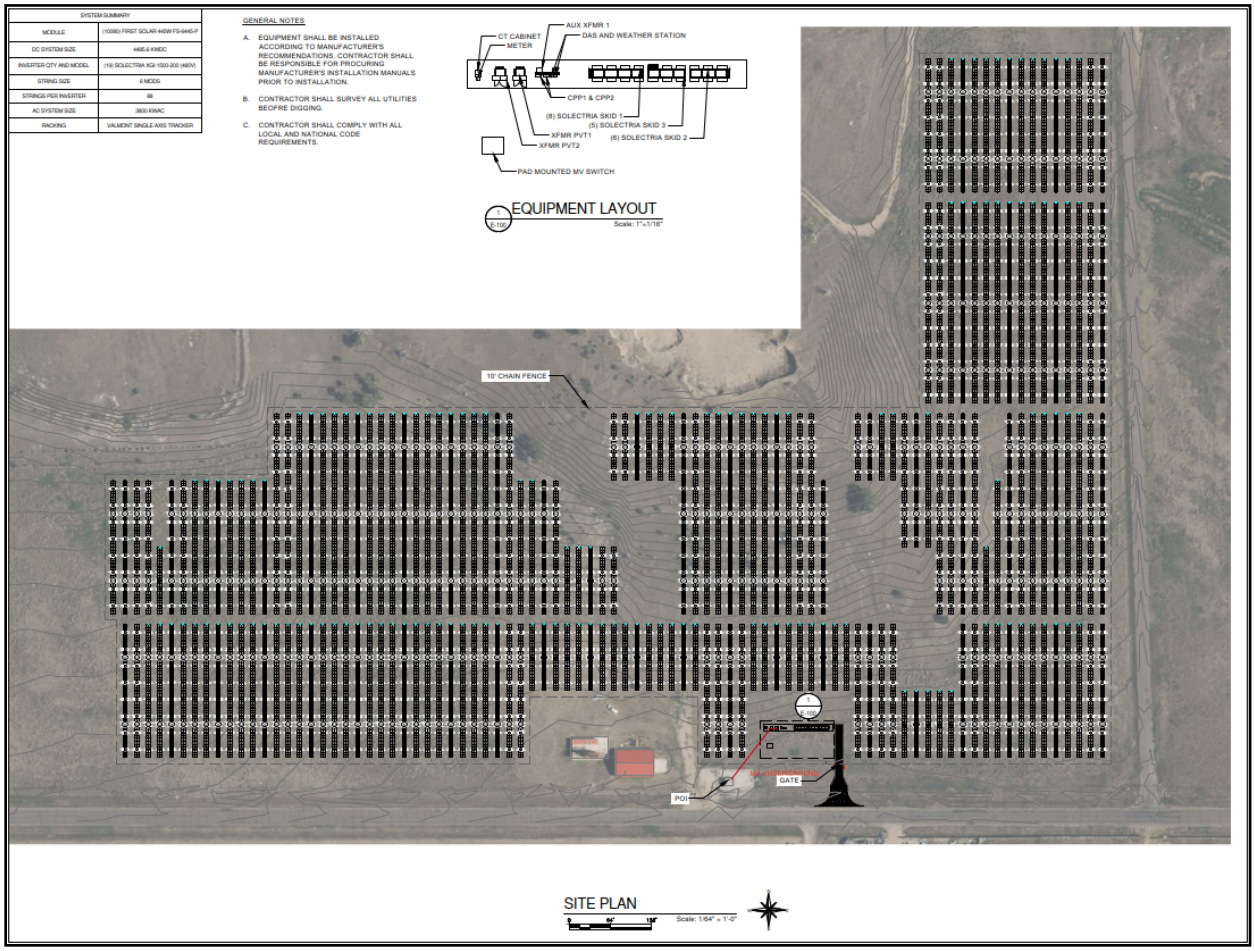

Figure 2. Proposed Project Development Plans

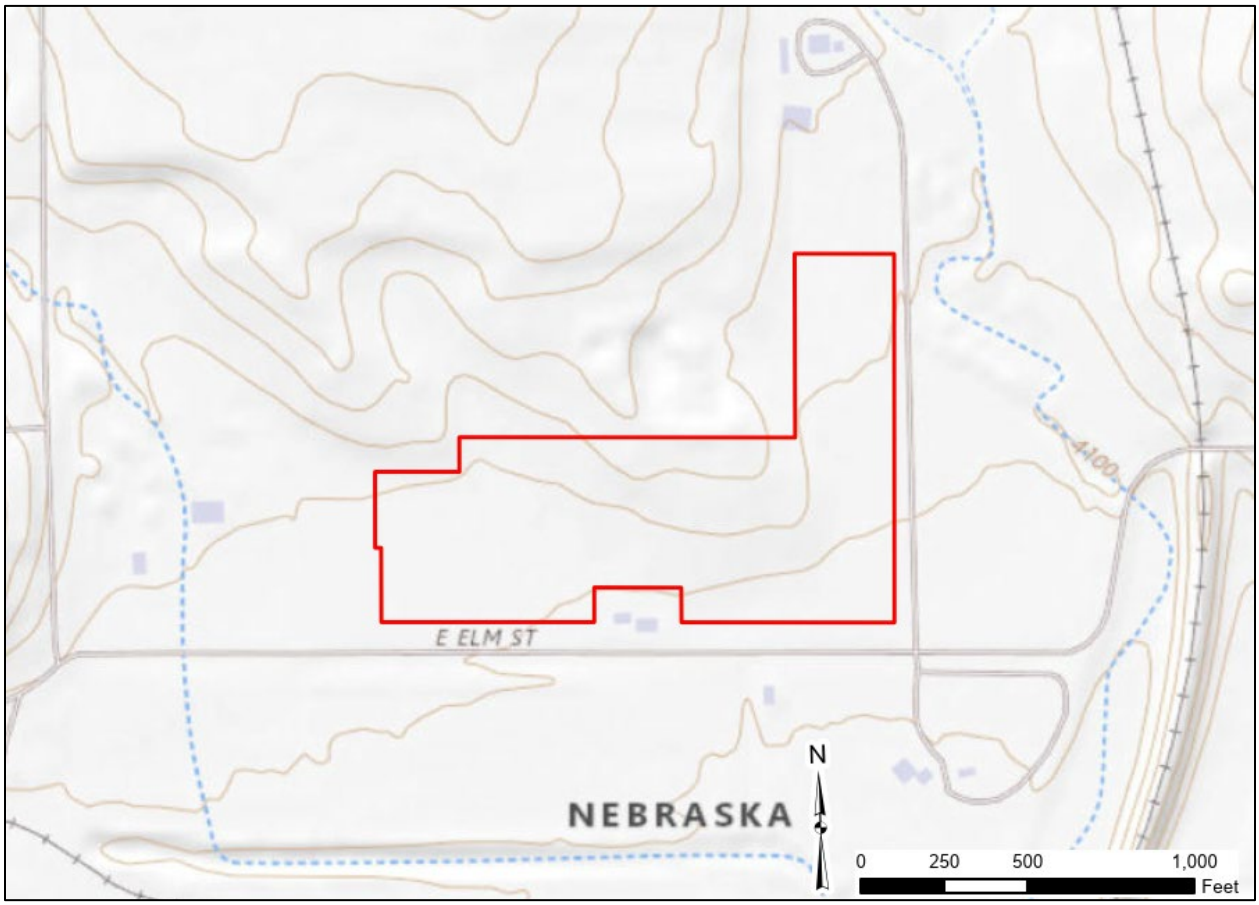

Figure 3. 2022 USGS Topographic Map of the Project Site (Project Area Outlined in Red)

1.2 Purpose and Need

The goal of the PACE program is to support clean, affordable energy growth across America. The purpose of the project is to construct a renewable distributed generation facility that will produce and supply the City of Sidney with up to five percent of its annual energy usage, per the existing power purchase agreement (PPA) with SE Municipal Solar. The project will enable Sidney to lock in a competitive price for electricity over the next 25 years.

2.0 ALTERNATIVES EVALUATED INCLUDING THE PROPOSED ACTION

2.1 Proposed Action and Preferred Alternative

The entire 22.2-acre site would be developed with a 4,486-kilowatt (kW) DC photo voltaic (PV) solar facility which includes the solar panels and associated support structures as well as electrical inverters/transformers, buried electrical conduit, access apron, and security fencing. The project would involve installation of ground-mounted solar arrays. Detailed proposed

project development plans are illustrated in Appendix B; however, the layout is subject to change within the fenced area. The array will have driven posts for mounting of the racking with cross pieces for the actual module installation. The posts for racking will be in rows with the posts generally 8 to 10 feet apart and 4 to 6 feet deep; the posts are generally 3 inches in diameter. Each row of racking would be connected by a trench along the edge of the array, the trench from each portion of the array would then extend to another trench along the edge of the array, and the trench from each portion of the array would extend to the location of the transformer on a cement pad where the city will take control of the energy generated. The trenches would be 18 to 24 inches deep and 12 inches wide. The ground disturbance would also include an area for project construction staging as well as parking and equipment/component storage. This area would receive heavy traffic and may be rutted at times. A perimeter fence would be installed around the solar facility. A trench (18 to 24 inches deep and 12 inches wide) would be extended approximately 30 feet outside of the southern boundary for the underground MV (medium voltage) cable to connect to a substation that abuts the site, the point of interconnection. Ground-located facilities will be surrounded by perimeter safety fencing and will feature internet accessible Supervisory Control and Data Acquisition (SCADA) readouts. An ingress/egress driveway will also be installed in this area to connect the site to Elm Street. No other ground disturbance outside of project boundaries is anticipated.

Figure 4. Aerial Photograph of the Project Site (Project Area Outlined in Red)

Decommissioning

Within six months of ceasing operation, SE shall remove all solar facilities from the property with the exception of electrical lines buried at least four feet deep. Major pieces of equipment may be recycled or reused. The galvanized steel and aluminum racks may be sold for scrap or recycled. Electrical equipment could either be salvaged for reuse or recycled. Components such as cable would have a high resale value due to copper and aluminum content. Concrete from footings could be crushed and recycled as granular fill material. As much of the facility would consist of reusable or recyclable materials, there would be minimal residual waste for disposal as a result of decommissioning the facility. Small amounts of registrable waste

materials would be managed in accordance with state requirements or subsequent applicable legislation. Residual non-hazardous wastes would be disposed of at a licensed landfill in operation at the time of decommissioning.

Subject to landowner preference, restoration would include a return to the original or functionally similar pre-construction drainage patterns, which may include installation of farm drainage tiles, decompaction of soil, and seeding with an appropriate, low-growing vegetative cover to stabilize soil, enhance soil structure, and increase soil fertility.

Beginning on the commercial operations date, a financial security in an amount equal to the expected net cost to complete the decommission and reclamation would be maintained. The amount would be updated every five years based on an estimate by a qualified third-party engineer.

2.2 Other Alternatives Evaluated and Not Carried Forward

The following actions were considered as part of the NEPA process, but eliminated from detailed study as part of this EA:

Alternative Site Locations

Alternative sites were not evaluated. For the proposed project to fulfill its purpose of supplying distributed power generation to the City of Sidney, the site on which the solar energy power system would be constructed and operated had to meet the following requirements:

- Located in a relatively undeveloped area near Sidney;
- Adjacent to existing grid connections;
- Accessible by existing roadways;
- Size, configuration, land use, and topography suitable to accommodate enough arrays to produce 4,486 kw;
- No structures to be demolished;
- Not in a floodplain;
- Not in wetlands;
- No impact to surface water;
- Attainable compliance with applicable laws and development permits;
- Availability for lease / development; and
- Reasonable land and development costs.

The project site was chosen by the City of Sidney because it meets the required criteria and is available for lease. The City of Sidney owns the site of the proposed solar facility and the interconnection and selected this location because of its capacity to accommodate sufficient distributed generation without adversely affecting system stability.

Other means of electricity generation were considered, but it was determined that the only viable means of power generation would be from the construction and operation of a solar array.

Wind – The project site is not conducive for wind turbine placement due to its proximity to an urban center and limited available size for the project footprint. The National Renewable Energy Laboratory estimates that a single two-megawatt wind turbine requires 1.5 acres, and with required spacing between turbines the total required area increases to about 128 acres (Denholm et al. 2009). The use of wind turbines to generate electricity is not feasible at this site and the alternative was not considered.

Geothermal – The US Department of Energy recognized that moderate geothermal energy potential exists; however, these resources are better suited for direct use such as heating buildings or greenhouses and not for energy generation (EIA 2022). Geothermal energy for this alternative was not considered.

2.3 No Action Alternative (Status Quo)

Under the No Action Alternative, the site would not be developed with a solar facility. The City of Sidney would not receive 4,486 kW of power from this potential alternative energy/solar source and would require another means of providing renewable energy for its customers. The anticipated generation from this potential alternative energy/solar source would not be available, and Sidney would then have to seek alternative electric generation sources to meet anticipated need to replace existing power supply contracts that will come to an end. The project area would continue as agricultural land. The no action alternative does not achieve the project's purpose and need.

2.4 Environmental Resources Not Carried Forward for Detailed Analysis

The determination of environmental resources to be analyzed versus those not carried forward for detailed analysis is part of the EA scoping process. The Council on Environmental Quality (CEQ) and regulations (40 CFR §1501.7[a] [3]) encourage project proponents to identify and eliminate from detailed study the resource areas that are not important or have no potential to be impacted through implementation of their respective proposed actions. Some resource areas or some aspects of resource areas would not be affected by the proposed or alternative actions. Resource areas that have been eliminated from further study in this document and the rationale for eliminating them are presented below:

Coastal Resources - The project area is not located within a state identified in the Coastal Zone Management Act of 1972 or Coastal Barriers Resources Act; therefore, there are no impacts to coastal resources. No further analysis is required.

Corridor Analysis – A corridor analysis is not applicable for this project area as it does not follow a linear path nor have large electrical transmission lines, telecommunication cables, water or wastewater pipelines leading to or away from it; therefore, a detailed analysis is not required.

Electromagnetic Fields and Interference (EMF) - No EMF transmitting objects such as overhead high-voltage electric transmission lines, substations, cell or microwave towers will be installed as part of the Proposed Action; therefore, detailed analysis of EMF is not required. All of the necessary transmission lines are currently present, adjacent to the subject property.

3.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

This chapter describes the current conditions of the environmental resources, either manmade or natural, that would be affected by implementation of the Proposed Action or alternatives. This chapter also describes the potential environmental impacts that are likely to occur as a result of implementation of the Proposed Action. The No Action Alternative provides a baseline against which the impacts of the Proposed Action can be compared.

3.1 Land Use

3.1.1 Affected Environment

Land use refers to the use of land for various activities including commercial, industrial, recreational, agricultural, and residential. Adopted plans and development regulations control the type of land use and the intensity of development or activities permitted. Changes in land use patterns that result from development can affect the character of an area and result in physical impacts to the environment. This section describes the land use and ownership resources occurring in the project area and the potential impacts to those resources due to project implementation.

General Land Use and Zoning

The project area property is currently publicly owned and consists of approximately 22.2 acres of undeveloped land in Sidney, Cheyenne County, Nebraska (Figure 3). The project area falls within the jurisdiction of Cheyenne County and is listed by the Cheyenne County Assessor as Parcel ID 17001237. This parcel is within Sidney city limits and is currently zoned as Light Manufacturing and Industrial Park (M-1) (see map in Appendix A; City of Sidney 2022c).

The project area is a portion of a larger parcel (ID 1700137) owned by the City of Sidney. Land adjoining the project area to the north, east, and south consists of vacant land (former Sidney Landfill and sand borrow pit) and are zoned M-1. Land adjoining the site to the west is zoned M-1 and is developed with the Sidney Power District Facility laydown yard. Single-family residential property and urban infrastructure in the vicinity becomes more prominent west-southwest beyond the project site. This land use characterization was confirmed during the site reconnaissance and the use of aerial imagery (Terracon 2022a). The vegetation on the site primarily consists of grass species that are harvested for hay. The southern boundary of the project area abuts an existing graded, improved roadway (Elm Street). The majority

of the project area is undeveloped land with the exception of a small 2,500-square-foot warehouse that is excluded from the south-central portion of the site. The warehouse is maintained by the City of Sidney

Important Farmland

The Farmland Protection Policy Act (FPPA) and USDA Departmental Regulation No. 9500-3, Land Use Policy provide protection for important farmland, prime forestland, and prime rangeland. The USDA regulation 7 CFR Part 658 implements the FPPA. The FPPA (7 U.S.C. 4201) was enacted in 1981 to minimize the loss of prime farmland and unique farm, forest, and rangelands as a result of federal actions by converting these lands to nonagricultural uses. As defined by FPPA, prime farmland is farmland that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is also available for these uses. A unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops; it has the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops.

The USDA Natural Resources Conservation Service (NRCS) soil survey contains information regarding USDA-identified prime farmland soils, which are required for a prime farmland designation (NRCS SDA 2021). Five soil types are present across varying degrees of slope. They include Bayard fine sandy loam, 0 to 1 percent slopes (prime farmland if irrigated); Bayard fine sandy loam, 0 to 3 percent slopes (prime farmland if irrigated); Altvan-Dix complex, 3 to 9 percent slopes (not prime farmland); Canyon-Bayard complex, 6 to 20 percent slopes (not prime farmland); and Gravel pit (not prime farmland). The areas that are considered prime farmland if irrigated make up a combined 12.6 acres, or 57%. Figure 5 and Table 1 detail the soil map units within the proposed site and farmland ratings of each soil type. The USDA NRCS Custom Soil Resource Report in Appendix A provides the full soil report and soil classifications within the project area.

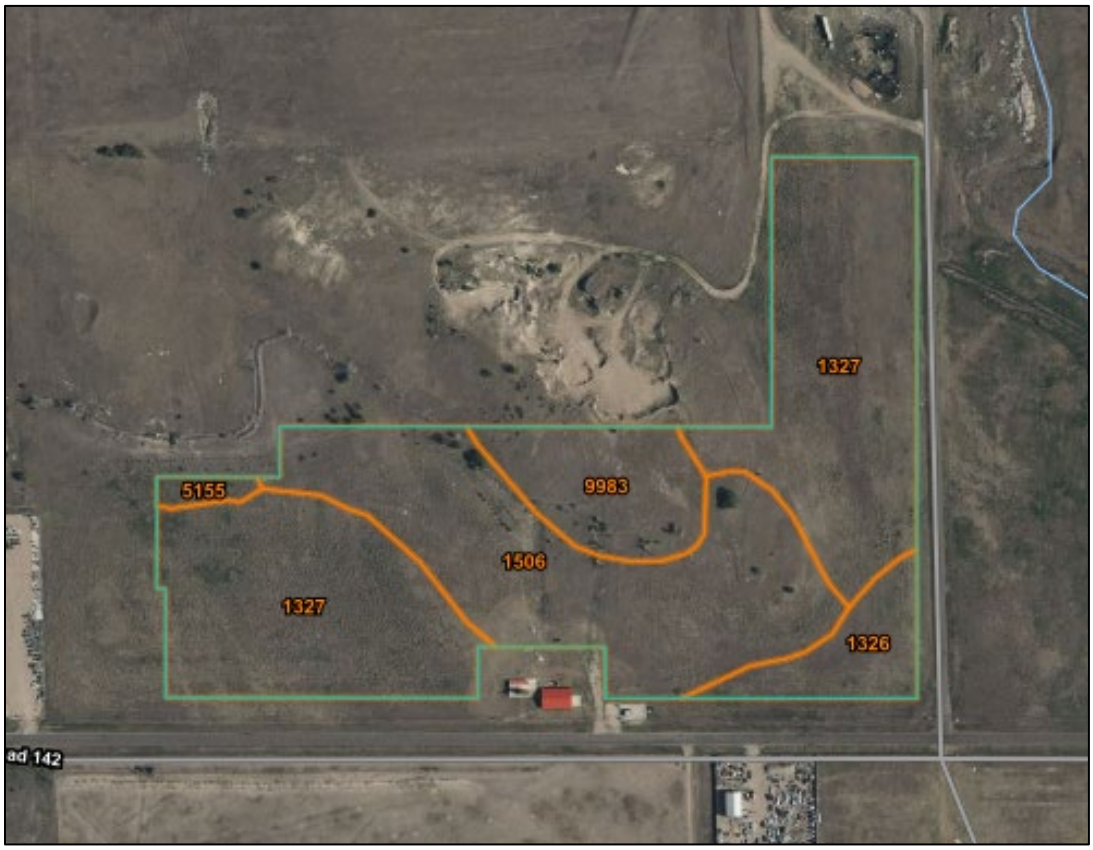

Figure 1. NRCS Soil Survey Map

Table 1. Prime Farmland within the project boundary.

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1326	Bayard fine sandy loam, 0 to 1 percent slopes	Prime farmland if irrigated	1.4	6.3%
1327	Bayard fine sandy loam, 0 to 3 percent slopes	Prime farmland if irrigated	11.2	50.7 %
1506	Altvan-Dix complex, 3 to 9 percent slopes	Not prime farmland	7.1	31.9%
5155	Canyon-Bayard complex, 6 to 20 percent slopes	Not prime farmland	0.3	1.1%
9983	Gravel pit	Not prime farmland	2.2	10.0%
Totals for Area of Interest			**22.2**	**100.00%**

Formally Classified Lands

Formally Classified Lands (FCLs) are properties administered either by federal, state, or local agencies, or properties that have been given special protection through formal legislative designation. Review of FCLs for the project area began with a review of the USDA guidance document regarding FCLs. FCLs may cover a broad spectrum of agency oversight, so documentation entails referencing multiple agency databases. The USGS Protected Lands Database of the U.S. (PAD-US) combines a number of agency databases into a single source documenting lands with some level of federal, state, local, and private protection. Review of the PAD-US revealed that there are no known protected lands within the project area (map is included in Appendix A). The nearest PAD-US documented protected land is the city-owned Northside Park, located approximately 4,900 feet to the west. Additional protected lands include the city-owned Sidney Legion Park, located approximately 5,300 feet to the south. In addition to the PAD-US, Multiple agency databases were reviewed including the United States Fish and Wildlife Service (USFWS), United States Forest Service (USFS), Nebraska State Historic Preservation Office (SHPO), the National Park Service (NPS), and USGS to determine if the project area is located within the administrative boundaries of FCLs. No FCLs were identified within or immediately adjacent to the proposed project area.

3.1.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, no changes to agriculture or land use would occur. The proposed project site would remain in its current state and use until it is repurposed for other industrial use as its zoning designation dictates.

Proposed Action

Under the Proposed Action, the project would result in a shift from the site's current agricultural use to renewable energy production. There are no protected or FCLs occurring adjacent to or in the immediate vicinity of the proposed site that would be impacted under the Proposed Action, so there are no anticipated impacts to FCLs.

The USDA NRCS Nebraska State Office reviewed the Farmland Conversion Impact Rating form (AD-1006) submitted by SE for the proposed site. The NRCS reviewed the proposed site and determined that the site and activities and the site itself have a combined rating of 95 (see document and correspondence in Appendix F). The rating was provided on June 30, 2022. The FPPA law states that sites with a rating less than 160 need no further consideration for protection and no additional evaluation is necessary. Furthermore, the site has been zoned as an M-1 Light Manufacturing and Industrial Zone which permits most fabricating activities except heavy manufacturing and processing of raw materials (City of Sidney 2022c). A solar facility would be considered an M-1 industrial operation and the proposed action is consistent with the planned land use and current zoning. Therefore no significant impacts to farmland are expected.

3.1.3 Mitigation/Management Measures

No mitigation or management measures are warranted as the proposed change in land use is consistent with local zoning classifications.

3.2 Floodplains

3.2.1 Affected Environment

No floodplains are indicated within the project area by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panel No. 3100390010B (effective March 16, 1981) nor by the Nebraska Department of Natural Resources Floodplain Management Interactive Map (2022). A 500-year floodplain boundary is mapped 30 feet to the west of the project area. The 500-year floodplain includes areas with a 0.2% annual chance of flooding. Detailed analyses are not performed for such areas, so no depths or base flood elevations are shown within these zones. A map of the floodplain is included in Appendix A.

3.2.2 Environmental Consequences

Because there are no mapped floodplains within the project area, no impacts to floodplains will occur under the No Action or Preferred Alternatives. Based on correspondence with the City of Sidney's floodplain administrator, the project area is within FEMA Zone C, which is above the anticipated 500-year flood elevation. A detailed analysis of floodplains is not required

3.2.3 Mitigation Measures

No mitigation measures are warranted.

3.3 Wetlands

3.3.1 Affected Environment

The USACE and EPA define wetlands as follows: *"Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."*

National Wetlands Inventory (NWI) data for the project site was reviewed to identify potential wetland areas (USFWS 2022b). NWI data for the project site was published by USFWS and depicts possible wetland areas based on stereoscopic analysis of high-altitude aerial photographs. A review of the NWI maps and aerial imagery did not identify wetland features on site. The surrounding area is dominated by undeveloped land and the nearest depicted NWI features to the site are riverine features (depicted by blue lines) approximately 110 feet east and 550 feet west of the site boundaries (see Figure 6). One soil map unit (1327: Bayard fine sandy loam, 0 to 3 percent slopes) within the project area is listed as having hydric

components but the hydric rating is 1, which indicates that only one percent of its components are hydric (see the USDA NRCS Custom Soil Resource Report in Appendix A).

Terracon conducted geotechnical investigations at the site in June of 2022. Three borings were completed to a depth of 20 feet below ground surface (bgs). Groundwater was not observed in any of the three borings (Terracon 2022b).

Due to the sparsity of hydric soils (one percent of the soil's components) and the depth to groundwater (greater than 20 feet bgs in June) it can be concluded that the site does not support wetlands. According to the Corps of Engineers 1987 Wetland Delineation Manual, a wetland must exhibit indicators of hydric soils, hydrology and hydrophytic vegetation. The locations of the three bore holes are representative of the site as a whole and none exhibited evidence of hydrology sufficient to support wetlands.

Photo 1. View from approximate center of site looking north.

On August 22, 2023, a wetland field delineation was conducted. No wetland or drainages were identified during the field delineation. The Wetland Delineation Report is provided in Appendix C (E&A, 2023).

3.3.2 Environmental Consequences

Because the project area does not contain wetlands, no impacts to wetlands will occur under the No Action or Preferred Alternatives.

3.3.3 Mitigation/Management Measures

No mitigation measures are warranted.

Figure 6. National Wetlands Inventory Map (Project Area Shaded Blue)

3.4 Water Resources

3.4.1 Affected Environment

Surface Water

The project area is within the Lower Lodgepole watershed (HUC 10190016). Data from the USGS National Hydrography Dataset (NHD) indicates that no streams or waterbodies are present within the project boundaries. In addition, no aquatic features were observed during the site visit (Terracon 2022a). Outside of the project area, intermittent streams are depicted to the west, south and east.

Groundwater

Federal laws focus on controlling potential sources of groundwater contamination on a national basis. Where federal laws have provided for general groundwater protection activities such as wellhead protection programs or development of state groundwater protection strategies,

implementation of these programs is typically delegated to the states, in cooperation with local governments.

A sole source aquifer is not located within the state of Nebraska (EPA 2018) (Appendix A). However, the project site is located within the High Plains aquifer (HPA), also known as the Ogallala aquifer (University of Nebraska 2022). The City of Sidney utilizes this aquifer for drinking water (2022b). The City of Sidney water supply operates a water system that is supplied by 14 ground water wells that are drilled from depths of 80 to 400 feet. The estimated depth to first occurrence of groundwater is approximately 65 to 85 feet (Nebraska Map 2022).

3.4.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the existing land, unimproved areas, and associated pervious cover would remain; therefore, the amount of runoff would not increase, groundwater infiltration would remain the same, and the potential for erosion due to disturbed soil would not be present. No impacts to groundwater or surface water resources are anticipated.

Proposed Action

Implementation of the Proposed Action would result in no direct impacts to surface waters or wetlands associated with construction and operation of the facility as no surface waters or wetlands were identified within site boundaries during aerial imagery and NWI review and site reconnaissance. The Proposed Action may result in negligible, short-term negative indirect effects to surface water quality. During construction, at least 10 acres of soil will be disturbed for installation of PV arrays and inverter pads as well as for the laydown yard, office, and parking which potentially increases the opportunity for sediment to leave the construction site and enter surface waters. This has the potential to increase sediment load and decrease water quality, although the likelihood of this occurring is very low due to the distance to surface waters and the level topography.

Because the amount of soil to be disturbed is greater than one acre, the Proposed Action would require authorization under the Nebraska Department of Environment and Energy (NDEE) Construction Storm Water general permit (NER210000 CSW) that authorizes stormwater discharge under the National Pollutant Discharge Elimination System (NPDES). Prior to any ground disturbance, a Notice of Intent (NOI) must be filed with the NDEE and a Stormwater Pollution Prevention Plan (SWPPP) prepared and implemented to minimize construction-related impacts. Implementation of the SWPPP and BMPs, and compliance with the terms and conditions of NER210000 CSW would ensure impacts are not significant.

After construction activities are completed, the arrays and concrete pads for structures would be considered disconnected impervious surfaces, resulting in a negligible increase in the amount of runoff and slightly decreasing infiltration during rain events. Management of site runoff from the arrays and structures will be part of the site design and will prioritize retaining stormwater by maximizing vegetated surface area where practical. The small increase in

impervious surface along with proper revegetation practices will minimize impacts to groundwater and surface waters.

The proposed action would not require the use of groundwater from the Ogallala aquifer because the area would not be staffed and does not require water to operate.

Under the Proposed Action, the potential for negative indirect short-term impacts to surface water related to construction activity exists. However, streams, creeks and wetlands are not present on the site, and with the implementation of BMPs and mitigation, the indirect short-term impacts are considered minor and mitigable.

3.4.3 Mitigation Measures

Because the area of disturbed soil is expected to exceed one acre, authorization under NER210000 CSW will be required along with the implementation of a SWPPP. The contractor will implement BMPs to eliminate or minimize sediment and other pollutants leaving the site by entering the borrow ditch along the north side of Elm Street. BMPs to be utilized may include but are not limited to:

- Managing stockpiled materials to minimize the time between delivery and use;
- Covering stockpiled materials with tarps;
- Installing silt fences around material stockpiles, storm water drainage routes, culverts, and drains;
- Installing hay or fabric filters, netting, and mulching around material stockpiles, storm water drainage routes, culverts, and drains;
- Watering disturbed areas to control windblown dust;
- Installing track-out protection to minimize sediment being tracked onto pavement from vehicles exiting the work site;
- Suspending work during rainy conditions;
- Planning and conducting earthwork in a manner that minimizes the duration of exposure of unprotected soils;
- Maintaining temporary erosion control measures, such as berms, dikes, drains, sedimentation basins, seeding, and mulching, until permanent drainage and erosion control facilities are completed and operative; and
- Mulching of disturbed areas in lieu of permanent erosion controls, such as revegetation.

3.5 Biological Resources

3.5.1 Affected Environment

Federal and State Listed Species

Section 7 of the Endangered Species Act (ESA) directs all Federal agencies to use their existing authorities to conserve threatened and endangered (T&E) species and, in consultation with the U.S. Fish and Wildlife Service (USFWS), to ensure that their actions (funded or carried

out) do not jeopardize listed species or destroy or adversely modify critical habitat. Lists of T&E species are published by the USFWS. Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the USFWS further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the USFWS, to make "no effect" determinations. According to the USFWS, if a "no effect" determination has been made for a proposed project, it is not necessary to seek concurrence from the USFWS. However, if a "may affect" determination has been made for a proposed project, consultation with the USFWS will be necessary.

Federally listed T&E species are listed on the USFWS Information, Planning, and Conservation System (IPaC) (USFWS 2022a). An official species list from the USWFS was requested and received on April 11, 2023. The list was generated by IPaC on behalf of the Nebraska Ecological Services Field Office (included in Appendix C). The list of T&E species compiled for Cheyenne County, Nebraska includes five species whose known range may extend into the project area. There is no critical habitat identified within the project area. Table 1 below is a list of species identified by the USFWS IPaC report and NGPC range map as potentially occurring within the project area. Included is a brief summary of the habitat these species may utilize, and opinions of presence of suitable habitat and the proposed project's effects on each species. Following the table are expanded summaries for selected species that the project may affect. Based on the USFWS IPaC report, there are no federally-designated critical habitats identified within the project boundaries.

Table 2. USFWS and NNHP Threatened and Endangered Species

Species	Protection Status	Habitat Description	Habitat Present
Mammals			
Swift Fox (*Vulpes velox*)	SE	Swift Foxes require open shortgrass prairies or deserts with few shrubs and trees. The swift fox prefers areas where there are colonies of prairie dogs as they form a large part of their diet and their dens may be used as shelter.	No; absence of suitable habitat (deserts, prairie dog colonies) within or near the project area. No impact expected.
Birds			
Piping Plover (*Charadrius melodus*)	FT, ST	In Nebraska, Piping Plovers breed along the Missouri, Platte, Elkhorn, Loup and Niobrara rivers. Piping Plovers only spend three to four months on their breeding grounds; the other eight to nine months are spent on their wintering grounds along the Gulf of Mexico and southern Atlantic Coast.	No; absence of suitable breeding habitat (rivers) within or near the project area. No impact to this species or potential habitat would occur.

Species	Protection Status	Habitat Description	Habitat Present
		They nest on river sandbars, sand and gravel mine sandpits, lake shore housing developments and reservoir shorelines.	
Whooping Crane (*Grus americana*)	FE, SE	Whooping Cranes prefer shallow braided riverine habitats and wetlands for roosting. Nebraska is one of the only places where a considerable amount of time is spent in rivers. They use agricultural fields, wet meadows, marsh habitats, and shallow rivers for feeding. Whooping Cranes typically select sites with wide, open views and those areas that are isolated from human disturbance.	No; The fields within the vicinity do not provide suitable habitat as there are no wetlands, riverine corridors or wetlands in the project area or in the vicinity. No impact is anticipated to the Whooping Crane.
Mountain Plover *(Charadrium Montanus*)	ST	This native Nebraska shorebird prefers flat, dry, open areas, which can include agricultural landscapes and shortgrass prairies. Mountain Plovers nest in four habitat types: 1) native short- and mixed-grass prairie, 2) semi-desert sites, 3) prairie dog colonies, and 4) agricultural land. One factor common to all breeding areas is that the land must include extensive bare ground.	No; extensive bare ground required for breeding areas is absent within the project boundaries. The site currently consists of grass mowed for hay or grazing. There may be bare ground located within the landfill north of the site but it is not expected to be favored by this species. No impact is anticipated.
Fishes			
Pallid Sturgeon (*Scaphirhynchus albus*)	FE, SE	Bottom-oriented, large river obligate fish inhabiting Missouri and Mississippi rivers and some tributaries from Montana to Louisiana. Typically associated with sandy and fine bottom materials but may utilize gravel substrates during spawning.	No; absence of rivers or tributaries within project boundaries. No impact expected.
Insects			
Monarch Butterfly (*Danaus plexippus*)	FC	Adult Monarchs are seen flying in Nebraska from June through the fall. Adults are found in a variety of habitats	No; Monarch Butterfly is a candidate species and no consultation with USFWS is required at this time.

Species	Protection Status	Habitat Description	Habitat Present
		including native prairies, pastures, open woodlands and savannas, desert scrub, roadsides, and other habitats with abundant nectar plants, including urbanized areas. Caterpillars are found on various species of the family Asclepiadaceae (occasionally treated as a subfamily Apocynaceae).	
Plants			
Western Prairie Fringed Orchid (*Platanthera praeclara*)	FT, ST	The Western Prairie Fringed Orchid can be found in the Tallgrass prairie landscape. In eastern Nebraska they are found in upland prairies and loess soils. In central and northeast Nebraska they occur in wet prairies and meadows. The Western Prairie Fringed Orchid can also be found in the sandy soils of sub-irrigated meadows in the Sandhills.	No; absence of suitable habitat (wet prairies and sub-irrigated meadows) within or near the project area. The area is not sub-irrigated and is subject to mowing during the growing season, therefore, no impact is anticipated.

FC – Federal candidate FE – Federally listed endangered FT – Federally listed threatened
SE - State listed endangered ST – State listed threatened

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The USFWS has responsibility for certain species of Nebraska wildlife under the ESA, the Migratory Bird Treaty Act (MBTA), and the Bald and Golden Eagle Protection Act (BGEPA). The 1918 MBTA establishes a Federal prohibition "to pursue, hunt, capture, kill, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg, without a permit" issued in accordance with the policies and regulations of the MBTA. The MBTA does not prohibit the destruction of the bird nest alone (without birds or eggs) provided that no possession of the nest occurs during destruction. The USFWS is the lead agency determining permitting requirements for nest removal or destruction.

The IPaC identifies birds listed on the USFWS Birds of Conservation Concern list or those that warrant special attention in the identified project area. According to the IPaC, the Bald Eagle (*Haliaeetus leucocephalus*), Chimney Swift (*Chaetura pelagica*), Ferruginous Hawk (*Buteo regalis*), Long-billed Curlew (*Numenius americanus*), and Red-headed Woodpecker (*Melanerpes erythrocephalus*) may utilize the proposed project area. The Bald Eagle is listed as having a breeding season from October to late July. The Chimney Swift and Ferruginous

Hawk breed from March to August. The Long-billed Curlew nests on the ground and breeds from April to July, and the Red-headed Woodpecker breeds May through mid-September.

The Nebraska Important Bird Areas Map, created to inform the public of critical habitats and sites in an effort to conserve them, illustrates vital bird corridors, ecosystems, and conservation areas throughout Nebraska (Nebraska Birding 2022). The proposed project area is not located within a Nebraska IBA (see Figure 7).

The NGPC performed a study in 2017 to locate confirmed active Bald Eagle nest sites across Nebraska and generated the map seen in Figure 8 (Jorgensen 2018). The closest documented Bald Eagle nest is located over 100 miles southeast of the proposed project site.

Wildlife Resources and Vegetation

The entire site has been highly disturbed by agricultural activity since at least the 1950s. The site is currently revegetated by grasses used for grazing and is regularly disturbed by mowing for hay production.

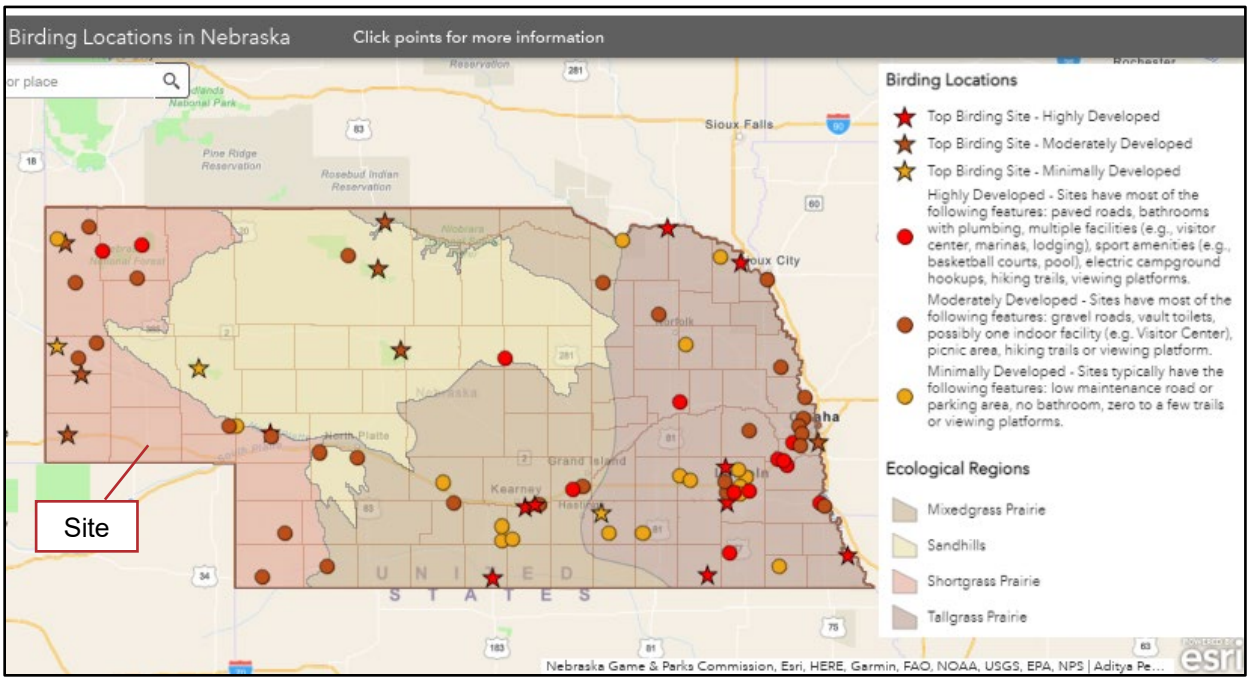

Figure 7. Nebraska Important Bird Areas Map

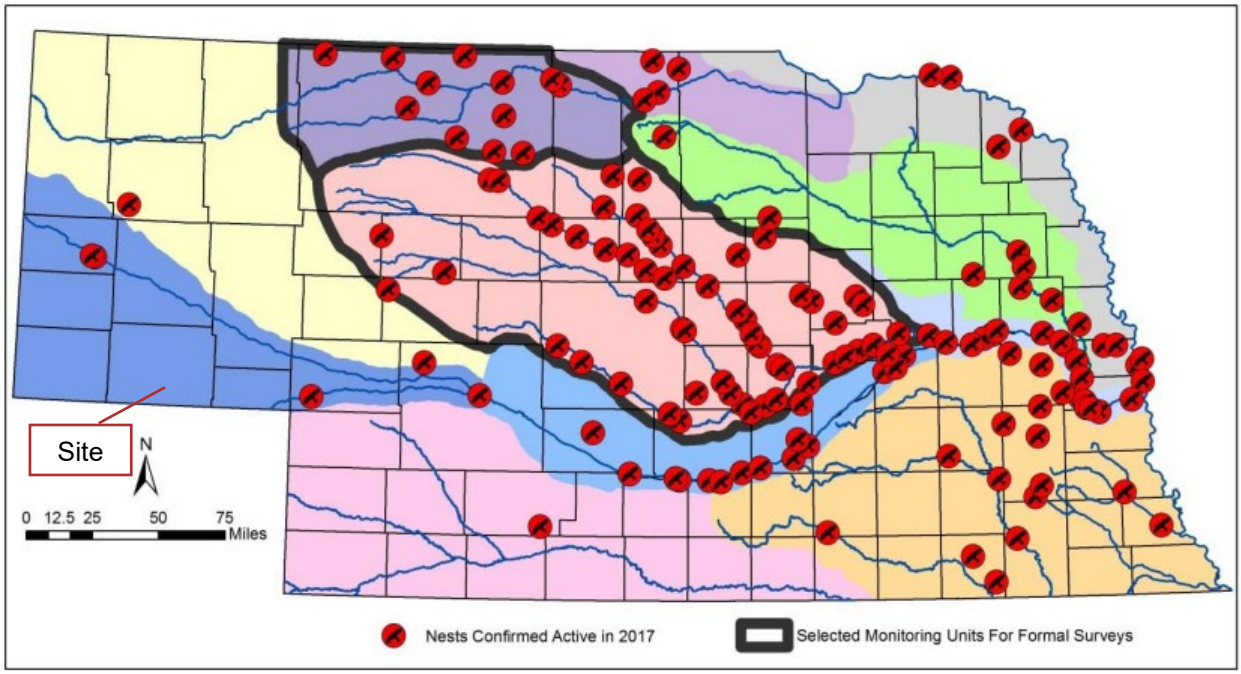

Figure 8. NGPC Bald Eagle Nest Locations Map

Invasive Species

EO 13112 (Invasive Species) was created to prevent the introduction of invasive species and to provide for their control. The federal government cannot fund or authorize actions that may promote the introduction or spread of invasive species. The Nebraska Invasive Species Program identifies three classes of noxious/invasive vegetation: Category 1, Category 2, and Category 3 (2022a). Category 1 plants are species not known to exist in each ecoregion but pose a significant risk if introduced; Category 2 plants are species that are top priority for eradication of new and existing populations; and Category 3 plants are established species and the prevention of spread to new areas is a priority. The Proposed Action is located within the Shortgrass Prairie ecoregion. Common Category 2 priority terrestrial species in the Shortgrass Prairie ecoregion include: Russian Knapweed (*Acroptilon repens*), Absinth Wormwood (*Artemisia absinthium L.*), Caucasian and Yellow Bluestem (*Bothriochloa bladhii* and *ischaemum*), Houndstongue (*Cynoglossum officinale*), Henbane (*Hyoscyamus niger*), Yellow Flag Iris (*Iris pseudacorus*), Dalmation Toadflax (*Linaria dalmatica),* and Common Buckthorn/European Buckthorn (*Rhamnus Cathartica)* (NSIP 2022b). The full weed watch list for the Shortgrass Prairie ecoregion is included in Appendix C. The Nebraska Noxious Weed Control Act places certain responsibilities of noxious weed control with the landowners, counties, and the state and the Nebraska Administrative Code (25-10 §002) lists approved methods for weed control (NAC 2014; NDA 2022).

3.5.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, the proposed project site would remain in its current condition and there would be no impacts to biological resources.

Proposed Action

Federal and State Listed Species, Wildlife

Implementation of the Proposed Action would remove some of the existing vegetation which consists of agricultural land used for grazing and hay production. Due to the disturbed nature of the proposed site and assessment during site reconnaissance, the presence of federally and state listed T&E species is not likely.

The **Swift Fox** tends to avoid human-altered habitats. The agricultural use and associated disturbance from harvesting would make the project area unsuitable for denning. The major reason for Swift fox population decline is habitat destruction and eradication efforts for predators. The increase in agriculture has resulted in a significant decrease in shortgrass prairie habitat and prairie dog towns that provide prey and burrows to escape predators. The proposed project would have **no effect** on the Swift fox.

The **Piping Plover and Whooping Crane** prefer habitat near water or wetland features which are not present within the proposed site boundaries or nearby. **No effect** to these species would occur.

Mountain Plovers prefer extensive bare ground conditions which are absent within the site. **No effect** to this species would occur.

There is no habitat for **Pallid Sturgeon** as there are no large river features within or near the site. **No effect** to this species would occur.

The **Western Prairie Fringed Orchid** prefers less-disturbed soils and is more likely to be present in the Sandhills and tall grass prairies of eastern Nebraska. **No effect** to this species would occur.

There is potential migratory stopover habitat for the **Monarch Butterfly** onsite. The species relies on milkweed presence for breeding and while milkweed was not observed during site reconnaissance, other wildflower species may provide suitable forage. However, the Monarch Butterfly is currently a candidate species and not listed for protection, so consultation with the USFWS is not required.

Wildlife such as small mammals and birds that may pass through or forage in the proposed project area would be expected to avoid the area during construction. Security fencing placed around the perimeter of the site will limit the use of the project area by larger terrestrial species (e.g. deer), but smaller animals would be able to continue to access the area. In the long term, small mammals (rabbits, ground squirrels, etc.) may prefer the area if the larger predators (domestic cats and dogs, coyotes) are fenced out. There are short-term, direct, and

minor impacts anticipated to local wildlife species, with the potential for long-term advantages to some species.

MBTA / BGEPA

According to the BGEPA, development within 660 feet of a Bald Eagle nest is subject to development restrictions and potential mitigation. The nearest Bald Eagle nest identified by the NGPC is much further than 660 feet of the site (Figure 8); therefore, potential development regulations would not apply under the BGEPA unless a nest is identified during construction. Site development would consist of the placement of solar panels with maximum heights of 10 feet which reduces the likelihood for panels to be used as vantage point structures for eagles. Potential impacts to Bald Eagles that may forage within the site or use the site after completion of construction as a flight corridor are minimal.

Activities from the Proposed Action will have the potential to impact birds that are protected by the MBTA. The construction of PV arrays and other structures have the potential to impact ground nesting birds such as the Long-billed Curlew. If construction occurs during the nesting season of migratory species observed within or near the project site, pre-construction surveys will be conducted to observe for the presence of active nests within the project area.

The project area does not appear to be an Important Bird Area and the nearest documented Bald Eagle nest is greater than 100 miles from the project area. Additionally, site construction activities would generally be near ground level and not greater than 10 feet high. Therefore, if BMPs for avoiding impacts to migratory birds are adopted and the facility is maintained regularly, the proposed project should not impact migratory birds.

Overall, there is the potential for impacts to migratory birds in the form of interactions with PV facilities. Aquatic habitats preferred by Clark's grebe and Lesser yellowlegs are absent within the project area. Canopy cover is absent which provides habitat for the Chimney swift and Red-headed woodpecker. Construction activities within site boundaries would generally be near ground level and not greater than 10 feet high. Therefore, if BMPs for minimizing impacts to migratory birds are adopted and the facility is revegetated with pollinator-friendly species of grasses and forbs, the proposed project may have a long-term positive impact on migratory birds.

Invasive Species

The proposed project does involve soil disturbance which can contribute to the spread of invasive species throughout the project site and to surrounding areas. Most of the work would use onsite soils, but soil may be brought in from other areas of the community to meet the needs of the project and may contain invasive plants and seeds. Mitigation measures will be incorporated into project plans to prevent the spread of invasive plants within the project area and adjacent land, resulting in non-significant impacts.

At the time of decommissioning a rehabilitation plan will be developed to restore agricultural lands and wildlife habitat in areas affected by the project to the same or functionally similar

preconstruction state, unless circumstances prevailing shortly in advance of the decommissioning indicate that other use is more appropriately or explicitly desired by the landowner.

3.5.3 Mitigation Measures

Federal and State Listed Species
Mitigation measures related to managing invasive plant species will benefit the vegetation community overall, which will in turn provide benefits to all wildlife species.

MBTA / BGEPA
A migratory bird nest survey is recommended to evaluate the potential for presence of avian species protected by the MBTA at the site location if clearing is conducted during the nesting season. If the project area is cleared outside the nesting season, then a survey would not be warranted. No mitigation measures are recommended for Bald and Golden Eagles due to the distance to the nearest documented nest and the absence of suitable nesting habitat in and near the project site.

Field surveys for nests of migratory species that utilize shortgrass prairies such as Long-billed Curlews should be conducted in the spring and if nests are found, construction activities should be planned outside of critical nesting periods (April 1 to August 15).

Invasive Species
Temporary erosion control measures would be used during construction to eliminate soil erosion and spread of invasive species. If construction involves the importing of soils, it would be taken from the surrounding landscape where possible. Site clearing may include an EPA-approved herbicide for pre-construction treatment to minimize weed spread during construction. Temporarily disturbed areas will be re-vegetated with appropriate seed mix as soon as possible after construction is complete to prevent weed establishment. Reseeding efforts will also be initiated as soon as practical after construction is completed, and will include, in addition to grasses, native forbs and pollinator species to occupy the niches that invasive weeds may otherwise colonize. An increase in weed species is expected for the first one or two growing seasons after construction. A weed management plan will be developed by the applicant that specifies post-construction measures to be taken to identify and manage noxious weed species until the site is revegetated with the desirable species. These measures may include overseeding, controlled grazing or chemical treatments depending on the species identified and the desired measure of control.

3.6 Cultural Resources and Historic Properties

3.6.1 Affected Environment

The cultural environment includes those aspects of the physical environment that relate to human culture and society, along with the social institutions that form and maintain communities and link them to their surroundings. Section 106 of the National Historic

Preservation Act (Section 106) requires federal agencies to take into account the effects of their "undertakings" on historic properties that are within the proposal's "area of potential effect" (APE) and to provide the Advisory Council on Historic Preservation (ACHP) with a reasonable opportunity to comment on such undertakings. The regulations implementing Section 106 establish the process through which federal agencies meet this statutory requirement. Notwithstanding the above statement, in most cases Agency actions will not be reviewed by the ACHP but rather by SHPOs and Tribal Historic Preservation Officers (THPOs) on and off tribal land. Federal agencies must consider whether their activities could affect historic properties that are already listed, determined eligible, or not yet evaluated under the National Register of Historic Places (NRHP) criteria. Properties that are either listed in or eligible for listing in the NRHP are provided the same measure of consideration under Section 106.

Criteria have been established as guidance for evaluating potential entries to the NRHP. "Significance" in American history, architecture, archaeology, and culture is granted to districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that meet at least one of the following criteria:

- An association with events that have made a significant contribution to the broad patterns of history (Criterion A);
- An association with the lives of persons significant in history (Criterion B);
- Embody the distinctive characteristics of a type, period, or method of construction;
- Represent the work of a master; possess high artistic value; or represent a significant and distinguished entity whose components may lack individual distinction (Criterion C); or
- Have yielded, or may likely yield, information important in prehistory or history (Criterion D).

In Nebraska, cultural resources are protected under the federal National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. § 300101et seq.). A Phase II intensive cultural resources investigation was conducted for the proposed solar project. Personnel conducted field investigations between July 11 and 14, 2022. The parcel comprising the APE was investigated by means of a 100% intensive pedestrian survey that conformed to governing state (Nebraska SHPO) and federal (ACHP) standards for the survey, management, and protection of cultural resources. In general, the pedestrian surface investigation confirmed a substantial degree of past ground disturbance throughout the project parcel comprising the APE. Much of the parcel has been previously cultivated.

Records search results identified eight cultural resource investigations that were previously conducted within one mile of the project site, and one archeological site (25CN504) was previously documented within this same range. Additionally, the records search indicated approximately 317 recorded historic structures within one mile of the project site; these

structures represent buildings associated with the town of Sidney. As an additional component of background research, relevant historic atlases of the project parcels were reviewed. Sources were examined on June 10, 2022 at the Center for Western Studies, Augustana University, Sioux Falls, South Dakota and online.

The Phase II pedestrian investigation, coupled with an examination of mapped soils, historic aerial imagery, LiDAR data, and a geomorphological evaluation consisting of the excavation during subsurface tests, revealed significant landform disturbance with limited to no potential for intact, buried cultural resources within the parcel. Specifically, soils associated with the project site overwhelmingly exhibit A to C horizon consistent with unstable landforms and little to no soil development. Consequently, these settings afford little to no potential for harboring intact, buried cultural resources.

3.6.2 Environmental Consequences

No Action Alternative

No cultural resources are present on the site and the site will remain the same; therefore, no impacts would occur.

Proposed Action

A significant impact on cultural resources would result if any of the following were to occur from construction or operation of the Proposed Action: 1) damage to, or loss of, a site of archaeological, Tribal, or historical value that is listed, or eligible for listing, in the NRHP; or 2) adverse impacts to NRHP-eligible properties that cannot be satisfactorily mitigated as determined through consultation with the SHPO and other consulting parties.

The Cultural Resources Investigation Report was submitted to the Nebraska State Historic Preservation Office (NSHPO) associated with a request for Section 106 consultation on August 24, 2022. The NSHPO concurred that the determination of no historic properties affected is appropriate for this undertaking and the Proposed Action is unlikely to affect any cultural resources listed on the NRHP or any eligible for such listing; therefore, no adverse impacts are anticipated as defined under Section 106. See NSHPO correspondence in Appendix F.

To comply with tribal consultation requirements under EO 13175, the applicant sent the Phase II Investigation Report and findings letters requesting comments to five federally recognized tribes: Apache Tribe of Oklahoma; Arapaho Tribe of the Wind River Reservation, Wyoming; Cheyenne and Arapaho Tribes, Oklahoma; Comanche Nation, Oklahoma; and the Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Montana. These tribes may have an interest in evaluating the project's effects on cultural or archeological resources and were requested to participate.

In December 2022, the site boundary was adjusted to increase the size of the site, therefore, the five tribes were given the opportunity to review the changes. A response was received on January 20, 2023, from Ms. Teanna Limpy with the Northern Cheyenne Tribe indicating a

formal determination of "No Adverse Effect" regarding this undertaking. See Appendix F for Agency and Tribe correspondence.

3.6.3 Mitigation Measures

No mitigation is anticipated; however, there is the potential to encounter currently unidentified cultural resources during the site development process, which is known as inadvertent discovery. If buried cultural resources are discovered during construction activities, construction activity would immediately cease within a 50-foot buffer radius and the NSHPO and RUS notified within 24 hours. The 50-foot buffer area would be demarcated by high-visibility construction fencing. All five tribes would be notified of an inadvertent discovery. Construction within the 50-foot radius of the find would not continue until notification from RUS is received. An inadvertent discovery plan should be developed and kept onsite during construction and maintenance activities. The construction and maintenance crews should be familiar with the plan and its contents, such that they can take action if an inadvertent discovery is made.

3.7 Aesthetics

3.7.1 Affected Environment

Visual and aesthetic resources include features of both the built and natural environment that together make the visual environment. Examples of these resources can include parks; natural areas; scenic features; open vistas; water bodies; and other landscape features. Historic or urban core districts can also be visual resources. All of these visual resources create aesthetic qualities that are valued by the public that is viewing or could view the resources. Viewers may include neighbors (who occupy land adjacent or visible to the project), travelers (who may see the Proposed Action using existing transportation), and Native Americans and other consulting parties with an interest in the project area.

The visual quality of an area may be affected by the introduction of new buildings or structures. Visually sensitive areas include regions of high scenic beauty, scenic overlooks, scenic highways, wilderness areas, integral vistas, parks, national forests, and along wild and scenic, recreational, and/or national inventory rivers. Sidney is located in the Shortgrass Prairie ecoregion, which is known for being the driest and warmest of the great plains grasslands (Spirit 2022). The North Platte River crosses the ecoregion and fosters wet meadows, deciduous woodlands, and tributary streams. The principal distinguishing characteristics of this ecoregion are its diverse topography and diverse soil types, ranging from sand to clays. A high percentage of land is used for cropland.

The City of Sidney consists of single-family homes, commercial buildings, land used for agriculture, five schools, and associated recreational facilities. The project area consists of an approximate 22.2-acre tract of land used for agriculture and is currently vegetated with mowed or grazed grass. Adjoining properties to the project area include unimproved roadways, a sand borrow pit and former Sidney Landfill, and the Sidney Power District

laydown yard.

The project area can be seen from Elm Street to the south and Road 113 (Lockwood Road), to the west of the site. The project area is also observable by those working within the existing laydown yard to the west and the vehicle salvage yard on the south side of Elm Street. To the north and east of the project area is city-owned property, including the former Sidney Landfill. A warehouse is surrounded by the project area to the south. The scenic byway U.S. Highway 30 (Lincoln Highway) is located approximately 0.25 miles south of the site and is perpendicular to scenic byway U.S. Route 385 (Gold Rush Byway), approximately one mile east of the site (NDOT 2022).

3.7.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, no impacts to aesthetics are anticipated. The site would remain undeveloped, the current visual aspect of the area would remain unchanged; therefore no impact would occur.

Proposed Action

The terrain at the project area is relatively level. The maximum height of the solar panels (approximately 10 feet) would be lower in height than the existing warehouse outside of the southern site boundaries.

Construction would cause a minor and temporary impact to aesthetics, but this would not be considered significant. After the arrays and supporting equipment are constructed, they may be visible from Elm Street to the south and from the cemetery to the east. The facility is not likely to be visible from residences to the west and southwest due to commercial structures and their associated height currently present between the residences and the proposed site.

The solar facility would have minimal impact on the natural features or character of the surrounding area and would be located to minimize glare on adjacent properties and roadways (Cheyenne County 2022). Views from U.S. Highway 30 would be minimally impacted by the solar facility due to the low height of the arrays and the existing features between the highway and proposed site, such as multiple railroad tracks, commercial structures, and a vehicle impound lot. The arrays would not be visible from the Gold Rush Byway. The roads immediately adjacent to the site (Elm Street and an unpaved road) are not considered major thoroughfares or scenic routes. Visually sensitive areas were not observed on immediately adjacent properties. Overall, the Proposed Action would have direct, short- and long-term impacts to aesthetics, but these would not be significant.

3.7.3 Mitigation Measures

No visual resource mitigation measures are anticipated at this time. The proposed solar

development would have minimal impact to aesthetics due to the lack of resources; therefore, no mitigation measures would be required.

3.8 Air Quality

3.8.1 Affected Environment

Air quality at the project area is regulated by the NDEE, which administers federal and state air quality standards. The United States Environmental Protection Agency (EPA) has set national ambient air quality standards (NAAQS) under the Clean Air Act (CAA) and its associated Amendments. The CAA was signed December 31, 1970 and amended August 7, 1977 and September 14, 1990. The CAA Amendments set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated technologies, and establish national emission standards for hazardous air pollutants. Federal air quality standards have been established for six criteria pollutants: ozone (O_3), particulate matter (PM 2.5 and 10), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and lead (Pb). Although O_3 is considered a criteria pollutant and is measurable in the atmosphere, it is often not considered as a pollutant when reporting emissions from specific sources because O_3 is not typically emitted directly from most emissions sources. Ozone is formed in the atmosphere from its precursors (nitrogen oxides (NO_x) and volatile organic compounds (VOCs) – that are directly emitted from various sources. Thus, emissions of NO_x and VOCs are commonly reported instead of O_3. Table 3 lists air quality standards for the six criteria pollutants.

Under these standards, a geographic location with pollutant levels below air quality standards is said to be in "attainment," while higher levels are in "non-attainment."

Table 3. National Ambient Air Quality Standards

Pollutant	Primary/Secondary	Value	Form
Carbon Monoxide 1-hr average 8-hr average	Primary	35 ppm 9 ppm	No to be exceeded more than once per year
Nitrogen Dioxide 1-hr average Annual average	Primary Primary and Secondary	100 ppb 53 ppb	Hourly - 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years Annual Average – Annual Mean
Ozone 8-hr average[(b)]	Primary and Secondary	0.070 ppm	Annual fourth highest maximum 8-hour concentration, averaged over 3 years
Lead	Primary and Secondary	0.15 µg/m^3	Rolling average

Pollutant	Primary/Secondary	Value	Form
Particle Matter $_{10}$ 24-hr average	Primary and Secondary	150 µg/m^3	Not to be exceeded more than one per year on average over 3 years
Particle Matter$_{2.5}$ 24-hr average	Primary and Secondary	35 µg/m^3	98th Percentile, averaged over 3 years
Annual average	Primary	12.0 µg/m^3	Annual mean, averaged over 3 years
Annual average	Secondary	15.0 µg/m^3	Annual mean, averaged over 3 years
Sulfur Dioxide 1-hr average	Primary	75 ppb	99th Percentile of 1-hr daily maximum concentrations, averaged over 3 years
3-hr average	Secondary	0.5 ppm	Not to be exceeded more than one per year

Source: US EPA, NAAQS Table. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table.

The CAA Amendments requires federal actions to conform to any applicable State Implementation Plan (SIP). The EPA has promulgated regulations implementing this requirement under 40 CFR Part 93. A SIP must be developed to achieve the NAAQS in non-attainment areas (i.e., areas not currently attaining the NAAQS for any pollutant) or to maintain attainment of the NAAQS in maintenance areas (i.e., areas that were non-attainment areas but are currently attaining that NAAQS). General conformity refers to federal actions other than those conducted according to specified transportation plans (which are subject to the Transportation Conformity Rule). Therefore, the General Conformity rule applies only to non-transportation actions in non-attainment or maintenance areas.

New construction and conversion activities which are located in "non-attainment" or "maintenance" areas as determined by the EPA may need to be modified or mitigation measures developed and implemented to conform to the SIP. The Clean Air Act (42 U.S.C. 7401 et seq.) prohibits federal assistance to projects that are not in conformance with the SIP. Cheyenne County, Nebraska is not located within a non-attainment or maintenance area for any criteria pollutants (US EPA 2022).

3.8.2 Environmental Consequences

No Action Alternative

Under the No Action alternative, the proposed project site would remain in its current condition and no air quality impacts would be anticipated.

Proposed Action

Temporary impacts on air quality are anticipated during the clearing, grading, excavating, and construction of the site. Fugitive dust emissions and emissions from construction vehicles may temporarily increase levels of air pollutants during excavation and construction. Impacts to air quality are expected to be short-term and minor.

The quantity of uncontrolled fugitive dust emissions from a construction site is proportional to the area of land being worked on and the level of construction activity. These emissions would produce slightly elevated short-term PM_{10} ambient air concentrations. The EPA estimates that the effects of fugitive dust from construction activities would be reduced significantly with an effective watering program.

The Proposed Action and related operations are not anticipated to result in air emissions of significant quantity to degrade general air quality in the surrounding area, nor is the Proposed Action anticipated to require air permitting. The project area is currently in attainment and therefore no additional mitigation measures are required for development. Additionally, there would be no long-term air quality effects associated with routine operation of the solar site. Construction of a solar site could alternatively reduce long-term air emissions by power generation as it provides renewable energy as opposed to energy derived from natural gas.

3.8.3 Mitigation Measures

Dust mitigation measures would be required during construction of the proposed solar site. Measures may include watering of disturbed areas and sweeping or other methods to control tire track-out at intersections between construction and paved areas. Minor emissions from construction can be further reduced or mitigated using BMPs. BMPs for dust control may include:

- spraying water on exposed surfaces to minimize dust;
- limiting the area of uncovered soil to the minimum needed for each activity;
- siting of staging areas to minimize fugitive dust;
- using a soil stabilizer (chemical dust suppressor);
- mulching;
- using a temporary gravel cover;
- limiting the number and speed of vehicles on the site;
- and covering trucks transporting soil, sand, or other loose material off-site;
- limiting vehicle idling time;
- using low or ultra-low sulfur fuel (including biodiesel);
- conducting proper vehicle maintenance; and
- using electric-powered tools (instead of gas-powered tools).

It is anticipated that construction contractors would properly maintain their fleet of vehicles/equipment so that air emissions would be kept to a minimum. Air pollutants would be widely dispersed across the project area and short-term in nature. Air pollutants would be minimized by dust suppression (watering) and vehicle maintenance. Watering the disturbed area of the construction site twice per day with approximately 3,500 gallons per acre per day would reduce total suspended particles emissions as much as 50% (US EPA 2009).

3.9 Socio-Economic Impact Assessment/Environmental Justice

3.9.1 Affected Environment

EO 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." The EO makes clear that its provisions apply fully to programs involving Native Americans.

According to CEQ environmental justice guidance (CEQ 1997), low-income populations should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

The CEQ guidance identifies a minority as Individual(s) who are members of the following population groups: American Indian or Alaskan Natives; Asian or Pacific Islanders; Black, not of Hispanic origin; or Hispanic. Minority populations should be identified where either the minority population of the affected area exceeds 50%, or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In identifying minority communities, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native American), where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

EO 12898 requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. As defined by the EPA, environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

There are no individuals residing within and adjacent to the project site. Within a one-mile radius of the site, the population is approximately 2,199 with 12% identifying themselves as a minority and 24% as earning an annual household income of $25,000 or less. The

unemployment rate is 3% within a one-mile radius of the project site. The City of Sidney in 2020 has an estimated population of 10.3% that are documented as in poverty. An environmental justice community is not present (reference Appendix D).

EO 13166 requires agencies to examine the services they provide, identify need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so that LEP persons can have meaningful access to them. The proposed project area is located in an area in which all residents claim to speak English "well" or better (EPA 2020).

According to the 2020 Census Data, the population of Sidney was 6,410 and the median household income was $51,880. Comparatively, Cheyenne County population was 9,468 and the median household income is recorded as $52,270. In Sidney, 10.3% of people were in poverty and in Cheyenne County it was 10.0% (USCB 2022). Approximately 4,840 people are employed within Cheyenne County. The largest industries in Cheyenne County are retail trade, health care and social assistance, and educational services. The highest paying industries are utilities; professional, scientific, and technical services; and transportation and warehousing (Data 2022).

For economic demographic comparisons, Table 4 compares the populations, median household incomes, poverty rates, and minority percentage between Sidney, Cheyenne County, Nebraska, and a one-mile radius surrounding the proposed project area.

According to the U.S. Bureau of Labor Statistics Quarterly Census of Employment and Wages, the primary employing industry sector in Cheyenne County for the first quarter of 2022 was service providing (USBLS 2022). Table 5 shows the main industry establishments and the number and percent of employees in each sector for Cheyenne County.

Table 2. Population, Economy, and Employment Demographics

Geographic Area	Total Population	Median Household Income	Poverty Rate	Percent Minority Population
Proposed Project Site 1-mile Radius[1]	2,199	N/A	N/A	12%
Sidney[2]	6,410	$51,880	10.3%	12.6%
CheyenneCounty[2]	9,468	$52,270	10.0%	12.6%
Nebraska[2]	1,961,504	$63,015	10.8%	22.6%

[1]EJSCREEN ACS Summary Report (2015-2019), accessed September 18, 2022 (Appendix D)
[2]U.S. Census QuickFacts, 2020 Census Data (Appendix D)

Table 3. Cheyenne County Industry Sector Employment

Industry Sector[1]	Number of Employees in Cheyenne County	Percent of Employees by Industry Sector
Agriculture, Forestry, Fishing and Hunting, Mining	285	5.9%
Construction	200	4.1%
Manufacturing	301	6.2%
Wholesale Trade	106	2.2%
Retail Trade	996	20.6%
Transportation and warehousing, and utilities	382	7.9%
Information	57	1.2%
Finance and Insurance, and real estate and leasing	187	3.9%
Professional, scientific, and management, and administrative and waste management services	394	8.1%
Educational services, and health care and social assistance	1066	22.0%
Arts, entertainment, and recreation, and accommodation and food services	344	7.1%
Other services, except public administration	198	4.1%
Public administration	325	6.7%
Total	4,841	

[1]2020 U.S. Census Bureau, Industry Workers (Population 16 Years and Over)
https://data.census.gov/cedsci/table?q=cheyenne%20County,%20Nebraska&tid=ACSST5Y2020.S2405

3.9.2 Environmental Consequences

No Action Alternative

There would be no change to the current conditions, and no impact to socioeconomics/environmental justice would occur with implementation of this alternative.

Proposed Action

The Proposed Action could have a minor, short-term positive impact on the local economy as a result of construction activities via incidental spending by construction workers and the purchase of locally available construction materials. Temporary jobs would be created for construction workers during construction activities, as well as site maintenance and groundskeeping activities. The operation of the Proposed Action could result in economic

benefit to the residents of Sidney by implementing an additional, reliable energy source to the area which could by locking-in a competitive price for electricity over 25 years, which would result in lower electricity costs. Additionally, this project will aid the community's transition to renewable electricity.

An environmental justice community is not present, and no negative socioeconomic impact is anticipated. Any potential impact would likely be beneficial yet not significant. The implementation of the Proposed Action is not anticipated to lead to adverse human health or environmental effects to the general public as a whole, nor low-income or minority populations, specifically.

3.9.3 Mitigation Measures

No Mitigation or Management Measures are anticipated to be required to reduce negative impacts to less than significant levels. It is expected that the project should have short-term positive impacts to the community related to job creation, and long-term positive impacts resulting from consistent prices for electricity.

3.10 Miscellaneous Issues

3.10.1 Noise

3.10.1.1 Affected Environment

Noise is generally defined as unwanted sound. Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sounds that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses. EPA guidelines, and those of many other federal agencies, state that outdoor sound levels in excess of 55 dB DNL are "normally unacceptable" for noise-sensitive land uses such as residences, schools, or hospitals.

In Sidney, noise regulations are included in Section 648 of the Code of Ordinances (City of Sidney 2022c). The Code allows construction activity within city limits between the hours of 7:00 am and 10:00 pm; any construction or building repair work outside of these hours is considered excessive, unusually loud, and in violation of Section 648. Additionally, operation of pile drivers, hammers, or other loud equipment is not permitted outside of these hours.

The closest noise receptors to the site consist of a warehouse structure located outside of the site at the south-central boundary and the existing Sidney Power District laydown yard adjoining the site to the west. The closest noise-sensitive zones are residences to the south and southwest, approximately 0.25 miles (1,300 feet) from the location of proposed construction, and residences to the west are approximately 0.34 miles (1,770 feet) away.

3.10.1.2 Environmental Consequences

No Action Alternative

Under the no action alternative, no changes to noise levels are anticipated.

Proposed Action

Increases in noise levels would occur in the immediate vicinity of the proposed site during the construction phase. Onsite, adherence to appropriate Occupational Safety and Health Administration (OSHA) standards would protect the workforce from excessive noise (29 CFR 1926.52). Noise levels for most heavy equipment used during construction are anticipated to be in the 85 to 88 decibel range at a distance of 50 feet. Pile driving is a louder process and may have maximum decibel levels between 95 and 115 at a 50-foot distance (WSDOT 2017). Noise impacts during construction of the proposed project would be short-term in duration and limited to daytime hours. Noise levels reduce considerably based on distances from the source, so construction noise is not likely to expose people residing or working in the vicinity to noise levels significantly above background. The nearest sensitive noise receptor is the neighborhood approximately 1,600 feet southwest of the site. Based on distance and the presence of applicable buffers, construction noise would have no anticipated significant impact to the sensitive noise receptor.

The construction phase could have a temporary negative noise impact on the warehouse and the few commercial properties that abut the site, but due to the distance between the site and the properties, noise levels would not be significant and these facilities are not considered sensitive receptors. As such, no significant impacts from noise-generating activities or sources are expected as a result of the proposed solar operations.

3.10.1.3 Mitigation Measures

Construction would take place during normal business hours and equipment would meet all local, state, and federal noise regulations. Noise and light impacts to receptors in the immediate vicinity are likely to be minimal and not distinguishable above ambient levels. No mitigation or management measures are anticipated beyond OSHA-mandated hearing protection for workers onsite.

3.10.2 Transportation

3.10.2.1 Affected Environment

The proposed site is incorporated within Sidney's city limits. Primary access to the project area is via a driveway off Elm Street, immediately east of the warehouse onsite. Access for construction traffic from the vicinity would likely occur via U.S. Highway 30 (Lincoln Highway) to Greenwood Road or 13th Avenue, or via U.S. Route 385 (Gold Rush Byway) to East Elm Street. County Road 115 also connects U.S. Route 385 to Elm Street.

The Nebraska Department of Transportation (NDOT) requires permits for oversized or overweight vehicles on roadways. A permit for movement of overweight and/or over-dimensional vehicles and loads must propose dates and routes for review by the NDOT (2022).

Similarly, Cheyenne County requires a County Road Permit for over-width loads on county roads.

3.10.2.2 Environmental Consequences

No Action Alternative

Under the no action alternative, no changes to transportation or traffic patterns are anticipated; therefore no impact would occur.

Proposed Action

During construction of the Proposed Action, additional traffic is anticipated associated with construction worker commutes and equipment being brought on and off site. There are businesses adjacent to the project area and interference with access to businesses near the site will be avoided. No street closures are anticipated and areas adjacent to and in the vicinity of the proposed project should remain accessible to property owners and visitors. If applicable, the contractor would obtain an Oversize/Overweight Truck Permit from NDOT and/or Cheyenne County to comply with local and state transportation regulations. Post-construction, there would not be any notable increases in traffic from current conditions since the project area will not be staffed. Traffic associated with the operation of the facility should be limited to occasional maintenance and repair which would require passenger and light-duty vehicles, and if needed a larger vehicle (oversize/overweight) if larger portions of the system need to be replaced. No short- or long-term significant impacts to transportation are anticipated.

3.10.2.3 Mitigation Measures

The NDOT regulates oversized and overweight vehicle movements and haul routes along federal- and state-maintained roadways, and Cheyenne County regulates over-width vehicle movement along county-maintained roads. Proposed haul routes should be approved by Cheyenne County and NDOT prior to mobilization and permits obtained if required according to vehicle load.

3.11 Human Health and Safety

3.11.1 Affected Environment

Public, media, regulatory, and scientific concern that exposure to power-frequency and EMF may cause a variety of health effects has been increasing. Consequently, attempts to locate transmission lines and substations near residential areas, schools, health facilities, and other public facilities have created controversy in some areas of the United States. Health and safety considerations should be made prior to the development of new transmission lines.

General public health issues include emergency response and preparedness, which ensure project construction and facility operation do not pose a threat to public health and safety. Emergency services for any medical and/or fire-related incidents at the proposed site would be provided by the Sidney Fire Department. The Sidney Regional Medical Center and Sidney Police Department would also be available resources.

Environmental Risk Management

In July 2022, a Phase I Environmental Site Assessment (ESA) was prepared in accordance with ASTM E1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. The Phase I ESA reviewed the site and adjoining properties for the potential of contaminants of concern associated with current and historic use of the site and surrounding properties. The assessment included a site visit and review of government databases and historic images and maps. The assessment concluded that no Recognized Environmental Conditions (RECs) or Controlled RECs (CRECs) were identified in connection with the site by activities conducted on the site or by adjacent properties or activities. RECs are defined as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property" (reference Appendix E).

3.11.2 Environmental Consequences

No Action Alternative

Under the no action alternative, the project area will not be impacted; therefore, no changes to human health and safety would occur.

Proposed Action

The proposed project site would interconnect with Sidney's existing distribution grid. The greatest hazard for health and safety from high-voltage transmission lines and equipment is the risk of primary electrical shock from direct contact with equipment or conductors. The proposed project does not include new transmission or distribution lines. The proposed equipment is designed and built with safe electrical clearances and will be installed within security fencing with controlled access.

Under the Proposed Action, emergency contacts and procedures would be established prior to the initiation of construction activities. There is potential for traffic hazards due to construction traffic along roadways. Worker safety would be in compliance with OSHA standards, and contractors would establish and maintain health and safety plans.

No RECs or CRECs were documented on the site; therefore, no environmental risks are anticipated.

Human health or safety hazards are not anticipated as a result of solar facility construction or operations. Minor, temporary impacts are anticipated to human health and safety in association with potential traffic hazards and construction activity in the area. Decommissioning hazards would be similar to construction hazards.

3.11.3 Mitigation Measures

Electrical equipment developed at the site would contain appropriate clearances, security fencing, and controlled access. Workers onsite would utilize BMPs to minimize potential risks and establish protocols for safety management. Examples of BMPs include employee safety orientation; establishment of work procedures for site activities; equipment guards;

emergency shut-down procedures; site housekeeping; personal protective equipment; and regular safety inspections.

If hazardous waste is discovered onsite or generated by the Proposed Action, it would be collected and disposed of in an appropriate and approved location.

Contractors will develop traffic control plans if lanes require closure or modifications during construction. Plans will include approved signage, appropriate site distances and will be approved by Cheyenne County.

After decommissioning, the panels and other components should be recycled to the extent practical. Components containing materials with the potential to introduce pollutants into the environment will be recycled or disposed of in a manner that minimizes components entering the landfill (U.S. Energy Information Administration, 2022).

3.12 Greenhouse Gas Emissions / Climate Change

3.12.1 Affected Environment

Climate change refers to any significant changes in average climatic conditions (mean temperature, precipitation, or wind) or variability (seasonality, storm frequency, etc.) lasting for an extended period (decades or longer). Recent reports by the U.S. Climate Change Science Program, the National Academy of Sciences, and the United Nations Intergovernmental Panel on Climate Change provide evidence that climate change is occurring and may accelerate in the coming decades (IPCC 2018). Strong evidence supports the idea that global climate change is driven by human activities worldwide, primarily the burning of fossil fuels and tropical deforestation. These activities release carbon dioxide and other heat-trapping gases, commonly called greenhouse gases (GHGs), into the atmosphere (IPCC 2018).

The most notable GHGs are carbon dioxide, methane, nitrous oxide, and fluorinated gases (IPCC 2018). Carbon dioxide is the most commonly emitted gas from human activities. While it does occur naturally in the atmosphere, activities such as fossil fuel combustion for transportation, electricity, and industrial processes drastically increase its atmospheric concentration. Methane is released from natural gas systems and livestock rearing. Nitrous oxide is a natural atmospheric gas but is also sourced by agriculture, fuel combustion, wastewater management, and industrial processes. Fluorinated gases have no natural sources and are often emitted through their use as refrigerants and in industrial processes. These are the least emitted but also the most potent and longest lasting GHGs.

3.12.2 Environmental Consequences

No Action Alternative

Under the no action alternative, no additional contributors to climate change and GHGs are anticipated because no activities would occur. Sidney's electricity will continue to be provided by non-renewable sources.

Proposed Action

During construction, the operation of heavy equipment would release vehicle emissions including GHGs into the atmosphere, but this would be local, temporary, and negligible. Operation of the Proposed Action would not emit GHGs.

Solar power generation is an important means by which climate change can be addressed. The operation of the Proposed Action has a potential to reduce the need for additional energy sources that generate greenhouse gases, allowing for a beneficial impact; however, not significant.

Local solar power generating facilities can provide educational opportunities to residents that will promote the conversion (over time) from non-renewable fossil fuels to forms of renewable energy. Additionally, the equipment (including but not exclusive to the tracks, footers, and panels) constructed and operated within the project site will have the capacity to withstand the potentially increasing frequency and/or strength of storm events; therefore no impact on the project associated with resiliency.

3.12.3 Mitigation Measures

No mitigation or management measures are warranted to reduce impacts to less than significant levels. Implementing BMPs associated with reducing the emissions of vehicles and equipment during the construction phase of the proposed undertaking is recommended. These BMPs may include practices such as properly maintaining engines and limiting idle time.

4.0 CUMULATIVE IMPACTS

The consideration of cumulative impacts consists of an assessment of the total effect on a resource, ecosystem, or community from past, present and future actions that have altered the quantity, quality, or context of those resources within a broad geographic scope. The CEQ regulations define cumulative effects as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time" (40 CFR 1508.7). The cumulative effects analysis considers the aggregate effects of direct and indirect impacts from federal, nonfederal, public, and private actions on the quality or quantity of a resource. In

this analysis, the magnitude and significance of beneficial and adverse, and direct and indirect effects of the Proposed Action are assessed.

At the time this EA was prepared, there were no known projects in the vicinity of the proposed project area proposed for the immediate future.

4.1 Environmental Consequences

No Action Alternative
Under the no action alternative, there would be no cumulative effects as no impacts would occur.

Proposed Action
With the availability of additional renewable energy sources, the potential for additional commerce could occur within the City of Sidney and allow a positive impact to the local economy while not contributing to negative environmental impacts that would be associated with non-renewable energy sources.

Cumulative effects which the project will contribute to include conversion of farmland to other uses that do not produce food or fiber crops. These impacts are occurring in rural areas in Nebraska due to development unrelated to solar power development.

Wherever construction disturbs topsoil, the potential for colonization by noxious weeds exists. Noxious weed infestations reduce biodiversity, reduce crop yields and have an adverse effect on ecosystems in general.

The project has the potential to reduce the need for additional energy sources that generate GHGs, which would have a small yet beneficial cumulative impact on climate change.

4.2 Mitigation Measures

Future projects within the city of Sidney would be compatible with existing industrial and commercial operations and zoning, including the construction of additional solar arrays. These expansions, in combination with the Proposed Action, should not lead to increased cumulative effects on the environment provided this and future projects include mitigation measures associated with losses of farmland, soil erosion, and invasive weed management.

5.0 SUMMARY OF MITIGATION

Water Resources
A Stormwater Pollution Prevention Plan (SWPPP) will be developed that will:

- Implement BMPs to ensure that during rain events, sediment and debris do not leave the site and increase sediment loading and pollutants entering existing stormwater system. BMPs to be utilized can include:
    - Planning and conducting earthwork in a manner that minimizes the duration of exposure of unprotected soils,
    - Stabilizing staging areas during construction activities,
    - Maintaining temporary erosion control measures, such as berms, dikes, drains, sedimentation basins, grassing, and mulching, until permanent drainage and erosion control facilities are completed and operative, and
    - Mulching of disturbed areas in lieu of permanent erosion controls, such as revegetation.
- Design of solar array should include stormwater management such as appropriate revegetation.

Air Quality

- Dust mitigation measures will be required during construction of the proposed solar farm. Measures may include watering of disturbed areas and sweeping or other methods to control tire track-out at intersections with construction and paved areas.
- Implementation of BMPs for dust control may include:
    - Spraying water on exposed surfaces to minimize dust,
    - Limiting the area of uncovered soil to the minimum needed for each activity,
    - Siting of staging areas to minimize fugitive dust,
    - Using a soil stabilizer (chemical dust suppressor),
    - Mulching,
    - Using a temporary gravel cover,
    - Limiting the number and speed of vehicles on the site,
    - Covering trucks transporting soil, sand, or other loose material off-site,
    - Limiting vehicle idling time,
    - Using low or ultra-low sulfur fuel (including biodiesel),
    - Conducting proper vehicle maintenance, and
    - Using electric-powered tools (instead of gas-powered tools).
- Contractors will properly maintain their fleet of vehicles/equipment so that air emissions are kept to a minimum.

Invasive Species

- Weed control would be conducted consistent with the Nebraska Noxious Weed Control Act and Nebraska Administrative Code;
- Use certified weed-free products for erosion control or fill material;
- Re-vegetate temporarily disturbed areas with appropriate native seed mix as soon as possible after construction is complete to prevent weed establishment; and
- Reclamation vegetation species will include pollinator-friendly grasses and forbs. Increasing pollinator habitat will provide benefits to surrounding agricultural areas and will contribute to overall ecological benefits including minimizing the potential for weed infestations.

Cultural Resources

Utilize a 50-foot buffer zone upon inadvertent discovery of a cultural resource, and notify NSHPO and RUS within 24 hours of discovery. Construction activity within the 50-foot radius will not continue until notification from RUS is received.

6.0 COORDINATION, CONSULTATION, AND CORRESPONDENCE

A Request for Consultation to prepare this Draft EA was provided to the following agencies and contacts. Copies of correspondence are included in Appendix F.

Table 4. Consulting Agencies

Agency/Tribe	Letter Date	Response Date	Type of Response
Nebraska SHPO	September 14, 2022	August 24, 2022	Concurrence of "No historic properties affected"
NRCS Farmland Protection	June 9, 2022	June 30, 2022	No further consideration for protection and no additional evaluation is necessary.
Apache Tribe of Oklahoma	December 23, 2022		
Arapaho Tribe of the Wind River Reservation, Wyoming	December 23, 2022		
Cheyenne and Arapaho Tribes, Oklahoma	December 23, 2022		
Comanche Nation, Oklahoma	December 23, 2022		
Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Montana	December 23, 2022	January 20, 2023	No adverse effect

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